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Washington



Northwest **Power** and **Conservation** Council

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September 18, 2019

MEMORANDUM

TO: Council members

FROM: John Harrison
Information Officer

SUBJECT: Draft annual report to Congress for Fiscal Year 2019

PROPOSED ACTION: Approve draft report for 90 days of public comment

SIGNIFICANCE: The Northwest Power Act requires the Council to report annually to Congress and to make the draft report available for 90 days of public comment prior to submission. The draft report in your packet is for Fiscal Year 2019, which ends at the end of this month. The draft report will be updated with 2018 energy efficiency accomplishments, which will be presented at this meeting.

BUDGETARY/ECONOMIC IMPACTS

None.

BACKGROUND

Staff requests that you approve the draft report for public comment at this meeting, with any additional edits. The comment period would begin Friday, September 20, 2019, and end Friday, December 20.

The State of the Columbia River Basin

DRAFT

**Fiscal Year 2019
ANNUAL REPORT**



Northwest **Power** and
Conservation Council

October 1, 2018 - September 30, 2019

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*Submitted to the
Committee on Energy and Natural Resources
United States Senate*

*Committee on Energy and Commerce
United States House of Representatives*

and

*Committee on Natural Resources
United States House of Representatives*

**851 S.W. Sixth Avenue
Suite 1100
Portland, Oregon 97204
503-222-5161
Toll Free: 800-452-5161
www.nwcouncil.org**

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 has been developed pursuant to 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, here: <https://www.nwcouncil.org/about/bylaws> or under the "About" tab on the Council's homepage, <https://www.nwcouncil.org/>.

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[Letter from the Executive Director](#)

Will be added to the final version of the report in January 2020.

The Council's View:

The State of the Columbia River Basin in 2019

During Fiscal Year 2019, the Northwest energy system continued to move away from thermal energy and toward more renewable generation. This is a significant change with ramifications for the adequacy of the system.

Over the next 10 years, several Western coal plants will retire, bowing to economic, regulatory, and environmental pressures. This long-term trend, along with increasing generation from wind and solar, presents challenges to meeting peak demand--during a cold snap or heat wave for example--when power use rises sharply for hours and sometimes days at a time. While the Northwest's energy system has always depended on hydropower, we have also relied on fossil fuel-burning plants that can ramp up generation quickly. How to address this need as coal retires and more intermittent renewable resources come online is a big question for the next Northwest Power Plan, due in 2021.

Fortunately, the region has a solid foundation of 30 years of reducing demand for power through aggressive energy-efficiency programs, which have reduced the need to build new generating plants while also easing peaks in demand.

The Council is studying solutions, with others in the industry, that include developing a voluntary resource adequacy standard for the West, finding ways to increase the output of the region's hydropower system, and encouraging the construction of utility-scale batteries and pumped storage facilities that can fill in the gaps when wind and solar power aren't available.

The region continues to develop energy efficiency aggressively, reducing demand for power, based on reports from utilities and the Bonneville Power Administration. In 2016 and 2017, the Northwest region achieved 404 average megawatts of electric energy efficiency savings, enough power to equal the average annual electricity use of 290,000 homes. This exceeds the first two-year efficiency target set in the Council's Seventh Northwest Power Plan (2016).

The achievement includes savings from efficiency programs run by regional electric utilities, Bonneville, the Energy Trust of Oregon, and the Northwest Energy Efficiency Alliance. And 2017 was the eighth consecutive year that the region met or exceeded the Council's targets in its power plans. Much of the regionwide savings for 2016 and 2017 came from conversion to efficient LED lighting, particularly in commercial buildings.

Meanwhile, in 2019 the Council began a once-every-five-years review and revision of the Columbia River Basin Fish and Wildlife Program. The Council planned to accept public comments on the draft revision document, an addendum to the existing 2014 Program, through mid-October.

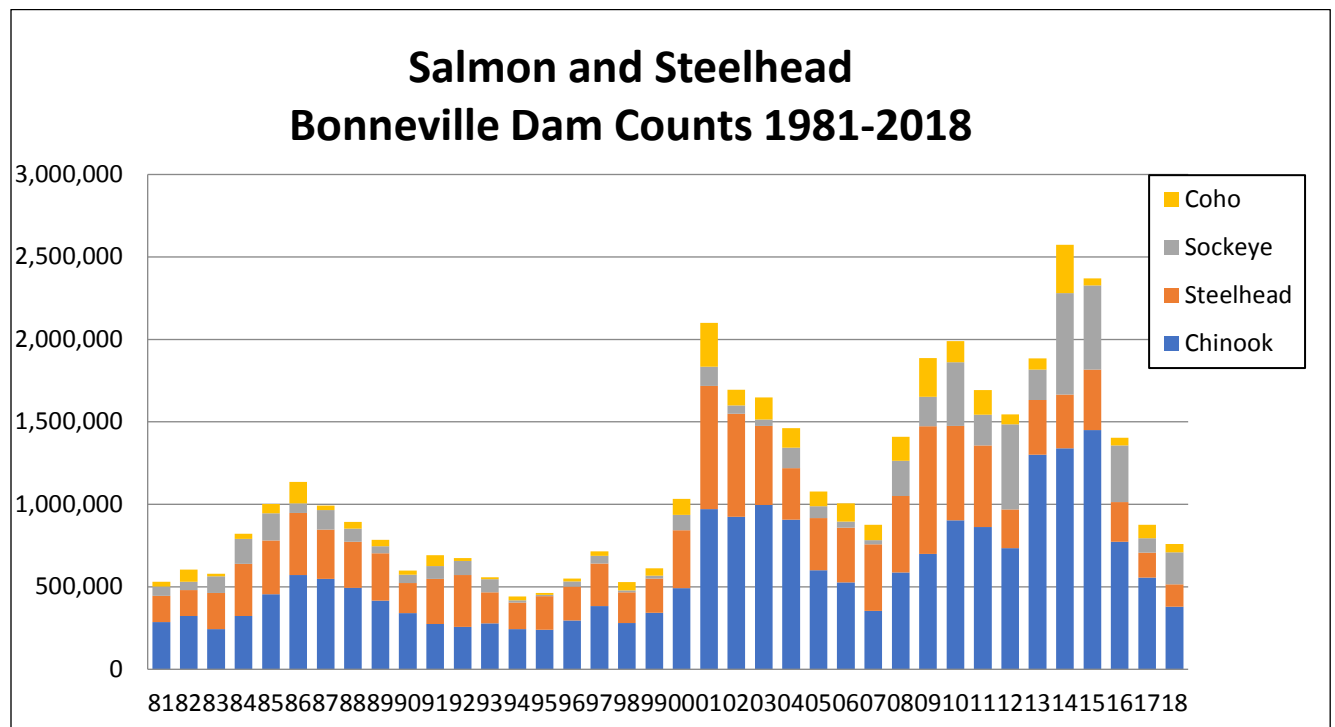
The draft addendum is posted on the Council's website [here](#) along with instructions on how to comment. The draft addendum is considered part of the 2014 Program, which would remain in effect.

The Council began the revision process in May 2018 by requesting recommendations. As the Council considers the recommendations, particular emphasis is given to those from state and federal fish and wildlife agencies and Indian tribes,

consistent with the Power Act. After reviewing the recommendations, and public comments on them, the Council determined that an addendum, and not a complete rewrite, would best serve the needs of the program over the next five years.

The draft addendum is discussed in more detail elsewhere in this report, but some of the key elements include better assessing program performance and adaptive management; articulating program goals, objectives, and performance indicators; addressing climate change impacts; mitigating for salmon and steelhead impacts of Chief Joseph and Grand Coulee dams; better understanding ocean impacts; improving predator management; and ensuring that any reductions in the program budget aim to find efficiencies without sacrificing productive work. The Council expects to finish the program revision in early 2020.

Salmon and steelhead returns to the Columbia River continue their up and down cycle, as shown the chart below. The Council continues to direct fish and wildlife program investments to work that improves spawning and rearing habitat, improves fish passage past dams, and seeks to learn more about fish survival in the Columbia River estuary and the ocean.



Source: Fish Passage Center

While the future evolution of the power supply presents challenges to energy planners and utilities, we can't lose sight of the obvious benefit that the Northwest region has in the evolving marketplace turbulence – a huge base of carbon-free, inexpensive hydropower that is being “stretched” by aggressive energy efficiency programs, saving consumers billions of dollars every year compared to the cost of new generating plants; and, as a result, some of the lowest electricity costs in the country.

Even if rates and bills increase, it's likely that Northwest consumers will continue to pay less for electricity than most others elsewhere in the nation. Investments in

protecting and enhancing fish and wildlife also will continue, preserving an important heritage of environment quality in the Northwest. These investments are important to Northwest citizens who enjoy the benefits of clean, carbon-free and low-cost hydropower and also support protecting our iconic fish and wildlife species.

Energy Overview

The 2021 Northwest Power Plan

In 2019 the Council began work on the next revision of its Northwest Power Plan, which is implemented by the Bonneville Power Administration. The existing plan dates to 2016. The Council revises the plan and its companion Columbia River Basin Fish and Wildlife Program every five years.

