



**NORTHWEST POWER AND CONSERVATION
 COUNCIL
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In Kalispell, the Council focused on the "nexus" with the hydropower system while marking up language for a new draft fish and wildlife program, but most of the heavy lifting was deferred until August. Utility representatives reported on the difficulty of integrating wind projects, what's being done to fight climate change, and the status of the Regional Dialogue. Next Meeting: August 12-14 in Spokane, Washington.

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FOR OPENERS

Staffer Mark Walker reported on a House Natural Resources Committee hearing on the benefits of hydropower held last month at which Melinda Eden testified. The members of Congress who attended the Washington, D.C. hearing said the country should be doing more to support hydropower production, he noted. Rep. Cathy McMorris Rodgers of Washington said in light of climate change and global warming, removing the Lower Snake River dams would be "a tragedy" and would increase carbon emissions in the Northwest.

Several witnesses said hydro was "a second-class citizen" when it comes to renewable energy and that Congress needs to take action to make hydro a viable resource for the nation, Walker reported. Avista's representative said Congress should make the Production Tax Credit applicable for new hydro as well as other renewables, he noted.

THE AGENDA



Despite Opposition, High-Level Indicators Move Forward

Tom Karier said the Council had received numerous "very useful" public comments on the draft set of high-level indicators designed to measure the success of its fish and wildlife (F&W) program released last month. Some comments suggested they should be regional indicators, some suggested making them numerical goals, and some told us where to find data for the indicators, he noted.

I'd like to ask the Council to endorse this list of indicators for further development, Karier said. It may take a year or two – we've been encouraged not to adopt the indicators into the program now because that "would lock them into concrete," he added.

Karier moved the Council "endorse the revised High-Level Indicators as a working list for further development with all interested parties," and Council Chair Bill Booth seconded. This is not a decision to adopt them, but to continue work on them, Booth said.

I can't support or endorse this list, said Joan Dukes. She asked, for example, how one could determine "the number of juvenile salmon saved from all predators," one of the proposed indicators. The predator metric comes from BPA, and most of the data exists for predator control programs such as the northern pikeminnow program, Karier replied.

I can't support this, and I object on a procedural basis, said Eden. The comments have just come in, I haven't had time to digest them, and I don't understand what's the rush,

she stated. I'm not saying I oppose the indicators, but if we passed motions to endorse all our working lists, it would be ridiculous, Eden said.

Nine of the indicators are available in full, three are partially available, and the rest need data to be put together, said staffer Tony Grover. I support this with the understanding it's a work in progress, Booth stated. The motion passed; Eden and Dukes voted no.



Integrating Wind Can Get Pretty Hairy

John Hines, chief supply officer for NorthWestern Energy (NWE), kicked off a presentation on the challenges and costs of integrating wind projects. He noted that wind makes up 9 percent of his utility's energy requirement, but provides zero capacity. NWE has nine wind projects totaling 149 MW, Hines said. With Montana's passage of a renewable portfolio standard, NWE will be acquiring additional wind projects, which will cause more integration issues, he stated.

Dave Fine, director of energy supply planning, said NWE's largest wind facility is the 135-MW Judith Gap project, which began operation in 2006. NWE has a 20-year power purchase agreement with Invenergy, he noted. We plan on 38 to 40 percent capacity annually from the project, Fine pointed out.

TEA, our realtime agent in Seattle, uses wind forecasts for purchase and sales decisions to balance loads and resources, he explained. If we are short, TEA has to buy resources, and if we are long, it has to sell, and there's a financial consequence for ratepayers in either case, Hines said.

There's a lot of seasonality associated with this resource, Fine pointed out, noting that in

January 2007, the plant had a 68 percent capacity factor, but in July of that year, it was 18 percent. There is no "average" or typical wind production day, he stated.

The profile can change dramatically in one day, Fine said. He showed a chart of hourly wind production from 2006 and commented, "If you have a production profile that looks like Don King's hair, you are going to be challenged."

Because we must continually balance resources with demand, NWE contracts with third parties for regulation reserves, Fine continued. It's a very illiquid market with ever-increasing prices, and it's getting worse, he said.

