

COLUMBIA RIVER TECHNICAL MANAGEMENT TEAM  
April 10, 2019  
DRAFT Facilitator's Summary  
Facilitator: Emily Stranz; Notes: 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. 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/>.*

### **April Water Supply Forecasts**

Joel Fenolio, BOR, began by providing the TMT with an update on the official April Water Supply Forecast for Hungry Horse Dam. There wasn't much snow in the area for the month of March, so the May to September volume forecast reflects 83% of average. The project will continue to operate to the Columbia Falls minimum.

Doug Baus, Corps, reported the official April Water Supply Forecast for Corps projects:

- **The Dalles:** NWRFC April to August volume forecast (5 days QPF) is 76 maf, or 86% of average, down 2% from the March final of 88% of average;
- **Lower Granite:** NWRFC April to July volume forecast (5 days QPF) is 19 maf, or 95% of average, down 4% from the March final of 99% of average;
- **Libby:** Corps NWS April to August volume forecast is 4,752 kaf, or 81% of average;
- **Dworshak:** Corps NWW April to July volume forecast is 1,964 kaf, or 81% of average;
- **Grand Coulee:** NWRFC April to August volume forecast (5 days QPF) is 48 maf, or 84% of average; and,
- **Albeni Falls:** NWRFC April to August volume forecast (5 days QPF) is 10 maf, or 83% of average.

He noted the significant gains in current forecasts due to recent weather systems.

In terms of precipitation, things are looking wet in the Snake River Basin: above Ice Harbor Dam, April precipitation is 240% of normal. Current month observed precipitation above The Dalles is 219% of normal. In western Oregon, the Willamette River Basin above Portland is 449% of normal. In contrast, the Upper Columbia River Basin above Arrow Dam current month observed precipitation is 56% of normal.

Temperatures have been average or slightly below average for April throughout the Columbia River Basin. The combination of increased precipitation and normal/below normal temperatures has been, and will continue to be good for snowpack accumulation.

There is variability in the precipitation forecast. The 10-day forecast shows a system moving in from the west that will result in high amounts of precipitation in the Cascades, likely as snow. The 5-day forecast shows significant variability, with precipitation in the Cascades at upwards of 175% of normal, as well throughout the Rockies and in southeast Oregon. East of the Cascades, is forecast for below average precipitation (25% of normal or lower).

Both the 6-10 day and 8-14 day outlooks show a probability of below or near average temperatures, with a probability of above average precipitation. The 3-4 week and 30-day outlooks both show a probability of above average temperatures and precipitation.

## **FOP Spring Spill**

### *Spill and TDG Data*

Spill started at midnight on the Columbia River, which means hourly data for TDG is not yet in, however, will be ready for next week's TMT meeting. Dan provided a recap of the flex spill and TDG data for the last week, details are available on the TMT website. He noted that Lower Monumental exceeded 120% TDG, up to an hourly high of 124%, due to performance standard spill of 30 kcfs in the bulk pattern. In response, starting on Sunday, the project switched to using the uniform pattern during performance standard spill. The TDG exceedances above 120% after that were due to the hours of gas cap spill.

Flows on the Snake River are expected to peak today at 210 kcfs and are forecast to decrease to 100 kcfs next week. It looks like projects are moving out of forced spill quickly and back to gas cap/performance standard spill. The Columbia River flows are expected to peak today at about 365 kcfs and are forecast to decline to 200 kcfs by next week.

### *Flexible Spill Implementation*

Tony Norris, BPA, noted that high flows have required full turbine operation and thus there was no capability for flexible spill. Tony directed the TMT to a graph, available on the TMT website, that shows hourly blocks where flexible spill was implemented. Tony noted that McNary, John Day, and The Dalles dams are not yet showing data, as there is a three day lag with the flex spill data. However, even if the data were available, they would not show any flex hours because the projects were spilling involuntarily due to the high flows.

Dan clarified that The Dalles tailrace gauge is heavily influenced by upstream forebay TDG that passes through the powerhouse, so most likely any adjustments, if necessary, will be made after 24-48 hours to allow TDG from John Day to reach The Dalles forebay and pass through the powerhouse.