Planning for the power system is challenging. As planners, the Council forecasts how much electricity the region will need over the next 20 years by evaluating recent trends in demand for power and accounting for uncertainty about weather, fuel prices, and changes in technology. As energy technologies from solar to electric vehicles have advanced, planning to ensure that the Northwest will have a reliable and affordable power supply has become increasingly complex. Adding to the complexity is the question of how the region's hydropower system can adapt to this changing mix of generation.

There are also a variety of legislative and utility goals to reduce greenhouse gas emissions, and states and utilities have different approaches to implementing or measuring them. Those laws and regulations, many of which specify what percentage of their states' power must comprise renewable resources, is a dramatic departure from the traditional method of adding new energy resources based on cost. Planners integrate these goals into our expectations of how existing and future power plants will be operated. For example, the Council is seeking input on how to incorporate potential climate change impacts in its modeling.

The regional system also includes a major interconnection that exports power from the Northwest to California. That state's ambitious energy goal to rely entirely on clean energy sources by 2045 has resulted in a large fleet of solar generation, affecting exports. Estimating the effects of California's goals and policies on our regional system is now an important consideration.

We're not alone. Planning challenges from new generation and storage technologies, ambitious public policies on greenhouse gas emissions, and changes to markets for energy and capacity have all converged to make an already challenging endeavor even more complicated.

But, if history is any indication, we know we've been able to come together in the past to work in collaboration to solve difficult problems. We look forward to working with our partners and fellow citizens to determine the best plan for meeting our future energy needs.

Economic drivers of the 2021 Power Plan

The state of the economy is a critical factor in determining future energy needs, and so analyzing the key economic drivers and developing a regional load forecast is one of the first tasks to complete on the way to building the Council's regional power plan. That work was underway in Fiscal 2019. Key drivers include such things as data on population growth, building spaces, industrial output, and natural gas prices.

Key data points identified by the Council so far include:

- The region's population is expected to increase by between 3 to 4 million over the next 20-30 years

- Employment, and output are forecast to increase more slowly
- Still, regional growth will be slightly higher than the nation's growth

These trends are based on normal or average historic temperatures. For the 2021 power plan, the Council will also incorporate the impact of climate change in its analysis by introducing a range of future temperatures in its load forecast. Climate change will affect temperatures, but will also indirectly affect the region's demographics, economy, and power system.

The Council's power planning staff is working on methodologies to capture the direct and indirect impacts of climate change, and the Council hosted a climate change workshop in May 2019 where the Bonneville Power Administration, Seattle City Light, climate change experts, and advisory committee members discussed the range of climate change models and methodologies for incorporating impacts on loads and resources.

The role of advisory committees in developing the power plan

The Northwest Power Act of 1980, the law that authorized the four Northwest States to create the Council, directs the Council to establish a "voluntary scientific and statistical advisory committee" to assist the Council in developing the power plan and permits the Council to establish other voluntary advisory committees it deems necessary to carry out its functions. Technical and policy experts are appointed by the Council to support its analytical and technical work. Currently, there are seven active power plan advisory committees, including the Conservation Resources Advisory Committee, the Demand Forecasting Advisory Committee, and the Generating Resources Advisory Committee.

The Council's advisory committees are structured and operated according to the terms of the Federal Advisory Committee Act to ensure that their work is objective and accessible to the public. In special cases, the Council may adapt these requirements.

The Act specifies that membership of advisory committees shall, as much as possible, represent a wide range of interests across the region, including federal, state, local, and Indian tribal governments; consumer groups; and customers. Council members may participate in advisory committee meetings, and Council staff typically facilitate and organize the meetings.

Northwest carbon emissions declined in 2017

Carbon emissions from the electricity sector in the Pacific Northwest declined slightly in 2017, totaling about 45 million metric tons, the Council reported in Fiscal Year 2019 (results for 2018 have not been compiled). It was the third lowest year for emissions; 43 million metric tons were emitted in 2011 and 2012.

While overall emissions appear to be declining, the region tends to see variability or "jumpiness" from year-to-year, largely due to the significant role of hydropower in our system. In a good hydropower year (above average water flow) less fossil-fueled resources are dispatched to meet load, and emissions are lower. In a poor hydropower year, coal and natural gas units are dispatched more often, and emissions tend to increase.

Contributing to the declining carbon emissions are energy efficiency, which dampens load growth; the rising fleet of renewable resources (primarily wind, but solar

is beginning to make its mark), which helps lower the amount of carbon dioxide emitted per unit of energy; and the increasing use of natural gas plants over coal plants. On average, natural gas-fired generation emits 40-50 percent less carbon than coal-fired generation. Over the past two decades, more natural gas plants have been built, while coal units are retiring and used less, for economic reasons.

Nationally, carbon emissions from electricity are also declining. Emissions in 2017 continued the overall downward trend from their peak in 2007. The United States' resource mix looks a lot different than the Northwest's hydro-dominated portfolio. Coal and natural gas contributed over 60 percent of the nation's generation in 2017.

The 2018 Pacific Northwest emissions were similar to 2017. Electricity demand in 2018 between January and October was down 3 percent compared to the same period in 2017.

Energy Efficiency

Two-year savings beat Seventh Power Plan benchmark

In 2016 and 2017, the Northwest region achieved 404 average megawatts of electric energy efficiency savings, enough power to equal the average annual electricity use of 290,000 homes. This achievement exceeds the first two-year efficiency target set in the Council's Seventh Northwest Power Plan (2016).

The achievement includes savings from efficiency programs run by regional electric utilities, the Bonneville Power Administration, Energy Trust of Oregon, and the Northwest Energy Efficiency Alliance. This is the eighth consecutive year that the region met or exceeded the Council's targets in its power plans. Much of the regionwide savings for 2016 and 2017 came from conversion to efficient LED lighting, particularly in commercial buildings.

The survey is conducted by the Regional Technical Forum, an advisory committee to the Council established in 1999 to develop standards to verify and evaluate energy efficiency savings. The annual survey assesses energy efficiency savings and expenditures from the previous year compiled from reports submitted by utilities and energy efficiency organizations. The survey also helps the Council track progress toward energy efficiency goals in the Council's Northwest Power Plan, which provides a least-cost plan for meeting the Northwest's future electricity needs.

While currently on track, these initial results do raise some concern about whether the region will meet the six-year goal in the Seventh Plan of 1,400 average megawatts by 2021. There is concern because the Seventh Plan milestones increase over the next four years, but projections for 2018 and 2019 show that program budgets and savings are expected to be relatively flat. Additionally, the Bonneville Power Administration, the region's largest electricity provider, plans to reduce its spending on the Energy Efficiency Incentive program by 6.6 percent in 2020 and 2021, an amount it believes is still sufficient to meet the Seventh Plan's target.

However, there is significant untapped cost-effective potential in several electricity end-uses, specifically residential and commercial heating, ventilation, and air conditioning equipment and residential water heating. In order to meet the Council's 2021 regional energy efficiency goal, energy efficiency programs will need to capture additional savings from these products.

Energy efficiency has cut regional power use by 25 percent since 1990

Ever since the Council published its first Northwest Power Plan in 1983, energy efficiency, also known as energy conservation, has been a primary resource to meet the electricity needs of the Northwest. In those 36 years, more than 6,600 average megawatts of energy efficiency have been accomplished, reducing demand for power, saving consumers billions of dollars per year compared to the cost of building generating plants to produce that much power. Acquiring efficiency also eliminates the emissions that would have come with new generating plants. Six thousand average megawatts expressed as power consumption would be roughly equivalent to the average annual power demand of five cities the size of Seattle.

An [analysis](#) by the energy efficiency team in the Council's Power Planning Division demonstrates the economic impacts of that energy efficiency, concluding that overall per-capita energy use has decreased by about 25 percent in the region since 1990. According to the analysis, electricity demand in 2015 would have been about 13,600 average megawatts greater without the energy efficiency improvements if the region had the same energy-use intensities as in 1990. In very rough terms, about 42 percent of the difference (about 5,700 average megawatts) can be attributed to improvements in energy efficiency, and about 58 percent is due to the impact of ongoing changes in the regional economic mix and efficiency improvements occurring independent of utility programs, building codes, and federal energy standards.

The savings accumulated through programs run by the Bonneville Power Administration and electric utilities, public and private, and through consumer product market-transformation initiatives of the Northwest Energy Efficiency Alliance (www.neea.org). State building codes and improved federal energy standards for products and equipment also contributed. According to the analysis, in 2015 as a result of the efficiency improvements, the Northwest produced almost twice the economic per megawatt-hour of electricity compared to 1990.

Expanding energy efficiency programs to hard-to-reach markets

One of the goals of the Council's Seventh Plan is to ensure that all cost-effective energy efficiency measures are acquired and identify ways to improve participation from underserved populations, such as rural, low-mid income ratepayers, and small businesses. The Council, working with the Bonneville Power Administration, Energy Trust of Oregon, several investor-owned utilities, and several public utilities, completed [an analysis of prospective underserved markets](#) in 2018.

