

COLUMBIA RIVER TECHNICAL MANAGEMENT TEAM

July 16, 2025

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: <https://public.crohms.org/tmt/agendas/2025/>. 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 and facilitator's summaries from the July 2 and 9 meetings.

Sockeye Conversion Update – Jonathan Ebel, IDFG, provided an [update](#) on adult Snake River sockeye conversion, with data through July 16. He highlighted that the sockeye run is proceeding as usual for this time of year (even with the low flows), with no significant issues. Approximately 1,500 sockeye have passed Bonneville Dam (BON), about half having reached Lower Granite Dam (LWG) as of this morning. The observed conversion rates look normal and comparable to the better 50% of years monitored. Travel times are average, with no major problems to migration or conversion rates under current conditions.

Dworshak Operations – Willow Walker, reported on current operations at Dworshak Dam (DWR), including an updated [review of SOR-2025-02](#) operations and observations as of July 15 at 0815 hours. She noted that an improved version of the Corps enterprise site "Access to Water" has been released; the public link now offers more reliable and updated information as well as better graphic representation of project data. TMT Members were encouraged to reach out to the Corps Walla Walla district if any issues arise with this new version.

Current elevation at DWR is 1,584 feet, with outflows of 9,833 cfs (full powerhouse) that have been consistent for several days. The reservoir is drafting approximately 1 foot/day, which is normal for this time of year and expected to continue.

Recent weather in the area reached about 100°F for a couple days (cooling down now), resulting in a temperature rise for natural flows. In the Clearwater River at Orofino, temperatures this morning were around 76°F (quite warm but not unusual for this time of year), Lewiston was in the mid-50s (mixed water), and the LWG tailwater has been between 67-68°F (within target range).

Thermal stratification at the LWG forebay is strong, though there has been some warming and mixing at the top of the pool since July 13. Willow noted that a transmitter at the temperature string site was repaired recently and is now reporting live data; there may be potential to recover missing data but wouldn't be until next week if available. Notably at Ice Harbor (IHR), surface temperatures in the forebay hit 80°F, with warmer water mixing down at the 10-15-meter mark, more mixing will occur throughout the pool similar to last year at the end of July. IHR tailwater temperatures have risen slightly with the surface water mixing, averaging below 71°F.

In reviewing the SOR operation, Willow noted that approximately 120,000 acre-feet (6 feet of water) was used for temperature augmentation, about 10% of summer water allocation. The SOR delayed tailwater temperature increases at IHR while supporting cooler stratification in the forebay. Temperature data show that IHR tailwater temperatures remained below the expected minimums July 7-10, which could have

resulted from the SOR operation. Temperatures have normalized as of July 13, with no further measurable benefits expected.

Although water used in the SOR leaves less for the remainder of summer, modeling predicts sufficient water to keep temperatures in the LWG tailwater below 69.5°F from July 23 to August 14. The Corps expects potentially two days reaching up to 71°F, down from the 4-5 days initially projected. The plan is to ramp down DWR flows starting July 19 to about 8,000 cfs, to keep temperatures below the 69.5°F threshold for several days. The Corps will continue to closely monitor the situation if conditions potentially necessitate a change.

Charles Morrill, WDFW, asked if there was any evidence that the water released during the SOR had an influence on sockeye passage; a measurable benefit is unlikely to be detected given the small temperature changes, no clear evidence is available currently. This question will be addressed in more detail in future discussions. Additionally, a detailed overview will be planned for a year-end meeting to cover model methodology, projections, and performance.

Erick Van Dyke, FPAC Chair/OR asked if earlier start dates might have affected the confidence intervals of projection bounds? The Corps clarified that the projection starting point was just before July 1; confidence intervals widen downstream and further in time due to less certainty. The observed temperatures remain inside bounds. New modeling results will be posted Monday and refreshed Wednesday mornings before TMT meetings.

In response to a query regarding the projection for 2 days above 71°F starting late July, the Corps clarified that it is based on water volumes used and analog years adjusted for expected operations, with theoretical heat waves added to model sensitivity to any worst-case scenarios. This projection will be updated continuously as weather forecasts change. The Corps will consider incorporating scenarios demonstrating how the 10% SOR water used could be deployed if temperatures exceed 68°F later in the summer.

Brian Marotz, MT, asked how salmonids might be impacted from warming at IHR and weakening thermal stratification. Chris Peery, Corps, noted that the key concerns are the temperature differentials at two “pinch points,” between the Snake and Columbia Rivers and between the forebay and tailrace at IHR; larger temperature differentials may delay or deter migrating fish. The Corps also added that different species may have varying tolerances; sudden temperature shifts could affect migration, though these relationships are complex and not fully understood.

Finally, in response to a query, the Corps clarified that no PIT-tagged Snake River sockeye have been observed at Priest Rapids (PRD) this year.

Additional Updates – Dave Swank, USFWS, reported that the planned presentation on western and Clark’s grebes relative to McNary Dam (MCN) pool elevation has been postponed until fall, pending more data.

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

The next scheduled TMT meeting will be on July 23, 2025, at 9:00 AM.

**Columbia River Regional Forum
Technical Management Team
OFFICIAL MINUTES
Wednesday, July 9, 2025**

Today's TMT meeting was held via Microsoft Teams and conference call, chaired by Doug Baus, Corps, and facilitated by Emily Stranz, DS Consulting. Minutes were collected by Andrea Ausmus, BPA (contractor, CorSource Technology Group). A list of today's attendees is available at the end of these minutes.

