

**COLUMBIA RIVER TECHNICAL MANAGEMENT TEAM**

May 8, 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](mailto:colby@dsconsult.co).*

**TMT Membership** – Tom McDonald, Vice Chairman of the Confederated Salish and Kootenai Tribes (CSKT) was welcomed as the new CSKT TMT representative.

**Review Meeting Summaries & Minutes** – TMT Members approved the facilitator's summary from the May 1 meeting; official minutes will be reviewed at the next TMT meeting.

**Official Water Supply forecast** – Chris Runyan, Reclamation, reported the official May water supply forecast (WSF) for Hungry Horse Dam, noting continued below average conditions. The May 1 basin snow water equivalent (SWE) was 78% of average and April had 85% of average precipitation. May through July forecast was 1,050 kaf, or 63% of average; April through August was 1,378 kaf, or 67%, of average; and May through September was 1,142 kaf, or 64% of average. Chris reminded the group that the May through September forecast sets the end of September draft target for flow augmentation; this year the target is 3,540 feet (20-feet from full). Based on the final March forecast, Hungry Horse minimum flows are 710 cfs below the dam, and 3,390 cfs near Columbia Falls.

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

- **The Dalles:** NWRFC April to August volume forecast is 68 maf, or 77% 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 5,129 kaf, or 84% of average; and
- **Dworshak:** NWRFC April to July forecast is 1,677 kaf, or 68% of average.

Doug noted that the dry water year operations are identified in the Water Management Plan (WMP) on page 52; dry operations are triggered when the RFC May final forecast (April to August runoff at The Dalles) is below the 20<sup>th</sup> percentile. The 30-year historical record defines the 20<sup>th</sup> percentile value at 74% of average; conditions are currently below this, defining a dry water year. Some examples of dry water year special operations include a deeper draft at Hungry Horse, end of September operations at Libby Dam (sturgeon pulse) and triggers the ability to request an additional 0.5-maf of non-treaty storage for dry water years.

**2024 Libby Dam Releases for Sturgeon and Bull Trout Flows** – Leon Basdekas and Greg Hoffman Corps, presented on the Corps' 2024 Libby Dam Sturgeon Operations (posted to the TMT website). Spring refill at the project began on May 1. In summary, sturgeon augmentation flow was modeled to start on May 18, ramping up project discharges to around 25 kcfs (powerhouse capacity). The powerhouse pulse discharge will continue for approximately 17 days, followed by a quick recession to an approximate flat-to-descending summer flow (decreasing to summer flat flow following BiOp ramping rates). Operations will target to maintain Bonners Ferry at or above 30 kcfs for around 18 days. The Lake Kooncanusa end of September target is 2,449 feet, depending on inflows. It was noted that in-season management and observed inflows may cause values to change.

Montana, Washington, and NOAA noted appreciation for the response and coordination from water managers towards sturgeon recovery and the clarity of the goals and objectives downstream. The Corps is looking at their refill curve and will try to tag on to the peak of the local freshet.

SOR FWS #1, 2024 Libby Dam Releases for Sturgeon and Bull Trout Flows, was provided to the TMT by Ahren Ramirez, USFWS. The SOR was written by USFWS based on recommendations provided by the BiOp-appointed, multi-entity Flow Plan Implementation Protocol Team, led by the Corps and BPA. TMT Members were polled on the SOR as written:

TMT Member	Polling Response	Rationale (Optional)
NOAA	Support	NOAA appreciated efforts to support resident fish needs, including sturgeon spawning in the Kootenai; they looked forward to the continued collaboration and hoped to see continued positive results from the operations.
Oregon	No Objection	OR appreciated the information sharing, conversation, and coordination efforts for this longstanding operation.
Washington	Support	WA echoed NOAA and OR, and appreciated the work being done.
Confederated Tribes of the Colville Reservation	Support	CTCR echoed appreciation for the work being done for fish and appreciated the positive results.
Confederated Tribes of the Umatilla Indian Reservation	No Objection	No additional comments.
Yakama Nation	Support	No additional comments.
Reclamation	Support	No additional comments.
Corps of Engineers	Support	USACE reiterated their support for ongoing efforts for sturgeon; Leon noted appreciation for the time and efforts into this operation and Greg noted appreciation from the support expressed today by TMT Members.
USFWS	Support	USFWS appreciated the regional support for this operation; they looked forward to the results and were hopeful for the future.
Idaho	Support	No additional comments.
Montana	Support	No additional comments.
Nez Perce Tribe	Support	No additional comments.
Confederated Salish and Kootenai Tribes	Support	CSKT echoed MT’s initial comments, noting that the positivity towards operation outcomes was exciting.
BPA	Support	No additional comments.
<i>The Kootenai Tribe of Idaho, Spokane Tribe of Indians, and the Confederated Tribes of Warm Springs were not present to register a polling response.</i>		

*Action Agency Implementation*

The Corps will implement the planned operation for Libby Dam releases for sturgeon and bull trout flows, as outlined in the presentation (posted to the TMT website). They will provide project operation updates during Operations Review at TMT. Greg noted that they will decide on the start date very soon.

**Flathead Lake Elevations & Hungry Horse Operations** – Chris reported on the letter received by TMT from Montana Senator, Jon Tester, that asks the TMT to take into consideration the current drought conditions when setting summer draft limits for Hungry Horse Dam (letter posted to the TMT website). Senator Tester noted the significant impacts across the region due to the historically low water level at Flathead Lake last year, emphasizing the importance of the lake to Montana residents and economy.

For reference, Chris reviewed the 2023 conditions at Flathead Lake, noting that the May 1 expected monthly distribution came in much higher than the actual distribution. In May and June things dried up and the forecasted volumes ended up much lower than earlier forecasted. May through July precipitation averaged 55% of average which led to historically low stream flows. Hungry Horse Dam primary uses include flood risk management, fish and wildlife conservation (stream flow regulation and end of September draft), hydropower generation, and recreation. Operations for WY2023 saw the reservoir missing refill by 6.5 feet; the decision was made to hold outflows steady (rather than drop outflows to refill the reservoir) to not double peak the river and provide water gradually throughout the remainder of the year, and meet the flow augmentation draft of 12 feet.

Eve James, Energy Keepers, Inc. (EKI), summarized that the April 2023 Flathead Basin snowpack was near average. Hot May temperatures rapidly melted the snowpack by mid-June, resulting in record low natural summer flows into the Flathead Lake. EKI coordinated flood risk management deviations with the Corps to fill the lake in May due to the rapid snow melt and early runoff, but by mid-June inflow into the lake was much lower than required minimum project outflow. After briefly touching full on June 14, the lake level decreased and was approximately 30 inches below full by the end of August. Following complaints of lake mismanagement in the summer of 2023, FERC conducted a review of operations and found them to be in compliance with operational license requirements.

Chris discussed current conditions above Hungry Horse Dam, with the May 8, 2024, ESP forecast volume being below average for the month, as well as June and July (63% of average for May-July); precipitation throughout these months is extremely important. Project reservoir pool elevation is higher than last year, which is good, and currently reservoir refill looks likely based on forecasts, but is not guaranteed. Reclamation has been tracking very low snowpack values this season at the far end of the basin, nearing historic lows since 1941, which remains a concern. The project is looking to decrease outflow in the next few days; spring refill operations will be highly dependent on May-July precipitation.

Eve noted that overall basin conditions in the Flathead are dry as well, with record low snowpack this April, which resulted in EKI requesting flood risk management deviations from the Corps with approval for 2-feet above the typical April 15 risk management elevation. They have since coordinated a deviation for the end of May (2-feet higher) and will be coordinating and monitoring with the Corps as runoff progresses. The start of May has been cooler, and with recent precipitation, basin snowpack has improved some and is similar to last year at this time. Forecasts however do show incoming warm temperatures and dry conditions, so runoff timing will impact the lake elevation. Eve emphasized that Séliš Ksanka Qlispè (SKQ) project outflows and Flathead Lake elevation levels are dependent on many variables, including project inflows, weather conditions, power demands, downstream fishery in-stream flow requirements and flood risk management needs. The project is currently running at minimum outflow with the reservoir about 5-feet from full. To increase public awareness, EKI has posted on their website a range of forecast graphics that show the lake level elevation; this will be updated through summer:  
<https://energykeepersinc.com/>.

