

Striking a Balance Between Energy and the Environment in the Columbia River Basin Fish Hatchery Review Will Inform Recommendations for Future Operations



n October, the Council completed the first-ever comprehensive evaluation of fish hatcheries in the Columbia River Basin, the Artificial Production Review and

Evaluation (APRE). The APRE resulted from a 1997 request by Congress that the Council and the Independent Scientific Advisory Board, a panel of 11 scientists who advise the Council and NOAA Fisheries, conduct a thorough review of all federally funded artificial production programs in the Columbia River Basin. Congress also directed the Council to recommend a coordinated policy for future operation of artificial production programs and to provide recommendations for how to obtain such a policy.

The hatchery evaluation resulted from the initial Artificial Production Review, which was completed by the Council in 1999. In that review, the Council recommended principles for future hatchery operations and also called for a more detailed evaluation of the purposes and objectives of each artificial production facility in the basin. The Council reasoned that in order to effectively apply the principles, decisionmakers first should have a better understanding of how much fish production is occurring, where the fish are released, how many fish return as adults, and so on. The evaluation provides that information.

By definition, federally funded hatcheries include those funded through the Council's fish and wildlife program with Bonneville ratepayer money and also hatcheries that are funded directly with Congressional appropriations. Hatcheries have an important role in the recovery of threatened and endangered fish species. The federal Basinwide Salmon Recovery Strategy contains two primary hatchery initiatives. The first is to reform all existing production and mitigation hatcheries to eliminate or minimize their harm to wild fish. The second is to implement "safety net" projects using various artificial production techniques such as supplementation and captive broodstock programs on an interim basis to avoid extinction while other recovery actions take effect. The evaluation provides important information to support these initiatives.



Artificial Production Review and Evaluation

The evaluation was conducted by a committee of fish production experts assembled by the Council, with participation by state, federal and tribal fish and wildlife managers. A total of 227 hatchery programs were identified. According to the evaluation, these facilities release more than 235 million juvenile fish annually; 88 percent are salmon or steelhead. Of these, nearly half are released downstream of Bonneville Dam for the purpose of providing harvest opportunities in the river and the ocean, and most of those are fall chinook salmon.

The focus on fall chinook production means that most Columbia River salmon and steelhead return from the ocean in the late summer and fall months. As a result, inriver harvest seasons are necessarily compressed into the same timeframe. This means there

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Council Decisions

Council Recommends 2004 Fish and Wildlife Budget

September 2003

The Council recommended a start-of-year budget for fish and wildlife projects totaling \$153,886,158 (\$126,265,880 plus "placeholder" amounts for projects that Bonneville previously committed to fund). This amount assumes that more than \$15

Council Pushes for New Funding Agreement for Fish and Wildlife

n July 2003, the Council authorized its staff to enter into discussions with Bonneville and other regional entities about a new long-term funding agreement for the fish and wildlife program. This responds directly to direction from the four Northwest governors in their June recommendations regarding future fish and wildlife funding.

A previous six-year funding agreement, which was in the form of a Memorandum of Agreement among federal agencies with responsibilities for fish and wildlife recovery, mitigation and river operations, expired in 2001 and was not renewed. The Council believes a new long-term funding agreement should cover a broader set of planning and management issues than the previous agreement, consistent with the governors' recommendation for greater funding stability. These issues include, for example: 1) funding to implement subbasin plans and

also biological opinion requirements; 2) specific assurances for managing expenditures to an average annual budget with the ability to reserve funds for use in future years; 3) incorporation of current procedures for project selection, including independent scientific review; and 4) defined quarterly reporting requirements.

With the governors' recommendation as the impetus, the Council, its staff and Bonneville developed funding processes and protocols to be used for fish and wildlife spending for the remainder of the current Bonneville rate period. In October, these parties agreed that accrued expenses would average \$139 million per year for the four years 2003 through 2006 and that total spending over the four years would not exceed \$556 million. The parties did not agree on processes and protocols for the capital portion of the budget.

