

Memorandum

To: Wells, Rocky Reach, and Rock Island HCP Hatchery Committees and Priest Rapids Coordinating Committee Hatchery Subcommittee Date: May 20, 2020

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

cc: Larissa Rohrbach, Anchor QEA, LLC

Re: Final Minutes of the April 21, 2020 HCP Hatchery Committees and PRCC Hatchery Subcommittee Meetings

The Wells, Rocky Reach, and Rock Island Hydroelectric Projects Habitat Conservation Plan Hatchery Committees (HCP-HCs) and Priest Rapids Coordinating Committee Hatchery Subcommittee (PRCC HSC) meetings were held by conference call and web-share on Tuesday, April 21, 2020, from 10:00 a.m. to 2:45 p.m. Attendees are listed in Attachment A to these meeting minutes.

Action Item Summary

Joint HCP-HCs and PRCC HSC

- Mike Tonseth will coordinate with Andrew Murdoch (Washington Department of Fish and Wildlife [WDFW]) to present pre-spawn mortality modeling results for spring Chinook salmon at an upcoming HCP-HCs meeting (Item I-A). *(Note: this item is ongoing.)*
- Brett Farman will discuss with Charlene Hurst and Mike Tonseth the potential use of a multi-population model for estimating proportionate natural influence (PNI) for the Nason and Chiwawa spring Chinook salmon programs (Item I-A). *(Note: this item is ongoing.)*
- Greg Mackey will work with Mike Tonseth to test a modeling approach and prepare a white paper on the method for determining a range for the number of females to be collected for a given broodstock in the upcoming year (Item I-A). *(Note this item is ongoing.)*
- Greg Mackey will prepare a plan for alternative mating strategies based on findings described in his previously distributed literature review (Item I-A). *(Note this item is ongoing.)*
- Mike Tonseth will distribute the analysis showing feasibility of the Methow Spring Chinook Outplanting plan based on historic run-size data (Item II-A). *(Note this item is ongoing.)*
- All parties will provide updates on changes to marking and tagging plans due to the impacts of COVID-19 on operations as updates become available (Item II-D). *(Note this item is ongoing.)*
- 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 II-A).
- Keely Murdoch will prepare an updated retrospective analysis of conservation program size to present in the next meeting (Item II-A).

PRCC HSC

- Tracy Hillman will communicate with Denny Rohr, PRCC Chair, regarding the responses from the National Marine Fisheries Service (NMFS) on a potential White River spring Chinook salmon hatchery program and request from the PRCC to provide further direction to the PRCC HSC on this topic (Item IV-C).
- Brett Farman will inquire within NMFS whether the Upper Columbia River Spring Chinook 5-year status review would evaluate the existing recovery criteria and whether any other salmon or steelhead recovery plans have been updated since their original development (Item IV-C).

Decision Summary

- The PRCC HSC approved Grant County PUD's *2020-21 Priest Rapids Hatchery (PRH) Monitoring and Evaluation Implementation Plan* in today's meeting (Item IV-B).

Agreements

- No agreements were made in today's meeting.

Review Items

- A draft infographic prepared by Grant PUD depicting No Net Impact (NNI) is available for limited review by PRCC HSC representatives, with comments due to Todd Pearsons by Wednesday, May 13, 2020 (Item IV-D).

Finalized Documents

- Grant County PUD's final *2020-21 Priest Rapids Hatchery (PRH) Monitoring and Evaluation Implementation Plan* was distributed via email by Larissa Rohrbach on April 24, 2020 (Item IV-B).

I. Welcome

A. Review Agenda, Announcements, Approve Past Meeting Minutes, Review Last Meeting Action Items

Tracy Hillman welcomed the HCP-HCs and PRCC HSC to the meeting and read the list of attendees signed into the meeting. The meeting was held via conference call and web-share because of travel and group meeting restrictions resulting from the COVID-19 pandemic. Hillman reviewed the agenda and asked for any additions or changes to the agenda.

The following topics were added to the agenda for brief discussion:

- Mike Tonseth requested that the PUDs provide an update on whether COVID-19 social distancing measures are going to create delays in reporting the adult fish passage numbers at their hydro-projects. This will be addressed during the discussion of effects of COVID-19 on monitoring and evaluation (M&E) activities (Item II-C).
- Kirk Truscott will update the PRCC HSC on a juvenile steelhead mortality event in the Okanogan River Basin.

All members approved the agenda with these additions.

The HCP-HCs and PRCC HSC representatives reviewed the revised March 18, 2020 meeting minutes. Minor revisions were resolved in the meeting. The HCP-HCs and PRCC HSC approved the March 18, 2020 meeting minutes as revised.

Action items from the HCP-HCs and PRCC HSC meeting on March 18, 2020, were reviewed, and follow-up discussions were addressed (*note that italicized text below corresponds to action items from the previous meeting*):

Joint HCP-HCs and PRCC HSC

- *Mike Tonseth will coordinate with Andrew Murdoch (Washington Department of Fish and Wildlife [WDFW]) to present pre-spawn mortality modeling results for spring Chinook salmon at an upcoming HCP-HCs meeting (Item I-A).*
Tonseth said this item is ongoing. Tonseth informed the attendees that Andrew Murdoch has recently moved into the role of temporary North Central Washington Regional Director for WDFW.
- *Brett Farman will discuss with Charlene Hurst and Mike Tonseth the potential use of a multi-population model for estimating proportionate natural influence (PNI) for the Nason and Chiwawa spring Chinook salmon programs (Item I-A).*
Farman said this item is ongoing.
- *Greg Mackey will work with Mike Tonseth to test a modeling approach and prepare a white paper on the method for determining a range for the number of females to be collected for a given broodstock in the upcoming year (Item I-A).*
Mackey said this item is ongoing.
- *Greg Mackey will prepare a plan for alternative mating strategies based on findings described in his previously distributed literature review (Item I-A).*
Mackey said this item is ongoing.
- *Bill Gale will ask Rod Engle (USFWS) for information on weir operation in the Imnaha River allowing for bull trout passage (Item III-E).*

Gale said he had a meeting with Engle, Catherine Willard, Ian Adams (Chelan PUD), and Mike Tonseth last week and discussed how operations of the Imnaha River weir may or may not apply to Chiwawa River weir. Willard will provide an update on this item in today's meeting. This item is complete.

- *Mike Tonseth will distribute the analysis showing feasibility of the Methow Spring Chinook Outplanting plan based on historic run-size data (Item I-A).*

Tonseth said this item is ongoing.

- *All parties will provide updates on changes to marking and tagging plans due to the impacts of COVID-19 on operations as updates become available (Item II-C).*

This item will be discussed in today's meeting.

PRCC HSC

- *Tracy Hillman will discuss updating the Upper Columbia Salmon and Steelhead Recovery Plan with Melody Kreimes (Upper Columbia Salmon Recovery Board; Item IV-C).*

Hillman said Kreimes sent a response email and they also communicated via phone call. This item will be discussed in today's meeting.

II. Joint HCP-HCs and PRCC HSC

A. Major Discussions Schedule for the Broodstock Collection Protocols

Tracy Hillman projected the summary table of broodstock collection protocols (BCPs) topics for HCP-HCs and PRCC HSC discussion in 2020 (Appendix B). Hillman asked representatives for feedback on the timing of discussions and required actions.

1. Chiwawa spring Chinook salmon marking strategy: Catherine Willard said that another group of hatchery by hatchery (HxH) fish will backfill the wild by wild (WxW) broodstock and will be differentially marked this summer. Last year, uniquely coded wire tags (CWTs) were injected into the caudal peduncle to identify the HxH group. Technicians noticed some scoliosis this year that may be attributable to the CWT injections and there is a need to determine whether that strategy should be pursued again. This discussion should be planned for next month. Mike Tonseth said the brood year 2019 juveniles are not marked yet.
2. Differentiating natural-origin Okanogan spring Chinook salmon using elemental signature analysis: Kirk Truscott said he is still working on this topic and may not be ready to discuss it before June. He is developing a pilot plan for sampling for elemental signature analysis by sampling scales rather than fin rays, because in the past, fish sampled for fin rays in the Wenatchee Basin did not survive well. Truscott said all natural-origin returns (NOR) encountered at Wells Dam are already scale-sampled, so this is a matter of determining

whether or not the elemental signature analysis is feasible. Tonseth said it should be discussed whether or not additional scales should be collected for elemental signature analysis. Tonseth was uncertain how many scales are needed for laser ablation to obtain sufficient information for aging the fish and to determine origins. Truscott said he would inquire with laboratory personnel about how many scales would be needed to obtain both types of information. Tonseth said he thought the mortality seen from the effort in the Wenatchee Basin was a result of holding those fish on surface water at the Chiwawa Acclimation Facility and they contracted fungus. Truscott said there was a test and control group (fin-ray sampled and not sampled) that were both held on surface water and mortality was high in both groups; there was no control for fish held on groundwater. Tonseth said he wonders if there is a way to test the method differently. Truscott said he would not recommend testing with a listed stock fish, but he has been discussing testing this approach with a surrogate stock like summer Chinook salmon. Tonseth said he thinks it would be a good idea to pursue some methods using fin rays because he wonders whether the scales will return enough material.

