

Memorandum

To: Wells, Rocky Reach, and Rock Island HCP Hatchery Committees and Priest Rapids Coordinating Committee Hatchery Subcommittee Document Date: April 24, 2024

From: Tracy Hillman, HCP Hatchery Committees Chairman and PRCC Hatchery Subcommittee Facilitator

cc: Natasha Winnacott, Anchor QEA

Re: Minutes of the March 20, 2024, HCP Hatchery Committees and PRCC Hatchery Subcommittee Meetings

The Wells, Rocky Reach (RR), and Rock Island (RI) Hydroelectric Projects Habitat Conservation Plan Hatchery Committees (HCP-HCs) and Priest Rapids Coordinating Committee's Hatchery Subcommittee (PRCC HSC) meetings were held in person at the Douglas PUD Auditorium and virtually on Microsoft Teams on Wednesday, March 20, 2024, from 10:00 a.m. to 4:50 p.m. Attendees are listed in Attachment A to these meeting minutes.

Action Item Summary

Long-term

Joint HCP Hatchery Committees and PRCC Hatchery Subcommittee

- Keely Murdoch and Mike Tonseth will obtain estimates of pre-spawn mortality (PSM) from Andrew Murdoch to update the retrospective analysis for Wenatchee spring Chinook Salmon (Item I-A). *(Note: This item is ongoing; expected completion date to be determined.)*
 - Mike Tonseth will reach out to Kevin See to inquire whether PSM values presented at the Upper Columbia Science Conference can be shared with the Committees.
- Members of the HCP-HCs and PRCC HSC will provide feedback to the Washington Department of Fish and Wildlife (WDFW)-revised version of questions on recalculation for Policy Committees (Item I-A). *(Note: This item is ongoing.)*

Near-Term (to be completed by next meeting)

Joint HCP Hatchery Committees and PRCC Hatchery Subcommittee

- Catherine Willard will research feasibility questions around planning for potential emergency Okanogan Sockeye Salmon broodstock collection, including the following (Item II-F) *(Note: This item is ongoing.):*
 - Flexibility around quarantine requirements for transporting adult fish into Canada.
 - Minimum feasible program size under an emergency scenario.

- The HCP-HCs and PRCC HSC will continue their review of steelhead, summer Chinook Salmon, and fall Chinook Salmon in the 10-Year Comprehensive review and will provide comments by the end of March (Item II-C).
- Keely Murdoch will create a group to review the Wenatchee spring Chinook Salmon sliding-scale Proportionate Natural Influence (PNI) targets using more recent escapement data (Item II-E).

PRCC Hatchery Subcommittee

- PRCC HSC members will consider questions and monitoring approaches to evaluate potential ecological interactions between natural-origin juveniles in Hanford Reach and earlier-released Priest Rapids Hatchery fall Chinook Salmon juveniles in 2025 (Item I-A). *(Note: This item is ongoing.)*

Decision Summary

- HCP-HCs and PRCC HSC representatives present approved the *Upper Columbia River 2024BY Salmon and 2025BY Steelhead Broodstock Collection Protocols* (Item II-B).

Agreements

- RI/RR HCP-HCs and PRCC HSC representatives agreed to allow the early release of Wenatchee summer Chinook Salmon from Dryden Pond due to illness and worsening water-quality conditions (Item II-A).
- The HCP-HCs and PRCC HSC present supported going forward with passive integrated transponder (PIT) tagging Wenatchee steelhead the week of March 25, 2024 (Item IV-A).
- PRCC HSC representatives present agreed to create a separate meeting on Thursday, April 18 at 9:00 a.m. to discuss the White River Spring Chinook Salmon Hatchery Program (Item V-A).
- HCP-HCs and PRCC HSC representatives present agreed to add Jeff Caisman and Rick Alford (YN) to the HCP-HCs and PRCC HSC secondary email distribution list (Item VI-A).

Review Items

- The most recent version of the draft 10-Year Summary Report was distributed on March 22, with comments due to Tracy Hillman by March 31, 2024 (Item II-C).
- The most recent version of the Douglas PUD's proposal to change steelhead size at release targets was distributed on March 13, with comments due to John Rohrback by April 10, for further review in the April 17, 2024, meeting (Item III-A).

- The most recent version of the Chelan PUD's Wenatchee Steelhead Release Plan and the Revised Steelhead Tagging Schedule was distributed on March 21, 2024, with comments due to Catherine Willard by April 5, for approval in the April 17, 2024, meeting (Item IV-A).

Finalized Documents

- The *Upper Columbia River 2024BY Salmon and 2025BY Steelhead Broodstock Collection Protocols* were approved by the HCP-HCs and PRCC HSC on March 20, and the Wells HCP-CC on March 26, 2024. The finalized version was distributed to Committees on March 29, 2024.

I. Welcome

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

Tracy Hillman welcomed the HCP-HCs and PRCC HSC and reviewed the agenda. Hillman asked for any additions or changes to the agenda. Catherine Willard requested to add an agenda item to discuss an early release of Dryden summer Chinook Salmon due to illness.

The revised meeting minutes from February 21, 2024, were reviewed and approved by representatives that attended that meeting.

Action items from the HCP-HCs and PRCC HSC February 21, 2024, meeting were reviewed.

(Note: Italicized text below corresponds to action items from the previous meeting.)

Long-term

Joint HCP Hatchery Committees and PRCC Hatchery Subcommittee

- *Keely Murdoch and Mike Tonseth will obtain estimates of PSM from Andrew Murdoch to update the retrospective analysis for Wenatchee spring Chinook Salmon (Item I-A). (Note: This item is ongoing; expected completion date to be determined.)*
Catherine Willard noted that some data were presented by Kevin See (WDFW) at the Upper Columbia Science Conference based on fish tagged at the Priest Rapids Dam Off-Ladder Adult Fish Trap and asked whether those PSM values could be shared with the Committees. Tonseth said he would inquire whether that data can be shared with the Committees.
- *Members of the HCP-HCs and PRCC HSC will provide feedback to the WDFW-revised version of questions on recalculation for Policy Committees (Item I-A). (Note: This item is ongoing.)*
- *WDFW will keep the HCP-HCs and PRCC HSC updated on implementation of any proposed recommendations for the Wenatchee Program at Eastbank Hatchery, and will bring forward any study plans for future work for Committees review (Item I-A). (Note: This item is ongoing.)*

Near-Term (to be completed by next meeting)

Joint HCP Hatchery Committees and PRCC Hatchery Subcommittee

- *Catherine Willard will research feasibility questions around planning for potential emergency Okanogan Sockeye Salmon broodstock collection, including the following (Item IV-A): (Note: This item is ongoing.)*
 - *Flexibility around quarantine requirements for transporting adult fish into Canada.*
 - *Minimum feasible program size under an emergency scenario.*

Catherine Willard said Chelan PUD has been discussing requirements and potential precedents for transporting adults over the Canadian border in coordination with Okanogan Nation Alliance. That option for transporting adults as the methods for emergency broodstock collection would be most feasible compared to other alternatives considered.

- *Brett Farman will review the National Oceanic and Atmospheric Administration National Marine Fisheries Service (NOAA Fisheries) Biological Opinion (BiOp) for the Wenatchee spring Chinook Salmon programs to support interpretation of language around PNI targets (Item II-E). (Note: This item is complete.)*

This item will be discussed during today's meeting. This item is complete.

- *Rod O'Connor will provide an update to the PRCC on how the PIT-tagging of wild spring Chinook Salmon sub-yearlings inform the Chiwawa and Nason programs (Item I-A). (Note: This item is complete.)*

Rod O'Connor said this information has been included in the Chelan and Grant PUDs' Annual Hatchery Monitoring and Evaluation (M&E) Report. O'Connor walked through location of this information from the 2022 report—in Table 6.21 (page 259). The purpose of the activities was to tag fish and monitor downstream detections to provide more information about outmigrants during the winter period. O'Connor added that for context, other PIT-tagging efforts are summarized in Tables 6.23 and 7.11, which cover annual efforts for adding more PIT-tagged fish in the basin. Appendix M of the annual report has Nason screw-trapping information. This item is complete.

