

Memorandum

To: Wells, Rocky Reach, and Rock Island
HCP Hatchery Committees Date: December 20, 2018

From: Tracy Hillman, HCP Hatchery Committees Chairman

cc: Sarah Montgomery, Anchor QEA, LLC

Re: Final Minutes of the October 17, 2018 HCP Hatchery Committees Meeting

The Wells, Rocky Reach, and Rock Island Hydroelectric Projects Habitat Conservation Plan (HCP) Hatchery Committees meeting was held in Wenatchee, Washington, on Wednesday, October 17, 2018, from 9:00 a.m. to 12:30 p.m. Attendees are listed in Attachment A to these meeting minutes.

Action Item Summary

- Tracy Hillman will review aspects of the Independent Scientific Advisory Board's *Review of Spring Chinook Salmon in the Upper Columbia River* under Hatchery Committees' purview (Item I-A). *(Note: this item is ongoing.)*
- Greg Mackey will continue researching whether to include age-3 males in broodstock and discuss it with Craig Busack (National Marine Fisheries Service [NMFS]; Item I-A). *(Note: this item is ongoing.)*
- Keely Murdoch will provide coho salmon broodstock collection protocols to Mike Tonseth by late February or early March 2019 for inclusion in the 2019 Broodstock Collection Protocols (Item I-A). *(Note: this item is ongoing.)*
- Mike Tonseth will coordinate with Andrew Murdoch (Washington Department of Fish and Wildlife [WDFW]) regarding presenting prespawn mortality modeling results for spring Chinook salmon at the November 15, 2018 Hatchery Committees meeting (Item I-A). *(Note: Tonseth indicated that Andrew Murdoch is not available for the November Hatchery Committees meeting.)*
- Eric Kinne (WDFW) will ask Mike Ford (Northwest Fisheries Science Center) about the near-term extinction risk for Pacific salmon stocks and killer whales (Item II-D).
- Keely Murdoch will send the conservation program size spreadsheets to the Hatchery Committees (Item II-E).
- Michael Humling will provide mortality data for spring Chinook salmon that were transferred from Methow Fish Hatchery (FH) to Winthrop National Fish Hatchery (NFH) (Item II-F).

Decision Summary

- There were no decisions approved during today's meeting.

Agreements

- There were no agreements made during today's meeting.

Review Items

- Sarah Montgomery sent an email to the Hatchery Committees on November 9, 2018, notifying them that Douglas PUD's Draft 2019 Methow Monitoring and Evaluation Implementation Plan is available for a 30-day review, with edits due to Greg Mackey by December 10, 2018. (Note: the 30-day review period was approved by the Wells Hatchery Committee on November 15, 2018.)

Finalized Documents

- Sarah Montgomery sent an email to the Hatchery Committees on November 5, 2018 notifying them that Douglas PUD's Final 2017 Monitoring and Evaluation Report for the Wells and Methow Hatchery Programs is now available for download from the Hatchery Committees Extranet site.

I. Welcome

A. Review Agenda, Review Last Meeting Action Items, and Approve the August 15, 2018 Meeting Minutes (Tracy Hillman)

Tracy Hillman welcomed the Hatchery Committees and asked for any additions or changes to the agenda. There were no changes.

The Hatchery Committees representatives reviewed the revised draft September 19, 2018 meeting minutes. Sarah Montgomery said there are some outstanding comments and revisions, which the Hatchery Committees reviewed and addressed. Hatchery Committees representatives approved the draft September 19, 2018 meeting minutes as revised.

