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

Council Meeting
September 13 and 14, 2016
Spokane, Washington

Council Chair Henry Lorenzen called the Council to order at 1:32 p.m. All members were in attendance, including new Council Member Guy Norman of Washington. Member Lorenzen welcomed Member Norman with a brief recap of Member Norman's experience managing Columbia River fisheries for both the Washington and Oregon departments of Fish and Wildlife. "It's wonderful to have his expertise," Member Lorenzen said.

Reports from Fish and Wildlife, Power and Public Affairs committee chairs

Fish and Wildlife Committee

Fish and Wildlife Committee Chair and Council Member Jennifer Anders said there was a follow-up discussion on program action effectiveness monitoring, and staff provided an overview of the progress made. The committee heard previous recommendations on CHaMP, ISEMP and AEM, and they discussed the comprehensive report that BPA will be presenting based on these projects.

There was a BOG request to address a financial shortfall in the Northern Pikeminnow Sport Reward Program. Recent events made sponsors adjust their request lower than originally asked to $350,000. The money shortfall is due to the increased angles and numbers of fish caught. The Committee agreed to recommend the $350,00 request, with an agreement that future increases should fall outside the BOG process.

The Spokane Tribe reported on Northern Pikeminnow efforts in Lake Roosevelt. The tribe is concerned about its impact on native trout in the lake, and on salmon and steelhead below Chief Joseph River. There will be a meeting next week amongst fish manager to discuss Northern Pike issues and how states are handling those.

There was a cost-savings workgroup update on reproductive success projects to sponsors, in preparation for a workshop in mid-October. Information was shared about the projects to see if efficiencies and cost savings could be identified and used for other priorities. There was an emerging priorities update: Mark Fritch, staff project implementation manager, gave a report on long-term O&M planning that Council Member Bill Booth is working on. Patty O'Toole, staff

project implementation manager, spoke on the current status of the research plan, and Laura Robinson, staff Program Implementation and Liaison Specialist, drafted a staff white paper on fish passage at High Head Dams. Lynn Palensky, staff project implementation manager, provided update on two sturgeon events: the North American Sturgeon and Paddlefish Society meeting in Hood River on September 19–22, and the Sturgeon Festival in Vancouver, Washington, on September 17.

Power Committee
Power Committee Chair and Council Member Tom Karier talked about the need to upgrade GENESYS. He said that the process of developing a power plan is like driving the car, and sometimes you need to look under the hood. First, the committee is looking at the GENESYS model, which has been the workhorse in the Council's modeling process for 15 years. Member Karier said it does a really good job of modeling the hydrosystem. The staff made a presentation on how it works and what its limitations are. The process and budget still have to be worked out.

The committee heard from Gillian Charles, staff energy policy analyst, on generation resources and the database she works on with Steve Simmons, staff senior economic analyst. They do a great job tracking energy resources, Member Karier said.

The Congressional Tour had great participation from the Congressional offices. About 22 people from all four states attended, as well as Sonya Baskerville from BPA. The trip was interrupted by a fire close to a site they were to visit. They discussed fish and wildlife topics, and took a tour of Grand Coulee Dam. They looked at a Whoosh salmon cannon and a mussel inspection station. The tour had the support of lots of tribes and agencies. Staff did a great job. Member Bradbury added that he appreciated the opportunity to tour the region, particularly Grand Coulee, and spoke of the value of meeting Congressional staff.

Public Affairs Committee
Public Affairs Committee Chair and Council Member Jim Yost said it wouldn't be meeting today.

Member Lorenzen announced that the executive committee could meet at close of the Council meeting.

1. **Presentation by Inland Power and Light**

Member Karier introduced Chad Jensen, chief executive Officer, and John Francisco, chief information officer. They discussed the lessons learned on Inland's wind and solar generation projects.

When Inland Power constructed its new building in 2009, it decided to do a study on the cost effectiveness of wind versus solar power. "We spent $20,000 on each system and, when the test ended two years ago, we found that solar had out-produced wind by a factor of 4-1," said Jensen. "The wind turbine had a five-year life and no longer operated after its bearings seized up."

Inland serves 11 counties in eastern Washington and two in eastern Idaho. It participates in state-mandated net metering projects. Washington State pays co-generators money for

producing electricity. Inland processes and pays the consumer for generating electricity, and then deducts the payments from its yearly excise tax bill. Inland has 152 individually owned net-metering locations, one company-owned solar facility and two community-owned solar facilities. Due to member interest, Inland installed the two community solar projects. With the first, the Geiger project, 88 participants signed up the first day at a cost of $300 per unit, with 526 units total. Due to the quick sales, Inland installed its West Plains solar project and held a lottery for that system.

"However, since Inland maxed out on its state incentives, interest in renewables has almost died," Jensen said. "Inland could either continue to prorate the incentives or end new participation; we chose to end them."

During 2016, members produced 829,000 kWh, resulting in Washington State incentives of $323,000. But given that Inland's load is 932 million kW per year, the renewable share is pretty small. Inland does not provide any monetary assistance or advice to install solar or wind generators. All incentives are based on state mandates and funded via excise tax deductions. Inland did contribute roughly $5,000 to its incentive payments in 2016. The maximum Washington state incentive payment per year is $5,000 per individual, and the Washington State Incentive Program runs through June 30, 2020. Inland Power and Light's net metering agreement with its members has no sunset. Both of its utility-owned, community solar projects will end in 2034.