- *The HCP-HCs and PRCC HSC will continue their review of steelhead, summer Chinook Salmon, and fall Chinook Salmon in the 10-Year Comprehensive review (Item II-C).*

This item will be discussed during today's meeting. Hillman anticipates that there will be additional comments after today's meeting.

- *Mike Tonseth will review the power analysis used to determine that 60 males and females is sufficient for stock assessment purposes in the Broodstock Collection Protocols (BCPs; Item II-B).*

(Note: this power analysis¹ was redistributed to the HCP-HCs and PRCC HSC by Kristi Geris on February 22, 2024).

Mike Tonseth found that the power analysis identified a need of 75 fish per origin (150 total) for a sample size that meets that objective, as long all fish collected are being sampled. The Committees may want to revisit these assumptions in the next 5-year review to ensure they are still valid. This item is complete.

- *Mike Tonseth and Brett Farman will review past meeting minutes for the decision about trapping timing protocols in the BCPs (Item II-B): (Note: This item is ongoing.)*

This topic is related to trap timing documented in the BCPs that will be discussed today.

Farman asked whether the interpretation of operating Wells Dam ladders is to operate for 16 hours, 3 days a week, or 48 cumulative hours. He noted that clarifying this does not need to hold up approval of BCPs today. If the weekly collection quotas are structured appropriately, collection for Carlton should be met.

PRCC Hatchery Subcommittee

- *Brett Farman will obtain further clarification about NOAA Fisheries' position on the ecological risks of the proposed change to Priest Rapids Hatchery fall Chinook Salmon release timing, notably whether the permit metric to assess residence time (18 days) is an average (Item I-A). (Note: This item is complete).*

Farman said he confirmed that 18 days is an average, not a specific target. This item is complete.

- *PRCC HSC members will consider questions and monitoring approaches to evaluate potential ecological interactions between natural-origin juveniles in Hanford Reach and earlier-released Priest Rapids Hatchery fall Chinook Salmon juveniles in 2025 (Item I-A). (Note: This item is complete.)*

Rod O'Connor has been compiling a list of ideas, thoughts, and suggestions from one-on-one discussions with PRCC HSC members about any additional analyses Grant PUD could perform to assess ecological risks, and he will follow up in late summer with a presentation of results, including results from 2024. A common theme among members is to compare PIT-tagged hatchery-origin fish released from the Priest Rapids Fish Hatchery with PIT-tagged natural-origin fish collected on the Hanford Reach by Jeff Fryer (CRITFC). There are several years of PIT-tagged natural-origin fish to use in this comparison. These data may be used for calculating travel time and survival estimates.

Keely Murdoch asked how the PIT-tag data could be used to calculate travel time of the natural-origin fish. It is not known where they are in their migration when they are captured

¹ Titled "Power Analysis of Run Composition Data," dated January 30, 2013, provided by Chelan PUD on February 5, 2013.

and initially PIT-tagged; they may be mid-migration. Then, one could collect information on when they pass McNary Dam, but that is not their full travel time. It could be interesting to look for a correlation between survival of natural-origin fish during early hatchery release time period and the time period before the hatchery releases were shifted earlier. O'Connor agreed and said there may be value in looking at the time period in which the hatchery fish overlap with the natural-origin fish.

Farman said that from NOAA Fisheries' perspective, the measure of time the hatchery-origin fish are interacting with wild fish in the reach is independent of how much time it takes for the natural-origin fish to pass through the system, although it is good background information to see whether the natural-origin fish are traveling at the same time as the hatchery-origin fish.

- *PRCC HSC members will review the documents summarizing the White River Spring Chinook Salmon Hatchery Program and provide edits and comments to Todd Pearson by March 8, 2024, for further discussion during the March meeting (Item V-A). (Note: This item is ongoing.)*

This topic will be discussed during today's meeting.

II. Joint HCP-HCs and PRCC HSC

A. Dryden Summer Chinook Salmon Early Release

Catherine Willard informed the RI HC and the PRCC HSC that losses of juvenile summer Chinook Salmon at Dryden Pond have spiked over the weekend. Megan Finley (WDFW Fish Health) said 600 to 700 fish per day are dying due to bacterial kidney disease and fungus, and the fish are starting to smolt. The big concern is a pulse of turbid water is heading downriver and will reach the pond intake today. Once turbid water is in the pond, the fish are susceptible to gill disease, and this will lead to even higher mortality rates. The last time this happened, 12,000 fish died within 2 days. If the water is turbid, fish health cannot treat the fish until the water clears. Fish health and hatchery staff recommended releasing the fish early from the pond rather than holding them and trying to fight the disease in the pond. Finley asked the Committees whether they supported releasing all the fish today. Finley added that the fish have been acclimating at Dryden Pond for 2 to 3 weeks.

Willard asked whether the water quality has been checked today. Denise McCarver (WDFW) said that it has not been checked, but dirty water has been observed at other sites upstream. Finley added that rain is expected in the forecast, so increased turbidity is very likely to occur soon.

Kirk Truscott asked how many fish are in the pond. McCarver said 450,000, and they are losing around 950 fish per day, and this rate is steadily increasing. Truscott asked what the release of 450,000 smolts means for the protection of spring migrants—whether this is likely to trigger an early spill at Rock Island Dam. Willard said potentially yes, the Rock Island Dam Juvenile Fish Sampling Facility is being operated a month early this year to meet the HCP requirement to verify that a

significant component of the juvenile migration is not present outside the normal bypass operation period. Allowing these fish to be released early may result in early spill this year at Rock Island Dam. Truscott said it is a bad situation to have to release fish early, although at least the fish have started to smolt. If releasing these fish triggers a spill at Rock Island Dam, at least it will allow for some passage during spill. Willard said that this would not trigger spill at any of the other projects. Truscott said that these fish are not PIT tagged, so travel time and survival time cannot be estimated. Survival to adulthood will be the only metric to observe with recovery of coded wire tags.

Murdoch said that she is not normally supportive of an early release, but releasing fish into turbid water is not necessarily a bad thing.

Willard said that she wants to make sure that the turbidity will increase before agreeing to the release; the air temperature is predicted to decrease in the next week, and flows are not projected to peak until mid-April. Finley said the turbid water has already been observed, and if they wait to release the fish, it may be too late. Finley asked what other confirmation Willard needs, and Willard answered that a confirmation of today's water quality would be enough.

Mike Tonseth said the fish at Dryden Pond have a history of gill disease, and that it does not take a lot of turbid water to start an outbreak. Mat Maxey said the U.S. Fish and Wildlife Service (USFWS) shares the concern about passage of earlier-released fish through downstream projects.

Tracy Hillman asked RI HCP-HC and PRCC HSC members whether they support an early release. All members agreed to defer to the hatchery and fish health staff, who have the experience on site and support an early release, contingent on confirmation that the water is likely to become more turbid.

McCarver and Finley asked whether they should pull the screen to start a volitional release or push the fish out of the pond (i.e., a forced release). Truscott supported pushing fish out rather than a volitional release so there can be strength in numbers and fish can move into clearer water in the mainstem Columbia water. The Committees agreed to leave the decision to the Dryden Pond staff to decide when fish should be pushed out.

B. DECISION: 2024 Broodstock Collection Protocols

Mike Tonseth said it appears that most comments have been resolved. He identified the most notable change—the operational plan for spring Chinook Salmon trapping at Chiwawa Weir for this year, which was negotiated yesterday morning with USFWS. It is different from previous versions of the BCPs, but not significantly different. The revisions were added to the BCPs by Tonseth and projected in today's meeting. Changes were made to reduce cumulative trapping days from 20 to 15. The weir can operate for two, back-to-back, 12-hour periods, then requires a 24-hour passage phase that allows one night period for Bull Trout passage. Then the weir would be set up again for another

two, 12-hour days. USFWS HC reps can discuss modifying plans with USFWS Ecological Services (ES) after 10 days of trapping if 15 days is not likely to be enough.