*Comments and Questions from TMT and non-TMT Members:*

- Matt Boyer, MT, noted appreciation for Montana’s in-season adaptive management and that things are looking better than this time last year. They will anticipate drought planning in the full 20-foot draft at Hungry Horse and support the current drought management plan and operations.

- Brian Marotz, MT, noted that he has reviewed Senator Tester’s letter and believes the TMT is on track to do what they’ve been asked to consider; everyone is on the same page looking at the current situation. With the May decision made for the end of September draft target, hopefully the snow melt will be slow and there will be average summer precipitation. Brian felt that the region is coordinating well and is on track to respond as needed.
- Tom McDonald, CSKT, noted that last year’s conditions and local concerns and impacts have led to efforts to encourage lakeshore homeowners with fixed facilities to consider variable structures that might allow them to optimize recreational opportunities, despite the range in lake elevations. Tom noted that many are reacting positively and requesting alterations to structures around the lake. Hopefully things will keep moving in a positive way.
- Jonathan Ebel, ID, asked what is the probability/confidence level that the 20-foot draft at Hungry Horse by the end of September will align with the mandated outflows at SKQ Dam (set by FERC)?
  - It will depend on what runoff will be; Reclamation relies on current forecasts and ESP trace sets. Reclamation, EKI, and BPA emphasized that it is still far too early to tell, and that the situation will continue to be closely monitored moving forward.
- Kelsey Swieca, NOAA, emphasized that there are interannual interactions when operating this system; there can be implications when modifying operations based on multiple dry years in a row.
- Charles Morrill, WA, acknowledged NOAA’s concern, and appreciated the outreach that regional partners have taken with the communities around Flathead Lake. WA applauded efforts to outreach with stakeholders to adapt to a situation of dry conditions.
- Flathead County Commissioner, Randy Brodehl, thanked the TMT for seriously considering the impacts to Flathead Lake under these dry conditions, emphasizing the huge financial and economical stakes at risk. He noted that discussions with stakeholders could be better and felt that Flathead Lake area stakeholders have not truly engaged. He asked the TMT to continue to consider the economics and recreation of Flathead Lake as critical to this discussion.
  - Reclamation understood the concerns from Commissioner Brodehl and Senator Tester and are clear on the significant impacts. They want to continue to engage on the issue, and Chris highlighted a public meeting held in March to inform the public about last year’s operation and background into Flathead Lake. The public meeting can be viewed here: <https://www.usbr.gov/pn/hungryhorse/publicengagement/flathead/index.html>

*Next Steps*

Reclamation, Montana, CSKT, and EKI will continue to closely monitor the situation and will provide updates for the TMT.

**Dworshak Update** – Willow Walker, Corps, provided an update on operations at Dworshak Dam (posted to the TMT website), noting that although snowpack has remained below average there was a slight improvement. The recent precipitation and cooler temperatures at the end of April slowed some melt in the higher elevations, and allowed soil moisture to increase, but forecasted warmer temperatures will help melting pick back up. The Corps expects the end of May or early June for the high elevations melt target; low elevations have already melted out; mid-elevations are almost there.

Inflows at the reservoir are expected to increase with the warm weather, and the project will fill more than it has been. Willow reported that based on current conditions, the project is expected to fill the reservoir. Once temperature augmentation starts in the summer, the project will end up drafting. The current expected trajectory results in about 90-100 kaf of water above minimum discharge needed for release in the remainder of May, averaging about 3.5 kefs per day. If drier conditions persist, approximately 15-25

kaf of water above minimum discharge would be needed for release through May, averaging about 2 kcfs per day.

The Corps expects to move water in June, enough to safely manage refill and control final spill; the reservoir should be in the top 5-feet around Memorial Day; Dworshak was projected to ramp up around May 13 or 14 but this has been pushed out slightly, to not waste any snowmelt. If Salmon Managers have any desire to shape water in May differently than planned, the Corps is open to discussion at TMT. Ideally the Corps needs 5 business days' notice ahead of any ramping increase for necessary coordination efforts. The current plan is to start increasing releases at the end of next week or early the following week unless the Corps hears otherwise from TMT. Willow noted that the project will not fill the last 5 feet until after the 2<sup>nd</sup> snow flight, to get eyes on actual remaining snowpack in the basin. This final flight is expected for the last week of May or 1st week of June depending on melt.

- **ACTION:** Salmon Managers will review and discuss any potential requests for water shaping, circling back to TMT as needed, providing at least 5 days advance notice if they request a change.

**Lower Monumental Dam – Juvenile Transport Update** – Kelsey reported on the Salmon Managers' request for a pause to the Lower Monumental Dam juvenile transport, due to the transport causing Lower Monumental and Ice Harbor to adjust minimum operating pool requirements to accommodate safe navigation of barge transportation in the Lower Monumental tailrace, as well as the Lower Monumental powerhouse coming out of service at the end of April. Given the low numbers of fish expected and observed using the PIT-detection system in the juvenile bypass system, few fish are likely to be transported.

Late last week, Salmon Managers requested a temporary pause in barge transportation for implementation from last Friday through today. Now, they are requesting a continuation of the pause through May 17. Chris Peery, Corps, reported that although the powerhouse is still out of operation, the Corps has isolated the issue to the T2 transformer, and has been working on a temporary solution since Monday but winds have been too high for the crane work. The powerhouse could potentially be back up by tomorrow with the temporary solution (still need to confirm the cause of the line loss; will need an outage to fully repair).

Chris noted that very few fish are being collected, and this will increase once the powerhouse is back up. In the meantime, transport has been paused as requested. Chris' recommendation was to continue transport once the powerhouse is back in operation. The Corps will not oppose a continued temporary pause in transport but would like to resume as soon as possible.

Kelsey explained that the request to extend the pause is to allow some time to continue exploring options for an extended path forward regarding the efficacy of Lower Monumental transport and the impacts of changes in operations to adult delay. Doug confirmed that the Corps will implement the continued pause. Transport will resume on May 18 (begin collecting on May 17).

Jonathan noted that the operational changes required to permit juvenile transport from Lower Monumental Dam have impacts downstream and upstream. He encouraged the Corps to look at the variability in the Little Goose tailrace when transport was occurring, as well as the variation of flow at Ice Harbor Dam. If no alternative is found to this rapid increase in flow, river conditions will worsen for fish in the river, to transport a small portion of fish. ID appreciated any efforts to identify patterns or unintended consequences and ideas for how to avoid changes to flow. Chris added that RCC would be open to discussing other operations to consider reducing fluctuations in flow.

Jay Hesse, Nez Perce Tribe, emphasized that transportation efficacy is very complex and is not universally beneficial. He urged considering a long-term approach. Kelsey concluded that Salmon

Managers need an internal technical discussion, as well as with the Corps, to understand what different entities see as the benefits of transportation, as well as a continued conversation to understand long term solutions and potential alternatives to ameliorate impacts to fish.

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

- **Hungry Horse:** inflows yesterday were 4.7 kcfs (projected to increase with warmer temperatures this weekend), outflows were 5.5 kcfs, and midnight elevation was 3,540.8 feet. The project is 9.2 feet from full and will look to decrease this week or next.
- **Grand Coulee:** inflows yesterday were 78.5 kcfs, outflows were 59.9 kcfs, and midnight elevation was 1,280.2 feet. The project is 9.8 feet from full, with an end of May FRM target elevation of 1,284 feet.

