

COLUMBIA RIVER TECHNICAL MANAGEMENT TEAM

July 13, 2022

Facilitator's Summary

Facilitation Team: Emily Stranz & Colby Mills, DS Consulting

The following Facilitator's Summary is intended to capture basic discussion, decisions, and actions, as well as point out future actions or issues that may need further discussion at upcoming meetings; it is not intended to be the "record" of the meeting. Official minutes can be found on the TMT website: <http://pweb.crohms.org/tmt/agendas/2022/>. Suggested edits for the summary are welcome and can be sent to Colby at colby@dsconsult.co.

Review Meeting Summaries & Minutes – Official meeting minutes for the June 10, 15, 22, and 29 meetings, as well as the facilitator's summary for June 29, will be reviewed at the August 3 TMT meeting.

Dworshak Dam Operations – Jon Roberts, Corps, reported on operations at Dworshak Dam, as the project works to offset warmer water from natural flows in the lower Snake River system. The reservoir reached 1,599 feet on June 18, which is considered full (top 1-foot); elevation didn't leave the top 1-foot of the reservoir until July 9, when it fell back under 1,598 feet. The project has been drafting since. This morning the reservoir reached 1,596 feet and will begin drafting 1 foot every day for the rest of the summer.

Yesterday, water temperatures at Anatone rose above 70 degrees F with incoming warmer water from the Snake; river temperatures have been rising slowly, although later than typical years. Flows at Anatone will go up and down within a specific range depending on power needs. Outflow from Hells Canyon complex is typical for this time of year. The Clearwater at Orofino (natural system) is seeing a consistent drop in flows, and Jon expects to see continually lower flows throughout the summer until the fall. He noted that the Clearwater is a bit more reactive due to the shallow system and less flow; river temperatures here will fluctuate more with ambient temperature extremes.

Dworshak temperatures are expected to remain between 43-45 degrees F throughout the summer, and may rise to 46 degrees F as the pool drafts to help keep the Lower Granite tailwater at or below 68 degrees F. Currently temperatures in the Lower Granite tailwater are under 68 degrees F, although they have risen over the past few days. Currently the Lower Granite forebay temperature is about 65 degrees F. Stratification is setting up as cooler water reaches Lower Granite.

Regional forecasts show a heat wave moving through the region on Wednesday, Thursday, and into the weekend, intensifying in the Boise area on Saturday. Relief from the heat should come on Sunday and into next week. Yesterday was over 100 degrees F at the confluence, and will stay in the high 90s over the next 3-4 days; potentially some relief in the lower 90s (lows in the low 60s) will come later in the 10-day forecast, as well as some forecasted wind.

Tonight, the project will slightly increase discharge, as well as tomorrow night (to 12.5 kcfs) to compensate for the incoming heat wave, and will make adjustments to begin reducing flow to lower TDG levels, conserve water and ensure continued operations throughout the summer. This will still keep outflows under the 110% TDG criteria (about 3 kcfs of spill out of the project). In response to a query, Jon noted that his team also modeled the scenario of not increasing outflows and found that temperatures would spike above 68 degrees F if not augmented.

Adult Sockeye Update – Jonathan Ebel, IDFG, reported on PIT-tag expansion numbers, travel times and conversion rates for adult sockeye. 150 Snake River sockeye PIT-tags (mostly hatchery fish) have been

detected over Bonneville. PIT expansion for abundance at Lower Granite is 995 (a bit over the window count). This likely indicates that the fish counted at Lower Granite are overwhelmingly Snake River sockeye, rather than from the Columbia River. Jonathan reported that 15 Snake River sockeye PIT-tags have been detected at Priest Rapids; 11 have been detected in an area above Priest Rapids.

Conversion rates include: 0.91 from Bonneville to The Dalles; 0.77 from Bonneville to McNary; 0.55 from Bonneville to Ice Harbor; and 0.36 from Bonneville to Lower Granite.

