

## COLUMBIA RIVER TECHNICAL MANAGEMENT TEAM

July 31, 2019

Facilitator's Summary

Facilitator & Notes: Emily Stranz, 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. These notes are not intended to be the "record" of the meeting, only a reminder for TMT members. Official minutes can be found on the TMT website: <http://www.nwdwc.usace.army.mil/tmt/agendas/2019/>.*

### Meeting Minutes and Summaries

TMT members present approved the July 10th and 17th meeting minutes and summaries with no additional edits. The July 24th minutes and summary will be reviewed at the August 14<sup>th</sup> meeting.

### Dworshak Operations

Jon Roberts, Corps, updated the group on operations at Dworshak Dam. Currently the project is discharging 8.5-8.6 kcfs and TDG levels are under 100%, as the project is not spilling. Lower Granite tailrace water temperatures are around 66 degrees F. The inflow forecast is showing minimal inflows to Dworshak, despite a few thunderstorms expected in the coming week. The 10-day weather forecast shows warmer weather over the weekend, followed by a cooling trend towards the end of the 10-day period.

Dworshak operators are planning to increase to full powerhouse discharge Thursday night (8/1) at midnight to prepare for the warmer weather coming this weekend. They will hold there until temperatures allow them to drop back down, with the intention of keeping water temperatures below 68 degrees in the Lower Granite tailwater. Currently, it is expected that there will be enough water remaining to spill up to 13 kcfs for 3 days in August if needed for temperature management. The project will continue to run temperature models daily and look for opportunities to further reduce flow out of Dworshak if possible.

### Libby Operations

Logan Osgood-Zimmerman, Corps NWS, reported that the current elevation at Libby is 2,441 feet and inflows have been higher than previously expected. She explained that if inflows continue and raise the pool to 2,441.5 feet, the project will not be able to sustain the 7 kcfs bull trout minimum due to the turbines operating in the "rough zone" which causes cavitation. If needed, the project will reduce outflows, staying as close to 7 kcfs as possible, while avoiding the rough zone. Logan expected that outflows would need to be reduced to up to around 6.8 kcfs if the pool gets to 2,441.5 feet.

### Operations Review

*Reservoirs:* Eric Rothwell, BOR, reported on Bureau of Reclamation projects:

- **Hungry Horse:** Midnight elevation was 3,556.8 feet; inflows are 980 cfs and outflows are 1,800 cfs; the project is operating to 10 foot draft at the end of September (3,550 feet) and Columbia Falls minimums (3,480 cfs) which is more controlling.
- **Grand Coulee:** Midnight elevation was 1,288 feet; the project is operating to meeting the end of August draft of 1,277.5 feet.

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

- **Libby:** midnight elevation was 2,441 feet, with average inflows of 10.7 kcfs and outflows of 7 kcfs;
- **Albeni Falls:** midnight elevation was 2,062.3 feet, with average inflows of 12.6 kcfs and outflows of 9.8 kcfs;
- **Dworshak:** midnight elevation was 1,573.8 feet, with average inflows of 0.8 kcfs and outflows of 9.0 kcfs;

- **Lower Granite:** average outflows of 28.6 kcfs;
- **McNary:** average outflows of 150 kcfs; and
- **Bonneville:** average outflows of 147.2 kcfs.

Tony Norris, BPA, reported that annual Doble testing is ongoing at Lower Monumental and up to this point, BPA has utilized the extra reservoir space (coordinated at TMT) for a total of 4 hours. He circled back on questions raised by TMT members regarding past years' Doble testing, noting that in 2018, the testing was only for a couple of hours. In 2017, there was a 1 week outage, however, flows were much lower (22-24 kcfs range) and there was plenty of storage space in the reservoir. The testing is longer than normal this year due to additional required maintenance.

Doble testing is scheduled at Little Goose from August 5-9, during which, spill will increase to around 75% during daytime hours due to only one turbine being available. The increase in spill up to 75% was a concern to Salmon Managers present, who noted that the change in conditions could impact the remaining adult sockeye passing Little Goose. There was discussion around options to limit potential impacts to sockeye. It was noted that the Doble testing date cannot be moved; however, it may be possible to shape flows to release water during the night or fill above MOP. The Salmon Managers agreed to discuss options at FPAC and get back to the Corps and BPA by noon on Thursday (8/1) with any recommendations.

→ **ACTION:** The Salmon Managers will discuss potential options for spill at Little Goose and provide recommendations to Doug, Scott, and Tony by noon on Thursday.

