



Conference Call Minutes

Aquatic Settlement Work Group

To: Aquatic SWG Parties

Date: March 9, 2022

From: John Ferguson, Chair, Anchor QEA, LLC

Re: Final Minutes of the February 9, 2022, Aquatic SWG Conference Call

The Aquatic Settlement Work Group (SWG) met by conference call on Wednesday, February 9, 2022, from 10:00 a.m. to 1:00 p.m. Attendees are listed in Attachment A of these conference call minutes.

I. Summary of Action Items

1. Douglas PUD will review construction drawings for the Wells Dam fishways and collection galleries to identify the number and locations of wall-to-wall diffuser gratings in each ladder, for discussion during the Aquatic SWG conference call on March 9, 2022 (Item VI-6).
2. The Yakama Nation (YN) will distribute a presentation on Pacific Lamprey transformation identification techniques and a color guide that Ralph Lampman shared during a lamprey technical subgroup meeting for SOLAR (i.e., Subgroup on Other Lampreys, Anadromous, and Resident) that convened the same day as the Pacific Lamprey Information Exchange Webinar on February 8, 2022 (Item VI-7). *(Note: Lampman distributed this presentation and color guide to the Aquatic SWG on February 14, 2022.)*
3. Douglas PUD will develop language to more clearly define the release strategy for prioritizing study fish in the revised *Wells Dam 2022 Adult Lamprey Approach and Passage Study Plan* (2022 Adult Pacific Lamprey Study Plan), for discussion during the Aquatic SWG conference call on March 9, 2022 (Item VI-8). *(Note: John Rohrback provided a second revised 2022 Adult Pacific Lamprey Study Plan on March 2, 2022, which Kristi Geris distributed to the Aquatic SWG that same day.)*
4. Aquatic SWG members will review the revised 2022 Adult Pacific Lamprey Study Plan and revised *Statement of Agreement Regarding the Implementation of the Wells Dam 2022 Adult Lamprey Approach and Passage Study Plan* (2022 Adult Pacific Lamprey Statement of Agreement [SOA]) and be prepared to vote during the Aquatic SWG conference call on March 9, 2022 (Item VI-8).

5. Aquatic SWG members will review the draft SOA, *Wells Reservoir White Sturgeon Supplementation 2023-2026*, and be prepared to vote during the Aquatic SWG conference call on March 9, 2022 (Item VI-9).
6. Resource comanagers will discuss the timeline and potential modeling needed for setting harvest goals for White Sturgeon in the Wells Reservoir, as it relates to the proposed duration of the 4-year draft SOA, *Wells Reservoir White Sturgeon Supplementation 2023-2026*, for discussion during the Aquatic SWG conference call on March 9, 2022 (Item VI-9).
7. The Aquatic SWG meeting on March 9, 2022, will be held by conference call (Item VII-1).

II. Summary of Decisions

1. Aquatic SWG members present approved the *2022 Aquatic Settlement Agreement and Workgroup Action Plan*, as revised (Item VI-3).
2. Aquatic SWG members present approved the *2021 Annual Report Total Dissolved Gas Abatement Plan* (2021 TDG/GAP Report), as revised (Item VI-4).
3. Aquatic SWG members present approved the *2022 Total Dissolved Gas Abatement Plan* and appended *Wells Bypass Operating Plan* (2022 GAP/BOP), as revised (Item VI-5).

III. Agreements

1. There were no agreements discussed during today's conference call.

IV. Review Items

1. The draft SOA, *Wells Reservoir White Sturgeon Supplementation 2023-2026*, was distributed to the Aquatic SWG by Kristi Geris on February 7, 2022 (Item VI-10).
2. The revised 2022 Adult Pacific Lamprey Study Plan and revised 2022 Adult Pacific Lamprey SOA were distributed to the Aquatic SWG by Kristi Geris before the Aquatic SWG conference call on February 9, 2022. A second revised 2022 Adult Pacific Lamprey Study Plan was distributed on March 2, 2022 (Item VI-8).

V. Documents Finalized

1. The final *2022 Aquatic Settlement Agreement and Workgroup Action Plan*, as revised, was distributed to the Aquatic SWG by Kristi Geris following the Aquatic SWG conference call on February 9, 2022 (Item VI-3).

2. The final 2021 TDG/GAP Report, as revised, was distributed to the Aquatic SWG by Kristi Geris following the Aquatic SWG conference call on February 9, 2022. The Federal Energy Regulatory Commission (FERC) filing of the final report was distributed on February 25, 2022 (Item VI-4).
3. The final 2022 GAP/BOP, as revised, was distributed to the Aquatic SWG by Kristi Geris following the Aquatic SWG conference call on February 9, 2022. The final redlines requested and approved by the Wells HCP Coordinating Committee on February 22, 2022, were distributed to the Aquatic SWG by Geris that same day. The FERC filing of the final plan was distributed on February 25, 2022 (Item VI-5).

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 (Attachment A). Ferguson asked for any additions or changes to the agenda. No additions or changes were requested.

The revised draft January 12, 2022, 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. She added distribution of four Douglas PUD documents under *Review Items*. She also wanted to check on one item under agenda *Item VI-5. 2021/2022 Wells Dam Winter Maintenance* where Ralph Lampman said he thinks Columbia River Inter-Tribal Fish Commission (CRITFC) indicated that a juvenile Pacific Lamprey tissue sample submitted by Douglas PUD from a past Wells Dam dewatering fish salvage traced back to translocation. Geris said Lampman emailed this question to Greg Silver (CRITFC) and John Hess (CRITFC) on January 20, 2022, and she asked if Lampman has received a response. Lampman said he has not but will follow up. Aquatic SWG members present approved the January 12, 2022, conference call minutes, as revised.

