

## Memorandum

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To: Wells, Rocky Reach, and Rock Island HCP Hatchery Committees, and Priest Rapids Coordinating Committee Hatchery Subcommittee Date: November 17, 2021

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

cc: Larissa Rohrbach, Anchor QEA, LLC

**Re: Final Minutes of the October 20, 2021, HCP Hatchery Committees and PRCC Hatchery Subcommittee Meetings**

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The Wells, Rocky Reach, and Rock Island Hydroelectric Projects Habitat Conservation Plan Hatchery Committees (HCP-HCs) and Priest Rapids Coordinating Committee's Hatchery Subcommittee (PRCC HSC) meetings were held by conference call and web-share on Wednesday, October 20, 2021, from 9:00 a.m. to 4:00 p.m. Attendees are listed in Attachment A to these meeting minutes.

### Action Item Summary

#### Joint HCP-HCs and PRCC HSC

##### *Long-Term*

- Mike Tonseth will distribute the analysis showing feasibility of the Methow Spring Chinook Salmon Outplanting plan based on historical run size data (Item I-A). *(Note: This item is ongoing; expected completion by November.)*
- Kirk Truscott will work with Colville Confederated Tribe (CCT) staff to develop a model that addresses the probability of encountering natural-origin Okanogan River spring Chinook salmon at Wells Dam (Item I-A). *(Note: This item is ongoing; expected completion date to be determined.)*
- Kirk Truscott will determine the number of scales that should be collected from spring Chinook salmon at Wells Dam for elemental signature analysis to discern Okanogan River spring Chinook salmon from Methow River spring Chinook salmon (Item I-A). *(Note: This item is ongoing; completion depends on the outcome of the previous action item.)*
- 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 and Greg Mackey will solicit input from hatchery managers on effective methods to count surplus fish (Item I-A). *(Note: This item is ongoing; expected completion by November.)*

### *Near-term (to be completed by next meeting)*

- Larissa Rohrbach will file and distribute *10-year Comprehensive Review* chapters and comments to the Committees for review as they are completed (Item I-A). (Note: This item is ongoing.)
- Greg Mackey will distribute a summary table showing steelhead reallocated among programs at Wells Hatchery (Item IV-A).
- Todd Pearsons and Catherine Willard will revise Grant and Chelan PUD's draft Statements of Agreement (SOAs) on Sockeye Salmon Obligation for approval in the November meeting (Item IV-B). (Note: This item is ongoing.)
- Kirk Truscott will develop language for the *Priest Rapids Coordinating Committee's Hatchery Subcommittee Statement of Agreement Regarding Grant PUD's Sockeye Salmon Obligation* on assessing feasibility and implementation of alternative plans in years when environmental conditions are prohibitive for broodstock collection activities (Item IV-B).
- Catherine Willard will convene a meeting among the PUDs to respond to the Joint Fisheries Parties' (JFP's) proposed approach for calculating smolt-to-adult (SAR) returns for use in the Biological Assessment and Management Plan (BAMP) calculation (Item IV-C).

### Rock Island/Rocky Reach HCP-HCs

- None.

### Wells HCP-HC

- None.

### PRCC HSC

- None.

## Decision Summary

- None.

## Agreements

- The Rock Island and Rocky Reach HCP-HCs provided approval by email on September 20, 2021, to allow steelhead broodstock trapping for 24 hours, 7 days per week, at Tumwater Dam, for the remainder of September (Attachment B).
- The Wells HCP-HC approved the reallocation of juvenile steelhead—among Methow Safety-Net, Columbia Safety-Net (CSN), and Okanogan programs—reared at Wells Hatchery to meet program targets and reduce numbers in excess of 110% of targets.

## Review Items

- The *Draft Priest Rapids Hatchery Monitoring and Evaluation Annual Report for 2020–2021* was distributed by Larissa Rohrbach on October 21, 2021, for 30-day review, with comments and edits due to Todd Pearsons by Monday, November 22, 2021.
- The *Draft 2022 Wells Complex M&E Implementation Plan* was distributed by Larissa Rohrbach on November 4, 2021, for 30-day review with comments and edits due to Greg Mackey by Friday December 3, 2021.
- The *10-year Comprehensive Review* chapters on Objective 7 (genetics) and Objective 9 (hatchery releases) were distributed by Larissa Rohrbach with an updated review schedule on October 21 and 27, 2021.

## Finalized Documents

- None.

## I. Welcome

### A. Agenda, Announcements, Approve Past Meeting Minutes, Last Meeting's Action Items

Tracy Hillman welcomed the HCP-HCs and PRCC HSC and read the list of attendees (Attachment A). The meeting was held via conference call and web-share because of travel and group meeting restrictions resulting from the coronavirus disease 2019 (COVID-19) pandemic. Hillman reviewed the agenda and asked for any changes to the agenda.

Greg Mackey added an item for the Joint HCP-HC and PRCC HSC discussion and agreement on the reallocation of juvenile steelhead among programs at Wells Hatchery.

All HCP-HCs and PRCC HSC representatives approved the revised agenda.

Revised minutes from the August 31, 2021, and September 15, 2021, meetings were reviewed. Members of the HCP-HCs and PRCC HSC that were present at those meetings approved the minutes (Keely Murdoch approved for the Yakama Nation (YN) via email to Larissa Rohrbach on October 25, 2021). No U.S. Fish and Wildlife Service (USFWS) representatives attended the September 15 meeting and, therefore, abstained from approving those minutes.

Extended discussions resulted from responses to comments in the August 31, 2021, meeting, as follows:

- Todd Pearsons asked how steelhead were marked to estimate the SARs used in the last recalculation effort. Keely Murdoch said elastomer tags were used at that time. Todd asked if the use of elastomer tags resulted in calculating SARs back to the hatchery. Murdoch

recommended looking at annual reports from that time to confirm. Keely commented that as we discuss SARs, we should clarify that the "hatchery SAR" is a calculated hatchery survival rate from all coded wire tag (CWT) recoveries (which may be recovered from harvest, spawning, or any other point).

- Tracy Hillman had made the point in last month's meeting that if there are biases in the passive integrated transponder (PIT)-tag data used for SAR, those biases should be noted in the annual reports. This is important, especially if people outside of the Mid-Columbia programs use data from the annual reports. Keely Murdoch responded that biases may be different among the different metrics; in some cases, PIT tags may be the best approach, in other cases CWTs may be the best approach.

### *Action Items*

Action items from the HCP-HCs and PRCC HSC meeting on September 15, 2021, were reviewed and discussed (*Note: Italicized text below corresponds to action items from the previous meeting.*)

### **Joint HCP-HCs and PRCC HSC**

#### *Long-Term*

- *Mike Tonseth will distribute the analysis showing feasibility of the Methow Spring Chinook Salmon Outplanting plan based on historical run size data. (Note: This item is ongoing; expected completion by November.)*
- *Kirk Truscott will work with CCT staff to develop a model that addresses the probability of encountering natural-origin Okanogan River spring Chinook salmon at Wells Dam. (Note: This item is ongoing; expected completion to be determined.)*
- *Kirk Truscott will determine the number of scales that should be collected from spring Chinook salmon at Wells Dam for elemental signature analysis to discern Okanogan River spring Chinook salmon from Methow River spring Chinook salmon. (Note: This item is ongoing; completion depends on the outcome of the previous action item.)*
- *Keely Murdoch and Mike Tonseth will obtain estimates of PSM from Andrew Murdoch to update the retrospective analysis for Wenatchee spring Chinook salmon. (Note: expected completion to be determined.)*
- *Mike Tonseth and Greg Mackey will solicit input from hatchery managers on effective methods to count surplus fish. (Note: This item is ongoing; expected completion by November.)*

#### *Near-Term (to be completed by next meeting)*

- *Larissa Rohrbach will file and distribute 10-year Comprehensive Review chapters and comments to the Committees for review as they are completed.*  
This item is ongoing.

- *Grant PUD and Chelan PUD will distribute a final version of their responses to YN comments on the draft SOA on Sockeye Salmon Obligation.*  
Responses to the YN comments were provided by Grant PUD and distributed by Larissa Rohrbach on October 12, 2021. This item is complete.
- *Todd Pearsons and Catherine Willard will revise Grant and Chelan PUD's draft SOA on Sockeye Salmon Obligation for approval in the September or October meeting.*  
The revised SOA was provided by Grant PUD and distributed by Larissa Rohrbach on October 8, 2021. This item is complete.
- *Mike Tonseth will finalize a summary and convene the JFPs to seek agreement on an approach for calculating natural-origin return (NOR) and SAR return rates for use in the BAMP calculation. Tonseth will inform Tracy Hillman of progress within the JFPs and any need for an additional conference call among the HCP-HCs and PRCC HSC.*  
This item will be discussed in today's meeting. This item is complete.
- *Tracy Hillman will seek agreement from USFWS representatives on moving forward to calculate steelhead mitigation obligations using PIT-tag-based estimates of SAR returns in the BAMP calculation.*  
Hillman obtained approval from USFWS by email on September 29, 2021. This item is complete.

### Rock Island/Rocky Reach HCP-HCs

- *Catherine Willard will prepare for the Rocky Reach Fish Forum and USFWS biologists a written summary of past modifications to Tumwater Dam fish trapping operations to protect lamprey and the proposed change to allow trapping at night to capture additional steelhead broodstock, with a summary of steelhead and lamprey counts to date. The summary will be distributed for Rock Island/Rocky Reach HCP-HC approval of the change in operation no later than September 20, 2021.*  
Willard provided the summary for the Rocky Reach Fish Forum and obtained approval by email on September 20, 2021, from the Rock Island and Rocky Reach HCP-HCs to modify trapping for the remainder of September. This item is complete.

## II. Rock Island/Rocky Reach HC

### A. Chelan PUD's 2022 Hatchery Monitoring and Evaluation Implementation Plan

Catherine Willard reminded the Rocky Reach and Rock Island HCP-HC that the 2022 Monitoring and Evaluation (M&E) Implementation Plan had been distributed just prior to last month's meeting on September 14, 2021. Chelan PUD will push out approval of the M&E Plan to a later meeting until it is understood what data are needed, particularly data used for hatchery production recalculation. For example, there needs to be a decision regarding whether or not to include hatchery PIT-tagging of

Wenatchee and Chelan Falls summer Chinook salmon because, other than using these data for recalculation, there are no other needs for these data.

