

Memorandum

To: Wells, Rocky Reach, and Rock Island
HCP Hatchery Committees

Date: January 21, 2018

From: Tracy Hillman, HCP Hatchery Committees Chairman

cc: Sarah Montgomery, Anchor QEA, LLC

Re: Final Minutes of the November 15, 2017 HCP Hatchery Committees Meeting

The Wells, Rocky Reach, and Rock Island Hydroelectric Projects Habitat Conservation Plan (HCP) Hatchery Committees meeting was held at the Grant PUD office in Wenatchee, Washington, on Wednesday, November 15, 2017, from 9:00 to 11:45 a.m. Attendees are listed in Attachment A to these meeting minutes.

Action Item Summary

- Andrew Murdoch (Washington Department of Fish and Wildlife [WDFW]) will write an overview of proposed expanded sampling at the off-ladder fish trap (OLAFT) at Priest Rapids Dam (Item I-A). *(Note: this item is ongoing.)*
- Mike Tonseth will coordinate with Todd Seamons (WDFW) to produce an outline or recommended approach for genetic monitoring (Item I-A). *(Note: this item is ongoing.)*
- Bill Gale, Matt Cooper, Charlie Snow (WDFW), Tom Kahler, and Greg Mackey will develop management alternatives for the Twisp River and Winthrop National Fish Hatchery steelhead programs (Item I-A). *(Note: this item is ongoing.)*
- Greg Mackey will revise the Douglas PUD steelhead surplus document and send it to the Hatchery Committees (Item III-A). *(Note: Mackey sent the revision to Sarah Montgomery, which she forwarded to the Hatchery Committees following the meeting on November 15, 2017.)*
- Greg Mackey will provide an update on the Wells and Methow fish hatcheries transition process, particularly regarding fish health and marking strategies, near the end of the transition period (Item III-C). *(Note: Mackey provided this update via email on December 7, 2017.)*
- Greg Mackey will provide an update on summer Chinook salmon spawning numbers for the Douglas PUD programs to the Hatchery Committees (Item IV-A).
- Tracy Hillman will revise non-target taxa of concern language in the draft Monitoring and Evaluation (M&E) Plan for PUD Hatchery Programs (2017 Update) and provide the final approved version to the Hatchery Committees, the Independent Scientific Advisory Board (ISAB), and Greer Maier (Upper Columbia Salmon Recovery Board [UCSRB]; Item V-C). *(Note: Hillman revised and sent the final Plan to Sarah Montgomery, which she distributed to the*

Hatchery Committees and Maier on November 17, 2017. Hillman also sent the plan to the ISAB on November 17, 2017.)

- Tracy Hillman will distribute the draft timelines for Wenatchee and Methow spring Chinook salmon programs for Hatchery Committees review (Item V-D). *(Note: Hillman sent the timelines to Sarah Montgomery, which she forwarded to the Hatchery Committees on November 15, 2017.)*
- Tracy Hillman will draft timelines for summer Chinook salmon, steelhead, and sockeye salmon, and for hatchery programs in the Entiat River basin (Item V-D).
- Sarah Montgomery will distribute Greer Maier's presentation, "Integrated Recovery," from the November 15, 2017 Hatchery Committees meeting (Item IV-E). *(Note: Montgomery sent the presentation to the Hatchery Committees following the meeting on November 15, 2017.)*

Decision Summary

- The Rocky Reach and Rock Island Hatchery Committees approved Chelan PUD's Statement of Agreement (SOA), "Regarding District's Coho Obligation" as follows: Colville Confederated Tribes (CCT) approved via email on November 14, 2017, and Chelan PUD, WDFW, U.S. Fish and Wildlife Service (USFWS), Yakama Nation (YN), and National Marine Fisheries Service (NMFS) approved on November 15, 2017 (Item II-A). *(Note: Sarah Montgomery distributed the Final SOA to the Hatchery Committees on November 16, 2017.)*
- The Hatchery Committees approved the draft M&E Plan for PUD Hatchery Programs (2017 Update), contingent on one edit to the non-target taxa of concern section, as follows: CCT approved via email on November 15, 2017, and Chelan PUD, Douglas PUD, WDFW, USFWS, NMFS, and YN approved on November 15, 2017. Grant PUD (PRCC HSC) also indicated approval of the Plan during the joint HCP-HC/PRCC HSC section of the meeting (Item V-C). *(Note: Sarah Montgomery distributed the final Plan to the Hatchery Committees on November 17, 2017.)*

Agreements

- Wells Hatchery Committee representatives agreed to the following items regarding the surplus of brood year 2017 steelhead for Douglas PUD's program:
 - Release all Twisp no-net-impact and inundation program fish on-station at time of release (55,620 or fewer).
 - Release all Methow inundation program fish on-station at time of release (72,768 or fewer).
 - Retain 210,412 Columbia Safety-Net program fish on-station for release.

