FINAL

Conference Call Minutes

Aquatic Settlement Work Group

To: Aquatic SWG Parties **Date:** November 13, 2020

From: John Ferguson, Chair (Anchor QEA, LLC)

Re: Final Minutes of the October 14, 2020, Aquatic SWG Conference Call

The Aquatic Settlement Work Group (SWG) met by conference call on Wednesday, October 14, 2020, from 10:00 a.m. to 12:00 p.m. Attendees are listed in Attachment A of these conference call minutes.

I. Summary of Action Items

1. Aquatic SWG members will: 1) review the juvenile and adult Pacific Lamprey literature reviews and document libraries in terms of format, structure, and content, in preparation for discussion during the Aquatic SWG meeting on November 13, 2020; and 2) provide to Douglas PUD any new documents members wish to include in the juvenile and adult Pacific Lamprey literature reviews, and Douglas PUD will add these documents to the respective document libraries (Item VI-1).
2. Douglas PUD will update the Pacific Lamprey Translocation Passive Integrated Transponder (PIT) Tag Information System (PTAGIS) File and Detection Summary Tables ("Last Seen" tables) to include new 2020 data and updated 2018 and 2019 detection data, and will distribute the tables for discussion during the Aquatic SWG meeting on November 13, 2020 (Item VI-4). *(Note: Chas Kyger provided a 2018-2020 Pacific Lamprey Translocation Detection Table to Kristi Geris, which Geris distributed to the Aquatic SWG prior to the Aquatic SWG conference call on November 13, 2020.)*
3. The Yakama Nation (YN) will verify weight and length thresholds the YN has established for tagging juvenile (macrophthalmia) and larval (ammocoete) Pacific Lamprey using 8-, 10-, and 12-millimeter (mm) PIT tags (Item VI-5).
4. The YN will discuss with a Columbia River Inter-Tribal Fish Commission (CRITFC) geneticist a recommended sample size for collecting genetic samples from juvenile or larval Pacific Lamprey tagged at the Methow River rotary screw trap (RST) needed to estimate the proportion of fish in the population produced by parents that were translocated into the basin (Item VI-5). *(Note: Ralph Lampman provided responses from Jon Hess [CRITFC], which Kristi Geris distributed to the Aquatic SWG on October 16, 2020.)*

5. Douglas PUD will redistribute the final 2013 study plan and report and final 2016-2017 study plan and report for Pacific Lamprey studies conducted in the Wells Project, for Aquatic SWG review and planning for the upcoming adult Pacific Lamprey passage study scheduled to occur in 2022 (Item VI-6). *(Note: Kristi Geris distributed these documents, as well as the most recent Pacific Lamprey Statement of Agreement [SOA][1] and Pacific Lamprey studies excerpts from the* 2019 Aquatic Settlement Agreement Annual Report*, to the Aquatic SWG on October 15, 2020.)*
6. Douglas PUD will provide a presentation summarizing the 2013 and 2016-2017 Pacific Lamprey studies conducted in the Wells Project, during a future Aquatic SWG meeting (Item VI-6).
7. Douglas PUD will verify with Wells Fish Hatchery (FH) staff the selection process for surplusing White Sturgeon at Wells FH and will relay this information to the Aquatic SWG (Item VI-7).
8. The Aquatic SWG meeting on Friday, November 13, 2020, will be held by conference call (Item VII-1).

II. Summary of Decisions

1. There were no decisions approved during today's conference call.

III. Agreements

1. Aquatic SWG members present agreed to reschedule the Aquatic SWG conference call on Wednesday, November 11, 2020, to Friday, November 13, 2020, from 10:00 a.m. to no later than 2:00 p.m., to accommodate the Veteran's Day holiday (Item VI-3).

IV. Review Items

1. Aquatic SWG members will review the juvenile and adult Pacific Lamprey literature reviews and document libraries in terms of format, structure, and content, in preparation for discussion during the Aquatic SWG meeting on November 13, 2020 (Item VI-3).

V. Documents Finalized

1. There are no documents that have been recently finalized.

[1] Aquatic SWG SOA titled *To translocate adult Pacific Lamprey from Priest Rapids Dam to areas within or upstream of the Wells Project and postpone passage evaluations*, and approved June 13, 2018.

VI.Summary of Discussions

1. **Welcome, Review Agenda, Meeting Minutes Approval, and Review of Action Items (John Ferguson):**
   John Ferguson welcomed the Aquatic SWG members (attendees listed in Attachment A). Ferguson asked for any additions or changes to the agenda. No revisions were requested by Aquatic SWG members.