Keely Murdoch asked, if they have to reconsult after 10 days, can ES provide an answer within 5 days. Tonseth said yes, that question was asked, and it is the hope that coordination with ES could allow for more trapping days while the spring Chinook Salmon are still available.

Tracy Hillman asked what caused ES to require a change to trapping operations from last year. Tonseth said there was a lack of comfort from ES with what was perceived as inconsistency with the Biological Opinion (BiOp). Hillman asked whether the weir operations in the past negatively affected the Bull Trout population. Tonseth said no, there are no data to indicate whether a migration delay is occurring for Bull Trout. In past years, trapping was occurring on consecutive days, and there was concern that was preventing Bull Trout passage, if they are not passing during the day.

Mat Maxey confirmed that this was a more conservative approach negotiated with ES. ES emphasized approval is strictly for one 1 year. USFWS was not able to make a determination as to whether there was a negative impact on Bull Trout. ES is looking for more data to show that trapping does not negatively affect Bull Trout passage.

Murdoch said her concern is not with the pattern of trapping but with the reduction in the trapping window to only 15 days. This could make it difficult to collect broodstock across the entire run, which is a good hatchery practice. This forces collection of as many fish as possible within a shorter period during the run. Maxey said the analysis had not been completed to show the 20 days had a negative effect on passage time, so the trigger of 10 days was determined to account for enough time to then increase the number of trapping days.

Tonseth said this is still a concern and we will have to re-evaluate what level of success can be achieved after this season and may need to reconsult on the BiOp. Maxey agreed and said if more data can be collected this year, those modifications may be possible for next year, understanding that it is not a closed door with ES; it is a request to collect more data to confirm it is not a net negative for Bull Trout. Hillman asked what additional data are needed? Maxey said the question is around the timing of the Bull Trout movement. USFWS has PIT-tag detection data at the lower Chiwawa River PIT antenna array indicating that Bull Trout move only at night, whereas Chelan PUD's data show fish move through day and night. Tonseth said there are no data to suggest whether delays are occurring, and if they are, whether they are having a negative effect. Both sides are forced to make assumptions based on the data available. ES's position is to be conservative when there is a lack of data. Willard said the difference in Chelan PUD's PIT-tag evaluation of movement at the lower Chiwawa River PIT array and ES's is that Chelan PUD's data only looked at July, when the weir is being operated, versus ES's, which looks at the data through the month of September.

Tonseth said the only approach to assess this would be to install another PIT-tag array immediately upstream of the weir to detect timing of passing Bull Trout.

Tonseth said one of the sideboards is not encountering more than 10% of the rolling average of the total Bull Trout population estimates. He said that in the BCPs, this number has been rounded up from 87.52 fish to 88 fish. Maxey stated that 88 would be over the limit, whereas 87 is the limit because ES rounded down. Brett Farman said NOAA Fisheries would support rounding down to set more conservative limits, and that in accounting to calculate take in other similar permits, NOAA Fisheries also typically rounds down, unless take is calculated to be less than one fish and the take is set at one.

Other edits to the BCPs that were discussed in today's meeting include the following:

- Based on conversations in last month's meeting, Appendix I (Disease Management Plan) has been revised to reflect plans for spring Chinook Salmon only. This will be revisited in the fall to incorporate changes for other species.
- Truscott provided clarifications about collection at Wells Dam of Mid-Columbia PUD's production at Chief Joseph Hatchery.
- Tonseth said the production goal has been increased to 4.5 million from 3.5 million for Priest Rapids fall Chinook Salmon at Ringold Hatchery.

Rohrbach will accept final revisions and provide the latest version for the Wells HCP Coordinating Committee to approve in their meeting next month.

All HCP- HC and PRCC HSC members approved the draft *Upper Columbia River 2024BY Salmon and 2025BY Steelhead Broodstock Collection Protocols* as revised in today's meeting.

C. 10-Year Comprehensive Summary Report – Remaining Species Program Summaries

Tracy Hillman said there are still quite a few comments to address in the report and he is expecting additional comments later this month. He walked through the comments and made changes in the report during the meeting.

John Rohrback reviewed the comments and responses developed between the Yakama Nation (YN) and Douglas PUD on the Methow Safety-Net, Twisp, and Columbia Safety-Net summer steelhead sections.

Hillman will flag comments that are being reserved for preparing M&E Plan recommendations, which will be added later.

Because Matt Cooper had to leave the meeting early, Mat Maxey will review edits made today with Cooper to confirm USFWS agreement.

The group reconfirmed that this is a document that reviews the performance of the PUDs programs, and determination of whether metrics are met should be based on how the objectives are currently written and how the program is currently being operated for a given PUD program. However, in some cases, it is also helpful to give context about the entire spawning population where programs are intertwined (e.g., Methow steelhead, which include the Winthrop National Fish Hatchery (WNFH), and Douglas PUD production, or the Nason spring Chinook salmon, which includes Grant PUD's Nason Conservation and Nason safety-net programs). Keely Murdoch reminded the group which objectives apply to conservation programs only.

Hillman recommended, and all agreed, to retaining language in some cases where results do not go beyond the objectives in the existing M&E Plan but can inform future management and M&E decisions.

The following comments were flagged for future discussion within the HCP Hatchery Committee or as recommendations to be used in an updated M&E Plan:

- Some YN comments retained in the document during the meeting today.
- Methow steelhead proportion of hatchery-origin spawner goals are not met and are currently unachievable with the number of hatchery-origin steelhead released into the Methow River Basin. The Methow Safety Net (MSN) program is a major contributor of hatchery-origin spawners.
- The MSN program cannot be effectively monitored in isolation because MSN fish are indistinguishable from Columbia Safety Net (CSN) steelhead. In order to evaluate the MSN program in the future, the Committee should revisit the mark/tag strategies for the two programs.
- Although proportion of hatchery-origin spawners (pHOS) and PNI metrics apply generally to the Methow River steelhead population, hatchery programs outside of the purview of the Hatchery Committee (e.g., WNFH steelhead programs) also contribute to pHOS, and the Hatchery Committee would like to be able to evaluate the programs it monitors independently. One approach toward accomplishing this would be to establish partial pHOS goals for the safety net programs contributions to overall pHOS within the Methow steelhead population.
- M&E Plan Objective 5.0 indicates comparing migration timing of like-age fish (salt age). This can only be done with fish that were PIT-tagged as juveniles. If this cannot be done, perhaps the objective needs revision.
- Under Objective 2.1, age-0 migrants need to be included in the evaluation of productivity.

- In the Introductory section, YN made some suggested edits to language that was copied from the M&E Plan, which should be adjusted when the plan is addressed.

The HCP- HC and PRCC HSC members agreed that their reviews will be completed by the end of March, allowing for a final agreement on the technical portions of the 10-year summary report during the April meeting.

D. HGMP Updates

No updates were provided at today's meeting.

E. Wenatchee Spring Chinook Salmon Proportionate Natural Influence Targets

Brett Farman indicated that the purpose for this discussion is that the NOAA Fisheries' BiOp for Wenatchee spring Chinook Salmon was written to give targets for the entire population; however, a question has been asked whether it is informative to report PNI at the spawning aggregate scale to show how it rolls up to the population scale, and because that is how the fish are managed in the basin. A question was also asked about whether the proportion of hatchery-origin spawners (pHOS) is a better metric to use to manage Wenatchee spring Chinook Salmon. Farman said that because the discussion is focused on broodstock composition, he feels that pHOS is not the appropriate metric to guide management.

NOAA Fisheries' criteria is a 5-year rolling PNI average, and the question is whether the target has to be met within a given year. In the BiOp, a footnote states that the program goal is based on a long-term trend; the year-to-year measurements are important, but the more important goal is that long-term trend in the 5-year rolling average. Farman confirmed the criterion is the population-level 5-year rolling average of PNI; not the PNI for individual spawning aggregates. Going forward, with existing permits, discussions are needed about what to use on an annual basis because the rolling-average PNI for meeting BiOp criteria is not realized even though the annual targets are met.

Hillman displayed the draft 2023 report showing aggregate PNI in sections of the document where individual programs are discussed and the whole-population PNI to satisfy reporting related to permits and NOAA Fisheries' criteria. Farman said the PNI for the aggregates is informative and allows trends to be observed.

