



Conference Call Minutes

Aquatic Settlement Work Group

To: Aquatic SWG Parties

Date: March 14, 2018

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

Re: Final Minutes of the February 14, 2018 Aquatic SWG Conference Call

The Aquatic Settlement Work Group (SWG) met by conference call on Wednesday, February 14, 2018, 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. Douglas PUD will develop a draft Statement of Agreement (SOA) describing how Douglas PUD will support Pacific Lamprey translocation efforts in future years (tentatively expected following finalization of the technical memorandum, *Temporary Fishway "Lamprey Operations": 2017 Pacific Lamprey Migration at Wells Dam*, and an acoustic telemetry Pacific Lamprey approach report being drafted by Douglas PUD in coordination with LGL Limited; Item VI-1). (Note: a draft Pacific Lamprey translocation SOA was distributed to the Aquatic SWG by Kristi Geris on March 13, 2018.)
2. Douglas PUD will incorporate Wells Dam 2017 Pacific Lamprey run data into the *2017 Pacific Lamprey Management Plan Annual Report* (Item VI-2).
3. Steve Lewis will contact Tim Culbertson (Secretary-Manager for Columbia Basin Hydropower) regarding how water managers coordinate and manage forced spill and total dissolved gas (TDG) at Mid-Columbia hydroelectric projects, outside of the former Mid-Columbia Hourly Coordination Agreement (Item VI-4).
4. Douglas PUD will discuss how forced spill and TDG are coordinated and managed at Wells Dam, outside of the former Mid-Columbia Hourly Coordination Agreement, during a future Aquatic SWG meeting (Item VI-4).
5. Ralph Lampman (Yakama Nation [YN]) will provide a summary of questions from the Wells Dam fishway tour on January 10, 2018, for discussion during the Aquatic SWG conference call on March 14, 2018 (Item VI-8). (Note: Lampman provided these questions to Kristi Geris on February 14, 2018, which Geris distributed to the Aquatic SWG that same day.)
6. The Aquatic SWG meeting on March 14, 2018, will be held by **conference call** (Item VII-3).

II. Summary of Decisions

1. Aquatic SWG members present approved the technical memorandum, *Temporary Fishway "Lamprey Operations": 2017 Pacific Lamprey Migration at Wells Dam* (Item VI-2).
2. Aquatic SWG members present approved the *Wells Hydroelectric Project Total Dissolved Gas Abatement Plan 2017 Annual Report*, with the YN abstaining (Item VI-3).
3. Aquatic SWG members present approved the *2018 Total Dissolved Gas Abatement Plan and Wells Bypass Operating Plan*, with the YN and U.S. Fish and Wildlife Service (USFWS) abstaining (Item VI-5).

III. Agreements

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

IV. Review Items

1. The draft *2018 Aquatic Settlement Agreement and Workgroup Action Plan* was distributed to the Aquatic SWG by Kristi Geris on December 18, 2017. This document is currently under review (Item VI-7). (Note: a revised action plan was distributed to the Aquatic SWG by Kristi Geris on March 2, 2018.)
2. The draft *White Sturgeon Supplementation Plan* was distributed to the Aquatic SWG by Kristi Geris on February 21, 2018. This document is available for review with edits and comments due to Andrew Gingerich by close-of-business on March 28, 2018.

V. Documents Finalized

1. The final *Wells Hydroelectric Project Total Dissolved Gas Abatement Plan 2017 Annual Report* and final *2018 Total Dissolved Gas Abatement Plan and Wells Bypass Operating Plan* were submitted to the Federal Energy Regulatory Commission (FERC) on February 22, 2018, as distributed to the Aquatic SWG that same day (Items VI-3 and VI-5).
2. The final technical memorandum, *Temporary Fishway "Lamprey Operations": 2017 Pacific Lamprey Migration at Wells Dam* was distributed to the Aquatic SWG on March 6, 2018 (Item VI-2).

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 are listed in Attachment A) and reviewed the agenda. Ferguson asked for any additions or other changes to the agenda. The following revisions were requested:

- Steve Lewis and Ralph Lampman requested to rearrange the agenda to first discuss Pacific Lamprey topics, along with the *2018 Aquatic Settlement Agreement and Workgroup Action Plan*. Aquatic SWG members present agreed to discuss these topics directly following the decision items.
- Andrew Gingerich added an update on the 3-year review of the Aquatic Settlement Agreement Chairperson.
- Patrick Verhey added a discussion on the Mid-Columbia Hourly Coordination Agreement.
- John Ferguson added a reminder about the upcoming review of the draft *2017 Aquatic Settlement Agreement Annual Report*.

