COLUMBIA RIVER TECHNICAL MANAGEMENT TEAM
January 22, 2025
Facilitator's Summary
Facilitation Team: Emily Stranz & Colby Mills, DS Consulting

The following Facilitator's Summary is intended to capture basic discussion, decisions, and actions, as well as point out future actions or issues that may need further discussion at upcoming meetings; it is not intended to be the "record" of the meeting. Official minutes can be found on the TMT website: https://pweb.crohms.org/tmt/agendas/2025/. Suggested edits for the summary are welcome and can be sent to Colby at colby@dsconsult.co.

Review Meeting Summaries & Minutes – TMT Members will review the official meeting minutes and facilitator's summary from January 8 at the next TMT meeting.

Chum Update – Tony Norris, BPA, began by presenting on 2024 redd spawning locations and elevations, the slides are posted to the TMT website. Monitoring data highlighted the relationship between redd elevations and water surface levels. Redds have been observed in the usual areas, except for in the Ives pocket area and some locations in the breaks (a trend over the last couple years). Tony noted that environmental factors like high winds affected water levels and spawning conditions, but overall, most redds were well protected under the 11.3 feet tailwater elevation; good recruitment was observed in the McCord Creek area.

In response to a query about Hamilton Creek's influence on flows in the Strawberry area, Tony confirmed that Hamilton Creek could backwater into the Strawberry area to support water surface even if flows are low. BPA hopes to conduct more extensive water surface elevation measurements in the Strawberry area in future years to better understand the nuances. In response to another query, Tony also emphasized that data collected does not capture all variables that could influence chum spawning; each spawning site has unique conditions.

Doug Baus, Corps, provided an overview of the current conditions and forecasts for chum. The incubation phase (coordinated by TMT on December 18) sets a minimum tailwater elevation of 11.3 feet at Bonneville Dam (BON) until midnight April 9, unless otherwise coordinated with TMT. Chum operation details are posted on the TMT website. BON at 0800 hours this morning had a tailwater elevation of 13.3 feet, with a total of outflow 150.9 kcfs.

The RFC inflow forecast over the next 10-days shows a minimum of 126 kcfs on January 27 and a high of 156 kcfs today, January 22. Low inflow forecasts for BON highlight well below average precipitation levels for the current water year, below the 50% climatology for the 120-day outlook. Overall, precipitation forecasts indicate below average conditions for the Snake River and Columbia River basins which raised some concerns. Tony noted that BPA is monitoring the situation and will continue to do so. In response to a query, Chris reported that the probability of triggering drum gate maintenance this year is unlikely, although not impossible; the February forecast will be the official trigger.

Kelsey Swieca, NOAA, reported that no chum have been observed over BON since the start of the calendar year, as expected. No additional spawning surveys were available. Charles Morrill, WDFW, added that as forecasts continue to look dry, the water year may be lower than expected.

Chris Runyan, Reclamation, reported on conditions at Grand Coulee Dam (GCL); the project is at 1,286.1 feet (3.9 feet from full), the highest pool elevation over the past 18 years and 4.3 feet higher than last year. Storage is 118% of average overall and continues to look good.

Flood Risk Management (FRM) Shift at Brownlee Dam (BRN) – In response to a request from FPAC, Action Agencies invited TMT Members to ask questions and engage in dialogue around the shift in FRM space from BRN and Dworshak (DWR) to GCL, per request from BPA and Reclamation and as outlined in the Water Management Plan (WMP). As stated in the WMP, the request was prompted by a dry water supply forecast, with the intent to provide more water for flow augmentation in the Lower Snake River during spring migration. Lowering the FRM elevation at GCL can help support fish operations, especially for chum. AAs expressed that from their perspective and as stated in the WMP, adjusting the FRM requirements optimizes water management to potentially enhance flow conditions for fish on the Snake River while maintaining operational flexibility in response to uncertain water supply forecasts.

Jonathan Ebel, IDFG, emphasized that shifts like this are rare and often occur to increase flow in the spring. Some Salmon Managers expressed uncertainty around the need and benefit to shift FRM for chum given the current operation and noted concern on the implications of shifting FRM space from BRN to GCL and the rationale behind it. Specific concerns included:

- Are there practical benefits for Snake River fish? The shift may not lead to real changes in water management or flow augmentation for the Snake, especially if BRN is already below FRM elevation.
    - Idaho Power Company may not be able to shift their operations due to local environmental conditions and requirements, limiting the effectiveness of the FRM shift.
    - BRN's ability to meet the shifted FRM elevations due to current low flow conditions.
- Cumulative effects of allowing more water from the upper Columbia while BRN and DWR are below FRM elevations, potentially leading to detrimental flows for fish in the lower Columbia.
- Historically this is an unusual shift for January, when seasonal conditions are less clear.
- Some Salmon Managers expressed their perspective that the intent of the FRM shift seemed to be more for operational flexibility rather that the benefit of fish. They noted that the process to request and approve these shifts is unclear to Salmon Managers, as they were not given an opportunity to weigh in on the impacts to fish.

