

Rocky Reach Fish Forum

Wednesday, 3 January 2018

1:00 – 4:00 p.m.

Chelan PUD Second Floor Conference Room

Wenatchee, WA



CHELAN COUNTY

Meeting called by Steve Hemstrom
Notes taken by Heidi Kunz

Chairperson, Tracy Hillman

Attending Representatives:

| | | | |
|--------------------|------------|--------------------|-------------------------------|
| Hemstrom, Steve | Chelan PUD | (509) 661-4281 | steven.hemstrom@chelanpud.org |
| Lewis, Steve | USFWS | (509) 665-3508 x14 | stephen_lewis@fws.gov |
| Padgett, Michael* | Alcoa | (412) 553-4545 | michael.padgett@alcoa.com |
| Verhey, Patrick | WDFW | (509)754-4624 | Patrick.verhey@dfw.wa.gov |
| Zimmerman, Breean* | ECY | (509) 575-2808 | breean.zimmerman@ecy.wa.gov |

Attending Participants:

| | | | |
|------------------|-------------|---------------------|---------------------------------|
| Black, Bob* | USGS | (253) 552-1687 | rwblack@usgs.gov |
| Clement, Marcie* | Chelan PUD | (509) 661-4186 | marcie.clement@chelanpud.org |
| Conn, Kathy* | USGS | (253) 552-1677 | kconn@usgs.gov |
| Goudy, Sean* | YN | (509) 480-5196 | gous@yakamafish-nsn.gov |
| Hillman, Tracy | BioAnalysts | (208) 321-0363 | tracy.hillman@bioanalysts.net |
| Jackson, Chad* | WDFW | (509) 754-4624 x250 | chad.jackson@dfw.wa.gov |
| Keller, Lance | Chelan PUD | (509) 661-4299 | lance.keller@chelanpud.org |
| Kunz, Heidi | Chelan PUD | (509) 661-4601 | heidi.kunz@chelanpud.org |
| Lampman, Ralph* | YN | (509) 388-3871 | lamr@yakamafish-nsn.gov |
| Mackey, Mike | CCNWB | (509) 667-6576 | Mike.Mackey@co.chelan.wa.us |
| Nilsen, Elena* | USGS | (503) 552-3277 | enilsen@usgs.gov |
| Sanderson, Julie | CCNWB | (509) 667-6576 | Julie.Sanderson@co.chelan.wa.us |
| Simon, Graham | WDFW | (509) 670-0742 | Graham.Simon@dfw.wa.gov |
| Underwood, Alene | Chelan PUD | (509) 661-5192 | alene.underwood@chelanpud.org |
| Wyena, Pat* | Wanapum | (509)831-1613 | Pwyena@gcpud.org |

* Joined via phone.

Meeting Minutes

I. Welcome and Introductions

Tracy Hillman welcomed everyone to the Rocky Reach Fish Forum (RRFF or Forum) meeting. Participants introduced themselves.

II. Agenda Review

The meeting agenda was reviewed and approved with three additions.

- Updates on the 2017 Passage and Escapement Study Results (Steve Hemstrom)
- Review Screen Monitoring (Steve Hemstrom)
- Discuss Artificial Propagation (Steve Hemstrom)

III. Approval of Meeting Minutes

The November RRFF meeting minutes were reviewed and approved with one change.

- Page 6, first complete paragraph, add the word “change” to the last sentence: Lance would also like to look at how diets may “change” with sturgeon age.