Average travel times are much better than last year: Bonneville to Lower Granite is 12.5 days; McNary to Ice Harbor is 1.9 days; and McNary to Lower Granite is 6.3 days. Sockeye passage is looking good, with abundance higher than the last few years, although Jonathan noted that survival rates are still pretty low juveniles to adults. So far, 63 sockeye were counted at the Lower Granite trap, and released back into the river.

Operations Review – Reservoirs: Joel Fenolio, Reclamation, reported on Bureau of Reclamation projects:

- **Hungry Horse:** midnight elevation was 3,558.18 feet; the project reduced releases down to 6,400 cfs and is starting to draft. They are aiming to get down to 5,200 cfs by July 25 and then 3,550 feet by the end of September.
- **Grand Coulee:** midnight elevation was 1,289.1 feet (Sunday hit refill target of 1,289.6 feet), and the project is drafting to 1,279 feet by the end of August. Inflows have been averaging 198,000-199,000 cfs, with releases of 188,000 cfs.

Regarding the upper Snake River flow augmentation: water is still releasing, and Joel estimated a total of 376,000 cfs for augmentation this year. The Boise system is working to release 67,000 cfs, while staying within safe floating flows on the river for recreational use. This will cause a delay on delivering the full volume (likely not until August 4-5).

Lisa Wright, Corps, reported on Corps of Engineers projects:

- **Libby:** midnight elevation was 2,447.5 feet, with average inflows of 29.7 kcfs, and outflows of 13 kcfs;
- **Albeni Falls:** midnight elevation was 2,062.3 feet, with average inflows of 41.7 kcfs, and outflows of 44.6 kcfs;
- **Dworshak:** midnight elevation was 1,596.99 feet, with average inflows of 3.6 kcfs, and outflows of 9.5 kcfs;
- **Lower Granite:** average outflows of 45.9 kcfs;
- **McNary:** average outflows of 272 kcfs; and
- **Bonneville:** average inflows of 270.3 kcfs.

Water Quality – Dan Turner, Corps, reported that yesterday the McNary forebay reached 117%, and there was also an exceedance in the Bonneville forebay. Low wind on the system (less degassing) with a drop in barometric pressure and increases in water temperatures likely led to the exceedances.

The Corps has been lowering spill caps (95 kcfs yesterday) at The Dalles to bring the Bonneville forebay down. In the McNary tailwater, the TSWs are currently being removed, which requires spill bays 18-22 closed. The spill cap was adjusted to 135 kcfs at McNary to control TDG levels in the tailwater, and as TDG rose to 121% yesterday the Corps will decrease the spill cap to keep TDG at or below 120%.

Dan also noted that the Warrendale gauge (below Bonneville) was producing bad data, and that TDG was close to 115%, rather than 1,000%.

Fish – Kelsey Swieca, NOAA, reported that adult steelhead numbers have been increasing, with 1,000-1,400/day at Bonneville, and while they are moving past McNary, only a few are reaching Lower Granite daily. Adult Chinook continue to decline, with about 1,500/day at both Bonneville and McNary, and a couple hundred per day at the lower Snake River projects over the past week. She noted that it's looking like a good year for sockeye; the peak has passed as of now, with a substantial drop off in passage, averaging 100-200/day at most of the Snake River projects.

Yearling Chinook passage has dropped off, and sub-yearlings are the predominant juveniles in the system now. Sub-yearlings saw a moderate uptick in passage following the July 4 weekend, and have been consistently passing all projects over the past few weeks.

Charles Morrill, WA, provided TAC's July 11 update on sockeye and summer Chinook run sizes in the meeting chat:

"TAC downgraded the sockeye run size at the Columbia River mouth to 636,500 fish compared to our July 5 update of 656,000. The run is still significantly higher than the pre-season forecast of 198,700. TAC also upgraded the upper Columbia summer Chinook run size to 82,300 adults at the Columbia River mouth, compared to the pre-season forecast of 56,300 adults. TAC will continue to monitor and assess the sockeye and summer Chinook returns and will provide run size updates as warranted. TAC is scheduled to meet again next Monday, July 18."

