FINAL

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ANCHOR QEA

Memorandum

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

Date: May 20, 2022

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

cc: Larissa Rohrbach and Sarah Montgomery, Anchor QEA, LLC

Re: Final Minutes of the April 20, 2022, 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's Hatchery Subcommittee (PRCC HSC) meetings were held by conference call and web-share on Wednesday, April 20, 2022, from 10:00 a.m. to 1:10 p.m. Attendees are listed in Attachment A to these meeting minutes.

Action Item Summary

Joint HCP-HCs and PRCC HSC

Long-term

- Mike Tonseth will distribute the analysis showing feasibility of the Methow spring Chinook Salmon Outplanting plan based on historical run size data (Item I-A). (*Note: This item is ongoing; expected completion to be determined.*)
- Kirk Truscott will work with Confederated Tribes of the Colville Reservation (CTCR) staff to develop a model that addresses the probability of encountering natural-origin Okanogan spring Chinook Salmon at Wells Dam (Item I-A). (*Note: This item is ongoing; expected completion date to be determined.*)
- Kirk Truscott will determine the number of scales that should be collected from spring Chinook Salmon at Wells Dam for elemental signature analysis to discern Okanogan spring Chinook Salmon from Methow 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 date to be determined.*)
- Mike Tonseth and Greg Mackey will solicit input from hatchery managers on effective methods to count surplus fish (Item I-A). (*Note: This item is ongoing; expected completion by early 2022 for incorporation into Broodstock Collection Protocols [BCPs].*)

Near-term (to be completed by next meeting)

- Larissa Rohrbach will file and distribute *10-year Comprehensive Review* chapters and comments to the HCP-HCs and PRCC HSC for review as they are completed (Item I-A). (*Note: The final chapter addressing Objective 5 for spring and summer Chinook Salmon was distributed for review on May 5, 2022, with comments due by June 30, 2022*.)Todd Pearsons and Catherine Willard will revise Grant and Chelan PUD's draft Statements of Agreement (SOA) on Sockeye Salmon Obligation for approval in an upcoming meeting (Item I-A). (*Note: This item is ongoing.*)
- The PUDs will note in the final implementation plan documents that production implemented by tribal partners (Yakama Nation [YN] and CTCR) to meet the PUDs No Net Impact (NNI) mitigation obligations will be identified separately in future sensitivity analyses and implementation plans in future recalculation efforts (Item II-A).
- Greg Mackey will determine whether the balance of the Wells summer Chinook Salmon NNI mitigation not reared at Chief Joseph Hatchery (CJH) may be reared independently from other summer Chinook Salmon production at Wells Hatchery for release into the Methow River (Item II-A).
- Members of the HCP-HCs and PRCC HSC will discuss potential hatchery management changes for rearing and release of Methow summer Chinook Salmon following completion of the 10-year Comprehensive Reports (Item II-A).

Rock Island/Rocky Reach HCP-HCs

- None.

Wells HCP-HC

- None.

PRCC HSC

- None.

Decision Summary

- The HCP-HC and PRCC HSC approved the addition of Clayton Buck, consulting party to the PRCC HSC for the Wanapum, to the primary distribution list.

Agreements

- The HCP-HCs and PRCC HSC members agreed to adjust the meeting start time to 10 a.m. for the remainder of the year.

Review Items

- Larissa Rohrbach distributed updated tabulated recalculation sensitivity analysis components with proposed recalculated production levels for HCP-HC and PRCC HSC review on April 18, 2022.

Finalized Documents

- None.

I. Welcome

A. Agenda, Announcements

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

All HCP-HCs and PRCC HSC representatives that were present approved the agenda. The meeting minutes from the March 3 and March 16, 2022, meetings were approved by all parties.

Action items from the HCP-HCs and PRCC HSC meeting on March 16, 2022, were reviewed and discussed *(Note: Italicized text below corresponds to action items from the previous meeting*).

Joint HCP-HCs and PRCC HSC

Long-term

- *Mike Tonseth will distribute the analysis showing feasibility of the Methow Spring Chinook Salmon Outplanting plan based on historical run size data (Item I-A).*
  This item is ongoing; expected completion to be determined.
- *Kirk Truscott will work with Confederated Tribes of the Colville Reservation (CTCR) staff to develop a model that addresses the probability of encountering natural-origin Okanogan spring Chinook Salmon at Wells Dam (Item I-A).*
  This item is ongoing; expected completion date to be determined.
- *Kirk Truscott will determine the number of scales that should be collected from spring Chinook Salmon at Wells Dam for elemental signature analysis to discern Okanogan spring Chinook Salmon from Methow spring Chinook Salmon (Item I-A).*
  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).*
  This item is ongoing; expected completion date to be determined following the completion of recalculation in 2022.
- *Mike Tonseth and Greg Mackey will solicit input from hatchery managers on effective methods to count surplus fish (Item I-A).*
  This item is ongoing; expected completion before incorporation into comprehensive BCPs.

Near-term (to be completed by next meeting)

- *Larissa Rohrbach will file and distribute 10-year Comprehensive Review chapters and comments to the Committees for review as they are completed (Item I-A).*
  This item is ongoing. The final chapter is near completion; it is being reviewed by authors and will be submitted to the Committees soon. (*Note: The final chapter addressing Objective 5 for spring and summer Chinook Salmon was distributed for review on May 5, 2022, with comments due by June 5, 2022*.)
- *Todd Pearsons and Catherine Willard will revise Grant and Chelan PUD's draft Statements of Agreement on Sockeye Salmon Obligation for approval in an upcoming meeting (Item I-A).*
  This item is ongoing.
- *Catherine Willard will revise Chelan PUD's tabulated recalculation sensitivity analysis components with proposed recalculated production levels for distribution by March 23, 2022 (Item II-A).*
  This item was completed and distributed on March 17, 2022.
- *Greg Mackey and Todd Pearsons will prepare tabulated recalculation sensitivity analysis components with proposed recalculated production levels for distribution to the HCP-HCs and PRCC HSC no later than March 30, 2022 (Item II-A).*
  This item was completed by March 31, 2022.
- *The HCP-HCs and PRCC HSC members will review the Interim Draft 2022 BCPs and provide comments to Mike Tonseth by Friday, March 18, 2022 (Item I-A).*
  This item was completed by March 18, 2022.
- *Mike Tonseth will prepare a revised Interim Draft 2022 BCPs by Monday, March 21, 2022, for Wells HCP Coordinating Committee approval (Item I-A).*
  This item was completed; decisions noted in Decision Summary section of the March 16, 2021, minutes.
- *Bill Gale will organize a meeting with Mike Tonseth, Catherine Willard, and Michael Humling (U.S. Fish and Wildlife Service [USFWS]) to review and obtain USFWS approval of the 2022 Chiwawa Weir operations plan (Item I-A).*
  This item was completed by March 25, 2022.

