



Independent Scientific Review Panel

for the Northwest Power & Conservation Council
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Memorandum (2020-1)

January 28, 2020

To: Richard Devlin, Chair, Northwest Power and Conservation Council

From: Steve Schroder, ISRP Chair

Subject: Review of Confederated Tribes of the Colville Reservation's Land and Water Acquisition Habitat Project (2008-104-00)

On December 20, 2019, the Northwest Power and Conservation Council requested that the Independent Scientific Review Panel (ISRP) review the Confederated Tribes of the Colville Reservation's Land and Water Acquisition Habitat Project (2008-104-00). The ISRP's review of the Bonneville Power Administration and proponents' [cover letter and Land and Water Acquisition Habitat Project proposal](#) follows below.

Project Abstract from the Proposal

"This new project narrative describes a geographic expansion of an existing project 2008-104-00 which was originally included in the 2008 Columbia Basin Fish Accords and focused on land and water acquisitions exclusively in the Okanogan River subbasin. In addition to the Okanogan River subbasin, the geographic expansion of the new project is proposed to include the Methow, Entiat and Wenatchee subbasins. Thus, the Confederated Tribes of the Colville Reservation (Colville Tribes) propose to purchase additional land and water in the Wenatchee, Entiat, Methow, and Okanogan River subbasins within the scope of this new/expanded project. Securing lands in the aforementioned subbasins will protect habitat for ESA-listed salmonids including upper Columbia River (UCR) spring Chinook, UCR summer steelhead and bull trout. This habitat will also benefit non-listed species including summer Chinook, coho salmon, and Pacific lamprey.

Based upon available information, candidate parcels will be prioritized using the Upper Columbia Biological Strategy and the recently released Upper Columbia Regional Technical Team – Habitat Action Prioritization within the Upper Columbia River Basin (Appendix A). In both Okanogan and Methow River subbasins, Ecosystem Diagnosis and Treatment (EDT) information exists as well and can be used to prioritize areas for habitat protection. Other sources of information such as subbasin plans, limiting factors analysis, as well as empirical data (i.e. redd distribution, groundwater input, etc.) may also guide selection of properties to acquire. Priority will be given to parcels that currently contain high quality habitat but are in risk to be degraded due to development, as well as lands currently degraded but that were historically renowned as valuable for fish and have the opportunity to be restored. At this time the Colville Tribes do not propose to use BPA funding for post-acquisition restoration activities but instead would

implement appropriate restoration or habitat quality improvement projects using non-BPA sources of funding possibly including funds from the state Salmon Recovery Funding Board, Priest Rapids Coordinating Committee Habitat Subcommittee, or Habitat Conservation Plan (HCP) Tributary Committee for both Douglas and Chelan County Public Utility Districts.”

ISRP Recommendation

Meets Scientific Review Criteria (Qualified)

The proposed prioritization methodology for prioritizing land acquisitions and water transfers is an important component of the Confederated Tribes of the Colville Reservation’s (CCT) landscape approach for habitat restoration. The proposal addresses aspects of the Independent Scientific Advisory Board’s *Review of Spring Chinook Salmon in the Upper Columbia River* (UCR Report) ([ISAB 2018-1](#)) and *Review of the Upper Columbia United Tribes’ Fish Passage and Reintroduction Phase 1 Report: Investigations Upstream of Chief Joseph and Grand Coulee Dams* (Reintroduction Report) ([ISAB 2019-3](#)). While the metrics they propose are consistent with these reports, the proposal requires additional information on (1) data used in the prioritization process, (2) several of the ranking criteria, (3) the final synthesis of metrics, and (4) the scientific basis for the final synthesis.

The proposal is only a brief summary of the acquisition project and listing of metrics, and it relies almost entirely on a draft (September 2019) of the prioritization system of the Regional Technical Team (RTT) and Upper Columbia Salmon Recovery Board (UCSRB) in Appendix A. The proponents should respond to comments by providing additional information on the project history, results, ranking methods, and monitoring and evaluation. These responses should be incorporated into a proposal to expand Project 2008-104-00, which could be evaluated by the ISRP, at Council’s request, either as a standalone review or as part of the Anadromous Fish Habitat and Hatchery Category Review in 2020-2021.