1. Review Summary and Minutes

a. July 2 Facilitator Summary and Minutes

- Approved

b. July 9 Facilitator Summary and Minutes

- Approved

2. Sockeye Conversion Update (as of July 16, 2025) – Jonathan Ebel, IDFG

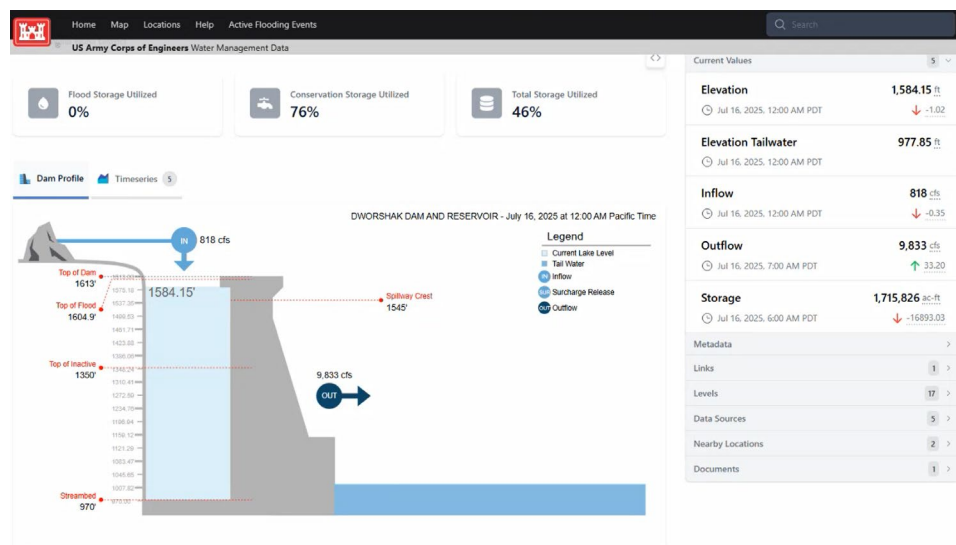
- Overview
 - Everything looks to be proceeding as it does in a typical year.
 - No major heatwaves, even under low flows like we have seen this year, there is not the cratering of the conversion rate and lost fish in the system.
 - Fish are slowing down
- Abundance (PIT Expansion) Estimates:
 - Adult Snake River Sockeye detected @ Bonneville (BON): 1,515
 - About half have passed Lower Granite as of this morning.
 - Adult Snake River Sockeye detected @ Lower Granite (LWG): 783
- Conversion Rates:
 - BON > TDA: 90%
 - BON > MCN: 74%
 - MCN > IHR: 91%
 - IHR > LWG: 84%
 - Conversion to LWG: 52% (as of today)
- Travel Time:
 - Travel times are looking pretty normal.
- Notes:
 - Conversion rates look pretty typical to the better 50% of years that we have been monitoring.

- Expect fish that are moving to be passing LWG next week.
- Caveat: When looking at conversion rates, we should be looking at them as of this date, but Ebel is trying to show the progression of what we are seeing.
- We are seeing fish move in the system and there are not any major issues that we can address.

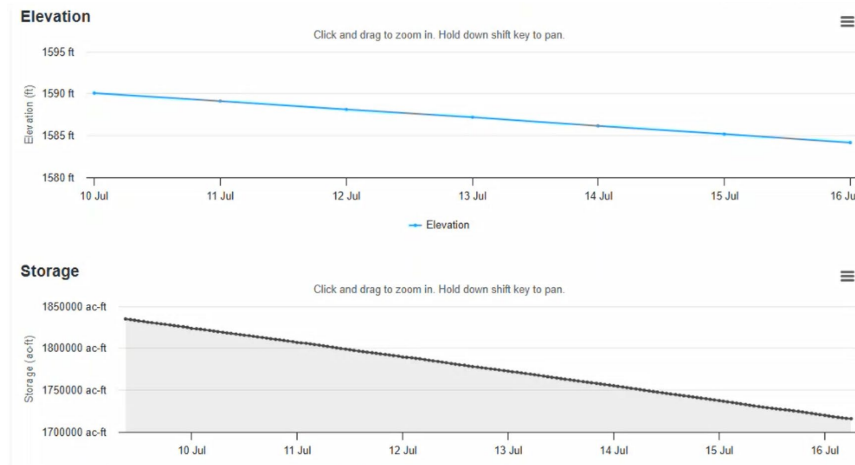
3. Dworshak (DWR) Operations – Willow Walker, Corps-NWW

a. Website Update/Change

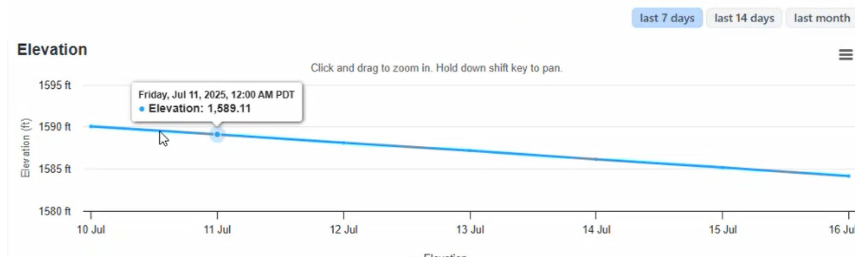
- Originally the Corps would present the data in a table format. Recently data had been missing in the table generated and there were issues populating the data.
- Recently the Corps released a new updated version of the enterprise site called “Access to Water” which opens to the tab for the “Dam Profile”.
 - [DWORSHAK DAM AND RESERVOIR - Water Data - U.S. Army Corps of Engineers](#)
 - Previous versions have not been so good, but this one seems like it has been working and has nice graphical representation of Project data.



- The Corps will be trying to use this moving forward, but it is a work in progress. It is a public link, and anyone can access the data. If there are issues, the Corps requests feedback.
- Time Series
 - Another option on the site is “Time Series”.



- If you click on the “Time Series” tab it will show the past seven days of the data strings.
- If you hover over it will pop up the number.



b. Current Hourly Data

- Forebay Elevation: 1,584.15 feet
- Outflow: 9,833 cfs
 - Full powerhouse and DWR has been there for a few days.
- Drafting: 1 foot/day
 - Expect the draft to continue for the next while. It is pretty normal for this time of year to draft at that rate.