- Release the target of 160,000 Columbia Safety-Net program fish plus a surplus (50,412 or fewer) to make up the shortfall (27,232 or more fish) in the Methow inundation program release, for a total release of 338,800 fish or less.
- Remove additional surplus fish (37,034 or fewer) from the Columbia Safety-Net program and release in non-anadromous waters under direction of WDFW (Item III-A).

Review Items

- Sarah Montgomery sent an email to the Hatchery Committees on November 27, 2017, notifying them that the *Draft Upper Columbia River Summer/Fall and Fall Chinook Biological Opinion* (BiOp) is available for review with edits and comments due to Emi Kondo by December 11, 2017.

Finalized Documents

- Sarah Montgomery sent an email to the Hatchery Committees on November 7, 2017, notifying them that the *Douglas PUD Final Transition Plan for Wells and Methow Fish Hatcheries* is now available for download from the Hatchery Committees Extranet site.
- Sarah Montgomery sent an email to the Hatchery Committees on November 15, 2017, notifying them that the *Douglas PUD Final 2016 M&E Annual Report* is now available for download from the Hatchery Committees Extranet site.
- Sarah Montgomery sent an email to the Rocky Reach and Rock Island Hatchery Committees on November 16, 2017, notifying them that the *Final SOA, Regarding District's Coho Obligation*, is now available for download from the Hatchery Committees Extranet site.
- Sarah Montgomery sent an email to the Hatchery Committees and PRCC HSC on November 17, 2017, notifying them that the *Final M&E Plan for PUD Hatchery Programs (2017 Update)* is now available for download from the Hatchery Committees Extranet site.
- Sarah Montgomery sent an email to the Hatchery Committees on December 7, 2017, notifying them that Douglas PUD's *Final 2018 M&E Implementation Plan* is now available for download from the Hatchery Committees Extranet site.

I. Welcome

A. Review Agenda, Review Last Meeting Action Items, and Approve the October 18, 2017 Meeting Minutes (Tracy Hillman)

Tracy Hillman welcomed the Hatchery Committees and asked for any additions or changes to the agenda. Greg Mackey added Douglas PUD items for a steelhead surplus discussion, the Douglas PUD Draft 2018 M&E Implementation Plan, and a discussion about the Wells and Methow fish hatcheries

transition. Mike Tonseth added an item for summer Chinook salmon spawning at Wells Fish Hatchery.

The Hatchery Committees representatives reviewed the revised draft October 18, 2017 meeting minutes. Sarah Montgomery said there are a few outstanding comments, and representatives revised the meeting minutes. Hatchery Committees representatives present approved the draft October 18, 2017 meeting minutes as revised.

Action items from the Hatchery Committees meeting on October 18, 2017, and follow-up discussions were addressed (*note: italicized text below corresponds to agenda items from the meeting on October 18, 2017*):

- *Andrew Murdoch (Washington Department of Fish and Wildlife [WDFW]) will write an overview of proposed expanded sampling at the off-ladder fish trap (OLAFT) at Priest Rapids Dam (Item I-A).*
This item is ongoing. Mike Tonseth indicated expanded sampling is likely not implementable in 2018.
- *Mike Tonseth will coordinate with Todd Seamons (WDFW) to produce an outline or recommended approach for genetic monitoring (Item I-A).*
This item is ongoing. Tonseth indicated it will be addressed at the beginning of 2018.
- *Kirk Truscott will discuss internally and coordinate with Keely Murdoch on potential edits to Chelan PUD's Draft Statement of Agreement (SOA) Regarding District's Coho Obligation (Item I-A).*
This item is complete.
- *Sarah Montgomery and Mike Tonseth will coordinate to revise and finalize the September 20, 2017 Hatchery Committees meeting minutes (Item I-A).*
This item is complete.
- *Sarah Montgomery will distribute Barry Berejikian's (Northwest Fisheries Science Center [NWFSC]) presentation, "Potential to improve the conservation benefits of steelhead hatcheries," to the Hatchery Committees (Item II-C).*
This item is complete.
- *Bill Gale, Matt Cooper, Charlie Snow (WDFW), Tom Kahler, and Greg Mackey will develop management alternatives for the Twisp River and Winthrop National Fish Hatchery (NFH) steelhead programs (Item II-C).*
This item is ongoing.
- *Sarah Montgomery will notify the Hatchery Committees that the Draft Monitoring and Evaluation Plan for PUD Hatchery Programs (2017 Update) will be a decision item at the Hatchery Committees November 15, 2017 meeting (Item III-C).*

