

COLUMBIA RIVER TECHNICAL MANAGEMENT TEAM

August 10, 2022

Facilitator's Summary

Facilitation Team: Donna Silverberg & Nancy Pionk, 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 facilitator's summary for August 3, 2022.

Dworshak Dam Operations – Jon Roberts, Corps, reported on operations at Dworshak Dam. Currently, the project is still discharging close to 12 kcfs with most of that passing through the powerhouse at approximately 10 kcfs and 2 kcfs of spill. The project is currently drafting about a foot a day. The project will be slowly stepping down spill over the next few days, starting on Thursday and expects to be at zero spill by Friday. The Corps estimates that the pool elevation as of August 31 will be in the range of 1538-1538.5 feet.

Jon noted that temperatures at Anatone and Orofino have cooled with some slight rain in the region which has helped to cool the top water in the reservoir. The temperature in the Lower Granite Dam tailrace is at 67 degrees. Jon noted tailrace temperatures did rise during Doble testing earlier this week, due to extreme heat on Monday and Tuesday; the Corps expects tailrace temperatures to come down as soon as testing ends. Jon expects that the temperature will stay under 68 degrees during Doble testing for the next few days. Jon also noted that there is good stratification at the bottom of reservoir, which will provide good conditions for monitoring the fish trap for fall broodstock collection later in August.

Reservoir temperatures are expected to be just under 67 degrees when Doble testing is not occurring and 68 degrees during the day. After they complete Doble testing, the Corps expects the tailrace temperature to be at or below 68 degrees with just the powerhouse capacity. Full powerhouse operations are needed to ensure that stratification remains, and the fish trap remains cool for the second half of August.

The fish trap temperature sensor is now working and displaying hourly data. Temperatures in the fish trap are staying fairly cool. The Corps continues to work on programming for the tail deck observation, entrance, and diffuser sensors.

Looking at the forecast, more scattered showers are expected in the region today and cooling off throughout the weekend. There is a significant heat wave, with temperatures of 105 degrees, expected by Wednesday next week, which is forecast to continue into the next weekend.

Jon noted that the spill pattern changes on August 15; however, the Corps is not expecting significant water temperature changes due to the change in MOP operations. Better temperature conditions are expected as the increased flow through the turbine will be pulling in cooler water. The Corps will continue to monitor the fish trap to ensure the temperature stays low. In response to an inquiry, Jon noted that the fish trap temperature is expected to stay consistent, during the change in spill pattern. They expect stratification at the bottom of the forebay to stay roughly the same, while the top ten meters of the forebay will fluctuate up to 75 degrees, due next week's heatwave.

Jon provided follow-up information on the temperature gauge depth for gauges at Anatone, Lewiston and Orofino for the current time-period (mid-July – Sept.):

- Anatone: This gauge is actively tracked, and the gauge depth is 13-14 feet.
- Lewiston: This gauge is no longer actively tracked. Based on previous tracking data, the Corps correlated similar flow and estimated the depth to be 4.5-5 feet.
- Orofino: This gauge is not actively tracked. The Corps has estimated the depth of the sensor to be 18 inches to 2 feet.

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

- **Hungry Horse:** midnight elevation was 3555.15 feet; Project outflows were at 2500 cfs and inflows were at 1200 cfs. The project is on track to be 10 feet from full by the end of September.
- **Grand Coulee:** midnight elevation was 1,286.8 feet; the project has an end of August draft requirement of 1,279 feet (11-foot draft).

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

- **Libby:** midnight elevation was 2,453.6 feet, with average inflows of 14.8 kcfs, and outflows of 12 kcfs;
- **Albeni Falls:** midnight elevation was 2,062.3 feet, with average inflows of 17.6 kcfs, and outflows of 19 kcfs;
- **Dworshak:** midnight elevation was 1,582.9 feet, with average inflows of 1.6 kcfs, and outflows of 12.7 kcfs;
- **Lower Granite:** average outflows of 35.6 kcfs;
- **McNary:** average outflows of 208.4 kcfs; and
- **Bonneville:** average inflows of 203.4 kcfs.

