



**NORTHWEST POWER AND CONSERVATION  
 COUNCIL  
 March 11-12, 2008**

In Boise, the Council started sketching out how to grapple with over 4,000 pages of fish and wildlife program amendment recommendations expected by April 4. NOAA scientists harped on the ocean's role in fish survival and said forecasts should take that into account. Developers of the region's first geothermal plant in Idaho see Oregon as the next hot spot. Next Meeting: April 15-16 in Whitefish, Montana.

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**FOR OPENERS**

Idaho Governor C. L. "Butch" Otter welcomed the Council and reported that his state's watersheds "are looking pretty good now." Statewide, we are at 127 percent of normal to fill our reservoirs, he said.

The Council plays a key role in balancing two vital resources: clean, reliable power and the environment with abundant fish and wildlife (F&W) resources, Otter noted. He said he has issued an Executive Order asking each state agency to see how it can lessen its impact on the environment. As a result, the state is buying hybrid vehicles and doing more conservation, according to Otter.

Last year, I elevated our Department of Energy to a cabinet-level position, and I've asked our state to get 25 percent of our energy from renewables by 2025, he said. In Idaho, we encourage conservation – we haven't found the need to mandate it, Otter told the Council. In 2007, Idaho Power exceeded the energy-savings goals in its Integrated Resource Plan by 53 percent, he reported.

Water is also important to us, and water goes to the heart of the Council's statutory mandate, Otter stated. I'm convinced we must act to develop increased water storage, he said. When I was in Congress, there was a study that showed we could put six to eight additional feet on top of each dam in our state and get larger reservoirs, rather than building new dams, Otter pointed out.

We are looking at that idea and also at how we can recharge our aquifers, he said.

## **THE AGENDA**



### **Caution! Work Sessions Ahead**

Council staff presented a plan for dealing with the voluminous recommendations for amendments to the Council's F&W program expected to come in by the April 4 deadline. I think we will get over 4,000 pages of recommendations, staffer Tony Grover said.

From April through November, on the Tuesday before each Council meeting, the full Council would convene "to work through every aspect of the program amendments," he explained. These would be half or three-quarter day work sessions, open to the public, but with no opportunity for public statements or presentations, Grover said.

At the first work session on April 15 in Whitefish, we will sort through all the recommendations received, he stated. On May 13 in Walla Walla, we will talk about the three Biological Opinions scheduled to be issued that month and give you as much comprehensive information about them as we can, Grover told the Council.

Consultation is a significant part of the F&W program process, he said. After each work session, we propose that some time be set aside during which Council members can meet with stakeholders, F&W managers, and others, Grover stated.

Joan Dukes asked how long after April 4 it would take staff to assemble the recommendations so Council members can review them. The first thing we will do is inventory all the recommendations and post them on the website, replied staffer Patty O'Toole. That step is important to kick off the 60-day public comment

period in which people will be able to comment on the recommendations, she said. Then we'll organize the recommendations so we can work with the Council on them, O'Toole stated. We may organize the recommendations by issue, she added.

Tom Karier asked whether staff intends to gear the work sessions to higher-level policy issues, given that there are already subbasin plans with hundreds of pages of details. We are looking for guidance on that, replied Grover. I think the program becomes less flexible and more unwieldy if there is too much detail, but some interests may want to see even more detail in the program, he added. I think we have to wait and see what comes in and then decide on a level of specificity, said Council chairman Bill Booth.

O'Toole presented a public hearing schedule that would commence after the Council releases a draft F&W program in mid-August. The hearings would start September 16 in Astoria and finish up October 15 in Missoula.

### **The Ocean's a Problem and Climate Change Won't Help**



John Ferguson led off a panel presentation by scientists from NOAA's Northwest Fisheries Science Center about research BPA has funded on the effects of climate variability on fisheries resources in the Northwest. We've looked at the ocean conditions salmon experienced in 2007 and how that is likely to affect what happens in 2008 and 2009, and what we see going on in the ocean is a climate issue, he stated.

Policy-level folks are starting to understand that climate change is real, has big effects, and is something we need to pay attention to, Ferguson said. Climate change directly affects water temperature and the magnitude and timing of streamflows, which affect all aspects of salmon development, he noted. For salmon, recruitment

into the sub-adult life stage is directly related to the ecosystem smolts experience during the first few days, weeks, and months at sea, Ferguson said.