Action items from the Aquatic SWG conference call on January 12, 2022, are as follows (*Note: the following italicized item numbers correspond to agenda items from the January 12, 2022, meeting*):

- *U.S. Fish and Wildlife Service (USFWS) will submit a vote via email on the revised draft Bull Trout Movement and Life History Investigation 2022 no later than close-of-business on Friday, January 14, 2022 (Item VI-2).*
Steve Lewis provided USFWS approval of the revised draft plan via email on January 13, 2022.

- *Aquatic SWG members will be prepared to vote on the draft 2022 Aquatic Settlement Agreement and Workgroup Action Plan, draft 2022 GAP/BOP, and draft 2021 TDG/GAP Report during the Aquatic SWG conference call on February 9, 2022 (Item VI-4).*
This will be discussed during today's conference call.
- *Douglas PUD will inquire internally about accommodating an in-person tour of the dewatered Wells Dam east fishway, including possibly attending the fish rescue, and will coordinate with the YN, as needed (Item VI-5).*
This will be discussed during today's conference call.
- *Douglas PUD (and possibly the YN) will distribute photographs of Pacific Lamprey passage improvements implemented in the Wells Dam east fishway and discuss these improvements during the Aquatic SWG conference call on February 9, 2022 (Item VI-5).*
This will be discussed during today's conference call.
- *Douglas PUD will convene a technical subgroup (consisting of Ralph Lampman, Patrick Verhey, RD Nelle [USFWS], and Laura Heironimus) to discuss edits to the draft 2022 Adult Pacific Lamprey Study Plan and will provide a revised draft study plan for discussion during the Aquatic SWG conference call on February 9, 2022 (Item VI-8).*
This will be discussed during today's conference call.
- *Douglas PUD will provide a proposed path forward for Wells Fish Hatchery White Sturgeon stocking considerations for discussion during the Aquatic SWG conference call on February 9, 2022 (Item VI-10).*
The draft SOA Wells Reservoir White Sturgeon Supplementation 2023-2026 was distributed to the Aquatic SWG by Kristi Geris on February 7, 2022. This will be discussed during today's conference call.

2. Coronavirus Disease 2019 Updates (John Ferguson):

John Ferguson asked if Aquatic SWG members had any new updates to share regarding impacts of coronavirus disease 2019 (COVID-19) on Aquatic SWG-related monitoring and evaluation (M&E) activities. The Aquatic SWG had no new COVID-19 updates to announce.

3. DECISION: 2022 Aquatic Settlement Agreement and Workgroup Action Plan (Andrew Gingerich):

The draft *2022 Aquatic Settlement Agreement and Workgroup Action Plan* was distributed to the Aquatic SWG by Kristi Geris on December 16, 2021. Jason McLellan provided edits on January 31, 2022, which were posted to the extranet site that same day. Andrew Gingerich said McLellan's edits were corrections to dates, which were adopted. The only other comments received were from Ralph Lampman, which Lampman distributed to the Aquatic SWG this morning before the conference call. Gingerich shared Lampman's comments on the WebEx, which included two comments under the *Pacific Lamprey Management Plan* section of the action plan.

Gingerich said Lampman's first comment is regarding *Item E.6 Update PIT Tag Detection "last seen table" History tables December 2022*. Lampman asked if there could also be a final analysis in summer 2022. Gingerich said a final report will likely not be ready until December or early 2023, in order to include data from tags that are set to sleep mode during the winter months and wake in the spring. However, Douglas PUD can provide an interim verbal update. Lampman said this would be helpful. He then clarified his comment was more about reviewing an updated "last seen table" that includes passive integrated transponder (PIT)-tagged fish from releases made in previous years. He suggested a verbal mid-year update in August and then an updated table that includes past years releases in December 2022. Gingerich confirmed that all available brood years are queried each time the "last seen table" is updated, and he edited the action plan to reflect this.

Gingerich said Lampman's second comment is regarding *Item E.11 Update lamprey literature review document libraries November 2022*. Lampman said a discussion on new technologies and designs would be more helpful than just updating the literature review library, and he asked if this item can be changed to make it more useful. Gingerich explained that this item is per a specific requirement in the *Pacific Lamprey Management Plan*. A discussion topic can be added to the action plan, but ultimately, any discussion topic can be added to a monthly agenda. Lampman said Grant PUD produces an annual report and table that summarizes all research in the Columbia River system and beyond and is a good comprehensive update. He is not necessarily proposing to duplicate this effort, but maybe a follow-up presentation on the new literature and a chance to discuss what was updated would be helpful. Gingerich added "present" and "discuss" to the action plan. Lampman suggested also noting that the document libraries "and applications" will be presented and discussed. Gingerich made this edit, as requested.

Gingerich said this is good feedback. He reminded the Aquatic SWG that this action plan is not filed with the Federal Energy Regulatory Commission; rather, it serves as a good reminder of topics to cover over the year. This is also a living document that can be further updated throughout the year.

Aquatic SWG members present approved the *2022 Aquatic Settlement Agreement and Workgroup Action Plan*, as revised. Douglas PUD incorporated edits, as discussed, and the final *2022 Aquatic Settlement Agreement and Workgroup Action Plan* was distributed to the Aquatic SWG by Geris following the Aquatic SWG conference call on February 9, 2022.

4. DECISION: 2021 Total Dissolved Gas Abatement Plan Report (John Rohrback):

The draft 2021 TDG/GAP Report was distributed to the Aquatic SWG by Kristi Geris on January 11, 2022, and a revised 2021 TDG/GAP Report was distributed before the Aquatic

SWG conference call on February 9, 2022. John Rohrback said he updated Figure 4 to include data from December 2021 and made a few formatting changes, and the only comments received were from Ralph Lampman, which Lampman distributed to the Aquatic SWG this morning before the conference call. Rohrback shared Lampman's comments on the WebEx.

Rohrback said Lampman's first comment is regarding *Table 1. Monthly average river discharge (kcfs) from the Wells Project, 1969-2021*. Lampman said the line for mean is shifted. Patrick Verhey also noted that the bottom row is shifted to the left. Rohrback said he will address these formatting issues.