Aaron Marshall, Corps, noted that MOP operations will end on August 15, 2022. Current MOP operations at the projects are as follows:

- Lower Granite: Operating at 3-foot raised MOP range from 736—737.5 feet, with flows under 50 kcfs;
- Little Goose: Operating at 1.5-foot raised MOP range to help maintain the minimum tailwater elevation at Lower Granite;
- Lower Monumental: Operating at .5-foot raised MOP range to help maintain the minimum tailwater elevation at Little Goose
- Ice Harbor: Operating at .5-foot raised MOP range to help maintain the minimum tailwater elevation at Lower Monumental.

After MOP Operations end, the Corps expects Lower Granite to remain within the same elevation range (736-738) with flows under 50 kcfs in order to maintain minimum forebay elevation at 736 for navigation safety in the Lewiston/Clarkston region. Aaron has not heard any concerns from the Ports of Lewiston and Clarkston regarding navigation and there have been no requests for any special operations this fall.

Erick Van Dyke, OR, requested an update on the plans for dredging the Lower Granite Pool: A draft environmental assessment is currently out for public comment, which will close next week. The process continues to move forward with plans for dredging this winter.

Water Quality: Alexis Mills, Corps, reported that the lower eight fish passage projects are below the summer 115% forebay / 120% TDG water quality standards and all gauges are operational. She noted

high incoming TDG across the international boundaries, which has caused higher TDG values at Chief Joseph. Late summer spill begins on Monday, August 15.

Fish: Kelsey Swieca, NOAA, reported on juvenile passage at the projects: with 1000-3000 subyearlings going through at most projects. Adult Summer Chinook are slowing down with between a couple dozen to a couple hundred passing through most projects. Adult Fall Chinook started showing up in the Columbia the past few weeks. Approximately 1000 adult steelhead were going through Bonneville and about 200 hundred adult steelhead at McNary and into the lower Snake.

Dave Swank, USFWS, reported on adult lamprey counts, noting that this has been an above-average run that was slow to arrive. Counts at Bonneville are 135% of the 10-year average, 178% at McNary and and 116% at Ice Harbor.

Jay Hesse, Nez Perce Tribes, highlighted the Nez Perce translocation efforts to move adult lamprey into the Snake River Basin. The Nez Perce trans-located over 2,000 adult lamprey, which is the highest number the Tribe has trans-located to date. The majority were directly released, with the rest being held in the Nez Perce Tribal hatchery for release in the spring.

Dave noted that the juvenile lamprey numbers generally are declining at this time in the season. The Lower Granite sample counts continue to be holding steady and are higher than collection counts at the other projects. Dave noted that these juveniles could be offspring from translocated fish. Nez Perce is monitoring the juveniles and have documented substantial natural production from translocation efforts.

Charles Morrill, WA, provided sub-cumulative passage graphs for Bonneville and McNary dams:

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

Power System: Tony Norris, BPA, noted that while higher temperatures are forecast, no issues are anticipated from a power system standpoint.

Questions or Comments from Members of the Public – A member of the public asked whether any forest fires were impeding operations? Response: There are no concerns about forest fires at this time.

The next scheduled TMT meeting is on August 17 at 9:00 AM.

**Columbia River Regional Forum
Technical Management Team
OFFICIAL MINUTES
August 10, 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 Donna Silverberg, DS Consulting. A list of today's attendees is available at the end of these minutes.

1. Review Meeting Summaries & Minutes – Summary and Minutes for 8/3

- TMT members approved the summaries and meeting minutes for 8/3.