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

- **Libby:** midnight elevation was 2,419.7 feet, with average outflows of 10 kcfs;
- **Albeni Falls:** midnight elevation at the Hope gauge was 2,055.1 feet, with average outflows of 25 kcfs; spring refill has begun, but the project is holding elevation steady until inflows pick up for the beginning of the freshet.
- **Dworshak:** midnight elevation was 1,577.7 feet, with average outflows of 1.6 kcfs;
- **Lower Granite:** midnight elevation was 733.7 feet, with average outflows of 76 kcfs; lower Snake River projects are currently operating within the normal MOP range.
- **McNary:** midnight elevation was 339.18 feet, with average inflows of 145 kcfs; and
- **John Day:** the project is in the high pool range, for the Blalock Islands Caspian Tern nesting. The high pool range is 264.5 feet - 266.5 feet which continues through June 1, then will resume the transition to minimum irrigation pool.

*Water Quality:* Dan Turner, Corps, reported that TDG levels are well below the 125% criteria in the lower river; powerhouses are on minimum generation and spill the rest.

*Fish:* Kelsey reported the index values for yearling Chinook averaged about 15,000 at Lower Granite, 40,000 at McNary, and 69,000 at Bonneville. Sub-yearling daily passage has ranged from 0-1,000 in the Snake River and 0-2,500 in the lower Columbia at Bonneville. Steelhead average daily value of 22,000 at Lower Granite and 13,000 at Bonneville.

Adult passage is picking up, with a daily passage index for Chinook at Bonneville ranging from the mid-2,000s to nearly 6,000, and steelhead averaging about 21 per day. In the Snake, Chinook passage has picked up over the past couple days at Ice Harbor (over 1,000) and Lower Monumental (600), Salmon Managers are tracking these indices closely; a handful of steelhead have passed these projects each day.

Dave Swank, USFWS, didn't have much to report for Lamprey; 1 adult at John Day (likely overwintering), and low to moderate numbers for juveniles at the projects.

Charles posted yearling Chinook and steelhead cumulative passage indices for Lower Granite, noting that numbers peaked at the end of April and have declined over the past week:

- Yearling Chinook:  
[https://www.fpc.org/smolt/smolt\\_queries/R\\_smoltcumulativepassindex\\_resultsv7.php](https://www.fpc.org/smolt/smolt_queries/R_smoltcumulativepassindex_resultsv7.php)
- Steelhead:  
[https://www.fpc.org/smolt/smolt\\_queries/R\\_smoltcumulativepassindex\\_resultsv7.phpSteelhead](https://www.fpc.org/smolt/smolt_queries/R_smoltcumulativepassindex_resultsv7.phpSteelhead)
- Status Update on Spring Chinook Run: *“TAC did not update the run size this week. Most of the models still indicate the expectation is to meet or exceed the pre-season forecast. Pre-Season*

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*expectation of ~ 115 K at river mouth. Recent year average 50% completion date is ~May 11 for reference.”*

*Power System:* Tony Norris, BPA reported wind over the past few days, and incoming warm weather. BPA expects to meet customers’ load.

**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 May 15, 2024, at 9:00 AM.**

**Columbia River Regional Forum  
Technical Management Team  
OFFICIAL MINUTES  
Wednesday, May 1, 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. Welcome to New TMT Member**

- The Confederated Salish and Kootenai Tribes were welcomed into TMT at today's meeting.
- Tom McDonald introduced himself as the point of contact.
- He is the Vice Chair for the Tribal Council, the Representative at Large, and is the retired Fish and Wildlife Director for the Tribes.

**2. Review Summaries and Minutes – May 1 Facilitator Summary**

- May 1 – approved. Minutes still pending.

**3. May Water Supply Forecasts – *Doug Baus, Corps-NWD; Chris Runyan, Reclamation***

Reclamation

- Hungry Horse (HGH)
  - Below average conditions have persisted through April at HGH.
    - May 1 SWE: 78% of median
      - Including the snow courses.
      - Note: There are still locations in the far end of the basin recording close to historical less than median.
    - April precipitation: 85% of average
  - May – July
    - 1050 kaf
    - 63% of average
  - Apr – Aug
    - 1378 kaf
    - 67% of average
  - May – Sep
    - 1142 kaf
    - 64% of average
  - End of September Draft: 20-foot draft

- Draft Target Elevation: 3540 feet
- Minimum flows downstream of HGH were set from March final flows forecast.
  - Flathead River near Columbia Falls
    - 3390 cfs
  - S. Fork below HGH
    - 710 cfs

#### Corps

- The Dalles (TDA)
    - April to August
      - 68 maf
      - 77% of average
  - Lower Granite (LWG)
    - April to July
      - 18 maf
      - 88% of average
  - Libby (LIB)
    - May Runoff Forecast (April – August)
      - 5129 kaf
      - 84% average
  - Dworshak (DWR)
    - April to July
      - 1677 kaf
      - 68% of average
  - Baus said the dry water year Operations are identified in the Water Management Plan (WMP) on page 52.
  - Dry water year is defined when the RFC May Final Forecast for April to August runoff at TDA is below the 20<sup>th</sup> percentile. For the statistical 30-year period of record 1991 to 2020 the 20<sup>th</sup> percentile value is **74.8** maf. We are below that value which defines a dry water year.
  - There are special operations and those are outlined in the WMP. One of those is a deeper draft at HGH and some end of September operations at LIB.
  - There is also a 0.5 maf of Non-treaty Storage for dry years.
- 4. 2024 Libby Dam Releases for Sturgeon and Bull Trout Flows – Ahren Ramirez, USFWS; Leon Basdekas, Corps-NWS; Greg Hoffman, Corps-Libby Dam; and Scott Bettin, BPA**
- Basdekas gave a presentation of the year in a review for LIB.

- December: The Corps did load shaping with BPA.
- January: Forecast continued to have the Corps draft through January.
- February: Forecast came in drier; below the FRM.
- March: Wet; drafted lower.
- April: Recovered the FRM elevation 2419.9 feet.
- Current: VarQ calculation is 14.3 kcfs and currently passing 10 kcfs which is matching inflows until we reach VarQ then the Corps will increase the VarQ until the start of Sturgeon Pulse
- LIB May 1 Water Supply Forecast and BiOp Objectives
  - Forecast: 5.13 maf
  - 82% of average
  - Tier 2 Year
  - LIB Flow Augmentation Draft to 10 feet from full.
  - September Target: 2449 feet
  - Sturgeon Volume: 0.8 maf
  - Bull Trout Minimums (Sturgeon Pulse through Aug 31): 7 kcfs
- Water Supply Volume Monthly Forecast
  - Below average water supply the entire water year
  - For the Runoff Season it is expected that we will be well below average for May through September.
  - 82% of Average Snowpack
- Flow Augmentation Plan
  - Spring Refill began on May 1.
  - Sturgeon Augmentation Flow model start on May 18
  - Ramp up discharges to ~25 kcfs (powerhouse)
  - Maintain for ~17 days (depending on in-season management and observed inflows)
  - Followed by a quick recession to an approximate flat to descending summer flow following BiOp ramping rates.
  - Target to maintain Bonners Ferry at 30 kcfs; likely to be unable to maintain Bonners Ferry stage at or above 1760 feet.
  - Lake Koocanusa End of September Target: 2449 feet.
  - The idea is to catch the peak of the local freshet and try to extend that peak, not piggyback on Lake Koocanusa.
- Ramirez continued the presentation. He said that they are looking to start the flows between May 14 and 21 depending on how the flow trends are tracking. They will make the final decision by the end of the week. As current trends look now, they are looking at starting on May 18 and they will be ramping up the 25

kcfs. The hope of this is that it will promote the sturgeons to start moving to their ideal spawning habitat and begin spawning activity.