The revised draft January 10, 2018 meeting minutes were reviewed. Kristi Geris said all comments and revisions received from members of the Aquatic SWG were incorporated into the revised minutes, and there are no outstanding edits or questions to discuss. Aquatic SWG members present approved the January 10, 2018 meeting minutes, as revised.

Action items from the Aquatic SWG meeting on January 10, 2018, are as follows (note: the following italicized item numbers correspond to agenda items from the January 10, 2018 meeting):

- *The Aquatic SWG will debrief on the Wells Dam tour held on January 10, 2018, during the Aquatic SWG conference call on February 14, 2018 (Item VI-1).*
This will be discussed during today's conference call.
- *Douglas PUD will develop a draft SOA describing how Douglas PUD will support Pacific Lamprey translocation efforts in future years (tentatively expected following finalization of the technical memorandum, Temporary Fishway "Lamprey Operations": 2017 Pacific Lamprey Migration at Wells Dam, and an acoustic telemetry Pacific Lamprey approach report being drafted by Douglas PUD in coordination with LGL Limited; Item VII-1).*
This action item will be carried forward (note: a draft Pacific Lamprey translocation SOA was distributed to the Aquatic SWG by Kristi Geris on March 13, 2018).

- *Douglas PUD will request approval of the draft technical memorandum, Temporary Fishway "Lamprey Operations": 2017 Pacific Lamprey Migration at Wells Dam, during the Aquatic SWG conference call on February 14, 2018 (Item VII-2).*
This will be discussed during today's conference call.
- *Jason McLellan will provide Douglas PUD with White Sturgeon growth curves to assist with meeting the target fish size at release for brood year 2017 White Sturgeon on station at Wells Dam Fish Hatchery (Item VII-3).*
Andrew Gingerich said McLellan provided this information.
- *Douglas PUD will request approval of the draft 2018 Aquatic Settlement Agreement and Workgroup Action Plan during the Aquatic SWG conference call on February 14, 2018 (Item VII-5).*
This will be discussed during today's conference call.
- *Steve Lewis will provide questions from the Rocky Reach Fish Forum (RRFF) to the Aquatic SWG regarding ongoing regional Pacific Lamprey discussions (Item VII-8).*
Lewis provided the Draft RRFF January 3, 2018 meeting minutes to the Aquatic SWG on February 8, 2018, which include RRFF discussions on the ongoing Pacific Lamprey discussions.

2. DECISION: Technical memorandum, Temporary Fishway "Lamprey Operations": 2017 Pacific Lamprey Migration at Wells Dam (Chas Kyger):

Chas Kyger said the draft technical memorandum, *Temporary Fishway "Lamprey Operations": 2017 Pacific Lamprey Migration at Wells Dam*, was distributed to the Aquatic SWG by Kristi Geris on November 28, 2017. Kyger said no changes have been made nor were additional comments received since the document was distributed in November 2017. Aquatic SWG members present approved the technical memorandum, *Temporary Fishway "Lamprey Operations": 2017 Pacific Lamprey Migration at Wells Dam*.

(Note: the final technical memorandum, *Temporary Fishway "Lamprey Operations": 2017 Pacific Lamprey Migration at Wells Dam* was distributed to the Aquatic SWG on March 6, 2018.)

Ralph Lampman asked if Douglas PUD can provide count data for the entire 2017 Pacific Lamprey run in a document separate from this technical memorandum. Kyger suggested incorporating these data into the *2017 Pacific Lamprey Management Plan Annual Report*. John Ferguson asked if Lampman is interested in all run data, including prior to 2017. Kyger said in past years count data were minimal, and Lampman clarified he is interested in comparing Wells Dam 2017 Pacific Lamprey count data to Priest Rapids Dam 2017 Pacific Lamprey count data. Kyger said Douglas PUD will incorporate Wells Dam 2017 Pacific Lamprey run data into the *2017 Pacific Lamprey Management Plan Annual Report*.

3. DECISION: *Wells Hydroelectric Project Total Dissolved Gas Abatement Plan 2017 Annual Report* (Andrew Gingerich):

Andrew Gingerich said the draft *Wells Hydroelectric Project Total Dissolved Gas Abatement Plan 2017 Annual Report* was distributed to the Aquatic SWG for review by Kristi Geris on January 16, 2018, with edits and comments due to Gingerich by February 12, 2018. Gingerich said Breean Zimmerman indicated the Washington State Department of Ecology (Ecology) reviewed the report. Zimmerman said this is correct and Ecology has no comments. Aquatic SWG members present approved the *Wells Hydroelectric Project Total Dissolved Gas Abatement Plan 2017 Annual Report*, with the YN abstaining.

The final *Wells Hydroelectric Project Total Dissolved Gas Abatement Plan 2017 Annual Report* was submitted to FERC on February 22, 2018, as distributed to the Aquatic SWG that same day.