Tonseth said a question remains about PNI in years when the return is low. For low return years, the population is managed for escapement and any PNI is allowed. Should those years be included in the rolling-average PNI (in contrast to years with higher escapements when the returning adults are managed to control PNI)? Including low-escapement years in the PNI calculation can confound the rolling-average PNI value because the population was not managed for PNI in those years.

Keely Murdoch said that if the sliding-scale targets are being met each year, but the PNI goal is not met, the sliding scale needs to be adjusted. If the sliding-scale targets are not being met, the management approach needs to be re-evaluated to determine whether changes need to be made at Tumwater Dam (and other adult management locations). The sliding scale is based on run sizes from many years ago and needs to be re-evaluated to determine whether this is being implemented correctly and whether there is something wrong with the scale that needs to be adjusted. Hillman said the annual sliding-scale target is met in nearly all years, but the rolling 5-year average target is almost never met.

Farman said this discussion should be had during consultation on the future permit. The way this is written in the BiOp is disconnected from the way the population is actually being managed. On an annual basis, the programs are meeting their annual sliding-scale targets but are not meeting the 5-year average target. Farman suggested this should be reworded in the BiOp and how targets should be averaged should be thought through in the next consultation.

Tonseth said there is still a need to ensure that the sliding scale is calibrated to match the management of the program. Hillman said the 5-year rolling average has been trending away from the long-term goal of 0.67. Murdoch said one reason the PNI is trending in the wrong direction is because of such small returns; however, one purpose of the hatchery programs is to maintain a minimum abundance. Farman agreed and said going forward the wording needs adjustment so the long-term target is not so disconnected from the short-term targets.

Hillman asked who will lead the re-evaluation of the sliding-scale targets. Murdoch said she, WDFW, and NOAA Fisheries were involved in the development of the tool. Murdoch will start assembling a small group to re-evaluate the sliding scale.

III. Wells HC

A. Douglas PUD Steelhead Size at Release Targets

Douglas PUD submitted a proposal (Attachment B) to change the size at release for MetCon, MSN, and CSN programs from six fish per pound (fpp) to eight fpp. John Rohrback initiated this discussion after learning about challenges with achieving size targets from hatchery staff.

Rohrback summarized concerns described in the document distributed by Kristi Geris on March 13, 2024 as follows:

- **Achievability of fish size targets:** Fish size targets are often not met within the Methow Conservation (MetCon) steelhead program because of a reduced rearing timeline. Within the MSN and CSN programs, reaching the six fpp target is achievable with a small push of

additional feeding. Within the MetCon program, throughout the rearing cycle, fish are subjected to an intensive feeding regimen which is a suboptimal rearing approach.

- **Migration readiness (rearing a migration-ready steelhead smolt):** Wild Methow steelhead are outmigrating at a smaller size and lower condition factor than hatchery-reared steelhead. The condition factor for MetCon steelhead is quite high at 1.22, which raises concerns about pushing fish toward residualizing and early maturation.
- **Fish health (would a change in size target improve fish health?):** Health concerns include buildup of feed and waste, which requires near constant cleaning, and is a stressor for the fish.

	Is GFPP Target Achievable?	MetCons	MSN/CSN
Achievability		No	Yes, with a small push
Migration Readiness	Will a change in Release size improve the Migration readiness of a release group?	Yes.	Yes.
Fish Health	Will a change in feeding regimen reduce the risk of fish health issues?	Yes	Won't Hurt

Rohrback would like to discuss the proposal with the Wells HC and provide an answer to the hatchery staff by May.

Keely Murdoch asked what the target is for Wenatchee steelhead. Catherine Willard answered that it is 6 fpp and it is rarely met, but they often meet eight fpp. Murdoch asked about the release strategy for Wenatchee steelhead. Willard replied that it is volitional in the Chiwawa River. In addition, some fish are trucked and released in the lower Wenatchee River to minimize interactions with wild fish rearing in the river. Murdoch said this is complicated for steelhead because releasing fish that are too small creates a risk of fish not emigrating. Rohrback agreed and said they do not want to release fish that are too small.

Murdoch asked whether they considered a 2-year smolt program for MetCon. Tom Kahler summarized that in about 2017, there was an interest in addressing the Raiman-Laikre effect and increasing effective population size by splitting the Twisp River release into two components: the yearling and 2-year component. The only facility that is capable of rearing the 2-year component is WNFH. WNFH produces 2-year smolts and Wells Hatchery produces 1-year smolts from the same brood years. Wells Hatchery is not set up to produce the 2-year smolts.

Mike Tonseth asked what diseases have occurred in the steelhead. Rohrback said cold water disease has occurred each year, but that may be water-temperature related. Kahler said they did not know but have concerns that forcing the feed is a stressor. The constant cleaning of the tanks is an issue that Douglas PUD would like to resolve. Fish are refusing to eat and large amounts of feed collect at the bottom of the tank. Tonseth agreed that not having to push feed is better for the fish, but there is no evidence right now that this may make them more susceptible to disease and advised being cautious about inferring a direct correlation. He said anything to decrease stress to fish is a benefit.

Tonseth asked whether some side-by-side comparisons could be done to evaluate in-hatchery metrics and post-release survival. Rohrback said they cannot do that because of hatchery infrastructure limitations. That comparison cannot be made across the CSN and MSN program because of differences in broodstock collection and release strategies confounding the comparison. Tonseth noted that one group is more domesticated than the other and they cannot be easily compared because release locations are different, and this could introduce bias. Rohrback wondered whether enough MSN broodstock could be collected to fulfill the entire MSN and CSN program to eliminate broodstock bias and whether this would help with pHOS and PNI. Tonseth replied that it would influence pHOS and PNI, but questioned whether it is achievable. Tonseth said he is not opposed to making the shift in release size, but just wants to make sure the committee is doing their due diligence. Hillman noted that a pre- and post-treatment comparison could be made. Tonseth responded that that may be difficult with confounding factors like changing ocean conditions.

Rohrback asked for comments no later than April 10, for further discussion in the April 17, 2024, meeting.

IV. RI/RR HC

A. BY2024 to 2026 Wenatchee Steelhead Release Plan

Catherine Willard described the release and evaluation plans for Wenatchee steelhead (Attachment C). Chelan PUD is proposing to evaluate whether overwinter acclimation and direct release of fish to the river results in adequate dispersal of returning adults in the upper Wenatchee Basin compared to fish transported by truck and released to the upper Wenatchee Basin. Secondary objectives are to

evaluate post-release performance of hatchery-by-hatchery safety-net brood versus wild-by-wild conservation brood and juveniles reared in the raceway versus partial water reuse circular vessels. Willard said the plan evaluates what is stated in the 2006 Overwinter Acclimation Statement of Agreement (SOA), which address Objectives 4, 5, and 6 of the M&E Plan. Mike Tonseth said there were two objectives of that SOA; one was to determine whether overwinter acclimation could improve homing fidelity and reduce stray rates, and the other was to determine whether truck planting to the upper Wenatchee Basin would allow for homing fidelity to increase the distribution across the upper Wenatchee Basin. The first objective has been addressed, but this study is designed to evaluate that second objective. Willard noted that there has not been enough data in the past to evaluate the distribution of the fish in the upper basin from truck plants to evaluate this retrospectively.

Keely Murdoch noted that this was mentioned last month during review of steelhead spawner distribution results described in the 10-year Comprehensive Summary Report. Murdoch said the SOA resulted from narrowing in on some potential sites for release; now implementation has happened, and enough time has passed that this is a good time to start evaluating this action.

Tracy Hillman asked whether this release plan needs to be included in the BCPs. Tonseth said the BCPs may require modification regarding how fish are being tagged.

Willard said the plan starts with the 2024 release year juveniles, which have not been tagged yet. Tagging is scheduled to start next week. Willard suggested moving forward with PIT-tagging fish ahead of approval of the release plan and all RR/RI HCP-HC members agreed Chelan PUD should initiate PIT-tagging next week.