IV. Review Action Items

- Steve Hemstrom will look at lamprey counts at The Dalles Dam and compare those to counts at Rocky Reach Dam. **Ongoing – Data have been compiled; next step will be to graph the data**
- The RRFF/PRFF will think about plausible hypotheses regarding linkages between operational project effects (avoidable or unavoidable) and adult lamprey fate in reservoirs. **Complete**
- Steve Lewis will review the comprehensive study at Wells Dam for information that may help answer the four questions. **Complete**
- Breean Zimmerman will contact Ecology’s Environmental Assessment Program to get more information on the active ingredients used in the herbicide to control Eurasian milfoil. **Ongoing**
- Tracy Hillman will contact Elena Nilsen with USGS about speaking to the PRFF/RRFF on the effects of the herbicide on Pacific lamprey. **Complete**
- Marcie Clement will contact Mike Mackey about concerns discussed at the November RRFF meeting. **Complete**

- Provide comments on the Tumwater Dam Lamprey Passage Feasibility Study to Alene Underwood by 30 November 2017. **Complete**
- Steve Hemstrom will talk to Ralph Lampman about his comments on the 2016 Final Passage and Escapement Report. **Ongoing**
- Steve Hemstrom will have internal discussions at Chelan PUD about conducting a 2018 Adult Lamprey Passage and Escapement Study. He will contact Grant PUD about a fish source if needed. **Complete**

V. Aquatic Invasive Species

Use of Herbicide to Control Eurasian Milfoil in Rocky Reach Reservoir

Tracy Hillman stated the Chelan County Noxious Weed Board (Weed Board) had previously asked Chelan PUD to consider using an herbicide to help control Eurasian milfoil in the Rocky Reach project area. RRFF previously discussed the request and had some concerns about the potential effects of the herbicide on Pacific lamprey, specifically juvenile (ammocoete) lamprey.

Elena Nilsen, U.S. Geological Survey (USGS), reported that she conducted a literature search on Triclopyr TEA, which is the active ingredient in the herbicide. When looking for this chemical in the Willamette River basin, it was detected 8-10% of the time. During a study in the Yakima basin, there were no detections of the herbicide. She will continue to search for data on the effects to fish. Kathy Conn, USGS, also conducted a literature search and found no lamprey-specific studies. Tracy Hillman commented that Ralph Lampman had previously raised some concerns about using the herbicide and its possible effects on Pacific lamprey ammocoetes. Tracy stated that the RRFF is responsible for the conservation of Pacific lamprey and other fishes in the Rocky Reach project area and is asking the USGS for guidance on whether it is safe to use the herbicide in the reservoir.

Bob Black, USGS, agreed that because of a lack of data on lamprey, a simple exposure experiment would be ideal to evaluate the potential effects of the herbicide on lamprey. He suggested examining what information exists on concentrations of the herbicide in the environment, including potential exposure routes. He offered to put together a short paper on ideas or approaches to address the possible effects of the herbicide on lamprey.

Bob Black is concerned that ammocoetes may be exposed in a different way than salmon or other fish. It is known that in most cases, the eggs of salmonids are mostly impermeable to pesticides, but there may be more to be concerned about with lamprey ammocoetes. He suggested some simple lab experiments with a range of concentrations and modes of exposure. He also suggested looking at the sediment concentrations at known rearing areas to identify initial concentrations.

Elena Nilsen suggested looking at sediment values when studying ammocoete exposure. Mike Mackey, Weed Board, commented that there are two forms of Triclopyr and it is important to look at Triclopyr TEA, which is for aquatics.

Ralph Lampman said he supports a pilot exposure study on the effects of the herbicide on lamprey and commented that the fish in the artificial propagation study could potentially be used. Tracy commented that the RRF has no funds available for these studies and asked if potential funds could come from EPA, USGS, or the Department of Ecology. Bob Black said different forms of funding are available and the USGS has funds available to match state agencies or tribal entities. Tracy stated that Ralph may be in a good position to do the study. Ralph agreed that the fish and the facility are available, but it would depend on how extensive the study would be and how much funding would be needed. Julie Sanderson, Weed Board, said the application of the herbicide was proposed for late August. Ralph commented that this is the peak period for adult passage, but because they do not live in the sediments or spend much time in the weed beds, their exposure would be limited.

Tracy Hillman asked USGS to include a description of valid studies in their short paper to help answer questions on the effects of Triclopyr TEA on ammocoetes. The USGS will work with Ralph Lampman to move forward with the studies.

Julie Sanderson stated that right now in Chelan County, there are no other application areas in the Columbia River. There may be treatments near Pateros (Douglas County) and in Grant County.