4. Mid-Columbia Hourly Coordination Agreement (Patrick Verhey):

Patrick Verhey said he recently attended a meeting which discussed what appeared to be a new process for how water managers coordinate and manage forced spill and TDG at Mid-Columbia hydroelectric projects. He said he understands this new process differs from the former Hourly Coordination practices outlined under the Mid-Columbia Hourly Coordination Agreement. He asked Douglas PUD to share thoughts on these changes regarding how Wells Dam is managed. Andrew Gingerich said he does not have a firm grasp on this topic, notably he does not fully understand how Hourly Coordination previously worked. He said this seems to be the case with many people, based on discussions with other natural resource managers. He said essentially, load requests were managed by what was referred to as the Central Dispatcher (Central) located in Grant County, Washington. He said load requests were submitted by purchasers to the PUDs, which were then reported to Central, who effectively managed power generation and forced spill at each Mid-Columbia hydropower project. He said he understands the new process is much more simplified, has some flexibility built into it, and is at least as effective as past methods.

Verhey said it is his understanding Douglas PUD does not have much control or input regarding how Grand Coulee and Chief Joseph dams are operated. He said it is good to hear changes are being implemented to better manage the Federal Columbia River Power System to be as efficient as possible. He said he believes there is value in tracking this new process for improvements.

Steve Lewis said he spoke with Tim Culbertson at a meeting for the Banks Lake Pumped Storage Project. Lewis said Culbertson, who was the former Grant PUD Board of Commissioners General Manager and is now Secretary-Manager for Columbia Basin Hydropower, speculated that Hourly Coordination will be a thing of the past because certain entities were not happy

with this management tool. Lewis said he understood the Shell Corporation was getting more involved in Hourly Coordination, but he was not positive what this means. He said this change may also be tied to the renewal of the Columbia River Treaty, and asked if Douglas PUD can provide more clarity regarding how Hourly Coordination is dissipating.

Gingerich said this discussion is moving outside the scope of his knowledge; however, he did hear similar information along these lines. He said each PUD manages power in different ways and has different "project participants," which are entities who buy electricity from the PUD. He said for Grant PUD, Shell Energy Brokerage is a participant, which might be what Culbertson was referring to. Gingerich said beyond this, he does not feel comfortable saying more.

Verhey said he agrees with what Gingerich has reported. John Ferguson suggested moving away from discussing the opinions of Culbertson who may be marketing something, and rather focus on a more formal discussion of where Hourly Coordination sits in the basin. Ferguson said this may potentially include bringing in other experts to the discussion. He said Verhey is questioning if Hourly Coordination is going away. Verhey said this is correct. Lewis said he believes this topic is applicable to the Aquatic SWG and the SWG should not lose track of this. Verhey suggested it would not be very difficult for Douglas PUD to find out more information to bring back to the Aquatic SWG. He asked how this new process changes the future. Lewis agreed, and said if Hourly Coordination disappears it affects trust resources in the Hanford Reach, which is run by USFWS. Lewis said he will contact Culbertson, who has been in the basin for several years, regarding how water managers plan to coordinate and manage forced spill and TDG at Mid-Columbia hydroelectric projects in the future, outside of the former Mid-Columbia Hourly Coordination Agreement.

Gingerich suggested continuing this discussion when Shane Bickford (Douglas PUD Natural Resources Supervisor) can attend because Bickford has been following this closely and is more familiar with the former Hourly Coordination process. Gingerich clarified that Hourly Coordination under the Mid-Columbia Hourly Coordination Agreement expired last June 2017. He said coordination is still ongoing, just not under this formal agreement referred to as "Hourly Coordination." He said Douglas PUD will discuss how forced spill and TDG are coordinated and managed at Wells Dam, outside of the former Mid-Columbia Hourly Coordination Agreement, during a future Aquatic SWG meeting.

5. DECISION: 2018 Total Dissolved Gas Abatement Plan and Wells Bypass Operating Plan (Andrew Gingerich):

Andrew Gingerich said the draft *2018 Total Dissolved Gas Abatement Plan and Wells Bypass Operating Plan* was distributed to the Aquatic SWG for review by Kristi Geris on January 16, 2018, with edits and comments due to Gingerich by February 12, 2018. John Ferguson said

the Wells Habitat Conservation Plan Coordinating Committee (Wells HCP Coordinating Committee) already approved these documents via email on February 2, 2018. Gingerich said formal approval from Ecology was also received via email on February 12, 2018. Aquatic SWG members present approved the *2018 Total Dissolved Gas Abatement Plan* and *Wells Bypass Operating Plan*, with the YN and USFWS abstaining.

The final *2018 Total Dissolved Gas Abatement Plan* and *Wells Bypass Operating Plan* was submitted to FERC on February 22, 2018, as distributed to the Aquatic SWG that same day.