Kirk Truscott asked to what extent this plan would result in differing release times or handling and how those differences may affect post-release metrics. He asked whether fish being used to assess metrics like migration timing and post-release survival should be released into rivers at the same time to experience the same river conditions. If there is a 2-week difference in when the different groups are allowed to emigrate, any differing environmental conditions should be considered in the evaluation of emigration metrics. Willard said there are PIT-tagged fish being released that came from different brood origins, and they will be released at the same time. Willard said there is a calendar associated with the document that helps describe this and she is willing to answer additional questions.

All RI/RR HCP-HC members will review and provide comments to Catherine Willard by April 5, 2024, working toward approval of the plan during the April 17 meeting.

V. PRCC HSC

A. White River Spring Chinook Salmon Hatchery Program

Todd Pearsons gave a presentation entitled "White River Hatchery Mitigation Considerations" (Attachment D). He summarized the steps leading to the current need, and his presentation was intended to respond to comments received on Grant PUD's broodstock collection feasibility evaluation. Pearsons summarized comments that need consideration by the PRCC HSC and NOAA Fisheries.

Mike Tonseth said the Section 10 permit and BiOp for Wenatchee spring Chinook Salmon programs expires in July 2026, including the Nason Creek and White River programs, which should be considered throughout the development of these materials. Pearsons agreed and suggested preparing a schedule based on when that information is needed. Requesting a 1-year extension on the current permits from NOAA Fisheries could be an option, although he is not a proponent of that.

Most of today's discussion focused on Question 4, which is to assess the feasibility of collecting sufficient broodstock.

Pearsons said the existing permit limits handling of adults to 33% of the natural-origin population. Tonseth said all fish are allowed to be handled; however, only 33% can be retained. Pearsons said broodstock collection could include collection at Tumwater Dam, or perhaps in the White River, then holding all fish and returning those not used to the river. Farman said the 33% is used in a lot of permits but is not necessarily a NOAA standard; recommendations would depend on conditions under which fish are being held.

Keely Murdoch supported avoiding assumptions about how the program should operate when those have not been discussed yet; avoid limiting the options until the panel has the opportunity to review the data. Pearsons said there is a need to provide some recommendations about broodstock collection to the expert panel to give them some framework to work within, otherwise it will be difficult for the panel to make progress. If NOAA Fisheries has some guidance that would always apply to all programs, the PRCC HSC would want to know that. Murdoch said she understands that position but feels that the questions that should be posed to the panel should be to ask them to tell us what can be done rather than us asking them to review what we think can be done. An example could be to ask them how large the program should be, rather than giving them a number for them to respond to, or, to ask at what point a composite broodstock should be considered rather than limiting ourselves to assuming that compositing should not be allowed. For a small aggregate like the White River, should compositing be implemented before there are too few individuals (e.g., 20, 10, or none)? Pearsons said one of the overarching questions is whether a White River program

increases the viability of the population, and a sub-question is what an optimal size is for the program, both of which require the PRCC HSC to provide some bounds so the panel knows what to work with.

Brett Farman said he is struggling with exploring the details of a program before there is actually agreement that there should be a program. Pearsons agreed this is a difficult position to have to provide information about a program when there is uncertainty about the value of the program or the implementation detail. Murdoch said, as written, this document seems to limit the options. She suggested instead of describing what cannot be done, describe what is possible—for instance, collecting composite broodstock then asking the expert panel whether that is appropriate or not. Pearsons said that is an interesting idea and suggested including a table outlining various approaches and describing the feasibility and whether it could be permissible.

Pearsons said Grant PUD assumed broodstock would be collected at Tumwater Dam and perhaps at a weir in the White River without compositing aggregates. He thought this would be the option supported by the PRCC HSC. Pearsons asked whether NOAA Fisheries could support compositing. Farman said his personal opinion and initial reaction is that it is not the best option because it does not support the goal of recovering the unique spawning aggregate. The recovery goals are set at the population scale, but in this context, where the population aggregate is the focus, it would be hard to defend using fish from other aggregates to supply the program. Murdoch said the compositing could help achieve abundance targets for each of the spawning aggregates but would reduce diversity. When compositing was being discussed for the Nason Creek program with Craig Busack (NOAA Fisheries, retired), meeting abundance targets was considered the initial priority and diversity would be considered in the future. Murdoch said at some point the spawning aggregate abundance will be so low that the unique genetic characteristics would also disappear. Broodstock compositing should start while the unique genetics still exist so the overall population would be better off, as opposed to restarting from a small stock. Farman agreed and said that questions about genetics could be deferred to Craig Busack or Mark Johnson (NOAA Fisheries).

Mat Maxey said they like the idea of a summary table approach and suggested that instead of trying to provide answers to the questions, frame it as a risk matrix to try to inform what risks are associated with each assumption and then evaluate what risks are worth taking. This approach can be applied to each of the comments listed on the slide. The same concept could be used for risk to hatchery versus wild populations, aggregates, or genetic integrity. The process works toward evaluating whether to take the risks of incorporating non-target fish in genetic diversity of White River stock. Pearsons agreed that Grant PUD will explore development of a table to evaluate risks of different broodstock collection alternatives.

Pearsons said that the topic of broodstocking is one of the issues that is a driver of feasibility, so it might take longer than some of the other issues to discuss. He skipped over three slides describing additional comment themes due to a lack of time. Pearsons reminded the PRCC HSC of other documents in preparation.

Murdoch said for life-cycle modeling, there are data available from Mark Sorel's (WDFW) recent study, and at the time the White River guidance was prepared, it was hoped that the NOAA Fisheries life-cycle model for the Wenatchee Basin would be complete. Pearsons said that life-cycle models were one of the areas the PRCC HSC could not come to agreement on previously. Hillman said the NOAA Fisheries' Habitat Assessment and Restoration Planning (HARP) model is a combined habitat and life-history model, whereas Sorel's model primarily focuses on population dynamics and life histories. Jeff Jorgensen (NOAA Fisheries) is modeling out-of-basin effects and linking those to the habitat component of the HARP model. Pearsons asked whether Jorgensen's Wenatchee Basin model is being subsumed into the HARP model, and Hillman confirmed that those scientists are working together on the HARP model. Murdoch said she just wanted to ensure that Grant PUD is making use of existing information. Pearsons said 5 years ago, Grant PUD offered to work on updating their model in order to include new empirical data; perhaps a number of different models or model outputs can be provided to the technical panel.

Murdoch reiterated she has concerns about describing the hypothetical White River program, and she wants to avoid being overly prescriptive about what the program would be in favor of asking the expert panel to tell the PRCC HSC about what would be appropriate in a program. Tonseth said he agrees with providing as few sideboards for the expert panel as possible. Tonseth asked Murdoch whether she would expect the expert panel to recommend a program size that exceeds what Grant PUD's No Net Impact obligations are, and she answered no. Tonseth said that number could be provided as a cap, and Murdoch agreed.

Pearsons suggested some experts might come from outside the region and might need to be informed about the system. Murdoch said experts that have a familiarity with the Columbia Basin should be selected for the panel. Pearsons said the review panel is meant to be independent and that may require selecting people that are not working in the Columbia Basin. Murdoch said her interpretation of independent, similar to the Independent Scientific Review Panel used by Bonneville Power Administration, is not necessarily that they do not work in the Columbia Basin, but that they are independent from the PRCC HSC.

Pearsons reviewed the list of draft tasks for the PRCC HSC to evaluate whether to restart a White River Hatchery program. Hillman said this appears to be a significant work list requiring a large amount of time and suggested the PRCC HSC set up an all-day meet to work through the list. The table that summarizes the work to be done has tasks mainly for Grant PUD and NOAA Fisheries. Tim

Taylor said Grant PUD's task is to bring the feasibility elements and comments into a risk matrix to evaluate the broodstock collection feasibility elements

The PRCC HSC agreed to hold a separate meeting on Thursday, April 18, 2024, that will focus on the White River program. Grant PUD requested that notes be taken on high-level progress and recording options that are shared in the forum. The group agreed to meet in person at the Douglas PUD Auditorium from 9:00 a.m. to approximately 3:00 p.m.