This item will be discussed today.

- *Tracy Hillman will distribute the draft timelines for Wenatchee and Methow spring Chinook salmon programs for Hatchery Committees review (Item III-D).*

This item is complete.

II. Chelan PUD

A. Decision: Coho Salmon SOA (Catherine Willard)

Catherine Willard shared the document, "Draft SOA Regarding District's Coho Obligation," which Sarah Montgomery distributed to the Hatchery Committees on November 3, 2017. Willard said this version of the draft SOA includes the methodology for meeting Chelan PUD's coho salmon obligation, but not the funding arrangement with YN, which will be determined later in a separate SOA after further coordination with YN and CCT.

Bill Gale asked when the second SOA will be brought to the committees. Willard said in order to meet the obligation in 2018, the second agreement should be decided in early 2018, and said contracting can be completed quickly in order to arrange funding shortly after the agreement is made. Gale asked why the original SOA, including the funding arrangement, has been separated into two SOAs. Willard said Chelan PUD wants to record that the methods for calculating the District's obligation are agreed to now, then later agree to the funding arrangement. The Rocky Reach and Rock Island Hatchery Committees approved the SOA as follows: Chelan PUD, YN, WDFW, USFWS, and NMFS approved during the meeting on November 15, 2017, and CCT approved via email on November 14, 2017. (Note: the final version was distributed on November 16, 2017 [Attachment B]).

III. Douglas PUD

A. Steelhead Program Surplus Brood Year 2017 (Greg Mackey)

Greg Mackey shared the document, "Douglas PUD Steelhead Program Surplus BY 2017," which Sarah Montgomery distributed to the Hatchery Committees on November 14, 2017. (Note: a revised version was distributed following the meeting on November 15, 2017 [Attachment C]).

Mackey said the Douglas PUD steelhead program has an excess of 7,620 fish in the Twisp program, an excess of 87,446 in the Columbia program, and a shortage of 27,232 fish in the Methow program. Mike Tonseth said the numbers he received regarding the surplus are different, and Mackey said he would check accuracy and distribute a final document with the numbers; regardless, there is a surplus and the committees need to discuss how to meet obligations and release excess fish. Tonseth said long-term commitments are to manage programs to 100%, not 110% of targets, based on input from Craig Busack (NMFS). Keely Murdoch agreed and said the programs should be

managed to 100% of the target, but if an overage up to 110% occurs, those fish should be released. Murdoch recommended keeping 110% of the targeted level of fish, because some fish will die during the winter. Mackey agreed that the program should not purposefully release 110% of the target level of fish.

Mackey said the Twisp program has an overage of wild-by-wild fish, and asked if those fish should be kept even though the current number is above 110% of the target. Bill Gale asked if the Twisp program fish are different than other groups and said the Winthrop and Twisp programs have similar brood stock. Tonseth advocated maintaining the Twisp program at its current level (overage), in order not to disrupt tagging and smolt-to-adult return estimates. Murdoch asked if the permit for these programs is written such that the 100% target pertains to the program combined, or to each release group. Tonseth said the targets are for the program as a whole. Gale said he thinks it is acceptable to manage the program target with a combined approach this year, but the Hatchery Committees should not set the precedent of managing release groups in aggregate due to long-term unintended consequences. Tonseth said sufficient broodstock were collected for each release component, and the overage is due in part to collection of 2-salt fish, while the shortage is related to a water issue at the hatchery resulting in some steelhead dying. Tonseth said the situation in 2017 is unique, and the programs are not set up to automatically backfill each other. Mackey agreed and said there was no issue with broodstock collection, and if there had been, it would have been addressed earlier.

