

OCOLUMBIA RIVER TECHNICAL MANAGEMENT TEAM

April 10, 2024

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://pweb.crohms.org/tmt/agendas/2024/> 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 from the March 20, 27 and April 3 meetings.

Water Supply forecast – Chris Runyan, Reclamation, reported the official April water supply forecast for Hungry Horse Dam, where conditions remain dry. April through July was 1,450 kaf, or 73% of average (3% down from last month); April through August was 1,504 kaf, or 74% of average; May through July was 1,184 kaf, or 71% of average; and May through September was 1,279 kaf, or 72% of average. Minimum flows downstream of the project have not changed (set from March final forecast), 3,390 cfs at Columbia Falls and 710 cfs below the dam on the south fork gauge.

Doug Baus, Corps, reported April water supply forecasts for Corps of Engineers projects:

- **The Dalles:** NWRFC April to August volume forecast is 72 maf, or 80% of average;
- **Lower Granite:** NWRFC April to July volume forecast is 18 maf, or 88% of average;
- **Libby:** Corps April to August runoff forecast is 5,036 kaf 83% of average; and
- **Dworshak:** NWRFC April to July forecast is 1,860 kaf, or 75% of average.

Dworshak Update – Jon Roberts, Corps, provided an update on operations at Dworshak Dam, posted to the TMT website. The water supply forecast for the project is 75% as Doug noted, and snowpack also remains about 75% of average for this time of year. Snow water equivalent (SWE) is about 24.6 inches in the lower basin, well below average. The upper portion of the basin is slightly better comparably, with about 29.1 inches.

Long term projections have not changed. Short term projections don't show much precipitation, although some precipitation last week helped mobilize low and mid-level elevation snowpack to runoff directly to the river and therefore reservoir, rather into the ground. Snowpack has been fairly efficient with runoff, and even with less-than-ideal conditions, the project will continue to ensure the reservoir is filling and conserving water as much as possible. Today the reservoir is 46 feet from full.

Ideally, 1.0-1.5 inches of water would be needed every 10 days (4.5 inches over the next 30) to reach the desired mid-June refill. Current conditions still put refill by June 27, and any rain will help drive remaining snowpack down to the reservoir to capture as much water as possible. The reservoir is currently about 3 feet ahead of the typical elevation with this kind of snowpack, this puts the project in a good position to guard against a potential lack of precipitation in May. Jon noted that the snow flight was in progress, which will help to better analyze and understand the existing snowpack based on temperatures, snow layers, and moisture content.

Jay Hesse, Nez Perce Tribe, questioned the difference between this forecast and the STP forecast. Jon noted that for the STP to be true, it would need 100% accuracy in the forecast (STP will update moving forward and begin to reflect closer to actual operations). Jay also asked if base flows would also be

impacted and have a negative impact on overall volume for flow augmentation this summer. Better information will be available on this after the snow flight, to verify ground conditions and gain a better understanding of what type of impact rain will have on the basin. This will be looked at closely during the end of May snow flight. Finally, Jon noted that prior to freezing, soil moisture was high, relative to average.

Flow Augmentation – Kelsey Swieca, NOAA, emphasized that the STP and NWRFC forecasts are well below average throughout the basin for the remainder of April through mid-May, with most of the region at about 80% of average. Fish Managers have been considering how to best manage available volumes of water for fish during these low flow conditions. Given the water saved at Grand Coulee from the chum operation, system operations, and environmental conditions, Fish Managers are interested in exploring opportunities to potentially use some volume out of the project to augment flows in the mid and lower Columbia in the early migration season. She noted that more information was needed on how much water may be available and what a request for flow augmentation would need to look like. Discussions yesterday with Action Agencies confirmed this request would likely need to come in as a weekly flow request at Chief Joseph Dam.

Tony Norris, BPA, confirmed that traditionally flow requests in low flow years have been received on a weekly basis to target something above the otherwise planned flow. The amount requested would depend on what Fish Managers think would be most beneficial for fish in the mid-Columbia, and the continued benefit downstream in the lower Columbia. Tony highlighted an example flow request arithmetic posted to the TMT website to assist Fish Managers in determining a request. Additionally, Tony noted that this type of operation was included in the assumptions in the recent BiOp and has been coordinated in the past.

Questions and concerns that arose in the discussion among TMT Members included:

- The region wants to balance augmentation flows in April with refill needs and also not pull too much water from the May-June period.
- Wild fish stocks are moving downstream and a boost in flows soon would be beneficial. Additionally, there will be releases of hatchery fish in the mid-Columbia on April 15th.
- Grand Coulee is in a unique position for this time of year and there is relatively little space left to fill; the AAs do not see flood risk concerns, or threats to refilling. Further, creating more space in Grand Coulee reservoir could be helpful as it would allow for more flexibility in managing flows in the lower Columbia.

Kelsey noted that Fish Managers needed more time to discuss in depth following the information provided today, with the understanding that Action Agencies need 3 days of advance notice to implement any request. Doug confirmed that an email to Action Agencies from Fish Managers with specifics would suffice as an official request, as the Corps heard general regional support today.