Matt Cooper asked about the method for assessment of precocious maturation for Chelan Falls summer Chinook salmon. The plan states that a visual assessment will be performed to observe running milt in April prior to release. Cooper asked if the visual assessment is adequate in April. In USFWS assessments of spring Chinook salmon, there are fish that are not yet running, but show enlarged testes (high gonadosomatic index) when lethally dissected and would not have been identified by that nonlethal sampling method. Willard noted that when they carried out gonadosomatic index sampling for detecting precocious males in the past, their results were very similar between lethal and nonlethal sampling in both Wenatchee and Chelan Falls summer Chinook salmon, and in Chelan PUD's permits, the National Oceanic Atmospheric Administration agreed and approved the nonlethal method of sampling.

### III. Wells HC

#### A. Douglas PUD's 2022 Wells Complex Monitoring and Evaluation Implementation Plan

Greg Mackey said a draft of Douglas PUD's 2022 Wells Complex M&E Implementation Plan is ready for his review, and he will ask Chelan PUD and Grant PUD to review it as well. Douglas PUD will strive to finalize the draft plan for approval in December.

### IV. Joint HCP-HCs and PRCC HSC

#### A. Reallocation of Juvenile Steelhead at Wells Hatchery

Greg Mackey said an unusual juvenile steelhead mortality event occurred in the Methow Safety-Net (MSN) Program at Wells Hatchery. Several years ago, the large dirt ponds at Wells Hatchery were relined and, in the process, two out of three ponds were split into upper and lower halves. MSN steelhead were being marked and transferred into dirt pond 4B, which was completed a week ago Friday. The pond is drawn down to facilitate transfer of fish during marking and tagging, and dam boards are stacked in C-channels in the outlet, with a screen on top to prevent fish from escaping. The dam boards are slightly shorter than the width of the C-channel, to allow them to slide in and out of the channel. Over the weekend, the fish appeared fine; however, on Monday morning it was discovered that fish escaped into the release structure, which is a raceway where fish can be pumped out for trucking or released to the river. That structure was not in use, so there was no water in it. Staff counted 23,711 mortalities that were trapped in a few inches of water and apparently suffocated. A couple of the dam boards were pushed slightly to one side—with a space between the edge of the boards and the C-channel—creating a small hole. The hole was approximately 1 inch wide, potentially creating a siphon along the edge of the dam boards within the C-channel. There

were 100,000 fish in the pond, and over a quarter of them escaped, which is surprising for such a small hole. Hatchery staff suspect a predator may have pushed the fish toward the outlet, though this is just conjecture.

Mackey requested approval to reallocate juvenile steelhead among the programs rearing at Wells Hatcher—to make up for losses to the MSN program—and reviewed the numbers of fish in each program (Table 1). Kirk Truscott asked if these numbers are fish currently on station or projected numbers at the time of release. Mackey confirmed that these are numbers projected at release.

The Okanogan program is well over 110% of target production. Mackey proposed shifting approximately 15,000 fish from the CSN to the MSN because they have similar broodstock; Okanogan program broodstock are collected in the Okanogan River, though they are essentially Wells Hatchery stock. This would increase the number of MSN fish to approximately 100,000 fish. Then, 15,000 fish would be shifted from the Okanogan program—still maintaining production above 100% of its production target—into CSN, in order to keep the program at approximately 175,000 fish. This would keep the total of all juvenile steelhead programs at 104% of targets. Fish marking for the MSN and CSN are the same with adipose clips only. A subset of Okanogan program fish is also marked with adipose clips but have been kept separate to facilitate doing this reallocation. No changes would be made to the Twisp and Methow Conservation programs or the Okanogan wild-by-wild (WxW) program.

**Table 1. Number of juvenile steelhead per program before and after reallocation**

Program	Target	Action	Adjusted Number	% of Target
Okanogan HxH	100,000	Transfer 15,000 HxH to CSN	78,181	103%
Okanogan WxW		None	24,905	
Total Okanogan			103,086	
Columbia Safety-Net	160,000	Receive 15,000 HxH from Okanogan Program; Transfer 15,000 to MSN	174,933	109%
Methow Safety-Net	100,000	Receive 15,000 from CSN	101,289	101%

Notes:

HxH: hatchery-by-hatchery

Mackey noted that fewer fish could be moved out of the Okanogan program, but that moving 7,000 fish would keep that program at 110% of the target. (Note: A subsequent discussion with Truscott and Douglas PUD regarding steelhead rearing capacity resulted in the proposed allocation in Table 1.) The main goal is to make up the MSN loss and avoid an overage requiring them to move fish off-station.

Truscott asked if the 7,000 fish from the Okanogan program are hatchery-by-hatchery (HxH) origin. Mackey confirmed yes, with the rationale that the majority of those fish originate from Wells Hatchery. The MSN are only one generation removed from the CSN program. This more complicated approach was devised to attempt to maintain the separation between Okanogan HxH and MSN program fish. Truscott asked that Mackey revise his table to indicate the proportion of the Okanogan program that are HxH origin and wild-by-wild origin, to better track the numbers remaining in those programs.

Truscott agreed that this solves two problems: 1) the deficit in the MSN, and 2) the overage in the Okanogan HxH program. Pearsons said that, according to the Broodstock Collection Protocols, programs must resolve overages as soon as possible, so this would require resolution at this time anyway because the overage became known at marking.

All members of the Wells HCP-HC and PRCC HSC approved the proposed reallocation of juvenile steelhead among programs at Wells Hatchery.

## **B. Sockeye Salmon Obligation Statements of Agreement**

Todd Pearsons reviewed the past discussions about the background information of the Sockeye Salmon Obligation SOA<sup>1</sup>. Grant PUD has attempted to respond to requests for revisions with compromise, as well as responding to specific comments raised by the HSC. The key points of compromise and additional clarity in this revised draft SOA are as follows:

- Grant PUD would fund the infrastructure for an 8-million egg hatchery program.
- The SOA includes feasibility provisions for climate change that allows for changes to fish collection and transport in years when the ability to collect adequate broodstock is impacted.
- The SOA defers the issue of resolving an exact metric for the natural-production credit, to be determined in the future.
- The YN previously requested a time frame for the credit for natural production, which is now stated to be the duration of the Grant PUD's Federal Energy Regulatory Commission (FERC) license, or 2052, in this draft.

Keely Murdoch said she feels these revisions are a step in the wrong direction. Though she appreciates the provisions for years in which climate affects the run, she is struggling with the credit for natural-origin fish for the duration of the license and in the background section, and with the last paragraph about the commitment to build a hatchery in another country in exchange for credit for long-term benefits. At times those long-term benefits have been interpreted as credit for natural-origin fish, and she felt that was inconsistent with the Priest Rapids Project Salmon and Steelhead Settlement Agreement (SA). Grant PUD has said that the SA calls for alternative and

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<sup>1</sup> Priest Rapids Coordinating Committee's Hatchery Subcommittee Statement of Agreement Regarding Grant PUD's Sockeye Salmon Obligation



creative ways to meet the sockeye salmon hatchery mitigation—and Murdoch agrees—but there are definitely sideboards to that as well.

Murdoch said she reviewed Grant PUD’s position in context of the SA and the current FERC license. In Part XI of the 2005 SA<sup>2</sup>, Sockeye Protection Program (page 17), the objective is to achieve No Net Impact (NNI) for the operations of the project on sockeye salmon populations that pass through the project area. Skaha Lake (British Columbia, Canada) reintroduction had not occurred yet and perhaps was not envisioned at the time of the signing of the SA (2005). When it was signed, it committed to a sockeye salmon artificial propagation program at two locations—with one at Skaha Lake—demonstrating that all parties were already talking about the reintroduction in Canada. Likely, Grant PUD would have made an assumption that the hatchery would be built to support this and that NNI would apply to all fish migrating through the project, including all production coming out of Canada. The reintroduction program was not new in 2005 when the SA was signed, nor in 2008 when the first Sockeye Salmon Mitigation Requirement SOA was signed (SOA 2008-1<sup>3</sup>), and in 2010 when it was agreed that Grant PUD and Chelan PUD would build the hatchery (SOA 2010-07<sup>4</sup>). Murdoch shared HCP-HC meeting minutes from November 2003, the oldest minutes available in the records, and the sockeye salmon reintroduction program was on the agenda. It was already being discussed in terms of sockeye salmon mitigation for Chelan PUD. The PRCC did not have a hatchery subcommittee at that time, but all eyes were already on the Skaha Lake reintroduction for sockeye salmon mitigation. In meeting minutes from September 2004, the HCP-HC was still talking about sockeye salmon reintroduction for meeting mitigation. Murdoch said she is having a hard time agreeing with Grant PUD’s statement that they would not have built a hatchery in Canada if not for receiving credit for the natural production for the term of the FERC license, when Skaha Lake reintroduction had been discussed for many years prior to the signing of the SA. The SA calls out Skaha Lake as a hatchery site, and that NNI would apply to all fish passing through the project area, and it says nothing about credit for natural-origin production.

Murdoch then noted that Section 18, Fishway Prescriptions (paragraph 48, page 16) in the FERC license<sup>5</sup> outlines 28 prescriptions that Grant PUD needs to meet and that are required to achieve NNI. In Appendix B, Article 5, Prescription for Sockeye Salmon Program (page 155), survival standards are included with 2% compensation for habitat and a sockeye salmon artificial production program, and the NNI. Collectively, all of these are the Sockeye Salmon Protection Program, designed to achieve NNI from operations of the project on sockeye salmon populations that pass

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<sup>2</sup> Priest Rapids Project Salmon and Steelhead Settlement Agreement. FERC Project No. 2114. December 13, 2005. Available from: <https://www.grantpud.org/license-requirements>.

<sup>3</sup> Priest Rapids Coordinating Committee Hatchery Subcommittee Statement of Agreement on Grant PUD’s Sockeye Salmon Mitigation Requirement. SOA 2008-1.

<sup>4</sup> Priest Rapids Coordinating Committee Hatchery Subcommittee Statement of Agreement on the Sockeye Salmon program. SOA 2010-7.

<sup>5</sup> 123 FERC ¶ 61,049 Order Issuing New License to Public Utility District No. 2 of Grant County. Project No. 2114-116. Issued April 17, April 17, 2008.

through the project area and “NNI shall apply collectively to all sockeye salmon, including those that originate above and within the program area as a whole,” meaning that the Sockeye Salmon Protection Program area, which would include fish from hatchery and habitats and Skaha Lake, was already identified at this time as a hatchery site. Grant PUD thinks that they should be receiving credit for natural production for sockeye for the duration of the FERC license, instead of mitigating for naturally-produced fish. Under the proposed Sockeye Salmon Obligation SOA, they would now be getting credit for those naturally-produced fish, which seems wholly inconsistent with the prescription in the FERC license. It is the YN’s position that if Grant PUD wants a change of this magnitude for the whole duration of the license, this rises to the level of amending the FERC license and the SA; that is not something that could be done in an SOA by this technical committee, especially if talking about the life of the FERC license rather than some temporary experimental measure.