   The revised draft September 9, 2020, conference call minutes were reviewed. Kristi Geris said all edits and comments received from members of the Aquatic SWG were incorporated into the revised minutes. Aquatic SWG members present approved the September 9, 2020, conference call minutes, as revised. The YN abstained and requested until the end of the day to submit minor edits and comments, if any. *(Note: Ralph Lampman submitted minor edits following the Aquatic SWG conference call on October 14, 2020, which were incorporated into the final minutes.)*

   Action items from the Aquatic SWG conference call on September 9, 2020, are as follows (Note: the following italicized item numbers correspond to agenda items from the September 9, 2020, meeting):

   - *The YN will send handling and tagging protocols for Pacific Lamprey to Douglas PUD for consideration in assessing the feasibility of implementing a PIT-tag study (Item VI-1).* Ralph Lampman said he distributed documents to the Aquatic SWG prior to the Aquatic SWG conference call on October 14, 2020. He said Pacific Northwest National Laboratory (PNNL) published protocols for tagging juvenile Pacific Lamprey and created a video demonstrating PNNL's tagging protocols and procedures. He said some parts of the video are difficult to see due to the small size of the fish, but the protocols are basically the same as those implemented by the YN for PIT and acoustic tagging. He said there is a slight difference in where the tag is inserted. He said 12 mm tags are inserted at 15 mm posterior past the last gill pore, compared to 8 mm tags which are inserted at 10 mm posterior past the last gill pore. He said posterior tags are inserted at a 45-degree angle, ventral tags are inserted at 0 degrees, and side tags are inserted at 90 degrees up to the halfway point to avoid organs located in the bottom of the fish. He said no sutures are used. He said the YN is also developing a video, but it is not yet finished. He said he will distribute the video once it is complete. John Ferguson said the documents distributed included: 1) a presentation titled, *An Acoustic Transmitter for Studying Juvenile Lamprey and Eel* (April 2017); 2) a paper titled, *Pilot Field Trial of the Juvenile Lamprey/Eel Tag and RME Plan to Guide Future Juvenile Pacific Lamprey Acoustic Telemetry Studies* (February 2018); 3) a journal article titled, *Implantation of a New Micro Acoustic Tag in Juvenile*

Pacific Lamprey and American Eel (March 2019); and 4) a document with a hyperlink to the video on PNNL's tagging protocols and procedures.

- *Anchor QEA will set a reminder for May 2021, for the Aquatic SWG to begin discussing with the Joint Fisheries Parties (JFP) how to better coordinate Pacific Lamprey translocation activities among Douglas, Grant, and Chelan PUDs (Item VI-3).*
  The Priest Rapids Fish Forum (PRFF) and Rocky Reach Fish Forum (RRFF), respectively, meet every first Wednesday of the month; therefore, this reminder was set for the Aquatic SWG meeting on April 14, 2021, to allow time for Aquatic SWG members to coordinate with JFP members and the PRFF and RRFF before the May and June 2021 meetings, as needed.
- *Aquatic SWG members will: 1) review the juvenile and adult Pacific Lamprey literature reviews and document libraries in terms of format, structure, and content, in preparation for discussion during the Aquatic SWG meeting on November 11, 2020; and 2) provide to Douglas PUD any new documents members wish to include in the juvenile and adult Pacific Lamprey literature reviews, and Douglas PUD will add these documents to the respective document libraries (Item VII-1).*
  John Ferguson said he provided a paper titled, *Considerations for Multi-Species Fish Passage in California: A Literature Review* (2020), which includes research on Pacific Lamprey passage performance in fish ladders (distributed to the Aquatic SWG by Kristi Geris on October 7, 2020). Ferguson said this action item will be carried forward.

2. **COVID-19 and Wildfire Updates (John Ferguson):**
   John Ferguson said the local wildfires are no longer an issue, and he asked if Aquatic SWG members had any new updates to share regarding impacts of COVID-19 on Aquatic SWG-related monitoring and evaluation (M&E) activities. The Aquatic SWG had no new COVID-19 updates to announce.

3. **Reschedule Aquatic SWG November 11, 2020, Conference Call – Veteran's Day (John Ferguson):**
   John Ferguson said the regularly scheduled Aquatic SWG meeting in November lands on Veteran's Day this year, and the Aquatic SWG discussed other possible dates to convene the meeting. Aquatic SWG members present agreed to reschedule the Aquatic SWG conference call on Wednesday, November 11, 2020, to Friday, November 13, 2020, from 10:00 a.m. to no later than 2:00 p.m., to accommodate the Veteran's Day holiday.

4. **2020 Pacific Lamprey Translocation Summary (Chas Kyger):**
   Chas Kyger said a 2020 Pacific Lamprey Translocation Summary Table (Attachment B) was distributed to the Aquatic SWG by Kristi Geris prior to the Aquatic SWG conference call on October 14, 2020. Kyger said the table summarizes the 2020 translocation activities, which

totaled 355 Pacific Lamprey translocated to various locations upstream of Wells Dam. He noted that the 2020 effort achieved the goal to translocate 75% to the Columbia River below the Methow River confluence and 25% to the Okanogan River.