Bob Black stated that it would be beneficial to get information on the range of concentrations of the herbicide in sediments in areas where the chemical has been applied. Mike Mackey suggested contacting Terry McNabb, who does applications all over the United States and has access to many application studies. Terry works closely with Dr. Getzinger from the Army Corps of Engineers. Bob Black said the Bureau of Reclamation has also applied the chemical in some of their waterways.

Tracy stated that the RRF would like to see the control of Eurasian milfoil in the project area, but they need to make sure Pacific lamprey are not harmed in the process. The RRF needs to make an informed decision and will want to understand the potential effects of the herbicide on lamprey before they approve the application of the herbicide in the reservoir. Mike Mackey said that the first application was part of a pilot project and no future applications are planned at this time. Any future applications would be the responsibility of the landowners or the person in charge of invasive species control.

Mike Mackey stated that the Weed Board is in charge of enforcing the law and added that it is illegal to spread milfoil, which is what happens when the milfoil is cut with the harvester used in recreational areas. He noted further that the Department of Ecology and the EPA have written environmental impact statements on Triclopyr TEA; however, they did not include any information on lamprey. Tracy Hillman stated that white sturgeon also could be affected if they ingest ammocoetes that were exposed to the herbicide.

Mike Mackey suggested contacting John Jennings in Licensing and Permitting at Ecology. John has a working knowledge of the chemical. Breean Zimmerman said she will discuss this with John Jennings.

Steve Lewis asked if there were any lessons learned during the pilot program. Mike Mackey said water sampling is an option when the chemical is applied. The permit for the pilot program did not require

water sampling, because of the amount of the chemical that was used and the fact that the exposure time was short. The chemical does not attach itself to soil particles and it will not be found in water samples six hours after application. Flow modeling was completed in a previous year in order to give an idea of where the chemical would go, and modeling proved to be accurate. The need for flow modeling would depend on where the application is done. Information from the pilot project was given to Dale Bambrick at NOAA Fisheries. Mike Mackey suggested that the reduction in the amount of milfoil per square inch in the mudflats could be beneficial to lamprey.

Bob Black suggested doing water and sediment sampling to see what the concentration levels are in areas where the chemical is being applied as part of a cost/benefit analysis for doing additional studies. Julie Sanderson suggested that the milfoil could be the reason for the small lamprey population. She also said there are many parameters to consider when studying lamprey, and it is important to decide how it will be determined if the chemical is safe for lamprey before the study begins. Tracy said the RRFF had previously decided to focus on ammocoetes rearing in the fine sediments. He said the results of the study would benefit other groups as well. Julie Sanderson commented that they had used Triclopyr TEA, but perhaps there are other chemicals to consider.

Steve Lewis stated that there is little information on the use of other herbicides. He said that a lot of the information on Triclopyr TEA is from closed systems. He would like to see monitoring done in the future, including sediment sampling, in order to determine if the chemical resides in the mud. Mike Mackey commented that no sampling was done during the pilot project, but the opportunity was available for the agencies involved. He stated that the intent of the project was to eliminate the milfoil. That goal was accomplished, and the milfoil has not returned. Mike suggested that sampling should be done as part of any future applications. Pat Wyena, Wanapum, expressed concerns about the long-term effects of using the herbicide as part of an ongoing application process. He said he is unaware of any long-term studies on the effects of the herbicide on fish.

Bob Black suggested taking a hierarchical approach to the issue. The first step would be to sample sediments that have recently received application of the chemical. If the chemical is found in the sediment over a year after it was applied, that would be cause for concern. The second step would be to look at areas where the chemical is currently being applied and then monitor the sediment to see if the chemical degrades and disperses relatively quickly. The third step would be to conduct exposure studies. Finally, he would study the long-term population effects. Bob will summarize this approach in a short paper for the RRFF. Bob recommended conducting water quality monitoring at sites with varying water velocities.

Mike Mackey stated that after treatment, the milfoil drops to the bottom and deteriorates. Mike said that there are two years left on the permit used in the pilot project, and it could possibly be used on milfoil upriver. Following the meeting, Mike Mackey clarified in an email to Tracy Hillman that the permit used in the pilot project has expired, but the required documentation for a new permit is available.

