

COLUMBIA RIVER TECHNICAL MANAGEMENT TEAM

March 1, 2023

Facilitator's Summary

Facilitation Team: Emily Stranz & Colby Mills, DS Consulting

The following Facilitator's Summary is intended to capture basic discussion, decisions, and actions, as well as point out future actions or issues that may need further discussion at upcoming meetings; it is not intended to be the "record" of the meeting. Official minutes can be found on the TMT website: <http://pweb.crohms.org/tmt/agendas/2023/>. Suggested edits for the summary are welcome and can be sent to Colby at colby@dsconsult.co.

Chum Operation – Doug Baus, Corps, reported that Bonneville Dam today at 0600 hours had a total outflow of 136.6 kcfs, with a project tailwater elevation of 11.9 feet. The current Bonneville tailwater minimum for chum protection is 11.8 feet.

The NWRFC inflow forecast for Bonneville Dam shows continued low inflows into the project, in the 125 kcfs range over the next 10-days. Doug noted that current water supply volumes forecasts show below average volumes:

- **The Dalles:** NWRFC April to August volume forecast is 73 maf, or 83% of average, and
- **Lower Granite:** NWRFC April to July volume forecast is 16 maf, or 81% of average.

Looking at observed precipitation so far this Water Year (October 1, 2022 – February 28, 2023); the Snake River above Ice Harbor Dam is 81% of normal, the upper Columbia River above Arrow Dam is 75% of normal, the middle Columbia River is below normal, and the Columbia River mainstem above The Dalles Dam is 73% of normal. Doug noted that the Willamette River above Portland shows similar trends, at 64% of normal observed precipitation; this affects the chum operation by requiring more outflow from Bonneville to meet tailwater elevations.

The NWRFC extended forecast for Bonneville Dam at 50% climatology in April at the start of spring spill shows average conditions starting at 210-220 kcfs, while the current forecast is very low, in the 120 kcfs range. On the Snake River, Lower Granite at 50% climatology would put Lower Granite inflows around high 35-40 kcfs, while current forecasts are about 20 kcfs.

Jonathan Ebel, IDFG, noted that the NWRFC 30-year period of record for the percent normal values on the precipitation table is 1981-2010, and wondered if that is accurate or needs to be updated. Eric Chow, Corps, noted that the NWRFC is working on updating their datasets to the most recent 30-year period. In response to a query, Aaron Marshall, Corps, noted that the NWRFC inflow forecasts are updated daily, typically twice a day. The Corps provides reservoir regulation updates Mondays and Thursdays generally, unless there is an unusual situation that would require more frequent updates. Also, current snow pack is taken into consideration for short term and seasonal runoff forecasts in the basin, and is updated twice daily.

Doug reported that from a water management standpoint, current low water supply conditions don't allow for meeting both objectives of an 11.8 ft minimum tailwater elevation for chum protection and ensuring adequate flows for spring migration, leading to tough conversations on competing priorities (see Water Management Plan for description of priorities; posted to the TMT website). Per the 2020 BiOp and associated documentation, Grand Coulee refill for spring flows takes priority over the chum protection level. Outflows from Bonneville Dam will need to be reduced to support Grand Coulee refill, which supports spring flows for a wider range of ESUs.

Moving forward, the AAs will reduce outflows and lower the Bonneville tailwater elevation. Tony Norris, BPA, added that conditions (below average streamflow, precipitation, air temperatures) have reached the point where the availability of water remains insufficient to support the minimum tailwater elevation below Bonneville.

In addition, due to low inflow into Grand Coulee Dam this month, the project is unable to release enough water daily within the draft rate limits for dam safety to augment the flow rate at Bonneville to meet the minimum tailwater elevation, and forecasted flows in the Snake River remain low. While still balancing for spring refill, conditions are expected to persist until natural stream flows in the river increase sufficiently to alleviate the need for Grand Coulee Dam to augment flow to Bonneville. The resulting tailwater below Bonneville will vary and depend on the available water in the river, and wind and tide conditions. The AAs will attempt to maintain a stable Bonneville tailwater, likely around 10.2 feet, but if unable to given the water available, they will try to maintain as high as possible tailwater with a flat discharge across all hours.