The analysis concludes that in general, the region's utilities are doing a good job of reaching a wide variety of customer groups. Programs with specific targets groups, such as low-income households or manufactured homes, for example, are performing well as long as the programs continue operating. Multifamily dwelling units and small businesses are somewhat underserved, according to the data.

The study confirms the effectiveness of targeted programming and recommends expanding programs for multifamily dwellings and renters. The study also demonstrates that the data on demographic and service territory populations are readily accessible and can be used, along with program participant data, to understand and monitor how well programs are performing.

What's next for solar generation?

The Council closely tracks trends in energy advances and consumer use to improve its long-term load forecast, which is used in the Council's regional power plan, currently under development. In our planning, we developed a model simulation to gauge the impact of aggregating installations of behind-the-meter solar-plus-battery systems to smooth out the regional electricity load and, as a result, reduce peaks.

The modelling results were interesting. For instance, on a typical spring day, the regional peak load might occur at around 8 a.m. and another slightly lower peak might occur around 8 p.m. In this case, the grid charges the battery in the very early morning hours when load is low and then dispatches electricity at the 8 a.m. hour to smooth out the morning peak. Once the sun is up and the PV system is generating, some of the electricity is diverted to the battery to be stored and used later that night during the 8 p.m. peak. The overall daily system load shape is flattened, which makes it easier to serve. A few other observations from the simulation:

- In some situations, adding battery storage can provide nearly four times the peak load reduction when compared to solar alone
- The amount of peak load reduction varies from month-to-month, but the greatest benefit from adding batteries to solar occurs in the winter and spring months when there is an early morning and/or later evening peak
- In the summer when the sun shines longer, PV systems can produce electricity late in the afternoon and in the early evening to meet peak demand, relying less on the battery storage

Climate change may transform the seasonality of power shortfall risk

In working to refine a model of hydrosystem operations that will be used in developing the 2021 Power Plan, Council Power Division analysts John Fazio, Dan Hua, and Massoud Jourabchi found there was interest in the outcome from utility planners and engineering firms. In response, the Council analysts published their conclusions in a paper, entitled *Compound climate events transform electrical power shortfall risk in the Pacific Northwest*, in Nature Communications. The paper was co-authored with Pacific Northwest National Laboratory scientists.

The paper explores how climate-driven variations in both energy demand and water availability affect the power system, showing that combined climate change impacts on loads and hydropower generation may have a transformative effect on the nature and seasonality of power shortfall risk in the Pacific Northwest.

Under climate change, as winters become warmer, shortfalls are eradicated. However, as summers become hotter, air conditioning increases at a time when there is less water in the hydropower system, increasing shortfalls. Many of these summer shortfalls go unregistered when climate change impacts on loads and hydropower dispatch are analyzed in isolation—highlighting an important role of compound events.

Today's energy planning makes allowances for expected socioeconomic change, including population growth and industrial development, but the possible impacts of climate change on shortfall risk are rarely evaluated. The importance of compound effects demonstrated in the paper suggests that planners will need to assess all potential climate-related impacts across a spectrum of climate futures and policy scenarios.

Electrifying the transportation sector in the Northwest

Although demand for electricity from the transportation sector is currently limited in the region, growing sales of electric cars to consumers and electric buses to municipalities point to a potential new load from this sector, according to a Council analysis. Twenty-eight percent of the energy consumption in the U.S. is for transportation and 92 percent of that is petroleum-based. Nationwide, greenhouse gas emissions from transportation have reached parity with the power generation sector.

The electrification of mass transit will play an influential role in helping lower emissions. TriMet, the mass transit agency for the Portland, Oregon metropolitan area, recently announced plans to phase out its diesel bus fleet and replace it with electric buses over time. The transit system in Wenatchee, Washington, also is experimenting with electric buses.

While the upfront capital costs are higher, the fuel-cost savings of electric buses compared to diesel are significant. The monthly energy cost of an electric bus is \$285, compared to \$1,381 for a diesel bus. With a high-power charger, a bus can be recharged in about 80 minutes.

Fish and Wildlife Overview:

Revising the Columbia River Basin Fish and Wildlife Program

In the summer of 2019, the Council released for public comment a draft addendum to the 2014 Columbia River Basin Fish and Wildlife Program. Public comments on the addendum will be accepted through mid-October. Public hearings to accept comments began in mid-August. Comments will also be accepted in writing. The draft addendum is posted on the Council's website [here](https://www.nwcouncil.org/reports/2019-6): (<https://www.nwcouncil.org/reports/2019-6>) Instructions on how to comment are on the Council's website [here](https://www.nwcouncil.org/2019addendumComments). (<https://www.nwcouncil.org/2019addendumComments>). A list of public hearings is posted at the same location. The addendum would be considered part of the 2014 Program, which would remain in effect.

The 1980 Northwest Power Act directs the Council to prepare, adopt, and periodically review a Columbia River Basin fish and wildlife program to mitigate the impacts of hydropower dams on fish, wildlife, and related spawning grounds and habitat. The Power Act also directs the federal Bonneville Power Administration to pay for projects that implement the Council's program.

The Power Act directs the Council to begin the program review by requesting recommendations and gives particular emphasis to recommendations from state and federal fish and wildlife agencies and Indian tribes. In its May 2018 request, the Council posed a series of questions to help focus the recommendations. The Council received a total of 51 sets of recommendations by the deadline in December 2018. After reviewing the recommendations, and public comments on them, the Council determined that an addendum, and not a complete rewrite, would best serve the needs of the program over the next five years.

Some of the key elements of the addendum include:

- **Program performance and adaptive management:** This part of the addendum describes what the Council and others will do over the next few years to evaluate the program's performance and apply that evaluation to improve program implementation. Included is a reorganization and elaboration of the program's goals, objectives, and strategy performance indicators as needed for this task. It also includes a discussion of how the Council intends to use these goals, objectives, and indicators to assess program performance and improve implementation.
- **Program goals, objectives, and performance indicators:** Program goals, objectives, and performance indicators have been refined in the draft addendum using many sources including the provisional goals developed by the Columbia Basin Partnership Taskforce under NOAA's Marine Fisheries Advisory Committee. Additional goals for resident fish, wildlife, and ecosystem function are included in the addendum. The Council proposes to assess program performance by reporting regularly on progress toward achieving the goals.
- **Climate change:** The addendum calls on the Council and others to consider the implications of climate change in all aspects of the program – planning, project development, and project and program implementation and assessments. The Council will establish a standing science-policy forum on climate change to help the Council and others better understand the implications of climate change and better inform regional power and fish and wildlife decisions.

- **Mitigating for salmon and steelhead impacts of Chief Joseph and Grand Coulee dams:** This part of the Columbia River Basin has suffered the loss of fish and wildlife species directly due to hydropower development at a scale at least comparable to, and in most cases greater than, other areas of the basin. The addendum recommends that Bonneville begin a comprehensive effort over the next five years to intensify, expand, and then sustain the mitigation effort for this part of the basin.
- **Better understanding ocean impacts:** In recent years, the annual information delivered by the program's ocean strategy and ocean research effort has become especially important, with unusual ocean conditions resulting in increased ocean temperatures, changes in food sources, changing predator-prey relationships, and subsequent reductions in survival for many stocks. Monitoring and research actions that generate a basic, important level of information about salmon survival in the ocean are a core part of the program and need to be preserved and adequately funded.
- **Predator Management:** Everyone involved in the program must work together to continue developing a more effective systemwide, ecosystem-based approach for assessing and addressing the impacts of fish, avian, and sea lion predation on salmon, steelhead and other fish species important to the program.
- **Budget:** The addendum recommends that the Council, in collaboration with Bonneville and others, work to ensure that any reductions in program expenditures are 1) aimed at finding efficiencies without sacrificing productive work; 2) remain scientifically valid; and 3) ensure that cost-management efforts are shared equitably throughout the program.

[Report identifies salmon habitat above Grand Coulee and Chief Joseph dams](#)

In July 2019, the Upper Columbia United Tribes (UCUT) submitted to the Council a report that assesses habitat conditions and potential donor stocks if a future decision is made to reintroduce salmon and steelhead to the Columbia River above Grand Coulee and Chief Joseph dams. The report was done in partial fulfillment of the first phase of a three-phase effort outlined in the Council's fish and wildlife program.

Among other things, the first phase focused on the availability and quality of spawning and rearing habitat, estimates of how many juvenile and adult fish could be produced, and on identifying salmon and steelhead stocks that most likely would be successful in the blocked area. Grand Coulee, completed in 1941, and Chief Joseph, completed in 1955, do not have passage facilities for juvenile or adult fish.