He also provided sub-cumulative passage graphs for Bonneville and McNary:

- Bonneville: https://www.fpc.org/smolt/smolt_queries/R_smoltcumulativepassindex_resultsv7.php
- McNary: https://www.fpc.org/smolt/smolt_queries/R_smoltcumulativepassindex_resultsv7.php

Dave Swank, USFWS, reported that adult lamprey counts at Bonneville have increased over the last week. Passage at Bonneville is 176% of last year and 109% of the 10-year average; The Dalles is 55% of last year and 63% of the 10-year average; John Day is 56% of last year, and 44% of the 10-year average. He noted that an above average run is still quite possible this year, and that passage could have been later due to cold water temperatures this spring.

Power System – Tony Norris, BPA, reported that river flows are no longer extremely high and loads are increasing; they do not anticipate additional lack of market spill in the near future.

Questions or Comments from Members of the Public – There were no questions or comments from members of the public.

**The next scheduled TMT meeting is on July 20 at 9:00 AM.
A DSC Process meeting will follow the TMT business meeting.**

Columbia River Regional Forum
Technical Management Team
OFFICIAL MINUTES
July 13, 2022

Minutes: Andrea Ausmus, BPA (contractor, CorSource Technology Group)

Today's TMT meeting was held via conference call and webinar, chaired by Lisa Wright, Corps, and facilitated by Emily Stranz, DS Consulting. A list of today's attendees is available at the end of these minutes.

1. Review Meeting Summaries & Minutes

The 6/10, 6/15, 6/22 summary and minutes, as well as the minutes for 6/29 were postponed.

Kelsey Swieca, NOAA, requested for a postponement due to Trevor Conder not being able to look at the documents. Kelsey requested for the approval to be held on 8/3.

The postponement was approved and the above will be reviewed on 8/3.

2. Dworshak Dam Operations - *Jonathan Roberts, Corps NWW*

Jon Roberts, Corps, reported on operations at Dworshak Dam.

Getting ready to move into warmer weather signals that it's the time of year to look at the operations of Dworshak for temperature management of the lower Snake River.

Dworshak reservoir crossed over 1599 feet as of 6/18 and is a good indication for water supply. Did not leave the top one foot until 7/9 when the pool crossed under 1598 feet, at which point it has continued to draft. As of this morning (7/13) the reservoir crossed into 1596 feet and it is expected to draft a foot a day moving forward through the rest of the summer.

a. Current River Temps

- Snake River (Anatone) as of 7/13 crossed above 70°F as the incoming water is getting warmer. It is at its coolest point at 10 AM and then steadily warms through its daily cycle. River temperatures are rising slowly and the timing is later into the year from last year. Outflow from the Hells Canyon Complex is typical for this time of year so flows at Anatone will go up and down as they change outflow for power needs.
- The natural system on the Clearwater River (Orofino) has seen a consistent drop in flow to about 9 kcfs; flows will continue to slowly drop throughout the summer as the natural flow recedes until beginning of fall when rainstorms typically occur. Temperature also drops to low at 10 AM and increases as the sun hits the system. The river is more reactive than the Snake River due to the shallower river and less flow and this will be represented in the measurements at Orofino. Orofino will increase 2°F from its morning low, while Anatone will stay within a 1° to 1.5°F range.
- Dworshak reservoir will stay consistent at 43 – 45°F throughout the entire summer. Drafting the pool will see its temperature go up slightly to 46° at the end of summer.

Dworshak's outflows are controlled by the Corps of Engineers and we are working to keep the Lower Granite tailrace temperature below 68°.

- Lewiston temperature gauge shows the mixture of the natural flow from Orofino and whatever Dworshak is producing right before reaching the Lower Granite pool. Again, it is at its coolest point about 10AM in the morning and then will warm through its daily cycle.
- Currently temperatures in the Lower Granite tailrace are below 68°. The temperatures have risen over the last few days.