Tony noted that maintaining the hydro connection between the Columbia mainstem and Hamilton Springs will depend on the flows in Hamilton Creek (currently 1.5 feet over the gauge). Historically, the minimum elevation of 10.5 feet has been coordinated, but site visit observations prior to the start of chum at much lower tailwater still appeared to provide an egress path (March is historically peak migration out of Hamilton Creek). WDFW and BPA will continue to monitor the situation. Tony noted a plan visit the area with surveyors to take adjacent water surface elevations for redds previously identified. He hopes to report back in a couple weeks on the impact of the lower tailwater elevation on those redds.

Chris Runyan, Reclamation, added that inflows above Grand Coulee Dam have been below average since November 2022, around 85% of average. Tributaries are even lower for base flow, and forecasted inflows remain low. The project has operational draft rate limits, which are being met, and the project is currently directed to not exceed the draft rate limits this year due to landslide concerns on the Spokane Arm. Even with current projections, if conditions continue to be cold and dry, there could be even less local inflow. Reclamation is concerned with the impact to spring flows, as every additional foot drafted out of the project would need to be filled. Chris also noted concerns for local cultural resources while balancing delivering water to Columbia River basin projects to meet base demands.

Kirk Truscott, Confederated Tribes of the Colville Reservation, noted the Tribes' disappointment in the current water situation, and concerns on the risks from low spring flows when upper Columbia River fish are moving, including ESA-listed spring Chinook.

Chris noted that drum gate maintenance will start in mid-march and typically takes 6-8 weeks. Reclamation will update the TMT as the operation progresses and noted the desire from Fish Managers to expedite the work as possible. Joel Fenolio, Reclamation offered that drum gate maintenance is only one of many impacts on the current situation, and that draft rate limits are irrespective of drum gate. Stream flows remain another significant contributor.

Action Agency Plan Moving Forward: Effective Thursday, March 2, Bonneville Dam minimum tailwater elevation will drop down to 10.2 feet. Due to physical limitations of draft rate limits, the project may not be able to sustain this elevation at all hours, while it does remain the objective. Tony reiterated that if BPA is unable to maintain a minimum of 10.2 feet at all hours, they will attempt to flatten the discharge across the remaining hours to maximize the tailwater during those hours with the available water. There could be variable outcomes downstream of Bonneville if outflows are insufficient to meet 10.2 feet.

WDFW, NOAA, and USFWS Fish Managers noted that they appreciated the discussion, efforts, and coordination to balance chum elevations and spring flows, and acknowledged that this tradeoff is difficult.

Question and Comments from members of the public – there were no questions or comments from members of the public.

The next scheduled TMT meeting is on March 8, 2023 at 9:00 AM.

**Columbia River Regional Forum
Technical Management Team
OFFICIAL MINUTES
Wednesday, March 1, 2023
Minutes: Andrea Ausmus, BPA (contractor, CorSource Technology Group)**

Today's TMT meeting was held via conference call and webinar, chaired by Doug Baus, Corps, and facilitated by Emily Stranz, DS Consulting. A list of today's attendees is available at the end of these minutes.

1. Chum Operation – Doug Baus, Corps-NWD; Tony Norris, BPA; Joel Fenolio, BOR, and; Kelsey Swieca, NOAA Fisheries

a. Bonneville Dam - Hourly Data – Doug Baus, Corps
(Hour ending 6)

- Total Project Outflow: 136.6 kcfs
- Project Tailwater Elevation: 11.9 feet
 - Close to current Bonneville chum tailwater minimum of 11.8 feet.

b. Bonneville Dam – Inflow Forecast

- Low Bonneville Inflows
- Over next ten days continued low inflows of ~125 kcfs are forecasted

Norris added that this is what NWRFC has on their website and it may not match what the Corps and BPA are forecasting.

c. Current Water Supply Forecast – The Dalles Dam

- April – August
 - 83% of average
 - 73 maf
 - Forecasts have been below average since start of the water year.

d. Current Water Supply Forecast – Lower Granite Dam

- April – July
 - 81% of average
 - 16 maf

e. NWRFC – Water Year Precipitation Table (October 1 – February 28)

- Snake River – above Ice Harbor Dam
 - Observed: 9.5 in.
 - Normal: 11.7 in.
 - 81% of Normal
 - Upper Columbia Basin – above Arrow Dam
 - Observed: 21.3 in.
 - Normal: 28.3 in.
 - 75% of Normal
 - Columbia River Main Stem – above The Dalles
 - Observed: 10.8 in.
 - Normal: 14.8 in
 - 73% of Normal
 - Western Oregon – Willamette River Basin above Portland
 - Observed: 27.9 in.
 - Normal: 43.6 in
 - 64% of Normal
 - The low water conditions require more flow to sustain a Bonneville tailwater
- f. RFC Extended Forecast
- Low water supply volumes are evident in the inflow forecast.
 - Black line represents current forecast
 - 50% Climatology
 - April: 210-220 kcfs
 - Current Forecasts
 - Very low
 - April: 120 kcfs
 - Significant forecasted inflows for Bonneville Dam at this time.
- g. Snake River – Lower Granite
- 50% Climatology
 - March: ~40 kcfs
 - Current Forecasts
 - March: 20 kcfs

