State of Oregon
Department of Environmental Quality Memorandum

Date: Feb. 7, 2011

To: Environmental Quality Commission

From: Dick Pedersen, Director

Subject: Agenda item G, Action item: Action on petition for site-specific temperature criterion for the Hells Canyon reach of the Snake River February 16-18, 2011, EQC meeting

Why this is important

On Dec. 8, 2010, Idaho Power Company submitted a petition to the commission for a site-specific temperature criterion for the Hells Canyon reach of the Snake River. Under OAR 137-001-0070, any person may petition an agency to adopt, amend or repeal a rule. The commission must either deny the petition or initiate rule making within 90 days of receipt of the petition.

DEQ recommendation and EQC motion

DEQ recommends that the commission deny IPC's petition but direct DEQ to consider the proposed site-specific temperature criterion during the department's next water quality standards (triennial) review, as noted in action alternative two. DEQ also recommends that the commission authorize Director Pedersen to issue a written order denying the petition on the commission's behalf.

DEQ recommends the above action because IPC did not provide sufficient data and information to support changing the temperature criterion for the Snake River. In order to conclude that the proposed site specific temperature criterion will support the beneficial uses in the Hells Canyon reach of the Snake River, DEQ needs additional time to collect and analyze additional information and consult with fisheries experts.

Background

IPC owns and operates the Hells Canyon complex on the Snake River. The complex consists of a series of three dams and reservoirs that are operated to generate electricity. IPC is required to secure a license from the Federal Energy Regulatory Commission to operate the complex. The Clean Water Act section 401 requires IPC to obtain a certification from DEQ as part of the FERC licensing. The certification will require IPC to manage the complex and implement management actions such that all water quality standards are met, including the current temperature criterion of 13°C, downstream of the complex. The criterion is set to protect salmonid spawning from October 23 through April 15. IPC proposed in the petition to change

the applicable criterion to 14.5°C from October 23 to 31. The current criterion of 13ºC would still apply from November 1 through April 15. DEQ held a public comment period on the petition from Jan. 14 to Jan. 28, 2011 and received comments from 13 agencies and organizations.

Key issues

1. The Snake River, from the Hells Canyon dam to the Salmon River, is designated to support salmon and steelhead spawning through fry emergence from October 23 through April 15. The segment from the Salmon River to the Oregon/Washington border is designated to support salmon and steelhead spawning through fry emergence from November 1 through May 15 and the applicable temperature criterion is 13°C. These segments of the Snake River are also designated as a salmon and steelhead migration corridor with a corresponding temperature criterion of 20ºC from April 16 through October 22 and May 16 through October 31, respectively.

2. DEQ has had two major rule revisions of the temperature criteria, in 1996 and 2003. These rule revisions entailed significant agency process, outreach and technical input. Following commission adoption of the rules, EPA consulted with both National Oceanic and Atmospheric Administration Fisheries and the U.S. Fish and Wildlife Service on the proposed rules. The 2003 temperature criteria were approved by EPA in March 2004. Northwest Environmental Advocates has appealed EPA's approval of the 2003 criteria and that case is pending.

3. The IPC petition requests that the commission amend the rules and change the numeric criterion for the Snake River, from the Hells Canyon dam to the Salmon River, during the time salmonids are expected to be spawning. The petition requests a higher temperature criterion of 14.5°C to replace the current criterion of 13ºC. The criterion would apply for one week, from October 23 to 31. The 13ºC criterion would continue to apply from November 1 through April 15. Data collected by IPC indicates that water below Hells Canyon dam will cool sufficiently to attain the 13°C criterion by November 1.

4. IPC submitted one peer-reviewed document to support rule amendment. The petition asserts that 14.5°C will protect salmonid spawning below the Hells Canyon complex.

5. ORS 183.390 requires the commission to consider six items when reviewing a petition. These items are listed below and followed with DEQ staff considerations:

a. **The continued need for the rule.** Under federal regulations,

40 CFR §131.2, water quality standards include criteria set to protect the designated use. States are not required to develop site specific criteria, but federal rules require states to set criteria using "sound scientific rationale (40 CFR 131.11(a))."

b. **The nature of complaints or comments received concerning the rule from the public.** Please see attachment B for public comments.
c. **The complexity of the rule.** The proposed rule language is simple; it replaces the 13°C criterion with 14.5°C for a specified time period.
d. **The extent to which the rule overlaps, duplicates or conflicts with other state rules or federal regulations and, to the extent feasible, with local government regulations.** The proposed rule would result in a different level of protection than existing state water quality standards, which may be perceived as a conflict. For all other waterbodies in the state with the beneficial use designation of salmon and steelhead spawning through fry emergence the temperature criterion is 13°C. The Snake River below the Hells Canyon complex would be the only waterbody with a different applicable temperature criterion for that use. EPA must approve revisions to state water quality standards and because there are threatened and endangered species present in the Hells Canyon reach of the Snake River, EPA will be required to consult with the federal fisheries agencies on their approval action.
e. **The degree to which technology, economic conditions or other factors have changed in the subject area affected by the rule.** DEQ is not aware of any conditions or factors that have changed in the subject area.
f. **The statutory citation or legal basis for the rule.** The substantive authority for the proposed rule is ORS 468B.035, ORS 468B.048 and Clean Water Act section 303.

EQC action alternatives

The commission has three alternatives in response to the petition:

1. Deny the petition and take no further action. The result of this action would be that DEQ staff would not be directed to conduct any additional work on the petition. Staff resources would continue to be spent on established agency priorities.
2. Deny the petition and direct DEQ staff to consider the proposed site specific criterion during the next water quality standards (triennial) review and rulemaking process.
3. Grant the petition and begin a formal rulemaking process. The rule language proposed by IPC would be public noticed without revision. DEQ would have to shift staff resources to

make this rulemaking a priority and would have to delay other rulemaking and projects, such as its efforts to revise the turbidity water quality standards and other commitments related to the water quality standards toxics rulemaking.

Attachments

A. Proposed amendment to water quality standards
B. Summary of public comments
C. Letters from commenters

Available online

1. IPC's petition to initiate rulemaking for site-specific temperature criteria for fall Chinook Salmon spawning in the Hells Canyon reach of the Snake River

Link:
http://www.deq.state.or.us/wq/standards/docs/hellscanyon/IPCPetition.pdf

Approved:

Division: _____

Section: _____

Report prepared by: Marilyn Fonseca
Phone: 503-229-6804

Proposed Amendment to Oregon OAR 340-041-0028(4)

[new subsection (g)] The seven-day-average maximum temperature of a stream identified as having fall Chinook salmon spawning and incubation use on Table 121B may not exceed 14.5 degrees Celsius (58.1 degrees Fahrenheit) at the times indicated on the table. The seven-day-average maximum temperature is a calculation of the average of the daily maximum temperatures from seven consecutive days made on a rolling basis.

Table 121B

BENEFICIAL USE DESIGNATIONS – FISH USES

MAINSTEM SNAKE RIVER

Geographic Extent of Use	Salmon and Steelhead Migration Corridors (20°C)	Redband or Lahontan Cutthroat Trout (20°C)	Fall Chinook Salmon Spawning and Incubation (14.5°C)	Salmon and Steelhead Spawning through Fry Emergence (13°C)
Mainstem Snake River				
~~Oregon/Washington Border to Hells Canyon Dam (RM 169 to RM 247.5)~~	~~X~~			~~October 23-April 15~~
Oregon/Washington Border to Salmon River (RM 176.1 to RM 188.2)	**X**			**November 1-May 15**
Salmon River to Hells Canyon Dam (RM 188.2 to RM 247.6)	**X**		**October 23-Ocotber 31**	**November 1-April 15**
Hells Canyon Dam to Oregon/Idaho Border (RM 247.6 to RM 409)		**X**		

While the main focus of this petition is the spawning life-stage, effects on other life stages as a result of the standard are also part of the consideration. This document is structured to provide background information on this SSC petition, the status and life history of Snake River fall Chinook salmon, a description of the existing criteria relative to existing conditions, and the rationale for the proposed SSC. In 2007, IPC developed a comprehensive review of the temperature effects of the HCC on fall Chinook salmon, hereafter, referred to as White Paper (Groves et al. 2007; Appendix 3). Much of the information presented in this document is summarized from this White Paper. Subsequent to the submittal of the White Paper, the NPT filed, on August 30, 2007, with the Federal Energy Regulatory Commission (FERC) a review of the White Paper prepared by the CRITFC (Appendix 4). In December, 2007, IPC filed a response with FERC to the CRITFC review that evaluated the principal criticisms made by CRITFC of the White Paper (Appendix 5). As part of his review of this SSC petition, Dr.

Summary of public comments

Prepared by: Marilyn Fonseca Date: Feb. 4, 2011

DEQ opened the public comment period Jan. 14, 2011, and closed it at 5 p.m. Jan. 28, 2011. DEQ received written comments from 14 organizations. The comments are organized by reference number, noted below.

Comment	The National Marine Fisheries Service recommends that the commission initiate formal rulemaking on the petition. NMFS notes that Idaho Power has been working to obtain a section 401 certification since 2003 and attainment of the temperature criterion has been a stumbling point in obtaining the certification. NMFS would like to see the temperature issue resolved. NMFS requests that NMFS be involved in the rulemaking process. (1)
Comment	EPA did not make a recommendation on the petition. EPA did not have adequate time to review the petition and appendices in detail but raised several concerns about the petition. EPA and DEQ have undergone considerable review and analysis of the temperature criterion. EPA did recommend that altering the criterion should be based on unambiguous new scientific information and analysis. The analysis should discuss why this segment of the Snake River and fall Chinook population require less stringent criteria than other fall Chinook populations. EPA raised concerns about the applicability of studies cited in the petition to the fall Chinook population in the Snake River. A site specific assessment of temperature criteria should address migration through fry emergence period. The petition notes that returns of adults have increased, so the current temperatures are protective. EPA notes that there have been increase of hatchery fish, not "natural origin" fish. EPA provided additional materials in response to the petition: a draft discussion paper on the potential benefits to fall Chinook and Steelhead from cooler temperatures in the Hells Canyon reach of the Snake River; a 2006 letter from EPA to Idaho Power providing comments in Idaho Power request for site specific criteria. (2)
Comment	IDEQ did not make a recommendation on the petition. IDEQ is interested in coordinating changes to water quality standards for the Snake River with the department. IDEQ would likely not begin rulemaking until April 2011. The earliest a rule could be finalized would be at the end of the 2012 legislative session. (3)
Comment	CRITFC recommends that the commission deny the petition. The proposal requires complex, technical analysis. CRITFC notes that there is a need for the current temperature criterion due to climate change and the sensitive species that need protection. Oregon would be better served by focusing resources on the section 401 certification. CRITFC also provided detailed comments on the technical appendices provided with the petition. (4)

Comment	ODFW did not make a recommendation on the petition. ODFW has the authority to manage the fisheries resources in the Snake River that are the subject of the petition. ODFW provided substantial information for establishing the timing of spawning in the Snake River when the temperature criteria were established. The information in the petition does not provide a compelling case for the commission to initiate rulemaking. ODFW recommends that changes to the criteria be based on evidence specific to the Snake River and fall Chinook. ODFW is willing to work with the petitioner and other agencies to identify the evidence needed to make a determination as to whether a different temperature criterion is appropriate for the Snake River. (5)
Comment	Five organizations submitted a joint letter and recommend that the commission deny the petition. Adoption of the proposed temperature standard will allow Idaho Power to avoid implementing measures sufficient to address the water quality impacts of the HCC. The organizations note that the current temperature criteria are barely sufficient to protect the endangered species that inhabit the reach below the HCC. The endangered species act requires a conservative, species protective approach. A weaker standard places the burden of uncertainty on the listed species. The current standard is achievable with existing technology. In addition to the letter, a review of Idaho Power's proposed temperature mitigation projects was provided. (6)
Comment	The Nez Perce tribe requests that the commission deny the petition. The presence and operation of the HCC results in a shift of the natural thermal regime. The altered thermal regime causes the potential for delayed spawning, the potential for pre spawning mortality and reduced survival of eggs and fry. DEQ's resources should be maintained on processing the 401 application. Temperature improvements in September and October are critical to protect pre-spawned adult salmon. (7)
Comment	The CTUIR Department of Natural Resources requests that the commission deny the petition. A higher temperature standard is unnecessary and unjustified and does not meet Oregon's water quality goals. The costs of granting the petition will be borne by the people of Oregon and CTUIR, by reduced water quality and increased threats to beneficial uses. (8)
Comment	The Shoshone-Bannock Tribes requests that the DEQ maintain the current rule framework. The current framework will continue species recovery in the Snake River. The temperature regime proposed by Idaho Power is not more protective of listed stocks than the existing regime. (9*)

List of commenters

Reference number	Name	Affiliation or organization
1.	Bruce Suzumoto	National Marine Fisheries Service
2.	Michael A. Bussell	EPA Region 10
3.	Barry N. Burnell	Idaho DEQ
4.	Baptist P. Lumley	Columbia River Inter-Tribal Fish Commission
5.	Richard J. Kepler	Oregon Department of Fish and Wildlife
6.	Kevin Lewis, Brett Swift, Kate Miller, Liz Hamilton and Nicole Cordan	Idaho Rivers United, American Rivers, Trout Unlimited, Northwest Sportfishing Industry Association and Save Our Wild Salmon
7.	McCoy Oatman	Nez Perce Tribe
8.	Eric Quaempts	Confederated Tribes of the Umatilla Indian Reservation
9. *	Nathan Small	The Shoshone-Bannock Tribes
10. **	Brian T. Kelly	U.S. Department of the Interior Idaho Fish and Wildlife Office

**DEQ received comment 9 after the close of the comment period and was able to summarize the comment for this document.*

**DEQ received comment 10 after the close of the comment period and has not summarized the comment in this document. The full text of that comment has been included with attachment C, for your reference.*

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
1201 NE Lloyd Boulevard, Suite 1100
PORTLAND, OREGON 97232-1274

January 26, 2011

Marilyn Fonseca
Oregon Department of
Environmental Quality
Water Quality Division
811 SW 6th Avenue
Portland, Oregon 97204

Dear Ms Fonseca:

National Marine Fisheries Service (NMFS) recommends that the Oregon Environmental Quality Commission initiate formal rulemaking on Idaho Power Company's (IPC's) petition for site-specific water temperature criteria in the Snake River downstream from Hells Canyon Dam.