Tony also clarified for salmon managers that there was an implementation error at Little Goose Dam on April 7 that stopped flex spill one hour early in the morning and extended it one hour later in the evening, which was outside of the agreement criteria of 4-5 hours in the morning and 3-4 hours in the evening. Fortunately, adult salmon are not yet in the reach, so the mistake had little impact.

Erick Van Dyke, OR, asked why Lower Granite had flex spill in the early morning on April 9. Tony replied that the Snake River is coming up and it's possible that those were the only hours the project was able to operate to flex. Dan added that the performance standard level for flex spill at Lower Granite is 20 kcfs, while actual flex spill during those hours was higher at 34 kcfs, probably because the project was increased to full turbine. Erick emphasized that it's helpful to understand unexpected changes in operations so all can follow and track.

## **Chief Joseph Hatchery Releases**

Sheri Sears, Colville, updated the TMT on the Tribes' plans to release smolts from Chief Joseph Hatchery on Monday, April 15. They requested flows from Grand Coulee to be increased up to 85-90 kcfs from early April 15 through the afternoon of April 18, when the release is completed. Three ponds need to be released at separate times, and the hatchery would prefer night releases for each pond. TMT members supported the operations request.

→ ACTION: Sheri will coordinate with BPA, BOR, and the Corps on operational details.

## **Dworshak Operations**

Jon Roberts, Corps Walla Walla, reported on Dworshak operations. Inflows were at 28,000 cfs as of midnight last night and the project is releasing the minimum of 1.6-1.7 kcfs as coordinated at TMT.

Dworshak is currently filling and is 29 feet below the rule curve. Current basin conditions show that the precipitation in the North Fork / Clearwater region from the past few days has fallen as snow, which is why inflows are lower than previously predicted. This snow will provide additional runoff later on in the year.

Jon presented three operational scenarios using similar volumes, but with different runoff patterns; the scenarios are available on the TMT website. Jon noted that each scenario includes the planned unit outage for May 9-24, which will limit project outflows.

The current plan is to increase outflow to 10 kcfs on April 15<sup>th</sup> (maximum powerhouse). The Corps will provide updated scenarios, as well as RFC forecasts for FPAC to discuss next Tuesday. Tom Lorz, Umatilla/CRITFC, suggested rescheduling the May 9-24 unit outage to take place during lower flow. Ann Setter and Steve Hall, Corps, noted that the outages were scheduled a year out to occur in May when there are not adult salmon in the tailrace, as defined in the Fish Passage Plan criteria.

Jay Hesse, Nez Perce Tribe, reported that due to flooding, rock slides and road closures in the area, some of the hatchery releases from the Clearwater hatchery are going to be released on station, with plans to pump fish directly into the mainstem Clearwater instead of the North Fork. Idaho will also be releasing from Dworshak. The releases will likely happen within the next few days.

TMT members agreed to an increase in flows from Dworshak if needed in order to assist the fish downstream. Although it was thought to be unlikely, it was pre-coordinated that up to 10 kcfs could be released from Dworshak for up to 2 days if needed. Logistics for the potential water release will be coordinated offline, and will be reported to TMT if implemented.

**The next scheduled TMT meeting is a face-to-face meeting on April 17, 2019, at 9:00 AM.  
A process meeting will follow for TMT Members.**

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

**Columbia River Regional Forum**

**Technical Management Team OFFICIAL MINUTES**

**April 10, 2019**

**Minutes: Melissa Haskin, FLUX Resources LLC**

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 attendees.

**1. Water Supply Forecasts - Joel Fenolio, Reclamation, and Doug Baus, Corps**

***1a. Official Water Supply Forecasts - April***

Doug Baus, Corps, and Joel Fenolio, Reclamation, took TMT through the official April water supply forecasts issued on April 3 and available on the TMT website.

**Hungry Horse** – Reclamation's forecast for May-Sep runoff is 1,400 kaf (83% of average). Fenolio commented that Hungry Horse did not get much snow in March. Hungry Horse is operating to Columbia Falls minimums at the moment.