II. Joint HCP-HC and PRCC HSC

A. Hatchery Production Recalculation

Draft Implementation Plan

Tracy Hillman reviewed the status of the PUDs' recalculation sensitivity analyses and draft proposed implementation plans. Since the last meeting, the Joint Fisheries Parties (JFP) met to consider the PUDs' draft implementation plans and responded with questions that were relayed to the PUDs by Hillman via email on April 12, 2022 (Attachment B). Chelan and Grant PUDs responded with revised versions of their draft implementation plans, and the most recent versions of all three implementation plans were distributed by Larissa Rohrbach on April 18, 2022 (Attachments C, D, E).

Each PUD reviewed their spreadsheets showing the recalculated number of fish to be produced by their respective programs and any proposed changes to the rearing and release locations or strategies.

Douglas PUD

Greg Mackey reviewed Douglas PUD's proposed recalculated implementation plan (Attachment C).

Spring Chinook Salmon

The recalculated number of spring Chinook Salmon to be produced by Douglas PUD is 24,748 yearlings. The number resulting from the last recalculation was approximately 29,000 yearlings, and then increased to 31,169 yearlings after adjustments for slightly lower survival rates following the results of the 2020 Wells Project survival study. The following discussions ensued for the allocation of spring Chinook Salmon production in the draft implementation plan:

- Using spawner proportions in the different tributaries to allocate hypothetical numbers of adults in the Biological Assessment and Management Plan (BAMP) calculation resulted in a need to mitigate for approximately 206 adults from the Okanogan Subbasin. Those adult equivalents were allocated to Methow Hatchery production because the Okanogan Subbasin does not have a Threshold Population. Douglas PUD's NNI is proposed to be released in the Twisp and Methow rivers (mixed with Grant PUD's production).
- Douglas PUD would contribute to production of approximately 35,640 yearlings at CJH under their funding agreement. This number is derived by multiplying the target production of spring Chinook Salmon at CJH (approximately 900,000 fish) by the unavoidable project mortality for Wells Dam, which becomes the rate at which Douglas PUD funds CJH.

- Keely Murdoch noted that in the last recalculation effort there was no CJH production (prior to CJH funding agreements). Moving forward, CJH should be given its own column in the sensitivity analysis to see where the numbers are coming from. Greg Mackey said the tribal hatchery agreements for Douglas PUD are shown (CJH for spring Chinook Salmon and YN hatchery facilities for Coho Salmon) but could be shown in separate columns to make it clearer. Murdoch said this could now be done for CJH with information on smolt-to-adult returns (SAR). Kirk Truscott said the dataset for CJH Spring Chinook Salmon SAR is not very long (the first brood year was 2013). Murdoch agreed to note this for the record for the next recalculation and is not suggesting revising the sensitivity analysis at this time.

Steelhead

For the steelhead program at Wells Hatchery, the previous NNI recalculation came out to 8,000 fish; the result of this current recalculation was 17,111 fish, likely increased because SARs from the Twisp River releases were available to be used in calculations, which is where the fish are released. To avoid confounding the HCP-required Relative Reproductive Success study that started in 2010, the production numbers were held constant throughout the study (48,000 fish; 8,000 for NNI and 40,000 for inundation mitigation), and Douglas PUD continued to hold it constant to the present day. Releases were recently split between Winthrop National Fish Hatchery (NFH) and Twisp programs (24,000 to each location) to counteract the possibility of a Ryman-Laikre effect in the Twisp, with Winthrop NFH releasing 24,000 fish as 2-year-olds (S2s) plus the Douglas PUD Twisp program releasing yearlings 24,000 (S1s) to maintain a total of 48,000. The following changes are being proposed by Douglas PUD:

- Release 17,111 NNI fish in the Twisp River assuming the USFWS would release some number in kind to that to continue their comparison of the S1 and S2 rearing strategies but maintain a diversity of parentage sources for fish released into the Twisp River.
- Move the 40,000 inundation mitigation fish (previously released to the Twisp River) to the Columbia Safety Net program to reduce risk to the Methow population. Douglas PUD would like to see a fishery executed on the Columbia Safety Net fish in the mainstem Columbia River and a fishery on the 100,000 Safety Net for the Methow Safety Net program.
- Bill Gale said that currently, 24,000 S2 fish were being sent to Douglas PUD from USFWS Winthrop NFH, and 24,000 S1 fish were being sent to USFWS from the Methow Conservation Program (not the Columbia Safety Net group). If USFWS is still sending a certain amount to the Twisp River program, that same amount should still be sent to USFWS and not be considered part of the inundation mitigation. Gale said he assumes that type of an arrangement would continue. Greg Mackey said Douglas PUD is not proposing to continue that transfer and instead are proposing to release 17,000 S1 fish into the Twisp River, reducing the number of Douglas PUD fish released to Twisp River by 7,000 and rolling the remainder into the Columbia Safety Net release to reduce the natural-origin broodstock collection needs for Douglas PUD's program and leaving more wild fish in the river. Winthrop NFH has approximately 200,000 Methow

Conservation Program fish, and a component could be allocated to augment the Twisp population with a similar number as Douglas PUD, such as Winthrop NFH has supplemented in the past few years. Gale said in the past, the trade with Douglas PUD allowed for a mixed age group (S1s and S2s) to be released in the Twisp River and also at Winthrop NFH. Mackey said Douglas PUD never considered the fish produced as mitigation for mainstem Columbia River inundation as being used as part of the Methow Conservation Program permanently. The inundation production was intended to supplement the mainstem. Gale said the USFWS would want to continue receiving S1 fish to include in the release strategy of mixed ages in the Twisp River and also at Winthrop NFH. Gale said he is not sure if he's comfortable with a change from the existing arrangements.