Specifically, the proponents should address the following:

1. Provide a more thorough description of the technical background and significance to the Council’s Fish and Wildlife Program and the CCT, including descriptions of (1) specific management concerns for Chinook salmon, steelhead, and bull trout; (2) existing priorities for actions in the four basins based on limiting factors, life cycle models, and other analyses; and (3) an overall conservation strategy for the four basins collectively.
2. Provide additional information on the results of the project’s previous acquisitions and water transfers. Report the amount of water acquired and the estimated percent change in discharge during critical seasons (e.g., summer low flow). Indicate the cost per acre and cost per volume of water for previous acquisitions and transfers. The biological benefits expected or achieved from the previous purchases should be described in addition to the acreages acquired and volume of water transferred. The proposal should

also identify other related habitat projects in the Wenatchee, Entiat, and Methow basins in Table 2 Relationship to existing projects.

3. Modify the objectives into quantitative, time-specific (SMART) objectives, at least in terms of implementation. The objectives could include estimates of the acres, the length of fish bearing stream channels, and water volume they plan to protect by specific dates.
4. Explain how the CCT will address the ISAB's recommendations about the application of the Habitat Action Prioritization system developed by the UCSRB and RTT for the Wenatchee, Entiat, and Methow basins ([ISAB 2018-1](#)) that are relevant for this project.
5. Provide a thorough description of the data that will be used in the prioritization process, including both the Okanogan Basin Monitoring and Evaluation Program ([OBMEP](#)), the [UCSRB Map Portal](#), and the revised Regional Technical Team Prioritization Process. Explain how the prioritization for the Okanogan subbasin will differ from the prioritization for the Wenatchee, Entiat, and Methow subbasins based on the differences in their data sources.
6. Indicate how protection of high quality habitats would be prioritized or weighted relative to restoration of degraded habitats. The proposal should clarify how the relative benefits of protection and restoration will influence the prioritization of land acquisitions and water transfers.
7. Provide a more thorough final synthesis of the ranking rather than simply summing the cumulative rankings. Describe how the priorities and potential actions will be integrated and leveraged within the ongoing programs in the four subbasins. The proposed effort could assess (1) the overall benefit for each of the species of concern and (2) the cost-effectiveness of the acquisitions across the four basins rather than separately within each basin. The relative effectiveness of the different alternatives could be assessed with life-cycle models for the basins where available.
8. Identify a minimal level of implementation monitoring that will occur to assure the acquisitions or water transfers have been managed as stipulated in the contract. Identify the approach for compliance verification for water transfers. If none of the partners conduct compliance monitoring, the CCT should make it part of their contracts and costs. Demonstrate that acquisitions and water transfers will be evaluated to confirm that the implementation resulted in the outcome described in the proposal.
9. Indicate the amount of funds being requested, the estimated amounts of land and water to be purchased, and the key personnel and their responsibilities in the project.

ISRP Comments

1. Technical Background and Significance to Program

The CCT proposes to purchase lands and water in the Wenatchee, Entiat, Methow, and Okanogan river subbasins. Such actions would address objectives of the 2014 Columbia River Basin Fish and Wildlife Program and likely would benefit Upper Columbia River endangered spring Chinook, Upper Columbia River threatened steelhead, and threatened bull trout. The actions would be consistent with Reasonable and Prudent Actions (RPA) recommended in recent Biological Opinions for the Columbia River.

The description of the technical background is brief and only summarizes the major characteristics of the subbasins and focal fish species. It relies primarily on the description of the ranking process of the RTT and UCSRB (Appendix A). The proposal does not provide an overall conservation strategy for the four basins collectively. The specific management concerns for Chinook salmon, steelhead, and bull trout are not described other than they are ESA-listed species and the target species of regional recovery programs. Limiting factors analyses and habitat restoration priorities identified by the UCSRB and RTT are not described or linked specifically to the prioritization process.

2. Project History - Results

The proposal is an expansion of an existing project to fund land and water acquisition projects in the Okanogan River subbasin. Over \$6.3 million has been provided by BPA for land acquisition, and over \$1.4 million has been provided by the National Fish and Wildlife Foundation for water transaction implementation and water rights transactions since 2008. The CCT have acquired 17 habitat properties totaling approximately 839 acres in the Okanogan River subbasin, often with associated water rights. Most of the water rights have been donated to the state of Washington's Trust Water Rights Program (TWRP) in perpetuity. The deeds for these properties likely contain conservation easements to ensure the protection of habitat attributes, but more information about the long-term oversight of these properties is needed.

