COLUMBIA RIVER TECHNICAL MANAGEMENT TEAM
August 3, 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 – TMT members approved the official meeting minutes for the June 10, 15, 22, 29; July 13, 20 and 27 meetings, as well as the facilitator's summaries for June 29 and July 13, 20, and 27.

Dworshak Dam Operations – Jon Roberts, Corps, reported on operations at Dworshak Dam. The project has been ramping down slowly over the last couple of days back to full powerhouse, drafting slower but still about 1 foot/day or a little more. The project is currently discharging 9.8 kcfs at full powerhouse capacity and is a little over 26 feet from the top of the pool. Jon reminded the TMT that elevation can be no lower than 1,535 feet by the end of August, which leaves about 40 feet of water available to use through the month.

The recent heat wave warmed river temperatures and within the last 36 hours cooler ambient air and overnight temperatures have helped reduced temperatures down to 72 degrees F on the Snake, 75 degrees F at Orofino, and cooler at Lewiston as Dworshak water mixes with the Clearwater. Lower Granite tailwater temperatures are close 66 degrees F. Looking at the forecast, river temperatures will continue to slowly recede, with good stratification in the Lower Granite pool. This will be important heading into next week's Doble testing at Lower Granite, which will limit generation during the day (running one unit at speed no load for local station power). Jon emphasized the importance of keeping stratification at the 15-20-meter mark close to 67-68 degrees F for temperature management. Currently, the 20-meter mark is near 63 degrees F, comfortably below 68 degrees F, and the 15-meter mark fluctuates between 67-68 degrees F.

The regional 7-day weather forecast shows cooler local temperatures with highs in the low 90s and lows in the low 60s at night. Warmer temperatures will return on Sunday and Monday between 103-104 degrees F, at the start of Doble testing. Jon noted that the forecast anticipates this heatwave to be a shorter and less intense compared to the last, and temperatures will return to the high 90s soon after.

The modeled operation scenario shows the tailwater close to 68 degrees through the weekend and then dropping down. Overall, there is still a good water supply for the month of August and Dworshak will continue to adjust outflows as needed. In response to a query, Jon noted that as of now, if Dworshak operated at full powerhouse for the remainder of the month, the forebay elevation would be just above 1,535 feet at the end of August.

Of the 8 Corps' temperature sensors in the Lower Granite fish ladder, 4 are out of service. Teams are working to bring them into service and were able to get incoming hourly data for the fish trap sensor yesterday. Hourly data from the fish trap is between 64-66 degrees F. Jon anticipates the remaining 3 sensors to be repaired by the end of this week, with troubleshooting issues resolved by the end of next week.

Basin Temperatures – FPAC Chair, Jonathan Ebel, IDFG, confirmed temperature data from the adult trap at Lower Granite, noting maximum temperatures peaked a week ago and have declined to the range Jon reported. To reflect on patterns in adult passage, Jonathan provided temperature data across the basin, including Bonneville, McNary, Ice Harbor, and Lower Granite tailraces (posted to the TMT website).

Across the basin, temperatures were well-below the 20-year average for most of the summer until recently (due to Dworshak operations, temperatures at Lower Granite have been able to stay cool). The graphs highlighted 2015 and 2021 due to the abnormally warm waters those years. For 2022, the recent heat wave caused water temperatures to rise significantly at Bonneville, slowing fish passage. McNary was slightly cooler, around the 10-20-year average; temperatures shot up near the maximum average at Ice Harbor, and Anatone reached 75 degrees F during the heat wave but has come down in the last few days.

Adult Sockeye Update – Jonathan provided the season's final update for Snake River adult sockeye passage, noting that most fish have passed Lower Granite, and IDFG is starting to trap in the Stanley Basin. Bonneville has not seen any PIT-tags for the last couple weeks; PIT-tag expansion for Snake River sockeye abundance is 2,901, and 1,887 at Lower Granite.

Conversion rates are high between Bonneville and The Dalles, and Bonneville to McNary, and Ice Harbor to Lower Granite is 0.97 (reflective of positive conditions in the lower Columbia that minimized heat stress). Conversion from McNary to Ice Harbor has been lower in the last couple weeks. The end of season conversion rate from Bonneville to Lower Granite will be close to 0.66, and any remaining sockeye that pass Lower Granite at this time of year will not likely make it to the Stanley Basin. Travel times haven't changed much over the last couple weeks; overall Bonneville to Lower Granite is 13.3 days, which is 2 days less than in 2021.

Kirk Truscott, Confederated Tribes of the Colville Reservation, noted concern around the accuracy of sockeye counts at mainstem projects, especially with the high amounts of shad passing at the same time. He noted the sockeye counts at Wanapum are higher than the counts at Bonneville. Chris Peery, Corps, acknowledged the concern and highlighted the challenge that counters face with large numbers of fish (including millions of shad). Another consideration is that Bonneville counts are the 16-hour daytime counts and do not include nighttime passage, which for sockeye can be up to 25% of daytime passage. When large numbers of fish are passing, or when temperatures are warm, more fish pass at night. There remains a challenge to accurately count sockeye when so many shad are passing through. Chris noted that the Corps does QA/QC on the counts and doesn't alter reported counts unless they identify a mistake in counts. Fish counters are required to be 95% accurate, and evaluation is done to account for this level of accuracy.

