

COLUMBIA RIVER TECHNICAL MANAGEMENT TEAM

November 1, 2023

Facilitator's Summary

Facilitation Team: Emily Stranz & Colby Mills, DS Consulting

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

Review Meeting Summaries & Minutes – Official meeting minutes and facilitator's summary from the October 25 TMT meeting will be reviewed at the next TMT meeting.

Chum Operations – Lisa Wright, Corps, reported on current conditions at Bonneville Dam. The chum operation started this morning at 0600 hours, with a project tailwater elevation of 10.3 feet at hour ending 0500. Current outflows range between 117-125 kcfs. Inflows are forecasted to rise over the next 10 days, likely due to increasing outflows from Grand Coulee and incoming atmospheric rivers starting tonight and through the weekend that should increase runoff in the system.

The 10-day meteorological forecast shows an atmospheric river moving in this evening, hitting western Washington and moving throughout the entire Columbia River Basin starting tomorrow. Lisa noted that snow levels are high so most precipitation will fall as rain. Friday will dry out some, with rain in western Washington and Oregon. A stronger system will move in on Saturday bringing rain through the early part of next week before drying out next Wednesday.

Precipitation forecasts are showing 150%+ of average throughout much of the Columbia Basin except parts of the upper Columbia and Snake Basins and in Canada; a similar trend is projected in the 5-10-day forecast. Climate forecasts for the next 6-10 days show a likelihood of above average temperatures and precipitation throughout the Columbia River Basin, with similar outcomes for the 8-14 and 30-day outlooks.

In response to a query asking if current forecasts might change the Grand Coulee water supply outlook and justify changes to the coordinated chum operations, Tony Norris, BPA, noted that large tidal swings and inflow increases to the Willamette are expected to decrease the amount of water needed out of Bonneville Dam to meet tailwater elevations for chum, potentially saving some incremental draft from Coulee (although not modeled yet). Forecasts can change rapidly at this time of year though. Eric Rothwell, Reclamation, added that in addition to monitoring forecasts, determining potential water savings and impacts to flows from current and incoming weather systems is prudent before making adjustments to the operation, especially as the region comes out of a very dry period.

Kirk Truscott, Confederated Tribes of the Colville Reservation, agreed with Reclamation's suggested pragmatic approach of monitoring the system's response to the atmospheric river. The potential for reduced flow augmentation out of Coulee as a result of the wet period might be more a function of localized precipitation affecting the tailwater below Bonneville; the water year above Coulee still appears to be on the dry side. NOAA, and the Confederated Tribes of the Umatilla Indian Reservation agreed that continuing with the previously coordinated plan (Oct 25 TMT meeting) and modifying via adaptive management was the best path moving forward. Erick Van Dyke noted that from Oregon's perspective, this operation still is not based in a concern for chum, rather a pragmatic approach to managing water.

Tony confirmed that BPA plans to operate to the lower tailwater range (10.3-11.2 feet) as coordinated and requested criteria from Fish Managers to further clarify how to manage following potential exceedances

of 11.2 feet. If the tailwater exceeds 11.2 feet for a given amount of time, should the project transition to the typical lower tailwater range? Fish Managers did not feel that assigning specific criteria for an exceedance of 11.2 feet was needed, and instead wanted to wait and see what conditions look like on November 3 and 6 when WDFW is in the field, and then adaptively manage the operation as needed. They were okay with the operation teletype clarifying that hourly exceedances were acceptable given the current uncertainty about water supply, and if 11.2 feet is exceeded for multiple hours, operators should slowly back down to the 10.3-11.2 feet operating range.

If Action Agencies' projections and WDFW field observations show that tailwater elevation exceedances over 11.2 feet will be longer-term, for instance more than 24 hours, the TMT will reconvene to discuss and decide on a modified operation. WDFW, NOAA, and BPA will monitor the situation and pre-coordinate any modifications needed prior to an unscheduled TMT meeting on November 8.

- **ACTION:** FPAC will notify TMT after their Tuesday meeting if an unscheduled meeting is necessary on November 8.

Operations Review – Eric reported on Bureau of Reclamation projects:

- **Hungry Horse:** midnight elevation was 3,538 feet with average outflows of 2,500 cfs. Inflows remain low as the project continues to support Columbia Falls minimum flows.
- **Grand Coulee:** Midnight elevation was just above 1,286 feet, with average inflows yesterday around 80 kcfs and outflows around 82 kcfs. The project is operating to support the chum operation.

Lisa reported on Corps of Engineers projects:

- **Libby:** midnight elevation was 2,437.9 feet, average inflows of 2.3 kcfs, outflows of 4 kcfs;
- **Albeni Falls:** midnight elevation was 2,053.2 feet, average inflows of 11.6 kcfs, outflows of 16.4 kcfs;
- **Dworshak:** midnight elevation was 1,515.1 feet, average inflows of 0.8 kcfs, outflows of 1.7 kcfs;
- **Lower Granite:** average outflows of 16.5 kcfs;
- **McNary:** average outflows of 85.8 kcfs; and,
- **Bonneville:** average outflows of 94.9 kcfs.