The matter of a new memorandum of agreement on fish and wildlife spending remains under discussion. In October, Bonneville Administrator Steve Wright told the Council in a letter that Bonneville "is willing to explore the possibility of a broader. long-term memorandum of agreement on fish and wildlife costs for the post-2006 period, providing it includes a clear definition of BPA's obligations, outcomes to be achieved, cost effectiveness tests, and contemplates the ability to tie funding to BPA's financial health so that funding adjusts in correlation to good and bad times."

The Council is concerned that a base level of funding be maintained regardless of fluctuations in Bonneville's revenues, and that the Council's fish and wildlife program provide the basis for defining Bonneville's fish and wildlife mitigation obligations.

Fall Subbasin Planning Update

he Northwest Power and Conservation Council now has contracts for all 58 subbasins expected to participate in the current subbasin planning initiative. The Council's contract management work from now through the end of May 2004 will focus primarily on managing invoices, tracking progress, and processing any changes to budgets or time extensions.

The Council will use subbasin plans, developed by local stakeholders to restore fish and wildlife, to help identify and prioritize the greatest needs for fish and wildlife in a particular geographic area.

Technical assessment products have been under development in a few pilot subbasins-the Yakama, Grande Ronde, and Clearwater—and should be completed soon. These tools will further integrate subbasin planning with the NOAA Fisheries' fish and wildlife recovery requirements.

At the recent Regional Coordination Group meeting on November 6, discussion included the relationship between federal and state recovery planning and subbasin planning, and the review and adoption process for subbasin plans. The May 28, 2004 deadline remains firm, and the Council may receive a few subbasin plans in the preformal submission phase of the process prior to the May 28 deadline.

Subbasins with Approved Workplans

Idaho

Boise

Bruneau

Clearwater

Montana Flathead

Kootenai

Coeur d'Alene Kootenai Lower Mid-Snake Mainstem Owyhee Palouse Payette Pend Oreille Salmon Snake Headwaters Spokane Upper Closed Basin Upper Mid-Snake Mainstem Upper Snake Weiser

Oregon

Burnt Columbia Estuary Columbia Gorge Deschutes Fifteenmile Creek Grande Ronde Hood Imnaha John Day Lower Columbia Mainstem Lower Mid-Snake Mainstem Lower Snake Mainstem Malheur

Owyhee Powder Snake Hells Canyon Umatilla Upper Mid-Snake Mainstem Walla Walla Willamette

Washington

Asotin Columbia Estuary Columbia Gorge Cowlitz Elochman Entiat Grande Ronde Grays Kalama Lake Chelan

Lewis Little White Salmon Lower Columbia Mainstem Lower Snake Mainstem Methow Okanogan Palouse Pend Oreille San Poil Snake Hells Canyon Spokane Tucannon Upper Columbia Mainstem Upper Mid-Columbia Mainstem Walla Walla Washougal Wenatchee Wind Yakima

Bonneville's Future Role in Supplying the Region's Electricity

ontinuing the discussion that began over a year ago on the role that the Bonneville Power Administration will play in supplying the region's future electricity needs, the Northwest Power and Conservation Council recently completed, and released for public comment, an issue paper on this topic.

Last fall the Council and Bonneville held a series of public meetings to hear from the region how electricity from the Federal Columbia River Power System (FCRPS) should be marketed after 2006. The issue of Bonneville's role as a power provider has been under discussion for several years, and the Council believes the region should address the question of Bonneville's future role in supplying electricity to the region now, before another energy crisis develops. At issue is the region's legacy of reasonably priced power and who will have access to it.

