

# Memorandum

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

Date: April 27, 2023

From: John Ferguson, HCP Coordinating Committees Chairman

cc: Kristi Geris, HCP Coordinating Committees Support

**Re: Final Minutes of the March 31, 2023, HCP Coordinating Committees Conference Call**

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The Wells, Rocky Reach, and Rock Island Hydroelectric Projects Habitat Conservation Plan (HCP) Coordinating Committees met by conference call on Friday, March 31, 2023, from 4:00 p.m. to 5:00 p.m. Attendees are listed in Attachment A to these conference call minutes.

## I. Welcome

### A. Review Agenda (John Ferguson)

John Ferguson welcomed the HCP Coordinating Committees. Ferguson said the purpose of today's conference call is to vote on the 2023 Rocky Reach Confirmation Survival Study (CSS) documents. He proposed, first, reviewing the revised Statement of Agreement (SOA), which incorporates feedback from the HCP Coordinating Committees meeting on March 28, 2023, and further editing of the SOA to reach approval, as needed; second, discussing any new information that has become available since the last meeting; and third, voting on the SOA and associated study plan documents.

## II. Chelan PUD

### A. 2023 Rocky Reach CSS SOA (Lance Keller)

Kristi Geris projected the revised draft 2023 Rocky Reach CSS SOA, which was distributed to the Rocky Reach HCP Coordinating Committee by Geris on March 29, 2023.

Lance Keller said this revised SOA is based on feedback received last Tuesday, March 28, 2023. The first paragraph in the *Agreement Statement* is unchanged, the second paragraph is new, the *Background* is the same, and the date of the SOA is updated to today's date. Keller read the new second paragraph, as follows:

The Rocky Reach HCP CC also desires to have further discussions about wild fish in future 10-year confirmation studies implemented under the HCP and the allowable level of tag burden in a statistically valid survival study. The Rocky Reach HCP CC commits to having these discussions and developing consensus-based, implementable actions prior to the next 10-year confirmation survival study.

John Ferguson opened the floor for discussion.

Chad Jackson said Washington Department of Fish and Wildlife (WDFW) appreciates the addition of the paragraph. This was something the Rocky Reach HCP Coordinating Committee discussed. WDFW hopes that this results in implementable actions.

Scott Carlon asked whether, once the acoustic tags move through the Rocky Reach bypass, the tags are still detectable in the tailrace. Keller said yes, the acoustic tags are detectable anywhere outside of the bypass structure. The bypass structure does not ruin the tags; rather, there are complications detecting the signal within the bypass structure. Chelan PUD expects to detect all acoustic tags downstream at Kirby Billingsley Hydro Park in East Wenatchee, Washington, and at the Rock Island Dam boat restriction zone.

Keely Murdoch said the Yakama Nation (YN) appreciates Chelan PUD adding the paragraph. K. Murdoch said she is surprised Chelan PUD added it. She likes it; however, when she thinks about it and what it says, she realizes when the next 10-year study is here, tag technology will have probably evolved to the Eel/Lamprey Acoustic Tag or something similar. The Eel/Lamprey Acoustic Tag is already in use, experimentally, with tagging down to 50 millimeters (mm). She is not sure 10 years from now this will be an issue. She thinks it will be easier. While she does like the paragraph, she is not sure it helps as much as she thought it would. Ferguson asked whether K. Murdoch is opposed to leaving it in. K. Murdoch said no, she is not opposed, it just does not provide as much mileage to this issue as she originally thought it would. Ferguson said K. Murdoch is right, tag technology will evolve, and the next study will include another discussion like this one.

Kirk Truscott said the Confederated Tribes of the Colville Reservation appreciate the effort of the second paragraph. It is apparent the District was listening and hearing the Committee. Adding this language demonstrates the District's willingness to maintain open lines of communication. Truscott agreed with K. Murdoch that this may not be an issue when the next 10-year study is here. It is hard to say with tag development.

Ferguson asked, before moving onto the next discussion, are there any requests for additional edits to this revised SOA?

Truscott said this SOA references the study plan, statistical plan, and tagging plan. When these documents were last discussed, they still included the 120-mm minimum fish length. He is assuming this has changed. Keller said these edits have not yet been made, but upon approval, Chelan PUD will work with Blue Leaf Environmental (Blue Leaf) to make these edits and distribute final documents in a timely fashion.