Idaho Power Company has been attempting to obtain a 401 water quality certification for the relicensing of its Hells Canyon Complex since 2003, and meeting state criteria for water temperature has continuously been a stumbling point in obtaining that certification. The certification is necessary before the Federal Energy Regulatory Commission (FERC) can issue a new license. National Marine Fisheries Service is anxious to see the water temperature issue resolved to help FERC move towards issuing the license. The new license would include measures designed to mitigate for project effects and improve conditions for Snake River fall Chinook, a species listed as threatened under the Endangered Species Act and under NMFS' management.

Idaho Power Company has proposed installation of a temperature control structure to achieve the spawning season criterion in its current license request. These measures pose risks to downstream water quality, primarily in the form of low dissolved oxygen and high biochemical oxygen demand. Oregon Department of Environmental Quality is aware of this issue and its request for additional information (letter of December 6, 2010, from Neil Mullane, ODEQ, to Chris Randolf, IPC) focuses on this issue. While the severity of the dissolved oxygen issue is presently unknown, it appears-that the risk to Snake River fall Chinook posed by the proposed corrective action may exceed the benefits that would be provided by compliance with current Oregon water temperature standards.

National Marine Fisheries Service encourages you to direct ODEQ staff to fully evaluate IPC's site-specific standard petition, given the issues surrounding IPC's need to comply with current water temperature criteria, and direct relationship between the criteria and Snake River fall Chinook. As you go through the rulemaking, please involve NMFS so we can provide information regarding Snake River fall Chinook.

Thank you for this opportunity to comment on this important issue. Should you have any questions, please contact Keith Kirkendall (503-230-5431) of my staff.

Sincerely,

Bruce Suzumoto
Assistant Regional Administrator
Hydropower Division

cc: Chris Randolf, Idaho Power Company
Rich Domingue
Jane Hannuksela
Ritchie Graves
Keith Kirkendall

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue, Suite 900
Seattle, WA 98101-3140

JAN 28 2011

OFFICE OF
WATER AND WATERSHEDS

Ms. Marilyn Fonseca
Water Quality Division
Department of Environmental Quality
811 SW 6th Avenue
Portland, Oregon 97204

Dear Ms. Fonseca:

This letter is in regard to the Idaho Power Company's petition to the Oregon Environmental Quality Commission (EQC) to initiate rulemaking to establish site specific temperature criteria to protect Fall Chinook salmon spawning in the Snake River downstream of the Hells Canyon Complex (HCC).

As you are aware, while water quality standards are adopted by the state, they must be adopted consistent with the Clean Water Act (CWA) and approved by EPA. When adopting a water quality standard revision, the state must ensure it meets the CWA requirements, including the opportunity for public comment and public hearing.

Due to the limited time provided to review this proposal, EPA has not had adequate time to fully review the petition and appendices. Thus, we can not provide you with a clear indication of whether the proposed criteria would or would not be protective of designated uses in the Snake River. As such, nothing in this letter should be considered a final determination by EPA regarding the protectiveness of the proposed criteria. Nonetheless, EPA has several concerns with the petition that we would like to bring to the attention of the Department of Environmental Quality (DEQ) and the EQC.

First, as part of Oregon's triennial reviews dating back to the mid 1990s and in the development of the 2003 EPA Region 10 Temperature Guidance, EPA and the DEQ have undergone considerable review and analysis regarding the 13°C criterion and the protection it provides for salmon spawning and egg incubation. Altering this criterion on a site-specific basis would need to be based on unambiguous new scientific information and analysis.

Second, although the petition only requests site specific criteria to protect Fall Chinook spawning in the Snake River, the analysis should discuss why this river segment and population of Fall Chinook salmon require less stringent criteria than Fall Chinook in other Oregon rivers.

Third, EPA would like to note that application of the 13°C criterion in the Snake River is already customized. The selection of the October 23rd start date in Oregon's water quality standards was based on the Snake River Temperature TMDL, which included an interpretation of

when the 13°C criterion applied because when the TMDL was developed the standards did not specify when this criterion applied. Subsequently, Oregon revised its standards to specify when and where the 13°C criterion applied, which resulted in all other Oregon rivers having the 13°C criterion start on either the 1st or 15th of the month, with first documented spawning occurring in the two weeks prior to start date. Thus, if the state-wide general methodology was used to determine the start date for the Hells Canyon reach of the Snake River instead of the TMDL, it would have been October 15th since spawning starts there during the first two weeks of October. Accordingly, if the EQC decides to proceed with rulemaking on the petition, EPA believes the appropriate start date based on the latest spawning information should be a consideration in the rulemaking since when the criteria apply is an integral component of the criteria.

Fourth, as the petition mentions, in 2006 the Idaho Power Company encouraged the State of Idaho to consider a 16.5°C initial criterion on October 23 followed with a criterion on each subsequent day that is 0.2°C lower until a 13°C criterion applied on November 11 and thereafter until April 15. The primary scientific basis for these suggested criteria was the Geist et al. study (2006). In a letter dated September 27, 2006, from Christine Pysk, EPA to Barry Burnell, IDEQ (enclosed), EPA raised the concern that, in the Geist et al. study, adult salmon were held at 12°C prior to spawning at the differing temperature regimes and that Fall Chinook adults in Snake River are exposed to much higher pre-spawning temperatures (16.5-18°C). Thus, the applicability of this study to the Snake River Fall Chinook in the actual river environment is questionable. The Geist et al. study is one of the primary studies cited in the petition and EPA continues to have the same concerns regarding the applicability of this study.

Fifth, the viability of eggs and fry emerging from gravels is influenced by the temperatures the adults are exposure to during migration through spawning as well as the temperatures that eggs are exposed to in the gravels (see enclosed EPA 12/10/08 Draft White Paper for a discussion of the potential for reduced survival of eggs and hatched fry from the current temperature regime in the Hells Canyon reach of the Snake River). Currently, Oregon standards protect Snake River Fall Chinook egg and fry viability with a combination of the Natural Seasonal Temperature Pattern narrative criteria (oriented toward migrating and pre-spawning adults) and the 13°C spawning criterion (oriented toward eggs in the gravel). EPA has approved these standards and has determined they are protective of Fall Chinook. EPA raises this duel criteria consideration because in the context of protecting egg and fry viability of Fall Chinook salmon in the Snake River it is difficult to isolate just the spawning criteria to determine overall protectiveness. Thus, a site specific assessment of protective criteria for Fall Chinook in the Snake River should address the adult migration (late summer) through fry emergence (April) period.

Lastly, the petition notes the increased adult returns of Snake River Fall Chinook salmon as context to suggest the current temperature regime is generally protective. Although it is true that hatchery returns have increased over the last decade due in large part to increased hatchery releases, "natural origin" adult returns have not. Hatchery fish do not experience the same temperature regime as natural fish so it is difficult to draw conclusions that increased hatchery returns is an indicator that the current temperature regime in the Hells Canyon reach of the Snake River is protective of Fall Chinook salmon.

Thank you for your consideration on our comments. Please feel free to call me if you have any questions at (206) 553-4198, you may also contact John Palmer of my staff at (206) 553-6521.

Sincerely,

Michael A. Bussell
Director
Office of Water and Watersheds

Enclosures

STATE OF IDAHO
DEPARTMENT OF
ENVIRONMENTAL QUALITY

1410 North Hilton • Boise, Idaho 83706 • (208) 373-0502

C.L. "Butch" Otter, Governor
Toni Hardesty, Director

January 28, 2011

Ms. Marilyn Fonseca
DEQ Water Quality Division
811 SW 6th Avenue
Portland, Oregon 97204

Subject: Idaho Power Company Petition to ODEQ to begin rulemaking to adopt specific temperature criteria for the Hells Canyon Reach of the Snake River

Dear Ms. Fonseca:

Idaho Power Company (IPC) approached Idaho DEQ to initiate adoption of site specific criteria to protect spawning of fall Chinook salmon in June of 2010. DEQ was receptive to their proposal and began the process of initiating negotiated rulemaking. At that time we asked IPC if they had contacted Oregon, pointing out that a criteria change from one state with jurisdiction of a border-water would not be sufficient to change the water quality goal for that waterbody under the Clean Water Act. Idaho DEQ pulled its rulemaking announcement when it became clear that Oregon was not going to also begin rulemaking.

Idaho DEQ is very much interested in coordinating any change in water quality standards affecting the Snake River Hells Canyon reach with Oregon. We stand poised to re-initiate the rulemaking of last summer. Due to procedural requirements here in Idaho, publication of an announcement to begin rulemaking could not occur until the current session of the Idaho Legislature has adjourned later this spring, likely not until April, 2011. Under normal rulemaking process the earliest a rule could be finalized here in Idaho would be at the end of the 2012 legislative session, about 14 months from now.

Please send me a copy of your recommendation to the Oregon Environmental Quality Council and apprise me of the decision the council reaches in its February, 2011 meeting. If Oregon does decide to proceed with rulemaking, Idaho will be ready to coordinate our rulemaking efforts as best as can be accomplished.

Sincerely,

Barry N. Burnell

Barry N. Burnell
Water Quality Division Administrator

BB:DE:ls

c: Jim Tucker, IPC
Al Barker, Barker Rosholt & Simpson LLP
Douglas Conde, Idaho Attorney Generals Office
Michael McIntyre, DEQ Surface Water Programs
Don Essig, DEQ Water Quality Standards Coordinator

COLUMBIA RIVER INTER-TRIBAL FISH COMMISSION
729 NE Oregon, Suite 200, Portland, Oregon 97232 Telephone 503 238 0667
Fax 503 235 4228

January 26, 2011

SENT VIA EMAIL TO: Fonseca.Marilyn@deq.state.or.us

Bill Blosser, Chair
Oregon Environmental Quality Commission
DEQ Headquarters Office
811 SW 6th Avenue
Portland, OR 97204

RE: Idaho Power Petition for Rulemaking

Dear Mr. Blosser:

The Columbia River Inter-Tribal Fish Commission (CRITFC) appreciates this opportunity to provide comments on Idaho Power Company's (IPC) petition for rulemaking for a site-specific temperature criterion for the Hells Canyon Reach of the Snake River. We have reviewed and analyzed the full text of the petition and its appendices and have made specific comments (attached hereto). Based on our review, we recommend that the Commission deny IPC's petition.

Currently Oregon DEQ is reviewing a Clean Water Act (CWA) § 401 water quality certification application submitted by IPC. This review is using a great deal of limited state resources. At a time when Oregon's public funding is frozen and its budgets are shrinking, it would not be appropriate to use more of those limited resources for a rulemaking that will only benefit a large, well-financed private utility company. Allowing for increased temperatures in an already warm river that will likely be made even warmer under climate change will not benefit Oregon, or Oregon's future.

This rulemaking is intimately tied to the ongoing relicensing proceeding of the Hells Canyon Hydroelectric Project (Project) with the Federal Energy Regulatory Commission. Together with two of our member tribes, the Nez Perce Tribe and the Confederated Tribes of the Umatilla Indian Reservation (CTUIR) (collectively, Tribes), we have been "at the table" in this proceeding with many federal, state and non-governmental stakeholders for over a decade. We have also provided technical assistance and comments in the Oregon and Idaho § 401 water quality certification processes. Our goal has been to analyze alternatives and recommend new license conditions for this Project that are scientifically and holistically robust and will best protect and restore aquatic resources affected by the Project existence and operations over a likely fifty year new license term. Throughout this process, however, IPC has not been a willing collaborator.

The proposal to establish site-specific criteria for temperature in the Hells Canyon Reach requires a great deal of complex, technical analysis. What is certain is that the Project has significantly altered the Snake River's historical thermal and other regimes, blocked critical habitat for salmon, steelhead, Pacific lamprey and sturgeon, and contributes to a seriously degraded environment for the aquatic beneficial uses in the Snake River. Moreover, IPC owns and operates a series of hydroelectric dams above Hells Canyon which together, have contributed to and exacerbated serious water quality problems, both above and below the Project.

When contemplating a site-specific criterion, ODEQ cannot take a step backwards from the purpose of the Clean Water Act, which is to restore and maintain the chemical, physical and biological integrity of the waters of the United States. Furthermore, the beneficial uses of that water body, particularly the most sensitive use, must be fully protected. The Hells Canyon Reach supports temperature-sensitive species such as salmon, lamprey and bull trout that require much cooler habitat than other fish. Moreover, evidence collected relating to climate change and its projected effects on the Snake River do not bode well for these sensitive species. Diminishing protection for these species, as this proposal, if accepted, would do, would clearly not benefit Oregon's future.

IPC has taken the position that mitigation for their temperature violations would be costly and unreachable. However, it is important to note that a mitigation option such as a temperature control structure (TCS) is not a new or unique technology, but widely used in the basin and elsewhere with positive and quantifiable benefits. IPC is in the business of selling power and over the decades have extracted immense benefit from the river without having to pay the real costs of that benefit.