Jonathan Ebel, ID, noted the NWRFC precipitation table is still comparing to 1981-2010. He wondered if it is correct or if it is a legacy. Many of the tools maybe looking at a different 30-year.

Tony Norris, BPA, said that this is interesting and he will look into it.

Baus said thank you for bringing that up and there is a need to keep to consistent data series for comparison.

Eric Chow, Corps, added through chat:

I believe that the NWRFC is working on updating the period of record for those precipitation values. Most of their other values, like runoff and water supply forecasts have been updated to the 1991-2020 period of record.

Kelsey Swieca asked if the RFC inflow forecast is updated daily

Aaron Marshall, Corps, shared that the inflow forecasts are updated daily, typically twice a day. The Corps provides reservoir regulation updates twice a week (Mondays and Thursdays) unless needing to update more frequently.

h. Action Agencies Priorities – Chum Operations and Spring Flows

- In the CRS 2020 BA and associated BiOps these scenarios were contemplated.
- There are years when low water conditions do not allow for both high Bonneville Dam tailwater for chum as well as sufficient storage in Grand Coulee for the assurance of adequate flows in the spring.
- Priorities are in the BA and Water Management Plan (section 4.1 Columbia River System Operation –Priorities, page 9)
- Due to ongoing extreme low inflows and below average water supply forecast, the situation now requires lowering the Bonneville Dam tailwater to prioritize Grand Coulee refill.
 - Higher flows in spring for juvenile migration for a wider range of ESUs
- Moving forward the Corps will be lowering the Bonneville Dam tailwater elevation to achieve the objectives for the spring.

Norris also added the following:

- Unfortunately, we have reached a condition where the availability of water in the river due to below average streamflow, precipitation and air temperature in the basin is insufficient to provide enough water to support the minimum chum tailwater elevation below Bonneville Dam.
- Due to low inflow into Grand Coulee this month, we are unable to release enough water each day from Grand Coulee within the draft rate limitations for dam safety to augment the flow rate at Bonneville Dam to meet the minimum tailwater.

- With the flow in the Snake River forecasted to remain very low, we forecast that while continuing to draft Grand Coulee next week close to the draft rate limitation, the flow at Bonneville Dam will be approximately 100-110 kcfs. The resultant tailwater below Bonneville Dam will be dependent on the available water in the river and the wind and tide. We will attempt to maintain a minimum tailwater of 10.2 feet below Bonneville Dam. If the available water on any given day is insufficient to maintain a tailwater of 10.2 feet then we will operate Bonneville Dam to provide the highest possible flat discharge.
- We expect this condition to persist until streamflows in the river increase sufficiently to alleviate the need for the continued significant draft at Grand Coulee.
- Still expect to be drafting Grand Coulee to support the reduced tailwater as it has more to do with the water that comes into Grand Coulee and the flow rate in the Snake River and what that combination produces at Bonneville dam.

Dave Swank, USFWS, said that while understanding about low water supply forecast, he had a question about the 10.2-foot elevation. At FPAC, yesterday (02/28/2023), they talked about a 10.5 elevation. Swank was interested in what changed and whether that was based on real-time conditions and it was a new estimate of what it could support.

Norris said that he had noted at FPAC that they were forecasting 100-110 kcfs. He estimated from that it would result in a tailwater of 10.5. After talking to the real-time staff and using some other tools it looks closer to a 10.2. It is dependent on real-time conditions (wind, tide) on the river. There will be some times that they will not be able to maintain the 10.2 when that occurs we will maintain as high as possible flat discharge across the day.

Trevor Conder, NOAA, asked if the term “across the day” meant 24-hours or daylight hours.

Norris said that it will be on all hours where possible, depending on what comes into Bonneville. They will try to keep the best possible stable across all hours. Could vary depending on the water available at Bonneville dam.

Charles Morrill, WA, said that he was under the understanding that they were going to maintain a stable 10.2 across the 24-hour day period. Now it sounds like the situation is dire enough to try but it will depend on the flow coming in.