*Water Quality* – Alexis Mills, Corps, reported that all water quality gauges are functioning and TDG is below water quality standards.

*Fish* – Paul Wagner, NOAA, reported on adult fish passage. At Bonneville Dam, summer Chinook passage is 51% of the 10-year average; summer Chinook jacks passage is 42%. Columbia River Chinook will be counted as fall Chinook starting on August 1<sup>st</sup>. Steelhead passage is 31%, unclipped steelhead passage is 39%, sockeye passage is 20%, and lamprey passage is 60% of the 10-year average. At Lower Granite, summer Chinook passage is 24% of the 10-year average; summer Chinook jacks passage is 35%; steelhead passage is 34%, unclipped steelhead passage is 39%, sockeye passage is 5%, and lamprey passage is 180% of the 10-year average.

It was noted that lamprey appear to be moving back down the ladder at Little Goose; this was of concern and Russ suggested that Dave Swank be made aware of this.

In regards to juveniles, Paul reported that fall Chinook passage is decreasing substantially; sampling at Bonneville and John Day has also decreased due to exceeding water temperature criteria.

*Power System* – Tony reported that we have turned the point in the season where temperatures are decreasing ever so slightly as the days get shorter. Additionally, there has been some wind in the system, but nothing out of the ordinary to report.

### **Public Comment**

Lynn Palensky, NPCC, asked that people report any observed sturgeon mortalities to WDFW. Specifics such as the location, condition, size and photos are much appreciated. To date, around 8 sturgeon mortalities have been reported so far this year, none were reproducing females.

**The next scheduled TMT meeting is a conference call on August 7, 2019, at 9:00 AM; as discussed at TMT, the meeting may be cancelled if there are no pressing agenda items.**

*This summary is respectfully submitted by the DS Consulting Facilitation Team. Suggested edits are welcome and can be sent to Emily at [emily@dsconsult.co](mailto:emily@dsconsult.co).*

**Columbia River Regional Forum**  
**Technical Management Team OFFICIAL MINUTES**  
**Wednesday, July 31, 2019**  
**Minutes: Melissa Haskin, FLUX Resources**

**1. Welcome and Introductions**

Today’s TMT meeting was chaired by Doug Baus, Corps, and facilitated by Emily Stranz, DS Consulting. See the end of these minutes for a list of today’s attendees. Copies of documents discussed and meeting minutes are available on the TMT website.

**2. Review Meeting Summaries and Minutes**

Minutes and summaries from the 7/10 & 7/17 TMT meetings were approved with no edits.

**3. Dworshak Operations – Jon Roberts, Corps NWW**

Jon Roberts, Corps NWW, reported on operations at Dworshak Dam. The project is discharging below full powerhouse at 8.5 to 8.6 kcfs through tomorrow. TDG in the Dworshak tailrace is ~100% currently (Figure 1).

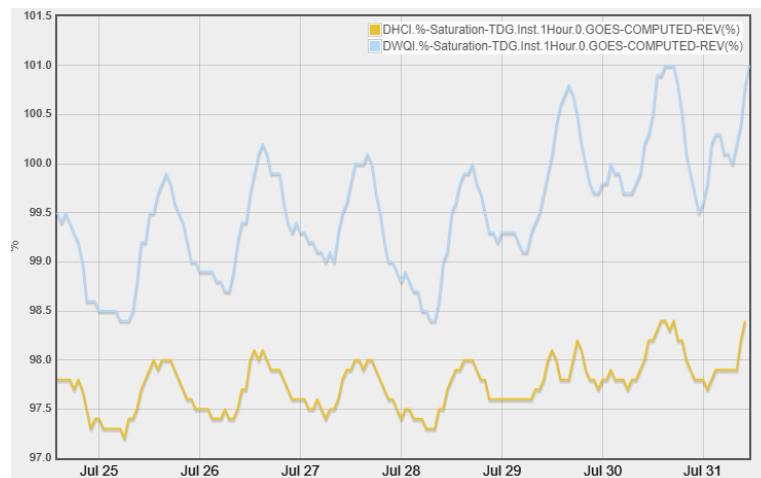


Figure 1. Total Dissolved Gas (TDG) at the Dworshak Dam tailrace (DWQI) and Dworshak Hatchery Collection (DHCI) over the last 7 days, July 24-31.

