



The State of the Columbia River Basin

FISCAL YEAR 2011 ANNUAL REPORT

To Governor Chris Gregoire
and the Washington State Legislature
October 1, 2010 – September 30, 2011





Submitted to

Governor Chris Gregoire
and the Washington State Legislature

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The Northwest Power and Conservation Council was established pursuant to the Pacific Northwest Electric Power Planning and Conservation Act of 1980 (Public Law 96-501) by the states of Idaho, Montana, Oregon, and Washington. The Act authorized the Council to serve as a comprehensive planning agency for energy policy and fish and wildlife policy in the Columbia River Basin and to inform the public about energy and fish and wildlife issues and involve the public in decision-making.

This annual report is consistent with Section 4(h)(12)(A) of the Northwest Power Act. The Council's bylaws, which include its organizational structure, practices, and procedures, are available to the public at the Council's website as Document 2003-19.



Contents

06

The State of the Columbia River Basin in 2011

12

Energy efficiency achievement topped 200 average megawatts in 2009

12

Regional Award Honors Council's Power Plan

13

Regional Technical Forum Develops Guidelines for Efficiency Savings and Verification

14

First-Ever Regional Standards for Heating, Cooling appliances

14

Natural Gas Price Forecast Revision

15

Wind Integration Forum

15

Assessment Finds Regional Power Supply Will Be Adequate Through 2015

16

140 Research and Monitoring Projects Recommended for Funding

16

Council Honors Jay Minthorn

17

Wildlife Forum Makes Progress On Crediting Habitat Losses



17	Bonneville Power Administration Fish and Wildlife Expenditures
19	Tracking Progress of the Fish and Wildlife Program
22	Council Hosts Opposing Sides on Debate Over Fitness of Hatchery Fish
25	Canadian Relations
26	Articles show the range of news coverage of the Council in Fiscal Year 2011
38	Council organization
39	Council funding and budget
40	Council and committee meetings, Fiscal Year 2011
44	Comments of the Bonneville Power Administration
45	Appendix 1: Council By-laws



The State of the Columbia River Basin in 2011

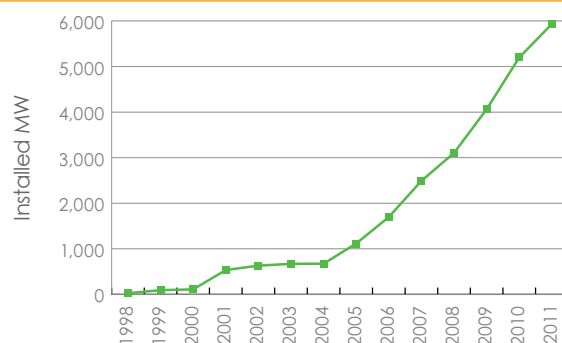
The weather was cooler and damper than usual in the Pacific Northwest in Fiscal Year 2011, leading to snowpack and runoff levels well above normal in the Columbia River Basin, an abundance of hydropower as a result, and controversy over shutting down wind turbines to accommodate the hydropower oversupply. Salmon and steelhead returns to the Columbia River Basin continued the trend of recent years, with most runs equaling or surpassing average run sizes for the previous 10 years.

Wind power continues to be developed at a rapid pace in the Northwest, particularly in the Columbia River Basin of eastern Washington and Oregon, increasing the region's supply of carbon-free power generation.

More than 3,500 megawatts of wind power capacity already are connected to the Bonneville Power Administration transmission grid, the dominant transmission system in the region, and Bonneville expects connections could reach 5,000 to 6,000 megawatts of wind generation by 2013.

The rapid proliferation of wind power is partly caused by state renewable energy standards in Washington, Oregon and California. About a third of the wind power generated in the Northwest states and Wyoming is currently contracted to California utilities, and most of that amount is transmitted to California on Bonneville lines from turbines in Oregon and Washington. In 2011, Bonneville was working with the California Independent System Operator to overcome the strains on Bonneville's transmission system.

Cumulative Northwest Wind Generation



The rainy, cool weather of early 2011 resulted from a moderately strong La Nina climate event over the equatorial and northern Pacific Ocean, a condition that tends to drive storms and cool weather into the Pacific Northwest. As the likely weather pattern became apparent in the winter of 2010/2011, Bonneville developed its “environmental redispatch” policy to establish protocols for replacing other types of power generation when there is an excess of hydropower. Reducing thermal and wind generation in order to accommodate increased hydropower generation allows more water to flow through turbines and less over dam spillways, thus protecting fish from excessive levels of dissolved gas in the river below the dams.

By spring 2011 it was apparent that precipitation, snowpack, and river runoff would be substantially higher than normal. In fact, by summer the runoff volume, estimated at about 135 million acre-feet at The Dalles Dam, would be the third-highest in 41 years of recordkeeping by NOAA’s Northwest River Forecasting Center. Bonneville’s environmental redispatch policy called for first reducing the output of coal- and natural gas-fired generators, then wind generators, and replacing the lost output with hydropower. Bonneville elected not to reimburse wind energy producers for lost tax credits or other revenues they receive when they generate power because that would shift costs to Northwest ratepayers for much of the wind power that is sold to California and would result in opportunities to distort the market. Bonneville also declined to pay utilities outside the Northwest to take some of the excess hydropower so that the wind turbines could continue operating.

By early summer, virtually all of the region’s thermal power plants shut down and their output largely was replaced by Bonneville with hydropower. Bonneville also ordered periodic shutdowns of wind generators, deferred maintenance on some transmission lines, and evacuated more water from Lake Roosevelt behind Grand Coulee Dam to provide additional capacity to transmit and store energy.

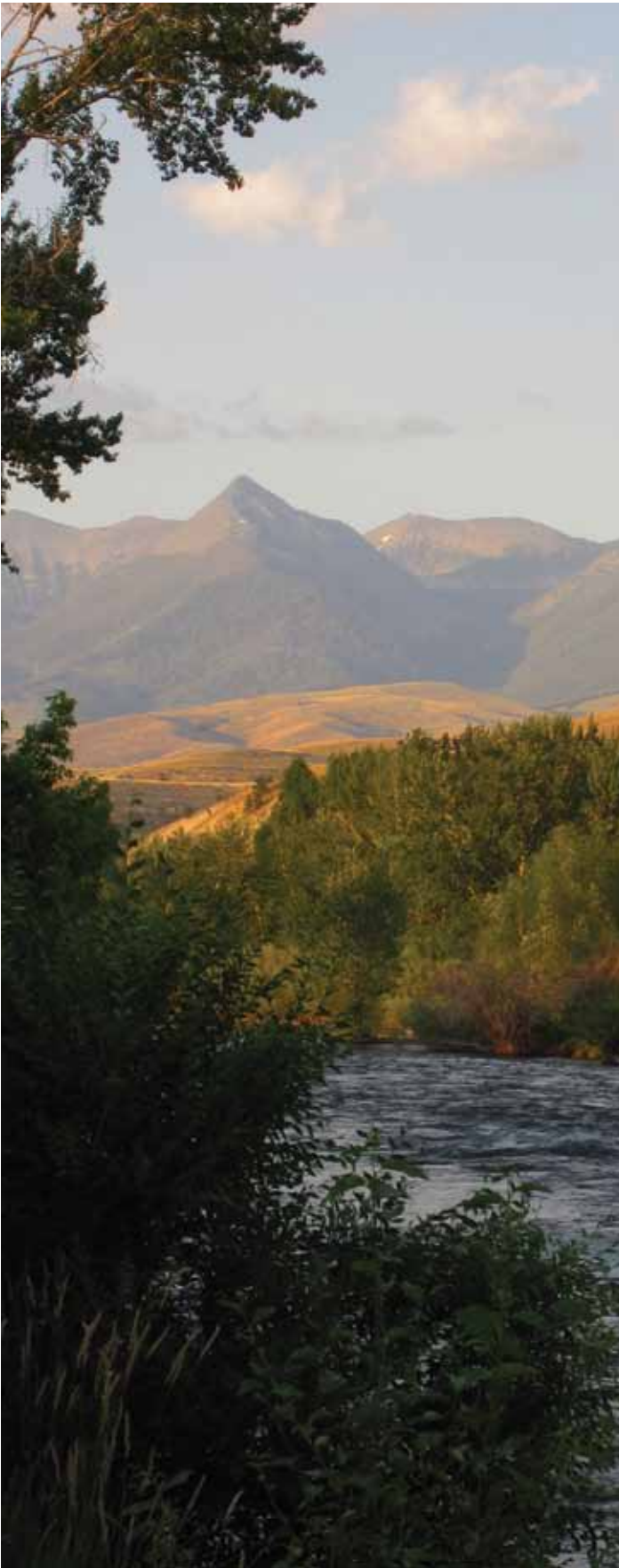
During the period from May 18 through July 10th when environmental redispatch was needed, BPA curtailed approximately 5.4 percent of the wind energy produced. Wind power producers responded by asking

the Federal Energy Regulatory Commission to impose its non-discrimination transmission rules on Bonneville. The wind-energy producers argued that through May, June and July Bonneville curtailed more than 97,500 megawatt-hours of wind generation, causing them to lose money and break contracts with their customers because wind power could not be delivered. By the end of the fiscal year, the dispute remained unresolved.

Controversies aside, incorporating intermittent wind power into the regional power grid is an ongoing technical challenge in the Northwest. When the amount of wind produced changes rapidly, fast-responding resources are needed to balance supply and demand. Working together, electric utilities and Bonneville are pursuing a number of activities that will reduce the cost of providing these balancing reserves for wind power. These include reducing operating schedule duration from one-hour periods to 30 minutes, establishing a platform for more liquid trading of energy within hours, improving forecasting infrastructure, investigating pumped-storage reservoirs that could provide backup power when needed, and analyzing the benefits of an “energy imbalance market” that holds promise to improve the efficiency of deploying balancing reserves.

Northwest coal-fired power generation also made headlines in 2011, but not because of its proliferation. In fact, the news was that the region took steps toward reducing coal power. Reducing coal-fired power generation is consistent with recommendations in the Council’s Sixth Northwest Power Plan (issued in 2010). According to the plan, electric power producers in the region could meet their share of carbon emission-reduction targets, which are similar to those adopted by some states and proposed in national legislative initiatives, through three primary actions: achieving the energy-efficiency targets in the Council’s Plan, meeting existing state renewable energy portfolio standards, and reducing the use of the existing coal-fired power plants by about half.

Washington, Gov. Christine Gregoire signed a bill that will lead to the closure a large coal-fired power plant in the state by 2025. If the TransAlta Corp. power plant in Centralia is retired as planned, Washington will become the second state, after Oregon, to close existing



coal-fired power plants through agreements with plant owners. Closing the 1,376-megawatt TransAlta facility is key to the state's "clean energy future," the Governor said in a statement in May 2011. Calgary-based TransAlta is planning to build a natural gas-fired power plant in Lewis County, Wash., to replace the coal-fired plant, and the state offered expedited permitting for the project. The deal, which was completed after two years of negotiation, requires TransAlta to retire one of the plant's two boilers by 2020. The second boiler, which is the largest single source of greenhouse gas emissions in the state, would stop burning coal in 2025.

In Oregon, Portland General Electric announced plans in 2010 to close its 600-megawatt coal-fired power plant near the city of Boardman in 2020 to address haze and carbon issues. The plant accounts for 15 percent of the power provided by PGE, Oregon's largest electric utility. PGE plans to invest an estimated \$60 million in emissions-control technology before the plant is closed.