Water Quality: Dan Turner, Corps, reported that all tailwater gauges are reporting TDG with no exceedances of water quality criteria.

Fish: Trevor Conder, NOAA, reported that fish counts are moving along as expected throughout the system. For adults, 15 chum passed Bonneville yesterday; 55 total for the season. Coho counts increased to 465, which is unusual.

Dave Swank, USFWS, reported the adult lamprey run is pretty much over for the year; USFWS is waiting on final corrected counts from the Bonneville LPS.

Power System: Tony noted dry clear days of late, with a high-pressure system, and not much wind. This is expected to change with incoming weather systems and precipitation.

Questions and Comments from Members of the Public – There were no questions or comments from members of the public.

There is a tentatively scheduled TMT meeting on Wednesday November 8, time TBD.

The next regularly scheduled TMT meeting is on November 15, 2023, at 9:00 AM.

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

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

Kirk Truscott, Colville, introduced another Colville participant, Dennis Moore. Moore will be representing Colville's in the TMT arena. Over time Truscott will be taking a lesser role and Moore will be taking on a larger role.

1. Review Summaries and Minutes – October 25 - *pending*

- Will look at the minutes the next time we meet.

2. Chum Operations – *Lisa Wright, Corps; Tony Norris, BPA; Charles Morrill, Washington*

Operation started today at 0600.

a. Bonneville Dam – Hour ending 0500 – *Wright*

- Tailwater elevation: 10.3 feet
- Average Outflows: 117 - 125 kcfs

b. NWRFC – Bonneville Dam 10-Day Inflow Forecast – *Wright*

- Rise in inflows due to:
 - Increase Grand Coulee outflows for propping up the chum tailwater.
 - Atmospheric rivers coming in starting tonight and through the weekend that are going to increase the runoff in the system.
- Good news

c. NWRFC 10-Day Meteorological Forecast – *Wright*

- Atmospheric river comes in this evening hitting primarily Western Washington and parts of Washington and moving throughout the basin.
- Starting tomorrow there is rain through the entire Columbia River basin.
- Snow levels are high so it will be all rain for the most part.
- Friday dries out a little bit, there is still some rain in the Western Washington and Oregon area.

- Saturday another potentially stronger system comes in and it will stay rainy through the early part of next week.
- Potentially drying out on Wednesday.
- Good news, there is quite a bit of rain come into the system.

d. RFC Forecasted Precipitation Summary – *Wright*

- 10-day QPF (Percent of Climatology) -- as it relates to percent of average
 - A big difference from last week where we saw a lot of reds, a lot of below average.
 - Now we are seeing a lot of 150% and up of average through much of the basin.
 - Except in the Upper Columbia Basin in Canada and upper parts of the Snake River basin are still below average.
- 5-day QPF (Percent of Climatology)
 - This is similar to the 10-day forecast.

e. NWRFC Climate Forecast – *Wright*

- 6 – 10 Day Outlooks:
 - Temperature – likelihood of above average
 - Precipitation – likelihood of above average
- Same story for both the 8 – 14 Day Outlook as well as the 30 Day Outlook
 - Latest 30-Day Outlooks were generated yesterday, both temperature and precipitation show likelihoods of above average.
 - Good news, unless you are a skier.

Morrill said before we talk about fish, he asked to have a discussion among the TMT representatives, and from BPA's perspective, where this update take us in the water scenario. He said that the whole chum operation is designed around water management to conserve water for Grand Coulee (GCL) and not put us at risk. Morrill said one of the key questions he would like to see in the discussion today is does this change that risk and what do his colleagues think what is appropriate moving forward.

Stranz asked if Morrill was suggesting that Norris presented his information before him.

Morrill said that he thinks that would be appropriate because this whole operation was geared on the premise that we were concerned about taking water out of GCL that we designed an operation that we thought we could live and learn with and monitor very closely. He said that was driven by concerns for withdrawal of water from GCL and refill. Morrill said he would like to have a better understanding of what that view looks like now, and what his colleagues' level of concern is because ideally Washington's position from a holistic viewpoint is that they would like to be at an 11.3' – 13.0' now for when the chum come in. With that he would like to have a better understanding of

where we think we are and what his colleagues think; their concerns, specifically BPA, Colville and Joel Fenolio's concerns for GCL.

Stranz directed the meeting over to Reclamation and Norris to provide a better perspective on the water situation.