b. Current LWG Forebay Temperature

- Currently the stratification is being set up in the forebay of Lower Granite. The stratification will continue to set up in the 15 - 20 meter mark. The colder water from the Clearwater (55-57°) will intersect and move under the warmer water from the Snake River (70°). This will become more defined over the next few days.
- Ideally the 15-20 meter water will stay at 66-68°F, which keeps the tailrace below 68°.
- Top 3 meters of the pool will fluctuate depending on ambient air temperature and the heat waves moving through the region this summer. This is the depth that the RSW pulls water so that also influences the tailrace temperature.
- Currently, the Lower Granite tailrace is looking good at about 65° and will expect a rise in temperature closer to 68° over the next few days.

c. 10-Day Regional Weather Forecast

- The weather forecast is helpful to see what the air temperature will be in the region, which influences water temperatures. Red on the map indicates a maximum temperature exceeding 100°F; having it several days in a row indicates conditions that will result in very warm water. Additionally, when the minimum temperature is in the 70s (yellow on the Min Temperature map), the water is unable to cool off overnight.
- Wednesday (7/14) and into this weekend shows red in parts of the Snake River basin as the heatwave moves through the region and intensifies over the Boise region on Saturday (7/16). Relief comes Sunday and potentially into next week as the heat dissipates.
- This will influence some of the flow from Hells Canyon as they respond to their regional power demands and may increase flow along the Snake River, as well as warmer water along the tributaries in the region.

d. Lewiston Weather Forecast

- The forecast in the confluence, Lewiston-Nez Perce County Airport (KLWS) is 96-97°F over the next four days (7/13-7/16).
- Some relief potentially over the next week with high temperatures ranging 92-95° and lows in the 60s. Light wind will help to take off some heat from the top of the lake and will help with temperatures along the lower Snake River .

e. Dworshak Operation Scenario (posted Wed 7/13 7:55am)

- Temperature forecasts for Anatone (Snake River) and Orofino (Clearwater) are used to manage outflows from Dworshak. The 68°F Lower Granite tailrace threshold is the straight line that runs along the graph and the blue line is the modeled outflow for Dworshak.
- As the weather changes each day the model is run numerous times a day. This has been done since late last week and is run through the weekend as needed (it is run at least once per weekend). Model and conditions are constantly monitored.
- As of now, discharge at the project will be slightly increased tonight (7/13) and again tomorrow night (7/14) to up to 12,500 cfs to compensate for the heatwave. Depending on how the conditions and the temperatures affect the river system over the weekend, the Corps will make adjustments to reduce flow for water conservation to ensure enough cooling water for the entire summer.
- As compared to last year with historical heatwaves and low water levels, this year looking like to be a better position in respect to water availability and having water to offset warmer temperatures in the river. Later need for releases has more water available and less time until cool down in September.

Recap

- Planning on increasing Dworshak discharges later tonight (7/13) and later tomorrow night (7/14).
- It will keep the TDG under 110% but will be 3000 cfs spill out of the project to compensate for the heat wave.
- Will continue to monitor over the next few days and make a reduction at Dworshak as soon possible to bring down the TDG and conserve water for any additional heatwaves this summer.

Questions and Comments:

Erick Van Dyke, OR, asked Jon whether there were any additional model runs done without the 3000 cfs spill.

Jon responded in the affirmative but the models showed an uncertainty of the stratification being setup and concern the tailwater could warm up too quickly over the weekend. Model results showed that not spilling would result in the tailwater spiking above 68.5° before coming back down.

Erick showed frustration of not having the model result without 3 kcfs spill included in the presentation.

Jon clarified that the reason the scenario was not posted is because the result showed the temperature spike and was not a viable operation that they would implement.

3. Adult Sockeye Update - *Jonathan Ebel, IDFG*

Jonathan Ebel, IDFG, provided an update of adult sockeye, including PIT-tag expansion numbers, travel times, and conversion rates.

a. PIT-Tag Expansion Numbers

- 150 PIT-tagged Snake River sockeye (vast majority are hatchery fish) detected over Bonneville; using the PIT-tag rate from the hatchery, that expands to a little over 2800 Snake River sockeye.
- The PIT-tag expansion at Lower Granite is 995 (which is a little over the actual window count). This indicates that the fish at Granite are overwhelmingly Snake River rather than Columbia strays.
- Interestingly, 15 Snake River PIT-tags were found at Priest Rapids, of those 11 have been detected at a sight above Priest Rapids.