Mackey said one option is to maintain the Twisp program as-is with the overage, release all the Methow program fish that are available, and backfill the release up to 110% with the Columbia program overage. Tonseth said the broodstock collection protocols and BiOp are specific as to which broodstock comprise the safety-net program. He said due to the parental origin of surplus hatchery fish being unknown, those should not be used for safety-net releases. Tonseth said Mackey's proposition will likely meet the 100% target, though with a different make-up than planned. Murdoch asked if other steelhead programs are short. Tonseth said Okanogan and Ringold programs are not short, and Matt Cooper said the Winthrop program is also not short.

Tracy Hillman asked why the Methow program is short. Mackey said the shortage is due to a power outage at Wells Fish Hatchery that occurred in early summer 2017. When power was out, the water supply diminished and an airlock in the pipes resulted in steelhead fry (mostly Methow program) being siphoned out of start tanks.

Mackey summarized that the programs combined have a targeted release of 308,000 fish, not to exceed the 110% level of 338,800 fish. He said by keeping the Twisp overage, releasing all the Methow program fish available, and backfilling with Columbia program fish to meet the total

mitigation obligation, the Hatchery Committees should discuss whether to maintain only the 308,000-targeted fish or to maintain 338,800 fish at a 10% overage. Gale suggested maintaining the 308,000 fish plus an estimate for winter mortality. Tonseth reminded the representatives that the estimates presented today are from the time the fish are tagged, and some will die before release. Tonseth estimated that if 338,800 fish are maintained, approximately 325,000 would be released, which he said is a reasonable buffer.

Gale said at those numbers, the Columbia program would be at an approximate 15% overage, and fish from that release that stray into the Methow River might be an issue and should be considered. Murdoch said with a year of poor steelhead survival, strays into the Methow River may not be an issue. Tonseth said the Columbia program has the greatest likelihood of adults being removed upon return, which also helps to minimize straying into the Methow River.

Brett Farman said overages are generally considered by each release location, not as an aggregate of programs. He said if the Hatchery Committees agree to the deviation as a group, that is acceptable for this occasion. Farman asked about the marking strategy for these releases, and if they can be differentiated upon return. Mackey said the Columbia program release is ad-clipped only, the Methow release is ad-clipped only, and the Twisp release is CWT only. Tonseth noted that the BiOp for Methow steelhead programs indicates that if shortages or overages occur in one component, the difference is made up by the Columbia release, as proposed today to meet the production obligation for Douglas PUD.

Mackey said surplus fish are usually put into non-anadromous waters as determined by WDFW. Douglas PUD, YN, WDFW, USFWS, and NMFS came to agreement about the surplus, and CCT provided input via email. Wells Hatchery Committee representatives agreed to the following items regarding the surplus of brood year 2017 steelhead for Douglas PUD's program:

- Release all Twisp no-net-impact and inundation program fish that are on-station at time of release (55,620 or fewer).
- Release all Methow inundation program fish that are on-station at time of release (72,768 or fewer).
- Retain 210,412 Columbia Safety-Net program fish on-station for release.
- Release the target of 160,000 Columbia Safety-Net program fish plus a surplus (50,412 or fewer) to make up the shortfall (27,232 or more fish) in the Methow inundation program release, for a total release of 338,800 fish or less.
- Remove additional surplus fish (37,034 or fewer) from the Columbia Safety-Net program and release in non-anadromous waters under direction of WDFW.

B. M&E Implementation Plan 2018 (Greg Mackey)

Greg Mackey said Douglas PUD has not yet received any substantial comments on their draft 2018 Implementation Plan, which is available for review until December 1, 2017.

C. Wells and Methow Fish Hatcheries Transition (Greg Mackey)

Greg Mackey said Douglas PUD has fully staffed both the Wells and Methow fish hatcheries. Mackey said the transition is on track to be complete within 90 days as planned, and Douglas PUD is working to finalize paperwork and responsibilities. Bill Gale asked if anyone has been hired for the fish health position. Mackey said not yet, and Douglas PUD has not decided yet to hire for the position or contract it with WDFW. Mike Tonseth asked if contracts for fish marking will also be decided soon. Mackey said the contracts would be separate [from fish health], and Douglas PUD has requested quotes from entities capable of marking fish for these hatcheries, including WDFW, CCT, USFWS, and others. Gale noted the 90-day transition period ends before the next Hatchery Committees meeting, and asked for an update on remaining items towards the end of the transition period. Mackey said he will provide an update.