With more states passing renewable portfolio standards, utilities are reluctant to sell reserve resources because they think they will need them themselves, Hines noted. We purchased 25 MW of regulation reserves in 2006 specifically to support wind, he reported.

Looking forward, there is "a finite and possibly diminishing capability" to effectively integrate intermittent resources with low capacity value, Hines said. Regulating reserves cost \$5 to \$15 per megawatt-hour on top of what you pay for wind, he stated. NWE is concerned about the cost of integrating additional wind, Hines said. We are planning to build a regulating reserve resource in Montana and will soon file an application with the Public Service Commission, he noted.

Hines urged the Council to continue to analyze and develop new information on wind integration issues. Public utility commissions think the Council "brings a perceived unbiased" to issues, while sometimes they are skeptical when utilities say the same thing, he said.

What's the cost to you to have 9 percent wind? Jim Yost asked. For Judith Gap, we pay 3.2 cents per kilowatt-hour and 0.5 cents for regulating reserves, Hines replied. But the new wind projects we are looking at seem to be double that, he noted.

Do Avista and Idaho Power supply your regulating reserves? asked Yost. Avista does, but Idaho Power no longer does, replied Hines.

Are you going to build a combined-cycle plant? Yost asked. We are looking at three small turbines and maybe as many as five, so that four could be working with one in reserve, replied Hines.

Since there are clear economies of scale with wind integration costs, is one of your problems that you are a small utility? Karier asked. Many other utilities have other resources available, but we own no resources and are all in the market, replied Hines. We do have an agreement with four other utilities to share regulating reserve needs, and I expect more utilities will join that, he said.



Corwin Reports from the Regional Dialogue Front

Scott Corwin, director of the Public Power Council, said he is "cautiously optimistic" about the effort to resolve Regional Dialogue policy issues so BPA and utilities will be able to sign new 20-year contracts by the end of the year. We'll be negotiating every day between now and July 25, and BPA will put out new contract templates by August 18, Corwin reported. Your timing with the development of the Sixth Power Plan lines up well with the Regional Dialogue's intention to clarify BPA's role in resource acquisition, he told the Council.

DSI service is a key unresolved Regional Dialogue issue, Corwin said. PPC believes BPA is not obligated to serve the DSIs, but BPA has said it wants to do something for them, although it's still not clear what, he noted. That issue is on hold and will pick up again in the late summer or fall, according to Corwin.

We are in a rate case to redo the residential exchange benefits, following the Ninth Circuit Court's decision, he said. There have been some settlement talks on this issue, and we'll see if there's progress in the next several months, Corwin stated.

He explained the tiered rates construct to be used in the power sales contracts. Products offered under the new contracts will be similar to what's available now, with a few new ones like a load-following product, Corwin reported.

The rate methodology has its own rate case, and there has been some tension between what's in the rate cases and what will be in the contracts, he noted. We've made a lot of progress on some contract issues, including dispute resolution, cost segregation, and cost control, Corwin said.

Conservation is another issue, and large utilities in Washington now have more incentives to conserve because of the new state renewables mandate, he pointed out. Utilities want to manage their own conservation dollars and not run them through BPA, Corwin said. PPC wants to resolve the issue of conservation roles next year, he added.

While there's been progress on transmission issues, more work needs to be done, Corwin continued. Overall, the purpose is to create incentives for new resource development, and we'll keep working with BPA on these issues in the next few months, he said.

The new power sales contracts will assure a stable funding source for F&W, Corwin stated. F&W is the largest single cost of the federal system, he pointed out.

How are the contracts affected by future rate cases and BPA acquisitions? Yost asked. We are trying to tie down the durability of the contractual agreements, Corwin replied. We are zeroing in on ways to make things more stable over time so we don't have fluctuations from rate case to rate case, or from administrator to administrator, he stated.

Are Tier 2 contracts long-term? Yost asked. You can purchase different products for different lengths of time, Corwin replied. Right now, we are working on Tier 1 costs and there is still an open issue in defining the off-the-top obligation of the federal hydro system, he noted. There's also the issue of augmentation of the system in Tier 1 and how that will affect costs, Corwin said.



What's Up with the Western Climate Initiative?