c. Snake and Clearwater Rivers Temperature Data

| Date Hr | Anatone Temp (°F) | Anatone Flow (kcfs) | Orofino Temp (°F) | Orofino Flow (kcfs) | Dworshak Tailwater Temp (°F) | Dworshak Flow (kcfs) | Lewiston Temp (°F) | Lower Granite Tailwater Temp (°F) | 12-hour Average Lower Granite Tailwater Temp (°F) |
|----------|-------------------|---------------------|-------------------|---------------------|------------------------------|----------------------|--------------------|-----------------------------------|---|
| 07/16 00 | 72.90 | 20.75 | 76.46 | 2.31 | 43.75 | 9.80 | 54.45 | 67.51 | 67.28 |
| 07/16 01 | 72.72 | 21.97 | 76.10 | 2.31 | 43.68 | 9.80 | 54.18 | 67.41 | 67.30 |
| 07/16 02 | 72.57 | 23.05 | 75.56 | 2.29 | 43.70 | 9.80 | 53.85 | 67.32 | 67.31 |
| 07/16 03 | 72.50 | 23.43 | 75.20 | 2.29 | 43.59 | 9.80 | 53.40 | 67.19 | 67.31 |
| 07/16 04 | 72.37 | 23.43 | 75.02 | 2.29 | 43.43 | 9.80 | 52.84 | 67.19 | 67.30 |
| 07/16 05 | 72.25 | 23.60 | 74.66 | 2.31 | 43.56 | 9.90 | 52.30 | 67.24 | 67.30 |
| 07/16 06 | 72.14 | 24.09 | 74.48 | 2.29 | 43.48 | 9.90 | 51.84 | 67.39 | 67.32 |
| 07/16 07 | 72.00 | 24.76 | 74.48 | 2.28 | 43.54 | 9.80 | 51.57 | 67.39 | 67.33 |
| 07/16 08 | --- | 24.87 | --- | --- | --- | 9.80 | --- | --- | 67.34 |
| 07/16 09 | --- | --- | --- | --- | --- | --- | --- | --- | 67.36 |
| 07/16 10 | --- | --- | --- | --- | --- | --- | --- | --- | 67.35 |
| 07/16 11 | --- | --- | --- | --- | --- | --- | --- | --- | 67.33 |
| 07/16 12 | --- | --- | --- | --- | --- | --- | --- | --- | 67.30 |
| 07/16 13 | --- | --- | --- | --- | --- | --- | --- | --- | 67.29 |
| 07/16 14 | --- | --- | --- | --- | --- | --- | --- | --- | 67.28 |
| 07/16 15 | --- | --- | --- | --- | --- | --- | --- | --- | 67.30 |
| 07/16 16 | --- | --- | --- | --- | --- | --- | --- | --- | 67.34 |
| 07/16 17 | --- | --- | --- | --- | --- | --- | --- | --- | 67.39 |
| 07/16 18 | --- | --- | --- | --- | --- | --- | --- | --- | 67.39 |
| 07/16 19 | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 07/16 20 | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 07/16 21 | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 07/16 22 | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 07/16 23 | --- | --- | --- | --- | --- | --- | --- | --- | --- |

- For context at the end of the week we were hovering right around or just over 100°F. This is quite hot but not unheard of for this time of year. So the natural water temperatures have increased.
- Orofino (Clearwater Mainstem):
 - Temperature: 76°F
 - This is quite hot but not unheard of for this time of year.
- Lewiston (waters mixed):
 - Temperature: mid-50°F
- Lower Granite (LWG) Tailwater:
 - Temperature: 67 – 68°F
- Temperatures at LWG are looking good. We do have warm water coming in from the last couple of days' heat but the weather is cooling down.

d. Lower Granite Forebay Temperature String

- Sunday, July 13
 - LWG started to get some of the heat Sunday night, and the top of the pool did heat up.
 - Lost the data reporting due to transmitter at the temperature string site. The Water Quality Team went and repaired the transmitter, so it is now reporting live data. It may be possible to recover the missing data, it is currently being looked into, but the team is still in the field fixing some other stations.

- Stratification:
 - 15 – 20-meter line: mid-60°F
 - Strong thermal stratification.

e. Ice Harbor Temperature String

- The past couple of days, it was very warm at the surface.
- Sunday, July 13
 - Top of Pool temperature: 80°F
- Very top of the pool spreads out and the warm water starts to mix down to the 10 – 15-meter line. It will now begin to start looking more like the temperature string did last year at the start of July.