IV. WDFW

A. Summer Chinook Salmon Spawning Update (Mike Tonseth)

Greg Mackey said Mike Tonseth asked for an update on spawning for the Douglas PUD summer Chinook salmon program. Mackey said staff acquired the full program egg take, with a possible surplus. He said staff collected an additional 18 females to augment losses during an outbreak of columnaris. The Yakima River restoration program receives eggs through the Wells broodstock collection and spawning. YN staff participates in spawning on days when the Yakima River program receives eggs. He said because late females were not sexually maturing as expected, it is not currently known how many eggs went directly to the Yakima River restoration program. He said as of November 13, all fish were spawned and the remainder were killed because they were either going to die from the Columnaris infection or were so sexually immature that they were not likely to mature at all. Tonseth asked for a second update when Douglas PUD has revised numbers. Mackey said he will provide an update.

V. Joint HCP-HC/PRCC HSC

A. NMFS Consultation Update (Emi Kondo)

Emi Kondo provided an update on consultation for the unlisted programs in the upper Columbia River. Kondo said she received the official initiation of consultation request, and now NMFS will

respond with letters of sufficiency to the applicants. She confirmed to whom the letters should be addressed for Douglas PUD, Grant PUD, Chelan PUD, and WDFW.

She said the Draft Upper Columbia River summer/fall and fall Chinook salmon BiOp will go to General Counsel review soon, then back to the applicants for review. She said this BiOp is a regional priority to finish by the end of 2017, and asked for the Hatchery Committees to be aware that it will be available for review soon.

Alene Underwood asked for an update on the steelhead draft permit. Kondo said she is not sure on the status of the steelhead draft permit, and said Charlene Hurst would have more information about that permit.

B. USFWS Bull Trout Consultation Update (Matt Cooper)

Matt Cooper said Karl Halupka provided him an update on USFWS bull trout consultations, which he summarized as follows:

- Halupka is finalizing editorial pieces and working to get the BiOp for the batch of Wenatchee subbasin programs signed this week.
- Halupka is making progress on the Methow steelhead consultation, and is using the memorandum format developed for Methow spring Chinook salmon. He expects this to be complete by the end of November.
- Halupka received additional information for the unlisted programs in the upper Columbia River, which will inform the effects analysis. He said the schedule for completing a letter of concurrence depends on when NMFS is able to initiate consultation.

Mike Tonseth added that the USFWS consultation for the unlisted batch of Columbia River programs will likely only require a letter of concurrence.

C. Decision: M&E Plan for PUD Hatchery Programs, 2017 Update (Tracy Hillman)

Tracy Hillman shared the revised document, M&E Plan for PUD Hatchery Programs (2017 Update), which Sarah Montgomery distributed to the Hatchery Committees on October 19, 2017. Hillman said the sections about non-target taxa of concern and adaptive management have been recently updated, and Andrew Murdoch also provided edits to Appendix 1, Estimation of Carrying Capacity.

He asked if the Hatchery Committees approve the revised document. Chelan PUD, Douglas PUD, YN, USFWS, NMFS, and WDFW approved during the meeting, and CCT approved via email. Grant PUD (PRCC HSC) also indicated approval.

Hillman said he will finalize and distribute the document to the committees, Greer Maier, and the ISAB. (Note: Montgomery distributed the final version on October 17, 2017 [Attachment D]).

D. Timeline of Changes in Spring Chinook Salmon Programs (Tracy Hillman)

Tracy Hillman shared the document, Draft Hatchery Program Timelines, which Sarah Montgomery distributed to the Hatchery Committees on October 18, 2017 (Attachment E). Hillman said he received feedback from USFWS and Chelan PUD on the timelines. He said once the timelines have all the needed information, statistical break periods can be decided. Hillman said he will revise the timelines based on further input from Douglas PUD, and also prepare draft timelines for steelhead and summer Chinook salmon. Once the timelines are complete, the best way to complete the statistical and comprehensive reports can be decided.

Bill Gale asked if a timeline should be created for the Entiat. He said there is no PUD hatchery production there, but it could be related to analyses for statistical and comprehensive reports. Hillman said he will make a timeline for the Entiat and asked representatives to send him input for it. Mike Tonseth said spring and summer Chinook salmon programs have been in the Entiat River, and steelhead used to be released there too. Gale suggested developing a timeline for sockeye. Hillman said he can do that. Gale suggested also displaying the timelines by basin as well as species. Todd Pearsons suggested also displaying the timelines in table format, and also including exact dates as well as years whenever possible. Mackey suggested identifying year and brood year whenever possible. Hillman said he would incorporate these suggestions and continue revising the timelines.