Janice Adair of the Washington Dept. of Ecology and chair of the Western Climate Initiative (WCI) said the WCI was formed in 2007 to develop regional strategies to address climate change. The WCI, she explained, is a collaboration of seven states and three Canadian provinces to carry out three directives: set a regional emissions reduction goal; participate in a multi-state registry to track, manage, and credit reductions; and design a regional multi-sector, market-based cap-and-trade mechanism.

We also work jointly to promote renewable energy and energy efficiency and advocate for regional and national climate policies that are in the interest of the western states, Adair said. The West is particularly vulnerable to

the impacts of climate change, and we aren't seeing the kind of action at the federal level our governors think is necessary, she stated.

Adair described the benefits of a cap-and-trade mechanism, pointing out that it lets the market find the lowest-cost reductions. We are working on common reporting requirements and ways to track imported power on a shared grid, she noted.

Our draft policy framework should be out July 23, and our third regional stakeholder meeting will be July 29 in San Diego, Adair said. We hope to have final design in September so Washington, Oregon, and possibly Utah will be able to run legislation in 2009, she stated. "We're making very good progress," Adair summed up.

Have you discussed what would happen if federal legislation comes along after WCI is up and running? Karier asked. We want to have recognition of our efforts at the federal level, Adair replied. Some in Congress want to preclude states from having their own program, while others want state efforts protected, she added.

Cap-and-trade has been implemented in other countries, but there's a wide debate about its success, said Booth. What's your opinion on that? he asked. One thing that isn't really known is that the European Union's program had a three-year learning phase, and in that time, it wasn't intended to achieve emission reductions, Adair replied.

Three Utilities That Like Being Green



Jessica Matlock of Snohomish PUD led off a panel to provide the public power perspective on climate change and the work being done by the WCI. We have been working together over the last three years and have been involved in climate change issues at the federal and state levels, she said.

Peggy Duxbury of Seattle City Light said her utility believes climate change is real and that strong action is needed sooner, not later. Seattle is the only carbon-neutral city in the United States, she noted. City Light is trying to take energy efficiency to the next level because it's the most cost-effective way to procure new resources, Duxbury said. We are conducting a study of the impact of global warming on our hydro operations and doing a lot more on electrification of transportation, she reported.

Duxbury outlined efforts Seattle City Light has undertaken with WCI and at the state and federal levels to reduce carbon emissions. She said the Council's 2007 carbon footprint report was very helpful. For the Sixth Power Plan, we support producing additional data on tracking carbon, as well as the impact of global warming on the hydro system and salmon, Duxbury stated. There needs to be some thought given to how we can hardwire incentives for energy efficiency into a cap-and-trade system, she said.

In allocating allowances under a cap-and-trade system, we think there should be recognition for utilities with conservation and renewables and for those that have made investments improving their hydro system's environmental impacts, Duxbury stated.

Andrew Munro from Grant County PUD said his utility expects its load to grow by 200

MW in the next five years. He described the PUD's efforts to optimize its hydro projects through both efficiency and fish-friendly improvements.

Munro said Northwest and Northern California public power utilities are working on a model to study the economic effects of a cap-and-trade system on the electricity sector. We are looking at the WCI methodology and federal legislative proposals, as well as various allocation and auction scenarios, and trying to build a consensus within public power, he noted. The model should be available in August, Munro said.

Matlock told the Council all utilities are struggling with meeting load growth, climate change issues, and the challenges of bringing new renewable projects on line. She said Snohomish is pursuing a variety of new renewable resources, such as wind, geothermal, biomass, biogas, and tidal to go along with conservation in meeting growing demand.

Utilities are trying to comply with new mandates for renewables, and our commission has decided we will meet load growth with all renewables, Matlock stated. But renewables are expensive, and there are integration issues, as well as land and permitting issues, she pointed out. And at the federal level, we still can't get the Production Tax Credit or Clean Renewable Energy Bonds passed, Matlock noted.

We are glad to see you are focusing on climate change in the Sixth Power Plan, Duxbury said. There's a lot you can do to help us on the data side, she added.

The Sixth Power Plan will be driven more by policy issues, such as carbon and climate change, than ever before, and we should work even closer with utilities, Karier said. We need to know what questions you have that can be addressed in the plan, he stated.

