FINAL

23 S. Wenatchee Avenue, Suite 220
Wenatchee, Washington 98801
509.888.2070

ANCHOR QEA

Memorandum

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

Date: June 16, 2021

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

cc: Larissa Rohrbach, Anchor QEA, LLC

Re: Final Minutes of the May 19, 2021, 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 Wednesday, May 19, 2021, from 9:00 a.m. to 12:15 p.m. Attendees are listed in Attachment A to these meeting minutes.

Action Item Summary

Joint HCP-HCs and PRCC HSC

Long-Term

- 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; expected completion by August.*)
- 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; expected completion by July.*)
- Mike Tonseth will distribute the analysis showing feasibility of the Methow Spring Chinook Salmon Outplanting plan based on historic run-size data (Item I-A). (*Note: this item is ongoing; expected completion by September.*)
- Kirk Truscott will work with Colville Confederated Tribe (CCT) staff to develop a model that addresses the probability of encountering natural-origin (NOR) Okanogan River spring Chinook salmon at Wells Dam (Item I-A). (*Note: this item is ongoing; expected completion by September.*)
- 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 from Andrew Murdoch to update the retrospective analysis for Wenatchee spring Chinook salmon (Item I-A). (*Note: this item is ongoing; expected completion by August.*)

Near-Term (To Be Completed by Next Meeting)

- 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.*)
- Brett Farman will contact Mike Ford and Craig Busack (National Marine Fisheries Service [NMFS]) to receive input on the appropriateness of the existing Proportionate Natural Influence (PNI) Model for spring Chinook salmon programs in the Wenatchee Basin (Item III-C).
- The Chelan, Douglas, and Grant PUD representatives will update the original 2013 Statement of Agreement (SOA) on No Net Impact Recalculation Methodology (Recalculation Methodology SOA) for approval in next month's meeting (Item III-D) *(Note: Todd Pearsons provided, and Larissa Rohrbach distributed a revised version of the Recalculation Methodology SOA on June 3, 2021 to the HCP-HCs and PRCC HSC for approval in the next meeting).*
- Todd Pearsons will draft a review schedule for the 10-year Comprehensive Monitoring and Evaluation (M&E) Report for distribution prior to next month's meeting (Item III-E). *(Note: Todd Pearsons provided, and Larissa Rohrbach distributed a draft review schedule on June 3, 2021 to the HCP-HCs and PRCC HSC for discussion in the next meeting).*
- Douglas PUD and U.S. Fish and Wildlife Service (USFWS) will document the logistics within the week for collection of spring Chinook salmon broodstock at Wells Dam and potential holding, spawning, identification, and disposition of eggs or juveniles for review by NMFS to ensure alignment with existing permits (Item III-F) (*Note: Brett Farman responded on May 24, 2021 by email to communicate NMFS' agreement with a memorandum documenting the updated spring Chinook salmon broodstock collection plans at Wells Dam in 2021 [Attachment C and D]*).

Rock Island/Rocky Reach HCP-HCs

- None.

Wells HCP-HC

- None.

PRCC HSC

- None.

Decision Summary

- The draft *2022 Grant PUD Hatchery Monitoring and Evaluation Implementation Plan for the Wenatchee and Methow Basins* was unanimously approved by the Rock Island/Rocky Reach HCP-HCs and PRCC HSC.

Agreements

- All members of the HCP-HCs and PRCC HSC agreed with a recommendation from Megan Finley, the veterinarian overseeing Chelan PUD's Eastbank Hatchery programs (Washington Department of Fish and Wildlife [WDFW] Fish Health), to refrain from inoculating adult spring Chinook salmon broodstock with prophylactic antibiotics for bacterial kidney disease (BKD) for 3 years based on low disease prevalence over the past 3 years.

Review Items

- No items are pending for review.

Finalized Documents

- The final *2022 Grant PUD Hatchery Monitoring and Evaluation Implementation Plan for the Wenatchee and Methow Basins* will be distributed to the PRCC HSC in the coming weeks.

I. Welcome

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

Tracy Hillman welcomed the HCP-HCs and PRCC HSC and read the list of attendees. 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 additions or changes to the agenda.

Catherine Willard added the item "Adult Prophylactic Disease Management Plan Update and Recommendation for BY 2021 to BY 2023 Eastbank Fish Hatchery Complex Spring and Summer Chinook Hatchery Programs" to the agenda to be discussed with Megan Finley.

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

Revised minutes from the April 21, 2021, meeting were reviewed and approved by all members of the HCP-HCs and PRCC HSC.

Action items from the HCP-HCs and PRCC HSC meeting on April 21, 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

- *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 next year (Item I-A). (Note this item is ongoing; expected completion by August.)*
- *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; expected completion by July.)*
- *Mike Tonseth will distribute the analysis showing feasibility of the Methow Spring Chinook Outplanting plan based on historic run-size data (Item I-A). (Note this item is ongoing; expected completion by September.)*
- *Kirk Truscott will work with CCT staff to develop a model that addresses the probability of encountering natural-origin Okanogan River spring Chinook at Wells Dam (Item I-A). (Note this item is ongoing; expected completion by September.)*
- *Kirk Truscott will determine the number of scales that should be collected from spring Chinook at Wells Dam for elemental signature analysis to discern Okanogan River spring Chinook from Methow River spring Chinook (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 from Andrew Murdoch to update the retrospective analysis for Wenatchee spring Chinook salmon (Item I-A). (Note this item is ongoing; expected completion by August.)*

Near-Term (To Be Completed by Next Meeting)

- *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.)*
  Mackey said this item is nearly complete.
- *Catherine Willard and Todd Pearsons will distribute final versions of the Statements of Agreement (SOAs) with Chelan PUD and Grant PUD on the success of the Okanagan Sockeye Salmon Reintroduction Program (Item I-A).*
  The SOAs were distributed by Larissa Rohrbach on April 29, 2021. This item is complete.
- *Members of the HCP-HCs and PRCC HSC will review the information presented by Brett Farman on Multi-population Proportionate Natural Influence (PNI) in the Wenatchee Subbasin to better*

define the intent of the PNI calculation and develop questions for model developers Mike Ford and Craig Busack (NMFS), for discussion in the next meeting (Item III-C).
This item will be discussed in today's meeting.

- *Mike Tonseth will update the HCP-HCs on spring Chinook passage and tagging activities at the Priest Rapids Dam Off-Ladder Adult Fish Trap (Item III-G).*
  This item will be discussed in today's meeting.

II. PRCC HSC

A. DECISION: 2022 Grant PUD Hatchery Monitoring and Evaluation Implementation Plan for the Wenatchee and Methow Basins

Todd Pearsons said no comments or edits were submitted; only dates were changed. All members of the PRCC HSC voted to approve the *2022 Grant PUD Hatchery Monitoring and Evaluation Implementation Plan for the Wenatchee and Methow Basins.*

B. Marking Changes to Priest Rapids Hatchery Subyearling Fall Chinook Salmon

Mike Tonseth wrote, and Larissa Rohrbach forwarded, an email to the PRCC HSC on April 23, 2021, describing a change to the marking plans for approximately 1 million subyearling smolts from Priest Rapids Hatchery in 2021. Tonseth reported in a subsequent email on May 18, 2021, that the WDFW marking unit was able to reprioritize staff and equipment to mark all the fish in question. There will be no change to the marking plan for brood year (BY) 2020 Priest Rapids Hatchery fall Chinook salmon as outlined in the Broodstock Collection Protocols.

III. Joint HCP-HCs and PRCC HSC

A. Adult Prophylactic Disease Management Plan Update and Recommendation for BY 2021 to BY 2023 Eastbank Fish Hatchery Complex Spring and Summer Chinook Salmon Hatchery Programs

Catherine Willard said that over the past 3 years, the effects of prophylactic treatment of adult females in the broodstock to prevent transmission of BKD to offspring have been tested at Eastbank Hatchery. Megan Finley is making a recommendation not to inoculate fish for BKD in the Eastbank Hatchery programs this year, which will inform Appendix L of the 2021 Broodstock Collection Protocols. Finley provided a summary of results from an evaluation carried out over the past 3 years, and recommendations for the next 3 years. Finley described the evaluation and results. Finley showed the number of "low", "moderate," or "high" BKD enzyme linked immunosorbent assay (ELISA) results for each Chinook salmon program (Attachment B).

Over the past 3 years, only the NOR spring Chinook salmon in the Chiwawa and Nason broodstocks have been injected with prophylactic antibiotics to test if inoculation would reduce the number of high BKD ELISA results that were observed. Generally, low BKD prevalence and low pre-spawn mortality were observed over the course of the 3-year experiment. The results were somewhat similar for summer Chinook salmon. It would not be surprising to see more BKD fish that are collected at Tumwater Dam, which can be a stressful process. All high and moderate ELISA groups of summer Chinook salmon had been collected at the Wells Volunteer Channel, compared to the Chelan River site.