b. Conversion rates

- .91 Bonneville to The Dalles.
- .77 Bonneville to McNary
- .55 Bonneville to Ice Harbor
- .36 Bonneville to Lower Granite (changing rapidly as fish reach Granite – yesterday (7/12) conversion rate was .25, which shows where the bulk of the fish are in the system)

c. Travel Times

- Bonneville to Lower Granite fish averaged 12.5 days. Last year on this date it was 21.7 days.
- McNary to Ice Harbor is 1.9 days.
- McNary to Lower Granite is 6.3 days and last year was 10.4 days.

In summary, sockeye passage is looking good. Their abundance is higher this year, but looking at the number of smolts put out, the overall juvenile to adult survival rate is looking low.

As of Friday (7/8) at the Lower Granite trap, 63 sockeye were trapped and released back in the river.

Questions and Comments:

None

4. Operations Review

a. Reservoirs - Reclamation, Corps

- Reclamation

Joel Fenolio, Reclamation, provided the review for the Reclamation reservoirs.

Hungry Horse Dam

- Hungry Horse midnight elevation 3558.18.

- Reduced releases at Hungry Horse to 6400 cfs and have started to draft at the moment. Still spilling with the two units available with 5200 cfs through the powerhouse.
- Hoping to stay down at 5200 cfs until 7/25 when they go down to one unit. At which point there should be a 3-4 foot hole (3-4 feet from full) or 3560 and cruising along to be 3550 by the end of September.

Grand Coulee Dam

- Grand Coulee midnight elevation 1289.1 cfs. On Sunday (7/10) elevation reached 1289.6 cfs (refill target for this year) and will be drafting to ~1279 cfs by the end of August.
- Inflows have been averaging 198000 – 199000 cfs and releases have been ~108000 cfs.

Update on Upper Snake Flow Augmentation

- Currently still releasing and should have ~ 376000 cfs, so will miss 427.
- Boise System trying to get out ~67000 cfs. Boise is operating to about the maximum in terms safe floating (inner tubers, etc.) flows on the Boise River so will be late on full volume. May not get full volume until 8/4 - 8/5.

Questions and Comments:

Brian Marotz was impressed with how Reclamation is continuing to work on a weekly basis, even doing gas saturation samples down river. Wanted to thank them for how upfront Reclamation has been with that information and helping to discern whether any damage and it looks like it is going well.

- Corps

Lisa Wright, Corps, provided the review for the reservoirs.

- Libby Dam midnight elevation 2447.5 feet. Yesterday's average inflows 29.7 kcfs and the project is holding outflows of 13 kcfs.
- Albeni Falls midnight elevation 2062.3 feet. Yesterday's average inflows 41.7 kcfs and outflows of 44.6 kcfs.
- Dworshak midnight elevation 1596.99 feet. Yesterday's average inflows 3.6 kcfs and the project is holding outflows of 9.5 kcfs.
- Lower Granite average outflows 45.9 kcfs
- McNary average outflows 272 kcfs
- Bonneville average outflows 270.3 kcfs

Questions and Comments:

None

b. Water Quality – Corps

Dan Turner, Corps, presented on water quality. There are a couple spots still exceeding TDG water quality standards. Dan focused on the Fish Passage Projects.

- McNary forebay (MCNA) got up to 117% TDG (above the 115% forebay criteria). The Bonneville forebay also exceeded.
- Low wind on the system did not allow for much degassing coupled with a drop in barometric pressure and increases in water temperature led to those exceedances, especially at McNary.
- The Dalles spill cap has been lowered to try to bring the Bonneville forebay down. The Dalles spill cap was lowered to 95 kcfs yesterday (7/12).
- McNary Tailwater (MCPW) - the TSWs are being removed, which requires spill bays 18 – 22 closed. The spill cap during TSW removal has been set to 135 kcfs to try to control TDG. The spill cap did a great job on the 11th (TDG 120%) but yesterday it crept up to 121%. In response they will do a modest decrease in the spill cap today to try to keep the McNary tailrace at or below 120% TDG.
- At Warrendale (WRNO), there was some bad data came through on 7/11. TDG is not 1,051% and is much closer to 115% TDG.