- **ACTION:** Fish Managers will discuss a potential request for flow augmentation (after TMT today or on Thursday); if made, the request will include an acceptable lower limit elevation for Grand Coulee and a weekly flow average target.
- **ACTION:** Kelsey will provide any request for flow augmentation to Action Agencies via email as soon as possible and at least 3 days prior to expected implementation.

Kelsey also noted that FPAC has been notified that any request from Fish Managers for the 1/2 maf dry year flow augmentation would need to be submitted by early May.

Operations Review – Reservoirs: Chris reported on Bureau of Reclamation projects:

- **Hungry Horse:** inflows have increased due to warmer weather last week; inflows yesterday were 4.5 kcfs and outflow was 0.84 kcfs, and the project is operating to the minimum flow requirement below the dam at the south fork gauge. Streamflow at Columbia Falls is above the minimum requirement, at 5.9 kcfs yesterday. Midnight elevation was 3,537.0 feet, about 23 feet from full (2+ since last week). Snowpack continues to be variable in the basin, about 90% of average near the dam, but record lows at the back of the basin. Chris noted that 2 units will be down/2 available during spring runoff due to window replacement work in the powerhouse required for staff safety; 4 units will be available for the first 2 weeks in June.
 - Chris reported that Energy Keepers, Inc., Reclamation, the Corps, and NOAA hosted a virtual public meeting in March, [Flathead Basin Public Meeting](#); presentations and links to other resources can all be found on the website. For people interested in projected levels for Flathead Lake, Energy Keepers has created a blog with up-to-date information: <https://energykeepersinc.com/>.
- **Grand Coulee:** inflows yesterday were 60.7 kcfs, with outflows of 63.1 kcfs. Midnight elevation was 1,284 feet, and the project is 6 feet from full. The April 10 target has been met, and the project is transitioning to operate to the April 30 FRM requirement (1,283.3 feet). Chris acknowledged the ongoing conversations of how best to utilize Grand Coulee to assist other operations.

Aaron Marshall, Corps, reported on Corps of Engineers projects:

- **Libby:** midnight elevation was 2,416.9 feet, average inflows of 5.5 kcfs, outflows of 4 kcfs;
- **Albani Falls:** midnight elevation was 2,052.7 feet, average inflows of 15 kcfs, outflows of 17 kcfs;
- **Dworshak:** midnight elevation was 1,553.9 feet, with average inflows of 9 kcfs, outflows of 1.6 kcfs;
- **Lower Granite:** reservoir elevation was 734.1 feet, with inflows of 64 kcfs, outflows of 66 kcfs
- **McNary:** reservoir elevation was 338.8 feet, with inflows of 132 kcfs, outflows 140 kcfs;
- **Bonneville:** reservoir elevation was 74.4 feet, with inflows of 147 kcfs, outflows of 160 kcfs;

Aaron noted that Lower Granite and all the lower Snake River projects are currently operating in the normal MOP range.

Water Quality: Dan Turner, Corps, reported that the Corps continues to coordinate internally and with external agencies on the State WQS regarding Fish Managers' recommendations to adjust the Spill Priority List (SPL), specifically the recommendation for Level 1 text. Next steps will be to discuss at a TMT Process meeting.

TDG is well below the 125% threshold in the basin, most projects are operating on minimum generation and spilling the rest. Spring spill started last week on the Snake River projects, and early this morning on the lower Columbia. The Corps is tracking TDG downstream of McNary due to unique spill patterns this year, and it remains too early to fully analyze.

Fish: Kelsey reported that juvenile index estimates from Lower Granite show substantial increasing passage of yearling Chinook starting about 5 days ago, nearly 31,000 yesterday. Sampling at Bonneville was temporarily suspended due to an emergency release from Spring Creek Hatchery, those data are expected by the end of this week. Steelhead passage has ranged from 4,000 last week to about 20,000 yesterday.

For adults, spring Chinook and steelhead, upstream migration has started slow. Passage index at Bonneville for Chinook is 301, steelhead is 1,800; 23% and 77%, respectively, of the 10-year average. Similarly, at Lower Granite, adult Chinook and steelhead passage is at 13% and 31% of the 10-year averages. NOAA will continue to track and provide updates at TMT as usual. Jay reminded the group that

the 10-year averages that are referenced, are not the management target. The 10-year returns are still significantly below the management goals and returns below the 10-year average represent stock status that is quite dire.

Winter surface spill operations saw 156 adult steelhead detected moving downstream at the Lower Granite surface passage route. Origins of these fish will be provided at the next TMT meeting.

Dave Swank, USFWS, noted that it's still too early in the season for lamprey, there are a few juveniles trickling through the system. Regarding juvenile salmon sampling at Bonneville, Dave added that the suspension last week was due to an emergency release from the Spring Creek Fish Hatchery due to gill disease infecting a large portion of the fish in the hatchery. The final fish were released at the end of last week (about 800,000). Sampling was suspended to avoid the diseased fish mixing with healthy fish in the same holding tanks at the Smolt Monitoring Program Facility. Sampling should resume tomorrow morning; most diseased fish are now passed Bonneville.

Power System: Tony reported that temperatures are climbing with the season; energy use is less, and BPA is expecting warmer temperatures in the future.