Background

The FCRPS consists of 31 dams on the Columbia River and its tributaries. On average, it supplies about 45 percent of the region's power. This federal hydropower is priced at cost and is sold by the Bonneville Power Administration primarily to publicly owned electric utilities. While construction of the FCRPS was financed by the federal government, the debt is being repaid by Northwest electricity users. Although Bonneville has not deferred any payments to the U.S. Treasury since the early 1980s, organizations like the Northeast-Midwest Institute and its congressional allies contend that it is being subsidized by the federal government. Critics advocate privatizing Bonneville, or requiring Bonneville to sell its power at market prices to benefit U.S. taxpayers rather than selling at cost to Northwest consumers. While these proposals have never gained the political support necessary to move forward, defending the region's position has been an



ongoing effort for the region's utilities, governors, congressional delegation, and the Council. Bonneville's recent financial difficulties, and the prospect that the agency might miss a Treasury payment, increased the pressure to "reform" the agency.

The governors of Idaho, Montana, Oregon, and Washington recognize the continuing uncertainty regarding Bonneville's role places the region's power supply and economy at risk. And while the difference in the cost of Bonneville's power compared to market rates for wholesale power has not always been that large, the base of federal hydropower is likely to be a low-cost resource for many years to come, and preserving this benefit for Northwest consumers should be a high priority for the region.

The Council's issue paper, The Future Role of the Bonneville Power Administration in Power Supply (Council document 2003-18), outlines the problems Bonneville and the region have faced in recent years, and concludes that these problems are likely to continue unless Bonneville's role in marketing federal power changes. The paper reviews the potential solutions developed through several public processes over the last decade, including the 1996 Comprehensive Review of the Northwest Energy System, the 1998 Bonneville Cost Review, and most recently, the 2002 Joint Customer Proposal and Regional Dialogue. Two recommendations consistently expressed are that Bonneville should sell the federal power through long-term contracts (20 years) to reduce uncertainty and help protect the region from outside efforts to appropriate the benefits of the FCRPS; and to limit Bonneville's-and the region'sexposure to the risks of the wholesale power market by limiting Bonneville's role in serving loads beyond the capability of the federal base system. This could be accomplished through bilateral contracts in which customers bear the cost and risk of resources Bonneville has to acquire in order to serve load. For various reasons, past efforts to implement these and other recommendations developed in the public processes have stalled.

Fish Hatchery Review

(continued from front page)

are fewer opportunities to catch salmon during the spring and summer because there are fewer fish available in those seasons, according to the evaluation. At the same time, many of the fall chinook released from Columbia River Basin hatcheries are intended for harvest in the ocean off British Columbia and Alaska, consistent with United States obligations under the 1985 Pacific Salmon Treaty.

The evaluation process, which resulted in draft Hatchery Genetic Management Plans

for each of the hatcheries, concludes that the purposes of many artificial programs in the basin currently are unclear. While many artificial production programs were built to mitigate the impact of dams or to produce fish for harvest, their role today is less certain. The evaluation concludes that hatcheries probably are adversely affecting naturally spawning populations of fish. For many fish production programs, it was not clear whether, and to what extent, hatchery fish are spawning with wild fish. The Council sought public comments on the evaluation through December 9 to assist in preparing an issue paper on hatchery reform. Following a public comment period on the issue paper, the Council will make recommendations to Congress. The recommendations will address future hatchery operations to ensure their management plans are consistent with state, federal and tribal goals for fish production and harvest, and also consistent with the ability of the rivers to support fish production. The APRE report is posted on the Council's website. CQ

Council Asks for Spill Tests at Dams in the Summer of 2004

he Council amended its fish and wildlife program in April 2003 with recommendations for operations of hydropower dams on the mainstem Columbia and Snake rivers and on major tributaries in the upper Columbia Basin, specifically Hungry Horse and Libby dams.

The amendments describe specific experiments and tests of alternative dam and river operations intended to protect all fish and wildlife that utilize mainstem rivers as habitat. The Council asked that the experiments be conducted in 2004.