VI. Administration

A. HCP-HCs and PRCC HSC Email Distribution List – Jeff Caisman and Rick Alford (YN)

The YN requested that Jeff Caisman and Rick Alford be added to the secondary HCP-HCs and PRCC HSC email distribution list. All HCP-HC and PRCC HSC members present approved.

B. Next Meetings

The next meetings of the HCP-HCs and PRCC HSC will be held on April 17 and 18, May 15, and June 19, 2024. Meetings are in person and will be held at Douglas PUD Auditorium. The additional PRCC HSC meeting will be held on April 18 at 9:00 a.m. at the Douglas PUD Auditorium.

Brett Farman will not be available for the next meeting (April 17) and will see whether someone else from NOAA can fill in for him.

VII. Attachments

Attachment A List of Attendees

Attachment B Douglas PUD's Steelhead Size at Release Proposal

Attachment C Chelan PUD's Wenatchee Steelhead Release Plan

Attachment D White River Hatchery Mitigation Considerations

Attachment A
List of Meeting Attendees

Name	Organization
Natasha Winnacott ^o	Anchor QEA
Larissa Rohrbach ^o	Anchor QEA
Tracy Hillman	BioAnalysts, Inc.
Ross Renick	Chelan PUD
Catherine Willard*	Chelan PUD
Tom Kahler*	Douglas PUD
John Rohrbach*	Douglas PUD
Betsy Bamberger	Douglas PUD
Rod O'Connor‡	Grant PUD
Deanne Pavlik-Kunkel ^o	Grant PUD
Todd Pearsons ^{±o}	Grant PUD
Tim Taylor	Grant PUD
Alf Haukenes ^o	Washington Department of Fish and Wildlife
Katy Shelby ^o	Washington Department of Fish and Wildlife
Mike Tonseth*‡	Washington Department of Fish and Wildlife
Megan Finley ^o	Washington Department of Fish and Wildlife
Ben Goodman ^o	Washington Department of Fish and Wildlife
Andrew Wilson ^o	Washington Department of Fish and Wildlife
Denise McCarver ^o	Washington Department of Fish and Wildlife
Matt Cooper*‡ ^o	U.S. Fish and Wildlife Service
Charles Frady ^o	U.S. Fish and Wildlife Service
Matthew Maxey ^o	U.S. Fish and Wildlife Service
Brett Farman*‡ ^o	National Marine Fisheries Service
Keely Murdoch*‡	Yakama Nation
Cory Kamphaus*‡ ^o	Yakama Nation
Kirk Truscott*‡ ^o	Confederated Tribes of the Colville Reservation

Notes:

* Denotes HCP-HCs member or alternate

‡ Denotes PRCC HSC member or alternate

^o Joined remotely

Proposal: Douglas County Public Utility District (DCPUD) proposes to change the size at release target of Twisp and Methow River Conservation Release (MetCon), the Methow Safety-Net (MSN), and the Columbia Safety-net (CSN) summer steelhead hatchery programs from six fish per pound (FPP) to eight FPP, beginning with brood year (BY) 2024. DCPUD makes this proposal for the following reasons:

1. Reducing the size at release will ameliorate the intense feeding regime to which the steelhead reared at Wells Hatchery are subjected.

MetCons are the progeny of natural-origin steelhead collected in the Methow River or at the Twisp River weir in the late-winter or early-spring of the brood year. They are spawned at Winthrop National Fish Hatchery (WNFH) in March or April and incubated there until they are transferred to Wells Hatchery as eyed eggs in early-June. They are ponded and receive their first feeding in mid-July and are reared at Wells Hatchery until transfer and release from WNFH the following late-April or early-May. MetCon steelhead must reach the six FPP size at release target in approximately nine months.

MSN and CSN steelhead are the progeny of hatchery-origin steelhead collected in the Methow River or at the Wells Hatchery Volunteer Channel in late-winter or early-spring of the brood year. They are spawned at Wells Hatchery in March or April. They are ponded and receive their first feeding in late-May and are reared at Wells Hatchery until release the following late-April or early-May. MSN and CSN steelhead must reach the six FPP size at release target in approximately 11 months.

At the time that the Habitat Conservation Plan (HCP) was signed and the six FPP size at release target was set, steelhead broodstock for DCPUD mitigation and inundation compensation were collected at Wells Dam from August-October and held at Wells Hatchery until spawn. To expediate sexual maturation and advance spawn timing, steelhead broodstock were treated with gonadotropin. Steelhead were spawned from December-April, and progeny were ponded and received their first feeding from March-May. At the time the HCP was signed, Wells Hatchery steelhead had to reach the six FPP size at release target in approximately 13 months. Generally, this timeline for spawning and rearing was consistent through BY2020.

Because of the shortened rearing period for the MetCon, MSN, and CSN steelhead programs, in an attempt to meet the current size at release target, the fish are subjected to an accelerated growth schedule. Particularly in the MetCon program, Wells Hatchery staff have observed excessive amounts of fish feed at the bottom of fish rearing vessels and report fish that lose a willingness to feed that may be ascribed to a persistent state of satiation. Even so, from BYs 2013-2021 the MetCon program was able to reach the size at release target in only four of nine years. During the same period, the MSN and CSN programs were able to reach the size target in eight of nine years.

Since adoption of the HCP, steelhead broodstock collection methodology and hatchery spawn timing have changed substantially. However, fish rearing targets have not been updated correspondingly. The result is feeding regime for Wells Hatchery steelhead that is necessary to meet relic size at release targets but not representative of best hatchery rearing practices. DCPUD proposes that this be rectified by way of an adjustment to the target size at release.

- 2. DCPUD believes that reducing the size at release will result in more migration-ready smolts.** Prior to release, for BYs 2013-2021, a sample of MetCon and MSN/CSN steelhead were measured for fork length and weight, and condition factor (CF) was derived¹. Similarly, fork length and weight has been recorded for wild juvenile summer steelhead captured and PIT tagged at the Methow Smolt Trap at McFarland Creek Road Bridge². A summary of the data appears in the tables below:

Program	Min. Annual Condition Factor	Max. Annual Condition Factor	Mean Annual Condition Factor	Annual Condition Factor SD
MetCon	1.06	1.37	1.22	0.12
MSN/CSN	0.95	1.24	1.09	0.09
Wild Methow Steelhead	0.94	1.03	0.98	0.03

Program	Mean Fork Length (mm)	Fork Length SD	Mean Weight (g)	Weight SD	Weight target (g)	Proposed Weight Target
MetCon	172	25.0	60.6	26.0	75.6	56.7
MSN/CSN	191	24.0	72.4	27.5	75.6	56.7
Wild Methow Steelhead	158	36.4	43.6	24.1	N/A	N/A

DCPUD asserts that the extreme condition factor values observed in the MetCon program and MSN/CSN programs can be attributed to an accelerated growth schedule and intense feeding regime. Recognizing that differences in size and condition factor between hatchery- and natural-origin smolts is not unexpected, DCPUD nonetheless believes that a moderated feed regime will produce steelhead with condition factors more similar to what is observed in the natural environment, and result in a more migration-ready product. Given the compressed time period in which the fish must be reared, DCPUD believes that the best way to accomplish this is to reduce the size at release target from six to eight FPP.

- 3. Reducing the size at release will increase the likelihood of desirable fish health outcomes.** The risk of stress-mediated and environmentally-induced fish disease increases when an aggressive feeding regimen is utilized to quickly accelerate weight gain in a fish population. More frequent and/or high bodyweight percentage feeding strategies that prioritize maximal fish growth result in the accumulation of excess feed and fish waste in the pond. The resultant decrease in water quality contributes to the presence of fish pathogens known to proliferate in water with high organic loads, including water molds, algae, and Flavobacteria. Low dissolved oxygen levels associated with the aerobic break-down of organic material can also exasperate the respiratory distress of fish subjected to more frequent periods of heightened activity (feedings). The effects of

¹ Data are recorded in table 5.7 of the 2022 Wells Hatchery Complex Annual M&E report.