Andrew Gingerich said he does not know how these numbers compare to the run-timing at Priest Rapids Dam; however, the 4 weeks Douglas PUD conducted translocation from Priest Rapids Dam compared to the 4 weeks Douglas PUD picked up fish from Grant PUD at Kirby Billingsley Hydro Park in East Wenatchee, Washington, in terms of total number, are almost balanced between these two efforts. He said it looks like Douglas PUD collected a few more fish from Grant PUD at Priest Rapids Dam, but he has not yet reviewed the run-timing at Priest Rapids Dam. He said he plans to update the Pacific Lamprey Translocation PTAGIS File and Detection Summary Tables ("Last Seen" tables) to include new 2020 data and updated 2018 and 2019 detection data, for discussion during the Aquatic SWG meeting on November 13, 2020. *(Note: Kyger provided a 2018-2020 Pacific Lamprey Translocation Detection Table to Geris, which Geris distributed to the Aquatic SWG prior to the Aquatic SWG conference call on November 13, 2020.)*

Ralph Lampman said if anything, the latter part of the 2020 translocation effort produced a few more fish. He said he believes he was the one who pushed for starting early after seeing the peak at Bonneville Dam pass; however, he asked if it might have been better to have started a couple weeks later. Gingerich said this is a great question and it is recognized that selecting the best timing for collecting fish is a little bit of a guessing game each year. He said the best anyone can do is monitor the run at Bonneville Dam because the fish that show up at Priest Rapids Dam are either from Bonneville Dam or are fish that held over winter below Priest Rapids Dam. He said a few more fish might have been collected if trapping started later, but it is unlikely that a lot more would have been collected. Lampman said the peak at Priest Rapids Dam is typically in late August or September, and it is an anomaly for the peak to occur later than this.

5. **Juvenile Pacific Lamprey Tagging – Methow Subbasin Screw Traps (Chas Kyger):** Chas Kyger recalled during the last Aquatic SWG conference call on September 9, 2020, updating the Aquatic SWG on conversations with Charlie Snow (Washington Department of Fish and Wildlife [WDFW]) and the M&E crew who operate the RST program for WDFW. Kyger said Snow and his crew are onboard to tag juvenile Pacific Lamprey in spring 2021, and the only pieces of information missing were tagging protocols. Kyger said Snow and his crew were concerned about how to tag smaller-sized Pacific Lamprey because of their lack of experience. Kyger said it sounds like Ralph Lampman just distributed exactly what the crew was requesting (note: see review of action items from the Aquatic SWG conference call on

September 9, 2020, above). Kyger thanked Lampman for this, said he will forward this information to Snow and his M&E crew, and that he will relay questions, if any. Kyger said it was also suggested that the YN provide in-person training; however, due to COVID-19 restrictions he is unsure if this is feasible. He said now the effort is just a matter of planning when to start and ordering tags. Kyger asked Lampman if the YN has been using 8-mm PIT tags. Lampman said this is correct, but with larger size fish a 12-mm tag can be used, and the larger tag has better detection capabilities. He added that this is basically the size of an acoustic tag. He said usually 140 mm is the threshold for acoustic tagging, but the YN has gone a little smaller—to 135 mm—and held the fish after tagging, and all fish survived with no issues. He said actually the threshold has more to do with weight rather than length. He said he thinks 3 grams (g) is the weight threshold for using the larger tags, but he can verify weight and length thresholds the YN has established for tagging juvenile (macrophthalmia) and larval (ammocoete) Pacific Lamprey using 8-, 10-, and 12-mm PIT tags. He said fish as small as 70 mm can be tagged with an 8-mm tag. He said the smallest microphthalmia he has seen was around 100 mm in length, and this size is rare. He said also, a 10-mm tag was just released that he was unaware of until this year. He said this tag is the same width as an 8-mm tag, but is longer, and has better detection capability. He said this might be a good option, as well. He said the thickness is not as wide as a 12-mm tag and length is not an issue because Pacific Lamprey have long skinny bodies. He said he is unsure if it is best to stick with one tag or mix and match based on fish size. Kyger said he heard about the new tags and also considered whether to try the new tags or just go with the tried and true tags Douglas PUD has used in the past. He said Douglas PUD can think further on this; however, will likely advocate to go with one or the other and not mix and match. Lampman said he is unsure about the available data on fish lengths, but it seems that fish (macrophthalmia) in the upper Columbia River tend to be larger. He said if this is true, he suggested using 12 mm tags, which can be a little more difficult to insert. He said 10 mm tags are easier to insert in first-year fish. He said he does not have a strong feeling one way or another between using 10 mm versus 12 mm tags. He said the YN would like to and could potentially do an in-person demonstration; however, he is unsure if overnight stays are allowed at this point (due to COVID-19 restrictions) and he will need to check with his managers. He said if this is allowed, YN staff would be happy to come up and conduct tagging training with WDFW staff and tag fish together. Kyger said he and the WDFW M&E crew will review the documents and video that Lampman provided, and if there is still discomfort about tagging, Douglas PUD may pursue an in-person training option. Lampman said the YN could also provide training over the phone or via an online video meeting.