Temperatures in the Lower Granite tailwater are currently 66.13 degrees Fahrenheit. The NWRFC 4-10 day inflow forecast shows inflows dropping off over the 10-day period (Figure 2):

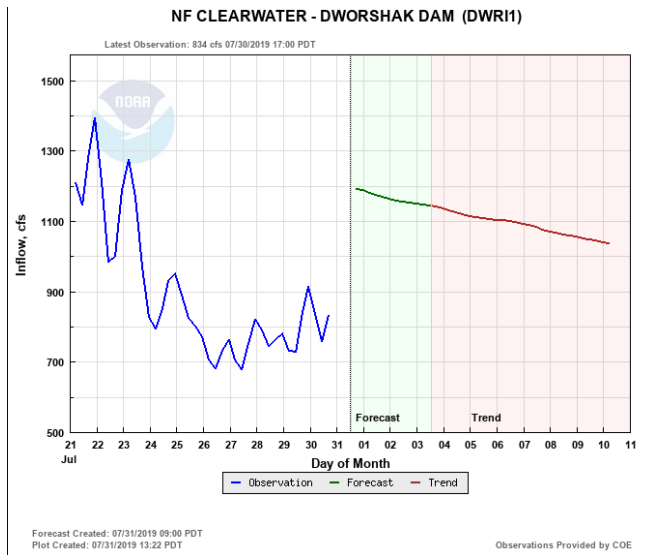


Figure 2. NWRFC observed and forecasted inflow for Dworshak Dam as of July 31.

While the weather forecast calls for some thunderstorms, there likely will not be much precipitation. The 10-day forecast calls for warm weather through Monday or Tuesday, with temperature peaks on Sunday.

Due to gauge work, there was a spike in temperature data at Anatone on July 30. These data are incorrect. Gauge work is also scheduled to occur downstream so there may be a temporary spike in temperature readings at Orofino or Lower Granite over the next few days, reported Roberts.

Today’s temperature model results (Figure 3) show the Lower Granite tailrace increasing, but not above 68 degrees, with holding Dworshak outflow at 8.5 kcfs for the next couple days, then increasing to full powerhouse August 2 through August 8. Roberts cautioned that the model has been forecasting a little high so actual temperatures will likely be lower.

The Corps will move water to the Lower Granite tailrace before the heat moves in. As shown in the proposed operation graphic (Figure 4), the Corps will increase outflow to full powerhouse (9.8-9.9 kcfs) at 0001 hours on Friday, August 2. If needed, they will increase Dworshak discharge to keep the Lower Granite tailrace < 68 degrees. If the Corps stays the course with this plan, there should be water reserves of 3 days of 13 kcfs available for use in August. If this water is not needed, it will be pushed into September per SOR 2019-1.

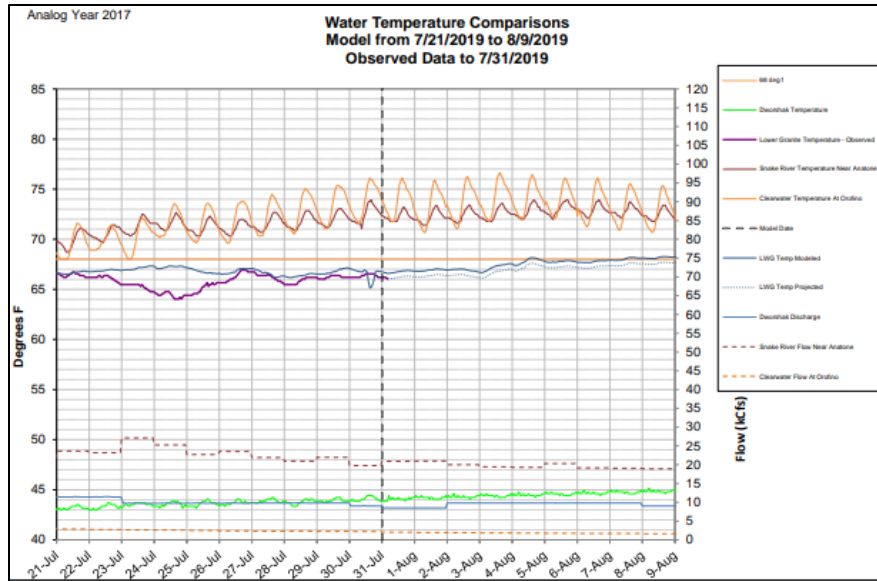


Figure 3. Water Temperature Model Results for July 31-August 9.