Bill Peterson explained his research on salmon survival in the Northern California current based on juvenile sampling done off the coast at Newport, Oregon since 1998. The three factors most important for fish in the Northern California current, he said, are: the strength of coastal upwelling, the seasonal reversal of coastal currents, and the phase of the Pacific Decadal Oscillation (PDO).

#### Upwelling is Swell

Without upwelling [the upward movement of deep, colder water], the coasts would be much warmer in the summer, and without upwelling, we would have no salmon off the Northwest coast because salmon like a cold ocean in the summertime, according to Peterson. In the winter, winds from the south create downwelling, which brings zooplankton and other food animals up from the south, and then in the summer, strong winds from the north create upwelling, which brings cold-water animals from the north to Pacific Northwest waters, he explained.

The PDO has two phases, negative and positive, resulting from the direction of winds in winter, Peterson said. From 1925 to 1998, the PDO has shifted every 20 to 30 years, and some refer to these as "salmon" regimes (cool) and "sardine" regimes (warm), he noted.

We think the type of food available for salmon depends on the phase of the PDO we are in, Peterson stated. A negative PDO is good for salmon, while a positive one is not, he said. The percentage of coho salmon that return to hatcheries has tracked with the type of PDO since 1960, Peterson added.

When the entire North Pacific Ocean turns to a negative PDO, it means that upwelling starts earlier, and there are a lot of forage fish, and salmon do very, very well, he stated. So we have

begun to develop tools to forecast ocean conditions and the potential impact on salmon survival one to two years ahead of their actual return, Peterson said. Management strategies may need to take PDO patterns into account, and given the uncertainties, it is best to set catch quotas on the low side, he said.

This winter there has been a negative PDO with westerly winds dominating, which is why we've had so much snow, Peterson continued. The PDO shifts may be getting more frequent, he added.

I'm pretty optimistic that we've turned the corner on the bad ocean conditions we've had in recent years, Peterson told the Council. Upwelling seems to be beginning now, and it's only March, he noted. There's a pretty good chance we'll have a pretty good year in the ocean in 2008, Peterson said.

Are you forecasting returns now? Karier asked. Not for spring chinook because they live elsewhere, and our indicators are only for fish that live off the Oregon and Washington coasts, Peterson replied. How much in advance can you forecast jack numbers? Karier asked. For coho, we can do that one year in advance, and we haven't determined a time line for fall chinook yet, replied Peterson.

I think the Council should collect all the forecasts from NOAA and state agencies, compare them, and "look for winners," said Karier. In recent years, state agencies have misjudged some things in their forecasts, he noted.

I think the Council should keep a scorecard so we can focus on what's working and what is not, Karier added. We need to do a better job incorporating these ocean metrics into the forecasts, agreed Ferguson.

Do you think climate change will lead to more positive or more negative PDOs? Karier asked. It's all speculation, although there are global climate models that show PDO patterns, replied

Peterson. The most troubling thing is that the PDO is no longer a decadal cycle – it can be more frequent, he said. Upwelling is unpredictable, and sometimes, it starts and then just stops, Peterson added.

Dick Wallace asked about the effects of climate change on upwelling and whether there has been modeling done of deeper ocean temperatures. The ocean is warming, replied Peterson. So we could face a double whammy related to climate change with upwelling starting earlier, and higher temperatures leading to earlier spring runoff that pushes fish out early, Wallace said.

Booth said he liked the idea of the Council reviewing all the forecasts. Staff should think about how to take the next step, which could involve managing hatcheries based on the forecasts, he added.

#### Freshwater Habitats

Rich Zabel reported on his research on climate change effects on salmon in freshwater habitats in the Salmon River Basin. We found different responses in different fish populations to freshwater climate variability, he said. Fall flows are an important factor, and fish response is mediated by habitat conditions, Zabel stated.

There's been a steady increase in air temperature in the basin, he noted. In our studies of changes in streamflows under different temperatures, we found snowpack to be the main driver, Zabel said. Unlike the ocean, changes in snowpack are very predictable and easy to incorporate into forecasting models, he pointed out.