Jensen reviewed some Q&A slides: How much does Inland pay members for generating power? Nothing, it's based on the state incentive. It is a pass-through to the state. The Washington law states that utilities must give credit for excess kWhs generated on a one-for-one basis at our retail rate. Once a year, any excess kWh in the energy bank of the member is reset to zero. Members do not get paid for any excess kWh generation.

Can members use the excess kWh on any of their meters? Only recently did Washington State demand utilities wheel excess kWh to any location the member has electric service from the same utility. During the early years, excess any kWh had to be used on the same property and by the same member as defined by the state. Inland is not allowed to charge for wheeling.

Doesn't Inland provide incentives or rebates for installing solar or wind generators?
No, Inland does not provide any monetary assistance or advice to install solar or wind generators. All incentives are based on state mandates and funded via excise tax deductions. Inland did contribute roughly $5,000 to its incentive payments in 2016.

What is the maximum Washington state incentive payment per year? $5,000 per individual.

How long is this program in effect? The Washington State Incentive Program runs through June 30, 2020. Inland Power and Light's net metering agreement with its members has no sunset. However, both utility-owned community solar projects sunset in 2034.

Member Lorenzen said, "My understanding is that the generation runs the meter backwards." Jensen replied that on the bill, they measure it coming in and out. Member Lorenzen asked how the state is involved. "We deduct it from our excise tax," Jensen said.

Member Booth said so you sold the solar garden at $300 per unit – if they bought the unit,

they could get up to $5,000 in incentives? No, it's scaled, Francisco replied, and they had a 10-unit cap to broaden participation.

Member Booth said at 36 cents per kWh, it's a good payback. Francisco said it's actually $1.08 per kWh hour, and then there's net metering on top of it. It's less than five years. The state incentives are pretty lucrative. "That sounds like a pretty good business," Member Booth said.

Jensen said that's why you're hearing how (without the incentives) the interest has dropped off and why there's a lot of discussion in the Washington legislature about whether or not to continue the incentives.

Francisco described the utility's efforts to design a ductless heat pump program for low-income members. "There's a disproportionate benefit to those who can afford the upfront costs," he said. "So how do we use the low-income provisions for those who don't have the capital to get in the game?"

Therefore, Inland developed a program to install ductless heat pumps and cover the cost. To qualify, consumers had to be under the federal poverty level and had to be an Inland Power member. The customer didn't even have to be a homeowner. Inland partnered with the CAP agency to qualify the applicants, and two local HVAC companies agreed to install the equipment on a lower margin. The referrals came internally, when people called with high bills, and some were referred through the CAP agency and word of mouth. "To keep the utility clean, contractors were responsible for entire installation," Francisco explained.

The first of 66 units were installed in October 2015, and Inland had to put a moratorium on the program until it could analyze the savings. "Most of these are manufactured home installations, and it's the first time these customers have had cooling," he said. "We're looking to do more next year."

Member Lorenzen asked if the renter or consumer had an obligation to reimburse the utility. No, Francisco replied, it would be nice to have some skin in the game, but most of these customers have trouble paying their utility bills. So we knew that going into it.

Inland also informed Council members that they hope to have similar success in the near future boosting demand for electric vehicles with refueling infrastructure. "Carbon is a clear focus of the regulatory environment, but 40 percent of carbon in Washington is from the transportation sector," Jensen said. "We're fortunate to have a robust hydro system and our fuel mix has very low carbon. We have 93-percent carbon-free electricity."

"We're going to offer an EV charger incentive," Jensen said. "We think it's the right thing for the state and a great value to our members. Traveling 15,000 miles per year, you can save $900 on your fuel bill. It's a good way to add load back to our utility."

Member Karier asked what kind of load growth has Inland had in the last few years. Jensen said it's been slow, about 1 percent of average. Even new customers are using very little energy. Member Karier asked if EVs would be popular in Inland's rural service area? Francisco said the answer is yes. "It's an interesting dilemma. Because they drive farther, there's a potential for greater value. But it's about overcoming range anxiety. We're trying to

find a way to bridge that and do some public infrastructure, he said.

Member Booth wondered if it is too early to tell what the reaction will be to EV incentives. Francisco said it would be slower because it's a rural utility.

Jensen said that it's like the ductless heat pumps. That took off. We were surprised we needed a lottery for community solar. We're hoping we'll have that problem with EVs. But we don't know.

When asked by Council Chair Henry Lorenzen if Inland favored utility self-funding of conservation instead of sending the money to BPA, Jensen replied he did.

"I'm on the energy efficiency advisory council working (BPA Administrator) Elliot Mainzer," Jensen said. "We've been aggressive through conservation, but it's time for utilities to step up and self-fund it. Either way, we pay through our rates and I'd like to take a more active role in controlling it."

Member Lorenzen remarked that it also would create a greater emphasis on reporting and in making sure those investments occur. I assume that's something that would be supported by utilities, he said.

"Absolutely," Jensen replied. "The other issue is, we are a rural system. Trying to get a contractor to go to serve a rural town is more difficult. If we can control of that, we can provide the benefits more equally among the membership."