The amendments are based on river conditions and dam operations in the 2000 Biological Opinions issued by NOAA Fisheries and the U.S. Fish and Wildlife Service regarding the impacts of hydropower operations on threatened and endangered fish species. Some of these tests and experiments described in the mainstem amendments may require temporary departures from current dam operations while remaining consistent with the biological opinions. These would take place primarily in the summer and fall.

The NOAA Fisheries 2000 Biological Opinion on hydropower operations mandates water releases from storage reservoirs in Montana — from Hungry Horse and Libby dams — in July and August to boost flows in the lower Columbia River to help ESAlisted juvenile salmon and steelhead migrate to the ocean. The mainstem amendments describe an experiment to release a slightly smaller volume of water over a longer period of time — July through September — on the grounds that a longer, steadier release would provide greater protection to upriver fish and wildlife in the rivers and reservoirs than the more rapid flow fluctuations under the biological opinion, and would continue to benefit salmon and steelhead downstream. The mainstem amendments focused particular attention on tests to examine the benefits of the current summer spill program for juvenile fall chinook and determine whether the biological benefits of spill can be achieved in a more effective and less costly manner by spilling less water.

While the Council approved its mainstem amendments in the spring of 2003, the federal agencies that operate the dams and sell the power determined it would not be possible to undertake the experimental operations until the summer of 2004. HowThe amendments describe specific experiments and tests of alternative dam and river operations intended to protect all fish and wildlife that utilize mainstem rivers as habitat.

ever, in a joint statement released August 26, Steve Wright, administrator of the Bonneville Power Administration, General William Grisoli, Division Engineer of the Northwestern Division of the Corps of Engineers, and Bob Lohn, regional director of NOAA Fisheries, said changes in river operations "must be implemented before next summer to more clearly allow alternative measures that could accomplish the biological benefit associated with spill at a reduced cost." Also according to the statement, "The agency heads stated their goal is to have a method in place by next year to help ensure that biological benefits are met in the most costeffective manner available."

In the fall, an ad-hoc group comprised of representatives of federal agencies, the Columbia Basin Fish and Wildlife Authority and the Council discussed four options: 1) a status-quo operation that would not disrupt current research activities; 2) an operation that would reduce spill and gather inriver fish survival estimates; 3) an operation that would follow biological opinion guidelines and establish baseline fish-survival estimates, with the option of offsetting mitigation; and 4) an evaluation of various spill levels in combination with other fish-passage measures, such as barge transportation of fish. The ad-hoc group also is discussing the feasibility of a systemwide spill test, including the costs of such a test and the data-gathering that would occur, and the flexibility of the biological opinions to permit operational changes.

The mainstem amendments also describe dam-operation tests and experiments to:

- Determine the relationship between fish survival and various levels of water spills at dams;
- Assess new spill technologies such as removable spillway weirs;
- Determine optimum fish survival through turbines at dams;
- Evaluate the fish-survival benefits of augmenting flows;
- Measure the biological effects of steady outflows from Libby and Hungry Horse dams;
- Identify the effects of shifting summer flows to later in the summer;
- Assess impacts of predation and harvest on ESA-listed species in the mainstem rivers; and address other scientific uncertainties.



Recent Trend Continues: Most 2003 Salmon and Steelhead Runs Above Average

here is good news in the Columbia River Basin in 2003 — again. For the third consecutive year the number of adult salmon and steelhead returning from the Pacific Ocean to spawn in areas in the basin above Bonneville Dam is higher than the 10-year average and far above fish returns of the mid-1990s.

Through the end of October, with only a few weeks of counting left, nearly 1 million fall chinook had been counted crossing Bonneville Dam. The 10-year (1993-2002) average for fall chinook at Bonneville is 398,680 fish per year. Steelhead counted at Bonneville in 2003 totaled 362,025, compared to the 10-year average of 281,625. Coho totaled 133,704 in 2003, compared to the 10-year average of 59,951. Only the sockeye count at Bonneville, 39,291, is lower than the 10-year average (46,825).