Truscott said he is struggling to figure out how to collect broodstock without adding additional work. He added that there was difficulty differentiating fish from different subbasins within the Wenatchee Basin using elemental signature analysis. In this case, however, they are trying to differentiate among basins, which should be easier because of the broader geographic scale.

3. Outplanting surplus Methow composite spring Chinook salmon adults: Tonseth said there has been no revision to the previous run escapement analysis. He said the run over Bonneville Dam is looking more encouraging, but it is too early to tell what the run size will be. Perhaps the run is slightly early this year. Tonseth said if run sizes are what they were projected to be, implementing the 2017 outplanting plan will not be possible.
4. Wenatchee spring Chinook salmon pre-spawn survival estimates: Andrew Murdoch's new duty as North Central Washington Region's temporary Director may limit his ability to participate. Tonseth suggested moving his presentation to later this year.
5. Sizing of upper Columbia River (UCR) spring Chinook salmon conservation programs: Hillman reminded the attendees that the program was awaiting some data to be able to re-analyze program size, such as data from the Wenatchee spring Chinook salmon Relative Reproductive Success Study. Tonseth said two pieces of information are needed: pre-spawn survival estimates and updated spawner-recruit curves that are a product of the 10-year comprehensive review. Keely Murdoch said she had done a retrospective analysis that was similar to the original program size analysis with additional years of data. She said the pre-

spawn mortality estimates are a key factor that would allow her to update the original analysis. Keely Murdoch said they were also waiting for a component of the Relative Reproductive Success Study that would allow for a different and parallel program size analysis. Tonseth said he recollected there was an interest in waiting on some information from the life-cycle analysis. Keely Murdoch said she could add more years to the retrospective analysis while waiting for the additional information. Hillman said he has updated most of the stock-recruitment relationships for the 10-year Comprehensive Review. Hillman suggested discussing this topic in May to review the status of the analysis and decide what additional information is needed. Todd Pearsons said there are some elements that could be updated including capacity and some discussion about the reliability of those estimates – both of which are presented annually in the committee approved M&E report. A second is pre-spawn mortality, which is important to allow enough fish to escape above Tumwater Dam so that enough of them survive to spawn. The third is the risk level for bad survival years. Pearsons said Keely Murdoch has mentioned a number of times that reducing the size of the conservation program requires an acknowledgement by the HCP-HCs and PRCC HSC that more safety-net fish may be allowed on the spawning grounds. Pearsons said the problem with that approach is that it was designed to work in low survival years which means that in many years natural-origin fish are taken into the hatchery instead of leaving them on the spawning grounds. Pearsons asked if the topic of leaving more fish on the spawning grounds than in the past could be discussed. Keely Murdoch agreed there is an element to this discussion that is a risk assessment around the use of hatchery-origin fish and at what frequency, not just on spawning grounds, because the retrospective analysis showed that reducing the hatchery program size allows for more fish on the spawning ground while still meeting PNI goals. Keely Murdoch said the risk is that within the hatchery program there may be a need to use safety-net fish more often because there would not be that many conservation-program fish coming back. Keely Murdoch said there is a tradeoff by selecting a conservation-program size based on the retrospective analysis that would make use of safety-net fish very infrequently. Keely Murdoch said the Yakama Nation (YN) would be comfortable with allowing a greater escapement of safety-net fish to the spawning grounds but different parties may have different comfort levels with using safety-net fish in the conservation programs. Keely Murdoch agreed to update the conservation-program size analysis for next month's meeting to review what it informs and what information is still needed.

6. Revising protocols for the transfer of adult Chief Joseph Hatchery (CJH) fish from Methow River facilities: Truscott agreed to the timeline provided in the table, which is to discuss the protocols in the fall. He noted that if CJH fish are not prevalent in the river, modifying these protocols becomes a lower priority than other updates to the BCPs.

7. Requests for surplus adults for research purposes or other non-program requests: Hillman asked if there are any known research uses. Tonseth said this topic is most relevant at Wells Fish Hatchery because that is where most of the requests for surplus are made. Tonseth said once all production program needs have been met, any other research needs directed at improving an HCP program would be allocated toward that use prior to declaring surplus. Bill Gale said it not clear whether prioritization of surplus should be included or not in the BCPs and would like a consistent and uniform practice. Gale said he agrees to prioritizing fish for HCP-related research; fish are only designated as surplus once the HCPs' and PRCC's needs are met. Tonseth said this is correct; however, fish have been considered surplus if in excess of production goals. Gale said he agrees but calling it surplus is confusing. Tonseth said this is a way to show need for retaining adults in the BCPs for approval whereas in the past requests have been made after BCP approval. Tonseth said he would not advocate for a change in how approvals have been done in the past; however, the earlier a request can be outlined the better likelihood that that request can be met and the easier it will be to ensure the allocation is truly made with fish that are surplus to production.
8. Major BCP section rewrites: Greg Mackey said he would start rewriting the steelhead section in question to streamline some of the material Douglas PUD had added in previous years.
9. Preparing for BCP authorship and tech editing: author tasks will be assigned and Larissa Rohrbach will support the best approaches for co-authoring and technical editing the BCPs.

B. Comprehensive M&E Report Status Update

Todd Pearsons shared slides that described the progress and the plan for completion of the 10-year Comprehensive Report (Attachment C).

Slide 1 – Title: Hatchery Comprehensive Report (aka Program Review): Hatchery Committees Update

Slide 2 – There was an effort to restructure the reporting schedule to match with other obligations like recalculation. This content of the report was not a prescribed in the HCPs or Agreements, but was a response to the direction in the HCPs and Agreements.

Slide 3 – Types of reporting products. The annual reports are prepared in all years, 5-year statistical reports include the results of the statistical tests for each program, and a program review is developed every 10 years to integrate all information, not just by program but also to compare to other programs inside and potentially outside of the UCR basin. The 10-year Comprehensive Report (aka Program Review) will try to address the objectives that are in the M&E Plan.

Slide 4 – The approved schedule for reporting. A draft Program Review is to be completed at the end of 2020. It is a large effort to assemble all the information. The PUDs have been working for 1 to 2 years to assemble all the information available.

Slide 5 – A separate report will be provided for each species.

Slide 6 – Hatchery M&E objectives. The goal is to address the M&E objectives in the report to the best of our ability.

Slide 7 – A rough outline for how the different objectives could be encapsulated within a general topic, given as titles for individual chapters. For example, the first chapter topic, “The effects of hatchery supplementation on abundance...” combines a number of objectives that fit together well.

Slide 8 – The general approach to document development has been to assign a lead for each chapter to assemble data, relying on Tracy Hillman, WDFW, and others. The results should not be surprising because these data are mostly available in the annual reports. Hillman has been preparing a large portion of the data analysis. In many cases, the chapters could be complete before December 31, 2020, allowing for Committees to review prior to the release of the complete draft report. In some cases, chapters will be sent to the local experts, co-authors, and those who collected the data for review. In addition, interesting topics could be prepared as journal articles. By December 31, some chapters will be well reviewed, and some will not have been reviewed at all. The idea would be to bring all chapters together into single species reports.

Slide 9 – The genetics monitoring chapters will not be finalized by the end of 2020 due to staffing limitations related to COVID-19. Essential services have been prioritized in the WDFW genetics lab. A placeholder chapter may be provided in the comprehensive report to complete the genetics monitoring chapter at a later date.