The Commission is required to consider the six points under ORS 183.390 when deciding their course of action on this position. We suggest the following:

- In the face of dire predictions related to climate change and significant increases in Snake River water temperatures and due to the nature of the sensitive species that need protecting in the Hells Canyon Reach, there is clearly a continued need for the current temperature criterion.

- The nature of our concerns stem from scientifically valid analyses and review. In light of currently available science, changing the temperature criterion to meet the request of IPC would be a giant step backwards for the beneficial uses of the Hells Canyon Reach and would benefit few.

- The complex nature of this rule is without question. There still remains a great deal of scientific uncertainty that would require a great deal of further research. But there also exists a large scientific literature on thermal effects on salmonids that would argue for taking conservative management approaches and minimizing exposure of salmonids to elevated temperatures.

- There are no known conflicts, duplications or overlapping of this rule with other rules or laws. In fact, the current temperature criterion falls within the standard practices conducted by Oregon all over the state and meets the goals and purpose of the Clean Water Act.

- Temperature problems are not going to improve under any projection or analysis based on existing conditions. The only change in the affected area under future human development scenarios and accompanying climate change would be for the water quality to degrade, not improve. Accordingly, it would be a major step backwards for the beneficial uses to allow for higher temperatures in this reach when measures are available to remedy the problem.

- The rule (or temperature criterion), as it stands, meets the minimum requirements under the Clean Water Act for protecting the beneficial use of the Reach. In order to change that standard, IPC must meet requirements for site-specific criterion. For reasons outlined in our attached "Specific Comments" section, we believe IPC has fallen short of meeting those requirements.

Oregon would be best served by focusing its resources on the § 401 water quality certification process currently underway. Instead of moving backwards on a scientifically-established water quality standard that Oregon devoted years to developing, it would be more beneficial for IPC to return to the table and work collaboratively with the states and all of the stakeholders to come to a mutually beneficial agreement. For these reasons we request that the Commission deny IPC's petition for rulemaking.

If you have further concerns or questions, please contact Julie Carter at 503-238-0667. Thank you for your time and consideration of this important issue.

Sincerely,

Babtist P. Lumley
Executive Director

Enclosure

Cc: Marilyn Fonseca

-Comments on IPC site specific petition

Dale A. McCullough, Senior Scientist, CRITFC
Bob Heinith, Hydro Program Coordinator, CRITFC

Egg Incubation

> p. 21/263. The SDAM temperature criterion of 13 °C is based on generic assumptions, whereas the proposed SDAM temperature criterion of 14.5 °C is based on a substantial body of data specific to fall Chinook salmon spawning temperature requirements below Hells Canyon Dam.

IPC states that their proposal is based upon a substantial body of data specific to fall Chinook. This evidence is not nearly as conclusive as they would claim, and at the same time IPC chooses to ignore the vast body of literature on thermal effects to salmonids in general by disqualifying this evidence on the basis of not conforming to the criteria they have imposed.

> p. 21/263. Specifically, research suggests that initial spawning temperatures of 16.1 °C to 16.5 °C in the declining fall thermal regime of the river are favorable to salmon reproduction (Olson et al. 1955; Geist et al. 2006).

IPC relies on two studies that provide evidence that a temperature of 16.1°C is a suitable initial spawning temperature. Olson et al. (1955) captured a pair of Chinook on the spawning grounds on October 26 and artificially spawned them. These fish had been subjected to unknown temperatures prior to capture, but at least were subject to the natural environment. The drawback with this study is that only two adults were used to create the juveniles used in the test. Scientific literature on family-level variation (i.e., parental influence) in temperature sensitivity shows clearly that there are very large differences in response (Burt et al. 2010). To use the offspring from only one pair of adults can easily produce results not reflective of the whole population. Studies of thermal effects typically use juveniles that are not all from the same parents so that test results represent the population and not just the parentage effect. Results from Olson et al. (1955) should be rejected on these grounds.

IPC relies on the Geist et al. (2006) as evidence of fall Chinook thermal insensitivity up to a temperature of 16.5°C. Although this study also used a series of declining temperature regimes, the adults were held and spawned at 12°C prior to subjecting the embryos to test temperatures. This benign treatment eliminates much of the potential impact of temperature on pre-spawning adults and totally eliminates the effect of water temperature on gametes and earliest stages of egg development, which are known to be sensitive to thermal impact.

The Geist et al. study used well water for egg incubation. While this helps control for outbreak of disease, (which can include temperature related disease), it potentially eliminates or reduces a natural source of mortality. The Geist et al. study appears to be a well-designed study, but it doesn't resolve all uncertainties about what happens under natural conditions. For this reason, it is important to also rely on what is known generally from the wider body of scientific literature. IPC attempts to impose what it claims is a high level of scientific rigor to inclusion or exclusion of studies as evidence. Based on appropriate relevance to natural conditions and complete disclosure of potential effects, these studies could be excluded.

Coutant acknowledges the potential importance of the exclusion of thermal effects on the earliest stages of egg development:

> p. 256/263. There are indications in the literature that specific early embryonic stages of salmon are the most sensitive but that the effects of damages at that stage do not appear until later in development (as noted in Olson et al. 1970).

IPC suggests that temperatures >16°C may occur between October 10 and October 18 on average so that no more that 2% of the spawning distribution's egg deposition would ever be potentially affected (p. 69). But IPC also claims that there is very little relationship between water temperature and spawning time. This claim is contradicted by their own statement that no more than 2% of an annual year's egg deposition is ever affected by the warm waters that would be found before October 18. Taken to its logical conclusion, this would mean that a large percentage of Chinook would not spawn until water temperatures have dropped below 16°C. So in reality, there is a significant relationship between spawning and water temperature.

On the other hand, Chinook in the colder Clearwater River spawn up to three weeks earlier. More than simply the date of spawning initiation, the date of spawning of 10, 20, or 30% of the entire run would be more indicative of potential effects to population viability. Data from Rondorf and Tiffan (1997) indicate that in several years, a small percentage of the total run spawned prior to November 1. Rather than being an indicator that late spawning is good for the population and maintaining the thermal shift to late in the year is good in bring this about, it is probably more likely that reversing the thermal shift would result in earlier spawning of the population in general and consequently, earlier emergence and outmigration. This scenario would likely increase juvenile survival as both the lower Snake and Columbia rivers would have greater flows and lower temperatures at these earlier times (Connor et al. 2003a).

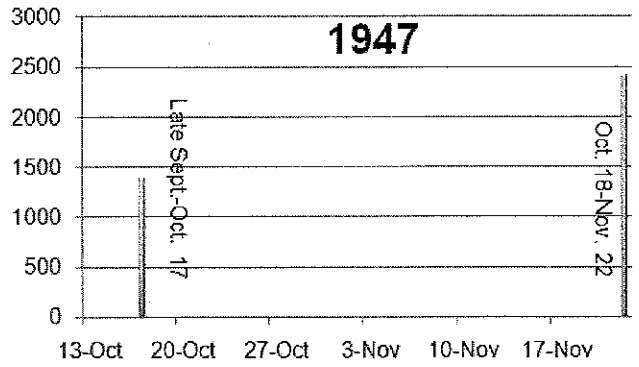
Spawn Timing

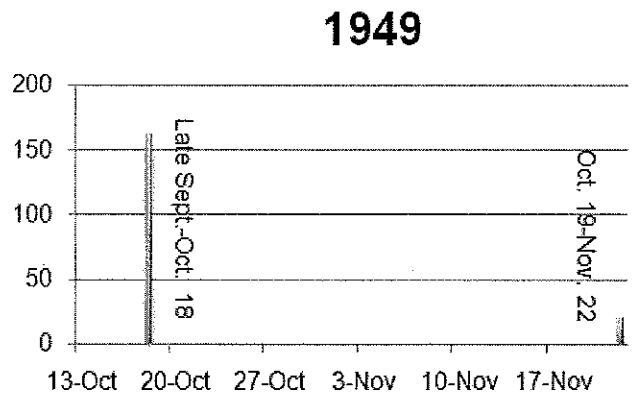
IPC claims that the present-day thermal regime imposed by the HCC (Hells Canyon Complex) with its 3-week thermal shift is actually a benefit to the Snake River fall Chinook. This claim is made by assuming that temperatures as high as 14.5°C to 16.5°C cause no harm. With this logic, if the current spawn time is the same as before creation of the HCC, the higher temperatures are not a detriment but a benefit, because the warmer water conditions will speed development of embryos, leading to earlier emergence and outmigration. However, IPC states that it has no explanation for why there has been a shift toward earlier outmigration timing over the past decade.

Yet, if there is no more than 2% of the total spawning population spawning between October 10 and 18, these fish are surely not making use of the supposedly good early incubation temperatures for some reason. Also, if there is a relatively low percentage of fish spawning in the window of warmed waters near the October 23 threshold, how would this minimal effect then be attributed to a large beneficial effect on the entire spawning population leading to early emigration? It is just as conceivable that spawning was earlier in the Snake River and that with extra days for development afforded by achieving optimal spawning temperatures earlier, juveniles would be able to emerge earlier and outmigrate earlier.

> p. 32/263. Groves et al. (2007) also compared reports of spawn timing in the early 1950's (Zimmer 1950) upstream of the HCC site to spawn timing distribution today. Spawning was initiated in early October and extended over a relatively prolonged period through early December, with peak spawning occurring around the first week of November (Zimmer 1950). This is very similar to what has been observed today in the spawning area below Hells Canyon Dam.

Although IPC states that Zimmer (1950) reported a spawning initiation of "early October," his exact statement is "It appears from the information available that the spawning period of fall Chinook salmon in the Snake River above Hells Canyon Dam site starts in late September or early October and is completed by early December."





Also, from Zimmer's (1950) data, one can calculate that the distribution of redds for 1947 and 1949 shows a high percentage of the total redd count is present by the observation dates October 17 and October 18, respectively (see figures above). Rather than being a mere indication of spawning initiation by a certain date, these two years had a significant proportion of the run deposited prior to October 23 rather than run out into late November.

Gamete Viability

> p. 58/263. A through [sic] review of the literature demonstrates that studies often cited to suggest reduced gamete viability as a result of prolonged exposure to warmer temperatures should not be cited as supporting literature. The studies typically were not designed to address the question. One study that could be cited as supporting evidence (Jensen et al. 2006) did not hold adult Chinook salmon in a declining thermal regime typical of a riverine environment, but rather exemplified relatively long-term (40-days) exposure to elevated water temperatures.

IPC discounts many studies (peer-reviewed or not) that describe the effects of temperature on gametes merely because they couldn't find any studies on Chinook under a declining thermal regime. Rigid adherence to a "scientific" standard meant only to exclude the bulk of literature from examination is not a conservative management philosophy.

Coutant suggests a way that constant temperature data can be used when there is no declining temperature data available:

> p. 256/263. In an ideal situation, one could use results of constant-temperature tests incrementally to estimate thresholds and then apply a validation step testing incubation success using the actual temperature change.

IPC notes that daily temperature fluctuations in the Columbia and Snake Rivers are very minimal:

> p. 245/263. Geist et al. [2006]) mimicked the thermal character of a large river (either the Columbia

> within the Hanford Reach, or the Snake River within the Hells Canyon Reach). These two river sections have very similar daily fluctuations that do not fluctuate by more than about 0.5 °C per day.

But it was noted that Chinook entering the Hells Canyon Reach in late August to early September can experience high, adverse temperatures.

> p. 98/263. The **earliest** fish entering the lower Hells Canyon Reach of the Snake River could conceivably experience water temperatures ≥19.0°C for about 32 days (with a maximum mean temperature of about 22.0°C).

IPC declined to use a constant temperature test on Chinook because it was an extended (40-d) exposure to elevated water temperatures. And despite its admission that water temperatures are relatively stable in the Snake River on a daily basis and over lengthy time periods (e.g., 32 days), it also discounted the influence of the HCC thermal shift in exacerbating the thermal experience of adults in the prespawning condition.

The Coutant review failed to recognize that a declining temperature regime with a 0.2°C daily decrement over a 5-day period was essentially a constant temperature analogue:

> p. 254/263. McCullough presents a convoluted argument on the top of page 7 that I could not follow, including that a temperature reduction of 0.2°C per day is a "relatively constant temperature over the initial 5 days."

The reasoning behind this is that a 1°C total decline in temperature over a 5-day period (i.e., 0.2°C/day) is small enough that constant temperature experiments at a mean temperature equal to the mean for the period of decline will be useful. Granted, a 5-day exposure to a constant temperature is different from a 30-day exposure in overall magnitude of effect, but it is still useful as guidance. Most "constant" temperature experiments are not truly absolutely constant, but are reported to be some mean temperature with bounds of, for example, ± 0.5°C. It probably makes little difference whether the fluctuation over the 5-day period is a continuous decline or a random fluctuation over the same interval.

In growth rate studies, Imholt et al. (2010) found that constant temperature growth of Atlantic salmon juveniles was only slightly different from growth rates under naturally varying temperatures having the same means (where temperature variation was >7°C). While constant temperature growth data could be applied in an incremental fashion to estimate growth under a fluctuating temperature regime, the similarity between growth under constant and fluctuating regimes made it suitable to simply apply the constant temperature experience.