As old sources of energy moved closer to retirement in 2011 – plans to remove old hydropower dams on the Elwa River on the Olympic Peninsula and in Washington's White Salmon River also moved forward — research continued into new energy sources and new energy-management techniques. The Council is following a number of smart-grid demonstration projects in the Northwest, including advanced metering applications and the use of electric water heaters to provide flexibility and storage in the regional power system. As well, the Northwest National Marine Renewable Energy Center, based at Oregon State University and the University of Washington, developed a plan for a center to test devices that would generate electricity from the power of tides. The center, if it can be funded, would provide the opportunity to test two 1-megawatt projects for both energy production and environmental impacts. An experimental tidal power facility already is being planned by the Snohomish County Public Utility District, which has selected a site in Puget Sound near Everett and expects to be generating tidal power by 2013.

Meanwhile in 2011, the ongoing litigation over the federal government's plan for protecting threatened and endangered species of salmon and steelhead reached another milestone as the judge overseeing the litigation in U.S. District court partially accepted and partially rejected the latest version of the plan, which was issued in 2008

and amended in 2010. The judge ruled that the Biological Opinion on Operations of the Federal Columbia River Power System (BiOp) could remain in place through the end of 2013 because it sufficiently identifies “specific and beneficial” mitigation measures and plans but that NOAA Fisheries, the federal agency that administers the Endangered Species Act for Columbia River Basin salmon and steelhead and issued the 10-year biological opinion, must produce a new opinion for the 2014–2018 period. According to the court’s order, the Reasonable and Prudent Alternative (RPA) actions in the BiOp include specific measures and plans for the fish through 2013, but that more certainty is needed for the later years. Accordingly, the judge ordered NOAA Fisheries to:

- Produce a new or supplemental BiOp by January 1, 2014
- Continue funding and implementing the 2008/2010 BiOp
- Continue collaboration with states and Tribes to develop the mitigation actions for the new BiOp and develop the necessary scientific and technical supporting data
- File annual implementation reports detailing progress of RPA implementation
- Consider whether more aggressive action such as dam removal and/or additional flow augmentation and reservoir modifications are necessary to avoid jeopardy
- Continue to conduct spring and summer spill consistent with the Court’s annual spill orders and provide monthly implementation reports.

Also in 2011, the U.S. Fish and Wildlife Service expanded critical-habitat protections for bull trout in the West, which will restrict federal approval of logging, mining, and grazing on large areas of public lands, including in the Columbia River Basin. The ruling protects 19,000 miles of streams, five times as many as protected under a 2005 rule, and 490,000 acres of lakes and reservoirs, three times more than before. The ruling affects mostly federal lands in Oregon, Washington, Idaho, and Nevada.

The protection would occur by reducing sedimentation that can cover bull trout egg nests, cooling river water

to make spawning and rearing areas more hospitable to cold-water fish like bull trout, and connecting areas of bull trout habitat to broaden the habitat base. Advocates for greater protection of bull trout hailed the announcement, but some water-dependent communities and public land users said the decision could threaten future water supplies and lead to restrictions on mining and grazing. Later in the year, Oregon announced that bull trout would be reintroduced to the Clackamas River in an effort state officials said may serve as a model for reintroducing bull trout into areas where they have been extirpated – in the case of the Clackamas River, more than 50 years earlier – and reconnecting isolated populations.

While the cool-weather La Nina climate condition contributed to increased precipitation and below-average temperatures in the Northwest, it also contributed to a trend over the last several years of good ocean conditions for salmon and steelhead. In April, the Pacific Fishery Management Council announced it would open a commercial salmon-fishing season for fall Chinook in the ocean in 2011, the second season in two years (the 2010 season was shorter than the one planned for 2011). There was no commercial fishing for fall Chinook in the ocean in 2009. The agency estimated the ocean population of fall Chinook off the Northwest coast at 750,000 fish this year, more than 10 times the numbers in 2008 and 2009.

California sea lions again made their annual spring appearance in the Columbia River in 2011. The sea lions feast on lamprey, sturgeon, and spring Chinook salmon between the estuary and Bonneville Dam, 140 miles upriver, before heading to mating areas off the southern California coast in June. NOAA Fisheries described the West Coast population of California sea lions as “healthy and stable” and probably at or near carrying capacity. But 13 salmon and steelhead populations in the Columbia River Basin are at risk. State, federal, and tribal fish and wildlife agencies have failed to deter the sea lions by nonlethal methods, yet courts reversed federal authorization to lethally remove the animals.

In 2010, NOAA Fisheries began a research project in the estuary to estimate the percentage of adult spring Chinook that survive the journey from the estuary to Bonneville Dam – and thus the number that die on the way from causes other than harvest. One of those causes is



predation by marine mammals. This “unknown mortality” has not been measured before.

Researchers inserted tags in fish in the estuary and then waited for the tags to be either recovered in fisheries or detected at Bonneville Dam when the fish crossed on their way to spawn. Fish with undetected or unrecovered tags were assumed to have died. In 2010, tagging began about half way through the usual run timing, and so the results could not be considered to apply to the entire run. But the results indicated that mean survival from the estuary to Bonneville was 88 percent, meaning that 12 percent of the tagged fish died on the way from causes other than harvest (12 percent is the mean; the potential range was 7-17 percent). NOAA scientists continued the study in the spring of 2011, this time tagging fish as soon as the run began to appear in the river. By the end of the fiscal year, results for 2011 had not been reported. Over time, the researchers will work to better correlate currently circumstantial evidence of predation by marine mammals with actual losses of tagged fish.

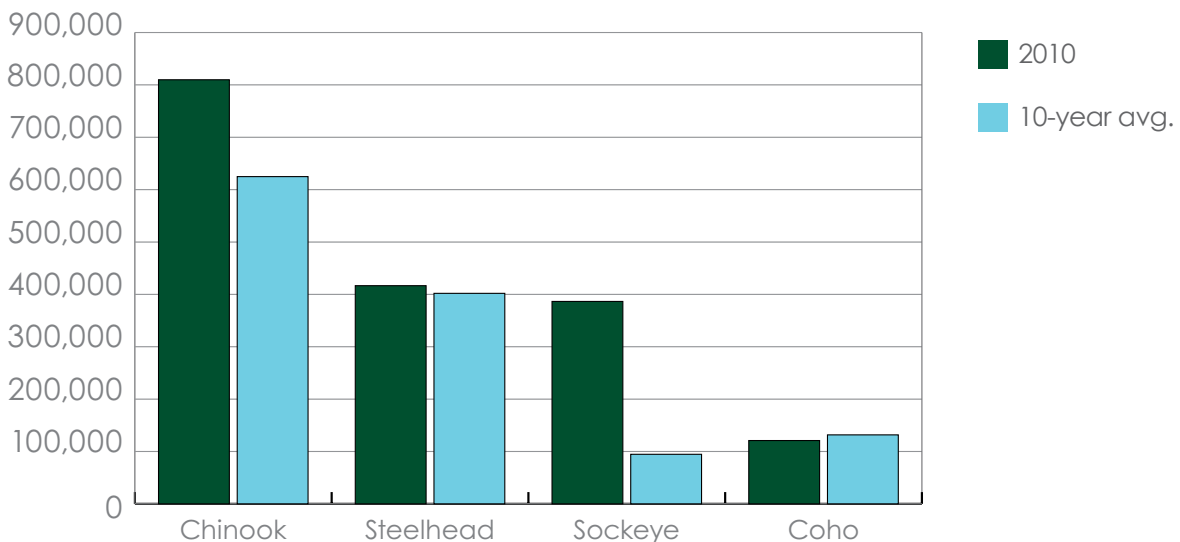
Predation on juvenile salmon and steelhead also remains a concern. Caspian terns and double-crested cormorants are estimated to consume between 1/4 and 1/5 of all the juvenile salmon and steelhead that reach the estuary, about 25 million fish annually. However, this year was an anomaly. The tern colony on East Sand Island in the estuary collapsed completely, the victim of harassment

by bald eagles and subsequent predation on exposed tern eggs by sea gulls. Terns nest on open sand. Since 2000, terns have been nesting on East Sand Island, which is near the mouth of the Columbia, after researchers successfully caused the bird colony to relocate by planting vegetation on their previous nesting island nine miles east. The theory, since proved correct, was that the greater percentage of marine forage fish like herring closer to the ocean would mean the birds would consume fewer juvenile salmon and steelhead.

The colony grew to more than 10,000 nesting pairs in 2008, but this year researchers counted no chicks on the island and by August most of the birds had left, apparently to forage elsewhere.

At the same time, perhaps because of the high runoff and river flow volume in 2011, which resulted in more freshwater than usual in the estuary and could have excluded many marine forage fish, or perhaps because of a change in bird behavior, bird predation on juvenile salmon and steelhead in the estuary was higher than ever – an estimated 28 million fish. With fewer marine forage fish in the estuary, terns and cormorants consumed more outmigrating smolts than usual, according to a report by scientists who are studying the predation. At the same time, however, 2011 appeared to be a good year for most salmon and steelhead runs in the Columbia River Basin. Because adult salmon and steelhead return to the

2010 Counts at Bonneville Dam and 10-year Average



Columbia between February and November, run-size estimates are not compiled by the federal and state fish and wildlife agencies until June of the following year. For purposes of this fiscal-year annual report to Congress, therefore, we are not able to report fully on the current-year salmon and steelhead returns, but we are able to fully report on the returns in the previous year.

In 2010, counts of salmon and steelhead at Bonneville Dam, the first dam where adult fish can be enumerated as they return from the ocean to spawn, were above the average of the previous 10 years for all species except coho. Information in the chart below came from the University of Washington Data Access in Real Time (DART) website and the U.S. Army Corps of Engineers.

Through the spring and into the summer of 2011, adult salmon and steelhead returns to the Columbia River were estimated to be near or above the average of the previous 10 years.

Finally, public attention is beginning to turn to the future of the Columbia River Treaty of 1964 between the United States and Canada. The treaty has no expiration date and will continue indefinitely unless either country requests termination, which is allowed anytime after September 2024, 60 years after ratification, given at least 10 years' advance notice. With the first opportunity to provide notice, in 2014, just a few years away, the Council committed in the Sixth Northwest Power Plan (2010) that it will work with Bonneville and others to examine the effects of possible changes to the treaty.

Modifications of the treaty, if there were any, could change water storage and river flows and thus affect both power generation and fish and wildlife. Modifications or revisions would be negotiated between the U.S. State Department and Canada's Department of Foreign Affairs and approved by both countries.

The U.S. Entity under the treaty, assisted by the staff of Bonneville and the Corps of Engineers representing the United States, and B.C. Hydro (corporately, the Canadian entity), are conducting a process called the 2014/2024 Columbia River Treaty Review. In April 2009, Bonneville issued a report describing technical studies that will provide fundamental information about post-2024 conditions, both with and without the current

treaty, from the limited perspective of power and flood control as required by the treaty. These initial studies were not designed to establish future operating strategies, alternatives to the treaty, or government policies, but simply to begin the learning process.

The results were presented in a joint report issued in August 2010 that described:

1. the methodologies and assumptions employed to complete the studies;
2. the risks, issues, and limitations encountered; and
3. the results, including findings for each of the three studies.

Since then the Council and the Columbia Basin Trust (CBT), the Council's closest counterpart agency in British Columbia, have worked to inform and involve the public about the report and the treaty. This included a symposium in Corvallis, Oregon, in November 2010 conducted by the Universities Consortium on Columbia Basin Governance. The Consortium includes the University of British Columbia, the University of Idaho, the University of Montana, Oregon State University, and the University of Washington.

The Consortium planned another symposium as a follow-up to the Corvallis event in Cranbrook, B.C., in October 2011. The *Third Annual Symposium on Transboundary River Governance in The Face of Uncertainty: The Columbia River Treaty, 2014* will focus on a transboundary group discussion of alternative future scenarios for the treaty and related questions and considerations. The objective of the symposium is to develop a set of revised scenarios and related ideas, considerations, and commentary that the symposium participants would like the Entities and sovereign governments on both sides of the border to take into serious consideration in their deliberations and public processes.

The scenarios will be useful to the Council and the CBT, as well, because both agencies are considering new outreach activities to raise public awareness of the treaty and future river operations and impacts if the treaty is revised.



