

Memorandum

To: Priest Rapids Coordinating Committee Hatchery Subcommittee Document Date: September 11, 2024

From: Tracy Hillman, PRCC Hatchery Subcommittee Facilitator

cc: Natasha Winnacott and Larissa Rohrbach, Anchor QEA

Re: Minutes of the August 22, 2024, PRCC Hatchery Subcommittee Meetings

The Priest Rapids Coordinating Committee's Hatchery Subcommittee (PRCC HSC) meeting focused on the White River (WR) Hatchery Program and was held in person and virtually at the Douglas PUD Auditorium on Thursday, August 22, 2024, from 10:00 a.m. to 4:15 p.m.

Attendees are listed in Attachment A to these meeting minutes.

The following Action Item Summary identifies tasks for the PRCC HSC members related to the WR Hatchery Program only. (Action items related to other ongoing business are documented in Action Item Summary and Minutes of the August 21, 2024, Joint HCP-HCs and PRCC HSC meeting.)

Action Item Summary

PRCC Hatchery Subcommittee

Near-Term (to be completed by next meeting)

White River Hatchery Program

Data Sources for the Expert Panel (Item II-A)

- Grant PUD staff will assemble existing data sources to answer the questions in Table 1 of the 2018 WR memorandum. (Note: this item is ongoing).
- Mike Tonseth will inquire about data outputs and potential future uses of Mark Sorel's Wenatchee Spring Chinook Salmon life-cycle model (Note: this item is ongoing).
- Tonseth will inquire about availability of results from the Wenatchee Spring Chinook Salmon Relative Reproductive Success Study, or assembly of an executive summary, to support the WR Expert Review Panel (Note: this item is ongoing).
- Tim Taylor will advance the WR spring Chinook Salmon population viability analysis using existing monitoring and evaluation data. (Note: this item is ongoing).
- Mat Maxey and Tonseth will highlight relevant information to support conclusions of potential impacts and benefits to Bull Trout from the Bull Trout documents that Maxey obtained from U.S. Fish and Wildlife Services (USFWS) Ecological Services staff (Note: this item is ongoing).

- Tonseth will write a summary about limits to the size of a WR Hatchery Program (Note: this item is ongoing).
- PRCC HSC members will review the habitat capacity summary drafted by Keely Murdoch and Tracy Hillman and provide comments by September 18, 2024.

Expert Panel Scope, Logistics, Qualifications (Item I-A)

- PRCC HSC members will review the materials for the panel (most recent versions distributed on August 26, 2024) and provide feedback by September 6, 2024.
 - Materials include the Panel Candidate List, Bibliography, Scope, Invitation Letter, Answer Form, and Conflict of Interest Form.
 - PRCC HSC members will show links between each paper in the bibliography and one or more question assigned to the Expert Panel.
 - PRCC HSC members will rank potential panelists based on their areas of expertise.

Decision Summary

- None.

Agreements

- Pending final review to be completed by September 6, 2024, the PRCC HSC agreed to the Scope, Invitation Letter, Answer Form, and Conflict of Interest Form. The Candidate List and Bibliography remain to be reviewed in committee.

Review Items

- See above; final draft materials for convening an expert panel were distributed on August 27 and September 3, for review by September 6, 2024.
- Data sources for White River Carrying Capacity was distributed on August 15, for review by the next meeting.

Finalized Documents

- None.

I. Welcome

A. Agenda, Approval of Past Minutes, Action Item Review

Tracy Hillman welcomed the PRCC HSC and reviewed the agenda. No revisions to the agenda were requested, and the PRCC HSC representatives approved the agenda. The revised meeting minutes from July 17, 2024, were reviewed and approved by Parties that attended that meeting. Brett Farman did not attend that meeting and abstained from approving the minutes.

Action items from the PRCC HSC July 17, 2024, meeting were reviewed. (*Note: Italicized text below corresponds to action items from the previous meeting.*)

Near-Term (to be completed by next meeting)

White River Hatchery Program

Data Sources and Document List for Expert Panel (Item I-A)

- *Grant PUD staff will assemble existing data sources to answer the questions in Table 1 of the 2018 WR memorandum (Note: this item is ongoing).*
This item is ongoing.
- *All committee members will review Grant PUD's draft WR bibliography for the Expert Panel and identify required materials and supplemental materials for each Sub-question 3.1 to 3.9. (Note: this item is ongoing).*
This item is ongoing.
- *Mike Tonseth will inquire about data outputs and potential future uses of Mark Sorel's Wenatchee Spring Chinook Salmon life-cycle model (Note: this item is ongoing).*
This item is ongoing.
- *Tonseth will inquire about availability of results from the Wenatchee Spring Chinook Salmon Relative Reproductive Success Study (RSS), specifically: (Note: this item is ongoing).*
 - *Results available about the WR spawners*
This item is complete.
 - *Results for both hatchery-origin and natural-origin fish from WR and other tributaries*
This item is complete.
 - *Potential assembly of previously reported results into a single document or an executive summary to support the WR Expert Review Panel*
This item is ongoing. Tonseth said he spoke with Mike Hughes (WDFW) about the availability of results from the RSS. Hughes said that they have two upcoming reports. The first will be an update to the Williamson et al. (2010) paper; the results are not much different from this original 2010 report. This document will be available in early

2025. The second document that they are working on is a multigenerational effects paper. They will not begin to work on this until early 2025, and as a result, the paper likely will not be ready in time for the Expert Panel. Tonseth said that Hughes is also working on a database; he is unclear whether it will be available in October or whether they will begin work on it in October 2024. Todd Pearsons said that it would be beneficial to reach out to them in December 2024 to inquire whether the results from the first report are still consistent with the Williamson et al. (2010) paper and relay that information to the Expert Panel. Pearsons also inquired whether the database would allow the PRCC HSC to make assessments of the WR spring Chinook Salmon or whether it would be genetic data that would match parents with progeny. Tonseth replied that the database is supposed to be user friendly. Tonseth said that with regards to Sub-question 3.5, the multigenerational paper that the Hughes group is working on will be the most useful. Regarding Sub-question 3.6, the RSS report might provide some insight, but in order to answer that question, you need to know what the size of the hatchery program will be in order to assess the effect on effective population size. Tonseth said that it might be a difficult question to answer unless the PRCC HSC is somewhat prescriptive in the size and broodstock source of the program. With regards to pre-spawn mortality, Tonseth said that over the last few years, they have been passive integrated transponder tagging spring Chinook Salmon at the Priest Rapids Dam, and this provides the benefit of not having to factor in the carcass bias. Hillman asked whether Hughes could give a presentation to the Expert Panel even if the two reports are not finished yet. Keely Murdoch agreed and said the PRCC HSC representatives should be allowed to attend the presentation along with the WR expert panelists. Tonseth agreed, as long as the PRCC HSC representatives do not engage with panelists.