2. Update from Upper Columbia United Tribes (UCUT)

DR Michel, UCUT's executive director, said his organization has 15,000 members. He read their mission statement and discussed the tribes' territory, saying that they are the most impacted and least mitigated by the FCRPS. The 2014 amendments to the Fish and Wildlife Program address this in its Anadromous Fish Mitigation and Blocked Area Strategy. Some say the fish won't return, but we found that they do, he said.

He discussed the 2004 - Intermountain Province Plan Spokane Subbasin Management Plan, specifically:

- Columbia River Basin Level Goal 2D: Reintroduce anadromous fish into blocked areas where feasible.
- Province Level Objective 2D1: Develop an anadromous fish re-introduction feasibility analysis by 2006 for Chief Joseph and by 2015 for Grand Coulee.

With all the politics, we see no movement forward in this process, Michel said. There needs to be come flexibility in this approach to deal with the loss. UCUT is funding a risk assessment, life cycle monitoring. UCUT is collaborating with:

- Other Tribes (15 Columbia Basin Tribes);
- First Nations (Okanagan Nation Alliance, Canadian Columbia River Intertribal Fisheries Commission);

- Federal agencies (BPA, USGS, BOR, BIA); and
- State agencies (WDFW).

It also is collaborating with other tribes and nongovernmental organizations to conduct a natural capital evaluation of Columbia River Basin Ecosystem-Based Function for modernization of the Columbia River Treaty. This will provide a basis for an equitable comparison of costs and benefits.

John Sirois, UCUT committee coordinator, discussed outreach and education, including a canoe journey to Kettle Falls in 2016. About 500 attended.

Michel remarked that we continue to put all this money into a system that operates the same for 80 years. It can't be just flood risk management and hydro. It's very expensive.

Member Norman said, "You talked about what the UCUTs have. Are you getting technical support?" Michel replied that they are, the ODFW and others have provided technical support. They would welcome more assistance.

Council Member Bill Bradbury asked if they are talking about a habitat assessment above Grand Coulee.
Michel replied he believes that when they came out of the April meeting, they finally got the contract in place. They are working on an RFP to do the EDT modeling on anadromous fish in Lake Roosevelt. They hope for no cost overruns, and they are in the early phases of kicking it off.

Member Bradbury asked what specific areas would they be looking at. Michel said just the Spokane subbasin. They're getting to a truer example of what those numbers are.

3. **Briefing on natural gas extraction and hydraulic fracturing**

Steve Simmons, staff senior economic analyst, reprised his recent presentation to the Council's Power Committee with an expanded look at the techniques and impacts of natural gas extraction and hydraulic fracturing.

The technological advancements in digital imaging, horizontal drilling and hydraulic fracturing have resulted in a "shale boom," Simmons said.

Simmons discussed natural gas production and prices and provided an overview of the fracking process. Hydraulic fracturing is a well stimulation technique – fluid (mostly water and sand) is pumped underground at high pressure to create tiny fractures in gas-rich shale. Sand props open the fractures and the gas is released from the source rock. Some form of fracking has been used to stimulate production since the 1940s.
There were 25,000 to 30,000 wells drilled and fractured annually between 2011 and 2014, so the technology has taken off in a short period of time.

After eight years, the U.S. has moved from expecting a constrained natural gas future to one of abundance. It has altered the nation's domestic energy picture dramatically:

1. Prices have dropped and become more stable;
2. Gas-flow dynamics across the U.S. are altered;
3. Imports from Canada have declined across the U.S., while exports to Mexico and LNG shipments have increased. The U.S. should be a net exporter by next year;
4. Power production from gas increases and is surpassing coal; and
5. Environmental and community concerns have been raised.

While there is no shale gas in the Pacific Northwest, in areas where it is being extracted, the following concerns and controversies are present:

1. There is community pushback due to increased noise, traffic, air pollution, and water use — and some communities are passing moratoriums against fracking;
2. Methane leaks from increased gas production potentially contributing to greenhouse gas buildup;
3. Gas and oil production from fracking impacting drinking water resources; and
4. Small earthquake activity picks up, which is tied to increased underground injection of oil and gas-related wastewater.

Member Karier brought up the earthquake problems in Oklahoma that were featured on 60 Minutes. Simmons said there are cost factors as well, such as the cost of trucking in the water.

Simmons discussed the details of the natural gas extraction process:

- Well-pad development
- Drilling the well
- Hydraulic fracturing and completion
- Casing and cementing – this is one of the most important parts of the process, Simmons said. Shale is below most water aquifers. It's more about the integrity of the well and it's state regulated.

The fracking fluid composition also is regulated — FracFocus.org is a national hydraulic fracturing chemical registry — a place where well operators can disclose the chemicals used during fracturing well by well. Many states require this. The wastewater is injected into deep wells. EPA regulates this as well.

The process has five primary risks:

1. Migration of natural gas and/or fracking fluids to a drinking water aquifer.
2. Contact with an older, existing well that was not properly constructed.
3. Fluid spills — on well pad site, or during transportation to and from the site.
4. Small earthquakes resulting from underground injection of waste.
5. Methane leakage.

Simmons mentioned three studies:
1. The National Technology Energy Lab (NETL-TRS-3-2014) did an extensive study on hydraulic fracturing in the Marcellus Shale in 2014, which looked to see if gas and/or fracking fluids migrate up to overlying gas fields or water aquifers. The study found that stress from hydraulic fracturing in Marcellus Shale did not extend to the overlying gas field or water

aquifers – and there was no detectable communication between the fracked horizontal wells and the gas field or water aquifers.