6. Wells Dam Fish Ladder Tour (All):

John Ferguson said a *Wells Dam Tour (Right Ladder) on January 10, 2018 Photos and Notes* document compiled by Ralph Lampman (Attachment B) was distributed to the Aquatic SWG by Lampman prior to the conference call on February 14, 2018. Andrew Gingerich thanked Lampman for pulling together this document. Gingerich said that while not denying some items identified in the document may be challenges for Pacific Lamprey passage, he wanted to point out that aside from a few minor modifications (e.g., around 2001, the side entrance was closed due to salmon accessing the area and around 2006, a baffle wall was added), the current configuration of the fishway is the same as it was when there were better conversion rates from Rocky Reach Dam to Wells Dam (including the diffuser grating and sharp edges noted in the document).

Lampman said many dams have had large passage numbers in the past, but he does not consider this to mean these dams and fish ladders provide optimal passage routes for Pacific Lamprey. He said what he does know is Grant PUD and other entities who attended a recent Pacific Lamprey summit presented case studies where the suggestions outlined in the notes document (Attachment B) were implemented, such as providing smooth surfaces, and now Pacific Lamprey passage is greater than 90%. He said just a little goes a long way. He said he discovered that Grant PUD installed plates on the edges of each weir at Priest Rapids Dam, which seemed to help a lot. He suggested doing the same at Wells Dam at a minimum, and maybe more beyond this. He said he believes this is an easy place to start, and it has already been completed and tested elsewhere.

Ferguson asked if Grant PUD installed ramps on the downstream side of each orifice. Lampman said yes, this was completed on every weir with an orifice; and Steve Lewis clarified, that it depended on whether the orifice is perched or flush to the ground (see page 3 of Attachment B). Lampman said solid plating was also installed along the edges of the diffuser grating in every weir to provide a surface for Pacific Lamprey to attach to and reduce the chance of wandering into dead-end locations (see pages 1 and 2 of Attachment B).

Gingerich asked if the presenters at the summit had conducted comparable pre- and post-modification studies which statistically support improved performance is connected to the modifications. He also asked about the run size from year to year. Lampman said he knows Grant PUD has conducted several studies, but he is unsure of the statistical significance. He said he just knows passage efficiency has been improving. Patrick Verhey said both Grant PUD and Chelan PUD have conducted post-modification studies. He said Chelan PUD also installed the aluminum plating. He said he recalls there was improvement in passage; however, Chelan PUD was unable to statistically connect this increase in passage specifically to the plating installation. Gingerich suggested Douglas PUD call Chelan and Grant PUDs. Verhey said he believes installing the plating was one of the first actions completed towards improving passage through the Rocky Reach Dam fishways. Lewis recalled improvement in passage was based on detection at passive integrated transponder tag arrays located in the junction pool area. Verhey said he believes installing the plating was more effective than the ramps. He added that installing plating may be more difficult for Douglas PUD because the fishways at Wells Dam are smaller than Rocky Reach and Priest Rapids dams.

Gingerich said at this point, he is mainly thinking about justification. He said Douglas PUD needs to tie these modifications to the *Pacific Lamprey Management Plan* and demonstrate these modifications result in improvements based on completed studies which have been peer-reviewed by agency staff or technical leadership. Verhey agreed and said one purpose of the Aquatic SWG is to help justify these projects. He said the Aquatic SWG will help coordinate, as needed. Lewis said Mike Clement (Grant PUD) has a lot of video footage showing Pacific Lamprey using the ramps. Lewis also clarified that some Pacific Lamprey passed without the ramps, but some were using the ramps.

Gingerich said there are also engineering considerations. He said, for example, it may be difficult to modify the side panel diffuser grating because historically, there have been issues with debris build-up and he believes the panel even broke at one point. He said this may cause concerns about plating breaking off and having a major impact on species covered under the HCP (Plan species); for example, if this happens during the sockeye salmon migration. He said installing plating along the floor grating may be the easiest, as Lampman noted. Gingerich said an engineer would need to be consulted about modifications in the auxiliary water system (AWS) area.

Lewis agreed with Gingerich's comments about the side panel and concerns for impacts to Plan species. Lewis said he is not fully convinced about the usefulness of the 18-inch-wide ramps that Grant and Chelan PUDs installed at the orifice openings. He said he does believe Pacific Lamprey approaching Wells Dam are likely diving under the higher velocity fishway

entrance and accessing the AWS area via the 1-inch gaps on the AWS wall. He suggested also minimizing the 1-inch gaps in sections of the AWS floor grating. Verhey agreed with Lewis' comments.