² PTAGIS Tagging Detail query where species is steelhead, rear type is wild, capture location is Methow River, Mark Data Project is CSS - Comparative Survival Study, tag year is 2013-2023.

suboptimal rearing conditions and chronic stress are immunosuppression (low disease resistance), modified behavioral patterns and, paradoxically, reduced growth.

The adoption of an eight FPP target at release will better allow hatchery staff to gradually and consistently achieve fish size within the DCPUD steelhead programs and more easily avoid complications associated with overfeeding that negatively impact fish health.

Monitoring Outlook and Adaptive Management:

DCPUD makes the proposal to change target size at release with the objectives of improving fish health and condition and reducing the likelihood of precocious maturation in hatchery-origin fish without negatively affecting smolt survival. Steelhead reared by DCPUD are currently monitored in accordance with the 2019 Updated of the Monitoring and Evaluation Plan for PUD Hatchery Programs (M&E Plan).

In-hatchery monitoring metrics noted in the M&E Plan or covered in Monitoring and Evaluation of the Wells Hatchery and Methow Hatchery Programs Annual Reports (M&E Annual Report) that may be influenced by a change in size at release include:

- Size at release (FPP)
- Coefficient of Variation
- Fork length at release
- Condition Factor
- Visual smolt index sampling results
- In-hatchery life stage survival

In-nature monitoring metrics noted in the M&E Plan or covered in the M&E Annual Reports that may be influenced by a change in the size at release include:

- Smolt survival through the hydrosystem
- Outmigration travel time through the hydrosystem
- Smolt-to-Adult return rates

Results of these metrics will be evaluated annually to determine whether there have been measurable and meaningful changes to within-hatchery or post-release performance of DCPUD steelhead after implementation of a size at release target change from six to eight FPP. Consistent with the M&E Plan, size at release and other within hatchery rearing targets will be adaptively managed in response to informative empirical data.

DRAFT Memorandum

Date: March 20, 2024
To: Rock Island and Rocky Reach HCP Hatchery Committees
Re: Wenatchee Steelhead Release Plan (Brood Years 2023 to 2025)

Background

Currently, Chelan PUD is required to produce 235,490 steelhead smolts for release into the Wenatchee River Basin as part of the Rock Island and Rocky Reach HCP requirements. Through the end of February 2024, approximately 181,653 brood year 2023 Wenatchee summer steelhead (108,137 HxH and 73,404 WxW) are on station at the Chiwawa Acclimation Facility (Chiwawa AF).

Beginning with Brood Year 2011, the Chelan PUD Wenatchee River steelhead program was relocated to the Chiwawa AF following significant upgrades to accommodate tributary based overwinter acclimation for the Wenatchee steelhead program. Steelhead are transferred from Eastbank and Chelan Fish Hatcheries to the Chiwawa AF in November and released in April through May by truck planting into the Chiwawa, Nason and Wenatchee rivers. The 2006 Statement of Agreement “Agreement Concerning Location of a Long-term Steelhead Rearing Facility” (May 17th, 2006) states the following:

Statement of Agreement

The Rocky Reach and Rock Island HCP Hatchery Committees agree that further investigation should be conducted to determine whether a long-term steelhead over-winter rearing facility can be retrofitted at the current Chiwawa River rearing pond site using Wenatchee and/or Chiwawa River water. No other sites will be considered and studied unless it is determined by the committee that the Chiwawa site cannot accommodate the long-term over-winter acclimation facilities. However, expansion of the Chiwawa River rearing pond site to accommodate over-winter acclimation for steelhead does not preclude the development of satellite acclimation facilities in tributary locations for spring acclimation if it is later determined necessary by the HCP HC.

Background

...If evaluations later determine that over-winter acclimation on Wenatchee River water with a direct release via truck to tributary locations (ex: Nason Creek) does not result in adequate dispersal of returning adults within the Wenatchee Basin, a satellite facility(s) for spring (short term) acclimation in tributary locations will be considered...

2024-2026 Release Year Strategy Objective

The primary objective:

- Evaluate if over-winter acclimation at the Chiwawa AF of the Wenatchee steelhead program and subsequent direct released into Nason Creek, Chiwawa River and the upper Wenatchee River via truck planting results in adequate dispersal of returning adults within the Wenatchee Sub-basin to the three release locations.
- Evaluate if the screened “non-movers”¹ over-winter acclimated at the Chiwawa AF and released into the lower Wenatchee River return to tributaries below Tumwater.
- Utilize data collected from the 2024-2026 Wenatchee River Steelhead releases to assess applicable monitoring and evaluation objectives (i.e., Objectives 4, 5 and 6) for the Wenatchee River summer steelhead hatchery program (Hillman et al. 2019).

Secondary objectives:

- Evaluate post-release performance (e.g. travel/residency time, smolt outmigration survival, smolt-to-adult survival) of juveniles of HxH safety-net program brood crosses and WxW conservation program brood crosses.
- Evaluate post-release performance (e.g. travel/residency time, smolt outmigration survival, smolt-to-adult survival) of juveniles reared in a traditional flow through raceway (RCY) and partial water reuse circular vessels (RAS).

Methods

All PIT tagging will follow methods described in Keller and Murauskas (2012). Fish located in the three RAS vessels will be PIT tagged with 5,000 PIT tags per the three release locations and released the week of April 22nd. The gate between RCY 2 and RCY 1 will be opened to “screen” fish and separate “movers” and “non-movers” after the Chiwawa spring Chinook Salmon program is released the week of April 15th. “Movers” will be PIT tagged and located into the three RAS vessels with 5,000 PIT tags (2,500 HxH and 2,500 WxW) per the three release locations. “Non-movers” will be PIT tagged (n=5,000) following the PIT tagging of the “movers”. All “movers” and “non-movers” will be released by May 10th (see Attachment A for a detailed schedule).

During PIT tagging, smolt index (i.e., categorizing juveniles as parr, transitional, smolt, or mature), length data (100% of PIT tagged fish) and weight data (a minimum of 10% of PIT-tagged fish) will be collected. Each release site will receive approximately 10,000 PIT tagged fish ((statistical power $1 - \beta = 0.80$; $\alpha = 0.10$, two-tailed) (Skalski 2018)) to evaluate dispersal of returning adults within the upper Wenatchee Sub-basin (Table 1). Cormack-Jolly-Seber survival probabilities to the mouth of the Wenatchee and to McNary Dam will be calculated for each PIT-tagged release group using recaptures of PIT tagged fish to evaluate juvenile outmigration survival, in addition to calculating travel time. Smolt-to-adult survival probabilities of PIT tagged adults returning to Bonneville Dam will be calculated for each PIT tag release group. Homing fidelity to the release tributary will be evaluated using last known PIT tag detections of adult returns. Among-population stray rates will be estimated using PIT tags. The percentage of PIT tagged fish detected in the Wenatchee sub-basin after July 1 of the year of release will be calculated to estimate potential residualism for each release group as required by Permit.

To ensure the PIT tagged fish represent the non-PIT tagged fish, non-PIT tagged “movers” will be evenly distributed among the above-Tumwater release locations. Both PIT tagged and non-PIT tagged “non-movers” will be released in the lower Wenatchee River (Table 2).

Table 1. PIT tag release sites.

Release Site	Rearing Vessel	Brood Origin	PIT Tags/Treatment	Total PIT Tags/Release Location
Nason Creek	RAS	WxW	5,000	10,000
	RCY	HxH	2,500	
	RCY	WxW	2,500	
Chiwawa River	RAS	WxW	5,000	10,000
	RCY	HxH	2,500	
	RCY	WxW	2,500	
Upper Wenatchee River	RAS	WxW	5,000	10,000
	RCY	HxH	2,500	
	RCY	WxW	2,500	

Table 2. Steelhead release numbers and locations, 2024.