2. Scientists from Colorado State University have been performing a series of studies on the impact of oil and gas drilling on groundwater in the DJ Basin of Colorado. They have not found evidence of water-based contaminant from drilling leaking into water wells. However, some wells (2 percent of those sampled) have shown some seepage of oil and gas related methane. The theory is that stray gas has moved alongside compromised well casings from much older wells.

3. In 2015, there was a study of airborne measurements of methane in the Four Corners region – joint project with NASA, Cal Tech, NOAA and University of Michigan – to located point sources of methane leakage related to oil, gas and coal development. A few emitters comprise the bulk of emissions (in this study, roughly 10 percent of the emitters were responsible for 60% of the emissions.

Council Member Jennifer Anders echoed the community concerns. “One thing we’ve seen in Montana is the societal impact of this industry to communities that are rural — all of a sudden there are 100,000 people who weren’t there before,” she said. “It presents issues of housing and law enforcement. So it’s not an impact that should be overlooked. We have personal experience with that in our state.”

4. Panel on Upper Columbia Spring Chinook

Stacy Horton, of the Washington staff, introduced the panel by saying of the 13 listed salmon and steelhead species in the Columbia River Basin, only the Upper Columbia River spring Chinook shows no statistically upward trend in abundance.

Melody Kreimes, Upper Columbia Salmon Recovery Board (UCSRB) executive director, said that the Upper Columbia River spring Chinook were listed in 1999 as endangered. She described the makeup of the UCSRB board. The Upper Columbia runs from Chief Joseph Dam to the confluence of the Yakima River with the Columbia. It’s 10,000 square miles. The largest landowner is U.S. Forest Service, managing three million acres. We coordinate a robust forest health program. Wildfires burn seven percent of the region each year, and they are predicted to get more severe.

Andrew Murdoch, Washington Department of Fish and Wildlife Eastern Washington Science Division manager, said the Upper Columbia ESU comprises three spring Chinook populations: Wenatchee, Methow and Entiat. There is no significant trend upwards or downwards. The 12-year geometric mean for natural origin spring Chinook spawner abundance is 1,214, and the goal is 4,500.

The 12-year geometric mean for Wenatchee spring Chinook spawner abundance is 579, and the goal is 2,000. Entiat would show a good trend with one more year. The 12-year geometric mean for Entiat spring Chinook spawner abundance is 185, and the goal is 500. One population reversed trend. Now there’s hardly any hatchery fish. Another year of good data is needed.

The 12-year geometric mean for Methow spring Chinook spawner abundance is 408, and the goal is 2,000.

From 2004 there is solid data on hatchery and natural origin fish. They have good abundance data, but they're just trying to tease out the hatchery data.

While things in the Upper Columbia are looking better for summer Chinook, spring Chinook has a different life history. Summer Chinook is unlisted. In the Yakima versus Upper Columbia, Yakima has seen slight increase in natural origin fish abundance. We don't understand why these trends are different.

Council Member Bill Booth said that looking at the charts, they experienced horrible ocean conditions. They all reflect a rebound. Is there another reason aside from ocean conditions?

Greer Maier, UCSRB science program manager, said that among the Entiat, we think might have to do with stopping the hatchery program.

Member Booth asked if they have done anything else with habitat? We know in mid 90s, we suffered bad ocean conditions.

Maier replied they have invested heavily in habitat work. If anything, it's kept us from having a downward trend. There's been $100 million in habitat work in the region. Investors are BPA, Yakima and Colville tribes and PUDs. In our analysis, comparing spring Chinook to steelhead, steelhead are trending upwards. Many of our projects favor the latter since they're spread over a larger area. With Spring Chinook, there are habitat challenges. She discussed Entiat as an example. There has been over 12 miles of restoration out of a total of 26 miles. More than $25 million has been spent on habitat restoration. That's paired with significant investment in six years of RM&E as well. We still don't understand what the limiting factors are in Spring Chinook, so there are challenges in addressing survival bottlenecks.

Murdoch discussed hatchery work. In recent years, there has been considerable spring Chinook production. The total number of hatchery spawners is lower. There have been decreasing trends in the three rivers between 2011-2015. He mentioned the range of issues at play in their survival.

Outstanding questions:

- Survival bottlenecks – where and when?
- Life history and habitat use. Some areas are difficult to address.
- Fish-habitat relationships at multiple life stages.
- Hatchery effects – past and current.
- What projects should we do for spring Chinook?

Murdoch said there is not enough information to address these yet.

The priorities are:

- Life cycle models for Wenatchee (complete), Methow (initiate)

- Relative reproductive success studies for Wenatchee (complete), Methow (initiate)
- Priest Rapids stock assessment expansion for spring Chinook, summer Chinook and Coho

Maier discussed the advantages of developing life-cycle survival models.

Member Karier said we've spent millions into studying the Entiat and Methow, so he expressed surprise you're starting with such a deficit of information. Are they collecting the wrong information, or information that isn't relevant to what you're studying?

Maier said most of the information collected has been about habitat. Looking at what's wrong with the habitat and fixing the habitat is it's not the right question when you're looking at how are the fish using the watershed and looking at what are the survival bottlenecks. We have habitat info, but we don't know how to use it. We've been struggling with that for many years. We have lots of habitat data across the whole region.