Norris responded that wind and tide might also change the water needed to produce a specific tailwater. Robust east wind can dramatically increase the amount of water needed to achieve any specific tailwater. When there is enough water, they can release enough water to maintain a specific tailwater beyond Bonneville. Because there is a finite amount of water, there is a challenge to provide an exact tailwater based we now have limited amount of water at Bonneville. What we get will be at the whim of wind and tide because they are not getting help from the Snake River, incremental inflow into Bonneville, or a high flow from the Willamette.

Morrill said that his understanding is that the discharge at Bonneville will stay consistent throughout the day depending on supply but the tailwater may change depending on conditions below Bonneville.

Kelsey Swieca, NOAA, asked, based on Norris' historical experience, what tailwater elevation will be maintain the hydraulic connection between the mainstem and the artificial side channel.

Norris said it would depend on the amount of water in Hamilton Creek. Currently there is a 1-1.5 feet over the gauge at Hamilton Creek. He has been there with an 8.5 tailwater and Hamilton Creek flowing and there is water flowing over the breaks in the slope and a defined channel leading to the remainder of the river. It possible that down to an 8.5 tailwater and Hamilton Creek flowing that fish migrating out of the tributary would be able to get downstream though this is less than ideal. It is unfortunate because historically March is the peak of their migration out of Hamilton Springs and Hamilton Creek.

Morrill added that there would be a collaborative effort between BPA and Washington Fish and Wildlife. There will be focus and care taken for the fish.

Norris is also arranging a trip out there to measure the water surface adjacent to the redds previously. If they do not have a boat available they will not be able reach McCord Creek. The rest of the locations Norris hopes to be able to report the impacts that the lower elevation has on the redds.

Chris Runyan, Reclamation, added additional details.

- Above Grand Coulee, inflows have averaged mid-80 percent of average.
- Hungry Horse inflows are 62% of average
- It is March 1 and forecasted inflows are still low.
- Grand Coulee draft rate limits in operating will push them to the limit.
- As of now, they have been directed not to go above the draft rate limits this year due to the risk of landslides in the area.
 - On the Spokane arm, there is a Two Rivers gas station and resort. The roadway entering in to the gas station is at risk and is a big concern.
 - Even with the projections, things can get drier. If things continue to be cold and dry it could lead to lower local inflows.
- Concerned with impacts of spring flows. Every additional foot drafted out of Coulee would need to be refilled.
- Projections are not looking good,
 - Apr 10: 1225' range to operate 11.8 foot.
 - Difference in volume between 1225' and 1255' at the drum gate it is 1.9 maf would need to be refilled.

- Inchelau Ferry is at 1229' and it may also be a cut off.
- Some conversations of delivering water to Columbia basin project. Just meeting base demand and they are just priming up their system
- When Banks Lake is drafted, they are sensitive to the cultural resources around the lake. If it is drafted below a certain amount then there is risk to the resources.

Kirk Truscott, Colville, shared that the Colville's are disappointed about the water situation. Even with reduced tailwater elevations for chum at Bonneville there appears to still be a substantial draft below the drum maintenance elevation and is concerning given the water forecast. Of particular concern would be the early spring flows (last half of April and first half of May) when upper Columbia fish are moving, including ESA-listed Chinook. If Grand Coulee is drafted deep and a refill is required then there is a chance that the April and May outflows could be very low. This is a big concern for the Colville.

Chris Magel, NOAA, posted to chat:

Is the current snowpack taken into consideration with the flow condition forecasts?

Aaron Marshall responded in chat:

Yes, the current snowpack conditions are incorporated into short term and seasonal runoff forecasts. Updated 2x daily

Tom Lorz, Umatilla/CRITFC, asked for a schedule of drum gate maintenance and he would also like more information about the refill specifics.

Runyan said that it will start mid-March, and it typically 6 weeks. This year was required because leaking seals occurred in the in the summer.

Joel Fenolio, Reclamation, said that the drum gate maintenance is 6-8 weeks. They do not know the duration based on the seals. He also made a point that the chum operation started early (October/November). Fenolio also shared his opinion that it is not known that drum gate maintenance may or may not have had the biggest impact on where we are. They are bumping up against the draft rate limits and due to low stream flows. This year they drafted down to 3520' for the Knieff Creek culver repairs at Hungry Horse; if they had only been drafting due to the Columbia Falls minimum they would only be 3-feet higher they are now. This demonstrates how low streamflows have been.