The run sizes of recent years are even more striking when compared to returns during the mid-1990s, when the runs were at near-record lows. Consider spring chinook, for example. The annual average count at Bonneville for the years 2001-2003 is 297,346 fish, compared to an annual average of 29,770 from 1994 through 1996. At Lower Granite Dam, the last of eight dams on the lower Columbia and Snake rivers that spring chinook cross on their way to spawn in Idaho, Washington or Oregon, the annual average for the years 2001 through 2003 is 110,370, compared to an annual average of 3,478 for the years 1994-1996.

While no single cause is apparent for the big upswing in fish returns, a number of factors likely are contributing. For the last several years feeding conditions have been favorable in those areas of the Pacific Ocean where Columbia Basin salmon and steelhead are known to spend their adult lives. Increases in artificial production probably had a part, too, as did improved freshwater spawning and rearing habitat and improved juvenile fish passage at the mainstem hydropower dams, achieved largely through the Council's fish and wildlife program.

Planning the Northwest's Energy Future

he Northwest Power and Conservation Council is charged by Congress through the Northwest Power Act to assure the region an adequate, efficient, economical, and reliable power supply. The importance of that mission was made especially clear last summer when the country experienced widespread blackouts in the Northeast and Mid-West.

Currently, the Council is working on its Fifth Northwest Conservation and Electric Power Plan. Its first plan, released in 1983, was developed in the aftermath of the region's attempt to construct several large thermal power plants and the subsequent catastrophic 66 percent real increase in retail rates that resulted in the region. In response to this experience, the Council's first plan brought new innovations to electricity system planning such as integrating conservation as a resource, and using methods to assess and manage the risks associated with building power plants, which are expensive and can take a long time to construct.

The Fifth Power Plan comes on the heels of the 2000-2001 electricity crisis in the West. The crisis was triggered by a failed attempt at industry restructuring in California. However, it had its root in resource planning and implementation throughout the West that failed to adequately account for the risks inherent in the wholesale electricity market, as well as the relative immaThe goal of the Fifth Power Plan is to do a better job of assessing risk and the ability of different resource portfolios and implementation strategies to moderate risk.

turity of the industry structure that now characterizes much of the West.

Information and Analysis

The Council's plans are built on a foundation of information: forecasts of future demands, fuel prices, conservation costs and potential, generating resource costs and performance, and so on. The Council uses this information to develop its own analysis, and it provides reference information to utilities, regulators, and the public as well. Advisory groups made up of regional experts develop the information, and much of the basic information has already been completed. For example, Council conservation analysts found that despite the fact that the region has developed 2,600 average megawatts of conservation savings over the last 20 years, there is approximately an additional 3,000 average megawatts of cost-effective savings to be developed over the next 20 years. Much of this potential is the result of new technologies that did not exist even a few years ago.

The goal of the Fifth Power Plan is to do a better job of assessing risk and the ability of different resource portfolios and implementation strategies to moderate risk. The electricity industry is inherently risky. It faces a future of highly uncertain and variable loads, fuel prices, hydro conditions, market prices, and policy choices. The industry will also need to evaluate the wide range of generation and end use technologies, each with different risks. The approach used in developing the Fifth Power Plan is called riskcontained portfolio analysis. The objective is to have an analytical tool that will provide insights from a regional perspective that can be scaled to the individual utility level as well. The development of this tool is nearly complete, and the Council is currently analyzing alternative portfolios.

The Fifth Power Plan is expected to be completed in draft form by spring 2004. Information on the development of the plan, and access to the Council's issue papers on topics such as demand forecast, conservation, and natural gas, is available through the Council's website, www.nwcouncil.org, under "energy." CQ

Success Stories – Umatilla River

The Pacific Lamprey Research and Restoration Project

hen it comes to restoring anadromous fish populations in the Columbia Basin, it's salmon that comes to mind. But there is another fish that is also historically and culturally important to basin tribes: the Pacific lamprey.