Murdoch said we have plenty fish information on Methow. We don't know why egg survival is significantly lower than that in the Wenatchee.

Member Booth said to follow up on Tom's question, we're taking a hard look at ISRP right now. Since I've been here 10 years, these expensively monitored watersheds were supposed to be representative. If we monitored carefully … some have been 15-year projects. The hope was we'd end up with a basinwide model and wouldn't have to spend as much monitoring every single tributary in the region. I'm discouraged to hear it's not only not transferrable; you aren't getting what you need for the stream you're monitoring.

Maier replied that in the case of the Entiat, the idea is to look for a signal in the habitat. It's not designed to inform the development of the projects you're implementing. We put a lot of money up front to design these habitat projects. The monitoring only looks at a response. It's not transferrable to designing a program upfront. There was a significant survival gap that needs to be addressed. But it didn't benefit Entiat when we were designing the projects. It would have been nice to know what we were doing and why. It's how that IMW [DN1]and CHaMP were set up; it wasn't designed to benefit projects.

Member Norman said there were reductions in the early 90s due to ocean conditions. Then there was a rebound in both stocks, but not a rebound with Upper Columbia versus Snake River fish. As you look at lifecycle models, do you take that into account? They share a lot of experiences. Does it help you focus on the habitat question? In terms of implementing restoration projects, most are just a few years old. Have we just not seen the response we might expect?

Maier said we've been implementing since the late 90s. There could be some accrued benefit as we look forward.

Murdoch said Snake and Upper Columbia populations are highly correlated — they track really well. We use that information to evaluate the hatchery programs. That will be done in the next couple of years. There could be some differences in pre-spawn mortality. We could be a climate change effect, compared to the Idaho populations that are at a much-higher elevation. It could be a precursor to what's going on. One of the approaches we want to

continue is addressing the fish-limiting factors, and to use that data to inform restoration projects. Rather than look at habitat and fix what's broken. We want to ask the fish what's broken and address it that way.

Tom Kahler, Douglas Public Utility District fisheries biologist, discussed Wells Dam: the last for fish passage. It's a strange dam, with a fish way on either end. He discussed the dam's fish passage method and fish guidance efficiency:

92.0% for spring Chinook and steelhead use the bypass.
95.3% sockeye
96.2% sub yearling Chinook

Kahler discussed the three components of no net impact:

- Project survival standards,
- Tributary compensation for adult mortality, and
- Hatchery compensation for juvenile mortality.

Kahler then covered the survival data and tributary enhancement. He said there is no evidence of mortality for adult spring Chinook passing Wells Dam, but listed the following investments:

- A Tributary Conservation Fund (Plan Species Account)
- More than $14 million will be contributed by Douglas PUD over the life of the Wells HCP
- More than $2.9 million in project funding to date
- There are 27 major enhancement and protection projects implemented since 2004 in the Twisp, Chewuch, Methow, and Okanagan (Canada) rivers.

The PUDs have spent a lot of money in habitat restoration, he said.

Tom Underwood reported on the "three-pronged approach to no-net impact."

In Chelan, there have been 62 habitat projects funded, and said that Grant PUD is achieving no net impact. Focusing on Spring Chinook, $300 million has been spent at Priest Dam by Grant PUD. Underwood discussed turbine and bypass improvements at Wanapum and Priest Rapids dams.

They have three habitat accounts:

1. NNI Account – Provides near-term compensation for annual survival less than target standards;
2. Priest Rapids Conservation Account – Provides habitat funding for all covered species included in salmon and steelhead settlement agreement;
3. BiOp Account – Provides habitat funding for UCR spring Chinook and steelhead.

A total of 84 projects have been funded, and $34.4 million has been committed to date.

Member Karier said he wanted this presentation because there is a lot of emphasis on Snake River stocks. This is the only area with flat response. What do we need to do to help with this issue as a Council?

Maier replied she wished she had an answer. We don't know if it's an issue in the Upper Columbia — the fact that other populations are responding and ours aren't.

Member Karier said when you look at lifecycle, do you have information on Upper Columbia spring Chinook making it through he dams or do you just get generic spring Chinook numbers?

Murdoch said their focus has been at the sub basin level. We'll take smolts out to the ocean and back. The intent is to get at those survival questions for an apples-to-apples comparison.

Kreimes said they are working with all their partners in the region to get this type of data incorporated … and we didn't even get into climate change and some of the modeling we're trying to do around that.

Member Booth wants to know more about the different methods being used, as well as predation. Did you include returns on the entire project? Kahler said the problem with Wells Dam is that we have no dams above it.

Member Booth asked if they have data on the take from predation. Underwood said, for Grant PUD, no. There is a Caspian tern issue, 15 percent of PIT-tagged fish are lost within the Priest Rapids project. For spring Chinook it's 2.5 percent. There's a tern colony on Potholes Reservoir.

Adjourned at 4:26 pm

September 14, 2016
Council Chair Henry Lorenzen brought the Council to order at 8:30 a.m.

5. Summer conditions wrap up – lessons learned and management decisions to prevent/reduce summer fish mortalities

Lynn Palensky started the presentation by saying that last summer, the region experienced high water temperatures and high numbers fish mortalities — especially sockeye and sturgeon. This year, stakeholders collaborated to evaluate what would be done at the dams to prepare for a similar situation. There was a scare earlier in the summer when summer temps spiked up, but they settled back down. There have been discussions on physical preparation at the dams, how to deal with dead fish and what types of equipment, personnel and early warning system components are needed.