Action Items:

- **USGS will send a short paper to the RRFF providing guidance on studying the effects of Triclopyr TEA on Pacific lamprey.**
- **Ralph Lampman will suggest studies on the effects of Triclopyr TEA on Pacific lamprey ammocoetes.**
- **Breean Zimmerman will ask John Jennings at Ecology for more information on Triclopyr TEA.**

VI. White Sturgeon

Juvenile Rearing Update

Lance Keller reported that there are 3,226 juvenile white sturgeon on station at Chelan Hatchery. There are a few more months of rearing before release. In addition, staff will tag and test the juveniles for iridovirus before release. The fish are currently divided into five different tanks. The fish range from 15 to 62 fish per pound. The overall population average is 41 fish per pound. The fish have grown significantly since November. The size goal at time of release is 200 grams or roughly 2.2 fish per pound.

Patrick Verhey asked Lance when the next culling event will take place. Lance will get that information from Corey Morrison.

Action Item:

- **Lance Keller will ask Corey Morrison for information about the next culling event for white sturgeon at Chelan Hatchery.**

2018 Monitoring Activities

Lance Keller reported that he will send out the final 2016 Rocky Reach Reservoir White Sturgeon Monitoring and Evaluation Program Report soon. He added that 2018 monitoring and evaluation efforts will be similar to those conducted in previous years. It will consist of mark-recapture efforts from mid-August to late October. There will be five sessions, which includes 45-50 days of setline activity. They will evaluate growth rate, survival, and habitat use. There will also be four diet-sampling surveys, each consisting of three days of sampling effort. Lance reported that during the winter 2017 diet survey, there was a decrease in catch of sturgeon. Thus, they may change the time of the fourth (winter) diet survey. Chelan PUD will also maintain telemetry equipment that is currently deployed in Rocky Reach reservoir. Downloading data will occur every 3-4 months. Telemetry equipment will detect the current, active tags in the reservoir.

VII. Bull Trout

2018 Rocky Reach Bull Trout 10-Year Check-In Study

Steve Hemstrom reported that according to the 2008 Biological Opinion, a bull trout check-in study must take place every ten years. The last study was done in 2008, and the next one is due to take place in 2018. Last year, Chelan PUD began discussing tagging methods with the USFWS, and the USFWS raised some concerns with using radio telemetry, which was the technique used in 2008. Given those concerns, full-duplex PIT tags will be used to evaluate upstream and downstream passage of bull trout at both Rocky Reach and Rock Island dams. Detailed methods for the study have not yet been finalized.

Chelan PUD recently looked at the number of PIT tags that interacted with Rocky Reach and Rock Island dams. There are over 100 tagged bull trout that have been detected at Rocky Reach or Rock Island or both dams. A full history exists for those fish, and Chelan PUD is working on determining which entities tagged them. By looking at the detection histories and timing of bull trout detected in the fishway at Rocky Reach Dam, and fish detected downstream later in time, it can be determined if those fish made successful downstream and upstream passages. Alene Underwood stated that the study could begin in 2018 or 2019. Chelan PUD is still working on the details of the study and will bring the final plan to the RRF for approval. Steve Lewis commented that USFWS will check their database for PIT-tagged fish and compare their data to Chelan PUD's. This should be complete by the end of January.

VIII. Resident Fish

Twenty-Five Mile Creek Connectivity

Patrick Verhey stated that improving fish passage at Twenty-Five Mile Creek was discussed by the RRF in the past. He would like to know if the RRF still considers it a priority to work on the roughened channel to improve fish passage in Twenty-Five Mile Creek, or if there is an alternative use of those funds. He would like to see Twenty-Five Mile Creek addressed at some point during the Rocky Reach license period.