- *Tim Taylor will advance the WR spring Chinook Salmon population viability analysis using existing monitoring and evaluation data. (Note: this item is ongoing).*

Taylor said he is working on this. Currently, there is no upper limit for the population trajectory in his analysis, so under certain simulations, if the conditions line up, the population size increases exponentially to an unrealistic size. Moving forward, he needs to incorporate a density-dependence function that limits the upper bounds of the population size. He plans to provide the preliminary result of the analysis during either the September or October meeting.

- *Mat Maxey will inquire with USFWS Ecological Services staff about information to support conclusions potential impacts and benefits to Bull Trout (Note: this item is ongoing).*

Maxey spoke with Stuart Fety from USFWS Ecological Services and RD Nelle from the USFWS Native Fish Program, and they provided Maxey with documents containing information on Bull Trout. Pearsons asked whether Maxey could identify relevant sections within the reports,

because this will be a lot of reading for the expert panelists. Maxey said that Nelle would be able to point out relevant sections, but the documents provided by Fety would be harder to highlight important sections. Pearsons said that the PRCC HSC might have this challenge on a number of different documents that are lengthy and said that they might want to focus the Expert Panel to certain parts of the reports. Murdoch said that it would be beneficial to write a summary of relevant information with citations of summary information that directs panelists where they can go to find more information. Maxey said Nelle would be able to summarize that for the reports that he shared. Tonseth said that he could do it for the reports provided by Fety.

Expert Panel Scope, Logistics, Qualifications (Item II-B)

- *Hillman will write a summary about available information for habitat capacity and add it to the summary that Murdoch wrote about available information for limiting life stages and limiting factors (Note: this item is ongoing).*

Murdoch and Hillman finished this. Rod O'Connor said that Grant PUD will provide comments, but they are not ready to discuss it today. Hillman said that PRCC HSC members should review and send any comments to him or Murdoch by September 18, 2024.

- *Tonseth will write a summary about the sideboards limiting the size of a WR Hatchery Program (Note: this item is ongoing).*

This item is ongoing.

- *PRCC HSC members will write short biographies for potential Expert Panel members their area of expertise and send them to Tracy Hillman for compilation by August 16, 2024.*

This item will be discussed during today's meeting.

- *Pearsons will write a memorandum describing the review process that will be used by Hillman when reaching out to potential panel members, for review in the August 21, 2024, meeting.*

This item will be discussed during today's meeting.

II. PRCC HSC

A. White River Spring Chinook Salmon Hatchery Program: Expert Panel Preparations

Grant PUD provided the following documents constituting the framework for assembling an expert panel for discussion during today's meeting: a Scope, Invitation Letter, Answer Form that panelists would use (to provide information in a standardized way so Hillman can compile answers), example Conflict of Interest form, (originally from the Independent Scientific Review Panel and the Independent Scientific Review Board [ISRB]), draft Reading List (bibliography), and the Panelist Candidate List (Attachment B). PRCC HSC representatives will review the changes made to the document and send any remaining comments to Tracy Hillman by September 6, 2024.

Draft Scope

The PRCC HSC agreed to identify questions they want the WR expert panelists to address. For questions the panelists are not required to answer, the PRCC HSC can provide readings that provide the answers. PRCC HSC representatives present agreed that the primary questions they want the Expert Panel to answer are Sub-questions 3.2, 3.5, and 3.6 from the WR decision tree (shown in the draft Scope).

Invitation Letter

Grant PUD representatives tailored an invitation letter originally used for a Fall Chinook Salmon Work Group expert panel. The PRCC HSC agreed to limit the Expert Panel to 5 to 7 people, up to a maximum of 10.

Answer Form

PRCC HSC worked through the questions that Grant PUD representatives compiled. The numbering in the Answer Form was revised to match the numbering in the decision tree to reduce confusion.

Grant PUD proposed that for the Expert Panel review to be useful, they should have panelists answer how to implement a program (if panelists believe that one is needed). Grant PUD wants to make sure that the PRCC HSC gets a usable product from the Expert Panel, and not something that is impossible to implement. The Yakama Nation (YN) would like to exclude any feasibility questions from the Expert Panel review; they believe that evaluating feasibility is the task for the PRCC HSC. YN's position is that the primary question for the Expert Panel is number three in the WR Hatchery Program decision tree. National Oceanic and Atmospheric Administration (NOAA) Fisheries believe that potential infrastructure feasibility evaluation is a task to be handled by the PRCC HSC, and the Expert Panel should focus on whether a WR program supports recovery and spawning aggregates and not focus on the logistical challenges that come with implementing such a program. USFWS agreed with NOAA Fisheries. Washington Department of Fish and Wildlife (WDFW) wants the panel to focus on the biological aspect of whether it is feasible to implement a program; panelists can provide recommendations of what a program would look like, but ultimately the decision lies within PRCC HSC of what that program would be. PRCC HSC representatives agreed to ask the expert panelists what their recommendations would be for a WR hatchery program, if panelists think one is needed. The PRCC HSC members will make the final decision on whether a program is feasible.

Conflict of Interest Form

The PRCC HSC worked through the Independent Scientific Advisory Board and ISRB Conflict of Interest Form, retaining sections that were relevant to the WR Expert Panel.