Additional information on the results and costs of the project's previous acquisitions and water transfers is needed. The biological benefits expected or achieved from the previous purchases and proportional changes in flow or usable wetted habitat area should be described in addition to the acreages acquired and volume of water transferred. Of the 17 properties acquired so far, how many would be in the "protect good habitat" category and how many in the "acquire for restoration" category? For how many of the restoration projects was money later obtained? Much of this information is contained in the OBMEP and the UCSRB Map Portal, but the proposal should clearly link the project's strategy, methods, and outcomes to these sources of information.

The proposed actions are related to other BPA-funded habitat projects in the Wenatchee, Entiat, and Methow rivers subbasins. Both the Colville and Yakama tribes work in the Methow,

Wenatchee, Okanogan, and Entiat – as well as WDFW, various NGOs, and the Mid-C PUDs. Some of these partners are mentioned in the Significance to Regional Programs section, but the proposal should include a more comprehensive description of coordination with other partners and, as applicable, identify their projects in Table 2 (Relationship to Existing Projects).

3. Goals and Objectives

The proposal does not explicitly state a goal, but the text stated that the project is designed “to produce a higher biological benefit for focal anadromous fish species, habitat rehabilitation actions” through land acquisition and water rights transfers. The proposal also states that “priority will be given to parcels that currently contain high quality habitat but are in risk to be degraded due to development, as well as lands currently degraded but that were historically-renowned as valuable for fish and have the opportunity to be restored.”

The proposal explicitly identifies two objectives, which are goals rather than measurable objectives:

- 1) Prevent habitat from future degradation (secure parcels from future development, short and long-term impacts to riparian and aquatic habitat) and
- 2) Acquire water rights associated with specific parcels and transfer to instream flow.

These goal statements are consistent with the intent or goal of the proposed actions. The metrics that will be used to measure the success of the project (i.e., acres acquired, length of stream protected, and water volume transferred to instream flow) are implementation metrics, but they do not provide measurable targets and explicit timeframes to determine whether the project achieved the anticipated level of success. It is likely that the actions will be ecologically beneficial because the project’s prioritization and acquisition are closely integrated with the Upper Columbia Biological Strategy and guidelines for Habitat Action Prioritization within the Upper Columbia River Basin by the Upper Columbia Regional Technical Team. The proposal would be strengthened by indicating the relative contribution of these land acquisitions and water transfers to the established habitat objectives for these basins (for example, see UCSRB 2014) or life-cycle model projections of population responses to habitat restoration actions in these basins (Jorgensen et al. 2017).

The proposal should provide quantitative, time-specific (SMART) objectives, at least in terms of implementation. The objectives could include estimates of the acres, stream distance, and water volume they plan to protect by specific dates. This would provide a trajectory of anticipated progress and serve as a context for adaptive management. The ISRP recognizes these objectives are subject to change, depending on results of their prioritization process. For example, prioritization could indicate that floodplain acreage is a higher priority than stream miles, and the initial projections would be adjusted accordingly. The SMART objectives would be flexible and provide a framework to be used as an ongoing part of the prioritization process.

4. Methods (see Appendix A. UCRTT Plan)

The proposal describes a three-step process for prioritizing acquisitions of property or water rights. The process incorporates metrics that help quantify habitat conditions, population integrity of fish populations, and the expected longevity of restored areas. An outline of the metrics being used is shown below.

1. Metrics for quantifying habitat condition of individual assessment units are:
 - a. Intrinsic Potential
 - i. Length of total intrinsic potential
 - ii. Occupied intrinsic potential
 - iii. Unoccupied intrinsic potential
 - b. Spawning Area Designation
 - i. Designation of major or minor spawning area (salmon and steelhead) or spawning and rearing (SR) habitat (bull trout)
2. Metrics for quantifying population integrity of individual assessment units are:
 - a. Life-Stage Use
 - i. Number of life stages present within an assessment unit
 - b. Spawner Abundance
 - i. Spawning escapement within an assessment unit
3. Metrics for quantifying habitat integrity of individual assessment units are:
 - a. Habitat Quality
 - i. Habitat quality for adult holding, spawning/incubation, summer rearing, winter rearing.
 - b. Degraded Habitat
 - i. Percent of the assessment unit altered by land-use activities
4. Metrics for quantifying future security of individual assessment units are:
 - a. Climate Change
 - i. Area of assessment unit sensitive to climate change
 - b. Land Stewardship
 - i. Percent of the assessment unit in a protected status
 - c. Non-native Fish Species (bull trout only)
 - i. Presence of brook trout within an assessment unit in which bull trout spawn