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 August 10 at 9:00 AM.

Columbia River Regional Forum
Technical Management Team
OFFICIAL MINUTES
August 3, 2022
Minutes: Andrea Ausmus, BPA (contractor, CorSource Technology Group)

Today's TMT meeting was held via conference call and webinar, chaired by Doug Baus, 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 - Minutes for 6/10, 6/15, 6/22. Summary & Minutes for 6/29, 7/13, 7/20, 7/27**

    - All draft meeting summaries and minutes were approved.
    - Jonathan Ebel, IDFG, sent notes about minor changes to the 7/27 meeting minutes. Considered approved after Ebel's edits.

    Questions and Comments:

    None

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

    a. Hourly Project Data

    - They have been ramping down the last couple of days after spilling during the hotter weather the last ten days.
    - Ramped back down to full powerhouse, still drafting a foot a day
    - Dworshak is currently discharging 9.8 kcfs at full powerhouse capacity of 450 MW.
    - The forebay is a little more than 26 ft. from the top of the pool and there is a little less than 40 ft. of water that can be used through the end of August (can be no lower than 1535 ft.).

    b. Current River Temperatures

    - Over the last few weeks, the river temperatures have been warming up, but over the last 36 hours (and continuing into the next 96 hours) there has been a reduction in the river temperatures from the ambient air and region cooling down.
    - Snake River (Anatone) is at 72°F and Clearwater River (Orofino) is down to 75°F as an average throughout the day (8/3).
    - That is providing a cooler Lewiston temperature as Dworshak mixes with the Clearwater and makes its way down into the Lower Snake.
    - This is providing slightly cooler tailwater temperatures at Lower Granite, closer to 66° - 67° F – one of the reasons for Dworshak's return to full powerhouse without spill.

c. Current LWG Forebay Temperature

- Good stratification in the pool, which is important as they head into next week when Doble testing at Lower Granite begins.
- During the day there will be less generation occurring, which provides less opportunity to draw cooler water off the bottom of the reservoir. The project will be running one unit at speed no load for station service.
- It will be important to keep the 15 – 20-meter depth stratification at 68°F. The 20-meter depth is currently around 63°F, comfortably below the 68°F mark and the 15-meter mark is fluctuating between 67 – 68°F.
- The cooler weather over the next few days will help the surface heat to dissipate.

d. 7-Day Weather Forecast for Lewiston, ID

- Cooler local temperatures into the low 90s for the high and the nighttime lows will be in the low 60s.
- Warm temperatures are returning on Sunday and the first two days of next week are 103 – 104°F. It will be the start of Lower Granite Doble testing but it appears to be a shorter-lived heat wave when compared to the last few weeks.

e. Operations

Full Powerhouse

- Reflecting in the model the cooler river temperatures and a spike back up with the short heat wave (Monday and Tuesday) and should drift back down potentially with the cooler temperatures.
- The model diverges a little due to Lower Granite Doble testing as the different flow passes through different outlets at different times of day as the operations change. It is difficult to account for this in the model.
- There is a good water supply for the month of August.
- The Lower Granite tailwater has not been running close to the 68°F line (hovering between 66.5 – 67.5°F). Right now at 66°F.
- The Corps will continue to make adjustments and modifications to the outflows.

Questions and Comments:

Trevor Conder, NOAA, asked if we operated to full powerhouse, would the Dworshak pool still be above the 1535’ elevation at the end of August.

Roberts responded that as of now they would be just above 1535’ if they operate at full powerhouse through the end of the month. They project about a foot or so above.

f. Current LWG Fish Ladder Temperatures

- Currently, four of the eight sensors in the Lower Granite ladder are out of service. Teams have been working on them yesterday and today.

- They were able to get the hourly data back for the fish trap and have checked to make sure that they could set up operations well for mid-August. They do not have the fish trap displaying on the website yet on website (should be fixed by the end of the week) but they are getting hourly data for the trap.
- They are working on the other three sensors as of late yesterday and have continued to work on them today. They are looking to have a resolution and have them back online by the end of this week. Troubleshooting the database and displays should be completed by the end of next week.

  Update: Fish trap temperatures hourly data of 64 – 66°F.

Questions and Comments:

None

3. Basin Temperatures - *Jonathan Ebel, FPAC Chair*

Jonathan Ebel, IDFG and FPAC Chair, reminded everyone that they have access to temperatures for the adult trap in Lower Granite (used to monitor for temperatures for fish handling). The data that Roberts shared is matching their data. Maximum temperature peaked a week ago in the trap and has declined to the range Roberts provided.

Discussions in TMT are focused on the Lower Granite tailrace where we have the best ability to control temperatures, but often TMT tends to not look at temperatures across the basin that can explain patterns in adult passage.