Questions 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 April 17, 2024, at 9:00 AM.

**Columbia River Regional Forum
Technical Management Team
OFFICIAL MINUTES
Wednesday, April 10, 2024**

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. Review Summaries and Minutes – March 20, March 27, April 3

- March 20 summaries and minutes approved.
- March 27 summaries and minutes approved.
- April 3 summaries and minutes approved.

2. Official April Water Supply Forecasts – Chris Runyan, BOR; Doug Baus, Corps-NWD

Reclamation

- Hungry Horse (HGH)
 - April – July
 - 1450 kaf
 - 73% of average
 - Note: 3% drop from last month
 - Apr – Aug
 - 1504 kaf
 - 74% of average
 - May – July
 - 1184 kaf
 - 71% of average
 - May – Sep
 - 1279 kaf
 - 72% of average
- Minimum flows downstream of HGH were set from March final flows forecast.
 - Columbia Falls
 - 3390 cfs
 - S. Fork below HGH
 - 710 cfs
- Projecting that HGH will be 3544.6 ft for end of April.
 - Remains dry at Hungry Horse.

Corps

- The Dalles (TDA)
 - April to August
 - 72 maf
 - 80% of average
- Lower Granite (LGR)
 - April to July
 - 18 maf
 - 88% of average
- Libby (LIB)
 - April – August Runoff Forecast
 - 5036 kaf
 - 83% average
- Dworshak (DWR)
 - April to July
 - 1865 kaf
 - 75% of average

3. Dworshak Update – Jonathan Roberts, Corps-NWW

a. Weather and Situation

- SWE: 75%
 - Distributed differently than typical for this time of year.
- Plot of SWE in Lower N. Fork Clearwater
 - Less high elevation snow available.
 - More aware of trying to trap and store the snow runoff and not overestimate the snow available.
 - Current SWE: 24.6 inches
 - Average SWE: 35.5 inches
- Plot of SWE in Upper N. Fork Clearwater
 - Looks better but it is relative.
 - Current SWE: 29.1 inches
 - Average SWE: 39.1 inches
- April Official Water Supply Forecast
 - April – July : 75% of average
 - Has not changed in the last week in terms of the longer-term projection for the Basin is looking like.

- NWRFC 4-10 Day Trend
 - Short term not seeing a lot of precipitation.
 - Last week there was some precipitation which is helpful to mobilize the low- and mid- level snowpack to runoff well allowing for less days for the water to infiltrate into the ground and instead flows directly to the reservoir.
 - Expect water to continue to runoff.
 - We are not seeing the precipitation in the next 10 days.
 - Most ideal: 1 – 1.5 inches of precipitation every ten days.
 - Less than ideal: They will continue to see that the reservoir continues to refill.
 - NWRFC Pool Elevation
 - Elevation crossed over 1553 yesterday.
 - 46 feet from full.
 - Current Elevation: ~1554 feet
- b. Dworshak Refill Analysis
- Need about 4.5” of precipitation over next 30 days to refill within the middle around June 10 – 15.
 - With current conditions – still looking at refill trajectory of June 27.
 - Any rain will help drive the snowpack down to the reservoir to capture as much as possible.
 - More rain would drive us closer to an earlier date of refill.
 - Currently 3 feet ahead of average of where DWR would typically be with this snowpack. This is guarding against not getting any precipitation in May.
 - Snow flight is happening today.
 - Landing in the basin to analyze the different academic parameters of the snowpack to help us understand where and how fast it will mobilize so that we can be efficient with the water.

Charles Morrill, WA, asked what the metrics are when they land at a site. He asked if they are taking a core and are they looking at water content and relative moisture.

Roberts said that when they land at a site, from their perspective of refilling the reservoir and analyzing how fast the snowpack may mobilize, they are interested in several things. There is a core and additionally there is a snow pit that they will dig that helps them understand and confirm the core. The core has the layering of the snow as the snowpack develops, some of that may be wet snow, some powdery snow. They want to understand if the moisture of the snow consistent and how deep each of the layers are. Because as water and solar radiation and/or thermal that builds up in the snowpack they want to understand whether it will be a slow burn or a quick burn and how much capacity do the levels have to take on water, or how fast will it mobilize. He said in addition to that they want to know how cold the ground is, often it is a little warmer than it is at the top of the snowpack. They want to know how the conditions are at the ground so as the snowpack

