

Memorandum

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

Date: June 26, 2018

From: John Ferguson, HCP Coordinating Committees Chairman

cc: Kristi Geris

Re: Final Minutes of the May 22, 2018 HCP Coordinating Committees Meeting

The Wells, Rocky Reach, and Rock Island Hydroelectric Projects Habitat Conservation Plan (HCP) Coordinating Committees met at the Grant PUD Office in Wenatchee, Washington, on Tuesday, May 22, 2018, from 10:00 a.m. to 12:00 p.m. Attendees are listed in Attachment A to these meeting minutes.

Action Item Summary

- Douglas PUD will further review run-timing data for wild and hatchery yearling Chinook salmon with regard to Wells Dam bypass operation dates and will report back to the HCP Coordinating Committees (Item I-C).
- Tom Kahler will inquire internally about expediting contracting to re-line dirt pond No. 3 at Wells Fish Hatchery to avoid overstocking steelhead during winter 2018-2019 (Item II-A).
- Douglas PUD will provide a hyperlink to access reports from the Columbia River Inter-Tribal Fish Commission's (CRITFC's) annual sockeye salmon tagging efforts at Wells Dam (Item III-A). *(Note: Tom Kahler provided this hyperlink to Kristi Geris following the meeting on May 22, 2018, which Geris distributed to the HCP Coordinating Committees that same day.)*
- Douglas PUD will provide a representation designation letter to John Ferguson (and copy Kristi Geris), replacing Shane Bickford with Andrew Gingerich (Douglas PUD) as the Douglas PUD HCP Coordinating Committees Alternate Representative (Item III-B).
- Kristi Geris will add Andrew Gingerich to the HCP Coordinating Committees email distribution list and will coordinate with Julene McGregor (Douglas PUD Information Systems) to provide Gingerich with member access to the HCP Coordinating Committees extranet site (Item III-B). *(Note: Geris added Gingerich to the email list and requested extranet access from McGregor following the meeting on May 22, 2018.)*
- Scott Carlon will inquire internally within the National Marine Fisheries Service (NMFS) about the required permitting process for using coho and spring Chinook salmon as study species in the Douglas PUD 2020 Survival Verification Study (Item III-D).
- Chelan PUD will provide a final timeline for repairing Rocky Reach Dam Turbine Unit C1 hub seals to Kristi Geris for distribution to the HCP Coordinating Committees (Item IV-A).
- Kirk Truscott will provide Lance Keller with questions from the Colville Confederated Tribes (CCT) regarding the State Historic Preservation Office (SHPO) consultation on the Rocky Reach

Project Land-Use Permit Application for the City of Entiat, including: 1) did this application undergo SHPO consultation; and 2) if not, what is Chelan PUD's policy regarding approval for an application that has not undergone SHPO consultation (Item IV-B)? *(Note: Truscott's questions were addressed and the CCT have no further comments on this application, as distributed to the HCP Coordinating Committees by Kristi Geris on June 5, 2018.)*

- Lance Keller will inquire internally within Chelan PUD about the CCT's questions regarding SHPO consultation on the Rocky Reach Project Land-Use Permit Application for the City of Entiat, as well as what authority the Federal Energy Regulatory Commission (FERC) has over this application; and will report back to the HCP Coordinating Committees prior to Monday, June 11, 2018 (Item IV-B).
- The CCT and the Yakama Nation (YN) will submit comments or indication of no comments on the Rocky Reach Project Land-Use Permit Application for the City of Entiat to Lance Keller, Jeff Osborn (Chelan PUD), and Kristi Geris no later than Monday, June 11, 2018 (Item IV-B). *(Note: the CCT and the YN submitted indication of no comments on June 4 and 5, 2018, respectively, as distributed to the HCP Coordinating Committees by Geris on June 5, 2018.)*
- John Ferguson will coordinate with Michelle Rub (NMFS) regarding availability and timing of a presentation by Rub on pinniped predation during the HCP Coordinating Committees meeting on June 26, 2018 (Item V-A). *(Note: Ferguson coordinated with Rub, who will present during the next HCP Coordinating Committees meeting on June 26, 2018.)*
- The HCP Coordinating Committees meeting on June 26, 2018, will be held **in-person** at the Grant PUD Wenatchee Office in Wenatchee, Washington (Item VI-B).

Decision Summary

- The Wells HCP Coordinating Committee representatives present approved CRITFC's annual request to tag sockeye salmon at Wells Dam in 2018 (Item III-A).

Agreements

- HCP Coordinating Committees representatives present agreed to add Andrew Gingerich to the HCP Coordinating Committees email distribution list and provide Gingerich with access to the HCP Coordinating Committees extranet site (Item III-B).