Action items from the Hatchery Committees meeting on September 19, 2018, and follow-up discussions were addressed (*note: italicized text below corresponds to agenda items from the meeting on September 19, 2018*):

- *Tracy Hillman will review aspects of the Independent Scientific Advisory Board's Review of Spring Chinook Salmon in the Upper Columbia River under Hatchery Committees' purview (Item I-A).* Hillman said this item is ongoing.
- *Greg Mackey will continue researching whether to include age-3 males in broodstock and discuss it with Craig Busack (National Marine Fisheries Service [NMFS]; Item I-A).* Mackey said this item is ongoing.
- *Keely Murdoch and Mike Tonseth will provide an update on their evaluation of the size of conservation programs in October 2018 (Item I-A).* This item will be discussed today.
- *Keely Murdoch will provide coho salmon broodstock collection protocols to Mike Tonseth by late February or early March 2019 for inclusion in the 2019 Broodstock Collection Protocols (Item I-A).* Murdoch said this item is ongoing.
- *Charlie Snow (Washington Department of Fish and Wildlife [WDFW]) and Michael Humling (U.S. Fish and Wildlife Service [USFWS]) will provide a summary of 2018 Methow Basin spring Chinook salmon adult management to the Hatchery Committees (Item I-A).* This item will be discussed today.
- *Mike Tonseth will coordinate with Andrew Murdoch (WDFW) regarding presenting prespawn mortality modeling results for spring Chinook salmon at an upcoming Hatchery Committees meeting (Item I-A).* Tonseth said this item is scheduled for the November 15, 2018 Hatchery Committees meeting and he will coordinate with Andrew Murdoch.
- *Tracy Hillman will provide background documents including Monitoring and Evaluation (M&E) Annual Reports to the panel of geneticists (Item II-A).* This item is complete. Hillman provided additional background documents to the geneticists via email on September 25, 2018.
- *Mike Tonseth will draft a description or diagram of program and population linkages in the upper Columbia River to accompany the tables of species, programs, program purpose, and type of program for the panel of geneticists to review (item IV-A).* This item is complete. Hillman provided this spreadsheet to the geneticists on October 10, 2018.
- *Mike Tonseth will send contact information for the WDFW Salmon in the Classroom program coordinator to Kirk Truscott (Item III-A).* This item is complete. Tonseth sent Josh Nicholas' contact information to Truscott on September 20, 2018.

II. Joint HCP-HC/PRCC HSC

A. Genetic Monitoring (Tracy Hillman)

Tracy Hillman welcomed Christian Smith (USFWS) to the meeting. Hillman asked how the review of materials is progressing and whether Smith has any questions for the Hatchery Committees. Smith said he has no questions yet about the background material. Hillman asked whether any further coordination is required between the geneticists. Smith said the geneticists have coordinated some and plan to set up a meeting soon. Hillman said if they would like any help with organizing people or meetings to please let him or Sarah Montgomery know.

Mike Tonseth said he will also talk with Todd Seamons (WDFW) soon about this item.

Ilana Koch also joined the call. She similarly did not have any further questions. Smith said he will contact the rest of the geneticist panel to set up a meeting.

B. NMFS Consultation Update (Brett Farman)

Emi Kondo said she provided two documents to the Hatchery Committees this morning. The first is the Draft Environmental Assessment for Upper Columbia River Steelhead and Summer/Fall Chinook Salmon Programs, and the second is a comment template for reviewing the Environmental Assessment. She said the Environmental Assessment is the pathway for these programs to receive coverage under the Endangered Species Act (ESA), as part of the National Environmental Policy Act process. She asked that the Hatchery Committees closely review her email for instructions because it identifies sections of the Environmental Assessment where review should focus and to please provide comments to her and Chuck Peven by Friday, November 2, 2018.

Tracy Hillman asked Kondo to explain the comment matrix. Kondo said the example comment included on the template is an example for how to provide a comment on a specific section and includes the page number and section number of the EA for which the reviewer has a comment. Kondo specified that the page number on the bottom of the document should be used as the page number in the comment matrix. Per her email, Kondo said reviews should focus on sections through Chapter 5, as the sections after that are general and not specific to these programs.

Kondo also asked the permit applicants whether there are any questions or concerns about submitting Hatchery and Genetic Management Plan addenda. There were no questions.