Finley noted that high BKD detections can result from dead or live bacteria and that prophylactic injection may have no impact on the number of high BKD fish identified because the dead bacteria will also be detected. Combined with the low prevalence of BKD, the results of the experiment do not indicate whether injections had any impact on transmission. Finley made a recommendation to initiate another 3-year experiment with no inoculation of any fish and observe the response in BKD levels without prophylactic treatment. Finley suggested that a culling program could achieve the same goals without injections. Pre-spawn mortality has been very low in all programs and Finley does not feel a need to continue injections to prevent pre-spawn mortality.

Kirk Truscott asked if this is an effort to reduce the risk of disease resistance. Finley said a culling program may be a better BKD management strategy at the Eastbank Complex versus inoculation that can reduce risk disease resistance from antibiotic use. Finley confirmed that Mike Tonseth, not in attendance at the meeting, is in favor of not injecting fish over the next 3 years.

Bill Gale asked if there has been any change in in-pond mortality. Finley confirmed that pre-spawn mortality was low. The Wenatchee summer Chinook group that had higher pre-spawn mortality also had a lot of fungus when they were captured and those were the fish that died after capture. Gale said not injecting the fish aligns with what has been done at the Federal hatcheries and he is in support of the plan. Brett Farman asked if 100% of females are sampled. Finley confirmed that all females are tested by ELISA. Truscott asked whether to continue the experiment or change the approach if BKD prevalence increases substantially in 1 year of the experiment. Finley recommended continuing the experiment because BKD can flare up in some years without a long-term high BKD trend. Truscott said it is unknown whether the injections would have an effect in a high BKD year. Betsy Bamberger (Douglas PUD Fish Health Specialist) confirmed that there have not been high BKD years over the past 3 years; there was an outbreak in sub-yearlings in 1 year, but it was most likely due to stressful rearing conditions. Gale said increased BKD seems to correspond with high escapement years.

Gale said fish health actions are by veterinarian prescription only and it is unclear how the HCP-HC process affects that decision. Finley said that, in this case, she does not believe prophylactic

injections are necessary but would be willing to prescribe them again if there are more observations of BKD made in the next 3 years.

Truscott commented that he would not second-guess fish health experts but noted there is a risk of significant loss of broodstock in a high BKD year. Truscott said he is willing to go forward with the experiment.

Farman said his understanding is that, even if inoculated, highly infected fish may have a high BKD result later whether the bacteria are live or not, but the transmission to juveniles would be lower. Those juveniles would still be culled based on the parent's results. In other words, this plan doesn't create a major difference in how juveniles are culled. Farman said he favors less antibiotic use in the environment.

All members of the HCP-HCs and PRCC HSC agreed to accept the recommendation to not inoculate spring and summer Chinook salmon from the Eastbank fish hatchery complex program over the next 3 years (BY 2021, BY 2022, and BY 2023).

B. Marking Errors and Implications

Willard reported last spring (in the April 21, 2020, HCP-HCs meeting) that a high rate of partial adipose clips (bad clips) was observed across Chelan PUD's programs in 2019, ranging from 14% to 28% of a given rearing group. Last winter (in 2020) bad clips were again observed during monthly sampling—mainly among summer Chinook salmon at Carlton Pond. The WDFW marking group followed with a quality control sampling and confirmed a bad clip rate of 18.6%. Chelan PUD chose to conduct ad-clip quality control for their programs and observed bad clip rates of 8% in the Chelan Falls summer Chinook salmon and 9% of Wenatchee summer Chinook salmon. WDFW marking staff confirmed the bad marks occurred mainly in the group of fish that were hand-clipped as compared to those clipped in the automated marking trailer. Some fish must be clipped by hand because they are of a size that cannot be automatically clipped or were abnormal in some other way.

Bad clips have implications for fish counts at dams and M&E. Willard informed the Committees that Chelan PUD and WDFW are working to improve the clip rates. Previously, WDFW had used temporary labor to staff that work but will staff that now with WDFW staff. In addition, WDFW Eastbank hatchery staff will also conduct quality control checks four times per day while the tagging trailer is on site.

Kirk Truscott suggested reviewing the coefficient of variation (CV) in sizes of those groups of fish that had high clip rates; groups with higher CVs may be more likely to have been hand-clipped. Truscott suggested improving CVs in order to reduce the need for hand clipping.

Greg Mackey said Douglas PUD has observed similar patterns at Wells Hatchery in recent years and try to do quality control sampling while marking is ongoing. Their M&E crew also samples the fish once fish are healed. If there is a problem, they ask the WDFW marking group to confirm the numbers. Truscott asked if bad clips in the Wells Hatchery program were also associated with hand clipping. Mackey did not recollect reporting on which group had the poor mark rates.

Tracy Hillman asked if this is happening statewide. Katy Shelby said a review of marking protocols and improvements are being made statewide. Truscott said the CCT had some problems a few years ago at Chief Joseph Hatchery. This year, they are sending the trailer to be retooled and replacing critical equipment. Willard said WDFW is updating their trailers as well. Bill Gale noted marking operations have been difficult to accommodate during the pandemic. Modifications were made successfully but with a lot of work.

C. Multi-Population Proportionate Natural Influence Model

Keely Murdoch said many options were discussed during last month's meeting for the populations that could be included in a Wenatchee Basin multi-population PNI model. Past work in the Methow Basin sought to resolve two major issues: 1) capturing the gene flow from the conservation program to the safety net program because the original PNI model didn't capture that; and 2) ability to create a partial proportion of hatchery-origin (HOR) returns for the Winthrop National Fish Hatchery (WNFH) and Methow programs to discern where the responsibility lies for managing the PNI, which was high overall in the Methow. We have not fully identified the issues we are trying to solve in the Wenatchee Basin. There is value in capturing gene flow from the Nason conservation program to the safety net programs, and potentially the overall contribution of each program to PNI, to better understand what drives PNI and make management adjustments. Murdoch did not support creating an overly complex PNI model that micromanages every spawning aggregate.

Brett Farman suggested refocusing the discussion on what questions to answer with PNI as a first step toward determining what populations should be examined. Kirk Truscott said members should consider the management feasibility and strategies at the same time. Bill Gale said identifying the intent of the three hatchery programs (Chiwawa, Nason conservation, and Nason safety net) should dictate the levels and scales at which PNI is calculated.

Catherine Willard said goals are identified in the permits. The Chiwawa program has its own PNI target of 0.67; Nason has one as well. The question is how we calculate PNI. Gale said if the Chiwawa program has a PNI target of 0.67, it is unclear if that is only for fish in the Chiwawa program or includes Chiwawa-origin fish that end up in the Nason program. Murdoch said she thought the goal was 0.67 for the whole basin, so that if Chiwawa and Nason fish end up in the other programs it does not matter. Murdoch said the use of the multi-population model was part of the method for solving issues specific to the Methow Basin subsequent to development of the language in the Wenatchee

spring Chinook salmon permit. Gale asked, if that is the case, is there a need to develop a multi-population PNI or a single PNI calculation for all aggregates in the whole basin? We appear to be trapped between two scenarios.

Tracy Hillman said in annual reports, PNI is calculated in two different ways based on a recommendation provided by Pearsons several years ago. One is based on the given program and the other is based on fish that have moved into other programs.

Murdoch asked if there is something wrong with the way PNI has been calculated so far. Gale said the problem as he sees it is the standard PNI calculation is intended to describe a relationship between two populations in equilibrium. What we have in the upper Wenatchee is not two separate populations. There is a wild population, two conservation populations, and a safety net population. The current approach is not designed for multiple populations. Additionally, a lot of extensive broodstock collection methods are done that affect not only spring Chinook salmon handling and delay, but also other species (e.g., bull trout and other nontarget species).

Farman agreed that this is generally true—the calculation is designed for two populations that are interlinked. He added that the multi-population model is intended for populations that interact. The questions become complicated in situations where groups are not intended to interact. Just this week, Craig Busack presented to their internal group about adjusting the basic model for population-specific selection strength to account for varying proportionate influence by population. Farman said an updated model would not change the current approach used for consultation, but it would be a refinement to better understand selection strength. More guidance from Busack may be forthcoming. Murdoch suggested waiting until Busack has shared those adjustments before further discussion on PNI.

Murdoch said all the populations are linked; they are all one Wenatchee population and managers should not overthink this. For instance, Chiwawa fish spawn in the White River and have been moved into the Nason program.