Steve Hemstrom reported that \$11,700 was spent by Cascade Columbia Fisheries Enhancement Group (CCFEG) in 2012-2013 on an alternatives analyses for Twenty-Five Mile Creek. The purpose of the analyses was to determine if the spawning channel that was inundated by a landslide should be redone, or if there was another area to focus efforts. The Resident Fish Management Plan originally provided \$50,000 for the first 10 years of the license. The funds that were made available in the license are all adjusted by CPI. Although \$11,700 was spent, based on CPI adjustments, \$51,187 is available for the first 10-year period. That money will be available for the full term of the license. There is an additional \$62,000 available beginning in year 11 through the remaining years of the license. That amount, adjusted for CPI, is now about \$88,000. The RRF can decide how they want to use the money. Importantly, those funds are for Resident Fish Enhancements, meaning they could be used in Twenty-

Five Mile Creek. The Resident Fish Management Plan indicates that the best use of the funding is off-site, i.e., not in Rocky Reach Reservoir. The RRF had previously decided to focus on Lake Chelan. Tracy Hillman commented that Chelan County Natural Resources Department (CCNRD) blocked the culvert replacement project in Twenty-Five Mile Creek. Thus, the project was not implemented.

Patrick Verhey stated that historically the site is a dynamic, high-velocity system and drains three different valleys. He was not sure if a roughened channel allowing fish passage would persist under those conditions, or if there is a better option. Tracy Hillman commented that the HCP Tributary Committees would be a good source of information and Jeremy Cram, WDFW, is the person to contact. The Committees have found that pre-fab steel bridges work well and may be an option for Twenty-Five Mile Creek.

Graham Simon, WDFW, stated that WDFW and the Lake Chelan Fish Forum are both interested in seeing improved fish passage in Twenty-Five Mile Creek and would like to see this issue move forward. Lance Keller commented that the existing culvert is fish size-selective. That is, only the largest fish can successfully pass through the culvert.

Tracy Hillman stated that a proposal for the project would need to be presented to the RRF for review and approval. Tracy asked if WDFW would be the project sponsor. Graham Simon said that is a possibility. Graham noted that CCNRD could be open to other alternatives, but a new bridge is probably not their priority. Tracy suggested that WDFW could take the lead on the project and communicate with Mike Kaputa at CCNRD. WDFW would need to submit a proposal to the RRF for review and approval before Chelan PUD will fund the project. Depending on the cost of the project, a cost-share may be required.

Tracy Hillman will look at previous RRF meeting notes to find additional information on the Twenty-Five Mile Creek project.

Action Item:

- **Tracy Hillman will check previous RRF meeting notes for information on the Twenty-Five Mile Creek project.**

IX. Pacific Lamprey.

Update on Lamprey Summit in Portland

Tracy Hillman provided information on some of the topics that were discussed at the Pacific Lamprey Summit in Portland. There was agreement among the parties at the Summit to continue to move forward with the Conservation Agreement. In addition, there was a commitment from BPA to annually fund lamprey work (~\$100,000/year). There were technical discussions on genetic studies, lamprey tag development, eDNA, experiments on adult passage, and on use of 4-inch flexible tubes for adult passage. Pacific Lamprey Summits will take place more frequently in the future.

Review of ASWG Responses to Subgroup Questions

Tracy Hillman reviewed the memo from the Aquatic Settlement Work Group, with their responses to four questions from the Lamprey Subgroups.

Question #1: Is there any evidence that adult Sturgeon are in the fishways and tailrace of Wells Dam during the time adult Pacific Lamprey are migrating through the project area?

Steve Lewis commented that once white sturgeon enter the collection gallery at Wells Dam, they can easily stay there and prey on Pacific lamprey. Lance Keller asked if it was known which tagged sturgeon are in the collection gallery. Lance stated that two of the sturgeon are from Chelan PUD's stocking program. He would like more information on the sturgeon that are in the collection gallery. Steve Hemstrom stated that by the time the Pacific lamprey get to Wells Dam, they should be familiar with the scent of white sturgeon, and a few sturgeon in the collection gallery would probably not keep the lamprey from entering. Tracy Hillman stated that the lamprey passage problem could also be related to the confinement of the area or the water velocities.