Kyger said another consideration (for tagging juvenile Pacific Lamprey at the Methow RST) is timing. He said a Juvenile Pacific Lamprey Screw Trap Data Summary (Attachment C) was

distributed to the Aquatic SWG by Kristi Geris prior to the Aquatic SWG conference call on October 14, 2020. Kyger said based on previous years of data, the ideal timing for collecting and tagging fish is from early March through early June (see page 4 in Attachment C); therefore, he is thinking that Douglas PUD would provide the WDFW M&E crew with tags by the month of March. He said there does not need to be a discrete time period when the tagging occurs; rather, depending on river flow and conditions, the WDFW M&E crew could conduct tagging continuous with M&E activities. Lampman agreed with Kyger on the ideal timing for this effort based on available data. Kyger said in recent years, about 40 fish was the biggest year in terms of fish collected per day at the Methow River RST. He said, however, the historical data for the Methow River RST do not seem to be reliable, which may be due to inconsistencies with how the data were quantified. He said Douglas PUD will likely provide several hundred tags to WDFW in March and just see what shows up.

John Ferguson asked, considering that fish counts at the Methow River RST are highly variable and based on discussions with Snow, what is the likelihood that enough fish will be collected at the trap to meet sample size and what is the target sample size? Kyger said the most recent numbers and detection probabilities are what Douglas PUD would like to see; but ultimately, the sample size will be limited to what can be collected. He said collecting some fish is better than collecting no fish. He said Douglas PUD will tentatively plan to obtain 1,000 tags; however, based on the past few years of data, he does not anticipate needing this many tags.

Lampman asked if 2019 data are available, and Kyger said these data are not yet posted to the Columbia River DART (Data Access in Real Time) website. Kyger said these data will be added to DART; however, WDFW is still finalizing these data along with other 2019 data for inclusion in the M&E report. Kyger said he might be able to obtain the finalized data before the official posting to DART and will pass it along if he does. Lampman said he asked this because he is wondering if there is an increasing trend in fish collected. Kyger said a lot of this depends on how well the trap is fishing. He said the trap is episodic depending on river flow and when Pacific Lamprey migrate, and heavy debris events also halt operation of the trap. He noted the high counts at the trap in 2008, 2009, and 2010, and then numbers dropped off (see page 2 of Attachment C), which he believes has more to do with the trap not operating. He said looking at a finer scale, any trend is difficult to identify due to how the data are collected.

Lampman said juveniles outmigrating from tributaries in the Yakima River are mostly 4- to 5-year-olds. He said biologists with the Nez Perce Tribe see some older fish that are around 6

to 8 years old (outmigrating from tributaries of the Snake and Clearwater river basins). He said he is unsure what age juveniles will be outmigrating from the Methow River Basin.

He asked if there is a way to collect genetic samples, not from all fish, but from at least 30 to 60 fish. Kyger said he cannot think of any issues with collecting a small fin clip from 30 to 60 fish. Ferguson asked about the purpose for this, and said he thought these fish are one metapopulation. Lampman explained that the YN collects genetic samples from all adults translocated to the Methow River Basin under the YN program to determine whether juveniles collected were produced by the translocated fish, and he said that Douglas PUD does this, as well. He said collecting genetic samples provides information on where juveniles came from. Ferguson said 30 to 60 samples seems low to get a sense of composition, and he asked Lampman if he thinks this is a large enough sample size. Lampman said 30 samples is the low end, but this is enough to look at the population of contributing adults and parentage genetics of translocated fish. He said even if there is no adult genetic data for a fish through a parentage sibling analysis, the known data can show how many adults contributed to this population based on how many samples were collected. He said typically 30 to 60 samples can provide an estimate of how many adults contributed to a stock, but he will discuss this with a CRITFC geneticist and recommend a sample size for collecting genetic samples from juvenile or larval Pacific Lamprey tagged at the Methow River RST needed to estimate the proportion of fish in the population produced by parents that were translocated into the basin. *(Note: Lampman provided responses from Jon Hess, which Geris distributed to the Aquatic SWG on October 16, 2020.)*

Ferguson asked how the age of a juvenile Pacific Lamprey is determined, and Lampman said this is based on what year the adult parents were released. Lampman said typically, the majority of adults spawn during the year the fish is released, although some may overwinter one more year and spawn the following year. He said if it is known that a juvenile was produced by "adult A" and "adult B," it can be determined which year(s) the larvae spent in the tributary. Ferguson asked if this is concluded based on analysis of the tissue samples, versus what counting rings say from an otolith. Lampman said this is correct, that there are Oregon State University graduate students studying this and the fish must be euthanized to collect this information.