Todd Pearsons asked if goals have been specified in the permits and Hatchery Genetic Management Plan. Is there something else that has not yet been provided? Farman said he is not suggesting the goals of the programs are unclear, but there is a need to ensure it is clear that PNI calculations accurately address the need. Pearsons said PNI is a theoretical index of domestication, so from that standpoint, fish should be included whether they are strays or not because they can have an influence on domestication. Stray rate calculations are also done separately.

Hillman asked if Mike Ford or Busack could be asked about how PNI could be calculated for the four upper Wenatchee subgroups (wild, Chiwawa program, Nason conservation program, and Nason safety net program). Specifically, is the current method for calculating PNI suitable or is a different or

multi-population model more appropriate? Pearsons and Willard agreed with that approach. Willard said permits refer to using a sliding scale of PNI goals for the Chiwawa River, but the Hatchery Genetic Management Plan was written before the permits and before agreement to composite the Nason program, so it does not reflect what is currently in the permits. Farman agreed to reach out to Busack and Ford with this question.

D. Hatchery Production Recalculation – Methodology

Tracy Hillman said after last month's review of how hatchery production recalculation was carried out previously, he confirmed that sensitivity comparisons were done for Federal programs and PUD programs. Hillman asked if there were any suggested changes to methodology or approaches.

In an email, Mike Tonseth said at this time, WDFW has no plan to propose a new method or framework for recalculation but understands some adjustments may occur while working through the process.

Catherine Willard said Chelan PUD would go forward with the general methodology, understanding that some tweaks, such as which data to use, would occur later in the process. Todd Pearsons said Grant PUD would agree to pursing the same general methodology as before and suggested starting from the original 2013 SOA on No Net Impact Recalculation Methodology (Recalculation Methodology SOA) to determine whether updates or tweaks to the language of the Recalculation Methodology SOA are needed. Greg Mackey said Douglas PUD would work with the methodology used before; it is well documented though it does take some time to disentangle the calculations that were done before. Pearsons noted it would be favorable to have a more direct method for measuring productivity for NOR fish and data are a bit uneven for the different basins. Grant PUD would be interested in a better direct method, like smolt trapping, for estimating productivity, but is uncertain if it would be feasible to implement. Kirk Truscott echoed the same concerns for estimating NOR smolt production. They have been unable to produce an estimate in the Okanogan Basin with much precision or accuracy. He agrees with using the same general methodology as before, which will be much better than starting from scratch. In some options he questions the use of the hatchery smolt-to-adult returns (SAR). Using Chief Joseph Hatchery as an example, there are only 3 years of data for SAR, though perhaps they could couple this with earlier Similkameen SARs. Hillman agreed this is a detail that will probably need to be tweaked. Keely Murdoch said she supports using the same method as last time but is curious to know what people mean by tweaks. Hillman said some tweaks will be based on better information than was available last time but agreed that it will be important for all to identify and document changes, so it is clear for future recalculation efforts. Pearsons said most of the tweaks would occur within the step for approval of datasets. Bill Gale said he is okay with moving forward with the existing methods. Brett Farman said he knows that Craig

Busack spent a lot of time on this topic with the Committees previously and so is comfortable going forward with the same general methodology.

Pearsons suggested making revisions to the Recalculation Methodology SOA and voting on it during next month's meeting to ensure there is agreement to move forward.

Willard said she has started putting together the datasets. It is a lot of work, and Willard offered to provide the Committees with a rough version of the data that have been compiled so far. The Committees can then discuss the data and its relevance (e.g., use of passive integrated transponder [PIT] tags versus coded wire tags [CWTs] to calculate SARs). This will save others from having to compile datasets for recalculation. Committees can review the datasets and decide if modifications are needed. Pearsons said Grant PUD may not have all their information compiled by next month but may be able to outline their approach to hear feedback on ways to improve on the data.

The PUDs' representatives will make tracked changes to the Recalculation Methodology SOA for approval in next month's meeting. All parties will consider datasets that should be used to inform the recalculation process.

Pearsons asked that, in order to make things easy for the Committee, a single SOA be created for joint HCP-HC and PRCC HSC agreement, then after approval, a separate SOA would be created with minor changes to the language specific for the PRCC HSC. The PUDs may need separate SOAs with the organization's names on them, but the text would be consistent among the SOAs.

E. Comprehensive Monitoring and Evaluation Report Review Discussion

Todd Pearsons sought agreement among Committees' members on how to review the significant amount of content in the 10-year Comprehensive Report, available after July 1, 2021. The different chapters would be provided on the Douglas PUD's Extranet and a schedule created for all members to review all sections over 90 days.

Tracy Hillman said budgeting time effectively will be critical over the next several months as review of the annual report will begin in July, and the Committees are also working on recalculation. The workload to review will be large, but it will also be exciting and engaging to review 10 years of information integrated with results from other programs where studies have been published.

Kirk Truscott asked whether sections could be reviewed as they are completed. Pearsons said individual chapters could be reviewed separately. The Executive Summary will contain the abstracts of each chapter, and this will provide some information on how the chapters relate to each other. Greg Mackey said Sharepoint should allow for coauthoring a live document, but that it has not worked well in the past. Douglas PUD will create an organizational structure that allows all to view the document chapters by objective. Hillman said they are written in manuscript format, which differs

from the last comprehensive report, but will also be interesting as they integrate results from other studies.

Hillman suggested staggering chapters or categories to be reviewed within certain windows of time, starting with the abundance and productivity chapters. Other supporting chapters would be reviewed following the abundance and productivity chapters. This order is already established in the M&E plan.

Pearsons will draft the schedule for a staggered 90-day review by the Committees.

F. Spring Chinook Salmon Broodstock Collection at Wells Dam

Greg Mackey said that recently Chris Pasley (USFWS) informed Douglas PUD that the Methow Spring Chinook salmon returns to WNFH were looking quite poor and asked whether additional HORs (identified by presence of a CWT mark only) could be collected at Wells Dam backfill a shortfall of broodstock. They discussed how collection at Wells Dam would affect interrelated programs. The CWT-only fish could originate from the Methow Hatchery programs or the Okanogan 10j programs. It is undesirable to incorporate Okanogan 10j fish into the Methow program, and the CCT do not want Okanogan 10j fish removed from migrating to the Okanogan River. (In recent days, the collection rate of NOR brood for the Methow program has improved, although their genetic identities needed to be confirmed.)

Matt Cooper said the WNFH program is concerned with falling short of program needs. If the Methow Conservation program does not meet broodstock targets, the WNFH cannot collect NOR fish and will fall short of the target of 75% or more of the broodstock that should be from the Methow Hatchery program. Michael Humling (USFWS) created a data table to estimate expected returns (Appendix C). He presented a spreadsheet of calculations, initially looking at broodstocking with WNFH fish only. The target is 200 male and 200 female adults to produce the 400,000 smolt release and 200,000 for the Okanogan 10j program. He calculated some expansions on expected fish returning per PIT tag detected downstream and estimates that WNFH may have a shortfall of approximately 172 fish without use of Methow Hatchery fish. The outlook may be slightly better now with feedback on the number of NORs captured at Wells Dam so far. There may be up to 232 age-4 and age-5 HORs to the combined Methow Hatchery zones, but this is a narrow margin for error. Approximately three-quarters of all CWT-only spring Chinook salmon encountered at Wells Dam would be suitable for brood at WNFH. He estimated the number that would potentially be collected and the number of Okanogan 10j fish that would remain in the river if that were pursued.

Kirk Truscott said he recognizes the benefits of reaching broodstock targets for the Methow programs but noted the intent of the Okanogan 10j program is to get those fish back on the spawning grounds to develop the reintroduction program and a population specific to the

Okanogan River. To supply 200,000 juveniles for the program there would be a gap in adults allowed on the spawning grounds. He is not opposed to collecting some CWT-only adults at Wells Dam and then apportioning those fish out to the appropriate programs but wants to limit the collections. Based on conversion of spring Chinook salmon from Bonneville Dam to the Dalles Dam as of today, roughly 68% have converted to the Dalles and asked if there is any knowledge of the timing of the peak of the run at Wells Dam at this time this year. Mackey said the fish just started to come through over the past week, and numbers are increasing recently, trapping 10 to 11 fish per day over the past few days.

Truscott asked if run expansion based on PIT tags detected downstream is an underestimate for the run as it is generally in other basins. Humling said yes, they have found this could be an underestimation of approximately 25%. This work projects a worst-case scenario and a precautionary approach. Truscott asked whether the expectation moving forward is to revisit the collection status weekly and move forward with collection at Wells Dam, as necessary. Cooper said approximately 10% of Methow fish detected at Bonneville Dam have already converted to Wells Dam and 20% to 30% of other runs have already converted to Wells Dam, and he would caution against waiting on making a decision that would cause them to collect more fish during the second half of the run.