Rohrback said Lampman's second comment is regarding *Table 2. Gas Bubble Trauma sampling on Juvenile salmon captured at the Rocky Reach JBS in April 2021*. Lampman asked if there are plans to include larval or juvenile lamprey in this monitoring. Rohrback said yes, crews examine any lamprey collected for gas bubble trauma (GBT). Lampman said U.S. Geological Survey is conducting research on GBT in Pacific Lamprey and might be able to share what signs to look for. Rohrback said no lamprey were collected in 2021.

Rohrback said Lampman's third comment is regarding *Section 4.2 Operational*. Lampman asked the purpose or cause of the small amount of winter spill. Rohrback explained that the reason for winter spill is when inflow is higher than what can be passed through the turbine units, which results in forced spill. Andrew Gingerich added that because Wells Dam is a run-of-the-river project, the Wells Pool operates close to full reservoir (781 feet mean sea level but ultimately within a 10-foot operating range of 771 to 781 feet mean sea level). Operations are based on estimates of flow out of Chief Joseph Dam and the federal projects above, which are not always accurate. Currently, during periods of low river flow, Wells Dam is only an 8-unit project (compared to 10 units being available under seasonally higher flows). This is because crews perform biannual maintenance on turbine units at Wells Dam during low flow periods. Additionally, one turbine unit is currently out of service for a long-term rebuild. Having more turbine units available is better for managing total dissolved gas (TDG) since hydraulic turbine capacity increases with more units available. Therefore, regardless of the price of power, Wells Dam operators pass water through the turbine units to help maintain compliance with TDG standards. When the project is at turbine unit capacity, this is when unforeseen spill events occur, which is what causes TDG violations. These events typically only last a couple of hours per day and occur during certain hours of the day because river flow from the federal projects have a shape. Meaning, while a federal project predicts the amount of water that will be passed downstream on a certain day, the project can send a lot of water during one portion of a day and a different amount during other periods of a day. This can result in short spill events at Wells Dam that barely exceed

the TDG standard and do not last all day, but still count against the project as a non-compliance event.

Lampman said in Figure 10, there seems to be spill in November 2021, but then no spill in late December when river flow is higher, and he asked if there is a reason for this. Rohrback said it looks like this figure needs to be updated to include average daily spill through the end of December 2021. He will make this correction.

Steve Lewis asked if any spill operations in 2021 deviated from the *Wells Hydroelectric Project Spill Playbook*. Rohrback said the Wells Project spills in accordance with the *Wells Hydroelectric Project Spill Playbook* and there were no deviations in 2021. Gingerich said this is correct, and he recalled only one brief non-compliance event in a past several years related to ongoing construction at the dam. Lewis said his question was regarding potential impacts to upstream and downstream fish passage. Gingerich said the annual GAP/BOP includes elements to provide safe fish passage and support TDG performance during the bypass season. For example, this includes only spilling over operating units to increase surface flow and degassing, or only operating turbine units with an adjacent turbine unit opened appropriately to provide a non-turbine passage route. John Ferguson added, regarding deviations, the Wells HCP Coordinating Committee is debriefed on these instances, and he can only recall one in a past year.

Aquatic SWG members present approved the 2021 TDG/GAP Report, as revised. Douglas PUD incorporated edits, as discussed, and the final 2021 TDG/GAP Report was distributed to the Aquatic SWG by Geris following the Aquatic SWG conference call on February 9, 2022. The FERC filing of the final report was distributed on February 25, 2022.

5. DECISION: 2022 Gas Abatement Plan Bypass Operating Plan (John Rohrback):

The draft 2022 GAP/BOP was distributed to the Aquatic SWG by Kristi Geris on January 11, 2022. John Rohrback said the only comments received were from Ralph Lampman, which Lampman distributed to the Aquatic SWG this morning before the conference call. Rohrback shared Lampman's comments on the WebEx.

Rohrback said Lampman's only comment is regarding *Section 2.2.2 Biological Monitoring Plan for Resident Fish*. Lampman asked if lamprey and White Sturgeon can be included in resident fish monitoring. Rohrback said both lamprey and White Sturgeon would be examined for GBT if these fish were collected; however, to date, no lamprey or White Sturgeon have been encountered during these monitoring events. Lampman said he just wanted to be sure because lamprey are anadromous and are not a resident fish. Rohrback said this is a good point. The language in the draft 2022 GAP/BOP is based off language in the Washington

Administrative Code, but Douglas PUD does plan to monitor lamprey if they are encountered. Lampman said not many are encountered at Rocky Reach Dam, but there may be an increase in the future due to translocation.

Steve Lewis asked if it would be out of scope to sample species other than resident fish collected during this process. Andrew Gingerich explained that when Washington State Department of Ecology revised the Washington Administrative Code for TDG standards, this came with a requirement to conduct resident fish sampling. The description in the draft 2022 GAP/BOP follows the Implementation Plan that came with the new TDG rule, and Douglas PUD is trying to implement the Wells program consistent with these rules and requirements in terms of how resident fish, diversity, and richness are defined. Lewis said this makes sense, but his concern is there may be an issue related to the daily time frame that sampling takes place. He has no issues with the protocols, but he is not sure that the sampling scheme targets the full realm of species that might be impacted by bypass operations.

Breean Zimmerman provided an email containing three web links to 1) Washington State Department of Ecology's webpage on the TDG rule¹; 2) TDG Rule biological monitoring Implementation Plan requirements² (starting on page 7); and 3) Appendix C of the Final Environmental Impact Statement³, which provides a list of native versus non-native fish species. This email was distributed to the Aquatic SWG by Geris following the conference call on February 9, 2022.

Gingerich said Douglas PUD did not previously have this requirement for resident fish monitoring. The only GBT monitoring conducted was for salmonids. This new requirement stipulates monitoring of three different native fish species, at a minimum of 10 individuals per group, and 50 individuals per sampling day. These requirements make the Wells program more comprehensive than ever before.