Question #2: Is there a summary of results of tailrace and fishway passage efficiencies and entrance efficiencies for adult Pacific Lamprey at Wells Dam? If so, would the Aquatic SWG please share those with the Subgroups?

Steve Lewis said that he would like more clarity on the data provided and had some questions that he will take back to the ASWG. Steve Hemstrom commented that he would also like more clarity on the response from the ASWG. Steve Hemstrom wondered if using 50 tagged fish (tagged with acoustic and PIT tags in 2016) and released 40 miles downstream from Wells Dam is an adequate method or sample size to test fishway passage efficiency. Steve Hemstrom does not believe there were enough data from the Douglas PUD study to conclude there is high attrition through Rocky Reach reservoir, or that there is a reservoir passage problem. He would like to see the Wells Dam fishway tested first. He added that if the point is to only study actively migrating fish, then a larger sample size would be needed.

Question #3: Are there velocity profiles for various flow conditions at the entrances of the fishways at Wells Dam? If so, would the Aquatic SWG share those with the Subgroups?

The short answer to Question #3 is no.

Question #4: Why is the Aquatic SWG not comfortable using adult Pacific Lamprey trapped downstream (e.g., at Priest Rapids Dam) for conducting passage efficiency studies?

Douglas PUD believes those fish may have no desire to pass Wells Dam (lack of pheromones hypothesis).

Tracy Hillman shared with the RRF thoughts from the Priest Rapids Fish Forum (PRFF) following their review of responses from the ASWG. The PRFF asked:

- Why are there no velocity profiles?
- Why are only 2013 results discussed?

- Why didn't Douglas PUD respond to Grant PUD's offer to collect adult fish in 2018 at Priest Rapids Dam for further passage studies at Wells Dam or for translocation?

Alene Underwood suggested that instead of sending questions back to the ASWG, attendees common to both the RRF and ASWG (e.g., Patrick Verhey, Ralph Lampman, and Steve Lewis) could discuss these issues during ASWG meetings. She also suggested sending a response to the ASWG thanking them for the information and stating that the RRF looks forward to working and sharing information with them in the future.

Action Item:

- **Tracy Hillman will send a response from the Fish Forum to the ASWG thanking them for responding to the Subgroups' questions.**

2018 Lamprey Monitoring Activities

Steve Hemstrom reported that in 2017, Chelan PUD conducted a second year of full-duplex PIT tagging and release of adult lamprey for passage studies at Rocky Reach Dam. The goal in 2017 was to release 225 fish (captured at Priest Rapids Dam) in the same locations as in 2016 to replicate the previous year's study at Rocky Reach Dam. Chelan PUD increased the sample size, releasing 300 PIT-tagged fish instead of 225. As of December 2017, 259 of the fish have been detected at Rocky Reach Dam and 252 have passed the dam. One tagged fish was recovered in the fishway in December during dewatering and was transported to the forebay. Including this fish in the analysis does not change the passage efficiency of 98%. Of the 511 total fish released during the two years of the study, 423 of those have been detected in Rocky Reach fishway in some location and 414 were last detected at the exit of the fishway. The 2017 study will continue through July and will look at where the fish are going based on all PIT detections. Steve Hemstrom reported that out of the 300 fish released in 2017, 274 have been detected somewhere (91.3%), including some in the Wenatchee River and at Tumwater Dam. The 2017 Draft Passage and Escapement Report should be complete by October 2018. The 2017 report will be modified in order to incorporate types of information requested in comments from the 2016 report. This will include the following:

- Were the study objectives accomplished?
- Did improvements made in 2011 help improve passage?
- Measure and report tributary escapement rates if possible.

Steve Hemstrom reported that Chelan PUD may not do a Passage and Escapement Study in 2018, and Chelan PUD would prefer not to discuss NNI options in the 2017 passage study report. NNI discussions will include information from the report, but those discussions will take place outside of the actual technical report.