Biologist Casey Baldwin of the Colville Confederated Tribes said the UCUT analysis identified and ranked 40 stocks for their reintroduction feasibility based on six criteria including abundance, ancestry, geographic proximity, life history, genetic risk to resident fish species, and risk of introducing disease. The stocks included seven sockeye, 10 summer/fall Chinook, 10 spring Chinook, seven steelhead, and six coho populations. The analysis also identified potential habitat, estimated how many fish the habitat theoretically could support, and reviewed literature about options for fish passage at dams that were built without such facilities.

The Council asked its Independent Scientific Advisory Board, which advises the Council, NOAA Fisheries, and the Columbia River Inter-Tribal Fish Commission, to review the UCUT analysis.

Scientists warn of dangers of Northern Pike

Northern Pike, an aggressive, invasive species that has taken hold in Lake Roosevelt, the reservoir behind Grand Coulee Dam, are likely to spread downriver below Grand Coulee and Chief Joseph dams, causing havoc among salmon and steelhead populations, including endangered species, according to a report to the Council from an advisory panel of 11 independent scientists. In the worst case, if salmon and steelhead “have no refuges from predation (i.e., habitats that are unsuitable for pike), pike are likely to reduce salmonid numbers and cause salmonid populations to collapse,” the report says.

The sobering report responds to questions posed by the Council to the Independent Scientific Advisory Board in November 2018. Members of the ISAB are appointed jointly by the Council, NOAA Fisheries, and the Columbia River Inter-Tribal Fish Commission.

The Council asked the panel to study predation impacts on fish throughout the Columbia River Basin, including predators such as sea gulls, Caspian terns, smallmouth bass, walleye, sea lions and harbor seals. While the panel’s most dire warning and call for action regarded Northern Pike, the panel also wanted the Council to understand that species can’t be controlled or reduced in isolation. Predation is a complex issue, and efforts aimed at one species could have, and most likely would have, impacts on other species, including the connections and interactions among species and the habitats where they live, despite the well-meant intentions of humans.

Northern pike likely cannot be eradicated, the scientists said. But a determined effort of detection, removal and, over time, a form of genetic intervention that would reduce successful spawning could slow the spread substantially.

White Sturgeon in the Columbia River Basin: Some good news, some bad

White Sturgeon, the largest and longest-living fish in the Columbia River Basin – they can live 80-100 years – are present in the highest numbers where they can still reach the ocean and movements are not blocked by dams, state and tribal fish biologists told the Council in a 2019 report. Progressively farther upriver, the populations become weaker as there are fewer juvenile fish and spawning-age adults. The states and tribes are working to improve the weaker populations and effectively manage the stronger ones, and they are having some successes.

The only population with unobstructed access to the ocean, the one downstream of Bonneville Dam, is also the strongest with an estimate 7,000 fish of breeding age – above the number considered critical to conserve the species.

While the estimated number has declined over the last three years, the overall trend since 2012 is up. Most of the fish – an estimated 63 percent – are juveniles, and while that is a good number, as it shows spawning is successful, Oregon, which manages the fish, would like there to be more. Only 1 percent of the population is believed to comprise spawning-age adults. Sturgeon don’t spawn until about 25 years old, and then only about every three years. Sturgeon are in low numbers in reservoirs

behind John Day Dam and the lower Snake River dams, significantly lower than below Bonneville.

Competition increases for funding to fight invasive freshwater mussels

While federal funding to inspect watercraft entering the four Northwest states is secure for 2019, beginning in 2020 a dozen more states will be eligible and competition for funding will increase. It's too early to know whether and by how much Congress will increase funding for the inspections, which are intended to catch and clean boats carrying zebra and quagga mussels from areas of the country where they have taken hold, primarily the Midwest and Southwest, into the Northwest, where they have not.

Once established, the dime-size freshwater mussels grow rapidly, rob water of calcium and other nutrients, and form rock-hard masses of shells that can clog water intakes, foul beaches, and ruin underwater equipment. In the Northwest, where more than half of the electricity is generated at hydropower dams, zebra and quagga mussels pose a threat that worries lawmakers, electric utilities, state fish and wildlife agencies, and others.

After several years of work by the Council and other regional organizations, Congress included a provision in the Water Resources Reform and Development Act of 2014 that established a 50/50 federal/state and local cost share program to establish and operate watercraft inspection stations on roadways entering the four Northwest states. In Fiscal Year 2016 Congress began appropriating funds for the inspection stations, with additional funding provided each year after that through Fiscal Year 2019. The Council requested \$6 million to be appropriated for Fiscal Year 2020. Of that amount, and consistent with the amounts appropriated for FY 2018 and FY 2019, \$5 million would be for watercraft inspection stations and \$1 million for monitoring.

But last year, while again authorizing funding for the inspection program in the Northwest states, Congress also expanded the geographic scope of the effort to include the Upper Missouri, Upper Colorado, South Platte River, and Arkansas river basins – in all, 12 more states. Parts of the additional basins already are infested with zebra and quagga mussels. Adding inspection stations in those basins could help detect infected watercraft leaving those areas and headed for the Northwest. Recent estimates indicate that Congress will have to at least triple the program's funding to accommodate the additional river basins and continue providing adequate support for the Northwest states.

Agreement for flexible spill at dams will benefit fish and hydropower

It's a rare and special event when former litigants can find common ground for agreement, particularly on an important biological and power policy issue that has been the subject of divisive court battles for decades. But that is what happened regarding spilling water at Columbia and Snake River dams to assist juvenile salmon and steelhead migration to the ocean in the spring and early summer, as former litigants accepted an innovative strategy in December 2018 designed to improve fish survival and reduce hydropower losses over the next three years. Water that is spilled can't be used to generate electricity.

The strategy, called the 2019-2021 Flexible Spill Operation Agreement, has been accepted by federal agencies that operate the dams and sell the hydroelectricity, and

also by Oregon and Washington fish and wildlife agencies, and the Nez Perce Tribe. When to spill and how much to spill has been the subject of almost constant litigation since the 1990s. All parties have agreed to try the new strategy, which began in April 2019, monitor its success and, as necessary, make adjustments in future years.

The strategy will be analyzed in a new environmental impact statement of operations of the Federal Columbia River Power System in 2020 and included in the 2019 Biological Opinion on hydropower operations expected to be released by NOAA Fisheries in April.

The spill strategy aims to increase benefits to salmon and steelhead without additional cost to hydropower generation by increasing spill for 16 hours a day and reducing it for eight hours. Increased spill makes more water available for fish passage, and reduced spill makes more water available for hydropower generation. The assumption is that the 16 hours of spill will capture most of the migrating fish, and that the Bonneville Power Administration, which sells power generated at the federal dams, will be able to take advantage of the eight hours of reduced spill to sell hydropower profitably, such as in the early morning and early evening hours when demand for power increases.

[Climate change could force changes in Columbia River dam operations](#)

If the effects of a warming climate play out as expected in the Pacific Northwest – warmer and wetter winters with less snow and more rain, warmer and drier summers – the way hydropower dams are operated in the Columbia River Basin, collectively the region’s largest source of electricity, will have to change in order to continue to maintain reliable electrical service and to continue to provide river flows for salmon and steelhead that migrate to the ocean as juveniles and return to spawn as adults. It’s a question of managing water in the Columbia River system as the warming climate changes water availability and seasonal demand for power.

Current research suggests that while future water volume and river flows will continue to be important for fish migration and hydropower, an equally important issue – and one that can be manipulated to a limited extent for fish and power benefits – is the timing of water releases from storage reservoirs.

By the 2030s, higher average winter streamflows, earlier peak spring runoff, and longer periods of low summer flows are very likely. The greatest streamflow changes likely will be in the Snake River Basin, but that is less certain than predictions for the Columbia because there is greater uncertainty about future Snake River flows.

[‘World Class’ research is answering questions about Columbia fish](#)

Fish and wildlife research sponsored through the Council’s Columbia River Basin Fish and Wildlife Program into the effects of the ocean, estuary, hatcheries, and habitat on salmon and steelhead survival not only is producing interesting and useful results but is some of the best of its kind in the world, the chairman of the Council’s Independent Scientific Review Panel (ISRP) said at a Council meeting in October 2018.

The Council’s research plan serves as guidance to federal agencies with legal responsibilities under the Northwest Power Act in implementing the research measures and priorities of the program. Critical research uncertainties are questions concerning the validity of key assumptions implied or stated in the program.

The ISRP reviewed 25 research projects. ISRP Chair Steve Schroder said the review showed there is collaboration occurring among the projects, that uncertainties in 13 out of the 14 major topic areas in the 2017 Research Plan are being addressed, and that results for many of the projects had been extensively published.

Effectiveness of the Fish and Wildlife Program

Section 4(h)(12)(A) of the Northwest Power Act directs the Council to submit an annual report to Congress that includes a description of *“the actions taken and to be taken by the Council under this [fish and wildlife program] chapter, including this subsection, the effectiveness of the fish and wildlife program, and potential revisions or modifications to the program to be included in the plan when adopted.”* In this report we describe some of the work the Council and others are doing to implement, and this year revise, the program.