Reading List (Bibliography)

The PRCC HSC agreed to order the Reading List by questions. The PRCC HSC representatives will work on assigning papers to each of the questions for the Expert Panel. During the September meeting, PRCC HSC will rank papers assigned to each question in order of relevance.

Draft Panelist Candidate List

The PRCC HSC worked together to add biographies to the draft list of panelist candidates. They removed the “pending more information section” and combined it with the potential candidate list. The PRCC HSC agreed to create a tiered list of candidates, reaching out to the top tier first to limit the number of candidates that will be on the Expert Panel. PRCC HSC representatives will rank each candidate based on their area of expertise. They will discuss the rankings during the September 2024 meeting.

B. Hypothetical White River Hatchery Program Considerations

The PRCC HSC agreed to discuss this topic during the September meeting.

III. Administration

C. Next Meetings

The next meetings of the HCP-HCs and PRCC HSC will be held on September 18, 2024; October 16, 2024; and November 20, 2024. PRCC HSC representatives present agreed to meet on Thursday, September 19, 2024, the day after the joint HCP-HCs and PRCC HSC meeting in September. Meetings will be in person and will be held at a location to be determined.

IV. Attachments

Attachment A List of Attendees

Attachment B Expert Panel Materials

Attachment A
List of Meeting Attendees

Name	Organization
Natasha Winnacott	Anchor QEA
Tracy Hillman	BioAnalysts, Inc.
Rod O'Connor‡	Grant PUD
Deanne Pavlik-Kunkel°	Grant PUD
Todd Pearsons‡°	Grant PUD
Tim Taylor	Grant PUD
Katy Shelby°	Washington Department of Fish and Wildlife
Mike Tonseth**	Washington Department of Fish and Wildlife
Matthew Maxey*‡°	U.S. Fish and Wildlife Service
Brett Farman*‡°	National Marine Fisheries Service
Keely Murdoch*‡	Yakama Nation
Cory Kamphaus*‡	Yakama Nation

Notes:

* Denotes HCP-HCs member or alternate

‡ Denotes PRCC HSC member or alternate

° Joined remotely



October XX, 2024

Address

Dear Dr. xxx:

You are invited to participate on an independent expert science panel of about 5 to 7 people to assess the need to restart a White River spring Chinook Salmon hatchery supplementation program in the White River, a tributary within the Wenatchee River subbasin of Washington State. More specifically, it will answer the following question and related sub-questions:

1. Would an adult-based supplementation program increase the probability of meeting Viable Salmonid Population (VSP) criteria while keeping ecological and genetic impacts within acceptable limits?
 - a. How, if at all, would an adult-based supplementation program in the White River increase the probability of meeting VSP criteria while keeping ecological and genetic impacts within acceptable limits?
 - b. What is the optimal program size for meeting VSP criteria?

The intent of assembling the panel is to provide useful (e.g., actionable) technical answers that will inform decision makers whether to restart a hatchery program in the White River.

You were recommended by your peers as a candidate to participate on the expert panel because of your expertise in a field that pertains to hatchery supplementation. The expert panel will help inform the Priest Rapids Coordinating Committee's Hatchery Subcommittee (PRCC HSC; representatives from state, federal, tribal, and a hydro entity) about whether to restart a White River spring Chinook Salmon hatchery supplementation program in the White River. Below I provide some background about the project and expectations of the panel.

A captive broodstock program was implemented for the White River Spring Chinook Salmon spawning aggregate between 1997 and 2015 to prevent extinction and contribute to recovery of the endangered upper Columbia River ESU. The intent was to transition this program to an adult based supplementation program, but technical and sociological factors precluded the implementation of this plan. A policy group determined to delay a decision about implementing a White River spring Chinook Salmon hatchery program until 2026 and a portion of the agreement is replicated below.

"By 2026, the PRCC HSC will assess the need to restart a White River spring Chinook hatchery supplementation program by assembling all relevant technical information and overseeing an independent scientific review. The independent scientific review will consist of a panel of subject matter experts selected by the PRCC HSC who will address specific critical questions developed by the PRCC HSC. The expert panel will address the critical questions but will not have decision-making authority over the future of the White River spring Chinook program. Prior to initiating the independent scientific review, the PRCC will review and approve the framework and structure of the review. Once the

framework and structure of the scientific review is approved by the PRCC, the review should be complete within one year."

The panel will use a structured approach that includes both group and independent work. This approach will allow for independent evaluation that will help assess the level of scientific variation as well as leverage a consensus scientific opinion from the panel. To this end, expert panelists will: 1) participate in a virtual 4-hour panel orientation beginning in early 2025, 2) read technical documents provided to them (see reading list), 3) independently answer expert panelist questions and provide answers on provided forms, and 4) participate in a final group conclusion session by the deadline of June 1, 2025. The facilitator of the process will be available to answer each panelist's technical and other questions, but each reviewer is expected to work independently of others up until the group conclusion session. The facilitator will write up a final summary report that includes consensus findings of the panel.

To produce the best scientific conclusion, it is important that each panelist is independent, objective, and free of conflict of interest. "Conflict of interest" means any financial or other interest which conflicts with the service of the individual because it 1) impairs the individual's objectivity or 2) could create an unfair competitive advantage for any person or organization.

Each panelist will be asked to complete and submit a "Disclosure of Personal Involvements" form to the facilitator for review by the PRCC Hatchery Subcommittee.

As part of the assessment, the HSC is asking if you would be willing to participate on the expert panel.

It is anticipated that reviewing the assessment and participating on the panel will require up to 100 hours of your time. Activities of the panel participants and time commitments will likely be dispersed throughout early- to mid- 2025.

Thank you for your consideration in participating in this important work. It is anticipated that this process will begin during January or February of 2025. Please respond to this request by stating whether you intend to participate or not. Please give your response to me using the contact information below. I ask that you respond within three weeks of receiving this letter. If I have not heard from you within three weeks, then I will try to contact you directly.

After the list of expert panelists is finalized, an information packet and schedule will be sent to you. If you have any questions about the process, please contact me at 208-867-2889.