E. Discuss UCSRB Hatchery Report (Greer Maier)

Tracy Hillman welcomed Greer Maier to the meeting, and said Maier will be discussing the UCSRB's draft Hatchery Summary. Maier shared a presentation, "Integrated Recovery" (Attachment F), which Sarah Montgomery distributed to the Hatchery Committees on November 15, 2017. Maier said the UCSRB implements the Upper Columbia Salmon and Steelhead Recovery Plan along with their partners, including the Integrated Recovery Technical Advisory Group (IRTAG), and the plan identifies actions across the four H's, hydropower, hatcheries, habitat, and harvest. Maier reviewed the process of writing the Habitat Report and Hatchery Summary, and discussed the contents of the Hatchery Summary.

Maier said the next steps for the Hatchery Report include a meeting next week to edit and review the report with the IRTAG, then it will hopefully be approved at the board meeting in December. In 2018, the UCSRB plans to share the report and knowledge from it through meetings and conferences. Then, the UCSRB will develop summaries for hydropower and harvest. Maier said the UCSRB is always looking to partner with other entities in order to move along initiatives that benefit recovery.

Questions and Comments

Bill Gale asked about the delineation between the hatchery report and the harvest report. He said with the Leavenworth programs, for example, there are unlisted hatchery programs that produce fish for harvest, but these programs are described in the Hatchery Summary. Maier said the harvest report has not been started yet, and the hatchery report focuses on hatchery fish interacting with listed species. She said there is overlap, and a clear line has not been drawn yet. She said she is open to suggestions on which programs to discuss in which report. Mike Tonseth suggested describing a clear linkage between the harvest and hatchery reports. He said harvest programs such as summer Chinook, fall Chinook, and sockeye salmon have impacts to listed fish. Maier agreed and said those will be addressed in the harvest report. Gale suggested being very clear about which programs and topics are included in each report.

Gale also suggested providing more clarity in the adult straying section, where he said hatchery escapement and straying are somewhat conflated. He said the Hatchery Committees discuss strays as out-of-population strays, and if a hatchery fish returns to its intended population (such as Wenatchee, Methow, or Okanogan), then it is not a stray; rather, it is a hatchery movement and escapement issue. Maier said the National Oceanic and Atmospheric Administration thinks that there are consequences to within-population straying, and within-population straying is reported in documents prepared by or for the Hatchery Committees. Gale suggested separating the types of straying more clearly. Greg Mackey said out-of-population straying is a genetic issue, and within-population straying is a management issue. Keely Murdoch said the level of concern for each type of stray depends on the program and species because they are all managed differently. Maier said the section discussing straying includes a general overview, and she will add more information about within-basin and out-of-basin strays. Mackey said that information is provided in PUD reports. Hillman suggested organizing that section by the recovery plan objectives and goals. He said the recovery plan mainly discusses out-of-population straying, but also discusses within-population straying. Maier liked this approach, and Hillman said she can find appropriate language and terms in the Hatchery M&E Plan. Gale said data for within-population straying are hard to compile, and so it might be best to show out-of-population stray data and describe that within-population straying also occurs. Maier said the document currently shows brood-year stray rates. Todd Pearsons said viable salmon population (VSP) criteria include within- and between-population stray rates, and said brood-year stray rates are different. He suggested focusing primarily on VSP-related stray rates. Hillman suggested reporting return-year stray rates instead of brood-year stray rates, because the recovery plan discusses return-year stray rates. Tonseth agreed and said examining brood-year stray rates can help determine if rearing practices or release strategies may contribute to stray rates, but it is more for management than evaluation. Mackey suggested reporting the number of fish along with the stray rate percentage, as percentages can be misleading depending on the size of the recipient

program. Maier said she would consider these suggestions and review the Hatchery M&E Plan (2017 Update) for further content.