Lampman asked if few macrophthalmia are collected in the Methow River RST, is it possible to tag some larger ammocoetes? Kyger said yes, as long as the fish size is large enough that the M&E crew has no issues with tagging the fish. Lampman said he thinks ammocoetes 110 to 140 mm in length will likely transform the following year. Ferguson asked if these ammocoetes are actively migrating downstream or rather being washed out and swept

downstream. Lampman said it can be a mix of both for larvae. He said perhaps due to high densities the larvae are seeking new habitat, or the larvae might be swept downstream due to flooding pushing the fish out. He said in reviewing RST catch data, he detected a lunar relationship associated with movement because there is typically higher numbers are migrating during a new moon. He said he does not believe all ammocoete migration is passive, he believes some is active; however, how much is passive versus active is hard to tell, and he does not believe there are data to support this.

Lampman said based on page 3 of Attachment C, it looks like the peak is from April to June; however, on page 4 of Attachment C looks like the peak is from March to May. Kyger explained that page 3 of Attachment C shows all historical data by month, versus page 4 of Attachment C that shows only the last 4 years of data by month.

6. Adult Pacific Lamprey Passage Study Planning (Chas Kyger):

Chas Kyger said in accordance with the most recent Pacific Lamprey SOA[2], Douglas PUD is planning to conduct an adult Pacific Lamprey passage study in 2022. He said with this study being 1 year away, Douglas PUD would like to kick off discussions regarding planning and setup for the study. He said Douglas PUD is envisioning a repeat of the 2016-2017 study, which used acoustic and PIT tags to evaluate two questions about Pacific Lamprey passage at Wells Dam: 1) how many adults are approaching the dam; and 2) of those adults approaching and interacting with the dam, what is the passage success? He said given that there are baseline data from the 2016-2017 study, repeating this study in 2022 will demonstrate what has changed after 4 years of translocation. He suggested that the Aquatic SWG review the 2016-2017 study plan and study report to determine if there are components of the study to change or discuss, and then move forward from there.

John Ferguson asked Douglas PUD to remind the Aquatic SWG about the duration of the 2016-2017 study. Kyger recalled that the 2016-2017 study included data from 1.5 to 2 years of tag life (acoustic tags), as well as the overwintering of some fish (PIT tags). He said for the study in 2022, hopefully after about 18 months into the study, Douglas PUD and the Aquatic SWG will have a good idea about what is going on and what the future might look like in terms of a path forward, more translocation, or other options. Ferguson said he was just trying to think for the Aquatic SWG that if the study in 2022 is a one-time study, the Aquatic SWG might view a study design differently compared to a check-in study with potentially additional years of study to see if conditions or patterns are still the same. He said

[2] Aquatic SWG SOA titled *To translocate adult Pacific Lamprey from Priest Rapids Dam to areas within or upstream of the Wells Project and postpone passage evaluations*, and approved June 13, 2018.

understanding the schedule or number of years of study (i.e., 1 year or multiple years) might cause Aquatic SWG members to think about the study design differently.

Kyger said Douglas PUD is envisioning a "decision tree" type path. He said, for example, if there is an increase in fish approaching the dam, then the focus switches to identifying passage issues. He said this may involve changing the methodology or conducting another study to get at more specific passage questions. He said, or the opposite might happen, where very few fish are observed approaching the dam, making it difficult if not impossible to identify passage issues. He said this might suggest more translocation or other ways to get at the question about passage issues.

Ralph Lampman said the YN would advocate for a different approach. He said he advocates a paired-release design including release locations directly downstream and upstream of Wells Dam. He suggested evaluating if there is a difference in how these fish are behaving below and above the dam. He said this design can evaluate passage at the dam with the downstream releases. He said additionally, Douglas PUD has worked hard to translocate adults above Wells Dam, and he believes it is time to understand where those fish are going, rather than repeating fish releases way downstream of the dam. Kyger said Douglas PUD would be open to trying different release locations above, and varying the locations of releases below, the dam to evaluate how many fish naturally migrate to the dam, and what this means for passage improvements, evaluation, and study assumptions.

Ferguson asked about the sample size in the last study. Andrew Gingerich said Douglas PUD tagged fish, and the study also used fish from a Grant PUD acoustic study and combined the sample size was close to 100 fish.

Gingerich said a paired-release design is a good idea, and he explained that the interest behind releases farther downstream of Wells Dam, both for the 2016-2017 study and for the 2022 study, is to meet an assumption of this test. He said it is unknown whether a fish in the Rocky Reach Reservoir, with an opportunity to turn off at the Entiat River, would have the intention to naturally migrate upstream past the Entiat River to interact with Wells Dam. He said it seems this assumption needs to be addressed, which was also the impetus behind Douglas PUD agreeing to translocation to evaluate whether an increase in (pheromone) attraction upstream of Wells Dam would also increase the number of fish wanting to naturally migrate up there. He recalled that results from the 2016-2017 study indicated that only a small percentage of fish, about 20% to 30%, even approached within a few miles of Wells Dam. He said this is a concern. He said, while he believes a paired-release design is a good idea, he thinks Douglas PUD and the Aquatic SWG also need to think critically about how far downstream of Wells Dam should fish be released to meet the assumption about

what fish will naturally do (turn off at the Entiat River, continue upstream to Wells Dam, or maybe spawn in the reservoir). He said these are the types of questions to design a study plan around.