A regional coordination forum made up of fish and wildlife managers, the U.S. Army Corps of Engineers, the Fish Passage Advisory Committee and other technical team members have been meeting to discuss equipment, personnel and early-warning system components. The forum's goal is to increase communications and decrease fish mortalities. It has been evaluating mainstem conditions, temperature modeling, harvest management and cold-water refuges. It also developed a prototype website with technical data, as well as information for

laypeople.

Michael Garrity, Washington Department of Fish and Wildlife, said there was active management by the advisory committee and the Corps to cool the Snake River at Lower Granite and Little Goose. COE began pumping cold water onto fish ladders at LWG and LGS on June 9 and July 1, respectively, when water temperatures approached 68 degrees.

The result was there was no emergency declared for sockeye and no trucking of adults. Garrity said that the total sockeye return was 500,000 fish in 2015, with a forecast of 110,000 for 2016. But the total run at Bonneville was 342,000 in 2016. Snake River numbers turned out to be just over 1,000 fish, which is lower than 2015, but with better survival.

At Bonneville Dam, there were slightly warmer temperatures than average at the beginning of the year — right when sockeye were passing. Garrity said that the Corps did an outstanding job maintaining the temperatures with releases from Dworshak. This affected sockeye survival and PIT-tag data confirms it, he said.

This year's water temperatures were less extreme compared to 2015. Sockeye salmon and other fishes are experiencing more normal survivals and conversion rates between dams. There will be continued monitoring of sockeye through September to ensure that they reach their spawning destination in Sawtooth Valley, Wenatchee, Okanogan and Cle Elum lakes.

Paul Kline, Idaho Department of Fish and Game, discussed the journey of Snake River sockeye run to central Idaho. The travel between Red Fish Lake in the Stanley Basin and Lower Granite is about 460 miles uphill. It takes about 37 days. He discussed river water temperatures and adult sockeye returns.

Member Karier said there's a striking decline before Bonneville Dam. Was it expected that 2015 would be so high and 2016 so low? Kline replied that it matches with the number of adults released from hatcheries and natural born in Red Fish Lake. It matches with our outward migration. Both were going down.

2016 Snake River Run: They saw very good survival – better than average – 83 percent from Bonneville to Lower Granite. The average survival at Lower Granite to Stanley Basin is 54 percent. From Bonneville to Stanley, there was 44 percent survival. Typically it's 40 percent.

Member Norman asked that comparing 2015 to 2016, what was escapement number in 2015? Kline said it was about 50 adults with a 1 percent conversion back to the Basin in river. Member Norman commended the team on their timely work. Two years in a row of high fish mortalities would have been a travesty, he said. He then asked about the 68-degree mark with Dworshak water. How much of that input provides benefits how far downstream? Kline replied at Lewiston, the water is fully mixed. There's a 5-6 degree difference. At Lower Monumental, it's gone.

Tom Rein, Oregon Dept. of Fish and Wildlife, discussed the contrast between 2015 and 2016. In 2015, we had a near disaster, losing substantial portions of sockeye and sturgeon. In April and May of 2016, they feared they would experience the same conditions again, but they didn't end up repeating. The lesson is this is going to be quite challenging to develop an early-warning system. "I thought we'd have to pull all the triggers to help cool the river, but

temperatures have been more normal," he said. The fish die-off didn't happen. They were prepared for fishery closures, but they didn't have to do that.

Trevor Condor, NOAA Fisheries, said there was one dam in the entire system without detection: John Day. Preliminary estimates worked out in 2016. It was an above-average year for adult conversion for in river sockeye. The estimate is based on juvenile migration history.

Dan Feil, U.S. Army Corps of Engineers, mentioned the pump system used to reduce the ladder temperature differential. They had some good fish passage this year. They also installed temperature pumps at Little Goose Dam. As you go downstream, there is less impact from Dworshak water releases. Each successive dam downstream mixes it up even more. They operated pumps at Little Goose starting in July and kept ladder temperatures reduced. They're working on a design much like Lower Granite and hope to have it installed by summer 2018. They are working to collect more temperature data at their projects. They are assessing the information they have, and are determining where they need additional data. They are making it available on the web. They want to keep the tail rate at Granite below 68 degrees.

Summary: 2016 water temperatures were less extreme compared to 2015. Sockeye salmon and other fishes are experiencing more normal survivals and conversion rates between dams.

In addition to the value of improved regional communication, the lessons learned include:

- Improved understanding of a decision-making framework for implementing emergency actions.
- Corps actions at Dworshak, Lower Granite and Little Goose were effective in reducing risk and improving migration conditions.

6. Update on the O&M Strategic Plan and demonstration of mapping tool

Member Booth said they have finished the inventory phase for the screens and hatcheries. Staff helped create a mapping tool on the Council's website. The engineering team is completing its hatchery condition assessment work and is one-third of the way done.

They also are meeting with screen sponsors. Work is underway with staff, BPA and the fish screen oversight committee. The plan is to create a template for screens in Idaho. They are in that phase now, moving on to other states next year. The budget is $250,000 and Booth said he thinks they can make it stretch throughout the project.