Yours sincerely,

Tracy W. Hillman, Ph.D.
HSC Chair
BioAnalysts, Inc.
4725 N. Cloverdale Road
Suite 102
Boise, ID 83713

cc: PRCC Hatchery Subcommittee

Scope, Qualifications, and Expectations for White River Independent Expert Science Panel

Scope

An independent expert science panel (hereafter panel) will provide a technical evaluation to assess the need to restart a White River spring Chinook Salmon hatchery supplementation program in the White River. More specifically, it will answer the following questions:

Would an adult based supplementation program increase the probability of meeting Viable Salmonid Population (VSP) criteria as defined in the Upper Columbia Spring Chinook Salmon and Steelhead Recovery Plan?

- a. How, if at all, would an adult-based supplementation program in the White River increase the probability of meeting VSP criteria as defined in the Upper Columbia Spring Chinook Salmon and Steelhead Recovery Plan?
- b. What is the optimal program size for meeting VSP criteria?

The PRCC Hatchery Subcommittee is evaluating the following questions:

- 3.1. What is the available capacity, limiting life-stage, and limiting factor in the White River? What is the trend?
- 3.2. How many additional natural-origin adults could reasonably be expected by operating an adult-based supplementation program for the White River spawning aggregate?
- 3.3. What is the relative reproductive success (RRS) of hatchery fish in the Wenatchee Basin?
- 3.4. Did the White River captive brood program or Chiwawa and Nason hatchery strays contribute to natural origin production?
- 3.5. Have supplementation programs in Chiwawa River and Nason Creek contributed to natural-origin abundance in the respective basins?
- 3.6. Is supplementation likely to improve N_e ?
- 3.7. How is genetic differentiation among wild fish changing over time?
- 3.8. What is the probability of persistence of the WR spawning aggregate without hatchery intervention?
- 3.9. What are the likely impacts to other spawning aggregates (e.g., Chiwawa, Nason, and Little Wenatchee) and non-target taxa of concern (e.g., Bull Trout, Sockeye Salmon) associated with a supplementation program that helps meet VSP criteria consistent with the Upper Columbia Spring Chinook Salmon and Steelhead Recovery Plan?

The PRCC Hatchery Subcommittee is asking the panelists to answer questions 3.2, 3.5, and 3.6:

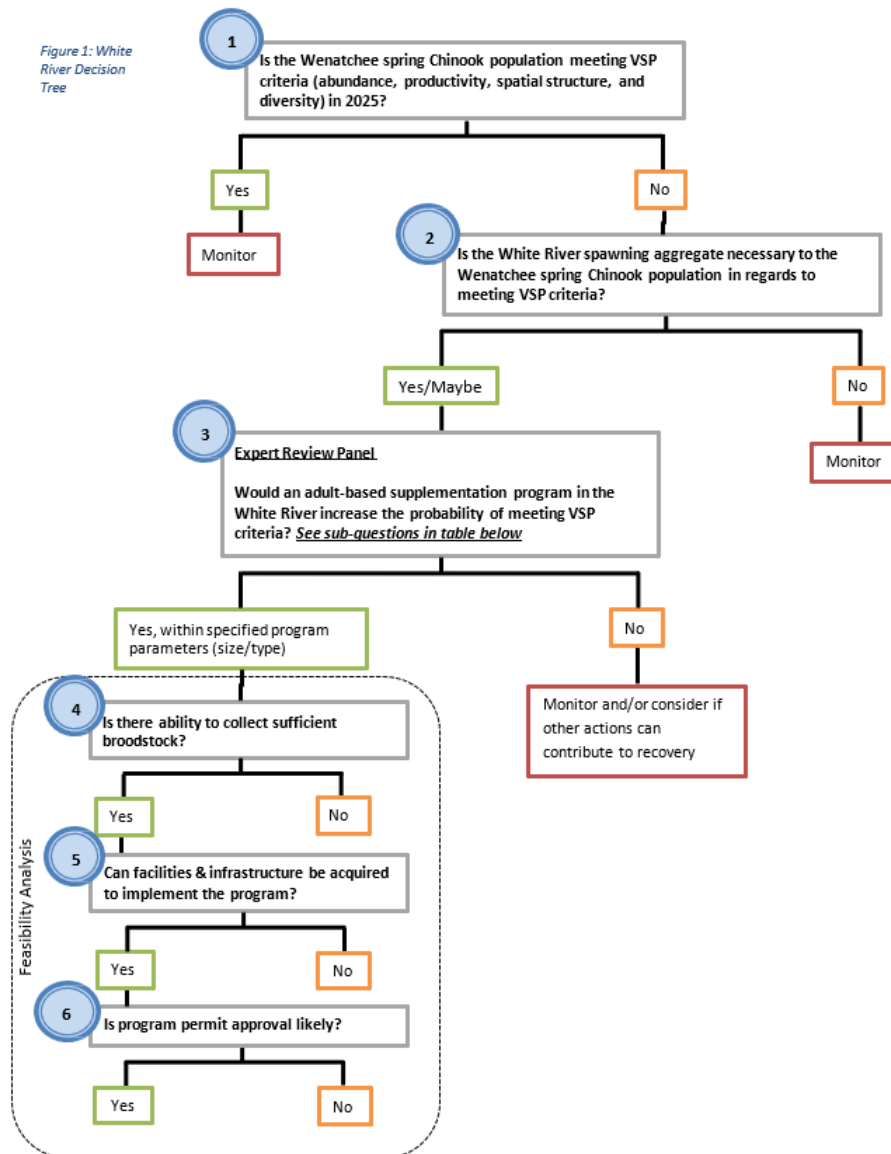
3.2. How many additional natural-origin adults could reasonably be expected by operating an adult-based supplementation program for the White River spawning aggregate?

3.5. Have supplementation programs in Chiwawa River and Nason Creek contributed to natural-origin abundance in the respective basins? (will depend on whether the multigenerational analysis is completed)

3.6. Is supplementation likely to improve N_e ?

Supporting information for each question is provided in the bibliography, which will be provided to the expert panel.