This section of the report deals with the effectiveness of the fish and wildlife program. The program describes strategies that provide structure to actions that protect, mitigate, and enhance fish and wildlife affected by hydropower dams in the Columbia River Basin. The Council solicits projects to implement the program, vets them through the Independent Scientific Review Panel (ISRP), then recommends projects to the Bonneville Power Administration for funding. Bonneville contracts with the sponsors to implement the projects.

The program’s projects include land acquisitions to protect and preserve healthy habitats for fish and wildlife; restoration efforts to improve spawning and rearing habitats that have been damaged or blocked; research to learn how best to rebuild naturally spawning fish populations; hatchery programs to boost weak stocks and support healthy ones, and improvements to passage systems to assist fish movement through and around the dams.

A broad range of entities propose projects, including federal and state agencies, tribal governments, watershed groups, universities, private landowners, and environmental organizations. These groups also participate in the project review and selection process. To ensure accountability, all projects are required by law to undergo review by independent scientists (the Independent Scientific Review Panel) before being reviewed by the Council and considered for recommendation to Bonneville.

The Council also uses a second, related panel of scientists to provide advice on key scientific issues, as well as an independent panel of economists to provide guidance on questions of cost-effectiveness.

While it is difficult if not impossible to attribute a single project or group of projects to the success or failure of particular populations of fish and wildlife, we do believe that fish and wildlife will do well and populations will increase as the result of the different kinds of efforts that are funded through the program, including improving spawning and rearing habitat for fish, improving fish passage at dams, and carefully raising and releasing hatchery-bred fish into the natural environment in an attempt to rebuild weak or failing populations and support healthy ones. We can say that, generally, the number of salmon and steelhead counted at Bonneville Dam, the first dam anadromous fish encounter when they return from the ocean to spawn, increased from about 2000 to 2015, compared to the decade of the 1990s, but then began a decline several years ago, perhaps related to inhospitable conditions in the ocean.

We know that degraded spawning and rearing habitat, high water temperatures, and the lack of clean spawning gravel will reduce the ability of fish to reproduce. These are what are called limiting factors. We believe that improving these poor conditions – eliminating or at least improving the limiting factors – should lead to improvements in fish health, reproduction, and fecundity. The Council is working on developing metrics that would measure improvements in limiting factors as a means of measuring fish response to habitat-improvement projects that implement the program. This may be the most reasonable and accurate way to gauge the effectiveness of the program, at least as it regards fish response to habitat improvements. Assessing program performance is a key focus of the draft 2020 addendum to the program, as described elsewhere in this report.

We also know that fish face numerous threats as they travel to and from the ocean. While we can reduce some of them by, for example, working to reduce predation by birds, marine mammals, and other fish, releasing fish from hatcheries to boost populations, and improving habitat, we can't alter other impacts, such as poor feeding conditions in the ocean; harvest, which is regulated by state and federal agencies, and the impacts of ocean predators like orcas and other marine mammals on adult salmon.

For now, the best way we can demonstrate effectiveness and progress is to compile project data collected through monitoring and evaluation and look for trends. The Council tracks progress of fish and wildlife efforts in the Columbia River Basin 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 hydropower dams meeting the fish-passage survival objectives of the program?
3. What is being accomplished by projects that implement the program?

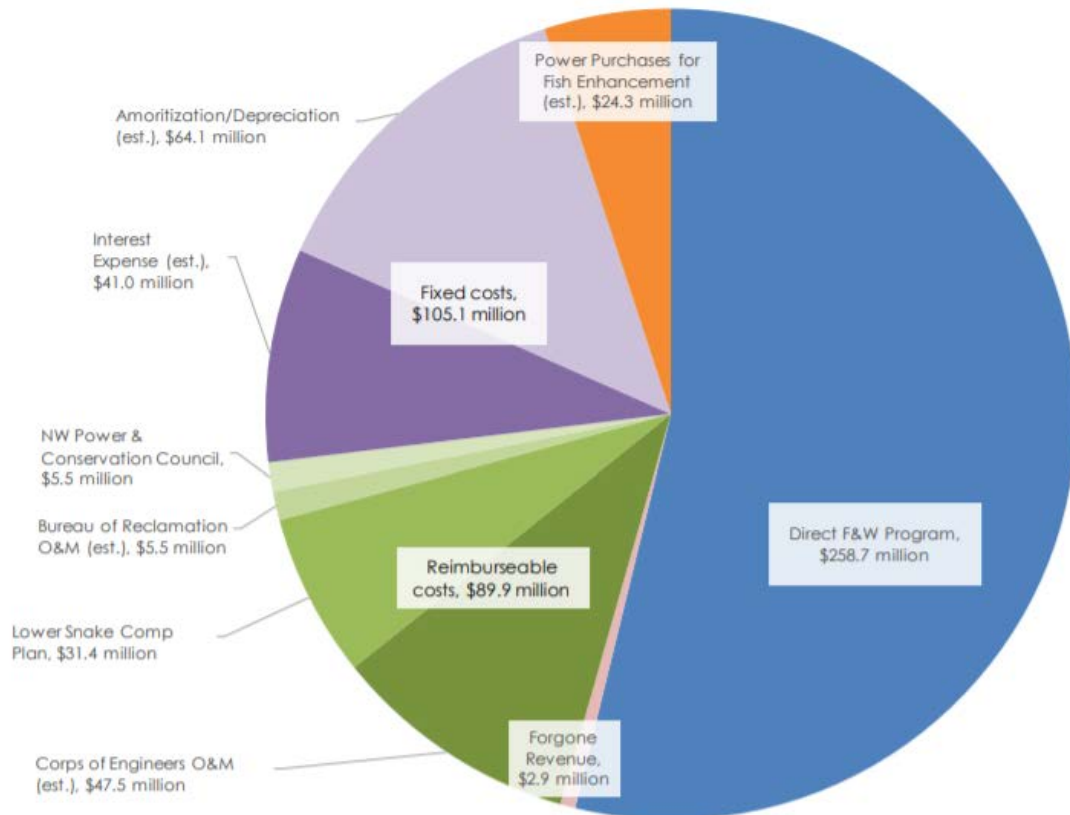
The Council's high-level indicators are posted on the Council's website at www.nwcouncil.org/ext/hli. The Council also maintains a [Program Tracker information site \(https://rs.nwcouncil.org\)](https://rs.nwcouncil.org) that provides detailed information about fish abundance, hydrosystem passage and survival, and habitat improvements.

The following charts illustrate Bonneville's fish and wildlife costs in Fiscal 2018, the most recent year for which costs are available, fish counts and survival, and several key measurements of work accomplished through the program. To assess the effectiveness of the program it is important to understand what is being accomplished -- for example, acres acquired as habitat, stream miles protected, diversion screens installed, and barriers removed so fish can access streams for spawning. It also is important to understand the status of species affected by the program. One way to do that is to see how many adult fish of which species return from the ocean to spawn each year. It also is important to understand how much money is spent annually to implement the program and how it is being spent, and to adjust spending to spend more in one area than others if necessary. For example, in the 1980s the program directed the majority of funding to improving fish passage at dams, and as those projects were completed the program shifted its major focus to improving spawning and rearing habitat. Now the program will put increased emphasis on more thoroughly assessing project performance and outcomes.

The following charts describe some elements of program effectiveness – how the budget is spent, adult fish counts at Bonneville Dam, a description of one aspect of habitat improvements, and dam passage survival estimates for juvenile salmon and steelhead.

Figure 1: Costs by Major Area, FY2018

Total of \$480.9 million does not reflect \$83.2 million in obligations to capital projects for fish and wildlife projects, software development, and structures at dams, or \$70.1 million federal credits Bonneville received from the U.S. Treasury



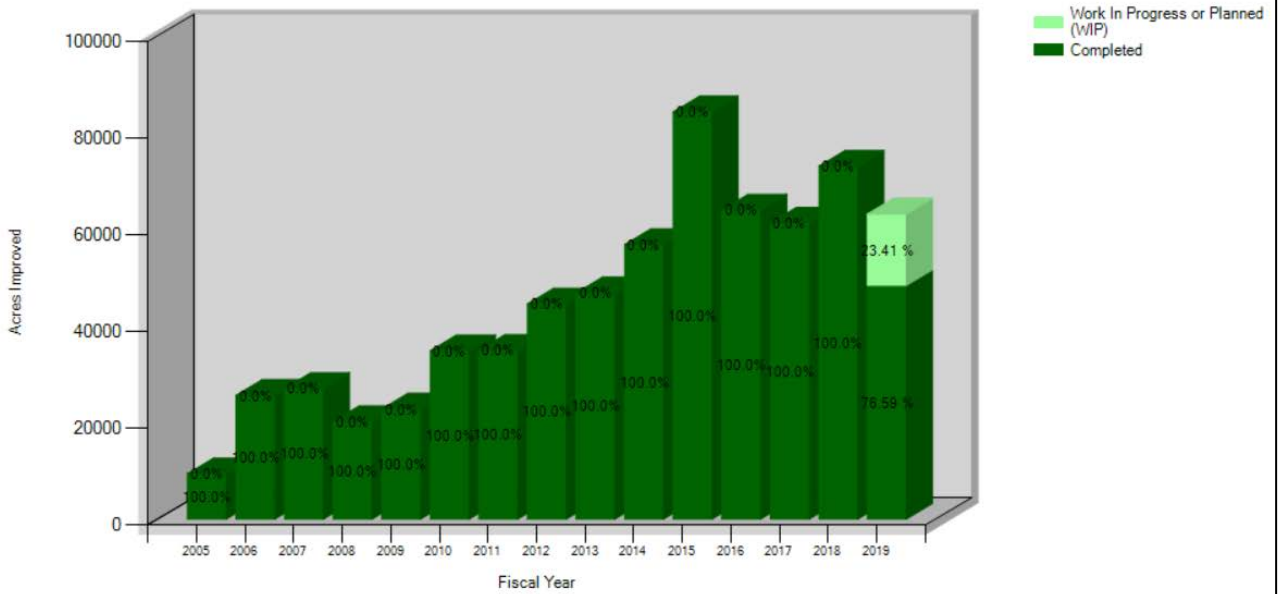
This information has been made publicly available by BPA on 1/18/2019. The figures shown are consistent with audited actuals that contain Agency approved financial information, except for forgone revenues and power purchases which are estimates and do not contain Agency approved financial information

