

COLUMBIA RIVER TECHNICAL MANAGEMENT TEAM

July 12, 2023

Facilitator's Summary

Facilitation Team: Emily Stranz & Colby Mills, DS Consulting

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

Review Meeting Summaries & Minutes – TMT Members approved the official meeting minutes and facilitator's summaries from the June 14 and June 28 TMT meetings.

Dworshak Operations – Jon Roberts, Corps, reported updated model results for Dworshak operations, noting that this is the time of year when the project works to offset and minimize warming temperature effects on the lower Snake River. Dworshak is currently releasing its powerhouse capacity of about 9.6 kcfs, with the pool 10 feet from full and drafting about 1 foot/day. Pool elevation this morning was 1,590 feet and will cross under 1,589 feet throughout the day.

Natural flow on the Snake River at Anatone is currently about 70 degrees F, and 72 degrees F on the Clearwater River at Orofino. With the two river systems combined there is about 36,000 cfs, with most coming through Snake River system. With Dworshak releasing another 10,000 cfs at 43 degrees F, the Clearwater is mixing well, at about 52 degrees F (varies about 3 degrees F each day with solar radiation). The Lower Granite tailwater is currently 66 degrees F, and was higher on July 4 and 5, above 68 degrees F. Jon noted that the natural river flow was just under 70 degrees F during a larger regional event that included the 3 hottest days recorded on earth, which resulted in direct intense heat. Stratification in the Lower Granite pool has been restored, and Jon does not anticipate this type of event to occur throughout the summer. The Lower Granite fish trap is about 65-66 degrees F (did warm up to 68 degrees F during the recent heat) and has cooled to the ideal range for this time of year.

Forecasts show generally ideal conditions for this time of year to maintain 68 degrees F in the Lower Granite tailwater, although heat is coming this Saturday and Sunday to over 100 degrees F. Temperatures are forecasted to drop into the low 90's by Tuesday, with nighttime temperatures into the low 60s. In Lewiston, temperatures on Saturday could reach 104 degrees F, and 107 degrees F on Sunday, and by Tuesday will cool back to 91 degrees F.

The updated temperature model from this morning shows Dworshak ramp up on July 2 to meet normal temperatures coming down the river with the last of the cold water from the mountains; slowly ramping up to about 2,000 today. The ramp up coincided with projections for Lower Granite tailwater temperatures above 70 degrees F on July 7 and 8, and as a result Dworshak spilled for 3 days in a row, and slowly decreased back down to powerhouse over July 10 and 11. As of now, Jon anticipates stratification in the Lower Granite pool to remain, although temperatures could rise closer to 68 degrees F with the hot weather this weekend. No additional spilling from Dworshak is anticipated due to the quick return of cooler weather in the forecast. There could possibly be a heat wave at the end of the 10-day period, this will be reassessed next week.

July 2 is typical timing to ramp up Dworshak releases for temperature augmentation and resulted in about 6 days of extra water for spill; 3 days have been utilized, and more remains to utilize during a potential future heat wave(s). The Corps is not anticipating a need for additional Dworshak spill increases in July

given forecasted conditions; this should put the project in a good position for August. Jon's team will continue to monitor and provide weekly TMT updates, including remaining water volumes.

Trevor Conder, NOAA, asked if Jon had projections for the Ice Harbor Dam tailwater temperature, given the hot weather forecasted this weekend and that the bulk of Snake River adult sockeye are returning. Jon would expect a momentary water temperature spike for at least a day or two, with water cooling right back down Monday and Tuesday. Additionally, Dworshak stopped spilling yesterday (takes about 4 days to reach Lower Granite) so more cold water will be hitting the Lower Granite forebay on Saturday to help offset the heat over the weekend. Exact temperatures could vary 1-3 degrees F that far down.

Jay Hesse, Nez Perce Tribe, asked if Dworshak water has been considered to manage temperatures at Little Goose during the outage of its ladder cooling pump? Jon noted that Dworshak operates to maintain the Lower Granite tailwater throughout the summer. With direction from FPAC, they would be happy to look at other management options, including adaptive management by TMT. Getting the Little Goose pump fixed will be an upcoming discussion at FPOM tomorrow. Charles Morrill, WDFW, reported that initial updates relayed a possible timeline of up to a month for ladder pump repairs, which is a concern for Salmon Managers.

Hungry Horse Operations – In response to requests from Jennifer Carrington, Reclamation Regional Director, and Greg Gianforte, Governor of Montana, TMT deliberated on water levels in Flathead Lake and the possibility of using Hungry Horse releases to fill the lake. Randy Brodehl, Flathead County Commissioner, reported that Flathead Lake levels have been drawn down to about 19-20 inches below full pool. The top provider of water into the lake is Hungry Horse Dam. As a result of the low water levels, the ability to irrigate agricultural land on the east side of the valley is being lost, and about \$600 million of recreational income into the local economy is being threatened and quickly affected. Gale Decker, Lake County Commissioner, reported that Lake County's concerns are related to recreation and tourism, and the impact to the local economy and business that relies on Flathead Lake in the summer. He noted this is the first time this has happened in the Dam's operational history, which has left locals unprepared. The Commissioners asked that releases from Hungry Horse are used to bring Flathead Lake up to within 12 inches from full pool through September 1.

In response to inquiry, it was clarified that Flathead Lake full pool is 2,893 feet and is typically reached in mid-June and held within the top foot of elevation through Labor Day. Midnight elevation last night was 2,891.16 feet, and the highest point reached was 2,892.7 feet, considered full.

Joel Fenolio, Reclamation, noted that 2015 was the last really dry year in the Flathead Basin. This year, a significant runoff event occurred in May, but there was below average snowpack. The basin is seeing base flows that are matching minimums seen in the 1991 to 2020 averaging period throughout the system right now. Hungry Horse was able to get within 7-feet from full, then had a TMT-coordinated operation on June 28 to keep releases at 2,000 cfs. This year the draft target for the NOAA BiOp was 12-feet from full, based on May water supply forecasts. Outflows were kept at 2,000 cfs, because in dry years like this, Hungry Horse is used to support Columbia Falls minimums. Forecasts led to projected releases upwards of 2.5 kcfs at the end of August/early September to maintain those minimum flows. The current plan of releasing at 2,000 cfs targets being below the 12-feet from full target and provides for gradually or decreasing releases throughout the summer, specifically on the south fork. Joel thought the reservoir would likely come in between 15-18-feet from full by September 30, close to the 20-foot limit for the summer draft target for Hungry Horse. This projection is if the project operates as already coordinated and conditions remain dry.

Joel expressed concern about potentially drafting the project further than it already is. He reiterated that this is another hot dry summer that started with very low base flows, as the project was essentially

operating to Columbia Falls minimums from October 1, 2022, to April 1, 2023, and did draft out 40 feet mainly operating to minimums which supported culvert repair on Kneiff Creek. Considering this another hot dry summer, with a chance of el niño conditions, the project could be in dire straits next year in its ability to refill and provide decent flows next summer. 3,560 feet is full pool at the project; it hit 3,553.5 feet which was considered full.

In response to a query about considerations for winter operations this request might trigger, Joel noted that the only modification to operations could be to set the Columbia Falls minimum targets lower (currently 3,500 cfs), which wouldn't do much for Hungry Horse based off March 2023 WSF. He thought it likely the project will operate to Columbia Falls minimums throughout the winter. Tony Norris, BPA, added that it's rare that there is any power flexibility in the winter at Hungry Horse because the project is typically drafted below FRM and the Variable Draft Limit for power flexibility while meeting the Columbia falls minimum (NOAA & USFWS BiOps).

