

Cowlitz Hydroelectric Project
FERC No. 2016
Cowlitz Fisheries Technical Committee
Cowlitz Salmon Hatchery
Final Public Meeting Summary
January 7, 2020 from 9:00 – 3:15

Attendees:

Travis Nelson	TPU
Bryce Glaser	WDFW
Carol Serdar	WA Dept. of Ecology
Paul Sparks	WA Council of TU, TU, American Rivers
Rich Turner	Tech Rep for NMFS
John Serl	Tech Rep for WDFW
Peggy Miller	Tech Rep for WDFW
Brian Gale	Tech Rep for WDFW
Sam Gibbons	Tech Rep for WDFW
Josua Holowatz	Tech Rep for WDFW
Matt Bleich	Tech Rep for TPU
Eric Shoblom	Tech Rep for TPU
Phil Sandstrom	Tech Rep for TPU
Chris Foster	Tech Rep for TPU
Missy Bair	Tech Rep for TPU
Jamie Murphy	Tech Rep for TPU
Debbie Carlson	BPA
Steve West	LCFRB
Ann Weckback	Lewis County, Tech Rep for TPU
Ruth Tracy	USFS, Tech Rep for TPU
JD Jones	USFS, Tech Rep for TPU
Lyn Wiltse	PDSA Consulting / Facilitator

2020 FTC Meeting Dates: Feb. 4, Mar. 3, Apr. 7, May 5, June 2, July 7, Sept. 8 (Sept. 7 is Labor Day), Oct. 6, Nov. 3 (Election Day), Dec. 1

FHMP Workshop Dates: Feb. 18 (10-2), Feb. 26 (10-2), and for the first 1-2 hours of the FTC meetings in March-June (see above for dates)

- Action Items:
 - Travis: Send meeting invites for 2020 dates, including FHMP workshop dates.
 - All: Continue to identify issues that need to be resolved via FHMP workshops.

Updates

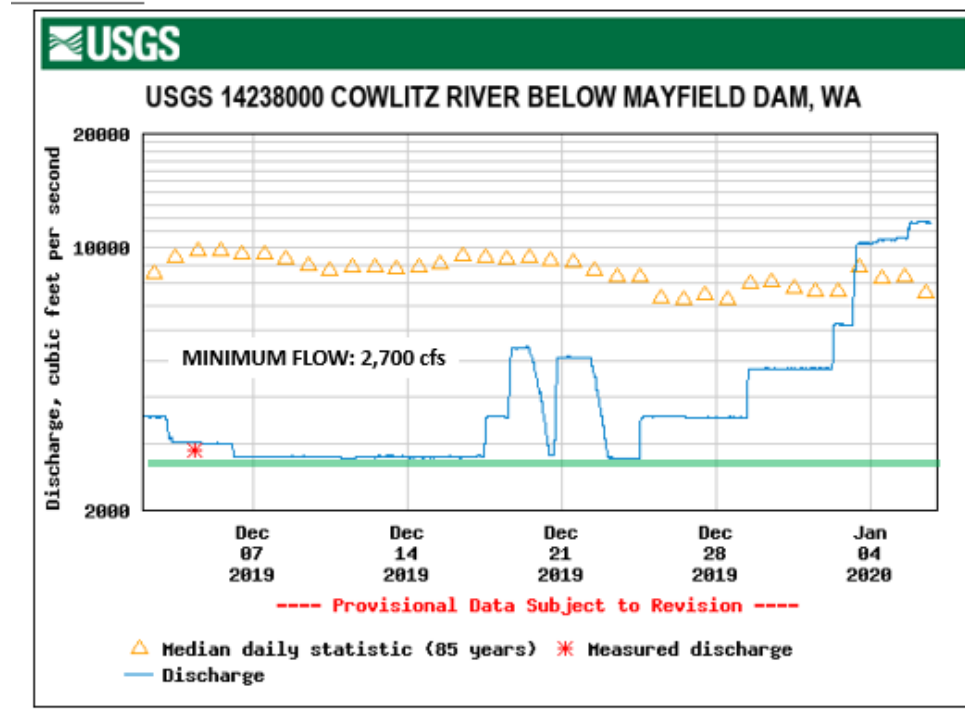
Hydro Operations:

- Inflows into Riffe Lake: December daily average at 6,312 cfs, at or above average with recent rains
- Outflow from Mayfield Dam: Continues at 2,700 cfs to meet minimum flow
- 10-day forecast Inflows 7-15K cfs through January 11, outflows 10-14K cfs
- Riffe Lake elevation: 737', with predicted rains elevation expected to reach 749' in the next 7 days.

- Snow water equivalent: Currently around half of average, likely increasing with forecasted rain

See presentation for additional information.

Outflow



Link to the USGS real-time Cowlitz River hydrograph:

https://waterdata.usgs.gov/wa/nwis/uv/?site_no=14238000&PARAMeter_cd=00060,00065

Water Quality: Carol reported Tacoma is still working on two Project Water Quality summary reports from activities performed last year (summer 2019). Additionally, related to the Kosmos oil seep, oil absorbent booms remain across the creek or lake area where the Kosmos oil seep occurred. An emergency temporary cap has been completed. Long-term mitigation for this occurrence is being worked out. TPU will be working with Ecology's Toxic Clean-Up Program as well as with the Water Quality Program to properly characterize the site and ensure water quality is met. There will be an interim Water Quality Protection Plan in place this winter, with Ecology approval. Tacoma will conduct weekly observations for a sheen on the surface of the lake or creek. They will also monitor for dead, dying, and diseased fish / insects. Weekly inspection will ensure Best Management Practices are maintained properly and will require continual monitoring for additional seeps when lake level fluctuates over the winter.

Out-of-Basin Transfer of Coho to another Columbia System Program

Presenter: Bryce Glaser

Bryce was happy to report WDFW did finally get the anticipated push of fish into the Lewis River negating the need to use Tilton segregated Coho for the out-of-basin transfer. WDFW ended up using some of the Tilton segregated fish as a backstop to alleviate the shortfall. At that point, they notified TPU that there was no longer a need to hold additional fish and TPU returned to transporting additional fish into Tilton. The total egg take transferred was ~109K from 35 pair).

Subgroup Tasks re Coho Fishery in Riffe

Presenter: Bryce Glaser

The FTC will consider forming a subgroup to start to evaluate the Coho fishery in Riffe. While there is no direct Coho plant into Riffe, the fishery there is quite popular and angler expectations are high. It seems logical for this to start with the M&E Subgroup and later include the hatchery and passage groups as appropriate.

Action Item:

- Bryce: Work with others at WDFW to draft problem statement for this evaluation.

M&E Subgroup Report

Presenter: Phil Sandstrom

CWT at Mayfield: Phil began by thanking FTC members for reviewing the M&E Annual Report in time to accommodate the compressed timeline. The report was filed with FERC on December 26.

The CWT proposal for Coho at Mayfield is still being discussed by the subgroup. Two draft decision documents have been reviewed by the FTC but not finalized. There were outstanding concerns about the marking strategy (finer details) at Mayfield. The history of Coho Salmon in the Cowlitz and mixing of populations prior to hatcheries, the advent of mass marking via adipose fin clip and when CWT marking first occurred was described. The primary concern with marking fish at Mayfield is that some of the fish would go through Mayfield's turbines, survive, and return as unmarked fish to the separator. Unmarked fish that would be transported into the upper basin could be fish from upper basin, lower basin, or fish that went through Mayfield's turbines and survived to return from the ocean. If the potential marking rate were known for switching marking to Mayfield, some of those fish could be placed into the Tilton to make up for marking that would occur. This subgroup will meet again to work out the details.

The marking strategy should function in accordance with transitions to various recovery phases. When do we make those steps? The FHMP plays a critical role as it includes these defined phases. After some discussion, it was agreed this would be a good topic for the FHMP workshop in February. It may also be a good time to tackle marking for all species (short-term, long-term, etc.) After dealing with Coho, the group will begin to address other species, including a plan to assign Fall Chinook to population origin.

Tilton Release Site:

Eric explained that this site is at Bremer Bridge, on DOT property (downstream of the Gus Backstrom site). They will mount the chute at the base of the old cement bridge abutment. They have installed a gate and ecology blocks to maintain stability. They are putting the finishing touches on the chute before installation. These slight modifications include making it more fish friendly, tamper proof, and line up better with the truck. Some initial water tests were successful. By January 17, these modifications should be complete. After the installation, and if flows cooperate, they will conduct an evaluation the week of January 21. They plan to sew up a 50' seine net and tie off on the net upstream at a couple of points. They will collect hatchery origin steelhead from the Barrier Dam fish trap with a dip net and use electro anesthesia to inspect them noting any injuries incurred prior to transport and release at the new Bremer Road release site. After release, fish will be captured in the seine and inspected for injuries incurred through the release process. It would be good this

spring, to revisit the M&E Subgroup's recommended adult disposition protocols for Tilton release by location for the various species. WDFW will also need to establish a no-fishing area around the pool. The site should be operational by the end of the month.

Downstream Adaptive Management TWG

Presenter: Matt Bleich

Matt explained that they are developing a decision document which will be reviewed by the TWG and sent out in advance of the February FTC meeting. It will include:

- CF Adaptive MGGT strategy for 2020
- How to improve effectiveness
- 5 Decisions:
 - Moving off baseline evaluations and taking in more water during spring freshets (moving from 500 to 700 cfs) for Steelhead and Coho
 - Found Steelhead were rejecting in the capture zone – will make an adjustment to the geometry to that portion of the system and then retest
 - Determine if it's possible to start picking up a signal for life history strategies in areas outside of typical operating period (mostly aimed at Spring Chinook)
 - Spring Chinook: Will continue to look at life history strategies, successes in return to upper basin and whether these fish require different fish management strategies for recovery (will develop a study design)
 - Adjust the pump-back discharge structure to change the flow pattern to increase directional flow through that entrance to the facility

This group meets again January 28.

Action Item:

- Matt: Send out decision document for review prior to the February meeting.
-

Gravel Augmentation

Presenter: Florian Leischner

Florian explained they are continuing to develop a work plan which will include timeline on site selection design and permitting strategy. They are also still working on securing access to additional sites – working with landowners on easements. There was disappointment that this plan is not yet ready for review and all look forward to seeing something at the February meeting. Travis committed that Tacoma would provide the plan by the February meeting.

Cowlitz Restoration & Recovery (CRR) Fund: 2020 Program

Presenter: Florian Leischner

Florian reiterated what Melora reported at the December meeting – that 2019 was a baseline year from which to learn and improve. They are taking time in 2020 to apply lessons learned and will be prepared to sync the timing of the next CRR grant round process with the 2021 LCFRB SRFB grant round. That allows adequate time for:

- Working through the partnership with the LCFRB
- Updating selection criteria and the RFP process
- Clarifying the function of the CRR Subgroup
- Putting the satellite rearing plan in place
- Alignment with the new draft FHMP

- Reaching out and providing in-depth feedback to applicants who participated in the initial CRR grant round
- Setting up workshops to provide better guidance for the applicants and help to ensure robust proposals are submitted

Florian also announced the first annual report should be out by the end of January 7 for a 30-day review.

The LCFRB has recently finalized the habitat strategy report for the upper basin. They may present this at the science meeting this summer. Link to the LCFRB's Upper Cowlitz-Cispus Habitat Strategy Report: <https://www.lcfrb.gen.wa.us/upper-cowlitz-cispus-work-group>.

Florian announced that there was an upcoming meeting between TPU and LCFRB to discuss the CRR partnership. There was a request from the group to see if LCFRB could present upper basin strategy at a future meeting.

FHMP Update

Presenter: Matt Bleich

Matt reported that TPU has submitted the supplemental information requested by FERC as part of TPU's request for an extension of time to file the updated FHMP and are awaiting FERC's response. FTC is reviewing the draft FHMP. Public review will follow. To meet the requested extended deadline of February 15, 2021, TPU is planning several workshops to address key unresolved issues within the FHMP (re: Coho and Chinook marking strategies).

The initial workshops are scheduled for February 18 and 26. Additional workshops will occur as part of the March - June FTC meetings. Any remaining unresolved topics by June will be developed into white papers to describe the different viewpoints, interim actions and plan to resolve.

Action Items:

- All: Continue to identify candidate issues for FHMP workshops and let Matt know.
- Paul: Let Travis know how to ensure TU is represented at FHMP workshops.

Trout Unlimited's Proposed Alternate Recovery Strategy for the Upper Basin

Presenter: Paul Sparks

Paul presented a PowerPoint presentation on an alternate strategy for recovery of Steelhead in the Upper Basin. The presentation included insights into possible failed strategies currently being employed along with cost estimates of the alternate strategy. While the goal of the SA is recovery, he sees current management strategies as favoring hatchery programs. He explained that TU's goal which has become narrowly focused in the last few years is recovery of steelhead. With climate change, they think the only species to survive are trout in headwaters and Steelhead in the upper basin. TU wants a full build-out of Steelhead from a habitat perspective.

The actions proposed by TU, WCTU, and American Rivers:

1. Determine if we can frame a recovery strategy based all or in part on resident rainbows interacting with our NOR steelhead.
2. Institute a moratorium on hatchery supplementation in the Upper Basin as part of an effort to assess the productivity of our recovery stock.

- Consider seeking outside help to weigh the benefits of continuing with the integrated program.
- 3. If the FTC opts to continue with an integrated program, consider strategic use of RSS devices in the upper basin as an alternative to pond or net pen reared smolts.
- 4. Consider adopting a an intensive kelt reconditioning program based on that used by the Yakama Nation.
- 5. Investigate the feasibility of establishing a genetic driven monitoring program for the Upper Basin based on reverse engineering the approach used in the Hood River studies.

According to sources cited by Paul, both integrated and segregated hatcheries are harmful to NORs. Integrated hatcheries don't solve all the problems. Natural production will do better than hatchery and natural. In many Steelhead populations, 30-40% have at least one rainbow parent, generally, there will be many more Steelhead produced by these resident rainbow interactions than solitary rainbows that opt to migrate volitionally as steelhead. He further suggested that we lack the metrics to know how to manage this population. And while we don't want to make any major mistakes along the way the scale of the task should not be an excuse for not starting in the coming year.

Paul suggested the FTC meet with TU's John McMillan, who is a local expert on interactions between Steelhead and rainbow trout. Other outside experts can be consulted for analysis of the benefits and liabilities of continuing with an integrated hatchery program. Ideally, this would be coupled with a moratorium on hatchery supplementation in the upper basin. Paul further suggested this be done in a way that does not affect the lower basin / the Tilton.

He ended the presentation by saying if we have to continue supplementation, consider using Remote Site Incubation (RSI) devices as an alternative to hatchery reared smolts. These can be placed exactly where needed, have dramatically better productivity numbers than pond or net penned raised smolts, and, potentially, could be run by volunteers.

He encouraged the FTC to do everything possible to enhance the survival of the kelts – maybe even over-winter them in the hatchery, fatten them up, and then put them back in the river at the appropriate time. He also said each smolt is worth its weight in gold, as are the rainbows with whom they interact. To decrease this mortality, the trout fishery in the upper basin fishery should, in his view, be ended. He also suggested the FTC investigate the possibility of adding a parentage-based genetic driven system of monitoring to better understand to better understand the interactivity between as well as productivity of our NOR, HOR, and resident rainbow populations. He closed by emphasizing that if we set aside the integrated program, any of the strategies he suggested whether alone or in combination would save the Tacoma rate payers and Washington taxpayers several million dollars over the term of the new FHMP.

Feedback / Discussion

- John: Steelhead abundance became so low because the CE was not to the level of being self- sustaining. When you take CE down to 5% it puts such a hole in the population that it takes a long time to recover.
- Florian: RSI suggestion - Are we putting Steelhead juveniles in the upper basin? Not any longer – have discontinued the juvenile supplementation and are only putting adults in the upper basins.

- Greg: You're saying you hate hatcheries? Paul thinks we should shut down fisheries in the upper basin now. Why not the Tilton? Too political to tackle.
- Peggy: Will it be worse if we stop supplementation? We have to rely on the rainbow trout. Paul replied if we had 100 years, we could recover that whole population. We need to do some snorkel surveys in the upper Cowlitz. John asked when you do those surveys and find a fish that is 8" long. Is it a resident adult? Or migrating?
- Jack: There used to be 400K catchable rainbow put in the upper basin.
- Paul: We need to assess how much damage that did. Usually the majority die off in the first winter.
- Phil: A basic part of Paul's strategy is that every smolt is worth its weight in gold and that's the way to NOR abundance and locally adapted populations. TPU sees us in an adult abundance building phase. They are trying to build those adult abundances to get eggs in the ground, to get more juvenile Steelhead going out with enough age structure. Then you can start seeing that full life-history diversity expression.
- Paul: Resident rainbows alone don't produce nearly as many smolts as the interaction between Steelhead and rainbows. He thinks part of the problem is we are releasing fish in a place that is distinct from the place the fish are that we want them to interact. Also, there is little long-term evidence that either integrated or segregated hatchery-based recovery programs have been successful for steelhead. In 1993 the Yakama abandoned their hatchery. Within 10 years, they doubled their NORs.
- Paul agreed that we want our numbers up. We want to increase abundance. He agreed we need lead time on all of this. But that is not an argument for delay, some of this needs to be and could be started right now. He offered to pull together some experts for a discussion with the FTC in the next few months. There is a need to identify the data gaps and use enhanced assessment (possibly genetics, seeing where the spawning is, where we have resident rainbow populations, etc.)

Review of FTC Protocols

Presenter: Travis Nelson

Travis released a revised draft of the FTC Protocols on January 6, before receiving WDFW comments on the prior draft. He agreed to integrate the WDFW feedback into a new revised draft that he will send out within two weeks of the February FTC meeting.

Action Items:

- Matt: Ask consultant to work on a standardized structure for all subgroups to use to report back to the FTC. (February/March timeframe)
- Travis: Send out the newly revised version of FTC Protocols for all to review this draft, mark it up in track changes, and send it back to Travis.
- Travis: If possible, send out Protocols showing earlier edits in track changes.

Approval of Meeting Summaries

The December FTC meeting summary was approved with minor edits and will be posted to the public website.

Public Comment Session

Ruth explained that with limited resources, the Forest Service decided to put the Cowlitz System on the back burner. She was pleased to introduce to the group recently hired JD Jones, a fish biologist with expertise in the northwest. She explained they are figuring out

how best to participate in the FTC. They are most interested in the habitat pieces and the CRR group. A sad note (and no joke): Ruth is retiring April 1 of this year.

Greg King: We have a massive predation problem in the area. He doesn't see this issue being addressed. Terns are reported to have consumed 4.9 million fish from 2011-2014. Cormorants are another aggressive predator that is adversely impacting the fishery. Breeding pairs have moved up into the Cowlitz and the Lewis. It is no surprise WDFW is feeling stress around getting egg take. This is an issue that concerns agencies and fishermen alike. Peggy noted that the Governor's budget had an allocation for predation and encouraged Greg to lobby accordingly.

Jack Tipping: It's frustrating that the FHMP is taking so long to update. And now we are waiting to hear if FERC approves the FHMP extension request. The current Spring Chinook returns are dismal. Until the FHMP is completed, we can't change the current Spring Chinook hatchery program. He is expecting at least three more years of closure. The Riffe Lake Coho Fishery used to be successful and popular. In the 90s over 100K fish were caught each year, with that many angler hours. He hopes this fishery can be recovered. It would be good to do a literature search to research the case histories cited in Paul's presentation. Include Clackamas, Kalama River. Matt replied that they are continuing to work on improvements to the FHMP.

Meeting Evaluation

- USFS presence
- Good discussion of TU's Proposed alternate recovery strategy for the upper basin
- Good energy and discussions throughout the day
- Josua shared the following quote: *"After you've done a thing the same way for two years, look it over carefully. After five years, look at it with suspicion. And after ten years, throw it away and start all over."* - Alfred E. Perlman, July 3, 1958
- It was another long meeting, and everyone stayed engaged!

Potential Topics for February 4 FTC Meeting

- Updates incl. Hydro Ops, Water Quality, Kosmos seep
- Planning for low water/drought conditions in 2020 (e.g., as for the Nisqually)
- M&E Subgroup
 - CWT at Mayfield Decision Document
 - Alternate Tilton Release Site
 - Steelhead Presentation (?)
- Gravel Augmentation Work Plan
- Downstream Adaptive Management TWG
 - Decision Document
- FHMP Update
 - FERC's Response to EOT Request
 - List and prioritize issues to be resolved in Feb. 18 and 28 FHMP Workshops
- Cowlitz Restoration & Recovery Fund 2020
 - Report from LCFRB/TPU

- Recommendations from LCFRB's Upper Cowlitz-Cispus Habitat Strategy Report
 - FTC Protocols
 - Satellite Rearing (?)
 - Set topics for the March 3 FTC Meeting
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Parking Lot

- Review Steelhead Recycling Program

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Carol Serdar	WA Dept. of Ecology
Paul Sparks	WA Council of TU, TU, American Rivers
James Archibald, by phone	Tech Rep for NMFS
John Serl	Tech Rep for WDFW
Peggy Miller	Tech Rep for WDFW
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Laura Wolfe	LCPUD
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Remaining 2020 FTC Meeting Dates: Mar. 3, Apr. 7, May 5, June 2, July 7, Sept. 8 (Sept. 7 is Labor Day), Oct. 6, Nov. 3 (Election Day), Dec. 1

FHMP Workshop Dates: Feb. 18 (10-2), Feb. 26 (10-2), and for the first 1-2 hours of the FTC meetings in March-June (see above for FTC Meeting dates)

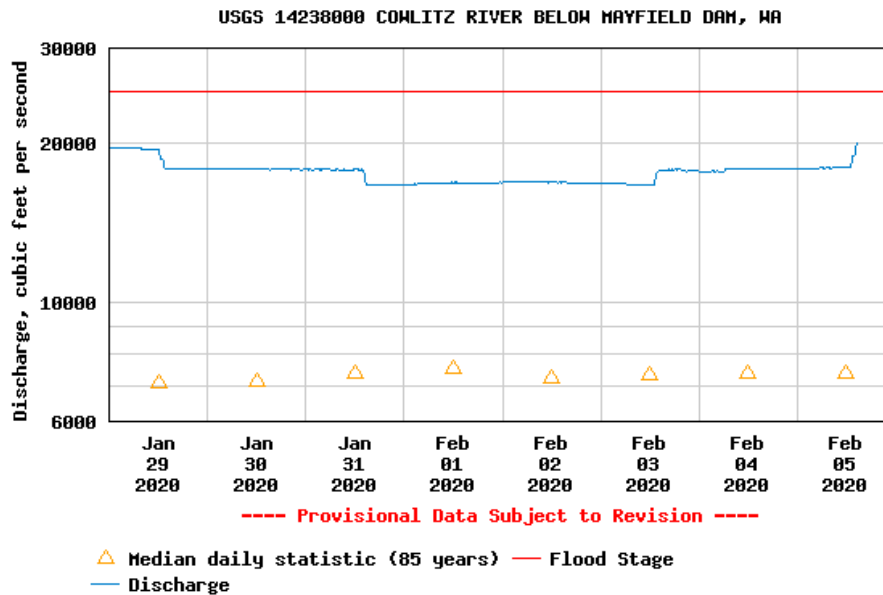
- **Action Item**

- All: Continue to identify issues that need to be resolved via FHMP workshops.

Updates

Hydro Operations:

- Inflows into Riffe Lake: January daily average at 18K cfs (the highest in the last several years, due to the recent rain).
- 10-day rain forecast: 8-10 more inches in the watershed. TPU will continue to spill to accommodate for the inflow. They are generating at full pool.
- Riffe Lake elevation: 747' (Historic elevation has been at 730').
- Downstream movement of gravel: A new bench right below the gravel surface has formed over the last few days.



Link to the USGS real-time Cowlitz River hydrograph:

https://waterdata.usgs.gov/wa/nwis/uv/?site_no=14238000&PARAMeter_cd=00060,00065

Water Quality: Travis reported that the effort continues to remove 1,200 tons of material, most of the stockpiled material is contaminated. It has been stored on the Kosmos Flats. TPU plans to relocate this pile to a landfill by February 7; some of the material is stockpiled on the Kosmos boat ramp parking area until the landfills are willing to accept it. Carol requested that Jessica Knickerbocker (TPU Project Manager and engineer) attend an upcoming FTC meeting to do a presentation with maps and photos that illustrate the good water management work that TPU is doing there. She would also like to see the FERC order showing TPU has the ability to go up to 755'. There is a lot of debris coming out of the Cowlitz and backwatering around the excavation area. Carol also noted she is looking forward to receiving the Project Water Quality summary reports from the tire removal and Mayfield Park boat ramp extension.