Review Items

- A Rocky Reach Project Land-Use Permit Application for the City of Entiat was distributed to the Rocky Reach HCP Coordinating Committee by Kristi Geris on May 10, 2018. This application is available for a 30-day review with comments or indication of no comments due to Lance Keller, Jeff Osborn (Chelan PUD), and Geris no later than Monday, June 11, 2018

(Item IV-B). (Note: the Rocky Reach HCP Coordinating Committee provided indication of no comments on June 5, 2018.)

Finalized Documents

- There are no documents that have been recently finalized.

I. Welcome

A. Review Agenda (John Ferguson)

John Ferguson welcomed the HCP Coordinating Committees and reviewed the agenda. Ferguson asked for any additions or changes to the agenda. Tom Kahler removed Douglas PUD's Land-Use Permit Application agenda item.

B. Meeting Minutes Approval (John Ferguson)

The HCP Coordinating Committees reviewed the revised draft April 24, 2018 conference call minutes. Kristi Geris said all comments and revisions received from members of the HCP Coordinating Committees were incorporated into the revised minutes and there are no outstanding items remaining to be discussed. Tom Kahler reviewed two clarifications under the Wells Project 2020 Survival Verification Study – Study Species agenda item as follows:

- Douglas PUD's action item was to provide results of an analysis comparing the smolt-to-smolt survival estimates (not results of smolt-to-smolt comparative studies) of the last 8 years of releases of spring and summer Chinook salmon above Wells Dam.
- Douglas PUD would need to collect brood for multiple years of study at Wells Dam because collection of brood for a 2021 study would precede the releases for a 2020 study, and results from a 2020 study will not be available until fall of that year following spawning of the brood for the 2022 releases.

Kahler provided these clarifications to Geris, which Geris incorporated into the revised meeting minutes. HCP Coordinating Committees members present approved the April 24, 2018 meeting minutes, as revised. U.S. Fish and Wildlife Service (USFWS) abstained, because a USFWS representative was not present during the April 24, 2018 conference call.

C. Last Meeting Action Items (John Ferguson)

Action items from the HCP Coordinating Committees conference call on April 24, 2018, and follow-up discussions, were as follows. (Note: italicized text corresponds to agenda items from the conference call on April 24, 2018):

- *Douglas PUD will further review run-timing data for wild and hatchery yearling Chinook salmon with regard to Wells Dam bypass operation dates and will report back to the HCP Coordinating Committees (Item I-C).*
This action item will be carried forward.
- *Douglas PUD will provide results from the most recent spring and summer Chinook salmon smolt-to-smolt comparative studies conducted by Douglas PUD to Kristi Geris for distribution to the HCP Coordinating Committees (Item I-C).*
Tom Kahler provided these results to Geris on May 21, 2018, which Geris distributed to the HCP Coordinating Committees that same day.
- *Kristi Geris will forward to the HCP Coordinating Committees the Washington Department of Fish and Wildlife (WDFW) document outlining ongoing discussions on the Broodstock Collection Protocols, which was distributed to the HCP Hatchery Committees by Sarah Montgomery on April 19, 2018 (Item II-A).*
Geris forwarded this document to the HCP Coordinating Committees following the conference call on April 24, 2018.
- *Douglas PUD will inquire with Jeff Fryer (CRITFC) about the feasibility of using the anesthetic, Aqui-S, during CRITFC's proposed annual sockeye salmon tagging effort at Wells Dam in 2018 (Item V-A).*
This will be discussed during today's meeting.
- *Keely Murdoch will inquire internally within the YN about the feasibility of using the anesthetic, Aqui-S, during CRITFC's proposed annual sockeye salmon tagging effort at Wells Dam in 2018 (Item V-A).*
Murdoch determined that the YN have no issues with using Aqui-S for this tagging effort, as distributed to the HCP Coordinating Committees by Kristi Geris on April 25, 2018.
- *Scott Carlon will inquire internally within NMFS about the required permitting process for using coho salmon as a study species in the Douglas PUD 2020 Survival Verification Study (Item V-B).*
This will be discussed during today's meeting.
- *Kristi Geris will notify Jim Craig and Chad Jackson that the Wells HCP Coordinating Committee representatives present approved the Wells Project Land-Use Permit Application for Landscaping in Tract 333; and will request USFWS and WDFW approval via email, as discussed (Item V-C).*
Geris provided this notification to Craig and Jackson following the HCP Coordinating Committees conference call on April 24, 2018.

II. HCP Tributary and Hatchery Committees Update

A. HCP Tributary and Hatchery Committees Update (Tracy Hillman)

Tracy Hillman reported that the HCP Tributary Committees will next meet on May 23, 2018. Hillman said there will be more updates on the General Salmon Program Draft Proposals during the next HCP Coordinating Committees meeting on June 26, 2018.