Questions from TMT Members regarding potential impacts of the requested operation:

- Jonathan Ebel, ID, asked if the Counties or the State of Montana considered other flexibility in the operation of the project formerly known as Kerr Dam? Coming to TMT this late into the issue presents a challenge. There may be flexibility within Kerr Dam's Federal Energy Regulatory Commission (FERC) license to match inflow under a low flow scenario? (*Facilitator's Note: former Kerr Dam is now the Séliš Ksanka Qlispé Project, or SKQ Dam, managed by the Tribally owned Energy Keepers, Inc., a corporation of the Confederated Salish and Kootenai Tribes*)
 - Commissioner Brodehl noted that the project began to decrease outflows on July 1, which has helped significantly by slowing the amount of water leaving the reservoir, but more recovery is needed at the other end of the lake. The project's outflows took a huge drop in a short period of time, and Energy Keepers have been very responsive. If there was a way to decrease outflows further to meet the needs of TMT stakeholders, anything would help the situation.
 - Eve James, Energy Keepers, clarified that the project has been on the FERC minimum flow requirement, and ramped down as fast as the license allowed, and has been on minimum flows since June 3 as soon as it was released from flood risk management elevation requirements. They have been following the licensed minimum flows. Decreasing below the licensed minimum flows is part of a drought management plan in cases where the lake does not reach refill. Flathead Lake was able to reach full, albeit briefly, so the drought management plan was never triggered by the Secretary of the Interior.
- Johnathan suggested reconsidering the drought management plan trigger to avoid this situation in the future when outflows are greater than inflows.
- What would the operation look like to raise Flathead Lake the requested amount, and hold through the end of the summer? What would the flow rate out of the project look like?
 - Joel replied that to get back within a foot from full and hold, it would require 7,000-8,000 cfs for 7-10 days then ramping down to about 3,000 cfs by the end of the month, back down to 2,000 cfs, and finally to the Columbia Falls Minimum. Potentially a draft down to 3,535-3,536 feet. It would require a 7-8-foot draft increase to achieve the request.
- Jonathan asked whether Energy Keepers has an idea of what outflows would be from SKQ throughout the summer if this were to be implemented?
 - Eve noted that SKQ was previously looking at holding 4,300-4,500 cfs for the rest of the summer and would have to look at formal SOR details for outflow projections based on the request.

- Erick Van Dyke, OR, emphasized that the request needs a formal SOR in writing for reference and clarity of the request. The operations are complex, as two reservoirs are being considered, Hungry Horse and Flathead Lake.
- Jonathan asked the State of Montana if there has been any use of the SKQ Dam FERC license article 56 to get more flexibility within the system?
 - Eve James, Energy Keepers, added via chat that the Article 56 minimum for today is 7,660 cfs, and decreases 420 cfs per day until July 15, then it decreases 200 cfs per day. There is a different license article about having to pass flow augmentation water downstream, so depending on how the SOR is written, it could impact what the minimum values are. The project is running at Article 56 minimums, with a very small buffer so as not to dip below the minimum flow requirements.

TMT Members requested the forthcoming SOR and/or discussion include the following considerations:

- Acknowledgement regarding the biological impacts of the request and recognition that the operations in the Water Management Plan were developed, and have been historically supported by Montana, for very strong biological reasons. There is a long history of deliberation and rationale behind the current Hungry Horse operations.
- Clear context and exploration of any flexibility for irrigation, recreation, or economic impacts that are contributing to the request.
- Potential impacts to flow and volumes downstream of Flathead Lake and to the mid & lower Columbia River.
- Potential impact on maintaining the winter elevation at Pend Oreille, and potential impacts under a dry year scenario to the refill of Pend Oreille.
- Impacts that may extend past this water year.
- Consideration of the likelihood of events like this happening again in the future under climate change; long-term solutions should be explored.

Brian Marotz, MT, noted that this is only the beginning of the conversation, dealing with a complicated system. Suggested operational changes must go through significant process, and requests must demonstrate the biological and economic effects.

- **ACTION:** Montana County Commissioners and State leadership will work with their TMT representatives, Brian Marotz and Matt Boyer, to develop an SOR that addresses Montana's concerns on Flathead Lake elevations and includes a clear operational change request.
- **ACTION:** Montana will submit the SOR to TMT by 2pm on Thursday, July 13, for review at an unscheduled TMT meeting on Friday, July 14, otherwise it will be reviewed at the next regularly scheduled TMT meeting on July 19.

Operations Review

Reservoirs – Joel reported on Bureau of Reclamation projects:

- **Hungry Horse:** midnight elevation was 3,553.2 feet, with continued releases of 2,000 cfs, and inflows dropping to an average of 1,450 cfs.
- **Grand Coulee:** midnight elevation was 1,288.8 feet, with inflows averaging about 99,000 cfs, and releases yesterday averaging 116,000 cfs. The project hit a full pool target of 1,289.6 feet on July 9, and will start targeting the 12-foot (+ incremental difference from irrigation) draft by the end of August. Joel will provide an updated number on incremental amounts at the next TMT meeting.

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

- **Libby:** midnight elevation was 2,452.2 feet, average inflows of 9.9 kcfs, and outflows of 8.5 kcfs;
- **Albeni Falls:** midnight elevation was 2,062.3 feet, average inflows of 17.2 kcfs, and outflows of 14.8 kcfs;

- **Dworshak:** midnight elevation was 1,590.25 feet, average inflows of 1.5 kcfs, and outflows of 10.5 kcfs;
- **Lower Granite:** average outflows of 42.4 kcfs;
- **McNary:** average outflows of 129.5 kcfs; and,
- **Bonneville:** average outflows of 126.6 kcfs.

Aaron Marshall, Corps, provided an update on MOP operations for lower Snake River projects. Lower Monumental Dam is currently operating within a 0.5-foot raised MOP range, as of June 16, to help maintain the minimum tailwater elevation at Little Goose Dam; all other lower Snake projects are operating within their normal MOP range.

Water Quality – Alexis Mills, Corps, reported that summer spill operations continue at all 8 projects, and TDG levels are below summer Water Quality Standards (WQS). Lower Monumental Dam switched to a uniform spill pattern on June 28 to manage the Ice Harbor forebay TDG to at-or-below 115%. The Corps has evaluated conditions on a daily basis to determine a reasonable opportunity to switch back to the bulk pattern. Over the weekend there was another exceedance, even with the uniform spill pattern, but TDG has been steadily decreasing so the project will return to the bulk pattern today. Erick noted ODFW's continued preference for using the uniform pattern whenever possible.

Fish: For juveniles, Trevor reported that sub-yearling Chinook are the predominant species moving through the system, with good numbers at reporting sites.

At Bonneville, adult Chinook are declining between summer and fall runs, with 800/day, similar to the 10-year average. Adult steelhead are beginning to increase and catch up to average, with about 800/day; sockeye and shad are both declining. At Ice Harbor, adult Chinook are 100/day, with steelhead increasing, and sockeye over 100/day. Trevor noted that IDFG's estimated return is above 2,000, based on PIT detections and modeling. Lower Granite is also seeing adult Chinook at 100/day, and a total of 272 sockeye to date. Jonathan noted that IDFG is tracking sockeye conversion rates in real time and will provide to-date numbers next week. Nothing looks particularly abnormal for sockeye passage through the system.

Jay Hesse, Nez Perce Tribe, clarified that overall, 10-year averages are not close to what they should be from a fish perspective; those numbers are not what Salmon Managers are trying to achieve.

Dave Swank, USFWS, reported that the lamprey run at Bonneville is currently at 215% of the 10-year average, with almost 41,000 counted in the daytime ladder counts.

Power System – Tony Norris, BPA, reported hot weather ahead; all is well on the power system.

Questions and Comments from Members of the Public – Perry Cole noted that from their perspective, whether water is stored at Hungry Horse or Flathead Lake, stored water is intended for downstream interests. Perry urged the TMT to release water from Hungry Horse to Flathead, noting that the Energy Keeper's drought management plan was not triggered because Flathead Lake briefly met full pool and that was perhaps a tactical mistake for irrigation, recreation, and other interests. Perry continued that the FERC license is supposed to look at power generation, biological interests, recreation, and other interests equally without bias. He emphasized revisiting the drought management plan to determine if it should have been triggered, to have more flexibility to manage the lake levels, and to look historically to see what could be done differently to avoid dramatic impacts. Perry noted that he feels that Flathead Lake is taking a huge hit and that water coming out in May should have been captured.

Pending a forthcoming System Operational Request from the State of Montana, there may be an unscheduled TMT meeting on Friday morning, July 14 at 10:00am.

The next scheduled TMT meeting is on July 19, 2023, at 9:00 AM.