Lampman asked if language in the draft 2022 GAP/BOP can be updated to reflect this discussion to ensure lamprey are included. Gingerich said he is not sure if lamprey are explicitly called out in the new TDG rule. Lampman suggested inserting "with the inclusion of

¹ <https://ecology.wa.gov/Regulations-Permits/Laws-rules-rulemaking/Closed-rulemaking/WAC173-201A-revisions>

² Ecology (Washington State Department of Ecology), 2019a. *Rule Implementation Plan. Chapter 173-201A WAC Water Quality Standards for surface Waters of the State of Washington*. Publication 19-10-048. December 2019. Available at: <https://apps.ecology.wa.gov/publications/documents/1910048.pdf>.

³ Ecology, 2019b. Final Environmental Impact Statement. Washington State's Changes to Water Quality Standards for Surface Waters of the State of Washington – WAC 173-201A. Publication 19-10-046. December 2019. Available at: <https://apps.ecology.wa.gov/separ/Main/SEPA/Record.aspx?SEPANumber=201907230>

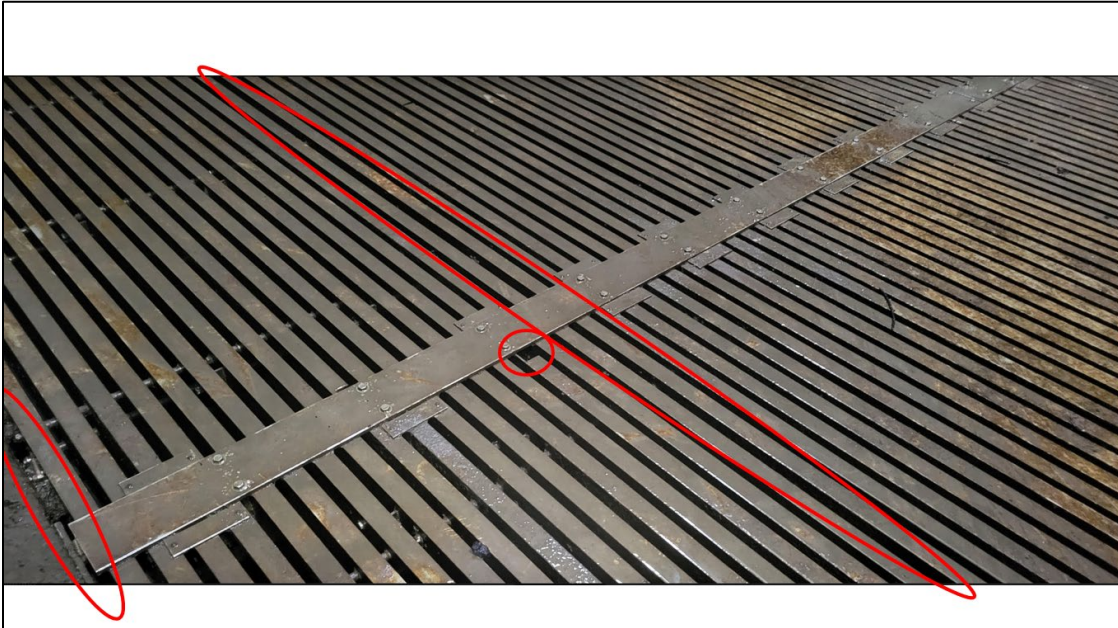
lampreys” parenthetically so as to not tie lampreys to the rule change. Rohrback said he can add this language.

Aquatic SWG members present approved the 2022 GAP/BOP, as revised. Douglas PUD incorporated edits, as discussed, and the final 2022 GAP/BOP was distributed to the Aquatic SWG by Geris following the Aquatic SWG conference call on February 9, 2022. The final redlines requested and approved by the Wells HCP Coordinating Committee on February 22, 2022, were distributed to the Aquatic SWG by Geris that same day. The FERC filing of the final plan was distributed on February 25, 2022.

6. 2021/2022 Wells Dam Winter Maintenance – East Fishway Tour (Chas Kyger):

Chas Kyger said a tour of the east fish ladder at Wells Dam was planned for the last week in January 2022; however, due to COVID-19 restrictions and mechanics ultimately finishing work early, the tour did not take place. Kyger was, however, able to access the dewatered east fishway to collect photographs. Last week, Kyger also collected photographs in the dewatered west fishway. Kristi Geris is working with Julene McGregor (Douglas PUD Information Systems) to develop an images library on the extranet site, and Kyger will upload the photographs of the dewatered fishways once the library is setup. Kyger already sent some photographs to Ralph Lampman showing plating that was damaged in both the east and west fishways. Lampman provided an email with suggestions on how to improve the plating. John Rohrback is working with the mechanical foreman to repair these areas. Some areas were repaired this outage, but remaining repairs will be completed during the next winter maintenance outage.

Lampman asked to review his email, which Geris shared on the WebEx. The following photograph was discussed.



Lampman believes the circled areas are gaps that have not been filled. Kyger said these gaps might appear larger than they are because he measured all gratings, and gaps greater than 1 inch were closed to be within specifications. Lampman suggested measuring again, notably the gap on the left of the photograph.

Lampman said his email also contained photographs of the dewatered fishways at Priest Rapids Dam. In these fishways, Grant PUD used rounded bolts, as shown in the following photograph.



Lampman said rounded bolts are preferred in order to avoid adding anything that might prevent Pacific Lamprey from attaching to the already narrow plating. Kyger said it might be possible to shear off the non-rounded bolts already in place in the Wells Dam fishways.

Lampman also likes how the bolts in the Priest Rapids Dam fishways are not on the plating, which is better because Pacific Lamprey can use the entire plating surface. Kyger said anchoring the plating to the concrete might be sturdier, too. He also noted that at Priest Rapids Dam, most diffuser gratings extend wall-to-wall. At Wells Dam, most diffuser floor gratings have an apron of concrete around them, so there is already a place for Pacific Lamprey to attach. Patrick Verhey suggested inventorying areas at Wells Dam that do not have the concrete apron. Douglas PUD will review construction drawings for the Wells Dam fishways and collection galleries to identify the number and locations of wall-to-wall diffuser gratings in each ladder, for discussion during the Aquatic SWG conference call on March 9, 2022.