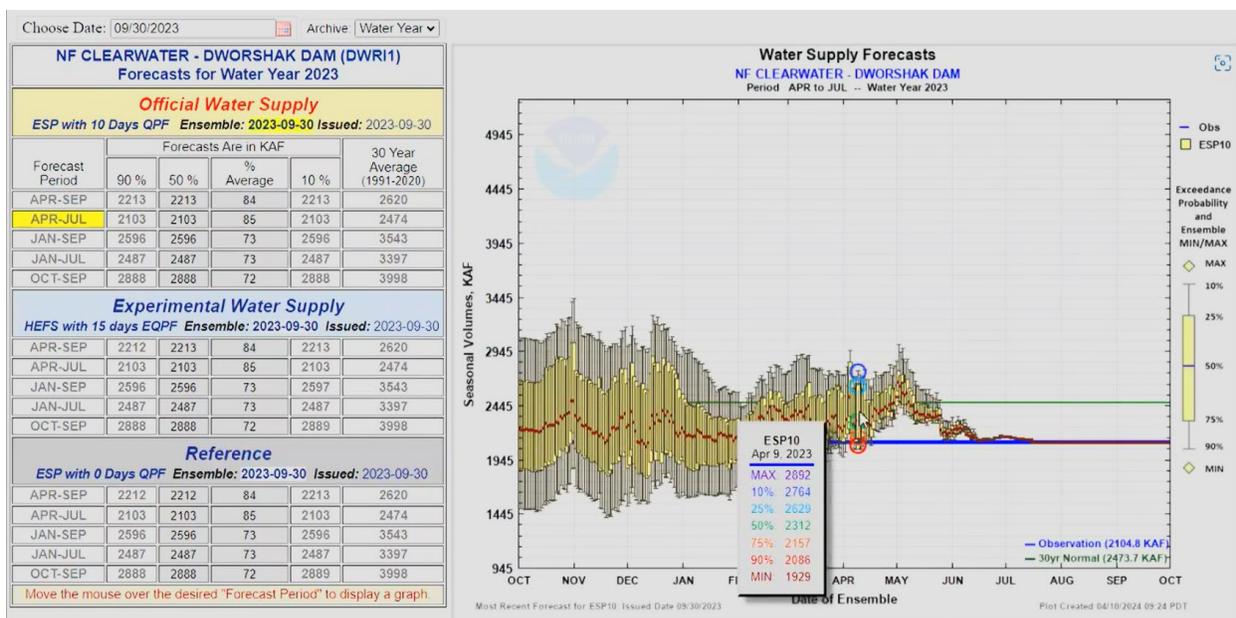
shrinks at the lower elevations (4500/5000 feet) it allows them to understand whether the water will go into the ground or if it will be a rapid runoff. The Water Supply Forecast has a lot of assumptions built into it. The snow flight allows them to analyze physical parameters in the snowpack, it allows them to understand how good those assumptions are going into the Water Supply Forecast so that we can make the little adjustments.

Morrill said thank you and added a follow up question. He said that he would not expect that there would be powder in the layers, he would expect moisture to circulate down through. He asked if they actually find dry snow in layers when they are looking at the cores.

Roberts said before the snowpack consolidates at the higher elevations, which it has not yet because it is still building, there is definitely stratification that varies. It can have some layers and not. He said that it consolidates differently if it is on the Northside of the slope versus the South-facing slope on how much thermal energy it is getting, elevation is big driver too. It is how fast it mobilizes once it starts to see more intense solar radiation or sunlight. He said that there is a bunch that can go into that and that will be what Willow Walker will be working on for the remainder of this week, getting their analysis dialed in and more focused for next week.

Jay Hesse, Nez Perce, said that the STP had DWR discharge at 10 kcfs starting in May for the majority of May. He said that Roberts' analysis differs from that, and it remains at base flows of 1.6 kcfs. He asked for a confirmation that the STP was different and to call it to TMT's attention as we have discussions later on about potential flows through the full system. Hesse said that his question was to confirm that Roberts' analysis assumes base flows through the end of June.

Roberts said that STP will show the 10 kcfs out of DWR and what will occur there we will be about 13 feet from full when May 31 comes around on that STP. That is about 225 kaf of space and the remaining runoff that we have it would be very difficult unless we that forecast holds absolutely true for us to refill the reservoir before July 1 on that case, on minimum discharge. He said if the WSF went down a little bit or if we did not get the rain to help support or mobilize the snowpack in the exact way that the STP looks at it then we would have a difficult time refilling the reservoir. Roberts said that is what happened last year, and we have very similar conditions. The reason they are hedging their bet until they get better forecasts.



Roberts brought up the same forecast for April 9 last year at DWR. He said that WSF was 2312 kaf. Regardless of what the number was the observed was ~2100 kaf, it dropped about ~200 kaf. If we operate to the STP we would have about a 225 kaf hole and we would be about 10 – 15 kaf short in the reservoir. Roberts said that until we get better information and can really move our way into that May timeframe, he said that would be operating under our perfect forecast and that currently would be what the STP is, understanding the best information that we have at a time, so it is not necessarily inaccurate but for it to be true we need to have a 100% accuracy in that forecast. Roberts said that he is not sure that in real-time we want to hedge our bets that closely. He said that is why there is that difference. He also added that the STP will update soon and start looking at and reflecting more toward the End of June targets and the actual operations.

Hesse asked given that the WSF for most the basin being focused on 75% and most of Roberts’ presentation focused on refill probabilities if Roberts had analysis now or in the near future that will look at the impacts of that reduced WSF on inflows post-July 1. He asked if the base flows will be impacted by this and have a negative impact on the overall volume that can be used for flow augmentation during the summer.