Ferguson suggested that the Aquatic SWG consider the following for the 2022 study: 1) a repeat of the 2016-2017 study for the reasons Gingerich just described, notably fish releases in the same locations for comparability; and 2) additional release locations above and below Wells Dam to meet additional study objectives. Gingerich said he thinks this makes sense and added that repeating the 2016-2017 study is how to test the translocation effort to some degree. He asked if the translocation effort has "moved the needle" on approach to Wells Dam. Ferguson agreed and said, then the additional releases above and below Wells Dam will provide a different comparison about how fish are behaving at the dam.

Lampman questioned whether acoustic telemetry can collect enough information about dam usage, i.e., which fish ladders or other parts of the dam are used by Pacific Lamprey for fish passage. Kyger said in the past, acoustic telemetry has worked reasonably well for showing which fish ladder is approached or entered; and he added that there are also receivers inside the collection galleries. He said acoustic telemetry is not ideal in small confined spaces; therefore, study fish are double tagged with PIT tags and once fish are inside the fish ladder there are multiple PIT detection locations within the ladders. He said the first question Douglas PUD would like to focus on is how fish approach and interact with the dam, while still in the river itself. He said the next step is to focus more specifically within the collection galleries or fish ladders, which may be more appropriately evaluated using another methodology.

Lampman asked if radio telemetry is not as effective for collecting data in larger scale settings such as the Columbia River. Kyger said this is correct. He recalled that Douglas PUD conducted a 2013 Pacific Lamprey study using radio telemetry and found: 1) it was difficult to track a lot of fish, especially when fish overwintered; 2) tag performance was not as good when fish were in rocky areas; and 3) there was incomplete coverage between radio telemetry gateways, resulting in inconsistent data. He said for these reasons, acoustic telemetry is a better option.

Lampman said he sees two questions: 1) what are fish doing from Rocky Reach Dam to Wells Dam; and 2) once fish reach Wells Dam, how are fish approaching and passing the dam? He said he believes 20 to 30% of fish approaching shows that fish are reaching the dam and the focus now should be to make sure these fish are able to get to where they are going. He said this is just as important a question to resolve as the approach question. He said he does not know if fish are spawning between Rocky Reach Dam and Wells Dam, but he thinks this is not

necessarily a bad thing—it just means fish found suitable habitat. He said there could be predation, but this is difficult to control. He said then there is increasing attraction, and he believes Douglas PUD and the Aquatic SWG have done due diligence on this matter. He said, therefore, he thinks it is time to focus more at the dam and figure out what can be done there. He said he agrees the 2022 study should try to replicate components of the 2016-2017 study, but maybe with a larger sample size for a more focused evaluation at the dam. He said regardless of how fish released farther downstream are behaving, there are still fish approaching the dam, and passage at the dam still needs to be answered. He said passage at the dam cannot be answered by extending translocation for several years. He said increased presence can be evaluated using eDNA sampling, and there is a meeting tomorrow to select a proposal to fund such a study. He said he thinks this is a valuable question to understand, but he also does not think this needs to be answered to move onto another question. He said he believes it is equally important to address both questions.

Ferguson asked Kyger if the next step should be for him to redistribute the 2016-2017 study plan for review. Kyger said Douglas PUD is not proposing any changes to the 2016-2017 study plan at the moment. He requested that Aquatic SWG members review and refamiliarize themselves with the study plan in the coming months in order to start piecing together what was done in the past, what was learned, what aspects of the study design to keep, what to change, and to identify any potential issues to figure out a path forward on. He also suggested reviewing the 2013 radio telemetry study to help inform what is known and what still needs to be learned.

Patrick Verhey said he thinks Lampman made a good point regarding releasing fish closer to Wells Dam to improve the probability that fish will sense and enter the fishways, which has been a concern in the past. He recalled that past adult studies suggested that fish must not be approaching Wells Dam, which led to the translocation effort to increase the pheromone signal. He said he agrees with Lampman that it is now time to try to obtain the best information possible on the fishway entrances themselves to address fish passage at the dam.

Kyger agreed that addressing fish passage at the dam is important. He recalled that part of the reason Douglas PUD switched the strategy to releasing fish farther downstream was based on results from the 2013 study where fish were released directly below Wells Dam and a large proportion of these fish were never detected approaching the dam. He said this result switched the focus of the next study. He said the 2013 study also included in-ladder releases and although the sample sizes were small, the fish release in the ladder did relatively well.

However, he said that due to the small number of fish released in the ladder and the issue with fish released below the dam not approaching the dam, the data were not conclusive.

Kyger said another consideration is source of the study fish. He said ideally, fish trapped at Wells Dam would be used for fish passage studies at Wells Dam because it is known that these fish approached the dam. He said fish counts at Wells Dam are not yet at the stage where this can be supported. He said it will be difficult to study the fish ladders if not enough fish are interested in the ladders. He said Douglas PUD and the Aquatic SWG need to think about how to address this issue, as well.