- They are working on this later than previous years as they are trying to gain imperial data on some interesting trends that they saw in the 2022 flow year.
- Bonners Ferry Stage
  - The median trace does not go above the 1760-foot goal.
- Hoffman added to the presentation. He said that the objective shown out front had been developed by the Flow Plan Implementation Protocol Team (FPIP) over a number of years. The 30 kcfs objective at Bonners Ferry is based on fish movement and presence in the upstream reach of the spawning habitat above Bonners Ferry and the modified habitat that the Kootenai Tribe and others have done for over a decade now. The 30 kcfs is intended to move fish into that.
  - In a low water year, we need to split the difference or heavily lean one way or another regarding those objectives.
  - This objective is newer compared to when we first started the Sturgeon Flow Operation. Originally, we were looking at full powerhouse to maximize flow and depth of Bonners Ferry. We have backed off that with flow testing, the 30 kcfs is an appropriate number for the river now to get the fish to move.
  - The other end of the sturgeon recruitment bottleneck is larval and juvenile survival. The Kootenai Tribe of Idaho and state and federal partners have done a lot of activities through the USFWS BiOp working on reconnecting floodplain habitats for the purposes of survival of those fish. The critical elevation of the river is **1760 feet** to get those connection going and moving nutrients in and out of the river.
  - This year we will not be hitting 1760 feet. Kootenay Lake is low, and we are dependent on the backwater creeping up the Kootenay to provide a little more stage; it is not going to work out this year.
  - We are focused on the flow objective. The timing that Ramirez alluded to is based on egg depositions in the modified habitat in 2022 and 2023 later on in early to mid-June. Hoffman said that they wanted to push their operations out to see if that could gain some information on the timing of spawning and egg deposition and they relate to hydrograph volume and. IDFG captured more larval sturgeon in the Kootenai River in 2022 than any previous year, and genetic tagging protocols indicate that some of those larvae are likely from wild spawning events.. This was promising in 2022 and so they want to have a closer look at that timing even though it is a low water year

Brian Marotz, MT, said that was great news that Hoffman just reported about seeing some survival. He said we have really been working toward over the years and the Sturgeon Recovery Team and FPIP have done a great job analyzing what has been happening with the sturgeon adult movements and egg deposition and now seeing some survival. He said that is really heartening. That means that we need to have a gradual ramp down which he said that they are approaching that after the eggs are deposited. Marotz said that he is just excited to hear that there has been some response like that. He gave a general “Attaboy” to those who have been working on that. He also asked Basdekas about the target for the end of September at LIB, depending on precipitation

and any adjustments. He said that because the Kootenay is with the 82 – 84% of normal range and we saw that TDA is in the lowest 20<sup>th</sup>-percentile. The last BiOp there was a change that we were going to focus on the inflows to the headwater projects as the primary trigger for dry water years. He asked if we are at 82 – 84% of average, in the ranking where does that put us in the Kootenay. He asked are we were in the actual lowest 20<sup>th</sup>-percentile or are we somewhere above that. He said that if we are above then he would expect there to be some adjustments to the end of September Target. He asked if Basdekas could fill him in on that.

Tony Norris, BPA, said that in the Water Management Plan (WMP) it defines what percentile those water supply forecast ranges apply.

Marotz said that he will review that again and get ahold of Norris offline.

Jonathan Ebel said that Kootenay Lake is low right now because there is a low water supply. He asked how much coordination occurs between the US and Corra Linn and those in BC. He said that what they were shown is that the target or the goal for Bonners Ferry will not be able to connect the flood plain restoration projects. Part of that presumably is because of the level of Kootenay Lake. Kootenay Lake, was mentioned, is lower than typical. He asked if that is an action of the operators of Corra Linn dam mixed with the water year and if so, how much coordination occurs between the Corps and FortisBC to try to optimize this operation for sturgeon.

Ammann said that she could speak to the FRM component and there is an IJC Rule Curve that they follow in that area and when spring rise occurs then that max level is computed. She said that there is an operation around Kootenay Lake with respect to Flood Risk Management. She said that she would let Seattle District talk about whether or not there is any coordination on Kootenay Lake for trying to optimize the Sturgeon Pulse.

Basdekas said that he would not call it coordination because as Ammann mentioned they have a refill curve that they follow. He said that Seattle District looks at their refill curve. Ideally, they try to match the backwater and the freshet. When they were looking at it before in the pulse, they thought they could capture both, but the forecasts are changing off information coming earlier in the forecast so now we are left trying to tag on to the peak of the freshet versus the backwater. He said that was a decision made by FPIP to target either the backwater or the local freshet. They were trying to do both, but the forecasts are changing so they had to pick one or the other.

Ebel said how he is interpreting that is that they know what they are going to be doing at Kootenay Lake, sort of, and so you are trying to adjust the sturgeon operation instead of trying to work both levers.

Basdekas said they do not have a lever at BC Hydro.

Hoffman said that in 2022 they had wonderful connectivity, it made everyone very happy in the biological realm out here and Kootenay Lake is always operated in the Spring to achieve a minimum elevation according to the 1938 IJC Rule Curve. He said what landed to 2022 was a lot of local tributary inflow, good snowpack, so we were able to reconnect as the Nimz Ranch floodplain habitat. When they get into years like this, we are still dealing with essentially the same elevation of Kootenay Lake. It is all dependent on what we have in the hills and when it comes off and then trying to match that up with their operations. In terms of coordination with BC, Hoffman said that we have biologist from the BC Ministry involved in our flow planning and that is about the extent of it. There is no coordination with any of the other entities that manage Kootenay Lake levels.

- Bonners Ferry Flow
  - Target: 30 kcfs
  - 18+ days above the goal on the median trace.
  - Showing good results.
- Lake Koocanusa Elevation Probability Chart
  - Most are hitting the target for refill.
  - Target: 2454 feet
  - This will play out in real-time depending on how the water comes off.
- Summary
  - Model results: May 18
  - Could change.
  - LIB ramp up to ~25 kcfs for ~17 days, followed by a relatively quick recession to an approximate flat to descending Summer flow.
  - Target to maintain Bonners Ferry at or above 30 kcfs: ~18 days (median)
  - Likely unable to maintain Bonners Ferry stage at or above 1760 feet.
  - Decrease discharge (post-powerhouse pulse at LIB to Summer flat flow following BiOp ramping rates.
  - Lake Koocanusa End of September Target 2449.0 feet, depending on flows.

Morrill said that he wanted to echo Marotz' comment on the good news on hearing about the successful reproduction and finding eggs and larvae. He said he really appreciates hearing that this is producing good and positive results. He wanted to express his appreciation on hearing that and to the efforts that have been involved over the years to achieve to get us back to this point.

Kelsey Swieca, NOAA, said that she also wanted to echo what Morrill and others have said. She also wanted to note that they also appreciate the coordination and the transparency in the goals and objectives with the use of this water. She said that she appreciates that downstream.

Stranz provided a short reminder of how TMT responds to SORs.

Baus said that the SOR was provided to TMT by the USFWS. He welcomed Ahren Ramirez again to TMT and asked to pivot back to Ramirez as the Coordinator of the SOR to see if USFWS has any closing comments before polling on the operation.

Ramirez said that he does not have any closing comments as he is new to the process. He said that he hopes that the document came out clean and was understandable. He said that he thinks that all the points were covered in Basdekas' presentation for the dates and flow rates, which he said are also hopefully well reflected in the SOR document. Ramirez said to feel free to ask any questions and he can respond as best as he can.

Polling Options: Support / Object / No Objection / Abstain / *Absent*

NOAA: Support

OR: No Objection

WA:	Support
Kootenai:	<i>Absent</i>
Colville	Support
Umatilla:	No Objection
Yakama Nation:	Support
BOR:	Support
Corps:	Support
USFWS:	Support
ID:	Support
MT:	Support
Spokane:	<i>Absent</i>
Nez Perce:	Support
Warm Springs:	<i>Absent</i>
CSKT:	Support
BPA:	Support

Stranz reminded TMT that they are allowed to comment on their response but are not required.

NOAA:	Swieca said that NOAA appreciates the efforts to support resident fish needs, including sturgeon spawning in the Kootenay. NOAA looks forward to this collaboration and hope to see some continued positive results from these operations.
OR:	Erick Van Dyke said thank you for the information shared and the conversation. He said that this has been a long-standing operation that we talk about every year, and he has nothing else to offer for it.
WA:	Morrill echoed Swieca and Van Dyke.
Colville	Dennis Moore also echoed Swieca and Van Dyke. He said that he appreciates the work that they are doing. He said that the Colville’s support this.
Corps:	Baus said as already noted the Corps supports ongoing efforts for sturgeon. Basdekas thanked everyone for their time and accommodating the shift in agenda.
USFWS:	Swank said that he would like to thank everyone in the region for their continued support of the operation. It is exciting to see some results from the 2022 Operation and hopefully that will continue. Hoffman added that he appreciates as chair of the FPIP over all these years, the support from everyone, it was especially nice to hear that verbally today. He said that he thinks that they are very much looking forward to another good operation.