Roberts said that they will be able to have better information on that after the snow flight and they can better evaluate some of the ground conditions as well as once they reach the end of May and June snow flight. They are looking to get a preliminary analysis at today’s snow flight. Part of what drives that is the ground condition, once the ground becomes bare, what type of impact does rainfall have on the basin, will it absorb and help with baseflow later in the summer or runoff. Roberts said that they will have a better initial understanding of it next week and then they will take a close look as we head into the end of May with the verification of that snow flight.

Morrill asked what the soil moisture was like prior to the freeze up this winter.

Roberts said that soil moisture is high relative to average so that is working where our water supply is looking more efficient right now. That will be more ideal as the land is

uncovered or the snowpack is removed. He said that we are in a good position for that relative to most years.

Roberts said that Willow Walker will have something prepared for the next meeting.

4. Flow Augmentation – Kelsey Swieca, NOAA; Tony Norris, BPA; Chris Runyan, BOR; and Aaron Marshall, Corps-NWD

Swieca shared that the WSF throughout the basin is below average with most of the region sitting at below 80% of average and flows at Priest Rapids (PRD) and McNary (MCN) are predicted to remain well below other respective Spring Flow Targets throughout much of the Basin. The STP and the RFC are both predicting well below average flows for the remainder of April and through mid-May.

The Salmon Managers (SM) have been trying to manage their best to manage the available volumes of water for managing the low flow conditions this early in the season in particular given that we have been able to save a bit of water in GCL this year based on the chum operations and the way that the system has been operated and environmental conditions.

The SM are looking to potentially use some of that volume out of GCL to segment flows in the Mid- and Lower Columbia in the early season.

Swieca said that the SM need more information about how much water may be available to them and what a request of that type may look like. They had started a discussion with BPA and others yesterday and they indicated that the request would need to come in as a weekly flow request at Chief Joseph Dam (CHJ). She said that Norris had uploaded information about the specifics about what that request would need to look like.

a. Flow Request – Norris

- In the past the Action Agencies (AA) received flow requests on a weekly basis to target something above the planned flow to achieve or be as close to the April 30 FRM elevation.
 - Current April 30 FRM Elevation: 1283.3 feet
 - In 2023, TMT would have drafted as much as 10 – 15 feet out of GCL to support higher Mid-C flows.
- How much to request would come down to what would be most beneficial for the fish the Mid-Columbia and the continued benefit downstream in the Lower Columbia.
- Norris gave an overview of the numbers in how much water makes a difference in Lake Roosevelt and how much difference that might make May to June.
 - Lake Roosevelt = ~40 ksf/foot
 - 1 ksf = 1 kcfs for 1 day

If you planned discharge of a weekly flow at CHJ of ~75 kcfs.

And you wanted to target something 15 kcfs higher than that on a week average (~90 kcfs @ CHJ).

7 days at 15 ksf you would get 105 ksf.

Divide that by 40 ksf you get the rough approximate impact at Lake Roosevelt of ~**2.5 feet**.

Norris explained that this would affect Lake Roosevelt in May and June in the following ways.

- Lake Roosevelt would still be refilled to the same elevation regardless of any flow request prior to the holiday weekend.
- You would be shifting 105 ksf from May and June to April.
- If you divide the 105 ksf by the 59 days in May through the Friday before the holiday week that is roughly a reduction in flow May through June of ~**1.8 kcfs**.
 - This would be doubled if wanting 14 days of 15kcfs higher.
- Norris said right now we are forecasting to achieve within one foot of the end of April FRM elevation of **1283.3 feet**. Right now, estimates for releases out of GCL and CHJ are an average 75 kcfs for that time.
- If the AA were to get a flow request, they would prefer to measure that one of two ways:
 1. Give it as an April elevation that the SM are comfortable with. *But they would not want flow request and an elevation.*
 2. Give it as a weekly average. *If the SM wanted a week average out of CHJ and that is usually measured Monday through Sunday then the AA would meet that request on a weekly basis out of CHJ with some error bounds because streamflows are volatile this time of year, lots of uncertainty in the spring.*

Morrill asked for confirmation if the 1.8 kcfs reduction would be based on 7 days of increased flow out of CHJ.

Norris said yes said if they wanted a different number, they could use a calculator to figure it out with everything that is available in the attached file.

Kirk Truscott, Colville, said that he was looking at outflows out of GCL for the last 7 days and only on one day did it approach 70 kcfs. He said that most of the days were somewhere between 45 and 60 kcfs. Truscott said that his concern would be assuming that we will have 75 kcfs discharge at GCL and remain at 1283.3 FRM. He said that the draft would be considerably more if we go to 90 kcfs at CHJ if the inflows into GCL still result in outflows of 60 kcfs for example to stay at an even elevation. He said that the 2.5-foot draft assumes that that we are going to have 75 kcfs minimum inflow at GCL.

Norris said that is correct and he was glad that Truscott mentioned that because that is why we would need some significant caveats regarding how this would be measured (like a ± 10 kcfs), this is a volatile time of year. Norris said that if you pulled up the 10-day precipitation forecast, we are not seeing a lot of precipitation, but we are seeing warming temperatures, we would expect with warmer temperatures this time of year to see some additional runoff, our stream flow forecasts will show that.

Truscott said right, his comment is not that he is not in favor but at the same time he wants to make sure that the reservoir will refill, and we do not rob too much water from the May/June period.