Hillman updated the HCP Coordinating Committees on the following actions and discussions that occurred during the HCP Hatchery Committees meeting on May 16, 2018:

- *Wells Hatchery Steelhead Production in the Dirt Ponds During Winter 2018-2019*: Douglas PUD contracted hydrogeologists to conduct surveys in the dirt ponds and found there is no sinkhole. Dirt Pond No. 3 is still leaking; therefore, Douglas PUD plans to re-line the pond in 2019. The pond cannot be re-lined in 2018 due to the time required to complete the bidding and contracting process. Given that Douglas PUD cannot re-line Dirt Pond No. 3, it will not be used this winter for steelhead rearing; rather, Dirt Pond No. 2 will be used to rear Columbia River steelhead. A transmission tower in Dirt Pond No. 2 prevents installing bird netting over the pond. Therefore, Douglas PUD plans to overstock the pond by 40,000 steelhead based on an assumption that bird predation will harvest approximately 20% of the fish in the pond. The pond will be stocked with 200,000 juvenile steelhead with a release goal of 160,000 steelhead. Kirk Truscott asked what happens if birds do not harvest 20%? Hillman said the number of fish to be released will be monitored to avoid releasing more than allowed in the permit. Hillman added that Douglas PUD may install in-pond structures to provide in-water protection. Truscott asked if the failure of Dirt Pond No. 3 constitutes an emergency situation, would that allow Douglas PUD to implement emergency procurement actions to re-line the pond earlier than is currently scheduled? He said there is no certainty that birds will remove that many fish. Tom Kahler said maybe and added that any overages would be stocked into a local lake at the discretion of WDFW and the Wells Hatchery Committee (e.g., Alta Lake, located 2 miles southwest of Pateros, Washington). Truscott also asked if there is a way to configure Dirt Pond No. 2 and isolate the tower in order to install netting over this pond. Truscott requested that Kahler inquire internally about expediting contracting to re-line Dirt Pond No. 3 at Wells Fish Hatchery to avoid overstocking steelhead during winter 2018-2019.
- *NMFS Consultation Update*: The Environmental Assessment for Methow steelhead and the unlisted programs (summer/fall Chinook salmon for Wells, Methow, Chelan Falls, Dryden, and Priest Rapids) is undergoing internal review. The Environmental Assessment will be sent to the applicants in July and then out for a 30-day public review. Applicants have reviewed the draft Wells and Winthrop steelhead permits. NMFS is currently addressing comments received on those permits.

- *PRESENTATION: Expanded Sampling at the Off-Ladder Adult Fish Trap:* Andrew Murdoch (WDFW) provided a presentation on estimating escapement at various spatial scales using passive integrated transponder (PIT) tags. The goal is to expand the steelhead escapement project to other Plan Species, except sockeye salmon, by PIT-tagging a representative sample of fish at Priest Rapids Dam. This will provide real-time escapement monitoring for collecting broodstock and adult management, run escapements by population and origin at different spatial scales, and reduce uncertainty in dam counts. This approach will provide an unbiased approach for estimating run escapement and pre-spawn mortality of spring and summer Chinook and coho salmon. Andrew Murdoch discussed the cost of expanding the tagging program and identified cost shares. If implemented, the program could reduce or eliminate the need for stock assessment at Dryden, Tumwater, and Wells dams. The HCP Hatchery Committees are evaluating the implementation of the tagging program to other Plan Species.
- *PRESENTATION: Optical Density Values and Bacterial Kidney Disease:* Dr. Betsy Bamberger (Douglas PUD Fish Health Specialist) provided a presentation on the challenges of bacterial kidney disease and its management. She discussed the significance of the disease, the causative agent (*Renibacterium salmoninarum*), its hosts, and its spread. She indicated that detection of the disease can be difficult. Tests include enzyme-linked immunosorbent assay, quantitative polymerase chain reaction, and direct fluorescent antibody. These tests detect different things and therefore can produce different results. Unfortunately, there is no gold standard assay exhibiting error-free classification of results and detection of the disease agent does not always indicate active infection. Therefore, from a management perspective, it is important to understand the limitations of the different tests and embrace the trinity of requirements for disease manifestation (pathogen, susceptible host, and favorable environment), be flexible with disease management strategies, and use multiple assays and tissue analyses for broodstock surveillance.
- *Next Meeting:* The next meeting of the HCP Hatchery Committees will be on June 20, 2018, if necessary.
- *HCP Hatchery Committees Support Staff:* John Ferguson recalled that Anchor QEA supports the HCP Hatchery Committees through Sarah Montgomery. Ferguson said Montgomery will be attending graduate school at the University of Washington in fall 2018, and Larissa Rohrbach (Anchor QEA Wenatchee Washington office) will take over supporting the HCP Hatchery Committees. Ferguson said Rohrbach will begin shadowing Montgomery in June 2018, and the transition will be complete by January 2019.