CSKT: Tom McDonald echoed Marotz. He said that seeing that there are some positive outcomes starting to show up is exciting.

- Implementation
  - The Corps plans to operate as outlined in the presentation.
  - Updates to TMT will happen during Operations Review. If there are any questions in season they can answer them then.
  - Start date will be decided soon.

**5. Flathead Lake Elevations & Hungry Horse Operations** – *Chris Runyan, BOR; Eve James, Energy Keepers; Brian Marotz, MT; Matt Boyer, MT; and Tom McDonald, Confederated Salish & Kootenai Tribes (CSKT)*

- Letter
  - Runyan introduced a letter from Senator Tester of Montana.
  - The letter asked TMT to take into consideration the current drought conditions when setting summer draft limits for HGH.
  - Senator Tester also mentioned the significant impacts across the region due to the historically low water levels at Flathead Lake in 2023. He also mentioned that Flathead Lake is extremely important to Montana residents and the economy.
- 2023 Flathead Conditions
  - Hungry Horse
  - Forecast May 1, 2023: 88% of average.  
Forecasted volume came in close to actual volume.
  - Forecasted June:  
Forecasted volume came in higher than actual volume.
  - May-June-July averaged 55% of median.  
Resulted in extremely dry streamflows.
  - Flathead River at Columbia Falls
  - At the beginning of May inflows came up as normal.
  - By the end of May it was trending down to the historical low range.
  - HGH Primary Uses
  - FRM, ESA Fish and Wildlife Conservation, In-stream flow regulation, Hydropower generation, and recreation.
  - HGH Dam WY2023 Operations
  - Fall – Winter – Spring Draft: Minimum flows (incl. culvert replacement)
  - 99% of draft were on minimum flows.
  - Late/Middle May: Outflows ramped up.
  - 80% of average range by middle May.

- By this time, it was apparent that things were drying up so flows ramped down.
- The reservoir missed refill by 6.5 feet.
- A decision was made with Montana Fish Wildlife and Parks, and others, rather than drop the outflows to refill the reservoir and then double peak the stream down below causing impacts to the fishery food base, they held steady and were on that outflow for the remainder of the year.
- They also did a delivery of flow augmentation: 12 feet.
- Energy Keepers, SKQ and Flathead 2023 Operations – *Eve James*
- James shared that in 2023 the April Flathead snowpack was near median, but the hot temperatures in May rapidly melted that snowpack by mid-June.
- June precipitation was much below normal resulting in record low natural Summer inflows into Flathead Lake.
- In 2023, Energy Keepers (EKI), coordinated Flood Risk Management Deviations with the Corps to fill the lake in May due to the rapid snow melts and early runoffs.
- By mid-June inflow into the lake was lower than what EKI's required minimum projects outflows are so after briefly touching full on June 14, 2023, the lake level began to decrease and by the end of August the lake was approximately 30" below full pool.
- There were over 20 complaints filed with FERC over the summer asserting that EKI mismanaged Flathead Lake and did not comply with the project license. FERC conducted a thorough review of their operations and communicated on February 5, 2024, that EKI complied with all the operations requirements of the license during the summer of 2023. It was the impact of the historic dry Summer and flows that we saw.
- 2023 TMT Letter
- TMT received a letter from the Governor's office. The operation was not changed based on that letter.
- Royer added that TMT did everything that we could. The water was Summer Augmentation water that needed to pass through SKQ, so it ended up not providing any benefit to Flathead, so TMT ended up not implementing the SOR.
- Current 2024 Flathead Conditions
  - May 8, 2024, Expected ESP Monthly Distribution
  - 2024 HGH May – July Forecast: 63% of average.
  - 2023 HGH May – July Forecast: 88% of average.
  - May Forecast Volume is below average (matches the Reclamation forecast).
  - Calling for below average in June and July.
  - Last year it was closer to average and then went into extremely dry conditions. What we get for precipitation in May, June, and July is extremely important.

- HGH Reservoir Pool Elevation
- 2024 pool elevation is higher than 2023.
- Reservoir refill looks likely based on ESPs, but not 100%.
- 2024 has been tracking low snow values at the far end of the basin, pushing historic lows going back to 1941. 1941 is the driest runoff on record.
- Reclamation is looking to decrease outflow in the next few days.
- Spring Operations are dependent on the weather they get from May through July.
- Minimum flows are based on the drought condition as well as the end of September being the full 20-foot due to the drought conditions.
- Energy Keepers, SKQ and Flathead 2024 Operations – *Eve James*
- Overall conditions in the Flathead have been dry (HGH regulates the S. Fork of Flathead River). Basin wide dry conditions have continued.
- April 2024, the overall basin had a record low snowpack, below the lowest percentile in the distribution.
- EKI requested Flood Risk Management deviations from the Corps and received approval to be 2 feet about the typical April 15 Flood Risk Management Elevation.
- EKI has also coordinated a deviation for the end of May to be 2 feet higher as well. They will continue to monitor and coordinate with the Corps as the runoff progresses.
- The start of May has been cooler and with the recent precipitation it is closer to where we were last year at this time, near the 20<sup>th</sup>-percentile.
- The ten-day forecast shows drying in the region and warming temperatures. Depending on how quickly the runoff melts off and if there is any June precipitation it will impact the lake elevations.
- SKQ project outflows and the Flathead Lake elevation are dependent on many variables, including inflows, weather, demand for electricity and then non-power constraints such as downstream fishery, instream flow requirements and flood risk management needs.
- SKQ is currently running at minimum outflows at the project.
- Elevation: ~5 feet from full.
- They are modeling the 43 streamflow forecast traces from the RFC's ESP set. They are showing about 95% of the traces refilling Flathead Lake.
- To increase awareness EKI began posting a range of forecast graphics and anyone can go to Energy Keepers website see that graphic.
- [Home - Energy Keepers, Inc. \(energykeepersinc.com\)](https://energykeepersinc.com)
- Montana's Perspective of 2024 – *Matt Boyer and Brian Marotz*
- Boyer said that Montana appreciates the in-season adaptive management in the form of the 2-foot deviation to the pool elevation at Flathead Lake. He said that he thinks that we are in a better position than last year.

- Montana is going to anticipate the drought planning and the full 20-foot draft at HGH.
- Montana does not have a SOR at this point in time, they support the current drought management plan and the operations.
- Marotz said that he has read Senator Tester’s letter, and he believes that we are on track and doing what we have been asked. He said that he thinks that we are all in the same place. Looking at the current situation, we have made May decision for the End of September draft target.
- Marotz continued saying right now, we are hoping that we do not have very rapid snow melt like we did last year, and we have average precipitation for the remainder of the summer. If not, we are going to be looking at some hard choices. But where we are sitting in the Water Year things could go the other way if we got a lot of precipitation, we could be managing high flows this summer.
- Marotz said that it is still too early to react and after speaking to everyone in the basin, EKI, CSKT, COE, BOR, and FWS, he thinks that we are on track to react to whatever happens at this point and he is starting to see a glimmer of a possible solution that he hope to develop with people in the next month or so, for the remainder of the summer.
- CSKT Perspective of 2024 – *Tom McDonald*
- McDonald shared that the recent cold snap and precipitation is really different from last Spring when we were in the nineties and the freshet was occurring, immediately and rapidly.
- He said that the one thing that should be noted that they have been engaged in; some of the noise last summer and the result of Tester’s letter is that they have been encouraging a lot of the lakeshore homeowners that have fixed assets or facilities on the lake to look at variable structures that allow them to be able to optimize their recreational opportunities through the full drafting of the lake. So, they are not limited to the paradigm that they have stuck themselves into. McDonald said that locals are reacting to that positively, there are a lot of requests for alterations to structures around the lake, their docks, ramps, and stuff. That is good news because people really need to get out of the frozen paradigm that they are in. That should keep moving in a positive way.