Slide 10 – One chapter has undergone peer review already. It was important to have a baseline understanding of stray rates for comparison (Pearsons and O’Connor 2020¹). The authors prepared a publication on natural-origin stray rates in the UCR basin that was reviewed by local technical experts, peer-reviewed, and published. Another article submitted to the journal *Fisheries* is now in press describing the partnerships at Priest Rapids Hatchery.

Kirk Truscott asked when chapters will go through technical reviews and whether there will be a summary of those reviews and responses that Committee members could view. He said it would be informative to see what the reviewers were recommending and to see the technical back-and-forth. Pearsons said he understands the question and request; however, one of the challenges is a limited

¹ Pearsons, T. N., and R. R. O’Connor, 2020. “Stray Rates of Natural-Origin Chinook Salmon and Steelhead in the Upper Columbia River Watershed.” *Transactions of the American Fisheries Society*. 149:147-158.

amount of time to turn drafts around and he is concerned about slowing down the process. Pearsons said additional review loops are not feasible, though providing the journal peer reviews would be possible because there is more time for those efforts. Truscott said he would like to know what technical issues were considered and how the end product was determined. Pearsons said, for example, the fall Chinook salmon chapter is being co-authored by Grant PUD and WDFW. There has been a lot of back-and-forth that is difficult to track. Pearsons will consider some other ideas for tracking how the end product was decided without slowing the process. Truscott said he would want to know any major decisions related to why the analyses were performed a certain way. Pearsons said that several chapters will not be ready until December; only those chapters for publication that are finished early would have been previously reviewed and revised.

C. Effect of COVID-19 Pandemic on M&E Activities

Tracy Hillman asked each Committee member to provide an update on impacts of the COVID-19 pandemic on M&E activities.

Mike Tonseth said M&E staff recently had a meeting to re-define which activities are essential. Alf Haukenes (WDFW) said last week the list of tasks WDFW has been given permission to carry out was expanded, including smolt trap operations and data collection for Endangered Species Act (ESA) issues, especially in the Methow, and the list always included spawning ground surveys and hatchery operations including broodstock collection and other activities. Haukenes said preparing the list was difficult. There was some resistance to some items from the Governor's office. Haukenes said they are hoping that this small expansion of activities will allow for greater capacity to add even more activities. Haukenes said items were identified that, if not carried out now, major ESA commitments like Biological Assessments would not be met, but public safety and social distancing was a major consideration as to whether these were activities that could be carried out safely. Todd Pearsons asked how long the screw traps were not operating and what programs will be able to report with the data collected when they are in operation again. In other words, are data being collected just because there is a contract to run the traps or will there be useful data gained this year. Haukenes said it is probably too soon to address that question completely but there will probably be value in this year's activities. Haukenes said, anecdotally, some of the traps are coming on-line that are extremely valuable but he was unsure if that applies to all traps in operation. Catherine Willard said operation of the Chiwawa River and lower Wenatchee River traps stopped on March 25 and operations started again last week, but peak outmigration had not occurred yet and although there will be a gap in this year's smolt trapping data, it is not a loss. Keely Murdoch added that a larger amount of data are missing than can be extrapolated as is done for briefer outages; however, operators did not miss the entire spring outmigration, which can still be compared to previous years. Murdoch said the population estimate may not be as precise in 2020 as in other years, but there is some information to be gleaned about the size of the outmigration compared to previous years.

Pearsons asked Murdoch if the YN schedule for smolt trap operations was the same as WDFW's. Murdoch said it was similar but not exactly the same. In the beginning, YN technicians were given strict guidelines by the YN to undertake only activities to keep fish alive with a limited number of people. Murdoch said they are generally still under an order to maintain minimum operations to keep fish alive, but with written memoranda ensuring social distancing will be maintained; they have been able to restart some other activities. Murdoch said technicians have more recently been given more authority to carry out activities that are time sensitive and that deal with ESA-listed species; for example, collecting kelts at Rock Island Dam. Murdoch said the YN was able this week to obtain authorization to restart smolt traps, and traps are being placed in the water today.

Mackey said some staff were having difficulty acquiring personal protective equipment (PPE). Haukenes said the definition of PPE varies depending on the activity, but WDFW is following the new CDC guidelines, which includes wearing a cloth mask that is washed daily and bringing hand sanitizer to the field. WDFW staff are using construction masks or homemade masks.

Brett Farman said NMFS is taking a stance that safety is more important than strict adherence to written permits and biological opinions. Farman said NMFS is working on ways to deal with reporting obligations that would trigger re-initiation of consultation to avoid re-initiation.

Pearsons asked if re-initiation would be triggered in situations where M&E data cannot be collected this year? Farman said yes, for example, marking that may not occur and may preclude the ability to report on certain metrics. Farman said NMFS is currently working on prioritizing marking activities and is working on ideas from co-managers for other ways to analyze and collect those data. Farman said right now, it is mainly the effect of marking activities that NMFS is concerned with.

Bill Gale said there is not much new to add to the emails sent out last month regarding the hold on marking and tagging through the end of the shelter-in-place order (forwarded by Larissa Rohrbach on March 26, 2020). Gale said the U.S. Fish and Wildlife Service (USFWS) is looking at how this affects each program; however, UCR programs have already been marked and tagged. Gale said there will be fall Chinook salmon in the lower CR Spring Creek and Little White Salmon River stocks that will not be marked. Gale said all activities are largely still on hold in the UCR with very limited hatchery sampling associated with releases that has been curtailed to an absolute minimum out of concern of the risk to existing hatchery staff. Gale said they are maintaining the fewest number of people on station at a time. Matt Cooper said some pre-release sampling has been done for some projects. The timing for some projects has been remarkably good; for instance, sampling lamprey in the Entiat River is about a month away and hopefully those activities will be able to be carried out.

Kirk Truscott said within-hatchery monitoring activities have continued including activation of passive integrated transponder (PIT)-tag detection systems for spring releases, all operating as normal.

Truscott said the largest impact has been to juvenile emigration activities. All screw trapping has been curtailed in the Okanogan River basin and is unlikely to start until there is a significant change in the status of the COVID-19 pandemic. It was not feasible to run the screw traps and maintain safety, remembering that use of PPE, like cloth masks, is not a barrier to COVID-19 for the wearer. Truscott said work at weirs in the Okanogan basin is progressing with some laborious efforts to maintain social distancing such as driving to sites in individual vehicles.

Marking and tagging at CJH has proceeded. Steelhead spawning ground surveys in the Okanogan are ongoing but restricted to the mainstem river because most tributaries are accessed from private lands and the Colville Confederated Tribes wanted to give private land-owners due respect given this situation.

Willard said adult counts are ongoing at Rocky Reach and Rock Island dams and are available on the Chelan PUD website² but there is currently an issue with the counts being posted to DART³ (Columbia River Data Access in Real Time); Chelan PUD is working to resolve the issue. Tonseth said none of the PUDs' projects' numbers are being reported on DART. Willard said the juvenile bypass is being operated with proper social distancing and PPE. Willard said pre-release sampling was performed safely over the past couple of weeks for all of Chelan PUD and Grant PUD programs. Willard said no activities were curtailed at this point.

Greg Mackey said the 10-year survival study is ongoing with adjustments for safe social distancing, and pre-release sampling has been proceeding. Mackey said there has been a fish marking issue. Tagging of subyearling summer Chinook salmon by USFWS may be canceled and Douglas PUD has made provisions with Biomark to carry out marking if USFWS cannot do it. Mackey said WDFW carries out the M&E so that aspect has been covered by Haukenes. Tom Kahler said Douglas PUD does not typically post any adult counts to DART until May 1 and fish counters stop work after November following the U.S. Army Corps of Engineers fish counting season. Kahler said the fish counting facility is large enough to accommodate social distancing with two to three people, which will allow fish counts to be collected as usual. Kahler said the only exception is if the sizable sockeye run materializes that has been predicted, the fish counter schedule may need to be modified to accommodate counting the large numbers of fish. Mackey said the pre-release precocity sampling of spring Chinook salmon was canceled at the Methow Fish Hatchery. He said NMFS was notified before this was canceled and a visual assessment for parr will be done.