Mackey said for assessing habitat or hatchery performance, or for setting a management strategy, one could examine percent improvement for each generation or each year, then compile years and examine improvement over time. He said some improvements cannot be detected in year-to-year evaluations, but over a longer period of time they would be detected, as in a life cycle model. Maier said Jeff Jorgensen (NWFSC) included life cycle modeling scenarios with improvements over time (i.e., increasing natural-origin adults), and the results are included in the original Hatchery Summary draft, but not the most recent version. Mackey said the life cycle model will be useful for examining expected changes over time and will help with long-term planning and expectations. Hillman asked if Jorgensen's results showing that hatchery programs are very important to reducing the threat of extinction are included in the Hatchery Summary. Maier said those results are not included in the most recent version of the summary, but the life cycle model includes a robust hatchery module that should be considered especially considering realistic increases in natural-origin returns.

Hillman asked if non-target taxa of concern species are addressed in the Hatchery Summary. Tom Kahler said the BiOps contain information about non-target taxa of concern species that could be used in the summary. Mackey recommended contacting Craig Busack and Charlene Hurst for more information about non-target taxa of concern topics. Pearsons said there is published information about the non-target taxa of concern model, which could also be used in the summary.

Maier summarized that the UCSRB will start working on the hydro report next, then harvest. Peter Graf (Grant PUD) asked what the UCSRB's goals are for shared learning and discussions. He asked who will be participating in these discussions. Maier said shared learning will involve presentations to the Board from members of the IRTAG or Hatchery Committees. She said the Board should understand the relationship between management sections and recovery, and the goal is for the Board to engage on hatchery topics and understand the programs and management concepts.

Maier summarized that any further comments should be provided to her by Monday, November 20, 2017, so the IRTAG can address any outstanding issues. She asked representatives present for any further input on this summary. Catherine Willard said the summary is much improved from the previous draft, and Murdoch agreed. Maier asked what representatives think of this summary format, and said the hydro summary will likely focus on direct life stage interactions with the hydro system. Willard said she thinks the summaries will be useful for habitat and hydro managers.

Gale asked what the timeline is for reexamining the four H's once the reports are completed. Maier said for the Habitat Report, the UCSRB maintains a database of important information for tracking habitat projects. She said the Board tracks certain metrics and reports on them yearly. She said she

expects the Hatchery Summary will also result in a database that is updated and reported annually. Gale suggested finalizing which data will be reported on and maintained before the report is finalized, so that the report points to and focuses on which data will be tracked.

Matt Cooper asked if there will be a report or modeling effort that will tie the four H reports together. Maier said the Board has discussed writing a synthesis report, but has not decided yet, and the discussion will likely continue during the sharing sessions when the most important data for interactions between the H's are identified.

Hatchery Committees representatives present thanked Maier for her presentation.

VI. HCP Administration

A. Next Meetings

Tracy Hillman asked if the Hatchery Committees plan to meet in December. Bill Gale said the committees might need to discuss consultations at the December meeting. Hillman summarized that the Hatchery Committees might have a conference call or meet in person in December, depending on what needs to be discussed.

The next Hatchery Committees meetings are on December 20, 2017 (TBD), and January 17, 2018 (Grant PUD), and February 14, 2018 (Grant PUD).

VII. List of Attachments

- Attachment A List of Attendees
- Attachment B Final SOA Regarding District's Coho Obligation
- Attachment C Douglas PUD Steelhead Program Surplus BY 2017
- Attachment D Final M&E Plan for PUD Hatchery Programs (2017 Update)
- Attachment E Draft Hatchery Program Timelines
- Attachment F Integrated Recovery

Attachment A
List of Attendees

Name	Organization
Tracy Hillman	BioAnalysts, Inc.
Sarah Montgomery	Anchor QEA, LLC
Catherine Willard*	Chelan PUD
Alene Underwood†	Chelan PUD
Greg Mackey*	Douglas PUD
Tom Kahler*	Douglas PUD
Todd Pearsons‡	Grant PUD
Peter Graf‡	Grant PUD
Deanne Pavlik-Kunkel‡	Grant PUD
Mike Tonseth*	Washington Department of Fish and Wildlife
Alf Haukenest	Washington Department of Fish and Wildlife
Matt Cooper*	U.S. Fish and Wildlife Service
Bill Gale*	U.S. Fish and Wildlife Service
Brett Farman*†	National Marine Fisheries Service
Emi Kondo†	National Marine Fisheries Service
Keely Murdoch*	Yakama Nation
Greer Maier	Upper Columbia Salmon Recovery Board

Notes:

* Denotes Hatchery Committees member or alternate

† Joined by phone

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