Ebel said that the 20-foot draft at HGH is technically a flow augmentation draft for maintaining Columbia Falls, as well as all the way down stream. He asked if BOR or EKI have looked at what the probability of the 20-foot draft at the end of September lining up with the mandated outflows from SKQ. He said that is the goal, we have to balance the inflow to the outflow and the outflow from SKQ, from what Ebel understands is set by the FERC license. He asked what the probability is that 20-feet is not enough passing through Flathead Lake to maintain those mandates.

Runyan said that it has to do what runoff they see, and that is why they rely on the current forecast and the ESP trace set. He said that James mentioned that so he is going to assume that ESP trace will essentially tell them whether or not the operation will meet that need.

James said that she is a little confused with the question. She said that the 20-foot flow augmentation is for the downstream Federal System flow augmentation. The instream license flow minimums that they have are for the lower Flathead Lake rivers, specifically to get that Spring freshet flow. They are pretty much for the month of June. She said that she knows that at HGH when they do flow augmentation, they try to do the steadily decreasing hydrograph throughout the season for the fisheries concerns downstream of HGH. She said that they are kind of two different pockets of water.

Norris told James thank you for noting that. He said that Montana has worked for decades to get the current operation with discharge across the summer months to be stable or gradually declining and to minimize double peaks on the flathead so that we can move the augmentation water without disadvantaging resident species.

Ebel said that he understands that the water moving through, but just by definition to keep Flathead Lake full SKQ is balancing outflows and inflows. He said that it sounds like the outflow is from Flathead Lake, it is pretty stable, and so if we want to avoid double peaks for resident fish essentially, we cannot really get into a scenario where Flathead Lake is being drafted because then we are going to have to increase flow from HGH. He said that is why he is asking his question, he asked again what is the level of confidence that HGH and SKQ will be matching inflows and outflows in June. He said right now he is looking at the 10-Day QPF and he said that he knows that it just had some precipitation, but it is going to go up in the 70s to low 80s and dry.

James said if we have a similar issue of not having precipitation like last year, if the lake inflows do not match what the downstream flows are then the lake will draft like last year.

Stranz asked if that is still too early to tell if that will be a reality.

James said yes, way too early to tell.

Swieca said that she thought it would be helpful if either Runyan or James, or whomever is most appropriate, commented on the implications for back-to-back dry year conditions. This is our second year of relatively dry conditions within that region and our decisions within each year impact what we are going to experience the next year to some degree. She asked if Runyan or James could comment on if we were to modify any operations, or if we modified operations last year as requested, what are the implications if we have sustained multiple drier conditions in a row.

Runyan said that he could talk about HGH. He said by doing simple math, because he has not looked at the “what if we had done something different, where would we be at this year”. He said that he does know that their draft last year was 12 feet, he said that they did contemplate potentially going to 20 feet. That would have been an additional 8 feet, that would mean that HGH would be 8 feet lower. The ESP traces showing HGH filling, but they have quite a few traces showing that they would not. We are in the second year of drought and if we had done any modification with HGH last year we would be seeing a different lower reservoir elevation, i.e., reduced refill probability at HGH and that has implications for on how much water would be available this year. This year we are planning to be full and then we are going to draft 20 feet. That additional 8 foot from last year might have reduced that likelihood and so that 20 feet might have been something less. There are also impacts to resident fish around HGH that need to be considered as well.

Swieca said that she thinks that it is important to point to make sure that everybody understands is that there is interannual interaction between the decisions that we make of

how we operation this system, especially if there are multiyear stretches of dry conditions. She thanked Runyan for making that point.

Morrill acknowledged Swieca's comments and concerns, he felt that they were appropriate. The other thing that he wanted to note, is that one of the things that comes in with this is Morrill appreciates the outreach that Montana has done with Flathead Lake landowners, educating the public to the changes that we deal with that impact water levels for reservoir and flow management. Morrill said that he appreciates and applauds them for making that effort to reach out and let stakeholders there be aware of and make effort to adapt and accept the fact that some changes are certainly ahead for many landowners in that type of situation.

Randy Brodehl, Flathead County Commissioner, said that he wanted to thank TMT for taking the Flathead very seriously up there in the impacts. He said that he looked at the information closely and the 20-foot drawdown at HGH. He said they have had many year that they have gone well below that and had good recovery on fish levels. Brodehl said that he would hate to say that that is set in stone this year or future years because we have to take into consideration the impacts that we have, the literally billions of dollars in financial and economic impacts to the areas that serve around Flathead Lake. He said that should not be the maximum we can do. He said that the other thing is, he just heard the comment about changes likely in connection to the stakeholders and yet the stakeholders have not been truly engaged in these discussions either at the Montana level or at a larger perspective of the Columbia River drainage. He said that he would just ask TMT to continue to consider the economics and recreation of Flathead Lake as a critical portion of the discussion.

Runyan said that the BOR hears Brodehl concerns load and clear on the impacts, whether for recreation or irrigation. Runyan said that he was aware that there was concerns last year as well. He said that they want to continue to hear whether they are having those impacts again. He said that he wanted to mention that in March they did a public meeting where they covered last year's operation and went into the background of Flathead Lake and HGH, the Corps also participated discussing flood control. Runyan said that for the community, if they have not seen that he would recommend that they go and look at that. Runyan did respond to Brodehl and say that the public meeting did not go into what the future is going to look like, it was mostly background information and how things played out in the last two years. Runyan provided the link for the meeting in the chat for those who missed it: [Flathead Lake Public Meeting | Bureau of Reclamation \(usbr.gov\)](#). There is a recording of the presentation, pdfs of the slides, and a few FAQs.

- Next Steps
  - Runyan said that in general, based on the letter, he will continue to update TMT, as needed through the process.
  - If there is an analysis and the traces that show challenges for Flathead Lake go away, then we are in a normal operation.
  - Alternatively, if things get dry and we are seeing more potential where the Lake is not full through Summer then it should be brought up to TMT to make sure everyone is aware and move from there.

Ebel said that he was thinking because if something is going to be done, it is going to be a lot easier to get ahead of it so that we can avoid a situation of a double peak. Ebel said that the thought process should be early. He asked BOR to watch it and not let the lake level drop to begin with somehow.

Stranz said that we will ask Runyan, Marotz, Boyer, McDonald, and James to stay in contact with each other on this one and when/if there is a need to bring this back to TMT, either for an update or for further conversation on any potential changer that might need to happen we will make sure to get that on the TMT agenda ahead of time so that we can be proactive.

- Runyan, Marotz, Boyer, McDonald, and James will stay in contact and communicate changes with Flathead Lake as necessary.

#### 6. Dworshak Update – Willow Walker, Corps-NWW

- SWE Map
  - Snowpack has remained below average.
  - There was a slight improvement, it was cold over the last several weeks and some light precipitation.
  - There was some melting but then it slowed at the higher elevations.
- 10-Day Meteorological Forecast
  - Expecting temperatures to warm a lot and the melt to pick back up.
- Monthly Precipitation Table
  - Snake River Basin abv Hells Canyon Dam
  - April Observed: 3.99 inches.
  - April % of normal: 106%
  - Good time for the basin because it slowed down the melt a little bit and increased the soil moisture.
- AWS Plots
  - Crater Meadows, ID (425)
  - Moving forward to warming temperatures we are expecting melt to pick up again.
  - Even with the delay the average melt rate is in the mid-June time frame.
  - All whatifs are within the end of May or early June timeframes.
  - The lower elevations have already melted out and the mid elevations are about there.
- NWRFC NF Clearwater – Dworshak Dam (DWRI1)
  - Shows increased inflow and faster refill.
- Dworshak Dam Projections
  - Good news is based on everything seen at this point DWR is expected to refill the reservoir.
  - The blue line (drier conditions) showing fill sooner than the orange (most likely) is based on snow melt and being able to catch more water earlier than the orange.