Action Agencies clarified that:

- The Water Management Plan describes FRM shifts in the following manner, "The AAs will look for opportunities to shift system FRM requirements from Brownlee and Dworshak to Grand Coulee periodically from January through April to provide more water for flow augmentation in the lower Snake River during the spring migration."
- The primary reason for considering the shift was to support flow augmentation in the lower Snake, while acknowledging the operational flexibility it can provide. Shifting from BRN to GCL will lower the variable draft limit at GCL. The forecast for BRN is around average; below average for DWR.
- The shift in January affects forecasted FRM elevations for March and April. Not accepting the shift could affect the ability of these projects to fill to higher elevations should the opportunity arise due to a changing forecast or streamflow conditions.
- ESP modeling highlights potential outcomes of the shift; AAs are concerned about the dry water supply outlook and implemented the shift to fulfill the intent as outlined in the WMP.

The resulting discussion led to a need from Salmon Managers for better understanding of the process behind FRM shifts, including who requests them, criteria used to determine whether the shift is of benefit in the Lower Snake River, and how they align with operations to support fish. Conversations will continue in an effort to evaluate the implications of shifts like this on water management and support to fish populations, especially as environmental conditions change throughout the water year.

Questions or Comments from Non-TMT Members – There were no questions or comments from non-TMT members.

The next scheduled TMT meeting is on February 5, 2025, at 9:00 AM.

Columbia River Regional Forum
Technical Management Team
OFFICIAL MINUTES
Wednesday, January 22, 2024
Minutes: Andrea Ausmus, BPA (contractor, CorSource Technology Group)

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

1. **Review Summary and Minutes**

   a. January 8 Summary and Minutes

   - Kelsey Swieca, NOAA, said that the link on the TMT website was not working to access the January 8 Summary and Minutes.
   - Stranz said that TMT would table the approval of January 8 Summary and Minutes until next week.
     - Baus said he would fix the link as soon as possible.

     | *from Charles Morrill to everyone: 9:06 AM*

     | *I did not have any problems but reviewed them through Colby's email*

2. **Chum Operations -** *Tony Norris, BPA; Chris Runyan, BOR; Kelsey Swieca, NOAA; Charles Morrill, WA; Doug Baus, Corps-NWD*

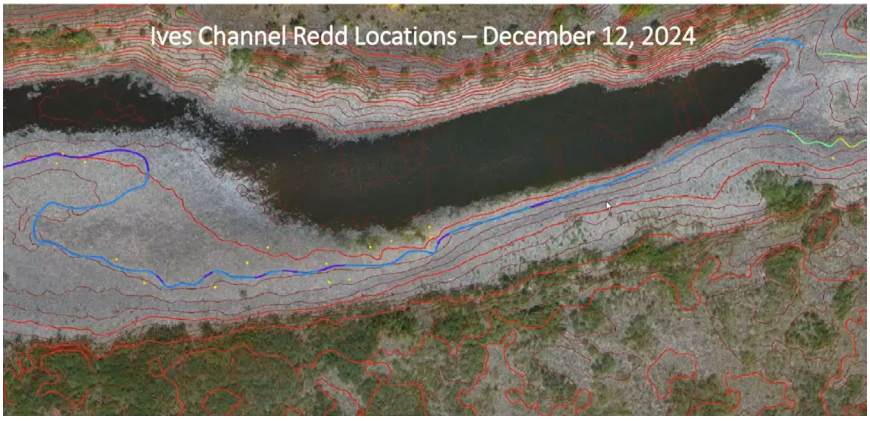
   - TMT Coordinated Chum Incubation at the December 18 meeting
   - Incubation Start Date: December 19 @ 1:00 pm
   - Incubation End Date: April 9 @ midnight
   - Spring Spill @ BON: April 10

   a. Redd Elevation Update – *Norris*

   - BPA, along with the Chum Monitoring Crew, annually measures redd elevation and location over the course of the chum season.
     - In 2024, they saw chum spawning in all the usual places except for a few places that they have typically seen spawning in the past.
     - They did not see any spawning in the Ives Pocket area or some spots at the Breaks.
       - The lack of spawning in the Ives Pocket is concerning, over the last couple of years they have not seen any chum spawning in there.
   - ***Map Explanation***
     - Multicolor Line (Blue > Green)

        - Representation of the water surface measured in March 2023 at approximately a 10.5-foot tailwater and the Hamilton running ~1 foot over the gauge.
        - Shows the redd location as it relates to the water surface at a 10.5-foot tailwater.
        - The darkest blue signifies a lower elevation.
        - The more green signifies higher elevations.
        - When the color transitions it is following a break in the slope of the water surface.
    - Yellow Dots
        - Redds measured on that day
        - Not just in the last week of spawning but throughout the season of spawning.
        - This can be compared to the 10.5-foot elevation line.
- X-Y Plot Explanation
    - Blue Dots: Redds
    - Black Dots: Adjacent Water surface to the redds (at the beach)
        - Shows the relative protection that a specific tailwater elevation provides.
    - Red Dots: Water Surface measured in 2023.
        - Two layers of elevations is represented in the blue line on the map.