Although all answers may not be provided by studies conducted on Snake River fall Chinook under declining temperature regimes (a precondition for consideration of scientific literature set by IPC), significant insights have been provided for Atlantic salmon (King et al. 2003, King et al. 2007). King et al. (2007) found that Atlantic salmon held at a water temperature of 22°C for a period of 6 weeks during the austral summer and autumn had a fertility and survival of <65% and 30%, respectively, compared with the fertility and survival of adults held at 14°C, which

were 85 and 70%, respectively. Their data confirmed that high temperature spikes can affect reproductive success as much as prolonged exposures. Also, significant endocrine effects were detected in as little as 3 days after exposure to 22°C. Adults held at 22°C had reduced oocyte diameters compared with those of fish held at 14 and 18°C and an increased incidence of chorion damage (King et al. 2003). Chinook in the Snake River encounter temperatures of 22°C frequently.

It is reasonable to give weight to these studies on Atlantic salmon because Atlantic salmon juveniles have an incipient lethal temperature of 27.8°C (Elliott 1991). Most likely Atlantic salmon adults have a somewhat lower UILT value. By contrast, the UILT of Chinook juveniles is 25°C (McCullough 1999). Coutant (1970) identified the incipient lethal temperature for Chinook jacks as 22°C with prior acclimation to 19°C (estimated from ambient river temperatures). Consequently, Atlantic salmon appear to be more resistant to lethal effects of temperature than Chinook, yet they have a sensitivity in the pre-spawning phase that is able to seriously impair population viability.

Pre-Spawning Mortality

> p. 98/263. The **earliest** fish entering the lower Hells Canyon Reach of the Snake River could conceivably experience water temperatures ≥19.0°C for about 32 days (with a maximum mean temperature of about 22.0°C).

IPC states that the exposure of Chinook to temperatures between 19° and 22°C could be a maximum of about 32 days below the lower Hells Canyon Reach. The lower Hells Canyon Reach is that portion of the Snake River below HCD (Hells Canyon Dam) that is downstream of the Salmon River, a cooling influence. Consequently, this reach should be more benign than the upper Hells Canyon Reach. Connor et al. (2003b) show clearly that the upper Snake (397—303 river kilometers [rkm]) temperatures are considerable higher than the lower Snake temperatures (rkm 303—224) in September and October. [Note: HCD is at rk398.] Further, IPC states:

> p. 81/263. It is reasonable to assume that if adult fall Chinook salmon remained for long periods of time where water temperatures remain ≥19.0°C, then significant pre-spawn mortality could likely occur.

This is the reason for concern about pre-spawning fish.

IPC then proceeds to list numerous streams in the upper Hells Canyon Reach, such as Wolf Creek, Getta Creek, Tryon Creek, Sluice Creek, etc. that it proposes, with no data, would provide thermal cold refuges, either directly, or by drainage into the Snake River. There is no information provided on whether these streams even run during September or contribute any substantial subsurface drainage. The lack of information on the extent of actual thermal refuge is obvious in IPC's statement below:

> p. 99/263. However, it is unknown whether adult fall Chinook salmon tend to immediately move into the upper Hells Canyon Reach, or the extent to which they may use cool water refuges mentioned above.
>
> p. 78/263. While the presence or amount of potential thermal refugia is unknown throughout the Snake River (either downstream or upstream of Lower Granite Dam)....

IPC provides no information by which to infer that any of the streams it lists actually do anything to provide cold refugia for Chinook.

IPC bases its entire claim of no significant pre-spawning mortality on fish to redd ratios:

> p. 33/263. However, fish-to-redd ratios documented in the Snake River do not suggest excessive pre-spawn mortality of fall Chinook salmon in the wild. Redd numbers relative to the total number of adult fall Chinook salmon allowed to pass upstream of Lower Granite Dam (with fallback and over-counting at the dam taken into account), the resulting fish to redd ratio has averaged 3.2 (range 2.0-4.2, data from 1993-2006).
>
> p. 58/263. In hatchery holding situations, the mortality is usually associated with increased susceptibility to disease. However, fish-to-redd ratios documented in the Snake River do not suggest excessive pre-spawn mortality of fall Chinook salmon in the wild.
>
> p. 81/263. Additionally, fish to redd ratios for the Snake River upstream of Lower Granite Dam provide further evidence that pre-spawn mortality is not a significant problem.
>
> p. 139/263. However, fish-to-redd ratios documented in the Snake River do not suggest excessive pre-spawn mortality of fall Chinook salmon.
>
> p. 240/263. As any reviewer would likely point out, a female to redd ratio of 1.3 indicates that there are either redds not being accounted for, females in the population that are not constructing redds, or a percentage of the population that is perishing prior to spawning, and that approximately 23% (ranging between 0- 44%) of the female population is being lost to prespawn mortality (due to disease or a myriad of other factors).

Unless conditions are the same from year to year, there is no reason to assume that actual variations in pre-spawning mortality could not be obscured in the other environmental or biological variation producing variation in fish to redd ratios.

> p. 228/263. It is also apparent from its review of this topic that CRITFC fails to accord the proper deference to standard scientific principles. Throughout the White Paper, IPC endeavored to obtain and use information that has undergone either peer-review or has strong results based on rigorous scientific method, i.e., replicated samples providing statistically quantifiable and testable data that allow for the inclusion of variation inherent in any biological population. However, CRITFC did not rely on peer-reviewed, testable data, and indeed often relied on point-data of questionable quality.

Again, IPC tends to disregard scientifically valid reports and studies merely because they have not been peer reviewed, or involve a related species, or did not employ a declining temperature regime. However, IPC made an exception for the Olson (1955) study, which they rely on to

support their contention that 16.1°C is a suitable initial incubation temperature. This study has no acknowledgements to peer reviewers.

> p. 243/263. Total mortality between these two tests (without replication – a very important item to note) was 3.6% and 11.0%, respectively (a difference of 7.4%). It is also just as reasonable to conclude that because there was no replication this difference in mortality is not significant, and is wholly explainable by normal variation within a population. This is the single most important reason to have replication within a biological/ecological study design – to be able to account for natural variation. CRITFC also inappropriately discounts the fact that the water temperature "ticked" up during the test; however, it is very important in reviewing the results to take into account that the temperature did indeed "tick" upward by as much as 0.5 °C even if it had done so only for a single day. More importantly, for the series of tests begun on 30 October, a large increase in total mortality was noted between series three (11.0%) and four (28.1%), indicating a difference in mortality of about 17.1%. Even without replication, it is reasonable to conclude that this is likely a significant increase in mortality.

IPC contests the Olson et al. (1970) study results for October 30. In this study, the egg batch labeled Series 3 starts at 58.6°F (14.8°C) and the uptick just after the start is to about 59.5°F (15.3°C). This small increment is about 0.6°C increase and lasted less than 1 day. Ironically, the temperature was far from approaching the 16.5°C that IPC claims is a 100% safe level. So, their protest that 1 day spent at 15.4°C invalidates this test rings false by their standards.

IPC purports to be able to know that an increase in mortality from 3.6% to 11.0% (representing a change from an initial incubation temperature of 13.6°C for Series 2 to 14.7°C in Series 3) is merely an artifact of no replication, but the increase from 11.0% to 28.1% (representing a change in initial incubation temperature from 14.7°C in Series 3 to 15.9°C in Series 4) is a clear demonstration of thermal effect. No one is arguing that replication is not important, but in the absence of better data, precautionary management would consider potential effects.

Ironically, IPC criticizes the Olson et al. (1970) study because of the upward "tick" "by as much as 0.5°C (see p. 243/263). Series 3 in the October 30 test showed that at an initial incubation temperature of 14.7°C (with a 1-day uptick of 0.5°C), IPC would argue that the effective starting temperature was 15.2°C. In the Snake River, IPC takes the typical temperature decline rate to be 0.2°/day. At an initial water temperature of 15.2°C, declining at 0.2°C/day, the 7DADM temperature would be 14.6°C. The 14.6°C 7DADM temperature in almost exactly the IPC proposal, yet the rear-weighted averaging procedure used, where temperatures from October 23-October 29 are averaged to produce a 7DADM, means that an initial incubation temperature of 15.2°C is allowed. This is the temperature that IPC was concerned about in creating the increase in mortality.

> p. 243/263. CRITFC discusses the Olson et al. (1970) 8 December test groups in a very odd manner, indicating that total mortality "doubled" (and remained "doubled") with an increase of initial exposure temperature of 12.3 to 13.4 °C. The mortality changed from 7.3% to 17.0% (a difference of 9.7%),

respectively for those two test groups, but at higher initial test temperatures dropped to 14.1% (at 14.5 °C) 10 and 12.4% (at 15.6 °C).

IPC's argument that a change in mortality from 7.3% to 17.0% is not a doubling over a base case is erroneous. It is totally valid to express an increase in rates as a doubling. It is also possible to discuss an increase in absolute percentages, or also to describe a percentage increase. Spurious quibbling with statistics is not relevant to a discussion on the important issues.

The IPC claim that there is no demonstrable pre-spawning mortality or disease is wholly linked to fish to redd ratios as evidence. IPC mocks the CRITFC discussion of fish to redd ratios as a way to discredit the idea that prespawning mortality from thermal effects could be serious. However, its own admission of a range of prespawning mortality from 0 to 44% indicates that it could be a significant impact to the population.

p. 240/263. As any reviewer would likely point out, a female to redd ratio of 1.3 indicates that there are either redds not being accounted for, females in the population that are not constructing redds, or a percentage of the population that is perishing prior to spawning, and that approximately 23% (ranging between 0- 44%) of the female population is being lost to prespawn mortality (due to disease or a myriad of other factors).

p. 240/263. CRITFC conducted an interesting "what if" scenario for illustrating how the fish to redd ratios can mask a large amount of prespawn mortality (which is allegedly entirely due to temperature). We could conduct a similar exercise and posit that the fish to redd ratio averages 2.1, and is 2.0 one year, but is 2.2 the next year. It is possible that prespawn mortality could be 0% the first year and 0% the second year. In each year 200 fish were counted passing the dam, yet in year one 100 redds were observed (ratio 2:1, or stated as 2.0), while in year two only 90 redds were counted (ratio 2.2:1, or stated as 2.2). The reason for the difference is that in year one, the observers actually got lucky and the female to male ratio was exactly 1:1, there was absolutely no prespawn mortality (not likely in any population) and the observers counted every single redd. However in year two, with similar conditions, the observers missed 10 redds that were constructed in the deepwater of one site that was not searched. Any number of potential scenarios could be "made up". None of them would have scientifically demonstrable value.

p. 240/263. Using these data and an estimate of overcount at Lower Granite Dam, the female to redd ratio between 1993 and 2006 has averaged 1.3 (range of 0.9-1.8).

p. 240/263. That data shows that between 1991 and 2002 the percentage of females in the adult portion of that population has been 0.48 (range of 0.27-0.53). In order to use this data we have to assume that the portion of the population that is allowed to escape upstream of Lower Granite Dam has a similar female to male ratio.

p. 240/263. More importantly, deepwater redd searches are not conducted in the Clearwater River, where the potential exists for deepwater spawning to occur.

p. 33/263. However, fish-to-redd ratios documented in the Snake River do not suggest excessive pre-spawn mortality of fall Chinook salmon in the wild. Redd numbers relative to the total number of adult fall Chinook salmon allowed to pass upstream of Lower Granite Dam (with fallback and over-counting at the dam taken into account), the resulting fish to redd ratio has averaged 3.2 (range 2.0-4.2, data from 1993-2006).

It is difficult to know what IPC means when it uses fish to redd ratios as evidence that prespawning mortalities are not high or excessive. Is this meant to imply that the operation of the HCC could be responsible for annual shifts in prespawning mortality from 0 to 44% and it would not be considered excessive? Or is this level of variation supposed to be considered normal, so if HCC had any responsibility for the mortality rate, it would either be relatively so small as to be negligible, or it could be too difficult to prove what was responsible—HCC or environmental variation? The point is that under the annual conditions where water temperatures are above average, the effects of HCC's thermal shift in addition to natural variation could contribute to increasing prespawning mortality.

IPC attempts to discredit model building as playing "what if" games that have no scientific value. Yet IPC advances its own assumptions, e.g., the idea that fallback rates are fully accounted for and not estimated, that the female/male ratios of fish allowed to spawn above Lower Granite are the same as in the population taken into the hatchery, that the percentage of fish spawning in the Clearwater is known and is constant, that the percentage of redds observed is constant, etc. Yet IPC discounts the utility of exploring the myriad of reasons how apparent fish to redd ratios could be obtained.

A more in-depth examination of fish to redd ratios was conducted by CRITFC (see attached spreadsheet) by varying the assumptions of (variable A) % prespawning mortality, (variable B) female/male ratio, (variable C) % of females that actually spawn, and (variable D) % of redds observed. Prespawning mortalities were varied from 10 to 50%. If variables B, C, and D, were 1/1, 100%, and 100%, respectively, the fish to redd ratios varied from 2.2 to 4.0. This range corresponds to what was observed in the Snake River. A range this large may have a significant component attributable to natural environmental variation, but during extreme temperature events, the added impact of HCC could provide significant impacts. This analysis also shows that by varying variable B, C, and D, the same fish to redd ratios can be produced while variable A (% prespawning mortality) varies from 10 to 50%. The point of having alternate hypotheses, another common scientific practice, is to allow testing of our concepts about the presence of prespawning mortality.

IPC provided no independent evidence to show that prespawning mortality was not occurring or that other factors could not logically be responsible for observed variation in fish to redd ratios. There are other variables that could also be tested. For example, we assumed a constant number of fish entering the Snake River above Lower Granite Dam. If there were the same actual number of fish passing above the dam, but due to unaccounted for fallback, we observed 25% more fish, the fish to redd ratios would increase by 25%. An error in the other direction would result in a commensurate reduction in the fish to redd ratios. There are many factors responsible for fish to redd ratio values. IPC's interpretation of fish to redd ratios to eliminate all concern for prespawning mortality or disease susceptibility is unwarranted. IPC favors testable hypotheses, but offers no tests. In addition, it is unwilling to acknowledge that temperatures such as experienced by fish in the Snake River migration corridor and also continued in the reach below HCD in September prespawning period could be exacerbated by the thermal shift produced by the HCD.