Energy Overview

Energy efficiency achievement topped 200 average megawatts in 2009

The Council tracks regional progress toward energy efficiency goals set in its Northwest Power Plan. In September 2010, the Council reported the region far exceeded the efficiency target for 2009 in the Council's Fifth Power Plan by achieving 219 average megawatts of savings. The target for the year was 150 average megawatts.

The Council aggregates the savings reported by the Bonneville Power Administration, Northwest Energy Efficiency Alliance, and the Energy Trust of Oregon. Council staff reported that the target in the Fifth Plan was exceeded in all sectors except agriculture.

For the five years between 2005 and 2009, regional savings beat the Fifth Plan goals every year. The average cost of the efficiency was \$13 per megawatt-hour (1.3 cents per kilowatt-hour). During that same period, the wholesale market price of electricity at the Mid-Columbia trading hub was \$30-\$60 per megawatt-hour (3-6 cents per kilowatt-hour). The five-year value of the 2005-2009 savings is about \$2.9 billion, according to calculations by the Council's staff, assuming that efficiency measures deliver energy savings for an average of 13 years.

With the 2009 savings, the region's energy-efficiency improvements over the last 30 years total more than 4,200 average megawatts, or enough energy for four cities the size of Seattle. In October 2011, as the new fiscal year began, the Council and its energy-efficiency partner the Regional Technical Forum reported that 2010 savings totaled 254 average megawatts. That is the power-use equivalent of 153,900 homes and the biggest one-year gain since regional energy-efficiency programs began more than 30 years ago. The measures implemented in 2010 saved Northwest electricity ratepayers \$135 million and will produce the same amount of savings every year for the next 15-20 years, at least.

Regional Award Honors Council's Power Plan

In July 2011, the NW Energy Coalition awarded its Bob Olsen Memorial Conservation Eagle award to the Council, staff, and advisory committee members in honor of the Sixth Northwest Power Plan. The Coalition described the Sixth Plan as "the most far-sighted, clean energy-based power plan in regional history." The Coalition presents the award annually to individuals and organizations that demonstrate leadership for a clean and affordable energy future.



“The Council, its staff and advisory committee members were chosen for creating the Sixth Northwest Power and Conservation Plan, a road map for reaching a clean energy future that benefits all Northwest families and businesses,” Coalition executive director Sara Patton said.

The Seattle-based Coalition is a 30-year-old regional alliance of more than 110 organizations committed to clean and affordable energy. The Conservation Eagle Award is named for former Coalition chair Bob Olsen, a longtime public utility district commissioner in Washington state who dedicated more than 20 years of his life to securing regional investments in cost-effective energy efficiency and to protecting energy consumers.

Regional Technical Forum Develops Guidelines for Efficiency Savings and Verification

The Council established the Regional Technical Forum in 1999 to develop standards to verify and evaluate energy savings from energy-efficiency measures.

In 2011, the RTF worked to standardize technical analysis for the review of measures and specific technologies; began working to develop an end-use load research plan and data warehouse with a funding proposal; and took steps to improve its website and database support. The RTF also continued to track regional progress toward the energy-efficiency goals in the Sixth Power Plan and developed guidelines for



evaluation and verification of savings for efficiency measures. The guidelines will improve the reliability and transparency of savings estimates.

This year the Council approved creation of the RTF Policy Advisory Committee to make recommendations to the Council on the operations and funding of the RTF. Forming an advisory committee was the primary recommendation of a 20-person committee that studied the RTF at the request of the Northwest Energy Efficiency Task Force, which met in 2008-2010 to study ways to accelerate energy-efficiency improvements in the Northwest.

The goal of the RTF advisory committee, according to its charter, is to “identify a business/government structure for a sustainable entity that provides independent analyses of energy efficiency to meet the region’s needs and develop a multi-year funding structure to support the entity.” The committee will advise the Council, not the RTF.

The charter describes four areas in which the Council seeks guidance:

- Organization and operating procedures of the RTF
- RTF work plan priorities and the policy implications of RTF technical recommendations and their implementation
- A funding structure for the RTF, and long-term (five-year) funding commitments from the funding utilities and agencies, and
- RTF progress in accomplishing its objectives and completing its work plan consistent with the work plan priorities

First-Ever Regional Standards for Heating, Cooling appliances

The Council was part of a diverse national coalition including consumer, manufacturing, and environmental groups that developed recommendations in 2009 that informed new federal energy-efficiency standards for air conditioners and furnaces. The U.S. Department of Energy issued the new standards in 2011.

For the first time, standards for these appliances account for regional differences in energy use. The new standards also strengthen efficiency rules for heat pumps.

The new national standards recognize that different parts of the country have different needs for air conditioning and heating, which is a significant change from the previous, one-size-fits-all approach. The Council’s Northwest Power Plan takes a similar approach, accounting for regional differences in energy use in assessing opportunities for improved energy-use efficiency.

The new furnace standards take effect in May 2013 and the new air conditioner and heat pump standards in January 2015. The existing national standards for furnaces, air conditioners and heat pumps date to 1992, with the only update being to heat pumps in 2006.

Natural Gas Price Forecast Revision

In 2010 it became clear that there is an abundance of natural gas that can be economically extracted from shale. Accordingly, in 2011 the Council lowered its forecast of future natural gas prices.

In 2009 and 2010, as the Council developed the Sixth Power Plan, the near-term outlook for natural gas was for declining supply and higher prices, but rapid development of shale gas has created an abundance of gas that is likely to last for several years and depress prices. In the Sixth Power Plan, the Council recognized the potential of shale gas, but the expected cost of developing it has been reduced through technological breakthroughs so that expected future costs and prices are now lower.

In 2011, the Council narrowed and lowered the range of natural gas prices in its fuel price forecast. With this new information, by the end of the forecast horizon in 2030, the forecast reflects a range of possible long-term equilibrium natural gas prices. The likely effect of this change on a revised Power Plan would be to reduce the forecast of electricity prices.

For the Council, this was a fundamental shift in expectations about future natural gas supplies. The revised medium forecast is about equal to the medium-

low forecast in the Sixth Plan at \$6.44 in 2010 constant dollars. The revised high forecast is a little above the medium-high in the Sixth Plan, and the low revised forecast is a little less than \$1 below the low case in the Sixth Plan.

A range of forecasts recognizes continued uncertainty about the development of shale gas and its costs and environmental effects. Because several organizations use the Council's price forecasts, it is important that the Council recognize the changes and provide the revised forecast to the region. A paper on the price forecast revision is posted on the Council's website at www.nwcouncil.org/news/2011/08/12.pdf.

Wind Integration Forum

The Wind Integration Forum is a joint effort of the Council and the Bonneville Power Administration to address regional issues around accommodating the unique characteristics of wind generation on the Northwest power system. Wind generation has experienced rapid growth in the Northwest since the first modern commercial-scale wind power plant was built in 1998. The Forum began meeting in 2006; its first task was to address whether the Northwest could reliably accommodate the 6,000 megawatts of wind generation envisioned in the Council's Fifth Power Plan (the Council issued the Fifth Plan in 2005). The 2007 Wind Integration Action Plan was the result of that effort (www.nwcouncil.org/energy/Wind/library/2007-1.htm).

By the end of calendar year 2011 the Northwest likely will have 6,000 megawatts of wind generation in commercial operation. In 2011 the steering committee of the Wind Integration Forum worked to answer questions about the ability of the power system to accommodate even higher levels of wind generation. The committee developed seven action items to help improve understanding of how to more efficiently integrate wind power into the system. These include examining potential reliability concerns; examining the potential for improving the efficiency of providing balancing energy for wind power by consolidating balancing authorities; investigating potential physical and legislative solutions to the problems of excess generation of wind power

and hydropower; and investigating new cost-allocation strategies to address the challenges of wind integration.

In a related matter, in August 2011 the Council issued a paper that documents an analysis by the Council staff of the market effects of increased renewable energy on the power system. A consequence of the rapid development of Northwest wind projects to serve regional and California renewable portfolio standards is an increasing surplus of low variable-cost energy generating capability. This surplus puts downward pressure on electricity market prices, reduces the value of surplus hydropower energy, and increases the frequency and severity of excess energy events. The paper takes a first look at the significance of these effects to inform ongoing discussions of these issues. Here is a link to the paper: www.nwcouncil.org/library/report.asp?docid=307.

Assessment Finds Regional Power Supply Will Be Adequate Through 2015

The Council created the Resource Adequacy Forum in 2005 and adopted its recommended resource adequacy standard for the Pacific Northwest in April of 2008. Every year the Forum reassesses the adequacy of the power supply three and five years in the future to provide an early warning should power resource development fall short.

The 2010 assessment indicated the power supply would be adequate through 2015 but that summer energy adequacy was approaching the standard's limit. This result triggered a series of actions in 2011 that included a re-evaluation of the data and methods used to assess resource adequacy.

After a careful review, it was determined that some assumptions in the 2010 analysis, particularly regarding emergency resource capability, should be modified. The result of readjusting these assumptions showed that the power supply will remain adequate through 2015 in both winter and summer.

Significant revisions to the models are being developed, along with additional measures of system adequacy, and will be adopted by the Adequacy Forum in 2012.

Fish & Wildlife Overview

140 Research and Monitoring Projects Recommended for Funding

In 2011, the Council recommended 143 projects comprising potentially more than \$100 million in annual funding to improve scientific knowledge about fish and wildlife throughout the Columbia River Basin. Information about the projects is on the Council website at: www.nwcouncil.org/fw/budget/2010/rmeap/Default.asp.

The duration of the projects varies from one to five years; projects could be funded for their duration or for a portion with a requirement for review before approval of additional funding. Funding will be provided by the Bonneville Power Administration as part of its requirement to mitigate the impacts of hydropower dams on fish and wildlife. Project budgets will be decided by Bonneville in consultation with project proponents.

The Council's recommendations culminated nearly two years of work on research, monitoring/evaluation, and fish hatchery projects by the Council and its Independent Scientific Review Panel. The recommended projects address survival of salmon in the near-shore ocean and the Columbia River estuary, plus research on sturgeon and Pacific lamprey in the lower Columbia River, fish-tagging for research and harvest-enumeration

purposes, and monitoring the effectiveness of projects designed to improve fish habitat. The Council approved 100 of the projects in April, and the remaining 43 in July. The projects will be implemented by Indian tribes, state fish and wildlife agencies, independent researchers, and others.

With the review of research and monitoring projects completed, the Council now moves on to review projects that address resident fish (those that do not migrate to the ocean), regional coordination of fish and wildlife projects and project management, and data management. That review will begin early in Fiscal Year 2012.

Council Honors Jay Minthorn

Jay Minthorn, who died in November 2010, was honored by the Council with a framed photo that now hangs in the Council's meeting room.

Minthorn, a member and former executive of the Confederated Tribes of the Umatilla Indian Reservation of Oregon, was a regular participant in the Council's fish and wildlife planning processes. In a ceremony at the Council's December 2010 meeting, Council Chair Bruce Measure said: "It is appropriate for the Council to honor Jay in this way, for it was in meetings and conferences where we saw him most often. We are policymakers, and

Jay was a statesman. He would speak his mind, and we would listen and respond. He always was cordial, always respectful, always focused, and always looking to build relationships and trust.”

Wildlife Forum Makes Progress On Crediting Habitat Losses

Under the auspices of the Council state, federal, and tribal wildlife managers began meeting in January 2010 as the Wildlife Crediting Forum to discuss revisions to the methodologies and policies for crediting and accounting of wildlife habitat mitigation associated with the construction and inundation impacts of the Federal Columbia River Power System (FCRPS).

Crediting is a critical issue in the Council’s Columbia River Basin Fish and Wildlife Program, which is required by the Northwest Power Act to mitigate the impacts of hydropower dams in the basin on fish and wildlife.