C. Orcas and Hatchery Production (Eric Kinne)

Tracy Hillman welcomed Eric Kinne, WDFW Hatchery Division Manager, to the meeting. Kinne said he will provide an update on the Southern Resident Killer Whale (SRKW) Task Force and describe how

WDFW is working with fisheries co-managers to increase hatchery production in Washington. He shared the presentation, "Southern Resident Killer Whales" (Attachment B), which Sarah Montgomery distributed to the Hatchery Committees following the meeting on October 23, 2018. A summary of the presentation, questions, and comments are included in the following sections.

Slides 1-8: Introduction and Status

SRKW range from southeast Alaska to central California, with most of their time spent along the coast of Washington, Oregon, and southern British Columbia. Kinne reviewed SRKW diet, ESA listing status, and population decline. Prey availability, contaminants, noise and vessel disturbance, and a lack of breeding-aged females have contributed to recent declines in the population.

Slides 9-14: SRKW Task Force and Prey Working Group

In response to population decline, Governor Inslee issued an executive order establishing the SRKW Task Force and charged the task force with developing an action plan to recover the population. Kinne described the Task Force, its subgroups, and its next steps. The Prey Working Group modeled priority SRKW Chinook salmon stocks to determine areas for the working group to focus salmon production and restoration. Kinne summarized the Prey Working Group's potential recommendations. Regarding hatchery production, Kinne said the group recommends increasing production and pilot studies analyzing time and size at release. There also appears to be a diet preference for older-aged fish, so the group is interested in manipulating spawning protocols to produce older-aged fish.

Slides 15-17: Funding and Production Requests

Kinne said supplemental funding for increased hatchery production is being worked into the legislative budget for fiscal year 2019. This money would fund things like hatchery improvements, fish screens, and operational costs for producing salmon. Kinne said he is working to develop a biennial hatchery production plan by the end of the year. He said he is looking for opportunities to increase production within existing facilities. Particularly, he asked whether No Net Impact recalculation generated additional space and asked for other ideas or potential issues. He preliminarily identified ESA constraints, United States v. Oregon area constraints, costs, and broodstock availability as potential issues.

Questions and Comments

Todd Pearsons asked how increased hatchery production factors into evaluation of genetic targets like percent natural influence (PNI) and proportion of hatchery origin spawners. Kinne said provisions 1, 2, and 3 in the Hatchery Scientific Review Group recommendations are suspended for 1 year while

the policy is being rewritten. He said any targets identified in existing consultation or Hatchery and Genetic Management Plans remain, but WDFW is looking to push programs to the upper bounds of their available production, especially in areas with fewer ESA constraints. Kinne said salmon species and SRKW are conflicting ESA-listed species, and their recovery is linked. He said WDFW is looking to increase production by 50 million fish coast-wide. Pearsons asked where the balance is to increasing hatchery production at the risk to native stocks in order to increase prey for SRKW. Kinne said habitat restoration is the long-term key to salmon restoration, so increased hatchery production can be viewed as a short-term balancing act.

Bill Gale asked if the Task Force has considered whether changing ocean conditions and ocean carrying capacity due to climate change is more of an issue to salmon habitat and recovery than tributary or freshwater habitat. He said increasing hatchery production in a way that does not affect PNI still increases density effects in the ocean to listed populations as a whole. Kinne agreed that this is a concern and said the Task Force is considering increasing production while evaluating those potential negative effects. Catherine Willard asked what are the preliminary results of the public comment regarding this topic? Kinne said public comments favor the recovery of wild fish. He said WDFW is working on education regarding the timeline of salmon recovery. Willard said monitoring the potential negative effects of hatchery fish on wild fish should be a key part of Task Force discussions. Truscott asked what is the near-term extinction risk of SRKW? Kinne said it is very high and he will ask Mike Ford for the details.