f. Lower Snake River Temperature Report for July 2025

Lower Snake River Temperature Report for July 2025
Generated 2025-07-16 08:27:07

| | Asassee - Snake River Near Asassee (ANQR) | | | | Lower Granite Dam forebay (LNG) | | | | Lower Granite tailwater - Snake R. below dam (LGNW) | | | | Little Goose Dam forebay (LGGA) | | | | Little Goose Dam tailwater (Snake R. below Little Goose) (LGSW) | | | | Lower Monumental Dam forebay on Snake River (LMDNA) | | | | Lower Monumental tailwater below the dam on Snake River (LMDNW) | | | | Ice Harbor Dam forebay (IHDNA) | | | | Ice Harbor tailwater - Snake R. below Goose Is. (IDNW) | | | |
|-------|---|------|------|--------|---------------------------------|------|------|--------|---|------|------|--------|---------------------------------|------|------|--------|---|------|------|--------|---|------|------|--------|---|------|------|--------|--------------------------------|------|------|--------|--|------|------|--------|
| Date | Min | Avg | Max | >68.05 | Min | Avg | Max | >68.05 | Min | Avg | Max | >68.05 | Min | Avg | Max | >68.05 | Min | Avg | Max | >68.05 | Min | Avg | Max | >68.05 | Min | Avg | Max | >68.05 | Min | Avg | Max | >68.05 | Min | Avg | Max | >68.05 |
| 07/01 | 68.8 | 70.1 | 71.8 | 24/24 | 65.3 | 65.5 | 65.7 | 0/24 | 65.7 | 65.9 | 66.2 | 0/24 | 65.7 | 66.2 | 66.5 | 0/24 | 65.0 | 65.5 | 66.1 | 0/24 | 66.0 | 66.5 | 66.7 | 0/24 | 66.4 | 66.8 | 67.1 | 0/24 | 66.8 | 67.0 | 67.4 | 0/24 | 66.9 | 67.4 | 68.1 | 2/24 |
| 07/02 | 69.4 | 70.8 | 72.3 | 24/24 | 65.0 | 65.2 | 65.5 | 0/24 | 65.2 | 65.6 | 65.9 | 0/24 | 65.6 | 66.2 | 66.8 | 0/24 | 65.1 | 65.4 | 65.6 | 0/24 | 66.2 | 66.4 | 66.7 | 0/24 | 66.5 | 66.7 | 66.9 | 0/24 | 66.9 | 67.1 | 67.3 | 0/24 | 67.3 | 67.5 | 67.7 | 0/24 |
| 07/03 | 69.4 | 70.8 | 72.2 | 24/24 | 64.8 | 65.1 | 65.7 | 0/24 | 65.0 | 65.3 | 65.6 | 0/24 | 65.6 | 66.3 | 67.0 | 0/24 | 64.8 | 65.5 | 66.2 | 0/24 | 66.3 | 66.5 | 67.1 | 0/24 | 66.5 | 66.8 | 67.1 | 0/24 | 67.5 | 68.0 | 68.6 | 0/24 | 67.4 | 68.2 | 68.8 | 18/24 |
| 07/04 | 69.3 | 69.8 | 71.2 | 24/24 | 65.1 | 65.6 | 66.0 | 0/24 | 65.6 | 65.9 | 66.1 | 0/24 | 67.1 | 67.7 | 68.0 | 0/24 | 66.2 | 66.8 | 67.2 | 0/24 | 66.5 | 66.8 | 67.4 | 0/24 | 66.5 | 67.0 | 67.2 | 0/24 | 68.1 | 68.4 | 68.8 | 24/24 | 68.3 | 68.6 | 68.7 | 24/24 |
| 07/05 | 67.9 | 68.9 | 70.0 | 20/24 | 65.6 | 66.0 | 66.4 | 0/24 | 65.9 | 66.3 | 66.5 | 0/24 | 66.9 | 67.6 | 68.1 | 0/24 | 66.6 | 66.8 | 67.1 | 0/24 | 66.3 | 66.6 | 67.0 | 0/24 | 66.5 | 66.7 | 67.0 | 0/24 | 68.2 | 68.5 | 68.8 | 24/24 | 68.3 | 68.6 | 68.9 | 24/24 |
| 07/06 | 68.2 | 69.5 | 70.8 | 24/24 | 65.9 | 66.1 | 66.3 | 0/24 | 66.3 | 66.5 | 66.7 | 0/24 | 66.8 | 67.8 | 68.1 | 0/24 | 66.8 | 67.1 | 67.6 | 0/24 | 66.6 | 66.9 | 67.2 | 0/24 | 66.8 | 66.9 | 67.1 | 0/24 | 68.0 | 68.5 | 68.6 | 22/24 | 68.3 | 68.6 | 68.9 | 24/24 |
| 07/07 | 69.0 | 70.4 | 71.9 | 24/24 | 65.9 | 66.2 | 66.8 | 0/24 | 66.3 | 66.6 | 67.0 | 0/24 | 66.8 | 67.7 | 68.8 | 2/24 | 66.6 | 67.0 | 67.5 | 0/24 | 66.9 | 67.4 | 67.7 | 0/24 | 66.8 | 67.3 | 67.9 | 0/24 | 67.8 | 68.0 | 68.2 | 10/24 | 68.1 | 68.4 | 68.9 | 24/24 |
| 07/08 | 70.1 | 71.5 | 72.9 | 24/24 | 65.7 | 66.0 | 66.4 | 0/24 | 66.3 | 66.6 | 67.0 | 0/24 | 66.9 | 67.6 | 68.3 | 3/24 | 66.8 | 67.1 | 67.6 | 0/24 | 67.3 | 67.7 | 68.0 | 0/24 | 67.4 | 67.8 | 68.3 | 0/24 | 67.7 | 68.0 | 68.3 | 5/24 | 68.0 | 68.5 | 69.0 | 22/24 |
| 07/09 | 71.0 | 72.8 | 73.8 | 24/24 | 65.1 | 65.8 | 66.3 | 0/24 | 65.6 | 66.1 | 66.4 | 0/24 | 67.1 | 67.6 | 68.1 | 1/24 | 66.6 | 66.9 | 67.3 | 0/24 | 67.2 | 67.6 | 67.9 | 0/24 | 67.7 | 67.9 | 68.1 | 0/24 | 67.8 | 68.1 | 68.4 | 15/24 | 68.3 | 68.6 | 68.9 | 24/24 |
| 07/10 | 70.9 | 71.8 | 73.8 | 24/24 | 65.2 | 65.8 | 66.5 | 0/24 | 65.7 | 66.1 | 66.5 | 0/24 | 66.9 | 67.6 | 68.3 | 2/24 | 66.4 | 66.8 | 67.2 | 0/24 | 67.4 | 67.7 | 68.1 | 1/24 | 67.6 | 68.0 | 68.5 | 13/24 | 68.0 | 68.3 | 68.8 | 23/24 | 68.3 | 68.6 | 68.9 | 24/24 |
| 07/11 | 71.5 | 72.4 | 73.5 | 24/24 | 65.8 | 66.3 | 66.7 | 0/24 | 66.6 | 66.8 | 67.0 | 0/24 | 68.3 | 68.9 | 69.3 | 24/24 | 67.2 | 68.1 | 68.9 | 16/24 | 68.5 | 68.9 | 69.3 | 24/24 | 68.6 | 68.9 | 69.3 | 24/24 | 68.7 | 69.3 | 69.7 | 24/24 | 68.9 | 69.6 | 70.2 | 24/24 |
| 07/12 | 71.4 | 72.6 | 73.7 | 24/24 | 66.1 | 67.1 | 67.9 | 0/24 | 67.0 | 67.4 | 67.8 | 0/24 | 68.8 | 69.3 | 69.7 | 24/24 | 68.3 | 68.5 | 68.9 | 24/24 | 67.8 | 68.2 | 68.9 | 18/24 | 68.4 | 68.7 | 69.0 | 24/24 | 69.2 | 69.5 | 69.8 | 24/24 | 69.4 | 69.9 | 70.4 | 24/24 |
| 07/13 | 71.0 | 72.1 | 73.6 | 24/24 | 66.4 | 67.1 | 67.5 | 0/24 | 67.5 | 67.7 | 67.9 | 0/24 | 68.0 | 68.4 | 69.3 | 33/24 | 68.0 | 68.3 | 69.6 | 22/24 | 67.8 | 68.1 | 68.4 | 33/24 | 68.4 | 68.6 | 69.6 | 24/24 | 69.2 | 69.5 | 69.7 | 24/24 | 69.7 | 70.1 | 70.5 | 24/24 |
| 07/14 | 73.2 | 74.1 | 75.2 | 24/24 | 66.2 | 66.8 | 67.3 | 0/24 | 67.1 | 67.4 | 67.6 | 0/24 | 67.5 | 68.3 | 69.0 | 18/24 | 67.5 | 67.9 | 68.3 | 0/24 | 68.1 | 68.4 | 68.7 | 24/24 | 68.6 | 68.8 | 69.1 | 24/24 | 69.3 | 69.5 | 70.0 | 24/24 | 69.6 | 70.0 | 70.4 | 24/24 |
| 07/15 | 72.5 | 73.5 | 74.2 | 24/24 | 65.9 | 66.5 | 67.2 | 0/24 | 66.7 | 67.1 | 67.5 | 0/24 | 67.8 | 68.8 | 71.3 | 22/24 | 67.4 | 68.0 | 68.7 | 12/24 | 68.8 | 69.6 | 70.8 | 24/24 | 68.8 | 69.7 | 70.5 | 24/24 | 69.6 | 70.0 | 70.5 | 24/24 | 69.6 | 70.6 | 71.4 | 24/24 |
| 07/16 | 71.0 | 72.4 | 72.8 | 8/8 | 67.0 | 67.1 | 67.2 | 0/8 | 67.2 | 67.3 | 67.5 | 0/8 | 71.4 | 71.5 | 71.8 | 8/8 | 68.9 | 69.4 | 70.2 | 8/8 | 70.5 | 71.6 | 72.1 | 8/8 | 70.3 | 70.4 | 70.5 | 8/8 | 70.0 | 70.3 | 70.7 | 8/8 | 70.9 | 71.3 | 71.5 | 8/8 |
| 07/17 | | | | 0/0 | | | | 0/0 | | | | | | | | 0/0 | | | | 0/0 | | | | 0/0 | | | | 0/0 | | | | 0/0 | | | | 0/0 |