Questions and Comments:

None

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

a. Hourly Project Data (AM of 7/27)

- Dworshak is currently discharging at 12 kcfs with most passing through the powerhouse at 10 kcfs and still spilling about 2 kcfs.
- Dworshak has drafted down about 35 ft. from full pool and is still drafting at about a foot per day.
- The draft rate will lower as they reduce spill tomorrow and expect to have zero spill by Friday (8/12). They will be slowly stepping down spill over the next couple of days.

b. Current River Temperatures

- The Anatone and Orofino gauges have both cooled back down due to recent rain in the region. The water temperature in the Lower Granite Dam (LWG) tailrace is at 67°F.
- Doble testing is occurring at LWG. On Monday and Tuesday, they had temperatures around 104° and 105°F at LWG. During Doble testing, they are able to run speed no load only. Therefore LWG will be pulling less cool water than typical. Temperatures rose due to the heat and as soon as Doble testing was ended temperatures went back down.
- It is not expected to be as bad for today (8/10) or tomorrow (8/11) as the heat will not be as high over the next couple of days. They are expecting to see temperature to stay below 68°F during Doble testing over the next few days.

c. Current LWG Forebay Temperature

- Rain came in around 1900 hours of August 9 and took off some of the reservoir heat. Typically, 1900 – 2000 hours are the hottest time of the day. The reservoir cooled down and it should keep cooler for the next couple of days.

- Good stratification at the bottom of the reservoir which will provide good conditions as we head into the monitoring the trap for the fall brood stock collection in later August.
- d. Current LWG Fish Ladder Temperatures
- Fish trap working.
 - Hourly data coming in and is being displayed.
 - Still staying cool with the deeper forebay stratification coming in.
 - They are working on the other three gauge locations: Tailwater Observation Deck, Entrance, and the Diffuser. There are programming issues.
- e. 10-Day Regional Weather Forecast
- Expecting scattered showers today (8/10) with a cooling throughout the weekend.
 - A significant heat wave is expected to move back into the region about the mid part of next week and continues through the weekend. It is far out on the 10-day but they will track it to ensure that they have additional water available. The spill pattern changes on August 15 that will switch up how much water is going through each outlet. Typically, they will be pulling more water through the turbines; from a temperature perspective, conditions will be better.
 - Keeping a close eye on fish trap temperature to ensure that it staying low during those operations.
- f. Weather Forecast for Lewiston, ID
- Showers throughout today (8/10) that will potentially take the heat off the top of the reservoir.
 - The heat wave is reflected in the forecast with it hitting around Monday (8/15) and further out. It should reach about 105°F.
- g. Water Temperature Comparisons

Powerhouse

- Modeling results show that they are expecting to get down on the lower side at ~67° in the LWG tailwater, when Doble is not occurring.
- The model's purple line (Lower Granite Temperature – Observed) shows temperatures jumping up and down and this is due to the switching of outlets for where the water is going through. The model has an issue keeping up with which outlet is being used and getting the water mixed correctly.
- The model shown is likely more conservative than what will be run due to Doble testing. The water should stay about 67°F when there is no Doble testing occurring and staying about 68°F during the day.

- After Doble testing is completed, even with a heat wave, they are expecting to keep the tailrace temperature at or below 68°F with just the powerhouse capacity. They will need the full powerhouse to keep the stratification and to keep the fish trap cool the second half of August.

Questions and Comments:

Jonathan Ebel, ID, said that he is glad that Jonathan Roberts, Corps, is focused on the fish trap. Ebel asked if, with the change to spillway weir only spill on August 15, and any temperature build up on the surface associated with the change, whether Roberts expects any rapid temperature changes in the fish trap that staff should be aware of.

Jonathan Roberts responded that he expects the fish trap to stay within the high 64°F to 67°F. The fish trap will stay consistent even with the spill pattern changing on August 15. There will be a larger change in the tailrace temperature than in the fish trap. The fish trap will be more gradual because the stratification will be staying consistent.

Donna Silverberg, DS Consulting, asked if the high temperatures expected are out of the normal range.

Roberts responded that in regards to temperature modeling anything that is above 100°F for more than a couple days is considered a heat wave due to potential changes in operations or the need for additional water.

Jay Hesse, Nez Perce, asked if there was a model for the forebay temperatures once the spill reduction occurs.

Jon responded that it depends on where in the forebay, they look at the forebay based on stratification and not an average temperature. The stratification in the forebay will stay roughly the same and the top 10 meters may fluctuate up to 75°F at times during the heatwave next week.