What types of utilities are in the WCI? Booth asked. The WCI is a microcosm of the United States, replied Duxbury. It includes Northwest states, but also Arizona and New Mexico, which use a lot of fossil fuels and are coal-producing states, she said.

Do you believe you can meet the phased-in targets of Washington's renewable portfolio standard? Booth asked. We'll meet them, but it will cost money, Matlock replied. In the early years, we'll meet the goals with efficiency, but that won't be true in the later years – it will be tough, Munro said.

We invested in wind six years ago, and we've divested of fossil fuels so for the first phase, we are almost in compliance now, Duxbury stated. For the second phase, we'll use efficiency and we'll need more renewables, she said.

I'm glad to see you are pursuing renewables, Eden told the panel. We need to work together – we can learn from you – "don't be strangers," Booth said.



F&W Work Session: A Few Scores and a Lot of Punts

Over three days, the Council reviewed staff-written sections of a new draft F&W program, making editorial changes, suggesting revisions, and agreeing to disagree on some topics. Booth said if the Council can't finish its review of the document at the regularly scheduled August meeting, a special work session could be held in late August to wrap up what's left. That way we can have a draft ready for the first public hearing scheduled in September, he said.

Staffer Patty O'Toole said the mainstem portion of the F&W program was not ready for review and would be e-mailed to Council members later in the month. We'll hold a conference call to get Council feedback so we can have a revised mainstem section ready in August, she stated.

Staffer John Shurts said the mainstem section would build upon the construct of the 2003 mainstem amendments. It will deal with biological objectives and principles, Biological Opinion (BiOp) operations and the Memorandums of Agreement (MOAs), as well as Power Act considerations, he explained. There will be new material on such topics as predation, hydro system research, monitoring and evaluation, and reintroduction of anadromous fish above blocked areas, staffer Jim Ruff noted. As for dam breaching, we are thinking there will just be a statement that says: "for this plan, in the near term, we are not assuming the breaching of any mainstem dams," he added.

The Vision Thing

Staff suggests updating, but not changing the framework concept, O'Toole said. Staff also recommends "the vision for the Columbia River Basin" stay the same as it was in the 2000 program, she stated. Customer groups submitted recommendations to narrow the vision, O'Toole noted.

The customers have a point; their recommendation goes precisely to what the Act directs us to do, said Booth. We ought to at least consider it, he added. Yost suggested rewriting the section to support the intent of BPA's customers "so they know we attempted to address their concerns."

Karier said it should be made clear the program and subbasin plans are broader than BPA customers' responsibility. It should be acknowledged that full implementation of the program and subbasin plans is a shared

responsibility, he suggested. And if we have language about toxics, invasive species, and climate change, the program will definitely go beyond hydro system responsibilities, and we'll need to say that, Karier added.

Shared responsibility is an important concept, and we don't have a good handle on how much of the impact on fish is attributable to the hydro system, said Dick Wallace, suggesting the section make that point. Booth said the vision should also address supplementation. Karier recommended adding a better description of what the Corps is doing to optimize fish survival versus the concept of a "natural river."

Eden noted that the Columbia Basin Fish and Wildlife Authority (CBFWA) recommended the vision have a linkage to the Clean Water Act. We want to keep the vision fairly high-level, Booth said, but he instructed staff to see what they could come up with in a redraft.

5 Million Fish and Other Biological Objectives

The Council discussed the goal in the program to "increase adult salmon and steelhead runs above Bonneville Dam by 2025 to an average 5 million annually." We want to acknowledge the F&W managers support the 5 million goal, but the Independent Scientific Advisory Board (ISAB) hasn't given us a scientific reason to have that number, Grover said.

If we are going to put in 5 million, why not 10 million? said Yost. We don't need a number – it isn't realistic and doesn't fit with the scientific information we have, he added.

This number would obviously be a high-level indicator, said Karier. The Independent Scientific Review Panel (ISRP) should look at these numbers, suggested Booth. We could say we are in search of a number that can be

biologically justified, said Yost. And call for a process to develop it, Shurts stated.

I am loath to remove the number the F&W managers recommended – we owe them deference, said Eden. If the managers want to go through a process to find a new number, great – but in the interim, I'd like this to stay in, she added.