- Mike Tonseth said there is broader interest in continuing to compare the performance of the S1 and S2 releases. That approach was started with the 2019 brood. To evaluate whether this approach works to counteract issues like the Ryman-Laikre effect, there is a need to ensure enough years of releases are included to be able to evaluate the results, understanding it would not be an agreement to continue these releases in perpetuity.
- Greg Mackey said his recollection is that effective population size is looking better in recent years based on the recent Twisp reproductive success study annual reports.
- Greg Mackey said one concern about Methow steelhead is that the natural population is almost never above replacement. It's uncertain why that is and uncertain if adding more fish to the system is going to improve the number of natural-origin spawners in the river. Adding more fish is likely to drive that replacement rate lower. Bill Gale said he shares the concern that how steelhead are managed collectively in the Methow Subbasin should be a separate and much more deliberate conversation. Mackey agreed and said Douglas PUD would be willing to expand on these discussions in the future but noted that recalculation is one of the few decision points where the number of fish produced and allocated to each system can be adjusted.

Summer Chinook Salmon

- The calculated NNI mitigation for summer Chinook Salmon was 93,847, using a conversion from yearling to subyearlings based on fish per pound. Presently, Douglas PUD's funding agreement contributes to production of 58,410 yearlings at CJH. The balance of the NNI that are not allocated to the CJH program are to be allocated to the Methow Subbasin according to the SOA for Douglas PUD mitigation for CJH. Douglas PUD is now proposing to release these in the Columbia River, understanding that among Committee members there is some interest in releasing them to the Columbia River and some interest in keeping to the terms of the SOA to release them into the Methow River. This applies to 35,437 yearlings—a relatively small number of fish—and it is frankly easier and less intrusive to release them to the Columbia River. It is uncertain how much hatchery summer Chinook Salmon contribute to productivity in the Methow River, but Douglas PUD recognizes they were allocated to the Methow River in that SOA.

- Mike Tonseth said the JFP has discussed whether that approximately 35,000-fish component could be used as a direct release to the Columbia River for comparison to the fish reared and released from Carlton Acclimation Facility. Tonseth asked if Douglas PUD has the capacity to rear approximately 35,000 fish separately so that the results of the comparison could be tracked. Greg Mackey said it would be possible to do the releases in the Methow River and Douglas PUD has thought about the possibility of releasing subyearlings in the Methow River too, as a life-history comparison to other hatchery programs that release yearlings. Mackey said the parentage should also be considered; the Carlton Acclimation Facility rears primarily wild fish, whereas Wells Hatchery uses mainly hatchery fish that return to Wells for broodstock. He said a bio-programming update is ongoing at Wells Hatchery that will inform whether that rearing approach is feasible. It is underway but uncertain when it may be complete. Mackey said he will have to check on hatchery ability to rear these fish as a separate group.
- Kirk Truscott said he would prefer that those fish be released in the Methow Subbasin. The parentage should be the same as the Carlton Acclimation Facility program yearling releases. This would ensure the NNI component is brought back to the Methow Subbasin (consistent with the SOA), and a performance comparison could also be made between fish reared and released from Carlton Acclimation Facility and fish reared at Wells Hatchery. Greg Mackey said he would determine whether there could be capacity to rear the approximately 35,000 fish independently from other summer Chinook Salmon production at Wells Hatchery for release into the Methow River using the same broodstock as Carlton Acclimation Facility. Keely Murdoch said the YN agrees that the NNI component, if possible, should be released in the Methow Subbasin. In addition to the ideas that have been put forth, the YN could also support allocating those fish to the Carlton Acclimation Facility program, because at this time it looks like numbers to be allocated to Carlton Acclimation Facility may go down once recalculated, which she understands depends on final results of this discussion and may not be a palatable idea for Douglas PUD.
- Greg Mackey asked what Committee members think of acclimating the fish at Methow Hatchery and releasing them from there. Mike Tonseth said Washington Department of Fish and Wildlife (WDFW) may have concerns with overlapping spawning between spring and summer Chinook Salmon in the upper Methow River. Mackey noted that summer Chinook Salmon are already pushing up the Chewuch and Methow rivers on their own, but he appreciated hearing opinions on releasing from that location.
- Tom Kahler asked for more clarity, noting that there is one proposal that this group of approximately 35,000 fish would be raised at Wells Hatchery and released to the Methow River, as a comparison group to fish reared at the Carlton Acclimation Facility (supported by Mike Tonseth and Kirk Truscott), and another proposal, suggested by Murdoch, to incorporate that component into the Carlton Acclimation Facility production, but that could eliminate that comparison opportunity. Keely Murdoch said YN would be supportive of what Tonseth and Truscott are proposing but recognizes there could be some challenges with rearing this component of the production separately at Wells Hatchery, so her proposal was an alternative

approach if these issues cannot be overcome. Murdoch noted that how that would be handled contractually between Douglas PUD and Grant PUD at Carlton Acclimation Facility is not thought out yet.

Coho Salmon

- Greg Mackey said that Douglas PUD's mitigation for the 700,000 YN program releases using the unavoidable project mortality rate for Wells Dam amounts to 27,720 fish. Using the BAMP to calculate the number of natural-origin returns results in an additional 189 fish added to the 27,720, or 27,909 to be released from the acclimation facility at Twisp.

Tracy Hillman asked how the Committees want to move forward with Douglas PUD's proposed implementation plan.

- Mike Tonseth said the JFP will convene on May 2 to further discuss a counterproposal for all programs. The JFP would like the PUDs to attempt to answer the questions raised today before that meeting, and the JFP may reach out directly to the PUDs with additional questions.
- Keely Murdoch said the JFP will attempt to prepare a joint implementation plan in areas where facilities are shared (e.g., Methow Hatchery).

Hillman asked members of the JFP if they expect their proposal to be significantly different than the PUDs. Keely Murdoch and Kirk Truscott said their main concerns have been introduced today and will be discussed further. Bill Gale said, regarding the steelhead, the Committees should take on the task to develop questions and start thinking about management changes for the steelhead programs in the Methow Subbasin and offered to include himself, Matt Cooper, and Greg Mackey to start working on that task. Mackey agreed, noting that discussion can be informed by the 10-year Comprehensive Reports.

Chelan PUD

Catherine Willard reviewed Chelan PUD's implementation plan, which she had also introduced in the last meeting (Attachment D).