Norris said that a flow request could come with some elevation below 1283 that you were uncomfortable going below based on the information we have– then we could manage it to not go below *X* amount. Norris said that we would not want an actual target elevation and a daily flow target, but we could have a bottom and a weekly flow objective. Norris gave 2003 for an example, it was not a drum maintenance year, and it was a dry year (similar to this year, maybe a little more water). We were not running to chum minimums or Hanford Reach minimums and so the AA targeted higher flow rates at TMT’s request and drafted to ~1265 feet. He said that it is notable that this type of operation was included in the assumptions of the 2020 BiOp and Environmental Impact Statement (EIS) and that we have had historically targeted and augmented flows in April 10 – 15 and April 15 – 30 in those analyses as it is related to fish passage in the Mid-Columbia primarily. Norris said that since 2018, they have not received similar requests as they had in the past.

Morrill said he would like to share with Truscott and others that he talked with Andrew Murdoch yesterday (4/9) and it would be their request for consideration of earlier release. In talking to Murdoch, he said that they do have wild stocks moving if they could get a boost in flows now in this part of April, they believe that would be beneficial. Morrill said that we do need to consider Truscott’s concerns and others as well.

Norris added additional perspective of how little space there is to fill at GCL. He said now that we have talked about a rough number of 105 ksf. He said between 1283.3 feet and where we typically end fill at Lake Roosevelt prior to the holiday weekend that is only about 140 ksf. Norris said that is a very small amount of space to leave for May and June. He said that we are not seeing any flood risk issues because it is a low water year but drafting some additional and shifting some additional out of May/June and into April was historically common practice at TMT.

Runyan added some perspective from the BOR standpoint. He said like Norris said GCL is very high historically, it is very rare to be this high especially in the dry year that we are in. Runyan said that if there is a benefit for fish and SM support than GCL would support it as well. Runyan said that they are not seeing any concerns at the projects for an additional draft if that would benefit fish.

Marshall echoed others that GCL is historically high for this time of year, and we do not see it too often. He said that it does not give them a lot of space to manage flows in the Lower Columbia, especially any short duration peaks that we might see during Spring runoff whether that is from a rapid warmup and temperatures initiating that snowmelt or whether that is a Spring rain event. Marshall said that any additional space that we have a GCL from the Corps perspective is beneficial for managing flows in the Lower Columbia.

Stranz noted that it would be a win-win. Stranz asked Swieca what the next steps for SM are to get together and circle back and think on this.

From the Webex Chat:

- | Erick Van Dyke 09:45:
https://www.usbr.gov/pn/hydromet/daily_grapha.html?list=gcl%20fb
- | This shows current status at Grand Coulee

Swieca said that this a discussion that the SM need to have in more depth given the information that the AA were able to provide today. She said that as she understood it the AA need three days advance notice to implement SM requests whatever those should look like. Swieca said that she thinks that the best path is for the SM is to touch base, she did not think that they were ready to quickly caucus today and get back at today's meeting, but the SM will communicate offline. She said that if needed she believed that this would have to come through a formal TMT meeting, she asked Baus or Stranz if that was not the case in terms of process.

Baus said that he did not think so, he said that what the SM heard from the AA today is that there is a relative support of going lower at the end of April. Baus said he assumed if FPAC met tomorrow or today and got back to the AA through an email from Swieca outlining the specifics, he would think that would be sufficient. In general, there is support today and there are no showstoppers. If Swieca got a refined request emailed for example this afternoon or tomorrow, and she distributed it to the AA POCs, Runyan, Norris, himself (Baus), and others; Baus could give Swieca a list if she needs it.

Norris agreed that approach would be fine as long as the request came in the form of Monday through Sunday week averages at CHJ.

Example: Please target average flow of X kcfs ± 10 kcfs with a lower limit of GCL at the end of April of X feet.

Norris said that would them an opportunity for them to give updates over time. He said that because this is contemplated in the Water Management Plan (WMP) and the BiOp it seems that this could be implemented via email communication. He said if we came in with a request that was different than that we would have to discuss it at a TMT meeting to develop something. He said that would be the form that would streamline things.

Swieca shared that this approach sounded fine to her, she did say that it would be possible that the SM may want to wait a week or so before boosting those flows, in that case they could provide that recommendation at next week TMT or the week following. She said that if there is a desire to change those flows sooner than what would be next Saturday, considering the three-day notice, than they would provide the notification by email otherwise they would provide that notification by email otherwise they will provide that notification at TMT.

Runyan said that he liked Norris' idea of the SM providing an acceptable lower limit for GCL just so that we can see how much water we are talking about, and then that can also be accounted for what will need to be filled up in May/June. He said that part of the proposal would really be helpful for Reclamation.

Truscott said that in the Mid-Columbia April 15 is when a lot of fisheries will be releasing fish, so he would support a SM decision and notification sooner than later.

Swieca thanked Truscott for the input and said that they will get together and notify by email if a decision is made to release those flows prior to April 15.

- Swieca will pull together FPAC to have discussions about CHJ releases and depending on FPAC's decision will provide email notification to the AA POCs with the weekly flow target and lower limit for GCL.