Eric Rothwell, Reclamation, said that Norris has probably looked closer at the modeling. Rothwell said he would be happy to weigh in for Reclamation's perspective on this. He thanks Morrill for teeing this up.

f. Willamette and GCL - Norris

- Willamette 10-day Inflow Forecast @ Salem (SLMO3)
 - Willamette has been flowing at sub-mean levels for a while.
 - But flow has recently approached the historical mean.
 - Forecasted precipitation is expected to bring the Willamette up to where it starts to have a significant influence on Bonneville's tailwater.
 - Since, the precipitation and rise in Willamette flow is occurring at the early part of the operation when the system is stabilizing with the higher flow rate for chum there is a significant amount of uncertainty.
- Tanner Creek Gage
 - Recent large tidal swings (king tides)
 - Noting an example: Sunday's (10/29) Bonneville operation, discharge was relatively stable across the day but 2' swing at the Tanner Creek gage demonstrates the influence of tide.
 - The TW is also influenced by wind and these weather events will add to the uncertainty.
- The amount of water at Bonneville needed to meet a specific tailwater will decrease with the increase of flow from the Willamette, the additional precipitation from the incremental flow below Bonneville as well as the water into Bonneville's pool from these events.
 - The peak of Willamette currently shows it rolling over quickly after so what happens after has a lot of uncertainty around it.

Norris said to answer Morrill's question, he would expect the savings of Grand Coulee draft to support the chum operation, which was the point of the lower tail water range, will improve – the savings would increase – if we are able to decrease Bonneville's discharge even further to manage the tailwater in this lower range for these first two weeks. He said that it is possible, forecasts are changing rapidly this time of year, we may see a point maybe in a week or so where those forecasts change enough where it either gets really wet or it starts to look really dry. If it looks really dry, then these savings will be very beneficial. If it looks really wet, it is possible that we would just inform folks and maybe transition to that higher tailwater range.

In the meantime, we expect to hold onto the lower tailwater range. They would want to include some criteria to manage the tailwater if wind, tide, and trying to manage around

these increased influence of the Willamette on the tailwater results in exceeding the 11.2 maximum. If there was some criteria along the lines of if we exceeded 11.2' for less than 2 hours that we would still return to the lower tailwater range before we would transition to the more typical tailwater range.

- Grand Coulee
 - First two weeks it looks like the amount of augmentation needed from GCL will decrease by some amount.
 - Because the atmospheric river has only recently been added to forecast BPA has not modelled yet the influence on the operation.
 - Norris expects some incremental decrease in the amount of augmentation from GCL.

Morrill said he would like to hear from colleagues, including Reclamation and Colville.

Rothwell said that he has been tracking this. He said that he has been looking at the 10-day and pulled it up as soon as the refresh this morning. He said that what Norris said resonates with him. He said maybe figuring out how much the savings are; recognizing that we do not know what will happen, and we never do with certainty. He said maybe figuring out what the system means on flows before changing anything, conserving some of this water, recognizing that we are coming out a really dry period – inflows have been really low – and taking a kind of pragmatic stepwise approach is what he said he would recommend. He said that he does not have much more to add there but he appreciates the conversation and the tone here in the last couple of times that he has attended.

Truscott said he is similar to Rothwell. He said let's be pragmatic, look at what the response is with the current atmospheric rivers that are supposed to come through – that are coming through. He said he thinks that Norris' description of potential for reduced flow augmentation out GCL as a result of this wet period we are expecting is more a function of localized precipitation effect. He said that it still appears that the water year, if you will, above GCL is still on the dry side. He said it is more localized precipitation affecting the tailwater below Bonneville than what we would expect absent that and inflow into GCL. Truscott said that is his take.

Kelsey Swieca, NOAA, said that she agrees with the perspective that Truscott put forward. She said that she thinks that it is important that we try to start with the original plan and evaluate as we go. She said that they have a couple people going out in the field on Friday and again on Monday who will be able to provide some on the ground input about what conditions look like and then we can see how it goes, be pragmatic, and make modified decisions if we need to. She said that it is NOAA's preference to continue with the original plan and evaluate after that.

Jay Hesse, Nez Perce, asked if we follow that and try to save more water and maybe cut back from the GCL releases what are the impacts to the Hanford Reach and Vernita Bar conditions for Fall Chinook. He asked if someone could speak to that.

Norris said that right now the Hanford Reach Operation has been operating in a lower band because we have been refilling GCL to prepare for the chum operation. He said it is typical for their flow bands to increase as we release water for chum. Norris expects

during this next two-week period their bands will continue as they are. As we begin releasing more GCL their daytime flow bands also increase. He said once chum is operating to the 11.3 – 13.0' tailwater range and they will still land where they typically land, in the 60 – 65 kcfs range. Norris said he does not believe that they have had to start reverse load factoring this week. The change in the chum operation would not affect their ability to support the Hanford Reach Fall Chinook Protection Plan any different than any other year.

Tom Lorz, Umatilla/CRITFC, said that from a CRITFC standpoint they are going to follow NOAA's lead on this one. He said that this should be written down as one of the few times that CRITFC and NOAA are 'sincopatico'.

Stranz said that this is a good omen. She asked if there were anyone else before we talk about the criteria for exceedances.