We shouldn't include specific numbers unless we have a scientific justification, said Karier, adding that 5 million is regional goal, not a power system goal. For example, these numbers are contingent on fishing policies, which we don't set, he stated.

We need a basis before we can put numbers in the program, Rhonda Whiting said. If we put them in, but say we don't have a justification, it makes our judgment look cloudy, she added. Unless we have a better number or a process we've agreed upon to get something better, we should leave in the numbers the managers gave us, said Eden.

Booth asked staff to revise the section, reference the goals, but explain the Council is not certain the numbers are based on scientifically justifiable data and supports having a process to verify them.

The Council discussed language on resident F&W losses. Karier referred to the recommendation that BPA fund a resident fish loss assessment. Studying just bull trout, for example, which are everywhere, would be a huge and expensive process, he said. Booth recommended the loss assessment proposal go through the F&W project review.

Eden noted that provincial objectives are mentioned, but haven't been developed. We need to decide whether to have them or not and explain it, she said. Does the Council need to do province-level objectives? Booth asked. I'm not sure having them adds value,

said Grover. The program could note that CBFWA is working on this issue, he added.

I like the idea of province-level objectives, and we could encourage other groups to do them, Dukes stated. If they don't drive our work or help us make better decisions, why have them? Grover said. Shurts said staff will try to frame up something that will work on this topic.

Climate Change

The Council agreed to insert two paragraphs on climate change into the program's vision section and considered seven "program recommendations to address the effects of climate change." The recommendations include a federal-agency study to develop alternative water management scenarios to minimize climate change effects.

Those actions should be submitted through the project selection process, said Yost. They should be adopted into the program, Karier stated, but Yost disagreed. To simply say we acknowledge climate change exists and move on doesn't make sense, Dukes said. There have to be some monitoring actions, she added.

You haven't convinced me there's a significant impact from climate change, said Yost. We need to spend more time on this issue – there's disagreement, stated Booth.

Maybe there's a middle ground between having only two paragraphs and the seven action recommendations, and staff could develop a compromise, Karier suggested. You need a nexus to the power system if the ratepayers are going to pay for these studies, Booth said.

If we put this in the program, you have to show me how the dams are causing the problem, Yost stated. The dams didn't cause the problem – "God causes climate change,

and he may change it again, but I don't want ratepayers to be paying for it," he said.

I agree the hydro system is not responsible for climate change; in fact, it's helped minimize the release of CO₂, Karier said. But it would be foolish to restore habitat or pump out fish from hatcheries if they'll die in hot water, he added. We need to protect our investment in F&W, Karier added.

Booth instructed staff to see if the two paragraphs could be expanded, while eliminating specific project recommendations. We do need a narrative about the nexus with the power system, Eden said, adding that soon the Council will be discussing how to fit climate change into the Sixth Power Plan.

Invasive Species and Toxics

Staff proposed two paragraphs about invasive non-native species for the vision section and some options to address their effects. "What I said about climate change, assume I said it for invasive species," Yost stated.

You need to show that invasive species are affecting the fish you are trying to protect, noted Shurts. I favor just having the two paragraphs and not getting into other specifics, said Booth. The nexus I see, for example, is the effect zebra mussels have on fish screens we fund, or the amount of money being spent to control invasive species as part of wildlife mitigation, Wallace said. Bruce Measure said there is also a connection with fisheries management.

Booth asked staff to rework the section to add a statement about the nexus with the power system and not include specific projects.

For toxics, staff proposed two paragraphs for the strategies section of the program. This is an EPA issue, not a Council issue, said Yost.

Let's treat this the way we did climate change and invasive species, he recommended.

It's prudent to encourage further investigation of toxic contaminants relative to the hydro system, Wallace said. He suggested the program express support for several actions by federal agencies, such as evaluating the effects of toxics on salmonids.

I'm concerned toxics contamination hasn't been looked at in the middle and upper Columbia, especially the buildup of contaminants in sediments at Grand Coulee and the effect on F&W, Eden said. We can clean up the lower river "until the cows come home," but if we don't know what's going on in the whole system, it's a waste of money, she added.

Booth asked staff to redraft the section, include a nexus statement, and incorporate the areas of interest mentioned by Council members.