Low Flow Planning: Last year's cold and dry winter resulted in a spring-time low flow situation which prompted TPU to have a discussion with FTC (including: Ecology, NMFS, and WDFW). At previous FTC meetings in 2019, Ecology requested Tacoma develop a plan or process in which to request a reduction of minimum flows that supports Ecology's conditioning authority related to changes of minimum instream flows. Travis noted that Ecology (not the FTC) has conditioning authority on the reduction of minimum instream flows. He will work with Florian, Jim, and Carol to develop a process paper that lays out a plan that takes into account the Bi-Op, the amended license from FERC (after the Bi-Op in 2004), and the SA. Though the forecast does not indicate drought conditions this year (2020), TPU has committed to drafting a plan for Ecology approval and FTC review. Carol asked if Melora could put together a similar presentation that was done for the Nisqually Basin for the Cowlitz River Project.

Paul suggested we all think about this in a more expansive way – it is also a habitat issue and may influence how we dispense the CRR funds. Why not plan to keep the water flows at a higher level throughout the season? British Columbia and the Cowlitz Indian Tribe have been using beavers for this purpose.

Action Items:

- Travis: Send to Carol FERC Order showing TPU has the ability to go up to 755' elevation.
- Travis: Invite Jessica to FTC meeting to present TPU response to Kosmos seep.
- Travis: Ask Melora to put together TPU low-flow response plan (as was done for Nisqually).

M&E Subgroup Report**Presenter: Phil Sandstrom**

CWT at Mayfield: Phil reported that while they have been discussing this at the Subgroup level, they won't begin doing CWT of Coho at Mayfield this year. While disappointed at this, he noted that this will provide time to get the strategy in place and align with the FHMP. The marking strategy should function in accordance with transitions to various recovery phases. This topic will be placed among the FHMP workshop topics.

Tilton Release Site: Eric explained that the installation of the flume was completed at the end of January. The flume sagged during the water test, causing some water to flush back out of the funnel. TPU will tend to these issues before they commission the release site for fish. Fish commissioning will be flow dependent and rely on availability of hatchery fish. Current flows are not conducive for any testing with fish, as they need flows between 500 cfs and 2,000cfs for safety of individuals participating in the testing. They plan to do the testing with HOR Steelhead. The final adjustments should be done around mid-February. Bryce reported that WDFW is working on posting boundaries around that location. The current rule says there is a closure at the posted markers around the fish release site. They plan to make "release site" plural in the annual fishing rules publication and in the formal Washington Administrative Code (WAC). Changing the publication and WAC to accommodate this should be a simple fix. John will work with Phil and Eric to determine the best places to post the markers with input from WDFW enforcement.

Presentations: Phil reminded all that this group did presentations for the FTC on Chinook and Coho. It seems logical for the next presentation to be on Steelhead, which, if requested by the FTC, would likely occur in May. Bryce suggested the Subgroup put these presentations on hold and focus more on FHMP, as there will likely be an M&E component associated with the topics from the workshops. He suggested the current focus be around resolving data issues.

Action Item:

- Lyn: Send out solicitation from FTC for M&E Subgroup topics.

Downstream Adaptive Management TWG**Presenter: Matt Bleich and Chris Foster**

Matt explained that this group last met on January 28. The TWG has been communicating about 2020 CFNSC evaluation recommendations to this group for the last few months. This is the culmination of the work of that group. The five recommendations from the working group are listed in the 2020 CFNSC Evaluation Recommendations Decision Document. Matt's PowerPoint presentation at the November FTC meeting contained considerable details of the evaluation. He reminded all that the intent of the evaluation is to begin to improve collector efficiency by better understanding the potential benefits associated with

the collector over an extended time period (February – November) and opportunistically increase the collector flow from 500-750 cfs during spring spill events.

Chris explained the summary of potential impacts is just now beginning. TPU started up collection on February 3. They will run the Northshore Collector continuously throughout the season. Of course, any flood events will require them to shut down. The spillway flume system has been and will remain offline until the spillway baffle panels can be safely installed. The baffle panels upstream from the spillway flume system are required when collecting fish using this system. FERC has mandated these can only be installed after coordinating with LCPUD, likely mid-March or early April after the flood threat has diminished. The intent to collect earlier and later than previous seasons is to gain understanding about life history patterns with an eye toward recovery.

After some discussion, the 2020 CFNSC Evaluation Decision Document was approved by consensus as written. Note: Fish collected so far include Coho smolts, Steelhead, yearling Chinook, Chinook and Coho fry. They have also collected lots of suckers and northern pike minnows.

Action Item: Travis: Complete the approved decision document and email it out to all.

Gravel Augmentation

Presenter: Travis Nelson

Travis explained there has been no gravel placement in the river for the last four years. The 2019 season marked the end of the grace period to figure out how to do the augmentation. TPU created a new decision document about developing some work plans and identifying some more desirable locations for future distribution of gravel near the hatchery. The intention behind this license article was that the loss of gravel transport associated with the dams has negatively impacted spawning gravel quality and quantity in the reach below the Barrier Dam. TPU is evaluating several potential gravel augmentation locations from Mayfield to Blue Creek. Travis assured all that they will come back to the FTC with a full alternatives analysis for the FTC to consider.

He also noted that currently TPU is planning a Barrier Dam repair project. It would make sense to sequence gravel augmentation with the repair. Construction will be in 2021 at the earliest and may take a couple of construction seasons to complete. TPU will bring a work plan with the alternatives' analysis to a spring FTC meeting. FTC members reported being very eager to see the plan.

Cowlitz Restoration & Recovery (CRR) Fund: 2020 Program

Presenter: Travis Nelson

Travis reminded all they are taking time in 2020 to apply lessons learned and will be prepared to sync the timing of the next CRR grant round process with the 2021 LCFRB SRFB grant round. That means beginning the solicitation process for 2021 this fall (2020).

Since the last FTC meeting, Keith and Florian met with Steve Manlow (LCFRB Executive Director) and Todd Olson (LCFRB Chair) to discuss how to best align with their process. They are developing some additional recommendations to improve the process. This may include offering some workshops with potential applicants. This will help to build and

educate the sponsor base. Steve reported that while the LCFRB has an interest in the CRR process, it is unclear at this time if they will include it in their Grants Manual for 2021.

The first Annual CRR Fund Report was sent out on January 7 for a 30-day review. After reading the report, Peggy had a question about the changes made to the CRR Fund in 2019, specifically where the money is being kept. Money Market? Escrow? The report is the first time the information was made available to the FTC and she would like more information. Travis will follow up with Florian for the answer.

Last year, toward the end of the process, The CRR Subgroup was rolled into the FTC administratively and the transition was less than smooth. Part of the lessons learned discussions relative to this are scheduled to occur at the March or April FTC meeting. Note: The FTC did not delegate their authority to the CRR subgroup. The FTC gave the subgroup an assignment to vet the proposals and bring a funding recommendation back to the FTC for their approval. This is specifically stated in the implementation strategy.

Action Item: Travis: Check with Florian about the CRR Fund, per Peggy's question.

FHMP Update

Presenter: Matt Bleich

Unresolved FHMP Topics: Matt asked folks to provide him with a broad review of high-level concerns. TPU is planning several workshops to address key unresolved issues within the FHMP. The first two full-day workshops will be February 18 and 26. Additional workshops will occur as part of the March - June FTC meetings if needed.

By April, any remaining unresolved topics will be developed into white papers, as placeholders, to describe the different viewpoints, interim actions and plan for resolution. By June, there will be a "home" for all issues, and these will be passed to TPU's technical editor who will integrate them into the draft FHMP before it is distributed widely for review.

Brainstormed List of Potential FHMP Workshop Topics:

- CWT of Coho at Mayfield
 - Shift from CFFF
 - Chinook marking
 - Dam passage survival by route
 - LCPUD has concerns
- Need more references to the Conservation and Sustainable Fisheries Plan (CSFP)
- Fall Chinook (moving integrated program out of the Lower Cowlitz to Upper Basin, essentially to the Tilton)
 - How to determine NOR assignment to population (pHOS calculations, etc.)
 - What the plan entail and timeline for implementation
 - Need to improve abundance monitoring for NOR Chinook in the lower river - Next steps?
 - Mayfield FCE evaluation / improvement
 - Tagging that will align with the Recovery Plan/CSFP
- Steelhead
 - Winter steelhead
 - Detail re: Development of plan for winter Steelhead programs
 - List types of issues
 - Transition component

- Steps in developing the plan itself
 - 6-year cycle, goals, etc.
 - Capture interim steps
- Summer Steelhead
 - No detail is provided
 - What will the program look like? What are the options?
 - How is this incorporated into decision making?
- Identify Resident Rainbows as component of / contributor to Steelhead population
 - Identify data gaps and potential ways to collect the data
 - Assess Resident Rainbow population and interaction with Steelhead population
 - Use Resident Rainbows to build on an early-run component
 - NOR productivity and impacts of introgression
- APR (Annual Project Review)
 - TPU seeking guidance from FTC on this section
 - TPU to provide a partial draft as a starting point
 - Include Decision Rules?
 - Long-term goals
 - What-ifs
 - Note: Minimum viability targets are *not* the end game
- Coho Transition Plan
 - Moving from segregated to integrated program
 - Final outcome
- Spring Chinook
 - Insufficient detail is provided on hatchery programs
 - Outline decision points to support strategy
- Timing of FHMP Updates (longer horizon?)
- M&E Subgroup
 - Recovery phases and transitions between them
 - How do we get to numbers we can agree on?
 - SAR and TSAR data sets
 - What approach do we use to define them?
 - Start with Spring Chinook and then move on to other species
- Doing 2-3 years of genetic monitoring on fish above Cowlitz Falls Dam
 - Parentage-based tagging

Those unable to attend Feb. 18 Workshop: Travis, Phil, Eric, Tim, Peggy, Paul

Those unable to attend Feb. 26 Workshop: Laura, Tim, Bryce(?), Paul

Note. Paul will be out 2/19 – 3/29, with no one from TU to attend on his behalf. He will attempt to call in for March 3 FTC meeting.

Action Items:

- All: Continue to identify candidate issues for FHMP workshops and let Matt know.
- Paul: Let Travis know how to ensure TU is represented at FHMP workshops.

Review of FTC Protocols **Presenter: Travis Nelson**

Travis sent out WDFW's edits to the draft FTC Protocols on February 3. Additionally, on January 31, he forwarded to all an email from Paul with comments for discussion prior to reviewing the edited protocol document.

Paul shared his perception that the FTC was more effective and efficient, with more collaboration and trust with an independent FTC Chair. He thinks the FTC should be able to choose between valid positions and feels like its power to participate in meaningful decision making has been taken away in the past few years. Peggy agreed with Paul's perception, citing, in particular, that the Gravel Augmentation Plan and the CRR Fund processes haven't felt collaborative. All agreed that it is important to work collaboratively.

Travis thanked everyone for their candid feedback. TPU is committed to supporting these meetings and explore collaborative opportunities. The challenge is getting the necessary information out to everyone in a timely and meaningful way. Matt has developed a template for subgroup meeting notes. It has been given to the FTC to review. It has not yet been fully implemented.

Travis allowed that the last four years, the focus has been largely on the FHMP and other issues have been brushed off to the side. The CRR Subgroup transition to the FTC experience comes on the tails of a yet-to be completed FHMP process. Another complication has been a lack of consistent representation and participation by our federal partners. The USFS has reengaged and NMFS and the Yakama Nation are soon to name new FTC representatives.

He assured all that it's in TPU's best interest to ensure that the meetings are well organized and facilitated. TPU is close to the point of being able to provide a monthly report on what's happening in the various subgroups. Work together to improve the protocols and then sticking to them will also help.

As not everyone had been able to review WDFW's proposed edits, it was agreed to review the track-changes version of the protocols near the start of the March FTC meeting.

Action Items:

- Travis: Send to Lyn the draft of the standardized structure for all subgroups to use to report back to the FTC so she can forward it to all along with the proposed edits to the January FTC meeting summary on Feb. 7.
- All: Come to the March FTC meeting ready to discuss.

Approval of Meeting Summaries

The January FTC meeting summary will be approved electronically before the next meeting. And posted to the public website.

Action Items:

- Bryce: Coordinate WDFW edits and email to Lyn by the end of the day February 7.
- All: Send any other edits to Lyn also by February 7.
- Lyn: Consolidate edits and send out to all (in track changes) that same day.
- All: Send any additional comments or note of approval to Lyn so she can finalize for posting by February 14.

Meeting Evaluation

- Tough comments – remained respectful of other's position

- Appreciated James attending by phone for NMFS.
 - We had fun
 - Quotable Quotes:
 - John: If you work for 5 years on a 6-year plan, that's enough to make anyone cranky.
 - Josua: Don't raise your voice. Improve your argument. (Anonymous)
 - Appreciated the field trip to view first-hand the gravel pile below the Barrier Dam and the current high flows. Would be good to do more of these.
-

Potential Topics for March 3 FTC Meeting

- Updates incl. Hydro Ops, Water Quality, Kosmos seep
 - Planning for low water/drought conditions in 2020 (e.g., as for the Nisqually)
 - FTC Protocols
 - M&E Subgroup
 - Alternate Tilton Release Site
 - FTC feedback on topics for this group to address
 - Gravel Augmentation Work Plan
 - Downstream Adaptive Management TWG
 - FHMP Update
 - FERC's Response to EOT Request
 - Debrief of Feb. 18 and 28 FHMP Workshops
 - Cowlitz Restoration & Recovery Fund 2020
 - Report from LCFRB/TPU
 - Recommendations from LCFRB's Upper Cowlitz-Cispus Habitat Strategy Report
 - Satellite Rearing (?)
 - Set topics for the April 7 FTC Meeting
-

Parking Lot

- Review Steelhead Recycling Program

Cowlitz Hydroelectric Project
FERC No. 2016
Cowlitz Fisheries Technical Committee
Cowlitz Salmon Hatchery
Final Conference Call/WebEx Meeting Summary
March 3, 2020 from 12:30 – 3:15

Attendees:

Travis Nelson	TPU
Bryce Glaser	WDFW
Carol Serdar	WA Dept. of Ecology
Rich Turner	Tech Rep for NMFS
James Archibald	Tech Rep for NMFS
John Serl	Tech Rep for WDFW
Peggy Miller	Tech Rep for WDFW
Brian Gale	Tech Rep for WDFW
Sam Gibbons	Tech Rep for WDFW
Josua Holowatz	Tech Rep for WDFW
Matt Bleich	Tech Rep for TPU
Florian Leischner	Tech Rep for TPU
Melora Shelton	Tech Rep for TPU
Eric Shoblom	Tech Rep for TPU
Phil Sandstrom	Tech Rep for TPU
Tim Hoffnagle	Tech Rep for TPU
Chris Foster, by phone	Tech Rep for TPU
Steve West	LCFRB
Steve Manlow	LCFRB
Laura Wolfe	LCPUD
Ann Weckback	Lewis County, Tech Rep for TPU
Ruth Tracy	USFS, Tech Rep for TPU
JD Jones	USFS, Tech Rep for TPU
Lyn Wiltse	PDSA Consulting / Facilitator

Remaining 2020 FTC Meeting Dates: Apr. 7 (conference call), May 5 (conference call?), June 2, July 7, Sept. 8 (Sept. 7 is Labor Day), Oct. 6, Nov. 3 (Election Day), Dec. 1

- **Action Item:** Travis: Update next or next few meeting invites to show that they are conference calls (to minimize the spread of the COVID-19 virus).

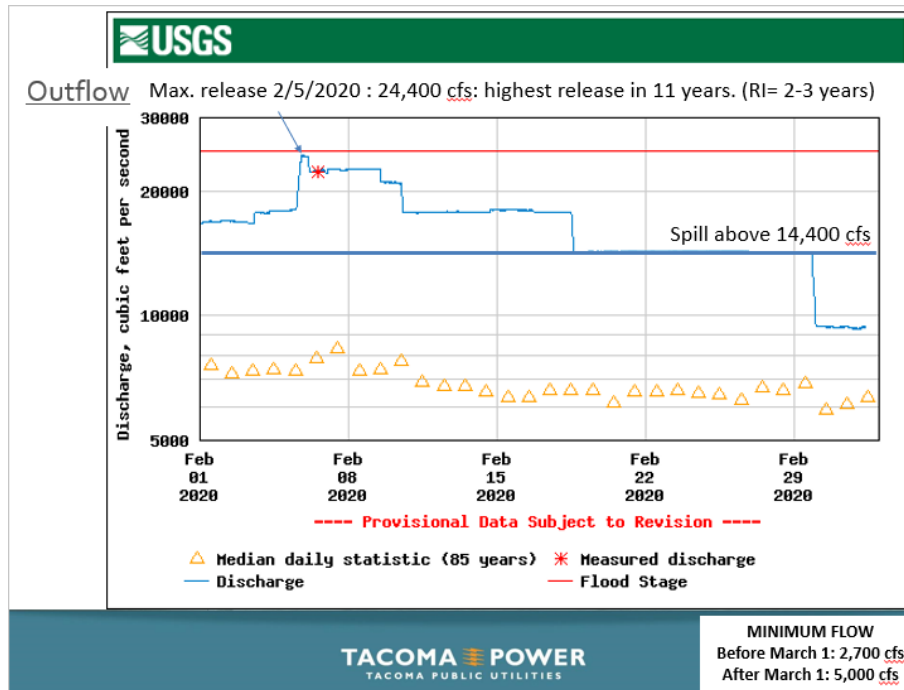
FHMP Workshop Dates: The morning of the FTC meeting dates March-June (see above)

Updates

Hydro Operations:

- **Inflows:** January and February inflows were higher than normal, with February inflows twice as high as the historical average. Since then, it has been relatively dry. March 1 inflow was 5,478 cfs vs. the historical March 1 average of 7K cfs.
- **Storage:** In capturing recent storms in Riffe Lake, the highest refill was 761' on February 10. Since then TPU has been draining Riffe Lake which is currently at 734'. Snowpack looks good. – at 90-100% of average in snow-water equivalent at lower stations and is at 140% of average at the higher elevation station.

- Outflow: Peak release at Mayfield was at 14,400 cfs on Feb. 5. Note: Spill occurs with any flows above 14,200 cfs. This was the highest release in 11 years. On March 1, outflows decreased to 9K, where TPU anticipates being for the foreseeable future (there is room to drop further). Inflows are expected to stay at 4-5K cfs.



Link to the USGS real-time Cowlitz River hydrograph:

https://waterdata.usgs.gov/wa/nwis/uv/?site_no=14238000&PARAMeter_cd=00060,00065

Action Item: Florian to coordinate with Matt Peter in providing Carol with Mossyrock discharge volumes and spill (above 14,400 cfs). She requests spill and TDG data from December to current.

Water Quality: Travis reported the stockpiled contaminated material has been removed from the upper flat area of Kosmos Flats. TPU is working through related issues with contractors. WDFW is wanting to discuss recreational impacts of the Kosmos seep. TPU is continuing to implement the Water Quality Protection Plan for the interim phase, before the cleanup phase. Regular weekly monitoring is in place since the cap was installed. When Carol visited the site with TPU staff on March 2, she noticed floating patches of oil sheen. She was disappointed there were no water quality sampling bottles on site. She noted that Tacoma Power is working with F&W related to some areas that will need to be regraded and seeded. The area where the contaminated stockpile was located is one of the locations where oil is oozing up from below the sediment and then spreading out on top of the water, creating the sheen. She spoke with Matt Peter about on March 3 prior to this meeting.

Low Flow Planning: Florian requested time at the April FTC meeting to outline in more detail the following 3-step approach:

1. Present current conditions and summary of climate change conditions,
2. Reviewing communication and how best to keep the FTC informed. Is additional communication required?

3. Any management changes we can make in response to the changes in the climate and anticipated run-off.

Carol reminded TPU that communications need to occur with Ecology before the FTC, as Ecology is the agency with conditioning authority on minimum flows. Peggy suggested adding a communication chapter in the low flow plan.

Draft Cowlitz Article 9 (LWD) Report: Travis reminded all that he sent this report out for electronic approval on Feb. 28. Comments are due by March 30.

Downstream Adaptive Management TWG: Matt highlighted the following three activities:

1. They are wrapping up the third year of a three-year contract on evaluations for the Cowlitz Northshore Collector and are developing an RFP for actions in the coming year.
2. The annual product will be the report which is coming in in the next week or two. Because the contract is ending, the TWG will do a concurrent 30-day review with the FTC review.
3. Work on the FCE metric is occurring. Recommendations may come to the FTC pending results of discussions.

FHMP Update: Matt reported that just this morning they completed the third of three very productive workshops. He thanked everyone for all their hard work in identifying and resolving outstanding issues. He is sending out a series of updates to keep the FTC informed of progress on these workshops. The first update was sent out February 19; the second on February 27, and another update package will be out in the next day or two. One of the follow-up actions will be to possibly schedule a fourth workshop to work through the handful of remaining unresolved topics. So far only one topic is slated for a white paper. The next workshop is currently scheduled the morning to April 7 (with the FTC meeting starting at 12:30 that day).

Review of FTC Protocols

Presenter: Travis Nelson

At the February FTC meeting, since everyone had not been able to review WDFW's proposed edits, it was agreed to review the track-changes version of the protocols near the start of this meeting instead. On March 1 Travis forwarded an email from Paul with two attachments for FTC consideration prior to doing the track-changes edits to the Protocol document. Travis, having been out of the office when they were emailed, apologized for not forwarding them right away on February 18 when Paul emailed them. All reviewed the first document that outlined Paul's concerns about Technical Advisors. Travis will follow up with Paul on this to see how best to address his concern with SA consistency and report back to all prior to the next meeting. Perhaps the Issue can be addressed through a white paper?

Travis displayed section 12:6 from the SA:

The FTC develops their own operating rules and procedures – emphasizing the importance of developing a consensus among FTC representatives on fishery measures. When making recommendations, the FTC will operate by consensus when possible or by majority vote.

Balancing respect for Paul's request to be present for discussions on the Technical Advisor issue, and the need to get consensus on protocols, especially concerning subcommittees, the FTC agreed to use the remainder of the time to review Sections 7: Subcommittees.

- 7a: States that subcommittees work at the direction of the FTC.
- 7d: Lines out need for an agenda to be provided a week in advance to FTC members

so that they would know what was coming up and have time to prepare and engage.

- 7e: Preparation of meeting summary with major ideas, discussions, and outcomes.

Bryce explained that WDFW's intent was to expand what was already in the protocol document to help with the transparency issues that Paul brought up.

Subcommittees are to develop clear work plans based on direction from FTC. There should be continual communication between the subcommittees and the FTC. To that end, Matt worked with a consultant to develop a Meeting Summary Report template. The source of the template was feedback from the FTC about wanting to improve communication with subcommittees.

Subcommittee Meeting Summary Report: Matt explained that this report (distributed on February 7 by Lyn for all to review) can provide a useful template for two-way communication between the FTC and various subcommittees. After discussion, including Paul's expressed doubts that such a template would become "busy work for technical staff and fall short of the kind of sharing of information and insights most needed by the FTC" it was agreed to test drive this form for the second quarter of this year and evaluate how well it works, and then improve it is/as needed.

Action Items:

- Travis: Talk with Paul about how best to capture his concerns with FTC Technical Advisors as described in the SA.
- All: Come to the March FTC meeting ready to discuss.

M&E Subgroup Report

Presenter: Phil Sandstrom

Tilton Release Site: Eric reported the water splash-back problem is still occurring. TPU addressed this issue by getting DOT approval to pave the impacted area with asphalt. That area is now shored up. They are still working to remove the sag from the release pipe, and a few other minor modifications. After those have been addressed, they will begin commissioning of the facility for fish. Bryce noted that WDFW will be moving a rule change through the North of Falcon Process to make "release site" plural. John will work with Phil and Eric to determine the best places to post movable markers, taking into account the enforcement objective.

M&E Work Plan: Phil explained that as the APR process is starting again, TPU is working with WDFW on getting data together to inform the process and is putting task orders in place for next year. TPU is also finalizing comments on the juvenile screw trap process. This subgroup hasn't met for three months. Next steps include presentation or a draft work plan for this subgroup and getting feedback from the FTC at the April FTC meeting. Phil looks forward to ensuring the work plan reflects FTC priorities.

Action Item: Phil to present list of M&E topics/priorities for FTC feedback at the April FTC meeting.

Gravel Augmentation

Presenter: Florian Leischner

TPU understands that folks are anxious to get this license obligation met and they want to do so in a smart and successful way. Recently a high-flow event provided an opportunistic

moment to further disperse the gravel pile just below the Barrier Dam. After consulting with Ecology, USACE, and USFWS about possibly doing more to help disperse the material there, TPU ultimately did not take any action (based on agency responses). The FTC was not notified of these discussions and potential action as TPU did not receive agency approval. Some FTC members expressed disappointment at this and said they would like to be kept in the loop if TPU contemplated doing something similar in the future. The high-water event did take with it a significant amount of material from the pile below the Barrier Dam.