Morrill would like to thank everyone for their contribution they made this morning, he appreciated it. He said that Swieca and he had chatted this morning and he has also done as much research as he can on chum activity and one of the concerns that Norris, and others, have expressed is if we do have an exceedance how long a time period before we would have a concern. In internal discussions with his team and his knowledge of chum (he has worked chum for years), we have several areas in the Hood Canal that have active intertidal spawning. From spawning surveys in certain areas, we know that chum can spawn half in and half out of water and on a tide cycle come in and out to continue building. The concern about possibly impacting chum and getting them stranded up there is not a high concern for Washington at this point in time. He said he and Swieca were kicking it around on the phone earlier and he feels they would both be comfortable saying there would not be a concern if there was a 5 – 6-hour exceedance at this time. He said that we do have a plan, it calls for intensive monitoring, the crews will be out there Friday, and they will be out there Monday. Morrill shared that Todd will also be on the FPAC call on Tuesday morning and we will get a chance to reassess that. He said that if we find out we need to do something different or we see water scenarios that we feel we need to change we can bring that back to TMT on Wednesday or sooner if we feel it is critical. He said that is his thought on this at this point in time. He welcomes feedback from others and go from there.

Stranz clarified that it was Morrill and team's thinking. She asked if FPAC had a chance to connect on this.

Morrill said that FPAC did not get a chance to connect on this, it is the first time we have talked about this. He said that they had agreed, he said they agreed and that they came away from FPAC feeling that they had a plan, let's work with it and we will do the intensive monitoring and we will learn from it. Morrill asked anyone from FPAC to correct him if he misstated that.

Lorz said in general that is right. He said also it is challenging to come up with good, hard, and fast criteria because criteria changes as the season moves along due to other variables. He said to get one right now would be an absolute swag and they feel more comfortable just doing adaptive management since they are going to have a lot of monitors out there. He said that they are going out there on Friday. They are going back out Monday or Tuesday, or whatever the schedule is. So, we will have a lot of

information by then and if we see something that needs to be changes, we can bring it to TMT at that time.

Stranz said thanks and that it was helpful. She asked Norris, Wright, and others from the Water Management side if it sounded like a good plan from their perspective.

Norris said right now the instructions do not include what happens if you have some inadvertent exceedances of 11.2'. As we are going to manage the increase in Willamette flow and wind and tide, it is possible that we might see an exceedance of 11.2'. He asked at what point would we say that exceedance too long. He said that he thought he heard from Morrill 5 hours and Norris said that he thinks that seems certainly doable. He said that if Morrill is fine with that number, we could add to the instructions: if we exceed 11.2' for less than 5 hours that we could return to the 10.3 – 11.2' operating range, otherwise we would transition to operating between the 11.3 – 13.0' range. Norris said that he thinks for him, it addresses the concern of putting fish above the break that sits just above Hamilton Creek, between there and the river. If above an 11.2', Norris would expect fish could readily enter that area and if we subsequently lowered the tailwater for potentially several days that those fish would not have access to return to the channel or Hamilton Creek from there. And their typical spawning areas in that section of the Ives area would not be quite inundated yet until we got to the higher tailwater range. So if number of hours, if that is 5, or 3, or 2, but we need to add some instructions for the operators to follow if we encounter a condition where we inadvertently exceed the 11.2' top of the range.

Swieca thanked Norris for that additional information. She said NOAA's hesitation of providing a 'hard and fast rule is that as they understand it the potential for stranding will also be largely impacted by how Hamilton Creek is flowing, which will be largely influenced by local precipitation. So, this is a balancing act between the flow out of Hamilton Creek as well as the Bonneville tailwater elevation. She said you could run into an instance where we exceed the range of 11.2' but if you drop back down, the flow out of Hamilton Creek will still be sufficiently high to maintain that connection in which case stranding would not be a concern. She said that what NMFS is trying to understand if there are opportunities to look at those two conditions before deciding about a hard and fast rule as to whether we can comfortably drop back down to the original 11.2' instead of raising the tailwater elevation at that time. She asked if there is an opportunity there to consider conditions out of Hamilton Creek before making that rule.



Figure 2



Figure 1

Norris said he is not worried about the connection to Hamilton Creek, he said that he thinks that we are going to see more than enough water coming out of Hamilton Creek to keep the connection for fish entering that channel below Hamilton Creek to enter the Hamilton Creek and Springs. He said that it is the area upstream [Figure 1]. This is the bar, that break in the slope. Just upstream. This image was taken at 10.5' tailwater, and you can see here that adult salmon would not be able to return to the river if stranded above here. Norris said that he would expect that there would be more than enough water in there to sustain any fish stranded there, the water in the pool is quite deep. Norris said this is what it looks like upstream [Figure 2]. If there are no criteria, he said that we would expect to just manage to that tailwater range and return to the lower range if we exceed 11.2. Because right now we do not have any guidance. Right now, the instructions essentially have two tailwater operating ranges with now instructions on what to do if you were not able to maintain the lower operating range. Norris said that he does not think that the flow in Hamilton Creek is necessarily going to provide access in and out of here, but we can change the teletype anytime. He said that he would suggest adding some language now that we could modify Friday or Monday after we have been out there and to see what things look like with some of the conditions that we are currently forecasting. He said that BPA operators can really use some guidance if things do not go as planned.