- LWG Tailwater:
 - Average Daily Temperature: 67 – 68°F
 - Max: 67.9 (July 13)
- IHR Tailwater (Snake River below Goose Island):
 - Average Daily Temperature: 71°F
 - Average temperatures stayed below 71°F until this morning. It may average out over the course of the day but we are seeing some of the surface water mix down deeper, so it makes sense that we are seeing the temperatures start to creep up in the IHR tailwater.

g. Dataquery 2.1



- The Corps provided the update in “Time Series” view because in the analysis that they later provided the observed data were updated on Monday.
- IHR Tailwater
 - Temperatures in the tailwater have increased in the past day.

h. 10-Day Regional Weather Forecast

- Temperatures:
 - July 13 and 14
 - 100°F temperatures
 - July 15 and 16
 - Came down off the high temperatures
 - July 17 and 18
 - There was a little red in the middle Snake region
 - No ~100°F temperatures are forecasted for the Lower Snake region.
 - July 19 – 24
 - Gray area shrinks and no red visible which indicates that there will be some cooler temperatures.
 - July 25 and 26
 - Looks like it may warm up again.
 - Will continue to keep an eye on it.
 - No expected 100°F days or any indications of a heat dome.

i. Weather Forecast for Lewiston, ID

| | | | | | | |
|--------|---------|---|---------------|----|--------------|---|
| Thu 17 | 97°/64° |  | Sunny | 0% | ↓ NNW 13 mph | + |
| Fri 18 | 99°/68° |  | Sunny | 0% | ↓ N 13 mph | + |
| Sat 19 | 90°/64° |  | Partly Cloudy | 0% | ↘ WNW 15 mph | + |
| Sun 20 | 89°/64° |  | Partly Cloudy | 0% | ↓ NNW 11 mph | + |
| Mon 21 | 83°/63° |  | Partly Cloudy | 5% | ↓ NNW 8 mph | + |
| Tue 22 | 84°/63° |  | Partly Cloudy | 7% | ↓ NNW 8 mph | + |
| Wed 23 | 88°/63° |  | Mostly Sunny | 3% | ↓ NNW 10 mph | + |
| Thu 24 | 91°/64° |  | Sunny | 0% | ↓ NNW 9 mph | + |
| Fri 25 | 94°/67° |  | Sunny | 0% | ↓ NNW 10 mph | + |
| Sat 26 | 95°/68° |  | Partly Cloudy | 0% | ↓ NNW 10 mph | + |
| Sun 27 | 97°/68° |  | Mostly Sunny | 2% | ↓ NNW 10 mph | + |
| Mon 28 | 97°/69° |  | Mostly Sunny | 0% | ↓ NNW 10 mph | + |
| Tue 29 | 98°/69° |  | Mostly Sunny | 0% | ↓ NNW 9 mph | + |
| Wed 30 | 99°/69° |  | Sunny | 0% | ↓ NNW 10 mph | + |

- Over the weekend and early into next week temperatures are in the 80s and there is a potential of cloud cover which would help slow down some of the heat buildup.
- The Corps will be trying to take advantage of the weather as much as they can and will be watching how the next warm up may play out.

j. REVIEW OF SOR-2025-02 - Tuesday, July 8 at 11:30am

- Slide 1: Dworshak – Review of SOR-2025-02
 - Same slide provided last meeting.
 - This presentation will be the last covering the SOR versus no SOR as we are now past the time that we would see impacts from the SOR.
 - Wrap up and moving forward the updates will mirror previous summers, providing just the basin conditions and the temperature analysis.
 - Key Points:
 - ~120 kaf or ~6 feet of water were used for the time that the SOR operation was in effect.
 - Approximately 10% of the Summer augmentation water was used.
 - What we saw was that there was a delay in the rise in tailwater temperature at IHR and maintaining a cooler stratification in the forebay.