Erick Van Dyke, OR, said that there is an Upper Columbia augmentation that occurs through the Treaty process. He asked if that is already incorporated into these values or if that is a different account of water.

Norris said that there is the 1 maf of treaty flow augmentation that SM have some leeway on choosing when that gets released and that is not included in our short-term forecast because the SM are not currently releasing that water. Norris said regardless of what the SM choose the the 1 maf flow augmentation release would be on top of anything that came out so the adjusted change in flows due to water that you are moving into April out of May/June with a flow request, the arithmetic in the attachment is still accurate.

Van Dyke said that we all have to put the little qualifiers on things like that and they get it. He said that given that TDA forecast is at 72 maf there may be a dry year provision possible. He asked if that is a reality.

Norris said that the half-maf of non-treaty storage is indeed still in storage and that we typically coordinate the request with the SM's once if we are below the trigger. He said that is the May final forecast that triggers that coordination. Norris said that we are currently below the trigger of 74.8 maf as noted in the WMP. He said that release comes out in July/August.

Morrill confirmed August.

Van Dyke said that it sounds like the May forecast kind of creates the situation. He said that it is understood.

Julie Ammann, Corps, added to the discussion about the Dry Year Provision. She said that it is a provision under the Non-Treaty Storage Agreement (NTSA) with Canada. She said that they have been having some conversations and it is not entirely clear with the conditions in the Basin if that would be granted. She said that she does not have a lot more detail on that but wanted to highlight that it may not be a sure thing this year even if we hit the trigger. She said that there are a lot of complicating factors with the NTSA ending in September.

Norris said that is a good caveat. He said that in any year the dry release has been in the NTSA, but it still requires some mutual agreement for that release. There has always been some level of uncertainty about requesting the release. We make the request for the release if we are under the trigger and the that gets coordinated with Canada and the outcome could be uncertain this year. Right now, there are no definitive answers on that.

Morrill asked because he had not heard any coordination yet if Swieca as the FPAC chairperson if she would suggest a call prior to Friday to have a discussion on this and follow through.

Swieca said that she was going to touch base with the SM via email to check availability for either a quick meeting this afternoon or tomorrow. She asked them to watch their emails for that.

Norris said to let him know if they need more information from him.

Swieca wanted to point out that the caveats that Ammann put on the half-maf drier year water are important. She wanted to note that they have been notified that the SM request for that would have to come in by early-May. She said that she is not sure if that is still a contingency on it but wanted to let everyone know that is what they have been informed.

5. Operations Review

a. Reservoirs

Reclamation (April 10, 2024) – Chris Runyan

- Hungry Horse Dam
 - Inflow: 4.5 kcfs
 - Increased based on the warmer weather.
 - Outflow: 0.84 kcfs
 - Currently operating to the minimum flow requirement below HGH as measured at the S. Fork gage.
 - Columbia Falls streamflow: 5.9 kcfs
 - Above the requirement
 - Midnight elevation: 3537.0 feet
 - Feet from full: 23.0 feet
 - Filled from last week: ~2 ft.
 - Continue to have variable snow in the Basin.
 - Not unheard of but unique.
 - 90% of median snotels near the dam
 - Handful of snotel sites at the back of the basin at record lows (since 1981).

Brian Marotz, MT, asked if HGH will be one turbine down during Spring runoff.

Runyan said that they are actually going to have two down, so they are going to have two available. He added a little background: They have been needing to do a window replacement in the powerhouse, it is a safety hazard, and they need to replace the glass and make it shatterproof. He said that it is high priority that has been put off for a while and it needs to be done. They will have two units available, and then there will be two weeks in June where they will have four available so they will be able to run three due to the transmission limitations. Runyan told Marotz that he is looking at increasing early next week to conserve a little bit of space, but he is working on that this week.

- Flathead Lake Public Meeting
 - Last month Bureau of Reclamation (BOR), Energy Keepers, the Corps of Engineers (COE), and the National Weather Service (NWS) gave a public presentation on water operations at HGH and Seli’s Ksanka Qlispe’ (SKQ) dams.
 - Google “Flathead Basin Public Meeting” and the first BOR link will take you to a new webpage that Reclamation put together.
 - Webpage has different presentations that have been given, recording of the presentation, and links to websites.
 - <https://www.usbr.gov/pn/hungryhorse/publicengagement/flathead/index.html>
 - Runyan explained that Energy Keepers operates SKQ which controls the water surface elevation of Flathead Lake below HGH. The last couple years have been unique and there was an extremely wet year in 2022 and then an extremely dry year in 2023 so there was a public presentation.
 - Energy Keepers have a blog on their website that gives current conditions (like recently they got a deviation from the Corps to stay higher than flood control). [Energy Keepers, Inc. \(energykeepersinc.com\)](http://energykeepersinc.com) They are also providing an idea of what lake levels are expected for the Spring/Summer.
- Grand Coulee Dam (at Lake Roosevelt)
 - Inflows: 60.7 kcfs
 - Outflows: 63.1 kcfs
 - Midnight elevation: 1284.0 feet
 - Feet from full: 6 feet.
 - Met the April 10 Target and are now transitioning into operating to the April 30 target of 1283.3 feet.
 - It is unique that we are this high on a water supply that is this low. There will be ongoing conversations on how best to utilize GCL this year.