**Columbia River Regional Forum
Technical Management Team
OFFICIAL MINUTES
Wednesday, July 12, 2023
Minutes: Andrea Ausmus, BPA (contractor, CorSource Technology Group)**

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

1. Review Summaries and Minutes – June 14 and June 28

- June 14 – Approved
- June 28 – Approved

2. Dworshak Operations – Jonathan Roberts, Corps-NWW

Time for temperature consideration on the Lower Snake when Dworshak starts to release water to offset and minimize some of the temperature impacts along the Lower Snake.

a. Current Data (July 12)

- Current Releases: **9.6 kcfs** (powerhouse capacity)
- 10 feet from full and drafting one foot per day now that they are down at the powerhouse capacity.
- Current Elevation: **1590'**
 - Will cross over to 1589' throughout the day.
 - The drafting will slow as they have stopped spilling and reduced outflow to full powerhouse.

b. Snake and Clearwater Rivers Temperature Data

- Snake River (Anatone) **70°F**
- Clearwater River (Orofino) **72°F**
- Combined **36 kcfs** (most through Snake system)
- Dworshak
 - Releasing another **10 kcfs**
 - Temperature **~43°F**
 - Clearwater Mixing **~52°F** ($\pm 3^\circ\text{F}$ diel fluctuation w/ solar radiation)
 - Lower Granite tailwater **66°F**

- Temperatures were higher on July 4 and July 5, those tailrace temperature were above 68°F. Natural river temperatures were right under 70°F.
- This was part of a much larger regional event where we had the three warmest days recorded on earth. This did affect our area here west of the Cascades.
- There was a lot of direct sunlight orientation and very intense heat that penetrated through the forebay stratification for a couple of days and then it cooled right back off.
- Even though the natural temperatures climbed to 75°F through July 7 and 8 the stratification has been restored.
- Current RSW flow (spills from top of pool) ~**69°F**
- Area that fluctuates the most due to the direct solar radiation throughout the day.
- 10-20m depth (spillway tainter gates) **65°F**
- Turbine flow **30 – 35°F**
- Currently the water is very cool at depth and there is very good stratification set up.
- July 3 and July 4 there was an intense heat that did not affect the upper temperatures as much, instead it ran right down all the way through the forebay. It was quickly restored by July 6. This was a unique event and Roberts does not anticipate it to continue occurring throughout the year.
- Lower Granite Fish Trap **65 – 66°F**
- Fish trap ran to 68°F on the hot days.
- Whole pool cooled down to a more ideal range for what we would expect for this time of year.

c. Forecast

- Looking at ideal conditions for this time in the summer for us to maintain **68°F** in the Lower Granite tailrace.
- Two days of heat coming up.
- Saturday weather forecast for Lewiston, ID **>100°F**
- Intense heat on Sunday
- Positive news is that it will quickly cool back down with Tuesday back into low 90s, with temperatures at night in the low 60s.
- It is more ideal to only get a few days of extreme heat, what is more problematic is the extended heat that can warm up the forebay.
- Lewiston Temperatures

- Saturday (July 15) **104°F**
- Sunday (July 16) **107°F**
- Monday Night (July 17) **61°F**
- Will help move cool air in and suck the heat back off the top of the forebay.
- Tuesday (July 18) **91°F**

d. Temperature Model (July 12, 2023)

- On July 2, Dworshak was ramping up to meet the normal temperatures coming down the river as the last of the cold water was coming out of the mountains.
- They were slowly ramping up based on the new kind of ramping requirements that put Dworshak at about 2 kcfs per day.
- They were ramping up in anticipation of the >70°F water that was anticipated on July 8, 2023. Water did hit that target.
- Dworshak spilled some water for three days in a row and then slowly decreased back down to full powerhouse over July 10 and 11.
- At this point, the Corps is anticipating the stratification in the Lower Granite forebay to remain. With those two 100°F temperature days they do expect to see the temperature in the tailrace to rise closer to 68°F instead of the 66°F.
- With the cooler weather coming back in there is no need for them to spill additional water for the future as of right now.
- There is a potential heatwave at the end of the 10-day that might be intensifying or coming back. They will reexamine that next week.

e. Flow Augmentation and Water Outlook

- Average start of Dworshak releases for temperature augmentation is between July 1 and July 5.
 - Typically have six days of extra water that they can spill with.
 - Dworshak has utilized three days of spill.
 - Still have water in the bank for later, for another more intense heat wave that might last three to five days, or something later in August.
 - Looking at closer to the end of July they are not seeing anything that they would need to throw water at which puts them in a good position to start August. As of now, there is no concern of running out of water.
 - They will continue to monitor as they go and look at the water accounting again more closely into the first of August so that they will have a better understanding of the weather and the long-term forecast.
- The Corps will begin providing weekly Dworshak updates to keep TMT informed.

Trevor Conder, NOAA, asked about the high temperature scenario on Saturday and Sunday. He noted that temperature would be getting close to the 68°F at Lower Granite's tailrace. Conder asked if Roberts has taken a look at what the projection for Ice Harbor's tailwater might be given that we have the bulk of the Snake River sockeye are returning right now. Conder said that there is a pattern that when the temperatures get over 72°F the sockeye tend to hold up and that be an issue for the later half of the run. Conder asked if we are keeping an eye on that and what Roberts expects of those temperatures.

Roberts said that he only expects a day or two of momentary spike in temperature there. He said that the good news there is that the water is going to cool back down on Monday and Tuesday, so if it does reach the 72°F range there will be very quick relief. He added that they just quit spilling from Dworshak yesterday (July 11) and it takes four days to move down. That water will be hitting Lower Granite's forebay in the Saturday timeframe, then it will make its way down the river. There is still additional cold water in the system that will be working its way down through the Lower Snake to help offset this short heat wave. He said the exact temperatures or projections he does not have the answers for Conder, he said that it could vary from 1-3° that far down.

Conder said that he appreciates that, he said that would like to make sure that we are not staying laser focused on Lower Granite that we are losing sight of that in some of these management decisions. He said that he is sure that Roberts is doing that, but he is just staying after it.

Jay Hesse, Nez Perce, said that he would like to build off Conder's question and apply it to Little Goose. He said that the reality that the pump for cooling off the ladder at Little Goose is non-operational. He asked if Roberts has looked at scenarios of using water to try to manage ladder temperatures at Little Goose while the pump is out-of-service.

Roberts said that they have not looked at additional alternative based on what currently may happen as with that ladder or that pump being out without there being a suggestion being put forth by FPAC because right now they are constrained to ensuring that there is enough water for the tailwater of Lower Granite through the summer. Roberts said that if there is another recommendation or request they are always happy to look at those and look at different alternatives.

Hesse said that he appreciates that, and that his preference is to get the pump fixed quickly and not have to use any additional Dworshak water given that it is limited. His understanding is that getting the pump fixed will be a discussion in FPOM and that folks understand the urgency in that.

Roberts said that as always there is an avenue option to look at other alternatives at the discretion here at TMT to look at utilizing the water differently based on adaptive management. He said that they are happy to look at other alternatives as well.

Stranz said that the discussion about the pump will happen at FPOM and if needed add as a topic to the TMT agenda if we need to think of other operations.

Charles Morrill, WA, added that talked to Chris Peery about the pump at Little Goose and they will be discussing it at FPOM tomorrow (July 13). He said that the initial news

from Peery was that the pump would possibly be out of service for up to a month. He added that it is a concern for the regional managers.

Jonathan Ebel, ID, asked for confirmation that Roberts will be providing the end of August prediction for Dworshak elevation at the first TMT meeting in August. He asked if it will be possible to get that earlier, and what would constrain that because if they could get the projection and then things come up they will have a good idea of how much flexibility they may have.

Roberts said they will be giving an update weekly, providing how much “extra water” is left that they could spill and still utilize the powerhouse. He said that he was planning on taking a midway point looking at Dworshak in more detail. Roberts said that it is something that we can look at every week if that were something that TMT would like. He said for everyone’s awareness that he will be out for the next two weeks so Grant Bell will be running the temperature model with Willow Walker’s assistance as needed. He will be giving the updates for the next two weeks as well. Roberts added as well that he would make sure that people are aware that if they are using too much water or if they ran into a certain operation that would constrain them into not having enough water to get to the end of the year. Roberts said that TMT takes a closer look at that because that is when the Dworshak Board is convening and where they are coming in operationally wise for that.

Morrill said that Roberts spoke about the concerns about extended days of heat. Morrill said that one of the comments from Kyle Dittmer at yesterday’s FPAC meeting was in his outlook that it was much more likely that there would be a few days of heat, but he did not see any extended heatwaves in looking at his forecast data for the next several weeks. Morrill said that would be a plus.