Ferguson asked if Lewis and Verhey are referring to gaps between the diffuser panels, or gaps between the diffuser panel bars (the openings within the panels). Verhey clarified he is referring to the latter. Lewis clarified he is referring to the former, which he believes on average are wider than the gaps between the diffuser panel bars. He added, in terms of an immediate fix, this option may be more reasonable to the Douglas PUD Commissioners.

Ferguson summarized two questions: 1) is it possible for Douglas PUD to close-off or reduce the gaps around the diffuser grating panels to less than 1 inch or match spacing between the grating bars; and 2) should the gaps between the diffuser grating bars be less than 1 inch? He said both questions would also need to be discussed with the Wells HCP Coordinating Committee. He said unless attraction flow is reduced, a smaller spacing between diffuser panel bars will result in higher water velocity through the diffuser panel, and may violate velocity criteria for diffuser panels in fishways developed by the National Marine Fisheries Service for Plan species.

Verhey said he believes the current 1-inch gaps are standard; however, he does not know if 7/8-inch is better. He agreed with Ferguson's comments and clarified he is not suggesting a change which may impact salmonids; rather, he is just noting some gaps greater than 1 inch are present between the diffuser panel bars.

Lampman said his observation was that most diffuser panel bars had 1-inch spacing and changing all the grating would be a huge cost. He said he sees some benefit to closing the bigger gaps to reduce the potential for Pacific lamprey to enter the AWS through such gaps. He said it would be even better if plating along the edges of diffuser panels could be installed to provide an attachment surface and ramps installed at orifices in fishway weirs. He said when Pacific Lamprey struggle to pass through the orifices, the alternative is to look for other places to go; for example, into the AWS area. He said if it was easier to migrate through the fish ladders by attaching to plating and ramps to pass the orifices, he believes this will reduce wandering. He said he believes this is the "lowest hanging fruit."

Verhey said when Chelan PUD implemented modifications, his understanding is that there was value in replacing the diffuser grating and installing plating at the same time because the contractor was already there. He said regarding modifications to the orifices, there was discussion about possibly boring holes through the weirs flush with the floor of the fish ladder; however, he believes there were engineering issues regarding drilling holes that close

to the fishway floor. He said he is not suggesting Douglas PUD make these modifications; rather, it may be worthwhile to discuss these decisions with Chelan and Grant PUDs to better understand reasoning.

Ferguson summarized that the Aquatic SWG has raised a couple of areas for Douglas PUD to focus on, and Douglas PUD plans to connect with Chelan and Grant PUDs to better understand what modifications and studies have been conducted at those projects. Lewis also noted that Chelan and Grant PUDs both completed analyses on how the 18-inch ramps affected velocity with regard to salmonids for their respective projects, in case Douglas PUD is interested in reviewing those documents.

7. 2018 Aquatic Settlement Agreement and Workgroup Action Plan (All):

Steve Lewis said he understands the purpose of the annual Aquatic Settlement Agreement Action Plan; however, the Pacific Lamprey section seems repetitious to the *Pacific Lamprey Management Plan*. He said he believes the action plan should include more specific actions that Douglas PUD plans to implement in 2018, notably to take advantage of the Pacific Lamprey run at large.

Andrew Gingerich said the *2018 Aquatic Settlement Agreement and Workgroup Action Plan* was drafted and distributed two-and-a-half months ago (on December 18, 2017). He said in terms of Pacific Lamprey, there was still a lot up in the air. He said Lewis flagged the following items in the action plan as being vague:

- *Discuss/determine lamprey study alternative measures – Throughout 2018*
- *Implement lamprey study alternative measures – Throughout 2018*

Gingerich said these items were meant to be broad because at the time, the path forward was unknown. He said now, Douglas PUD can provide more specificity, such as the translocation SOA.

John Ferguson asked about expectations for approving the action plan. Gingerich said Douglas PUD is not concerned about approving the plan today. He said the purpose of the action plan is to guide what is planned. He said he appreciates the review and comments, and can update the action plan accordingly. (*Note: a revised action plan was distributed to the Aquatic SWG by Kristi Geris on March 2, 2018.*)

8. Proposed Douglas PUD 2018 Pacific Lamprey Activities (All):

Chas Kyger said now is a good time to develop specifics regarding future Pacific Lamprey studies. He said based on recent discussions, he sees the next study gravitating toward a translocation effort and he asked what should be the first step? He asked if Douglas PUD

should first draft an SOA for review and comments? He said Steve Lewis provided an example SOA, and he asked if the Aquatic SWG wants to use the example as a model or start elsewhere? Kyger said Douglas PUD is still finalizing the acoustic telemetry report, which documents results from the Douglas PUD 2016 Pacific Lamprey Study; however, it seems quite apparent what those conclusions will look like.