**The Dalles** – The NWRFC forecast for April-August runoff with 5-day QPF is 76 maf (86% of average). This is 2% lower than the March forecast.

**Lower Granite** – The NWRFC forecast for April-July runoff with 5-day QPF is 18 maf (95% of average). This is 4% lower than the March forecast.

**Libby** – The Corps NWS forecast for April-August runoff is 4,752 kaf (81%).

**Dworshak Dam** – The Corps NWS forecast for April-July runoff is 1,964 kaf (81%).

**Grand Coulee** – The NWRFC forecast for April-August runoff is 48 maf (84%).

**Albeni Falls** – The NWRFC forecast for April-August runoff is 10 maf (83%).

Based on current conditions, there have been some gains since the official forecast was released last week. The Dalles forecast of April-August runoff is up to 81 maf (92%) and the Lower Granite forecast of April-July runoff is 22 maf (112%). This is due to recent weather systems that dropped significant precipitation throughout the basin.

***1b. NWRFC Monthly Precipitation Table***

Precipitation in April so far has been significantly above average in most of the basin except in the Canadian portion of the upper Columbia. In the **Snake River Basin above Ice Harbor Dam**, the current month precipitation is 240% of normal (1.53 inches). The **Columbia**

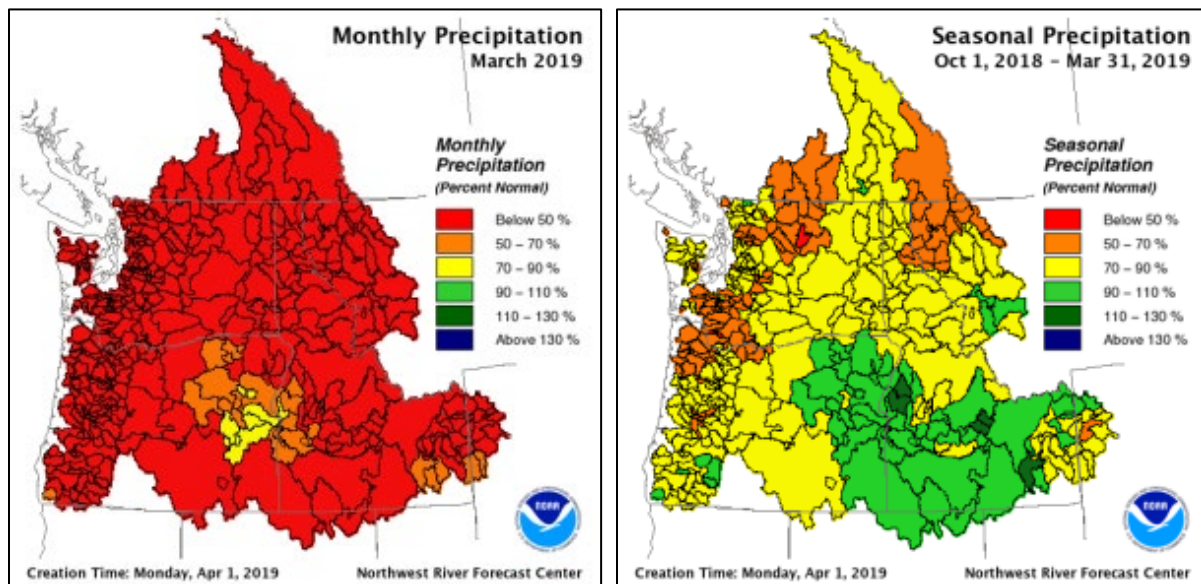
**River above The Dalles** has received 219% of normal (1.48 inches). In the **Upper Columbia River above Arrow Dam**, precipitation is still below normal at 56% (0.54 inches). Of note is the extreme rain event in the Willamette River basin that produced more than 400% of normal precipitation for the month.