Florian displayed and briefly discussed an Alternatives' Analysis Spreadsheet showing ten potential locations and associated parameters including land ownership, access, constructability, benefits, and risks. Travis emailed this spreadsheet to all during the discussion.

When asked why the Gravel Augmentation Work Plan was not available to review, Florian assured everyone that the Work Plan will be put together by June. That plan will be based on the sites prioritized by the FTC as the most viable and will include a timeline, key communication points with the FTC, and considerably more detail. The basis sequence of events is as follows:

1. Alternatives Analysis
2. Site evaluation
3. Design and Permitting phase in June
4. Construction in 2021 or 2022

Florian also displayed a Google Earth map showing the location of each of the ten sites. At the April FTC meeting, a high-level Work Plan will be shared that includes a timeline of tasks up to the point of implementation. FTC members remain eager to see the Plan.

Action Items:

- All: By March 24 review list of parameters (Column A) on Alternatives Analysis Spreadsheet and send additions / edits / opposite views, etc. to Travis and Florian. Focus on Column A.
- Florian: Prepare a high-level Gravel Augmentation Work Plan to share at or prior to the April FTC Meeting.

Cowlitz Restoration & Recovery (CRR) Fund: 2020 Program

Presenter: Melora

Melora reported that on March 1 TPU submitted the first CRR Annual Report to FERC. During the review of that report, several questions were raised about the funding mechanism. She walked through a PowerPoint presentation that included these questions along with TPU responses. Members asked a few additional clarifying questions and seemed satisfied with the responses. These questions also were addressed in detail in the final CRR annual FERC filing. Travis emailed the PowerPoint to FTC members during the meeting and said TPU welcomes other questions as they arise.

Approval of Last Meeting Summary

The February FTC meeting summary was approved with edits and will be posted to the FTC public website.

Meeting Evaluation

- Great attendance!
 - Much appreciation to all for putting up with the frustration of technical difficulties.
 - Need TPU to set up Webex that works for State agencies with strong fire walls.
 - Ensure that everyone has the documents they need for the meeting before the meeting starts.
 - Consider reinstituting the beeping to signal when someone wants to speak to ensure balanced participation (Would that work with so many on the phone?).
 - Travis: Let everyone know if moving issue to white paper.
 - Quotable Quote:
 - Josua: "Trust is the lubrication that makes it possible for organizations to work." – Warren Bennis
-

Potential Topics for April 7 FTC Meeting

- FHMP Workshop in the AM of this meeting
 - Updates incl. Hydro Ops, Water Quality, Kosmos seep
 - Planning for low water/drought conditions in 2020 (e.g., as for the Nisqually)
 - FTC Protocols
 - M&E Subgroup
 - Alternate Tilton Release Site
 - Gravel Augmentation Work Plan
 - Downstream Adaptive Management TWG
 - Cowlitz Restoration & Recovery Fund 2020
 - Satellite Rearing
 - Set topics for the May 5 FTC Meeting
-

Parking Lot

- Review Steelhead Recycling Program

Cowlitz Hydroelectric Project
FERC No. 2016
Cowlitz Fisheries Technical Committee
Cowlitz Salmon Hatchery
Final Conference Call/WebEx Meeting Summary
April 7, 2020 from 12:30 – 4:15

Attendees:

Travis Nelson	TPU
Bryce Glaser	WDFW
Carol Serdar	WA Dept. of Ecology
Rich Turner	Tech Rep for NMFS
James Archibald	Tech Rep for NMFS
Jim Pacheco	Tech Rep for Ecology
John Serl	Tech Rep for WDFW
Peggy Miller	Tech Rep for WDFW
Brian Gale	Tech Rep for WDFW
Sam Gibbons	Tech Rep for WDFW
Josua Holowatz	Tech Rep for WDFW
Matt Bleich	Tech Rep for TPU
Florian Leischner	Tech Rep for TPU
Melora Shelton	Tech Rep for TPU
Eric Shoblom	Tech Rep for TPU
Phil Sandstrom	Tech Rep for TPU
Tim Hoffnagle	Tech Rep for TPU
Chris Foster, by phone	Tech Rep for TPU
Steve West	LCFRB
Laura Wolfe	LCPUD
Debbie Carlson	BPA
MaryLouise Keefe	R2 Resource Consultants
Lyn Wiltse	PDSA Consulting / Facilitator

Remaining 2020 FTC Meeting Dates: May 5 (conference call/Webex?), June 2, July 7, Sept. 8 (Sept. 7 is Labor Day), Oct. 6, Nov. 3 (Election Day), Dec. 1

- **Action Item:** Travis: Update next or next few meeting invites to show that they are conference calls (to minimize the spread of the COVID-19 virus).

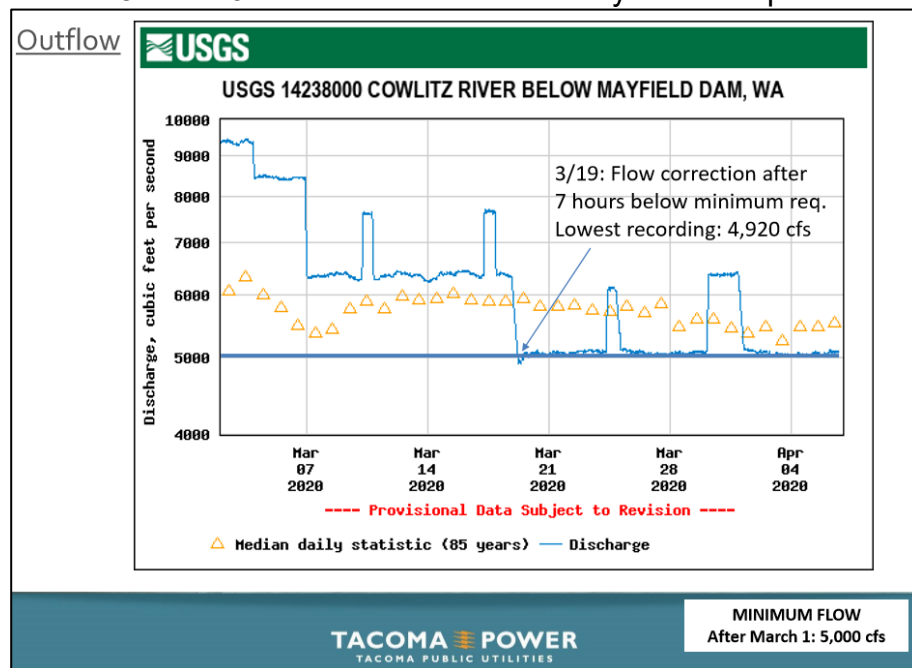
Announcements

- Retirement: Congratulations to Ruth Tracy who has retired from the USFS. JD Jones will continue to attend these meetings as the USFS technical rep. Best of luck Ruth and looking forward to continuing to work with you JD!
- NMFS Representatives: Since our last meeting Scott Hecht has been assigned as the NMFS voting member relative to FERC issues and Scott Anderson will be his alternate. Scott will be assuming Michelle Day's Project lead role (FTC Member, etc.) This does not change Rich Turner's engagement with the FTC.
- Stuck in Paradise: Paul Sparks intended to participate in this call, but technical difficulties interceded. He and his wife are staying safe and doing well, still in Hawaii due to the Corona virus.

Updates

Hydro Operations:

- Inflows: February inflows were at 16K cfs (nearly twice as high as the historical average). In contrast, March inflows were only 4.7K cfs, much lower than the historical average of 7.7K cfs.
- Storage: The highest refill was 761' on February 10. Since then TPU has been draining Riffe Lake which is currently at 725'. Snowpack looks good – at 103% of average in snow-water equivalent at lower stations and 130% of average at the higher elevation station.
- Refill Projections for Riffe: 82% probability of refilling to 749' by this summer based on weather years 1981-2019. As things can change very quickly, TPU is taking the conservative approach of running at slightly above minimum to provide storage capacity at Riffe. Stable flows are fish friendly flows.
- Outflow: On March 19 there was a flow correction after 7 hours below the minimum requirement. The lowest recording was at 4.9K cfs. The minimum flow after March 1 is 5K cfs. The forecast is dry and warm with storage in Riffe staying steady and outflows between 5K and 6K cfs. This includes weekly fish transport flows.



Link to the USGS real-time Cowlitz River hydrograph:

https://waterdata.usgs.gov/wa/nwis/uv/?site_no=14238000&PARAMeter_cd=00060,00065

Water Quality: In early February, as TPU began to remove contaminated soil stockpiles, some of this material was further stockpiled at the boat ramp until it could be disposed of at landfills. Carol reported there were no inspections of this area as per the Water Quality Protection Plan. There is uncertainty around how long the ooze ran down the boat ramp. Tacoma is now in the process of cleaning up the soil lodged between the concrete slabs. This will likely be listed as a contaminated site. Proper clean-up must be based on clean samples. It is not clear at this time how the cleanup will occur. Ecology has not received a request for an amended or new WQPP approval.

Low Flow Planning: Florian announced that Melora will do a presentation on TPU Low Flow Planning / Climate Change Impact at the May 5 FTC meeting.

Downstream Adaptive Management TWG: Matt shared how this subgroup used the “Meeting Summary Report” template to report on the topics covered during their March 24 meeting along with next steps. At that meeting, discussions included the 2019 Report (applying lessons learned to 2020 activities); response to COVID-19 (halt of all non-essential activities); CFNSC Operations Update (no changes in operations); loaning the Behavior Guidance Structure (BGS) to the Bureau of Reclamation; and FCE definitions.

CRR Fund: Florian reported a meeting on April 16 has been scheduled with the LCFRB to discuss their future involvement with the CRR Fund. Peggy express concern that time was running out for the 2020/2021 grant round. If updates and the development of the habitat review process doesn’t happen soon, we will not be able to meet our goals. Tacoma is concerned as well. Bryce inquired about the reconvening of a CRR subcommittee.

Fisheries Essential Operations: With current COVID-19 guidelines, Eric reported that, for the most part, hatchery staff have been deemed essential and have been able to maintain most normal operations. Mass marking, however, has been difficult due to social distancing requirements. He expressed appreciation to WDFW for defining how best to delineate work groups and ensure the marking crew has minimal interaction with the hatchery staff. So far, the system, which includes back-up teams, changing crew shifts, and cross training to minimize the spread of the COVID-19 virus seems to be working. Chris reported that while they are still on track for M&E work including FCE evaluations, it may become necessary to scale these activities back as fish numbers start to pick up. This would be done in a way that prioritizes staff health. In summary, passage and hatchery facilities are currently fully functional. Staff is participating in weekly coordination calls to address issues as they arise.

Satellite Rearing Projects

Presenter: MaryLouise Keefe, R2 Resource Consultants

Matt reminded all MaryLouise Keefe’s (R2 Resource Consultants) last visit with the FTC on August 6, 2019, where the focus was brainstorming objectives and criteria, technology, and possible locations within the upper Cowlitz River Basin for satellite rearing facilities.

MaryLouise walked through a PPT presentation that was sent out to all the morning of this meeting. The presentation provided a preview of R2’s draft report on satellite rearing. This report will be sent out to the FTC for 30-day review later today. After feedback has been addressed/integrated into the final draft report this June. At that point, TPU and the FTC will move forward with the conceptual design and plan implementation.

She reviewed the programmatic goals for this program, with the primary goal of increasing the abundance of Spring Chinook above CFD. Important to consider facilities that have flexibility to accommodate other species as well. After reviewing ten years of literature, scouring the internet, and made calls throughout the PNW inquiring about different satellite rearing programs, R2 came up with a list of five different types of facilities. In so doing, they made assumptions about production capacity of the different types of facilities to help with comparisons. Facilities including mobile, circular ponds, earthen ponds, off-channel/side channel rearing habitat, and reservoir net pens. They also looked at location options and a rearing framework show possible components for rearing, i.e., spawning, egg incubation, rearing and release.

Discussion: Sam stated that we need a quantitative target (i.e., number of adults produced) in order to evaluate the hatchery infrastructure necessary to achieve the programs goal.

Need to define this as a group to facilitate the review of infrastructure options presented in the draft report. Matt invited him to please make a recommendation. Bryce expressed concern about this unexpected 30-day timeline which overlaps with the FHMP review. Matt assured all that while the work plan hasn't really changed, R2 is delivering this report later than expected due to conflicting priorities. He acknowledged there may be a need for more time to work through this.

Next steps: The draft report will be out today. All comments are welcome. For example, should we aim for 25 fpp instead of 40? R2 also welcomes feedback on locations, programmatic elements, etc. They will incorporate comments and expand sections accordingly. Eric suggested it may be helpful to focus on minimum requirements of the various facilities due to limitations due to available flow, location of the facilities, etc. Bryce suggested the review should include whether the objectives are still valid. Maybe we say yes to the guiding principles but no to quantitative goals. Peggy reminded all that this is a conceptual report and that specific goal setting would come later. MaryLouise asked all, when reviewing the draft, to keep in mind that rearing options may include existing facilities which would be reprogrammed.

FHMP Update

Presenter: Matt Bleich

Matt began by thanking everyone for all their hard work in identifying and resolving outstanding issues and reviewing the draft documents. He sent out the most recent update package on March 20. In the fourth FHMP workshop this morning, they worked on the M&E Chapter including transitioning the existing M&E plan to the new one in the FHMP. They also identified the need for a white paper on how to characterize the interim plan for Fall Chinook Broodstock selection. MaryLou will draft this white paper which will be appended to the FHMP. They expect to finish reviewing work products from the technical editor by the end of May. TPU will then consolidate comments received into draft final FHMP the end of June at which point it will go for public review.

Mayfield Intake Cleaning: TPU is required to clean the Mayfield intake annually, as per FERC license. Normally, the cleaning occurs this time of year. Unfortunately, they have to forgo doing this operation this year due to staffing changes in response to social distancing guidelines. Fortunately, camera surveillance doesn't indicate any major problems. Flows last year were not sufficient to clog the intake system.

M&E Subgroup Report

Presenter: Phil Sandstrom

Tilton Release Site: Eric reported the site is basically ready to be fish tested. This will be done after COVID-19 restrictions are lifted.

M&E Subgroup: The only WDFW M&E action currently occurring on the Cowlitz is operating the three of the four tributary weirs. These were determined to be essential to collect hatchery NOR broodstock. John reported operating the three weirs that historically collected most of the steelhead. With water levels low, they are not seeing a lot of fish. WDFW is still discussing with Tacoma on how broodstock can be delivered to the hatchery while ensuring the isolation of hatchery staff through no contact.

At their last GoToMeeting/conference call, they used the new Meeting Summary Report template. Phil is looking into getting a consultant to help with notes from these meetings. In the meantime, he welcomes any feedback / suggestions on how best to use the form. In addition to reviewing the status of previously assigned action items, they discussed the Spring Chinook SAR Project. They want to be able to assess different programs, size at release, to get to a single data set. They are currently developing a work list – a schedule of when certain topics should be addressed. After Phil finishes compiling this list, he will send it to the M&E Subgroup for comments. He will incorporate the comments into the list he sends to the FTC for comment. He is committed to include items according to FTC priorities.

Action Item: Phil to send draft work list out for FTC prior to the May 5 meeting.

Review of FTC Protocols

Presenter: Travis Nelson

Travis thanked WDFW for their time and attention in editing FTC protocols. He walked through their proposed edits including detail around technical representatives. Those who are also signatories to the SA can be technical reps to their organization(s). Others (e.g., LCFRB) must be nominated by an official FTC rep with concurrence by the FTC.

Meeting Summary Report: Matt explained that this report has been used by the Adaptive Management TWG to record their meeting activities. A copy was sent out to all. It appears to be working well. Other subcommittees are encouraged to also use the template. At the last meeting the FTC agreed to use this form from April – May, evaluate how well it meets the goal of improving communication with the FTC, and then improve it as needed.

Action Items:

- Travis: Talk with Paul about how best to capture his concerns with FTC Technical Advisors as described in the SA.
 - All: Come to the May FTC meeting ready to further discuss / approve the protocols.
-

Gravel Augmentation

Presenter: Florian Leischner

Florian explained the “2020 Draft Gravel Augmentation Work Plan” that was sent out on March 13 represents a high-level timeline for the actual plan. A full work plan will be developed once a site is selected.

Just prior to this meeting, Travis sent out the updated Excel spreadsheet of the alternatives analysis that included feedback from FTC members. Florian explained they would like to finalize the sites based on the alternatives analysis.

Discussion: Include photos and/or a map of the locations. WDFW folks agree that a gravel distribution metric is key. Josua explained the edits offered by WDFW, including water depth, flow velocity during placement, during average flows and if the proposed locations had other habitat restoration opportunities. WDFW had questions around how the existing high/medium/low metrics would be used. How would the success of this application be measured? By whom? How and how often? Florian explained the – high/medium/low ratings would be based on professional judgment. Bryce suggested it would be helpful to supplement the ratings with a short explanation, especially if not doing hydraulic modeling. Add current state of substrate? Florian suggested combining flow velocity and water depth

as both have to do with gravel movement. WDFW's suggestion of "Other habitat restoration opportunities" asks if more efficiency could be gained?

Next steps: Instead of getting consensus on parameters prior to this meeting, Florian explained the goal is to finalize the site location selection in late April. He will complete the Alternatives Analysis spreadsheet based on recommendations received and email it to the FTC for additional review / comments. The aim is to finalize site locations at the May FTC meeting. He assured all there will be hydraulic modeling during the design process.

Action Items:

- Florian: Update high-level timeline for the work plan.
- Florian: Write up assumptions about placement within the channel, complete the Alternatives analysis spreadsheet and send out to FTC by April 28 for discussion at the May meeting. See about putting together a Decision Document on next steps.

Note: Just after the meeting, Travis emailed out a Google Earth map showing the location of each of the ten sites.

Approval of Last Meeting Summary

The March FTC meeting summary was approved with edits and will be posted to the FTC public website.

Meeting Evaluation

- Great attendance!
- Using the chat box to queue up to speak worked well.
- Meeting ran late.
- Need more time for agenda topics.
- Need to be sure we are spending the most time on the most important topics.
- Much appreciation to all for putting up with the frustration of technical difficulties.
- Quotable Quote: *Happiness cannot be traveled to, owned, earned, or worn. It is the spiritual experience of living every minute with love, grace and gratitude.*

– Denis Waitley

Potential Topics for May 6 FTC Meeting

- Updates incl. Hydro Ops, Water Quality, Kosmos seep
- Presentation on Kosmos Seep (Jessica)
- Presentation on Planning for low water/drought conditions in 2020 (Melora)
- FTC Protocols
- M&E Subgroup
 - Alternate Tilton Release Site
- Gravel Augmentation Work Plan
- Downstream Adaptive Management TWG
- Cowlitz Restoration & Recovery Fund 2020
- Satellite Rearing
- Set topics for the June 2 FTC Meeting

Parking Lot

- Review Steelhead Recycling Program

Cowlitz Hydroelectric Project
FERC No. 2016
Cowlitz Fisheries Technical Committee
Cowlitz Salmon Hatchery
Final Conference Call/WebEx Meeting Summary
May 5, 2020 from 9:30 – 3:30

FTC Representative Attendees:

Travis Nelson	TPU
Bryce Glaser	WDFW
Carol Serdar	WA Dept. of Ecology
Paul Sparks	WA Council of TU, TU, American Rivers

Additional Attendees:

Rich Turner	NMFS
James Archibald	NMFS
Scott Anderson	NMFS
Jim Pacheco	Ecology
John Serl	WDFW
Peggy Miller	WDFW
Brian Gale	WDFW
Sam Gibbons	WDFW
Josua Holowatz	WDFW
Matt Bleich	TPU
Florian Leischner	TPU
Melora Shelton	TPU
Eric Shoblom	TPU
Phil Sandstrom	TPU
Tim Hoffnagle	TPU
Chris Foster	TPU
JD Jones	USDA FS
Diane Hopster	USDA FS
Ann Weckback	Lewis County
Steve West	LCFRB
Laura Wolfe	LCPUD
Lyn Wiltse	PDSA Consulting / Facilitator

Presenter:

Jessica Knickerbocker	TPU Engineering Manager
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Remaining 2020 FTC Meeting Dates: June 2 (conference call/GoToMeeting), July 7 (placeholder) Aug. 4, Sept. 1 (placeholder), Oct. 6, Nov. 3 (placeholder), Dec. 1 (public meeting?)

- **Action Item:** Travis: Update upcoming meeting invites to show that they are conference calls (to minimize the spread of COVID-19).

Announcements

- Travis announced that TPU plans to migrate over to Go-to-Meeting tool for future meetings.

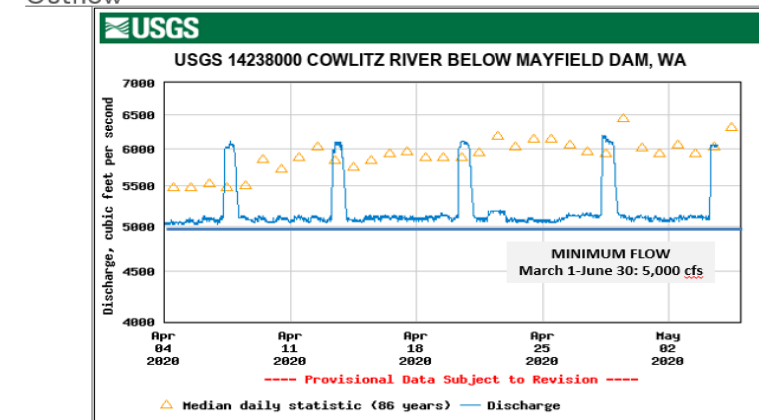
- As Ruth Tracy has retired, JD announced that Diane Hopster has assumed her position and will be helping out the next few months. Diane Hopster comes from the Columbia Gorge and we are happy to add her to the FTC distribution list. Welcome Diane!
- WDFW and WA State Parks and Rec Commission (Parks) reopened state-managed lands today (May 5), for local day-use only recreation. The reopening will apply to state-managed parks, wildlife areas, recreation land, and boat launches. WDFW is asking hunters and anglers to enjoy these outdoor activities only if they can do so locally, while also practicing physical distancing and to avoid crowding on banks, piers, or at boat ramps. All freshwater fisheries will open today, as will Puget Sound saltwater fisheries (Marine Areas 5-13). Exceptions are halibut, shrimp, and intertidal shellfish harvesting, which remain closed. If sites become overcrowded or other COVID-19 related public safety concerns develop, WDFW may reclose areas to further protect public health.
- TPU Boat launches opening on May 5 include Barrier Dam (*daylight hours only*), Blue Creek (*daylight hours only*), Lake Kokanee, Mayfield Lake Park, Mossyrock Park, and Taidnapam North.

Updates

Hydro Operations:

- Inflows: Florian reported that March and April were as dry as January and February were wet. The current elevation is 737' (15' from full reservoir). Inflows to Riffe Lake are averaging 10K cfs (1K cfs above the historical average). Snowpack in higher elevations is 120% of average. It is 82% of average at the lower station.
- Refill Projections for Riffe: While the refill probability is calculated at 67%, TPU is confident they will be able to refill by the end of May, as most snow melt will occur in next few weeks. They will increase outflow to accommodate that refill and create a buffer for additional runoff and rain.
- Outflow: Flows have been at/above the 5K cfs minimum flow for last month. Weekly fish pulses have been at 6K cfs and may increase further. The forecast indicates freezing levels will go up to 8K'. Riffe Lake levels are expected to increase about 1ft/day. TPU will increase outflows possibly as high as 9K cfs so as not to overfill Riffe Lake. They intend to keep boat launches operational all summer.

Outflow



Link to the USGS real-time Cowlitz River hydrograph:

https://waterdata.usgs.gov/wa/nwis/uv/?site_no=14238000&PARAMeter_cd=00060,00065

Water Quality: Carol requested that TPU provide a month-ahead preview of all project activities that may impact water quality. She appreciates as much notice as possible. This includes monitoring at the mouth of Mill Creek where a landslide occurred at the Barrier Dam boat launch, filling in much of the boat launch. While the normal work window to dredge at that location is in July, TPU applied for an HPA variance to remove the deposits in the first part of May. Sediment removal occurred on May 1st. However, the excavator was unable to reach more than 10 cubic yards. TPU is creating another plan to proceed. Eric will send the specifics on this to Carol. TPU has an approved WQPP for annual boat launch maintenance which includes dredging. Carol reminded TPU they should be disposing of the material removed as per the Plan (in a low spot nearby). She also suggested they use the landslide deposit to study gravel movement in the Cowlitz. When she asked for an update on the LWD Protection Plan, Travis responded he will have the appropriate person follow up with her on that. She requested that water quality updates at these meetings include reports on ground disturbing project activities (especially those with WQPPs).