Corps – Aaron Marshall

- Libby Dam
 - Midnight elevation: 2416.9 feet
 - Inflows: 5.5 kcfs
 - Minimum Outflows: 4 kcfs
- Albeni Falls (Lake Pend Oreille)
 - Midnight elevation: 2052.7 feet
 - Inflows: 15 kcfs
 - Outflows: 17 kcfs
- Dworshak Dam

- Midnight elevation: 1553.9 feet
- Inflows: 9 kcfs
- Outflows: 1.6 kcfs (project minimum)
- Lower Granite Dam
 - Inflows: 64 kcfs
 - Outflows: 66 kcfs
 - Elevation: 734.1 feet
- All Lower Snake Projects are operating in the normal minimum operating pool range.
- McNary Dam
 - Inflows: 132 kcfs
 - Outflows: ~140 kcfs
 - Elevation: 338.8 feet
- Bonneville Dam
 - Inflows: 147 kcfs
 - Outflows: 160 kcfs
 - Forebay Elevation: 74.4 feet

b. Water Quality – Daniel Turner, Corps

- Water Quality Standards
 - The Corps is continuing to follow up on last week’s discussion about the Spill Priority List.
 - COE is still doing internal coordination and talking with external partners about the Water Quality Standards issue and the definition of Level 1.
 - Next step is to discuss at TMT Process.
- TDG Tracking
 - Total Dissolved Gas (TDG) is well below the 125% TDG thresholds in the Basin.
 - Spring Spill started last week on the Snake River projects and early this morning on the Lower Columbia.
 - There is a lot of minimum generation spill the rest keeping the TDG levels below 125%.
 - Special case: Tracking the TDG below MCN due to the unique spill patterns this year. It is still too early to say much about TDG production downstream of MCN, there are just a couple hours of spill data so far.

c. Fish

Salmon – Swieca, NOAA

- Juveniles Index Estimates
 - Lower Granite
 - Yearling Chinook: Increasing passage starting about 5 days ago.
 - April 9: 31,000 counted.
 - Steelhead: Ticking up
 - April 3: 4,000 counted.
 - April 9: ~20,000 counted.
 - Bonneville
 - Sampling was temporarily suspended last Friday due to an emergency release from Spring Creek Hatchery. Data should start coming in again by the end of this week.
- Adults
 - Spring Chinook and Steelhead migration has been slow to start. NMFS expects things to pick up soon so they will be tracking this closely and providing updates at TMT as typical.
 - Bonneville (YTD)
 - Chinook: 301 counted.
 - 23% of ten-year YTD average
 - Steelhead: ~1800 counted.
 - 77% of ten-year YTD average.
 - Lower Granite (YTD)
 - Chinook:
 - 13% of ten-year YTD average
 - Steelhead:
 - 31% of ten-year YTD average.
- Winter Surface Spill Operations
 - 150 adult steel head were detected moving downstream at the LWG Surface Passage Route during the Winter Operations.
 - Swieca did not have the origins of the fish available for the meeting, but she will be able to provide it at her next update to determine how many of those were overshoot.

Lamprey – Swank, USFWS

- Still too early in the season for adults. There is a small trickling of juveniles moving through the system.

- Swank added more about the suspension of juvenile sampling at BON. There was an emergency release in the middle of last week from Spring Creek National Fish Hatchery. They had a disease problem, bacteria gill disease, affecting a large number of the fish in the hatchery. They decided to release them. There was a final release of about 800,000 sum. The idea was that they did not want those fish to be in the same holding tanks as the Smolt Monitoring Program facility's healthy fish. So, they suspended sampling, and the plan is to resume it tomorrow morning. Swank said that the vast majority of those fish are now past BON.

Hesse added a reminder that the ten-year averages referenced in the fish updates, particularly for adult returns, are not our management target. The ten-year averages are still significantly below those management goals and just represent stock status that is really dire. He said that he wants to put in context numbers that remain below ten-year averages sound bad, but it is even worse than that when ten-year averages are not what we are trying to achieve. He asked everyone to remember that in the subsequent discussions in the coming weeks.

d. Power System – Tony Norris, BPA

- Average temperatures are climbing seasonally. Energy use has been lower.
- We are expecting warmer temperatures in the near future.

6. Public Comments:

7. Set agenda for next meeting – April 17, 2024

Today's Attendees:

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

Other Attendees (non-TMT members):

COE – Dan Turner, Alexis Mills, Jonathan Roberts, Elizabeth Holdren, Tom Conning

BOR – Peter Cooper, Eric Rothwell

Washington Ecology – Thomas Starkey

Oregon DEQ – Dave Gruen

DS Consulting – Emily Stranz (Facilitator), Colby Mills

Clearing Up – K.C. Mehaffey

Avista Utilities – Patrick Maher

Douglas Co. PUD – Andrew Gingerich

CorSource – Andrea Ausmus (BPA note taker, Contractor) *notes taken via recording.*