Truscott said at times they encounter CWT-only fish in the Chief Joseph Dam ladder and surmise they are Okanogan 10j fish. He suggested they could reduce collection at Wells Dam and transfer fish from the Chief Joseph Dam ladder to the Winthrop Hatchery for the Okanogan 10j program, though there is some concern that they are fish that are straying and perhaps should not be incorporated into the Okanogan 10j program. There could be a permit compliance issue, although permit provisions say nothing about collecting CWT-only fish at Chief Joseph Hatchery.

Bill Gale said the USFWS is concerned about waiting to collect after the median point of the run. Gale asked if there is a permit issue for collecting CWT-only fish at Wells Dam. Brett Farman said he would look at how the language is written, but that it is unlikely a problem. If it wasn't addressed directly, it could be dealt with relatively easily in a memo, outside of formal consultation, because it is using a facility that has already been permitted.

Gale asked the Committees to consider a collection target of approximately 100 fish next week from Chief Joseph Hatchery or Wells Dam that could be used as appropriate in the Methow Hatchery, WNFH, and Okanogan 10j programs. Truscott said he agreed with that. Farman said he supports making the decisions sooner than later to avoid skewing the collection to later in the season. He agreed to review the Tribal Resource Management Plan for compliance on collection at Chief Joseph Hatchery and permits for collection at Wells Dam. Truscott suggested meeting again early in the week after next to assess and readjust collection at Wells Dam as needed. Gale said at the local level, Douglas PUD and USFWS can meet to confirm the details and logistics.

Truscott said another question is, if fish are in hand but are ultimately not needed, what would be done with them? Would they be used and collection in the Methow Basin be deferred? Gale said he thinks there will be a need in the WNFH and the Methow-assigned brood will get used. For the Okanogan 10j fish, it makes sense to incorporate returning Chief Joseph fish (riverside-collected fish) for broodstock in the Okanogan 10j program. If WNFH returns are available, they would go to surplus for ceremonial uses or consumption. It is uncertain how excess Okanogan 10j fish could be returned to the Okanogan Basin.

Mackey suggested holding fish at Wells Dam until it is determined whether they are needed, then if adults are not needed, they could be released into the west ladder upstream of the trap early enough in the run that they could still migrate to their spawning grounds. If retained for broodstock, they could be spawned at Wells Hatchery, or live adults could be trucked upstream. Truscott agreed with this approach. Mackey said he will know by mid-June whether fish at Wells Dam will be used for broodstock or not.

Farman requested that a summary and an email be submitted to him later this week that outlines the logistical plan with the collection point(s) and program origins so he can respond to whether it comports with the permits (Mackey and Farman exchanged emails and a memo outlining the plan on May 25, 2021; Appendix D).

G. Update on Spring Chinook Tagging at the Priest Rapids Dam Off-Ladder Adult Fish Trap

Mike Tonseth provided an update in an email to Tracy Hillman and Larissa Rohrbach on May 18, 2021. To date, staff have sampled approximately 2% of the spring Chinook salmon run over Priest Rapids Dam and approximately 100 PIT tags have been deployed.

H. COVID-19 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.

- Kirk Truscott had no new updates from the CCT.
- Katy Shelby said WDFW has started a phased approach to returning to work. WDFW will allow in-office work at 25% capacity from July to September with changes in 3-month incremental stages after that. There is no change to field work practices.
- Brett Farman had no new updates from NMFS. No reopening or travel has been approved or proposed for the future.
- Keely Murdoch had no additional reopening updates from the Yakama Nation.
- Matt Cooper said guidance from USFWS is forthcoming.

- Todd Pearsons said vaccinated people do not need to be tested for working at the off-ladder adult fish trap. All other guidance is the same.
- Greg Mackey had no new updates from Douglas PUD. Douglas PUD is following the Centers for Disease Control and Prevention recommendations for masking. No masks are required for vaccinated workers within the facilities.
- Catherine Willard had no new updates from Chelan PUD. They are awaiting specific guidance.

IV. Administrative Items

A. Next Meetings

Tracy Hillman said the HCP Policy Committee is convening a meeting on June 8. Hillman will provide an overview of the HCs. Todd Pearsons asked if the Policy Committee meeting is a regular occurrence or being scheduled to address a specific issue. Hillman said the HCP Policy Committee determined they should meet at least annually outside of any dispute resolution to stay informed of other HCP Committees activities. There are also some new members on the Policy Committees that would benefit from a discussion on the HCPs and the work of the Committees.

Hillman plans to report the following regarding the HCs: 1) they function well, and since his time as chair, there have not been any formal disputes; 2) they are meeting the high technical standards outlined in the HCPs on developing plans, reporting, broodstock collection protocol preparation, and producing the number of fish directed by the agreements and implementation plans; and 3) they generally make adjustments to resolve problems as they arise in a short period of time (e.g., dealing with surplus fish on station). He will also share the status of work on recalculation and the 10-year Comprehensive Review.

The next HCP-HCs and PRCC HSC meetings will be Wednesday June 16, 2021; Wednesday, July 21, 2021; and Wednesday August 18, 2021; held by conference call and web-share until further notice.

V. List of Attachments

Attachment A List of Attendees
Attachment B Wenatchee Spring and Summer Chinook Salmon Bacterial Kidney Disease Inoculation Experiment Outcomes
Attachment C 2021 Spring Chinook Salmon Trapping Strategy at Wells Dam
Attachment D Email confirmation from Brett Farman (NMFS) to Douglas PUD and USFWS regarding spring Chinook salmon trapping strategy decision at Wells Dam

Attachment A
List of Attendees

Name	Organization
Larissa Rohrbach	Anchor QEA, LLC
Tracy Hillman	BioAnalysts, Inc.
Scott Hopkins*	Chelan PUD
Catherine Willard*	Chelan PUD
Kirk Truscott*‡	Colville Confederated Tribes
Betsy Bamberger	Douglas PUD
Tom Kahler*	Douglas PUD
Greg Mackey*	Douglas 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
Matt Cooper*‡	U.S. Fish and Wildlife Service
Bill Gale*‡	U.S. Fish and Wildlife Service
Michael Humling	U.S. Fish and Wildlife Service
Megan Finley	Washington Department of Fish and Wildlife
Alf Haukenes	Washington Department of Fish and Wildlife
Katy Shelby	Washington Department of Fish and Wildlife
Keely Murdoch*‡	Yakama Nation

Notes:
* Denotes HCP-HCs member or alternate
‡ Denotes PRCC HSC member or alternate