- Slide 2: Ice Harbor – Observed and Analyzed (*through July 7*)
 - There are more observed data through when the impacts of that operation would have ended.
 - Dotted Green Lines (Alt 0) : Min and max intervals for Alt 0 or if the SOR changes were not made.
 - Dashed Green Line (Alt 1): The range for the SOR as described.
 - Solid Green Line: IHR tailwater
 - Solid Purple Line: LWG observed max temperatures.
 - July 3
 - Started to ramp down.
 - July 13
 - Ten days after the ramp down.
 - The graph was updated on the July 13
 - July 7 – July 10
 - IHR's tailwater was below the minimum range of what would be expected if operating to that standard 60°F operation.
 - The observed temperatures in general are on the lower end of the dashed line range.
 - Through the modeling and analysis, it shows that there was a benefit to IHR tailwater temperatures.
 - LWG was cooler for the first part because of the cooler stratification. Closer the July 13 the temperatures are evening out more to what we would see in a typical Summer.
 - The ranges are now converging because there is no further benefit expected in a measurable way from the SOR operation.
- Slide 3: Current Temperature Augmentation Analysis
 - Although the SOR ended early, it used an amount of water leaving us short for the Summer.
 - July 23 – August 14: Period outlined as where the impact will be most likely to be seen. Expect to be able to keep temperatures during this period at 69.5°F or less.
 - There is a potential of two days getting up to 71°F, which was the threshold that the SOR had originally outlined.
 - This has decreased from the four to five days that was originally presented last week.
 - The Corps will be looking to find opportunities to shorten the number of days at 71°F using any opportunities in the weather to advantage of to not have the 71°F days.

- September 1: Still ending as usual on September 1 at 1535' and returning to 68°F or lower during the August 15 through September 1 period.
- July 22 and 23: Cool weather
- July 19: Ramp down DWR flows down to 8 kcfs which will keep us below the 69.5°F threshold.
- Plan to run 8 kcfs for a few days and look for opportunities to decrease the 8 kcfs to put it later to try to avoid the 71°F days or start to look to shorten the 69.5°F period. This will be very weather dependent and in real-time.

| *Charles Morrill (Unverified)9:22 AM*

| *great update on SOR 2 and influence IHR rate of warm up ... thank you*

| *one immediate question ... what portion of the current sockeye passage over IHR benefitted ... this may be a question for later discussions*

Charles Morrill, WA, said he put his question in the chat. He told Walker thank you. He said that there are a whole lot of questions that he had, but he did not want to address them now, he thought it would be better to wrap up later when we look at it with more detail. He said that the immediate question he had was about the current Sockeye passage over IHR. He asked if there was any way at this point in time and looking at that information that we could see some benefit for the Sockeye that passed during that period. He said that it may be a question for a later discussion and Jonathan Ebel, ID, may have some similar questions or additions to that so he would leave it for now.

Stranz asked if anyone had perspective to share on Morrill's question at this point. [no response] She said that we would note it and then circle back to it later on.

Ebel said that we could try to take a look. He said that he did not think that there was any way you could figure out whether there was an added benefit if there was any change at all because it was just a very small change in temperature. He thanked Walker and said that he would like to put a placeholder in there. He asked if the Corps could plan for in the October time frame to go over how their model is functioning, what they are using to put in the model for IHR, and the overall performance. He asked if the Corps' model for IHR had been reviewed. He also asked about what their confidence intervals were like, are they were 95% confidence intervals, are they 90%. He said that he just wanted to make sure because what the Corps is projecting and when they say there is a benefit, that benefit looks to be a half of a degree for three days using 10% of the allocated water from DWR. He said that he wanted to be careful with how this is described because people grab those things and run with them. He said that he just would appreciate knowing how the Corps was putting this together. Just the model nerd in him was curious.

Walker said that she thought that would be a great End of Year TMT topic. She said that she knew Jon Roberts also talked about looking at some historic years and what kind of differences we might have seen based on how different heat waves play out because the benefits would really change based on the kind of weather that we see or did not

see and what operations were in play. She said that she thought her team would definitely be happy to address that in an end of year type of presentation.

Stranz said that she took note of that for the End of Year Review.

| Charles Morrill (Unverified) 9:22 AM

| I agree with Jonathan's comments and Willow's response !!!!!

| 10 % of Dworshak volume for gain of maybe one half degree at IHR ... is that correct ...look forward to looking at this later ...Oct ...

Erick Van Dyke, OR said he had two questions. [Referencing Slide 2] He said that it may align with the kind of nerdiness that Ebel alluded to, unfortunately. He said that he was curious about the error bounds because like Ebel he was noticing that the line that we were focused on, the dark green one, is fairly flat, but the error bounds was increasing. He asked if she had looked at this with an earlier date and would that have modified the error bounds at the origin. He said that he felt that they were very tight simply because that was where they had started. He said that was the nerd component. He asked Walker if she had a feeling for that or if she did anything like that.

Walker said that the projection was done just before July 1 at the start of the SOR operation and what they did was analyze moving forward where the standard 68°F operation, what we would expect. She said that TMT had talked a bit about this before, there is quite a big range by the time we get through all four dams our confidence is much lower that it is at LWG, where we can run a tighter operation. That is where you can kind of see the spread overall being pretty significant and also the spread being smaller at the beginning there. And then the solid green line is just the observed data as it actually played out so the projected dashed lines, those are the same exact lines that you saw on the graph last week and they are the same as we had the week before, although Walker did not know that we put them on anything before then. She said that Van Dyke was correct in that those do not change day-to-day.

Van Dyke said that his nerdy question was to just explore whether we can work with this a little to help us understand how it functions by starting at an earlier date. He said maybe we could talk more about that later offline so thanks for answering my question. He said the second thing he wanted to ask was the team have worked really diligently and hard on all of this and he knows and many of them are aware that they are putting lots of hours in and that is appreciated. He said moving forward the region is going to probably want to know things as soon as we can. He said that he was curious when they should expect to see the next model run output.

Walker said that they would put one out on Monday so folks kind of has a little bit of time to preview it if you want to discuss it at FPAC and then, now that they do not have the SOR analysis on top of that they can also do a refreshed one on Wednesday morning before TMT, it hopefully will not change much from Monday, but we would have more updated data.

Van Dyke said thank you for that. He said that July 14 was the last update, it is two days later now, as Walker had pointed out for reasons that she also had pointed out, so we do not need to revisit that. So, July 21 is when the region might expect this to be rerun. He asked if that was right.

Walker looked at her calendar. She said yes on July 21, there would be a fresh one posted and then again before TMT on July 23 the team will try to make it as fresh as possible before that meeting.

Van Dyke said that was when we are going to see this projected concern, greater than 68°F, since Walker had it noted as two days potentially occurring beginning on July 23, yet this model run does not show that that is happening by the end of the day.