3. Hungry Horse Operations - Joel Fenolio, Reclamation, and Brian Marotz, MT

a. Reclamation Letter to TMT & Montana Letter to TMT

- Stranz introduced the two letters linked on the agenda addressed to TMT about Hungry Horse (HGH) operations.
- A letter from Jennifer Carrington, Regional Director of the Bureau of Reclamation, with a request for TMT to have some conversation on lake elevations and operations.
- A letter from the Governor of Montana requesting the same conversation with a couple specific questions for TMT to consider.

Stranz asked who would be taking the lead to describe the requests.

Brian Marotz, MT, said he does not have anything prepared because he is learning that when you affect Flathead Lake it draws a lot of attention. He is looking at this as a beginning of a discussion because he has not had the opportunity to talk to many of the people that are concerned about the lake level and explain the rules that we operate under or how TMT does business. Given that, he will play whatever role that he can.

Randy Brodehl, Flathead County Commissioner, said that he will step in as he has been engaged since the beginning.

Stranz explained the process called a System Operation Request (SOR) is a way for TMT, or anyone, who would like to see a different operation to request that formally from TMT. What that allows is TMT to deliberate on the request, weigh the pros and cons, and the impacts from a biological and an operational perspective. She added that TMT does not have the full formal SOR today so she thinks what would be helpful is to have a conversation around what it is the State of Montana is looking for in operations from HGH and what lake elevation Montana is looking for. Then we can hear from Reclamation on what the range of possibilities are from their perspective. Stranz added that after that there is a chance for some TMT back and forth discussion, but this will be treated as an initial conversation to then inform a formal SOR that can be formally polled on.

- b. Montana’s Request Regarding Flathead Lake Operations – *Randy Brodehl, Flathead County Commissioner, Gale Decker, Lake County Commissioner*
- Flathead Lake levels have been drawn down to 19–20 inches below full pool.
 - The number one provider for water coming into the lake is HGH
 - Losing the ability to irrigate on the eastside of the valley for several of the agricultural users.
 - \$600M in recreation economy that comes into the valley off the lake in both Lake County and Flathead County.
 - Marinas are closing, boats are being pulled out.
 - The economy is being directly affected in a negative way.
 - Lake County’s concerns are primarily recreation and tourism; summer industry businesses rely on Flathead Lake.
 - With the current lake levels boat rentals and cruises are shut down because they cannot get boats launched in the lake.
 - It is the first time that this has happened in the history of the operation of the dam, so people were not prepared for it, and it has been hard time trying to deal with it.
 - Requesting to bring Flathead Lake up to 12 inches of full pool until September 1.
 - Goals:
 - Get past potato, canola, and wheat harvest.
 - Reach the end of the tourist summer lake season.

Kelsey Swieca, NOAA, asked for clarification. She said that they got a request from the Flathead County Commission that their request is to get within one foot of full pool, which would be a raise of ~8 inches. She said that the Lake County requested a 12-inch raise. She asked if they could clarify what the request is.

Both Commissioners agreed that it was 12 inches of full pool. Brodehl said that he would like to see 12 inches from full pool so that their irrigators intakes can get covered. It will also reduce the impact to the recreational community.

Ebel asked if the counties or the State of Montana discussed flexibility in the operations of Seli's Ksanka Qlispe' (formally Kerr) Dam (SKQ).

Brodehl said that SKQ Dam beginning July 1 began to decrease output, which helped a lot. It slowed down the amount of water leaving the lake, but they need the recovery to come in at the other end of the lake.

Ebel said that there is some flexibility, or at least a mention in the SKQ Dam FERC license. He said that we are late to the game in terms of coming to TMT. He said there is flexibility in the FERC license to have matched inflow under a low flow scenario. Ebel said that he was wondering if that was pursued prior to coming to TMT.

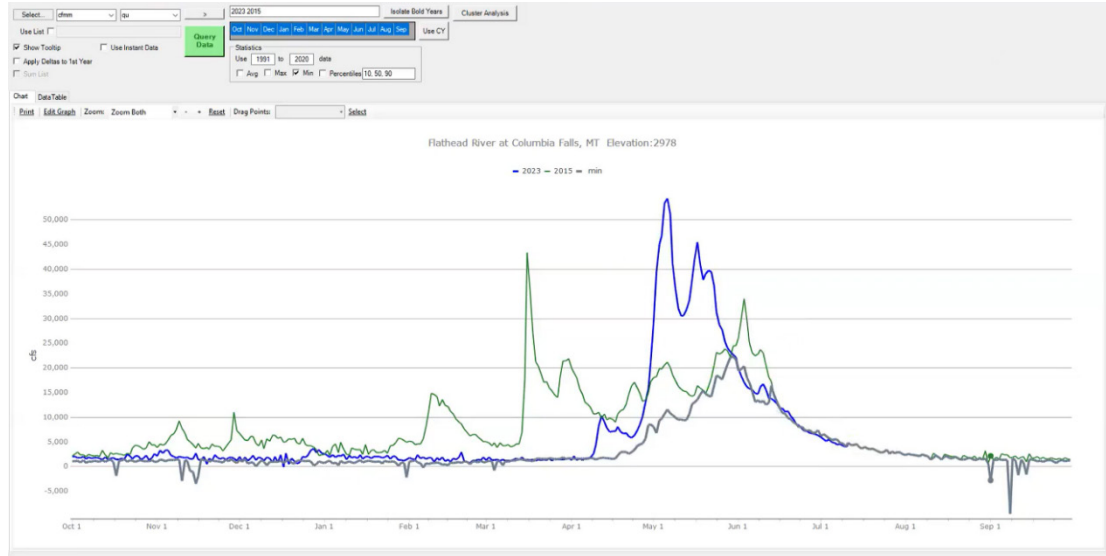
Brodehl said for the Flathead, what they saw at SKQ Dam is they reduced outflow from 12,600 feet/sec to ~8000 feet/sec. This is a huge drop in a short period of time. He said that Energy Keepers have been very responsive in meeting that. If there was a way to decrease that further and still meet the needs of the rest of the TMT stakeholders. Anything we could do would really help.

Eve James, Energy Keepers, said that they have been on the FERC Minimum Flow Requirement. They ramped down as fast as the license allowed. They have been on minimum flow since June 3, as soon as they were released from their flood risk management elevation requirements, and they have been following the licensed minimum flows. In terms of what Ebel was referring to, decreasing below minimum flows, it is part of the drought management plan in cases where the lake does not reach refill. This year, Energy Keepers was able to work with the Corps on getting the lake full, managing withing the flood risk management procedure. They were able to fill Flathead Lake so that drought management plan was never triggered by the Secretary of Interior and that is the only mechanism in which you can go below the licensed minimum flows. It does not apply here.

Ebel said that James identified the language he saw in the FERC license. He said that he was unaware that if they touched full than that flexibility occur would go away. He suggested that this should be thought about for in the future so that this does not happen again. They ended up in this situation because their outflow was greater than their inflow and that is something that could probably have been coordinated and avoided. He did not want to go too much into hindsight.

Stranz pointed out that the Governor did ask for future solutions.

Erick Van Dyke, OR, said that this is getting more complicated when we talk to details. He noted that there is still not a formal SOR, it will be helpful to have that in writing to refer to when thinking about this moving forward. Van Dyke said that one thing that is puzzling to him is that there are two reservoirs; one that TMT regularly works with, HGH, and one that TMT is not connected with in their process, Flathead Lake. He said that he would like to know more about Flathead Lake; what the current elevation and what full is at Flathead.



James shared the Flathead Lake data:

- Full Pool: **2893 feet (Mid – June)**
 - Reach full pool depending on how much snowpack is up in Glacier Park – Canada Region that deals with flood control issues. This was not an issue this year.
 - Hold within the top foot through Labor Day
 - This has never summer flows before in their hydrologic history, so this has never been an issue before.
- Current Elevation: **2891.16 feet**

Van Dyke asked if Flathead Lake never touched full this year.

James said that it did touch within the top half foot of the pool, the highest elevations they were able to reach was 2892.7' before the inflows in the lake were less than the what the minimum outflows were required for.

Van Dyke asked if at that time they considered Flathead Lake full.

James said yes.

Stranz pointed out that Van Dyke called out two reservoirs: Flathead Lake and HGH. She said that it might be helpful if Joel Fenolio would share a little about HGH.

Joel Fenolio, Reclamation, began by sharing a hydrograph.