Female to observed redd ratios are no more reliable with which to conclude that there is no problem with pre-spawning mortality in the Snake River below HCD. Prespawning mortality can vary from 10% to 50%, but female to observed redd counts can vary from 2.1 to 2.2 by various adjustments in only % of females that are successful in finding mates and creating redds and % of redds observed. There would be added variation and uncertainty in the calculations if fallback and counting of adults migrating are in error, or if our estimates of female/male ratios are not accurate. These ratios may alert a manager to extreme problems, but variations between 10 and 50% mortality, which are nonetheless biologically significant and could be relatable to water quality exceedances, cannot be reliably detected using fish/redd or female/redd. Fish/redd ratios are potentially more unusable than female/redd ratios because female mortality rates are often greater under a given thermal stress than for males (Keefer et al. 2010).

IPC ignores a large body of peer reviewed literature on the effects of pre-spawning mortality caused by thermal effects. In a recent publication, Burt et al. (2010) references 41 peer-reviewed publications on the effects of water temperature on pre-spawning adult salmonids.

Thermal Shift

CRITFC's previous technical comments on the thermal shift can be found in Appendix XX and should be considered in the context of this petition.

IPC contracted a review of its work by Dr. Charles Coutant. In the excerpt below, Dr. Coutant misunderstands the full nature of the Oregon temperature standards. In particular, there is the requirement for the annual thermal pattern to mimic the natural pattern. Consequently, the temperatures existing prior to the October 23-29 window are relevant.

> p. 253/263. Pre-spawn mortality (page 3-5, 7): The issue of pre-spawning mortality or energetic stress for salmon holding below HCC at temperatures above 19°C is not directly relevant to the proposal. The proposal seeks a change in the temperature standard for one week in October (23-29) from 13°C to 14.5°C. Other times are covered by other standards: 20°C until October 23 and 13°C after October 23 (currently). These discussions of prespawning conditions by both Groves et al. and McCullough would pertain to the sufficiency of the 20°C standard in view of migration dynamics and holding patterns by migrants. But that is a different issue for a different time.

What is ignored by this approach is that water temperatures of 20°C up to October 22, followed by declining temperatures with a mean of 13°C between October 23 and October 29 are not acceptable. Temperatures must follow a natural seasonal pattern, which means that the initiation and rate of the decline must mimic the natural pattern.

> p. 241/263. IPC is well aware that the State of Oregon uses the seven day average maximum temperature occurring after first spawning as the standard for salmonid spawning. IPC used the seven days prior to when the first redds were observed for its analysis because it provides a more conservative approach for assessing the water temperature that is present during early spawning.

If IPC wished to be conservative with the salmon resource, by its own admission, it would use a forward weighting to the water temperatures. CRITFC has recommended this method from the start of the FERC process. What could the biological relevance be to the fish what the mean temperature was during the week after the spawning threshold is reached? EPA (2009) also contests the method used by Oregon in calculating the 7DADM.[1]

The TMDL process neglected to include the cumulative thermal impacts of all the IPD upstream hydropower projects, a major shortfall of the TMDL.

> p. 63/263. IPC concurred that natural condition temperatures for the Snake River prior to Euro- American settlement cannot be precisely determined. However, during the SR-HC TMDL public comment period, IPC asserted that the SR-HC TMDL temperature analysis improperly ignored upstream anthropogenic effects on water temperature (IPC 2002). In its revised § 401 certification application, IPC presented an alternate analysis to estimate site potential of the Snake River. IPC developed estimated historic (EHist) temperature to illustrate that, while quantifying all upstream anthropogenic effects on temperature may not be possible, estimating additional anthropogenic effects beyond what were captured in the SR-HC TMDL is possible.

IPC has a responsibility for its thermal impacts to the inflow temperatures to Brownlee Reservoir. Consequently, IPC should have responsibility to make temperatures better than those that existed just prior to the HCC. Also, the current IPC claim that they only need to compare current conditions with those present just before the HCC is not a conservative one. This allows for incremental degradation. IPC does not maintain conditions such as they were prior to HCC, because the thermal shift is not addressed in their petition or in their management decisions.

Adult migration

IPC states:

> p. 32/263. Adult fall Chinook salmon experience a similar period of exposure to temperatures elevated above 20ºC between mid August and mid September as they did pre-HCC, but experience a lower maximum temperature than occurred historically. This is based on water temperatures present at Central Ferry in the early to mid 1950s, prior to construction of the HCC or the lower Snake River reservoirs.

This theory proposed by IPC is based on information that may not be in proper context. The water temperatures that occurred in the mid-1950s at Central Ferry were taken strictly for the years 1955-1958. The 1958 (the year that Brownlee Dam was completed) summer season had some of the highest temperatures recorded in the Snake River. Consequently, to say that

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"EPA believes the October 23 7DADM criteria should be based the October 20 though October 26 period to account for the small diurnal temperature variation in the Snake River." From EPA, April 9, 2009 letter to ODEQ and IDEQ.

current temperatures are lower than historical temperatures (i.e., prior to the HCC and specifically by contrast with Central Ferry in the mid-1950s) is not making a significant claim.

Future climate change will most likely make adult migration conditions even more rigorous than they currently are. Operation of the HCC so that cold water releases are provided can provide a significant thermal benefit to the Snake River downstream of HCD (Hells Canyon Dam) as demonstrated by McCulloch et al. (2009).

The mid-1950s were also a period in which high incidence of warm water disease and pre-spawning mortality of Columbia River salmon were experienced (see McCullough 1999).

Although August air temperatures in Lewiston and Kennewick were high in the 1950s, air temperatures have been higher in recent years and have been on a significantly increasing trend from 1948 to 2000 (Peery et al. 2003). Air temperatures are directly linked with water temperatures, and an increasing trend in air temperatures portends increasing water temperatures.

Disease Susceptibility

> p. 58/263. Disease susceptibility – Similar to the findings discussed under pre-spawn mortality, adults held in confined hatchery environments under prolonged periods of elevated temperature appear to have a greater susceptibility to disease or fungal infections. How this pertains to free-ranging adults is uncertain. However as discussed above, fish-to-redd ratios do not suggest a high level of pre-spawn mortality below Hells Canyon Dam.
>
> p. 97/263. There is no evidence of major disease outbreaks occurring in the natural population of returning adult fall Chinook salmon that presently migrate upstream past the four lower Snake River dams. This is supported by the low fish to redd ratios observed in the Snake River Basin (discussed earlier), which do not indicate that problems due to disease or pre-spawn mortality in general in the natural population upstream of Lower Granite Dam is of concern.
>
> p. 140/263. Disease susceptibility – Similar to the findings discussed under pre-spawn mortality, adults held in confined hatchery environments under prolonged periods of elevated temperature appear to have a greater susceptibility to disease or fungal infections. How this pertains to free-ranging adults is uncertain. However as discussed above, fish to redd ratios do not suggest a high level of pre-spawn mortality below Hells Canyon Dam.

IPC argues that Snake River fall Chinook will not have higher incidences of disease due to thermal impacts. To support their arguments, IPC relies on fish to redd ratios. As explained above, this index is interesting, but not highly specific in explaining the cause for its variation. Relative to fish to redd ratios, IPC states:

> p. 230/263. However, the scenarios postulated by CRITFC are not based on actual data and are not representative of anything other than speculation. Any number of theoretical scenarios could just as well

> be conducted, which could be just as easily biased to show that fish per redd ratios are in actuality much lower, and that no level of pre-spawn mortality exists at all. The "what if" examples CRITFC provides do nothing except provide a false appearance that disease within this Chinook salmon population is prevalent due to elevated water temperature, and that this leads to increased pre-spawn mortality.

CRITFC has no intent to provide a false appearance that disease is prevalent. What is likely, however, is that disease is of periodic significance when water temperatures are abnormally high. This may not occur every year, but can be periodically important. IPC provides no direct evidence that this is not the case. By allowing temperatures to remain at high levels late into the fall period and extending the exposure to warm water, IPC increases the risk that warmwater diseases will result in mortalities prior to spawning is achieved.

It has been documented in past studies of the Columbia River that incidence of disease has been linked to high water temperatures, not unlike those found currently. See a quote from McCullough (1999):

> Surveys of infection frequency of sockeye and chinook in the Snake River in July and early August of 1955-1957 revealed 28-75% of fish infected when water temperature was >21.1°C (Ordal and Pacha 1963, as cited by Pacha and Ordal 1970). During this same period the disease was widespread in the Yakima and Okanogan Rivers. In 1958 high percentages of salmon were infected based on samples taken at several mainstem Columbia River dams from Rock Island to Bonneville, as well as on the Yakima, Wenatchee, and Okanogan River. In 1958 water temperatures in the Okanogan were so warm that the run was vastly damaged by columnaris. Thousands of adults left the Okanogan to seek the cooler temperatures of a tributary (the Similkameen River), only to die there from columnaris infection (Pacha and Ordal 1970). Over the years 1955 to 1959 the sockeye run to Redfish Lake, Idaho declined by an order of magnitude, coincident with a large increase in Columbia River water temperatures. In 1955 and 1956 the frequency of infected sockeye was 34 and 50%, respectively, in samples taken at Clarkston, Washington (Pacha 1961). Even though these infection frequencies were high, it is likely that they became higher as the fish migrated toward their spawning grounds. Pacha (1961) reported that Anacker (1956) sequentially sampled the sockeye run into the Okanogan River, finding that columnaris frequency rose from 6.3% in August at Rock Island to 23.8% and then 38% in 9 and 15 d further along in the migration. At the termination of the run the disease incidence was 55% (Pacha and Ordal 1970).

IPC provided no direct information on the condition of fall Chinook subject to pre-spawning mortalities even though it stated that an average mortality load of 23% was probably normal in the population. This would presumably be associated with a moderate temperature year. Others (e.g., Mann et al. 2010) have documented incidence of disease in Oregon Chinook associated with mortalities and have attributed it to temperature extremes:

> Results from disease screening of adults collected during spawning surveys revealed that all of the fish examined had one or more of the following conditions that were, at least in part, responsible for death: swelling or hemorrhaging of internal organs, external evidence of trauma, and histological evidence of severe pathogenic infection. Severe infections of five pathogens (Ceratomyxa shasta, Nanophyetus salminocola, Apophallus sp., Echinochasmus milvi, and Parvicapsula minbicornis) were more frequent in adults that died prior to spawning compared to adults that successfully spawned. Nearly two-thirds of the fish that died prior to spawning were severely infected with one or more of these parasites. All adults were infected. Results of this study, in combination with previous Willamette River Chinook salmon

studies, suggest prespawn mortality is caused by an interaction of environmental factors (particularly water temperature), fish condition and disease load, and energetic status.

Bioenergetic Exhaustion

IPC placed in bold letters an important caveat that they claim should be used in evaluation of Brown and Geist (2002):

> p. 237/263. All of the fish used in our study were captured while trying to pass Lyle Falls, tagged, and then returned downstream where they were released. Thus, the fish tracked during this study likely had lower energy reserves and were more mature than fish that were approaching the lower river for the first time. This factor should be weighed when interpreting results." CRITFC appears to have ignored or unreasonably discounted this important caveat.

By choosing to take a narrow view of bioenergetic impacts, IPC overlooks the main thrust of these arguments which is that maintaining water temperatures at high levels rather than having a natural thermal pattern in the fall period subject Chinook and other salmonids in the river to increases bioenergetic stress.

Mann et al. (2009) summarize significant points relative to bioenergetic stress for Chinook:

> Between river entry and death after spawning, Chinook salmon and other semelparous salmonids experience an almost complete exhaustion of lipids and considerable loss of protein (Gihousen 1980; Brett 1995; Jonsson et al. 1997; Hendry and Berg 1999). These physiological changes reflect the energetic demands of migration, maturation, competition for mates, redd construction, and spawning. The relatively high initial muscle lipid content in SFSR Chinook salmon (~22% for males and females, see Chapter 1) is at the high end of the observed range for Chinook salmon. The high initial fat content reflects the long migration distance for SFSR salmon (~1,150 rkm) and is consistent with estimates for long-distance migrants from other river systems (Iverson 1972; Brett 1995).

> Combining results across the entire duration of the study, it appears that monitoring lipid levels and energy condition of fish entering migration corridors can be a useful tool to determine how successful a year class may be. Furthermore, it is likely that successful management of adults in the Hydrosystem and on the spawning grounds can be improved by gathering reliable information on the true level of an energetic/lipid threshold, the mean condition of stocks as they enter the river and the relative costs of migrating through the Hydrosystem in years with different environmental and operational conditions. This is particularly important in the face of changing ocean conditions, and the warming climate expected for the Pacific Northwest (Eaton and Scheller 1996; Mote et al. 2003).
>
> Changing ocean and Pacific Northwest regional climate will undoubtedly affect the migration corridor. In particular, flow and temperature conditions will likely impact migration costs. Forecasts for decreasing total discharge may lower energetic demands, because of lower current velocities encountered. However, this may be offset by the forecast of higher temperatures, which would directly increase energetic demand by increasing metabolic activity. Increasing migration corridor temperatures may also add indirect costs via slowed or failed migration as adults seek cold-water refugia, as documented for Columbia and Snake River Chinook and steelhead runs (Goniea et al. 2006; Mann 2007; Keefer et al. *in press*) and both Columbia and Snake River sockeye salmon (Hyatt et al. 2003; Keefer et al. 2008b), runs that co-migrate with SFSR Chinook salmon. For both direct and indirect effects, monitoring population-level energy condition is important for understanding fitness responses to climate change, ocean

If the common condition of Chinook is to complete migration and spawning with near complete exhaustion of body lipids and depletion of protein, they certainly do not benefit from water temperature violations and thermal shifts that prolong exposure of prespawning adults to thermal stress that have to endure elevated mainstem temperatures and migration delays. Columbia River salmon have adapted too many of the increasing temperature trends that have been present over the past decades (Hodgson and Quinn 2002), but here is a limit to their continued ability to adapt to these stresses.