Murdoch said, in another argument made many times and made in the written responses to the YN comments on the draft SOA under discussion (Attachment C), the SA allows for alternative measures to meet sockeye salmon hatchery mitigation (Section XI, 11.4 Sockeye Salmon Artificial Propagation Program, page 18). The SA does acknowledge that sockeye salmon propagation is difficult. The key is that alternatives were to be implemented if the artificial propagation was not successful. In this case, it was agreed by all parties that the sockeye salmon program has been successful, so these alternatives do not apply here.

Murdoch said she would like to focus the discussion on what the parties can agree to at this time. We can likely agree that the next stage of sockeye salmon reintroduction into Lake Okanagan (British Columbia, Canada) is still experimental. Sockeye salmon production would be variable in this time period and, therefore, YN would allow credit for natural-production fish directly from the progeny of the artificial propagation program over the next 10 years; however, there needs to be sideboards to that credit for fry production because there will be natural production as a result of other actions by the habitat/tributary fund and flow management tool. Alternatively, the YN could agree that Grant PUD would meet their mitigation obligation by funding the hatchery program for the next 10 years, for an 8-million egg program, without other smolt or fry production targets to meet.

Murdoch said that fundamentally, the Chelan PUD and Grant PUD SOAs are similar, but Chelan PUD’s 2010 Skaha Lake and Okanagan Lake Sockeye Reintroduction SOA<sup>6</sup> provides more robust background information. The background material in Chelan PUD’s 2010 SOA makes the case that the success of the reintroduction program should be based on fry released rather than smolt production targets. Grant PUD’s 2010 SOA did not contain that language. That language was

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<sup>6</sup> Rocky Reach and Rock Island HCP Hatchery Committees Statement of Agreement Regarding Skaha Lake and Okanagan Lake Sockeye Reintroduction. August 26, 2010.

suggested by Kirk Truscott (with Washington Department of Fish and Wildlife [WDFW] at that time), but Grant PUD was still willing to fund the hatchery. Murdoch concluded that the YN are willing to discuss credit for natural production during an experimental time period, but she does not think this technical committee has any purview to amend any FERC or SA language.

Pearsons said a key piece was that in the earlier part of the SA period, Grant PUD's sockeye production was being done through other facilities; it became more difficult for Grant PUD to agree to a commitment to building their own facility. The original SA dictated that we mitigate for 1.143 million smolts. The new Chelan PUD SOA (2010) reset the obligation for Grant PUD into the future. The investment in the hatchery provided the incentive for natural-production credit. It would not have mattered if there were a number of other habitat-related activities if there was no support by the Canadian parties that have authority over Skaha and Okanagan lakes. At the time there was a large amount of resistance. Grant PUD did not just fund a hatchery program. We were involved in a big risk assessment associated with reopening the Skaha and Okanagan lakes to get to the point when Canadian authorities would allow for reintroducing sockeye salmon on a long-term basis (not just an experimental basis) in the lakes. The hatchery program provided the lever that allowed the Canadian parties to come to agreement on this. Grant PUD thought the natural productivity credit would be granted in perpetuity because it was through our work in coordination with Chelan PUD that those lakes were allowed to be opened for sockeye salmon production. Grant PUD took a step back from that original assumption to revise its SOA, in order to obtain natural-production credit for the term of the license (through 2052) as a compromise from credit in perpetuity. Pearsons said this SOA is worded for Grant PUD, with the idea that the same language would be used for Chelan PUD's SOA as well.

Catherine Willard said it would be helpful to look at the draft Sockeye Salmon Obligation SOA under discussion to note the many points of agreement: funding the hatchery, expanding production to 8 million eggs, mitigating for Okanagan sockeye salmon, and adding provisions for operations with climate change. The point of disagreement appears to be mainly the time frame for natural-production credit.

Tracy Hillman stepped through the main points of the Grant PUD SOA, revising to the language and recorded comments to reflect the outcomes of these conversations.

Regarding the duration of the natural-production credit:

- Murdoch said the YN would be willing to allow for credit for a 10-year experimental period more similar to the SOA signed in 2010. Murdoch said there were no discussions recorded in past committee meeting minutes on the assumption that credit would be allowed in perpetuity. Credit for natural production was an edit to the 2010 SOA suggested by Kirk Truscott. Truscott said that, in the last discussion on this topic (August 2021), he recommended that this be taken in 10-year blocks because reintroduction into Lake

Okanagan is still experimental. Pearsons said language was added to draft SOA under discussion to include program check-ins at 10-year intervals. Mike Tonseth said the 10-year check-ins do not necessarily allow for an off-ramp for the program; the language implies that as long as the funding continues, the mitigation obligation is met, which is not necessarily WDFW's perspective. Tonseth said he supports the characterization of this next phase as an experimental reintroduction and if anything would occur to affect that reintroduction, adjustments could be made. Tonseth said he would strike the end point of 2052; 2032 is identified in the next bullet as a check-in point, as was identified in the previous SOA signed in 2010, which had a 10-year term. Brett Farman said the 10-year check-in seems to make sense, but he would like to review the original agreements to fully understand the context. Matt Cooper said he would echo comments already shared and appreciates the additional language about a 10-year off-ramp. Cooper noted that in 10 years, because of climate change, broodstock may not be available, and that type of language should be included.

- Pearsons said he can make revisions to create a version without the 2052 date and pass it back through Grant PUD leadership for consideration, but wondered how Grant PUD would exercise credit for natural production. Pearsons said previous SOAs (signed in 2008 and 2010) were not clear enough and he tried to add dates so that it would not be subject to interpretation. If the year 2052 is stricken, Grant PUD would be strictly committed to a 10-year funding period, without any assurances after that. Tonseth said he doesn't agree that it doesn't allow natural-production credit. The first part of the statement acknowledges Grant PUD would receive credit for natural production. It could be for a 10-year window and, at that time, it would be re-evaluated. Pearsons responded that in other programs where Grant PUD has funding agreements (e.g., for coho salmon), as long as those programs are funded, they are viewed as meeting the NNI agreement, so natural-production credit is not needed for that period. Natural-production credit would be for future years when there is not a strict funding agreement. Tonseth said he is struggling with how this is different from funding agreements for coho salmon, which are not tied to specific numbers of fish, and allow Grant PUD to meet mitigation by funding the program. The YN has a master plan with production goals and quantifiable metrics to evaluate the success or failure of that program. There are monitoring and evaluation metrics for the Okanagan Lake sockeye salmon program in Canada, but it is in its infancy, and those data are limited. Murdoch confirmed that the key difference between the coho and sockeye salmon programs is that there is no natural-production credit for coho salmon. Grant PUD is funding that portion of the program that is tied to a numerical smolt goal, which is the basis for the concept that could be supported for funding a program and receiving mitigation credit even if that program has a variable release size. Murdoch said Chelan PUD's 2010 SOA made the case that a smolt number is not appropriate and also that a fry number will be variable. Including the natural-origin credit for that 10-year time period made it numerically more whole. This program was so experimental in the early discussions

that no one ever talked about the duration of the credit. The discussion of the duration in perpetuity is a new concept.

- Willard also reviewed the administrative record of the committee notes. Chelan PUD proposed natural-origin credit in the March 2010 minutes—prior to the August 2010 meeting when Truscott proposed to include production credit in the 2010 SOAs—though what it means to get natural-origin credit is confusing. Willard said her view is to continue to fund the hatchery and meet mitigation obligations with funding the hatchery, with the ultimate long-term goal being to not have to release hatchery-origin fish. This is the basis for natural-production credit. Mitigation obligations could still be met by funding M&E or other program needs. The natural-production credit is still desired during this experimental phase to ensure the PUDs are meeting their mitigation through the combination of hatchery and natural production.

Regarding funding for an 8-million egg program:

- Murdoch said a more detailed schedule for funding and implementation obligations to expand to 8 million should be included. It is not desirable to wait several years after the Canadian Okanagan Basin Technical Working Group (COBTWG) approval to begin the expansion.
- Pearsons said Grant PUD would need to agree to a time period that allows them to work with all the parties involved. Murdoch said the YN would like the Grant PUD SOA to show the commitment to funding the program, but also the commitment to actually building it, which comes with an implementation plan and schedule.
- Pearsons suggested including a draft hatchery completion date, that appears reasonable, to bring back to Grant PUD for review. Deanne Pavlik-Kunkel said she has concerns about putting a hard date on the Grant PUD SOA if there is not approval from COBTWG, and that it is unknown when approval from the COBTWG may happen. The language would have to state that the implementation date would be contingent on approval and would be speculative at this time without knowing the needed expansion construction timeline. Pavlik-Kunkel said she will insert language specifying a number of years for implementation.
- Truscott said he could support a completion date that would require the PUDs and Canadian entities to create an expansion implementation plan, which would also allow the PUDs to evaluate budget needs several years out. This would ensure that facilities are available once approval for the 8-million egg program is obtained from COBTWG. Cooper said he agrees with the edits made and to indicating a timeline, even if it is vague. Farman agreed that a date should be added as a target for budgeting and implementation but clarified the assumption that the timeline for actual build-out is what is being discussed, not the timeline for creating the plan for the build-out. Farman asked if there is a timeline for bringing this to the COBTWG for approval of the hatchery expansion.

- Willard said the draft Grant PUD SOA was rewritten to avoid asking the hatchery committee for approval for the expansion, which was in response to the version provided to the hatchery committee in June 2021. Parties to this SOA would be agreeing to the 8-million egg expansion.
- Murdoch noted she will have to take this language back to the YN to ensure it adequately responds to their requests.

Regarding funding of M&E activities:

- Truscott asked if the Okanagan Nation Alliance (ONA) were to include additional M&E activities associated with moving into Lake Okanagan, would those additional activities be included in this funding package. Pearsons said yes.
- Murdoch said the M&E plan is available and approves of it. There is a need to better understand the efficacy of the fry releases versus opening up the habitat and improvements to habitat. None of those are hatchery mitigation. In theory, the hatchery program providing the fry releases could actually be mining the population, though she does not think this is happening. Perhaps some parent-based tagging analysis could ensure the production is the result of hatchery releases. Funding of the M&E program is important and should not be discounted, but there are different questions this committee needs to answer compared to what the COBTWG needs to answer.
- Pearsons said there is currently no analysis done to evaluate the success of the fry population using parental-based tagging. In the case of Lake Okanagan—which starts from zero—the fish that are produced are the result of the hatchery supplementation. The natural return ratio and hatchery return ratio (HRR) are evaluated, which informs whether the population is being mined or not. The monitoring plan is robust using acoustic surveys in the lake to enumerate juveniles, and adult returns are enumerated. There are metrics in the plan that would be able to evaluate whether the program was successful or not. Willard said otoliths are thermally marked, which does allow for evaluation of the hatchery program. Otoliths collected in carcass surveys will be evaluated for what proportion are hatchery returns.
- Murdoch agreed that release of hatchery juveniles is a good way to jump-start the program. At the time that the 2010 SOA was signed, we did not anticipate how much habitat improvement would also be funded; if those fish are successful due to habitat improvement programs, the PUDs should not be given hatchery credit for those. This is at the heart of giving natural-production credit for the program.
- Tonseth said new habitats are being opened up and wild fish are going to reseed those habitats on their time scale, but hatchery programs are intended to jump-start that process. He is looking for assurances that the assessments being conducted are sufficient to quantify the level at which the hatchery program is supporting the natural processes. There is already a 5-million egg target, with expansion to 8 million at full production, and he needs confidence that there are sufficient returns to seed the natural processes and the broodstock needs.