III. Douglas PUD

A. DECISION: CRITFC Annual Request for Sockeye Tagging at Wells (Tom Kahler)

Tom Kahler said CRITFC's annual request to tag sockeye salmon at Wells Dam in 2018 was distributed to the Wells HCP Coordinating Committee for review by Kristi Geris on April 13, 2018. Kahler said Keely Murdoch determined the YN are already using AQUI-S. Murdoch said the YN used AQUI-S exclusively in 2017; therefore, there is no problem using AQUI-S for CRITFC's annual sockeye salmon tagging effort at Wells Dam in 2018. Kahler said he also discussed using AQUI-S with Jeff Fryer who indicated this will be okay.

The Wells HCP Coordinating Committee representatives present approved CRITFC's annual request to tag sockeye salmon at Wells Dam in 2018.

Kirk Truscott asked about access to the reports generated from these PIT-tagged sockeye salmon. Kahler said he is unsure about the lag time between a tagging event and a report being generated and added that he believes the 2017 report is in draft form. He said he will provide a hyperlink to access reports from CRITFC's annual sockeye salmon tagging efforts at Wells Dam. *(Note: Kahler provided this hyperlink to Geris following the meeting on May 22, 2018, which Geris distributed to the HCP Coordinating Committees that same day.)*

B. HCP-CC Email List and Extranet Access – Andrew Gingerich (Tom Kahler)

Tom Kahler said Andrew Gingerich will be replacing Shane Bickford as the Douglas PUD HCP Coordinating Committees Alternate Representative; therefore, Douglas PUD is requesting to add Gingerich to the HCP Coordinating Committees email distribution list and provide Gingerich with access to the HCP Coordinating Committees extranet site. Kahler said Bickford has not yet provided a designation letter. Douglas PUD will provide a representation designation letter to John Ferguson (and copy Kristi Geris), replacing Bickford with Gingerich as the Douglas PUD HCP Coordinating Committees Alternate Representative.

HCP Coordinating Committees representatives present agreed to add Gingerich to the HCP Coordinating Committees email distribution list and provide Gingerich with access to the HCP Coordinating Committees extranet site. Geris will add Gingerich to the HCP Coordinating Committees email distribution list and will coordinate with Julene McGregor to provide Gingerich with member access to the HCP Coordinating Committees extranet site. *(Note: Geris added Gingerich to the email list and requested extranet access from McGregor following the meeting on May 22, 2018.)*

C. Wells Dam Bypass Update (Tom Kahler)

Tom Kahler reviewed recent bypass barrier removals at Wells Dam, as follows:

Bypass Barrier	Removal Date (2018)
6	April 23
8	May 10
4	May 11
10	May 14

Kahler said the bypass barriers were removed per the 2018 Wells Dam Bypass Operating Plan (approved by the Wells HCP Coordinating Committee on February 2, 2018). He recalled the plan stipulates thresholds for dam safety and outlines removal of barriers under various river flow scenarios. He said incoming river flow met these criteria to remove bypass barriers and Douglas PUD does not foresee river conditions changing for at least another week.

Kahler said from a fish perspective there is plenty of flow through non-turbine routes, and he noted that Wells Dam is spilling 150,000 cubic feet per second (150 kcfs) daily. He said Douglas PUD is trying to lower the Wells reservoir; however, high river flow has made this difficult. He said even with the state water quality standards waived due to the 7-day, 10-year-frequency (7Q10) flow at Wells Dam, Douglas PUD does not want to increase total dissolved gas (TDG) by spilling more than necessary but needs to lower the reservoir elevation to avoid flooding Pateros, Washington. Kahler said 2 weekends ago, peak river flow out of the Methow River was 22 kcfs. He said if the elevation of the Wells reservoir is too high, this could cause flooding and silt build-up at the mouth of the Methow River. He said ideally, the Wells reservoir is maintained below 775 feet above mean sea level when the Methow River discharge is so high; however, high Columbia River flow is preventing Douglas PUD from being able to lower the Wells reservoir to that elevation. He said with the Wells Dam tailwater being so high, the head differential on the turbine units is reduced. This results in a reduced hydraulic capacity for the 9 (of 10) turbines that are available for operation at this time, which forces more flow through the spillway and affects Douglas PUD's ability to lower Wells Reservoir.