Spring Chinook Salmon

- Mitigation production levels would be similar to last recalculated values.
- Natural-origin smolts calculated through the BAMP formula to compensate for unavoidable project mortality at the Rocky Reach project were allocated to the Methow Hatchery. Adult equivalents at the Rock Island project from the Methow and Entiat subbasins were allocated to the Chiwawa Hatchery. Mitigation for the smolts from Leavenworth NFH and Winthrop NFH were also allocated to the Chiwawa Hatchery.
- Bill Gale noted that the tables show that unavoidable project mortality for the NFH smolts at the Rock Island project were allocated to Chiwawa Hatchery but the mitigation for the Rocky Reach

project is not shown. Catherine Willard said the total NFH unavoidable project mortality (97,120 fish) was split out by the production level at Leavenworth NFH to mitigate for the Rock Island project, and the production to mitigate for Winthrop NFH would be split between the Rock Island project and the Rocky Reach project. The 28,000 fish shown in Column B is to mitigate for Winthrop NFH unavoidable project mortality at the Rocky Reach project, which is being allocated back to the Methow Hatchery. Gale said his guidance is going to be that mitigation for Winthrop NFH should be allocated to the Methow Hatchery and the rest of the mitigation for Leavenworth NFH be allocated to Chiwawa Hatchery.

- Kirk Truscott said the JFP are considering recommending moving mitigation for Methow Subbasin and Winthrop NFH smolts back to the Methow Hatchery. Keely Murdoch said there is a need for a multi-PUD implementation plan because of a concern that supplementation targets in the Methow Subbasin will not be met.

Steelhead

- Allocation of steelhead production would be the same as what was proposed in the last recalculation. That is, all NNI production owed for Rock Island and Rocky Reach would be allocated to Chiwawa Hatchery.

Summer Chinook Salmon

- Allocation of production to Chelan Falls Hatchery includes mitigation for Chelan River natural-origin smolts calculated using the BAMP, mitigation for Entiat Subbasin NFH releases, , and the 400,000 fish released for inundation mitigation (which is not changed from the last recalculation). Chelan PUD is agreeing to mitigate for unavoidable project mortality of Douglas PUD's inundation mitigation production, shown in Column G, to be reared at Chelan Falls (55,765 fish).
- Mitigation for mortality of natural-origin smolts at Rock Island and Rocky Reach and originating from the Entiat, Methow, and Wenatchee subbasins would be allocated to Dryden Pond.

Lake Wenatchee Natural-Origin Sockeye Salmon

- The calculated mitigation production value for Sockeye Salmon was slightly less than in the last recalculation effort. In the last recalculation, a species swap was agreed to for steelhead at Chiwawa Hatchery. Allocation of these 43,652 fish has not been discussed for this recalculation effort. Tonseth said the JFP did discuss this and are considering a change to swap for summer Chinook Salmon production at Dryden Pond or spring Chinook Salmon at Chiwawa Hatchery. The JFP's recommendation depends on analysis of the joint PUD production.

Coho Salmon

- Coho Salmon production was originally calculated in 2017 as part of the funding agreement with the YN. The recalculated value will decrease slightly, and Chelan PUD will continue to meet that obligation through their funding agreement with the YN.

- A similar approach is used for production at CJH. The subyearling mitigation value is converted to yearlings. The mitigation number is derived by multiplying the maximum production capacity at CJH by the Rocky Reach and Rock Island unavoidable project mortality and Chelan PUD is proposing to continue to meet that obligation through their funding agreement with CJH.

Grant PUD

Todd Pearsons provided an overview on Grant PUD's approach (Attachment E). In the last recalculation effort, Grant PUD agreed to mitigate at the high end of the range for spring Chinook Salmon, in the middle of the range for summer Chinook Salmon, and a below-low value for steelhead corresponding to the 100,000 fish limit prescribed in the Priest Rapids Salmon and Steelhead Settlement Agreement (Settlement Agreement). For the current proposed recalculated values, Grant PUD took the same approach for spring Chinook Salmon, averaged the high and low values for summer Chinook Salmon, which produced a higher value than the selection of option 2 of the sensitivity analysis, and capped steelhead production at 100,000 fish, but 7,307 additional steelhead from the low end of the sensitivity range would be swapped for yearling summer Chinook Salmon at Carlton Acclimation Facility. Coho Salmon and Sockeye Salmon mortality are mitigated through funding agreements that do not need additional discussion.

Spring Chinook Salmon

- The number allocated to Nason Creek Acclimation Facility and CJH would be maintained. The remainder of the production would be allocated to the Methow Hatchery. The proposed production at CJH is included in the table (110,000 fish).
- Additional information and methodology have been provided in the notes column and footnotes below the table. Bill Gale asked about the information on numbers of fish being mitigated for Leavenworth NFH and Winthrop NFH; it is provided in the notes column.

Steelhead

- It is proposed that the entire 100,000 steelhead be allocated to the Okanogan Subbasin, which is consistent with what is being done now. The remainder of the mitigation (7,307) would be swapped for summer Chinook Salmon, and those would be released at Carlton Acclimation Facility.

Summer Chinook Salmon

- The proposed mitigation rate chosen for summer Chinook Salmon is the mid-point between the high end and low end of the sensitivity analysis, which meant mitigation for some of the inundation mitigation (approximately 50,000 fish) would be included in the total number. The number met by the CJH funding agreement (305,000 fish) is slightly higher than the current production specified in the implementation plan of 278,000, and the number allocated to Dryden

Pond (181,816 fish) would be maintained as in the last recalculation effort with the remainder placed at Carlton Acclimation Facility.

- Mike Tonseth asked why Grant PUD is only considering replacing a portion of the inundation mitigation and not the full amount. Todd Pearsons said that in the last recalculation effort, Grant PUD did not include inundation mitigation as part of Option 2, which was the version that was selected as part of the negotiated approach. Grant PUD did review the differences between Option 1 and Option 2 in the sensitivity analysis and augmented the mitigation compared to the previous recalculation effort by using the mid-point as opposed to using Option 2.
- Mike Tonseth said a concern is that much of the current production at Carlton Acclimation Facility is being redirected to other facilities as opposed to keeping that production in the Methow Subbasin. Todd Pearsons said, in part, that matches spawning distribution. For summer Chinook Salmon, the proposal is a combination of different approaches between in-place, in-kind mitigation, maintaining the previous production levels, and facility capacity. Production allocated to Carlton Acclimation Facility was reduced to more accurately replace that in-place, in-kind mitigation based on spawning distribution. Grant PUD recognizes there are differences in opinion between using the different approaches for allocating production.