These Committees already have experience with mining the Lake Wenatchee population. The basin would be better off with an adult translocation effort, in that case, rather than bringing the adults into a hatchery program.

- Tonseth said, as reintroduction becomes more successful over time, the hatchery program numbers may be relatively static, but the proportion of hatchery fish in the overall population should go down over time. There is a need to ensure those metrics can detect the net positive effects. Pearsons asked if something more than HRR and natural return ratio are needed to inform this. Tonseth said the program should meet the needs for newly opened habitats, offset NOR removal, and ensure those hatchery-produced fish are reseeding the habitat instead of pig-piling back into areas near the hatchery. There is a need to look at spawner distribution to ensure they are going where we need them to go to ensure that this reintroduction is fully successful. Pearsons said specific metrics should be discussed to be able to respond to whether it is feasible to obtain those. Tonseth said looking at the HRR and spawning distribution for overlap between hatchery- and natural-origin spawners would answer these questions. It is a matter of making sure the sample rate of fish in the natural environment is adequate to accurately reflect the spawner distributions and origins. Tonseth agreed that he is asking for similar metrics as those used in the United States side of the Upper Columbia, though the program has the potential to increase in numbers an order-of-magnitude larger than the largest salmon population on the United States side (Hanford Reach fall Chinook salmon) and sampling rates would need to increase accordingly.
- Cooper asked about who approves the ONA M&E plan. Willard said the Okanagan Basin Salmon Restoration Subcommittee wrote it for COBTWG and thus it requires COBTWG approval. Cooper said if there is a way for the HCs/HSC to review the ONA M&E plan, language about specific M&E metrics could be added to the Grant PUD SOA.
- Truscott asked if the PUDs approve the M&E plan, because they fund it, and if that is a mechanism through which this Committee can engage with it. Willard said no, Chelan PUD reviewed it but did not have a role in approving it. Willard said it is similar to the YN's coho salmon M&E plan and the CCT's M&E plan—the PUDs do not have a role in developing and approving it. Pearsons said in the past this has been handled by inviting the ONA to present to the HCs/HSC annually. This will continue in the future and provides members an opportunity to provide comments.

Regarding the bullet to determine the feasibility of gamete collection in years when environmental conditions are prohibitive for broodstock collection in the Okanagan River:

- Truscott asked if the language to “determine the feasibility” provides assurances that those activities actually get funded. Pearsons said this is challenging because Grant PUD cannot agree in an SOA to something outside its control. For instance, moving gametes across international borders, or a process to start removing fish at a dam and moving them up to Canada. The PUDs are incentivized to make this program whole by the mitigation credit being

provided. Truscott said the feasibility needs to be determined, but there needs to also be a commitment to actually do this in years that it is needed, even if it is costly. Truscott noted that there is similar language in the HCPs—to this effect of feasibility—and offered to draft something similar for the Grant PUD SOA. Willard said the PUDs have always demonstrated that when we say we are going to do something, we do it. Truscott agreed, but noted that the clearer these SOAs are, the better they are.

- Farman and Tonseth supported adding some detail to show the next step beyond determining the feasibility of gamete collection. Tonseth said there needs to be a contingency plan in place in low-flow, high-temperature years to ensure the program needs are met. Tonseth said he understands there could be a lot of moving parts and it could be difficult to estimate costs, but without a plan, it is difficult to estimate costs. These discussions are going to have to take place on both sides of the border. He would like to see a commitment by the PUDs to coordinate discussions around a mutually agreed-upon plan of action that can be implemented, as needed. Tonseth said this should be developed by the PUDs in coordination with ONA, Department of Fisheries and Oceans Canada, the State of Washington, and others. This is bigger than the HC/HSC.
- Keely Murdoch said she agrees with Tonseth but would also like to see the HC/HSC help determine the triggers for implementing something like this, such as a combination of water temperatures and run size. Also note that the YN has a program that annually hauls fish all over the Columbia Basin—from the Methow Basin to the Lower Columbia River—and would have a hard time seeing that this would be cost prohibitive.

Regarding metrics for levels of natural production needed to lower or discontinue hatchery production:

- Pearsons said the agreement in place, the 2010 SOAs for Grant and Chelan PUD, is the guidance for the future portion of the program. This is the key piece that Grant and Chelan PUD are anchored to. Bullet No. 4 in the 2010 SOAs state that, in the event the program is successful, the PUDs will receive credit from hatchery-produced fry and naturally produced fry emigrating from the Skaha and Okanagan lakes. No end date was provided; nothing gives an expiration date to that clause. Bullet No. 5 states that, if the reintroduction is not successful, then other means of mitigation will be considered. Looking into the future after 2021, two approaches for mitigation are offered: one by hatchery production and one by some other approach. It is worthwhile to go back to that 2010 SOAs because the meeting summaries are not the places of agreement, the SOAs are the places of agreement. Bullet No.s 4 and 5 of the 2010 SOAs have no expiration date attached to them, and they point toward the future beyond the experimental portion of the 2010 SOAs.
- Farman and Cooper said they are comfortable with how the metrics for reduction of hatchery production is written in the current draft SOA under discussion.



- Murdoch asked whether that means that the PUDs would not have to mitigate any more. Reduction in hatchery production as a result of natural production is not NNI mitigation. The dams would still be killing fish. This is likely not something the YN could agree to.
- Tonseth said there are likely to be differences among parties on what those metrics are and does not see agreement over those metrics within this year of SOA approval.
- Truscott agreed the time frame and dates may not be realistic and suggested an amendment to the language to “adjust” hatchery production. For example, if the habitat is at its carrying capacity, it would not be desirable to introduce hatchery fish on top of wild fish. We do not know what these metrics will look like over time and whether we could agree to them. If metrics could not be agreed to, the hatchery production would not be adjusted.
- Murdoch agreed with the suggested edits. If there is ever a time when hatchery production is not needed in Canada, the sockeye salmon production program will need to be implemented with alternative forms of mitigation for dam mortality.
- Bill Gale suggested adding “for consideration by the HC/HSC.” The PUDs will talk to ONA to determine a reasonable set of metrics that would be proposed to the HC/HSC. A sliding scale for hatchery production would give the opportunity to dial the hatchery production down as natural production increases, and he does not want to see an on/off switch for the hatchery programs. Tonseth said a major element is whether there would be a point where seeding capacity is maxed out in Skaha and Okanagan lakes. There would have to be an evaluation period after reducing hatchery production to determine if the natural production could sustain itself at that level or if it was being propped up by the hatchery program, and triggers for reinitiation of the hatchery program, if needed. Tonseth asked if that also means the PUDs would walk away from funding M&E, especially for the natural-origin component of the population. Pearsons said the M&E plan would be continued on, similar to what has been done for the Wenatchee sockeye salmon. If the system becomes flooded with NORs, program monitoring would continue to ensure that the natural run continues to meet those metrics and are still performing well.
- Murdoch said this feels like a premature conversation when reintroduction is still experimental for releases into Lake Okanagan, and there is not yet agreement on when to increase the capacity to 8 million eggs. This is unlikely to happen in the next 10 years and not needed in this draft SOA under discussion. Murdoch said NNI applies to all fish that originate upstream of the program area and the mitigation would need to be met by some other means if hatchery production were discontinued. This is a premature conversation to have and YN cannot approve this bullet. Pearsons said he disagrees. If this was simply an experimental 10-year release into Lake Okanagan, there would be no assurances to achieve natural-origin credit.
- Dave Duvall said the use of the word “experimental” was to differentiate this stage of the program from the original 12-year Skaha Lake program that was given a 5-year extension after the fact. Now past the initial 17 years, it is not implied that there is a new phase to the

program being prepared. Because the program achieved some level of success, and the ONA started releasing fish into Lake Okanagan in advance of the completion of the 17-year plan, the word “experimental” was used to characterize how reintroduction to Lake Okanagan is different.

- Gale asked whether the PUDs are confident that the information is available to propose natural-production metrics in the next year or two, or whether there are information gaps that would prevent that. Pearsons said it is hard to say without diving into the work. It is assumed it would be related to the number of natural-origin fish produced, and it is uncertain what exactly the metric would be. In previous HSC discussions, the HSC did not think it could be addressed in the Grant PUD SOA, so the intent is to push it to a later agreement period. Gale suggested that the starting point is assessing capacity of the system. He said that rewording should be more open-ended, to identify that work is going to be done to try to identify a metric, noting that natural production is not likely to occur at such levels that discontinuing the program would be seriously considered within the term of this draft SOA under discussion (by 2032). Willard said this bullet is meant to give a date that would hold the PUD accountable to writing a plan that dictates what the program would do. Gale asked, why start developing these metrics if the information needed is not available? Pearsons said, if we wait for all of the information to be collected, the PUDs will likely not be able to exercise the natural-production credit in the future—after the PUDs had made all of the investments in reintroduction—and there is only another 20 years (e.g., 2032 to 2052) for the PUDs to be able to receive natural-production credit until the Grant PUD license ends. The very best scenario would be if the reintroduction works incredibly well and large numbers of naturally-produced fish are returning. Gale said if there is time needed to work through the ONA M&E program, perhaps an interim deadline could be used for a slower more deliberative approach of filling information gaps and identifying a framework for how to get there in 2023 and 2024. Pearsons said he agrees dates for M&E metric development could be moved out 1 year but would not want to move it out 10 years. Gale said he would like to have a plan to respond to—perhaps an intermediate check-in—before a final agreement on metrics. Gale agreed with revisions for an 11-month check-in period, to bring forth a proposed framework for determining M&E metrics.
- Scott Hopkins asked, without some sort of metric for natural production, how would the PUDs actualize the credit? Murdoch said, in PUD’s response to comments to the draft SOA that was introduced in early summer 2020, there is a calculation of Chelan PUD’s and Grant PUD’s mitigation obligation with a data table showing the mitigation obligation. With combined hatchery and natural-origin fish, both Chelan PUD and Grant PUD are achieving 106% of their smolt target. That natural-production credit has already been actualized, and this is exactly how we visualize meeting targets for the past 10-year period and the next 10-year period. What has not been discussed was receiving that credit at a point when the PUDs are no longer supporting hatchery production. Gale said the point Murdoch brings forward about

meeting NNI mitigation if hatchery production is reduced will need to be considered further; there is a need to make sure that we are fairly representing what we agreed to in the SA.