Source: Bonneville Power Administration

Habitat Acres

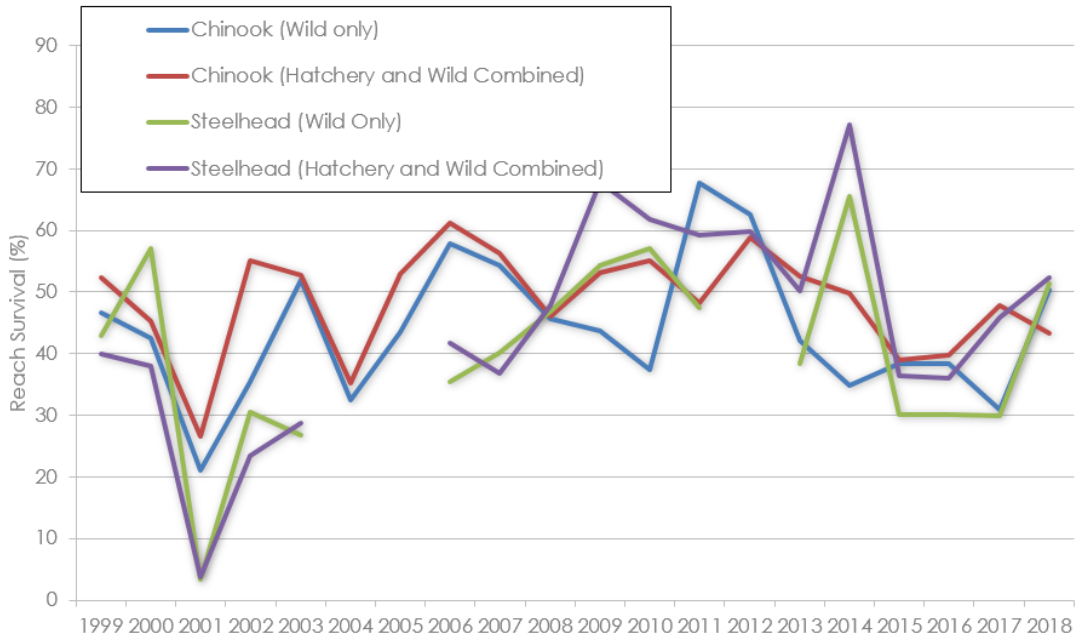
of acres improved by various means via channel work, controlled burns, planting, removing invasives, restoring wetlands & floodplains, controlling erosion, no-till farming, etc.

(Measure(s) 2, 71, 72 - TWEs #30, 31, 47, 48, 52, 53, 55, 180, 181, 197, 198, 199)



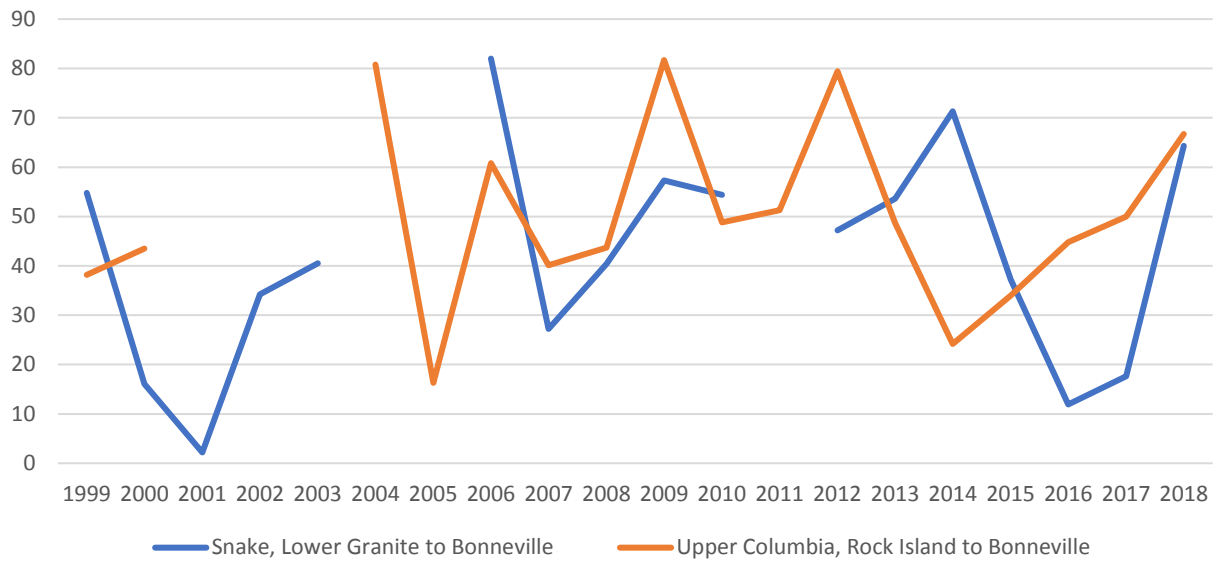
Source: www.cbfish.org

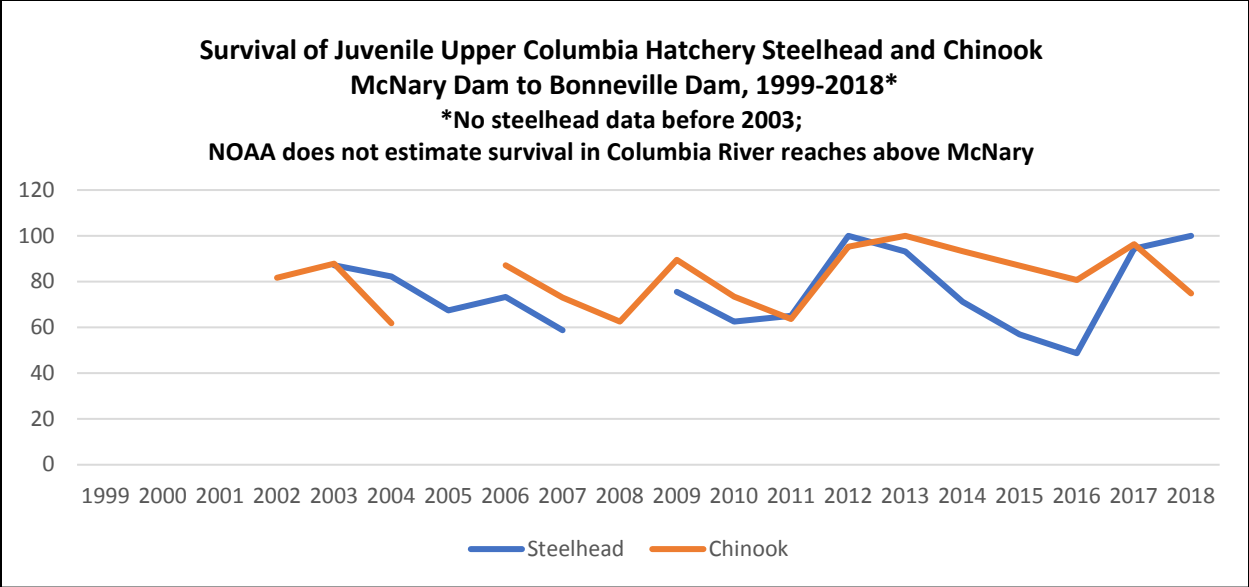
**Survival of Juvenile Snake River Chinook and Steelhead
Lower Granite to Bonneville Dams, 1999-2018**



**Survival of Juvenile Snake and Upper Columbia Sockeye
Lower Granite and Rock Island dams to Bonneville Dam, 1999-2018***

*Data unavailable in some years





Source for the three figures above: NOAA Fisheries, *Preliminary survival estimates for the passage of spring-migrating juvenile salmonids through Snake and Columbia River dams and reservoirs, 2018*

Public Affairs Overview

Outreach, information, and communication

The Northwest Power Act directs the Council to provide for the participation and consultation of the Pacific Northwest states, tribes, local governments, consumers, electricity 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 Council's 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 that are posted as news items on the website and then communicated to the news media and other interested parties via email and social media.