Pearsons said the Priest Rapids Hatchery (PRH) pre-release sampling is not typically done until mid-May; they are hoping restrictions are lifted by then. Pearsons said otherwise at PRH, there are

² Available at: <https://www.chelanpud.org/environment/fish-and-wildlife/fish-counts>

³ Available at: http://www.cbr.washington.edu/dart/query/adult_graph_text

3,000 fish normally PIT tagged by USFWS that will not be tagged this year and 40,000 fish normally PIT tagged by Biomark that will not be tagged this year.

Peter Graf said Priest Rapids Dam and Wanapum fish counters are working now with video dating back to April 15, which is the normal start date.

Willard said the first spring Chinook salmon ascended Rocky Island on April 4 and another on April 18, 2020.

D. Marking and Tagging Pre-release Assessment

Catherine Willard said that during monthly size sampling in March and April at Carlton Pond, Douglas PUD staff estimated about 20% of the fish that were supposed to be 100% adipose fin-clipped had "bad clips." Marking occurs at Eastbank Hatchery. She said the WDFW marking staff were notified and a meeting was set up with Chelan PUD, Jason Norton (WDFW marking crew lead), Grant PUD, and Mike Tonseth to discuss reasons why there were so many bad clips. Willard reported that Joe Coutu (WDFW), went to Carlton to sample the fish himself and also identified a high rate of miss-clips. Willard also reported that Coutu indicated that among the marking trailers used by WDFW, there were some parts needing replacement and those were not replaced on the first fleet and replacement was not done until later. Willard said the question discussed during the meeting was if WDFW does a quality check (QC) scan at the time of clipping, why did they report a 100% clipping-rate? She said there were some problems identified with QC and ideas were discussed for mitigating this in the future. Willard said the bad clips cannot be corrected, but this will be mitigated in the future. Willard said this has implications for other programs. Chelan PUD conducted pre-release sampling to figure out what the bad clip rate is for all programs, in addition for checking CWT retention. Willard shared a table, distributed by Larissa Rohrbach following the meeting, showing results of the sampling (Attachment D). Bad clips were prevalent in the summer Chinook salmon programs and ranged from 13.8% to 27.8%. Willard said Chelan PUD crews that conducted the additional QC during pre-release sample followed the methodology used by Regional Mark Information System (RMIS) for QC and WDFW is going to update RMIS to reflect the updated bad clip rates. Willard said CWT retention rates were not much different from the QC check 20 days after tagging and the original reporting was accurate.

Kirk Truscott asked what constitutes a bad clip? Willard said this was discussed with the PUDs, the WDFW Methow crew, and Norton to ensure all agreed to what was called a "bad clip." All agreed a bad clip is defined as a fish retaining 25% or more of the adipose fin following clipping.

Todd Pearsons said three samples came up with similar estimates of bad clip rates at Carlton.

Truscott asked because their fishing regulations require release of all fish that have an adipose fin that has not been completely removed and there are a good number of Carlton fish that are

encountered in the Okanogan River. Truscott said he is wondering about the definition to avoid a situation where anglers are releasing a hatchery-origin fish that could have been retained.

Pearsons said he recalled that about half of the fish in the bad-clip category at Carlton were actually “no clips.” Greg Mackey said Douglas PUD has been monitoring the Wells Hatchery program fish and noted the Methow summer Chinook salmon yearlings had a bad clip rate of 13.8%. He said they have not assessed the subyearlings yet. Mackey said he has worked with Charlie Snow and Charles Frady (WDFW) to increase the sample sizes to better estimate the numbers that were badly marked.

Tracy Hillman asked if there are other problems that need to be considered by these Committees as a result of bad clips. Truscott said for broodstock collection, selection of hatchery-origin returns (HOR) or NOR could be made based on presence or absence of CWT. Truscott said HOR are selectively collected at CJH for segregated program fish. Depending on how bad the clips are, technicians may have to scan for CWTs. Bill Gale said it seems like the complication will be the potential inclusion of safety-net fish in conservation programs when intending to include HxH fish depending on the run size. Tonseth said the CWTs will serve as backup. Gale said the options are to scan for CWTs ahead of time or to back-calculate the effect after the fact. Gale said there could be some effectiveness of passing adult fish upstream.

Truscott asked, going forward, what is the protocol for QC during clipping. Tonseth said there are two QC steps when WDFW does the tagging. One occurs within a few days after completion of CWT tagging and adipose-clipping and the second occurs at least 28 days after tagging is finished. Tonseth said the initial QC was not catching those bad clips and the first line of detection needs to occur because there is no ability to go back and clip fish later. Tonseth said some initial QC steps are being added immediately after tagging and clipping to identify problems with the marking equipment in time to course-correct.

III. Rock Island/Rocky Reach HC

A. Chiwawa Weir Operations Update

Catherine Willard said Rod Engle provided an overview of the weir installation and operation on the Imnaha River. Passage of bull trout was allowed by gaps under the weir near the riverbed. Willard stated that Ian Adams (Chelan PUD) indicated the Chiwawa Weir could not be operated that way without extensive modification, and especially not this year. Mike Tonseth said they began to look at what modification could be feasible in the future to the weir; however, at this time there is no change for the proposed operations from the recently approved BCPs. Tonseth said the modification made to the Imnaha Weir was a fortunate accident that allowed resident fish passage; the gap occurred along the deepest part of the channel during low flow conditions. Resident fish passage ports were installed in the weir and monitoring showed bull trout were using these resident fish passage ports.

Biologists later ensured the ports were cleaned regularly to maintain passage. Tracy Hillman asked the size of the ports. Tonseth said they are approximately 3 to 4 inches high. He said large bull trout would lay on their side and squeeze through. Larger Chinook salmon could not pass through the ports. Bill Gale estimated openings were approximately 4 inches high and 12 inches wide. Gale said he hoped some modifications to the Chiwawa Weir could be made in the future to avoid bull trout handling issues and still meet broodstock collection goals. Gale said the Imnaha consultation was more onerous, requiring modifications and monitoring. Gale said Sierra Franks (USFWS Ecological Services) was also on the call and Franks found the discussion interesting and thought this was important and useful information for the Chiwawa Weir. Willard asked to share some of the materials provided by USFWS and Gale agreed to distribute them following the meeting (Attachment E).

Tonseth said to keep in mind the Imnaha Weir was completely redesigned and replaced while maintaining the concrete base because weir impacts were resulting in quite a few mortalities. Gale said mortalities were related to handling issues under the standard operating procedures that were also resolved. Tonseth said it was the latent effects of the anesthesia that was causing fish to become impinged on the weir.

Gale asked if Adams is looking at how the weir can be modified. Willard said yes; however, he thinks it would be a big project, but he is thinking of ways it could be modified.

IV. PRCC HSC

A. Review Agenda, Announcements, Approve Past Meeting Minutes

The PRCC HSC representatives approved the March 18, 2020 meeting minutes as revised.

B. DECISION ITEM: Priest Rapids Hatchery M&E Plan

Tracy Hillman called for a vote to approve Grant PUD's *Implementation Plan ,2020-21 Priest Rapids Hatchery Monitoring and Evaluation*. All members of the PRCC HSC approved except for Kirk Truscott, who did not review the plan and abstained.

C. White River Spring Chinook Salmon: Next Steps

Tracy Hillman reminded the PRCC HSC that Dale Bambrick (NMFS Columbia Basin Branch Chief) provided responses to questions about the White River spring Chinook salmon program, distributed via email by Larissa Rohrbach on March 17, 2020 (Attachment F).

Hillman said Bambrick's responses seemed consistent with Craig Busack's (former NMFS representative to the PRCC HSC) responses. Hillman asked the group how they want to proceed. Todd Pearsons said he had some observations, as follows:

- Responses from NMFS did not preclude a hatchery program but did not see much of a benefit to the White River minor spawning aggregate (mSA) that would bring the evolutionarily significant unit closer to recovery, particularly from a composited hatchery.
- The role of the spawning aggregate seemed to be less important to recovery than was previously thought.
- Their responses suggested the possibility for updating the recovery plan.

Brett Farman said Pearson's overview seems consistent with Busack's and Bambrick's intent. That is, not precluding a hatchery program but not taking a position that it was necessary or would actually benefit the stock. Farman said from NMFS' perspective, they are open to discussing a change in the baseline assumptions from the original drafted recovery plan.