Betsy Bamberger (Douglas PUD) said her initial impression on increasing hatchery production is that the scale of consequences could be negative to many listed fish, with a potential benefit to few orcas. She said salmon are managed very carefully and questioned whether the impacts will be fully analyzed before production is increased. Kinne said production increases are being analyzed carefully. WDFW is considering options such as adult management, increased terminal fisheries, and establishing weirs in new areas. He said production increases will occur, and evaluation of those increases will happen in the first 5 years of their implementation.

Pearsons asked what is the evidence that abundance of prey is the key to SRKW recovery. He said SRKW appeared to increase during the time when salmon populations were very low. Kinne said SRKW are starving to death. He said over time, there has been a change in the life stages in Chinook salmon. He said spring, summer, and fall Chinook salmon populations in the 1960s and 1970s had a wide range of life stages. The range of diversity has declined. He said WDFW is highly focused on spring and summer yearlings and subyearlings, which will help feed the SRKW when they most need prey. Peter Graf said Mike Ford has also pointed out that recent trends show huge fish returns in the lower Columbia River while SRKW are starving. He asked whether these are the wrong fish at the wrong time and where production is being prioritized. Kinne said WDFW is looking to increase

production in the top prey stocks for SRKW, which include mostly upper and mid-Columbia River stocks as well as north and south Puget Sound stocks and Tule production.

Bamberger asked whether restrictions to marine harvest are being implemented. Kinne said he is not sure. Mike Tonseth said the Pacific Salmon Treaty is being renegotiated, which will have major changes to marine harvest.

Tonseth asked what is the primary driver that will help SRKW avoid extinction? He said, for example, if toxins are driving calf survival, increasing production will not ultimately help the species avoid extinction. Kinne said the contaminants group is studying that. Tonseth said managing hatchery fish in terminal zones results in increased take on listed populations. Hillman asked whether there is a team evaluating the risks to listed fish populations. He said increasing hatchery fish for SRKW may not help SRKW avoid extinction and may preclude recovery of ESA-listed fish. Is this risk being analyzed? Kinne said managing adult returns of hatchery fish is going to be a big task. He said the ESA side of these discussions is complicated, but the bottom line is that production will be increased. The details will be worked out in a plan with adaptive management considerations.

Tonseth said it appears that contaminants and genetic introgression are the biggest risks to the SRKW. He said it is hard to understand how conversations about protecting wild fish are occurring at a broader level. Kinne said regarding contaminants, the SRKW do not metabolize the toxins in their blubber if there are plenty of food sources.

Pearsons asked what Kinne has in mind for production increases in the upper Columbia River. Tonseth said in terms of feasibility and capacity, summer/fall and fall Chinook are most reasonable for increasing production. There are sufficient adults to meet broodstock for production increases, there is capacity because programs used to have higher production targets, and there are fewer ESA complications. Keely Murdoch asked if capacity exists, does WDFW have funding? Kinne said there is funding available (\$837,000 for 2019 and 2020) plus additional funding requests to be considered by the legislature in January. Tonseth said increased hatchery production and evaluation will be dependent on the legislature approving this funding request. Kinne said the Task Force is also considering where to build additional hatchery facilities in Puget Sound or the Columbia River.

Gale said an additional consideration to funding is the permitting and consultation process. Kinne said he has been in contact with Allyson Purcell (National Oceanic and Atmospheric Administration [NOAA]) regarding the consultation process. He said NOAA has preliminarily approved a production increase of 800,000 hatchery fish. He said few programs in Puget Sound have ESA permits (the rest are undergoing consultation), so amendments are being made to include upper bounds of hatchery production. He said consultation in the Snohomish and Dungeness rivers is also being reinitiated.