Wildlife Traps

We received a lot of wildlife recommendations, Shurts reported. This section continues to call for a 2 to 1 ratio for wildlife mitigation habitat units, he said.

Wildlife "has been kind of a mess," and there is a lot of disagreement about losses, habitat units, and other issues over the last few years, observed Karier. We haven't helped clarify these matters through the program, he said. The Council should identify the issues needing resolution and set up a forum or process to try to solve them, Karier suggested.

I'm not willing to give up the 2 to 1 ratio at this time, Eden said. If you put in a default 2 to 1 ratio, it could undermine the ability of the Wildlife Mitigation Crediting Forum, which this section calls for establishing, to come to agreement on that issue and other

issues, said Karier. We may have to vote on this question, noted Booth.

Grover said the wildlife managers don't want the Wildlife Mitigation Crediting Forum to be an issue resolution forum. They want it to be about accounting tools for habitat units, he added.

I have a problem with the entire habitat unit situation, said Yost. What can we do to get this done once and for all? he asked. The wildlife managers have suggested that we just cost this out once and for all, Grover noted.

Since this has been a problematic area for a long time, the idea of financially settling these issues should be a major theme here, said Karier. Let's shrink this section down to what it would take to encourage people to settle all their issues in the wildlife arena once and for all, Grover suggested. We could take a shot at doing that, Shurts said.

M&E

We have a much smaller need for research than eight years ago, and the overriding factor now is being cost-effective, said Grover. In the previous program, we required all projects to have monitoring and evaluation (M&E) components, but now we are recommending "bulk monitoring" in an area where there might be 10 to 20 projects, he noted. Staff did a good job writing this section and mostly got it right, commented Karier.

I think the whole section should be rewritten, Eden said. It's long, repetitive, and full of rhetoric, she stated. Cost-effectiveness isn't the overarching thing – finding the answers to things we don't know is, Eden added. Wallace suggested the section describe the interaction between policy and science.

The region is gathering enormous amounts of data, but the "islands of data" aren't linked together so we don't know where the

redundancies or key uncertainties are, Grover said. We are spending \$50 million a year on this function, he added. Booth said he agreed with Karier the section is "a good iteration from where we were before" and suggested staff rewrite a few items.

O'Toole described new sections in the program on the estuary and ocean. Ocean conditions don't have a nexus to the hydro system, said Dukes. The plume does, but I'm concerned about how far we go on the ocean – it can become a black hole, financially, she stated.

Because it's such an important life-history stage for fish, the ocean has implications for all the Hs, said Wallace. I like having separate sections on the estuary, ocean, and mainstem, said Booth.

Subbasin Plans

CBFWA submitted a lot of information about subbasin plans, including a recommendation to incorporate subbasin plan summaries, which CBFWA has prepared, with related recovery plan information, into the program, said O'Toole. Washington was impressed with the summaries CBFWA did, but we think it should be a regional process, Karier said.

We suggest developing a summary template for the subbasin plans that could be taken out for public review as a way to update the plans, he stated. This would be done after the F&W program is finished, Karier added.

We need to figure out a middle ground between plan summaries and a full-blown effort to update the plans, said Eden. It took "a horrendous amount of money" to get those plans together initially, stated Whiting. Implementation is what's key now, she added.

Staff said they would rewrite the section to describe a public process for review of the

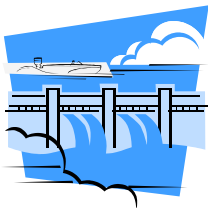
CBFWA summaries and address the issue of updating the subbasin plans in the future.

Implementation

O'Toole described new provisions that deal with carrying out the program and tracking the results of projects funded. Grover pointed out language that says: "the Council believes that the work necessary to satisfy BPA's mitigation obligation must be sized appropriately during BPA's two-year rate cases to provide equitable treatment to high-priority F&W actions regardless of whether or not they are identified in a BiOp or an MOA, while also accommodating yearly budget limitations." That means, he said, we don't want low-priority work, which could be in an MOA, to take precedence over high-priority work.

This homes in on the fact there's a huge group of projects in the MOAs BPA has committed to pay for that have not had scientific review, Eden said. If we don't clarify this, I'm concerned that if we get a funding number from BPA and have to pick and choose among projects, non-MOA projects could be "left scrambling in the dust," she stated.