- Tonseth said the expectation is that anything the PUDs would generate in collaboration with the ONA, would be presented to the HSC for review and agreement. If there are metrics that are identified as valuable, those activities can be funded, and data can be collected sooner. It is not likely that reducing hatchery production would be considered over the next 10 years. Rather than seek approval for that element at this time, comments and revisions should be shelved for the next discussion in 10 years, at the expiration of this SOA. If additional information is needed, it can be revised at that time.

Pearsons said Grant PUD staff have discussed this SOA internally. This version of the draft SOA under discussion is a different SOA than the first draft presented 2 years ago. Murdoch said this is less a compromise and more of a backward movement. Pearsons said Grant PUD has tried to respond and give more on these topics, but parties continue to have more additions without any agreement relative to the natural-production credit, which is extremely important to Grant PUD. There has been no allowance for Grant PUD being able to exercise that credit. Grant PUD is also uncomfortable that the compromises are not resulting in the credit.

Murdoch said what we want is what everyone agreed to in the SA and in the FERC license that guides the Sockeye Salmon Protection Program. Grant PUD should consider amending the FERC license rather than modifying it with an SOA with a technical committee that has no ability to make these changes. Murdoch said past discussions in the Coordinating Committee have been had about making permanent changes to the HCPs (or SAs). There are no cases where this has been done but there are adjustments like putting the White River program on hold for 10 years. Agreeing to something for 10 years is different than agreeing to something in perpetuity. At the end of the day, I revert to what all parties agreed to in the HCPs and SA. A temporary deviation can be done in a technical committee with an SOA but not permanent changes.

Pearsons said Grant PUD's view is that the SOAs add detail or modification to what the SA describes. Many SOAs have been developed that modify things in the SA and those become the tools of adaptive management of the SA.

Pearsons will take what was discussed today back to Grant PUD. Pearsons suggested thinking about the path forward if the parties cannot agree to the language as revised today or whether to elevate this to the policy committees. Murdoch said she tried to focus on points of agreement. The other challenge with a long-term agreement is that there are a lot of things changing right now with regard to climate and salmon populations.

Hillman summarized the major points of disagreement, which include the length of the agreement, the length of time for natural-production credit, and the mechanism for reduction or elimination of hatchery compensation.

Pearsons will consider, along with Grant PUD staff, the comments and edits provided. If there is no agreement to this draft SOA under discussion, the discussion can be elevated to the HCP/PRCC Policy Committees.

### **C. Hatchery Production Recalculation: Approve Data Sources and Review Sensitivity Analysis Results**

Mike Tonseth said on Monday, the JFP discussed the approaches to SAR survival rates and NOR data in the BAMP calculation. The PUDs insistence to align SAR estimates with where NORs are counted is still an issue. If the intent was to calculate SARs for natural-origin fish, it would make sense to calculate SARs to the projects, but we are not. We are using SARs from the hatchery programs that are implemented to mitigate for those impacts to natural-origin fish. The JFP's preferred option is to use the NORs as counted at the projects and the SARs based on CWTs, as reported in the annual reports. Those SAR estimates use CWTs that come from all recoveries and look at the contribution of the entire program, not just a handful of fish that were detected at a fixed location. Some of these programs are intended to support harvest, and if a hatchery adult contributes to harvest, then there is no reason why that individual should be discounted just because it was removed downstream of a detection location. With regard to a time series, our preference would be to use a longer time series of the most recent, complete 10 brood years.

Greg Mackey said the JFP's proposal is basically the same approach to the BAMP as was used in the last recalculation, but with a bit more details. Mackey said he definitely has a problem with detaching the location of the NOR counts from the location that SARs are estimated, because it artificially alters the number of smolts that need to be produced to be larger than the number of juveniles that are killed at the dam. The PUDs' concept is that there is a certain number of smolts killed in the project, and we are trying to replace that number of smolts in the project; a juvenile for juvenile replacement. Tonseth said that is the point of disagreement. Because we are using hatchery SARs, those estimates are back to the hatchery that produced them, and we are using that as a surrogate to estimate how many natural-origin smolts need to be replaced.

Bill Gale said the BAMP methodology uses a hatchery SAR and a run size for the project. They are disconnected as per the BAMP methodology, and this was what we largely did in the last recalculation, with a few exceptions. Mackey said that is correct, and that is what we settled on last time, mostly for expediency. We were not able to agree to use that methodology for the life of the HCPs. We (PUDs) decided in this recalculation effort that it was more accurate to estimate the number of fish killed at the projects and not the fish killed upstream. Gale said the BAMP methodology was agreed to and cited in the HCPs and the SA, and he does not want to

second-guess what was agreed to in the originating document by shifting to something that would be a significant change. Gale said everyone knew at the time of the BAMP that they were agreeing that the locations for NOR counts and SAR estimates would be disconnected, and he is reluctant to shift away from that method. Mackey agreed the BAMP is mentioned in the HCP, though the HCP also notes that it is not a contractual agreement to use the BAMP. Mackey understands the desire to use an established method but does not necessarily agree it is the most accurate method.

Todd Pearsons asked, if you use NORs back to the project and a CWT-based SAR, does that include mortalities that are not related to the project or project operations? Tonseth said CWT-based SARs are a measure of juvenile survival. Any CWT omitted only reduces the SAR. All recovered CWTs are used no matter where they are recovered. The more CWTs recovered, the higher the SAR. We are not including or excluding any mortality that might occur outside the project area. Pearsons said, regarding PSM above Tumwater, it appears that PSM is high. It seems the source of mortality there would be difficult to relate to project effects and that mortality is incorporated within the SAR based on CWTs. Tonseth said hatchery PSM fish would be recovered and entered into the CWT database and would be identified as a recovery, but not the nature of that recovery. Excluding those fish would reduce the number of CWT recoveries. Pearsons said, for instance, if PSM above Tumwater is 50%, that is 50% of returns that would not be recovered and entered into the CWT. That is one reason why it is important to measure NOR and SAR at the same place to have algebraic terms that cancel out in order to calculate the quantity that is associated with the project effects. Tonseth said again, we are not trying to calculate SARs for natural-origin fish; we are trying to calculate SAR for a hatchery program that is mitigating for that mortality. Pearsons said we are using the hatchery fish as a surrogate for the natural fish only because the hatchery fish are tagged. The PUDs are trying to focus our mitigation estimate on project effects to try to get to NNI. Tonseth said this also makes the assumption that none of those mortalities are attributable to the project, and some of them likely are. Pearsons said it also states in the SA that if it can be demonstrated that the mortality was associated with the project, then it has to be measurable to include it, otherwise all types of non-project-related mortalities are included. The onus is to be able to demonstrate that any project effects are measurable. Tonseth said using the point estimate for SAR at the project assumes that none of the mortalities upstream are the result of the project, which is not supportable either.

Keely Murdoch said it was not the intent of the BAMP to attach the location for the SAR and NOR calculations. The BAMP calls out in-kind, in-place mitigation, intended to replace fish missing from the populations in the places where they are missing. Also at issue, in Table 9 of the PUDs' draft Recalculation Data Summary for Chiwawa spring Chinook salmon (first distributed in August 2021<sup>7</sup>), the SAR reported that Priest Rapids Dam is higher than Rock Island Dam, meaning that for fish being reared together, Chelan PUD is replacing them at a higher rate than Grant PUD. The same SAR should be used so that PUDs are not replacing the fish at different rates following the principle of in-

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<sup>7</sup> Chelan PUD, Douglas PUD, and Grant PUD 2021. Draft 2024–2033 Recalculation Data Summary. August 2021.

kind and in-place mitigation. Whether a survival metric for delayed mortality at or above projects is measurable, that metric is not related to the 7% hatchery mitigation for juvenile survival rates. The BAMP replaces the juvenile component of the population killed with in-place, in-kind mitigation, as described in the BAMP.

Pearsons asked where it states in the BAMP that CWT or SAR (a survival estimate) back to the spawning grounds must be used. For the PUDs, what is most important is the formula. For the JFP, what is most important is the technology that is used to generate what goes into the formula.

Murdoch said the BAMP states the survival rate from the hatchery where you have reared the fish must be used, which typically has always been based on all CWT recoveries. What the PUDs propose is truncating the mitigation and creating a situation where, for all species, Grant PUD mitigates at a lower rate than all the other PUDs because they're going to have the highest SAR, which was never intended. The BAMP intended to use the survival rate from the hatchery from where those fish were released. Pearsons said that is where the viewpoints differ. Survival rates can be calculated at a variety of different endpoints, including back to Bonneville Dam, as reported in the annual reports.

Catherine Willard stated that Andrew Murdoch's (WDFW) presentations to the Hatchery Committees showed that the period of time prior to carcass surveys is when a high percentage of the PSM is observed, and this would result in PSM not being accounted for in the CWT-based SARs. Tonseth agreed that is correct. Willard asked whether using NORs to the tributaries and SAR to the tributaries was considered. Tonseth said to account for all the effects of a project you would take the calculation to the mouth of the tributaries, to the inundation zone. To decompose the CWT recoveries down to the mouth of the tributaries would eliminate a significant amount of CWT recoveries that occur in the basin, such as spawning ground surveys, strays to Leavenworth, conservation fisheries, or others. Willard asked if the JFP discussed using NORs to the tributaries. Tonseth said yes, though not in great detail because it made more sense to simply use the NORs to the projects. That is not to say the PIT-tag returns between project and tributaries could not be used, but we did not expand beyond that thinking. Willard requested further consideration of using NORs to the tributaries to accommodate the PUDs' concerns about matching NOR and SAR measurement locations.