Kahler said there has been high TDG out of Chief Joseph Dam, Wells Dam is adding to the high incoming TDG, and this water is continuing downstream to Chelan PUD. Kahler said Andrew Gingerich has been conducting gas bubble trauma (GBT) sampling at the Rocky Reach Dam bypass system sampler every day. Kahler said to date, Douglas PUD has examined 521 fish on 7 days with the following results:

Species	Number Examined	Results
Sockeye salmon	142	15% mild GBT
Steelhead	36	17% mild, moderate, and severe GBT
Coho salmon	214*	49.5% mild, moderate, and severe GBT
Spring Chinook salmon	128	14% mild GBT

*Reported as 241 during the meeting; however, the number was corrected via an email following the meeting.

Kirk Truscott asked about the duration fish are held in the sampler. Lance Keller said fish are held in the sampler as short a period as is possible. He said these four samples were examined from 4- to 30-minute sample periods from 0800 hours to 1130 hours, and fish were examined shortly after the completion of each 30-minute sample period. He said recovery time is typically 3 hours; however, due to high numbers, fish were released sooner based on visual inspection. Truscott said he asked with respect to fish developing GBT symptoms while holding. Keller said he is unsure how long this would take if fish are held at a shallow depth; however, he said with high confidence that fish were entering the facility with signs of GBT. Kahler said this is a primary motivation for not aggressively dropping the Wells reservoir and spilling more water; Douglas PUD does not want to add to these numbers. Keely Murdoch asked what TDG was in the Wells Dam tailrace during this sampling, and Gingerich said values were exceeding 130% from Chief Joseph Dam.

D. Wells Project 2020 Survival Verification Study – Study Species (Tom Kahler)

Tom Kahler said a report titled, "Comparison: Rocky Reach to John Day Dam Survival of Spring and Summer Yearling Chinook Released above Wells Dam, 2010-2017," (Attachment B) was distributed to the HCP Coordinating Committees by Kristi Geris on May 21, 2018.

Kahler said the data in Table 1a of Attachment B seem to suggest that 1 year drives a possible difference in survival of juvenile spring and summer Chinook salmon. He said these values were produced by averaging all releases in a given year. He said Appendices A and B of Attachment B help interpret the results in Table 1a. Keely Murdoch said it seems a difference may be linked to more than just 1 year. She said, for example, both 2015 and 2017 may be important years. John Ferguson said most years are highly insignificant. He said 2015 had issues, and 2017 is not significant but is close. He said results for each stock changed each year, and he does not see a pattern.

Murdoch noted the annual z-test comparison for each year between the two species; however, she asked about a comparison between means for all years. Andrew Gingerich clarified paired t-tests were used to compare survival between stocks, which is included in the report text on report page 3 (page 5 of the Adobe file) of Attachment B. He said the results indicated no significant differences.

Scott Carlon said he does not yet have an update on Endangered Species Act permitting for coho salmon. He said Brett Farman (NMFS) is still reviewing permitting requirements for spring Chinook salmon (springers) and needs to clarify a few items with Craig Busack (NMFS). Carlon said one issue is whether NMFS can permit anything beyond 2 years. He said another issue is the potential for excess hatchery spawners returning to spawning grounds. He said Farman believes NMFS cannot permit anything beyond 2 years, which will eliminate springers from being one option for the

verification study. Carlon said he hopes to track down this information soon and believes NMFS will be ready to vote on a study species by June 2018. Carlon will inquire internally within NMFS about the required permitting process for using coho and spring Chinook salmon as study species in the Douglas PUD 2020 Survival Verification Study.

Kirk Truscott asked if springers are used, does this mean an additional production of 100,000-fish in addition to the current production out of the Methow River? Kahler said this is correct. Truscott said he has not yet had time to review Attachment B. He said the CCT hope this will be a 1-year survival study. He said it seems the probability of under-mitigating for springers in a 1-year survival study is a real concern, if summer Chinook salmon (summers) are used as the study species.

Regarding the report with comparisons between summer Chinook and spring Chinook salmon released in the same years, Kahler said these were not studies, but were simply releases that occurred in the same year but likely experienced major differences in release timing and migration conditions that could bias survival. For a true comparison, the study fish need to experience the same river and project operating conditions at the time of release (i.e., summer and spring Chinook salmon from the same facility released at the same place and time). Douglas PUD expects summer Chinook salmon released in May to experience better migration conditions than spring Chinook salmon released in April. Truscott asked if releasing fish only 1 week later makes a difference, and Kahler said yes. Kahler recalled for the 15 release groups of study fish in 2010, the first release was during the third week in April and the last release was during mid-May (similar to typical differences in release timing for spring and summer Chinook salmon, respectively), and there was a dramatic difference in survival between the earlier releases compared to the later releases. He said the earlier releases were during colder conditions and fish initially did not move, and suddenly they all left. He also noted that for some reason, the first couple release groups were underfed (i.e., had no mesenteric fat), and he guessed the fish may have held in the reservoir to feed before initiating their migration.