*1c. NWRFC Monthly Temperature Table*

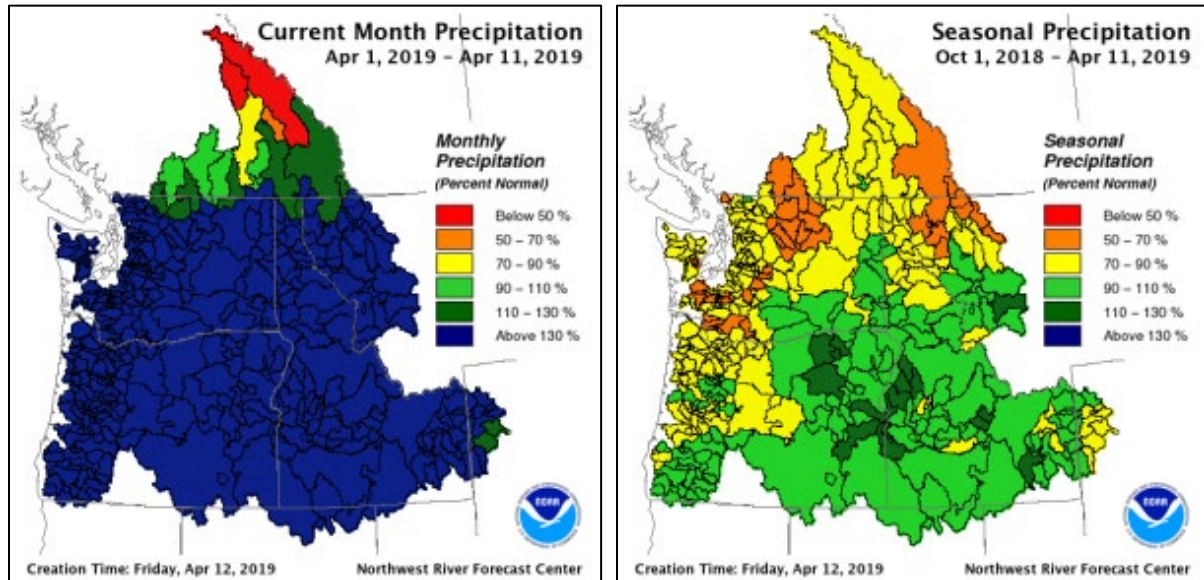
Temperatures have been near to slightly below average in April so far. In the **Snake River Basin above Ice Harbor Dam**, the current month temperatures are 0.6°F above normal. In March, it was 3.3°F below normal. In the **Columbia River above Arrow Dam**, temperatures are 2.5°F below normal. The **Columbia River Basin above The Dalles** is 0.3°F degrees below normal. Overall these temperatures have been good for snowpack accumulation, reported Doug.

*1e. Water Year Summary Graphics*

Precipitation in March was well below normal throughout the region, putting the seasonal total for the water year through March mostly below normal except in parts of the Snake River basin that were near normal:



However, the significant precipitation so far in April has things looking more positive (NOTE: *images below are newer than what was shown at TMT on April 10, but illustrate the same trend*):



### ***1f. NWRFC Forecast Precipitation Summary***

Doug pointed out there is a lot of variability in the precipitation forecast throughout the basin. The 10-day forecast shows a lot of precipitation in the Cascades with snow accumulation. The next system coming through will hit the Rockies and provide some minor precipitation. Both the 5 and 10-day forecasts have variability in where the precipitation may fall.

### ***1g. Climate Forecast***

Both the 6-10 and 8-14 day forecasts show a probability of at or below average temperatures and above average precipitation. Both the 3-4 week and 30-day forecasts call for above average temperatures and above average precipitation.

## **2. FOP Spring Spill - Dan Turner, Corps, and Tony Norris, BPA**

### ***2a. Links to Spill & TDG Data – Dan Turner, Corps***

Dan Turner reported on spring spill. Communication and data transfer between the Corps and BPA is going well. It seems like everything is going well.