Ferguson said regarding general timing, if the Aquatic SWG works on this between now and next fall, with a decision on a study design in fall 2021, will this leave enough time for purchasing study gear for the 2022 study? Kyger said yes, this plan will give Douglas PUD a good 6 months of lead-time to plan for the study and setup equipment.

Lampman asked if it would be possible to set up a trap at Wells Dam to collect study fish. Kyger said Douglas PUD has old traps that were used in 2008 or so; however, he does not believe these were very effective. He said it was encouraging to see the trap design at Priest Rapids Dam, which was effective. He said if counts increase at Wells Dam it might be worthwhile to pursue a design similar to the one at Priest Rapids Dam. He said he thinks the infrastructure for deploying a trap might still be installed at Wells Dam; however, Pacific Lamprey counts at Wells Dam in the most recent years have been in the single digits, and running a trap and successfully collecting fish seems unlikely.

Ferguson said that Douglas PUD will redistribute the final 2013 study plan and report and final 2016-2017 study plan and report for Pacific Lamprey studies conducted in the Wells Project, for Aquatic SWG review and planning for the upcoming adult Pacific Lamprey passage study scheduled to occur in 2022. Kristi Geris also noted that the *2019 Aquatic Settlement Agreement Annual Report* includes a high-level summary of all past Douglas PUD Pacific Lamprey studies. *(Note: Geris distributed these documents, as well as the most recent Pacific Lamprey SOA*[3] *and Pacific Lamprey studies excerpts from the* 2019 Aquatic Settlement Agreement Annual Report*, to the Aquatic SWG on October 15, 2020.)*

Lampman also requested that Douglas PUD provide a presentation summarizing results from the 2013 and 2016-2017 Pacific Lamprey studies conducted in the Wells Project during a future Aquatic SWG meeting. Gingerich and Kyger said Douglas PUD can do this.

[3] Aquatic SWG SOA titled *To translocate adult Pacific Lamprey from Priest Rapids Dam to areas within or upstream of the Wells Project and postpone passage evaluations*, and approved June 13, 2018.

7. Wells FH Brood Year 2020 White Sturgeon Rearing and Surplus Update (Andrew Gingerich):

Andrew Gingerich summarized the Wells FH Brood Year (BY) 2020 White Sturgeon Rearing and Surplus Update (Attachment D) by indicating Douglas PUD projects there will surplus fish on station this year. He noted that 279 fish were surplused to the Colville Confederated Tribes (CCT) Resident Fish Hatchery on October 1, 2020, and there are plans to surplus additional fish this week. He said he spoke with Wells FH staff about possibly holding fish over (as discussed during the Aquatic SWG conference call on September 9, 2020) and staff were amenable to the idea and think this can be accomplished. He said, however, since nothing has been agreed upon, the default is to continue with surplusing fish to the CCT Resident Fish Hatchery. He said if the Aquatic SWG is interested in possibly holding fish over, these discussions should continue soon because a lot of effort goes into rearing fish each year. He said if fish are not needed to achieve the release target, it is helpful to surplus fish as soon as possible.

Gingerich said currently, there are 828 BY2020 fish on-station at Wells FH. He noted that fish size is reported in fish per pound (fpp) in column D and as mean grams in column E (of page 1 of Attachment D). He noted that the smaller fish are in tanks RT2, RT9, and RT11. He said there are also several groups of larger fish, some of which are already large enough to receive a PIT tag. He said fish growth is going well and there should be no reason to not meet program. He added that at this point, he expects survival to increase.

Gingerich said page 2 of Attachment D shows daily mortality by tank from September 13 to 30. He noted that four tanks almost had zero mortalities in the last 2 weeks of September 2020. He said overall, mortalities are decreasing in each tank through time. He said once fish reach about 60 to 30 fpp, there is very little mortality. He said with 828 fish on-station to meet a 325-fish program, the plan is to continue surplusing fish to the CCT Resident Fish Hatchery.

Jason McLellan said he is interested in hearing more on fish selection for surplusing. He said the reason for asking is because Gingerich sent an email to himself and Laura Heironimus about holding additional fish for another year and mentioned there may be some domestication selection based on how surplus fish are pulled from the tanks. McLellan asked Gingerich to elaborate on this. Gingerich explained that last year when fish were surplused, he believes a mix of fish were selected that included small, medium, and large fish (i.e., not just the runts were surplused). He said he suspects the same is true for this year; however, he has not confirmed this with Wells FH staff. He said the point in his email is that if fish are held over and there are 2 years of rearing, it may not matter if smaller fish are held longer at Wells

FH because there will be several months to raise these fish to the target size at release of 200 grams each. He recalled that each year, there are always a group of fish that are slow growers. He said despite warmer water temperatures or the amount of feed given to these fish, in 11 months, these fish will never reach 200 grams each. He said if 11 months is now 23 months, these fish may have time to grow to 200 grams each; i.e., there may be the ability to reduce domestication in the hatchery if fish are held almost 2 years, compared to holding the fish for 11 months.