- Green line: 2015; the last really dry year we saw at Flathead Lake.
- Gray line: Minimum base flow at Columbia Falls natural flows that we have seen using the current averaging record (1991 – 2020)
- Blue line: 2023

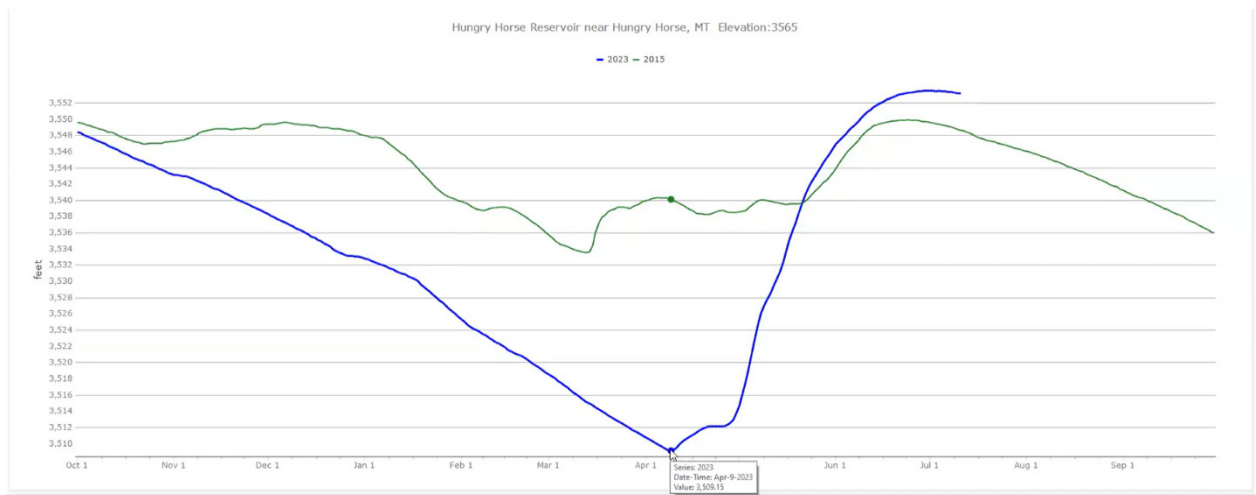
Fenolio said looking at the blue line there was a significant runoff event in May but there was below average snowpack. With how dry how it has been in the Flathead basin, and we are seeing base minimum flows throughout the system.

- They were able to get within about 7 feet of full at HGH and then they began doing the coordination on June 28, 2023, to keep releases at 2 kcfs.
- Draft Target: **12 feet from full (NOAA BiOp)**
- Releases: **2 kcfs**

Fenolio said that they kept it at 2 kcfs to hold releases out because in dry years like this there is going to be a point where HGH would have to come up to support Columbia Falls Minimums and that could draft them further down. With the outlook they were seeing they would have to release upwards of 2.5 kcfs at the end of August or early September to maintain the minimum flow. Instead of dropping releases down to what Fenolio was thinking, around 1.5 to 1.1 kcfs to target that 12-foot from full, TMT coordinated the operation to hold out the 2 kcfs and that had the secondary benefit of not exacerbating the issues at Flathead Lake. Instead maintained what is in the NOAA BiOp of targeting 12-feet from full and provided for a gradual or decreasing release throughout the summer. It did not try to drop the river and bring it back up later specifically on the South Fork which is undesirable for the State of Montana. That is where they are currently at, playing that out through the summer. Depending on what dry trace you are looking at instead of 12-feet from full, HGH is really looking at coming somewhere between 15 – 17 feet from full. That is getting close to the 20-foot limit in term what the summer draft target would be for HGH. If that full 20-foot draft had been triggered this year. It was not based off the May Water Supply Forecast.

Morrill asked Fenolio with an El Niño winter forecast if he has any concerns about potential carry forward impacts for HGH operation over the winter and next spring.

Fenolio said right now we are looking at another hot dry summer. Fenolio described last summer being very dry and that extended into October. Then it got really cold and that set up some pretty low base flows for HGH.



The blue line is 2023 HGH operations. The green line is 2015 and is there just because of the last graph.

Fenolio said that from October 1 through April 1 they were generally operating the Columbia Falls minimums. He said that there was a little bit in February where they were trying to drop below 3525' before he took a double check and saw that they were going to have to be at that elevation for the culvert repair just operating the Columbia Falls minimums from October 1 to April 1. They did draft out 40' just for those operations mostly operating to Columbia Falls Minimums through the winter.

Fenolio said that if we are looking at another hot, dry drought this summer and then we get El Niño conditions. He noted that it has been erratic on whether that correlation has been playing out the last couple of years. He continued that if we are looking at another dry year then we could be in dire straits in terms of HGH refill next year. In its ability to refill and provide a decent amount of flows later on next summer as well. Fenolio said that he does have concerns about potentially drafting HGH further than they already are.

Van Dyke said that this information was useful, and he appreciates Fenolio sharing. He asked if HGH full elevation is considered 3565'.

Fenolio said that 3560' is full pool, but they have that extra amount in a flood emergency to surcharge up to 3565'. They try to stay away from that like they did last year during the flood.

Van Dyke said that builds in the surcharge conversation that we would not manage.

Fenolio said we would not. He said that basically what happens there is HGH is spilling through the morning-glory spillways and that has undesirable consequences. They try to stay out of surcharge, 3560' is full pool and only use the 5 feet up to 3565 ft in an emergency. This year they touched full at ~3553.5'.

Van Dyke asked if at that time they figured that was managed full, which is not the same as actual full.

Fenolio said that is the thing, at this time of year, with how sharply the hydrograph is dropping off they could have dropped off to South Fork minimum flows and tried to fill in a couple of extra feet. But that was the coordination TMT did back in late-June, not micromanaging refill and put the emphasis on creating the stable flow through the summer.

VanDyke said that some of the decisions made earlier have come back to build into this decision ultimately, but the decision of a managed full pool was met.

Van Dyke about the source of the flow that was used. He said that he is not focused on Montana water management as much as other might be but he was curious if the first graph represented all of HGH outflow or if there are other sources that are built into that monitoring station.

Fenolio said that the gray line is the calculated natural flow of Columbia Falls not the managed flow. If HGH was not there that is the flow at Columbia Falls. The blue is the current flow, right now we have about 4.8 kcfs at Columbia Falls with HGH releasing 2 kcfs. Fenolio said what he is focusing more on the natural flows here is that he wanted to

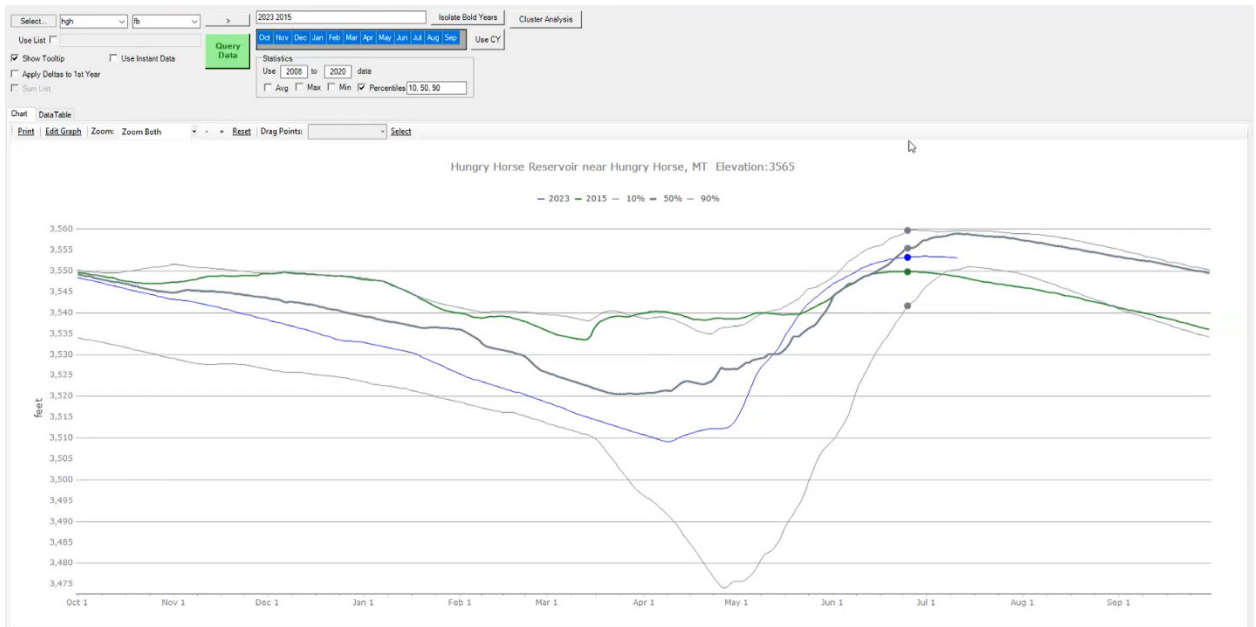
represent that baseflows are extraordinarily low. They are beating minimums for that period of record.