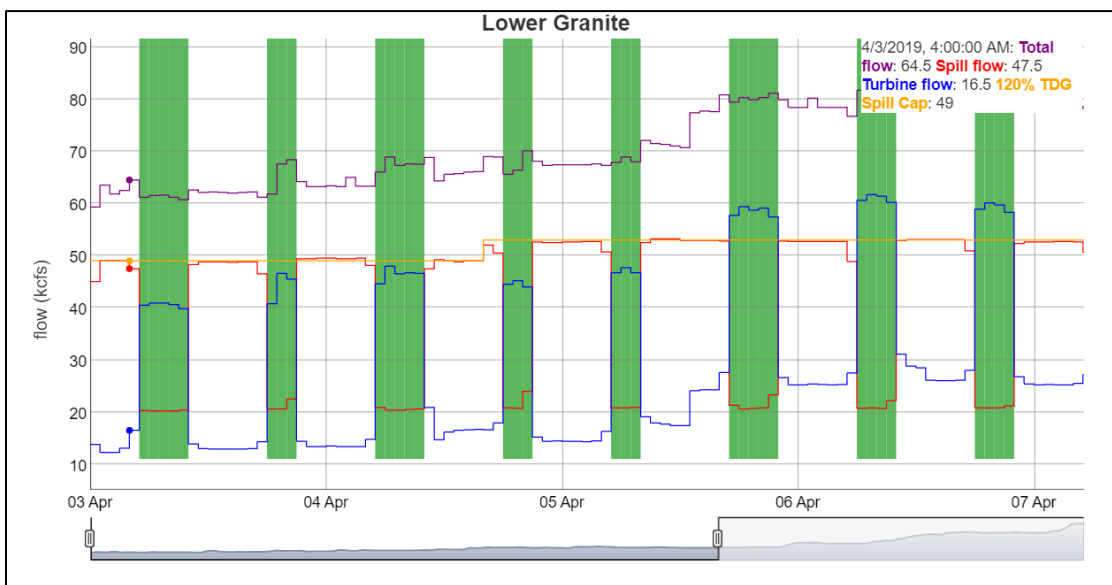
Spill began on the lower Columbia River at midnight last night so there's not much to show yet for those projects. At the Snake projects, the Lower Granite spill cap was raised from 49 kcfs to 53 kcfs because TDG was lower than 120%. Yesterday was involuntary spill on the Snake due to high flows.