We concluded that while there is potentially a very strong response of juvenile fish survival to climate change, population diversity might serve as a buffer against those impacts, according to Zabel. In our future research, we want to study how life-history traits like migration timing respond to climate change, and how temperatures affect fish growth rates, he said. We also want to look at changes in survival through the hydro

system under various climate change scenarios using the COMPASS model, Zabel added.

#### Leave It to Beaver

Tim Beechie reported on his work in the John Day watershed that involves using beaver to restore incised streams. Beaver dams are a really easy way to restore streams to more natural conditions, and we found that reaches with beaver ponds have many, many more steelhead in them, he said.

Climate change will reduce summer flows, but this restoration work could counter those effects by increasing aquifer storage and reducing the need for irrigation, Beechie explained. Using beaver dams for restoration also increases sediment retention, floodplain connectivity, and summer flows, he said. All of these projects are part of our larger review of the toolbox of stream restoration activities to determine which will fare well by climate change and which will be made less effective by it, Beechie added.



#### **Visualizing Project Review**

Staffer Lynn Palensky explained a proposed approach for reviewing the next round of F&W projects, noting that staff has developed 10 "overarching principles" to guide the process. Unlike previous years, the process will distinguish between different types of projects, specifically those with long-term funding commitments versus those with shorter-term implementation, she said. We have a core set of projects we fund on an ongoing basis, with some adjustments, and we see those as being on a different path than shorter-term projects, Palensky stated.

The process would include a categorical review for existing long-term projects that are similar in nature, such as wildlife, resident fish, or research, monitoring, and evaluation (RM&E) projects, she said. The categorical reviews would then inform

and be integrated into a geographic review, according to Palensky.

The process would begin next month with the first category review of wildlife projects and continue for the next three years, she said. It would be structured to allow the Council to make changes as needed to accommodate regional priorities such as BPA's Endangered Species Act (ESA) requirements, Palensky noted. The Council could make funding allocation decisions at any time during the process, she said.

The process you describe presumes an "optimistic, rosy picture and doesn't seem to include a way to deal with ineffective, inefficient, and superfluous projects in our program," said Bruce Measure. How do you address that? he asked. It will be up to staff to track the dollars and the projects and make informed recommendations to the Council, replied Palensky.

She said there have been questions about projects in provinces that, under the new process, wouldn't get reviewed for a couple of years. BPA has committed to carry those projects forward with adjustments, if need be, as long as the Council has an overall plan for project review, Palensky stated. If we can "take the pain" and time required to get through one full cycle of this process, we'll be able to use it in future years, she said.

Booth asked for a summary of issues that need to be resolved. Palensky said: we need to lay out the key decision points for the Council; link the process back to the original 10 principles; and clarify how things will work along the way in more detail. Tom Iverson of the Columbia Basin Fish and Wildlife Authority (CBFWA) said he would take the proposal to CBFWA and ask project sponsors to comment on whether it seems feasible.

Dick and I will propose some amendments to the process, Karier stated. We think there should be some explicit budget allocations early on so we

aren't voting on projects without budget information, he said. We think the role of the states needs to be more clearly articulated, and where the funding decisions are in the process needs to be made explicit, Karier stated. The entire process needs to be simpler, he added. Wallace said the proposal should be posted on the website so CBFWA and state recovery boards can see it and understand where they fit in.

Is there a consensus that staff is on the right track? Booth asked. We don't want to go into this assuming any project is okay and will be funded, said Dukes. While there needs to be certainty on when funding decisions will be made, "divvying up the funding too soon makes me nervous," she added.

The breakout of categories and geographic review make sense, but I'm concerned about timing, said Brian Lipscomb of CBFWA. We need to look for a comprehensive understanding of the needs of implementing the new program and do that all at once, he stated.

Booth said he expects staff to provide additional detail at the next meeting so the Council can agree on the process. Then we can give you the green light to get started with category planning right away, he added.

### **Geothermal: It's G-R-R-R-E-A-T**



"We're a soft, chewy planet," there's a lot of heat at its center, and that's where geothermal energy comes from, said Doug Glaspey of U.S. Geothermal. The United States is the world's largest producer of geothermal power with 2,830 MW installed, but that still is only 0.37 percent of U.S. electricity consumption, he noted. "If we even got to 1 percent, I'd be thrilled to death," Glaspey said.