The Council's website, www.nwcouncil.org, functions as the hub of its outreach efforts and public information strategy. In 2017 the Council completed an update of the website, giving it a new look and making it faster to load and easier to use. The website contains myriad documents, publications, databases, and other forms of information. Included on the site are the current versions of the [Northwest Power Plan](#), the 2014 [Columbia River Basin Fish and Wildlife Program](#) and [2020 Draft Program Addendum](#), and the [Seventh Northwest Power Plan](#), as well as press releases, Council white papers, official public comment on Council documents, PowerPoint presentations, videos, Council newsletters, photos, and links to the Council's social media platforms.

Social media are used increasingly by the Council to communicate with the public. These include [Facebook](#), [Twitter](#), [LinkedIn](#), [Instagram](#), [Vimeo](#), and [Flickr](#) accounts, all of which are available on the Council's [News page](#).

The monthly [Council Spotlight](#) newsletter includes news about Council meetings and links to posts on the website.

The Public Affairs Division also has the responsibility of advancing the Council's mission and accomplishments with members of Congress and their staffs. In August 2018 the Council conducted its 11th annual congressional staff trip, this time to Southeastern Washington. The trip included visits to the Lyons Ferry National Fish Hatchery, Little Goose Dam, a wind power generating facility and several projects involving fish and wildlife habitat restoration, fish production, and water conservation. The purpose of these annual trips is to better acquaint House and Senate staff with the requirements of the Northwest Power Act, the work of the Council, and some of the priority issues relating to the Council's work. The August 2019 trip, the 12th since the trips began in 2008, will focus on the lower Columbia River and estuary.

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 power planning entities in British Columbia.

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 communicated with and met annually with the Trust Board of Directors to discuss Columbia River issues of mutual interest. In 2000, the two agencies formalized their relationship in a memorandum of understanding and designated official liaisons. The memorandum was revised in 2011.

The Council and Trust planned to co-sponsor their fifth major international conference on the Columbia River in September 2019. The conference, planned for Kimberley, BC, was expected to have about 200 participants.

Administrative Overview

Council budget

The funding necessary for the Council to carry out its activities and responsibilities under the Northwest Power Act is provided by the Bonneville Power Administration based on the Council's adopted budget. Following public comment, the Council adopts its budget in July or August of each fiscal year and forwards the adopted budget to Bonneville for inclusion in its budget transmittal to Congress.

The proposed Fiscal Year 2020 Revised budget is \$11,722,000 and the proposed Fiscal Year 2021 budget is \$ 11,893,000. These budgets are both below the calculation of the Council budget cap established in the Northwest Power Act, which is based on the forecast of firm power sales for the year that Bonneville provides to the Council, as specified in the Act. In the current budget, the Council identified cost savings to reduce the proposed budget for the next two fiscal years by \$114,000.

The Council adopted the draft Fiscal Year 2021 and Fiscal Year 2020 Revised budget in July 2019. A public comment period was conducted on the draft budget; two comments were received, and the Council determined no changes in the document were necessary.

Members and Offices



Jennifer Anders, Council Chair, [Montana](#)

[email](#) | 406-603-4013

Jennifer Anders was appointed to the Council in January 2013 by Governor Steve Bullock. Ms. Anders worked closely with Governor Bullock during his 2009-2012 tenure as Montana's Attorney General, tackling a number of high profile issues including energy development, water quality, climate change, public land management, and interstate water compact allocations. She has spent her entire professional career in public service, working for four separate Attorneys General in both the civil and criminal arena. Ms. Anders has a law degree from the University of Montana and an undergraduate degree from the University of California, Santa Barbara. She is an avid skier and dedicated practitioner of hapkido, tai chi, and qigong.



Richard Devlin, Vice-Chair, [Oregon](#)

[email](#) | 503-229-5171

Richard Devlin brings a broad diversity of experience to the Council and a lifelong interest in conservation and evidence-based public policy. He has served 31 years as an elected official, first at the local and regional level, where he focused on open space and habitat conservation, land use planning, and transportation.

In 1996 he was elected to the Oregon House of Representatives. He continued his interest in transportation, and expanded into education, economic development, election law and natural resources.

Elected to the Senate in 2002, he was appointed to the Joint Ways and Means Committee and chaired subcommittees on education and natural resources. From 2007 to 2010 he was the Majority Leader of the Senate. He then was appointed Co-Chair of Ways and Means, a position he held until his appointment to the Council in January 2018.

He graduated from Portland State University with a Bachelor of Science Degree in Administration of Justice and Pepperdine University with a Master of Arts in Management. His occupational background is in adult and juvenile corrections, and civil and criminal investigations, and he served in the United States Marine Corps.



Ted Ferrioli, [Oregon](#)

[email](#) | 541-373-1212

Ted Ferrioli comes to the Council in January 2018 having served in the Oregon State Senate for 20 years. During his tenure in the Senate, he served as Senate President Pro Tem, Senate Republican Caucus Leader, and was a long-serving member of the Legislative Committee on Indian Services.

He served as co-chair of the Joint House and Senate Committee on Stream Restoration and Species Recovery, which helped author the Oregon Plan for Salmon and Steelhead Recovery.

Council Member Ferrioli has worked for several forestry non-profit associations, including the Willamette Forestry Council, the Oregon Logger Training Association and the Malheur Timber Operators. He is keenly interested in the issues of Native American Treaty Rights, aquatic and terrestrial species recovery, stream and habitat restoration and carbon reduction through the careful planning for energy efficiency and renewable resources.

Mr. Ferrioli resides in John Day with Mary, his wife of 46 years. He has two children and four grandchildren, all proud Oregonians



Patrick Oshie, [Washington](#)

[email](#) | 360-870-2218

Patrick Oshie was appointed to the Council by Washington Governor Jay Inslee in April, 2019. His term expires in January, 2022. Mr. Oshie received his law degree from the University of Washington in 1980. His legal experience includes matters of federal Indian law, environmental and energy law, and utility

regulation.

Mr. Oshie began working in utility regulation in 1984, serving as counsel to the Committee for Consumer Services in Utah. In 1987, he and his family returned to Washington, where he represented Seattle City Light in its Skagit River Hydroelectric Project relicensing proceeding and the construction of the Lucky Peak Power Project on the Boise River. He later worked with the Yakama Nation to plan and develop the Yakima/Klickitat Fisheries Project and on other fisheries and environmental restoration undertakings, including cleanup work at the Hanford site. In 2001, Mr. Oshie was appointed by Governor Gary Locke to serve on the Washington Utilities and Transportation Commission. After serving two terms, he joined the Western Electricity Coordinating Council and later served as Vice-President and General Counsel of Peak Reliability, the interconnection's Reliability Coordinator. Mr. Oshie joined energy law firm Davison Van Cleve in 2016 as Of Counsel, representing industrial and large volume electricity customers before the Washington and Oregon utility commissions.



Guy Norman, [Washington](#)

[email](#) | 360-816-1173

Guy Norman was appointed to the Council by Washington Governor Jay Inslee in September, 2016. His term expires January 2020. He has worked with the fish and wildlife resources of the Columbia River basin since 1977. He retired in 2016 after 33 years with the Washington Department of Fish and Wildlife (WDFW) where he had been the Southwest Washington Regional Director since 2004. Guy also spent three years with the Oregon Department of Fish and Wildlife (ODFW) as the Interjurisdictional Fisheries Director during 1999-2002 and was a private consultant for two years working on Columbia basin fish recovery projects before returning to WDFW in 2004. For over 20 years he represented either WDFW or ODFW on the *U.S. v. Oregon Policy Committee* and the Columbia River (fishery) Compact.

He has also been a state representative in domestic and international fisheries forums, including the Pacific Fisheries Management Council, the Pacific Salmon Treaty, and the North Pacific Anadromous Fishery Council. Guy has also been a state participant in several NOAA ESA forums, including the FCRPS BiOp Regional Implementation Oversight Group. He has a B.S. in Environmental Science Technology from Oregon Institute of Technology.



Jeffery Allen, [Idaho](#)

[email](#) 208-947-4080

Jeffery C. Allen was appointed to the Council in March 2019 by Idaho Governor Brad Little. Prior to his appointment, Mr. Allen directed the Idaho office of the Council for 10 years, where he established and continues to maintain relationships with the people and organizations in Idaho that deal with issues the Council addresses in its planning activities, including protecting and enhancing salmon, steelhead, and resident fish affected by hydropower dams, water allocation, and ensuring the Northwest has a reliable and affordable electric power system. Before managing the Council's Idaho office Mr. Allen worked for the Governor's Office of Species Conservation, where he advised Idaho's effort to coordinate all state policies relating to the Endangered Species Act and led Idaho's efforts to delist the wolf and establish a compensation fund to pay for livestock lost to wolves. Earlier, Mr. Allen served as the State Director of Natural Resources for U.S. Senator Mike Crapo. Mr. Allen holds a Bachelor's in International Relations from Brigham Young University. He lives in Star with his wife, Annette, and four children.



