



**Independent Scientific Review Panel**

for the Northwest Power & Conservation Council  
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**Memorandum (ISRP 2009-5)**

**March 6, 2009**

**To:** W. Bill Booth, Council Chair

**From:** Eric Loudenslager, ISRP Chair

**Subject:** Review of two Columbia River Basin Fish Accord Proposals

- Yakama Nation Pacific Lamprey Program (200847000)
- Snake River fall Chinook - modify ponds at Lyons Ferry to improve adult holding (200821000)

**Summary**

The memo contains the ISRP's review of two Columbia River Fish Accord proposals submitted February 12, 2009. The Accords are signed agreements made in May 2008 between the federal actions agencies (Bonneville Power Administration, US Army Corps of Engineers, and US Bureau of Reclamation) and the Confederated Tribes of the Umatilla Indian Reservation, the Confederated Tribes of the Warm Springs Reservation, the Confederated Tribes and Bands of the Yakama Nation, the Columbia River Inter-Tribal Fish Commission, Confederated Tribes of the Colville Reservation, and the states of Idaho and Montana to implement a set of projects and actions intended to deliver specific, scientifically sound results for the region's fish and wildlife.

Accord projects have established budgets and have been determined by BPA to satisfy in lieu requirements and other consistency issues. These projects are not competing with other projects for funding. However, these Accord projects are subject to ISRP review using the ISRP's standard and statutorily defined criteria. In reviewing Accord projects, the ISRP continues to focus on scientific criteria, project improvement, and scientific accountability. Since November 2008, the ISRP has reviewed more than a dozen Accord projects.<sup>1</sup> Because a goal of the Accords is to implement projects as quickly as they are ready and justified, the ISRP has agreed to review them as soon as they are submitted, rather than wait for a set of Accord proposals to be submitted.

In regard to the two proposals at hand, the ISRP finds:

- the Yakama Nation Pacific Lamprey Program proposal meets scientific review criteria (in part), and
- the Snake River fall Chinook - modify ponds at Lyons Ferry to improve adult holding (200821000) proposal meets scientific review criteria.

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<sup>1</sup> For the status of new Accord proposals, see [www.nwcouncil.org/fw/projectselection/accord](http://www.nwcouncil.org/fw/projectselection/accord).

## 200847000 - Yakama Nation Pacific Lamprey Program

<b>Proposer</b>	Confederated Tribes of the Yakama Nation
<b>Short Description</b>	Yakama Nation Pacific Lamprey Program (YNPLP): Assess status, abundance and distribution of Pacific Lamprey; develop a Yakama Nation Pacific Lamprey Program and the Yakama Nation Pacific Lamprey Restoration Plan, implement and monitor plans.
<b>Province(s)</b>	Columbia Gorge, Columbia Plateau, Columbia Cascade
<b>Subbasin(s)</b>	White Salmon, Wind River, Little White Salmon, Klickitat, Yakima, Crab Creek, Wenatchee, Entiat, Methow

[www.nwcouncil.org/fw/projectselection/accord/200847000.pdf](http://www.nwcouncil.org/fw/projectselection/accord/200847000.pdf)

### ISRP Recommendation

#### Meets Scientific Review Criteria (In Part)

Work element/objective specific recommendations:

- The work elements for Objectives 1, 2, 4, and 5 are scientifically supported.
- For Objective 3 – document current status of larval Pacific lamprey with presence/absence surveys – the ISRP requests a response to the concerns raised about the survey design before implementation; this memo provides suggestions to be included in the final survey design.
- Objective 6 – identification of “all known and potential” limiting factors – is a very large undertaking and should be described in greater detail, particularly with regard to the specific life history requirements of Pacific lamprey in the Yakima subbasin. Taking a full life-cycle approach, the major limiting factor may be either adult or ammocoete passage at mainstem Columbia River dams, so this really needs to be recognized and discussed more in Objective 6. The ISRP concludes that enough published data exist on this species to scope a more strategic approach before beginning the extensive field work proposed.
- Objectives 7 and 8, which involve lamprey reintroductions and initiation of a supplementation program, can be phased in pending the outcome of the survey and limiting factor analysis.

### ISRP Comments

#### 1. Technical Justification, Program Significance and Consistency, and Project Relationships (sections B-D)

The technical justification for this project is quite extensive, fully justified, but could be more concise. It is true that the habitat needs of Pacific lamprey have not been thoroughly studied; however, more is known about this species than is implied in the proposal. In fact, there is a fairly complete set of references at the end of the proposal that demonstrate the project sponsors' knowledge of the subject.