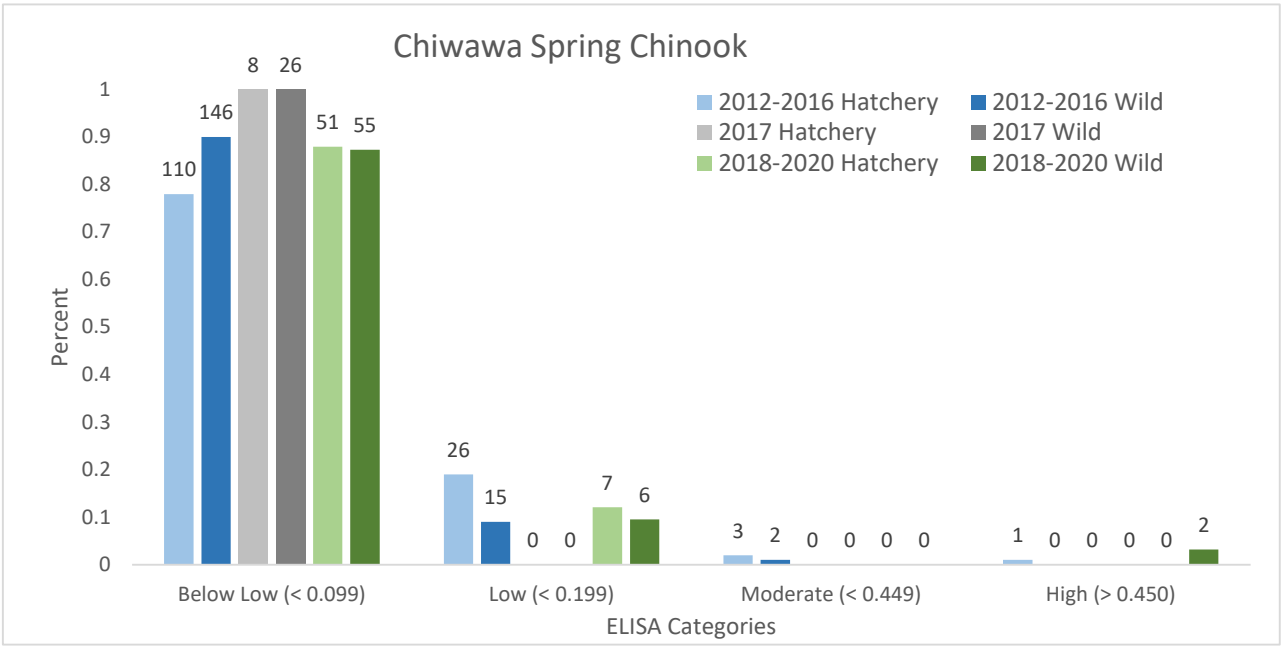
Attachment B

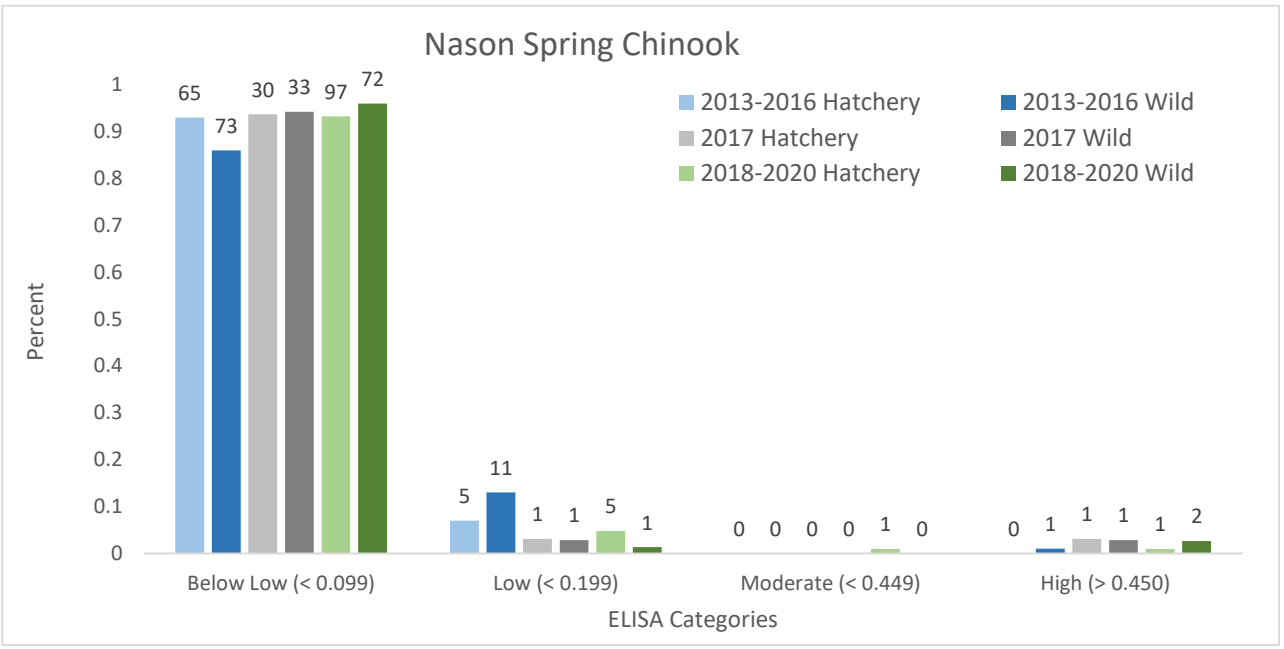
Wenatchee Spring and Summer Chinook Salmon

Bacterial Kidney Disease Inoculation Experiment Outcomes

Appendix B

Wenatchee Spring and Summer Chinook Salmon BKD Inoculation Experiment Outcomes





Notes:

HOR Spring Chinook were the test group and not inoculated.

NOR Spring Chinook were the control group and innoculated.

BKD: bacterial kidney disease

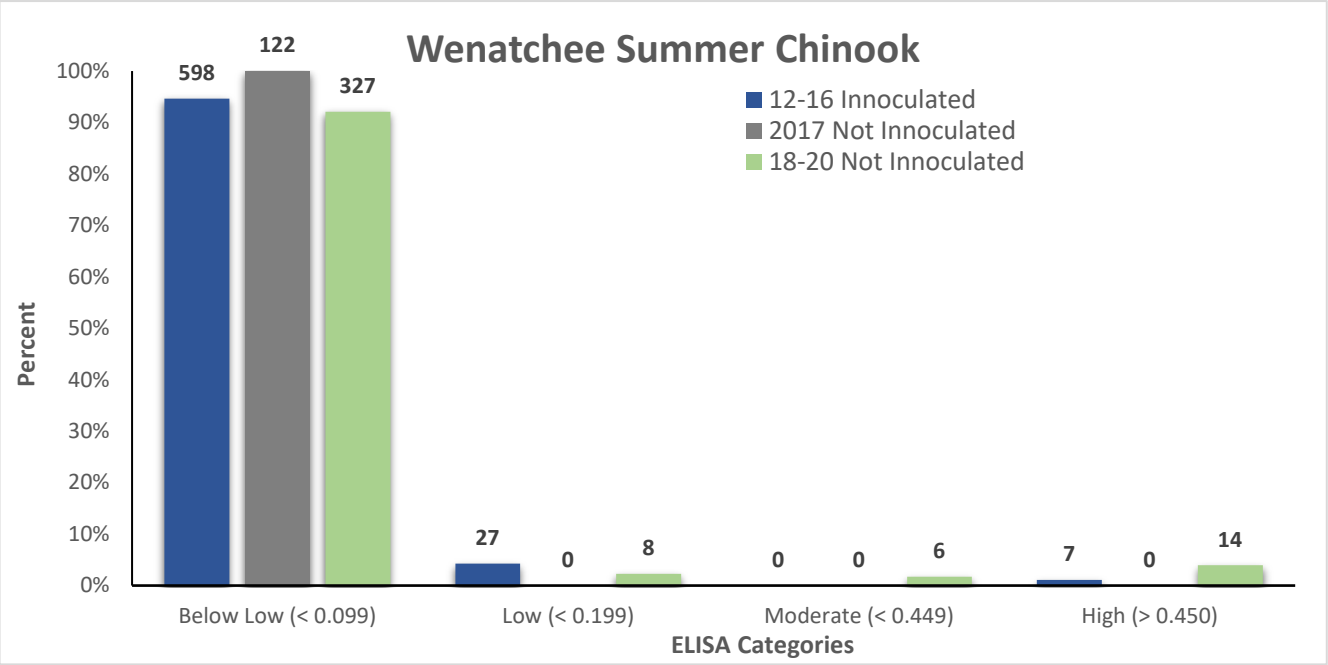
ELISA: enzyme linked immunosorbent assay