Morrill in terms of change of flow from hour to hour you are you required to follow the ramping rates?

Norris said that the ramping rate is not a concern at this point because ramp rate limitations at Bonneville dam are sufficient to support the daytime tailwater operating range. He said this for him is if we strand fish above the break above Hamilton Creek and if we do and subsequently return to the lower tailwater operating range for several days is that going to impact the fish that got up there.

Morrill said that he thinks that is part of what the monitoring is. He said that he would also note that if they do see it go above 11.2' that they would want to draw it down as slowly as we can in terms of operation to give those fish an opportunity to get out. He said that would be his thoughts on the hydraulics perspective and water perspective, fish are going to identify when they have to get out of there.

Norris said there is just a lot of uncertainty and our folks need some guidance on how to manage that so if there is a timeframe whether it is 5 hours, Norris said that Morrill can tell him what the best number is, but he thinks that they should at least be able to move forward with some instructions between now and Friday afternoon. He said that we can modify those instructions as needed based on what we learn in the field but in the meantime his operators really need instructions.

Jonathan Ebel, ID, asked Norris what type of instruction. The example that he heard from Norris was setting up a time limit, if it goes above 11.2' and stays above 11.2' for 5 hours and then drop it. He asked if that was what Norris was looking for. He asked if it needs clarity or is it phrasing that Norris is looking for.

Norris said what he is looking for is if you exceed 11.2' for more than X number of hours then we should probably think about transitioning to the higher tailwater operating range. He said it is at what point have we exceeded 11.2' long enough that we should probably just move to the higher operating range.

Ebel said that he had misinterpreted that, and he appreciated the clarification. He said in that case he thinks that we can still stick with the plan but that is just his opinion. He said that if there are going to be folks on the ground out there taking a look to see if there is some level of stranding in this pool then we can deal with it at that time. He said that he is not necessarily willing to throw the plan out the window if this localized rain event causes that type of exceeding of the plan for a certain number of hours. Ebel asked if there is another type of guidance. He asked if that is the type of guidance that Norris is looking for.

Norris said that we can generalize the guidance, right now there are two tailwater operating ranges stated in the instructions. He said that we would need something that would connect them. He said whether it is if there is some criteria or whether there is any number of things that can happen the thing that he wants to avoid is if we have an inadvertent exceedance does that break the bank and we have to go to the higher tailwater operating range because there is no real guidance there. Our folks need clear guidance otherwise they are not going to know what to do if we exceed 11.2’.

Stranz said that is not what she is hearing, what she is hearing if 11.2’ is exceeded you go back down.

Norris said alright then we can add that instruction; if we exceed 11.2’ return as quickly as possible. He said and then we have got our guidance.

Stranz said hold on a second because Morrill had said that he would like to see that drawdown to be slow not fast. He had said if you go up draw down as slowly as possible, not as quickly as possible.

Morrill said that from a fish behavioral perspective a sudden drop in tailwater elevation might be a problem, if we do push fish up there, it is definitely not good for fish. He said that it would be a request to use the slowest rate of returning to 10.5’/10.3’ that they can. He said that he would stick his neck out and say that if it is above 11.5’ for 6 hours he thinks that we would want to have a discussion and look at the information that we have on hand and decide on what we want to do from there. He said that if we do have 5 hours of above 11.2’ Morrill thinks that we could go back down to the 10.3’ and make that reduction as slow as we can.

Swieca said that Norris mentioned that there are the two tailwater elevation ranges and that there is no connection between the two of them. She asked him how the teletype this year is different than the teletype in previous years. She said that as she reads them in previous years, they would have two elevation ranges and there was not a discreet connection between the two of them. She asked Norris to elaborate how regardless of what the values of the tailwater elevations are, how BPA would have handled this in previous years so that TMT can understand the level of detail and that you need. She said because when she read previous years teletype, they read similar to this year to me.

Norris said keep in mind that when conditions change, we modify the tailwater, so you need to look at the progression of teletypes as conditions change. Norris said typically when we have had conditions where we were not able to maintain the prescribed lower daytime tailwater operating range that we would then transition to a higher range. An example, if we were not able to maintain the tailwater during the day below the 13.0’

tailwater we would transition to the higher tailwater range above 13.0'. What is different this year is that this lower tailwater range is a really tight operating range and it is very difficult to do with these lower flows because they are influenced even more dramatically by the flow on the Willamette. He said it could get tricky so we would want to know if we exceeded 11.2' what we should we do. The operators need guidance in real-time on what to do next conditions change. Norris said if you are not worried necessarily about fish getting stranded up there but giving them soft instructions about what to do next if they exceed 11.2' is difficult for them because they work in a very prescriptive world. He said he thinks some guidance for an inadvertent exceedance due to wind and tide. The exceedance of concern is not likely to be significant number of tenths of a foot at a time. He thinks if it looks like we are going to exceed 11.2' significantly for a significant period of time he thinks that we would be on the phone discussing the amount of water in the system and how we should transition to the higher range. Norris said that is an easy conversation to have. He said it is the exceeding 11.2' for two hours by a couple tenth of a foot and asking should I go back to the lower range or should we move up. Norris said that has been the historical discussion for the chum operation.