Ferguson said regarding process, Anchor QEA, LLC, will produce meeting minutes for today's conference call separate from the in-person meeting last Tuesday, March 28, 2023.

## **B. Discuss New Information (Lance Keller)**

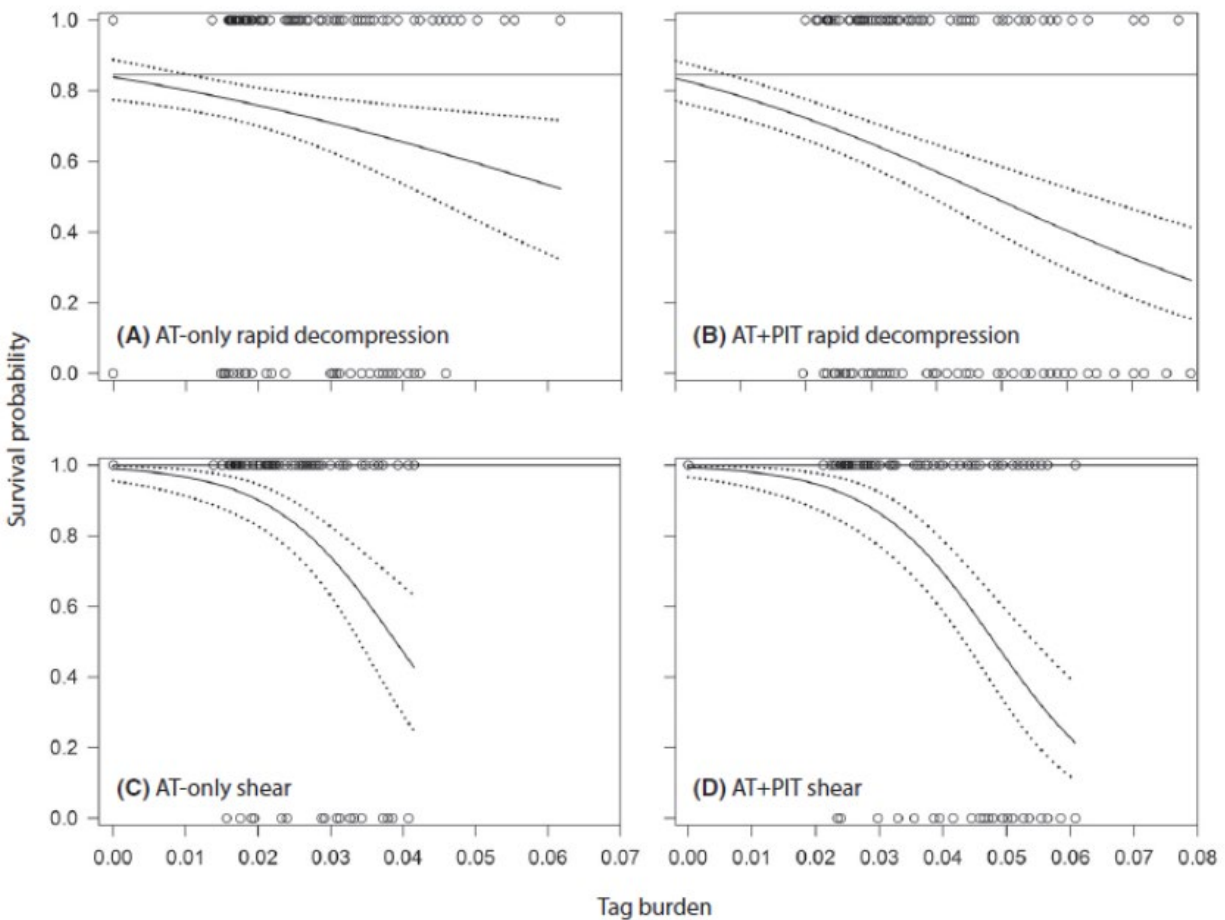
Keller recalled having a good discussion last Tuesday, March 28, 2023. Near the end of the meeting, Andrew Murdoch asked whether Chelan PUD had a tag burden in mind. At that time, Chelan PUD did not have a good number. After the meeting, Chelan PUD discussed this internally and with Blue Leaf and now has a percentage in mind. Chelan PUD and Blue Leaf believe a tag burden of 2% will be acceptable and will likely move fish size further below 110 mm. Chelan PUD had an opportunity to speak with Kirk Truscott and Chad Jackson about this before today's call. Keller knows the Joint Fisheries Parties met yesterday, and this may have been mentioned there. Unfortunately, without data from the Rocky Reach Juvenile Sampling Facility (RRJSF) this 2% tag burden cannot be quantified in terms of fork length. This calculation would occur at the tagging table. Each Juvenile Salmon Acoustic Telemetry System and passive integrated transponder (PIT) tag pair is weighed ahead of time and entered into a database. A study fish will be moved from the holding vessel and anesthetized, then length and weight will be collected and entered into the database. At this point, this will be an automatic quality assurance/quality control to tell whether the tags exceed the 2% tag burden for that individual fish. This will require measuring a few fish at the RRJSF to make sure fish are being collected that meet the 2% tag burden, but Chelan PUD is willing to do this extra work to get down in size. If this is acceptable to the Rocky Reach HCP Coordinating Committee, Chelan PUD is prepared to edit the study plan to use a tag burden not to exceed 2%.