Walker said that they see that on July 23 it starts to get up to the 68°F line and then the model run ends on July 24, but what we would see is it increase above the 68°F line to the 69.5°F. As far as we can see right now, which is about 10 days into the future we do not see those 71°F needing to occur, but if we see a heat wave at the end of the 10-day that is when we would start realizing that risk that is there of getting to 71°F.

Van Dyke said that it was that kind of thing that we are going to have to respond to next week. He said that Walker provided us with a note that expresses a concern that something could happen, but we are not seeing the information that was used to actually go beyond what this picture is showing us. He said that he thought that Walker should understand that would make them ponder how to respond and when to respond knowing that we play a role in the conversation. He said that he was trying to remember where and if our earlier conversations have actually dove into why they are providing that bullet point. He asked if it is data forecasting driven or is it something else.

Walker said that the bullet point is coming from looking at the water that we have used up to this date, the water we expect to have down to 1535' for the end of August. And then, we have touched on this a little bit before, and she said she knows that there have been so many different topics and fast moving things going on but, this is where we have taken a 2024 analogy year but have adjusted it for operations, whether that be double testing or whatever, and the Hells Canyon Operation that is expected and then added two heat waves into that August time period to try to get realistic projections of how much water we will have and how that mixing will impact the temperatures at LWG tailwater. She said that was summarized in that bullet. She said that they wanted to provide that information, as Van Dyke said, to know that it is something we are going to need to be talking about, thinking about, and watching for. She said that it is what we expect to occur during this time frame, but it is outside the real-time 10-day window where we actually know for sure what weather is going to occur right now. Heat waves are theoretical we do not see one immediately in the 10-day.

Van Dyke said yeah, that is great, thanks for covering it at that level. That was really precise and useful. He said that he thought the reality is that we have had conversations, and he thought Walker was right, there has been some interest in trying to explore what we would expect if you were to use, not an analog year, but use the

actual available data that falls within the ratio of dry low water years. He said that he knows that they have had a lot to do but that is still something that he thought would be interesting to explore for this knowing that it will not be available to make next week's decision. He said that he wanted to make sure to reiterate that. He said that it might be useful to also add the bullet that you are using the analog approach contrasting with a year that you have data for, last year, and put that on this.

Walker said that they definitely would. She added one more thing about the bullet point. She said that they are continuously running that analysis as they get more and more information as we move through time here in the Summer about upcoming forecasts as the 10-day window moves on. So, they are updating the analysis going into that bullet point there and they will continue to update that every TMT as well. She said so TMT knows, that would continue to be apart of this slide. It is not going to be just the graph alone.

Brian Marotz, MT, said that he was trying to understand the implications biologically of as you move downstream and you get to IHR. He said that he saw that the thermal stratification was weakening, the surface is warming. He asked what happens there as far as the salmonids.

Chris Peery, Corps, said that the concern, there are two sort of pinch points or decisions points, for fish as they are moving upstream. One is looking at the temperature differential between the Snake and the Columbia as they hit that point. He said obviously the concern is if there is a significant differential that the Snake River is a lot warmer than the Columbia then some fish may delay or choose to turn and go up the Columbia instead of the Snake. The other point is right at IHR where we see the temperature differential between the forebay and the tailrace and that gets realized as the fish are moving into the fishway. So, we have the forebay water that is passing down the fishway and it meets the tailrace temperature water at the base of the fishway. If there is a significant differential there that might be a point where fish are delayed or stop migrating. He said that is the concern when we are looking at the temperatures at IHR and on how that might be related to the Sockeye run.

| *Charles Morrill (Unverified)9:40 AM*

| *general question any snake R Sockeye detected at PR's ?*

Stranz asked if there was any more to add. She asked Morrill to wait because his topic was a separate thing. She said that there were a lot of hands.

Emi Melton, NMFS, thanked Peery. She said that she thought that was a really good general overview and that is the things that NMFS has been concerned about. She said that she did not want to lose sight of other species that are there. She said depending on the type of species that we are talking about, some do have more temperature tolerance, and they can also hold and wait for cooler water to come in. She said that Snake River Sockeye runs are pretty truncated and so that was part of NMFS' thinking in term of how we focus the cooler water going to IHR and it was also a balance between

other species in that it is a lower part of their run, it is a transition between Summer to Fall Chinook and then Steelhead returns are low at that point. She said that she wanted to add some more context for Marotz.

Marotz said that this is all good so thank you.

Ebel said that Stranz got a lot of hands because there is a lot going on with this question. He said that he would first like to address something that Peery said. What we have seen the last few years when we have had enough PIT tags and we have seen Snake River Sockeye moving up the Columbia and basically rejecting or we think rejecting the Snake and going up above Wells Dam. What was missing from what Peery said, it could be related to temperature, probably is in some way. But in those years, we have not talked about, but we know from our genetic sampling, for example, last year at LWG is that we see a similar rate when you look at the proportion of the Upper Columbia Sockeye that are actually moving into the Snake. He said that part of that is tough to figure out that concept of why Snake River Sockeye are going into the Columbia and then_ But at the same time it is easy to say, well they are rejecting it because of the temperature, but in those same years we have seen a similar proportion of Columbia River Sockeye go into the Snake. So, it adds a wrinkle into that, making it like it might not be that simple of just the temperature differential. He said that it could be that higher temperatures mess with their homing ability in increased [inaudible] for both_ for just Sockeye in general. He said another part, and he was not sure what depth, different species migrate at different depths, and he was not sure about Sockeye, and whether also having cooler water towards the bottom if they will ride the depth of the cooler water or what they are going there, but that is something that he did not think_ that is one of the few questions that he did not think we had looked at in this basin, but he was sure a fisherman would know. He said that he just wanted to particularly to bring that up about the stray rate. He thought people needed to be careful about attributing the movement of Snake River Sockeye in the Columbia only to temperature.

Stranz said yeah, that is interesting. She said that it was a good question and thank you for all the responses.

Morrill asked a general question. He said that the last time that he and Ebel had discussed it, he did not think that any Snake River Sockeye were detected at Priest Rapids this year. He said that his second question, if he could bring it up again, was lost in the discussion.

Stranz asked Ebel is there were Snake River Sockeye at Priest Rapids.

Ebel said no.