Willard said regarding steelhead, PIT-tag-based returns to the projects will be used and asked why this is acceptable for steelhead and not for Chinook salmon. Tonseth said this is the only data available for steelhead, and this would also be the case for Wenatchee sockeye salmon. Willard said in the last recalculation effort, different combinations of PIT-tag-based SARs and CWTs for different programs were used. Tonseth said the combination of SARs from PIT tags and CWTs was mainly for Wenatchee spring Chinook salmon (Chiwawa and Nason populations). The JFP is willing to consider use of PIT tags for SAR calculation, but the JFP is not comfortable that the fish that are PIT-tagged in a population are representative of the total program. In contrast, all hatchery program fish receive CWTs regardless of size and health status. The JFP would be willing to engage in conversations about

whether PIT tags could be used in an unbiased way for estimating SARs. Willard said the issue of bias in PIT-tagging a representative subsample has not been brought up previously. By the time the fish are tagged in the spring, most program fish are of an adequate size for tagging. It has not been shown that the PIT-tag data are not representative of the total population, and it would not take much time to demonstrate this. Tonseth said this could be shown; however, for example, in the Nason program, there were a significant number of crinkle-back fish that were not PIT tagged; tagging was not random. Part of the inconsistency is also when fish are PIT-tagged (such as in the fall before transfer to acclimation sites)—which has the potential for tags to drop out over time—versus fish that are tagged just prior to release. Tonseth said he agrees there are also biases to consider in the CWT tagging, but there should be more discussions about the PIT-tagging to minimize biases if those data are being relied upon in future years. Willard agreed that biases should continue to be considered and said that ironically, crinkle-back was created by application of CWT body tags. Tonseth said there are other cases where biases are created by not PIT-tagging fish that are showing symptoms of disease like bacterial kidney disease or furunculosis.

Brett Farman said there is not a perception that PIT tags are not usable or should not be considered, but the numbers of fish that are tagged in each program, or condition of the fish that are tagged there, may limit your ability to expand those numbers to represent an entire release. There needs to be a fairly strong argument for why the new method is better than what was done previously. Based on the uncertainty around the number and condition of fish PIT tagged, all parties are not ready to adopt that new approach. Farman said he is concerned about capturing all project-related effects. By default, by measuring SARs at the dam, that omits mortality upstream of the dam, which should be included as part of all effects of the project. Using CWTs recovered in the tributaries could include other sources of mortality, but when mitigating using a hatchery population, you would want to use a SAR for that hatchery population. Farman said he supports an approach to calculate SARs to the mouth of tributaries. Shifting to calculating SARs at the dam just because the counts are more precise there misses some mortality that should be accounted for, based on the fact that the fish released to mitigate for those mortalities are released upstream of the project. Willard said it is correct that using SARs to the dam does not account for the small amount of mortality in the reservoir upstream of the project; however, using SARs to the tributaries accounts for more mortality than the PUDs should be responsible for. Farman agreed and said that the National Marine Fisheries Service is not suggesting the PUDs have to mitigate for effects outside the project. He does not agree with excluding effects just because the information is not available. There must be some middle ground.

Pearsons said survival of adults in the hydro-system is very high. Mortality is on the order of 1% per project as you move upstream; however, the magnitude of PSM above Tumwater Dam is on the order of 50%, so they are not comparable. There may be a way to deal with the amount of mortality within the project area, though this would be a relatively small estimate compared to the amount of

PSM above Tumwater. Even if a metric of SAR at the mouth of the tributary existed, the result would not change very much. If comparing the potential error of 1% to 2%, versus other mortalities closer to 50%, that cannot be linked to the projects, it would be best to use the one with the lowest amount of error.

Murdoch said this discussion confuses the 2% mitigation that goes to habitat for adult mortality in the project area. The 7% for juvenile mitigation for mortality at the dam is what the BAMP calculates. The point of those hatchery programs is to return fish to their tributary locations (e.g., the Chiwawa, Nason, and Okanagan basins). Whenever we are talking about mortality in the river, versus in the tributaries, we are confusing the issue of estimating project mortality with returning fish to the locations and populations where the mitigation is intended.

Tom Kahler agreed the BAMP is not to mitigate for adults, but to mitigate for the loss of juveniles. They have tried to investigate adult delayed mortality from Wells Dam. Douglas PUD is working with a percent loss of juveniles at the project of 3.96%; there are that percentage fewer fish in the population all the way to the spawning grounds. Kahler said he differs from Murdoch in her position that if juveniles are replaced to account for those lost at Wells Dam, there's no gap in the life cycle in where those fish were missing.

Pearsons said he agrees with replacing 3.96% of fish that would have been there if the dams were not there. The only reason to focus on the adult mortality is to come to an agreement on resolving the issue of using SARs and NORs at the same place. That should give the project effects on the juveniles, which is the correct mitigation. Separating those would include non-project effects.

Tracy Hillman asked whether the PUDs questions have been answered and whether the PUDs could move forward with the JFP's position or not.

- Pearsons said no, although Grant PUD and the JFP are in agreement in using PIT-tag-based SARs for steelhead and sockeye salmon. He is hoping that in the course of the next 10 years, the technology advances to allow refinements in the use of CWTs, PIT tags, or anything else for calculating SARs, in order to provide the most accurate estimate of project effects.
- Willard said no for the reasons already discussed. Estimating to the dams underestimates SAR mortality, and estimating to the tributaries overestimates SAR mortality. She cannot support doing things the same way just because that is the way it was done before. New information and technology should be used when it is available. Addressing the biases in PIT-tag detections in tributaries is not insurmountable. She is not in favor of pushing this to future recalculation efforts.
- Mackey said he is not supportive of the JFP proposal, although he is interested in finding an approach that works for all parties. Bringing the adult returns that result from the juvenile mitigation all the way to the tributary endpoints is problematic because of the PSM black box.



If there are project effects that contribute to PSM, they have to be measurable to support a method within the HCP process.

Hillman asked the JFP whether they could meet the PUDs' position to measure SARs and NORs at the same place using CWTs.

Murdoch said a compromise position that the JFP could offer would be to follow the methods used last time with different combinations of PIT tags and CWTs for calculating SARs in the BAMP, though there is not a biological basis for it. Murdoch said she feels pressured for time to move forward with these analyses but wants to avoid the pressure to make changes that are not in the right direction and avoid setting a precedent that will move the program further in the wrong direction in the future. In the future, it may be supportable if the PUDs want to move forward with a PIT-tag-based SAR with a robust tagging plan paired with a detection plan to the tributaries. She would not agree to truncating SARs at the dams if the detections in the tributaries are insufficient. There are actions that can be taken to measure PIT-tag returns to the tributaries to be more consistent with the way mitigation is supposed to be operated. At this time, the necessary background work has not been done to properly adjust the methods. The JFP would be comfortable carrying out the methods using the same approach as last time.

Hillman confirmed this is time-sensitive because of the need to update the Broodstock Collection Protocols with the results from recalculation. Hillman asked whether 5 or 10 brood years would be used. Murdoch said using 10 years smooths out the peaks and valleys in the data and she would consider increasing the years of PIT- or CWT-based SAR data proportionately. For instance, instead of 2 years using PIT-tag data and 3 years using CWT data for the Chiwawa River, 4 and 6 years would be used of each data type, respectively. Tonseth said he agrees with Murdoch's points, and also agrees with Willard that it is not desirable to push the problem to future recalculation efforts. Murdoch's proposal is not necessarily ideal, but it is supportable among the JFP. Murdoch's suggestion may smooth out the peaks and valleys in the data and perhaps come closer to estimating the true survival of the run. Kirk Truscott said his observation is that the Committees are at an impasse and that we are left with two options: one is to elevate this as a dispute, which no one desires, and another is a negotiated method. He can support the negotiated outcome of using the combination of the two different methods. Farman said, for clarity, in lieu of something better, falling back on what was done last time is not ideal, but using a combination of the two methods for calculating SAR is an acceptable position. Matt Cooper agreed this would be an acceptable approach that includes some new technology.

Pearsons said he appreciates a willingness to find different options to discuss. Use of PIT or CWT are both likely to underestimate SARs. Studies of CWT proportion of rearing groups was substantially lower than what was reported within 24 to 48 hours of tagging. There is tag loss when the fish are still in rearing vessels for some time before release. The bigger difference is in the endpoint for SAR.

Pearsons said he is not prepared to approve the negotiated proposal at this time. Grant PUD is trying to calculate the most accurate representation of the project effects. A negotiated option is pushing this to a future recalculation. There are probably ways to assess the CWT- and PIT-tag estimates as Willard has suggested. The Committee approves the implementation plans every year with PIT-tag numbers and the Committee reviews the reports every year. Why are they only now seen as biased enough that we cannot use them for decision making?

Willard said she would also like more time to consider the proposal. Willard asked for clarification whether the method being proposed was the use of CWTs in some years, PIT tags in some years, and not an averaging of the two SAR measures within a year. Tonseth said the proposal on the table is to calculate it as it was done last time because this is time-sensitive. Tonseth is proposing that early next year the committees work on identifying a better methodology that is more agreeable to use in future recalculations. Willard said during the last recalculation no PIT tags were used for summer Chinook salmon. This goes back to the Chelan PUD implementation plan discussion this morning. Chelan PUD is not going to PIT-tag summer Chinook salmon just to tag them. There needs to be a purpose for the use of PIT tags.

Mackey said he appreciates the attempt to compromise; however, PIT tags were only used for Turtle Rock steelhead and Lake Wenatchee sockeye salmon, which are no longer active programs, and Chiwawa spring Chinook salmon, which are not related to Wells Dam. Mackey would like time to discuss this proposal within Douglas PUD.

Murdoch said she does not want to set a new precedent. The implementation plan implements the M&E Plan, and the calculation of SAR is not in the M&E Plan by design. Murdoch said she advocates for a committee-designed plan to measure SAR at a predetermined point to ensure there is detection capability at that point. The PIT-tag detection points that were there were intended for other monitoring purposes. Tonseth agreed to the development of a mutually agreed-upon SAR calculation rather than pushing it to a future recalculation. Regarding PIT-tagging for the implementation plan, recent consultations dictated a minimum number of PIT tags for the Section 10 programs. For instance, the permit dictates a minimum of 10,000 summer Chinook salmon be PIT-tagged. Additional fish could be PIT-tagged to measure SARs long term.

Kahler said there would not be a problem with SARs if there was an acceptable estimate for in-basin juvenile production. The rotary screw trap in the Methow River is not acceptable. The use of PIT tags for Endangered Species Act impacts are intended to address other metrics, such as estimating travel time and juvenile survival. There could be a cost-benefit trade-off of improving juvenile production estimates versus PIT tagging more fish for an adult-based method of mitigating for juvenile survival.

Given the time sensitivity, Willard said the PUDs will meet and discuss the compromise and provide their response to Hillman, who will then share it with the JFP.

#### **D. 10-Year Comprehensive Monitoring and Evaluation Report: Review Check-in**

Todd Pearsons said a number of chapters should be available before the end of October for review in November, including those on hatchery metrics, PNI, genetics, and spawn timing and distribution. Most or all the Chinook salmon chapters will be available by the end of this month, and it is assumed that steelhead and sockeye salmon reports will be available in November. The next step would be working on the executive summaries during the month of December, for review in January.