Jackson said when he and Keller spoke yesterday, WDFW suggested a 3.5% tag burden. WDFW looked at 2%, and by their calculations, this equals 114-mm fish. Jackson said he would be interested in seeing Blue Leaf's calculations of what length a 2% tag burden relates to. While he appreciates Chelan PUD bringing these numbers forward, he would like to understand the difference in fish sizes.

A. Murdoch said when developing a length-weight relationship, there is a lot of variability when considering this small of a fish size. The data he has are from smolt traps, so there is an opportunity for feeding and growth by the time the fish reaches Rocky Reach Dam. He suggested, when crews start sampling fish before the study starts, looking at fish sizes and figure out whether a 110 mm or 2% tag burden hits the mark. He still has not found anything in the literature that suggests a 110 mm or 2% tag burden are the appropriate values, and if it is out there he would like to see it. He has not found anything that refutes tagging down to 95 mm. Pacific Northwest National Laboratory (PNNL) is still suggesting 95 mm with the new SS400 tags. This is what the research says.

Keller said Chelan PUD appreciates hearing these thoughts and WDFW's review of smolt trap data and acknowledgment of the variability in the data. Chelan PUD also reviewed mark-recapture data from the Entiat and Okanogan river basins for fish that were tagged in July to October and recaptured the following spring. Depending on where these fish come from, there is definitely growth prior to arriving at Rocky Reach Dam. Keller believes Chelan PUD is prepared to collect data in early April 2023, to determine whether 2% or 110 mm is appropriate. Chelan PUD is prepared

to use whichever metric yields the larger proportion of the run at large being included in the 2023 study. Regarding the literature, Chelan PUD is aware of PNNL's recommendation for 95 mm; however, the PNNL publications also mention that one should be cautious of tag burden, as an increase in tag burden results in an increase of mortal injury due to rapid decompression and shear forces. Further, the PNNL paper was studying dam passage survival (not project survival) that used a higher tag burden than Chelan PUD will accept. That study was designed to allow fish to fall out. That is, from release to where fish were included in the study (virtual release array location), there was time and distance to allow any effects that would result in fish mortality to fall out and not impact the estimate. Recall the Geist et al. (2018) panels shared during the HCP Coordinating Committees conference call on February 28, 2023 (copied below). The survival probability for 2% versus 3.5% tag burden was quite different for AT+PIT<sup>1</sup> for rapid decompression (Panel B) and shear forces (Panel D).



<sup>1</sup> Acoustic tag plus PIT tag.

Chelan PUD does believe 2% will get fish below 110 mm, but as mentioned earlier, Chelan PUD can collect data during early operation of the RRJSF to determine which metric to incorporate in the study.

Keely Murdoch said she is hearing a lot of talk about biases with tag burden, but she is concerned about the biases with eliminating the smaller fish in the population. This is a big bias. The YN believe the minimum fish size should be 95 mm. The science supports this. It is known that larger fish survive better through the hydro system, but she never hears Chelan PUD mention these biases. Keller acknowledged that 2% probably will not include 95-mm fish, but the data show that tagging smaller fish and increasing tag burden introduces negative biases. Using these smaller fish introduces a negative bias from the beginning. K. Murdoch said not using these fish creates another bias that the YN is concerned about.