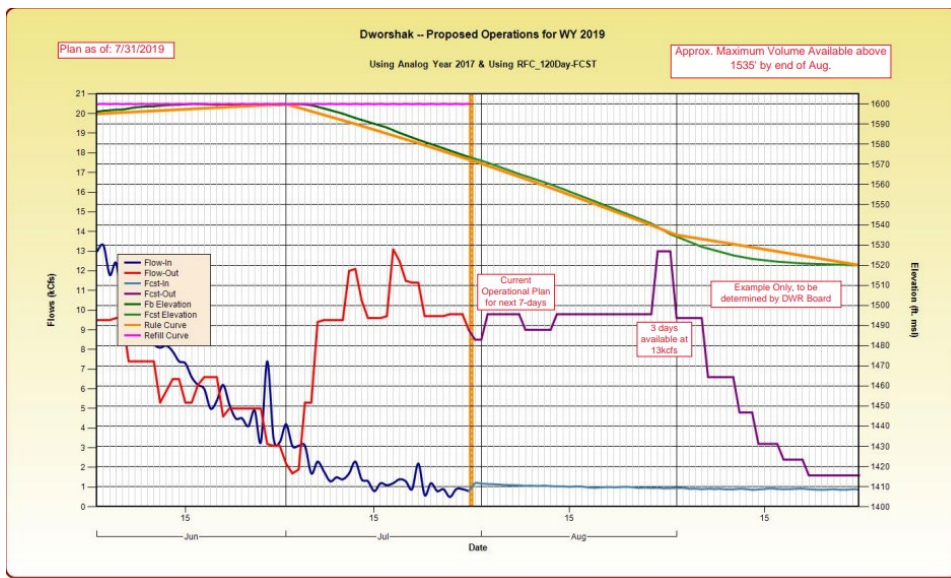


Figure 4. Dworshak Dam proposed operation as of July 31.

Paul Wagner, NOAA, asked why the model was forecasting higher temperatures than what has been observed. Roberts said that the model does not have a good way to combine the spillway and powerhouse temperatures, as it mixes the different discharges. Usually this is not an issue, but with the swing in river temperatures at Orofino and Anatone versus the difference in air temperature at these locations for July 23-26, combined with the increased flow from the Snake River out of Hells Canyon, this causes the model to diverge during its lookback period, ultimately causing issues with its forecast. As those days fall out of the model's lookback period, the model will correct itself. Roberts also added that the water temperature gauges are cooler now than they were before previous heat waves so this heat wave should not cause as much of an increase in the tailwater temperature as past heat waves this summer.

#### 4. Libby Operations Update - Logan Osgood-Zimmerman, Corps NWS

When Logan Osgood-Zimmerman, Corps NWS, last reported to TMT, Lake Koocanusa’s peak elevation was expected to be 2,430 to 2435 ft. The elevation has surpassed that and is now at 2,441 ft. Inflows have been higher than expected due to rain but should subside in the next few weeks.

Lake Koocanusa’s peak elevation is expected to be 2,441.5-2,442.0 ft (Figure 5). Starting around elevation 2441.5 ft., holding project outflow at 7 kcfs (this year’s bull trout minimum) is not sustainable due to turbines being in the rough zone, which causes cavitation in the units. Outflow will be maintained as close to 7 kcfs as possible, (likely no lower than 6.8 kcfs) while avoiding the rough zone.

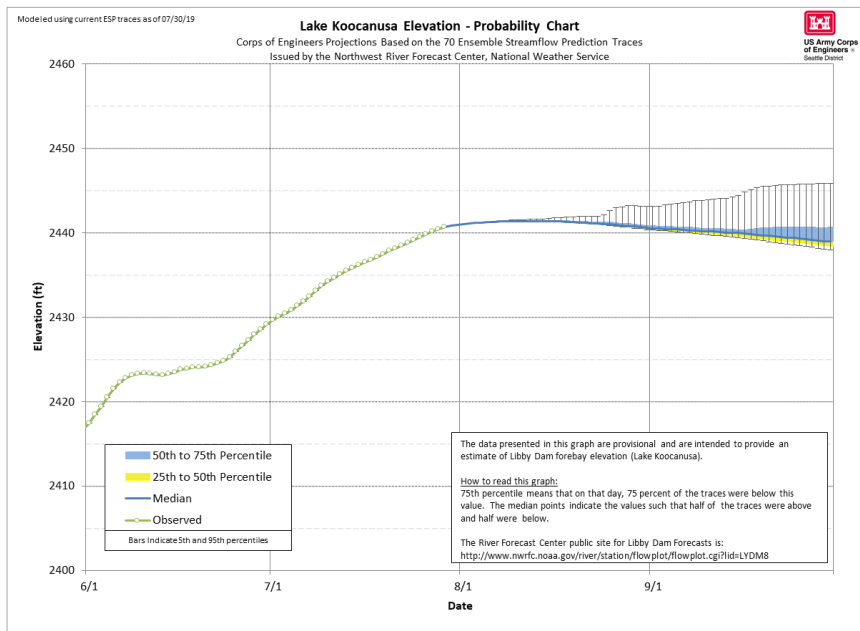


Figure 5. Lake Koocanusa Elevation Probability Chart.