Keely Murdoch said she is trying to circle back to the original reason of engaging Busack to solidify the purpose of the memorandum for the PRCC and to respond to the data needs. Murdoch said the dialog with Busack and Bambrick provides helpful insight into NMFS' current perspectives. Farman said although data needs were being discussed, it was in the context of whether the hatchery program would be restarted for ESA recovery in order to determine what would be needed to restart the program. Murdoch said the PRCC HSC was tasked with identifying questions and data that would go before an expert panel that would decide whether a hatchery program was needed. Hillman said he recalls asking the PRCC to direct the PRCC HSC how to move forward, and in the meantime, the PRCC HSC solicited perspectives from Busack on whether a hatchery program would be supported by NMFS. Hillman summarized that NMFS staff identified some adverse impacts of a hatchery, but did not say that a hatchery would be a bad thing for recovery. Hillman said Denny Rohr (facilitator of the PRCC) is aware of the responses from Busack and Bambrick and the PRCC HSC is still waiting for guidance from the PRCC. Kirk Truscott said questions 1 through 5 asked of Busack and Bambrick are about how important the White River spawning aggregate is to recovery, questions 6 through 8 are about their position on a hatchery program. Truscott said to move forward, leaving this with the PRCC is the correct action now and re-engaging with the PRCC HSC if the PRCC sends it back, or if there is reason to do so after the pending 5-year status review. Truscott and Murdoch confirmed that NMFS responses have not been discussed in the PRCC yet. Hillman will discuss these responses with Rohr to convey the need for the PRCC to consider the next steps.

Hillman said he discussed updating the Upper Columbia Salmon and Steelhead Recovery Plan with Melody Kreimes, Upper Columbia Salmon Recovery Board (UCSRB) Executive Director, about the possibility of updating the recovery plan with updated information. Kreimes said it would be worth an initial conversation with NMFS, as the Upper Columbia plan was fully adopted by NMFS

compared to others that were appendices to a NMFS plan (the full response from Kreimes was distributed via email by Rohrbach on March 25, 2020).

Hillman summarized the main points of his phone conversation with Kreimes as follows:

- To open up the plan for revision would be to open up the entire plan including harvest, hatchery, habitat, and hydropower sections, not just one component of the plan. Based on what it took to approve, it would be a large process, but it can be done. It would be a public process including all stakeholders. Kreimes would need to know relatively soon so she can inform all stakeholders.
- The UCSRB would ask the Regional Technical Team, Implementation Team, and Watershed Action Teams to review the updated information and provide a recommendation to the UCSRB and NMFS as to whether the recovery plan should be updated. If the issue is to reduce the number of spring Chinook salmon spawning aggregates in the Wenatchee River basin based on relative reproductive studies, the science teams would review the information and make a recommendation. If the upper Wenatchee River spawning area is removed, the recommendation could be that natural-origin spring Chinook salmon have to occupy all four of the remaining spawning areas in the upper Wenatchee basin. The current criteria indicate that spring Chinook salmon have to occupy four of the five spawning areas in the upper Wenatchee basin.
- Kreimes does not see how reopening the plan would help inform whether or not a hatchery program would be needed on the White River. If scientific information has changed, but it would not change the recovery criteria, the plan does not need to be reopened. However, if there is new information that indicates the current recovery criteria are inadequate or precluding recovery, or the criteria are unable to be met, that would be a reason for opening the plan.

Pearsons said if the information in the recovery plan is incorrect or incomplete, the authority on that document would want to revise it to make it as correct as possible. Pearsons said that is not necessarily a PRCC HSC task but an interested party could bring it to the UCSRB or NMFS so they can determine whether they want to do something about it. Farman said there may be new information, but whether this means the plan is incorrect, NMFS may not agree. Farman said the plans are a snapshot in time and do need updating when new information comes available; however, NMFS weighs the update needs and the severity of the discrepancies before launching into a large process, knowing there will always be information that is already out of date by the time the document is published. Farman said, in his personal opinion, NMFS would probably be reluctant to revise the plan and would want more mounting evidence that the whole plan requires revision. Hillman said based on what was shared so far, Kreimes did not think there was enough reason to reopen the plan. On

the other hand, if recent science indicates that current recovery criteria are precluding recovery, that would be a reason to reopen the plan. Farman said that makes sense.

Bill Gale said he questions whether it makes sense or not to update the plan and he is unaware of any mechanism to review or update the plan. Hillman said Bambrick responded by saying if there are issues with the plan, there is language that allows for the plan to be updated. Gale said he questions the idea that you would write a recovery plan with no review of whether the plan is adequate. Gale added that the "all or nothing" idea of opening up the plan for all elements to be reconsidered should be questioned, there should be an intermediate measure for revising aspects of it as good adaptive management. Mike Tonseth agreed with Gale. Tonseth said a lot of those criteria were developed using the most current information at that time, which were data from before 2000. Tonseth said that now there is over two decades worth of information. Tonseth asked how can they make statements that they are not willing to open it up unless it changes the criteria, when in fact you have to reopen it to rerun those analyses to find out if those criteria make sense. Hillman said it is not that it cannot be reopened, Kreimes is saying if the PRCC HSC requests the plan be opened, then the available information needs to show that the current recovery criteria are inappropriate. In addition, one does not have to open the recovery plan to rerun analyses to find out if the criteria are inappropriate. One would do those analyses to demonstrate that the plan needs to be reopened. Hillman asked if the analyses in NMFS' 5-year review include an evaluation of the reasonableness of current recovery criteria in the plan. Farman said he has not been deeply involved in either process, but agrees that is probably correct; the 5-year review could be the trigger for reopening the recovery plan.

Tonseth said his understanding is that it is a comparison of the most recent 5 years of recovery data to compare to whether they are meeting criteria. Reviewing the reasonableness of criteria would be a much more lengthy process. Hillman asked if the PRCC HSC or co-managers should request that NMFS review the reasonableness of the criteria as part of their 5-year evaluation. Tonseth said it would be helpful to know what all is evaluated in the 5-year status review to get a clear outline on whether they are evaluating whether the criteria are suitable or if it is simply a comparison among time periods. Farman said he is not aware of a statutory link between recovery plan and status review, so it is not automatically a trigger for reviewing the plan but he will ask about whether this type of information is considered in the 5-year status review and he will also ask if other recovery plans have been updated. Hillman said the Upper Columbia plan followed recommendations from the Interior Columbia Basin Technical Recovery Team. That team dissolved but the National Oceanic and Atmospheric Administration established the Recovery Implementation Science Team (RIST), which was set up to review recovery plans. Hillman suggested that the PRCC HSC could ask RIST, if it still exists, to review recovery criteria based on new information. He suggested that Farman contact Michelle McClure (NMFS) to see if the RIST could review the criteria. Hillman and Rohrbach will add

header information to the responses from Busack and Bambrick and will redistribute them following the meeting.

D. No Net Impact Infographic

Todd Pearsons shared a draft of an infographic for PRCC HSC review only, explaining what NNI is in terms of fish mitigation for the mainstem dams operated by Grant PUD. Pearsons said this is a product he has been contributing to within Grant PUD for some time. Pearsons said the infographic is intended to be circulated within the county to give people an overview of what Grant PUD does and what they strive to achieve. Pearsons asked the PRCC HSC to point out any fatal flaws with this document before it goes to a broader audience. He said the intent is to share it with the PRCC, PRCC Habitat Subcommittee, and the Fish Forum. Pearsons asked that it not be distributed more widely at this time. Pearsons said the hope is that it is a one-stop document that brings people (for instance, new committee members or county commissioners) up to speed rather quickly.

Keely Murdoch asked if it could be shared with supervisors or others within the YN. She said she wants people within her own organization to be able to review this before it goes public because it does include the YN logo and logos of other organizations. Deanne Pavlik-Kunkel said it could be shared within the agencies but to ask that she request that it not be distribute outside the organization. Brett Farman and others will ask for up-to-date logos.

Pearsons asked for feedback by the next HSC meeting.

Bill Gale asked, on the mitigation side, what about improvements to project survival such as improvements at the dams. He said on the loss side, survival through the project is affected also by mainstem habitat alteration that has changed the rivers to reservoirs, resulting in fish loss because, intuitively, survival is worse through the reservoir compared to migration through a free-flowing river. Gale suggested adding habitat alteration to the loss side of the balance.