The intent of assembling the panel is to provide useful (e.g., actionable) technical answers that will inform decision makers whether to restart a hatchery program in the White River.



Approach and Schedule

The panel will use a structured approach that includes both group and independent work. This approach will allow for independent evaluation that will help assess the level of scientific variation as well as leverage a consensus scientific opinion from the panel. To this end, expert panelists will: 1) participate in a virtual 4-hour panel orientation beginning in early 2025, 2) read technical documents provided to them (see reading list), 3) independently answer expert panelist questions and provide answers on provided form, and 4) participate in a final group conclusion session by the deadline of June 1, 2025. The facilitator of the process will be available to answer each panelist's technical and other questions, but each reviewer is expected to work independently of others up until the group conclusion session. In the event the facilitator is unable to answer a panelist's question, then the facilitator will contact an approved technical advisor(s) and the facilitator will communicate the answer back to the panelist. The panelists and technical advisors will not have direct contact in order to preserve the objectivity of the process. The facilitator will write up a final summary report that includes results from each panelist.

Qualifications

Each panelist will meet the following qualifications:

- 1) High achievement in a relevant scientific discipline to address questions about hatchery supplementation.
- 2) A strong record of scientific accomplishment documented by contribution to the peer-reviewed literature or other evidence of creative scientific accomplishment.
- 3) High standards of scientific integrity, independence, and objectivity.
- 4) Ability to forge creative solutions to complex problems.
- 5) Interest in and ability to work effectively in an interdisciplinary setting.

To produce the best scientific conclusion, it is important that each panelist is independent, objective, and free of conflict of interest. "Conflict of interest" means any financial or other interest which conflicts with the service of the individual because it 1) impairs the individual's objectivity or 2) could create an unfair competitive advantage for any person or organization. Panelists will not be employed by organizations with HSC representation or by those entities who represent the interests of organizations with HSC representation.

Each panelist will be asked to complete and submit a "Disclosure of Personal Involvements" form to the facilitator for review by the PRCC Hatchery subcommittee.

Disclosure information includes:

- Financial interests
- Research support
- Agency or group affiliations

- Public statements and positions
- Other circumstances or information

Disclosure information should identify any connection between the individual and programs or activities of the Grant PUD, regional fishery managers and Indian Tribes, Northwest energy interests or other users of the Columbia River.

Subject Expertise

1. Population dynamics/quantitative ecology
2. Life cycle modeling
3. Hatchery supplementation
4. Population genetics
5. Conservation biology (background in recovery plans)
6. Systems Ecology (e.g., understanding of species dynamics and interactions across their entire range)

Each technical advisor will be a technical expert in a discipline of relevance to the panel and may also be employed by organizations with representation on the Hatchery subcommittee.

Attachments

Disclosure of Personal Involvements form

Reading list and location of documents

Panelist science response form

Expert Panelist Opinion Form

Please provide a short (e.g., <1-2 page) justification for answers to each question.

1. Would an adult-based supplementation program increase the probability of meeting Viable Salmonid Population (VSP) criteria as defined in the Upper Columbia Spring Chinook Salmon and Steelhead Recovery Plan? (Please rank your answer and provide a short description supporting your ranking. Ranking 5 = very sure it would, 4 = somewhat sure it would, 3 = not sure it would, 2 = somewhat sure it would not, 1 = very sure it would not)
2. How, if at all, would an adult-based supplementation program in the White River increase the probability of meeting VSP criteria as defined in the Upper Columbia Spring Chinook Salmon and Steelhead Recovery Plan?
3. What is the optimal hatchery program size for meeting VSP criteria?
4. How many additional natural-origin adults of White River origin would be expected to return to the White River by implementing an adult-based supplementation program in the White River? (Please select from the range of adults below or preferably provide a specific number and provide a short justification supporting your answer. <0, 0, 1-9, 10-49, 50-99, 100-199, >199)
5. Have supplementation programs in the Chiwawa River and Nason Creek contributed to natural-origin abundance in the respective basins? (responses will depend on whether the multigenerational analysis is completed)
6. Is supplementation likely to improve effective population size at the White River spawning aggregate and the Wenatchee River spring Chinook Salmon population (N_e)?
7. What are the potential impacts to other spawning aggregates (e.g., Chiwawa, Nason, and Little Wenatchee) and non-target taxa of concern (e.g., Bull Trout, Sockeye Salmon) associated with a supplementation program that helps meet VSP criteria consistent with the Upper Columbia Spring Chinook Salmon and Steelhead Recovery Plan?
8. Please provide any additional information you believe will be helpful to the PRCC Hatchery Committee.

White River Expert Panel

**BACKGROUND INFORMATION
AND
CONFIDENTIAL CONFLICT OF INTEREST DISCLOSURE**

**Based on the forms of the ISAB/ISRP and
THE NATIONAL ACADEMIES**
Advisers to the Nation on Science, Engineering, and Medicine

NAME:

TELEPHONE:

ADDRESS:

EMAIL ADDRESS:

CURRENT EMPLOYER:

There are two parts to this form, Part I Background Information, and Part II Confidential Conflict of Interest Disclosure. Complete both parts, **sign** and **date** this form on the last page, and return the form to the PRCC Hatchery Subcommittee (PRCC HSC). **Retain a copy for your records.**

PART I BACKGROUND INFORMATION

INSTRUCTIONS

Please provide the information requested below. Information is "relevant" if it is related to -- and might reasonably be of interest to others concerning -- your knowledge, experience, and personal perspectives regarding the subject matter and issues to be addressed by the expert panel for which this form is being prepared. If some or all of the requested information is contained in your curriculum vitae, *you may if you prefer simply attach your CV to this form*, supplemented by additional responses or comments below as necessary.

I. ORGANIZATIONAL AFFILIATIONS. Report your relevant business relationships (as an employee, owner, officer, director, consultant, etc.) and your relevant remunerated or volunteer non-business relationships (e.g., professional organizations, trade associations, public interest or civic groups, etc.).