HOR: hatchery-origin

NOR: natural-origin

Appendix B

Wenatchee Spring and Summer Chinook Salmon BKD Inoculation Experiment Outcomes

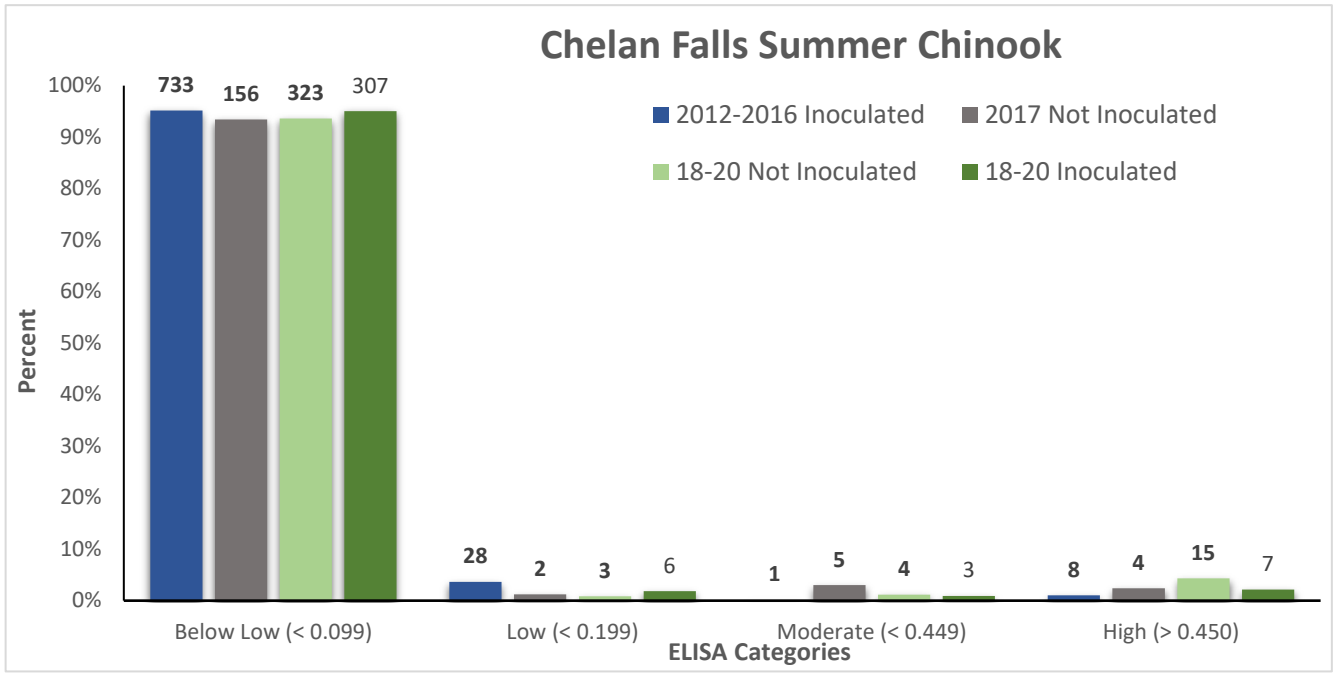


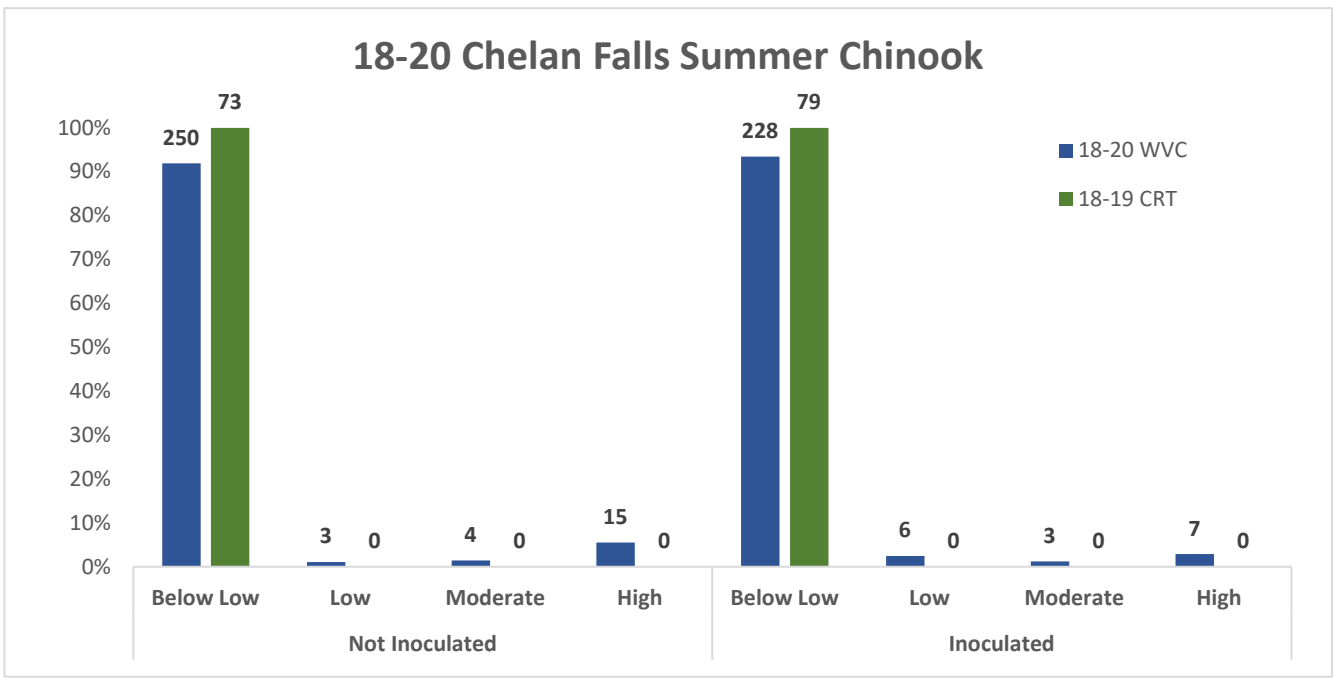
Note:

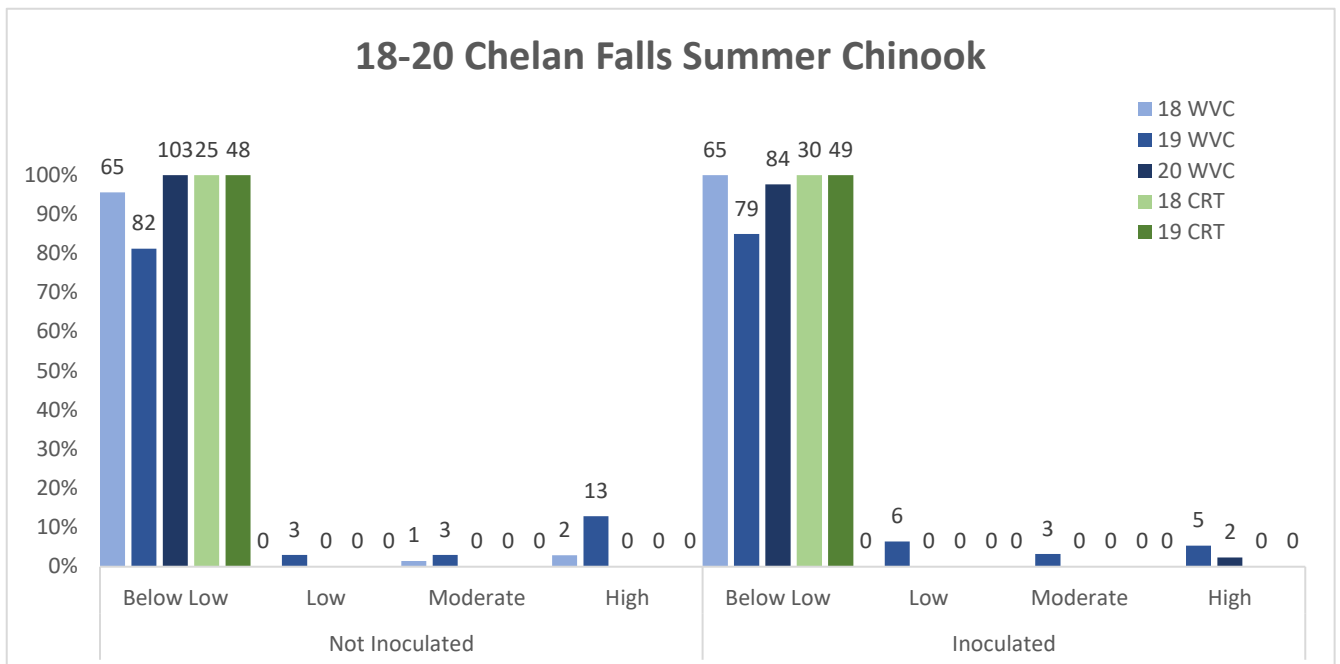
ELISA: enzyme linked immunosorbent assay