Kirk Truscott said the eye-popping dollar amounts are emphasized and it would be fair to show the benefits in terms of producing power to be able to weigh dollar amounts of power produced and communities served, for instance, in terms of homes powered. Truscott said that would show the money spent balanced by the money made by the power producer. Truscott said there needs some context for why this amount of money is being spent on fish and habitat. That is, it is being spent because fish are killed by the dams, but also to generate power to serve specific purposes and markets including Seattle City Light and Puget Sound Energy. Truscott said, without this spending, the benefits from hydropower would not be had. Pearsons said this was intended to summarize the environmental side of the work because the hydropower production side is already pretty well-known. Pearsons said he will think about how to incorporate this feedback, noting they did cite the report that includes that type of information.

Gale said that within the hatchery section, a sentence could be added about the economic benefit of hatchery production. For instance, fishery opportunities in the ocean, lower Columbia River, and in the Hanford Reach. Mike Tonseth said he does not agree with that perspective, mitigation replaces what otherwise would have been lost without having the mitigation. Gale said he agrees, but without the NNI that economic benefit would be completely lost.

Pearsons asked if this would be a beneficial communication tool within different organizations or if it is useful only within Grant PUD. Gale said it could be beneficial if the other PUDs also provided similar information, but it is not quite as useful with information from just one PUD.

Murdoch said it is clear that the overall emphasis is on dollars spent and this stokes some anger about money spent without emphasizing the benefits. Murdoch said the number of projects and fish are written in small font and sentences that do not stand out. She said the focus on the action for fish mitigation seems like it would be more important to highlight than money that has been spent. Pearsons said the main message is the NNI up front and center, and he understands the opinion on emphasis on money. He said this is intended to be informational for people who are thinking about the financial numbers.

Tonseth said he suggests double checking the 10.9 million fish number. Pearsons said it includes PRH, sockeye, and coho salmon. Tonseth said it looks like the U.S. Army Corps of Engineers program reared at PRH may have been added into that number, and to check whether other resident fish (sturgeon, lamprey) were included.

Pearsons asked PRCC HSC members to share the document internally and return comments to him 1 week before the next PRCC HSC meeting (by May 13, 2020), allowing him time to seek answers within Grant PUD prior to the next Grant PUD meeting.

E. Carlton Pond Back-Up Well

Todd Pearsons said summer Chinook salmon acclimated at Carlton Pond were released last night based on fish readiness and environmental conditions. Brandon Kilmer (Douglas PUD Methow Hatchery Supervisor, responsible for operation of the Carlton Pond) said this was the best group of fish he had seen. He said flows in the Methow River were increasing. Pearsons said there is no news on how the release went.

Pearsons said the site operates with a 2,000 gallons per minute (gpm) permitted well with no back-up well at this time. Pearsons said they are in the process of putting in a back-up well that will be 3,200 gpm and a separate domestic well will be used to minimize stress on the pumps of bigger wells. Pearsons said the domestic well will serve the facility, for example, the eyewash station,

bathroom, and outdoor spigot. Pearsons said they are planning on having this done before the fish arrive on station this fall, providing backup capacity to the well that is already there.

Mike Tonseth said last fall there were discussions regarding the intake for the Carlton facility, and asked if there were other ideas explored like an infiltration gallery for the intake in surface water. Pearsons said the methods for accessing surface water were difficult, may not be permissible, and the reliability is uncertain and that they were not being pursued at this time. Pearsons said currently, the main channel is migrating away from the intake and they have not come up with any great ways to create a redundant surface water intake.

Tonseth asked Pearsons to confirm that both wells were not designed to be run concurrently. Pearsons said correct, only one can be run at a time.

F. Omak Creek Steelhead Mortality Event Update

Kirk Truscott said, at the Saint Mary's acclimation pond on Easter weekend, a power failure occurred and approximately 5,000 juveniles were lost, representing 50% of 10,000 that were rearing at the facility. Truscott said the release target for Omak Creek was 30,000, so this represents about 17% of the release for Omak Creek and roughly 5% for the total Okanogan Basin. Truscott said the remaining 20,000 fish were releases from Wells Fish Hatchery into Omak Creek. Truscott said the overall production out of Wells Fish Hatchery was 105% of 100,000, so they were still able to meet 100% of the release target for the Okanogan Basin as a whole. Truscott said the remaining fish were released on April 12 and 13. He said some fish were released at the time that problems were observed, which was within days of the target release date.

Truscott said the problem occurred because back-up generation started and provided power but when the utility power came back on, this signaled for the generators to switch off, but the facility did not switch back over to utility power as it should have. He said the problem was the ground to the solenoid to switch back to utility power was disconnected. He said the system has been repaired, checked, replaced, and switched into operation mode. Truscott said he prepared an incident report that will be reviewed internally and could be sent out to the PUDs and the PRCC HSC later if asked. Truscott said the issue has been in the press.

Mike Tonseth asked what proportion of the WxW fish from brood year 2019 were lost? Truscott said these were WxW progeny, but he was not certain what proportion of all WxW production for the Okanogan River the loss represented.

Pearsons asked if the affected fish that were released were so compromised that they would have poor survival. Truscott said in the rush to save fish, they were not counted. He said one pond was not released so they could observe latent mortality and there were about 500 mortalities the first day

and 1,700 the following day. Truscott said this proportion that suffered latent mortality was factored into the estimate of the total mortality.

G. Nason Spring Chinook Salmon Release Update

Todd Pearsons said they typically look for fish readiness and environmental conditions before force-releasing fish from the Nason Creek Acclimation Facility. Pearsons said the fish are still small at the acclimation facility, therefore, they have decided to hold fish a bit longer and will release them when there is a spike in flows. Mike Tonseth asked what the final date is for releasing them.

Keely Murdoch said because the Nason Creek smolt trap is now operating, she asked that Grant PUD please contact Jeff Caisman (YN) before the fish at the acclimation facility are released. Murdoch said this communication usually occurs; however, there are additional concerns to maintain safe social distancing if a large number of fish pass the trapping location. In addition, the traps have not been manned 24 hours a day. Pearsons said releases will occur at night.

V. Next Meetings

The next HCP-HCs and PRCC HSC meetings will be Wednesday, May 20, 2020, Wednesday, June 17, 2020, and Wednesday, July 15, 2020, held by conference call and web-share until further notice.

VI. List of Attachments

- Attachment A List of Attendees
- Attachment B 2020 Major Discussion Topics
- Attachment C Hatchery Comprehensive Report (aka Program Review): Hatchery Committees Update
- Attachment D 2020 Pre-release Sampling Mark and CWT summary
- Attachment E Imnaha Weir Performance Information
- Attachment F Role of the White River Spring Chinook Spawning Aggregate in Recovery

Attachment A
List of Attendees

Name	Organization
Larissa Rohrbach ^o	Anchor QEA, LLC
Tracy Hillman ^o	BioAnalysts, Inc.
Scott Hopkins ^o	Chelan PUD
Catherine Willard ^{*o}	Chelan PUD
Kirk Truscott ^{*‡o}	Colville Confederated Tribes
Tom Kahler ^{*o}	Douglas PUD
Greg Mackey ^{*o}	Douglas PUD
Peter Graf ^{‡o}	Grant PUD
Deanne Pavlik-Kunkel ^o	Grant PUD
Todd Pearsons ^{‡o}	Grant PUD
Brett Farman ^{*‡o}	National Marine Fisheries Service
Matt Cooper ^{*‡o}	U.S. Fish and Wildlife Service
Bill Gale ^{*‡o}	U.S. Fish and Wildlife Service
Alf Haukenes ^o	Washington Department of Fish and Wildlife
Chris Moran ^o	Washington Department of Fish and Wildlife
Mike Tonseth ^{*‡o}	Washington Department of Fish and Wildlife
Keely Murdoch ^{*‡o}	Yakama Nation

Notes:

* Denotes HCP-HCs member or alternate

‡ Denotes PRCC HSC member or alternate

^o Joined by phone

Table 1. Topics for HCP-HC and PRCC HSC Discussion in 2020

Topic	Discussion Lead	Meeting Dates for Discussion	Required Action and Date
Chiwawa spring Chinook salmon marking strategy (BY2019, BY2020 body tag for hatchery fish)	Catherine Willard	May	Incorporate marking plan into 2021 BCPs
Differentiating natural-origin Okanogan spring Chinook salmon from other natural-origin Chinook salmon during broodstock collection at Wells Dam for Methow Fish Hatchery programs – consider elemental signature analysis	Kirk Truscott	April – June	Incorporate sampling into 2021 BCPs
Outplanting surplus Methow Composite Spring Chinook Salmon Adults	Mike Tonseth	June	Update plan; linkages to BCPs
Wenatchee spring Chinook pre-spawn survival estimates	Mike Tonseth/ Andrew Murdoch	June or later based on Andrew’s Murdoch’s availability	Present method and results to HCs/HSC; inform program sizing discussions
Sizing of upper Columbia River conservation programs	All	May	Depends upon pre-spawn survival estimates, updated S/R curves, capacity estimates, and risk (max natural-origin fish on spawning grounds)
Revise protocols for identifying/transferring Chief Joseph Hatchery fish from Methow Fish Hatchery and Winthrop National Fish Hatchery during broodstock collection	Kirk Truscott	Sept - Nov	Include in draft BCPs for internal permit holders by January 10
Request for HCP surplus adults for research or other requests	All	Sept – Feb (2021)	Include in draft BCPs for internal permit holders by January 10 (needs to be surplus to production goals)

Topic	Discussion Lead	Meeting Dates for Discussion	Required Action and Date
Review of the Broodstock Collection Protocols (BCPs) to identify major rewrites needed and assign co-authors <ul style="list-style-type: none"> • Address redundancy in Methow Steelhead juvenile release methods and broodstocking methods • Consistent descriptions of allocation of surplus 	Tracy Hillman	Sept-Nov	Assign BCP author responsibilities in Sept meeting
BCP document production: options for co-authoring and technical editing	Larissa Rohrbach	Nov-Dec	Establish BCP drafting protocol by mid-December; Prepare draft BCPs for internal permit holders by January 10

Hatchery Comprehensive Report (aka Program Review)

Hatchery Committees Update

April 21, 2020

HSC/HCP agreement (March 13, 2017)

“To date, the past reporting timing has not necessarily met the intent of the Agreements, and has not been orchestrated to align with the various actions that the Hatchery Committees and NMFS require.”

“Subsequently, we have designed a reporting schedule that is consistent with the Agreements, meets reporting requirements under the M&E Plan, meets ESA Section 10 permit requirements, and optimizes the sequence of reporting and the actions that rely on M&E information.”

Report type	Frequency	Content	Function
Data	Annual	Cumulative description of data (raw and derived) and field methods. Basic statics reported.	Informs annual M&E implementation plans
Statistical	5 year	Presentation of statistical analyses and description of statistical methods. Addressed in the Program Review when the two would occur in the same year.	Informs 5 year M&E plan and provides in depth data analysis
Program Review	10 year	Integrates and interprets information from data and statistical reports and also includes integration from other programs and studies. Written in scientific manuscript format. Fulfills HCP “Program Review” requirements. Addresses Statistical Report requirements.	Informs recalculation and adaptive management. Determines if programs are meeting objectives.



2	2040			Program Review Completed		Data Report	Adds 2039	Through 2038
1	2039			Program Review Process		Data Report	Adds 2038	
5	2038					Data Report	Adds 2037	
4	2037		M&E Plan Update			Data Report	Adds 2036	
3	2036					Data Report	Adds 2035	
2	2035				Statistical Report Completed	Data Report	Adds 2034	Through 2033
1	2034				Statistical Report Process	Data Report	Adds 2033	
5	2033	Recalc Finalized				Data Report	Adds 2032	
4	2032	Recalc Brood Collection	M&E Plan Update			Data Report	Adds 2031	
3	2031	Recalc Process				Data Report	Adds 2030	
2	2030			Program Review Completed		Data Report	Adds 2029	Through 2028
1	2029			Program Review Process		Data Report	Adds 2028	
5	2028					Data Report	Adds 2027	
4	2027		M&E Plan Update			Data Report	Adds 2026	
3	2026					Data Report	Adds 2025	
2	2025				Statistical Report Completed	Data Report	Adds 2024	Through 2023
1	2024				Statistical Report Process	Data Report	Adds 2023	
5	2023	Recalc Finalized				Data Report	Adds 2022	
4	2022	Recalc Brood Collection				Data Report	Adds 2021	
3	2021	Recalc Process	M&E Plan Update			Data Report	Adds 2020	
2	2020			Program Review Completed		Data Report	Adds 2019	Through 2018
1	2019			Program Review Process		Data Report	Adds 2018	
5	2018		M&E Plan Update			Data Report	Adds 2017	
4	2017					Data Report	Adds 2016	
3	2016					Annual Report	Adds 2015	
2	2015					Annual Report	Adds 2014	

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Species
reports

Spring Chinook

Summer Chinook

Fall Chinook

Steelhead

Sockeye

Hatchery M&E Objectives

- Objective 1:** Determine if conservation programs have increased the number of naturally spawning and naturally produced adults of the target population and if the program has reduced the natural replacement rate (NRR) of the supplemented population.
- Objective 2:** Determine if the proportion of hatchery fish on the spawning grounds affects the freshwater productivity of supplemented stocks.
- Objective 3:** Determine if the hatchery adult-to-adult survival (i.e., hatchery replacement rate, HHR) is greater than the natural adult-to-adult survival (i.e., natural replacement rate, NRR) and the target hatchery survival rate.
- Objective 4:** Determine if the proportion of hatchery-origin spawners (pHOS or PNI) is meeting the management target.
- Objective 5:** Determine if the run timing, spawn timing, and spawning distribution of the hatchery component is similar to the natural component of the target population or is meeting program-specific objectives.
- Objective 6:** Determine if the stray rate of hatchery fish is below the acceptable levels to maintain genetic variation among stocks.
- Objective 7:** Determine if genetic diversity, population structure, and effective population size have changed in natural spawning populations as a result of the hatchery program.
- Objective 8:** Determine if hatchery programs have caused changes in phenotypic characteristics of natural populations.
- Objective 9:** Determine if hatchery fish were released at the programmed size and number.
- Objective 10:** Determine if appropriate harvest rates have been applied to conservation, safety-net, and segregated harvest augmentation programs to meet the HCP/SSSA goal of providing harvest opportunities while also contributing to population management and minimizing risk to natural populations.

General chapter topics and M&E Objectives

Chapter Topic	M&E Objective
The effects of hatchery supplementation on the abundance of total and natural origin spawners and natural replacement rate	1,3,4
The effects of hatchery origin spawners on the freshwater productivity of target stocks	2
Distribution of hatchery and natural origin adults on the spawning grounds	5a
Run and spawn timing of hatchery and natural origin adults	5b
Variation in stray rates of hatchery and natural origin adults	6
The influence of hatchery programs on genetic diversity, population structure, and effective population size of natural origin fish	7
Comparison of age at maturity, size-at-age, and sex ratio between hatchery and natural origin fish: the influence of size at release	8,9
Annual variation in harvest of upper Columbia ESA listed fish	10
Annual variation of the percent of harvestable hatchery fish: How good are fisheries at harvesting surplus hatchery fish with implications for use as a management tool	10

General Approach

- Assign lead
- Assemble data
- Analyze data
- Write chapter
- Technical review of some chapters that get completed early (PUDs, co-authors, local, WDFW, independent peer-review)
- Assemble all chapters into single species reports
- Committee review of all chapters

Schedule Adjustments

- Genetics – Final chapters won't be completed until 2021 because of staff limitations and issues associated with COVID 19

FEATURED PAPER

Stray Rates of Natural-Origin Chinook Salmon and Steelhead in the Upper Columbia River Watershed

Todd N. Pearsons* and Rolland R. O'Connor

Grant County Public Utility District, Post Office Box 878, Ephrata, Washington 98823, USA

Abstract

Despite the importance of straying in understanding the ecology of Pacific salmon *Oncorhynchus* spp. and steelhead *O. mykiss*, most of what is known about salmon and steelhead straying comes from tagged hatchery fish. We provide estimates of donor straying by natural-origin spring, summer, and fall Chinook Salmon *O. tshawytscha* and summer steelhead at three spatial scales in the upper Columbia River watershed by using PIT tags. In total, 823,770

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Expanding Partnerships and Innovations to Implement Reform of a Large Columbia River Hatchery Program

Journal:	Fisheries
Manuscript ID:	FSH-2019-0095.R3
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Complete List of Authors:	Pearsons, Todd; Grant Public Utility District, Haukenes, Alf; Washington Department of Fish and Wildlife Hoffarth, Paul; Washington Department of Fish and Wildlife Richards, Steven; Washington Department of Fish and Wildlife
Keywords:	Hatchery reform, PNI, Domestication, Chinook Salmon, Management, Columbia River, Genetics

SCHOLARONE™

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CWT retention rates and “bad clip” rates for 2020 hatchery release groups (fish sampled during pre-release sampling).