- No one is overly concerned about the deep draft shown. Walker wanted to show that at some point when temperature augmentation starts, we will be drafting and there will be drafting in the summer.
- Dworshak Inflow Projections
  - In the next 10 days we could have peak snow melt and have a slow decrease from there, having more water in May and less water in June. Not something that is typical.
  - They typically try to not fill the reservoir before they have 8 kcfs in, DWR is the recession limb, and that is so that DWR can make sure that the inflow is well within the powerhouse capacity of around 10 kcfs and DWR can safely manage that last final bit of fill. That is why the drier scenario can spill earlier than the most likely scenario.
- Dworshak Outflow Projections.
  - DWR is expecting to have more runoff in June than in May.
  - Not a lot, not powerhouse capacity.
  - Enough to safely manage refill and to control final spill.
  - Expecting to be in the top 5 feet by Memorial Day.
  - Ramp up: May 16 – 20
  - Waiting for the snowpack to come off as expected.
  - Be conservative and protect refill.
  - If there is desire from the region to shape differently, they are happy to have conversations about that.
  - They are not going to fill the 5 feet to the top until they have had their final snow flight for the season; this will happen in the first week of June or the last week of May.

Swieca as FPAC Chair said that they were not able to dive into this too deeply at FPAC yesterday do they do not have a recommendation for shaping prepared today. She asked if Walker could speak to the timeline that she would need a recommendation if they had one to put forth.

Walker said that ideally, they would want five business days ahead of when they would want ramping to increase. She said the reason for that is it gives them time to put out notices to the project staff, for recreation, for any river users that might be in the water, to the hatchery to make sure that they are staffed and ready to deal with any maintenance issues that might happen the first time they ramp up in a while (especially this year since they have been on minimum releases for so long). They usually provide at least a 72-hour notice to the public and it takes a while to plan that with everyone, so a five-day notice would be ideal.

Swieca said thank you, they will take that and have a conversation amongst the Salmon Managers (SM). She said that she would open it up now if any of the SM has initial thoughts or perspectives that they would like to share with Walker.

Stranz said that she will leave it for FPAC to talk about it and then circle back as needed.

Walker said thank you for the coordination and update. She said for clarity the plan at this point will be to start increasing released the end of next week/ early the following week unless they hear anything different between now and then from the region. She said that the amount of water that she has been talking about is not a ton, it would be an average of about ~3.5 kcfs.

Morrill asked if Walker had a target date for her next flight.

Walker said that it is scheduled for the first week of June to the last week of May. She said that they need to get a little bit closer to see how soon that flight would occur.

**7. Lower Monumental Dam – Juvenile Transportation Update – Kelsey Swieca, NOAA, and Chris Peery, Corps-NWW**

- Swieca said that late April to May there were a couple things that popped up that led to SM having conversations about the potential of pausing LMN Juvenile Transport.
  - On April 29, the Corps notified the SM that LMN and IHR would need extended Minimum Operating Pool (MOP) ranges to accommodate safe navigation of barge transportation across the tailrace.
  - On May 1, SM were subsequently notified that the LMN powerhouse was out of service and given that low numbers of fish are expected and have been observed using the PIT detection system in the juvenile bypass system (JBS) at LMN.
  - They have observed few individuals in the JBS which means fewer individuals are likely to be transported. There are impacts to operations to accommodate the transport operation.
  - May 3, SM put in a request for a temporary pause in LMN barge transportation, implemented May 4 through May 8.
  - May 7, SM met again to discern a path forward on the pause and they have put in another request for a continuation of the pause of LMN juvenile transport through Friday, May 17.
- Peery gave an update on LMN powerhouse.
  - Still out of operation.
  - Isolated the issue to the T2 Transformer.
  - It looks like the bushings potentially had an arc flash and that is what caused the line outage to the dam.
  - They have a potential temporary solution; isolating T1 from T2 by cutting the bus-line B that connects those too. They believe they can get T1 and Units 1 – 4 back to operation.
  - They have been attempting this since May 6, but the winds have been too high for them to get men in the basket on the crane to do the work. Today looks good and there is a potential to get the buss cut and have the powerhouse back tomorrow.
  - This is temporary and at some point, they will need an outage to reconnect those.

- Peery gave an update on the fish collection.
  - With only having station service with only Unit 1, they are collecting very few fish, once the powerhouse is back in operation that will increase.
  - They did halt the transport.
  - Peery said that his recommendation is that once the powerhouse is back in operation in that we continue to transport.
  - He said that transport does have a benefit to the fish, and it is the collection and transfer from all three dams that has the greatest benefit. That is why he believes that it is our best course to return transport as soon as possible.
  - He said that he does know that there are concerns about the flow fluctuations that happen when they have to modify spill for the fish barge at LMN. Personally, he said is not convinced that the fluctuating flows are the cause of delay at the dams. As noted, we have had some lower flows over the last couple days and that will be coming up in the next couple days. That will give us the opportunity to see how the fish react. Hopefully they will not see more delays, but they will keep an eye on that.
  - The Corps will not oppose the halt of transportation, but Peery would like to get it back up in operation as soon as possible.
  - Swieca (FPAC) said that there are discussions among the SM occurring and they have decided to put the request in for the pause in barge transportation though Friday of next week, but the large-scale conversations are happening and there are a number of perspectives being offered.
  - In terms of the efficacy of LMN transport and the impacts of changes in operation to adult delay. She said that those conversations are occurring, and they hope to have some clarity on an extended path forward.

Stranz asked for clarification, she asked if the request for a pause had been formally accepted.

Peery said that he believes that it will be accepted. He asked if Baus could clarify as the TMT representative.

Baus said the request from the SM to extend the duration of the transport cessation through May 17. He said that the Corps' perspective is that they would like to not do that, and they would like to resume transport as soon as LMN resumes operations of Units 1 – 4. The Corps does recognize SM concerns, so they are willing to implement that request and they are willing to continue the short duration transport temporarily per the SM request even though the Corps does not agree with that. It is Baus' understanding that the Corps will implement the FPAC request. He asked for clarification from Peery because the term "resume transport" has water management implications as far as the resumption of transportation if we cease it through Friday and we resume it on Saturday, May 18. He said that he assumes that the next barge pickup would be at LMN on Sunday, May 19. He asked for clarification on when the first LMN barge traverse for water management purposes because we need to plan for that.

Peery said that we could resume on May 18, and be collecting fish on May 17.

Van Dyke said that we use the term “transport” pretty loosely, he wanted to make sure that this is clear that this is the fish transport activity that we are talking to, the commercial transport of goods and services has not been ceased.

Peery said that they are just talking about the fish barges.

Ebel said that he thinks that the operations changes that are required to permit juvenile transport from LMN have impacts both upstream and down. He said that he encourages the Corps to take a look at the variability in LGS tailrace during that period when transport was occurring as well as the variation at IHR. He said that it is becoming clear to him that if we do not come up with an alternative to that rapid decrease and then increase in flow, which is caused by the spill, that we are making river conditions worse for the fish that are in the river including those that are going to arrive at LMN so that we can transport a small proportion of them. He said that they are taking a deep dive and it is going to be a slow process but any help from the Corps on identifying some of these patterns or maybe unintended consequences are appreciated and ideas on how we get around that change in the flow because it reverberates upstream and down.

Peery said that there are other operations that we could consider that would definitely reduce the fluctuations and flow and he and others at RCC could contribute to that discussion. He said that just increasing generation flow briefly while loading the barge would be the most obvious one to him.

Jay Hesse, Nez Perce, said that Peery had made a comment about fish transportation being beneficial to fish. Hesse said that he would like to highlight that the efficacy of transportation is very complex and it is not always beneficial, both in time and across species, and that is why the SM are stacking information about a long-term approach given this operation. He said for TMT and those listening that statement should be caveated that Peery’s characterization of the barge being universally beneficial is not supported by the Nez Perce.