II. RESEARCH SUPPORT. Report relevant information regarding both public and private sources of research support (other than your present employer), including sources of funding, equipment, facilities, etc.

III. ADDITIONAL INFORMATION. If there are relevant aspects of your background or present circumstances not addressed above that might reasonably be construed by others as affecting your judgment in matters within the assigned task of the committee or panel on which you have been invited to serve, and therefore might constitute an actual or potential source of bias, please describe them briefly.

PART II CONFIDENTIAL CONFLICT OF INTEREST DISCLOSURE

INSTRUCTIONS

It is essential that the work of the expert panel not be compromised by any significant conflict of interest. For this purpose, **the term "conflict of interest" means any financial or other interest that conflicts with the service of the individual because it (1) could significantly impair the individual's objectivity or (2) could create an unfair competitive advantage for any person or organization.** Except for those situations in which the PRCC HSC determines that a conflict of interest is unavoidable and promptly and publicly discloses the conflict of interest.

The term "conflict of interest" means something more than individual bias. There must be an *interest*, ordinarily financial, that could be directly affected by the work of the committee.

The term "conflict of interest" applies only to *current interests*. It does not apply to past interests that have expired, no longer exist, and cannot reasonably affect current behavior. Nor does it apply to possible interests that may arise in the future but do not currently exist, because such future interests are inherently speculative and uncertain. For example, a pending formal or informal application for a particular job is a current interest, but the mere possibility that one might apply for such a job in the future is not a current interest.

The term "conflict of interest" applies not only to the personal interests of the individual but also to the *interests of others* with whom the individual has substantial common financial interests if these interests are relevant to the functions to be performed. Thus, in assessing an individual's potential conflicts of interest, consideration must be given not only to the interests of the individual but also to the interests of the individual's spouse and minor children, the individual's employer, the individual's business partners, and others with whom the individual has substantial common financial interests. Consideration must also be given to the interests of those for whom one is acting in a fiduciary or similar capacity (e.g., being an officer or director of a corporation, whether profit or nonprofit, or serving as a trustee).

Conflicts of Interest Questionnaire for Expert Panel

The following questions are designed to elicit information from you concerning possible conflicts of interest that are relevant to the functions to be performed by the expert panel on which you have been invited to serve.

1. EMPLOYMENT. (a) If you are employed or self-employed, could your current employment or self-employment (or your spouse's current employment or self-employment) be directly affected? (b) To the best of your knowledge, could any financial interests of your (or your spouse's) employer or, if self-employed, your (or your spouse's) clients and/or business partners be directly affected? (c) If you are an officer, director or trustee of any corporation or other legal entity, could the financial interests of that corporation or legal entity be directly affected?

2. RESEARCH FUNDING AND RELATIONSHIPS TO THE PROGRAM (S) BEING EVALUATED. Taking into account your interests (including research interests) and the interests of other individuals with whom you share substantial common financial interests (e.g., spouse, close research colleagues and collaborators, business partners, etc):

(a) Do you or such others receive current *financial support* (e.g., research and/or development grants or contracts, procurement contracts, consulting contracts, other grant support, etc.)?

(b) Do you or such others receive substantial current *non-financial support* (e.g., equipment, facilities, industry partnerships, research assistants and other research personnel, etc.)?

(c) Do you have any research agreements for current or continuing research funding or support related to participating on the expert panel?

3. OTHER INTERESTS.

(a) Do you have any existing professional obligations (e.g., as an officer of a scientific society) that effectively require you to publicly defend a previously established position on an issue that is relevant to the functions to be performed in this committee activity?

(b) Could your service on the panel on which you have been invited to serve create a specific financial or commercial competitive advantage for you or others with whom you have substantial common financial interests?

During your period of service in connection with the activity for which this form is being completed, any changes in the information reported, or any new information, which needs to be reported, should be reported promptly by written or electronic communication to the PRCC HSC.

YOUR SIGNATURE

DATE

Reviewed by:

PRCC HSC

DATE

Action Item: Review reading list, add additional literature, and link each paper to one or more questions (e.g., 3.1, 3.2, etc.).

DRAFT - Reading Content List for Expert Panel

There has been extensive amount of work published about spring Chinook Salmon in the Upper Wenatchee subbasin and the White River to help inform whether to restart a hatchery program. A list of the essential and optional readings to help assess whether to restart a White River hatchery program is provided below. These documents can be found online at ([insert link](#)). We recommend that reviewers read the material in the sequential order suggested below.

Essential Readings (we may need to move readings from essential to optional to provide a reasonable reading load for reviewers. One way to gage effort is to assume 2 minutes to read a page and 1,000 pages = 2,000 minutes or 33.3 hours. Need to weigh the benefit of the information gained from each publication versus the amount of pages that must be read. Also need to order the readings in a logical sequence to orient experts)

Possibly categorize by which questions in the decision framework table it applies to, required vs. optional, as well as what content is most relevant (directions to most relevant information)

Introduction and Overview (288+ pages)

??Pictures and map of the White River (Aerial pictures and maps, screw traps, spawning ground surveys, underwater pictures of habitat and spring Chinook Salmon, Tumwater Dam) (20 pages)

HSC hypothetical description of a White River Hatchery program to inform the panelists assessment (broodstock collection method and abundance, mating strategy, rearing, acclimation, release as smolts, include locations of activities)

NMFS stock status report on UC spring Chinook White River (xx pages)

McClure, M. M., F. M. Utter, C. Baldwin, R. W. Carmichael, P. F. Hassemer, P. J. Howell, P. Spruell, T. D. Cooney, H. A. Schaller, and C. E. Petrosky. 2008. Evolutionary effects of alternative artificial propagation programs: implications for viability of endangered anadromous salmonids. *Evolutionary Applications* ISSN 1752-4571. Blackwell Publishing Ltd 1 (2008) 356–375. doi:10.1111/j.1752-4571.2008.00034.x 20 pages

Bugert, R. M. 1998. Mechanics of supplementation in the Columbia River. *Fisheries* 23 (1):11-20. 10 pages