Fall Chinook Salmon

- Production of fall Chinook Salmon at Priest Rapids Hatchery would be 5,127,306 fish, which does not include the fry converted to smolt number (273,961 fish) to be able to compare just the NNI mitigation better to the values from the last recalculation. The proposed mitigation would be approximately 200,000 less than the previous recalculation effort.

Production Under the Chief Joseph Hatchery Funding Agreement

Keely Murdoch said the Grant PUD production agreement with CJH for spring and summer Chinook Salmon is confusing. It's not clear how the mitigation level of 305,000 summer Chinook Salmon is calculated, and it is important to document the approaches completely for recalculation. Todd Pearsons explained that the cost-sharing agreement for CJH was to contribute to capital construction, operation and maintenance, and monitoring and evaluation costs at a rate that results in the production of 305,000 yearling summer Chinook Salmon and 110,000 yearling spring Chinook Salmon.

Kirk Truscott explained that Grant PUD entered into a cost-sharing agreement with the CTCR and Bonneville Power Administration (BPA) (the cost-share agreement is actually a financial transaction between the PUDs and BPA) to fund 18.3% of the capital construction, operations and maintenance, and monitoring and evaluation costs. Essentially, Grant PUD "bought" 18.3% of the production capacity at CJH based on total fish weight. Grant PUD's mitigation obligations are met for summer Chinook Salmon production through this agreement by rearing 305,000 yearling summer Chinook Salmon. To meet 18.3% of the total production, 110,000 spring Chinook Salmon were allocated to

Grant PUD. In total, the combination of 305,000 summer Chinook Salmon and 110,000 spring Chinook Salmon equates to 18.3% of the production capacity at CJH in terms of fish poundage.

Murdoch said the last recalculation effort resulted in 278,000 summer Chinook Salmon allocated to CJH and this time it is increasing, which is confusing. It is also confusing that the 110,000 spring Chinook Salmon is in addition to calculated mitigation shown in columns A, B, and C of the proposed implementation plan (Appendix D), but the summer Chinook Salmon are included as part of the value in columns A, B, C, and partially in Column G. Truscott said Grant PUD agreed to pay for 18.3% of production; that production is being fulfilled by summer Chinook Salmon first, then adding in spring Chinook Salmon to fully meet the 18.3% of the production. This would be considered mitigation for spring Chinook Salmon originating from the Okanogan Subbasin and CJH itself.

Murdoch said there's an increase in Grant PUD's summer Chinook Salmon being allocated to CJH, reducing the allocation of that mitigation elsewhere, but it does not appear to be mitigating for the CJH production. She asked if the Settlement Agreement states that Grant PUD doesn't need to mitigate for CJH production because they contributed to the capital costs. Pearsons said the initial summer Chinook Salmon production directed by the Settlement Agreement for Grant PUD was 833,000 fish. The Committees subsequently decided that production should be divided up amongst the tributary subbasins, resulting in 278,000 fish per subbasin, which is reflected in the Hatchery Genetic Management Plans that the Committees also reviewed and approved. That was the basis for Grant PUD entering into the funding agreement with CJH for production of that 278,000 in the last recalculation effort, but Grant PUD has underrepresented what was actually paid for at CJH through the funding agreement, which is actually 305,000 summer Chinook Salmon. Murdoch said the Committees approved the 278,000 fish but have not approved production of 305,000 fish. Pearsons confirmed that to be accurate.

Bill Gale asked whether the number for Wenatchee natural-origin summer Chinook Salmon smolts calculated with the BAMP includes Entiat Chinook Salmon smolts that are mortalities at Priest Rapids Dam. Rod O'Connor said that was true and that can be better noted in the spreadsheet. Gale said he has no concerns about combining the Entiat fish with the Wenatchee fish because it is a small number of fish.

Mike Tonseth said per the sharing agreement, Grant PUD has been producing 305,000 summer Chinook Salmon at CJH but only getting credit for 278,000 fish. He asked what the unit value for fish per pound (fpp) was to determine production capacity. Truscott confirmed the fish sizes were 15 fpp for spring Chinook Salmon yearings,10 fpp for summer Chinook Salmon yearlings, and 40 fpp for summer Chinook Salmon subyearlings; although, summer Chinook Salmon production for Grant PUD's mitigation at CJH is entirely yearlings.

Murdoch said she follows the discussion on how Grant PUD's mitigation was divided among basins and how production levels were identified for CJH, which were calculated later. This doesn't differ

from the other PUDs in that there are production targets for Chelan and Douglas PUDs for each basin. However, the other PUDs are fully mitigating for CJH production whereas Grant PUD is not. She said her concern is that there may be a need for additional mitigation. Truscott said the construct of the cost-share agreement was that Grant PUD would receive 18.3% of the CJH production to be allocated toward NNI and CJH mitigation.

Murdoch said Chelan and Douglas PUDs take the programmed release number and apply the unavoidable project mortality number to determine their mitigation. Grant PUD's approach is by allocating that production to other facilities. She said the difference is that the cost-sharing agreement was not agreed to by all the signatories of the PRCC. Truscott said there could be an agreement not to rear that mitigation at CJH, but that discussion is better to be had within the JFP.

Tonseth asked, among the other 1.695 million smolts being produced on the Colville/BPA production component of the program, how close is Grant PUD's proposed mitigation to the number that should be mitigated from that 1.695 million-fish production? Truscott said he would discuss this with Tonseth outside the meeting.

The Methow Subbasin makes up approximately 10% of the total spawner distribution. As it is being proposed now, more smolts are allocated to the Carlton Acclimation Facility than the Methow Subbasin proportion of summer Chinook Salmon spawners upstream of Priest Rapids Dam. Pearsons said another way to look at it is that by reallocating fish from Carlton or Dryden ponds to CJH, there would be more adults returning because that program produces the highest SARs by about double. Truscott said the other part of that perspective is there would be fewer adults needed for broodstock. Pearsons agreed that allocating fish to CJH would be a preferred choice to use fewer fish for broodstock and produce more adult returns for conservation and harvest. Truscott said the intent is not to cut the legs off of the Carlton Acclimation Facility program; the Methow Subbasin is under seeded, and more fish need to be allocated there, but that spawning aggregate has been there for many years and just does not seem to be performing at the level that other summer Chinook Salmon do in other locations of the Mid- and Upper Columbia.