Swieca said that it is clear that there is a lot of technical discussion required among the SM regarding what different entities see as the benefits of transportation. She said that there is certainly some discrepancy there among the SM that requires additional discussion and there is additional technical discussion as well between the SM and the Corps to understand the flexibilities to prevent the flow fluctuations that some entities have brought to the table as a serious concern. She said building off that second point, she thinks that it is important to recognize that as the LMN powerhouse comes back online which hopefully may happen soon, we do have more options on the table that are worth exploring. NOAA looks forward to those conversations both among the SM as well as with the Corps to understand the long-term solution here because this temporary pause in LMN transportation is just a short-term solution and we need to get to the bottom of this and understand both the science behind it and the flexibilities that we might be able to leverage to ameliorate some of the impacts.

Morrill thanked Swieca and Hesse. He said speaking for Washington, they have a concern for the efficiency of transportation, and he thinks that whether that is a short discussion or whether it is a longer-term discussion, he thinks that it is an important discussion. He said he is not sure how fast they will get there but Hesse’s points are reflective of Washington’s assessment throughout the years.

Stranz said thank you all for the input. She said for Swieca and other SM she looks forward to hearing what their thoughts are in the future and then also it sounds like some offline coordination might be helpful with the Corps.

## 8. Operations Review

### a. Reservoirs

*Reclamation (April 10, 2024) – Chris Runyan*

- Hungry Horse Dam
  - Inflows: 4.7 kcfs
    - Projected to increase this weekend as we get the warm temperatures moving in.
  - Outflows: 5.5 kcfs
  - Midnight elevation: 3540.8 feet
    - Feet from Full: 19.2 feet
  - Looking at decreasing HGH this week or next.
- Grand Coulee Dam (Hope Gauge)
  - Inflows: 78.5 kcfs
  - Outflows: 59.9 kcfs
  - Midnight elevation: 1280.2 feet
    - Feet from full: 9.8 feet
  - May 30 FRM Elevation: 1284 feet

*Corps – Aaron Marshall*

- Libby Dam
  - Outflows: 10 kcfs
  - Midnight elevation: 2419.7 feet
  - Starting Sturgeon pulse later this month.
- Albeni Falls (Lake Pend Oreille @ Hope gage)
  - Outflows: 25 kcfs
  - Midnight elevation: 2055.1 feet
  - Spring refill has begun but Albeni Falls is holding the lake elevation steady until we see inflows pick up a little more over the beginning of the freshet.
- Dworshak Dam
  - Outflows: 1.6 kcfs
  - Midnight elevation: 1577.7 feet
- Lower Granite Dam
  - Outflows: 76 kcfs
  - Midnight elevation: 733.7 feet
- McNary Dam
  - Inflows: 145 kcfs

- Midnight elevation: 339.18 feet
- John Day Dam
  - Currently in the high pool range for the Blalock Islands Caspian Tern nesting inundation.
  - Range: 2604.5 – 2606.5 feet
  - Will continue through June 1 and then they will resume the transition to minimum irrigation pool following in early June.
- MOP Updates
  - LWG and the other three Lower Snake projects are currently operating within the normal MOP range.
  - The Corps did previously have an expanded four-day range at IHR and LMN, that was to help accommodate the fish transport barge at the LMN tailrace.
  - Those MOP ranges are suspended until fish transport is resumed and then only used when needed for that purpose.
- b. Water Quality – Daniel Turner, Corps
  - TDG
    - TDG are well below the 125% TDG level in the Lower River and a lot of the powerhouses are mainly at minimum generation with spill the rest with special caveats with certain projects.
- c. Fish
  - Salmon – Swieca, NOAA*
    - Juveniles Index Estimates
      - Yearling Chinook:
        - Lower Granite: 15,000
        - McNary: 4,000
        - Bonneville: 69,000
      - Subyearling Chinook:
        - Lower Snake: 0 to ~1000
        - Lower Columbia: 0 to ~2500 (@ BON)
      - Steelhead
        - Lower Granite: 22,000
        - Bonneville: 13,000
    - Adult Salmon Counts
      - Passage has ticked up for many species over the past week and relative to Swieca’s last update to TMT (2 weeks ago).
      - Bonneville

- Chinook: mid – 2000s to nearly 6000 daily
- Steelhead: average 21 per day
- In the Snake River there is evidence of adult Chinook delay at both IHR and LMN, which they continue to track closely as the SM.
  - Ultimately the Chinook passage has picked up over the past day or two.
  - Ice Harbor: > 1000 individuals
  - Lower Monumental: > 600 individuals
  - A handful of Steelhead have been passing these projects each day.

*Lamprey – Swank, USFWS*

- One adult sighted at John Day, likely an overwintering individual wanting to get an early start.
- Juvenile lamprey are in low to moderate numbers at the projects.

*Passage Indices – Morrill, WDFW*

- Morrill posted the Yearling Chinook and Steelhead Cumulative passage indices from the FTC website.
  - | *Charles Morrill 11:05*
  - | *Current Lower Granite Cumulative Passage indices:*
  - | *Yearling Chinook:*
  - | *[https://www.fpc.org/smolt/smolt\\_queries/R\\_smoltcumulativepassindex\\_resultsv7.php](https://www.fpc.org/smolt/smolt_queries/R_smoltcumulativepassindex_resultsv7.php)*

| *Steelhead:*

| [https://www.fpc.org/smolt/smolt\\_queries/R\\_smoltcumulativepassindex\\_resultsv7.phpSteelhead:](https://www.fpc.org/smolt/smolt_queries/R_smoltcumulativepassindex_resultsv7.phpSteelhead)

- Morrill said that the numbers have declined over the past week or more. We did see an earlier peak in late April.
- Flows are increasing and expected to increase. Flows are expected to be over 100 in the coming week so we will see how that will play out.
- Peak passage for both yearling chinook and steelhead normally is sometime typically between early – mid May.
- Morrill also shared an update from TAC.

| *Charles Morrill 11:06*

| *Status Update on Spring Chinook Run*

| *TAC did not update the run size this week. Most of the models still indicate the expectation is to meet or exceed the pre-season forecast. Pre-Season expectation of ~ 115 K at river mouth. Recent year average 50% completion date is ~May 11 for reference.*

- TAC did not revise the Adult Spring/Summer Run Forecast.
- Still stands at 115,000 at the mouth of the river.

d. Power System – Tony Norris, BPA

- Windy over the last several days.
- Warm weather is coming up.
- Expect to meet customers' load.

**9. Public Comments:** None

**10. Set agenda for next meeting – May 15, 2024**

**Today’s Attendees:**

<b>Agency</b>	<b>TMT Representative(s)</b>
NOAA Fisheries	Kelsey Swieca, Trevor Conder
Oregon	Erick Van Dyke
Washington	Charles Morrill
Kootenai Tribe	
Colville Tribe	Dennis Moore
Umatilla Tribe	Tom Lorz (CRITFC)
Yakama Nation	Keely Murdoch, Tom Iverson
Bureau of Reclamation	Chris Runyan
Army Corps of Engineers	Doug Baus (Chair), Julie Ammann, Lisa Wright, Aaron Marshall
US Fish & Wildlife Service	Dave Swank
Idaho	Jonathan Ebel
Montana	Brian Marotz, Matt Boyer
Spokane Tribe	
Nez Perce Tribe	Jay Hesse
Warm Springs Tribe	
Confederated Salish and Kootenai Tribes	Tom McDonald
Bonneville Power Administration	Tony Norris, Scott Bettin, Ben Hausmann

Other Attendees (non-TMT members):

COE – Dan Turner, Willow Walker, Courtney Moore, David Varner, Chris Peery, Denise Griffith, Elizabeth Holdren, Tiffany Stoeckig-Dixon, Gregory Hoffman

BOR – Eric Rothwell

BPA – Tammy Mackey, Carolina Andes

USFWS – Ahren Ramirez

Washington Ecology – Thomas Starkey

Montana Senator Jon Tester’s Office – Chad Campbell

DS Consulting – Emily Stranz (Facilitator), Colby Mills

CorSource – Andrea Ausmus (BPA note taker, Contractor) *recording only*

Energy Keepers – Eve James

Clearing Up – K.C. Mehaffey

Avista Utilities – Patrick Maher

Guzman Energy – George McLean

Snohomish PUD – Jesse Preuss

Salish and Kootenai Tribe Fisheries – Les Evarts