Independent Scientific Advisory Board (ISAB). 2018. Review of spring Chinook Salmon in the upper Columbia River. 2018-1 (Just read the Executive Summary which is 13 pages. The total report is 259 pages)

Hillman et al. 2024. GPUD hatchery monitoring and evaluation annual report (White River chapter from most recent Hillman et al. 2024) (zz pages)

Pearsons, T. N., 2023. Comprehensive Evaluation of Middle Columbia River Public Utility District's Spring Chinook Salmon Hatchery Programs. Ephrata, Washington. (*chapters to read below in addition to stray chapter publications*)

Pearsons, T. N., T. W. Hillman, P. J. Graf, C. C. Willard, T. H. Kahler, and G. Mackey. 2023. The effects of hatchery supplementation on the abundance and productivity of adult spring Chinook Salmon in the upper Columbia Basin. In Pearsons, T. N., editor, Comprehensive Evaluation of Middle Columbia River Public Utility District's Spring Chinook Salmon Hatchery Programs. Ephrata, Washington. 58 pages

Buchanan, R. A., R. L. Townsend, and G. Mackey. 2023. Investigations into association between proportion of hatchery spawners and juvenile productivity for spring Chinook, summer Chinook, and summer steelhead in the Wenatchee and Methow river basins. In Pearsons, T. N., editor, Comprehensive Evaluation of Middle Columbia River Public Utility District's Spring Chinook Salmon Hatchery Programs. Ephrata, Washington. (ONLY READ CHAPTER - NOT APPENDIX). 40 pages

Mackey, G., T. N. Pearsons, and T. W. Hillman. 2023. The effect of hatchery programs on Proportionate Natural Influence (PNI) in the upper Columbia Basin. In Pearsons, T. N., editor, Comprehensive Evaluation of Middle Columbia River Public Utility District's Spring Chinook Salmon Hatchery Programs. Ephrata, Washington. 20 pages

Graf, P. J., C. C. Willard, T. W. Hillman, T. N. Pearsons, T. H. Kahler, and G. Mackey. 2023. Adult migration timing, spawn timing, and spawning distribution of spring Chinook Salmon and summer Chinook Salmon in the Wenatchee and Methow basins. In Pearsons, T. N., editor, Comprehensive Evaluation of Middle Columbia River Public Utility District's Spring Chinook Salmon Hatchery Programs. Ephrata, Washington. 53 pages

Small, M. P., Todd R. Seamons, S. Brown, A. Loudon, G. McKinney, T. N. Pearsons, and T. H. Kahler. 2023. Evaluating genetic metrics of adult natural- and hatchery-origin Spring Chinook Salmon in the Upper Columbia Basin. In Pearsons, T. N., editor, Comprehensive Evaluation of Middle Columbia River Public Utility District's Spring Chinook Salmon Hatchery Programs. Ephrata, Washington. 44 pages

Graf, P. J., T. W. Hillman, T. H. Kahler, C. C. Willard, and T. N. Pearsons. 2023. The effects of hatchery supplementation on size and age at maturity and fecundity of spring and summer Chinook Salmon in the upper Columbia Basin. In Pearsons, T. N., editor, Comprehensive Evaluation of Middle Columbia River Public Utility District's Spring Chinook Salmon Hatchery Programs. Ephrata, Washington. 42 pages

Mackey, G., and T. W. Hillman. Numbers and sizes of fish released from hatcheries in the upper Columbia Basin. 2023. In Pearsons, T. N., editor, Comprehensive Evaluation of Middle Columbia River Public Utility District's Spring Chinook Salmon Hatchery Programs. Ephrata, Washington. 50 pages

O'Connor, R. R., and T. N. Pearsons. Harvest of Chinook Salmon and steelhead originating from Upper Columbia River hatchery programs. 2023. In Pearsons, T. N., editor, Comprehensive Evaluation of Middle Columbia River Public Utility District's Spring Chinook Salmon Hatchery Programs. Ephrata, Washington. 28 pages

Juvenile freshwater production, life-cycle models, ecological interactions (e.g., Egg to Fry survival, smolt production) (109+ pages)

Johnson, Chris 2024 – Master's thesis egg to fry box publications (pages jj)

Hillman et al. 2024 WR chapter in annual M&E report, screw trap assessment –density dependence (provided above)

Sorel, M. 2022. Informing salmon conservation with population models that account for individual heterogeneity. Ph.D. Dissertation. University of Washington, Seattle, Washington. (140 pages) (*consider just reading chapter 5*)

Jorgensen NMFS model??

GPUD life-cycle model (comparative survivals), Comparative survival by life-stage (.ppt presentation to HSC comparing White, Nason, Chiwawa, and other)

Thompson R. B., and D. F. Tufts. 1967. Predation by Dolly Varden and Northern Squawfish on hatchery-reared sockeye salmon in Lake Wenatchee, Washington. Transactions of the American Fisheries Society 96(4):424-427. (3 pages)

Recent lake wenatchee report by Matt Polacek and D. Beauchamp et al.

Pearsons, T. N., A. R. Murdoch, G. Mackey, K. G. Murdoch, T. W. Hillman, M. R. Cooper, and J. L. Miller. 2012. Ecological risk assessment of multiple hatchery programs in the upper Columbia watershed using Delphi and modeling approaches. Environmental Biology of Fishes 94:87-100. DOI 10.1007/s10641-011-9884-1. (14 pages)

Mackey, G., T. N. Pearsons, M. R. Cooper, K. G. Murdoch, A. R. Murdoch, and T. W. Hillman. 2014. Ecological risk assessment of upper Columbia hatchery programs on non-target taxa of concern. Report produced by the Hatchery Evaluation Technical Team (HETT) for the HCP Wells Hatchery Committee, HCP Rocky Reach Hatchery Committee, HCP Rock Island Hatchery Committee, and the Priest Rapids Hatchery Sub-Committee. Grant County Public Utility District, Ephrata, Washington. (82 pages)

Pearsons, T. N., P. J. Graf, and T. N. Taylor. 2023. Distribution and straying of minijack Chinook Salmon released from a captive broodstock hatchery program. *Transactions of the American Fisheries Society* 152(4): 397-414. DOI:10.1002/tafs.10408

Ford, M, T. N. Pearsons, and A. Murdoch. 2015. The spawning success of early maturing resident hatchery Chinook Salmon in a natural river system. *Transactions of the American Fisheries Society*, 144:3, 539-548, DOI: 10.1080/00028487.2015.1009561 (10 pages)

Adult production, straying, SARs (73+ pages)

Pearsons, T. N., and T. W. Hillman. In preparation. Contribution of a multi-generation captive broodstock hatchery program to recovery of Spring Chinook Salmon. *North American Journal of Fisheries Management*.