Mark Fritsch demonstrated the mapping tool. Sections include:

- Artificial Production Programs O&M
- Fish Screens O&M
- Fish Objectives
- Lands

Staff is working with HDR engineering firm to catalogue hatcheries. This website will house that report. There are 14 sites with summaries and key documents. All will be visited by HDR.

Member Karier said eventually, you'll have estimated O&M costs for each screen and

hatchery. Once we have it, will it be up to each entity to negotiate a longer-term contract, or a trust to fund the screen? What's the end product of this?

Member Booth said that first is figuring out what we have and who's responsible. This is setting up a tool similar to what BPA has for its transmission. We want to identify key components and get them on a maintenance schedule so at least you can inspect them. There are so many screens out there that BPA has inherited, we want to look at those in all the states and gain some efficiencies within the program that will help cover some costs. We have to see what will happen on the hatchery side. So far, not seeing that. Everyone now gets its maintenance covered.

Member Karier said they all have O&M, but you're looking at one-off investments? Will the screens have the same? Member Booth replied that the Mitchell Act has dried up. We have to be flexible. We have to plan on replacing some at some point. First, we need to gain efficiencies and then provide for ongoing planning. Keeping things maintained will save you money.

7. Overview of Avista Electric Vehicle Charger Pilot Program

The Washington Utilities and Transportation Commission approved an electric vehicle (EV) charging pilot program for Avista to install EV charging stations and study their impact on energy delivery.

Rendall Farley, Avista's electric transportation manager, told Council members that while he expects to see a strong movement to electrified mass transit, forklifts and possibly freight trains, their initiative is in passenger cars. Describing EVs as quick, clean and providing a superior customer experience, he said he wouldn't be surprised if gasoline vehicle wouldn't be able to compete in 10 years. In time, people will come to see that driving an EV is one of the most patriotic things you can do, he said.

Some of EVs current barriers to overcome include:

- Low public awareness
- Less vehicle choice (which is changing)
- Upfront cost
- Range anxiety
- Low infrastructure investment

Avista's working to change the latter point. There's very little cost needed to build infrastructure compared to fuel cells, Farley said. That's why the pilot project is needed. The market on its own has not been able to get the infrastructure going. Utilities must get involved in the near future to keep up with the EVs on the road. When charging is available at work, it's a tremendous catalyst to the growth of EVs.

Over the next two years, Avista will install 120 EV charging stations in homes, and 80 stations at workplace and public locations in Eastern Washington.

The impact on load would be about 1,600 MW of peak load on Avista's system. An extreme

future scenario would be 500,000 EVs on Avista's system with 10,000 MW of peak load. Since 80 percent of the EVs would be charged at home, much of the load would be off-peak.

For residential customers, Avista will provide and install an AC Level-2 charger for the first 120 Avista Washington electric residential customers who qualify. Residential customers will receive a reimbursement of 80 percent of their installation costs up to a maximum of $1,000.

At workplace and select public sites, Avista will provide qualifying business customers with an AC Level-2 charging station for the first 100 workplaces, with 23 port connections installed. Public charging stations must be available to the public and within a five-minute walking distance of a major park, shopping area, restaurants, entertainment center and/or en route to a longer distance destination.

Avista also plans to install DC Fast Chargers at seven locations in Eastern Washington. DC Fast Chargers greatly reduce charging times to as low as 15 minutes to significantly recharge the battery. DC Fast Charging allows for convenient longer-distance driving by all-electric vehicles.

The DC Fast Chargers will be in close proximity to major arterials and driver amenities, such as in Pullman, Rosalia and Spokane.

How long it takes to charge an EV depends on the equipment. A home charger is about 5 miles per hour. Public connectors provide 25 miles per hour worth of charge. Volt is coming out with a 200-mile range vehicle. As newer vehicles hit the market, you'll see more adoption, Farley said.

8. Council decision on the use of cost savings funds for Northern Pike control in Lake Roosevelt: Tony Grover, staff director, Fish and Wildlife Division.

Grover reminded the Council that they approved it before. This is to approve the $40,000 in cost savings found. It will leave $510,000 in cost savings for further use.

Northwest Power and Conservation Council Motion to Approve the Use of Cost Saving Funds for Northern Pike Control in Lake Roosevelt

Member Booth moved that the Council recommend that Bonneville apply $40,000 of savings identified by the Cost Savings Workgroup for Fiscal Year 2017 to the Northern Pike predator control project in Lake Roosevelt, as presented by staff and recommended by the Fish and Wildlife Committee.
Member Anders second.

Member Karier asked if there would be a vote on 2017 separately. Grover said the Council already approved the entire effort already.

Motion passed without objection.

9. **Council decision on the urgent BOG request regarding the Northern Pikeminnow Sport Reward Program.** Mark Fritsch; Steve Williams, Pacific States Marine Fisheries Commission; and Bryan Mercier, Bonneville Power Administration.

Mark Fritsch introduced the BOG request for the northern pikeminnow bounty program. They anticipated a shortfall of $700,000. The members couldn't reach a consensus on the size of the shortfall. Grover suggested that BPA come to the Council with a recommendation. The request is now at $350,000. Dave Roberts of BPA and Steve Williams administer the project.

The bounty program is 25 years old, and relies on anglers to catch pikeminnow. Discussed history removing 10-20 percent of the pikeminnow can result in a significant (50 percent) reduction in predation. The average has been 14.2 percent over the years, but it was just 10.0 percent as of September this year.