The prioritization process will use databases of habitat conditions, fish distributions and abundances, and potential risks for the four subbasins that are publicly available in the Okanogan Basin Monitoring and Evaluation Program ([OBMEP](#)), the [USCRB Map Portal](#). These sources provide extensive information, but the proposal does not clearly provide access to the specific data sources (e.g., [Step 1 Prioritization Tables](#), [Step 1 AU Prioritization Maps](#), and [Map of AU \(HUC 12\) Tiers](#)), describe them adequately, or explain how they will be used. In the recent Upper Columbia Science Conference (January 22-23, 2020), the ISRP learned that the RTT Prioritization Process is being revised (RTT 2019), and the revision addresses several of the recommendations of the ISAB's UCR Report (2018-1). The new [USCRB Map Portal](#) includes

spatial data and synthesis documents that provide the technical basis for the analyses for the Wenatchee, Entiat, and Methow subbasins. The revised RTT process includes information on the rankings for each species, rankings for restoration benefits, rankings for protection benefits, raw habitat data, and raw fish data used for developing the rankings. One of the strengths of the revised RTT prioritization process is the assessment of vulnerability to climate change (contained in tab on Protection Scores in [Step 1 Prioritization Tables](#)), but the proposal does not highlight this component or relate it to a broader conservation strategy. All of these recently improved data sources are critically important foundations for the prioritization process, but they are not adequately identified or explained in the proposal. The data sources in the OBMEP and the UCSRB Map Portal are similar but differ in content. The proposal should explain how the prioritization for the Okanogan subbasin will differ from the prioritization for the Wenatchee, Entiat, and Methow subbasins based on the differences in their data sources.

The proposal notes the importance of protecting existing high quality habitat in the first paragraph of the Rationale, but the proposal does not indicate how protection of high quality habitats would be prioritized or weighted relative to restoration of degraded habitats. In the UCR Report ([2018-1](#)), we suggested evidence for effectiveness was strongest for habitat protection, then removing barriers, then reconnecting floodplains, and then increasing habitat complexity. The [Step 1 Prioritization Tables](#) provide rankings separately for both protection and restoration for all species and reaches, but the proposal does not explain how these rankings will be used for the ultimate prioritization of actions. The proposal should clarify how the relative benefits of protection and restoration will influence the prioritization of land acquisitions and water transfers.

Given the extensive and frequent fires in the four subbasins of the upper Columbia River in recent years, another priority could be areas that potentially contribute unusual high amounts of sediment that plug downstream spawning gravel, fill downstream rearing pools, and blanket substrates. Potential impacts of fires and increasing risks with regional warming trends could be addressed explicitly in a broader conservation strategy.

The extent, resolution, and quality of data used in the prioritization will not be uniform across the full geographic extent of the analysis. The OBMEP website identifies the quality of the data for different years, but the proposal does not explain how the process will incorporate differences in data quality in the prioritization. Much of the data is spatial habitat information that will support the prioritization of land acquisitions, but it is not clear how the data will be used to prioritize the benefits of water transfers. A more detailed description of the methods and applications of the data is needed.

The prioritization of habitat actions and identification of life stages and limiting factors will be based on existing analyses (e.g., life-cycle modeling, watershed assessments, reach assessments, habitat modeling, riparian assessments, remote sensing information, status and trend monitoring data, expert panel information, and professional judgment). These tools have been used for prioritization, monitoring, and evaluation in the Wenatchee, Entiat, and Methow rivers subbasins, which the ISAB reviewed in the UCR Report ([ISAB 2018-1](#)). Overall, the ISAB

found these methods of prioritization (e.g., EDT Model, Habitat Suitability Index [HSI], Regional Technical Team's [RTT] Biological Strategy) to be useful for prioritizing ecological concerns and habitat restoration actions. However, the ISAB also recommended more thorough integration of the results of the different sources of information (e.g., habitat condition, fish abundance and distribution, density dependence analysis, life-cycle modeling) for identifying limiting factors. Recent revisions of the first two steps of the RTT's prioritization process may address several of these recommendations (draft document provided by Tracy Hillman of the RTT).