Crediting issues differ depending on geographic area, specific hydropower projects, and the entities involved in specific crediting decisions. The methodologies involved in crediting decisions have changed and evolved over time, and have been interpreted and applied in different ways. In some cases, crediting has been resolved through individual project agreements.

In 2011, the Forum reported major areas of accomplishment, including:

- A ledger of the current status of Bonneville-funded wildlife mitigation activities
- Standard operating procedures for future applications of the Habitat Evaluation Procedure, a tool to calculate the value of habitat proposed as mitigation for losses
- Protocols for determining the amount of credit Bonneville should receive for management actions that occur on federal lands and for fish mitigation projects that benefit wildlife

- Agreement to base mitigation on loss assessments in the Fish and Wildlife Program

The Forum also identified policy issues for resolution by the Council, including:

- How to apply the crediting ratio in the Program, which is two units of acquired habitat for each unit of lost habitat
- How to deal with wildlife species that benefit from open-water habitat resulting from reservoirs created by the dams
- How to account for mitigation that occurred prior to the 1980 Power Act

Bonneville Power Administration Fish and Wildlife Expenditures

At the end of Fiscal Year 2011, Bonneville’s fish and wildlife staff had not calculated expenditures in the fiscal year to implement the Council’s Fish and Wildlife Program. Following is a review of Bonneville’s fish and wildlife spending in Fiscal Year 2010. The Council reports annually to the Northwest governors on Bonneville’s fish and wildlife expenditures. Information for the report is provided by Bonneville and is not verified by the Council or others. The report on Fiscal Year 2010 expenditures is posted on the Council’s website at this location: www.nwcouncil.org/library/report.asp?docid=285

In Fiscal Year 2010, Bonneville reported total expenditures of \$802.3 million, as follows:

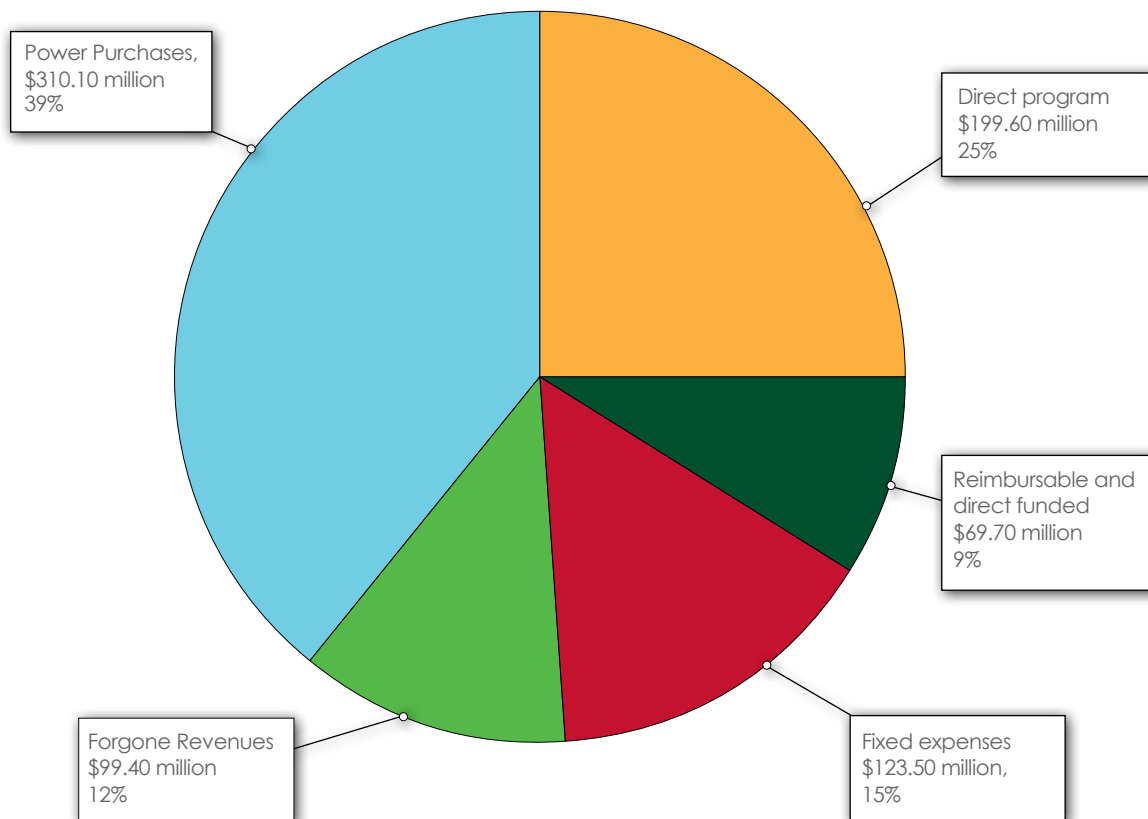
- \$310.1 million in power purchases during periods when dam operations to protect migrating fish, such as spilling water over dams in the spring or storing it behind dams in winter months in anticipation of required spring spills, reduce hydropower generation
- \$199.6 million in direct (expense) expenditures and capital investment commitments of \$41.1 million.

- \$123.5 million in interest, amortization, and depreciation costs (these are called “fixed expenses”) of capital investments for facilities such as hatcheries, fish-passage facilities at dams, and some land purchases for fish and wildlife habitat.
- \$99.4 million in forgone hydropower sales revenue that results from dam operations that benefit fish but reduce hydropower generation.
- \$65 million in reimbursements to the federal Treasury for expenditures by the Corps of Engineers, Bureau of Reclamation, and U.S. Fish and Wildlife Service for investments in fish passage and fish production, including direct funding of operations and maintenance expenses of federal fish hatcheries (this category also includes \$4.7 million, which is one half of the Council’s annual budget; Bonneville assigns the other half to its Power Business Line budget)

The 2010 expenditures brought the grand total, from 1978 when the expenditures began through 2010, to \$11.8 billion.

Fish and Wildlife Expenditures 2010

Total: \$802.3 million does not include capital commitments of \$97.5 million



Source: Bonneville Power Administration

Tracking Progress of the Fish and Wildlife Program

The Council is tracking the effectiveness of its Fish and Wildlife Program as required by the Northwest Power Act (Section 839b(h)(12)(A)). Since 2001 the Council has been reporting on both expenditures of the Bonneville Power Administration to implement the Program and on salmon and steelhead returns, juvenile salmon and steelhead survival through the Columbia River hydropower system, and other measurements of Program effectiveness.

Fish and wildlife habitats and ecological processes change over time, affecting the resilience and adaptive capacity of fish and wildlife species and therefore the success of projects designed to improve fish and wildlife survival. To better understand these effects, in 2009 the Council committed to use high-level indicators to monitor and

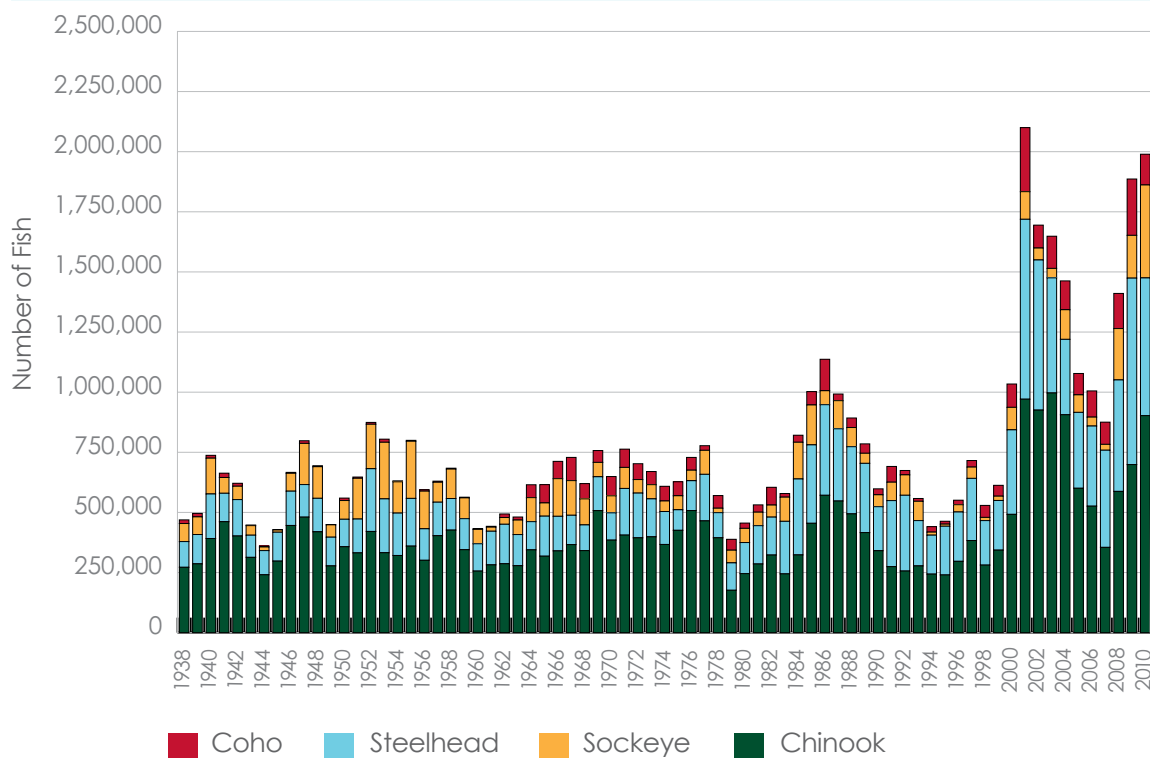
assess the progress of projects that implement the Program. Currently, the Council is tracking progress toward meeting Program goals using three high-level indicators. Posed as questions, they are:

1. Are Columbia River Basin fish species abundant, diverse, productive, spatially distributed, and sustainable?
2. Are operations of the mainstem Columbia and Snake river dams meeting the fish-passage survival objectives of the Program?
3. What is the progress of implementing the Program?

There is not enough data to answer those questions definitively, but the Council is collecting data on fish survival from fish and wildlife agencies, research scientists, the U.S. Army Corps of Engineers, NOAA Fisheries, and others. In general, the data demonstrate that:

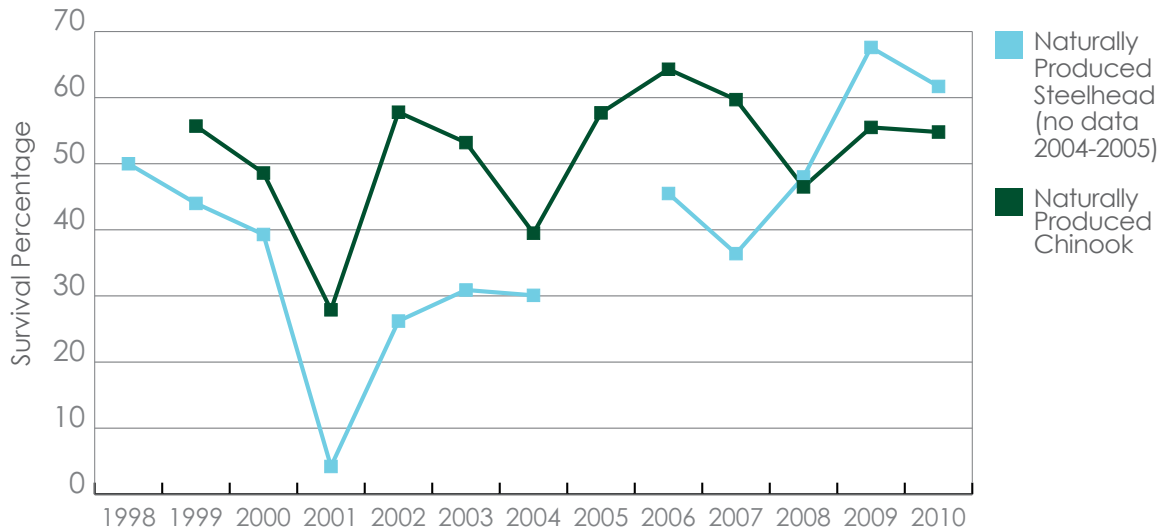
1. More salmon and steelhead are returning from the ocean to spawn in the present decade than in the 1990s and 1980s:

Salmon and Steelhead Passing Bonneville Dam, 1938-2010



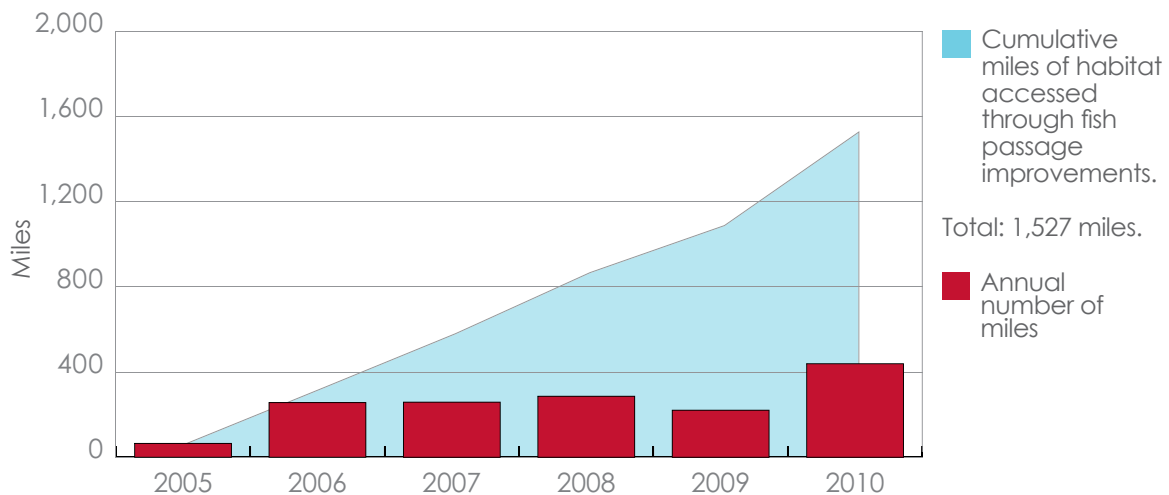
- Survival of juvenile salmon and steelhead migrating down the Columbia and Snake rivers to the ocean is better today than in the past:

Survival of Juvenile Snake River Salmon and Steelhead Through the Hydrosystem, 1998-2010



- Passage barriers are being removed to open more riparian habitat to spawning salmon and steelhead; and land is being acquired for wildlife habitat:

Miles of Habitat Accessed Through Fish Passage Improvements, 2005-2010





With the assistance of fish and wildlife managers and others, the Council will update the indicators periodically and, over time, adopt more indicators. In order to be accountable to the public that funds the Program, the Council intends to report annually to Northwest citizens, Congress, and the region's governors on Program progress using the high-level indicators.



Council Hosts Opposing Sides on Debate Over Fitness of Hatchery Fish

In September and November 2010, the Council hosted groups of scientists to review and discuss the use of fish hatcheries to recover and rebuild salmon and steelhead populations and the ongoing debate over the fitness of hatchery fish compared to those that are spawn and rear in the wild.

In September 2010, John Ford of NOAA Fisheries told the Council about two emerging trends: poor reproductive success of hatchery-reared fish when they return from the ocean and attempt to spawn in the wild, and the negative impact of juvenile hatchery-reared fish on juvenile wild fish in the same streams. Ford told the Council that a review of studies on the effects of hatchery-reared salmon on wild salmon suggests there

is a decline in wild-fish productivity as the number of hatchery releases increases.

That technique – raising salmon in hatcheries for release into the wild to rebuild naturally spawning populations – is called supplementation. Supplementation hatcheries operated by several Indian tribes in the Columbia River Basin are funded by Bonneville through the Council’s Fish and Wildlife Program.

Accordingly, in the review of monitoring, evaluation, In November, Bill Bosch of the Yakama Nation presented data in support of supplementation. He said the studies cited by Ford did not account for several “confounding factors” such as the type of broodstock and hatchery location, which he said can affect reproductive success. He said tribal hatcheries are addressing those factors by using local broodstock, lowering rearing densities, intensively monitoring fish in hatcheries for disease, and testing new strategies for rearing and releasing juvenile fish.



Council Approves Subbasin Plans for Bitterroot and Blackfoot Rivers

With the addition of the Blackfoot and Bitterroot plans, there are 58 subbasin plans in the Council's Fish and Wildlife Program, including plans for two other river basins in Montana, the Flathead and Kootenai. Adopting the plans cleared the way for potential funding to improve fish and wildlife habitat and production in the western Montana rivers.

Subbasin plans include an assessment of fish, wildlife, and habitat and thus provide the context for the Council and its Independent Scientific Review Panel (ISRP) to evaluate and recommend projects for funding to implement the Fish and Wildlife Program.

In both rivers, over the last 100 years humans have drastically altered riparian and wetland habitats. This occurred through actions such as residential development, road-building, agriculture, and streambank stabilization with rip-rap and other hard materials. These actions in turn affected fish and wildlife populations.



Public Affairs Overview

The Northwest Power Act directs the Council to provide for the participation and consultation of the Pacific Northwest States, tribes, local governments, consumers, customers, users of the Columbia River System, and the public at large in developing regional plans and programs related to energy efficiency, renewable energy resources, other energy resources, and protecting, mitigating, and enhancing fish and wildlife resources. The Public Affairs Division has the primary responsibility to implement this portion of the Act.

The division uses a variety of communication tools to perform its mission, including printed and electronic publications, the Council's website, social media platforms, video, public meetings, and press releases.

The Council's website, www.nwcouncil.org, functions as the hub of its outreach efforts and public information strategy. The website contains myriad documents, publications, data bases, and other forms of information. Included on the site are the current versions of the Northwest Power Plan (www.nwcouncil.org/energy/powerplan/6/default.htm) and the Columbia River Basin Fish and Wildlife Program (www.nwcouncil.org/library/2009/2009-09/Default.asp), as well as news stories, press releases, Council white papers, official public comment on Council products, PowerPoint presentations, videos, Council newsletters, and other information. Documents are posted and kept current on a daily basis.

Social media platforms are increasingly used by the Council to communicate with the public. These include Facebook (www.facebook.com/nwcouncil), Twitter (@nwcouncil), and the Council's blog, which is posted to our Facebook page and the Council website, www.nwcouncil.org.

With regard to regular Council publications, the division continues to write and produce four editions of the *Council Quarterly* every year (www.nwcouncil.org/library/cq/default.asp). We also produce and distribute a monthly electronic email newsletter, the Council Spotlight (www.nwcouncil.org/news/enews/current.asp), which reports on the highlights of each monthly Council meeting.

Other publications that were published over the past year include a brochure, *Electricity Generation for the Pacific Northwest*, that provides the geographic location of all major power plants in the region (this brochure is linked to an online, interactive map: www.nwcouncil.org/maps/power/Default.asp), an updated Field Guide brochure about the Council's Fish and Wildlife Program (www.nwcouncil.org/library/2003/2003-14/default.htm), and the *Annual Report to the Northwest Governors on Fish and Wildlife Expenditures of the Bonneville Power Administration* (the report for Fiscal Year 2010 is posted here: www.nwcouncil.org/library/report.asp?docid=285).

The Public Affairs Division also has the responsibility of advancing the Council's mission and accomplishments with members of Congress and their staffs. Along with regular Council trips to Washington, DC to brief the Northwest delegation and other interested parties on the Council's work, the Council was invited in May to testify at the House Water and Power Subcommittee's hearing on the future of hydropower. Here is a link to the Council's testimony: http://www.nwcouncil.org/library/releases/2011/karier_hydro_testimony.asp. In August, the division conducted the Council's fourth annual congressional staff trip to Boise and the Sawtooth Valley in Idaho.

Canadian Relations

The Columbia River and several of its major tributaries begin in Canada and flow across the international border. Consistent with direction in the Northwest Power Act to treat the entire Columbia River as one system for planning purposes, the Council maintains regular contact with planning entities in British Columbia. This contact primarily is through the Public Affairs and Legal divisions.

The Columbia Basin Trust (CBT), a Crown corporation of the province, is the Council's closest counterpart agency in the Canadian portion of the Columbia River Basin. Since 1996, Council members and staff have met at least annually with the Trust. In 2000, the two agencies formalized their relationship and designated the vice-chairs as official liaisons. The Trust and Council exchange visits once or twice a year to discuss Columbia River issues of mutual interest.

In 2011, the Council and CBT worked on three projects together: 1) developing a data-sharing and general information website about the Columbia River Basin, including information about the Columbia River Treaty (www.nwcouncil.org/treaty); 2) developing a report that synthesizes the conclusions of studies done in Canada and the United States on potential hydrologic changes due to climate change in the Columbia River Basin for dissemination to help inform the public; and 3) identifying a mitigation project in the transboundary reaches of the basin that would be jointly funded by the CBT and Bonneville through the Council's Fish and Wildlife Program.



Selected news articles that mention the Council

Articles on the following pages show the range of news coverage of the Council in print and electronic media in Fiscal Year 2011.

November 8, 2010

Ranchers help restore flow in the Lostine River

By Kathy Nesbitt
The Observer

LOSTINE — It's hard to imagine the water of the mighty Columbia River being at risk, but a two decades-long effort by a host of organizations is making a concerted effort to maintain adequate flows in its tributaries.

One of the most obvious concerns has been the Columbia's hydropower dams inhibiting fish passage. Yet efforts to improve their survival go all the way to the upper reaches of the rivers that flow out of the mountains hundreds of miles away.

In 2001, David Pilz of the Freshwater Trust said the Lostine River was down to a trickle as it flowed through town. Historically, there were times when the Nez Perce tribe hauled Chinook in a truck from the lower part of the river to the upper part so the fish could spawn. By 2005 a cooperative effort was in place to restore proper flows so the salmon could reach their spawning grounds.

The recovery of the Lostine is due in large part to the contributions of the mid-valley ranchers who irrigate 3,900 acres off five ditches from the river.

"The irrigators call it a water lease," said Pilz. "We refer to it as a minimum flow agreement to make sure we meet a 15 cubic feet per second minimum flow in the town of Lostine."

Sonny Hagenah is one of the Lostine ranchers whose livelihood is dependent on irrigation, yet he understands the necessity to keep water in the river. It's a late-season sacrifice, he said, but it's important to keep water in the river for the fish.

"Everyone wants to see fish in the river," Hagenah said.

By Aug. 22 of each year an Oregon Water Resources Department employee begins monitoring the cubic feet per second flow of the river at a gauge under the Caudle Lane Bridge. Each day he communicates with the ranchers about the flow. Even though 15 CFS is the minimum flow agreement, the ranchers usually crank down their

head gates at 16 or 17CFS.

"Since we started the project five years ago," Pilz said, "the river has never gone under 15 CFS."

FIVE DITCHES that draw water from the Lostine are affected by the agreement - the Lostine, Sheep Ridge, Westside, Poley Allen and the Bowman ditch. Counting ranchers and leasees it affects close to 100 people, Pilz said. By late September the irrigators only use enough water for their stock; most irrigation is shut down.

"It made me feel pretty good," Hagenah said of the rivers restored flow. "The river doesn't dry up anymore. We got a nice water flow now so the fish have enough water."

The idea had been around for a long time to find a way to keep minimum flows in the Lostine while allowing ranchers to irrigate.

"It was a well-known problem and was generally recognized that the Lostine when dry," Pilz said.

The efforts not only showed results in the first year, but this fall more than 600 Chinook redds, or egg nests, were



IN 2001, A DROUGHT YEAR, the stretch of the Lostine River that runs through town was completely dried up. BPA photo.