Murdoch said to use caution about drawing conclusions about what SARs would be, which is wholly based on data from Similkameen-raised fish developed with other operators, and there is not a large dataset from CJH itself. She also suggested using caution if allocating most of the fish to where most of the fish already are, which could exacerbate density-dependent factors. Tonseth agreed with Murdoch. Many of the SARs are based on the older Carlton Pond program operated by Chelan PUD, which implemented a spring transfer of smolts that were overwintered at Eastbank Hatchery, and those smolts were the product of adults with the highest bacterial kidney disease levels that were collected for the joint Methow-Okanogan River program. The quality of the fish that were going to Carlton Pond historically were not the same quality that were going to Similkameen Pond. When raising questions about what's going on with Methow summer Chinook Salmon SAR, there is a need

to look at how the differences in hatchery programs explain the differences in SAR. Pearsons said the decisions have to be based on the data that are available to us. Dryden Pond and Carlton Acclimation Facility SARs are quite similar, and the Okanogan (Similkameen) SAR is higher, which was similar at the time of the last recalculation. Truscott supported using caution in using past SAR data to project into future years. There could be changes in fish size, acclimation approaches, or release strategies that change those SARs too.

Gale also suggested that in the record for the next recalculation effort, an expectation should be noted that there will be additional hatchery production in currently blocked areas that will have to be a component of the unavoidable project mortality, and a special discussion will be needed. Pearsons said it's fine to note that need for discussion but there will be different opinions on the baseline for mitigation. Gale said he agrees, and it would be helpful to solve the problem for the next generation. Pearsons said that would be a good question to frame up for the Policy Committees as a result of this process. Gale said he sees it as similar to the issue of mitigating for Leavenworth NFH production, and that if that production changes that would be mitigated for. Gale believes that the PUDs would be obligated to mitigate for any changes in numbers of fish passing through the dams. Pearsons understood and noted there would probably be a difference of opinion from Grant PUD.

Next Steps

The next step will be for the JFP to prepare a counterproposal, beginning with a discussion on May 2, 2022. Tonseth will provide an update to Hillman who will inform the other members of the HCP-HCs and PRCC HSC.

Tracy Hillman said the goal would be to have approved production numbers by the May 18, 2022, meeting. Catherine Willard asked if there's a way to ensure all parties could come to agreement in the May 18 meeting, perhaps by adding a meeting in the interim. Murdoch said it's likely that the JFP will have a counterproposal to share at the May 18 meeting. For the YN, there will be an additional internal coordination step after May 2, and she is cautious whether the YN would be ready to approve implementation plans on May 18.

Tonseth said by mid-June, summer Chinook Salmon broodstock collection will need to start, but agreed with Murdoch. If there appears to be some distance to achieve a negotiated agreement after the May 2 meeting, WDFW and the PUDs will need to approve an update to the draft interim 2022 Broodstock Collection Plan for summer Chinook Salmon, recognizing that total brood numbers are likely to be lower than called for in last year's collection protocols.

Pearsons said he likes the idea of adding a meeting between May 2 and May 18, but the PUDs will also need some time to consider a counterproposal internally.

An additional meeting time will be held on the morning of May 16, from 9am to 10am, to potentially allow the PUDs to respond to a JFP counter proposal and do any preparation for the May 18 meeting.

III. PRCC HSC

A. Change to Wanapum Representation

Clayton Buck was approved by the PRCC HSC to be the new representative for the Wanapum, a consulting party to the PRCC HSC. All HCP-HC and PRCC HSC members approved of the addition of Clayton Buck to the primary distribution list. (Approval of the Wells HCP Coordinating Committee was obtained on April 27, 2022). Mike Tonseth and Keely Murdoch, who are members of the PRCC, noted that today's approval may be conditional on PRCC approval in their next meeting. Immediately following the meeting, Larissa Rohrbach informed the PRCC Chair, Bryan Nordlund, of this change in representation.

IV. Administrative Items

A. Coronavirus Disease 2019 and Monitoring and Evaluation Activities

Committee members provided their monthly updates on the effects of COVID-19 restrictions on monitoring and evaluation activities. Community risk levels for COVID-19 are low and work restrictions are lifting broadly.

- Matt Cooper said as long as the County's community risk level remains medium or low based on the Centers for Disease Control and Prevention assessment system, USFWS representatives would be able to meet in person.
- Mike Tonseth said that masking guidance will also apply to in-person meetings for WDFW.
- Keely Murdoch said the YN has lifted their mask mandate.
- Kirk Truscott said there is no mask mandate from the CTCR but asked that all members wear masks if meeting in person.
- Greg Mackey said he would inquire about any restrictions on using Douglas PUD's facilities for meeting.
- Todd Pearsons said that masking and screening restrictions have been lifted by Grant PUD and facilities reopened, including the use of Grant PUD's facilities for meetings.
- Brett Farman said National Marine Fisheries Service offices and travel will be reopening in the coming week. Logistics are being worked out regarding capacity in offices; there is no requirement to return to offices until the end of June.
- Catherine Willard said there are no changes for Chelan PUD, and they can meet in person.

B. Next Meetings

Deanne Pavlik-Kunkel has reserved the Grant PUD office for in-person meetings for the rest of this year and early 2023. Meeting attendees will be prepared to wear masks.

The next HCP-HCs and PRCC HSC meetings will be held on Wednesday, May 18; Wednesday, June 15; and Wednesday, July 20, 2022. The next meeting on May 18 will be held in person at Grant PUD's Wenatchee office conference room.

V. List of Attachments

Attachment A List of Attendees
Attachment B JFP Request for PUD Recalculation Implementation Plan Revisions Email
Attachment C Proposed Recalculated Production for Douglas PUD
Attachment D Revised Proposed Recalculated Production for Chelan PUD
Attachment E Revised Proposed Recalculated Production for Grant PUD

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*‡	Confederated Tribes of the Colville Reservation
Shane Bickford	Douglas PUD
Tom Kahler*	Douglas PUD
Brandon Kilmer	Douglas PUD
Greg Mackey*	Douglas PUD
Rod O'Connor	Grant PUD
Deanne Pavlik-Kunkel	Grant PUD
Todd Pearsons‡	Grant PUD
Brett Farman*‡	National Marine Fisheries Service
Mike Tonseth*‡	Washington Department of Fish and Wildlife
Keely Murdoch*‡	Yakama Nation
Matt Cooper*‡	U.S. Fish and Wildlife Service
Bill Gale*‡	U.S. Fish and Wildlife Service