Van Dyke said that he is providing context, that it is low, and that it also has a different peak date that also adds in some nuance that obviously makes this problematic. He said that it does not give a clear understanding of what people view as normal which may be part of the dialogue issue on what we can and cannot do. Van Dyke said that discussion is for a later date.

Dave Swank, USFWS, asked Fenolio to look at the graph of HGH elevation. He stated that Fenolio had said that 2015 was a low water year but then through 2022 the reservoir elevation was considerably lower than that due to drafting for a culver repair. He asked if that was correct.

Fenolio reminded Swank of earlier this last winter. They had been operating to Columbia Falls minimums and then they had the Knieff Creek Culver repair that they were supporting upstream of the dam because it was eroding the road. They were targeting being below 3525' by mid-March (exact date was unknown). They were trying to get down below that and the first part of the winter was looking good just operating the Columbia Falls minimums. Then relooked at the forecast, so the specific operation for the culvert repair only contributed to another 2 feet in terms of reservoir elevations and then they dropped back to Columbia Falls minimums because it was looking like they were going to be below 3525' irrespective of them operating to specifically that or Columbia Falls minimum. So, they held it there and that is what drafted the reservoir down for most of the rest of the winter. Fenolio said that this is something that TMT discussed heavily starting last summer through the winter.

Swank asked for a graph that shows a more typical forebay throughout the season.



Fenolio showed the dark gray as the 50-percentile from the NOAA BiOp (2008 – 2020). He said that generally HGH will operate through Columbia Falls or they may have a flood risk operation where they drop down. They will bottom out at 3520 – 3535' and then they will start refilling and try to be within a couple of feet of full by July 1. They will then try to target 10 – 20 feet from full.

Fenolio said that this year, just with how May came off, it was a rapid run-off. In mid-May, they were looking at potentially having to increase releases or decrease releases but with how everything crashed in May they just dropped down to 2 kcfs at the end of the month and tried to refill. That was a good flow to target, having a stable flow through the month of June and then also not have decreases or increases. Things dropped off significantly in June. This is what was coordinated was to hold to 2 kcfs and not micromanage and try to refill HGH throughout the last part of June and early July.

Swieca said if we did move forward with this draft, we would be going into winter with a big hole in HGH. She asked if there have been conversations among the Action Agencies about some way winter operations might be modified to offset some of that hole. Or if Fenolio or Norris could provide any information about a possibility for that.

Fenolio said that the only modifications that could think of in terms of if TMT did move forward with this SOR, is based off the Water Supply Forecast starting in March. It would be setting the Columbia Falls minimum targets lower, Fenolio said that he thinks that we are going to come out of this summer operating to that and operating to the Columbia Falls minimums throughout the winter. He said that we could target 3.2 kcfs or 3.5 kcfs down at Columbia Falls but that is not a lot in terms of what that is going to do for HGH. Generally, that is based off the forecast that we sent out the first of the month January, February, and March. March is the one that sets it for the rest of the year. Based off the March forecast for 2023 we are at 3.5 kcfs for a minimum flow at Columbia Falls.

Tony Norris, BPA, said it relates to BPA it is rare that there is any power flexibility in the winter at HGH that can be exercised because the project is typically drafted well below FRM and any variable draft limit power flexibility criteria to meet Columbia Falls minimums. That is tied up into the Fish and Wildlife Service and NOAA Fisheries BiOps. It is rare that there would be sufficient precipitation into HGH to provide an opportunity for power flexibility but even then, that just increases the likelihood that you would have FRM operations. Typically, they are drafted well below FRM elevations across the winter supporting Columbia Falls.

Van Dyke said that one thing that they have faced multiple times in the past is that there are different groups managing water between spaces that we typically focus on. Because there is the FERC-related management action occurring between the two projects, HGH and SKQ. Van Dyke asked if Fenolio has included in his thinking that those other management areas would follow the regulations that are written or if there are some other aspects that would be required there.

Fenolio said that he is operating HGH as coordinated with TMT. He will look at Flathead Lake elevations during critical periods, like now. In general, they give their forecast and Energy Keepers are the ones that decide what they want to do with that amount of water and discharge per their FERC license. Fenolio asked if that was what Van Dyke was asking.

Van Dyke said yes, that is what he was talking to, his question was if Fenolio that that SKQ would follow that FERC license as written.

Fenolio said that is in their licensing agreements, that is their baseline modeling is to mimic what they do. Fenolio said that he does not operate those limits. He gets more concerned about their lake elevations during flood season and now in drought season as well. Most of the time it is up to Flathead Lake to manage. BOR does not necessarily have any say on what they do downstream.

Van Dyke understands but said that this is important if pondering on changes that affect the entire region and not just one lake.

Swank brought back a topic that Fenolio had said he is concerned about a hot, dry summer and already being concerned of meeting refill. Swank asked if it would be fair to say that even without the proposal to augment Flathead Lake with HGH flows, that we would be dropping below the 2015 elevation line on the plot. He is trying to get a sense of where Fenolio would expect us to be throughout the summer and early fall without this operation and then were we may end up if we were to implement the operation.

Stranz said that would be the natural next step in the conversation. She said that Fenolio could look at where HGH is, where HGH expects to be and then the scenario for 12” from full at Flathead Lake. She asked if there was more of a range that Fenolio thought that would be helpful to look at during an unscheduled meeting, possibly on Friday July 14, if there is an SOR to present.

Fenolio said that if there was an SOR in hand TMT could definitely talk about that more, but in current terms of current operations he thinks we might be headed, without precipitation, will end up at 15 – 18 feet from full by September 30.

Stranz began to wrap up and explain the next steps to the Commissioners.

Norris said before wrapping up TMT should briefly identify the specific outcomes. He said that there are a limited number of specifics in the letter from the Governor that suggests that we should try to achieve this outcome by the end of July. Norris said that he thinks it might be worth talking about what that would look like on the river in the context of TMT’s current planned operation and objectives for resident fish in the Flathead River, where we have tried to avoid double peaks and have limited the draft at HGH for refill reliability. That water is augmentation water that would then be trapped in Flathead Lake. He said it is important for TMT to look at what the operation would look like to raise Flathead Lake the requested amount and to be held, Norris assumes, through the end of summer. He said that he was not sure if Reclamation has done any modeling on what that would look like from a flow rate out of HGH as it relates to trying to avoid the double peaks that TMT has heard are significantly detrimental to resident species in the Flathead River below HGH.

Fenolio said that some preliminary analysis to get within a foot of full by the end of the month and then be able to hold it. He said talking to Energy Keepers yesterday (July 11) and they want to hold 4.5 kcfs out through the summer or they want to ramp down to that and then hold that base flow out. If they were to do that, they would be coming up to 7 – 8 kcfs for seven to ten days. Then ramping down to 3 kcfs at the end of the month and

then back down to 2 kcfs and then quickly after that they would go to Columbia Falls minimums. With that general operation to get it within full and stay within powerhouse it will be a draft down to around 3535' – 3536' versus the current operation of around 3543.5'. He said that is about a 7 – 8-foot draft increase just trying to get and maintain Flathead Lake within a foot of full pool.

Leon Basdekas, Corps, asked if James has an idea about what the outflows from SKQ would look like through the summer if this were implemented.

James has not had a chance to model because there had not been an SOR request. She was not familiar with what was being requested. When they talked with Fenolio yesterday they did mention that they were going to continue with the current operations. As the inflows, minimum requirement downstream, decreases starting July 1 ramps down they were looking to hold between where the inflow and outflow stabilized around a 4.3 – 4.5 kcfs. She would have to look at the proposal before she could get back to Basdekas.

Basdekas said that partially answered his question. He then asked if their minimum flows are in the ~4.3 kcfs range for the rest of the summer.

James said that is where they were going to hold for the rest of the summer. They typically draft by the end of October but because of how low the inputs have been they will have been drafted to that point by July 26. So, they are just going to hold, pass and flow at that point to hold the elevation of that so that. They have similar concerns as Fenolio of the Lower Flathead River about the fisheries, ramping down flows too quickly and double peaking. They were trying to minimize that and hold that flat flow.