Lewis said it is not his intention to bombard Douglas PUD with several tasks in 2018, and he acknowledged not having a full understanding about budgetary constraints. He said, however, if Douglas PUD can lay out what is doable this would help guide the Aquatic SWG discussions. Lewis said the example SOA he provided seemed like a good model, but this is not to say Douglas PUD does not have a better way to approach this.

Kyger said Douglas PUD has already started preparations to conduct some level of translocation in 2018, and now the specifics need to be ironed out in coordination with the Aquatic SWG. Andrew Gingerich said Grant PUD's SOA indicates plans to first conduct 3 weeks of trapping to fulfill No Net Impact obligations, and Douglas PUD's SOA will describe some level of supplementation to the Grant PUD effort.

John Ferguson recalled discussing translocation as a two-step process: 1) begin translocation efforts; and 2) develop study designs so when Pacific Lamprey presence upstream of Wells Dam is sufficient to implement a study, a plan is in place. He said today, the Aquatic SWG discussed potential modifications to the Wells Dam fishways. He said here are three actions to add to the *2018 Aquatic Settlement Agreement and Workgroup Action Plan*: 1) continue translocation efforts; 2) discuss study designs for future implementation; and 3) research and review potential short-term structural modifications within the Wells Dam fishways.

Lewis agreed with Ferguson's assessment and suggested focusing on potential modifications in the collection gallery. Ralph Lampman suggested also considering modifications in the lower fish ladder. Kyger said regarding the draft SOA, he suggested including an investigation of the entire fish ladder, including structural and operational modifications, and potential studies to evaluate each component. Lewis agreed with this approach.

Lampman asked if Douglas PUD will need to first conduct a study to implement structural changes? Kyger said per the *Pacific Lamprey Management Plan*, this is the way studies are laid out: 1) identify modifications by study; 2) implement modifications; and 3) study modifications. He said this comes down to having a technical justification to implement modifications. He said, for example, Douglas PUD will likely not propose replacing grating based on the information discussed to date. He said if Douglas PUD finds that Chelan and

Grant PUDs have completed studies addressing these questions, then perhaps this provides the required technical justification.

Lampman asked if the plan is for Douglas PUD to provide funding to Grant PUD to collect additional fish at Priest Rapids Dam and translocate the fish upstream of Wells Dam? Kyger said this is correct. He said he spoke with Grant PUD and determined an optimal path forward is to provide funding to Grant PUD to continue trapping efforts after adequate fish are collected for Grant PUD obligations. He said Douglas PUD needs to consult the Aquatic SWG to determine how many fish should be translocated, release locations, and what thresholds trigger passage studies in the future.

Lampman asked if it might be possible to release some fish within the fish ladder to evaluate questions the Aquatic SWG has expressed about the AWS area. He said this does not mean identifying a final decision; rather, this would be a pilot project. Kyger said he thinks this is a possible option, so long as the Aquatic SWG is cognizant that part of the reason behind translocation is the idea that pheromone cues are lacking to encourage fish to move upstream. Ferguson suggested the draft translocation SOA include both translocation to locations upstream of Wells Dam and in-ladder translocation. Lampman said during a recent meeting with Grant PUD, Mike Clement indicated Grant PUD still has not heard from Douglas PUD about coordinating translocation efforts. Kyger assured Lampman he has been coordinating with Clement, and guessed Grant PUD may not have been ready to commit to any details at the time of Lampman's meeting.

Bob Rose said he believes the Aquatic SWG has heard and understands what Douglas PUD has already said about the nature of assumptions with studying Pacific Lamprey. Rose reminded Douglas PUD that many of the modifications to U.S. Army Corp of Engineers (USACE) dams were implemented based on very little data. He said Grant and Chelan PUDs have implemented the same modifications without data. He suggested that Douglas PUD review studies conducted at these dams, which may suggest the modifications are a good idea. He said it seems Douglas PUD is wanting to raise the bar of science to an almost unachievable level, when it is largely known in Pacific Lamprey studies that the only option is to just do what can be done to study Pacific Lamprey. He said he hopes to not keep hearing this same thing. He said in his opinion, translocation is an obligation to study Pacific Lamprey at Wells Dam, under the *Pacific Lamprey Management Plan*. He said Douglas PUD has to do better. He said the bottom line is there is a tremendous level of uncertainty, and he believes Douglas PUD needs to accept this like everyone else and move forward.

Gingerich said a lot can be said in response to this type of statement. He said Douglas PUD has a different interpretation; however, it seems Rose is tired of hearing it. Gingerich said at

this time Douglas PUD will just acknowledge the message is received unless the Aquatic SWG would like some sort of a response.