Synergistic Effects

Increases in temperature also subject adult salmon and steelhead to decreases in dissolved oxygen. Further, temperature increases act synergistically with other abiotic factors such as pH and metal compounds to present additional challenges to fish respiration systems (Jensen et al. 1993 in Karr et al. 1998). Elevated water temperature increase the uptake of toxics in fish tissue (Materna 2001).

Swim Speed

Goniea et al. (2006) showed that mean and median migration rates through the lower Columbia River slowed significantly when temperatures were above 20 degrees C., while High et al (2006) noted that steelhead destined for upper basin spawning areas under historical temperature regimes now seek and hold in cool water tributaries of the lower Columbia.

Other Water Quality Considerations

Although Oregon has to consider its summertime rearing standard, the spawning standard, and the Natural Temperature Pattern Standard, EPA must also consider the water quality violations caused by the project downstream as the Snake River enters Washington's border. Washington's criterion specifies that no temperature increases, at any time, exceed 0.3°C due to any single source or 1.1°C from all sources combined. This criterion applies at the Washington border downstream of Hells Canyon dam. EPA's current information indicates that the Project impact in the fall exceeds this standard.

Impact of the HCC on the Snake River

Based on a simple comparison between temperatures that provide inflow and outflow to the Project (i.e., the observed temperature impact), the Project causes the Snake River to be 3.4°C warmer in late October (October 23 through October 29). In fact, data indicate that the 3.4°C observed impact of the Project is not related to inflowing summer temperatures or annual flow. That is, the 3.4°C average observed Project impact is very consistent year-to-year and does not vary depending on summer inflow temperature or annual flow. That said, data in do indicate that during high flow years and during years with cooler summer inflow temperatures the inflow temperatures to the Project, and resultant outflow temperatures, are cooler. But importantly, the 3.4°C average impact of the Project does not change. For example, during the high flow years (1996-1999, 2006), the Project inflow and outflow temperature is lower than during low flow years (2000-2005), but the Project observed impact remains about the same. In fact, during the high flow years, the Project impact is slightly greater (3.6°C for high flow years versus 3.4°C for low flow years). These data clearly indicate that the Project is solely responsible for the 3.4°C increase in Snake River temperatures observed in late October.

Table 1
Estimated HCC Impact Based on a Comparison between Upstream and Downstream Temperatures

All values are 7DADM for 7 days leading to October 29

Average for:			
Low Flow Years	12.3	15.7	3.4
High Flow Years	10.8	14.4	3.6

Climate Change

Studies using projected climate change model results indicate that viability of salmon populations in the future may be significantly reduced under increased water temperature regimes in the Columbia Basin (Crozier and Zabel 2006; Crozier et al. 2007; Crozier et al. 2008; WGA 2008; ISAB 2007; Mantua et al. 1997, 2001, 2009, 2010; Miles et al. 2000; Mote et al. 2003; Neitzel et al. 1991; OGWC 2008). Impacts of climate change on salmon in the nearby Fraser River, where the added impacts of hydro facilities are not even a significant concern, are illustrated in literature such as Martins et al. (2010), McDaniel et al. (2010), Morrison et al. (2002), Farrell et al. 2008), and Hague et al. (2010). In other salmonid habitats, the likely effects of climate change have been detailed in literature such as Jonsson and Jonsson (2009), Clews et al. (2010). Granting Idaho Power a SSC now will make the Snake River more susceptible to future climate change impacts on temperatures. A restoration to natural thermal patterns would provide greater stability in the system to counter the effects of anthropogenic climatic warming. Idaho Power needs to reduce temperatures now in preparation for increases in water temperature that global climate models and downscaled models predict will come sooner rather than later (Hamlet 2010, pers comm.).

Temperature Control

Some progress has been made in reducing temperature by release of cool water from dams with high head reservoirs . For example, temperature control structures have been implemented at Dworshak Dam in the North Fork Clearwater River to cool the lower Snake mainstem as a result of tribal studies (Karr et al. 1998) and at Cougar Dam in the Willamette River. A similar capability exists to release cold water held in Brownlee Reservoir to cool the Snake River from below HCD to Lewiston. CRITFC and its member tribes have advocated for such temperature control structures in the Snake River to augment the somewhat inadequate capacity of Dworshak Reservoir to safeguard the Lower Snake River. The importance of providing a source of cold water from a reservoir to the downstream Chinook resource is illustrated by Yates et al. (2008).

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Males and females	** Pre-spawning mortality	Spawning Pop.	**Female /male	Number of females alive abv LGD	Number of females assuming 1/1	** % of females spawned	actual redds	** % of redds observed	Number of redds observed	Gross fish/actual redds	Gross fish/redds obs.	Est. females/ Redds obs.	Gross females/ redds assuming 1/1	Females assumed	Females/ actual redds	Females/ obs. Redds
200	10%	180	1	90.0	90.0	100%	90	100%	90	2.2	**2.2**	1.0	1.0	100.0	1.1	1.1
200	20%	160	1	80.0	80.0	100%	80	100%	80	2.5	**2.5**	1.0	1.0	100.0	1.3	1.3
200	25%	150	1	75.0	75.0	100%	75	100%	75	2.7	**2.7**	1.0	1.0	100.0	1.3	1.3
200	50%	100	1	50.0	50.0	100%	50	100%	50	4.0	**4.0**	1.0	1.0	100.0	2.0	2.0
200	10%	180	0.8	80.0	90.0	100%	80.0	100%	80	2.5	**2.5**	1.0	1.1	88.9	1.1	1.1
200	20%	160	0.8	71.1	80.0	100%	71.1	100%	71	2.8	**2.8**	1.0	1.1	88.9	1.3	1.3
200	25%	150	0.8	66.7	75.0	100%	66.7	100%	67	3.0	**3.0**	1.0	1.1	88.9	1.3	1.3
200	50%	100	0.8	44.4	50.0	100%	44.4	100%	44	4.5	**4.5**	1.0	1.1	88.9	2.0	2.0
200	10%	180	1	90.0	90.0	90%	81	100%	81	2.5	**2.5**	1.1	1.1	100.0	1.2	1.2
200	20%	160	1	80.0	80.0	90%	72	100%	72	2.8	**2.8**	1.1	1.1	100.0	1.4	1.4
200	25%	150	1	75.0	75.0	90%	67.5	100%	68	3.0	**3.0**	1.1	1.1	100.0	1.5	1.5
200	50%	100	1	50.0	50.0	90%	45	100%	45	4.4	**4.4**	1.1	1.1	100.0	2.2	2.2
200	10%	180	0.8	80.0	90.0	80%	64.0	100%	64	3.1	**3.1**	1.3	1.4	88.9	1.4	1.4
200	20%	160	0.8	71.1	80.0	80%	56.9	100%	57	3.5	**3.5**	1.3	1.4	88.9	1.6	1.6
200	25%	150	0.8	66.7	75.0	80%	53.3	100%	53	3.8	**3.8**	1.3	1.4	88.9	1.7	1.7
200	50%	100	0.8	44.4	50.0	80%	35.6	100%	36	5.6	**5.6**	1.3	1.4	88.9	2.5	2.5
200	10%	180	0.8	80.0	90.0	80%	64.0	80%	51	3.1	**3.9**	1.6	1.8	88.9	1.4	1.7
200	20%	160	0.8	71.1	80.0	80%	56.9	80%	46	3.5	**4.4**	1.6	1.8	88.9	1.6	2.0
200	25%	150	0.8	66.7	75.0	80%	53.3	80%	43	3.8	**4.7**	1.6	1.8	88.9	1.7	2.1
200	50%	100	0.8	44.4	50.0	80%	35.6	80%	28	5.6	**7.0**	1.6	1.8	88.9	2.5	3.1
200	20%	160	1.4	93.3	80.0	80%	74.7	90%	67	2.7	**3.0**	1.4	1.2	116.7	1.6	1.7
200	25%	150	1.4	87.5	75.0	80%	70.0	90%	63	2.9	**3.2**	1.4	1.2	116.7	1.7	1.9
200	50%	100	1.4	58.3	50.0	80%	46.7	90%	42	4.3	**4.8**	1.4	1.2	116.7	2.5	2.8
200	10%	180	0.8	80.0	90.0	100%	80.0	100%	80	2.5	**2.5**	1.0	1.1	88.9	1.1	1.1
200	20%	160	0.8	71.1	80.0	100%	71.1	100%	71	2.8	**2.8**	1.0	1.1	88.9	1.3	1.3
200	25%	150	0.8	66.7	75.0	100%	66.7	100%	67	3.0	**3.0**	1.0	1.1	88.9	1.3	1.3
200	50%	100	0.8	44.4	50.0	100%	44.4	100%	44	4.5	**4.5**	1.0	1.1	88.9	2.0	2.0
200	10%	180	1	90.0	90.0	100%	90	80%	72	2.2	**2.8**	1.3	1.3	100.0	1.1	1.4
200	20%	160	1	80.0	80.0	100%	80	80%	64	2.5	**3.1**	1.3	1.3	100.0	1.3	1.6
200	25%	150	1	75.0	75.0	100%	75	80%	60	2.7	**3.3**	1.3	1.3	100.0	1.3	1.7
200	50%	100	1	50.0	50.0	100%	50	80%	40	4.0	**5.0**	1.3	1.3	100.0	2.0	2.5
200	10%	180	1	90.0	90.0	90%	81	80%	65	2.5	**3.1**	1.4	1.4	100.0	1.2	1.5
200	20%	160	1	80.0	80.0	90%	72	80%	58	2.8	**3.5**	1.4	1.4	100.0	1.4	1.7
200	25%	150	1	75.0	75.0	90%	67.5	80%	54	3.0	**3.7**	1.4	1.4	100.0	1.5	1.9
200	50%	100	1	50.0	50.0	90%	45	80%	36	4.4	**5.6**	1.4	1.4	100.0	2.2	2.8
200	10%	180	1	90.0	90.0	100%	90	60%	54	2.2	**3.7**	1.7	1.7	100.0	1.1	1.9
200	20%	160	1	80.0	80.0	100%	80	60%	48	2.5	**4.2**	1.7	1.7	100.0	1.3	2.1
200	25%	150	1	75.0	75.0	100%	75	60%	45	2.7	**4.4**	1.7	1.7	100.0	1.3	2.2

Oregon
John Kitzhaber, Governor

Department of Fish and Wildlife
Fish Division
Hydropower Program
3406 Cherry Avenue, NE
Salem, OR 97303
(503) 947-6201
FAX (503) 947-6070

January 28, 2011

Marilyn Fonseca
DEQ Water Quality Division
811 SW 6th Avenue
Portland, Oregon 97204.

Subject: Petition to initiate rulemaking for site-specific criteria for temperature in the Hells Canyon Reach of the Snake River

Dear Ms. Fonseca,

The Oregon Department of Fish and Wildlife (ODFW) received notification by your agency that Idaho Power Company (IPC) had filed a petition with the Environmental Quality Commission (EQC) to initiate rulemaking for site-specific criteria for temperature in the Hells Canyon Reach of the Snake River. The notice invited interested parties to provide written comments by January 28, 2011, and indicated that the EQC would take action on the petition at its February 16-18 meeting. ODFW does not believe that a compelling case has been made as of yet to grant a site-specific criteria for temperature in the Hells Canyon Reach of the Snake River.

ODFW has a critical interest in the action taken by the EQC on this petition because we: 1) are the Oregon state agency in a multijurisdictional group of agencies with authority to manage the fisheries resources of the Snake River that are subject to this petition; 2) provided substantial information for establishing the timing for temperature criteria in this reach during the original rulemaking nearly 10 years ago; and 3) are a member of the State Hydroelectric Application Review Team for the Federal Energy Regulatory Commission relicensing process for the Hells Canyon Hydroelectric project. We are providing the following comments and recommendations to the EQC regarding IPC's petition.

In ODFW's opinion, the information in the petition does not provide a compelling case for the EQC to initiate the rulemaking. The information generally does not provide new rationale for the site specific change in criteria. Much of the information is a review of out-of-basin studies that were available when the Oregon Department of Environmental Quality established the 13^0 C criteria that currently applies to salmon and steelhead

spawning through fry emergence throughout the state. It is important to acknowledge that the current Beneficial Use Designations for Fish Use were developed in consultation with ODFW and were adopted by the EQC in December 2003 and approved by the U.S. Environmental Protection Agency in March 2004. The criteria and fish-use designations were based on substantial evidence which we believe should only be subject to change from new site-specific information that provides a very compelling argument compared to the original documentation.

Lastly, ODFW recommends that any site-specific changes to the criteria be based on substantial evidence specific to the Snake River and Fall Chinook. ODFW believes the current water temperature standards are appropriate for the majority of salmonids in Oregon and to deviate from those standards would require a demonstration that Fall Chinook in this reach of the Snake require different conditions to maintain and restore the species. ODFW would be willing to work with DEQ, other state, tribal and federal agencies and the petitioner to identify what evidence would be needed to make a determination as to whether a different water temperature standard is appropriate for this reach of the Snake River

Thank you for the opportunity to comment. Please contact me at 503-947-6084 if you have any questions about our comments or concerns.