Hesse also asked, since we are at full pool, if the pool elevation management will change starting next week, in regards to the Minimum Operations Pool (MOP).

Roberts referred him to Tony Norris or Lisa Wright but he is not anticipating/expecting any significant temperature changes due to MOP this year.

Hesse asked what the latest expectation was for Dworshak and the pool's elevation at August 31.

Roberts said that with the incoming heat wave and a guessing out the last few days of August they are anticipating between 1538 and 1538.5 ft. About 3.5 ft. above the 1535 ft. criteria.

h. Depths of Temperature Gauges

Charles Morrill had a question a few weeks ago about the depths of the Anatone, Lewiston and Orofino temperature gauges.

- Anatone (actively tracked): Currently at 13 – 14 feet in depth.
- Lewiston (not tracked for depth): Historically 4.5 – 5 feet in depth.
 - They went back and correlated a similar flow in the river for a similar time of year.
- Orofino (is not actively tracked): 18 inches – 2 feet in depth.
 - They can determine depth for sensor and have the datum for the rating curve.

Questions and Comments:

Charles Morrill, WA, asked if they see any stratification at the Lewiston pool or if there is data to look for that information.

Roberts replied that he does not. Similar to the Anatone and the Orofino gauges, the temperature is measured and the models have been calibrated over the years back to a flow and a specific point for the time of year.

3. Operation Review –

a. Reservoirs – Reclamation, Corps

Reclamation – Joel Fenolio

- Hungry Horse
 - Midnight elevation of 3555.15 feet.
 - Releasing 2.5 kcfs
 - Inflows 1.2 kcfs
 - On track to be 10 feet from full by end of September.
- Grand Coulee Dam
 - Slightly drafting over the past few days.
 - Midnight elevation of 1286.8 feet.
 - Targeting 1279 feet by end of August

Corps – Lisa Wright

- Libby Dam
 - Midnight elevation of 2453. feet.
 - Yesterday's average inflows 14.8 kcfs
 - Project is holding outflows of 12 kcfs.
 - Albeni Falls
 - Midnight elevation of 2062.3 feet.
 - Yesterday's average inflows 17.6 kcfs
 - Project is holding outflows of 19 kcfs.
 - Dworshak Dam
 - Midnight elevation of 1582.9 feet.
 - Yesterday's average inflows 1.6 kcfs
 - Project is holding outflows of 12.7 kcfs.
 - Lower Granite average outflows 35.6 kcfs
 - McNary average outflows 208.4 kcfs
 - Bonneville average outflows 203.4 kcfs
- b. Minimum Operating Pool (MOP) Operations – Aaron Marshall, Corps
- Lower Granite Dam
 - Currently operating in a 3-foot raised MOP range.
 - 736 – 737.5 feet with a variable MOP operation
 - Flows are under 50 kcfs
 - Little Goose Dam
 - Currently operating in a 1.5 foot raised MOP range.
 - Operating to maintain the minimum tailwater elevation at Lower Granite.

- Lower Monumental Dam
 - Currently operating in a .5 foot raised MOP range.
 - Operating to maintain the minimum tailwater elevation at Little Goose.
- Ice Harbor Dam
 - Currently operating in a .5 foot raised MOP range.
 - Operating to maintain the minimum tailwater elevation at Lower Monumental.

Lower Snake MOP operation ends on Monday (8/15).

In respect to Jay Hesse’s question, Marshall expects Lower Granite to remain in generally the same elevation it has been operating with flows under 50 kcfs and keeping the minimum forebay elevation at 736 feet for navigation safety in the Lewiston–Clarkston area. The difference will be that instead of the 1.5-foot range it will be a 2-foot range.

Questions and Comments:

Charles Morrill, WA, remembered that last year that even with the raised MOP there were concerns from the ports of Lewiston and Clarkston. He asked if there are any comments on that this season.

Marshall has not heard any concerns from any of the ports regarding loading and unloading. There have not been any requests for special operations this fall.

Erick Van Dyke, OR, asked there is an update on the progress for the dredging of the Lower Granite Pool.