Appendix B

Wenatchee Spring and Summer Chinook Salmon BKD Inoculation Experiment Outcomes

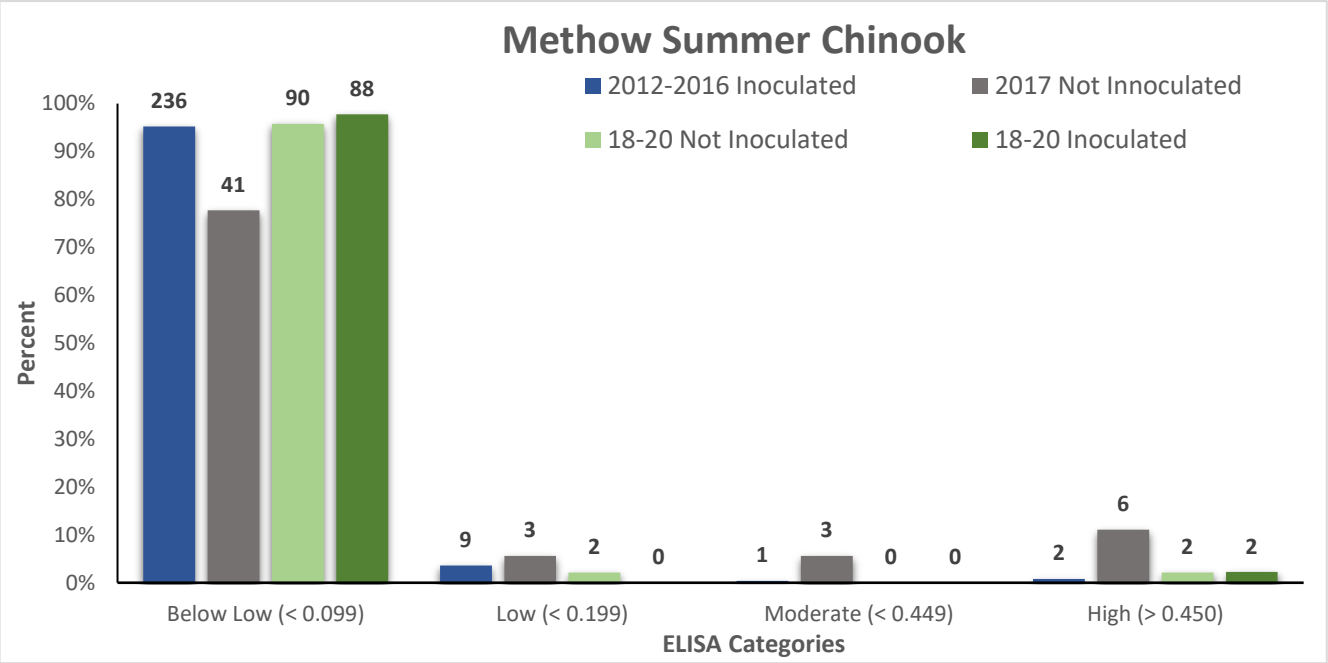






Appendix B

Wenatchee Spring and Summer Chinook Salmon BKD Inoculation Experiment Outcomes



Notes:

ELISA: enzyme linked immunosorbent assay

Appendix C
2021 Spring Chinook Salmon Trapping Strategy at Wells Dam

WINTHROP NFH BROOD TARGET (INCLUDES CHIEF JOE 10(J) PROGRAM)

Brood needs

200 males + 200 females - Can include up to 10% jacks (20 fish)

Projected inbound WNFH returns (age-4 and age-5 only) - no spawner objective for these fish - all collected fish should be used for WNFH and/or 10(j) Broodstock

BY	Hatchery Code	Release Year YYYY	Age	Release Site Name	Unique Tags	Fish/PIT	Exp'd	Run Progress as of 5/18	Bonn > Wells Conversion	Est'd to Wells	Wells > WNFH/MFH* Conversion	Collected*	To brood
2016	WINT	2018	5	WNFH	1	20.4	20	25	78.8%	19	0.85	16	16
2017	WINT	2019	4	WNFH	11	21.6	238	287	78.8%	226	0.85	192	192
2018	WINT	2020	3	WNFH	20	20.3	407	491	78.8%	386	0.85	328	20
Total (adults only)													228

WNFH only broodstock shortfall without CWTO fish from MFH/10j programs **-172**

Assumes 1:1 M:F ratio in collected fish, adult run likely biased to female

**combined PIT detections at SCP or MFH arrays*

MFH returns are optimal/targeted for WNFH broodstock for the WNFH program, i.e Stepping Stone model - availability depends on NOR broodstock allocation for MFH sub-programs

Methow FH fish (CWTO) typically and as per BiOp comprise 75% or more of WNFH (including Okanogan 10j) broodstock.

IF we proceed with the historical approach (allow fish to be passively trapped at WNFH + MFH only), we project the following:

Age 4/5 MFH returns only	Unique Tags at Bonn	Fish/PIT	Expanded	Run Progress expn	Bonn > Wells Conversion	Est'd to Wells	Wells > Hatchery* Conversion	Collected*	To brood
Chewuch Acclimation	10	14.4	144	174	89.1%	155	59.9%	93	93
Goat	9	6.0	54	65	63.9%	41	21.1%	9	9
Methow FH	7	24.9	175	211	79.7%	168	93.7%	157	130
Adults collected (MFH/CWTO) at combined hatcheries									***232***
**combined PIT detections at SCP or MFH arrays*									
Twisp (excluded)									

No trapping at Wells Dam for CWTO adults *may* result in adequate age-4/5 adults from MFH to support full program size for WNFH and CJH

BUT - this Assumes 100% NOR collection occurs for MFH programs - and MFH requires no hatchery origin brood.

Assumes that SCP+MFH array hits are fully representative of fish collected - likely slight over-estimate of fish collected into adult ponds (based on high 90%s SCP conversion into pond at WNFH)

Assumes PIT-expansions remain commensurate with tagging rates pre-release - we've seen approx. 25% under-estimate of actual CWT/carcass-expanded escapement values but results highly variable and actual expansion also an estimate

Appendix C
2021 Spring Chinook Salmon Trapping Strategy at Wells Dam

Projected numbers to Wells are as follows:

Brood Year YYYY	Hatchery Code	Release Year YYYY	Age	Release Site Name	Unique Tags	Fish/PIT	Expanded to Bonn	Run Progress	n > Wells Conversi	st'd to Wel	Mark	Program
2016	WINT	2018	5	WINT - Winthrop National Fish Hatchery	1	20	20	25	78.8%	19	AD+CWT	WNFH
2017	WINT	2019	4	WINT - Winthrop National Fish Hatchery	11	22	238	287	78.8%	226	AD+CWT	WNFH
2016	CHJO	2018	5	RIVERP - Riverside Acclimation Pond	2	46	92	111	78.0%	87	CWTO	CJH/WNFH
2017	METH	2019	4	CHEWUP - Chewuch Acclimation Pond (WDFW)	10	14	144	174	89.1%	155	CWTO	MFH
2017	METH	2019	4	GOATWP - Goat Wall Acclimation Pond	9	6	54	65	63.9%	41	CWTO	MFH
2017	METH	2019	4	METH - Methow Hatchery	7	25	175	211	79.7%	168	CWTO	MFH
2017	CHJO	2019	4	RIVERP - Riverside Acclimation Pond	24	43	1022	1233	78.0%	962	CWTO	CJH/WNFH
2017	METH	2019	4	TWISPP - Twisp Acclimation Pond (WDFW)	5	6	29	36	79.7%	28	CWTO	MFH/Twisp

Actively trapping to remove some CWT-O for broodstock at WNFH/CJH + MFH (as shortfall to NOR deficits) could address shortfalls in HORs at both facilities

Actively trapping Ad+CWT spring Chinook at Wells could yield an estimated
***this assumes the whole run is able to be collected - not likely**
246 age 4/5 adults
>20 age-3 jacks
This compares to about 208 adults using passive trapping at both hatcheries + plenty of jacks

Estimated CWT-O composition at Wells Dam

Program	Est. @ Wells	Blind CWT-O sample @ Wells	Suitable as brood for:
MFH	364	25%	1st: MFH, 2nd: WNFH/CJH
CJH/WNFH	1049	73%	WNFH
MFH/Twisp	28	2%	Twisp sub-program
	1441		

i.e., 3 out of every 4 spawned SCS collected at Wells would be a CJH return, while 1 of 4 would be a MFH variant

USFWS theoretical scenarios/strategies

If collection of CWTO fish occurs at Wells, we'd see the following:

	Adults Removed by program			**Remaining run escapement into Methow Subbasin (not incl. PSM)***		
Total CWT-O adult SCS collected at Wells	**Methow FH**	**CJH (WNFH)**	**Twisp**	**Methow FH**	**CJH (WNFH)**	**Twisp**
				308	*900*	*24*
100	25	73	2	282	827	22
200	51	146	4	257	754	20
300	76	218	6	232	681	18
400	101	291	8	207	608	16
500	126	364	10	181	536	14
600	152	437	12	156	463	12

**remaining adults back to destination using avg. WNFH Wells > Hatchery conversion (84.5%)*

Attachment D

Email confirmation from Brett Farman (NMFS) to Douglas PUD and USFWS regarding spring Chinook salmon trapping strategy decision at Wells Dam

Leah Libow

From: Larissa Rohrbach
Sent: Tuesday, May 25, 2021 2:11 PM
To: Betsy Bamberger; Brett Farman; Casey Baldwin; Catherine Willard; Chad Jackson; Deanne Pavlik-Kunkel; Emi Melton; Gale, William; 'Greg Mackey'; 'Hopkins, Scott'; Katy Shelby; Keely Murdoch (murk@yakamafish-nsn.gov); kirk.truscott@colvilletribes.com; Kristi Geris; Larissa Rohrbach; Matt Cooper; Michael Humling; Mike Tonseth (tonsemat@dfw.wa.gov); Peter Graf; Sarah Montgomery; sbickford@dcpud.org; Snow, Charles (DFW); Todd Pearsons; 'Tom Kahler (tkahler@dcpud.org)'; Tom Scribner; Tracy Hillman
Subject: FW: Methow Spring Chinook Broodstock CWTO collection memo May 24 2021.docx
Attachments: Methow Spring Chinook Broodstock CWTO collection memo May 24 2021.pdf