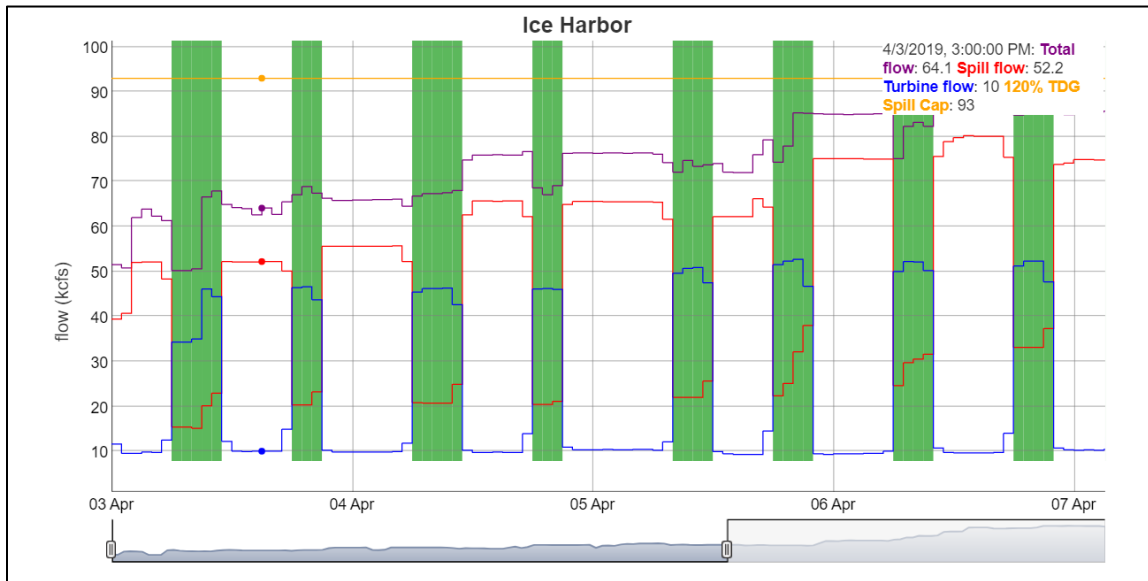
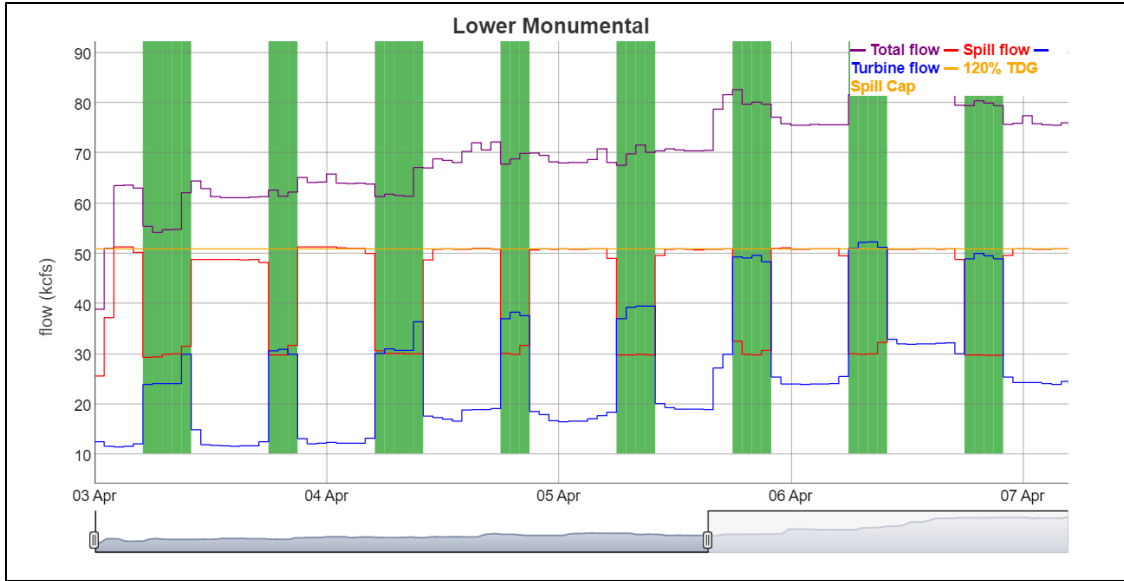
Dan reported that Lower Monumental Dam TDG was around 120% on April 4 and 5. On April 6, the 12-hour TDG increased to 121% (up to 124% hourly) because of the performance standard spill of 30 kcfs in the bulk pattern. At that point, the Corps switched from a bulk to a uniform pattern to stop exceeding state standards. The next day, the 12-hour TDG dropped back down to 120%, then came back up due to gas cap spill and involuntary spill. Looking forward, it looks like flows on the Snake River will peak today at 210 kcfs and drop to 100 kcfs next week.

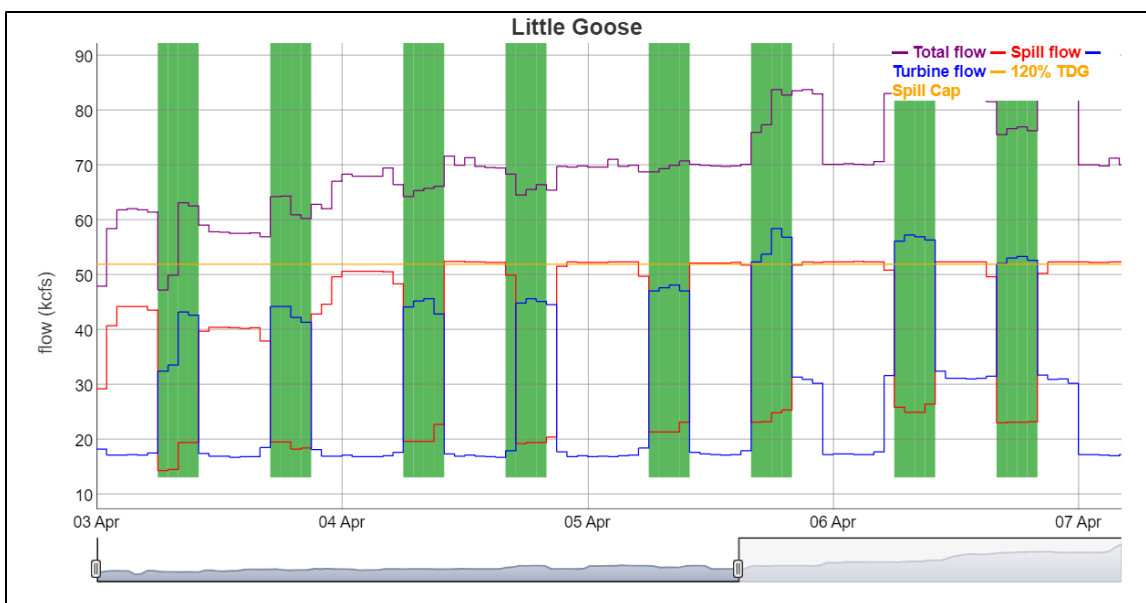
On the Columbia River, The Dalles is at 355 kcfs with a declining hydrograph, forecasted to drop to 200 kcfs over the next week.