Ferguson summarized Rose is suggesting implementing in the face of uncertainty, rather than waiting for certainty. Ferguson said Douglas PUD and the Aquatic SWG are still moving forward, and Rose wants more sooner. Ferguson said the next step is the draft translocation SOA. Lampman asked about the best approach to address the questions outlined in his Wells Dam tour notes document (Attachment B), and Ferguson suggested that Lampman provide a summary via email for discussion during the Aquatic SWG conference call on March 14, 2018. (Note: Lampman provided these questions to Kristi Geris on February 14, 2018, which Geris distributed to the Aquatic SWG that same day.)

9. Wells Hatchery Brood Year 2017 White Sturgeon Rearing Update (Andrew Gingerich):

Andrew Gingerich said a *White Sturgeon (BY2017) Rearing Update* (Attachment C) was distributed to the Aquatic SWG by Kristi Geris prior to the conference call on February 14, 2018. Gingerich said the document provides fish size updates. He said in previous years, there were no official size targets; however, per the current White Sturgeon stocking SOA (*Wells Reservoir White Sturgeon Supplementation 2018-2022*, approved on January 11, 2017), brood year 2017 fish will be stocked at 200 grams or larger. He said fish growth is being closely tracked, especially now with Douglas PUD staff at Wells Fish Hatchery.

Gingerich said Table 1 in Attachment C shows population size, average fish size, feed rates, and growth of White Sturgeon at Wells Fish Hatchery. He said "RT" stands for round tank. He said fish were sampled on February 5, 2018, which was 2 weeks following the previous sample. He said green cells show growth rates, which increased between 21 and 44% compared to the previous sample. He said the smaller fish are growing faster. He said these fish are being fed more, they are on increased water temperatures, and are less crowded than the larger fish. He said hatchery staff are just trying to catch these fish up in fish size.

Gingerich said Table 2 in Attachment C is the projected growth for average fish size in a population. He said the top row shows average fish size in each round tank from earlier in the rearing period (blue cells equal actual values). He said an average growth rate is applied to obtain an estimate of when average fish size in each tank will be at 200 grams per fish. He said this is not a perfect approach, but it provides a good estimate of when fish in each tank will reach the target weight. He caveated that as fish grow, growth will likely slow down and this table uses a flat 15% growth rate per sampling period until full grow out. He said to meet the size target, he would like to grow these fish up to size and then back off, as needed.

Gingerich said Douglas PUD is targeting to transfer surplus fish on April 1, 2018, to the Colville Confederated Tribes Fish and Wildlife Trout Hatchery. He said Douglas PUD is currently working out fish health requirements per the agreed upon protocol (*Washington Department of Fish and Wildlife White Sturgeon Fish Health Plan*, distributed March 11, 2014). He said after 2018, the USFWS Fish Health Lab at the Dworshak National Fish Hatchery will no longer do histology; therefore, Betsy Bamberger (Douglas PUD Fish Health Specialist) is coordinating with the Washington State University School of Veterinary Medicine for fish health testing in 2019 and beyond. Gingerich asked the Aquatic SWG to contact him if there are questions about this change.

John Ferguson said this approach on fish growth looks good, and the updates are appreciated.

10. 2018 Water Forecast / Grand Coulee Draft for Drum Gate Maintenance

(Andrew Gingerich):

Andrew Gingerich said a *Wells Project February 2018 Water Forecast Aquatic SWG Update* (Attachment D) was distributed to the Aquatic SWG by Kristi Geris on February 13, 2018. Gingerich said this update is an informal document and includes public data where he included references.

Gingerich said Figure 1 in Attachment D shows that as of February 13, 2018, the National Oceanic and Atmospheric Administration's Northwest River Forecast Center is projecting that volume runoff for the Mid-Columbia River basin is above-average. He said this update does not include data from the upper Columbia River basin in Canada (where most of the receiving water at Wells Dam originates); however, he said those data also appear to be above-average.

Gingerich said Figure 2 in Attachment D shows the river forecast out of Grand Coulee Dam, from 1960 to 2018. He said considering the period volume in 1,000-acre feet (KAF), this year (2018) ranks 18th out of 58 years for being an above-average water year. He said for reference, 2015 was a super dry year and ranks 55th. He said conversely, 2011 and 2012 were high-water years and rank 6th and 4th, respectively. He said while 2018 may not be the most extreme compared to past years, it is still above-average for Wells Dam. He said he was also recently informed Grand Coulee Dam started drafting water early and aggressively to accommodate spillway drum gate maintenance. He said the Grand Coulee Reservoir ultimately needs to be drawn down to 1,255 feet above mean sea level (MSL), and the reservoir was at 1,280 MSL at the end of January. He said these equals about a 2/3-foot drawdown per day, which means Wells Dam will be receiving a lot of water early.