Keely Murdoch said reviewing has been difficult because the chapters are not organized the same way as the last comprehensive report, where all the objectives and metrics for a given program were in one place. It is difficult to follow, given the way these chapters are formatted, which is more like academic papers. It is not what was envisioned when the Committees and the Hatchery Evaluation Technical Team worked on the M&E analytical framework. Pearsons said the reporting plan was put together 3 to 5 years ago. It was agreed that an annual report would be a "data dump"; the 5-year report would be more like what Murdoch is describing, with results more organized by program, but no synthesis, and every 10 years there would be more of a synthesis report. The intent is to see if there are trends emerging by looking at all programs together that you would not see if you looked at each program individually, and to compare these programs with those in other regions like the Yakima or the Snake rivers. Pearsons said he hopes that the executive summaries will help bring these things together. Murdoch said the 5-year report was discontinued because it was too frequent. She was expecting something more similar to the 5-year report but, instead, every 10-years. The intent was to use that report to adaptively manage both the hatchery programs and the monitoring. We should not have gotten rid of the 5-year report if this 10-year report was envisioned to be so different. Pearsons said the statistical report will be done every 10 years alternating with the 10-year comprehensive report (i.e., a report will be issued every 5 years, alternating between a statistical report and a comprehensive report). Hillman reminded the Committees that, this past summer, it was agreed to that a summary, per the HCPs, will be created in the form of an executive summary that will organize the information more like what Murdoch is describing.

#### **E. Coronavirus Disease 2019 and Monitoring and Evaluation Activities**

Tracy Hillman asked Committees' members to provide their monthly updates on impacts of COVID-19 restrictions on M&E activities. Delta variant cases continue to increase in the region.

- Kirk Truscott said there are no changes for the CCT at this time.
- Keely Murdoch said there are no changes for the YN at this time.
- Mike Tonseth said October 18, 2021, was the last date for State employees to provide proof of vaccination. Tonseth said the only impact at a WDFW facility was that they lost a staff person at Similkameen. He does not believe WDFW contractors need to be vaccinated. Washington State has the most restrictive vaccine requirements. Katy Shelby said their M&E staff are not affected and WDFW is allowing 100% capacity in the offices using masks and other protective measures.

- Tom Kahler said there are no changes at Douglas PUD. There were some staff lost at the Twisp WDFW M&E office, and the losses were related to the State vaccine mandate for State employees.
- Todd Pearsons said there are no changes at Grant PUD.
- Scott Hopkins said there are no changes at Chelan PUD. There are new internal guidelines, but they do not impact HC activities.
- Brett Farman had left the meeting and did not provide any updates from the National Marine Fisheries Service.
- Bill Gale said the federal government vaccine mandates will take effect in the future, including contractors, but does not anticipate any impacts on the USFWS staff that he is aware of.

## V. Administrative Items

### A. Next Meetings

The next regular HCP-HCs and PRCC HSC meetings will be Wednesday, November 17, 2021; December 15, 2021; and Wednesday, January 19, 2022, held by conference call and web-share until further notice.

## VI. List of Attachments

Attachment A List of Attendees

Attachment B Email approval of Tumwater trapping activities for steelhead broodstock in September

Attachment C Responses to Yakama Nation comments on Sockeye Salmon Mitigation Statement of Agreement

**Attachment A**  
**List of Attendees**

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<b>Name</b>	<b>Organization</b>
Larissa Rohrbach	Anchor QEA, LLC
Tracy Hillman	BioAnalysts, Inc.
Scott Hopkins*	Chelan PUD
Catherine Willard*	Chelan PUD
Kirk Truscott*‡	Colville Confederated Tribes
Tom Kahler*	Douglas PUD
Greg Mackey*	Douglas PUD
Dave Duvall	Grant PUD
Peter Graf‡	Grant PUD
Rod O'Connor	Grant PUD
Deanne Pavlik-Kunkel	Grant PUD
Todd Pearsons‡	Grant PUD
Brett Farman*‡	National Marine Fisheries Service
Katy Shelby	Washington Department of Fish and Wildlife
Mike Tonseth*‡	Washington Department of Fish and Wildlife
Keely Murdoch*‡	Yakama Nation
Matt Cooper*‡	U.S. Fish and Wildlife Service
Bill Gale*‡	U.S. Fish and Wildlife Service

Notes:

\* Denotes HCP-HCs member or alternate

‡ Denotes PRCC HSC member or alternate



**Attachment B**

**Email approval of Tumwater trapping activities for steelhead broodstock in September**

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**From:** Larissa Rohrbach  
**Sent:** Monday, September 20, 2021 4:28 PM  
**To:** Brett Farman; Casey Baldwin; Catherine Willard; Emi Melton; Gale, William; 'Greg Mackey'; 'Hopkins, Scott'; Katy Shelby; Keely Murdoch; kirk.truscott@colvilletribes.com; Kristi Geris; Larissa Rohrbach; Matt Cooper; Mike Tonseth; Tom Scribner; Tracy Hillman; Tom Kahler; 'Greg Mackey'  
**Cc:** Craig, Jim L  
**Subject:** RE: Request to modify Tumwater trapping protocol for the remainder of September  
**Attachments:** Re: [EXTERNAL] FW: Request to modify Tumwater trapping protocol for the remainder of September

Hello Rock Island and Rocky Reach HCP-HC: With approval provided by Jim Craig for the USFWS (email attached), a unanimous decision has been made to adjust broodstock collection protocols, allowing 24/7 trapping for steelhead broodstock at Tumwater Dam for the remainder of September 2021.

Entity	Committee	Response	Date
Chelan PUD	RI/RR HC	Approve	9/17/2021
WDFW	RI/RR HC	Approve	9/20/2021
YN	RI/RR HC	Approve	9/20/2021
CCT	RI/RR HC	Approve	9/20/2021
NMFS	RI/RR HC	Approve	9/20/2021
USFWS	RI/RR HC	Approve	9/20/2021

Thank you all for your responses,  
**Larissa**

**Larissa Rohrbach | ANCHOR QEA, LLC**  
(509) 293 8737

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**From:** Larissa Rohrbach  
**Sent:** Friday, September 17, 2021 12:19 PM  
**To:** Betsy Bamberger <[betsy.bamberger@dcpud.org](mailto:betsy.bamberger@dcpud.org)>; Brett Farman <[brett.farman@noaa.gov](mailto:brett.farman@noaa.gov)>; Casey Baldwin <[Casey.Baldwin@colvilletribes.com](mailto:Casey.Baldwin@colvilletribes.com)>; Catherine Willard <[Catherine.Willard@chelanpud.org](mailto:Catherine.Willard@chelanpud.org)>; Chad Jackson <[Chad.Jackson@dfw.wa.gov](mailto:Chad.Jackson@dfw.wa.gov)>; Deanne Pavlik-Kunkel <[Dpavlikkunkel@gcpud.org](mailto:Dpavlikkunkel@gcpud.org)>; Emi Melton <[emi.melton@noaa.gov](mailto:emi.melton@noaa.gov)>; Gale, William <[william\\_gale@fws.gov](mailto:william_gale@fws.gov)>; 'Greg Mackey' <[gregm@dcpud.org](mailto:gregm@dcpud.org)>; 'Hopkins, Scott' <[Scott.Hopkins@chelanpud.org](mailto:Scott.Hopkins@chelanpud.org)>; Johnny Buck <[jbuck1@gcpud.org](mailto:jbuck1@gcpud.org)>; Katy Shelby <[Katy.Shelby@dfw.wa.gov](mailto:Katy.Shelby@dfw.wa.gov)>; Keely Murdoch ([murk@yakamafish-nsn.gov](mailto:murk@yakamafish-nsn.gov)) <[murk@yakamafish-nsn.gov](mailto:murk@yakamafish-nsn.gov)>; kirk.truscott@colvilletribes.com; Kristi Geris <[kgeris@anchorqea.com](mailto:kgeris@anchorqea.com)>; Larissa Rohrbach <[lrohrbach@anchorqea.com](mailto:lrohrbach@anchorqea.com)>; Matt Cooper <[matt\\_cooper@fws.gov](mailto:matt_cooper@fws.gov)>; Michael Humling <[michael\\_humling@fws.gov](mailto:michael_humling@fws.gov)>; Mike Tonseth ([tonsemat@dfw.wa.gov](mailto:tonsemat@dfw.wa.gov)) <[tonsemat@dfw.wa.gov](mailto:tonsemat@dfw.wa.gov)>; Peter

Graf <[Pgraf@gcpud.org](mailto:Pgraf@gcpud.org)>; Sarah Montgomery <[smontgomery@anchorgea.com](mailto:smontgomery@anchorgea.com)>; [sbickford@dcpud.org](mailto:sbickford@dcpud.org); Snow, Charles (DFW) <[Charles.Snow@dfw.wa.gov](mailto:Charles.Snow@dfw.wa.gov)>; Todd Pearsons <[Tpearso@gcpud.org](mailto:Tpearso@gcpud.org)>; 'Tom Kahler ([tkahler@dcpud.org](mailto:tkahler@dcpud.org))' <[tkahler@dcpud.org](mailto:tkahler@dcpud.org)>; Tom Scribner <[scrt@yakamafish-nsn.gov](mailto:scrt@yakamafish-nsn.gov)>; Tracy Hillman <[tracy.hillman@bioanalysts.net](mailto:tracy.hillman@bioanalysts.net)>  
**Subject:** FW: Request to modify Tumwater trapping protocol for the remainder of September  
**Importance:** High

Hello Rock Island and Rocky Reach HCP-HC: Please review the information provided by Catherine Willard, below, regarding lamprey passage and steelhead trapping at Tumwater Dam. Chelan PUD requests that you respond to this email with your to approve a modification to trapping at Tumwater Dam by EOD Monday to allow for trapping for steelhead broodstock 24/7 as soon as possible.  
Thank you!

**Larissa Rohrbach | ANCHOR QEA, LLC**  
(509) 293 8737

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**From:** Catherine Willard <[Catherine.Willard@chelanpud.org](mailto:Catherine.Willard@chelanpud.org)>  
**Sent:** Friday, September 17, 2021 11:20 AM  
**To:** Larissa Rohrbach <[lrohrbach@anchorgea.com](mailto:lrohrbach@anchorgea.com)>  
**Subject:** Request to modify Tumwater trapping protocol for the remainder of September  
**Importance:** High

**CAUTION – EXTERNAL EMAIL:** This email originated from outside of Anchor QEA. Please exercise caution with links and attachments.