Sincerely,

Richard J. Kepler

Manager Water Quality/Quantity

Cc: Bruce Eddy, ODFW NE Region La Grande

Bruce McIntosh, ODFW

Ed Bowles, ODFW

Ken Homolka, ODFW

American Rivers · Idaho Rivers United · Northwest Sportfishing Industry Association · Save Our Wild Salmon · Trout Unlimited

January 28, 2011

Bill Blosser, Chair
Oregon Environmental Quality Commission
DEQ Headquarters Office
811 SW 6th Avenue
Portland, OR 97204
Re: Request for Denial of Idaho Power Company Petition for Rulemaking

Dear Mr. Blosser:

American Rivers, Idaho Rivers United, Trout Unlimited, Save Our Wild Salmon, and the Northwest Sportfishing Industry Association, respectfully request the Oregon Environmental Quality Commission (Commission) deny the petition filed by Idaho Power Company (IPC) to Initiate Rulemaking for Site Specific Temperature Criteria for Fall Chinook Salmon Spawning in the Hells Canyon Reach of the Snake River.

According to ORS 183.390, the Commission must consider a number of items when taking action on a petition for a rule amendment. This letter provides information and clear rationale that the IPC petition should be denied.

Idaho Power Company (IPC) is the owner and operator of the Hells Canyon Hydropower Complex (HCC or the Project). The HCC is located on the Snake River just south of the Hells Canyon National Recreation Area, and consists of three dams and reservoirs that inundate approximately 100 miles of the Snake River. The HCC currently blocks the upstream migration of fall Chinook salmon, spring/summer Chinook salmon, and steelhead, all of which are listed under the federal Endangered Species Act (ESA).[1]

For nearly ten years, the HCC has been involved in the Federal Energy Regulatory Commission (FERC) hydropower relicensing process; the Project's previous FERC license expired in 2005 and IPC has been operating the Project pursuant to annual licenses since that time. As part of the relicensing process, IPC must obtain water quality certifications from the states of Idaho and Oregon pursuant to Section 401 of the Clean Water Act.[2] Water quality certification of the HCC is one of the few remaining steps required before FERC may issue a new operating license for the project.

[1] 16 U.S.C. §§ 1531-1544. All three of these populations are listed as threatened under the Endangered Species Act. *See*: 71 FR 834 (January 5, 2006)(Snake River steelhead); 70 FR 37160 (June 28, 2005)(Snake River spring/summer Chinook and Snake River fall run Chinook).
[2] 33 U.S.C. § 1341.

To date, IPC has withdrawn and resubmitted its water quality certification application a number of times. Different applications have proposed different approaches to provide reasonable assurance that water quality standards, including the existing temperature standards below the HCC, can be met. However, IPC has continually failed to provide sufficient information upon which the Oregon Department of Environmental Quality (ODEQ) can base its analysis, requiring ODEQ to repeatedly request additional information. Rather than develop a comprehensive proposal that demonstrates compliance with Oregon and Idaho water quality standards, IPC is now proposing to weaken the standard. Adoption of the new temperature standard proposed by IPC will effectively allow the company *to avoid implementing measures sufficient* to address the water quality impacts of the HCC. Such an outcome in a relicensing process that takes place only every 30 to 50 years is unacceptable, and places an undue burden on salmon and steelhead located below the HCC.

We respectively request that the Commission deny IPC's Petition for the following reasons:

First, the existing standard is, in our opinion, barely sufficient to protect the ESA listed populations of salmon, steelhead and bull trout that inhabit the reach below the HCC. Increasing the temperature standard – especially during the early part of the spawning season – threatens the productivity and genetic viability of wild stocks. IPC asserts that the recent increases in salmon runs below the HCC demonstrate that fall Chinook are spawning successfully and that the current conditions are supporting the beneficial use. We disagree with this assertion. Recent increases in numbers of spawning fall Chinook do not lead to the conclusion that the temperature violations are not adversely impacting the species. Many factors may be contributing to the increased numbers (including expanded hatchery supplementation), which may be occurring despite the adverse impacts in temperature.

In 2010, American Rivers and Idaho Rivers United contracted with Dr. Richard N. Williams[3] to examine IPC's proposed plan to address the temperature problem below HCC set forth in its October 15, 2009 water quality certification application. That application outlined IPC's proposed Temperature Enhancement Management Program (TEMP), a program that was abandoned in IPC's most recent application. In his report, Dr. Williams provides an extensive review of impacts, standards, and possible alternatives for meeting the existing temperature standard. While the report was written to review IPC's TEMP proposal, much of the review done by Dr. Williams remains relevant, particularly the discussion of adverse impacts to salmon and steelhead from elevated temperatures. We urge the Commission to incorporate Dr. Williams's review into its decision making process.

Second, the studies upon which IPC relies in making its request do not justify a weakening of the standard, particularly when the beneficial uses to be protected affect ESA listed species – in this instance spawning and incubation for Snake River fall Chinook, a threatened species.

The ESA requires adoption of a precautionary principle. Effective conservation management requires a conservative, species-protective approach to ensure that management decisions made

[3] Attachment 1 – Review of Idaho Power Company's Proposed Temperature Mitigation Projects Related to the Hells Canyon Complex (HCC), January 22, 2010.

in the face of uncertainty do not place the species further at risk.[4] The U.S. Supreme Court has recognized the importance of this approach in ESA decision-making, reasoning that "Congress has spoken in the plainest of terms, making it abundantly clear that the balance has been struck in favor of affording endangered species the highest of priorities, thereby adopting a policy which it described as 'institutionalized caution.'"[5] The ESA's policy of "institutionalized caution" requires that [t]he risk [presented by an action] must be borne by the project, not by the endangered species. . . .Congress clearly intended that [federal agencies] give the 'the highest of priorities' and the 'benefit of the doubt' to preserving endangered species."[6] Adoption of a weaker standard than currently exists places the risk of uncertainty squarely on the backs of listed stocks.

Third, as you are well aware, under federal regulation, changes to water quality standards are taken very seriously. Although IPC has failed to submit a water quality certification application that adequately addresses the temperature impacts of the HCC, it is our view that the current standard is achievable with existing technology and will not pose an undue financial burden on IPC. For example, should a temperature control structure be required to ensure compliance with water quality standards, there are numerous regional examples of dam operators installing similar structures at their projects. Portland General Electric recently installed a multi-million dollar temperature control structure and fish collection facility at the Pelton Round Butte Project; ODEQ found that the structure was necessary to address water quality impacts below the Pelton Round Butte Project and required its installation in its Section 401 water quality certification for the project. Under these conditions, the Commission should not contemplate a change to the existing standard.

For the reasons identified above, we respectfully request that the Commission deny IPC's Petition to Initiate Rulemaking for Site Specific Temperature Criteria for Fall Chinook Salmon Spawning in the Hells Canyon Reach of the Snake River. A higher temperature standard, as proposed by IPC, is inconsistent with Oregon's water quality goals and insufficient to protect the beneficial uses in the Snake River downstream of the Project.

Please contact any of us if you have questions or need additional information.

Sincerely,

Kevin Lewis
Idaho Rivers United

Brett Swift
American Rivers

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[4] *See* Noss, R.F., M.A. O'Connell, and D.P. Murphy. The Science of Conservation Planning. (Island Press. Washington, D.C. 1997)

[5] *Tennessee Valley Authority v. Hill,* 437 U.S. 153, 194 (1978).

[6] *Sierra Club v. Marsh,* 816 F.2d 1376, 1386 (9th Cir. 1987) (citations omitted) (emphasis added).

Kate Miller
Trout Unlimited

Liz Hamilton
Northwest Sportfishing Industry Association

Nicole Cordan
Save Our Wild Salmon

Nez Perce

TRIBAL EXECUTIVE COMMITTEE
P.O. BOX 305 • LAPWAI, IDAHO 83540 • (208) 843-2253

January 28, 2011

Bill Blosser, Chair
Oregon Environmental Quality Commission
DEQ Headquarters Office
811 SW 6th Avenue
Portland, OR 97204

Re: Request for Denial of Idaho Power Company Petition for Rulemaking

Dear Mr. Blosser:

The Nez Perce Tribe (Tribe) appreciates the invitation of the Oregon Environmental Quality Commission (OEQC) to comment on Idaho Power Company's (IPC) Petition to Initiate Rulemaking for Site-Specific Temperature Criteria for Fall Chinook Salmon Spawning in the Hells Canyon Reach of the Snake River. The Tribe requests the OEQC deny IPC's petition.

Pursuant to ORS 183.390, the Commission must consider a number of items when taking action on a petition for a rule amendment. This letter provides information and rationale that the IPC petition should be denied. Additionally, the Tribe incorporates by reference the comments of the Columbia River Intertribal Fish Commission (CRITFC) on the IPC petition.

Background

Since time immemorial, the Tribe has lived, hunted, fished, gathered and pastured horses in Hells Canyon. As co-manager of the fisheries resource, the Tribe has been actively involved in the Federal Energy Regulatory Commission's (FERC) relicensing of the Hells Canyon Complex (HCC) and the Oregon Department of Environmental Quality's (ODEQ) Clean Water Act § 401 Certification since the inception of these processes. The Tribe's interest is based on the Treaty of 1855.[1] Article 3 of the 1855 Treaty explicitly reserved, among other things, the exclusive right of the Tribe to take fish in streams running through or bordering the Reservation and the right to take fish at all usual and accustomed places in common with the citizens of the territory. The HCC and the Hells

[1] Treaty of June11, 1855 with the Nez Perce Tribe, 12 Stat. 957 (1859)(1855 Treaty)

Canyon Reach of the Snake River are within the boundaries of the former 1855 Reservation and the Tribe continues to exercise its rights in Hells Canyon.

The Hells Canyon Project, consisting of Brownlee Dam, Oxbow Dam, and Hells Canyon Dam, is located on the Snake River between the border of Idaho and Oregon and was originally licensed by FERC 1955, before the 1972 Clean Water Act and CWA Section 401 Federal Permit and License requirements. Section 401 of the Clean Water Act requires the Idaho and Oregon Departments of Environmental Quality to certify whether a federal license or permit reasonably assures compliance with state water quality standards. The Project's FERC license expired in 2005 and since then FERC has issued annual licenses under terms of the expired license, without any CWA or Endangered Species Act mitigation measures.

The HCC and Temperature

The Snake River-Hells Canyon TMDL, the Environmental Protection Agency (EPA) and CRITFC have documented the effects of the HCC on the river temperatures below the project. The presence and operation of the HCC results in a shift of the natural temperature regime, causing water temperature downstream of the project to be cooler in the spring and warmer in the late summer and fall compared to historic, pre-project temperatures. According to the EPA and CRITFC, the HCC causes the Snake River downstream to be approximately 3°C warmer on average during the September through early November period, with some days up to 5°C warmer.

Temperature Effects on Fall Chinook Salmon

Adult Snake River fall Chinook salmon begin migrating past Bonneville Dam on the Columbia River in early August and begin passing Lower Granite Dam on the Snake River in mid-August. The temperature of the Snake River at this time can be 20°C or higher.

There are several issues of concern regarding the altered thermal regime caused by the Hells Canyon Complex.

1. Potential for pre-spawning mortality for Adult Snake River fall Chinook and Steelhead, particularly for the first 25% of these runs (i.e., those fish that pass Lower Granite Dam prior to approximately September 14).

2. Reduced survival of eggs and hatched fry due to prolonged exposure of pre-spawning adults to elevated temperatures and spawned eggs exposed to elevated temperatures, principally related to the first 25% of the Snake River fall Chinook run (i.e., those fish that pass Lower Granite Dam prior to approximately September 14 and spawn prior to

approximately November 6) that spawn in the Snake River Hells Canyon reach and its tributaries.

3. Potential for delayed spawning, which could lead to delayed emergence and increased juvenile mortality due to a greater portion of the juvenile out migrants exposed to harmful lower Snake River temperatures in July and August.

IPC discounts these potential effects primarily by directing attention to the recent spike in adult returns and redd counts and discounting the scientific literature, which clearly supports the premise that the existing temperature regime is harmful to adult fall Chinook.

IPC's Petition for Site Specific Criteria

IPC's petition to lower the fall Chinook salmon spawning criteria from 13 degrees to 14.5 degrees on October 23 should be rejected for the following reasons.

First, the ODEQ Use Attainability Analysis and Site-Specific Criteria Internal Management Directive identifies the following expectations and limitations.

1. ODEQ expects existing water quality will be maintained and improved.
2. ODEQ does not have financial resources to support changing water quality standards through a site-specific rulemaking process.
3. The goals of the Clean Water Act are to restore and maintain the chemical, physical and biological integrity of the waters of the United States.
4. While economic benefits of changing the standards will be considered, it will not be the main consideration in determining whether to lower water quality standards.

Site-specific criteria rulemaking would be contrary to these expectations and limitations. IPC currently has a CWA Section 401 application before the ODEQ, which includes a hypolimnetic pump system to address exceedence of the fall Chinook spawning temperature criterion. The petition for rulemaking is clearly designed to eliminate the need for installing such a system. Thus, existing water quality will not be maintained and improved if such a system is not constructed.

ODEQ does not have the financial resources or staff to undertake a rulemaking designed to change water quality standards. The focus of the ODEQ should be maintained on processing the Section 401 application in order for IPC to continue the re-licensing process. IPC has applied and withdrawn numerous CWA Section 401 applications since 2003 due to the inability to assure that the temperature standards will be met. IPC's latest application, while a small step in the right direction with its focus on the hypolimnetic

pump system, is still deficient because it does not address the Natural Seasonal Thermal Pattern (NSTP) standard, which is designed to protect pre-spawning adult fall Chinook. ODEQ is addressing this deficiency and rulemaking will only distract them from addressing the shortfalls of IPC's CWA Section 401 application.