Nevada, California, Idaho, Utah, and Oregon are the states with the highest potential, he pointed out. California, with 2,492 MW serving 5 percent of the state's energy needs, is the largest producer in the country, according to Glaspey. With the opening of its Raft River plant, U.S. Geothermal has put Idaho on the list of geothermal-producing states, and we hope Oregon might be next, he said.

The Raft River facility in southern Idaho is a binary cycle plant that was completed in October and has a gross generation capacity of 12.5 MW, Glaspey reported. Idaho Power is purchasing the output under a Public Utility Regulatory Policies Act (PURPA) contract. A binary cycle plant, operated properly, has a 96 to 98 percent capacity factor, Glaspey said, adding, "it's the most reliable renewable power source" and can produce power 24 hours a day.

Development of the geothermal industry is being driven by federal tax credits, emissions-related credit trading, the adoption of renewable portfolio standards by states, and state tax policies, he said. Idaho gives renewable energy plants a 100 percent sales tax rebate, which for Raft River, amounts to \$1 million, Glaspey noted.

There's a tremendous potential for geothermal development in the West, he said. It's like solar energy – if you could harness it all, there would be no need for fossil fuels in the future, according to Glaspey. Costs have come down from 10 to 16 cents per KWh in 1980 to about 4 to 7 cents now, he reported. Geothermal is extremely capital-intensive, with capital costs running between \$3.35 million to \$4.6 million per megawatt for a binary cycle plant, Glaspey noted.

We hope that our second plant will be at Neal Hot Springs in eastern Oregon, he said. We are planning a production well drilling program there this spring to determine the commercial viability of the resource – it appears this site is 20 to 30 degrees hotter than Raft River, Glaspey stated. We are negotiating a 26 MW power purchase agreement with Idaho Power, he added.

Melinda Eden asked about emissions from the Raft River plant. There are no CO<sub>2</sub> emissions, but there are fugitive VOC (Volatile Organic Compound) emissions, Glaspey replied. We don't have a number for those yet, but we can get that information to you within a year, he said.

What's the amount of water consumed in the cooling process, and is that a limiting factor for a plant? Wallace asked. Yes, it is a limiting factor, Glaspey replied. At Raft River, we bought a 1,000-acre ranch with water rights, he noted. At Neal Hot Springs, the plant would be air-cooled, Glaspey added.

### **Slogging Toward Accountability**



Over the years, the Independent Scientific Review Panel (ISRP) has told us that most of the reporting from F&W projects is not adequate and that we are not getting the information we need, Karier said. We think we need more explicit guidance from the ISRP, he stated. We'd like the ISRP to tell us: which reporting metrics they want to see for F&W projects, whether the metrics can be prioritized, and if there is a useful distinction between "implementation metrics" to be required of all projects, and "effectiveness metrics," which would apply to a narrower set of more intensively monitored projects, Karier explained.

The Council could then test what the ISRP recommends about metrics with the F&W managers to see if they think collecting and reporting them is doable, he said. Ultimately, this should provide more clarity on what projects are supposed to collect and report, Karier added.

Noting concerns expressed by CBFWA, Rhonda Whiting said we need to be able to give more direction to project sponsors as we go through this process. I'm glad to hear this will be vetted with agencies and tribes, said Lipscomb. They

are addressing this issue in various arenas, he added.

Booth said Karier has agreed to lead a team being assembled to work on RM&E strategy over the next six months. They will review all ongoing M&E efforts in the region to see if this work is being done as a system and whether it supports the Council's goals and objectives, he stated. They will also look at the large amount of spending that is occurring without having the project reporting we need, and this work will help the Council as it prepares its annual report to Congress on the Council's F&W program, Booth said.

Measure moved the Council request that the ISRP review the project reporting metrics presented by Council staff. Karier seconded, and the motion passed.



### **It Takes Two to Do the Evaluation Tango**

The Northwest Power Act contains a legal requirement for the Council to report to Congress on the effectiveness of the F&W program, Karier said. With the Pisces system, we have more information on F&W projects than we've had in the past and that will help us in preparing the report, he stated.

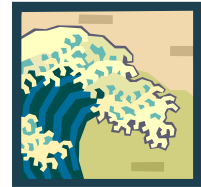
Karier recommended the Council write to BPA asking the agency to provide information it has collected relating to the effectiveness of the program and provide it by September 1, 2008. Our sending the letter will make sure BPA is a partner in developing the report, he said.