HCP-HCs and PRCC HSC: please see the attached memo and emails below from Greg Mackey and Brett Farman describing resolution of the decision to collect spring Chinook at Wells Dam in 2021. Thanks! Larissa

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

From: Brett Farman - NOAA Federal <brett.farman@noaa.gov>
Sent: Tuesday, May 25, 2021 10:50 AM
To: Greg Mackey <gregm@dcpud.org>
Cc: Larissa Rohrbach <lrohrbach@anchorqea.com>; Tracy Hillman <tracy.hillman@bioanalysts.net>; Brandon Kilmer <brandon.kilmer@dcpud.org>; Pat Phillips <Pat.Phillips@dcpud.org>; Andrew Gingerich <andrewg@dcpud.org>; Tom Kahler <tomk@dcpud.org>; Humling, Michael (michael_humling@fws.gov) <michael_humling@fws.gov>; Cooper, Matt <matt_cooper@fws.gov>; Chris Pasley (Chris_Pasley@fws.gov) <Chris_Pasley@fws.gov>; Emi Melton - NOAA Federal <emi.melton@noaa.gov>
Subject: Re: Methow Spring Chinook Broodstock CWTO collection memo May 24 2021.docx

Thank you for providing the information regarding your intent to collect spring Chinook for the Methow, Winthrop, and Okanogan programs at Wells Dam in 2021. Because of low projected return of spring Chinook this year, the co-managers have proposed to capture fish lower in the system at Wells Dam in an effort to collect enough of the return to meet broodstock needs for the Methow, Winthrop, and Okanogan programs.

The proposal is to collect spring Chinook arriving at Wells Dam that are only marked by a coded wire tag (no adipose fin clip). Because of the known marking strategies in the Wenatchee Basin, these coded wire tag only (CWTO) spring Chinook originate from either the Methow Hatchery conservation releases or the 10(J) program releases in the Okanogan River. The wire codes for the programs are different, though they will not be known until the fish are collected, held, and killed for spawning. Once the fish are spawned, the coded wire tags will be removed for reading. The gametes from the spawned CWTO fish will be kept separately, so that they can be directed to the correct program once identified.

Neither the Winthrop nor the Okanogan specifically list Wells Dam as a collection location for broodstock; however the Methow program does list Wells Dam as a collection location. Though the programs typically collect brood at different

locations, they are all related to the Methow program, and use Methow composite broodstock. A general description is included below:

- **The Methow Program** is a fully integrated composite stock which uses hatchery and natural origin returns destined for the Methow basin. Brood are collected from Methow Hatchery, Winthrop Hatchery, and Wells Dam.
- **The Winthrop Program** functions as a safety-net for the Methow program by genetically linking the two programs by using excess hatchery-origin returns to the Methow program for WNFH broodstock. The program primarily uses hatchery adults collected at WNFH, but does incorporate fish from the Methow.
- **The Okanogan Program** uses Methow Composite from the Winthrop National Fish Hatchery (WNFH).

NMFS agrees with the proposal to collect CWTO fish at Wells Dam for the following reasons:

- The Wells Dam already operates the trap under an existing authorization (WCR-2015-3607 and WCR0-2020-00825)
- The opportunistic retention of CWTO fish will not alter the operation or impact of the existing ladder and trap.
- The fish are identifiable by coded wire tag, and the location at which the fish are collected will not change how the programs operate or what broodstock they use.
- Wells Dam is listed as a collection location for the Methow Composite broodstock, and by extension, the use of those fish for the Winthrop and Okanogan programs does not alter the brood composition, intent, or operation of any of the three programs.
- The genetic origin, production numbers, and release locations will remain unchanged, and thus will not alter the effects that were already considered in the Biological Opinions (WCR-2015-3845 and WCR-2014-607).

Though the co-managers have indicated that only 100 CWTO spring Chinook will be collected initially, because the collection of CWTO fish at Wells Dam does not alter operation or effects of the programs, NMFS believes that the collection is consistent with existing authorizations and analysis, and the approval is not contingent on the limit of 100 collections. If the co-managers determine that more than 100 adults need to be collected, NMFS would like to be informed, though we don't believe a separate determination for the expansion will be needed.

As always, we appreciate your efforts to keep us informed of your operations, and your focus on ensuring that operations are consistent with existing understandings and documents. If you have any questions, please don't hesitate to contact me. Thank you!

Brett

On Mon, May 24, 2021 at 3:54 PM Greg Mackey <gregm@dcpud.org> wrote:

> Brett-
>
> Please find the attached memo describing the procedure to collect CWTO spring Chinook broodstock at Wells Dam this year for broodstock. We discussed this topic in the last HC meeting and developed this memo to provide to NMFS as an outcome of that discussion. DPUD, USFWS, and CCT collaborated to develop this.
>
> Larissa- Could you please distribute to the HCs.

Please let me know if you have any questions.

Thanks,

Greg

Gregory Mackey

Fisheries Biologist

Office: 509-881-2489

Mobile: 509-393-3945

Douglas County PUD

1151 Valley Mall Parkway

East Wenatchee, WA 98802-4497

--

Brett Farman

Acting WCR Training Manager

And Fish Biologist

NOAA Fisheries West Coast Region

503-231-6222

DEPARTMENT OF NATURAL RESOURCES
1151 VALLEY MALL PARKWAY • EAST WENATCHEE, WASHINGTON • 98802-4497 • 509.884.7191

2021 Spring Chinook Broodstock Collection at Wells Dam: Plan to incorporate Coded Wire tag-only Fish in the Broodstock Collection for the Methow Conservation programs and the 10(J) Okanogan Program

May 24, 2021

The USFWS, Confederated Tribes of the Coleville Reservation, and Douglas PUD (DPUD) collaborated to develop a plan to collect coded wire tag only (CWTO) hatchery-origin spring Chinook at Wells Dam. CWTO spring Chinook could originate from the Methow Hatchery conservation releases or the 10(J) program releases in the Okanogan River. Projected run returns prompted the USFWS and Douglas PUD to collect CWTO fish in anticipation of possible shortfalls in broodstock collection for the Methow Hatchery and 10(J) (Winthrop National Fish Hatchery [WNFH]) programs. This plan is for 2021 only.

1. Up to 100 CWTO spring Chinook will be collected beginning the week of May 24, 2021 at Wells Dam and Wells Hatchery. Additional fish may be collected if managers determine a need as the run continues to develop. If additional fish, beyond the first 100, are to be collected, prior notification will be provided to NMFS and the Hatchery Committees.
    a. Age 4 and 5 CWTO fish will be collected.
    b. Fish will be held in a pond separate from natural-origin spring Chinook at Wells Hatchery prior to June 24, 2021. CWTO fish will be transported to Methow Hatchery and/or WNFH dependent on broodstock needs of each program. This will be determined by the DPUD and USFWS hatchery managers and biologists as the run develops and broodstock are collected.
        i. Fish will be transported by DPUD and/or Chief Joseph Hatchery staff, as available.
    c. If CWTO fish that have been held at Wells Hatchery will not be transported to either Methow Hatchery or WNFH, these fish will be promptly released in the Wells Dam west fish ladder, upstream of the trap.
2. Spawning will take place at WNFH and/or MFH.
    a. DPUD, USFWS, WDFW staff will participate in spawning activities, dependent on facility. CWTs of transferred CWTO fish will be read in real-time upon killing fish for

spawning. Gametes will be collected and directed to the appropriate program. Hatchery managers will coordinate the spawning dates and activities.

b. All CWTO broodstock that have been transported to Methow Hatchery and WNFH will be spawned and gametes utilized.
c. Prioritization of CWTO Broodstock:
    i. CWTO fish of Methow or Twisp program origin will be directed to these programs.
        1. Should there be an excess of CWTO Methow or Twisp fish, the excess will be transferred to WNFH for use in the WNFH program.
    ii. CWTO fish of 10(J) origin will be used in the 10(J) program.
d. Natural-origin broodstock held at Methow Hatchery, if not needed because of the hatchery-origin CWTO broodstock collection, will be released into the Methow River or Twisp River, as appropriate, as soon as the decision is made to not use them for broodstock.
e. Broodstock collection at Methow Hatchery and WNFH shall be adjusted commensurately with the number of fish transported from Wells Hatchery for the respective programs. In general, collection of broodstock and disposition shall follow the 2021 Broodstock Protocols and other established program operation procedures.
f. The USFWS shall prioritize adipose clipped (CWT+ or -) presumed WNFH-origin adult spring Chinook for subsistence food programs if a surplus is identified early enough.

3. The 2021 spring Chinook broodstock collection and spawning data for the Methow Conservation and 10(J) programs will be reported in the established reporting processes for these programs.