Truscott asked what Leavenworth NFH's production was before recalculation. Gale said the program used to be 2.2 million fish and is now 1.4 million fish. Truscott said with its facility improvements, that program is a good segregated harvest program from an ESA-risk perspective. Gale said he would like to see the Leavenworth program increased to 2.2 million with fixed infrastructure, but straying targets set by NMFS and National Pollutant Discharge Elimination System constraints set by the Washington Department of Ecology would also need to be relaxed. He said all facilities will have various constraints at some level. Kinne said if the program was permitted at the 2.2 million size before recalculation, there may be an ability to permit that production level again. Truscott said there is not as much capacity to be gained as one might think by just looking at one program's reduction without considering how other programs have backfilled production. Tonseth said the Hatchery Committees should evaluate whether or not additional capacity exists throughout the basin, then, if there is funding, where is the capacity and within which program. Next, whether the increased production would compromise other programs should be considered. Greg Mackey said an additional consideration is the implementation period. He said, for example, infrastructure and staffing changes would be different for a 5-year increase compared to a 25-year increase. Truscott agreed and said the timeline would impact whether to bring back old facilities such as Turtle Rock or Cassimer Bar. Tonseth said outside of the PUD programs, co-managers should put more pressure on entities that have not met their mitigation responsibilities. Gale summarized that there is likely not capacity for millions of additional fish to be produced in the upper Columbia and he asked whether there is an easier implementation target in the lower river. Kinne said a Tule program in Spring Creek is a consideration. Gale added that much of the high hatchery production years occurred when mass-marking was not completed, so marking costs should also be considered. Truscott asked whether opening up unoccupied habitat is being considered to increase salmon production. Kinne said dam removal and other actions are certainly being discussed. Hillman questioned whether removing the Snake River dams will reduce or eliminate funding for Snake River hatchery compensation programs.

Hatchery Committees representatives present thanked Kinne for his presentation.

D. Conservation Program Size (Keely Murdoch and Mike Tonseth)

Keely Murdoch said she and Mike Tonseth have been working to determine what data are needed to update the conservation program size analysis. She said she performed a retrospective analysis on the Nason Creek conservation program and safety-net program using the current management plan, which she shared in a presentation, "Updated Retrospective Analysis" (Attachment C, distributed following the meeting). The slides mostly showed data and analysis, so the summary below focuses on Murdoch's summary slides and questions and comments.

Murdoch said WDFW, Yakama Nation (YN), and NOAA developed a sliding scale for PNI in 2009 for the Nason Creek conservation and safety-net programs. They also modeled different sizes for the

programs. Murdoch said the 2009 retrospective analysis considered what might have occurred if the draft management plan were implemented over the previous 10 years. She shared the results of this analysis (slides 3-5).

For the 2018 update, Murdoch said the analysis was updated with the most recent 10-year smolt-to-adult returns, with broodstock needs based on the latest protocols, with updated natural origin returns at Tumwater Dam, and the analysis was rerun with the new composition of the safety-net program (Nason only and Nason-Chiwawa composite). She said the new analysis still needs updated pre-spawn mortality information. Tonseth said this modeling will get complicated because there is differential mortality between hatchery and natural-origin fish. He said the strength of returns in some years will dictate how many hatchery fish are on spawning grounds. Tonseth said he expects that the latest data on pre-spawn mortality will result in recommended changes to the size of the conservation program and an anticipated adjustment to escapement goals and how those goals are managed. Murdoch said the new analysis also will be updated with new escapement goals and new stock-recruit models. Pearsons said that the hatchery M&E reports have estimates of carrying capacity that can be used to inform escapement goals. She presented the data and tables for the revised analysis. In summary, Murdoch said reducing program size can result in more fish on spawning grounds. She said adjusting escapement goals has a greater potential to increase escapement and recruitment and this should be done at the same time or in conjunction with adjustments to the conservation program size. She said she also discussed this with Steve Parker (YN), who had the opinion that if reducing the conservation program allows for more fish on spawning grounds, then YN would likely be in favor of the reduction only if there is agreement amongst all parties to supporting regular use of safety-net fish in broodstock and on spawning grounds.