Like salmon, the lamprey has experienced declines in abundance from the effects of human development and disturbances to its habitat. Although the lamprey, which is an eel-like fish, is a highly valued resource to Native Americans, both as a cultural icon and as a subsistence food by various tribes along the Pacific coast, the conservation of native lampreys has not been a fisheries management priority in the United States. Even though these primitive fish share many of the same habitats as salmonids, lampreys have received little attention.

The Pacific Lamprey Research and Restoration project, initiated in 1994, is sponsored by the Confederated Tribes of the Umatilla Indian Reservation, and has been recommended by the Council for funding by the Bonneville Power Administration to provide critical information about Pacific lampreys in the Umatilla River. The overall goal of the project is to restore the natural production of Pacific lampreys in the Umatilla River to self-sustaining and harvestable levels. The Umatilla River basin was chosen by the tribe as an initial pilot project for several reasons: The river historically produced significant numbers of lampreys for fishing opportunities; recovery efforts for salmonids in the basin may help with the overall recovery of Pacific lampreys; and the current population levels of Pacific lampreys are extremely low.

David Close, project manager, believes the research suggests that the lamprey plays an important role in the food web, and may have acted as a buffer for salmon from predators. For a predatory sea mammal, lampreys are easier to capture than adult salmon; they have a higher caloric value per unit weight than salmonids; and their migration in schools means fertile feeding patches. And lampreys, like



other anadromous fish species, also bring important marine nutrients to watersheds when they return to spawn and die in streams and rivers.

"We've really learned a lot about lampreys through this project, including the importance of pheromones in the timing of their migrations," says Close.

One of the objectives of the project is to evaluate the role of these pheromones, or bile salts, which are released by larval lampreys as a migratory cue to upstream migrating Pacific lampreys. Researchers are measuring the fish's response to bile salts during the adult spawning migration in freshwater at the Columbia River Research Laboratory through a variety of techniques. The project should also give insight into the habitat requirements for larval lampreys; researchers have found that certain habitat variables can predict the abundance of larvae.

Since 2000, the project has outplanted adult lampreys in the Umatilla River, monitoring different life history stages to determine if this technique will help in restoring the natural production of lampreys. Initial results have been encouraging: adult lampreys are successfully spawning and producing larval lampreys. These larval lampreys are beginning to distribute from the headwaters to the lower reaches of the Umatilla River. In time, researchers hope that the larvae will attract adult lampreys during their spawning migration. Other techniques include the use of surgically implanted radio-tags used to monitor the behavior of Pacific lampreys in the Columbia River. Results have shown that radiotelemetry is effective with accurately sized tags and the proper acclimation time before the fish's release back to the river.

Researchers hope to better understand the Pacific lamprey in order to restore their natural production in the Umatilla River. Their future goals include research into the role of stress steroids in the lamprey; the role of microsatellite DNA in the population structure of lamprey; and ecological studies of recently hatched larvae.

Calendar

Calendar of Council Meetings and Other Events:

January 12-16	Pacific Salmon Commission — Post-season meeting, Portland. Information at www.psc.org.
January 20-22	Northwest Power and Conservation Council — Skamania Lodge, Stevenson, Washington. Information at www.nwcouncil.org, or from the Council at 503-222-5161.
January 22-23	11th annual conference on the Endangered Species Act — Seattle. Information at www.theseminargroup.net
January 23	Urban Ecology and Conservation Symposium — Portland. Information at www.esr.pdx.edu/uerc.
January 23-24	Watersheds, the Clean Water Act & More — Portland. Information at www.eli.pdx.edu/watershed.
January 29-30	Watersheds, the Clean Water Act & More — Portland. Information at www.eli.pdx.edu/watershed.
February 3-5	Third Annual Northwest Stream Restoration Design Symposium — Skamania Lodge, Stevenson, WA. Information at www.rrnw.org/Skamania2004.
February 9-13	Pacific Salmon Commission — 19th Annual Meeting, Vancouver, B.C. Information at www.psc.org.
February 17-19	Northwest Power and Conservation Council — Boise, Idaho. Information at www.nwcouncil.org, or from the Council at 503-222-5161.