Relationships and linkage to regional programs and plans are also described in good detail including the 2004 FWP Subbasin Plans (where the Pacific lamprey is listed as a focal species in 13 of them) and the CRITFC draft Tribal Pacific Lamprey Restoration Plan (2008). The USFWS has listed the Pacific Lamprey as a “species of concern” and initiated a Pacific Lamprey Conservation Strategy in 2008.

This project's relationships and coordination with other lamprey projects in the Columbia River Basin is also described in thorough detail, including links to over 10 other related BPA projects and a number of state and county projects (e.g. the Mid-Columbia PUDs). It was clear from the proposal that the project sponsors are keeping track of developments in other tribal efforts. The Yakama Nation recognizes that the structure of Pacific lamprey population(s) remains largely unknown within its range and within the Columbia River Basin (proposal footnote page 1). The proposal would be improved by a brief discussion by the sponsors to help determine if improving knowledge of lamprey population structure would help secure restoration of the species.

## **2. Objectives, Work Elements, and Methods (section F)**

The objectives that call for summarizing existing information on historical and current Pacific lamprey distribution are clearly described. The development of key metrics needed to measure lamprey abundance and distribution is a worthy goal, but adoption of agreed-upon metrics across the Columbia Basin may take some time. The best course of action may be to simply collect data and metadata and archive this information in a form that can be modified at a later date.

The proposal strongly emphasizes the identification of current threats to lamprey productivity within the Yakima subbasin. While this is a worthy objective, there may be significant threats to this anadromous species in the mainstem Columbia and marine environments that can inhibit the restoration of Yakima subbasin lamprey (see ISAB 2008-5). It would be helpful if the sponsors stated how the overall objectives of this work will complement the efforts currently underway to improve migration survival rates downstream in the river system.

With regard to objective 3, determining Pacific lamprey presence or absence in the Yakima River and its tributaries, the proposal does not explain how distribution surveys will distinguish Pacific lamprey (*Lampetra tridentata*) from the other two closely related species – river lamprey (*L. ayersi*) and western brook lamprey (*L. richardsoni*) – all of which are believed to occur in the Yakima subbasin. This may pose problems when sampling ammocoetes and free-swimming juvenile stages, where the three species are very difficult to tell apart.

It was not clear from the proposal how often presence/absence surveys would be conducted. It seems possible that lamprey distribution could vary from year to year in response to short-term climate (e.g., drought conditions) and escapement variation. To identify lamprey range and distribution, random sampling should be pursued that includes purposeful sampling in areas that are not known to provide useable habitat or are outside habitats identified as suitable by professionals. These areas should be sampled to avoid underestimating the range of ammocoete distribution. This strategy should be used rather than “sampling will include establishing upper ranges of ammocoete distribution based upon areas of known useable habitat and professional knowledge” (Objective 3, Work Element 157). Also, a random sampling strategy should be used to establish index and research sites.

The sponsor states that “Due to potential patchy distribution, surveys will be conducted up to 1 river kilometer above where the distribution is believed to stop. Once larval distribution has been mapped, a hierarchical stratified sampling design will be used to determine habitat use.” It is not clear why the value of 1 river kilometer is chosen. Justification of the specific limits of the survey needs to be provided in a final design.

The sponsor states that “Six latitudinal transects from the left bank to the right bank will be placed 10 m apart once the number of focal areas have been mapped, then the number of sampling points and the number of transects within each sampling point will be evaluated to ensure the sample size will provide adequate statistical power within the sampling point.”

It is not clear why six transects placed 10 m apart should be used to begin the process in each sampling point. If this initial placement is considered to be a pilot study then several sampling points should be used to identify point to point variation as well as transect to transect variation. Preliminary power/sample size scenarios should be presented prior to project initiation.

The ISRP concludes that studying migration patterns of radio-tagged adults could be helpful to answer some questions about adult lamprey survival. However, the sponsors have not finalized where and how the work will be done. The proposal would be improved by even preliminary information on where the tagging will be done (e.g., which mid Columbia Public Utility dams?). In addition, the ISRP had concerns about statistical aspects of the program. Sufficient numbers of lamprey need to be tagged to enable the multiple recapture programs envisioned, and given natural mortality possible, tag effects and other losses, this may need careful planning.