Marshall responded that his understanding is that the draft environmental assessment is out for public comment. He is not sure if the comment period is closed yet. All indications are that the process is moving forward with plans for dredging the winter.

Tom Iverson, Yakama Nation Fisheries, asked for a reminder of maximum operating pool as opposed to minimum at Lower Granite.

Marshall replied that the maximum at Lower Granite is 738 feet and the minimum is 733 feet.

Jonathan Ebel, ID, stated that if the ports are having problems the pool could not go much higher. The public comment on the NEPA process is still open through next week. Ebel can share the documents if Erick has not seen them.

c. Water Quality – Alexis Mills, Corps

- August TDG
 - The fish passage projects are below the TDG water quality standard and all gauges are operational.
- Still have high TDG coming from across the Canada border and this is reflected in the high TDG values at Chief Joseph.
- Reminder that late summer spill starts on Monday (8/15)

d. Fish – NOAA Fisheries

NOAA Fisheries – Kelsey Swieca

- Juveniles
 - 1000 – 3000 subyearlings at most of the projects
 - No yearlings
- Adults
 - Summer Chinook are slowing down, from a couple dozen to a couple hundred throughout most of the projects in both basins.
 - Fall Chinook have been showing up in the Columbia in the past couple of weeks.
 - Steelhead are ~1000/day at Bonneville and a couple hundred at McNary and into the Snake River.

e. Lamprey – US Fish and Wildlife Service

- Adult Lamprey – *Dave Swank, US Fish and Wildlife*
 - Above average run that is slow to arrive
 - Bonneville is at ~42000 at the daytime ladder count, which is 135% of ten-year average.
 - McNary is at ~1600 at the daytime ladder count, which is 178% of ten-year average.
 - Numbers upstream continue to increase over the last couple of weeks and they are well over the ten-year average.
 - Ice Harbor is at 436 at the daytime ladder count, which is 116% of ten-year average.

- Lamprey Translocation – *Jay Hesse, Nez Perce*
 - Jay Hesse highlighted that translocation efforts to move adults into the Snake Basin continue to be the primary form of passage. Those numbers are the highest that the Nez Perce have done to date; they have translocated over 2000 adult lamprey.
 - The majority of those were direct released and a subset of them are being held at Nez Perce Tribal Hatchery for release in the spring.
- Juvenile and Larval Lamprey – *Dave Swank, US Fish and Wildlife*
 - The juvenile numbers are generally declining.
 - Lower Granite sample counts (are not expanded) are holding steady and higher than other projects.
 - This may possibly indicate a connection to translocated fish.

Questions and Comments:

Dave Swank asked Jay Hesse if they are still being sampled for genetic analysis.

Jay Hesse replied that they are still conducting the parentage based tagging. He is not sure if all of the sampled fish are being analyzed but they are being monitored. To date they have documented substantial natural production from the translocation efforts.

Charlie posted a cumulative passage link for McNary and Bonneville.

f. Power System – BPA

Even though there are higher than average forecasted temperatures they are not expecting any issues.

4. Public Comments:

Patrick McGonigal asked if there are any forest fires impeding operations in the Northwest.

Scott Bettin replied that there are not at this time.

5. Set agenda for next meeting - August 17, 2022

Emily Stranz will be back next week.

a. Dworshak Operation Updates

Today's Attendees:

Agency	TMT Representative(s)
Army Corps of Engineers	Doug Baus (chair), Lisa Wright
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	
Warm Springs Tribe	
Kootenai Tribe	
Spokane Tribe	

Other Attendees (non-TMT members):

Corps – Jonathan Roberts, Scott St. John, Aaron Marshall, Alexis Mills

DS Consulting – Donna Silverberg (Facilitator), Nancy Pionk

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

Clearing Up – K.C. Mehaffey

Columbia Basin Bulletin – Mike O'Bryant

Chelan PUD – Jay Fintz, Melissa Lesser

Yakama Nation Fisheries – Tom Iverson

Public Power Council – Shane Scott

Snohomish PUD – Mike Shapley

Oregon DEQ – Marilyn Fonseca