Reaches will be prioritized based on fish presence (i.e., temporal presence/absence) for Chinook salmon, steelhead, and bull trout and life-stage use, habitat condition, and geomorphic potential. Prioritization next assesses the types of habitat actions required for each reach (i.e., acquisition or easement, channel modification, floodplain reconnection, side/off-channel restoration, riparian restoration, fish passage improvement, nutrient addition, instream structures, bank restoration, water quality/quantity). Actions are then ranked based on their long-term benefit, improvement of natural processes, relative effect on limiting factors, and potential to ameliorate climate change effects. Reaches then are ranked based on the risk or protection associated with the reach.

The ISAB made several recommendations about the application of this ranking system by the UCSRB for the Wenatchee, Entiat, and Methow rivers subbasins. The proposal should identify the recommendations that would be relevant to this project and explain how they will address them.

The third step in the prioritization process is the feasibility assessment based on landowner willingness, public willingness, land-use constraints, probability of success, partnership capacity, regulatory constraints, and societal issues. The proposal indicates the existing scoring/weighting system will be revised for these factors. The ISAB's UCR Report identified several major concerns with the third step of the prioritization process by the Regional Technical Team and the Citizens Advisory Committee of the Upper Columbia Recovery Board. Criteria were defined vaguely, and some results (e.g., cost effectiveness) were weighted so they had little influence on project priorities. The same weakness is likely in this prioritization effort unless these concerns are identified from the start of the process.

The proposal indicates that the final product of the prioritization will be a list of high priority actions to be implemented within high priority areas in the four subbasins. A summary ranking based on simple sums of a series of separate rankings could be informative, but it does not provide the level of integration that is possible for a project of this geographic scope and coordination with regional partners (RTT, UCSRB, PUDs). Admittedly, it includes more quantitative information and prioritization criteria than most land acquisition projects. The proposal does not indicate how the priorities and potential actions will be integrated and leveraged within the ongoing programs in the four subbasins. The CCT is an active partner with the UCSRB and management in the Okanogan basin. The proposed effort could include an assessment of (1) the overall benefit for each of the species of concern and (2) the cost-effectiveness of the acquisitions across the four basins rather than separately within each basin.

Additionally, the relative effectiveness of the different alternatives could be assessed with life-cycle models for the basins where available. An explicit step to synthesize the information using expertise within the CCT and its partners in the UCR, and analytical tools such as life-cycle models and EDT, could strengthen the proposed prioritization.

The CCT may have much of the information in the Okanogan Basin Evaluation Portal, the Upper Columbia Salmon Recovery Board Map Portal, and the newly developed RTT prioritization processes, which could address many of the ISRP's qualifications. We anticipate these sources of information and the approach for using them would be included in a full proposal.

5. *Monitoring and Evaluation*

No formal monitoring is proposed for acquisitions or water transfers. General remote sensing of acquired properties by BPA might evaluate some of the acquired properties. The CCT may visit sites to check on habitat conditions.

The CCT will not monitor instream flow and water rights compliance, but the TWRP of Washington may periodically evaluate effectiveness of water rights transferred to their program. The proposal was not clear about this. Most water transfer groups, like TWRP and the Deschutes Alliance, check for compliance periodically. The proposal should identify the approach for compliance verification. If none of the partners conduct compliance monitoring, the CCT should make it part of the contracts and costs.

The proposal should identify a minimal level of implementation monitoring that will occur to assure the acquisition or water transfer have been managed as stipulated in the contract. Collaboration with TWRP, BPA administration, and other implementation partners would be cost effective and increase the likelihood of long-term success. In some cases, additional evaluation by the CCT may not be required, but acquisitions and water transfers need to be evaluated to confirm that the implementation resulted in the outcome described in the proposal.

6. *Key Personnel*

Additional information on the administrative and operational responsibilities is needed. Key personnel and their roles in the prioritization, acquisition and water transfer processes, and subsequent assessment of outcomes should be provided.

References

Jorgensen J, A Murdoch, J Cram, M Sorel, T Hillman, G Maier, C Paulsen, T Cooney, R Zabel, and C Jordan. 2017. Chapter 9.b Wenatchee River spring-run Chinook salmon life-cycle model: hatchery effects, calibration, and sensitivity analyses. *In* R. Zabel et al. Interior Columbia

Basin Life Cycle Modeling, May 27, 2017 Draft Report, National Marine Fisheries Service, Northwest Fisheries Science Center, Seattle.

UCSRB (Upper Columbia Salmon Recovery Board). 2014. Integrated Recovery Program Habitat Report. Upper Columbia Salmon Recovery Board, Wenatchee, WA.