For Objective 7, insufficient information was provided to assess how lamprey translocation will be implemented and evaluated for the ISRP to determine whether this work element meets scientific criteria. For Objective 8, planning for lamprey artificial propagation and a supplementation program may be premature at this time. Before a determination is made that supplementation and/or translocation is warranted, and feasible, the study of existing natural production should be completed and clear criteria for deciding how and when to proceed should be established.

### **3. M&E (section G, and F)**

Some of the project tasks are, in effect, monitoring studies, and these are generally well described. Insufficient information is presented on data evaluation, specifically, how the results of the distribution and abundance work will be used to change or add to existing habitat restoration efforts in the Yakima subbasin. If an M&E plan is not put in place following habitat restoration efforts, how will the sponsors know if this project was effective? Overall, the Monitoring and Evaluation section did not provide enough detail for a scientific assessment of the project’s lamprey monitoring program.

### **4. Overall Comments - Benefit to F&W (all proposal)**

Protection and restoration of Pacific lamprey in the Yakima River subbasin is certainly a worthy goal, and there would be real value in understanding the factors influencing the distribution and abundance of lamprey in this system. Lamprey sampling will be challenging, so if the distribution and abundance work is successful it will provide important data for understanding why lamprey populations have plummeted over the last few decades. A reasonably detailed plan

for future M&E needs to be developed and included in the proposal. Preparations for lamprey supplementation should be contingent on the outcome of the initial distribution and abundance research and should proceed to implementation only when there is convincing evidence that supplementing natural populations will not be effectively thwarted by off-site mortality factors.

## 200821000 - Snake River fall Chinook - modify ponds at Lyons Ferry to improve adult holding

<b>Proposer</b>	Confederated Tribes of the Umatilla Indian Reservation
<b>Province(s)</b>	Columbia Plateau
<b>Subbasin(s)</b>	Lower Snake River

[www.nwcouncil.org/fw/projectselection/accord/200821000.pdf](http://www.nwcouncil.org/fw/projectselection/accord/200821000.pdf)

### ISRP Recommendation

#### Meets Scientific Review Criteria

### ISRP Comments

#### 1. Technical Justification, Program Significance and Consistency, and Project Relationships (sections B-D)

This proposal is to modify the adult holding ponds at Lyons Ferry Hatchery by further dividing the existing four ponds into eight. The additional pond units will allow fish transported from Lower Granite Dam and adults that voluntarily swim into the facility to be segregated by run-timing, sex, origin and sexual maturation. The additional ponds are intended to reduce the need to crowd fish, handle and sort fish by maturity status and as such decrease fish stress. The extra ponds are also intended to improve the ability to (1) process adult fall Chinook during spawning operations to meet broodstock goals and (2) complete an adequate run reconstruction for the Snake River fall Chinook population. Lyons Ferry Hatchery is a Lower Snake River Compensation Plan (LSRCP) facility and the work would be done under the auspices of the United States Fish and Wildlife Service (USFWS) who administer the LSRCP.

The justification for the modification is that additional sorting and segregation capability for adult fall Snake River Chinook restoration will then be possible. While the level of detail provided is insufficient to understand the specific nature of the current limitations, this retrofit is a relatively straight forward engineering and construction project. It is not presented as a new or increased level production for Lower Snake River Compensation Program, but rather a modification to permit achieving currently approved releases.

We aren't asking for a response on this proposal, but the proposal would be improved with extra details on how the four pond scenario is limiting fall Chinook restoration and how the new eight pond scenario will vastly improve it. In addition, expanding the number of holding units for returning Snake River fall Chinook to facilitate improved run-reconstruction is reasonable, especially given the small number of original units. It was not clear, however, to what extent the current run-reconstructions are deficient, and that this remedy would actually provide the required facilities. It was also not clear who performs the run-reconstructions and what they are then used for. Improving the precision of vital estimates of hatchery and natural salmon populations is consistent with adaptive management in the Fish and Wildlife Program and calls

from the ISAB and ISRP for more effective monitoring of the artificial production programs. On that basis, the action is consistent with the Fish and Wildlife Program.

**2. Objectives, Work Elements, and Methods (section F)**

Adequate presentation.

**3. M&E (section G, and F)**

Ostensibly, this action will lead to improved M&E. The overall benefit to fish and wildlife is through improved and more efficient management owing to better information. It would have helped to explain in more detail what run-reconstruction is, how it is conducted by managers, and how the data will be used for hydrosystem, BiOp, and harvest management. In future LSRCP proposals/reviews, the sponsors should highlight how this new capability has been used.