McLellan said he is unsure he necessarily agrees with this logic, but he just wants to make sure there is not a clear bias towards faster growing fish and how surplus fish are selected. He said ideally to reduce domestication, selection of surplus fish should be as random as possible. He said this is the conversation that the Aquatic SWG has had before. Gingerich said he does not believe staff are necessarily selecting 10 fish from each tank for surplusing, only runts, or only the largest fish. He said he can verify the selection process being used for surplusing White Sturgeon with Wells FH staff and will relay this information to the Aquatic SWG. He said he can also obtain exact numbers and fpp for surplused fish. John Ferguson also suggested making sure Wells FH staff understand that the question from the Aquatic SWG is about randomizing the selection of surplus fish to minimize domestication.

McLellan said he wants to be clear his concern is not about randomizing what is getting surplused back to the CCT; rather, the concern is that fish going into the Wells Project as a product of this program have as little domestication selection as possible. He said he does not want it to seem that the CCT are concerned with receiving smaller fish (or "runts").

Gingerich said he thinks this is understood, and that his point is there may be reduced hatchery domestication if these smaller fish can be reared to 200 grams over a longer rearing cycle. He said a big change implemented in the Douglas PUD program last year is that hatchery staff are actively grading these fish early in the rearing cycle. He said this visual grading is done daily, and if this is not done, smaller fish are stressed, particularly early in the rearing cycle. He said this grading is continued even later in the rearing cycle, and in doing this, it prevents smaller fish from falling off or getting picked on by larger fish. He said this also helps with changing feed size more effectively. He said he believes the domestication effect at Wells FH is moderate or low. He said he does not have many concerns that fish being stocked in the Wells Reservoir from the Douglas PUD program include only fish that grow at a certain rate or are highly selected for a hatchery environment. He said this is due to the nature of the program, and the fact that fish are coming in as wild-caught larvae means these fish are likely much more diverse. He noted the fish size differences reported in

column E on page 1 of Attachment D. He said despite these size differences, the previous years' data suggest that at least 90% of these fish will reach 200 grams or larger.

McLellan said based on the CCT data, there will be a large number of families represented, and there may be some families not represented at all just based on random chance. He said, for example, a 2010 parentage analysis estimated there is an average of four individuals per family out of a 200-fish sample. Gingerich asked if this was at release or when brought into the hatchery. McLellan replied this was at release. He said average this out and some families were probably missed (i.e., not there at release). He said, this may have especially been the case in the earlier years. He said in the initial year, survival was only approximately 20%. He said he understands Gingerich's point, and his point is to limit domestication selection where there is an opportunity to do so.

Gingerich said, for example, to surplus 20 fish from each tank, another consideration could be for Wells FH staff to select 6 to 7 different sizes of fish that might represent different populations, as opposed to selecting some small, medium, and large fish. He said logistically, this might be more challenging, but it might also be a way to represent as many family groups as possible when selecting fish to surplus.

Ferguson summarized the discussion as follows: 1) rearing of BY2020 fish at Wells FH is going extremely well; 2) similar to last year, Douglas PUD is surplusing fish based on protocols in place and there is an action item to verify what these protocols are; and 3) meanwhile, Wells FH staff are proceeding with rearing and pursuing a path that is mindful of minimizing domestication.

VII. Administration

1. **Upcoming Meetings (John Ferguson):**
   The Aquatic SWG meeting on Friday, November 13, 2020, will be held by conference call, at the usual time (10:00 a.m. to no later than 2:00 p.m.).

   Other upcoming meetings include December 9, 2020 (conference call) and January 13, 2021 (TBD).

List of Attachments

Attachment A List of Attendees
Attachment B 2020 Pacific Lamprey Translocation Summary Table
Attachment C Juvenile Pacific Lamprey Screw Trap Data Summary
Attachment D Wells FH BY2020 White Sturgeon Rearing and Surplus Update

Attachment A – Attendees

Name	Role	Organization
John Ferguson	Aquatic SWG Chairman	Anchor QEA, LLC
Kristi Geris	Administration/Technical Support	Anchor QEA, LLC
Andrew Gingerich	Aquatic SWG Technical Representative	Douglas PUD
Chas Kyger	Aquatic SWG Technical Alternate	Douglas PUD
Breean Zimmerman	Aquatic SWG Technical Representative	Washington State Department of Ecology
Patrick Verhey	Aquatic SWG Technical Representative	Washington Department of Fish and Wildlife
Laura Heironimus	Aquatic SWG Technical Alternate	Washington Department of Fish and Wildlife
Ralph Lampman	Aquatic SWG Technical Representative	Yakama Nation
Jason McLellan	Aquatic SWG Technical Representative	Colville Confederated Tribes