Gingerich said Figure 3 in Attachment D shows the average river flow at Wells Dam in February 2018. He said the average river flow for February since 1968 is about 98,000 cubic feet per second (98 kcfs), and currently, river flow is about 160 kcfs. He said these are fairly extreme, dramatic flows which are not ideal because this is the time of year maintenance is occurring on the turbine units at Wells Dam. He said when units are taken offline this reduces powerhouse capacity. He said Wells Dam is a run-of-the-river hydroelectric project, which means the Wells Reservoir has very little capacity to store water. He said Douglas PUD has no control over the federal system and the drafting schedules. He said when Wells Dam receives these large quantities of water, operators need to either put it through the turbine units or spill it.

Gingerich said Figure 4 in Attachment D shows the start of the draft at Grand Coulee Dam. He said the blue dots represent the Grand Coulee Dam forebay elevation. He said the Bureau of Reclamation (BOR) is predicting to drawdown the Grand Coulee Reservoir to about 1,250 to 1,255 MSL by March 12, 2018, and then continue drafting in preparation to absorb snowmelt come May and June. He said BOR is then expecting to reach 1,232 MSL sometime between April 1 and April 30, 2018. He said this is about 11 feet lower than the 10-year average.

John Ferguson asked if Wells Dam is spilling yet. Gingerich said the second Figure 4 in Attachment D (accidental typo) shows Wells Dam spill and TDG from February 8 to 12, 2018. He noted the highest Wells Dam tailrace TDG value is above the 110% standard, which was associated with a 40 to 50 kcfs spill event on February 10 and 11, 2018. He said prior to this spill event, Wells Dam was generating as much as possible to avoid spill, forcing project participants to take electricity, and Wells Dam still had to spill. He said Wells Dam operators are doing the best they can with 160 to 200 kcfs river flow in February. He said operators can put about 20 kcfs river flow through each turbine unit, which means there are usually no issues when river flow is about 98 kcfs. He said, however, with turbine units offline for maintenance and high river flow, spill and TDG are more difficult to manage.

Gingerich said in summary, Douglas PUD is working closely with the power planning department at Wells Dam to minimize involuntary spill during this time of year. Ferguson noted the utility of having the information in Attachment D available for review during these types of discussions, and thanked Gingerich for collating the information for the Aquatic SWG.

VII. Administration

1. Aquatic Settlement Agreement Chairperson 3-Year Review (Andrew Gingerich):

Andrew Gingerich said the Aquatic Settlement Agreement contains a requirement to review the performance of the Chairperson in 3-year intervals, or per the request of two Aquatic SWG technical representatives. He said a review was conducted via email and only positive feedback was received; therefore, Douglas PUD is moving forward with renewing the contract to retain Anchor QEA as Aquatic SWG Chairperson and support staff for 3 more years. The Aquatic SWG thanked John Ferguson and Kristi Geris for their ongoing support. Ferguson and Geris expressed their appreciation for working with the Aquatic SWG.

2. 2017 Aquatic Settlement Agreement Annual Report (Kristi Geris):

Kristi Geris said the draft *2017 Aquatic Settlement Agreement Annual Report*, including the six aquatic resource management plan annual reports, will be distributed for review on March 20, 2018. Geris said the reports will be available for a 45-day review, with edits and comments due on May 4, 2018. She said Douglas PUD will request approval of the reports during the Aquatic SWG meeting on May 9, 2018, and the final approved reports are due to FERC on May 31, 2018.

3. Upcoming meetings (John Ferguson):

The Aquatic SWG meeting on March 14, 2018, will be held by conference call.

John Ferguson said that while discussing the Aquatic Settlement Agreement Chairperson 3-year review with Douglas PUD, the idea of convening meetings in-person more often was discussed. Ferguson said for committees such as the Aquatic SWG, he finds that meeting face-to-face helps foster discussions and the effectiveness of the group, and he and Gingerich will continue to keep this in mind for future meetings.

Other upcoming meetings include: April 11, 2018 (TBD) and May 9, 2018 (TBD).

List of Attachments

Attachment A List of Attendees

Attachment B Wells Dam Tour (Right Ladder) on January 10, 2018 Photos and Notes document compiled by Ralph Lampman

Attachment C White Sturgeon (BY2017) Rearing Update

Attachment D Wells Project February 2018 Water Forecast Aquatic SWG 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	Technical Support	Douglas PUD
Breean Zimmerman	Aquatic SWG Technical Representative	Washington State Department of Ecology
Steve Lewis	Aquatic SWG Technical Representative	U.S. Fish and Wildlife Service
Patrick Verhey	Aquatic SWG Technical Representative	Washington Department of Fish and Wildlife
Bob Rose	Aquatic SWG Technical Representative	Yakama Nation
Ralph Lampman	Technical Support	Yakama Nation
Tyler Beals	Technical Support	Yakama Nation