Downstream Adaptive Management TWG:

CFFF: This facility has been operating since February of this year and fish are currently being PIT tagged weekly for FCE trials. Thus far, it appears that Steelhead and Coho collection efficiencies are on track to match those of the last two years. During Steelhead emigration, TPU will be conducting a direct study by modifying the floor geometry to try to improve CE. There will be more to report on this in June. Five directed evaluations were planned for 2020. Due to COVID-19 restrictions, the study that involved acoustically tagged Chinook for a fourth season won't be performed.

Operations: Coho were observed coming in last week with increased abundance, there is an overall increase in smolt outmigration. Social distancing measures are in place. Staff are wearing masks at the sample table and working at designated workstations. There have been two release groups of Coho and Steelhead PIT-tagged fish. They are planning to do a third release group this week.

Fisheries Essential Operations: With current COVID-19 guidelines, Eric reported that they are still isolating crews at the hatcheries – maintaining smaller groups to reduce exposure risks to personnel. The current adult Spring Chinook returns indicate this year will be the lowest return on record for the Cowlitz.

CRR Fund: Florian reported having met twice with the LCFRB to discuss their future involvement with the CRR Fund. He will work with Steve West to schedule an additional meeting to conclude the discussions. In the meantime, TPU is working on drafting recommended changes for next year and will present these at the June meeting, along with a path forward.

Kosmos Flats Cleanup

Presenter: Jessica Knickerbocker

Jessica Knickerbocker, Engineering Manager and Project Manager for this project, provided an overview of the site history, communication efforts, independent emergency remedial action, and the Agreed Order. Throughout the presentation, she emphasized that public safety and compliance with environmental regulations is a top priority for TPU.

Communication: TPU temporarily closed the site to the public and notified the public and affected state and federal agencies, as well as tribes and local jurisdictions.

Independent Emergency Remedial Action: TPU contractor HartCrowser designed the cap. With Carol's help, TPU secured the necessary permits and ended up moving 8K cubic yards of material up to the top of the Kosmos Flats (elevation of 755'). It appears the BMPs were effective. The in-place clay-like subsurface material was challenging for the excavators and the weather made it difficult to keep the site dry. They were not able to remove all of the impacted soil below the creek bed, due to an impending storm that would cause water levels in the creek to rise considerably. They got the cap in place on December 30, just before the storm hit. Contaminated soil stockpiles at Kosmos Flats and the boat ramp were hauled to two landfills. Consultants are compiling a draft summary report that shows all sample locations (soil and water samples).

Agreed Order: In January, TPU received a letter from Ecology regarding the Agreed Order for investigating and cleanup. May 22 will be the start of a public comment period (that complies with COVID-19 restrictions). While the timeline to completely execute the Agreed Order is uncertain, it is likely to extend into 2024. Carol thanked Jessica for the very thorough presentation and noted that, while there is overlap with Water Quality, the Agreed Order comes from Ecology's Toxics Cleanup Program.

Cowlitz Project Low Flow Planning: Starting the Process

Presenter: Melora Shelton

Melora walked us through a presentation describing TPU's planning process for responding to low flow scenarios on the Cowlitz. This included an overview of their anticipated process, some existing climate science for context, and next steps. The planning process for Cowlitz will be more complex than the ongoing process at Nisqually. TPU will keep the FTC informed along the way to ensure a common set of expectations and understandings, for nimble decision making in low flow conditions. Plans also include hosting an FTC workshop to discuss communication planning.

Discussion:

Peggy expressed appreciation for this presentation and found the climate change graphs to be particularly helpful. Overlaying the various water years shows the variability and the associated challenges ahead. Frequent lower flows in June may be an issue in the future. It is important to keep the FTC appropriately informed as real-time decisions are made in response to various low-flow scenarios. When it comes to communications, more is better. No surprises. Carol noted that Ecology needs to be informed before decisions are made so that they can help to ensure WA State requirements are met. There was FTC broad support for this idea of a communications workshop. There were also specific questions about the time horizon and probability thresholds Power Management uses to make decisions about flow management, with appropriate coordination and/or regulatory agency approval. There was a request to invite a representative of Power Management to an FTC meeting to give a presentation on their planning process, including the role played by alternative energy sources, flow predictions, etc.

FHMP Update | Satellite Rearing

Presenter: Matt Bleich

FHMP Update: Matt began by announcing that FERC has accepted the proposed revised schedule TPU submitted back in October. There was great rejoicing! This approved schedule calls for a review of the complete draft FHMP document through the end of May.

The recent FHMP workshops allowed for working through unresolved topics. After each workshop, Matt emailed the entire FTC a detailed list of discussion topics, deliverables, and next steps. As the FTC comment period is wrapping up, the team is working to align topics from the various workshops and ensure consistency throughout the document. He thanked WDFW and LCRFB for their comments on Fall and Spring Chinook. These comments are available for review on the FTC website. He welcomes additional comments by May 30, after which technical editors will work thru June and into July to integrate comments and prepare the document for public review. The public comment period is from July through early September. Public comments will then also be incorporated, and the document will be finalized. TPU is also working to integrate an abbreviated APR process into the public comment period. This will involve sending out an information packet and holding virtual and/or small in-person gatherings (following social distancing rules).

Satellite Rearing Draft Report: R2 presented summary of design goals and criteria at the April FTC meeting. Matt sent this report out for comment on April 7 for a 30-day review which ends May 7. The next iteration of this report will be more detailed and include geographic locations as well as impact on fisheries program. All are encouraged to focus comments on design criteria, fish management, and geographic considerations. As the FERC Order approving the 2011 FHMP directed Tacoma to provide an update for the satellite rearing ponds, WDFW suggested a summary of the Satellite Rearing Report be included as part of FHMP.

FTC Protocols | FTC Meeting Frequency

Presenter: Travis Nelson

Protocols: Travis explained that he and Paul have yet to connect on the protocols, including the FTC discussions over the last few months. He recommended, with Paul's support, that this topic be deferred to the June meeting. This will also allow for Bryce's participation.

FTC Meeting Frequency: Travis announced that, due to COVID-19 and current budget shortfalls, TPU intends to alter the frequency of FTC meetings to every other month after the June meeting. Travis assured all the need for additional meetings will be made on a case-by-case basis. For the June FTC meeting, he will create an FTC work plan to ensure topics are addressed in a timely manner. We can also extend the length of FTC meetings to a full six hours as needed. Note: The license requires only an annual meeting of the FTC.

Discussion: Concern was expressed at shifting to a bi-monthly schedule, citing CRR and Gravel Augmentation progress will likely be delayed even more than it has been to date. Travis reminded all that meetings could be added as needed. Regarding finishing up the FHMP, Matt responded that this wouldn't preclude scheduling other workshops or subgroup meetings. Subsequent suggestions included reconvening the CRR Subcommittee and considering an alternate forum/methodology to ensure timely Water Quality updates. WDFW said that they understand Tacoma's fiscal issues given COVID-19 and looks forward to working with Tacoma on FTC tasks, however they cannot make a decision on altering the meeting schedules without Bryce Glaser present. Paul Sparks was also absent. Peggy asked if this decision will be made using the consensus decision-making process in our protocols. In addition, she suggested this be memorialized with a decision document so that members can add their position on the change.

Next steps: Further discussion, perhaps with a decision document at the June FTC meeting.

Action Items:

- Travis: Talk with Paul about how best to capture his concerns with FTC Technical Advisors as described in the SA.
 - Travis: Create a draft FTC Work Plan and possible decision document for June.
-

M&E Subgroup

Presenter: Phil Sandstrom

Tilton Release Site: Eric reported the site will be fish tested when the following three conditions are met:

- Covid-19 staff restrictions are lifted.
- Availability of HOR fish (likely Steelhead) above brood stock needs.
- Flows of less than 500cfs with good water visibility so it is easy to observe the fish.

M&E Subgroup: Phil reminded all this subgroup started solidifying the M&E Work Plan three months ago. He walked the FTC through the spreadsheet showing a rough schedule for their current workload. The subgroup is seeking FTC input on this schedule as well as additional topics they would like to see included. Phil's goal is to ensure there is a two-way conversation between the subgroup and the FTC.

Action Item: All - Send Phil your feedback/suggestions for work listed on the draft spreadsheet prior to the June meeting.

Gravel Augmentation

Presenter: Florian Leischner

The 2020 Draft Gravel Augmentation Work Plan will be continually updated to ensure accountability for progress compared to the schedule. Acknowledging that some dates have slipped, Florian explained TPU is conducting an internal evaluation of sites to recommend for FTC review and discussion. A meeting with TPU engineers on May 7 will finalize these draft recommendations. He updated the Alternatives Analysis spreadsheet incorporating feedback from the April FTC meeting. He removed all the site data so that TPU recommendations could be added instead. Additions were made to the *Notes* category and a listing of permits at the bottom of the spreadsheet. No new sites have been added. A full work plan will be developed once a site is selected. Peggy suggested that Tacoma provide the FTC their top site recommendations so that members have a role in making the final site selection decision.

Corps Permitting: Corps permitting will be required and depending on the type of permit needed, the time it takes to acquire the permit will vary. The completed spreadsheet matrix will indicate the type of Corps permit that will be required. A programmatic permit with the USACE could cover the entire 11-mile stretch, with criteria for augmenting gravel within that stretch. It may be possible to do a similar programmatic permit for the WQPP. Matt Peter had cautioned that programmatic permits take longer than other types of permits, so TPU may need to take interim steps. Carol will follow up with Matt Peter on this.

Action Item: Florian – By May 15, send out filled in Alternatives Analysis spreadsheet for discussion at June meeting and create a draft decision document for the August FTC meeting.

Approval of Last Meeting Summary

The April FTC meeting summary was approved with edits and will be posted to the FTC public website.

Meeting Evaluation

- Great attendance!
 - Using the chat box to queue up to speak worked well.
 - It was nice to get most presentations before the meeting (rather than during).
 - Wish there were a toll-free line.
 - Stayed on agenda and finished on time.
 - Some discussions got hot.
 - Appreciate ending with Josua's inspirational quotes.
 - Appreciate everyone putting up with the frustration of technical difficulties related to meeting remotely.
 - Quotable Quote: "When **I** is replaced by **we**, even illness becomes wellness."
- Scharf
-

Potential Topics for June 2 FTC Meeting

- Updates incl. Hydro Ops, Water Quality
 - FTC Protocols
 - FTC Work Plan
 - FTC Meeting Frequency
 - FHMP Update
 - M&E Subgroup
 - Gravel Augmentation Work Plan
 - Downstream Adaptive Management TWG
 - Cowlitz Restoration & Recovery Fund 2020
 - Satellite Rearing
 - Set topics for the next FTC Meeting
-

Parking Lot

- Presentation by TPU Power Management
- Review Steelhead Recycling Program

Cowlitz Hydroelectric Project
FERC No. 2016
Cowlitz Fisheries Technical Committee
Final Conference Call/GoToMeeting Summary
June 2, 2020 from 9:30 – 3:30

FTC Representative Attendees:

Travis Nelson	TPU
Bryce Glaser	WDFW
Carol Serdar	WA Dept. of Ecology
Paul Sparks	WA Council of TU, TU, American Rivers

Additional Attendees:

Rich Turner	NMFS
James Archibald	NMFS
Scott Anderson	NMFS
Jim Pacheco	Ecology
John Serl	WDFW
Peggy Miller	WDFW
Brian Gale	WDFW
Sam Gibbons	WDFW
Josua Holowatz	WDFW
Matt Bleich	TPU
Florian Leischner	TPU
Melora Shelton	TPU
Eric Shoblom	TPU
Phil Sandstrom	TPU
Tim Hoffnagle	TPU
Chris Foster	TPU
Bill Sharp	Yakama Nation
Diane Hopster	USDA FS
Ann Weckback	Lewis County
Steve West	LCFRB
Laura Wolfe	LCPUD
Lyn Wiltse	PDSA Consulting / Facilitator

Remaining 2020 FTC Meeting Dates: July 7 (placeholder), Aug. 4 (conference call/GoToMeeting), Sept. 1 (placeholder), Oct. 6, Nov. 3 (placeholder), Dec. 1 (public meeting?)

Action Item: Travis – Update upcoming meeting invites to show that they are conference calls (to minimize the spread of COVID-19).

Announcement

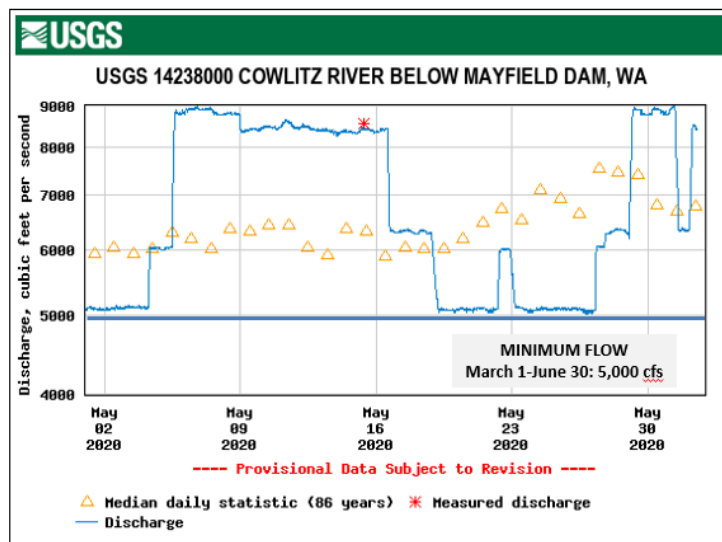
- Florian announced this is his last FTC meeting. After 26 years in the US, he will return to Germany and enroll in an International Water Management Program based in Holland. We appreciate his work with the FTC over the years and wish him all the best. His last day with TPU will be July 31st.

Updates

Hydro Operations:

- Inflows: Florian reported that inflow to Riffe Lake in March and April was well below the historical average of 7,027 cfs. Rain and snow melt helped bring the May inflow to within 10 cfs of the historical average of 9,135 cfs.
- Reservoir elevations: Riffe is now full, at 749', with potential to spill. Florian noted that while there is potential to spill at Mayfield also, it is less likely than Riffe, as Mayfield has an additional 5K cfs of generating capacity compared to Mossy Rock. Carol requested that Mayfield elevations be added to the Hydro Ops presentations.
- Snowpack: The snowpack at Paradise is in good shape and often lasts until September. The White Pass snow has melted. Florian noted June will be interesting as it is the month most affected by climate change. Forecast is dry and warm with freezing levels of 4-8K ft. and inflows between 6K and 8K cfs.
- Outflows: These are projected to be 5-9K cfs, depending on inflows.

Outflow



Link to the USGS real-time Cowlitz River hydrograph:

https://waterdata.usgs.gov/wa/nwis/uv/?site_no=14238000&PARAMeter_cd=00060,00065

Water Quality: Carol reported that an amendment that is being developed for the Barrier Dam boat launch WQPP. She has been coordinating with Matt Peter on this and thanked Eric for the map he sent to include in the amendment. Blue Creek will need a WQPP to do some dredging. An HPA will be out for review. A WQPP for LWD is being developed for the whole Cowlitz. Carol expects to receive this the week of June 8. She also looks forward to next week receiving the Kosmos data summary report from contractor HartCrowser. Carol also added a WQPP is being designed for the dredging of Blue Creek adjacent to the Trout Hatchery.

Eric added that TPU will skip the intake dredging this year as it is not necessary. TPU will assess the situation next year and perhaps conduct the dredging every other year.

Matt noted the Barrier Dam repair project is in the early planning stages and that a communications plan will be out in the near future.

Action Item: Travis – Determine how best to share Mayfield reservoir elevation data with the FTC.

Downstream Adaptive Management TWG: Matt reported that four of the five directed evaluations planned for this year will be performed. The study that involved acoustically tagged Chinook won't be performed due to COVID-19 restrictions. The Steelhead study to evaluate how modifying the floor geometry of the collector might impact CE is ongoing. They are using PIT tags to evaluate fish movement. The higher flows last weekend provided for an opportunistic spill of 750 cfs through the collector. Unfortunately, they had to back off from 750 cfs due to the floor setting. TPU is conducting an engineering review of the event.

Weekly FCEs look similar to the past two years with Coho (50% early in the season). FCEs for later groups in May range from 70-90% for Coho and Steelhead. This is great news! The CF Northshore collector seems to have brought in longer duration of a good collection. Matt estimates the overall collection rate will be 80-90%. Josua asked if they are seeing an improvement in kelt capture efficiency. Matt responded that while no mark-recapture is being done for kelts, it is worth exploring. Paul said he would like to see a weekly tally of what is happening with these numbers (similar to what is provided in Gabe's report).

Action Item: Matt – Send out Summary Template from last TWG meeting.

Fisheries Essential Operations: Eric reported that the hatchery operations are slowly returning to normal. Mayfield will continue with reduced staffing through July, due to low adult returns. He reported they continue to see depleted Spring Chinook adult returns. The run is estimated to be 50% complete. They should have 755 in broodstock at this time of year but only have 79 on hand. They have seen approximately the same amount of NOR as HOR adults return. Avian hazing protocols have remained at all daylight hours although some staffing challenges associated with COVID 19 caused some deviations this past season.

Cowlitz Spring Chinook: Bryce and Sam expressed concern that return numbers for Spring Chinook are so critically low they anticipate a broodstock shortage for this year's program. The reason for the low returns is unclear. Release numbers were strong and there haven't been any disease issues. Some kind of challenge is occurring post release. They hope to understand this better in the future. In the meantime, WDFW has had some preliminary discussions with TPU and NMFS about how to address this. The Lewis and especially the Kalama are seeing decent returns. WDFW is considering bringing surplus Kalama eggs to the Cowlitz as a backfill for harvest augmentation. These would be marked so they could be sorted when they return as adults and not used as subsequent broodstock. It is not ideal to bring in out-of-basin stock, but if they do nothing, there could be a long-term impact in production and harvest opportunity in the future. Tim suggested that WDFW stop transporting NOR spring Chinook upstream and use them for broodstock. Paul brought up the issue of timing and also suggested running a remote site incubator.

A decision needs to be made in the next two weeks. Travis reminded all that WDFW has prescriptive management authority with respect to this decision. Bryce will facilitate additional offline discussions to come up with the best approach. He reminded all that we are working toward a dual mandate – working toward recovery and also providing harvest opportunity. We are in a reintroduction / recolonization phase using a hatchery program to move the program forward. The Kalama is the most similar stock to the Cowlitz. If the Cowlitz population collapses, we would likely turn to the Kalama stock to rebuild. Bryce summarized the two most pressing issues to address as:

1. What to do with NORs that are returning?

2. If we want to utilize Kalama fish, need to figure out the logistics (space issues at Kalama).

Next steps: Sam, Brian, and Eric will discuss this issue further and put together options and timelines, including logistical challenges. This information will form the basis of further discussion ending in a recommendation to proceed. In addition to WDFW, this discussion will include interested parties: Paul Sparks, Bill Sharp, Phil Sandstrom, Tim Hoffnagle and from NMFS: James Archibald, Scott Anderson, and Rich Turner.

Steelhead Release from the Hatchery: Phil reported numbers from the conductance counter and PIT tag system were in close agreement (within .2% of each other). 91.4% of PIT tags were detected compared to abundance of 98%. Overall survival was 92%. Winter run was slightly higher than summer run. All in all, these are very good results.

CRR Fund: Florian reported they finished up the hydro model with one of their contractors and the report is now available. They had hoped to present it at the annual science conference which has now been postponed due to the pandemic. The LCFRB concluded the Upper Cowlitz Habitat Strategy. Both documents will help inform the development of habitat projects in the upper basin. TPU has met with LCFRB over the past few months and they have agreed to take separate paths for the next funding round. Habitat projects will be reviewed internally with the FTC, of which the LCFRB is a technical representative. Paths can be aligned again in the future. TPU has decided to slow things down a bit on this process as they seek guidance from the FHMP, especially on the hatchery side. After cleaning up the first round, based on feedback received, they ran into some guidance issues as they look toward preparing for the second round. With Florian leaving, they are considering how best to free up additional resources at TPU for this program which is now down to a staff of one. Peggy suggested this was a good opportunity to reestablish the subcommittee to help move the program forward.

FTC Protocols | FTC Meeting Frequency

Presenter: Travis Nelson

Protocols: Travis reminded all the protocols are intended to be reviewed annually. We all agreed that in doing the review, it would be good to have a concise protocol document that would get everyone on the same page and provide clear transparent guidance to new and existing members about how the FTC functions. Some feel it should be a standalone document while others prefer it point to SA language without restating it. There is unclear language in the SA relative to non-signatory participation and whether they can have technical representatives.

Action Item: All – By June 15, email Travis with your interest to help resolve this offline.

M&E Subgroup

Presenter: Phil Sandstrom

Phil reported that in the last M&E meeting, they covered topics including Spring Chinook SAR, use of the AHA/ISIT Model, Trout releases, and the Cowlitz Winter-Run Steelhead baseline. They also discussed Rich Turner's interest in Steelhead kelts at Cowlitz Falls, noting which data are available and which would need to be gathered. They also reviewed their Work Plan (shared at the May FTC Meeting) and idea of using it to guide the M&E Group, keeping the FTC appropriately informed while seeking FTC input on a regular basis.

This subgroup sees itself as an employee of the FTC. Overall, little progress is being made due to the necessary focus on FHMP, budget issues, etc. Phil will send out his notes from the last meeting along with the subcommittee reporting template, which he has found to be inadequate when it comes to tracking details.

FHMP Update | Satellite Rearing

Presenter: Matt Bleich

FHMP: Matt, referring to the schedule below, noted TPU is, as of yesterday, wrapping up the review and incorporating comments.

Action Item	Date	Responsible Party
Review Annual Process Chapter	11/7/19 – 12/7/19	FTC
Group Comment Discussion - APR	12/3/19 – 1/31/20	All
Review Complete Draft Document	11/18/19 – 5/30/20	FTC
Unresolved Topics Workshops	2/15/20-3/15/20	All
Edit Complete Draft Document	6/1/20 – 7/31/20	Tacoma/FTC
Unresolved Interim Plan Document	4/1/20-6/30/20	All
Review Draft Final Complete FHMP	8/7/20 – 9/7/20	Public
Incorporate Comments and Finalize FHMP	9/7/20 – 10/7/20	Tacoma
File updated FHMP	10/18/20	Tacoma

The deliverables from the unresolved topic workshops have been incorporated to the extent possible. A white paper on the interim plan for Fall Chinook is currently being reviewed by the FTC, with comments due by June 8. This paper will be put in an appendix to the FHMP. While solutions have been developed for other unresolved topics, a couple of them are still in progress. Matt expressed appreciation for WDFW input with which the LCFRB is largely aligned. There are still a couple of chapters where WDFW is providing comments. TPU is allowing another week for additional comments on the M&E and Adaptive Management chapters provided late, and still under WDFW review. He also noted the technical editor is still working on some of the unresolved topics/products which will also need to be reviewed.

The three unresolved topics that remain are:

- How to describe data gaps - TPU is working through the comments on the entire draft and will be working with the technical editor to develop recommendations for this in the next two weeks, for FTC review.
- Adding language around the Lower Columbia Fish Recovery Plan and its role in the basin – TPU will provide recommended text for this in the next two weeks.
- Conservation Sustainable Fishery Plan piece – TPU is checking to see if there is misalignment with what is listed in the FHMP.
- Chapter 10: Gamete transfer section - Characterization of the use of gametes and fish inside vs. outside of the basin. TPU doesn't want to remove these from the basin. WDFW has concerns outside of the basin. WDFW is providing alternate language on this for FTC to review.

Matt doesn't see a major need to get together physically to discuss these issues. Email seems to be sufficient. WDFW also offered to make time for a conference call to discuss – especially the M&E piece. By August 7, the FTC should be in strong alignment on the document as it is released for a 30-day review for comment. This review will be combined with the APR process so there are no surprises to the public.

Action Item: All – Make every effort to get any additional comments/edits to Matt by June 8.

Satellite Rearing Draft Report: Matt apologized for any lack of clarity regarding this report and emphasized that with this report, TPU is seeking FTC alignment with overarching goals and the programmatic perspective / criteria they will be using for the ponds. The intent was for R2 to summarize the initial discussion had by the FTC on this several months ago and develop the concepts from there. His hope is that by the end of this year, there will be agreement on what can be done for satellite rearing – what we want to do and where we want to do it. This would include how the ponds would fit roughly within the geography of the basin, as well as programmatically. From there, we would get to the specifics on the criteria, programmatic design, etc. TPU would then bring in contractors to begin the work. He suggests not linking this to the FHMP. There is a need to include satellite rearing into HGMPs appropriately. Bryce reviewed the last FHMP and the conceptual strategies laid out in that document for satellite rearing ponds. He would like to see the range of potential options and strategies fleshed out and included in the current version of the FHMP even if there isn't a final selection.