WHEN AREA RANCHERS agreed to scale back water usage in 2005, the river returned to a healthy flow.

counted in the Lostine, far exceeding the hope of finding 500.

Andrew Purkey, program director for the National Fish and Wildlife Foundation's Western Partnership Office, said his organization got involved when it was awarded a Request for Quotation from the Bonneville Power Administration.

THE OUTCOME was the Columbia Basin Water Transactions Program, started in 2002. Through a combination of efforts including compensation for farmers and ranchers who limit water use, permanent acquisitions and other incentive-based approaches, the program supports partners in Oregon, Washington, Idaho and Montana.

Purkey said the majority of the funding is provided by the BPA in cooperation with the Northwest Power and Conservation Council, but it's the water users who are making the difference.

"In all the different basins I work in, Wallowa County maintained proactive," Purkey said. "The fact that irrigators are willing to contribute is why it's working. We are balancing needs and fish habitat."

Purkey said that in the past five years landowners all over Oregon are contributing to the project.

"I can't give them enough credit," he said. "We provide funding, but the irrigators are very engaged and want to know how the fish are doing. It's not just economic motivation that is helping the resource."

Purkey also gives kudos to the local partners - the Wallowa County Soil and Water District, the local Natural Resource Conservation Service, the Grande Ronde Model Watershed, the Nez Perce Tribe and Oregon Department of Fish and Wildlife.

Pilz said he is happy that the Lostine River won't end up like the Klamath, where water wars are raging between regulators and irrigators.

"We want to help maintain the Wallowa County lifestyle," Pilz said. "When you drive into the country you see barns and cows and green fields."

April 14, 2011

Power council backs \$78 million for fish: The research and fish operation projects mitigate dam impacts on wildlife

By Quinton Smith
Special to the Oregonian

After a year of scientific review, the Northwest Power and Conservation Council on Wednesday recommended funding for 100 research and fish-operation projects in the Columbia River Basin expected to cost at least \$78 million.

The Bonneville Power Administration funds projects as mitigation for impacts on fish and wildlife caused by dams on the Columbia and Snake rivers. Many of the projects are ongoing, or are required by federal regulators or by agreements with Native tribes.

Nearly half of the projects address planning, development, operation and maintenance of salmon and steelhead hatcheries, including investigating their effectiveness and effects of hatchery fish on those that spawn naturally.

“The key question that continues to be asked about hatcheries, both those funded through the council’s program and others, is whether the production of hatchery fish harms fish that spawn naturally,” council Chairman Bruce Measure of Montana said in a statement at the council’s meeting in Wenatchee, Wash.

A NPCC review committee received 159 research proposals from state and federal agencies, Native tribes and universities. Funding would begin Oct. 1; project length varies from one to five years.

The Oregon Department of Fish and Wildlife won approval for 11 projects or operations; 20 from the Columbia River Inter-Tribal Fish

Commission, the Warm Springs and Umatilla tribes received approval.

Five winning Oregon projects involved ODFW, Warm Springs and Oregon State University research or operations on the Hood River; three involve salmon or steelhead studies on the Deschutes River.

Five research or hatchery operations on the Umatilla River received approval; four were on the Grande Ronde River.

A complete list of the projects is on the NPCC’s website: www.nwcouncil.org/news/2011/04/5.pdf

The council is a compact, between Oregon, Washington, Idaho and Montana directed by Congress to protect, mitigate and enhance fish and wildlife in the Columbia basin affected by hydropower dams, and to oversee electrical power planning in the Northwest.

April 21, 2011

Second phase of hatchery project underway

By Jennifer Marshall
Brewster Quad-City Herald

BRIDGEPORT — Earth is being moved and pipes have been installed underground in preparation for the

new hatchery at Chief Joseph Dam.

The hatchery, slated for completion in spring 2012, will produce 2.9 million spring and summer Chinook salmon, said Joe Peone, director of the Colville Confederated Tribes Department of Fish and Wildlife.

The fish are reared and incubated until they’re mature enough to be released to either the Columbia River or to acclimation ponds in upper Okanogan County, and from

there they eventually swim to traditional spawning areas in the Okanogan.

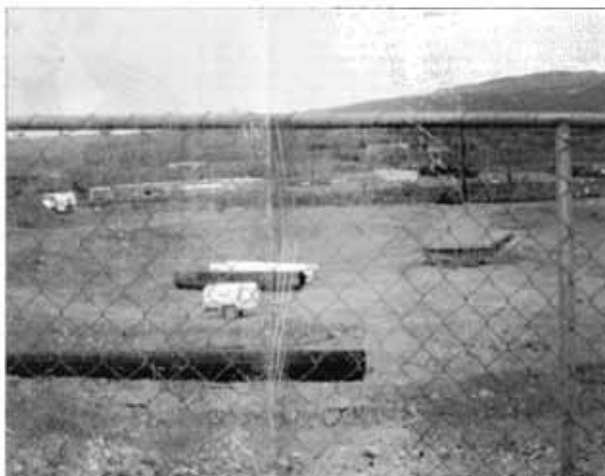
The hatchery will help mitigate the number of salmon killed every year in dams along the Columbia, Peone said.

In addition to the adult salmon that don’t make it, he said, “Juveniles go out in April, May and June through the dams, and 5 or 6 percent of them are killed.”

Second phase of hatchery project underway



A computer rendering of the salmon hatchery at Chief Joseph Dam in Bridgeport shows what the finished project will look like in 2012. Photo courtesy Michelle Campobasso



One of the entrances to the future Chief Joseph fish hatchery, located on about 15 acres east of the dam's rest stop off Highway 17. Photo by Jennifer Marshall

As part of its mitigation requirements, the Grant County Public Utility District is contributing 18.3 percent of the project's cost: over \$10 million to help build the hatchery, and about \$6,000 per year for maintenance and operations, Peone said. The Chelan and Douglas County PUDs are each contributing about 3 or 4 percent of the project's cost because, Peone said, they already contribute to mitigation at other hatcheries within their own counties, such as the one recently built in Entiat.

Other partners in the project include the Bonneville Power Administration, the U.S. Army Corps of Engineers, the Northwest Power and Conservation Council and the Confederated Tribes of the Colville Reservation.

The entire project cost is estimated at about \$40 million, according to a budget done by Bonneville.

Building out the water supply system and the hatchery itself is Phase 2 of the project, and it began in December. Phase 1, completed last year, included two new acclimation ponds in Omak and Riverside, five wells to supply groundwater for the hatchery, and on-site housing for permanent hatchery employees.

Located nearby on Half Sun Way are a few RV platforms, campsites and bathroom facilities for seasonal workers.

An alarm system is hooked up in the new neighborhood so when it goes off, employees can be at the hatchery within minutes, Peone said.

The main hatchery site on the bank of the Columbia River is about 15 acres, and the hatchery building

itself will be about 15,000 square feet, according to documents provided by Peone.

Other buildings will be used for fish feed loading and storage, dry chemical storage, an equipment shop, a fueling station, offices and backup diesel power generators.

A fish ladder and broodstock holding facility will be the last pieces built. In the holding facility, returning fish will be gathered for egg harvest.

Peone said the hatchery has been a long time coming.

"We first inquired into building a hatchery in June of 2000," he said. "This hatchery was supposed to have been built in the late 1940s when they built Grand Coulee Dam, but they never followed through on it."



May 7, 2011

Daily Record, Ellensburg, WA

Northwest wind power could double by 2025

Growth could cause problems for managing grid

PORTLAND (AP)—Northwest wind power could more than double by 2025, possibly causing problems for managing the transmission grid, according to a new study.

Wind turbines now operating or under construction can generate a peak output of about 6,000 megawatts, or the equivalent of 15 good-size natural gas-fired power plants, the Northwest Power and Conservation Council said.

Most of that wind power was added in the past five years.

The Portland-based council estimates the region could see another 5,000 to 10,000 megawatts of wind capacity by 2025, The Oregonian reported.

Long-term plans

The council is tasked by Congress with developing long-term power plans that balance the region's energy and environmental needs.

Its staff prepared the study released Thursday to provide power planners with a forecast on the upper limit of potential wind development for a region that is already struggling to absorb the rapidly increasing and highly variable output of its expand-

Renewable power mandates

Lawmakers in Oregon, Washington, Montana and California have established aggressive mandates for renewable power that ratchet higher over the next 15 years.

Oregon's large utilities are required to serve 5 percent of their demand with renewables this year, increasing to 25 percent by 2025.

California's standard is

33 percent by 2020, and Washington's is 15 percent by 2020.

Utility, regulatory, consumer and environmental organizations will convene early next month under the umbrella of the Northwest Wind Integration Committee, which last met and created a wind integration action plan for the region in 2007.

ing wind turbine fleet.

Most Northwest wind farms are directly connected to the transmission system operated by the Bonneville Power Administration, which also markets federal hydroelectric power.

On notice

Bonneville, also based in Portland, has already put wind developers on notice that its ability to absorb more wind power is limited.

Variable wind output taxes the hydro system, and Bonneville has already established a policy to pull the plug on wind farms when output misses scheduled deliveries

wind and water energy being generated.

"Every time we choke down 1,000 megawatts, another 250, 500 or 1,000 megawatts shows up," said Elliott Mainzer, Bonneville's executive vice president for corporate strategy. "The impact has not been too significant so far, but as we scale this up, it will become more significant."

Wind developers and

utilities that have invested in wind farms contend that Bonneville is discriminating against their projects to insulate its own customers from new market realities.

"It's an economic problem," said Jim Lobdell, vice president of power operations and resource strategy at PGE.

"They have to step up to the changing economics of the market."

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June 6, 2011

Oregonian, Portland, OR

Nuclear power, post-Japan: Parsing truth from myth

Germany's sudden ban could speed green energy breakthroughs or fall quite flat

A few sobriety checkpoints need to be set up before anyone announces an end to nuclear power.

Despite Japan's ongoing debacle with the Fukushima Dai-ichi Nuclear Power Station, and despite Germany's stunning announcement that it would phase out all nuclear facilities in a little more than a decade, nuclear power generation remains a robust and expanding worldwide phenomenon. More than 400 nuclear plants operate in 31 countries — 104 of them in the United States — and more than 60 plants are approved or under construction in more than a dozen countries, among them China, South Korea and Russia.

Even battered Japan will not unhook from its nuclear dependency, instead deciding only to temporarily halt plans for nuclear expansion. It does have a mess to clean up first. And the International Atomic Energy Agency recently told Japan's leaders they need to calculate seismic and tsunami bracing far better if the nation is to continue with nuclear production.

But the German reaction to Fukushima's breakdown is significant: It carries the promise by one of the world's most industrially and technically capable countries to replace about 23 percent of its energy, now produced by nuclear reactors, with alternative and renewable sources.

Sound familiar? The drive for renewables in the Pacific Northwest comprises wind, solar, geothermal, biomass, wave and other sources — all designed to reduce our greenhouse gas emissions. It is a drive also accompanied by a habit



PAUL LACINE/NEWSART

change known as conservation, which in the last 30 years in the Northwest has saved the same amount of electricity generated by two Grand Coulee dams. In the next 20 years, we'll be able to squeeze out another three Grand Coulee dams' worth of electricity through conservation measures alone, according to estimates by the Northwest Power and Conservation Council.

But Germany's no-nuclear action is a sharp challenge to itself to lead the way in green energy — and profitably so. As if to blunt pushback by an industrial sector foreseeing only doom without nuclear power, a German ethics panel guiding Chancellor Angela Merkel's choice last week said the nation's withdrawal from nuclear power "will spur growth, offer enormous technical, economic and social opportunities to position Germany

even further as an exporter of sustainable products and services," according to published reports.

In another breath, however, the panel conceded the development of renewable energy sources couldn't be rushed and that more immediate conservation measures might reduce the nation's energy consumption by up to 60 percent.