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

Attachment B
JFP Request for PUD Recalculation Implementation Plan Revisions Email

From: Tracy Hillman <tracy.hillman@bioanalysts.net>
Sent: Tuesday, April 12, 2022 1:16 PM
To: Todd Pearsons; Catherine Willard; gregm
Cc: Rolland O'Connor; Scott Hopkins; Tom Kahler; Michael.Tonseth; Kirk Truscott; Keely Murdoch; William Gale; Matt Cooper; Brett Farman; Deanne Pavlik-Kunkel; Larissa Rohrbach; Tom Scribner
Subject: JFP Request for Additional Information

Follow Up Flag: Follow up
Flag Status: Flagged

Hello Todd, Catherine, and Greg,

The JFP met on Monday afternoon and discussed the PUDs' proposals. They appreciate all the work you have done and the fact that you offered a starting point for developing the implementation plans. As they worked through the proposals, they decided it is necessary to offer a counter proposal, which they believe will be a reasonable alternative to the PUDs' proposals. To do that, they need additional information. Below is a summary of the information they would like to receive from the PUDs. Please provide this information at your earliest convenience.

1. The JFP is requesting that Chelan and Grant PUDs split the spring Chinook mitigation shown in columns B and D to reflect the numbers going to the Methow and Wenatchee basins. For Chelan, the JFP believes all spring Chinook mitigation for UPM and MNNI at Rocky Reach Dam will go to the Methow, while mitigation for UPM and MNNI for Rock Island Dam will need to be split between Leavenworth (these fish would go to the Chiwawa) and Winthrop (these fish would go to the Methow). Please show the Wenatchee and Methow splits for Rock Island UPM and MNNI. Likewise, for Grant PUD, the JFP would like to see the split for UPM and MNNI for spring Chinook going to Nason (mitigation for Leavenworth) and the Methow (mitigation for Winthrop).
2. The JFP is requesting that Grant PUD show their work (and equations) in their proposal. The JFP had a difficult time determining and tracking how mitigation numbers were developed. Showing your work and equations will help all members understand the approach and it will provide necessary information for the Committees to understand and track what was done when they go through the next recalculation process in ten years.

The JFP is preparing a list of discussion items they will share with the PUDs during the meeting, or sooner if possible.

Please let me or the JFP know if you have questions.

Thanks,
Tracy

Tracy W. Hillman, Ph.D. (*he/him*)
Senior Ecologist

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Attachment C
Proposed Recalculated Production for Douglas PUD

				Sensitivity Analysis									
				(a)	(a)*		(b)	(d)	(f)	(g)			
PUD	Species	Hatchery	Tribal Production Agreements	NOR Smolts 'BAMP'	NOR Smolts 'BAMP' by tributary adult equivalents were allocated to		UPM for NFH Smolts	Residuals for NFH Smolts 'MNNI'	Inundation	UPM for Inundation	Proposed 2022 Recalc Production	Release Location	Last Recalc	Comments
DPUD	Spring Chinook	Methow	-	5,133	4,927	Methow	15,840	3,755	-	-	24,728	Twisp	31,169	Last Recalc number is the most recent NNI after 2020 Survival Study
					206	Okanogan	-	-	-	-	-	NA	-	
		CJH Funding Agreement	35,640	-	-	Okanogan-Columbia	-	-	-	-	35,640	Okanogan-Columbia	33,000	Original calculation based on UPM = 3.7%
	Steelhead	Wells	-	7,663	5,758	Methow	7,920	1,528	-	-	17,111	Twisp or Methow	8,000 + 40,000	Last Recalc NNI = 8,000. 40,000 Inundation added to that for Twisp Releases. Later split into two 24,000 programs
					1,905	Okanogan	-	-	-	-	-	NA	-	
				-	-	Methow	-	-	100,000	-	100,000	Methow	100,000	Inundation Harvest - Safety-Net
				-	-	Columbia	-	-	200,000	-	200,000	Columbia	160,000	Inundation Harvest - Safety Net
	Summer Chinoo	Wells	-	93,847	16,605	Methow	-	-	-	-	35,437	Columbia	-	NNI = 93,847: 58,410 yearling equivalents at Chief Joe with balance of 35,437 allocated to Columbia Yearlings
		CJH Funding Agreement	58,410		77,242	Okanogan					58,410	Okanogan-Columbia	58,410	
		Wells		-	-	Columbia - Yearling	-	-	320,000	-	320,000	Columbia - Yearling	320,000	Inundation includes 320,000 yearling and 484,000 subs
				-	-	Columbia - Subs	-	-	484,000	-	484,000	Columbia - Subs	484,000	
	Coho	Wells	-	189	189	Methow	-	-	-	-	27,909	Methow	37,000	NNI for wild coho.
		YN Coho Agreement	27,720	-	-	Methow	-	-	-	-				Initial production was 37,000 at 3.7% * 1,000,000

Tribal Production Agreements are fish produced under those agreements (at CJH [Chinook] and Wells for Coho).
NOR Smolts "BAMP" is the NNI calc for NORs only (NNI for hatchery fish is separate)
(a)* Simply shows the breakdown of the BAMP calculation by tributary
UPM for NFH Smolts is NNI for the Federal Hatchery Smolts (WNFH in our case)
Residual for NFH Smolts "MNNI" provides extra production to provide 100% of the NFH smolts below Priest Rapids Dam.
Inundation is PUD inundation production
UPM for Inundation is NNI for other PUDs inundation production (does not apply to DPUD)
Proposed 2022 Production is simply the total fish of a species that we are to produce under this recalculation with no modifications.
Last Recalc is more or less the number from the last recalc
Release Location is the proposed release location. Release locations for CJH are determined by the CCT
Comments are comments!