Action Item: All – By June 23, email comments on programmatic and geographical fit to Matt and Travis.

Gravel Augmentation

Presenter: Florian Leischner

Florian explained the 2020 Draft Gravel Augmentation Work Plan will be continually updated to ensure accountability for progress compared to the schedule. The latest version of the work plan includes some changes. TPU has been struggling with this project over the years. There were internal issues of real / perceived risk from an engineering standpoint. Florian had not been aware of the various concerns with finding a new location. The alternatives matrix is a good way to capture and address all the risks. They are not ready to share an updated version of the matrix as it is undergoing internal review, with input from TPU biologists, engineers, and leaders. TPU is close to drafting internal recommendations out for review. These may be in the form of a memo of decision document and will help finalize site selection and a path forward based on agreed goals for this project.

He further explained that they added the upper end of the trout hatchery as a potential location. Carol expressed disappointment with the slowness of this process and the perceived lack of progress over the last several months. She suggested putting money into engineered log jams. Florian will send out a package by the end of June for FTC review. Travis will be working with Melora and others on this going forward.

Action Item:

- Florian: By June 30, send out filled in Gravel Augmentation package including Alternatives Analysis spreadsheet and memo outlining recommendations with supporting rationale to all for discussion at the August FTC meeting.

Frequency of FTC Meetings

Presenter: Travis Nelson

At the May FTC meeting Travis announced that, due to COVID-19 and current budget shortfalls, TPU intends to alter the frequency of FTC meetings to every other month after the June meeting. The FTC typically takes July off anyway. Travis proposed that we, at the FTC

August meeting, reassess the issue of meeting frequency. Paul suggested reducing the number of topics in meetings vs. reducing the frequency. He further suggested considering even more meetings. Bryce explained that it is key to finalize the protocols around the subcommittees and how they will function. Changing the frequency to every other month, may provide an opportunity for subgroup meetings with clearly defined roles, including a report-out protocol to keep the FTC informed. Additionally, WDFW is concerned about the amount of work to be done to finalize the update of the FHMP and then to begin to implement it.

At the August 4 meeting, we should all have a clearer idea of what re-entry from COVID-19 will look like.

Approval of Last Meeting Summary

The May FTC meeting summary was approved with edits and will be posted to the FTC public website.

Meeting Evaluation

- Great attendance!
- Thanks all for putting up with various technological challenges.
- It would be helpful if all relevant documents were emailed out in advance of the meeting, even if they have been sent before.
- Best of luck to Florian as he returns to Germany (Holland) to study!
- Aim to finish the protocols at the August meeting. Put them first on the agenda.
- Wish there were a toll-free line.
- Some had trouble with GoToMeeting app, while others preferred it. Some will try out MS Teams for some subgroup meetings and report back.
- Appreciate ending with Josua's inspirational quotes.
- Quotable Quote: *"If civilization is to survive, we must cultivate the science of human relationships - the ability of all peoples, of all kinds, to live together, in the same world at peace."* - Franklin D. Roosevelt

Potential Topics for August 4 FTC Meeting

- Updates incl. Hydro Ops, Water Quality
- FTC Protocols
- FTC Work Plan
- FHMP Update
- M&E Subgroup
- Gravel Augmentation Work Plan
- Downstream Adaptive Management TWG
- Cowlitz Restoration & Recovery Fund 2020
- Satellite Rearing
- Set topics for the next FTC Meeting

Parking Lot

- Presentation by TPU Power Management
- Review Steelhead Recycling Program

Cowlitz Hydroelectric Project
FERC No. 2016
Cowlitz Fisheries Technical Committee
Final Conference Call/GoToMeeting Summary
August 4, 2020 from 9:30 – 3:30

FTC Representative Attendees:

Travis Nelson	TPU
Bryce Glaser	WDFW
Carol Serdar	WA Dept. of Ecology
Paul Sparks	WA Council of TU, TU, American Rivers

Additional Attendees:

Rich Turner	NMFS
Scott Anderson	NMFS
Jim Pacheco	Ecology
John Serl	WDFW
Peggy Miller	WDFW
Brian Gale	WDFW
Sam Gibbons	WDFW
Josua Holowatz	WDFW
Matt Bleich	TPU
Melora Shelton	TPU
Eric Shoblom	TPU
Phil Sandstrom	TPU
Tim Hoffnagle	TPU
Chris Foster	TPU
Bill Sharp	Yakama Nation
Ann Weckback	Lewis County
Steve West	LCFRB
Laura Wolfe	LCPUD
Lyn Wiltse	PDSA Consulting / Facilitator

2020 FTC Meeting Dates: Sept. 1, Oct. 6, Nov. 3, Dec. 1 (public meeting?)

FHMP/APR Meeting Date: Cowlitz River FHMP and Annual Project Review Virtual Meeting: Aug. 12 from 4-6pm. For agenda, meeting materials, meeting link and call-in number go to MyTPU.org/Cowlitz.

Approval of Last Meeting Summary

The June FTC meeting summary was approved with edits and will be posted to the FTC public website.

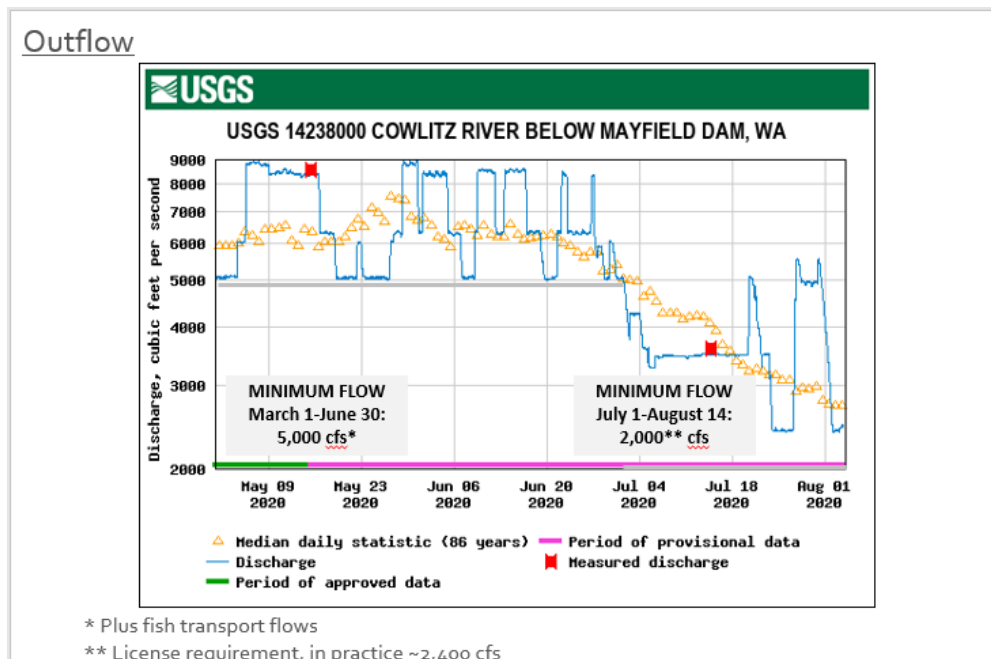
Announcements

- Diane Hopster (USFS) emailed Lyn letting her know that Kate Day will be taking her place on the FTC. She has been added to the distribution list. Welcome Kate!
- The Annual Project Review will occur virtually this year on August 12 from 4-6pm. See meeting link above.

Updates

Hydro Operations:

- Inflows: Melora reported that, with the exception of May, inflows have been low through the spring and early summer. For the last week, they have ranged from 2100-2400 cfs with a slightly downward trend.
- Storage at Riffe: Even with low inflows, Riffe Lake has refilled to above 748' and has drafted less than 4' since the last FTC meeting. Snowpack at Paradise depleted as of late July.
- Storage at Mayfield: This is dynamic due to Mossyrock generation and Tilton side flow. The typical range is 421-425' in summer. For reports in future FTC meetings, we will include the elevation from the day before as reported on the following link: <https://www.nwrft.noaa.gov/river/station/flowpolot/flowplot.cgi?lid=MYDW1>
- Outflows: Starting August 15 and through September 30, there is potential for the minimum flow to reset from 2K cfs if Mayfield releases meet or exceed 5K cfs for consecutive 5-day period (daily mean flow). If flows meet/exceed 5K cfs, spawning surveys will be required. If redds are present, the level of minimum flows will be established after consultation with FTC or agencies. These flows are not to exceed the lesser of:
 - 8" below stage height of the highest consecutive 5-day average
 - 5K cfs August 15 - September 30.



Link to the USGS real-time Cowlitz River hydrograph:

https://waterdata.usgs.gov/wa/nwis/uv/?site_no=14238000&PARAMeter_cd=00060,00065

Water Quality: Carol reported she continues to work with TPU's Matt Peter and others on the Barrier Dam repair which will require a WQPP Plan and a construction stormwater general permit. Construction is set to begin in June of 2021. Drawings should be close to 80% in the next few weeks. TPU intends to use supersacks filled with gravel equivalent to 1K cubic yards for the construction. They hope to reuse these for the second and third phases of construction, but there is a possibility that this gravel could be released to the river as gravel augmentation at the end of each phase (there will be three phases over three August 04, 2020 FTC Meeting

years). Water-quality related considerations include where the sacks would be stored, dewatering, etc. She also noted the DNR access road is quite long. If TPU is considering doing gravel augmentation at a point bar on the other side of the meander from where the Barrier Dam repair will take place, now would be time to think about road construction. She also announced that Ecology has approved the amendment for the Mill Creek boat ramp maintenance WQPP. Currently, TPU is removing this debris to the detriment of the river. She suggested not disrupting the natural process and allowing the Mill Creek landslide material to move downstream. She thinks there should be a conversation about moving the boat ramp to avoid having to remove gravel in the future. She has received the WQPP for Blue Creek but hasn't had a chance to review it yet. She is still awaiting Kosmos data summary report from contractor HartCrowser.

Eric thanked Carol for this comprehensive update. Carol expressed appreciation for Eric and Jamie's work on quantifying the landslide material at Mill Creek and the WQPP. She also expressed concern about the "boneyard" as staging area for the Barrier Dam rebuild. For example, will there be enough room for turning around the backhoe?

Downstream Adaptive Management TWG: Matt reported there will be a review by TPU and LCPUD of proposed recommendations for the upcoming season. TPU is currently reviewing spring data and to see how it will inform the recommendations. He reminded all that this year's spring trends in FCE look 15-20% lower than prior two years for Spring Chinook and Coho. Reasons for this reduction may be linked to the environmental impact of the block study design operational issues, the floor geometry of the capture zone, and/or this year's higher flows.

Fisheries Essential Operations: Eric began his report by announcing they are fully operating again while observing Covid-19 restrictions (6' between employees, wearing masks when indoors, etc.). He also explained they are experiencing a shortage of Spring Chinook adults for this year's broodstock, along with an excess of hatchery Spring Chinook juveniles from last year's collection. In addition, Friends of the Cowlitz (FOC) are still working to secure access to their net pen site so it is yet to be determined if they have a need for the juveniles allocated for that project. There is an excess of 74K Spring Chinook juveniles from high survival rate at the hatchery and 58K set aside for the net pens. They plan to release 74K of these fish with the 16 fish/lb. group on station later this week. TPU normally holds onto the FOC fish until they are 10-12 fish/lb. so releasing the excess at this size should be fine. WDFW is currently in discussions with the FOC regarding the net pen site and the 58K juveniles allocated for their net pens.

This is the second year in a row of releasing an "excess" group without being able to evaluate their performance. It would be helpful to be able to do something in advance in addition to existing marking, to help us to understand rearing, size, etc. to measure the performance of these excess juveniles in the future. It is difficult to get accurate inventories in the spring because there is no estimate of abundance since initial ponding phase.

Inventory of the fish before marking is not standard nor an advised practice due to space constraints and related fish health concerns. Might there be ways to isolate the juvenile CWT fish until being certain of the release strategies for the entire cohort? Perhaps we could have a contingency plan in place that calls for marking a small portion of these fish. Further discussions along these lines would be helpful. We need the program to be sufficiently flexible to optimize release strategies and evaluate all release strategies, even if they are in excess.

Kudos to WDFW and TPU hatchery staff for doing an outstanding job of the mass marking during the pandemic. The staff was able to get through all the Fall Chinook marking and then mark additional fish as well. Mortality levels have been low. What a great team effort!

- **Action Item:** All - Let Chris Foster know if you would like to be added to the distribution of the weekly CFFF report.

CRR Fund: Travis announced that TPU is working with the Cowlitz Tribe to ensure the funding awarded last year for their Yellowjacket Creek project moves forward. TPU will be reevaluating priorities and updating strategies for future project funding in the next few months since CRR is in an off year. Travis thanked Peggy and Paul for suggesting this would be a good opportunity to reestablish the subcommittee to help move the program forward on a timely basis. He will give an update on this in late fall/early winter and will check to see if there is an associated FERC order on this. Peggy reminded all that the grant round on hold was for solicitation for projects in 2020. The next grant round for soliciting projects should be in 2021 so grant application materials would need to be done before the start of the 2021 round. Paul suggested it would be good to move quickly to try to secure any matching funds from state or federal sources before those funds dry up, given the pandemic. Another decision document would be required, if TPU proposes to put the 2021 grant round on hold.

FTC Work Plan: Travis will bring a draft 2021 work Plan to the next meeting. It will include priorities for the year, associated review periods, etc.

Gravel Augmentation: The matrix Florian put together with site locations for possible treatment as gravel augmentation is now undergoing internal review at TPU. The gravel in the super sacks for the Diversion Dam repair work could be released and contribute to the gravel augmentation. TPU is trying to spec that material to match the gravel size specified in the augmentation plan. They are currently favoring acquiring new material instead of using the gravel from the existing augmentation pile. High flows this last season helped to distribute some gravel from the existing pile. Carol noted that the landslide at the Barrier Dam is a natural source of gravel that is being cut off by TPU. She also asked if they might consider replacing future gravel augmentation with engineered log jams. Travis looks forward to further discussion around using natural elements for part of the gravel supply. There were questions about decision documents on this and the possibility of forming a gravel augmentation subcommittee. Immediately after this discussion, Travis emailed out two decision documents relative to gravel augmentation, noting that the 2019.11 decision document includes a placeholder for continued updates following the development and sharing of a draft work plan. He further noted that prior to COVID-19, TPU shared a draft work plan and Florian developed a table to share concepts with the FTC. This document is in internal final draft review prior to sending it back to FTC for review with an eye towards developing a project planning and permitting strategy that will likely result in a 2021 placement effort. Once the document goes back to the FTC (targeting September 2020), the concept of developing a subcommittee may make sense to engage for a final placement strategy.

- **Action Item:** Travis – Look at setting up a subcommittee and amending the last approved decision document to include not placing gravel in 2020. Send out a summary of TPU's current plans for 2020.

M&E Subgroup: The June meeting was extremely productive. Notes from that meeting have been sent out to all. Phil reported they didn't meet in July. In the meantime, they have been gathering all the CWT data for estimating SAR for different release groups of Spring

Chinook. These data should be available for the M&E Subgroup to review at their next meeting on August 19. They will also be discussing life cycle models at that time. They are also looking forward to moving the SAR piece forward. Phil again invited folks to let him or any other member of the subgroup know of any topics you want this group to address.

CF Minimum Instream Flow: Peggy explained that decisions made for the Cowlitz Falls process are not under FTC control. The CF license says when Riffe Lake is at 749' elevation, minimum flows from CF Dam are to be 1K cfs (or matched inflow if less than 1K cfs). When inflows are less than LCPUD's minimum generation capacity LCPUD has to spill 1K cfs (or match inflows if less than 1K cfs). She reminded all that in the past, the FTC has asked LCPUD if they would they pass the minimum flows through the fish collector rather than spilling directly into Riffe Lake. Currently the fish collector capacity is 500 cfs. The license says any temporary reductions in minimum flows must be made by WDFW together with LCPUD. Peggy has a letter from LCPUD requesting the MIF be reduced to 500 cfs. In the past, she has included a note in WDFW's response letter to LCPUD that the FTC supports this action and is seeking approval to include a statement of FTC support. Matt noted that the operations are a bit different this year and how that might impact the letter that Peggy sends. Laura reported that Unit 1 is not functioning well enough to run below 18 megawatts. LCPUD is concerned about running Unit 2 that low. They think this probably won't happen because they are going to have a generator outage in September to repair Unit 1. Peggy noted that approving the reduction in minimum flows does not preclude the PUD from dropping generation if they can do it this year. Chris Foster reported they are trying to adapt to different seasonal variations. It is his understanding the reduction of minimum flow serves as an "insurance policy" in support of fish collection should LCPUD units fail to operate at lower flows which may cause vibration/cavitation concerns. This season, the PUD is going to try to pass as much water as they can through their units to reduce the amount of spill that is required. After discussion, the FTC agreed that Peggy can include a note of their support in her letter.

FHMP / APR Update

Presenter: Matt Bleich

Matt shared what he presented to the CRAG on July 23. He was pleased to announce the draft revised FHMP was just released for public review – a week ahead of schedule! Feedback from the public will be discussed/incorporated at the next (and final) FHMP Workshop. In the meantime, this presentation entitled "2020 FHMP and APR Public Engagement" is similar to what he will present at the August 12 virtual public meeting.

FHMP Schedule		
Action Item	Date	Responsible Party
Public Comment Solicited	August 2019	Public
Document Preparation/ Workshops completed	October 2019	Tacoma/FTC
Review Complete Draft FHMP (continuing solicitation of public comments)	11/18/19 – 5/30/20	FTC
Unresolved Topics Workshops	2/15/20 – 3/15/20	Tacoma/FTC
Unresolved Interim Plan Document	4/1/20 – 6/30/20	Tacoma/FTC
Edit Completed Draft FHMP	6/1/20 – 7/31/20	Tacoma/FTC
Public Review Draft Final FHMP	8/1/20 – 9/7/20	Public
Incorporate Comments and Finalize FHMP	9/7/20 – 10/7/20	Tacoma
File FHMP with FERC	10/18/20	Tacoma

The highlighted lines in the above show that we are about a week early compared with the schedule submitted to FERC. This allows ample time for public review. The presentation includes what is and is not included in the FHMP and previews the overview sections that include harvest summary data, down to population level, along with trending information and the current and proposed hatchery programs for each species.

This year's APR doesn't include any recommended changes from last year. The presentation, therefore, will show the 2020 Hatchery Production Plan:

2020 Hatchery Production Plan					
Species	Before 2011 FHMP Update	2017 APR Goal	2018 APR Goal	2019 APR Goal	2020 APR Goal
Fall Chinook	4,800,000	3,500,000	3,500,000	3,500,000	3,500,000
Spring Chinook	959,800	1,738,529	1,738,529	1,738,529	1,738,529
Coho	2,835,000	2,178,000	2,178,000	2,178,000	2,178,000
Winter Steelhead	690,000	647,000	647,000	647,000	647,000
Summer Steelhead	550,000	625,000	650,000	650,000	650,000
Cutthroat	160,000	100,599	100,599	100,599	100,599

Bryce noted that the APR process is an FTC process. He hopes FTC members can attend.

Action Item: All – Make every effort to attend the virtual meeting on August 12.

Tilton Release Site

Presenter: Eric Shoblom

Eric presented a detailed review of this project which was constructed for the benefit of both harvest and recovery. The new site at the Bremer Bridge abutment is 9 miles downstream of Gust Backstrom Park, allowing an additional 9 miles of habitat for the fish. The site will serve as a backup option and allow for spatial separation of HOR and NORs. Challenges associated with the site include the fact that the Tilton River is very dynamic. There were many design and safety issues. There was also a focus on making sure the site didn't end up looking like a fun place to recreate. Several water tests were conducted to ensure the site would be able to function properly. As a result, they laid asphalt to address the potential for erosion. They also made a gasket, so water no longer spills out of the sides of the flume. For the fish release test, they used a 10x40' net, folded over and sewn to create a two-layered "basket" for the evaluation which was conducted June 30. Water depth that day was 7'. Half of the water from the tank was drained and 17 Spring Chinook jacks were released. Four of the fish escaped over the side of the net. The 13 fish that were left in the net were removed one at a time using an adult dip net. They collected floy tag data and inspected them for any damage. No scarring or abrasions were observed. The fish were euthanized after being processed.

Bryce noted that WDFW had hoped our standard surplus process of using Riffe Lake or the foodbank would have been used instead of euthanizing the fish. Eric responded that euthanizing then seemed the most pragmatic action to take as he had checked with NOAA but didn't get a response back. Bryce explained that NOAA doesn't have transport authority. For future reference, the transport, movement, and disposition of the fish relies on WDFW management authority and they should have been included in the discussion.

Next steps include watching carefully to ensure the site is suitable for release during low flows. There were 306 cfs for the evaluation and only 106 cfs on the day of this meeting. Bryce reminded all that one of the main reasons we needed a second site was to make sure we had a site that would function during low flows for Fall Chinook and Coho NORs. Fishermen expect that we will be using the site this fall. Eric replied that the pool was 7' deep for the evaluation at 306 cfs, so he expects the site to function well at low flows. They will also set fishing boundaries. Josua has set up a meeting with WDFW Enforcement to discuss the fishing boundary area and the regs for the release site at the Bremer Bridge. The intent of this site for Fall Chinook is to use it only for the NORs.

Potential Coal Creek Release Site: Eric announced TPU is considering constructing of an additional site just upstream of Packwood on the Upper Cowlitz for additional redundancy. The Franklin Release Site is not always reliable. It would also be good to have more fisheries management options with two different sites. TPU has begun talking with county engineers about this. When asked if TPU is also looking at another site for the Cispus River, Eric and Phil replied that they have looked at the Cispus. It is pretty much without roads and USFS property. The places where they can get close to the river are very shallow with large cobbles. Given that, they are putting their attention on Coal Creek location currently.

Hatchery Operations: Out-of-basin Broodstock for Spring Chinook

Presenter: Bryce Glaser

Bryce announced that at the last FTC meeting we were projecting significant shortfalls in this year's spring Chinook adult return and in achieving broodstock goals for this year's production. WDFW is looking at mitigating this poor return by using some excess Kalama spring chinook as a backfill for future harvest augmentation. WDFW held a follow-up meeting in mid-June to walk thru the shortfall backfill proposal with FTC members who had questions/concerns about WDFW's proposal. The meeting covered two topics:

1. An immediate decision about the use of NOR spring Chinook returns. Should we continue the current protocol of putting all NOR's upstream? Or begin to incorporate some into broodstock?
2. Walking through WDFW's proposed plan to backfill the shortfall with Kalama spring Chinook for harvest augmentation purposes.

At the meeting, all agreed to continue to pass NOR Spring Chinook upstream and not incorporate NOR's into broodstock while we work through this year's issues. The proposal to bring in Kalama Spring Chinook was based on mitigating harvest opportunity in the future. WDFW proposed that all Cowlitz River production would be adipose-fin intact with 100% CWT tagging to maximize survival of those fish (i.e., limiting harvest). All Kalama fish used as a backfill would be differentially marked so they would be identifiable upon return. NOAA expressed some biological concerns about potential introgression, which WDFW saw as being minimal. Next steps identified at the end of that meeting included continuing discussions with TPU around logistics, and cost sharing; and following up with NOAA Fisheries about concerns surrounding use of Kalama fish for the Cowlitz backfill.

Since that time, WDFW has had some email communication on this with NOAA, whose concerns remain, and they currently don't support the approach of backfill with Kalama. These discussions have now been elevated within WDFW and NOAA and include discussions of overall options for the Kalama hatchery spring Chinook program itself, which is propagated at the Kalama Falls Hatchery operated by WDFW and funded

through the Mitchell Act Grant (NOAA). As these discussions continue, Kalama adult spring Chinook return numbers have slowed. This buys some additional time for these discussions. WDFW still anticipates a surplus at Kalama, though not as large as originally anticipated. Stay tuned for additional updates.

FTC Protocols | FTC Meeting Frequency

Presenter: Travis Nelson

Protocols: Since the last meeting, Paul and Peggy worked together to resolve concerns. WDFW is currently reviewing the changes and the draft should be available for FTC review shortly. They hope to complete the WDFW internal review soon. It is important to ensure the subcommittees are clearly established with a purpose/charter. Peggy noted the subcommittee section has not changed since the last draft.

Travis announced that, after careful review of budgetary and COVID-19 restrictions, along with the FTC workload, it makes sense to go back to a monthly meeting schedule. The next FTC meeting will be September 1.