Lorz responded to Fenolio's comment about the cause of the concerns. He said yes the chum were a factor but he would also say that it was also because they were drafting above what was needed for chum to get to 1255'. If the FRM was higher given the forecast we would not have been put in as deep a hole. The discussions then could have been held sooner.

Stranz reminded the group that the reason for the meeting is to take a critical look at all the different conditions to learn from. It is to contribute to education and to add to the understanding for operations.

Fenolio wanted to say that there is more than just one thing that has led to this situation.

Baus said that moving forward, effective Thursday, March 2, 2023, they would drop the Bonneville Dam tailwater to 10.2' ft. Due to the physical limitation associated with Grand Coulee draft rate limits that they may not be able to sustain 10.2 ft on all hours.

Norris added that if it drops below 10.2', the project would attempt flattening the discharge to maximize the tailwater elevation and minimize the impact. He also noted that it is possible that we will drop below 10.2' if 100 - 110 kcfs is insufficient to achieve 10.2'.

Norris also added that they are forecasting they will be able to provide 100-110 kcfs at Bonneville dam next week and they are going try to implement the change as quickly as they can. Inflows are ramping down through this week to where they are expected to be by Sunday, they will try to respond quickly to save water in Grand Coulee. It is interesting to note that that the gap between the water we have and what would be needed to produce an 11.8 tailwater is on the order of 20 kcfs/day. This would require an additional 2/3 ft up daily draft on top of current 1 ft daily draft out of Grand Coulee.

Morrill appreciates the willingness for discussion and actions to improve the situation.

Hesse asked if they were going to poll on this action.

Stranz said that because it is not an SOR, typical for polling, that she was going to allow TMT to share and input as they wanted

Swieca wants to show her appreciation for the coordination, she understands that it is difficult to juggle flows and chum. As outlined in the BiOp, spring flows have a benefit for multiple ESUs and have a priority over maintaining the Bonneville tailwater for the sub population of chum. This is a difficult decision and they want to acknowledge all the effort to make the best of a bad situation for fish.

Swank said that he concurs. There are difficult tradeoffs that were outlined in the BiOp. It will be important to reexamine the whole chum operation for next year because it is likely that we will run into a similar situation in the future. He added a question for Norris about surveys. He asked if the goal is to see the water elevation ends up relative to where the chum redds mapped by WDFW.

Norris said that the surveyors will have the redd locations that were collected during the spawning period. They will collect adjacent water surface elevations to the redds and verify where they are in respect to the water surface. Norris would then come back with data and graphics for TMT of the elevations of redds collected in December and current water surface elevations. He also hopes to take photos and get video to show the water flowing out of the gravel. Depending on boat availability, they may not be able to make it to McCord Creek. Some communication with Rick Heitz, he notes that it will probably affect most redds from the lower gorge area. They may go out to inspect visually.

Morrill reiterated appreciation for the discussion and looks forward to the data to see the impact.

2. Public Comments:

None

3. Set agenda for next meeting – March 8, 2023

- a. Chum Operations
- b. Official March Water Supply Forecasts
- c. Operations Review

Today’s Attendees:

Agency	TMT Representative(s)
Army Corps of Engineers	Doug Baus (chair), Julie Ammann, Lisa Wright
Bonneville Power Administration	Tony Norris, Scott Bettin, Ben Hausmann
Bureau of Reclamation	Joel Fenolio, Chris Runyan
NOAA Fisheries	Trevor Conder, Kelsey Swieca
US Fish & Wildlife Service	Dave Swank
Washington	Charles Morrill
Oregon	Erick Van Dyke
Idaho	Jonathan Ebel
Montana	
Nez Perce Tribe	Jay Hesse
Umatilla Tribe/CRITFC	Tom Lorz
Colville Tribe	Kirk Truscott
Warm Springs Tribe	
Kootenai Tribe	
Spokane Tribe	

Other Attendees (non-TMT members):

Corps –Aaron Marshall, Scott St. John, Dan Turner, Elizabeth Holdren, Kasi Whorley, Eric Chow

NOAA – Chris Magel

DS Consulting – Emily Stranz (Facilitator), Colby Mills

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

Oregon DEQ – David Gruen, Marilyn Fonseca

Clearing Up – K. C. Mehaffey

PGE – Ruth Burris

Energy Keeper – Eve James

Chelan PUD – Jay Fintz, Kate von Reis Baron

Snohomish PUD – Mike Shapley