Murdoch said she discussed this topic internally with the YN, and if permissible, springers are the YN's preference, even if the study needs to be postponed for 1 year. She said the YN are also supportive of using coho salmon or yearling summer Chinook salmon as done in the past. She said if coho salmon are used, it may also be ideal to postpone the study for 1 year to wait out the effects of "the Blob¹."

Truscott said the CCT echo the YN's desire to study springers but are concerned the permitting and adult management issues may prevent this. Truscott recalled previously discussing using acoustic tags. He said Chelan and Grant PUDs used acoustic tags. He said he realizes the desire to remain consistent with past methodology, but wondered if springers are used, can they be double-tagged?

¹ The warming of sea surface temperatures in the offshore northern Pacific Ocean, which became evident to scientists in the spring of 2013.

Kahler said as long as an acoustic tag is a surgical procedure, they are a nonstarter for Douglas PUD. Because of the larger tag and the surgical procedure used for even the "injectable" acoustic tag, the study is not simply measuring survival of a group of study fish, but also adds confounding effects of the study method associated with tagging effects and battery life and demonstrated increased susceptibility to injury and mortality with travel distance and in turbine passage. He said research is on track for a true injectable tag, so there is possibility to use acoustic tags in the future. He recalled Shane Bickford discussing this (during the HCP Coordinating Committees meeting on March 27, 2018), and asked, what is actually being measured in an acoustic study? Kahler said with acoustic telemetry the study design needs to factor in the effects of dead fish being detected, and that there are multiple considerations which need to be mathematically accounted for, which creates a lot more chance for error. He said he understands why managers use acoustic tags to understand where fish are passing in the reservoir and at the dam; however, Douglas PUD does not need that additional information provided by acoustic tags and does not support the use of acoustic tags to verify continued conformance to survival standards the achievement of which was demonstrated by PIT-tag studies. He said if the Wells HCP Coordinating Committee feels strongly about this route, there will need to be a lot more discussion of it.

Truscott said he just wants to build the data and suggested developing a correction factor for acoustics. Kahler said he knows Chelan PUD conducted a comparison study along the same lines of what Truscott is referring to; however, he recalls the study involved a much larger effort (two full studies in one: full acoustic and full PIT tag study). The intent of those studies was not to verify whether passage survival remained similar to that observed in previous studies, but to determine whether a different technology was an acceptable study method. Lance Keller said the study Chelan PUD conducted occurred fairly early in the history of acoustic technology development; it was two stand-alone studies using the same fish (conducted in 2004 using 150,000 PIT tagged fish and 1,500 acoustically-tagged fish, side-by-side).

Truscott suggested tagging enough fish and installing enough arrays to achieve statistical rigor using acoustic-tagged fish. He said in year 1 (2020), PIT-tag 100,000 study fish and acoustic-tag a small number of study fish. He said its only 1 year, but he is only trying to figure out how to use acoustics to reduce the need for such large samples sizes.

Regarding the Wells HCP requirement to measure delayed mortality (which acoustic tags cannot measure), Truscott asked what happens if there are large delayed mortality results? He said he does not foresee the PUDs agreeing to conduct consecutive survival studies based on larger than anticipated delayed mortality results of a study. Kahler said the Wells HCP is not clear on this topic. He recalled historical Anadromous Fish Evaluation Programs where delayed mortality was a huge topic. He said he is unaware of any actions to modify dams or dam operations that followed these

discussions, but the parties negotiating the HCP included the delayed-mortality provision in the Wells HCP. Truscott said there is nothing tangible to take from it. Kahler said it provides assurance that there is not a problem. Little-to-no delayed mortality results confirm that fish performed well after leaving the hydropower system, supporting the conclusion that dam operations are not producing a loss of fish that was not apparent within the juvenile-migration phase. However, the observation of substantial delayed mortality would warrant an investigation of structural or operational issues that could contribute to that delayed effect.

Returning the report comparing survival of summer and spring Chinook salmon releases, Kahler suggested reviewing the standard errors in Appendix Tables A1 and A2 of Attachment B. He noted the 99% survival and approximately 20% standard error that resulted from a detection rate of 5% at McNary Dam. He said these results suggest there is little confidence in detecting differences among small release groups, since such results can dramatically influence the calculated annual mean survival estimate and standard error. Murdoch said these results show how little is known about these data.

Jim Craig said USFWS appreciates the simplicity of using summers; however, it is troubling that springers are not performing as well as summer Chinook salmon. He said ultimately it will be good to study springer survival.