- **Action Item:** All – Review new draft of Protocols that will be emailed out on August 14 along with the today's draft meeting summary so they can be approved at the next meeting.
-

Meeting Evaluation

- Still some technical glitches, especially with some folks on the phone
- Appreciate people who were locked out didn't get mad
- Good facilitation
- Good pace of meeting
- Hope we will get more Action Items checked off
- Great presentations
- Very productive
- Got out a few minutes early
- Happy we honored break times.
- Quotable Quote: *"Be true to your work, your word, and your friend."* Henry David Thoreau

Potential Topics for September 1 FTC Meeting

- Updates incl. Hydro Ops, Water Quality
 - FTC Protocols
 - FTC Work Plan
 - FHMP Update
 - M&E Subgroup
 - Gravel Augmentation Work Plan
 - Downstream Adaptive Management TWG
 - Cowlitz Restoration & Recovery Fund 2020
 - Set topics for October FTC Meeting (to include Satellite Rearing)
-

Parking Lot

- Presentation by TPU Power Management
- Review Steelhead Recycling Program

Cowlitz Hydroelectric Project
FERC No. 2016
Cowlitz Fisheries Technical Committee
Final Conference Call/GoToMeeting Summary
September 1, 2020 from 9:30 – 2:30

FTC Representative Attendees:

Travis Nelson	TPU
Bryce Glaser	WDFW
Carol Serdar	WA Dept. of Ecology
Paul Sparks	WA Council of TU, TU, American Rivers

Additional Attendees:

Rich Turner	NMFS
James Archibald	NMFS
John Serl	WDFW
Peggy Miller	WDFW
Brian Gale	WDFW
Sam Gibbons	WDFW
Josua Holowatz	WDFW
Matt Bleich	TPU
Melora Shelton	TPU
Eric Shoblom	TPU
Phil Sandstrom	TPU
Tim Hoffnagle	TPU
Chris Foster	TPU
Kate Day	USFS
Ann Weckback	Lewis County
Steve West	LCFRB
Laura Wolfe	LCPUD
Lyn Wiltse	PDSA Consulting / Facilitator

2020 FTC Meeting Dates: Oct. 6, Nov. 3, Dec. 1 (public meeting?)

FHMP/APR Meeting Date: Cowlitz River FHMP and Annual Project Review Virtual Meeting: Aug. 12 from 4-6pm. For agenda, meeting materials, meeting link and call-in number go to MyTPU.org/Cowlitz.

Approval of Last Meeting Summary

The August FTC meeting summary was approved with edits and will be posted to the FTC public website.

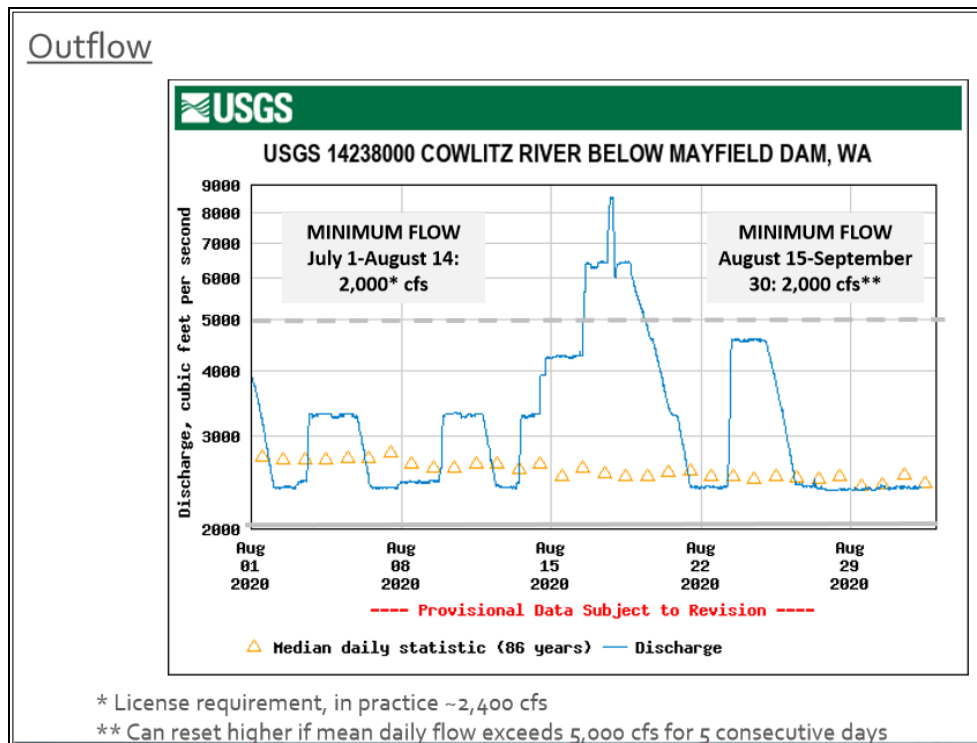
Updates

Hydro Operations:

- Inflows: Melora reported that inflows have been below the historical monthly average for the summer, dropping from 90-75%.
- Storage: There has been a slow and consistent draft at Riffe in August. The current elevation is just below 734'. By contrast, Mayfield has continued to show its usual dynamic elevation fluctuations between 421' and 425'.

- Outflows: These have been running around 2,400 cfs. From August 15-September 30 the minimum flow can reset above 2K cfs if Mayfield releases meet or exceed 5K cfs for a consecutive 5-day period (daily mean flow). Melora noted the bump above 5K cfs during the third week in August lasted only three days.
- Forecast: Dry and hot without precipitation. Freezing levels are above 10K'. Inflows are expected to be below 2K cfs for next 10 days while outflows are likely to increase from 2,400 cfs to above 5K cfs. For semi-weekly river flow / lake level data forecast: <https://www.mytpu.org/community-environment/parks-recreation/river-flows-lake-levels>

WDFW constituents have expressed concern about flow fluctuations and have reported stranded fish in the Longview/Kelso area. Phil will follow up with Josua with “tidbit info” on daily temps for the river below Mayfield.



Link to the USGS real-time Cowlitz River hydrograph:

https://waterdata.usgs.gov/wa/nwis/uv/?site_no=14238000&PARAMeter_cd=00060,00065

Water Quality: Carol has received reports there are still some residual contaminated soil issues at Kosmos. She thinks this may require a construction stormwater general permit as well as a WQPP.

Downstream Adaptive Management TWG: Matt reported they are continuing to work toward recommendations for the adaptive management strategy for the upcoming season. The TWG will discuss this further at their next meeting as they work on the recommendations.

Fisheries Essential Operations: Eric reported inspections for erosion issues at Barrier Dam concluded on August 31. Tacoma Power has decided to forgo dredging at Blue Creek this year. They plan to dredge the Barrier Dam boat launch September 14 and 15.

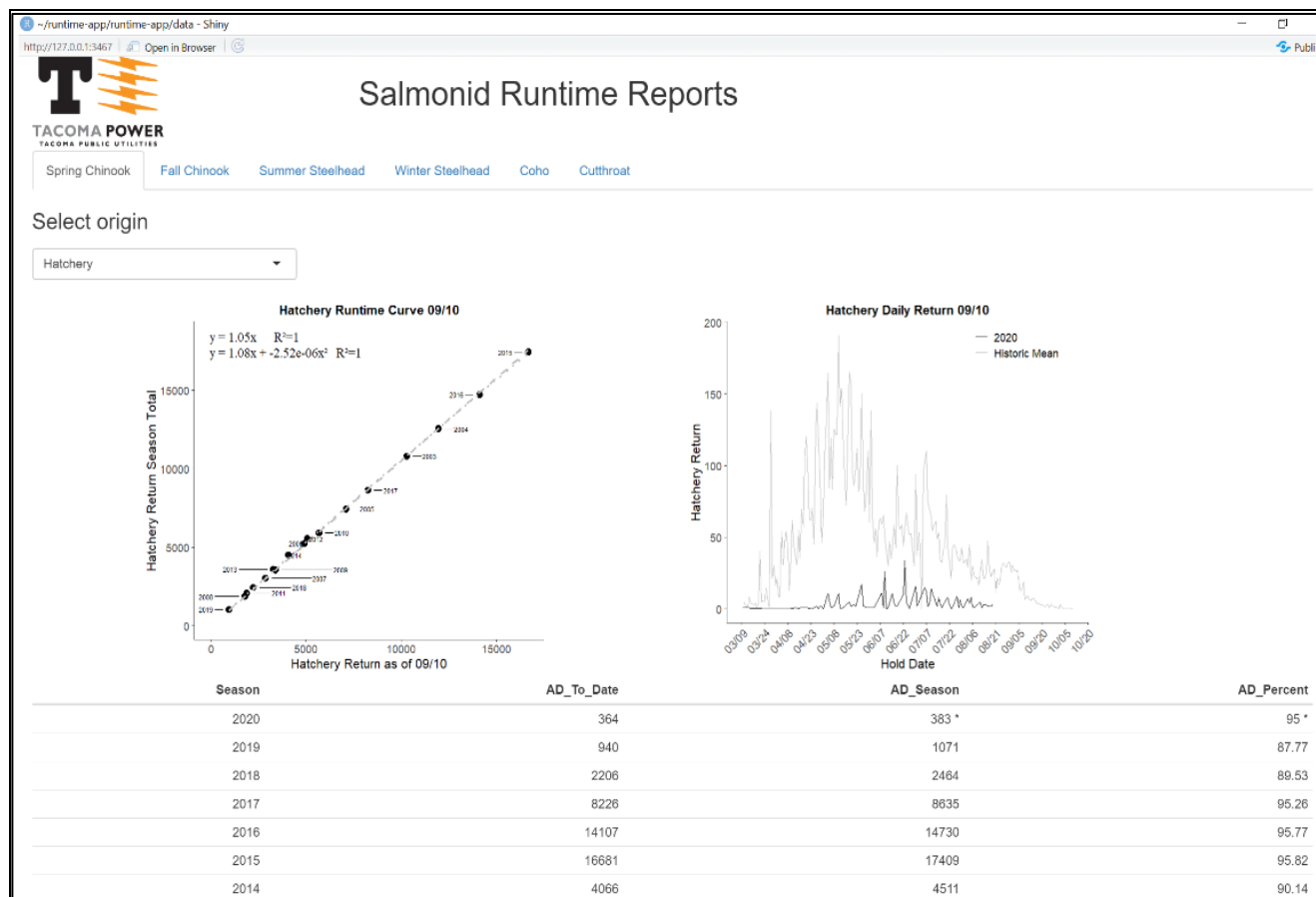
CRR: Bryce noted the need to get the RFP process up and running in time for the 2021 process. Travis agreed and will provide an update at the October FTC meeting.

Tilton/Coal Creek Release Sites: Eric reported Tacoma Power is still exploring the potential of establishing a release site at Coal Creek. Meanwhile, the Tilton site is now up and running. Phil reported the Cowlitz FTC M&E sub-group's preferred options for 2020 are:

- Transport all NOR fall Chinook and NOR Coho to the new site and all HOR fall Chinook and HOR Coho to Gust Backstrom Park (GBP). WDFW will identify a closed fishing area around the new site.
 - Implement this strategy from the beginning of the season until sustained adequate flows (likely about 150cfs) allow for natural distribution to occur (generally mid-October), at which time a combination of both NOR and HOR fish could be released at GBP for efficient transportation and additional distribution of NORs.
- Split NOR and HOR steelhead between the two sites equally throughout the entire season.
- Release all NOR sea-run cutthroat trout at the Bremer Bridge release site to reduce angler encounters at GBP. (The new Bremer Bridge site is operational and has been used for NOR Fall Chinook Salmon for the last two months.)

Next steps include making sure Adult Handling Protocol represents the same disposition.

M&E Subgroup: Phil reported this group continues to meet the third Wednesday of each month. They are developing a template to assess hatchery management performance using CWT data. They will build in download and export capabilities. Next steps include making the language consistent with what is in FHMP and making this tool available to the FTC to see if there are any red flags. Below is a screen shot of the runtime app for salmon returns:



Sam suggested sharing week ending run timing so broodstock collection curves are consistent and will send Phil an example.

At the last M&E meeting they also discussed protocols for the Tilton Release Site. WDFW has proposed changes in how Fall Chinook will be marked this year, in response to the available budget. Discussions with hatchery staff will occur September 2 regarding the total number of CWTs needed. WDFW plans to submit the purchase order next spring.

FHMP / APR Update

Presenter: Matt Bleich

Matt reported public feedback has included appreciation for the new structure of the FHMP document. The virtual public APR meeting on August 12 went well. There was a total of 25 participants, 10 of whom were members of the public. Public comments during the meeting also included topics such as flow management from Cowlitz Dam and satellite rearing. September 15 (9-noon) has been announced as a placeholder date for a final FHMP workshop to discuss incorporating public comments and then filing the FHMP with FERC. Bryce asked how to address the Fall Chinook collection broodstock need. There is currently no plan to collect broodstock in the lower river. Phil agreed to add this topic to the agenda of the next M&E Subgroup meeting.

Gravel Augmentation

Presenter: Travis Nelson

Travis reminded all that the Barrier Dam inspection and subsequent repairs provide an opportunity to use the gravel to fill supersacks. Within a 3-year timeframe, Tacoma Power intends to treat three different sites. They will do so while being mindful of long-term risks including flooding and recreational impact. Given that, the Jorgensen gravel bar site has several hurdles to cross. Tacoma Power has evaluated the following alternative sites that seem to be good candidates for gravel placement in the next two years:

- “Barrier Island” just below Barrier Dam. Supersacks would be filled with qualifying gravel (4' minus washed rock mix) for water diversion. When the project is complete, with the crane still in place, the gravel would be released there.
- Brim bar has a wetland complex intended for rearing of salmonids, There is still an access road there.
- Downstream of the intake for Blue Creek Hatchery along the bar on the right bank. There is a need to survey this site to ensure there would be no negative impacts.

Depending on the success of the initial treatment, it may make sense to use these sites long term as well. Travis reminded all this is just phase one.

Discussion: Sam and John noted that the area from Barrier Dam down to Baker Rock is the most gravel starved and would really benefit from gravel augmentation. Peggy prefers the Jorgensen property which is on the long-term list. The supersacks would be 4" gradation down to about ½" and would be washed, rounded rock. This would be included in the WQPP.

Tacoma indicated they have no immediate plans to move the current pile of gravel at the Barrier Day. There was a question about if the supersacks could be filled with gravel from that pile.

Travis will send out a decision document about treatment at these three sites prior to the next FTC meeting and will update the work plan accordingly. The first augmentation would take place in 2021 in concert with the Barrier Dam repair.

USACE permitting process: Tacoma Power has approached the Corps about getting a broader nationwide programmatic agreement in place. Matt Peter is researching this. Carol suggested it include the possibility of engineered log jams or other ways to hold gravel in the reach. Bryce suggested that if a gravel augmentation subgroup were set up in the future, it would explore options including LWD placement.

- **Action Item:** Travis – Send out decision document for three short-term sites prior to the October FTC meeting.

Satellite Rearing

Presenter: Matt Bleich

There has been little discussion of this since the June FTC meeting, as the focus has been on the FHMP along with HGMP components. Since then, Matt reported TPU, along with R2, has worked through the objectives and design criteria. Next steps included sideboards and locations. He walked through a Satellite Rearing PowerPoint presentation that listed the goals as increasing fitness and using the facilities to simulate natural fish or harvest compatibility with recovery. Paul expressed concern that our Steelhead are not producing as many smolts as anticipated. Is there a strong interaction between NOR/HOR fish? Which are most productive. Why are there so many kelts this year?

Program objectives are many and include assisting with NOR stock recovery, increasing reproductively isolated populations, facilitating imprinting and adult returns to the upper basin, all while minimizing the risk of disease and negative genetic effects.

Matt added the highlighted line to the Satellite Rearing Workplan / Schedule:

Task	Responsible	By When
Present Workplan/Next Steps to FTC	Bleich	9/1/20
FTC Generated Program Concepts (include Spawning, Egg Incubation, Rearing, Finish/Acclimation, Release and location for each rearing phase)	FTC	9/15/20
Present Workplan/Next Steps to FTC	Bleich	9/1/20
Develop draft concepts and conceptual sketches and incorporate into Satellite Rearing Facility Plan	R2	10/6/20
Discuss Concepts	FTC	10/6/20
Review and Comment	FTC	10/6/20 – 11/3/20
Incorporate Comments	R2	11/6/20 – 11/15/20
QC	Tacoma	11/15/20 – 11/21/20
Public Review	Public	11/21/20 – 12/21/20
Finalize Satellite Rearing Facility Plan	Tacoma/R2/ FTC	1/31/20

R2 is developing concepts for various locations in the Upper Cowlitz Basin that provide sufficient adaptability and flexibility. Satellite Rearing program concept may include use of facilities for spawning, incubation, and rearing to release size. These examples align with the objectives previously agreed-on by the FTC. Matt assured all there will be ample time to review and provide input into the plan as it is developed.

Action Item: All – By September 15, email comments on concepts to Matt and Travis.

FTC Protocols | 2021 FTC Work Plan

Presenter: Travis Nelson

Travis began by extending many thanks to Bryce, Peggy, and Paul for their work on these protocols. He also acknowledged that COVID has made collaboration on this document all the more challenging. Travis reported his concern that including “partners” in addition to representatives and technical advisors in the protocols may cause confusion. Peggy noted that SA signatories, while not being able to vote, should be able to attend FTC meetings without being a technical advisor for Tacoma. In discussing this issue, Travis added language to clarify that signatories could attend the meetings on behalf of the organizations they represent without having to be technical advisors to TPU, so that it doesn’t look like they represent TPU’s interests.

There was a consensus decision to approve the protocols as edited during the meeting. Lyn reminded all that the protocols are a living document and there will continue to be annual reviews by the FTC to ensure they reflect how we work together.

2021 FTC Work Plan: Travis will present a draft 2021 Work Plan at the next meeting.

Action Item: Travis – Send out the edited document to all along with a decision document for final approval within a week, as per the protocols.

Out-of-Basin Broodstock for Spring Chinook

Discussion of this item, which had been scheduled to occur under Updates, revealed a disagreement between WDFW and Tacoma Power regarding the timing and opportunity to comment as WDFW engaged in discussions with NOAA about the possibility of supplementing this year’s low return of Spring Chinook to the Cowlitz with excess Kalama Spring Chinook. At the last FTC meeting Tacoma Power expressed concerns around their risk points and asked to be brought into the discussions with NOAA in a timely manner so they could adequately evaluate their risk points, including impact to their hydro license, Bi-Op, and operations. WDFW indicated they had been clear and transparent throughout the last several months regarding this issue, including providing opinions expressed by all parties, identifying next steps and clarifying why WDFW needed to meet independently with NOAA fisheries to discuss the Kalama River Spring Chinook program, which operates under the Mitchell act with NOAA funding and ESA authorization.

Paul expressed concern about the potential issues with using Kalama stock to increase the recreational harvest opportunity and suggested the FTC vote on the issue. Bryce reviewed the WDFW proposal purpose, which is to supplement future harvest opportunity and described the intent to differentially mark the fish brought in from the Kalama to minimize biological risk to the Upper Cowlitz spring Chinook population.. WDFW had a follow-up conversation with NOAA to discuss how use of Kalama broodstock may or may not be

appropriate as it pertains to federal funding and ESA compliance. While NOAA indicated some concerns, WDFW is prepared to move forward with the transfer and is interested in sharing this option with Tacoma to supplement next year's release in response to the broodstock shortage in Spring Chinook at the Cowlitz Hatchery.

WDFW agreed to consider including Tacoma in future discussions at the appropriate time on actions that could impact conditions of the Tacoma Power Bi-Op for Cowlitz River Hatchery operations. Next steps: Eric, Matt, and Bryce will follow up about further discussions with NOAA and how best to move forward.

Meeting Evaluation

- Still some technical glitches, especially with phone connections
- If a topic is moved from Updates to a regular agenda item, that entity/presenter should be notified ahead of time.
- When evaluating the meeting, ask if we adequately covered the most important topics – call them out on the agenda. Try this at the next meeting and evaluate.
- Appreciated the presentations
- Happy to get the protocols approved!
- Got out a few minutes late
- Quotable Quote: “Out of clutter, find simplicity. From discord, find harmony. In the middle of difficulty lies opportunity.” Albert Einstein

Documents Shared at Today's Meeting

- Hydro Status Cowlitz 9-1-2020
- Draft Tilton Fish Release Strategy 2020
- Satellite Ponds FTC 9-1-2020

Potential Topics for October 6 FTC Meeting

- Updates incl. Hydro Ops, Water Quality
- 2021 FTC Work Plan
- FHMP Update
- M&E Subgroup
- Gravel Augmentation Work Plan
- Satellite Rearing
- Downstream Adaptive Management TWG
- Cowlitz Restoration & Recovery Fund 2020
- Set topics for November FTC Meeting

Parking Lot

- Presentation by Tacoma's Power Management Group
- Review Steelhead Recycling Program

Cowlitz Hydroelectric Project
FERC No. 2016
Cowlitz Fisheries Technical Committee
Final Conference Call/GoToMeeting Summary
October 6, 2020 from 9:30 – 2:30

FTC Representative Attendees:

Travis Nelson	TPU
Bryce Glaser	WDFW
Carol Serdar	WA Dept. of Ecology
Scott Anderson	NMFS

Additional Attendees:

Rich Turner	NMFS
James Archibald	NMFS
John Serl	WDFW
Peggy Miller	WDFW
Sam Gibbons	WDFW
Josua Holowatz	WDFW
Matt Bleich	TPU
Eric Shoblom	TPU
Phil Sandstrom	TPU
Tim Hoffnagle	TPU
Ann Weckback	Lewis County
Steve West	LCFRB
Debbie Carlson	BPA
Laura Wolfe	LCPUD
Lyn Wiltse	PDSA Consulting / Facilitator

Remaining 2020 FTC Meeting Dates: Nov. 3, Dec. 1 (public meeting?)

Approval of Last Meeting Summary

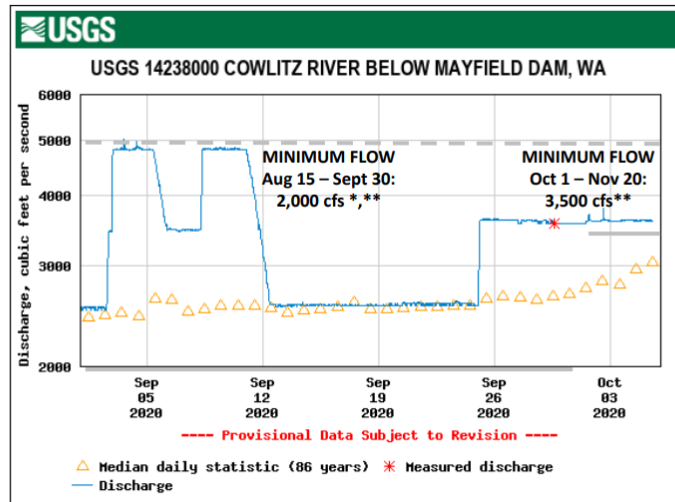
The September FTC meeting summary was approved with edits and will be posted to the FTC public website.

Updates

Hydro Operations:

- Inflows: There is currently (as of Oct. 4) an inflow of 1,396 cfs to Riffe Lake.
- Riffe Lake Storage: Currently at 722' – slightly above the historical average of 719'.
- Mayfield Outflows: On Oct. 1, they adjusted to the minimum flow period. On Oct. 2 there was a slight down ramp exceedance of 1.3" due to a malfunction caused by a stuck valve in the Powerhouse. The valve has since been replaced and the generator is functioning properly. This occurrence will be reflected in the annual report.
- Forecast: Turning rainy and cooler.

Outflow



* License requirement, in practice ~2,400 cfs

** Can reset higher if mean daily flow exceeds 5,000 cfs for 5 consecutive days

Link to the USGS real-time Cowlitz River hydrograph:

https://waterdata.usgs.gov/wa/nwis/uv/?site_no=14238000&PARAMeter_cd=00060,00065

Water Quality: Carol acknowledged that Tacoma Power did well in response to the issues from dredging gravel at the boat ramp near Mill Creek, from initial notification of beginning activity, to dredging, to site logs documenting turbid discharges, and reporting the Environmental Report Tracking System (ERTS). They appropriately waited for the turbidity plume to settle out. She noted the Environmental Report Tracking System (ERTS) and Ecology's statewide requirements for turbid discharges. She showed recent photos, including an upland area that needs to be seeded and the landslide area where Mill Creek flows into the Cowlitz River. The deposit material there will likely be naturally dislodged this winter and used as natural gravel recruitment. The boneyard was able to accept all the wet sediment. She expressed concerns about the placement of wet sediment and close proximity to a ditch that is connected to the Cowlitz River. Tacoma will need to continually remove sediment from the existing area of boat ramp until all the landslide material has been naturally moved by the river. She suggested perhaps a better place for the boat ramp would be near the ADA fishing site. She has been working with Matt Peter on several Water Quality Monitoring Plans. Travis will follow up with Carol on the location of the boat ramp.