Lampman said it would also be ideal to install wider plating, if possible. Kyger said care needs to be taken to not cover too much of the openings between the diffuser grating bars because this changes the hydraulics (discharge and velocity) through the diffuser gratings and flow volume added to the fishways. Obstructing the gratings can affect flow, which is designed to be low velocity for salmonid passage. Adding wider plating would require engineering exercises. John Ferguson said these types of modifications would also need to

be coordinated through the Wells HCP Coordinating Committee because of potential impacts to salmonid passage.

7. Pacific Lamprey Information Exchange Webinar Series Update (Ralph Lampman):

Ralph Lampman said the second Pacific Lamprey Information Exchange Webinar⁴ occurred yesterday, on February 8, 2022, and covered lampreys and climate change. First, CRITFC presented on sediment transport in the Lower Columbia River. CRITFC is conducting modeling to understand how and when sediment moves at the mouths of tributaries and how this impacts lamprey. Second, USFWS presented on temperature effects on larval Pacific Lamprey. USFWS conducted laboratory and field studies in the Umatilla River and found that larval Pacific Lamprey are tolerant of high river temperatures and can withstand up to 29°C to 30°C. This is likely because temperatures in fine sediment habitat were 3°C to 6°C lower than the water column. Third, Hiroaki Arakawa, from the Noto Marine Center in Japan, and who was also formerly an intern with the YN for 5 months, shared work on how climate change is impacting the remaining habit for Arctic Lamprey in Japan. The southern range of Arctic Lamprey is wiped out and only northern Japan has habitat that meets the requirements of Arctic Lamprey. Lastly, Christina Wang (USFWS) provided an overview of climate change impact studies conducted in Europe and the U.S.

Lampman said a lamprey technical subgroup meeting for the SOLAR also convened the same day as the Pacific Lamprey Information Exchange Webinar. He shared a presentation on Pacific Lamprey transformation identification techniques, which he can distribute to the Aquatic SWG. He also shared a color guide that he hopes Douglas PUD can share with the Washington Department of Fish and Wildlife staff operating rotary screw traps, so crews can record the color category of fish when collecting genetic samples during monitoring. (*Note: Lampman distributed this presentation and color guide to the Aquatic SWG on February 14, 2022.*)

Patrick Verhey asked how familiar Lampman is with Japanese Arctic Lamprey, and he said it appears there are passage issues at the weirs and perhaps with overfishing contributing to the declining population. Lampman said passage is definitely an issue. He explained that Japan has a lot of landslides, so weirs are used to protect and control impacts to residential areas; however, Arctic Lamprey cannot climb these weirs. Even though Arctic Lamprey are protected and listed, have a limit on harvest by size, and are regulated by multiple agencies, not much has been done regarding passage issues. With climate change, these fish cannot access colder water upstream. Studies have shown that numbers were high in the 1980s but

⁴ PLCI's 5th Annual Lamprey Information Exchange Webinar Series convenes on the second Tuesday of each month from January to May 2022.

declined by the late 1980s. This coincides with when temperatures began to rise from climate change. Overharvest is also an issue. Fyke netting and set nets capture a lot of fish. People living upstream get angry with people living in the lower river because they catch all the Arctic Lamprey before the fish can reach upriver.

8. 2022 Adult Pacific Lamprey Study Plan and 2022 Adult Pacific Lamprey Statement of Agreement (John Rohrback):

John Rohrback said after the last Aquatic SWG meeting on January 12, 2022, Douglas PUD convened a technical subgroup, consisting of Ralph Lampman, Patrick Verhey, RD Nelle, and Laura Heironimus, on January 26, 2022, to further discuss a path forward for the 2022 Adult Pacific Lamprey Study.

Revised 2022 Adult Pacific Lamprey Study Plan

Rohrback said Lampman provided comments on the draft 2022 Adult Pacific Lamprey Study Plan on January 28, 2022. Based on discussions during the last Aquatic SWG meeting, within the technical subgroup meeting, and Lampman's comments, a revised 2022 Adult Pacific Lamprey Study Plan was distributed to the Aquatic SWG by Kristi Geris before the Aquatic SWG conference call on February 9, 2022. John Ferguson asked if the draft study plan was revised by Douglas PUD and then reviewed by the technical subgroup, and Rohrback clarified that the revisions were made by Douglas PUD after the subgroup meeting, but the conclusions of that meeting provided the direction for the revisions. Rohrback proceeded to share these revisions with the with the Aquatic SWG.

Rohrback said Table 2 in the revised study plan shows the key changes. Recall in the draft study plan, 135 dual-tagged (acoustic and PIT-tag) fish were to be released in the Rocky Reach Dam forebay and 35 dual-tagged fish were to be released in the Wells Dam collection gallery. In the revised study plan, 120 dual-tagged fish will be released in the Rocky Reach Dam forebay, and 50 dual-tagged fish will be released at Daroga State Park, which is located upstream of the confluence of the Entiat River. The remainder of fish collected at Priest Rapids Dam during Douglas PUD's 4-week trapping period, and potentially during Grant PUD's 4-week trapping period, will be PIT-tagged and released at the same locations as the dual-tagged fish. This retains the ability to assess approach behaviors (i.e., what proportion of fish is detected in the Wells Dam tailrace) and passage (i.e., of these fish that approach the dam and were detected in the tailrace, what proportion is detected at Pool 68 in Wells Dam fishways). For another key change, recall that in the draft study plan a portion of PIT-only fish were to be translocated upstream of Wells Dam, including passing fish off to the Colville Confederated Tribes (CCT) to translocate farther upstream in the Okanogan River. In the revised study plan, all study fish will be released downstream of Wells Dam. Lastly, Lampman

provided helpful comments in *Section 2.0 Background* regarding historical studies, which were also addressed in the revised study plan.