Jim Yost, [Idaho](#)

[email](#) 208-947-4080

Jim Yost was born in Rupert, Idaho and raised in the Magic Valley of Southern Idaho where he learned and applied knowledge of water, agriculture and natural resources.

Jim graduated from the College of Southern Idaho in 1968 with an Associate of Arts Degree and then Boise State in 1971 with a Bachelor of Arts degree in education.

He was elected in 1972 to the Idaho State Senate at age 24, the youngest Idaho Senator/Legislator ever elected, and served two terms.

He owned and operated a dairy distributorship for a number of years in Wendell, Idaho and worked for the Union Pacific Railroad for 10 years. In 1988 he was named Assistant Public Affairs Director for the Idaho Farm Bureau and in 1991 was promoted to Public Affairs Director. In 1995 he worked for a time for the Council, then known as the Northwest Power Planning Council.

Governor Batt appointed Jim as his Natural Resources Senior Policy Advisor. He was retained by Governor Kempthorne from 1999-2006. He was retained again by Governor Risch for his term. In 2007 Governor Otter again retained Jim until the appointment to the Council in October of that year. His term expires January 2021.

Background About the Council

The Northwest Power Act

The Council was authorized by Congress in 1980 in the Pacific Northwest Electric Power Planning and Conservation Act (the Power Act), giving the states of Idaho, Montana, Oregon, and Washington a greater voice in how we plan our energy future and protect our fish and wildlife resources. The Act gives the four Northwest states a formal role in making decisions about the allocation of new energy resources for the region.

In the late 1960s and early 1970s, the years leading up to the congressional debate over the Act, the Bonneville Power Administration and many of the region's utilities were concerned that the region's expected growth would outstrip the power system's ability to meet electricity demand. As a result, Northwest utilities made decisions to build a number of new energy plants, including five nuclear power plants in the state of Washington. When the Act was passed in late 1980, many in the region had come to realize that those earlier decisions, based in part on inaccurate electricity demand forecasts, were a disastrous mistake. Only one of the plants, the currently operating Columbia Generating Station, formerly known as Washington Nuclear Plant 2, was completed. Due to exorbitant cost overruns, the other four plants were abandoned or mothballed prior to completion. Two of the unfinished plants were responsible for one of the largest bond defaults in the history of the nation, while the financing for the other three plants was backed by the Bonneville Power Administration. Even today, 37 years after the Northwest Power Act was enacted, Bonneville pays hundreds of millions of dollars a year on debt service for two of the unfinished nuclear plants, plus the one that was completed.

Congress concluded that an independent agency, controlled by the states and without a vested interest in selling electricity, should be responsible for forecasting the region's electricity load growth and helping determine which generating and conservation resources should be built. The Council does that in the Northwest Power Plan, which includes a component Columbia River Basin Fish and Wildlife Program to mitigate the impact of hydropower dams on fish and wildlife. The Act directs the Council to review the plan at least every five years. The Act also directs the Council to ensure widespread public involvement in formulating regional fish and wildlife and energy policies.

The Northwest Power and Conservation Council

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 in Portland and in each state), by 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 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 employees.

The central staff is organized into five divisions: Power Planning; 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.

The Council, known until 2003 as the Northwest Power Planning Council, is an interstate compact agency authorized by Congress in the 1980 Power Act and created by the legislatures of Idaho, Montana, Oregon, and Washington. 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 key responsibilities and five divisions.

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 (in southern Oregon), 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 federal and non-federal dams in the Columbia River Basin (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 to the fullest extent practicable," in the words of the Act.

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

[The Columbia River Basin Fish and Wildlife Program](#)

A key element of the Council's planning efforts is developing and periodically revising (by law, at least every five years) a program to protect, mitigate, and enhance fish and wildlife, and related spawning grounds and habitat, of the Columbia River Basin that have been affected by hydropower dams – both federal and those licensed by the Federal Energy Regulatory Commission. Consistent with direction in the Power Act, the Council first created and subsequently has revised, the fish and wildlife program, followed by the initial creation and subsequent revisions of the Northwest Power Plan (see below). That sequence is because the Act requires the Council to include

measures in the fish and wildlife program to improve survival of anadromous fish – those that are born in freshwater, spend most of their lives in the ocean, and then return to freshwater to spawn – at and between dams on the Columbia and Snake rivers. Because these measures can take water away from hydropower generation – by spilling over dams to improve fish-passage survival, for example – the Council anticipates that hydropower generation could be reduced as a result of the program and accounts for this potential loss with cost-effective resources in the power plan. The highest-priority resource in the Power Act is energy efficiency, also called energy conservation.

The Act directs the Council to develop its program and make periodic major revisions by first requesting recommendations from the region's federal and state fish and wildlife agencies, Indian tribes within the basin, and other interested parties. The Council also takes comment from the designated entities and the public on those recommendations.

The Council then issues a draft amended program and initiates a public comment period on the recommendations and proposed program amendments that includes extensive written comments, public hearings in each of the four states, and consultations with interested parties. After closing the comment period and following a review and deliberation period, the Council adopts the revised program. The Council develops its final program on the basis of the amendment recommendations, information submitted in support of the recommendations, views and information obtained through public comment and participation, and consultation with the fish and wildlife agencies, tribes, Bonneville customers, and others. The program amendments are not concluded until the Council adopts written findings as part of the program explaining its basis for adopting or not adopting program amendment recommendations.

The program is implemented through projects financed by the Bonneville Power Administration and undertaken by federal agencies including the U.S. Army Corps of Engineers, the Bureau of Reclamation, the Federal Energy Regulatory Commission and its licensees, and by state fish and wildlife agencies, Indian tribes, and occasionally private contractors. Every project proposed to the Council to implement the program is reviewed by the 11-member Independent Scientific Review Panel to be sure it is based on sound scientific principles and is consistent with the Power Act.

The Northwest Power Plan

Following final approval of the fish and wildlife program, the Council revises the power plan. Under the Power Act, the fish and wildlife program is part of the Power Plan.

The plan is a 20-year blueprint to meet future demand for power that includes an electricity demand forecast, electricity and natural gas price forecasts, an assessment of the amount of cost-effective energy efficiency that can be acquired over the life of the plan, and a least-cost generating resources portfolio. The plan guides Bonneville's decision-making to meet its customers' electricity load requirements and also serves as a useful guide for investor-owned utilities in their own least-cost planning.

In the Northwest Power Act, a law that was ahead of its time, Congress concluded that energy efficiency should be the priority energy resource for meeting the region's future load growth. The Act includes a provision that directs the Council to give priority to cost-effective energy efficiency, followed by cost-effective renewable

resources to meet future demand for power. In effect, for the first time, energy efficiency was deemed to be a legitimate source of energy on par with generating resources.

The rest is history. Since the release of the Council's first Northwest Power Plan in 1983 (one year after the first fish and wildlife program), the region's utilities have acquired the equivalent of around 6,600 average megawatts of energy efficiency. Expressed as electricity, that is more than enough to power five cities the size of Seattle.

During the roughly two years after the revision of the power plan and the beginning of work on the next fish and wildlife program, the Council and its staff monitor implementation of the two planning documents, meet with energy and fish and wildlife experts to discuss contemporary issues, and monitor progress toward goals in the plan and program.

Letter from Bonneville Power Administration

(Will be added following Council approval of the final version of the report in January 2020)

News articles that mentioned the Council in Fiscal Year 2019

Tom Karier: Dam breaching isn't so simple

Seattle Times

July 12, 2019

<https://www.spokesman.com/stories/2019/jul/12/tom-karier-dam-breaching-isnt-so-simpl/>

Can Bonneville Power Administration be saved

Seattle Times

May 31, 2019

<https://www.seattletimes.com/opinion/can-bonneville-power-administration-be-saved/>

Wind farm 'repowering,' tax credits bring big blades back to Port of Longview

Longview Daily News

August 5, 2019

https://tdn.com/news/local/wind-farm-repowering-tax-credits-bring-big-blades-back-to/article_2e58e7a9-6a97-54f6-8221-94768151aa6f.html

'I want salmon back in Idaho.' Simpson seeks bold action after \$16 billion spent on recovery

Idaho Statesman

April 23, 2019

<https://www.idahostatesman.com/news/local/environment/article229602914.html>

Council Meetings Fiscal Year 2019

[October 2018, Wenatchee, WA](#)

[November 2018, Portland](#)

[December 2018, Portland](#)

[January 2019, Portland](#)

[February, 2019, Portland](#)

[March 2019, Portland](#)

[April 2019, Portland](#)

[May 2019, Boise](#)

[June 2019, Portland](#)

[July, 2019, Butte, MT](#)

[August, Portland](#)

September, 2019, Corvallis, OR

Comments on the Draft Report

(Will be added following the public comment period)