Cole asked if the license is 3.2 kcfs minimum.

James said that is the licensed minimum flow.

Cole said that there is still 4.5 kcfs above the minimum in a drought.

James said that it is 4.3 kcfs is what they are looking at for the output for those other obligations in terms of fisheries.

Cole said that he is not a member, but he knows the license and it seems like Energy Keepers should be running minimums at the 3.2 kcfs given the drought.

Stranz pointed out that Cole is a member of the public and was speaking out of turn. She reminded him that there will be an opportunity at the end for questions and comments.

James responded that it is not the minimum requirement for quite some time yet. The ramp rates are 120 cfs per day until July 15 and then it goes to 200 cfs per day. She said that it takes quite a long time to get down to that.

Ebel said that he was also going to bring up the point on the minimum in the license, or at least ask for more clarification. It seems like it looks like in writing it is 3.2 kcfs. He said that he is not sure about what other deals between the operator and the State may be there, but Ebel feels that they could be evaluated in the context of the situation. Ebel asked Fenolio to clarify his understanding of the draft at HGH. The draft at HGH in the Water Management Plan is in part for augmentation for the Columbia and that is 12-feet. Ebel said that he assumes that water is still going to go down that route. Ebel asked if the

water in Fenolio's projections on the draft for Flathead Lake is in addition to that or whether Fenolio is assuming that instead of the water going down to the Columbia or through the system, that augmentation water in the calculations will go to Flathead Lake.

Fenolio said that with the other scenario of ramping up to get Flathead Lake within a foot, he assumes the water would stay in Flathead Lake.

James said that she thinks Energy Keepers has a license obligation to release the flow augmentation.

Fenolio said that he thinks Ebel was trying to ask is that this is not flow augmentation water that they would be releasing, it would be specifically for Flathead Lake. Fenolio said that he thinks Ebel is asking for clarification on what would happen after the additional draft is released for Flathead Lake.

Ebel agreed. He also pointed out that this is a hypothetical scenario that they are talking about without an SOR. He said that there is a volume that is 12 feet worth of volume in HGH at present and that will pass Flathead Lake. Then we now have another volume that will be released that could go into Flathead Lake. He asked whether the 12-foot volume and then volume X are in the projection of the total draft given that augmentation is still going to go down the Columbia.

Fenolio said yes, HGH still has the 12-foot draft target but instead of decreasing releases at the end of June to target that they kept the releases at 2 kcfs. He said that was what he was talking about was if they keep releases at 2 kcfs versus dropping them down that could impact HGH's end of September by a foot or two. The increased draft, the extra 7–8 feet, to keep Flathead Lake in the top foot, that is the amount of water above the 2 kcfs until Columbia Falls minimums take over. That operation keeps HGH at about ~3544'.

Stranz stopped the discussion and started moving the group toward next steps. She gave the option of the next TMT meeting (Wednesday, July 19, 2023) of next week to look at an SOR. She also let Montana representatives know that if they would like to try to move faster another option would be to produce an SOR within the next day and TMT could meet on Friday. She let the Commissioners know that a good way to move forward with an SOR would be to coordinate with their TMT representatives. She said that they are very familiar with the process and what the request format looks like. Stranz said that she can help put them in contact with the reps if they have not been already. She said that this would allow TMT to have some more conversation and give people more detail to model and then we could look at what the different outcomes would look like under different scenarios. Then we would have an official TMT polling.

Brodehl said that he just sent a text to the Governor and asked if they would get that as soon as possible.

Stranz asked if that means that he would like to try to schedule that for a Friday meeting or for next Wednesday.

Brodehl said that he would have to get approval from the Governor. He said that anytime that TMT can move ahead with it as soon as possible. He said that it will mean a lot to their agricultural community to be able to keep their crops.

Ebel said that he knows that Stranz is trying to move the conversation along, but it will just kick it to when the SOR gets to TMT. He said that TMT has talked about water management, risk to refill, elevation, and drafting. Ebel wanted to see an acknowledgment in this SOR regarding the biological impacts of this request. He said he thinks it should be noted that Montana has historically have supported the operations that are in the Water Management Plan for strong biological reasons. He said that as members of TMT we would be remiss in our jobs if we did not discuss those. Ebel brought up Norris' earlier concerns and the double peaking. He also mentioned the long history behind HGH operations and disagreements going back 20 years that this brings forward.

Stranz said that this is one of the reasons she recommended the Commissioners work with their TMT representatives, so that they have that information. She also thinks that it would be helpful to table that conversation until we are looking at an SOR so that we can be more specific in regard to what the implications are to be what is being asked.

Van Dyke said that the next steps is something that has been lacking in TMT conversations in the past, an early understanding of the flexibility of the other economic purposes that are being identified in the "Issue Statement". Van Dyke said what he did not hear in the conversation and what he would urge the interested parties provide for the next conversation is some of the flexibility that these other purposes have when trying to identify how to manage the reservoir. He said that the agriculture issue is about irrigation, something that some probably have plenty of information on to understand flexibility of what we can and cannot do. He also asked how the tourism industry's flexibility can fit into a broad sense of management action if one was taken. Van Dyke said that some of those details, instead of just the current status, giving some context around what is available and what the limits and minimums are would be useful. He said that he strongly recommends that those pieces of information be included in the SOR or at least in the conversation with the TMT representative who is involved in this.

Hesse said that within the SOR or the discussion associated with it will be important to him to understand or see the impacts to downstream of Flathead Lake water flows, and the impacts to the Mid and Lower Columbia River. He would like to know if there will be a change in volume or timing of that water.

Stranz asked if that answer from would come from Energy Keepers.

James said yes.

Stranz told James thank you for listening in and helping to contribute.

Ebel said that information that he would need to evaluate the SOR from the Corps is the potential impact on being able to maintain the winter elevation at Ponderay and the potential impacts under a dry year scenario to the date of refill of Ponderay.

VanDyke said that the impacts being talked about here expand past this water year's management and that is part of the complication. He said that recognizing that some of the answers may come with how the water has been managed for this water year without fully considering what it means for the next is a statement that needs to be brought out here, so everyone realizes that this is very complicated. What would be impacted if there is a change could draw out quite far. He said that when we put together the information,

we need to think about more than just September 30. He said he believes that is what Ebel was getting at, but it will be more than just Ponderay, it will be the system.

Swieca said that she would like to add one more request to the SOR and build on Van Dyke's point, the consideration of the likelihood of events like this becoming more common in the future under climate change, and maybe some understanding that this is a temporary fix. This is probably not a long-term solution. A long-term solution should be explored to ameliorate these issues in the future.

Marotz reiterated that this is a beginning of a conversation. He said that he wants to impress upon everyone that we are working to thread the needle through the NOAA Fisheries Biological Opinion, the Environmental Assessment from the USFWS and they encapsulate everything annually in the Water Management Plan. These changes that they are suggesting have to go through quite a lot of process and you have to demonstrate the biological and economic effects when we do these things. In TMT we typically managing to in-season effects, which this is, but it is not something that is not a very fast fix when we go to change these things because everything is connected. The surface elevation of Flathead Lake is connected to the discharge and the inflow and then that effects HGH. That is a native species assemblage that includes bull trout. The rivers are much more sensitive than our lakes and reservoirs. Marotz said that we must consider what the flow in the river is doing to itself as well as what happens in the larger scheme of things and then of course that water continues downstream and has effects downstream. This is a very complicated system.

Ebel said that he appreciated what Marotz said. He said that he wants to keep biology in clear view. He posed a question to the State of Montana asking if there has been any use of the SKQ FERC License Article 56 to elevate to get more flexibility within that part of the system. He said that he wants to make sure that it is not overlooked in coming to TMT with a request without also looking at other managers.

from Eve James to everyone: 10:42 AM

The Article 56 minimum for today is 7660 cfs, decreases 420 cfs per day until July 15 and then it decreases 200 cfs per day. There is a different license article about having to pass flow augmentation water downstream so depending on how the SOR is written could impact what the min values are

from Eve James to everyone: 10:42 AM

We are running at Article 56 minimums

from Eve James to everyone: 10:42 AM

(with a very small buffer so we don't dip below the min flow)

Marotz said that back in the day when looking at operations when they were implementing what was kind of a quasi-VarQ operation, which reduced the draw down target in drier years to help refill the lake earlier and there are the minimum flows have changed since 2001. They have more water in the river coming into the lake in a dry year like this. They are already mitigating the effects with the flows that we were releasing for the minimum and the flows that are targeted for downstream augmenting the Columbia

the 12-feet by the end of September 30. Then when they are looking at the lake, there is a sliding scale for discharges. At the time they were looking at the Low Water Year Rules. Marotz thinks it is time to look at it one more time and he would love to work with Energy Keepers on that one.