Chad Jackson said WDFW has similar thoughts as others. He said considering 2020 is approaching soon and the complications with using other species, WDFW is in favor of studying summers in 2020. He suggested stipulating using summers in 2020 and also building a case to study springers in the next survival study if the migration is better or conduct a study along the lines of what Truscott suggested. Ferguson asked if WDFW is indicating support for summers in 2020, contingent that Douglas PUD agrees to studying springers in 2030, and in the interim investigate how to prepare to use springers in 2030? Jackson said this is correct and suggested framing the Statement of Agreement such that at a minimum, Douglas PUD will do something to prepare for testing springers in the 2030 verification study.

Carlton said NMFS does not have a strong inclination to study springers and supports studying summers; however, also supports studying springers if the Wells HCP Coordinating Committee chooses so. He said this may be resolved once he hears back from NMFS permitting staff.

IV. Chelan PUD

A. Rocky Reach Dam Turbine Unit C1 Maintenance Update (Lance Keller)

Lance Keller recalled reporting during the last HCP Coordinating Committees meeting on April 24, 2018, that the initial trunnion seal replacement failed to stop oil from leaking from the unit hub. Keller said

since then, a Rocky Reach Dam Turbine Unit C1 Maintenance update was distributed to the HCP Coordinating Committees by Kristi Geris on May 9, 2018, which summarized the parallel paths identified for moving forward (hydraulically locking Turbine Unit C1 or a sole-source contract to design an engineered seal). Keller said in this update he is explaining why Chelan PUD is now choosing not to hydraulically lock Turbine Unit C1. He summarized that this approach not only removes oil from the hub, but it may also allow water into the hub, causing damage to the hub components. At the same time, Chelan PUD engineering staff noted that oil is needed for other operating components of Turbine Unit C1, and they cannot ensure that that oil will be 100% isolated from the hub, thus they cannot assure that operating in a hydraulically locked configuration will not result in an oil leak with a failed trunnion seal. He said this determination now leaves a single path forward for addressing the oil leak at Turbine Unit C1, which is to enter into a sole-source contract to formally begin the design and manufacture of engineered seals for Turbine Unit C1 at Rocky Reach Dam. Keller said on May 14, 2018, the Chelan PUD Board of Commissioners approved this path forward and efforts are now underway to finalize a contract with Voith Hydro, who will also be assessing existing and future wear on the seals to help design a solution that keeps everything working properly over time.

Keller said he will provide a final timeline for repairing Rocky Reach Dam Turbine Unit C1 hub seals to Geris for distribution to the HCP Coordinating Committees. Keller said he also plans to continue providing updates on progress during monthly meetings. He said the early estimate has the seal on site in August 2018; therefore, it is a reasonable expectation to not expect to have Turbine Unit C1 return to service during 2018 juvenile bypass season. He said the unit will be operational by the 2019 season.

Kirk Truscott asked if there is a chance the other units will have this same problem? Keller said Turbine Unit C1 is designed the same as Turbine Units C2 through C7; therefore, if this engineered seal works, this fix will be applicable to the other units if the same issue occurs. Chad Jackson asked if all turbines have this same configuration, why do some systems have longer longevity? Keller said he is unsure why Turbine Unit C1 has excessive wear and the other trunnion seals do not. Truscott asked if the seal works, will Chelan PUD purchase a few of them? Keller said the goal at Rocky Reach Dam is to have as many units online as possible and the engineers know everything needs to be operational come 2021 for the survival study.

B. Entiat Marina Application Consultation (Lance Keller)

Lance Keller said a Rocky Reach Project Land-Use Permit Application for the City of Entiat was distributed to the Rocky Reach HCP Coordinating Committee by Kristi Geris on May 10, 2018. This application is available for a 30-day review with comments or indication of no comments due to Keller, Jeff Osborn, and Geris no later than Monday, June 11, 2018.

Keller acknowledged this application includes a lot of documents and said this application has been in process since 2012. He said any permit larger than 10 slips on the Rocky Reach reservoir is required to submit the application to FERC. He said for this application, Chelan PUD is basically the middleman. He said the City of Entiat went through the permitting process, is now passing the application by Chelan PUD, which will then be passed to FERC. Keller said Chelan PUD has a flowage easement and a landowner has the ability to complete the Joint Aquatic Resource Permit Application process to install a permitted dock. He said the application for Rocky Reach HCP Coordinating Committee review is the draft final product before submittal to FERC. He said this application has already been consulted on by USFWS and NMFS. He said FERC will then have the application out for a 30-day review. He said currently, the application is also under review by the fish forums.