Tonseth said new information regarding spawner-recruits from life cycle modeling will also factor into this analysis. He said the expected outcome of the reproductive success study will indicate that, unlike steelhead, the allowance of safety-net fish into the program is unlikely to result in more genetic concerns. He said the reproductive success studies indicate that Chinook salmon are not as susceptible to this problem as steelhead. Gale asked whether the committees should also consider whether results of this analysis would significantly change if the multi-population PNI model was used. Murdoch and Tonseth stated that it might change the results. Tonseth said the next step for this analysis will be to update the major assumptions, including the PNI model used. He said the Section 10 permit for these programs does not require use of the multi-population PNI model, however. Murdoch said because this analysis does not model the safety-net program, it would be difficult to incorporate the multi-population model into the analysis. Tonseth agreed and said the incorporation of F2 and F1 fish in programs and on spawning grounds might be too complicated for the model. Gale asked how different these programs are from those in the Methow. Murdoch said

there is more distinct separation in the Methow between the Winthrop NFH program and the conservation program, for example. Tonseth added that the Wenatchee programs are sequentially stacked—that is, there is Tumwater Dam, then everything upstream from it. Gale said there is greater precision in the multi-population model, so even if the permit does not require its use, the committees should use it if it applies. Tonseth said changing how PNI is calculated in the Wenatchee Basin will likely result in a modification to how PNI was calculated in the past so that it is comparable.

Tonseth said the next steps for this analysis are to work on updating assumptions and incorporating additional data. Kirk Truscott said if there are more wild fish on the spawning grounds, then more hatchery fish could also be allowed on the spawning grounds. He said he hesitates to downsize the escapement targets not knowing whether capacity is a function of the variety of fish on spawning grounds, especially considering the large contribution of Chiwawa River fish. Tracy Hillman said he thinks the opposite would be true. He said the greater the spawning escapement, the greater the effects of density dependence, which results in higher mortality and reduced growth rates. He said if hatchery fish spawn in less suitable habitat, like they do in the Chiwawa River, then more adults are needed to fully seed existing habitat.

Murdoch said the next steps for this process are for her and Tonseth to continue working on the analysis, and to incorporate pre-spawn mortality data. She said she will also share the spreadsheets that are shown in the presentation, even though they are draft. Todd Pearsons asked the committees when they will discuss the size of conservation programs in the Methow Basin. Tonseth said the Wenatchee programs should be addressed first, for the 2019 Broodstock Collection Protocols, and a timeline for discussing the Methow Basin programs has not been determined. Tonseth said there is not a management plan for the Methow Basin programs yet, and discussions have not begun regarding reductions in program size. Pearsons said the committees discussed this item earlier in 2018. He said evaluating the size of Methow conservation programs was discussed as a next step. Tonseth said first, the co-managers need to agree on escapement targets before analyzing the size of the programs. Tonseth said WDFW has not committed to a timeline for these discussions because there is no management plan or escapement goal in place. Mackey said PNI targets can be used in lieu of escapement targets to determine how big a hatchery program should be, which can be used in discussions on program size. Tonseth agreed that PNI targets can be used in the interim to begin analyses for program size in the Methow Basin. Gale recollected that discussions on PNI management included analyses of how likely programs were to meet certain targets at different goals and rates and this information can also inform discussions about program size.

E. Methow Basin Spring Chinook Salmon Adult Management (Greg Mackey and Charlie Snow)

Greg Mackey said when the adult management targets for spring Chinook salmon were reviewed earlier in the season, it was expected that 447 wild Chinook salmon spawners would return to the Methow Basin. Using the sliding scale, managers targeted a PNI of 0.74 with approximately 214 hatchery spawners allowed to spawn in the basin. Mackey said a low number of projected hatchery spawners was used and based on that, the goal was to remove 196 Methow hatchery adult returns so that the PNI target could be met. He said managers successfully removed 188 hatchery returns at Methow FH and the run was not as large as expected.