The goal of the Clean Water Act is to restore (where degradation occurs) and maintain the chemical, physical and biological integrity of the Nation's water quality.[2] Submitting an application to lower a standard designed to protect the most sensitive beneficial use, i.e. spawning, is contrary to this goal.

While there may be an economic advantage to IPC from not constructing and operating a hyppolimnetic pump system, this small savings should not be a focus of the OEQC or the ODEQ in determining whether to proceed with rulemaking. IPC, a subsidiary of IdaCorp, is a large company with the financial wherewithal to install a system that would achieve the fall Chinook spawning criterion and the NSTP.

Second, the technology exists for IPC to meet both the fall Chinook spawning criterion and the NSTP. Many large dams have been constructed with, or retrofitted with a temperature control structure (TCS) to address temperature exceedences caused by the presence and operation of large dams and reservoirs. These structures offer the advantage of adaptive management for the control of water temperatures (both warm and cold). Further, climate change is predicted to result in warmer Snake River temperatures and a TCS, along with other measures, can mitigate this problem. A TCS is well within IPC's financial ability to construct and operate such a system, and will not cause a financial hardship to it or its ratepayers.

Third, the IPC application cherry-picks information from the scientific literature, discounts other critical scientific studies, and paints a rosy picture of the status of the existing population of the fall Chinook salmon. While it is true (and good news) that adult returns and redd counts have spiked in recent years, these positive trends are primarily due to the success of the Tribe's supplementation efforts and favorable ocean conditions. There is no indication that these positive trends will continue. And to protect, maintain and add to these gains, existing habitat in the Hells Canyon Reach of the Snake River must be protected and improved. Specifically, temperature improvements in September and October are critical to protect pre-spawned adult salmon. The comments of CRITFC, incorporated by reference, address IPC's selective utilization and mis-interpretation of the scientific literature regarding the temperature effects on fall Chinook.

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[2] 33 U.S.C.A.§ 1251

Finally, the existing temperature standard of 13° C is perhaps just barely protective of the designated use. When promulgated, EPA expected this standard to apply to 95% of the spawning run, allowing 5% to spawn earlier at higher temperatures. With the much touted (and desired) increase in adult returns, more fish are exposed to and spawn in temperatures higher than 13° C.

For the aforementioned reasons, in addition to the detailed comments by CRITFC, we respectfully request that OEQC deny IPC's petition for rulemaking.

If you have questions, please contact Mike Lopez, staff attorney with the Tribe's Office of Legal Counsel at (208) 843-7355.

Sincerely,

McCoy Oatman

McCoy Oatman, Chairman
Nez Perce Tribal Executive Committee.

Confederated Tribes *of the*
Umatilla Indian Reservation
Department of Natural Resources
Administration

46411 Timíne Way
Pendleton, OR 97801

www.ctuir.org ericquaempts@ctuir.org
Phone 541-276-3165 Fax: 541-276-3095

January 28, 2011

Bill Blosser, Chair
Oregon Environmental Quality Commission
Oregon Department of Environmental Quality
811 SW 6th Avenue
Portland, OR 97204

Re: Request for Denial of Idaho Power Company Petition for Rulemaking

Dear Mr. Blosser:

The Confederated Tribes of the Umatilla Indian Reservation (CTUIR) Department of Natural Resources (DNR) requests that the Oregon Environmental Quality Commission deny the petition filed by the Idaho Power Company (IPC) to begin rulemaking for site-specific temperature criteria for the Hells Canyon Reach of the Snake River. A higher temperature standard is unnecessary and unjustified, will not meet Oregon's water quality goals, and will not protect the beneficial uses in the Snake River such as salmon and steelhead.

The presence and operation of IPC's Hells Canyon Complex (HCC) result in a shift in the natural temperature regime, causing downstream water temperatures to be cooler in the spring and warmer in the late summer and fall compared to historic, pre-dam temperatures. These increased late summer/fall temperatures, in particular, are detrimental to Snake River fall Chinook salmon. The CTUIR has a right to "take" such fish, and others affected by the HCC, as secured in the Treaty of 1855. Their health and well-being, and that of their habitat, are of great concern to us.

As part of the ongoing relicensing process before the Federal Energy Regulatory Commission and the associated Clean Water Act Section 401 Certification process with Oregon and Idaho, IPC has so far consistently demonstrated either an inability or an unwillingness to successfully address the temperature problems that the HCC creates. This petition circumvents the applicable and important water quality standards. The costs of granting the petition would be borne by the people of Oregon and the CTUIR—in terms of reduced water quality and increased threats to beneficial uses. The CTUIR DNR respectfully asks that you deny this petition. Thank you.

Sincerely,

Eric Quaempts
Director, Department of Natural Resources

Cc: Fish and Wildlife Commission
Tribal Water Commission
Marilyn Fonseca, ODEQ (Fonseca.Marilyn@deq.state.or.us)

EQ: cfm

The SHOSHONE-BANNOCK TRIBES

FORT HALL INDIAN RESERVATION
PHONE (208) 478-3700
FAX # (208) 237-0797

FORT HALL BUSINESS COUNCIL
P.O. BOX 306
FORT HALL, IDAHO 83203

January 28, 2011

Marilyn Fonseca, DEQ
Water Quality Division
811 SW 6th Ave.
Portland, OR 97204

RE: Comments of the Shoshone-Bannock Tribes regarding the petition by Idaho Power Company to initiate site-specific rulemaking at the Hells Canyon Complex.

The Shoshone-Bannock Tribes (SBT) is an interested party in the ongoing relicensing effort for the Hells Canyon Complex (HCC), operated by the Idaho Power Company (IPC). The SBT received notice that IPC had submitted a request to the Oregon Department of Environmental Quality (DEQ) to initiate site specific rule making for the HCC water quality issues. The SBT welcome the opportunity to submit comments on this issue and strongly urge the DEQ to require standards that ensure compliance with all applicable laws and are in accordance with the respective rights of all the interested parties.

In reviewing IPC's application for site-specific rule making at the HCC, the SBT were notably concerned about the proposal to allow seasonal fluctuations in the temperature regime that would reach 14.5 degrees Celsius or higher at the point of compliance. Given that the initial position taken by the DEQ and other interested parties was to maintain a significantly lower temperature regime to protect the fall Chinook population in the Snake River, the SBT have reservations about the information presented in the application. IPC presents a series of studies performed in laboratory settings to affirm their position that the existing flow regime does not appreciably reduce the likelihood of survival for all life stages of fall Chinook in the stretch below the HCC.

The application and accompanying materials noted that there are some unknown variables that could be influencing survival rates below the HCC; however, those references are used to support the IPC application rather than being proposed for further study. The SBT are not comfortable moving forward with site specific criteria for temperature regimes below HCC without adequate assurances that the best available science has actually reviewed potential impacts in the study area. While it is common to merge studies together that cover the same general topic areas, it may be inappropriate to substitute this data for research that is targeted at the referenced spawning reach on the Snake River.

Other interested parties have continually noted a significant issue with the proposed temperature regimes in this application, and have requested specific compliance with the clear letter of the law in Oregon. One specific concern that has been noted is that the temperature regime proposed by IPC, under the best circumstances, is not any more protective of the listed stocks that the existing regime

and in some instances may actually increase associated impacts to those stocks. IPC has proposed to alter the playing field by proposing a site-specific rule that would allow for status quo operations at the facility and require little modifications to implement. It is understandable that a private entity would seek to maximize the profitable use of the facility, however many of the interested parties would like to see some level of adherence to the principles of sound resource management.

The SBT request the DEQ maintain the current rule framework, as it has been effective at requiring flow regimes that are benefiting fish and wildlife in the HCC and the stretch below. By providing IPC a site-specific exemption, the DEQ is further setting a dangerous precedence for other facilities to alter their flow regimes and existing temperature controls. The purpose of the current framework remains sound and will continue to promote species recovery in the Snake River, while the proposed alternative would implement an untested regime with uncertain or negligible benefits for the focal species.

In addition, IPC has not proposed any major modifications to the HCC that would increase the need for a site-specific exemption from the existing DEQ framework, nor have the environmental conditions changed to such an extent that such an exemption would be warranted. To the contrary, it is the very fact that the requested modifications to temperature control structures at the HCC would not be completed that necessitates a strict adherence to the existing temperature regime by DEQ for the Snake River below the HCC. In short, the application seeks to demonstrate that temperatures much higher than the SBT would prefer to see in the Snake River are not harmful to sensitive life stages for fall Chinook, a determination that would allow operations at HCC to continue effectively as they have been historically at significantly higher temperatures.

It is unremarkable that the IPC has asserted various claims about the interested parties, and sought to diligently answer or refute most of the recommendations with regard to operations at HCC; in particular, the temperature regime in the Snake River below the HCC. It is the duty of the DEQ to ascertain whether the proposed regime is in the best interests of all equally situated parties in the licensing process and will comply with the applicable standards of federal, state, and local laws. The SBT remain optimistic that the DEQ will require a strict adherence to the applicable standard, especially given the performance of the species in the past decade. Although the science appears to demonstrate that tolerance levels for the focal species may be higher than initially anticipated, it is noteworthy that the IPC seeks to implement a temperature regime that rises dangerously close to the point where higher levels of mortality occur.

The SBT appreciate the opportunity to comment on this important issue and request an update on the proceedings as they become available. Please direct questions related to this communication to Claudeo Broncho, Fish and Wildlife Policy Representative, (208) 239-4563 or email at cbroncho@sbtribes.com or to Chad Colter, Fish and Wildlife Director, (208) 239-4551 or email at ccolter@sbtribes.com . Thank you for your consideration of these comments.

Sincerely,

Nathan Small

Nathan Small, Chairman
Fort Hall Business Council, Shoshone-Bannock Tribes

United States Department of the Interior

IDAHO FISH AND WILDLIFE OFFICE
1387 S. Vinnell Way, Room 368
Boise, Idaho 83709
Telephone (208) 378-5243
http://www.fws.gov/idaho

FEB 0 4 2011

Marilyn Fonseca
Oregon Department of Environmental Quality
Water Quality Division
811 Southwest 6th Avenue
Portland, Oregon 97204

Subject: Rulemaking for Site-Specific Temperature Criteria at Hells Canyon Dam—Adams and Washington Counties, Idaho and Baker, Malheur and Wallowa Counties, Oregon—Comments
Hells Canyon Hydroelectric Project FERC 1971 14420-2011-CPA-0046

Dear Ms. Fonseca:

The Fish and Wildlife Service (Service) recommends initiating formal rulemaking on the Hells Canyon site-specific temperature criteria petition submitted to the Oregon Environmental Quality Commission by Idaho Power Company. The rulemaking analysis is an integral component of the ongoing water temperature discussion that is part of the Hells Canyon Complex (HCC) relicensing proceedings. The rulemaking is important because information from the analysis may be used to develop the Clean Water Act (CWA) 401 water quality certification for the project. In turn, the CWA 401 certification informs the Service's review of the project when completing our required section 7 consultation under the Endangered Species Act (ESA) of 1973, as amended.

The current CWA 401 application contains a proposal for a hypolimnetic pumping system (HPS) designed to meet current temperature criteria for Fall chinook (*Oncorhynchus tshawytscha*) spawning below Hells Canyon Dam. A previous CWA 401 application contained a proposal for an upstream program referred to as TEMP to help mitigate upstream Snake River watershed problems to meet temperature requirements below Hells Canyon Dam. The Service letter dated Nov 15, 2010, addressed these two approaches. Subsequently, additional written communications to the Oregon Department of Environmental Quality (ODEQ) has made it clear that a range of scientific findings and remaining issues need to be discussed. Specifically, interested parties need to resolve the temperature compliance issue below Hells Canyon Dam and the water quality issues in the HCC and the Snake River watershed. The proposed rulemaking will aid this process.

Discussions to resolve the CWA 401 certification need to include, in part, the issues surrounding the currently proposed rulemaking and HPS, and the previously proposed upstream mitigation program known as TEMP. A clear understanding of the watershed-level impacts, uncertainties, and benefits is necessary before any decisions are made because this information may be needed to complete the CWA 401 certification and ESA consultation. Several species listed under the ESA may be affected by these decisions; in particular, bull trout (*Salvelinus confluentus*) and its newly designated critical habitat occur in the project area. In addition, any upstream mitigation may include the Snake River physa (*Physa natricina*) and Bliss Rapids snail (*Taylorconcha serpenticola*).

To issue its license for the project, the Federal Energy Regulatory Commission (FERC) needs the CWA 401 certificates from Oregon and Idaho, and two ESA section 7 consultations from the Service and NOAA Fisheries. In order for the Service to complete its section 7 consultation, we need a thorough discussion with ODEQ regarding the supporting science and the decisions to meet compliance issues at the project. In addition, wider, more inclusive discussions are needed to settle remaining matters associated with the HCC license. These discussions should involve the licensee and critical decision-making parties such as the FERC, Oregon Department of Fish and Wildlife, Idaho Fish and Game, Idaho Department of Environmental Quality, NOAA Fisheries, U.S. Environmental Protection Agency, Tribal interests, and others.

Thank you for the opportunity to comment on this important matter. Please contact Michael Morse of my staff at (208) 378-5261 if you have any questions regarding this letter.

Sincerely,

Russell R. Holder for

Brian T. Kelly, State Supervisor
Idaho Fish and Wildlife Office

cc: IDEQ, Boise (Burnell)