Downstream Adaptive Management TWG: Matt reported FCE tests have wrapped up for this year. While FCE was down from last year, the numbers so far are 70% for Steelhead; 65% for Coho; and 50% for Spring Chinook. Considerations for 2021 season include a coordination meeting with LCPUD in mid-October. The five recommendations (currently under internal review) are the same as last year. They will also evaluate FCE in relation to potential trash rack blockage and in relation to various operations.

Fisheries Operations: Eric began by noting to all that October is a busy time of year for fish operations. The Fall Chinook return is better than expected. Coho numbers are also above average. They are currently getting around 1K per day and have 12K to date. Cutthroat numbers are 2,500 and climbing. This is turning out to be quite a strong fishery. Returns for all NOR stocks are also way above average. Eric is happy to add anyone to the mailing list for the weekly fish report which is very detailed. Just let him or Travis know. The crew is wrapping up spawning for Spring Chinook. They got twice the egg take expected (over October 06, 2020 FTC Meeting

738K), but still have a significant shortfall Tacoma met with WDFW and NOAA about the Spring Chinook last week, specifically about the logistics of possibly bringing in some Kalama stock. They are discussing future implications of fisheries and broodstock management. Matt expressed appreciation, especially to WDFW for such productive discussions. Bryce noted that for the Cutthroat program, WDFW is considering options including some recycling. WDFW and Tacoma would like to better promote that fishery and have begun to do some social media outreach.

Tilton/Coal Creek Release Sites: Eric reported the Bremer Bridge site is working well. On Sept. 9, a driver observed 12 Fall Chinook mortalities at the bottom of the pool. The subsequent investigation was inconclusive. There have been no related incidents since. The Gust Backstrom Park release site on the Tilton is being used so heavily by fishermen, that Parks & Rec had to close off vehicle parking so fish trucks could access the site.

Tacoma reported concerns that the fish ladder at Cascade Aquaculture upstream of the Bremer Bridge release site required maintenance and may be difficult for fish to navigate. Bryce had an e-mail discussion with Scott Bremer who said the ladder was intended for use by fish during low flow conditions. Further, only the north-east side of the fish ladder is supposed to be functioning at this time and water is flowing through the ladder. Cascade Aqua Culture will remove debris at the top of the ladder, though they have not seen any problems with fish not being able to pass. Possible topic for M&E Subgroup? However, Bryce mentioned that the priority for this topic may be much lower than other issues at hand.

Eric reported planning a site visit with an engineer to the potential release site locations at Coal Creek and on Alderwood Drive, across the river from Packwood. Tacoma is considering various release methods there, such as laying large hoses in a cradle or trough. Stay tuned.

CRR: Travis reported Tacoma is developing the language for the existing contract awarded through the CRR process last year. They anticipate starting to advertise the 2021 round in the second quarter of 2021. Peggy again suggested setting up a subcommittee to help work on that. There will be more discussions on this, including reviewing lessons learned from the initial round and possibly reestablishing the CRR Subgroup at the December meeting.

M&E Subgroup: Phil reported this group last met on Sept. 16. They discussed SAR activity moving into the analysis phase. They are also continuing to work on the runtime app for salmon returns. He welcomes any feedback / suggestions. At that same meeting WDFW's Thomas Buehrens gave a very informative presentation on Fall Chinook escapement estimation and transition planning.

After the update FTC discussion followed about Fall Chinook broodstock collection and disposition as well as broodstock collection in general. Bryce reported there currently isn't a transition plan for NOR broodstock collection for the hatchery program to guide how many fall Chinook should be released in the Tilton River vs. collected for broodstock. That said, we are fortunate to see a good return of Fall Chinook, including NORs and integrated HORs (both programs). The Fall Chinook program has been operating in "emergency operational status" where they have been using separator fish to backfill shortfalls to collect NORs for the program instead of releasing them into the Tilton River. It appears we are likely on track to meet broodstock goals for this year. WDFW thinks it's time to consider reducing the separator collection of NOR fish for brood and put more NORs into the Tilton while continuing to utilize the returning HORs until broodstock goals are met. They want to avoid ending up with a lot of surplus NORs that will not be utilized for broodstock. After being held

these fish are less likely to survive transport and spawn. To achieve integration goals, if additional broodstock is needed, NORs from the lower river should be used. Phil's numbers indicate we are 22 females short of the broodstock need. Further discussion followed including what to do with HORs once broodstock component is met, not wanting to hold NOR broodstock any longer than needed. If we need to collect additional broodstock on the back half of the return, we should consider options such as Mill Creek below the Barrier Dam as a collection area. Setting escapement targets for NORs and HORs should be part of the Transition plan. We do not want to over collect on NORs and in particular we don't want to over collect Tilton NORs as we do not have the option to surplus those fish to the food bank, like we can with HORs. Due to constraints in WDFW's operational budget from Tacoma for fish marking, they will be creating a single integrated program this year, as agreed to during task order development with Tacoma.

Next steps: Immediately after this meeting, Phil will arrange a meeting with Sam, Bryce, John, and Eric to further discuss this issue and come up with a plan of action.

FHMP Update

Presenter: Matt Bleich

Matt announced that Tacoma filed the FHMP with FERC on Oct. 2. And there was great rejoicing! FTC members received an email to that effect (from Maria Camilon-Price) along with a PDF of the document that same day. Matt expressed appreciation for everyone's hard work and collaboration in getting this done. He believes it is a much better document due to everyone's input. While there is more work to do (developing Transition and M&E plans), he encouraged everyone to take a moment to celebrate. Others affirmed the process and that it's great that we could submit it before the deadline. Matt reported receiving compliments from a member of public and from an administrator. It may take time for FERC to approve. In the meantime, will move forward with developing the plans within the timelines that have been laid out. Matt will bring proposed work plans, etc. to the next meeting. Travis has posted the document to the FTC site for easy reference.

Satellite Rearing

Presenters: Matt Bleich and Eric Shoblom

Matt reviewed the purpose and contents of the Satellite Rearing Facility Planning Document along with the goals and program objectives (in compliance with Article 5 of the FERC license) of the facilities. He reiterated that the purpose of the Workplan is philosophy and concept development vs. getting into details of land development, etc. The document will be sent out to all today for review, as per the schedule:

Task	Responsible	By When
Present Workplan/Next Steps to FTC	Bleich	9/1/20
Develop draft concepts and incorporate into Satellite Rearing Facility Plan	R2	10/6/20
FTC Generated Program Concepts (include Spawning, Egg Incubation, Rearing, Finish/Acclimation, Release and location for each rearing phase)	FTC	9/15/20
Describe/Familiarize with Concepts	FTC	10/6/20
Review and Comment	FTC	10/6/20 – 11/3/20
Incorporate Comments	R2	11/6/20 – 11/15/20
QC	Tacoma	11/15/20 – 11/21/20
Public Review	Public	11/21/20 – 12/21/20
Finalize Satellite Rearing Facility Plan	Tacoma/R2/FTC	1/31/20

As a result of conversations with WDFW, he added “Assumed challenges” to the list of items the plan will include. Matt and Eric then briefly discussed five options that are included in the plan, along with a geographical representation for each, along with details on spawning, egg incubation, rearing, finish/acclimation, and release. The first option aims to maximize fish exposure to the natural temperature of the basin. The next three options focus on capturing NORs at CF, with the ability to mix and match facilities to accommodate different strategies. The fifth option tries to take advantage of natural temperature profile to obtain a natural growth pattern and life histories, with the primary focus on increasing production capacity. Matt welcomes feedback on this over the next 30 days as he intends to put this out for public review on Nov. 15. When reviewing the Workplan, he encouraged anyone who comes up with an additional option, to go ahead and score it based on the attributes listed in the scoring matrix (below) and see how it rates.

	ATTRIBUTES											
	Increase Overall Abundance	Increase Natural Spawners in Upper Basin	Mimic Natural Growth Rates and Size of Migrants	High Security – Physical	High Security – Biological	Natural Environment	Self-maintaining Flows	Mobile Facility	Minimal or Automated Maintenance	Ease of Development	Ease of Year-round Access	Resiliency to Environmental Change
RECOMMENDED OPTIONS												
1: Upper Basin Subyearling Winter Rearing	3	5	4	3	4	2	3	5	3	3	3	3
2A: Overwinter Fry/Subyearling Collection and Rearing at Cowlitz Falls, Upper Basin Acclimation	2	5	3	4	4	2	4	4	3	4	4	4
2B: Overwinter Fry/Subyearling Collection and Rearing, Acclimation at Cowlitz Falls	2	5	2	5	5	2	5	3	3	5	5	4
2C: Overwinter Fry/Subyearling Collection, Upper Basin Rearing, Acclimation at Cowlitz Falls	2	5	4	3	4	2	4	4	3	4	3	4
5: Lower Basin Finishing	5	3	3	4	3	2	4	4	4	5	4	4

Bryce observed that one option may not fit all species. In that case, we need to be clear about priority species. Laura noted that LCPUD has concerns about fish acclimating to the reservoir and asked what water fish put in the CFFF would be acclimating to.

Action Item: All – Review and email comments to Matt and Eric by Nov. 3.

Coho Return

Presenter: Eric Shoblom

Eric referenced the new two decision documents that were emailed to all on Sept. 30. The new document is based on the similar one from last year and calls for increasing the existing 6K adult Coho transport cap to the Tilton to 9K to increase angler opportunity. This proposal is a one-year perspective and future strategy options will be defined and captured in the FHMP Tilton Coho Transition Plan. Josua observed that now that we have the Bremer Bridge as an additional release site and can separate HORs from NORs, there is a great opportunity for an all-around win by increasing the 6K fish ceiling and still release the NORs at the lower site. This is good for WDFW, Tacoma, anglers, and the fish as well! Bryce noted it is important that priority be given to the Upper Cowlitz Program if transport becomes an issue. We may need another discussion if we approach the 9K cap. After some edits, Decision Document 2020-03: Tilton River Adult Salmon Disposition was approved by

consensus. Travis will forward it to absent FTC voting members for final approval, as per the protocols.

Gravel Augmentation

Presenter: Travis Nelson

Travis invited WDFW to share their concerns about the lower two sites (Brim Bar and the Trout Hatchery) listed in the Decision Document 2020-02. Bryce reminded all that at the last meeting, Sam and John noted that the area from the Barrier Dam down to Baker Rock could really benefit from gravel augmentation. Accordingly, he hopes we can prioritize placement of gravel in that area.

Discussion highlights:

- Tacoma should capitalize on the opportunity to utilize gravel in the Barrier Dam repair supersacks for gravel augmentation.
 - Brim Bar and the Trout Hatchery should be removed from the DD.
 - If Brim Bar and the Trout Hatchery are removed from consideration for gravel placement in the next 3 years, a DD for placement of supersack gravel at Barrier Island is not necessary. Travis explained the Barrier Island gravel placement will occur regardless of the DD to meet the FERC gravel augmentation requirements and has been permitted as such through the license.
 - Tacoma is continuing to prepare a gravel augmentation plan to identify other augmentation sites such as access to the Jorgensen property. Travis will look for other opportunities and follow up with Jorgensen folks regarding access.
 - Another DD should be prepared updating the milestones to prepare the plan and date the plan will be available for FTC consideration (June 2021), the table with status of augmentation amounts and plan elements. The plan should include evaluation to determine if gravel is successfully moved from the new site at low and moderate flows as well as high flows, a monitoring plan in coordination with WQPP. Other suggestions included using a more current flow regime rather than historical flow data as we are in a new climate paradigm, and that the plan include Programmatic 404 consultation with the USACE.
-

Action Item: Travis will review the prior DD and send out a revised DD for all to review prior to the next meeting.

Meeting Evaluation

- Still some technical (audio) glitches
- Missed Paul
- Meeting went well - Stayed on schedule for break and lunch.
- When evaluating the meeting, ask if we adequately covered the most important topics – call them out on the agenda. Try this at the next meeting and evaluate.
- Quotable Quote: “Loneliness is not lack of company. It is lack of purpose.” Guillermi Moldinero (inspired by Josua’s 15-year old son)

Potential Topics for November 3 FTC Meeting

- Updates incl. Hydro Ops, Water Quality
- 2021 FTC Work Plan (Dec?)
- FHMP Update

- M&E Subgroup
- Gravel Augmentation Work Plan
- Satellite Rearing (allow extra time)
- Downstream Adaptive Management TWG
- Cowlitz Restoration & Recovery Fund 2020
- Set topics for November FTC Meeting

Parking Lot

- Presentation by Tacoma's Power Management Group
- Review Steelhead Recycling Program

Cowlitz Hydroelectric Project
FERC No. 2016
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Final Conference Call/GoToMeeting Summary
November 3, 2020 from 9:30 – 2:30

FTC Representative Attendees:

Travis Nelson	TPU
Bryce Glaser	WDFW
Carol Serdar	WA Dept. of Ecology
Scott Anderson	NMFS

Additional Attendees:

Rich Turner	NMFS
James Archibald	NMFS
John Serl	WDFW
Peggy Miller	WDFW
Sam Gibbons	WDFW
Josua Holowatz	WDFW
Brian Gale	WDFW
Matt Bleich	TPU
Eric Shoblom	TPU
Phil Sandstrom	TPU
Chris Foster	TPU
Ann Weckback	Lewis County
Steve West	LCFRB
Kate Day	USFS
Laura Wolfe	LCPUD
Lyn Wiltse	PDSA Consulting / Facilitator

Remaining 2020 FTC Meeting Date: Dec. 1

Tentative 2021 FTC Meeting Dates: Jan. 5, Feb. 2, Mar. 2, Apr. 6, May 4, June 1, July 6 (tentative), Aug. 3, Sept. 7, Oct. 5, Nov. 2, Dec. 7

Approval of Last Meeting Summary

The October FTC meeting summary was approved with edits and will be posted to the FTC public website.

Announcements

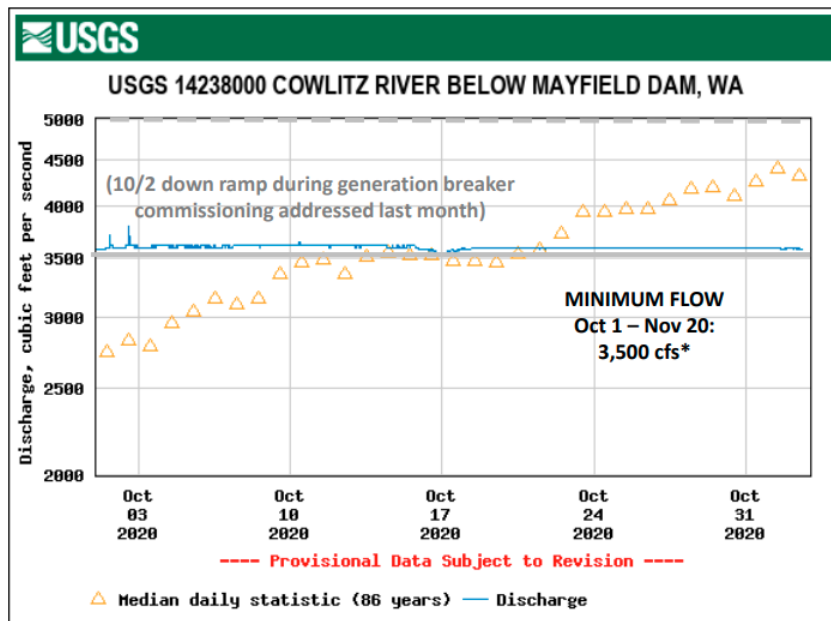
- Paul Sparks, who has been attending FTC meetings on behalf of Washington Council of Trout Unlimited, Trout Unlimited, and American Rivers notified Travis and Lyn yesterday that while he would like to be kept on FTC distribution lists, he will no longer participate in FTC meetings. He intends “to operate in the Large Mouth Bass mode ...i.e... lurk un-noticed in the shadows and only strike when something large and tasty swims by.” We have not heard whether anyone will be filling his shoes. Thanks Paul. We miss you already.
- Phil announced the Annual FHMP Status Update report will be out shortly for a 30-day review.
- Scott Anderson is now the official FTC voting member for NMFS (vs. Scott Hecht).

Updates

Hydro Operations:

- Inflows: With anticipated rain, daily average inflows are expected to trend upward (2,500cfs on November 1).
- Riffe Lake Storage: Currently at 725' which is slightly above the historical average of 718' and well within the operational max of 749'.
- Mayfield Outflows: These have been very solidly at 3,600 cfs. Melora noted the down ramp, which occurred on October 2, will be noted in the annual report.
- Forecast: Shifting to wetter and cooler with freezing levels down to 2K' for the next month. Inflows into Mossyrock could exceed 1,100 cfs.

Outflow



* Can reset higher if mean daily flow exceeds 5,000 cfs for 5 consecutive days

Link to the USGS real-time Cowlitz River hydrograph:

https://waterdata.usgs.gov/wa/nwis/uv/?site_no=14238000&PARAMeter_cd=00060,00065

Water Quality: Carol noted that she has discussed recent updated bathymetry data for the Barrier Dam with Matt Peter. There are several WQPPs for activities within the Project are in the queue for her comments and approval. She expects to receive the Debris Removal WQPP for the Cowlitz River project soon.

Downstream Adaptive Management TWG: Matt reported they last met on October 27. (Lyn emailed out the notes from this meeting on October 29.) Recommendations for the coming year are based on those from the previous year with modifications. Recommendations include:

1. Expanded operations in spring, beginning mid-March, and in fall, into and possibly through October, with blocked operations (information on life histories from neighboring watersheds will be documented for comparison);
2. Opportunistic spill evaluations up to 750 cfs with testing during the off-season to better understand the restrictions and limitations (to test the hypothesis that increasing the flow from 500 cfs to 750 cfs causes fish to be collected more efficiently);

3. Conduct alternate floor geometry study with modified conditions from what was done last year;
4. Development of adult Spring Chinook study design to understand effectiveness of life history strategies;
5. Conduct block study design with pumpback discharge system to evaluate Chinook entrance efficiency, with recommendation for Acoustic Telemetry study in 2021 or 2022;
6. Post-hoc analysis of unit operations vs FCE for 2019 and 2020 for general information purposes; and
7. Develop debris management evaluation study design for trash rack in front of Cowlitz Falls Dam turbine units and implement go-no-go for conducting that study (involves developing a study design).

Matt reported conversations continue with LCPUD and everyone seems to be on the same page. He will send out a DD prior to the December FTC meeting.

Fish Facilities: Eric reported that fall adult fish returns are strong, noting especially good Coho and Cutthroat returns. WDFW is encouraging anglers to take advantage of the Cutthroat fishery. We are on track to meet broodstock requirements for Coho, Cutthroat and Fall Chinook with egg takes in progress. We have received all of the Kalama Spring Chinook eggs (365,460 eggs). This brings us close to 1 million Spring Chinook eggs, which is still well short of our goal. We are currently releasing the 16 fish per pound Spring Chinook. They are all healthy and looking good.

Friends of the Cowlitz (FOC) Net pens: This is the 2nd year in a row that we didn't put Spring Chinook into net pens. The FOC are having issues with the access agreement with owners of the ponds there. While WDFW and Tacoma support doing this in the future, a new cooperative agreement needs to be signed before moving forward.

Coal Creek Release Site: Eric reported visiting this site with a TPU engineer. Both the Coal Creek and Alderwood Drive sites appear to be good release site candidates with low infrastructure requirements. Next steps include exploring potential to secure access and redesigning the backend of one of the fish transport trucks to be able to hook a hose onto it to provide for secure release at multiple locations.

New Position: TPU has just posted a Cowlitz Trout Hatchery biologist (eight year) position to help facilitate the remodel of the Cowlitz Trout Hatchery.

CFFF: Chris Foster reported they concluded the traditional collection season on Sept. 30 and then operated on a block schedule until October 30. The block schedule consisted of starting the NSC on Tuesdays at 0800 and shutting down Fridays 08:00 during each week in October, for a total of four block periods. Chris reminded the group that these extended operations are to further understand life history strategy which was previously difficult to obtain using the existing spillway flume collection system after removal of baffle panels this time of the year. He said collection should start again around mid-March and the current effort will be transitioned to maintenance activities around the facility.

CRR 2021: Travis reported Tacoma anticipates starting to advertise the 2021 round in the second quarter of 2021. At the December FTC meeting, Anchor will give a presentation on their Upper Cowlitz (stops at Packwood) hydraulic modeling effort and results. Their report will be posted to the CRR Website and will include maps to help us focus on priority areas

for habitat restoration projects. Tacoma is still figuring out how to coordinate this second grant round with Salmon Recovery Funding Board efforts.

M&E Subgroup: Phil reported this group is currently meeting every Wednesday. They usually cover a couple of topics during each 1.5-hour meeting. These include:

- Spring Chinook SAR project: Presentation to the FTC in December or January
- AHA/ISIT status update: More on this at the December FTC meeting
- Fall Chinook in the Tilton: Concerns about debris impinged on the fishway that looked like it might create passage issues. A quick survey of the mainstem revealed over 100 redds, though none were observed below the Cascade Aquaculture weir down to the new release site.
- Fall Chinook Broodstock Collection: There was agreement in concept to get Fall Chinook NOR fish from Mill Creek, representing fish from below the Barrier Dam. After discussing this with the hatchery folks who were busy with broodstock spawning, the idea was sent back to the M&E Subgroup for more discussion. Bryce expressed disappointment that no action has been taken and cautioned that it is now fairly late in the run. The discussion on this will take place November 6.
- Recycling of Cutthroat Trout: Phil reminded all that we did recycle 2K Cutthroat trout, but none of the first group were marked. These fish were sent downstream and could come back into the separator. There are plans to do one more round of recycling this year, though it is too late to do full marking this year that would allow us to assess a recovery rate. WDFW indicated that a sub-sample in the second group could be marked to determine a recovery rate for use in expanding to the entire recycle group. It was decided not to pursue this effort this year. The marking issue will be reevaluated in the future.
- Adult Handling Protocol: All were asked to review the 2020 protocol for fish arriving at the separator. They will discuss how to proceed at the next M&E meeting.
- Transition Plans: Phil is the lead for the M&E Workplan, and Matt is the lead on transition plans for the various species.

Action Item: Phil will send out M&E meeting notes using the Meeting Summary Template by November 6.

FHMP: Next Steps

Presenter: Matt Bleich

Matt reminded all that Tacoma filed the FHMP with FERC on October 2. He projected a draft Workplan for development of the Transition Plans and asked for feedback. The schedule for the Fall Chinook Transition Plan has a lot of detail. The other species lack that detail at this point, though he allocated a similar amount of time for each. The Workplan includes a series of half-day workshops. He noted the responsible party for the workshops is the FTC itself vs. a subgroup.

Bryce sees this as a very aggressive schedule. WDFW hopes the transition plans won't be lengthy documents. They would like to see a template that is streamlined and efficient. While appreciating the organization of the schedule, he is concerned about whether folks will have time to be sufficiently engaged. He is also concerned that the public input piece is very late in the game. Maybe provide a public comment period on the Fall Chinook plan?

Matt agreed that the schedule is ambitious. For that reason, he has included a reality check on January 31. He also is open to including additional public input points. When he asked key stakeholders if they “want to give it a go” responses from NMFS, WDFW, and LCPUD were affirmative.

At the December FTC meeting, we will finalize the draft Transition Template (as per line 6) in the table below:

1	Workplan - Fall Chinook Transition Plan		
2	Task	Responsible	Dates
3	Discuss and Finalize Workplan	FTC	11/3/2020
4	Develop Workshops	FTC	11/3/2020
5	Develop Draft Transition Template	Tacoma/FTC	11/17/2020
6	Finalize Draft Transition Template	FTC	12/8/2020
7	Workshop on marking and escapement	FTC	week of 12/16/20
8	Workshop on trigger points/transition timing	FTC	week of 12/16/20 and 1/11/21
9	Adult Collection plan (i.e. brood source)	FTC	week of 1/4/21
10	Workshop on Bioprogramming needs	FTC	week of 1/11/21
11	Workshop on harvest	FTC	week of 1/18/21
12	Schedule reality checkin	All	1/31/2021
13	Draft final of Fall Chinook Transition Plan	All	2/2/2021
14	Winter Steelhead Transition Plan	All	1/15/21 - 2/28/21
15	Spring Chinook Transition Plan	All	3/1/21 - 4/15/21
16	Coho Transition Plan	All	5/1/21 - 6/15/21
17	Combined review of Transition Plans	FTC	7/1/21 - 7/31/21
18	Solicit public input on Transition Plans	Public	8/1/21 - 9/1/21
19	Edit Transition Plans (as necessary)	FTC	9/1/21 - 10/15/21

Action Items:

- Matt - Send out Doodle Polls to set up the workshops.
- Matt - Send out a Draft Transition Plan template prior to the December meeting.