Mackey shared the summary document, "Preliminary Methow Basin spring Chinook escapement and adult management summary," which Sarah Montgomery distributed to the Hatchery Committees on October 16, 2018 (Attachment D). Charlie Snow explained this document is a summary and shows that the target was based on run evaluation data. He said based on permit conditions, managers targeted 100% removal of Winthrop NFH hatchery-origin returns plus Methow hatchery-origin returns. They used pre-spawn mortality estimates to determine a preliminary spawning escapement of 511 fish. He said Winthrop NFH was successful in removing 96% of their returning fish and the overall PUD hatchery-origin returning fish were reduced by 73%. Using the three-population PNI model, this results in a PNI of 0.62 basin-wide.

Snow summarized some of the lessons learned in 2018. He said the conversion rate from Wells Dam to the spawning grounds was lower than the initially assumed 25% pre-spawn mortality because of higher than expected pre-spawn mortality or other factors. He said Methow FH and Winthrop NFH staff combined were performing redd counts but not finding redds, so managers targeted a minimum escapement. He said there was a small proportion (about 10%) of Winthrop NFH fish on spawning grounds. He said, for this reason, managers cannot plan on removing 100% of the desired fish. Snow said there were also 13 adipose-fin-clipped-only fish that could have been from Chief Joseph Hatchery. Kirk Truscott said Chief Joseph Hatchery spring Chinook are an ad-clipped segregated harvest component and approximately 200,000 fish from that program have coded wire tags. He surmised that if ad-clipped fish without wire are found in the Methow basin they are more likely to be fish of Methow basin origin that lost their coded wire tags. Snow said that would be a high tag loss rate, so staff preliminarily assigned those fish to the programs that most closely match the marking strategy. Bill Gale asked who is pulling the coded wire tags. Snow said his staff pull wire from fish during spawning at Methow Fish Hatchery and Michael Humling (USFWS) will have information for wire from fish spawned at Methow FH.

Tom Kahler asked Truscott whether the Colville Confederated Tribes perform spawning ground surveys in the Okanogan River. Truscott said surveys are performed in the United States portion of

the Okanogan River and staff found some spring Chinook salmon carcasses from the 10(j) program with coded wire tags, but there were only a few redds. He said there is more spawning habitat in Canada and he is not sure whether Okanogan Nation Alliance performed surveys in these reaches. Truscott said they rely on passive integrated transponder (PIT) tag arrays throughout the Okanogan Basin, but many were not functional this year due to spring floods.

Todd Pearsons asked whether all the fish brought into the hatchery were used for culture. Snow said broodstock at Methow FH was generally full by the time hatchery fish were swimming into the facility, but a few were kept for broodstock. He said the Methow hatchery conservation fish are sent to Winthrop NFH to be incorporated into broodstock and the rest are surplus to tribes at Winthrop NFH. Gale said Winthrop NFH may also have surplus some conservation program fish after broodstock needs were met. Mackey said many of those fish were jacks. Pearsons asked whether natural-origin fish are used to produce conservation program fish. Gale said conservation program fish are used for broodstock and the rest are surplus. Pearsons asked whether the data for conservation fish surplus are available. Humling said there were very few conservation fish, which were in poor condition and were surplus (he estimated 10 fish). He said the jacks that were ad-present were also surplus. In summary, nearly all the Methow-origin fish were used for broodstock. He said of the component that will remain for production on station at Winthrop NFH for release in the Methow basin, 75% of the broodstock are Methow FH returns, which is the Biological Opinion target.

Gale said in a low return year like 2018, meeting these goals is a success. Truscott asked whether meeting these targets is more difficult in a low-return year. Snow said the adult management plan is based on the number of fish returning to Wells Dam, so there is no estimate of escapement until staff are no longer able to collect fish. The conversion rate between Wells Dam and spawning grounds is important and can be affected by fire. For example, he said fire was a particularly challenging factor in 2018 because staff were unable to conduct spawning surveys and redd counts early in the season.