A. Murdoch said the Geist et al. (2018) paper was trying to find a lower minimum fish size for the SS400 tag. Based on the size range of fish tested, the study could not find a solid threshold for tag burden, so the default was 95 mm. The paper even said this needs to be validated in the field. He agrees these biases need to be quantified in the field to understand what they are and whether they are negative biases, then correct for them.

Keller said he believes A. Murdoch summarized the intent of the Geist et al. (2018) paper accurately. Chelan PUD has considered the biases across a range of tag burdens. If negative biases are knowingly introduced and there is no way to correct for them, the question is, what proportion of mortality was due to higher tag burden? The way the models work is that these just show up as mortality. As everyone knows, if one cannot correct for a negative bias, then one has to do their best to control for it being introduced to begin with. This is what Chelan PUD is doing. Chelan PUD does believe a 2% tag burden will result in study fish below 110 mm. The District is trying to compromise. Chelan PUD believes this is a bias that cannot be corrected for. When talking about possibly driving down survival, there is concern.

A. Murdoch said that eventually the technology will be there. If there was time, he is pretty certain he could come up with a study design that corrects for this bias. Keller agreed that tag technology is advancing, which speaks to the newly added second paragraph in the revised SOA. He believes tag technology will be in a different place in the coming years, but for now, this is where it stands.

### **C. Vote to Approve (All)**

John Ferguson said this has been a good discussion. In thinking about how much time the Rocky Reach HCP Coordinating Committee has spent on this topic over the past months, he appreciates all of the questions, review of the data and literature, and good debates. This is what the Committee is here for. Last on today's agenda is to take a vote on the SOA and associated study plan documents, with potential edits as discussed regarding tag burden and fish size.

Scott Carlon said National Marine Fisheries Service approves. Jim Craig said U.S. Fish and Wildlife Service approves.

Kirk Truscott said the Confederated Tribes of the Colville Reservation approve. However, he wished he was more ecstatic about his vote. He feels the Committee was rushed and painted into a corner a bit. He thinks the District also felt painted into a corner. If the Committee had started this process sooner, there would have been more time to discuss the merits of the literature without feeling so rushed to get this to the finish line for an April 2023 start date.

Chad Jackson said WDFW abstains. The reason for not voting "yes" is because this implies WDFW approves of the methodology. WDFW believes they put forward sound science. However, the Department also does not want to vote "no" and obstruct progress. He knows equipment has already been purchased and is ready to go. WDFW does appreciate Chelan PUD including the second paragraph in the SOA.

K. Murdoch said first, thank you for the time for additional internal discussions. She spoke with the YN regional and policy representatives, who spoke with the YN interim program manager and natural resource director. She agrees with Truscott; she wishes the Committee had been given more time. Section 5.2.3 of the HCP directs the Committee to measure survival using the best available technology and study designs and that study designs should be updated based on new information and techniques. She believes everything she is about to say is fully supported under the HCP. The survival study is intended to represent Plan Species. What does "represent Plan Species" mean in the context of Rocky Reach Dam? This means fish from the Wells Project, representing Okanogan and Methow spring Chinook Salmon, and fish from the Entiat River. It also means that all size ranges and origins of yearling Chinook Salmon. Supporting Document D (as referenced in Section 5.2.3 of the HCP) says natural and hatchery runs of Plan Species each have particular characteristics that need to be considered in developing passage-related survival and mortality estimates, and run timing and size distribution are two key factors to consider. The Rocky Reach HCP Coordinating Committee needs to strive to make this study represent the run at large. In fact, the first key assumption for a reach-based survival study is that test fish are representative of the population of inference. To date, all of Chelan PUD's survival studies have excluded smaller fish. All studies at Rocky Reach have also excluded Entiat River fish or a release that would represent Entiat River fish. Supporting Document D of the Rocky Reach HCP says these studies should include Entiat River fish. For now, the YN is willing to forgo an Entiat release because she realizes Chelan PUD did not purchase enough tags. Circling back to fish size, all current science supports tagging fish with both an SS400 and PIT tag to a minimum size of 95 mm. PNNL has tested fish ranging from 69 mm to 107 mm under rapid decompression and shear forces and recommends 95 mm as a conservative minimum. The federal survival studies have all been using 95 mm as a minimum for over a decade, using both a larger acoustic tag and double tagging the fish with a PIT tag. Grant PUD is proposing to use 95 mm as a