Stranz said what she has been hearing is that if there is an exceedance of 11.2' for a few hours, no big deal, go back down to the 10.3 – 11.2' range. If there is an exceedance for, or you see a huge slug of water coming that is going to mean that you can bump up to that 11.3', let us have a TMT call and talk about it; change operations at that point.

Lorz said this is what is confusing, we are first being told that we need to conserve water – so we came up with this 10.5' operation – we are now going to have an atmospheric rain event come through where the Water Managers are going to have trouble controlling the 10.5' and Norris is saying 'well, we should go to 11.3'. Lorz said they are getting mixed messages. He said that they are trying to be conservative and thoughtful about forecast and water and that is why they are saying if we get above it go back to 10.5'. He said that it is just very challenging to give you a hard criteria, and we gave you a criteria be sure if you can't if you think you can return to 10.5' do it in a way to minimize stranding, that was too much in the weeds. Lorz said at what point do we get to Goldilocks' perfect bed on this one, he is not sure. He said that is why the said let's do _ and measure it. He asked if the Water Managers foresee that they are going to run above the 10.5 – 11.2' for days or do they think it is going to be hours. He said that is what we are needing from you. He said if you think this is going to be a problem for several days then Lorz said let us go to 11.3', if you think you think you are going to have problems on an hour time basis that is a different discussion.

Norris said that is what he is looking for.

Lorz said that is what he needs to know from Norris. He asked Norris if he is envisioning this to be an hourly problem or a day-long problem.

Norris said if it is a day-long or longer problem, he thinks the conversation is easier. He said that if it is a longer problem we will probably transition to 11.3 – 13.0' and we inform you that we have a lot of water in the system, and we are going to move on up. Norris said that he thinks that the inadvertent exceedance when we are fighting all of the variables to manage Bonneville's tailwater with a very tight tailwater operating range, with all of that uncertainty, and if the variables that we forecast do not come in as

planned and we exceed 11.2' for a couple hours the operators need to know what to do and if it is just return as soon as you can, if it is less than 24 hours go to the lower range. Norris said that he is hearing just return to the lower operating range and continue with the planned operation.

Stranz said that is also what she is hearing. She said that she is not hearing concern from the Salmon Managers about exceeding for a number of hours, if it is going to be a longer duration, multiple day(s), then it needs to be brought back to TMT.

Ebel said that is where he was going, he said that the conversation is getting circular maybe.

Stranz agreed and said that she thinks we got it. She told Norris that she totally appreciates managing expectations and having clear guidance but again not hearing a lot of stress from the Salmon Managers around hourly exceedance she asked if Norris has enough based off the conversation from the Salmon Manager to provide guidance to the operators.

Norris said 24 hours is enough and he is looking for a nod from Morrill because Washington Fish and Wildlife are their go to folks for the time in the field.

Ebel said that was not what was just said. He said that he is far away from the chum but in this conversation what it looks like is if the projections show that it is going to be more than 24 hours or more than 48 hours then it needs to come back to TMT before we check the lower tailwater elevation. He said that is what he is hearing from this conversation, but that is not what Norris had just said.

Stranz tried to clarify to try to get it right, the teletype could be amended to say that:

- Hourly exceedances are not of concern, if 11.2' is exceeded for multiple hours slowly back down to the 10.3 – 11.2' operating range.
- If BPA and the Corps see that there is enough water coming and they expect that they will need to bump up above 11.2' for a period of a day or more then TMT reconvenes to discuss next steps, whether there is a need to bump up to 11.3 – 13.0' operating range.

Norris said that that is the problem that TMT does not meet every day, or on weekends, or late at night. He said that it is all fine and dandy to talk about here at TMT but in the meantime the operators need guidance so that when things go bump in the night and TMT is not available, they can make decisions and have something in front of them to confidently make those decisions.

Stranz told Norris that if you get to a point where you have been at 11.3' for 8 hours and you are expecting that you are going to stay at 11.3' for another 24 hours it is easy for us to pull together a TMT meeting.

Ebel told Norris to keep that tailwater up you have to send the water from GCL.

Norris said that we are talking the influence due to downstream conditions.

Ebel said but then all of sudden it is going to take a quick look at GCL. He said that we started this conversation with being pragmatic. Reclamation, NOAA, and he himself agree with them that we are doing this to save some water. Hopefully prioritizing spring flows while maintaining an operation that is okay for chum. Ebel said what Norris is talking about now is a local condition that it sounds like BPA would prefer to than just ignore the issues of water supply in the Upper Columbia. Ebel said that it could be bad for chum but there are going to be people watching, it sounds like WDFW is going to be in there looking around quite a bit. Ebel said that he thinks there should be plenty of time and discussion because we have a plan. He said plan your work, work your plan. Ebel said that he would prefer to stick with that.