Release Location	RKM	Origin ¹	Rearing Vessel	Estimated # PIT tagged	Estimated # Non-PIT tagged
Nason	7.0	Mixed (movers)	RCY1	5,000 ²	TBD
	7.0	WxW	RAS	5,000	3,333
	Sub-total			10,000	TBD
Chiwawa	11.4	Mixed (movers)	RCY1	5,000 ²	TBD
	11.4	WxW	RAS	5,000	3,333
	Sub-total			10,000	TBD
Upper Wenatchee	79.2	Mixed (movers)	RCY1	5,000 ²	TBD
	79.2	WxW	RAS	5,000	3,333
	Sub-total			10,000	TBD
Lower Wenatchee	40.2	Mixed (non-movers)	RCY2	5,000	TBD
Total				35,000	

¹Mixed = HxH and WxW.

²5,000=2,500 HxH and 2,500 WxW

Schedule

See Attachment A.

REFERENCES

Hillman, T., T. Kahler, G. Mackey, A. Murdoch, K. Murdoch, T. Pearsons, M. Tonseth and C. Willard. 2019. Monitoring and evaluation plan for PUD Hatchery Programs, 2019 update. Report to the HCP and PRCC Hatchery Committees, Wenatchee, WA.

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Skalski, J. R. 2018. Precision and power calculations for a Chiwawa steelhead smolt experiment. Columbia Basin Research, School of Aquatic and Fishery Science, University of Washington. February 16, 2018.

White River Hatchery Mitigation Considerations

PRCC HSC 3/20/2024

Presented by GPUD

Timeline and background

- Captive Broodstock Program (1997-2015)
- NMFS Biological Opinion (2008)
- Policy Group SOA 2013-01 (BY 2013-2026; Approved 2/8/2013)
- Folded mitigation production into Nason supplementation program (about 2015 to present release)
- HSC develops draft framework (original report to PRCC in February 2016, revised draft memo to PRCC 12/21/2018)
- Tracy reviewed status of completion of SOA 2013-01 and next steps during HSC meeting (1/17/2024)
- Decision about restarting a White River Hatchery Program (by 2026)

SOA 2013-01 (7th point)

7) 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.

A portion of the draft memo table (12/21/2018)

Table 1: White River Questions and Data

Box #	A. Key Question	B. Sub-Questions	C. Data Needs	D. Data Sources	E. Work Needed	F. Staff or funding source
1	Is the Wenatchee spring Chinook population meeting VSP criteria (abundance, productivity, spatial structure, and diversity) in 2025?		VSP criteria	<ul style="list-style-type: none"> NMFS Stock Status Report updated every 5 years¹ GPUD M&E report RRS?² 	Compete and Review reports	NMFS staff work
2	Is the White River spawning aggregate necessary to the Wenatchee spring Chinook population in regards to meeting VSP criteria?		White River VSP data relative to Wenatchee spring Chinook VSP population data	<ul style="list-style-type: none"> NMFS Stock Status Report updated every 5 years 	[This will be a NMFS interpretation of how the White River spawning aggregate contributes to VSP criteria and recovery]	NMFS staff work
3	<p>a. How, if at all, would an adult-based supplementation program in the White River increase the probability of meeting VSP criteria?</p> <p>b. What is the optimal program size for meeting VSP criteria?</p>	<p>3.1 What is the available capacity, limiting life-stage, and limiting factor in the White River? What is the trend?</p>	<ul style="list-style-type: none"> Spawning capacity Rearing capacity Other life stage capacity Limiting life stage Limiting factor 	<ul style="list-style-type: none"> GPUD hatchery M&E report Screw trap report Egg-fry survival work Life Cycle Model³ 	Continue planned field work and reporting; Spawning habitat capacity surveys	<p>GPUD</p> <p><i>Note: Other potential funders for work not conducted by GPUD (e.g., spawning habitat capacity): BPA UCSRB NMFS WDFW NNI</i></p>
		<p>3.2 How many additional NO adults could reasonably be expected by operating an adult-</p>	<ul style="list-style-type: none"> Capacity estimates SAR estimates 	Capacity estimates from row above, life	Develop model using capacity &	GPUD staff

Ability to collect sufficient broodstock

4	Is there ability to collect sufficient broodstock?		Abundance of spring Chinook by spawning aggregate at Tumwater Dam	• GPUD M&E reports	Assemble data and conduct modeling	GPUD staff work
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GPUD documents for HSC review

Topic	Sent to HSC for Review	Completed
Captive broodstock program evaluation	11/22/2023	
Genetic differentiation and NMFS response to HSC questions	12/26/2023	
Broodstock feasibility	12/26/2023	
Life-cycle model (GPUD)	Not yet	
Carrying capacity and density dependence	Not yet	
Contributions of strays to natural production	Not yet	
Maps and photographs of the White River and relevant sites	Not yet	
** Other documents produced by others needed (e.g., RRS, other modeling, etc.)		

Comments received and need for clarification

- CTCR, YN, USFWS provided comments
- Comments represented diverse perspectives from supporting to not supporting conclusions
- GPUD needs clarification and guidance before we can respond to some of the comments
- We have identified those comments for discussion in the next slides
- We hope to provide responses to comments by the next HSC meeting if we can resolve uncertainties associated with comments

Comments received – and need for guidance from NMFS and HSC

1. Current permit limitations shouldn't limit our review [*of broodstock collection targets—limits NO-fish handling to $\leq 33\%$; Would higher levels of handling than current levels be permitted by NMFS?*].
2. To composite or not to composite [*document assumed WR broodstock only; Is compositing permissible by NMFS and supported by the HSC?*].
3. Zero-tolerance for other fish to be included in broodstock? [*document assumes WR broodstock only; Would inclusion of other spawning aggregates be permissible by NMFS and supported by HSC?*]
4. Successful conservation program with 25% non-target influence? [*What is the maximum level of genetic assignment error that would be supported?*].
5. White River population estimates at Tumwater would increase if we accept a greater assignment error (What error rates are acceptable?)
6. Considerations of effective population size [*no discussion; outside the scope*].
7. How low does the WR population need to go before it's no longer considered viable? [*not directly addressed in document; outside of scope*].

Comments received – additional discussion

1. Use weirs and no longer use Tumwater Dam to collect brood?
(Should we no longer include the possibility of using Tumwater Dam to collect broodstock?)
2. Eastbank pond dividers and considerations to non-target, ponded group
(Does the HSC support using dividers to segregate groups of possible broodstock?)
3. Pound nets *(As discussed during the February 2024 HSC meeting, GPUD will work with Kirk to develop some text to include this possibility)*

Comment received - Expert panel scope

- Include a weir expert on expert panel ((What can we reasonably expect/task an expert panel to do? (e.g., weir design?))
- See questions in HSC framework memo that expert panel is tasked to answer
- Need for focused scope in order to address the most important technical questions that can be answered without in depth local knowledge
- Others comments we missed that should be discussed by HSC??

Draft strawman assumptions for White River Hatchery Program (type of information needed to assess risks and evaluate potential)

- Broodstock: Target sufficient number (xx) of White River origin spring Chinook adults at Tumwater Dam, hold at Eastbank Hatchery, distinguish broodstock genetically, Return unneeded fish above Tumwater, and keep impacts to non-targets within acceptable levels
- Mating: Factorial crosses
- Incubation and production: 75,000 smolts at Eastbank Hatchery with a release size of 18-22 fpp
- Acclimation: Acclimate in stream tanks during the spring at GPUD owned property on the White River

Other documents GPUD staff is preparing for HSC review

- White River life-cycle model
- Density-dependence and carrying capacity in the White River
- Contribution of strays to natural production
- Pictures and maps of the White River

HSC work items (partial list)

- 1) Review and assemble reports developed by GPUD and others
- 2) Determine whether NMFS has sufficiently addressed questions 1 and 2 in their email response to HSC questions
- 3) Develop description of hypothetical White River hatchery program
- 4) Review draft White River framework memo
- 5) Develop schedule for completing process
- 6) Determine the need for assembling an expert panel
- 7) Develop charge, process, and work elements for expert panel
- 8) Develop content list and assemble documents for expert panel
- 9) Develop qualifications, candidates, and select experts for expert panel (1 year clock starts)
- 10) Use technical panel findings to inform decision about the White River hatchery program by 2026
- 11) Make decision about whether to restart a White River hatchery program

Discussion, questions, and next steps

- Develop schedule for completing HSC tasks?
- Assignments?