Why do we need a letter – can't we just e-mail BPA? Dukes asked. There hasn't been a great track record of our getting information from BPA, responded Karier. It's better to make the request formally so it is on the record, he added.

Throughout my tenure on the Council, Tom has been trying to get BPA to comply with the Act's requirements for reporting on projects and their accomplishments, said Eden. I'll vote for the letter, but I'm concerned how we define "effectiveness" when we report to Congress, she stated. If you were to look at the goal of "doubling the fish runs," our program is not effective because we haven't done that, Eden said. When we get the information, we'll need to be careful how we define effectiveness, she added.

I agree, said Jim Yost. We could include information on trends in harvest numbers in the report because that is an indication of the success of our program, he stated. We continue to kill salmon, and we should indicate how we are doing at it, Yost added. Measure moved the Council approve the letter to BPA requesting information on the effectiveness of the F&W program. Wallace seconded, and the motion passed.

### **Water, Water Everywhere**



Staffer Jim Ruff reported the "good news" that the March final water supply forecast shows improvements in streamflows in most areas of the basin. The water supply forecast for the Columbia River at The Dalles is now 101 percent of average, or near normal, he said. The lowest runoff is expected to occur with inflows to Brownlee at only 87 percent of normal, which is 4 percent higher than last month's forecast, Ruff noted.

The storms have just been rolling in and dumping snow on the Cascades, he said, adding that overall, "conditions just keep getting better." Most areas in the Columbia River Basin have snow levels in the 105 to 115 percent range, and Canadian snowpack has increased from 103 percent in February to 110 percent, Ruff said.

The improved snowpack means that runoff forecasts have improved slightly from February, he noted. Most basins throughout the Columbia are expected to have runoff in the 90 to 120 percent range, according to Ruff.

NOAA's Climate Prediction Center says that moderate La Nina conditions will persist from March through May, to be followed by weaker La Nina conditions over the summer and fall, he reported.

So there will be much more water, and hydropower production will increase, commented Karier. But there's not necessarily the expectation that the higher flows will be great for fish and juvenile survival, he stated. We are looking at average runoff overall, and temperature is key for Snake River fish in the summer, said Ruff. The good water should help the survival of Snake River migrants and some upriver fish, but you are right – it's hard to say that high flows mean a good year for survival, he told Karier.

So the importance of a good or bad water year is ambiguous for fish survival? Karier asked. We are not doing active flow augmentation in the way we operate the system now, which is a reflection of that, replied Ruff.



### Bug Math 101

Staffer Peter Paquet said the Pacific Northwest Aquatic Monitoring Partnership (PNAMP) has requested that a new standardized protocol for the collection and analysis of macroinvertebrates, such as insects and crustaceans, in streams be used by PNAMP partners that fund projects in the region. Staff is requesting the Council transmit the protocols to BPA with a recommendation they be incorporated into future contracts, he said. This effort is aimed at getting better

standardization in our monitoring and review process, Paquet added.

Protocols are necessary, but I do have a concern that this seems to be overkill in some water bodies we'll be looking at, Yost said. Idaho sends out people to look at water quality in streams, and it's expensive, he stated. "If the expectation of you technocrats is to have this on all water bodies, I don't want to go there," but on certain occasions, it could be useful, Yost said. We are not asking it be done for all streams in the basin, but only for projects that say "this technique is going to be used," Paquet said. In that case, we would ask BPA to include the preferred protocols in the contract, added Karier. The Council passed a motion endorsing the protocols.

### END NOTES \_\_\_\_\_

#### **Interim Electricity Forecast Gets Final Nod.**

The Council approved release of the final version of the interim wholesale power price forecast paper, which will supersede the price forecast in the Fifth Power Plan. Staff said this forecast will be updated as new information becomes available during development of the Sixth Power Plan.

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### Council 2008 Calendar

April 15-17	Whitefish, MT
May 13-15	Walla Walla, WA
June 10-12	Spokane, WA
July 15-17	Montana
August 12-14	Spokane, WA
September 16-18	Astoria, OR
October 15-16	Missoula, MT
November 18-20	Coeur d'Alene, ID
December 9-11	Portland, OR