Satellite Rearing

Presenters: Matt Bleich and Eric Shoblom

Matt hoped that folks have had time since the last meeting to review the Satellite Rearing schedule internally. In the next few weeks, he will pass on comments to R2 to include the document which will then go out for public review, followed by a final FTC review, which may include an FTC workshop to incorporate public comments.

Workplan

Task	Responsible	By When
Present Workplan/Next Steps to FTC	Bleich	9/1/20
Develop draft concepts and incorporate into Satellite Rearing Facility Plan	R2	10/6/20
FTC Generated Program Concepts (include Spawning, Egg Incubation, Rearing, Finish/Acclimation, Release and location for each rearing phase)	FTC	9/15/20
Describe/Familiarize with Concepts	FTC	10/6/20
Review and Comment	FTC	10/6/20 – 11/3/20
Incorporate Comments	R2	11/6/20 – 11/15/20
QC	Tacoma	11/15/20 – 11/21/20
Public Review	Public	11/21/20 – 12/21/20
Potential workshop to incorporate public comment	FTC	1/5/20
Finalize Satellite Rearing Facility Plan	Tacoma/R2/FTC	1/31/20

Matt also updated the slide that described what is and is not included in the Planning Document to include feedback from the FTC:

Planning Document	
<ul style="list-style-type: none">• What is in it:<ul style="list-style-type: none">– Stock Prioritization– Program Goals– Satellite Rearing Objectives– Assumed Challenges– Design Criteria– Program Assumptions– Satellite Rearing Program Alternatives<ul style="list-style-type: none">• Considered, Ranked and Pros and Cons	<ul style="list-style-type: none">• What is Not:<ul style="list-style-type: none">– Site Selection<ul style="list-style-type: none">• Water source evaluation• Land use agreement• Space/water assessment• Assessment of access• Assessment of infrastructure– Program Details/re-ranking– Adaptive Management Plans– Designs– Construction

After completing the Planning Document, the items listed under the “What is Not” section will be addressed in the order in which they are listed, from site selection all the way through to construction. During each phase, we will reevaluate whether ranking of considered alternatives is still correct.

Matt is seeking feedback on the programs themselves. He asked everyone for creative ideas from spawning all the way to release. Are there other programs we should bring into the mix? Matt acknowledged that WDFW has yet to consolidate their thoughts on the plan. The public is anxious for the opportunity to review and comment on the plan from November 21 to December 21. Matt is happy to extend that same time frame to WDFW and any others to facilitate their review of the document. Josua found the planning document slide to be very helpful. The plan is a foundational document to lay out the ideas because the sites may have different goals (harvest/recovery), etc. We need to be able to adaptively manage the program over time so we can pivot as necessary.

Do satellite rearing installations have to be in the upper watershed? Yes, though there is room for interpretation. Rich agreed that it makes sense to focus on the Upper Basin. NMFS will analyze what TPU proposes. It doesn't have prescriptive numbers for this. NMFS perspective on recovery objectives: Trying to maximize the distribution in the Cispus and Upper Cowlitz so populations can become self-sustaining. This means the broader the distribution in the streams above CF the better. Sam asked about what strategies NMFS would recommend. Rich suggested acclimation sites even if they are temporary such as a modular pool or pond – a pump in the creek that pumps the water in and out. He acknowledged there will be access issues due to snow in the Upper Cowlitz in the spring. Another idea is adult outplants that have to swim down as opposed to having to swim up. We could also do smolt plants further up in the basin. Sam asked about numeric goals. Are we looking for a certain percent increase in adults in certain areas? Phil noted that with some really low abundance numbers like we see with Spring Chinook, there is a need to develop key desired outcomes. John asked how we might measure an improvement since we don't know the current distribution in the upper watershed. Bryce said CE, especially for Coho, seems to be improving. Do we need satellite ponds to build abundance? Or do we

need them to improve distribution or contribution to underutilized areas. The plan will likely identify some key data gaps.

Matt thanked everyone for the discussion and suggested we not get lost in the details at this point. He hopes we can look ahead to the next phases – the things listed under “What is not.” He sees a rational order to get to the next questions. We just need to start with a concept we can agree on – whatever will have the highest likelihood of success. Then we can work out ways through site selection and ultimately, how to best use the facilities – at different life stages.

Gravel Augmentation

Presenter: Travis Nelson

Travis began by reminding all that general agreement from last meeting was not to pursue gravel augmentation at Brim Bar and the Cowlitz Trout Hatchery, both located in the lower end of the 11-mile treatment reach identified as being gravel limited. The FTC had recommended focusing on releasing the supersack material that will be used for the Barrier Dam repair at Barrier Island. The supersacks will be filled gravel meeting the Settlement Agreement specifications and the released gravel will be credited toward Tacoma’s gravel placement. Travis will coordinate with Matt Peters on USACE permitting.

Work to develop the long-term gravel augmentation plan included other sites however they have been eliminated from consideration due to associated impacts that make them less desirable. Tacoma is still evaluating the Jorgenson site for future gravel augmentation. They plan to reinstitute conversations with the landowner as well as evaluate road access and condition. Travis will check how access to the site might be sequenced with the Barrier Dam repair. Barrier Island will also be considered as a site for long term gravel augmentation. Carol asked for assurance that the Barrier Island site will not impede upon other project resources such as the boat ramp at Mill Creek.

Peggy suggested two DDs. One for the supersack material being placed at Barrier Island as opposed to placement on “gravel mountain” and the second, updating the past DD for the preparation of the long-term gravel augmentation plan. She suggested the second DD update the schedule for milestones and work products that will be provided to the FTC before the plan is finalized. Bryce suggested we start with the existing DD, updating the schedule and specifying Barrier Island / Jorgenson as the alternatives moving forward.

Steve West cautioned that there are new FEMA / RCO requirements about whatever activity you do can’t result in a new rise in the river or increase flooding. During the meeting he sent the documentation on this to Travis who forwarded it to the group. It appears Tacoma Power may have to do an H&H (Hydrologic & Hydraulic) analysis for gravel augmentation.

Action Item: Travis will send out a revised DD or two for all to review prior to the December or January meeting.

Coho Return Discussion

At the October FTC meeting, we approved a DD that called for increasing the existing 6K adult Coho transport cap to the Tilton to 9K to increase angler opportunity. We agreed at the time that we may need further discussion if we approach the 9K cap. Bryce announced that, according to Sam and Brian, we are at that point. He asked if anyone has concerns about

further increasing the number of Coho in the Tilton. According to the Coho Runtime report, we are about 70% through the run. We have been getting 300-500 Coho in the separator the last few days.

Coho Runtime Report: Segregated Population Projections

Coho NORs to date = 1326 and NOR Season

Coho NOR Season = 2911 (rough projection based on historic means)

If we stay on track there will be 13K HORs and 2911 NORs for the season.

Coho Runtime Report: Integrated Population Projections

Coho HOR Season = 13,790

Coho NOW Season = 10,741

After discussion including broodstock needs and the fact that some of these fish are being harvested, Rich suggested it would be okay to put an additional 3K Coho up in the Tilton this year (9K plus 3K more for a total of 12K). There was consensus by the FTC to approve that action. Eric will revise the prior decision document and this decision will take effect immediately.

Action Item: Eric will update the DD and Travis will distribute.

Meeting Evaluation

- Great attendance
- No distracting technical issues this time!
- Stayed on schedule for break and lunch, ending a little early.
- 17 second pause worked well; would be fun to zoom in on the face of the person waiting for responses.
- Quotable Quote: "Peace cannot be achieved through violence; it can only be attained through understanding." -- Ralph Waldo Emerson

Potential Topics for December 1 FTC Meeting

- Updates incl. Hydro Ops, Water Quality, Flow Planning, CRR, 2021 FTC Work Plan
- Presentation by Anchor on Upper Cowlitz Hydraulic Modeling
- FHMP: Next Steps
- M&E Subgroup
- Gravel Augmentation Work Plan
- Satellite Rearing
- Downstream Adaptive Management TWG (DD)
- Plan for January Public FTC Meeting, including meeting topics
- Review/approve 2021 FTC Meeting Schedule

Parking Lot

- Presentation by Tacoma's Power Management Group
- Review Steelhead Recycling Program

Cowlitz Hydroelectric Project
FERC No. 2016
Cowlitz Fisheries Technical Committee
Final Conference Call/GoToMeeting Summary
December 1, 2020 from 9:30 – 2:30

FTC Representative Attendees:

Travis Nelson	TPU
Bryce Glaser	WDFW
Carol Serdar	WA Dept. of Ecology
Scott Anderson	NMFS

Additional Attendees:

Rich Turner	NMFS
James Archibald	NMFS
John Serl	WDFW
Peggy Miller	WDFW
Sam Gibbons	WDFW
Josua Holowatz	WDFW
Brian Gale	WDFW
Jim Pacheco	WA Dept. of Ecology
Matt Bleich	TPU
Eric Shoblom	TPU
Phil Sandstrom	TPU
Tim Hoffnagle	TPU
Chris Foster	TPU
Ann Weckback	Lewis County
Steve West	LCFRB
JD Jones	USFS
Kate Day	USFS
Laura Wolfe	LCPUD
Rudy Salakory	Cowlitz Indian Tribe, Tech Rep for TPU
Lyn Wiltse	PDSA Consulting / Facilitator

Tentative 2021 FTC Meeting Dates: Jan. 5 (Public Meeting), Feb. 2, Mar. 2, Apr. 6, May 4, June 1, July 6 (tentative), Aug. 3, Sept. 7, Oct. 5, Nov. 2, Dec. 7

Approval of Last Meeting Summary

The November FTC meeting summary was approved with edits and will be posted to the FTC public website.

Updates

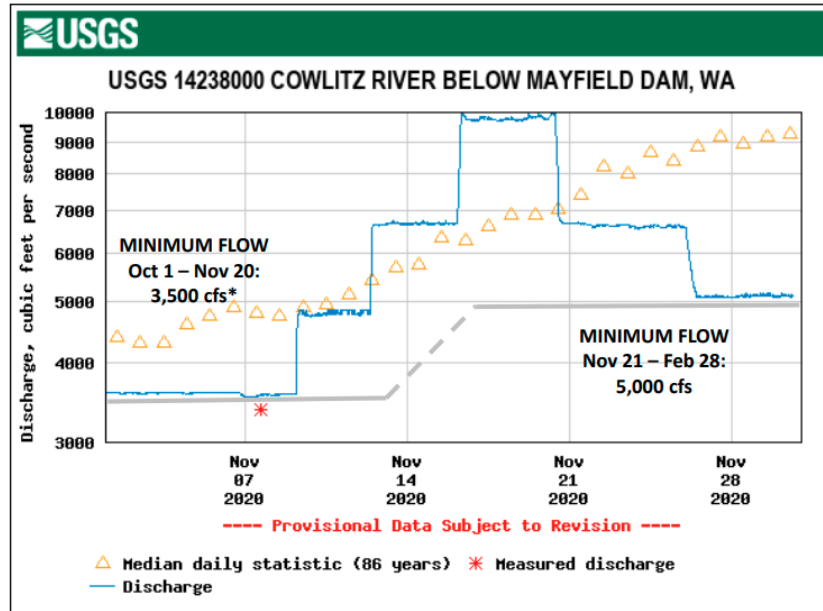
Hydro Operations:

- Presentation distributed to group
- Inflows: After a dry summer, inflows are now more typical (11/29 daily mean).
- Storage:
 - Riffe Lake: Has been increasing the last few days as expected. It is currently at 734' (historic average of 737', operational max 749'). Ecology asked for

assurance that TPU will be monitoring and measuring TDG in the event of any spills.

- Snowpack is starting to build.
- Mayfield Outflows: Current outflow is 5,100 CFS. The minimum flow reset higher at the end of each day Nov. 12-15 and then set at 5,000cfs (highest possible minimum flow) on Nov. 16. Minimum flow 5,000 cfs will last through the end of February. No trips or ramp events occurred.
- Forecast: The next ten days will likely be dry with typical temperatures and variable snow levels. The forecast is for a La Niña year, tilting probabilities toward higher precipitation and lower temperatures.

Outflow



* Resets higher if mean daily flow > 5,000 cfs for 5 consecutive days

Link to the USGS real-time Cowlitz River hydrograph:

https://waterdata.usgs.gov/wa/nwis/uv/?site_no=14238000&PARAMeter_cd=00060,00065

Water Quality: Carol noted that TDG monitoring is important and needs to be done appropriately and permanent TDG monitoring stations have yet to be installed. She is discussing this with Matt Peter. Regarding the Kosmos toxic cleanup program, the upland area has ground water concerns (contamination from the stockpile). A new project manager for this project will soon be announced by Tacoma. For the Barrier Dam Project, there have been changes to the permitting process based on bathymetry discovery of needs for more fill. A scour hole was discovered upstream of the Barrier Dam near the repair area. There is a need to backfill this hole before installing the coffer dam and doing the dewatering. There are still several WQPPs for Project activities in the queue.

Downstream Adaptive Management TWG: Matt reported the November and December meetings are being combined into a single meeting on December 9. The main topic will be the preparation of the DD for the January FTC meeting.

Fish Facilities: Eric reported they are in the tail end of fall return for Chinook and Coho. For Coho they went from 1500/day two weeks ago to 200/day this week. Stream surveys are currently underway as fish start to spawn. Some temporary staff have been released. They

are still operating Mayfield three days a week where they are getting 150-300 Chinook smolts/day. They are also getting 50-200 Coho adult fallbacks (mostly HOR jacks) coming out of the Tilton each day and these numbers are dropping off.

- Action Item: Eric will put together a summary of Fallbacks by December 4.

Upper Cowlitz Fish Release Site: Tacoma is working with Lewis County on lease agreements. When these are complete, they will be able to work on site development.

CRR 2021: Travis reported Anchor QEA will provide an update on results from the Upper Cowlitz hydraulic model. Tacoma is also reaching out to others in the field of hydraulic modeling (USACE, ECY). While the timeline has yet to be defined, Tacoma is planning to advertise the next grant round in the second quarter of 2021. Resources are limited due to Florian's absence. Rudy noted that Tacoma worked with the LCFRB to develop prioritized actions (the Upper Cowlitz and Cispus Habitat Strategy). He hopes that list and appropriate strategies/approaches will be reviewed at a future FTC meeting. E.g., realignment of the Tom Music Bridge to increase mobility and habitat on the Cispus. There is a need to balance out all the various interests and needs. Peggy suggested a subgroup could help push this effort forward in a timely manner. Steve warned in the second quarter of 2021, would-be sponsors in the southwest part of the State will already be busy with other projects. Travis acknowledged the need to coordinate with ongoing projects and said the round would likely be later in the year.

M&E Subgroup: Phil reported that at their last meeting they discussed the AHA/ISIT model and its status. Bryce brought the STATCAM model to the subgroup to review. The question is: Which tool best supports the HGMP need? They also discussed the Spring Chinook Hatchery SAR project (Josua is the lead on this). They plan to discuss this further at the M&E Subgroup on December 16 and with the FTC hopefully in February. The subgroup will also attend the FHMP transition workshop on December 16 to begin work on the transition plan template. On back burner: Adult handling Protocol (WDFW document that defines fish disposition/release locations) the intent is to incorporate these actions into the transition plans. They hope to review this at their January meeting and discuss this also at the FTC meeting in February.

John welcomed anyone with strong interest in SAR, to participate in this subgroup which is open to everyone in the FTC. He also mentioned that they had an analytics meeting focused on how we get to our estimates for each species and the data collected over the course of the year.

- Action Item: Phil: Send invite to next Analytics meeting to FTC members.

Upper Cowlitz Hydraulic Model

Presenter: Tracy Drury and Kyle List, Anchor QEA

Anchor used combination of 1D and 2D hydraulic modeling to evaluate a number of flow scenarios in the Packwood to Randle area (using blue-green LiDAR collected in 2017). They looked at modeled depth, velocity and water surface elevation. They also looked at habitat suitability indices (HSIs) and complexity (side channels). Tracy and Kyle, both Sr. Hydraulic Engineers with Anchor, walked through a PPT presentation which included:

- Coarse-level Hydraulic Model
- Fine-Scale Hydraulic Model
- HSI integrates modeled depth and depth-averaged velocity outputs and provides an index of relative habitat suitability (different values for juvenile Chinook and juvenile

steelhead). Tracy described that published HSI values (WDFW and Ecology) are a compilation of data collected from a variety of mostly smaller rivers. Because the Cowlitz is a larger river, Anchor used modified HSI values based in consultation with Eric Beamer at Skagit Systems Coop. This was described in the presentation and the report.

- Kyle showed an example of how the model can be used to evaluate project alternatives smaller scales as well as reach-level modeling.

Discussion:

- Concern that the adjusted HSI was not reviewed by WDFW (Kiza Gates) or Ecology (Jim Pacheco) and those entities should be consulted before/if it is used for management decisions.
- This model was used for the LCFRB habitat strategy. The strategy included the Cispus River (outside of the model extent). Consider doing this type of modeling on the Cispus.
- The Cispus release site had issues with a gravel shallowing up under the bridge after a major flood event. Should Tacoma spend more money on hydraulic modeling if it doesn't tell us anything we don't already know?
- This is useful information, but were there any "aha" moments?
- Not interested in flood risk reduction or purchase of land.
- The focus of the presentation was on moderate high-water flows. It would be interesting to examine summer low flows (a limiting factor for fish). Look at ground water infiltration. (Note: Results do cover low flows.)
- The model tells you about the dynamics in the flood plain. It's hard to recognize what types of dynamics that fish want – a detectable flow field. Has this been considered?
- When flows come up in backwater areas, juveniles quickly populate these areas. It is unclear how long they stay.
- Creating preferential habitat is not the same as improving the quality of the stocks.

Anchor's report and map books for depth and velocity outputs are posted, along with the other habitat assessment reports and links to the UCC Habitat Strategy. The CRR Program website shortcut is mytpu.org/CRR.

Next steps: Melora noted this is another wealth of information like the geomorphic modelling. It is up to the FTC to determine how and to what extent we use it.

FHMP: Next Steps

Presenter: Matt Bleich

Matt reported the transition plan workshops have been scheduled he has developed a draft template for the work plan. The shaded area shows all the detail for the Fall Chinook Transition Plan. The first workshop will be on Dec. 16 immediately following the M&E Subgroup meeting. Fall Chinook Workshop Transition Plan dates:

- Dec. 16 from 1 - 4pm
- Dec. 23 from: 9 - noon
- Jan. 6 from 1 - 4pm
- Jan 13 from 9 - noon
- Jan. 19 from 1 - 4pm
- Jan. 22 from 1 - 4 (as needed)

	A	B	C
2	Task	Responsible	Dates
3	Discuss and Finalize Workplan	FTC	11/3/2020
4	Develop Workshops	FTC	11/3/2020
5	Develop Draft Transition Template	Tacoma/FTC	11/17/2020
6	Finalize Draft Transition Template	FTC	12/8/2020
7	Workshop on marking and escapement	FTC	week of 12/16/20
8	Workshop on trigger points/transition timing	FTC	week of 12/16/20 and 1/11/21
9	Adult Collection plan (i.e. brood source)	FTC	week of 1/4/21
10	Workshop on Bioprogramming needs	FTC	week of 1/11/21
11	Workshop on harvest	FTC	week of 1/18/21
12	Schedule reality checkin	All	1/31/2021
13	Draft final of Fall Chinook Transition Plan	All	2/2/2021
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16	Coho Transition Plan	All	5/1/21 - 6/15/21
17	Combined review of Transition Plans	FTC	7/1/21 - 7/31/21
18	Solicit public input on Transition Plans	Public	8/1/21 - 9/1/21
19	Edit Transition Plans (as necessary)	FTC	10/1/21 - 10/15/21

The Transition Plan will be a living document. It is intended to serve as a step toward recovery goals. It will be evaluated and revised as needed through the APR process. HSRG guidelines will be evaluated for applicability along the way.

Matt walked through the draft Transition Plan Template and said he would be happy to email out a revised template that incorporates FTC feedback after this meeting. The idea is to have a single document as the Plan to move us from where we are today to where we want to go. As we work through the Transition Plan, we will be able to accommodate different perspectives. He sees each Plan being 2-4 pages long and will lead us from where we are now to the next recovery phase. The Current Recovery Phase table and the Threshold/Triggers/ Decision Rules column will be worked through in the workshops.

Discussion:

- Bryce suggested the Recovery Phase piece needs to include how goals of the program might change. The threshold triggers to move between phases might be premature – focus will be on NOR population. This could be an entire workshop or two on its own. Also, early next year HSRG is coming out with guidance that will help us think about how to develop threshold triggers.
- This captures most of what was talked about in the appendix of the FHMP.
- How best to capture the timing, harvest, mitigation piece?
- Nice to see room to list data gaps and Adaptive Management triggers.
- Like the “table-ized” format – nicely organized. Not too wordy.

Matt will confer further with Bryce on this and send out the draft agenda for the December 16 workshop in the next few days.

Action Item: Matt will send out the agenda for the December 16 workshop.

Satellite Rearing

Presenters: Matt Bleich and Eric Shoblom

Matt reported not much has changed since the last FTC meeting. The plan is still in public review. So far, he has received verbal feedback from the FTC and a few comments from the

public via phone calls and emails including from Energy Northwest. Matt will consolidate the comments to share with the FTC.

<u>Workplan</u>		
Task	Responsible	By When
Present <u>Workplan</u> /Next Steps to FTC	Bleich	9/1/20
Develop draft concepts and incorporate into Satellite Rearing Facility Plan	R2	10/6/20
FTC Generated Program Concepts (include Spawning, Egg Incubation, Rearing, Finish/Acclimation, Release and location for each rearing phase)	FTC	9/15/20
Describe/Familiarize with Concepts	FTC	10/6/20
Review and Comment	FTC	10/6/20 – 11/3/20
Incorporate Comments	R2	11/6/20 – 11/15/20
QC	Tacoma	11/15/20 – 11/21/20
Public Review	Public	11/21/20 – 12/21/20
Potential workshop to incorporate public comment	FTC	1/5/20
Finalize Satellite Rearing Facility Plan	Tacoma/R2/ FTC	1/31/20

Gravel Augmentation

Presenter: Travis Nelson

Travis walked us through the DD 2020-2 that was sent out just prior to the meeting. This is a modified version of the prior DD that proposed three site locations. He clarified that the current DD was written exclusively for the Barrier Island site. This is separate from the larger, and still to come, long-term DD that summarizes where we are with the entire gravel augmentation program. Carol reminded all this is a (three-year) construction project and therefore the details are subject to change. Once the contractor dries out the piece of Barrier Dam where they want to do the repair work, they may find they have to do something different. Travis wrote the DD is a way to give the contractor flexibility. Tacoma needs to be specific about what they want to have count toward their gravel deficit. They need a tally sheet to account for this on an annual basis. To the extent possible, placement of the gravel should be closer to the thalweg so it can distribute into the river. A WDFW habitat biologist may be present when the gravel is being dumped. Matt and Travis will discuss this with TP engineers to see if there is space for communicating about the placement. Monitoring for gravel migration will be done.

The DD was approved by consensus after collaborative editing. Travis sent the final version of the document to all. Travis noted Tacoma is still evaluating the Jorgenson site for future gravel augmentation.

Action Item: Travis will send out the remaining DD including an updated schedule for milestones and work products that will be provided to the FTC for review prior to the January meeting.

Planning for January 5 Public FTC Meeting

MS Teams was the platform used for the APR/FHMP public meeting last month. Zoom Webinar has been used successfully by WDFW for public meetings they host.

Action Item: Travis will determine the appropriate remote meeting platform and advertise the public meeting in the near future.

Meeting Evaluation

- Great attendance and participation was good
- Need chocolate handy
- Add PM bio break
- Successfully edited DD on the fly and were able to approve it
- Super productive
- We actually made a decision and moved the ball forward on the project
- Travis's creative driving when Bryce was reading
- Quotable Quote: "Teach this triple truth to all: A generous heart, kind speech, and a life of service and compassion are the things which renew humanity." Buddha

Potential Topics for January 5 FTC Meeting

- Updates incl. Hydro Ops, Water Quality (incl. WQ Monitoring Plan Updates), Satellite Rearing Update
- Flow Planning Presentation
- CRR (high-level – provide timeline)
- 2021 FTC Work Plan (Gantt chart with document review timelines, major initiatives, construction projects, FHMP Workshops, etc.)
- FHMP: (30 min)
- LCFRB Presentation (30 min?)
- M&E Subgroup
- Gravel Augmentation Work Plan (second DD?)
 - Key milestones
- Downstream Adaptive Management TWG (DD)
- Preview February FTC Meeting topics
 - February Spring Chinook SAR presentation by M&E Subgroup

Action Items:

- All: Send presentation ideas to Travis and Lyn by December 4.
- Steve: Check about LCFRB staff availability to present at the January 5 meeting.

Parking Lot

- Presentation by Tacoma's Power Management Group
- Review Steelhead Recycling Program