Good morning Larissa,  
Can you please distribute the below to the HC and include Jim Craig since Bill and Matt are on PL?  
Thank you!  
Catherine

Good morning,  
As I stated during the HC meeting, we modified the Tumwater broodstock trapping protocol in 2017 from:

- Planned Tumwater trapping operations from September 1 until mid-December: The trap will return to a 24 hours/7day/week manned or unmanned active trapping for steelhead and Coho broodstock collection and adult steelhead management. During this time period bull trout are rare and spring Chinook are not present at Tumwater. For this trapping period, real-time monitoring will continue to be implemented.

to:

- Planned Tumwater trapping operations from September 1 until September 30: To facilitate lamprey passage and meet coho and steelhead broodstocking and steelhead adult management needs, the trap is being proposed to operate up to 16 hours per day from 6AM to 10PM 7days/week manned or unmanned active trapping. The trap will be open for lamprey passage between the hours of 10PM and 6AM. During this time period bull trout are rare and spring Chinook are not present at Tumwater. For this trapping period, real-time monitoring will be implemented with video enumeration when opened.

We made this modification in 2017 to facilitate lamprey passage that were translocated by the YN below Tumwater in 2016, 2017, 2018, and 2019. Based on Dart fish passage numbers, zero lamprey have ascended Tumwater (the fishway or the denil) to date in 2021; 3 lamprey ascended Tumwater between 9/1 to 9/6 in 2017; one lamprey ascended Tumwater on 9/5 in 2019; and zero lamprey ascended Tumwater in September of 2018 and 2020. Due to low steelhead returns and that zero lamprey have ascended the fishway past September 6<sup>th</sup> in five years, we would like to operate the trap 24 hours/7day/week manned or unmanned to improve the opportunity of trapping steelhead broodstock for the remainder of September. Based on video count data for the hours from 10 PM to 6AM, from September 1 to September 15<sup>th</sup>, five steelhead have ascended the fishway versus being available for trapping.

As we discussed during the HC, we would like the HC to provide a vote by EOD Monday to allow WDFW to conduct 24/7 trapping as soon as possible.

Thank you!

Catherine

Catherine Willard  
Chelan County PUD  
Senior Fisheries Biologist  
509-661-4179 (office)  
509-699-8189 (cell)  
[Catherine.willard@chelanpud.org](mailto:Catherine.willard@chelanpud.org)



**Attachment C**

**Responses to Yakama Nation comments on Sockeye Salmon Mitigation Statement of Agreement**

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PUD response to comments from Keely Murdoch. Responses are highlighted in red.

Hi Tracy, Catherine and Todd,

Since the last HC/HSC meeting I have reviewed the 2010 meeting minutes to get a better understanding of the context in which we agreed to natural origin credit in 2010 as well as any concerns that may have been raised or expressed. I found the HCP HC minutes from August 2010 as well as the background information on the CPUD 2010 SOA to provide the most contextual information. I also want to thank Larissa and Todd for time spent tracking down the minutes from the PRCC HSC. However, there was not much discussion in the HSC minutes - it seems the HSC SOA followed the HCP SOA and really just used the same language.

I was able to meet with YN FRM leadership earlier this week to provide the background information along with the current SOA. We collectively identified some concerns and requested some needed points of clarification.

I want to make it clear that we are supportive of Skaha/Okanagan reintroduction and think it is a key piece to creating sustainable sockeye runs while facing a warming climate.

We do however still have concerns that have not been adequately discussed regarding the longer term expectations for future mitigation;

1. Expectations for future mitigation: Is it the intent of the PUDs that hatchery credit for natural origin fish from Skaha and Okanagan Lakes would occur indefinitely, or even for the life of the HCP? Or is the intent for one more 10-year period while the reintroduction to Lake Okanagan is underway? We recognize that this reintroduction program is a unique opportunity and like much of our other hatchery mitigation, the goal is to re-establish or support natural production. Receiving hatchery credit for naturally produced fish is inconsistent and not supported by the HCPs or the Settlement Agreement. We believe there needs to be a defined limit to the use of natural production to achieve hatchery mitigation credit.

PUD Response-We included language in the revised SOA that describes this was to occur through the life of the FERC License with 10-year check-in periods throughout. This program is significantly different from other programs because the PUDs invested in a hatchery that it would not own in another country without guarantees of success. This difference was agreed to and codified in the 2010 SOA. It was clear to the PUDs and others, that significant natural production would not occur until multiple decades of implementation of the reintroduction program, if at all. Regarding receiving credit for naturally produced fish is inconsistent and not supported by the HCPs or the Settlement Agreement, the Fish Water Management Tool is an example of non-traditional hatchery mitigation. Additionally, alternate forms of mitigation were described in bullet number 5 of the 2010 SOA (i.e., flow augmentation targeted to improve instream conditions for sockeye salmon; and/or habitat improvements targeted for improved natural production of sockeye salmon; and/or other appropriate mitigation measures agreed to by the HSC).

2. The SOA makes the distinction that the mitigation is for Lake Osoyoos only and is being met through releases of hatchery fry and natural production in Skaha and Okanagan lakes. However, at what point is mitigation required for all sockeye passing through the Projects? The HCP and Settlement agreement was written to mitigate for all plan species passing through the Projects, not just some of them.

PUD Response-The latest version of the SOA does include compensation for Okanogan Sub-basin and Lake Wenatchee origin Sockeye Salmon which will be met by a combination of naturally produced Sockeye Salmon smolts from Skaha Lake and Okanogan Lake, and hatchery production from the Okanogan Nation Alliance's (ONA) Sockeye Salmon hatchery.

3. Looking forward to climate change: It is possible, with continued increasing temperatures, Lake Osooyos will (at some point) no longer be able to support sockeye production or perhaps will only support a reduced population density. This may happen sooner than we expect. If we agree that your only mitigation obligation exists in Lake Osooyos, how would you meet your mitigation obligation? We view this reintroduction as critical to sustaining sockeye in the Okanogan through a changing climate and that mitigation for Okanogan sockeye would still be required under the HCPs and Settlement Agreement.

PUD Response-Okanogan sockeye are located at the southern range of their historic distribution and climate change will likely affect them sooner than more northern populations. Climate change as it relates to all fish species in the Columbia basin will need to be addressed by the JFP and other governmental officials. While the PUDs can lend a supporting role in this process, we feel it generally falls outside this SOA and the PUDs are a major provider of energy that does not produce greenhouse gasses. With that said, climate change may affect our ability to collect broodstock if environmental conditions are not conducive for broodstock collection. To address this, the PUDs latest SOA draft includes a commitment to determine the feasibility to collect gametes for hatchery production in years when environmental conditions are prohibitive for broodstock collection in the Okanogan River.

4. We have seen the fry production numbers bounce around based on broodstock availability. I suspect this year broodstock will be hard to come by, natural production will also be low. Hot years like 2021 and 2015 will likely become more frequent and common and NNI (through the combination of fry releases and natural production) may not be realized. We think contingencies need to be developed for years when NNI is not achieved. Examples include development of a fund that could be used to directly address and plan for climate change in the Okanogan so that naturally produced sockeye can be successful. The fund could be used for something like reducing irrigation impacts, developing additional cold water storage, modeling effects of removal of Zosel Dam on water temperatures in Lake Osooyos and the Okanogan River, developing a truck-and-haul program from Wells Dam to Skaha Lake (or for broodstock) in hot years to ensure some minimum number of Sockeye return, or even funding habitat projects in the Canadian Okanogan which are currently funded through the habitat/tributary funds but which GPUD and CPUD get hatchery credit in addition to habitat credit. If hatchery credit is being given for natural production resulting from the opening up of new habitats like Shingle Creek, or creating spawning beds, then hatchery funds should be used not habitat funds.

PUD Response-All hatchery programs experience fluctuating returns based on a number of factors and Okanogan sockeye are no different. As stated above, the PUDs latest SOA draft includes a commitment to determine the feasibility to collect gametes for hatchery production in years when environmental conditions are prohibitive for broodstock collection in the Okanogan River. Climate change will be a regional concern affecting many species in the upper Columbia, not just sockeye, and will therefore require regional solutions by more than just the mid-Columbia PUDs. There are other funding mechanisms in place to address habitat and that falls outside the scope of this SOA.

5. The goal has always been reintroduction to Lake Okanogan. Since this is the goal, and the results of the recent comprehensive review seem positive and promising, I think it is highly probable that the expansion to 8 million will occur. We would like to see a commitment (rather than a decision by the



HC/HSC) from the PUDs to expand the Penticton hatchery to 8 million under this agreement. Ideally the hatchery would be ready for production prior to the approval from COBTWG so that when the approval is received we are ready to ramp up fry production immediately and do not need to wait for construction of the facility. If the uncertainty around expansion is so great that the PUDs cannot agree to it in this SOA then we would like to request the participation of COBTWG members in a discussion about the uncertainty so we can better understand what we are actually agreeing to and where the program is likely headed in the next ten years. We would like more clarity around the PUDs vision of the Lake Okanogan expansion including construction timelines so that we do not lose time or mitigation opportunity when the decision is made to increase production to 8 million fry. (Catherine, thanks for the discussion on this, I think there is probably greater commitment to expand than I realized when I wrote these comments, let's talk about how we can make the SOA reflect that).

PUD Response-We agree that the goal has always been reintroduction to Lake Okanogan. We feel the long-term success of upper Columbia sockeye will require the habitat found in Lake Okanogan which is the primary reason the PUDs worked so long and hard with ONA to access that habitat and why natural production was so important. As noted in the comprehensive review by ONA in 2021, Okanogan fry releases are years ahead of where ONA envisioned in 2010. The hatchery in Penticton currently has capacity for incubating 5 million eggs. There are some additional infrastructure needs to rear 8 million eggs to release and the PUDs are working with ONA to incorporate those needs. However, until we are more certain of HSC support of the program by way of an updated SOA, there is less incentive to quickly move forward with hatchery upgrades. The current version of the SOA commits the PUDs to upgrades to the hatchery that will provide capacity for an 8 million egg program without additional approvals other than agreement to the SOA.

6. We would like a better understanding of what the 8 million program (program details) would entail, for example how many fry are released in which lake and if any additional M&E is needed.

PUD Response-The program is adaptively managed by ONA and COBTWG, based on returns and Skaha rearing capacity on an annual basis. The PUDs play a similar role in both north and south of the US/Canada border in that we defer to the JFP in program management. However, we are sure that if the HSC desires, we could arrange to have those details provided as requested.

7. Similar to the 2010 SOA an evaluation and review criteria should be established to ensure that we are still on track with reintroduction at the end of this 10-year agreement.

PUD Response-A comprehensive review of the program at the 10-year check in can be arranged with a presentation by ONA staff.

These same issues have been identified in comment bubbles on the draft SOA itself. However I think comment bubbles are a difficult way to receive and discuss comments and edits. So our concerns have been duplicated in this email.

Tracy please distribute this email to the HC & HSC.

Catherine, thanks for the good conversation on this this evening.

Thanks,

Keely