Lampman said he appreciates the edits made by Douglas PUD. Another suggestion is to make the priority the same for the PIT-only releases. That is, keep the ratio of release numbers the same as the dual-tagged fish, but avoid releasing all PIT-only fish in the Rocky Reach Dam forebay. Logistically, it may not make sense to split the fish at this ratio every day, so maybe do so week-to-week. Ferguson asked, similarly, will Priority 1a fish be released before Priority 1b fish. Rohrback said Priority 1 fish will be released before Priority 2 fish, and the goal is to release each group at the ratio described in Table 2. Andrew Gingerich said Douglas PUD will remove the letter assignments from the priority column in Table 2 of the revised study plan. Rohrback said Douglas PUD also plans to distribute weekly emails, as was done last season, to gauge Aquatic SWG members' thoughts on releases based on collection to date and the remaining projected run.

Ferguson asked if the YN plans to supplement translocation above Wells Dam with lower river fish, as was done in past years. Lampman said yes, the YN will attempt to translocate fish above Wells Dam, in coordination with the CCT, to help offset the fish going to the study. This, of course, depends on run-size.

Verhey said in *Section 2.1.5 2013 Adult Lamprey Passage and Enumeration Study*, discrepancies in count station enumeration efficiency were discussed, and he asked if this has been addressed. Rohrback explained that when he reviewed PIT detection histories of Pacific Lamprey traveling through Wells Dam, while some of the detection histories for Pacific Lamprey were what he would expect for a fish moving linearly (i.e., down-to-up or up-to-down), that was not the case for every fish. Improvements were installed to prevent Pacific Lamprey from accessing the auxiliary water supply or bypassing the count window area, and Douglas PUD hopes this issue has been addressed. Chas Kyger recalled, during the 2013 study, although grating was installed over the picketed leads, some fish were still bypassing the count window (based on detection histories). After a closer look at video footage, Pacific Lamprey were observed barely out of the video frame, squeezing through gaps between the crowder and count window glass. Initially, different types of brushes were installed to close the gaps (but deteriorated quickly) and now a rubber gasket is installed that will hopefully remedy this issue. Additionally, at the water surface, depending on the tailrace elevation, there is large grating that Pacific Lamprey could fit through, so mesh was installed to close off this area. Since these improvements were made there has been no way to evaluate the modifications systematically. While enumeration efficiency is not a main objective in this

2022 study, detection locations above and below the count window should produce data to speak to these improvements.

Lampman asked about the release strategy for Priority 1 (dual-tagged) fish. Rohrback said, for example, if 17 fish are collected during Week 1, 12 fish will be released in the Rocky Reach Dam forebay and 5 fish will be released at Daroga State Park. This strategy will continue proportionally up to 170 fish. Lampman recalled a comment by RD Nelle about potential effects of releasing adults upstream impacting the behavior of fish released farther downstream. To minimize these impacts, it may be a good idea to prioritize releasing the 120 fish in the Rocky Reach Dam forebay and then the 50 fish at Daroga State Park. Gingerich said this is a good question and the impacts, if any, are unknown. Releasing the 120 fish first more closely mimics the 2016 study. Jason McLellan said, conversely, the opposite could be argued, that splitting the releases might dilute potential impacts. He does not believe comparability to the 2016 study means a lot. It is more important to get fish to Wells Dam to see if they ascend or not. There is so much uncertainty around what drives the comparison between the studies, it seems the main driver of the study should be what happens at the dam. Gingerich agreed about the uncertainty but disagreed about the importance of comparability to the 2016 study. He does not think the objective to compare the studies is unreasonable. McLellan agreed but thinks there is not a huge amount of information to be gained from making a comparison between 2022 and 2016. Lampman suggested releasing the 50 fish at Daroga State Park over a short period of time to isolate potential impacts, opposed to splitting the releases each week. Rohrback said another thing to note is there is a Pacific Lamprey population below Daroga State Park.

Lampman suggested identifying a minimum size for each release group (e.g., 30 fish) to avoid releasing 7 fish here and 6 fish there. Ferguson asked what the advantage is for this. Lampman said not much can be concluded with a small group being released day-to-day. Kyger agreed avoiding smaller release groups from a logistical standpoint. Ferguson suggested that Douglas PUD develop language to more clearly define the release strategy for prioritizing study fish in the 2022 Adult Pacific Lamprey Study Plan, for discussion during the Aquatic SWG conference call on March 9, 2022. *(Note: Rohrback provided a second revised 2022 Adult Pacific Lamprey Study Plan on March 2, 2022, which Geris distributed to the Aquatic SWG that same day.)*

Revised 2022 Adult Pacific Lamprey SOA

Rohrback said based on discussions and comments to date, a revised 2022 Adult Pacific Lamprey SOA was distributed to the Aquatic SWG by Geris before the Aquatic SWG conference call on February 9, 2022. Rohrback said this revised SOA basically says Douglas

PUD will implement this 2022 study and the Aquatic SWG will determine a path forward based on the results. Lampman said he provided comments on the revised SOA, which he distributed to the Aquatic SWG this morning before the conference call. Rohrback suggested he and Lampman talk offline about his comments, which were largely about wording.

Ferguson asked when Douglas PUD needs an approved study plan and SOA in terms of logistics and planning for the study. Rohrback said Douglas PUD needs lead time to purchase tags. He is already coordinating with a vendor about submitting an order by April 2022. Additionally, the interlocal agreement with Grant PUD expired on December 31, 2021, and Douglas PUD is waiting to obtain Aquatic SWG approval before restarting this process. Ferguson suggested that Aquatic SWG members review the revised 2022 Adult Pacific Lamprey Study Plan and revised 2022 Adult Pacific Lamprey SOA and be prepared to vote during the Aquatic SWG conference call on March 9, 2022.