The Council agreed the upcoming conference call on mainstem provisions should also discuss implementation issues.



A Brief Message about the BiOp

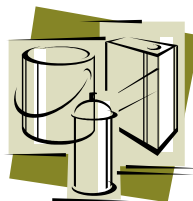
Ruff presented a revised analysis of the power system impacts of the 2008 BiOp, compared to the 2004 BiOp, using updated information provided by the federal action agencies. The analysis shows relatively small flow changes in the Snake and Columbia rivers, he said. Snake flows increase in the

spring and decrease in the summer, and Columbia flows increase in the winter and spring and decrease in the summer, Ruff indicated. And there are more levelized summer outflows from Libby and Hungry Horse, he noted.

Reservoir elevation changes are larger than the changes in flow, Ruff said. On average, Libby and Hungry Horse elevations will be about seven and 10 feet higher respectively, at the end of September as a result of operations consistent with the Council's program, he reported. Due to Washington's Columbia River Water Management Program, Grand Coulee reservoir is likely to be about a foot lower by the end of summer, Ruff said.

Spill is generally greater than under the 2004 BiOp but somewhat less than what has been ordered by the court and implemented from 2005 through 2008, he pointed out. Summer spill is now provided at McNary, and there is more spill at the Snake River dams, except Ice Harbor because of its removable spillway weir, Ruff stated.

Annual average hydro generation is estimated to decline by about 20 MWa, mostly because of the increased spill, he noted. The mainstem operations proposed in the 2008 BiOp, compared to the 2004 BiOp, are expected to cost the region about \$10 million to \$20 million annually, according to Ruff. Some years, costs could reach \$60 million, and some years, there could be little or no cost, he said.



Talking Toxics

Tracy Collier and Lyndal Johnson of NOAA's Northwest Fisheries Science Center briefed the Council on their recent work on the

effects of toxics on salmonids, including answers to a series of specific questions the Council sent to NOAA in June. Collier noted that NOAA would also send a written report to the Council.

The first question the Council asked was which toxic substances of concern to salmon and steelhead are directly attributable to the construction or operation of the hydro system. Collier said there are localized spills and the disposal of contaminants, such as PCBs, as well as largely unknown accumulations of toxics in sediment behind the dams. As for direct contributions from the dams, my professional estimation is less than 5 percent, but we don't have very good data to support that, he stated.

By facilitating agricultural and urban development, the dams may indirectly contribute to toxic contaminant problems, according to Collier. He said PCBs have been found in juvenile salmon below Bonneville Dam.

We are studying the sublethal effects of toxics on fish behavior, swimming speed, and disease resistance, Collier said. He reported NOAA has screened for the presence of pharmaceuticals and found signs of them in 20 to 30 percent of salmon from sites near Portland.

Contaminant exposure is widespread in juvenile salmonids in the Columbia River, often at levels that approach or exceed health benchmarks, Collier said. There's good potential for lethal effects to be occurring in Columbia River salmonids, and sublethal effects are well-documented in juvenile salmonids in the Columbia River, he stated.

Johnson reported on studies of the stress effects associated with dam passage and contaminant exposure for juvenile chinook. One study showed the problems with contaminants may be comparable to problems

with dam passage, she said. If we reduced contaminant levels, we could give a boost to fish survival, Johnson stated.

Our conclusion is that contaminants in the Columbia River affect the survival of some of the listed salmon stocks, said Collier. Toxics monitoring and reduction provide a way to mitigate the impacts of dam operations that may affect listed salmon through other mechanisms, he added.

Karier asked if they had incorporated their findings into models for the BiOp. We will talk to those doing recovery modeling next week, Collier replied. Toxics is an exceedingly complex issue, and I expect it will be included in the models in the future, he said.

END NOTES _____

Searching for Independent Scientists. The Council is looking to fill two open seats on the ISAB. Staff said it would be especially helpful to get new members with expertise on mainstem passage and river operations.

New Life for the Natural Gas Advisory Committee. The Council re-chartered its Natural Gas Advisory Committee to help with the Sixth Power Plan, with Terry Morlan as chair and Jeff King as vice-chair.

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Council 2008 Calendar

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