Any way Germany goes on this, we're taking notes. Everybody needs to be in the power game and raise the level of play — not because nuclear power is wrong or inherently flawed but because it should continue to be a piece of increasingly diverse energy-production portfolios worldwide.

Keep in mind Germany could fail to close its energy gap by importing electricity from France, which generates much of its power from nuclear facilities. Or it could step up its coal-burning, which already meets 40 percent of the nation's electricity needs. Or, given Merkel's nakedly politicized decision to phase nuclear out, Germany could re-embrace nuclear power if its energy mountain becomes too steep to climb.

There is nothing good about what happened in Japan, a hobbled place whose nuclear industries give economic, political and cultural pulse to many of the nation's less urbanized centers. But the tragedy there, and the sudden decision by a nation more than 5,000 miles away, will not only intensify renewable energy development but bring greater clarity to nuclear's best purposes going forward.

June 24, 2011

Research is ramped up in the region to verify what habitat improvements help fish survive

By Scott Learn
The Oregonian

BREWSTER, Wash. — A scene, in brief, from the Northwest's latest effort to establish whether the hundreds of millions it spends on salmon habitat improvements makes a difference:

Josh Dowdy, 24, crouching in the middle of a West Foster Creek side channel, measuring pebbles.

U.S. District Judge James Redden is behind the push for a fine-grain accounting of Columbia River basin fish habitat. He's expected to decide any day now whether to approve the federal government's latest "biological opinion" for operating hydropower dams through 2018 while protecting salmon and steelhead listed under the Endangered Species Act.

The plan relies heavily on more habitat investment to increase salmon survival — as opposed to, say, knocking down dams.

The judge wants survival estimates — detailed by tributary for 77 fish populations — to be independent, reliable and "scientifically verifiable."

That's where Dowdy comes in. He's among 70 young scientists trained for 10 days in early June to spread out across the basin this summer and take strategic measurements of streams, including measurements of 210 riverbottom particles at each site.

The National Oceanic and Atmospheric Administration, which wrote the biological opinion Redden is pondering, directs the ramped-up research. The Bonneville Power Administration, which sells electricity from dams, plans to spend \$15 million on the research over four years.

If it works, the research will add sorely lacking scientific precision to habitat programs that Bonneville Power's ratepayers pay dearly for.

The research could provide data to back up NOAA's estimates of survival benefits. That could help deflate the never-ending battle over salmon and dams on the Columbia and Snake rivers.

But the Columbia Habitat Monitoring Program has already drawn critics. Among them: the Northwest Power and Conservation Planning Council, which oversees Bonneville Power's fish spending. An independent science review group raised statistical and practical concerns.

Tony Grover, director of the council's fish and wildlife division, says it's not clear the monitoring program will succeed.

"We do need a single systematic approach to monitoring, and we haven't had one to date," he says. "But they are really trying to rebuild their race car while they're driving it around the track, and it's hard. If it doesn't work, we've lost time and money and the region suffers from additional salmon fatigue."

The folks running the show say the fish monitoring program, combined with other habitat monitoring sponsored by Bonneville, will be the biggest effort in the nation.

It will not lack for details. The protocol includes 26 specific measurements at each sample site. Among the metrics: alkalinity, temperature, water velocity, pools, riffles streamside plants, solar input, bank angle and fish food drifting in the stream.

The field biologists, in teams of three, will pack 82 pieces of equipment, including a laptop, rebar, drift nets, ethanol, red wax lumber pencils, a compass, a camera, a solar path finder to gauge solar intensity and a ruler.

This summer, they'll visit 10 subbasins in Idaho, Oregon, Washington and Montana, logging data from 275 sites, mapping the information and feeding it to a common database for analysis.

Detailing the salmon data stream



Josh Dowdy, 24, practices surveying pebbles and other river-bottom particles in a stream that feeds the Columbia River near Brewster, Wash. The pebble measuring helps determine whether a stream is good for spawning or growing young salmon. SCOTT LEARN/THE OREGONIAN

Research is ramped up in the region to verify what habitat improvements help fish survive

By SCOTT LEARN
THE OREGONIAN

BREWSTER, Wash. — A state, in brief, from the Northwest's latest effort to establish whether the hundreds of millions it spends on stream habitat improvements makes a difference.

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To see past stories on the Redden case, go to oregonian.com/environwest

hydro-power dams through 2018 while protecting salmon and steelhead listed under the Endangered Species Act.

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The judge wants survival estimates — detailed by tributary for 77 fish populations — to be independent, reliable and "scientifically verifiable."

That's where Dowdy comes in. He's among 70

Photo: see SALMON, Page A3



"We're not hopeless romantics. We're building on the successes of all these other programs."

Chris Jordan, with NOAA's Northwest Fisheries Science Center

If the results look good, the program will expand to 10 more subbasins. The habitat will range from pristine to decimated, the wild salmon and steelhead populations from thriving to struggling.

The hope is to combine those findings with a more detailed census of salmon.

Project backers say first year data should begin to pinpoint which habitat problems — high temperatures, excess sediment, lack of spawning grounds — are thwarting fish in specific tributaries.

Within four years, trends should emerge showing which habitat improvements might work best, and which places need them most.

With enough high-quality data, over time fish managers could plug possible projects — from planting trees to creating side channels — in to a computer model, which would spit out projected impacts on fish populations.

Over a longer frame, NOAA hopes, the work can confirm that improvements boost the growth of juvenile fish and the prospects for salmon in freshwater — the "holy grail" of habitat monitoring.

But the power council and the independent science review board are wary. After hearing their concerns, Bonneville Power limited the monitoring projects to two years of funding and scaled back the program for this year.

A lot of data will be collected, the science panel agreed. But it's not clear the Information will produce "meaningful results." The council has seen tens of millions spent on habitat monitoring with few results, says council Chairman, Bruce Measure.

"We've got an awful lot of monitoring and evaluation out there, and I don't feel we've got a good handle on it all," he says.

Meantime, Bonneville Power plans to dramatically increase habitat spending, dotting out at least \$45 million a year on projects through 2017. Biologists estimate 90 percent of the basin's salmon and steelhead habitat has been lost or degraded.

Oregon, Washington and the U.S. Forest Service have their own monitoring protocols. Tribes do a lot of the work, too. It's unclear whether those efforts are redundant or whether the new protocol can produce better results.

Getting reliable, standardized measurements will be tough with so many people and places involved. And practical difficulties could stall the field biologists at the randomly chosen spots selected for sampling.

Private landowners could deny access, for example. Streams could prove too wild or inaccessible to sample.



SCOTT LEARN/THE OREGONIAN

Boyd Bouwes, a trainer with Quantitative Consultants, holds a surveyor's rod in north-central Washington's West Foster Creek. Field surveyors measure creek sections to help build three-dimensional digital maps used in computer modeling of how habitat changes affect fish.

That's important. The program needs statistical strength — courtesy of random sampling to extend results basinwide — only 2 percent of the thousands of miles of tributaries in the basin will be tested.

"In theory it looks pretty good," says Grove of the power council. "Practically, we don't know."

NOAA and Bonneville Power officials say they're not starting from scratch.

Oregon has had success monitoring habitat for coastal coho salmon, also listed under the Endangered Species Act, and the new protocol borrows heavily from Oregon's effort.

Studies along the West Coast and in Japan have used computer models to accurately predict the payoff from habitat improvements.

"We're not hopeless romantics," says Chris Jordan of NOAA's Northwest Fisheries Science Center. "We're building on the successes of all these other programs."

Results from some streams that have already seen years of intensive monitoring should be coming soon. Bonneville Power says, and a detailed biological opinion check-in scheduled for 2016 should provide more.

Redden and the plaintiffs in the federal lawsuit — including Oregon, environmental groups and the Nez Perce Tribe — don't like that timetable. They're pushing for dam improvements, hatchery reform and other steps in addition to ramped-up habitat work, given the uncertain payoff.

NOAA's Jordan agreed more intensive monitoring should have begun earlier. As it stands now, habitat projects rely far more on expert opinion than on hard data.

"But if we don't begin you reduce the uncertainty now, we'll be no better off in eight years," he says. "We have to make incremental progress."

August 12, 2011

The Statesman, Boise, ID

N.W. goups: Natural gas glut may cut power prices

By John Miller

The Associated Press

The surplus, expected to last for years, could lower electricity costs for residents and businesses but create challenges for developers of alternative energy.

Staff at the Northwest Power and Conservation Council on Wednesday suggested changes for its fuel price forecasts, citing a “fundamental shift” in expectations. They now see natural gas prices falling, as new technologies help tap the resource from deep within shale formations such as those in Pennsylvania and Wyoming.

The council — which helps ensure that Idaho, Montana, Oregon and Washington have affordable electricity - hasn’t formally adopted the proposed changes. But if it’s right, natural gas customers would benefit directly, much as they currently are from falling prices.

For instance, Intermountain Gas Co., with 15,000 customers in southern Idaho, on Thursday said it would cut its prices starting in October by \$14.4 million.

But customers of utilities that produce a healthy share of their power from natural gas-fired plants, like Idaho Power Co.’s 300 megawatt Langley Gulch facility, which is set to be completed next year, could also see long-term relief.

“The wholesale prices for electricity should be impacted by this lower natural gas price,” Massoud Jourabchi, the Northwest Power and Conservation Council’s manager of economic analysis, told the Associated Press on Thursday. “That, in turn, will have an impact on customer retail rates. How much, it really depends on the particulars of the utility.”

What has changed to make the four-state power council increasingly bullish on natural gas prices? Companies are getting better at sucking natural gas from deep beneath the earth’s surface, doing it more cheaply than ever before.

Intermountain Gas General Manager Frank Morehouse in Boise noted that companies are even drilling in Idaho, despite the state’s history as a natural-gas dead zone.

“The rapid development of shale gas has created a glut of natural gas that is likely to last for several years and depress prices,” according to the northwest council’s updated forecast. “The likely effect of the revised power plan would be to reduce the forecast of electricity prices.”

Jourabchi cautioned against too optimistic expectations: Many other factors go into electricity rates, such as weather, legislative action, environmental regulations, even the economy.

For instance, if the United States were to enter a prolonged economic malaise, it’s possible that some people could see electricity rates actually rise to offset a shrinking customer base.

“We always say, ‘Your mileage may vary,’” Jourabchi said from his Portland office. “There’s a whole slew of issues that come in . . . because customer rates are not wholly dependent on natural gas prices.”

A potential side-effect of rising prices could be that some renewable energy projects like wind and solar may be less lucrative. That’s because the prices investor-owned utilities pay for renewable energy in some states move with the price of natural gas.

Take Idaho, for instance. The last time the Northwest Power and Conservation Council reduced price forecasts for natural gas, for instance, Idaho regulators in 2010 slashed rates that regulated utilities must pay small renewables producers. Wind turbine developers rushed to persuade the state’s Public Utilities Commission to godfather them in under the old, more lucrative rate.

“Some were successful, some were not, depending on the maturity of their projects,” said Gene Fadness, a spokesman for the regulator

Oregon also uses natural gas to set rates for small, renewable power developers.

“If the forecasts are accurate, and we are in for a period of lower natural gas prices, then the incentive rates paid by electric utilities for

small renewable and co-generation facilities are likely to be lower,” said Maury Galbraith, manager of the Oregon Public Utility Commission’s electric rates and planning section. “The economics of developing those facilities will be more challenging.”

Idaho Power Co., the state’s biggest utility, puts costs of building solar plants at \$150 per megawatt hour, compared with \$109 for a gas plant like the one being built at Langley

Gulch in southern Idaho. Though costs for solar plants continue to fall, Mark Stokes, Idaho Power’s power supply planning manager, said this reality persists: As natural gas prices drop, so too, does the attractiveness of pricier new technologies.

“If the rate drops at all, it’s going to impact the economics of any project,” Stokes said. “Each one has to be looked at individually.”