9. Brood Year 2021 White Sturgeon Rearing and Tagging Update (Chas Kyger):

Chas Kyger summarized a BY 2021 White Sturgeon Rearing Update (Attachment B), which was distributed to the Aquatic SWG by Kristi Geris following the conference call on February 9, 2022. Kyger said this week, Chelan PUD is at Wells Fish Hatchery tagging and collecting blood samples from Chelan PUD program White Sturgeon. These numbers have not yet been updated in the first table in Attachment B. The second table in Attachment B includes Douglas PUD program fish. Last Tuesday, February 1, 2022, hatchery staff tagged, marked, weighed, and measured a subset of these fish. Out of 4 tanks, there are 332 fish total, with an average weight of 223 grams (about 2 fish per pound) and average length of 313 millimeters. The Douglas PUD program is on track to meet the 325-fish release goal in late May or early June 2022. Fish are already above the 200-gram size threshold with 4 months of rearing remaining in-hatchery.

10. Wells Fish Hatchery White Sturgeon Stocking Statement of Agreement – Brood Years 2022–2025 for Planting in 2023–2026 (Chas Kyger):

The draft SOA, *Wells Reservoir White Sturgeon Supplementation 2023-2026*, was distributed to the Aquatic SWG by Kristi Geris on February 7, 2022.

Chas Kyger said Douglas PUD is proposing the same stocking number of 325 fish but increasing the target size at release to a minimum of 350 grams. The reason for stocking the same number is there are no strong data to suggest a need to change the number at this time. More will be known once data on the latest releases of larger fish are available. Currently, a conservative estimate of fish in the Wells Reservoir is greater than the 1,100-fish carrying capacity goal if stocking continues with the status quo. This SOA proposes an increased size at release based on limited data that bird predation may be an issue in the

Wells Reservoir. Increasing size at release should increase survival and continue to grow the size of the current population.

John Ferguson asked if approval in March and no later than April 2022 will provide Douglas PUD with adequate lead time. Kyger said yes, Douglas PUD just needs to let Jason McLellan know what target number of larvae to bring to Wells Dam before the start of CCT larval collection in late June or early July 2022. Ferguson asked if approval no later than April 2022 works for the CCT. McLellan said preferably March, but April 2022 should be okay. The CCT and Douglas PUD also still need to finalize a funding agreement.

Ralph Lampman asked if there is a desire to open some type of harvest, and if so, should the stocking number be increased? Kyger said without survival data on the latest releases or understanding the level of exploitation targeted for harvest, it is difficult to suggest a stocking rate for this. McLellan said the CCT would like to see harvest, but the level of harvest needs to be worked out amongst comanagers, and then this decision would be brought back to Douglas PUD. Andrew Gingerich agreed and said Douglas PUD has no authority in harvest management. McLellan said it is a simple allotment in a slot limit, and there are models and tools to estimate stocking rates to meet a certain target. The discussion revolves around whether there is enough certainty in the parameters to populate a model, to produce results realistic enough to design a fishery around, while making sure population targets are met. This is the issue being addressed by maintaining the stocking numbers as a status quo. There is so much uncertainty in the model inputs, so status quo provides time to gather more data over the next 4 years to have a better dataset to input into a model. His concern is about the schedule for data collection and whether there will be enough M&E conducted and data collected over the 4-year period of this SOA to have much more certainty in estimated population parameters beyond what is available now.

Lampman asked if there are enough available data using the Shiny application^{5,6} to make conclusions for a stocking rate that would allow for harvest to occur. McLellan said the Shiny application does not improve the inputs, and it is the inputs that require more information. He is not opposed to implementing a modeling effort, but he is also not sure a modeling effort would produce results that are any more informative than what is available now. In his opinion, if fish are being released at a larger size, one can safely assume there will be some increase in survival rate. He thinks the estimates of abundance generated by Douglas PUD and LGL Limited suggest that the target population size will be exceeded, particularly with

⁵ A user interface (Chang et al. 2021) used in Blue Leaf/LGL's population model, *Upper Columbia Sturgeon Simulation Model*.

⁶ Chang, C., J. Cheng, J.J. Allaire, C. Sievert, B. Schloerke, Y. Xie, J. Allen, J. McPherson, A. Dipert, and B. Borges. 2021. Shiny: Web Application Framework for R. <https://CRAN.R-project.org/package=shiny>

additional stocking of larger fish with slightly higher survival. He thinks fish will be available for harvest; although, it is unclear what level of harvest will be supported. Another thing to note, Douglas PUD has been transparent about the abundance estimates having some potential biases. He thinks the data are biased low, which further supports that there is a decent probability of having potential harvest in a reasonable amount of time. Kyger agreed and said Douglas PUD's approach is conservative. Douglas PUD is probably underestimating total abundance in the Wells Reservoir, but there are not enough data on the recent releases to understand how these fish are contributing to the population. Once there is more M&E data and comanagers agree on a level of harvest, this information will help inform future stocking requirements.

McLellan said there is nothing precluding comanagers from conducting a modeling exercise to come up with an appropriate number; however, this would delay this SOA. The only issue with delaying this SOA for the CCT is knowing how many larvae to collect and deliver to Wells Fish Hatchery. Ultimately, the CCT need some sort of recommendation by early June 2022. The other part is coming up with funding mechanisms. If it is not based on a fixed number of fish, then a rate per fish would need to be figured out. Ferguson prefers not to delay a vote until June 2022 but appreciates this is the back end.

Lampman asked if the duration of the SOA can be reduced to 1 year in case modeling and discussions on harvest suggest a different stocking rate is needed before a 4-year period passes. Ferguson said this depends on the comanagers and suggested keeping it a 4-year SOA and changing the duration later, if needed.