Attachment D
Revised Proposed Recalculated Production for Chelan PUD

			Sensitivity Analysis											
				(a)	(a)*		(b)	(b)*		(d)	(d)*		(f)	(g)
PUD	Species	Hatchery	Tribal Production Agreements	NOR Smolts 'BAMP'	NOR Smolts 'BAMP' by tributary adult equivalents were allocated to		UPM for NFH Smolts	UPM for NFH Smolts by Hatchery at RI		Residuals for NFH Smolts 'MNNI'	Residuals for NFH Smolts 'MNNI' by hatchery		Inundation	UPM for Inundation
CPUD	Spring Chinook	Methow		12,868	7,780	Methow	28,000			6,637				
					324	Okanagon								
					4,764	Entiat								
	Spring Chinook	Chiwawa		18,735	5,165	Methow	97,120	72,840	Leavenworth	18,730	12,974	Leavenworth		
					215	Okanagon		24,280	Winthrop		5,755	Winthrop		
					3,162	Entiat								
					10,193	Wenatchee								
	Steelhead	Chiwawa		30,722			14,920			2,878			165,000	21,970
	Summer Chinook	Chelan Falls		13,976	13,976	Chelan Falls	52,280			11,301			400,000	55,765
	Summer Chinook	Dryden		274,996	93,888	Methow								
					15,459	Entiat								
					165,649	Wenatchee								
	Sockeye	Lake Wenatchee natural-origin		43,652										
	Coho	YN Funding Agreement	175,770	9,002	2,897	Methow								
	Coho				6,105	Wenatchee								
	Summer Chinook	CJH Funding Agreement	188,029	169,615										
	Spring Chinook	CJH Funding Agreement	113,806											

PUD	Species	Hatchery	Proposed 2022 Production	Last Recalc
CPUD	Spring Chinook	Methow	47,505	60,516
	Spring Chinook	Chiwawa	134,585	144,206
	Steelhead	Chiwawa	213,520	247,300 (max capacity at Chiwawa for steelhead) which included a species trade of the recalculated production for sockeye (46,000) for additional steelhead production (60,300).
	Summer Chinook	Chelan Falls	533,322	576,000
	Summer Chinook	Dryden	274,996	318,000
	Sockeye	Lake Wenatchee natural-origin		46,000 that were swapped for steelhead last time
	Coho	YN Funding Agreement	184,772	Funding agreement
	Coho			
	Summer Chinook	CJH Funding Agreement	357,644	Funding agreement
	Spring Chinook	CJH Funding Agreement	113,806	Funding agreement

Attachment E
Revised Proposed Recalculated Production for Grant PUD

See text below the table for the approach taken for proposing numbers for the 2023 recalculation period below

			Sensitivity Analysis							
				(a)	(a)*		(b)	(d)	(f)	(g)
PUD	Species	Hatchery	Tribal Production Agreements	NOR Smolts 'BAMP'	NOR Smolts 'BAMP' by tributary adult equivalents were allocated to		UPM for NFH Smolts	Residuals for NFH Smolts 'MNNI'	Inundation	UPM for Inundation
GPUD	Spring Chinook	Methow		14,428		Methow	214,560	41,378		
	Spring Chinook	Nason		32,233	7,632	Entiat				
					24,600	Wenatchee				
	Spring Chinook	CJH Funding Agreement	110,000							
	Steelhead	Okanogan		81,367	32,672	Methow	25,940	5,003		60,311
					10,812	Okanogan				
					15,154	Entiat				
					22,729	Wenatchee				
	Summer Chinook	Carlton		178,973		Methow	53,640	11,595		112,778
		CJH Similkameen	Fund	113,054		Okanogan				
		Dryden		168,147		Wenatchee				
	Fall Chinook	Priest Rapids		127,306					5,000,000	
	Coho	YN Funding agreement	Fund							
	Sockeye	ONA Funding agreement	Fund							

			Implementation Plan			
PUD	Species	Hatchery	Proposed 2023 sensivity production Total Proposed	Proposed 2023 recalc Production	Last Recalc 2013	Notes
GPUD	Spring Chinook	Methow	412,599	78,929	134,126	78,929 equals the top end of the sensitivity analysis total (412,599)-(223,670+110,000). The WNFH portion of the totals presented in (b) and (d) is 66,354. See 2022_03_14 PUDs Sensitivity Analysis, NFH Smolts Owed tab.
	Spring Chinook	Nason		223,670	223,670	Same as last recalc (need to determine split between conservation and safety net components). The LNFH portion of the totals presented in (b) and (d) is 189,584. See 2022_03_14 PUDs Sensitivity Analysis, NFH Smolts Owed tab.
	Spring Chinook	CJH Funding Agreement		110,000	110,000	Same as last recalc
	Steelhead	Okanogan	107,307	100,000 plus a 7,307 species swap	100,000	Same as last recalc with the addition of a species swap to make up for steelhead greater than 100,000 (see * agreement text below) 2023 total includes yearling summer Chinook species swap for 7,307 steelhead that exceed 100,000
	Summer Chinook	Carlton	576,001	96,492	200,000	2023 total includes species swap for 7,307 steelhead so that steelhead total does not exceed 100,000 (see * agreement text below)
		CJH Similkameen		305,000	278,000	CJH funding agreement. Total for combined SUC (576,001) also includes 50,591 UPM for inundation fish to get to mitigation midpoint
		Dryden		181,816	181,816	Same as last recalc
	Fall Chinook	Priest Rapids	5,127,306	5,127,306	5,325,543	PRH total does not include additional fry to smolt converted number (273,961) which will be produced at PRH
	Coho	YN Funding agreement		Fund	Fund	
	Sockeye	ONA Funding agreement		Fund	Fund	

Macro approach - used the same general approach as the 2013 recalculation implementation plan of high end of the sensitivity range for spring Chinook, middle for summer and fall Chinook, and low for steelhead. Summer Chinook method in 2023 recalc was higher than previous recalc
Total n values for each species presented in (a) NOR smolts 'BAMP' column match with column (a) in the Sensitivity Components table. When those totals are broken out by tributary the value presented was derived from NOR Adult Equivalents divided by the hatchery SAR value. See
Spring Chinook - Maintain the number of spring produced at CJH and Nason and put the remainder in Methow Hatchery
Steelhead - Maintain the maximum permitted for steelhead (100,000) per the NMFS 2008 BiOp* and put remainder of sensitivity analysis total above 100,000 as a species swap with Carlton Summer Chinook (7,307)
* From NMFS 2008 BiOp for the PRP section 2.4.3: "It is important to note that these are maximum production numbers [100,000 steelhead] which may be adjusted downward if determined appropriate by the PRCC Hatchery Subcommittee."
Summer Chinook - Take an average of the high and low end of the sensitivity range (midpoint) and distribute this among hatcheries. Maintain the number of summer Chinook at Dryden, the funding agreement for CJH, and the remainder at Carlton in addition to the species swap
Fall Chinook - BAMP+inundation
Coho - Funding agreement
Sockeye - Funding agreement