Geris summarized that all Rocky Reach HCP Coordinating Committee representatives have indicated 'no comment,' except the CCT and YN, which have not yet responded. Kirk Truscott said he needs to coordinate internally with the CCT cultural resources staff before commenting on the application. He asked what is the purpose of a 64-slip dock in that area of the Columbia River? Keller said he believes this is part of the City of Entiat's desire to attract more recreation to the area. He said currently, there is no boat fueling capability in the reservoir, or any additional boat services. He said this dock will provide these amenities. Jim Craig added that another motivator is to attract recreation to the new park in the City of Entiat.

Truscott asked about measures taken to ensure adequate mitigation for the habitat being displaced. Keller said snorkel and hook and line surveys were conducted to assess what species are present in the area. Chad Jackson said there are requirements to use surfaces that are light-penetrating. Truscott said the new dock will likely create predator issues. Jackson said WDFW surveyed a similar dock in Lake Washington and increased predation was not a huge issue. Keller said Chelan PUD also conducted similar investigations in the Rocky Reach reservoir and did not find a significant impact.

Keely Murdoch said the last page in the application for review is an email correspondence between Larry Lehman (Grette Associates) and Jacalen Printz (U.S. Army Corp of Engineers), which says:

Lehman: "Any word on the section 106 correspondence for this project, per our discussion"

Printz: "We closed out our Section 106 review with the determination of little likelihood to cause effects to Historic Properties without consultation with the SHPO or Affected Tribes. That being said, we did request comments from Tribe through our Public Notice process"

Murdoch said this sounds like comments were requested, but not received? Truscott said it appears the City of Entiat has not consulted with SHPO or affected tribes. He said he will provide Keller with

questions from the CCT regarding SHPO consultation on the Rocky Reach Project Land-Use Permit Application for the City of Entiat, including: 1) did this application undergo SHPO consultation; and 2) if not, what is Chelan PUD's policy regarding approval for an application that has not undergone SHPO consultation? *(Note: Truscott's questions were addressed and the CCT have no further comments on this application, as distributed to the HCP Coordinating Committees by Geris on June 5, 2018; ultimately, Chelan PUD does not have any authority to approve/disapprove an application that does not involve District Property.)*

Scott Carlon asked if FERC has the authority to prevent this dock from being constructed, and Keller said he is unsure. Keller said he will inquire internally within Chelan PUD about the CCT's questions regarding SHPO consultation on the Rocky Reach Project Land-Use Permit Application for the City of Entiat, as well as what authority FERC has over this application; and will report back to the HCP Coordinating Committees prior to Monday, June 11, 2018.

The CCT and the YN will submit comments or indication of no comments on the Rocky Reach Project Land-Use Permit Application for the City of Entiat to Keller, Osborn, and Geris no later than Monday, June 11, 2018. *(Note: the CCT and the YN submitted indication of no comments on June 4 and 5, 2018, respectively, as distributed to the HCP Coordinating Committees by Geris on June 5, 2018.)*

V. HCP Administration

A. Michelle Rub Pinniped Presentation (John Ferguson)

John Ferguson will coordinate with Michelle Rub regarding availability and timing of a presentation by Rub on pinniped predation during the HCP Coordinating Committees meeting on June 26, 2018. *(Note: Ferguson coordinated with Rub, who will present during the next HCP Coordinating Committees meeting on June 26, 2018.)*

B. Next Meetings (John Ferguson)

The next scheduled HCP Coordinating Committees meeting is on June 26, 2018, to be held in-person at the Grant PUD Wenatchee Office in Wenatchee, Washington.

The July 24 and August 28, 2018 meetings will be held by conference call or in-person at the Grant PUD Wenatchee Office in Wenatchee, Washington, as is yet to be determined.

VI. List of Attachments

Attachment A List of Attendees

Attachment B Comparison: Rocky Reach to John Day Dam Survival of Spring and Summer Yearling Chinook Released above Wells Dam, 2010-2017

Attachment A
List of Attendees

Name	Organization
John Ferguson†	Anchor QEA, LLC
Kristi Geris	Anchor QEA, LLC
Tracy Hillman††	BioAnalysts
Lance Keller*	Chelan PUD
Tom Kahler*	Douglas PUD
Andrew Gingerich†	Douglas PUD
Scott Carlon*†	National Marine Fisheries Service
Jim Craig*	U.S. Fish and Wildlife Service
Chad Jackson*	Washington Department of Fish and Wildlife
Kirk Truscott*	Colville Confederated Tribes
Keely Murdoch*	Yakama Nation

Notes:

- * Denotes HCP Coordinating Committees member or alternate
- † Joined by phone
- †† Joined by phone for the HCP Tributary and Hatchery Committees Update