**2b. Flexible Spill Implementation – Tony Norris, BPA**

BPA has created a tool available on the TMT website that shows flex spill hours. The data are lagged by 3 days. The green bars show when flex spill was implemented. Currently, high flows mean there is no flexible spill capability since most projects are operating at full powerhouse.







In response to a question, Turner noted that spill cap adjustments go into effect daily at 4pm (1600 hours).

Tom Lorz, Umatilla/CRITFC, noted that The Dalles tailrace TDG looks low and wondered if the Corps was considering increasing the spill cap. Turner replied that The Dalles tailrace gauge is heavily influenced by the upstream forebay. The Corps will likely wait 24 hours for TDG from John Day to pass through The Dalles before making a decision as opposed to making an adjustment today and “chasing our tail later this week.”

Russ Kiefer, ID, asked about project operations at Little Goose on Sunday, April 7. Norris commented that it was an implementation error. Scott Bettin, BPA, explained that BPA spilled 30% for 3 hours in the morning and 5 hours in the afternoon. The Spill Agreement calls for 4-5 hours in the morning and 3-4 hours in the afternoon to help with adult passage. BPA acknowledged the error and has communicated with schedulers to make sure it doesn't happen again. Russ commented it likely didn't have much of an impact since adult fish are not really moving yet in the Snake River.

Erick Van Dyke, OR, noted that flex spill at Lower Granite on April 9 was implemented earlier than other days (1am to 5am) and wondered if it was due to a demand for power. Norris replied that the Snake River was coming up so it is possible those were the only hours BPA was able to implement flex, but he could not answer the question directly because he wasn't in the room when the decision was made. The hours are within the agreement criteria. During those hours, the spill cap was 53 kcs and actual spill was 34 kcs, which was above the performance standard level of 20 kcs.

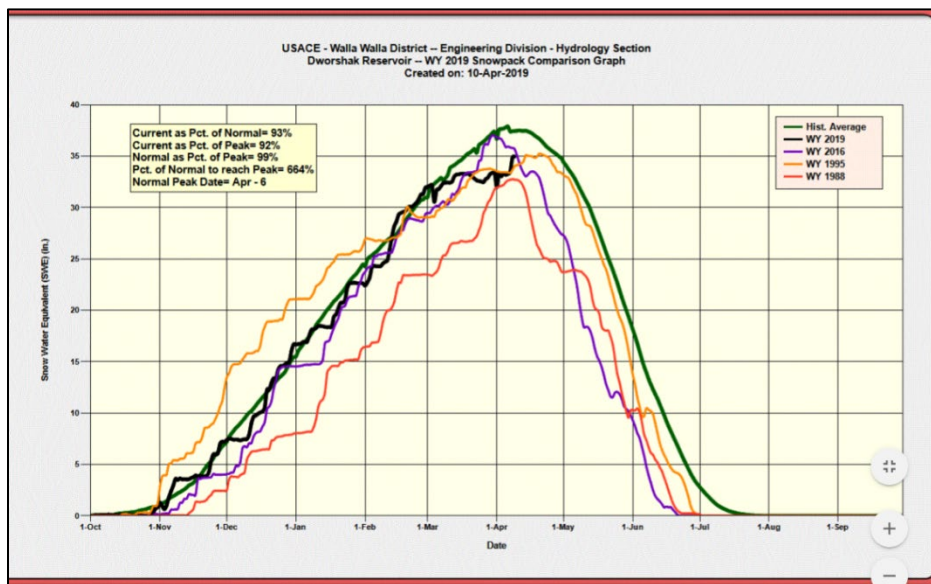
### 3. Chief Joseph Hatchery Releases - Sheri Sears, Colville Confederated Tribes