Stranz concluded this discussion asking the Commissioners to work with Brian Marotz and Matt Boyer, the Montana TMT reps, they can help with developing the SOR. She said that once the SOR is developed and sent to TMT we will put an unscheduled meeting on the calendar, if needed. Otherwise, we will put this on the agenda for next Wednesday, July 19, 2023. There will be more conversations. If the Commissioners need more support on what was on the list of requests, or the SOR discussion Stranz said to feel free to reach out to her. She has been taking notes.

Requests to include in the SOR:

- Acknowledgments about biological impacts and understandings.
- Better understanding or context around any flexibilities for irrigation or recreation and the impact being seen on Lake Flathead that are the rationale behind the request.
- Downstream Impacts information from Energy Keepers.
- Impacts of winter elevation at Ponderay and impacts under a dry year scenario to the date of refill at Ponderay.
- Impacts on the system beyond September 30.
- Look for a long-term solution.
- FERC License flexibility information

4. Operations Review

a. Reservoirs

Reclamation – Joel Fenolio

- Hungry Horse Dam
 - Midnight elevation: 3553.2 ft.
 - Outflows: 2 kcfs
 - Inflows: 1.4 kcfs (*5-day average*)
- Grand Coulee Dam
 - Midnight elevation: 1288.8 ft.
 - Average Inflows: 99 kcfs
 - Average Outflows: 116 kcfs

- Hit full pool target of 1289 foot on July 9, 2023.
- Will start targeting the 12' + (incremental difference from irrigation) draft by end of August. Fenolio will provide that number next week.

Corps – Lisa Wright

- Libby Dam
 - Midnight elevation: 2452.2 ft.
 - Inflows: 9.9 kcfs
 - Outflows: 8.5 kcfs
- Albeni Falls
 - Midnight elevation: 2062.3 ft.
 - Inflows: 17.2 kcfs
 - Outflows: 14.8 kcfs
- Dworshak Dam
 - Midnight elevation: 1590.25 ft.
 - Inflows: 1.5 kcfs
 - Outflows: 10.5 kcfs
- Lower Granite average outflows: 42.4 kcfs
- McNary average outflows: 129.5 kcfs
- Bonneville average outflows: 126.6 kcfs

MOP Operations – Aaron Marshall, Corps

- Lower Monumental
 - Currently .5-foot raised MOP ranged
 - Began June 16, 2023
 - To help maintain a minimum tailwater at Little Goose Dam

b. Water Quality – Alexis Mills, Corps

- Summer Spill Operations continue at all eight projects.
 - TDG levels are below summer water quality standards.
 - Switched to a uniform spill pattern at Lower Monumental (LMN) on June 28, 2023, to manage the IHR forebay TDG to at/below 115%.

- They have evaluated conditions daily to determine when they can switch back to the bulk spill pattern.
- Over the weekend there was another at exceedance at IHR forebay, even with the uniform spill pattern, however TDG has been steadily decreasing and they see winds picking up in the forecast.
- Will return to the bulk spill pattern at LMN today.

Van Dyke said that it is Oregon's preference for uniform pattern whenever possible, but understand that the Corps has made a decision to go back to bulk.

c. Fish

Salmon – Trevor Conder, NOAA

- Juveniles
 - Subyearling Chinook
 - Good numbers at all index sites.
- Adults
 - Bonneville
 - Chinook
 - Declining between the summer run and fall run.
 - Tracking ~800/day
 - Similar to 10-year avg.
 - Steelhead
 - Increase and catch up to where we think they should be for this time of year.
 - ~800/day
 - Shad
 - declining
 - Sockeye
 - declining
 - Ice Harbor
 - Summer Chinook
 - ~100/day
 - Sockeye
 - >100/day
 - This return is estimated by Idaho Fish and Game to be >2000 adult sockeye based on PIT detections and models that they use.

- Decent return of Sockeye expected to be coming through.
- Conder's plug on temperature – we are halfway there right now, try to keep the temperatures in a suitable level for the next couple weeks.
- Steelhead
 - Increasing
- Lower Granite
 - Summer Chinook
 - ~100/day
 - Sockeyes
 - Quite a bit lower
 - Only 272 have passed Lower Granite
 - Quite a few in the Lower Snake and expect more.

Hesse said that he appreciates the numbers supplied, he just wanted to push back on the qualifying language in terms of where we should be and decent numbers. He said that we are so far low, ten-year averages are not where we should be. It may be what we have seen recently but he does not want to give people the impression that these are the numbers that we are shooting for. He would like to have a caution of perspective of what TMT is trying to manage versus the ten-year average which are nowhere close to what TMT is trying to achieve.

Ebel added that IDFG is tracking Sockeye in real-time. He will provide numbers at TMT next week. He said that nothing looks abnormal in terms of passage. They still have their classically poor migration timing relative to heatwaves, but there are no red flags in terms of how they are moving through the system.

Conder said that he agrees, they are moving through nicely.

Lamprey – Dave Swank, USFWS

- Bonneville
 - Run continues to be above the 10-year average.
 - Almost 41k counted at the daytime ladder counts.
 - Last year they were at ~19k at this date.
 - Currently at 215% of the 10-year average.
- d. Power System – *Tony Norris, BPA*
- Hot weather ahead.
 - All is well.

5. Public Comments:

Perry Cole would encourage that TMT to consider that whether they store the water in HGH or in Flathead, it seems like the storage is there for downstream interest and there must be a plan that could be worked out to release water from HGH to go to Flathead. Cole’s other point was on the Drought Management Plan that at Flathead it sounds like it was not triggered because we met full pool very briefly. He said that it seemed like tactically that was a mistake, certainly for irrigation, recreation, and other interest. He said that he understands a FERC license is supposed to look at power generation, biological interest, recreation, and other interests equally, not with bias toward one or the other. He said that they should dust off the Drought Management Plan again and say maybe that should have been triggered so that we could have more flexibility to manage the lake levels. He said that gets back to a bigger point, after this process, they should go back and look historically at what happened, what mistakes were made, what could have been done differently so that there is not this dramatic impact. He said that it is his understanding that Ponderay has water, HGH has reached the full pool type calculation. He said that we should look back and as to if it happens again what could we do differently, maybe the Drought Management Plan should have been triggered versus hitting the peak for a week. He said a lot of water came down in May. Cole asked why it wasn’t captured.

6. Set agenda for next meeting – July 19, 2023

- a. Dworshak Operations – Grant
- b. Steelhead Update – Ebel

Today’s Attendees:

Agency	TMT Representative(s)
Army Corps of Engineers	Doug Baus (chair), Lisa Wright
Bonneville Power Administration	Tony Norris
Bureau of Reclamation	Joel Fenolio
NOAA Fisheries	Trevor Conder, Kelsey Swieca
US Fish & Wildlife Service	Dave Swank
Washington	Charles Morrill
Oregon	Erick Van Dyke
Idaho	Jonathan Ebel
Montana	Brian Marotz, Matt Boyer
Nez Perce Tribe	Jay Hesse
Umatilla Tribe	
Colville Tribe	
Warm Springs Tribe	
Kootenai Tribe	
Spokane Tribe	

Other Attendees (non-TMT members):

COE – Jon Roberts, Aaron Marshall, Alexis Mills, Leon Basdekas, Chris Peery, Lumas Helaire

BPA – Kate Wilson (MT Liaison)

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BOR – Jen Johnson

DS Consulting – Emily Stranz (Facilitator), Colby Mills

CorSource – Andrea Ausmus (BPA note taker, Contractor)

Flathead County Commissioner – Randy Brodehl

Lake County Commissioner – Gale Decker

Montana's Congressman Zinke's Office – Steve Howke

Montana's Senator Daines' Office – Rone Catlett, Katie Devlin, Joshua Sizemore

Energy Keepers – Eve James

Chelan PUD – Jay Fintz

Grant PUD – Peter Graf

Flathead Electric – Tia Robbin, Katie Pfennias