Truscott asked whether the conversion rate between Wells Dam and Methow Basin PIT arrays is used to inform the management plan. Snow said those data are not used much except to inform a location where there are few surveys such as Gold Creek. He said mainstem Methow River PIT arrays are often not repaired until August, which is too late to help decide adult management. Tonseth added that the PIT-tag arrays only detect fish with PIT tags, so the low rate of PIT-tagged wild fish limits the utility of using PIT-tag arrays for adult management.

Betsy Bamberger asked whether fish transferred from Methow FH to Winthrop NFH survived until spawning. Humling said the mortality of those transferred fish was higher than those that were held

entirely at Winthrop NFH, but most of the fish survived to spawning. He said some fish had fungus and others did not look very healthy but most fish survived. He said caudal punches identified fish that were transferred from Methow FH, so mortality data are available, and he will send those data to Bamberger.

Gale summarized that fish were arriving at the hatchery prior to and during early spawning ground survey counts, and the decision to stop trapping at Methow FH turned out to be well-timed. He asked the Hatchery Committees to consider a model where fish are held for outplanting. He explained that would allow continued operation of both traps throughout the season with continued removal of Winthrop NFH fish. He said in years where Winthrop NFH fish need to be removed but Methow FH fish do not, the conservation fish could be held and outplanted. Keely Murdoch said she likes the idea of holding broodstock. Snow said holding broodstock might provide managers reassurance. He said an issue would be if the fish are not needed and they have to be spawned while at the hatchery—then, unanticipated eggs are at the hatchery. Tonseth suggested that under this scenario, eggs could be used to implement a study. He suggested considering this approach in advance of the next low-return year so that there is an understanding of the expected effort, outcome, and logistics. Gale said a year with low natural-origin return abundance and high hatchery-origin return abundance would be a good fit for this approach. Snow said a portion of Methow conservation fish are already not released at the facility and so are not very susceptible to removal at the hatchery. For example, he said in 2018, 185 fish were estimated to be on the spawning grounds and staff at Methow FH trapped the balance of the fish that arrived at the facility. Gale said this approach would most apply in years where both traps need to be operated to remove Winthrop NFH fish.

III. HCP Administration

A. Next Meetings

The next Hatchery Committees meetings are on November 15, 2018 (Grant PUD), and December 19, 2018 (conference call), and January 16, 2019 (Grant PUD).

IV. List of Attachments

Attachment A List of Attendees

Attachment B Southern Resident Killer Whales

Attachment C Updated Retrospective Analysis

Attachment D Preliminary Methow Basin spring Chinook escapement and adult management summary

**Attachment A
List of Attendees**

| Name | Organization |
|-----------------------|---|
| Tracy Hillman | BioAnalysts, Inc. |
| Sarah Montgomery | Anchor QEA, LLC |
| Catherine Willard* | Chelan PUD |
| Tom Kahler* | Douglas PUD |
| Greg Mackey* | Douglas PUD |
| Betsy Bamberger | Douglas PUD |
| Todd Pearsons‡ | Grant PUD |
| Peter Graf‡ | Grant PUD |
| Deanne Pavlik-Kunkel‡ | Grant PUD |
| Mike Tonseth* | Washington Department of Fish and Wildlife |
| Charlie Snow | Washington Department of Fish and Wildlife |
| Eric Kinne | Washington Department of Fish and Wildlife |
| Alf Haukenes° | Washington Department of Fish and Wildlife |
| Brett Farman*° | National Marine Fisheries Service |
| Emi Kondo°‡ | National Marine Fisheries Service |
| Bill Gale* | U.S. Fish and Wildlife Service |
| Christian Smith°‡ | U.S. Fish and Wildlife Service |
| Michael Humling° | U.S. Fish and Wildlife Service |
| Keely Murdoch* | Yakama Nation |
| Kirk Truscott* | Colville Confederated Tribes |
| Ilana Koch°‡ | Columbia River Inter-Tribal Fish Commission |

Notes:

* Denotes Hatchery Committees member or alternate

° Joined by phone

‡ Joined for the joint HCP-HC/PRCC HSC discussion