Member Karier observed that the catch plummeted. You caught about the same number of fish between 2015-2016. Did the population double? Fritsch said there were more fish tagged. It's based on tagged returns.

Williams said they had a large incoming class that was available, but the data they have is not that precise to say exactly what it was. "We're still going to come in close to average at the end of the day," he said.

Roberts said they have had declining registration. They decided to change the tiered reward structure. They boosted outreach with the marketing firm to get the word out, as well as training.

Discussed monthly catch rates and the sport reward program. They saw that they would exceed the budget to pay out rewards. The estimate of $350,000 would cover 2016 sport reward payments.

Or they could eliminate that program. The risk is sacrificing your biological objective.

WDFW expressed its support for the BOG request.

Member Lorenzen asked how many fish were caught in 2015 and how much was spent. There were 200,000 caught and $1.5 million spent. The estimate for 2016 is 220,000 – 230,000 fish.

There was a detailed discussion of the reward structure and the estimated cost per fish. Lorenzen said, "I'm wondering why you need the higher rates to boost participation."

Williams said the decline in anglers went on for a long time. They needed to stem that tide. If we can't keep the anglers coming, we'll have a problem.

Member Yost observed, "So you tag the fish and then you pay for the tagged fish? Williams said, yes, ODFW does it. They do a statistically valid spread across the entire area. Those tags are recovered through the fishery. Those are worth $500 apiece.

Vouchers have been issued for the 205,000 fish that are there. The program has been in place 25 years and it's the most successful. Anglers believe it's fair, stable and relied upon. If we didn't pay, that decline would get worse.

Member Booth said he'll support the motion, but it's very expensive if you look at cost per fish. One concern is this type of program has to be budgeted, maintained and met. We'll stick to that budget going forward, he said.

Northwest Power and Conservation Council Motion to Concur with Bonneville Power Administration to Provide Funds in The Amount of $350,000 to Address the Anticipated Budget Shortfall Associated with Project #1990-077-00, Development of Systemwide Predator Control

Member Booth moved that the Council concur with the recommendation by the Bonneville Power Administration that Bonneville provide funds in the amount of $350,000 to address the anticipated budget shortfall associated with Project #1990-077-00, Development of Systemwide Predator Control, as presented by staff and recommended by the Fish and Wildlife Committee.

Member Anders second. Motion carried.

Council Business

Northwest Power and Conservation Council Motion to Approve the Minutes of the August 9-10, 2016 Council Meeting

Member Booth moved that the Council approve for the signature of the Vice-Chair the minutes of the August 9-10, 2016 Council Meeting held in beautiful Polson, Montana.
Motion carries without objection.

Northwest Power and Conservation Council Motion to Appoint Stan Gregory to the Independent Scientific Review Panel for a First Term from October 1, 2016, to September 30, 2019, and Renew Alec Maule's Appointment to the Independent Scientific Review Panel for a Second Term Ending September 30, 2020.

Eric Merrill spoke by the phone. Stan Gregory is a professor emeritus of fisheries at Oregon State University. Also been on the ISAB for a year. He has demonstrated excellent expertise and participation in the group. We're losing Dennis Scarnecchia and he would fill that slot. Alec Maule has proved to be an excellent reviewer of fish passage and critical uncertainties. Also, our Chair Henry Lorenzen on the administrative oversight panel. We're looking for a member to replace Greg Ruggerone's position. We have a number of members on our short list. For ISAB, we have Alec Maule, Steve Schroder and Carl Schwarz up for second terms. All have proven to be very effective members.

Member Booth moved that the Council appoint Stan Gregory to the Independent Scientific Review Panel for a first term from October 2, 2016, to September 30, 2019; and renew Alec Maule's appointment to the Independent Scientific Review Panel for a second term ending September 30, 2020.

Member Bradbury second. Passed without objection.

Northwest Power and Conservation Council Motion to Approve the Release of the Draft Fiscal Year 2016 Annual Report to Congress for Public Comment for a Period of 90 Days

Member Booth moved that the Council approve the release of the Draft Fiscal Year 2016 Annual Report Congress for public comment for a period of 90 days.

Member Yost second. Passed without objection.

Public comment

Montana State Representative Mike Cuff briefed the Council on his passion about invasive species. The Montana invasive species program fell into his lap. In the fresh water areas, it's the zebra and Quagga mussels. The only means of getting rid of them is killing everything else while you're killing them. He's working on keeping them out of our states and they have devised a perimeter protection plan. Each state has its own boat-check program. Over the years better coordination. But at very best, we're playing Russian roulette with the percentage of boats that are uninspected, he said. They obtain federal funding through the U.S. Army Corps of Engineers on a dollar match for the programs in the four states. In 2017, they got that up another million dollars for monitoring. Passing the bill is the easy part. Now we're near the end of 2016, and there's no plan for getting the money to the states.

He suggested this might be in the purview of this group to push this along before we hit that loaded boat. This isn't one-time funding. He believes if we got it in the 2017 budget, it would roll along.

Member Lorenzen said the Council understands the seriousness of the issue. Mark Walker is meeting with the Corps to see what we can do to pry that money lose.

Adjourned at 11:13 a.m.

Approved October ___, 2016.

_____

Vice-Chair