One option for that information is the link on the TMT website for "Basin Temperatures", which reports the daily temperatures at each gauge.

Another option is the FPAC TRT Temperature Graphs posted to today's agenda, for the tailraces at Bonneville, McNary, Ice Harbor and Lower Granite with a time series of temperatures across a number of years.

a. FPAC TRT Temperature Graphs

- Across the basin temperatures, Lower Granite is the only location where the temperature can be controlled.
- Temperatures are looking good. They have been below the 20-year average for most of the summer until recently where they shot into the upper range (at Bonneville and Ice Harbor).
- Horizontal Line: 68°F
- Blue Line: 2022
- Black Line: Ten-year Average
- Dashed Orange Line: Twenty-year Average
- Green Line: 2021
- 2015 and 2021 are highlighted as they were abnormally hot years.

- During the recent heatwave, Bonneville's temperature shot up to match 2021.
- The high temperatures explain why fish passage slows this time of year.
- McNary was cooler, sitting around the ten/twenty-year average.
- Ice Harbor shot up near to max average of 2021.
- Not shown: Anatone got hot 75°F, it came down after last few days.

Questions and Comments:

None

4. Adult Sockeye Update – *Jonathan Ebel, IDFG*

Last adult sockeye update for the hydro system for this year because the vast majority of Snake River sockeye have passed Lower Granite and are being trapped in the Stanley Basin.

a. Snake River Adult Sockeye Passage (as of 8/3)

- Bonneville has not detected any PIT-tags in the last couple of weeks.
- PIT-tag expansion for Snake River sockeye abundance at Bonneville Dam: 2901
- PIT-tag expansion for Snake River sockeye abundance at Lower Granite: 1887
- Correspond with the conversion rates.

b. Conversion rates

- High conversion rates from Bonnneville to McNary.
- McNary to Ice Harbor is lower because some of the fish strayed up the Columbia.
- Ice Harbor to Lower Granite had a good conversion rate of 0.97, reflective of the positive conditions in the Lower Columbia that minimized heat stress.
- Bonneville to Lower Granite show an end of season conversion rate of ~0.66.

c. Travel Times

- Travel times have not changed much, at two days less than 2021.
- 13.3 days of travel time which is normal.

IDFG are trapping a handful of fish as they arrive in Stanley Basin. Good News.

Questions and Comments:

Kirk Truscott, Colville Tribe, is seeing some inconsistencies in sockeye counts at the mainstem Columbia River projects. Wanapum is at about 714,000 sockeye, compared to only 662,000 at Bonneville. He wondered if there were any thoughts about accuracy of sockeye counts at the mainstem projects that also saw huge numbers of shad passing during peak sockeye passage. He is interested in how sockeye are counted with a quarter

of a million shad passing in a day and whether there have been any thoughts to revising the Bonneville counts based upon Wanapum where there are no shad.

Chris Peery, Corps, responded that it is a challenge for counters to deal with large numbers of fish coming though, especially at Bonneville. The other thing to consider is that the Bonneville counts posted are the 16-hour daytime counts and do not include nighttime passage. Sockeye can have nighttime passage rates that are up to 25% of daytime passage. At Lower Granite, PIT-tags have been detected outside the 16-hour count window. When there are large numbers of fish passing or when temperatures are warm, there is more nighttime passage.

Peery agreed that there is a challenge to counting sockeye and shad when there so many fish coming through, the count window looks like a wall of fish.

Stranz asked if Peery adjusts those numbers at Bonneville or rather recognizes the discrepancies.

Peery responded that they do not adjust unless there is an obvious mistake. Counters are required to be 95% accurate and then do QA/QC to ensure that is the case. If they fall below 95% then they look to identify an issue. If a counter appears to be counting shad for sockeye (or vice versa) then they will try to make corrections by looking back at the video and recounting. Unless there is something obvious, they will not go back and adjust the count.

Truscott responded that perhaps a better way to think of Bonneville counts is as the minimum number.

Peery asked if Wanapum are using 24-hour counts (Kirk believed they were) that might explain the difference. If Bonneville were to go to 24-hour counts it would likely boost their numbers.

Truscott said he appreciates the difficulty, and that it is a good difficulty from a sockeye abundance standpoint.

5. **Set agenda for next meeting - August 10, 2022**

Donna Silverberg, DS Consulting, will facilitate for next week. Emily Stranz will be back the following week.

a. Dworshak update

Today's Attendees:

Agency	TMT Representative(s)
Army Corps of Engineers	Doug Baus (chair), Lisa Wright, Julie Ammann
Bonneville Power Administration	Scott Bettin

Bureau of Reclamation	Joel Fenolio
NOAA Fisheries	Trevor Conder, 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 – Jonathan Roberts, Chris Peery, Scott St. John, Dan Turner, Aaron Marshall

EPA – Jalen Ray

DS Consulting – Emily Stranz (Facilitator), Colby Mills

BPA – Andrea Ausmus (note taker, Contractor with CorSource Technology Group)

Clearing Up – K.C. Mehaffey

Columbia River Basin – Mike O'Bryant