Date Sampled	Group	Production Type	Vessel/RCY	AD Clip Sampled	AD Bad Clip	AD Bad Clip Rate %	CWT Sampled	CWT Detected	CWT Retention Rate %
4/14/2020	Wenatchee Steelhead Indoor	WxW	Circ-1/3	NA	NA	NA	400	386	96.5
4/15/2020-4/17/2020	Wenatchee Steelhead Outdoor	WxW	RCY-2	NA	NA	NA	200	196	98.0
	Wenatchee Steelhead Outdoor	HxH	RCY-2	1,111	175	15.8	200	191	95.5
4/10/2020	Wenatchee-Dryden Summer Chinook	WxW	DRYP	1,000	278 ^a	27.8	1,000	990	99.0
4/06/2020	Chiwawa River Spring Chinook	WxW	RCY-1	NA	NA	NA	200	199	99.5
4/06/2020	Nason Creek Spring Chinook	HxH	Circ 1-4	400	82	20.5	400	389	97.2
4/07/2020	Nason Creek Spring Chinook	WxW	Circ 4-5	400	NA	NA	400	395	98.8
4/13/2020	Chewuch River Spring Chinook	WxW	CHEWUP	NA	NA	NA	1,000	964	96.4
4/09/2020	Carlton Summer Chinook	WxW	Circ 1-8	1,000	255	25.5	1,000	997	99.7
4/08/2020	Chelan Falls Summer Chinook	HxH	Circ 1-4	1,000	136	13.6	1,000	999	99.9

^aThe 278 bad clips includes 13 no clips (1.3% no ad-clip).



passage
chutes







chutes

Roughening Plate

Attachment E Imnaha Weir Performance Information (continued)

- 2020_04_21 USFWS - Imnaha Bull Trout Weir interaction photos video_bull trout upstream.asf
- 2020_04_21 USFWS - Imnaha Bull Trout Weir interaction photos video_bull trout upstream 2.asf

Distributed to the HCP-HCs and PRCC HSC by Larissa Rohrbach on April 21, 2020, and available for download from the HCP-HCs Extranet under Draft Documents > All by Mtg Date > 4/21/2020

Role of the White River Spring Chinook Spawning Aggregate in Recovery

Questions were prepared by the PRCC Hatchery Subcommittee (HSC) in January 2020 for Craig Busack, former NMFS representative to the PRCC HSC and Dale Bambrick, current NMFS Columbia Basin Branch Chief. Busack provided his responses over email on February 10, 2020 (black bold italics) and Bambrick added to those responses via email on March 17, 2020 (red bold italics).

Here are responses to the questions that were posed to me at the 1/15 committee meeting. These answers will undoubtedly differ somewhat from what I said at the meeting, as per the email message I sent to the committee last week. Long story short, I can offer opinions/perspectives on all these, but decision-making authority on many lies within the Interior Columbia Branch Office (ICBO), the local head of which is Dale Bambrick, not with the Sustainable Fisheries Division, of which Brett and I are members.

1. Is the White River spawning aggregate necessary to the Wenatchee spring Chinook population in regards to meeting VSP criteria? *This has been discussed many times within the agency, including Mike Ford and Tom Cooney. The short answer is no, but it will help achieve the 4 of 5 spawning aggregate goal. And the goal is just that. The recovery plan presented the best thinking on the matter at the time. If, over time, it appears that some of the goals are unachievable, or achieving them poses greater risk to the species than achieving them, goals can be adjusted,*
2. What is the NOAA Science Center's most recent view on the importance of the White River spawning aggregate? *I contacted Mike Ford for the most recent information. He said his most recent information was Chiwawa-White Fst=.0049, Chiwawa-Nason Fst=.0025, and wild-hatchery in that area Fst=.0025. So White is more different than the general baseline level of Fst, but these are very small Fst levels. To the extent that the distinctiveness of White River is due to adaptation to the environment it occupies, this distinctiveness could be regained if it were to be lost.*
I'd like to also point out that the genetic distinctiveness (or lack thereof) of the White River spring Chinook spawning aggregate has been discussed many times within the PRCC HSC, including at least one panel discussion by geneticists from CRITFC, NOAA, and WDFW. I recommend the committee refer to the records of these past discussions in the minutes
3. If the White River and Little Wenatchee spawning aggregates are important to recovery and both suffer from the same limiting factors, how will NOAA address recovery without one or both aggregates? *I'm not going to answer this directly because the ensuing discussion focused more on the issue of the Wenatchee River spawning aggregate not really existing. If this were the case, the current spatial distribution specs in the recovery plan now seem much more onerous (i.e., is it now that all 4 real spawning aggregates are needed?) How to deal with this, including the possibility of a revision to the recovery plan, is something you should take up with Dale. See answer to # 1 above. In addition, I think the question is better worded as "how MIGHT NOAA address recovery....." We are a long haul away from recovery for UCR spring-run Chinook salmon. It is nevertheless hard to imagine that we would not consider delisting if all three populations are meeting abundance and productivity goals and most major spawning*

areas meet recovery criteria. We do not at this time know how productive the White and Little Wenatchee major spawning areas might eventually be. Measures to improve local habitats and reduce mortality within the migration corridor continue and may eventually contribute significantly to the abundance and productivity within these MSA.

4. How important is the White River aggregate to the overall genetic diversity of Wenatchee spring Chinook?
 - a. How much within-population genetic variation is needed for recovery? I know of no set quantitative standards for diversity for any ESU or DPS. **My experience in recovery discussions, including assessing population VSP levels is that everything has to be evaluated in the context of everything else (i.e. it is relational, not absolute). However, this question is more appropriate for Dale, assisted by NWFSC geneticists. Agreed. See earlier comments.**
 - b. Given the degree of escapement by other within basin aggregates into the White River, is there evidence to suggest that the White River aggregate is still genetically distinct? **See answers to earlier questions (particularly question #2) above also refer back to minutes from previous discussions.**
5. If the White River genetic signature is lost, can recovery still be achieved? **As I said earlier, recent discussions at NOAA have concluded yes.**
 - a. If so, how do we achieve recovery without the White River genetic signature? **Again, this is technically outside my lane, so again, it would be wise to contact Dale. However, I also recommend looking at the recovery plan. I have not studied it in detail, but I think there is lack of emphasis on White River specifically. It is unclear that there is at present much of a White River signature. We believe it is more likely that such a signature would become more pronounced if this MSA is not supplemented with hatchery fish. As for how we might achieve recovery, I think this has more to do with distribution of spawning than a genetic signature, but see answers 1 and 3.**
6. Would NOAA support a composite broodstock hatchery program for the White River? **Depends on the details of that program, but at this point it is not clear what the benefits would be. While it can be argued that a larger spawning population is a good thing in that it reduces genetic drift, allowing natural selection to be more efficient, compositing would likely erase the White River genetic signature. It also seems that given the low production potential of the White River basin, the value of the program is open to question. At this time, we do not think a supplementation program would benefit the MSA or move us any closer to recovery.**
7. If White River spring Chinook are not genetically distinct from other Wenatchee spring Chinook aggregates, what would be NOAA's view on White River supplementation? **Same as #6, but genetic concerns would be less. The White River spawning aggregate is distinct; the question is how high a value to place on this low level of distinctness.**
8. If HORs do not contribute to NORs, would adding another supplementation program in the Wenatchee contribute to recovery? **Maybe, maybe not. Key to recovery is sustainability of natural production, not how many NORs you can create by augmenting spawning grounds**

with hatchery fish. Exactly how the hatchery programs contribute to recovery is a question best asked of the ICBO. We would expect to be in on that discussion, but in a supporting role.

*In the ensuing discussion, it became clear that a larger issue is the general recovery benefits of supplementation programs, other than as a buffer against extinction. My own opinion is that supplementation programs only really solve problems when populations are critically low; you can't permanently get more natural production out of a system without increasing the productivity and capacity of that system. **I concur. I'd rather conquer, but I'll settle for concur.***