Truscott said we are concerned about this gravel break and whether or not fish get stranded upstream of the break, and not necessarily stranding on the break. He said that he thought that if it were above 11.2' or 11.3' and the ramp down was not in ten minutes to the 10.2' and you are not likely to strand fish on the break. Truscott asked those who knew is if fish are stranded in the ponded water above the break; 1. Are they observable so that you can get an idea of the level of 'stranding', 2. Is there enough upwelling and are the water conditions such that those fish can survive for a day or two or more as we deliberate on whether or not to bring the tailwater back up to get them out if there are a substantial number of fish stranded there. He said he thinks that is the pragmatic management based upon monitoring observations that FPAC is trying to convey.

Stranz asked those in the know if they would be able to see the fish.

Morrill said yes.

Ebel asked Morrill if in that scenario would WDFW have resources to do a salvage operation. He said that he uses that term because they do it for irrigation ditches. He asked if they have other resources to be able to move fish out of that spot back into the river, if it is nasty.

Morrill said that they have the same included work as part of the process to estimate escapement to the area and provide _ for the ongoing program. This is a priority concern for the chum team for the Region 5 office. Morrill said that he got an email for Todd alerting everybody to provide him feedback asap on what they see in the field. If they see a situation that arises to that level, Morrill said that they are going to be trying to take action on that as quickly as they can in his opinion. Morrill said that the one question that he has for Norris and the operation is that he thinks if we are talking minimal exceedance based on conditions below Bonneville BPA has their planned operation, given their inflow projections, stream flow, precipitation, they do not have the unscheduled flow input. He said that he is pretty sure that he would ask don't they model what they expect coming in the current 8 – 10 hours ahead of what you are doing. He said at 8 o'clock in the morning they have some idea of how much water they expect coming into Bonneville based on their data and what is going on upstream. He said that he is not sure the type of increase that we are talking about is going to come from the system operation, the type of increase we are talking about is going to come from heavy precipitation locally and tide, wind, and Willamette influences. He asked what kind of bump we have seen in terms of increase in tailwater elevation in past years; does it indicate that it is a real problematic concern. He said that he does not know, he has not looked at it from that perspective.

Norris said that he is not worried about what is coming into Bonneville, he is worried about the things that they cannot forecast, the stuff that occurs downstream. He said that forecast for Willamette's influence on Bonneville is difficult at best on the best days to determine precisely, especially when you are trying to operate to a very small operation range below Bonneville dam, then add wind and tide on top of all that, and you have a lot of combined uncertainty. He said that this operating range is pretty tight. He said that what he is hearing is that if we exceed it, return best as possible and if it is going to be something that is going to go for more than a day or two than BPA informs TMT about what is going on.

Stranz said that she thinks that Norris got that right this time.

Swieca said on top on that from NMFS perspective too, if that exceedance occurred there may be an opportunity to get those WDFW crews out there and see what the conditions are like and if there is a concern to then act after that potentially. She said that plan that Norris just mentioned the last time is a good plan from NOAA's perspective and then we will have those survey crews on the ground, and we will get an idea what it looks like and then we can adaptively manage this complex situation to best conserve some water up in GCL while also providing the adequate spawning habitat for chum.

Stranz said that Swieca gave a good summary. She said now that that has been clarified, she was wondering, we do not have another TMT meeting on the schedule until the November 15. She asked if the members would want to pencil one in for next week in case it would be helpful at that point. There will have been folks on the ground both Friday and Monday so meeting Wednesday TMT could have additional information.

Morrill nodded.

➤ **Tentative TMT meeting next Wednesday, November 8, 2023, depending on the special FPAC meeting.**

Morrill said that there will be folks on the ground, and we can have a TMT meeting, but he was going to ask given the sensitivity of the operation whether his colleagues at TMT will be comfortable with Swieca, Todd, and himself working with Norris to address any issues if they arise in a quick order that need to be addressed prior to another TMT and then bring folks in afterward.

Stranz said some pre-coordinating some side coordination if needed.

Lorz said that because they will get there Friday, they can do some pre-coordination with Norris if they so something problematic. He said that he would gladly delegate his FPAC authority to Morrill and Swieca to deal with the chum as best they can. He said to get to Stranz' question about whether we should have a special TMT meeting next week, he said they are going to have a special FPAC meeting next week Tuesday to go over issues, if they see that they need to have a follow-up at TMT they can notify everyone on that Tuesday call.

Stranz said that will work but she asked that people still pencil it in for Wednesday and we will erase it if it is not needed.

Lorz agreed and said that they will use the Tuesday as the go/no go.