Lampman questioned the confidence in the carrying capacity estimate for the Wells Reservoir. It seems carrying capacity is a key driver, and if this estimate is incorrect this would change all upcoming management decisions. Kyger said the carrying capacity estimate for the Wells Reservoir is based on estimates in the Lower Columbia River. It is a simple surface area calculation and seems to be the best available information. The estimate for the Wells Pool is probably a little high because there is not the same level of productivity here as there is in the Lower Columbia River. McLellan said there is no good estimate of carrying capacity for White Sturgeon. When these discussions began, the Bonneville Pool had frequent recruitment and some signs of density dependent effects in the growth of juveniles, which suggested the pool was at or near carrying capacity. This was the best estimate available at that time, so this density was applied to the models. He is not aware of any more recent carrying capacity estimates. Some density dependent effects have been reported in the upper Columbia River and in the Kootenai River by the Kootenai Tribe. These data can be reviewed, but he is not sure this will make a difference in the current estimate. Another

consideration is that if carrying capacity increases and stocking increases, this could potentially affect the level of harvest and the need to stock even more fish, which then runs into infrastructure issues. Douglas PUD can only produce so many fish at Wells Fish Hatchery, and the facility is also currently producing fish for the Chelan PUD program. He is not discouraging looking into this, but there are tradeoffs that need to be considered, as well.

Laura Heironimus said evaluating stocking densities and carrying capacity is discussed a lot throughout North American sturgeon management groups. The North American Sturgeon and Paddlefish Society is planning a technical workshop to further discuss this topic later this fall, which may be of interest to the Aquatic SWG, and plans to include a speaker from the Columbia River system. She also asked if Douglas PUD can confirm that this SOA can be updated if comanagers agree on a new recommendation before the 4-year SOA expires. McLellan noted that the North American Sturgeon and Paddlefish Society workshop may include a presentation of data collected for the upper Columbia River population by the CCT, Spokane Tribe, and BC Hydro and that Josh Korman (Ecometric Research) is likely presenting the work.

Gingerich said, ultimately, unanimous approval can happen at any time. He does not know if this gives Heironimus or Lampman comfort. Maybe there is a need for a shorter-term SOA. He is not sure comanagers can reconcile these larger questions by June 2022. The YN seems interested in carrying capacity, Heironimus is interested in upcoming technical workshops, and McLellan mentioned comanager coordination on harvest. Gingerich wants to be realistic about what can be accomplished in the next few months. Given the available data, the proposed SOA seems like a reasonable approach. Additionally, 4 years passes very quickly, and he questioned if this is really that long of a period considering all the work that needs to be done. Developing SOAs takes time and effort, and Douglas PUD would prefer to avoid annual SOAs.

McLellan asked how much M&E will occur in the next 4 years. Gingerich said M&E in the *White Sturgeon Management Plan* becomes very adaptive and less frequent after Year 10 of the license, which is now. Not wanting to stray too far away from requirements in the *White Sturgeon Management Plan*, Douglas PUD recognizes the uncertainties regarding White Sturgeon stocking and has already discussed increasing required frequency of M&E without increasing total effort. For example, maybe conducting more frequent M&E, but in shorter sessions.

McLellan said it seems a past SOA included the opportunity for Aquatic SWG members to request that the SOA be revisited, and he suggested including something similar in this SOA.

Gingerich said he thinks some type of language can be added to provide comfort in the ability to revisit this SOA.

Lampman asked, what is the harm in increasing the stocking rate until carrying capacity density impacts are observed, and then adjusting the stocking rate as needed from there? McLellan said if a system reaches a level where density dependent effects in growth are observed, this means there is a shortage in food. Fish are eating something, and overall ecosystem impacts are unknown. This discussion has come up in multiple forums. For example, are managers stocking so many White Sturgeon that its hampering efforts to rebuild Pacific Lamprey abundance, or other species, due to predation? It is an interesting approach to stock until density dependence is observed and then scale back, but ecosystem impacts, competition, and survival rates need to be considered. Ferguson said another consideration with what Lampman is asking is that this assumes that M&E is in place to track when these changes occur. If M&E is only so often, will these changes be noticed in time before there are ecosystem-wide effects?

Heironimus said in Zone 6 (of the Columbia River) there is no hatchery program, but variability has been observed based on stock assessments every 3 years. These populations can grow rapidly, and slow down, and managers do not fully understand what is driving these trends. White Sturgeon are long-lived fish, which sometimes gets missed. As stocking continues, these fish are continuing to grow and live for decades, which can have size impacts. For example, if a lot of small fish are stocked, there will be a larger population of small fish, and then diets shift as fish grow. This is a complex topic with a lot of environmental considerations.

Ferguson suggested that Aquatic SWG members review the draft SOA, *Wells Reservoir White Sturgeon Supplementation 2023-2026*, and be prepared to vote during the Aquatic SWG conference call on March 9, 2022. Additionally, resource comanagers will discuss the timeline and potential modeling needed for setting harvest goals for White Sturgeon in the Wells Reservoir, as it relates to the proposed duration of the 4-year draft SOA, for discussion during the Aquatic SWG conference call on March 9, 2022.

McLellan said, regarding comanager discussions, he needs to get management and policy staff involved. Ferguson guessed these discussions will require a bit of time that a 4-year SOA can accommodate. McLellan said if comanagers decide to move forward with a modeling exercise independently, there will need to be full access to Douglas PUD M&E data and analyses completed to date. Gingerich said this will not be a problem.

Lampman said his preference is a 1-year SOA or including "check-in" language in the current SOA. Heironimus agreed.

VII. Administration

1. Upcoming Meetings (John Ferguson):

The Aquatic SWG meeting on March 9, 2022, will be held by conference call.

Other upcoming meetings include April 13 and May 11, 2022 (location to be determined).

List of Attachments

Attachment A List of Attendees

Attachment B Brood Year 2021 White Sturgeon Rearing 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
John Rohrback	Aquatic SWG Technical Support	Douglas PUD
Steve Lewis†	Aquatic SWG Technical Representative	U.S. Fish and Wildlife Service
RD Nelle	Aquatic SWG Technical Support	U.S. Fish and Wildlife Service
Brean 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

Notes:

- † Only present for the review and approval of the 2021 TDG/GAP Report (Item VI-4), and review of the 2022 GAP/BOP (Item VI-5).