#### 5. Operations Update

##### 5a. Reservoirs – Eric Rothwell, Reclamation, and Lisa Wright, Corps

**Hungry Horse** – Hungry Horse is releasing 1,800 cfs, and inflows are 980 cfs. Midnight elevation was 3,556.8 ft.

**Grand Coulee** – Midnight elevation 1,288.2 ft. It should hit 1,277.5 ft. by the end of August.

**Libby Dam**– Midnight elevation 2,441.0 ft., yesterday’s average inflows were 10.7 kcfs and outflows were 7 kcfs.

**Albeni Falls** – Midnight elevation 2,062.3 ft., yesterday’s average inflows were 12.6 kcfs and outflows were 9.8 kcfs.

**Dworshak Dam** – Midnight elevation 1,573.8 ft., yesterday’s average inflows were 0.8 kcfs and outflows were 9.0 kcfs.

**Lower Granite** – Yesterday’s average outflows were 28.6 kcfs.

**McNary Dam** – Yesterday’s average outflows were 150.0 kcfs.

**Bonneville** – Yesterday’s average outflows were 147.2 kcfs.

**5b. Water Quality – Alexis Mills, Corps**

All gauges are functional and Doble testing at Lower Monumental is going smoothly.

**5c. Fish – Paul Wagner, NOAA**

**Adults:** At Bonneville, summer Chinook adults for the year are 50,798 (51% of the 10-year average) and summer Chinook jacks are 8,821 (42% of the 10-year average). It is nearing the end of summer Chinook passage. Starting on August 1, Chinook at Bonneville are counted as fall Chinook. Steelhead are passing at ~1,000 fish per day. Thus far, the season total is 25,924 (31% of 10-year average). Unclipped are 15,322 (39% of the 10-year average). Sockeye are winding down and passing at less than 100 per day. The YTD is 62,784 (20% of the 10-year) so far. Lamprey numbers this year are 15,430 (60% of the 10-year average) which is good but not as good as last year's counts, which were well above average.

Sockeye counts are 325 at Ice Harbor, 161 at Lower Monumental, 63 at Little Goose, and 48 at Lower Granite. Salmon managers recommended closing the ASW at Little Goose last week and did not see any change in passage at that project. Passage was in the 0-3 range. The ASW is normally scheduled to come out of service this week anyway, so it will stay out of service.

At Lower Granite, summer Chinook adults are underway at 4,006 YTD, which is 24% of the 10-year average. Chinook jacks are 2,048 (35% of the 10-year average), steelhead are 3,790 (34% of the 10-year average). Wild steelhead are 1,839 (39% of the 10-year average). Sockeye are only 48 (5% of the 10-year average). Lamprey have not been showing consistently at project last few years. At 43 this year, they are above the 10-year average (180% of the 10-year average).

**Juveniles:** Fall Chinook have decreased at most projects. Increasing temperatures have met criteria for switching to less frequent sampling at Bonneville and John Day.

**5d. Power – Tony Norris, BPA**

Day average temperatures are decreasing as days are getting shorter. There has been some wind.

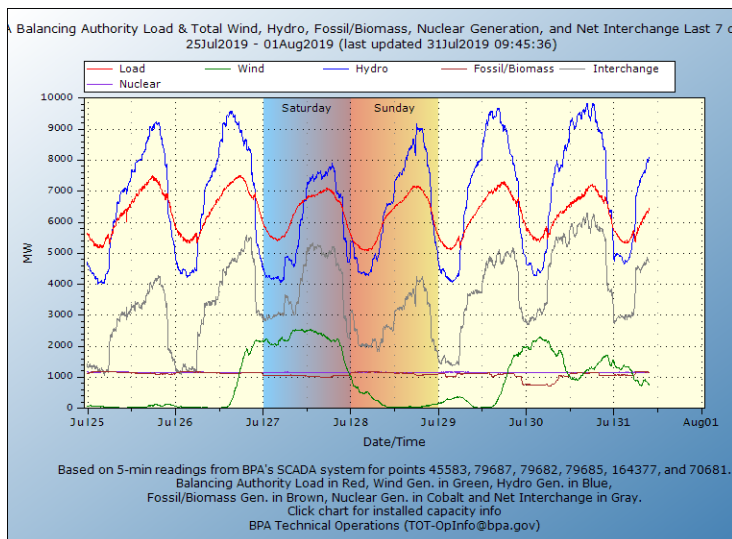


Figure 6. BPA Balancing Authority Load and Generation for the last 7 days, July 25-31.