Morrill said that the other question he had was for Walker. He asked if there was a way going forward that they can show how the 10% of water that was used in the SOR, how it might be used in the future if we exceed the 68°F. He said that he thought that would be some idea of what the impact of carrying out that SOR may be on exceeding the 68°F should it occur.

Stranz said okay, so something for Walker's team to noodle on, good.

Van Dyke said that he wanted to make a clear point since this is a public conversation, that the way folks know that straying has been occurring is whether a PIT tag has been detected. The other after-season way is whether there is genetic indicators that there has been straying, as Ebel pointed out earlier. He said that he did not think that we should be answering Morrill's question yet about what is going on with the populations and their distribution. He said that we know that they could be straying and this conversation is really kind of diving into some theoretical curiosities that may be really important to explore more but there is a lot going on in the system, especially since it behaves more like a reservoir lake ecology than a river given the way that we manage it.

Stranz said so it would be more appropriate to say that there has been no PIT tagged Snake River Sockeye observed at Priest Rapids.

Van Dyke said yeah, it needs to be clear that these discussions have some inability to ultimately get to the_ find the exact statement. So, it is just more of a cautionary statement than it is about trying to discourage what others have said, if that makes sense.

Stranz said it did.

Peery clarified that we do not know why the fish are straying, it could be temperature. He said that he thought he had used that kind of language when he was describing what was going on. He said that it can be a concern, it could be enhancing the strain that is going on, but we do not know for sure that it is temperature related it could be other factors as well.

Ebel said that he guessed he had heard it in a certain way, but he did not mean_ He said that he just wanted to make sure that it was clear to folks, just like Peery did, again that we do now know. He said that he was thinking like with what Van Dyke said that it is kind of theoretical and he just_ There we have genetics but also if you go back through, because Ebel thought this was interesting question because people have kind of grabbed this, that we have this PIT tag data showing this but if you go back through some of his updates from this date last year, when there were 9 Snake River Sockeye PIT tags detected at Priest Rapids and you look at the divergence in the window count versus the_ or the difference between the window count and the PIT expansion for IHR and LWG, like last year you will see a much larger difference between those two values than you do this year when there are no Snake River Sockeye over LWG. So, it is kind of that is the basis of why it seems like when there is strain going on it goes both ways and when there is not strain going on it seems not to be going on with either population. For example, this year. This year the window count versus the PIT expansion counter are remarkably close relative to the last few years and in those years, we have also seen more Snake River fish going into the Columbia. He said that it is an open question, it is pretty interesting, and he would stop there because it is a cool_ it is a puzzle.

Van Dyke said that he agreed. He thought that Ebel had inspired his thinking, sitting in his chair and he does that a lot. He said thank you for talking about it more. He said that he guessed what he thought to himself was he was trying to remember what Marotz asked originally to see if this was actually what he was after or he had something else in mind. He told Marotz that it was just a curiosity.

Marotz said that actually it was really a general question because it was what people have been offering to help answer his question has led to more questions in his mind, but it is really a fabulous discussion for him because he just had not _ He was really still struggling to try to put this together and he saw that everyone else was too. So, he appreciated the conversation.

| *Charles Morrill (Unverified)9:51 AM*

| *good discussion - and more questions ...*

Van Dyke said thanks for answering that. He said that if he could say, in the past when he had listened to the question that Marotz had provided he had thought about it ecologically, about how water behaves, and today it did expand a bit, so he appreciated that Marotz asked it. He said that he thought Marotz was right that it makes us all think about it in a way that builds the questions that we have_ So awesome, thanks Marotz.

4. Additional Discussion

Dave Swank, USFWS, said that he wanted to point out since it was previously on the agenda that USFWS was originally planning to have a presentation about Western and Clarke's Grebes and their relation to the MCN pool. Based on some feedback at FPAC they have decided to postpone that talk, probably until sometime this Fall, maybe. He said that he was not sure exactly when but by the then USFWS will have some more information on the nesting success of Grebes and maybe some more information on how that relates to the MCN pool elevation. He said that he just wanted to point out that USFWS had not forgotten about that topic, it is just postponed for now.

Stranz thanked Swank for connecting those dots, she had forgotten to say that.

5. Set agenda for next meeting – July 23, 2025 (+Process)

Meeting Location: Microsoft Teams

- a. Sockeye Conversion Update
- b. DWR Operations Update
- c. Operation Review

Today's Attendees:

| Agency | TMT Representative(s) |
|---|--|
| NOAA Fisheries | |
| Oregon | Erick Van Dyke |
| Washington | Charles Morrill |
| Kootenai Tribe | |
| Confederated Tribes of Colville Reservation | |
| Umatilla Tribe (CRITFC) | Tom Lorz, Pete McHugh |
| Yakama Nation | |
| Bureau of Reclamation | Chris Runyan |
| Army Corps of Engineers | Doug Baus (Chair), Aaron Marshall, Lisa Wright |
| US Fish & Wildlife Service | Dave Swank |
| Idaho | Jonathan Ebel |
| Montana | Brian Marotz |
| Spokane Tribe | |
| Nez Perce Tribe | Jay Hesse |
| Warm Springs Tribe | |
| Confederated Salish and Kootenai Tribes | Tom McDonald |
| Bonneville Power Administration | Tony Norris, Ben Hausmann |

Other Attendees (non-TMT members):

COE – Eric Chow, Tom Conning, Catherine Dudgeon, Leah Hamilton, Steven Lee, Patricia Mason, Alexis Mills, Haytham Oueidat, Christopher Peery, Jessika Solleder, Daniel Turner, Willow Walker, Michelle Yuen

BOR – Ryan Fosness

BPA – Tammy Mackey, Josh Ashline

NMFS – Emi Melton, Josh Ashline

Washington Ecology – Thomas Starkey

Flathead Commissioner – Randy Brodehl

DS Consulting – Emily Stranz (Facilitator), Colby Mills

CorSource – Andrea Ausmus (BPA note taker, Contractor)

NPCC – Kate Self

FPC – Noah Campbell, Erin Cooper

Snohomish PUD – Scott Richards

AVA – Mike Dillon, Ryan Erickson

PGE – Phil DeVol

PSE – John Chandler

Unaffiliated – Darren Ogden, Kenneth Curtis, Miguel Verduzco, Ross Gleason, Cleroy McNome