July 11, 2011

Register-Guard, Eugene, OR

Wind vs. hydro: Northwest needs to make full use of both

Editorial

A dramatic increase in the Northwest’s wind power capacity has created a thorny problem: what to do with surplus electricity when the wind is blowing hard and the rivers are running high. The Bonneville Power Administration, utilities and others need to find ways of making efficient use of intermittent and seasonal power sources, both to ensure that investments in renewable energy remain economically sound and to maintain the reliability of the electric supply system.

Five years ago, according to the Northwest Power and Conservation Council, the Northwest had 15 wind power facilities with a maximum generating capacity of 1,600 megawatts, representing up to 2.3 percent of the region’s electricity supply. Today, there are 44 wind facilities generating up to 5,600 megawatts, accounting for nearly 10 percent of the Northwest’s electricity at peak production. A combination of tax incentives, fossil fuel prices and state-mandated renewable energy goals has made wind a primary holding in the region’s energy portfolio.

The Northwest’s electrical system was built to distribute power from the hydroelectric dams in the Columbia River basin. The dams produce a lot of power when stream

flows are high in the winter and spring, and less in the dry months of summer and fall. The transmission system, largely controlled by the BPA, was designed to dampen this variability, allowing exports of power to California during times of surplus and imports when hydro production declined.

Significant quantities of wind power have introduced a new factor in the management of Bonneville’s system. At times this spring, the dams were producing all the electricity the system could handle or its customers could use. So starting May 18, the agency periodically has denied wind generators access to the transmission lines. During these periods, operators of wind farms can’t sell their output at any price.

The BPA claims the only way to accommodate wind power in times of peak hydro production is to spill water over dams rather than using it to generate electricity. But such spills alter water chemistry in ways that harm endangered salmon and other fish.

Wind farm operators are crying foul, and they have asked the Federal Energy Regulatory Commission to intervene. The operators claim that during periods of surplus the BPA should pay California power generators to curtail their production, offering Northwest wind power as a substitute.

Bonneville argues that the cost of those payments would have to be borne by its customers, including Lane County utilities, who have no

obligation to maintain the profitability of the wind power industry.

This conflict won't go away. An expanded transmission link to California would cost an estimated \$5 billion or \$6 billion, which the BPA says is not economically feasible - and even with added transmission capacity, the Northwest sometimes has more power than California will buy without subsidies. This year's spring runoff is setting records, but high water conditions occur every three years or so. Current conditions, though extreme, will recur.

One set of opportunities involves making better use of peak power. Certain uses of electricity — such as heating water or charging electric car batteries — could be timed for

periods of peak wind and hydro production. Other options might involve storing surplus energy, such as by pumping water into reservoirs. Better coordination among utilities and producers also could yield efficiencies.

When wind turbine blades are turning but their power is not being used, a resource is being wasted. When waste occurs, costs rise.

It's too late to prepare for a future that includes large amounts of wind power. Instead, the region must adapt — because the future is already here.



Administrative Overview

Council organization

The governors of Idaho, Montana, Oregon, and Washington each appoint two members to the Council. The eight-member Council sets policy and provides overall leadership for Council activities.

The Council's work is performed, depending on the tasks, by the Council's professional staff (including staff in a central office and in each state), consultants under contract, or by public agencies and Indian tribes under intergovernmental agreements. The Council's executive director is responsible for coordinating with the Council, supervising the central office staff, administering the contracts, and overseeing the day-to-day operations of the Council. The Council approves major contracts and

the overall work plan. The Council has 59 full-time-equivalent employees.

The central staff is organized into five divisions: Power; Fish and Wildlife; Public Affairs; Legal; and Administrative. Professional staff in each state provide technical review and assistance to Council members in evaluating matters before the Council. State staff also participate in designing and developing public-involvement programs that focus on the implementation of the Power Plan and Fish and Wildlife Program in their particular states. This support is provided through existing state agencies or by individuals directly under Council member direction.

Council funding and budget

Under the Northwest Power Act (Section 839b(c) (10)(A)), the Bonneville Power Administration funds operations of the Council. The Act establishes a formula to determine a funding limitation threshold, and authorizes the Council to determine its organization and prescribe practices and procedures to carry out its functions and responsibilities under the Act.

The Act further provides that the funding limitation applicable to annual Council budgets will be calculated on a basis of 0.02 mill multiplied by the kilowatt hours of firm power forecast to be sold by the Bonneville administrator during the year to be funded. The limitation may be increased to .10 mill, provided the Council makes an annual showing that such limitation will not permit the Council to carry out its functions and responsibilities under the Act.

The Council determined that the 0.02-mill limitation would not allow the Council to carry out its functions and responsibilities under the Power Act in Fiscal Year 2011. The Council determined that an amount equal to 0.093 mill, which totals \$9,934,000, would be required in Fiscal Year 2011. The Council's Fiscal Year 2011

revised budget of \$9,891,000 is 2.1 percent higher than the 2010 budget of \$9,683,000, and reflects a \$43,000 reduction from the originally proposed FY 2011 budget.

The Council developed the Fiscal Year 2012 budget utilizing that same cost-containment strategy to hold the projected increase to 2.5 percent at \$10,142,000. In order to achieve these goals, we are freezing the number of full-time-equivalent employees in the Council budget while continuing to undertake expanded work and responsibilities in the region.

The Council is aware of the continued economic challenges facing the four-state region, and the need to maintain healthy financial conditions for Bonneville. Since 1997, the Council has worked with Bonneville to adopt budget agreements resulting in significant savings to the region. Actions taken to accomplish these savings include reducing our workforce, eliminating vacant FTEs, reducing travel costs, slashing contract funding, cutting administrative costs, and curtailing lower-priority activities.

A summary of the draft budgets for fiscal years 2007 through 2011 follows. These budgets show an average annual growth over the four-year period, 2008 - 2011, of less than 3 percent per year.

2007	2008	2009	2010	2011	2012
\$9,085,000	\$9,276,000	\$9,467,000	\$9,683,000	\$9,891,000	\$10,114,000
	(2.1%)	(2.1%)	(2.3%)	(2.1%)	(2.3%)



Council and committee meetings, Fiscal Year 2011

Meeting agendas and minutes are posted on the Council's website, www.nwcouncil.org. Meetings of the Council's Public Affairs Committee occur during meetings of the full Council and are not listed separately below.

October 13-14, 2010, Council and committee meetings, Portland
November 9-10, 2010, Council and committee meetings, Portland
December 14-16, 2010, Council and committee meetings, Portland
January 11-12, 2010, Council and committee meetings, Missoula, Montana
February 8-9, 2011, Council and committee meetings, Portland
March 3, 2010, Power Committee meeting via web conference
March 8-9, 2011, Council and committee meetings, Boise, Idaho
April 12-13, 2010, Council and committee meetings, Wenatchee, Washington
May 5, 2011, Power Committee meeting via web conference
May 10-11, 2011, Council and committee meetings, Hood River, Oregon
June 7-8, 2011, Council and committee meetings, Whitefish, Montana
July 7, 2011, Power Committee meeting via web conference
July 12-13, Council and committee meetings, Portland
August 9-10, 2011, Council and committee meetings, Spokane, Washington
September 13-14, 2011, Council and committee meetings, Astoria, Oregon

More Information

For additional information about the Northwest Power and Conservation Council's activities, budget, meetings, comment deadlines, policies or bylaws, call 1-800-452-5161 or visit our website, www.nwcouncil.org. Copies of Council publications are available at the website or by calling the Council. All Council publications are free.

Background of the Northwest Power and Conservation Council

The Council, known until 2003 as the Northwest Power Planning Council, is an agency of the states of Idaho, Montana, Oregon, and Washington and was created as an interstate compact agency by the legislatures of the four states consistent with the Pacific Northwest Electric Power Planning and Conservation Act of 1980. The Council's first meeting was in April 1981.

The Northwest Power Act gives the Council three distinct responsibilities:

1. to assure the region an adequate, efficient, economical, and reliable electric power supply;
 2. to prepare a program to protect, mitigate, and enhance fish and wildlife, and related spawning grounds and habitat, of the Columbia River Basin affected by the development and operation of any hydroelectric project on the Columbia River and its tributaries; and
 3. to inform the Pacific Northwest public regarding these issues and involve them in decision making.
- This annual report is organized around the Council's three key responsibilities.

The Power Act created a special relationship between the Council and the federal agencies that regulate and operate dams in the Columbia River Basin and sell the electricity that is generated. The administrator of the Bonneville Power Administration, the federal power marketing agency that sells the output of the Federal Columbia River Power System (a system that includes 29 federal dams within the basin and two outside, and one non-federal nuclear power plant), is required to make decisions in a manner consistent with the Council's Northwest Power Plan and its Columbia River Basin Fish and Wildlife Program. Other federal agencies with responsibilities for dams (the U.S. Army Corps of Engineers, U.S. Bureau of Reclamation, and Federal Energy Regulatory Commission) are required to take the Council's power plan and fish and wildlife program into account at every relevant stage of decision making.

Despite its relationship to federal agencies, the Council is not a federal agency. The Council is an interstate compact. The eight-member Council consists of two members from each state, appointed by their respective governors. The Council headquarters are in Portland.



Council Members, Fiscal Year 2011

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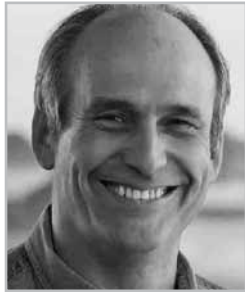
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General Counsel: John Shurts

Administrative Officer: Sharon Ossmann



Comments of the Bonneville Power Administration



Department of Energy
Bonneville Power Administration
P.O. Box 3621
Portland, Oregon 97208-3621

EXECUTIVE OFFICE

January 9, 2012

Dear Chairman Measure:

Thirty years after the Northwest Power and Conservation Council (Council) met for the first time, I am struck by the impact the Council has had. The six power plans the Council has produced over the years have set the standard for least-cost power planning. Energy efficiency is the accepted foundation of utility resource planning. By the end of 2011, the Northwest will likely have 6,000 megawatts of wind energy in operation – nine years ahead of the schedule the Council predicted in its Fifth Power Plan. You and your staff have provided critical support as Bonneville Power Administration (BPA) and the region's utilities worked together to continue to provide an adequate, reliable, and economic power supply to the Northwest.

In awarding the Council its Conservation Eagle award in July 2011, the Northwest Energy Coalition described the 2010 Sixth Power Plan as “the most far-sighted, clean energy-based power plan in regional history.” On the heels of this testimonial, in the fall of 2011, the Council reported that annual savings from the region's energy efficiency improvements were the highest achieved in 30 years. The region's annual energy efficiency achievements have exceeded the targets in the Council's power plan every year since 2005. Savings through 2010 total more than 4,600 average megawatts – or more than enough energy for four cities the size of Seattle – at an average cost of less than two cents per kilowatt-hour.

Thirty years later, the region has made great progress with fish and wildlife restoration. The Council has partnered with BPA and other Federal, state, local, and tribal governments on a Fish and Wildlife Program that is scientifically sound and broadly supported in the region. You continue to seek accountability and effectiveness through effective research and monitoring by defining and tracking high level indicators of fish health and ecosystem function. In 2011, the Council reviewed and recommended 143 projects for BPA funding that will ultimately deliver scientific knowledge about fish and wildlife throughout the Columbia River Basin.

In 2012, BPA celebrates its 75th Anniversary of supplying clean, reliable, and economical energy to the region. For the last 30 years the Council has been an important part of our story. We look forward to celebrating together and continuing our collaboration for many years to come.

Sincerely,

A handwritten signature in blue ink that reads "Stephen J. Wright".

Stephen J. Wright
Administrator and Chief Executive Officer

Appendix 1: Council By-laws

The Council by-laws, which describe the administrative functions of the Council, are posted for public review on the Council's website at this location: <http://www.nwcouncil.org/library/2003/2003-19.htm>. The Council last updated the by-laws in October 2003.



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