***Other: Doble Testing***

Tony Norris, BPA, updated TMT on the operation that was coordinated at last week's TMT to expand the MOP range at Lower Monumental during Doble testing, which will continue through August 3. More information on that operation is available in last week's notes. [Note: for more information on Doble testing, see the 2019 Fish Passage Plan, Appendix A]. The Corps implemented an additional 0.5 ft. of operating range, up to 539.5 ft.

Norris reported that during the operation, which started last Thursday, 539.0 ft. has only been exceeded for 4 hours. The greatest exceedance was 3 inches. The other exceedances were under 1/2 inch. Early in the operation when flows were higher, BPA had to increase spill above 17 kcfs to manage the forebay within the expanded MOP range.

Norris also reported back on conditions in previous years during Doble testing at Lower Monumental. At the last meeting, Erick Van Dyke, OR, asked why the conditions were different enough this year to necessitate a request for an expanded MOP range. Norris reported that in 2018 testing only took a few hours. In 2016, the outage length was similar to this year, but flows in the Snake River were much lower (~22-24 kcfs). There was less water so there was sufficient volume in the reservoir to manage the forebay within MOP and avoid additional spill. Lower Monumental has the least amount of storage per foot of all 4 Snake projects.

Doble testing at Little Goose will run August 5-9. With the concerns about sockeye passage, Paul Wagner, NOAA, wondered if testing could be rescheduled to a later date. Doug Baus, Corps, said he did look into that and the testing cannot be rescheduled.

Norris suggested that since the Little Goose Doble testing cannot be rescheduled, spill could be shaped to address concerns about sockeye passage. Russ Kiefer, ID, brought up that there is still some confusion as to if the fish being observed are mid-Columbia strays. Kiefer said he thinks passage is as good as it is going to get and he does not think there is a passage problem. The concern right now is not correcting an issue, he said, but keeping the conditions from becoming such that they delay fish.

Salmon managers discussed Norris' suggestion as well as other options but did not come to a consensus. Salmon managers will take this offline. If they reach a recommendation, they will send that to Doug Baus, Corps by tomorrow at noon for a Friday or Monday change. As soon as the Corps and BPA receive the request, they can implement it.

**6. Next TMT**

The next meeting is a conference call on August 7, 2019.

Lynn Palensky, NPCC, requested that people keep an eye out for sturgeon mortalities and report any mortalities to WDFW. There have not been any large mortalities yet this season. So far, only 8 mortalities have been observed and they were all legal or sub-legal size. When reporting a mortality, she asks the reporter document location, condition, and size, and include photos, if possible.

**Today's Attendees:**

<b>Agency</b>	<b>TMT Representative</b>
Army Corps of Engineers	Doug Baus (Chair), Julie Ammann, Lisa Wright
Bonneville Power Administration	Tony Norris, Scott Bettin
Bureau of Reclamation	Eric Rothwell
NOAA Fisheries	Paul Wagner
US Fish & Wildlife Service	N/A
Washington	Charles Morrill
Oregon	N/A
Idaho	Russ Kiefer
Montana	Jim Litchfield
Nez Perce Tribe	Jay Hesse
Umatilla Tribe/CRITFC	N/A
Colville Tribe	N/A
Warm Springs Tribe	N/A
Kootenai Tribe	N/A
Spokane Tribe	N/A

**Other Attendees (non-TMT members):**

Army Corps of Engineers – Jon Roberts, Alfredo Rodriguez, Steve Hall, Alexis Mills, Aaron Marshall, Laura Hamilton, Aaron Marshall, Logan Osgood-Zimmerman, Catherine Dudgeon, Ann Setter

DS Consulting – Emily Stranz (Facilitator)

FLUX Resources – Melissa Haskin (Note taker)

Columbia Basin Bulletin – Mike O'Bryant

Clearing Up – K.C. Mehaffey

Yakama Nation Fisheries – Tom Iverson

Northwest Power and Conservation Council (NPCC) – Lynn Palensky

Snohomish PUD – Bryan Zigler