minimum in their 2025 survival study. She does not understand why Chelan PUD will not tag fish down to 95 mm. She realizes Chelan PUD has come down to 110 mm or 2% tag burden, but it is not clear whether 2% tag burden will be less than 110 mm. Her understanding is that a 2% tag burden may actually raise the minimum size to something greater than 110 mm. Additionally, a tag burden standard of 2% is based on outdated research. The 95 mm minimum is not even a new standard, and when the Committee measures survival again in 10 years the standard will be even smaller. These survival studies are not intended to measure the same thing that was measured years ago; these are supposed to measure survival with the best available science to see if the juvenile survival standard is being maintained and the benefits that were promised in the HCPs to Plan Species are being realized. The YN believe 95 mm and 3.5% tag burden is reasonable and consistent with the best science and information. So unfortunately, this is a “no” vote from the YN.

Ferguson thanked K. Murdoch for the comments. He said it sounded like K. Murdoch may have been reading from a prepared statement, and he asked whether this can be shared with Kristi Geris for the meeting minutes. K. Murdoch said she can provide a statement to help with the minutes. She added that Ferguson asked the Committee to provide reasoning for a “no” vote to tie it back to the HCP. This same topic came up during a discussion within the HCP Policy Committees and it was determined that Parties can vote based on policy and not how it relates to the HCP. For the record, she does not 100% agree with Ferguson’s statement.

Keller said Chelan PUD is disappointed the Rocky Reach HCP Coordinating Committee did not reach consensus. He feels that Chelan PUD brought forward a study design based on the best available science to account for biases—one that was based on the 2021 Rock Island CSS, a very clean well-designed survival study that was approved by the Rock Island HCP Coordinating Committee just a few years ago. He feels Chelan PUD listened to the Rocky Reach HCP Coordinating Committee and has repeatedly modified the study plan to try to accommodate requests. Chelan PUD added language to the SOA, although, with a “no” vote, this language does not apply. The Rocky Reach HCP Coordinating Committee will see future communication from Chelan PUD related to this topic.

K. Murdoch acknowledged that the Rock Island HCP Coordinating Committee approved the 2021 Rock Island CSS just a few years ago with a minimum tag size of 120 mm. However, if she had known then what they know now, then she probably would not have approved it. The way she is approaching this is, as more studies go by, she is learning more and more. She thinks everyone should be doing this. She now believes 95 mm really is the standard for these tags. Keller said Chelan PUD appreciates the YN articulating this, but the District is looking at these same data and has concerns about biases. Nonetheless, Chelan PUD is disappointed. To date, the District has invested \$0.5M into tags, detection equipment, and planning for the study and was hoping to find common ground.

Ferguson asked for any additional comments. None were expressed.

### III. HCP Administration

#### A. Next Steps (John Ferguson)

John Ferguson thanked the HCP Coordinating Committees for their time and participation and indicated there would likely be more to come on this topic in the near future.

*Note: Following the HCP Coordinating Committees meeting on March 31, 2023, another HCP Coordinating Committees meeting was scheduled for Friday, April 7, 2023, from 8:30 a.m. to 9:30 a.m. to be held by conference call.*

#### List of Attachments

Attachment A List of Attendees



**Attachment A**  
**List of Conference Call Attendees**

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<b>Name</b>	<b>Organization</b>
John Ferguson	Anchor QEA, LLC
Kristi Geris	Anchor QEA, LLC
Lance Keller*	Chelan PUD
Bill Towey*	Chelan PUD
Tom Kahler*	Douglas PUD
Scott Carlon*	National Marine Fisheries Service
Jim Craig*	U.S. Fish and Wildlife Service
Chad Jackson*	Washington Department of Fish and Wildlife
Andrew Murdoch*	Washington Department of Fish and Wildlife
Kirk Truscott*	Confederated Tribes of the Colville Reservation
Keely Murdoch*	Yakama Nation

Notes:

\* Denotes HCP Coordinating Committees member or alternate