Chelan PUD did not request fish from Grant PUD for 2018. Tracy Hillman commented that Grant PUD will not tag any fish this year, but they will continue to track fish tagged downstream. Ralph Lampman

confirmed that there will be a half-duplex study at McNary Dam this year. Steve Hemstrom stated that Chelan PUD will continue to monitor half-duplex PIT tags at Rocky Reach Dam as well.

Screen Monitoring

Steve Hemstrom reported that over five hours of screen monitoring was done at Rocky Reach Dam this year. He said that there were no lamprey observed on the screens. This is the fifth year that screen monitoring has taken place. Steve Hemstrom reported that juvenile lampreys are unlikely to be impinged on the screens in Units 1 and 2 at Rocky Reach Dam because the screens are about 78-88 feet from the surface. In addition, the screens are at a 45-degree angle from parallel and cover only approximately the upper 35% of the turbine intakes. Screen monitoring has taken place every other year in the past. Given these results, Steve Hemstrom would like to change the timeframe for monitoring to every five years. Tracy Hillman offered to look at past notes for previous discussions on extending the number of years between screen monitoring.

Steve Hemstrom stated that the Rocky Reach fishway outage is in progress, but the salvage of fish from the fishway is complete. A total of 290 adult Pacific lamprey were collected in the fishway and released upstream of Rocky Reach Dam.

Lance Keller reported that 290 is the largest number of lamprey that have been found in the fishway during an outage, perhaps because of the large lamprey run this year. He stated that the floor grating in the lower weir section was previously replaced, reducing the gaps from 1" to ¾". No lamprey went through the floor grating this year. Divers looked for Pacific lamprey in the area below the grating and through the valves, but did not find any lamprey. This area is known as the "high hat." Lance believes the problem of fish getting into the high hat has been eliminated by replacing the grates with smaller-sized gaps and adding plating.

Action Item:

- **Tracy Hillman will look at past RRFF meeting notes for previous discussions on changing the timeframe of screen monitoring.**

Artificial Propagation

Steve Hemstrom reported that Chelan PUD has three contracts with different entities working on the first attempt to spawn adults and raise juvenile lamprey. The contracts are with the Yakama Nation, NOAA Fisheries/Umatillas, and the USFWS Abernathy Fish Technology Center. They all have three-year contracts. The money to fund the studies came from the Pacific Lamprey Management Plan fund, which is to be used to measure downstream passage effects. The contract with the USFWS expires in April 2018 and the USFWS would like to know if the RRFF is interested in continuing the work. The other two contracts each have one year remaining. Steve Hemstrom reported that the three groups each have their own area of research. Ralph Lampman reported that the groups will be meeting next week to plan

for 2018. He will talk to them about presenting their research findings during the February RRF meeting.

Action Item:

- **Ralph Lampman will set up presentations on artificial propagation studies for the February RRF meeting.**

Lamprey Feasibility Study at Tumwater

Alene Underwood reported that comments on the Tumwater Dam Lamprey Feasibility Study at Tumwater were received from the Yakama Nation and the USFWS. Chelan PUD will include the comments in a spreadsheet and they hope to have comments addressed in the next couple of months.

Steve Hemstrom reported that ten Pacific lamprey were counted passing Tumwater Dam in 2017 between 5 August and 6 September. Alene added that different trapping operations were in place in 2017. WDFW was asked not to trap 24/7 in hopes of improving Pacific lamprey passage at Tumwater. WDFW has been asked not to trap 24/7 again this year (2018). Additionally, Steve Hemstrom reported that 15,000 juvenile lampreys collected in the Dryden Canal in 2017 were released upstream from Tumwater Dam. Alene Underwood said that the PIT-tag arrays are working in the low-flow and high-flow entrances into the fishway, and at Baffle 2 in the fishway. She added that one adult Pacific lamprey made its way up the denil and into the hopper (WDFW has a video of this fish moving up the denil).

X. Public Comments

None.

XI. Next Meeting

The next meeting of the RRF is scheduled for Wednesday, 7 February 2018 from 1:00 to 4:00 p.m. and will be held at the Chelan PUD office in Wenatchee at 327 N. Wenatchee Avenue (2nd Floor Conference Room).