Relative reproductive success study report (most recent)

RRS publications, Ford, Murdoch, Hughes

Williamson, K. S., A. R. Murdoch, T. N. Pearsons, E. J. Ward, and M. J. Ford. 2010. Factors influencing the relative fitness of hatchery and wild spring Chinook salmon (*Oncorhynchus tshawytscha*) in the Wenatchee River, Washington, USA. *Canadian Journal of Fisheries and Aquatic Sciences* 67:1840-1851. (12 pages)

Hughes MS, and AR Murdoch. 2017. Spawning habitat of hatchery spring Chinook salmon and possible mechanisms contributing to lower reproductive success. *Transactions of the American Fisheries Society* 146:1016-1027. (12 pages)

Pearsons, T. N. and R. R. O'Connor. 2020. Stray rates of natural-origin Chinook Salmon and Steelhead in the Upper Columbia Watershed. *Transactions of the American Fisheries Society* 149:147–158. DOI: 10.1002/tafs.10220 (12 pages)

Pearsons, T. N. and R. R. O'Connor. 2024. Comparisons of stray rates between hatchery- and natural-origin Chinook Salmon and steelhead in the Upper Columbia Watershed. *North American Journal of Fisheries Management* 44:276-298. DOI: 10.1002/nafm.10988

Pearsons, T. N. and M. D. Miller. 2023. Stray compositions of hatchery-origin Chinook Salmon and steelhead in natural spawning populations of the upper Columbia watershed. *Transactions of the American Fisheries Society* 152:515–529. DOI: 10.1002/tafs.10434

Pearsons, T. N., T. W. Hillman. In preparation. The influence of unintentional supplementation on viability of an endangered Chinook Salmon population. *Transactions of the American Fisheries Society*.

Bowerman, T., M. L. Keefer and C. C. Caudill. 2016. Pacific Salmon Prespawn Mortality: Patterns, Methods, and Study Design Considerations. *Fisheries* 41(12):738-749. (12 pages)

Taylor, T. N., and T. N. Pearsons. 2023. Assessment of collecting White River origin broodstock for a White River spring Chinook Salmon supplementation program in the Wenatchee River basin, Washington State. Grant County Public Utility District. Ephrata, Washington.

Welch D. W., A. D. Porter, and E. L. Rechisky. 2020. A synthesis of the coast-wide decline in survival of West Coast Chinook Salmon (*Oncorhynchus tshawytscha*, Salmonidae). Fish and Fisheries 2020;00:1–18. <https://doi.org/10.1111/faf.12514> (18 pages)

Genetics

A compilation of genetics evaluations about the White River spring Chinook spawning aggregate (e.g., genetics expert panel)

Small et al. Genetic importance of WR since GCFMP (assemble Utter et al. 1995, McClure et al. 2008)

Methods and other (optional)

Jaegar and Scheurell 2023 - bioeconomic analysis of BPA programs

Murdoch, A. R., C. H. Frady, M. S. Hughes, and K. See. 2019. Estimating population size and observation bias for spring Chinook Salmon. Conservation Science and Practice 1:e120.

Murdoch, A. R., T. N. Pearsons, and T. W. Maitland. 2010. Estimating the spawning escapement of hatchery- and natural-origin spring Chinook salmon using redd and carcass data. North American Journal of Fisheries Management 30:361-375. (15 pages)

Murdoch, A. R., T. N. Pearsons, and T. W. Maitland. 2009. The number of redds constructed per female spring Chinook salmon in the Wenatchee River Basin. North American Journal of Fisheries Management 29:441-446. (6 pages)

Murdoch, A. R., T. N. Pearsons, and T. W. Maitland. 2009. Use of carcass recovery data in evaluating the spawning distribution and timing of spring Chinook salmon in the Chiwawa River, Washington. North American Journal of Fisheries Management 29:1206-1213. (8 pages)

Pearsons, T. N. and C. A. Busack. 2012. PCD Risk 1: A tool for assessing and reducing ecological risks of hatchery operations in freshwater. Environmental Biology of Fishes 94:45-65. DOI:10.1007/s10641-011-9926-8. (21 pages)

Pearsons, T. N., and C. W. Hopley. 1999. A practical approach for assessing ecological risks associated with fish stocking programs. Fisheries 24(9):16-23. (8 pages)

Linley, T. J., E. J. Krogstada, M. K. Nimsa, and R. B. Langshaw. (2016). Geochemical signatures in fin rays provide a nonlethal method to distinguish the natal rearing streams of endangered juvenile Chinook Salmon *Oncorhynchus tshawytscha* in the Wenatchee River, Washington. Fisheries Research 181:234-246. (13 pages)

Honea, J. M., J. C. Jorgensen, M. M. McClure, T. D. Cooney, K. Engie, D. M. Holzer, and R. Hilborn. 2009. Evaluating habitat effects on population status: influence of habitat restoration on spring-run Chinook salmon. *Freshwater Biology* 54(7):1576–1592. (17 pages)

Murauskas, J. G., J. K. Fryer, B. Nordlund, and J. L. Miller. 2014. Trapping Effects and Fisheries Research: A Case Study of Sockeye Salmon in the Wenatchee River, USA. *Fisheries* 39(9):408-414. (7 pages)

Other Optional Readings

UCSRB hatchery review??

Habitat description and work in WR??

DRAFT