Norris said in the meantime, just to wrap things up here. We will include in the instructions if we exceed 11.2 to return to the lower tailwater operating range. He said that would be it for now, but we would potentially, even as early as Friday make a change to the teletype based on what we learn in the field.

Stranz said with coordination from Swieca and Morrill.

Norris said yes, that was inferred.

Stranz said she was just making sure. Stranz asked if any TMT members had any concerns with that path moving forward.

Erick Van Dyke, OR, said he has been on the line and been listening, he had the same issue getting on as he had last week. He said that he does not want to go back, that it sounds like folks have pretty much worked out a path that they are going to follow. He said that the only concern that needs to be added here is that this operation still is not for chum it is about putting them putting them at risk. He said that the pragmatism that is going on here is simply a pragmatic approach to using water and he thinks people somewhat agree with that and may not entirely agree with that. He said that extirpation of this species that is listed is a concern. That is the concern that will be important to point out moving forward.

[Charlie nodded in approval]

[Marotz thumbed up]

Morrill said thank you for the good discussion and the sharing as we walked through what is a challenging dynamic scenario that we have not had to deal with as long as he has been around. He said that he appreciates the input and the discussion that we have had.

Stranz said that we did not visit all of the links for the chum operation, she asked if Morrill wanted to go through any of the other fish links.

Morrill said no that he does not have anything else to share at this time and that we will probably have some more information from Todd back on Tuesday and if something comes up, he is sure that Todd will give him a call and tell him that a change needs to be made. They will be staying in touch internally. He will keep Swieca and Norris informed. He said that they will do their best and have the FPAC meeting on Tuesday.

3. Operations Review

g. Reservoirs

Reclamation – Eric Rothwell

- Hungry Horse Dam
 - Continues to support to Columbia Falls minimums.
 - Midnight elevation: ~3538 ft.
 - Average Outflows: ~2500 cfs

- Inflows: remain low
- Grand Coulee Dam
 - Operating to support Chum Operation
 - Midnight elevation: 1286 ft.
 - Inflows: ~80 kcfs
 - The few days before that were quite a bit lower.
 - Average Outflows: ~82 kcfs

Van Dyke asked if the 105.8 kcfs is chum related or if it was for another purpose.

Rothwell said he assumed that it was coming up for that purpose. He said that he does not know definitively.

Van Dyke said okay and that it seems high.

Corps – Lisa Wright

- Libby Dam
 - Midnight elevation: 2447.9 ft.
 - Inflows: 2.3 kcfs
 - Outflows: 4 kcfs
- Albeni Falls (at the Hope gage)
 - Midnight elevation: 2553.2 ft.
 - Inflows: 11.6 kcfs
 - Average Outflows: 16.5 kcfs
- Dworshak Dam
 - Midnight elevation: 1515.1 ft.
 - Inflows: 0.8 kcfs
 - Outflows: 1.7 kcfs
- Lower Granite average outflows: 16.5 kcfs
- McNary average outflows: 85.8 kcfs
- Bonneville average outflows: 94.9 kcfs
- Still low in the system.

Morrill said that would like the notes out ASAP.

h. Water Quality – *Dan Turner, Corps*

- Tailwater gages are reporting TDG.
- There are no exceedances of TDG.

i. Fish

Salmon – Conder, NOAA

- Adults
 - Nothing unusual to report, things are moving as expected.
 - Bonneville Counts
 - Chum:
 - Count 10/31: 15
 - Season Total: 55
 - Coho:
 - Count 10/31: 465
 - Unusual – little increase

Morrill commented saying that 15 chum over Bonneville was a pretty good count.

Lamprey – Conder, NOAA

- Adults
 - Adult run is pretty much over for the year.
 - Waiting for the corrected counts from the Bonneville LPS's

j. Power System – *Tony Norris, BPA*

- Dry clear days lately with a high-pressure system.
- Not a lot of wind but expect to change as the weather systems start to pile in on us.

4. Public Comments:

- 5. Set agenda for next meeting – November 15, 2023, with a tentative placeholder to discuss chum next week on November 8.**

Today's Attendees:

Agency	TMT Representative(s)
Army Corps of Engineers	Lisa Wright (Chair), Aaron Marshall
Bonneville Power Administration	Tony Norris, Ben Hausmann
Bureau of Reclamation	
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
Nez Perce Tribe	Jay Hesse
Umatilla Tribe	Tom Lorz (CRITFC)
Colville Tribe	Kirk Truscott
Warm Springs Tribe	
Kootenai Tribe	
Spokane Tribe	

Other Attendees (non-TMT members):

COE – Alexis Mills, Dan Turner

BOR – Eric Rothwell

Colville – Dennis Moore

DS Consulting – Emily Stranz (Facilitator), Colby Mills

CorSource – Andrea Ausmus (BPA note taker, Contractor)

Oregon DEQ – David Gruen

Columbia Basin Bulletin – Mike O'Bryant

Washington Ecology – Thomas Starkey

Portland General Electric – Ruth Burris

NW Power and Conservation Council – Kate Self