Council Decisions (continued from front page)

million in Fiscal Year 2003 funding would be made available for rescheduling and/or is saved or otherwise made available by Bonneville for contracting. The \$153.8 million amount is for the direct-spending, or "expense" part of the budget. The budget also includes a capital component, which is an amount of money set aside annually for the long-term costs of financing construction projects and other higher-price purchases. Some land acquisitions are capitalized, for example, as opposed to being paid in a lump sum from the expense budget. For 2004, the Council recommended capital projects totaling \$58.2 million. About \$42 million of that amount is for land acquisitions, and Bonneville and the Council are continuing to discuss new rules for capitalizing land purchases. The actual amount of money available for 2004 will be known after the start of the year, as Bonneville asked its contractors to submit their final billings for 2003 by December 31.

Bylaws Changes Approved

After nine months of work, the Council approved changes in its bylaws. The major changes are: 1) The meeting at which the annual election of officers takes place may not be adjourned until officers are elected. Under the previous bylaws, in the event of a tie vote for chair, the vice chair became chair automatically. 2) The new bylaws contain a provision regarding censure of officers. 3) Rules regarding employee separation agreements were clarified. 4) The Sunshine Act exception was broadened so that the Council may meet in executive session to receive legal advice on the potential for civil litigation associated with alternative courses of Council action. 5) Rules regarding what constitutes a public meeting of the Council were modified. Under the new bylaws, a meeting is not official and open to the public, even if a quorum (five members) is present, if the following conditions exist: the Council is called together by the Northwest governors or some other entity and the agenda is not set by the Council and there is no deliberation by the Council and no Council action results. Additionally, the governors may call the Council together in a closed meeting. 6) The Council may suspend its bylaws on a threefourths majority vote with at least one member from each state voting yes.

Oregon Subbasin Planning

November 2003

The Council extended four contracts to continue state-level technical support for subbasin planning in Oregon. The contracts were extended through May 28, 2004, which is the deadline for completing the plans. The contractors and amounts approved by the Council are: Cogan Owens Cogan, \$25,731; Columbia River Inter-Tribal Fish Commission, \$256,062; Confederated Tribes of the Umatilla Indian Reservation, \$63,021; and the Oregon Department of Fish and Wildlife, \$76,172.

Northwest Power and Conservation Council Members

Central Office

Northwest Power and Conservation Council 851 S.W. Sixth Avenue, Suite 1100 Portland, Oregon 97204-1348 Telephone: 503-222-5161 Toll Free: 1-800-452-5161

Idaho

450 West State Boise, Idaho 83720-0062 Telephone: 208-334-6970 Council Members: Judi Danielson, Council chair Jim Kempton

Montana

1301 Lockey Helena, Montana 59620-0805 Telephone: 406-444-3952 Council Members: Ed Bartlett John Hines

Oregon

Milton-Freewater: 410 N. Main Milton-Freewater Oregon 97862 Telephone: 541-938-5333 Council Member: Melinda S. Eden

Portland:

851 S.W. Sixth Avenue, Suite 1020 Portland, Oregon 97204-1348 Telephone: 503-229-5171 Council Member: Gene Derfler

Washington

Vancouver: 110 "Y" Street Vancouver, Washington 98661 Telephone: 360-693-6951 Council Member: Frank L. Cassidy Jr. "Larry"

Spokane:

W. 705 First Avenue, MS-1 Spokane, Washington 99201-3909 Telephone: 509-623-4386 Council Member: Tom Karier, Council vice chair

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851 S.W. Sixth Avenue Suite 1100 Portland, Oregon 97204

Telephone: 503-222-5161 Toll free: 800-452-5161 Web site: www.nwcouncil.org PRSRT STD U.S. POSTAGE PAID PERMIT NO. 11 PORTLAND, OR