Sheri Sears, Colville Tribe, reported they are planning to release smolts from the hatchery below Chief Joseph Dam starting early on April 16. There are two releases planned. To help facilitate the downstream migration of the smolts, the Tribe is requesting increased flows of 85-90 kcfs from April 15 through April 18. The STP shows inflows to Lake Roosevelt at 91.2 kcfs on April 15, increasing to 92.6 kcfs on April 18. Passing inflow would create the necessary flows for the smolt release.

TMT was in support of the request. Scott Bettin, BPA, will work with Sears offline to work out the exact details of the operation.

### 4. Dworshak Operations – Jon Roberts, Corps NWW

Jon Roberts, Corps, reported on operations at Dworshak Dam. Currently, inflows are about 28 kcfs and the project is maintaining minimum outflows of 1.7-1.8 kcfs per coordination with TMT. Recently accumulated snowpack will provide additional runoff later in the year (see figure below).



Jon showed operations graphs comparing runoff scenarios for similar years 1988, 1995, and 2016. All the volumes runoff differently. Based on model results, the plan is to ramp up to 10 kcfs on April 15 and then provide updated graphs based on the latest conditions and forecasts so that future operations could be discussed at FPAC.

A 2-unit outage is planned for May 9-24. Tom Lorz, noted that May 9-24 is an odd time for outages given high flows. He asked if there was a way to push it back to add more flexibility, especially if there is more snow or rain. Roberts replied the Corps doesn't have the flexibility to move the outage. Ann Setter, Corps, added that the work was scheduled to occur in May to

coincide with the time of the year when adults are not in the tailrace, in compliance with criteria defined in the Fish Passage Plan. The outage is for testing of Unit 3 that has been scheduled for almost a year. The contractor is mobilizing to do the work. Unit 2 will also be out during that same time period. The work was scheduled for mid-May because normally Dworshak Dam is on a refill trajectory at that time.

On a related topic, Jay Hesse, Nez Perce Tribe, reported there have been some rock slides and road closures in the area due to heavy rains and flooding. In response, the Clearwater Hatchery is considering early releases this week. The plan will be to release them into the mainstem, not the North Fork. They are not requesting an increase in flows right now. This should happen today or tomorrow.

Russ Kiefer, ID, added that with these conditions, there could be changes to the plan for Idaho hatchery releases.

TMT members supported increasing Dworshak flows up to 10 kcfs for up to 2 days if requested by the hatcheries for early releases.

**5. Next TMT.** The next TMT meeting is in-person on Wednesday, April 17, at the Corps NWD office in Portland, OR.

**Today’s Attendees:**

Agency	TMT Representative
Army Corps of Engineers	Doug Baus (Chair), Lisa Wright
Bonneville Power Administration	Tony Norris, Scott Bettin
Bureau of Reclamation	Joel Fenolio
NOAA Fisheries	Claire McGrath, Trevor Conder
US Fish & Wildlife Service	Dave Swank
Washington	Charles Morrill
Oregon	Erick Van Dyke
Idaho	Russ Kiefer
Montana	Jim Litchfield
Nez Perce Tribe	Jay Hesse
Umatilla Tribe	Tom Lorz
Colville Tribe	Sheri Sears
Warm Springs Tribe	N/A
Kootenai Tribe	N/A
Spokane Tribe	N/A

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

Corps – Dan Turner, Steve Hall, Alexis Mills, Alfredo Rodriguez, Jon Roberts, Ann Setter  
 DS Consulting – Emily Stranz (Facilitator), Colby Mills  
 FLUX Resources – Melissa Haskin (Note taker)  
 Oregon DEQ – Paula Calvert