Questions and Comments:

None

c. Fish - NOAA Fisheries

Kelsey Swieca, NOAA, presented on adult and juvenile fish.

- Adult steelhead numbers have been coming up over the past few weeks to 1000-1400 fish/day at Bonneville. They are starting to move past McNary as well but just a few are reaching Granite
- Adult Chinook are continuing to decline with about 1500 fish/day at both Bonneville and McNary. Only a couple hundred fish/day are at the Lower Snake River projects over the past week.
- Looking like a good year for adult sockeye. Looks like we have passed the peak and have observed a substantial drop off with passage at about half what it was the past couple of weeks at the Columbia River projects. We are averaging 100 – 200 sockeye/day at most of the Snake River projects.
- Yearling Chinook juveniles have dropped off and there are a few stragglers trickling through.
- Subyearlings are the main players in the system right now and have shown a moderate uptick in the passage index following the July 4th weekend. Generally consistently passing over all of the projects over the past few weeks.

Charlie Morrill, WDFW, entered in the chat the following for the TAC updates:

Links to cumulative subyearling Chinook passage at Bonneville and McNary.

- TAC update on Sockeye and Summer Chinook Run sizes: TAC met on July 11, 2022, to discuss the upper Columbia River sockeye and upper Columbia summer Chinook returns to the Columbia River.
- TAC downgraded the sockeye run size at the Columbia River mouth to 636,500 fish compared to our July 5 update of 656,000. The run is still significantly higher than the pre-season forecast of 198,700.
- TAC also upgraded the upper Columbia summer Chinook run size to 82,300 adults at the Columbia River mouth, compared to the pre-season forecast of 56,300 adults.
- TAC will continue to monitor and assess the sockeye and summer Chinook returns and will provide run size updates as warranted. TAC is scheduled to meet again next Monday, July 18.

Dave Swank, USFWS, provided an update on lamprey.

- Adult lamprey count numbers have increased over the last week at Bonneville. We are now at 176% of last year and 109% of the ten year average at Bonneville.
- The Dalles is only at 55% of last year and 63% of the ten year average.
- John Day is 56% of last year and 44% of the ten year average.
- Appears that a run that is average or above average is delayed the cold water this spring.

Questions and Comments:

None

d. Power System - BPA

Tony Norris, BPA, had little to report. We are out of the extremely high flows and low load situations. No additional lack of market spill is expected.

Questions and Comments:

None

5. Set agenda for next meeting - July 20, 2022

- Dworshak Update
- Jonathan Ebel – Sockeye update – Corp appreciates updates
- Juvenile summer transport, treaty fishing.

6. Public Comments:

None

Today’s Attendees:

Agency	TMT Representative(s)
Army Corps of Engineers	Lisa Wright (chair), Doug Baus
Bonneville Power Administration	Tony Norris, Scott Bettin
Bureau of Reclamation	Joel Fenolio
NOAA Fisheries	Kelsey Swieca
US Fish & Wildlife Service	Dave Swank
Washington	Charles Morrill
Oregon	Erick Van Dyke
Idaho	Jonathan Ebel
Montana	Brian Marotz
Nez Perce Tribe	Jay Hesse
Umatilla Tribe/CRITFC	Tom Lorz
Colville Tribe	Kirk Truscott
Warm Springs Tribe	
Kootenai Tribe	
Spokane Tribe	

Other Attendees (non-TMT members):

Corps – Jon Roberts, Dan Turner, Chris Peery, Scott St. John, Kasi Whorley
 DS Consulting – Emily Stranz (Facilitator), Colby Mills
 BPA – Andrea Ausmus (Contractor with CorSource Technology Group)
 Clearing Up – K.C. Mehaffey
 Columbia Basin Bulletin – Mike O’Bryant
 Oregon DEQ – David Gruen, Marilyn Fonseca
 Snohomish PUD – Jesse Preuss