- ***Ives Channel***
    - Map



        - Some redds measured could be impacted if dewatered down to the 10.5-foot water elevation.
    - X-Y plot
        - Most redds had quite a bit of submergence and were well protected by the 11.3-foot tailwater.

- Photos
  - Norris showed some photos of the Ives Channel that were on the periphery, where the chum like to spawn.

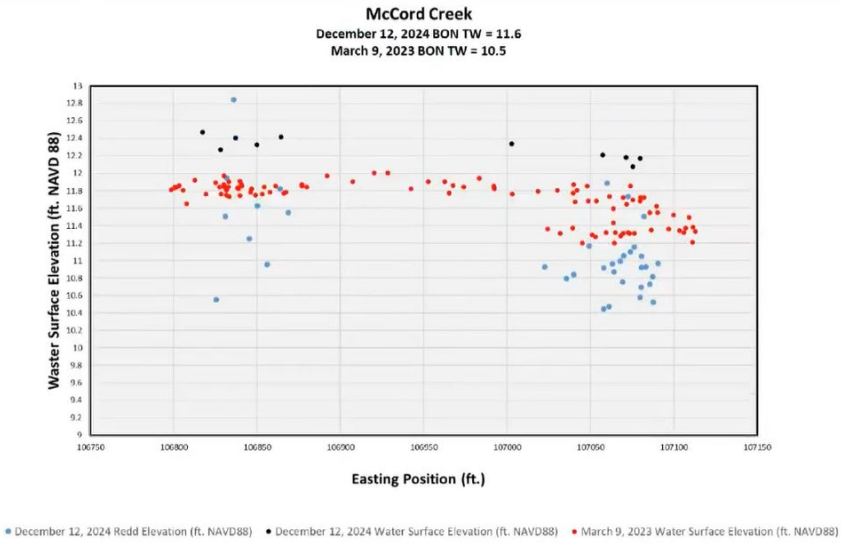
Ives Channel – December 12, 2024

- ***McCord Creek***
  - Map

  - Redds in this area have traditionally been quite deep. This year there were a few redds that were close to or above the 10.5 line.
  - This season, for ~2 weeks, there were high winds and waves were pushing water up into weeds, some of the carcasses were tossed above the shoreline.
  - There are more fish spawning in the area than in the past.

- The green mass in the water is aquatic vegetation sitting on top of the water.

- Plot



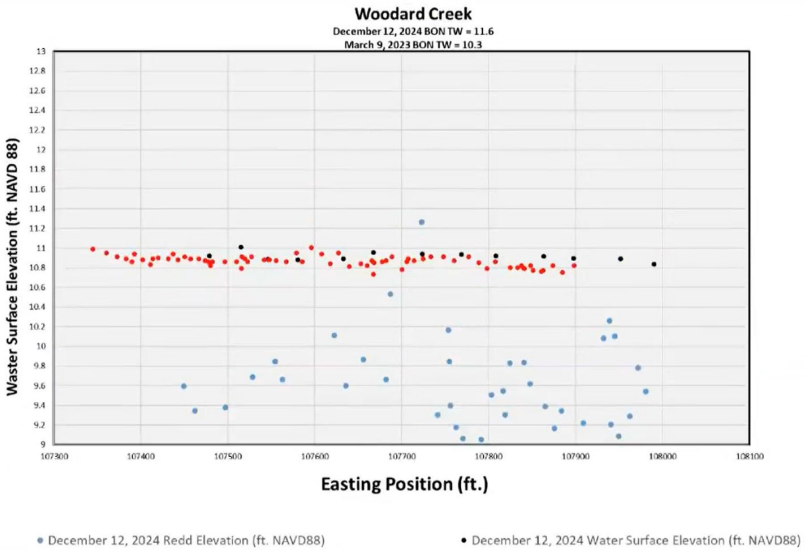
- One redd above the line was likely made during high east wind event.
- The propensity of the redds measured were all well below the line.

- Photos

  - McCord Creek area is steep in a lot of the places where the redds are found. Even with a higher tailwater the fish will not spawn in those areas on the steep banks.
  - There are areas where redds were found in higher areas. The photo showed the surveyor measuring a redd on the edge.
  - Out near the point, there is an expanded area where there are a lot of redds that are quite deep.

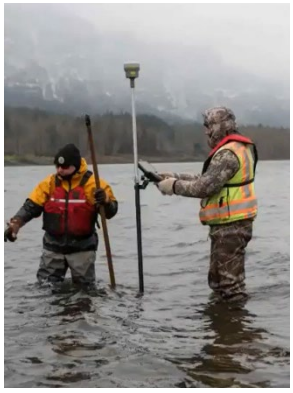
- ***Woodard Creek***
  - Map

    - Redds are traditionally found deep in this area as the beach is steep.
    - The propensity of the redds measured were all well below the 10.5-foot tailwater line.
    - The 10.5-foot matches the contour line better in this area because there is not a break in the slope.
    - This area probably had a lot of wave action during the high east winds – many carcasses were tossed in the bushes with the waves.
  - X-Y Plot



    - One redd was above the water surface, was likely set during the high east winds when there was some artificially high-water surface in that particular area. There were 3 – 4-foot waves and 50 mph winds.

- Photos

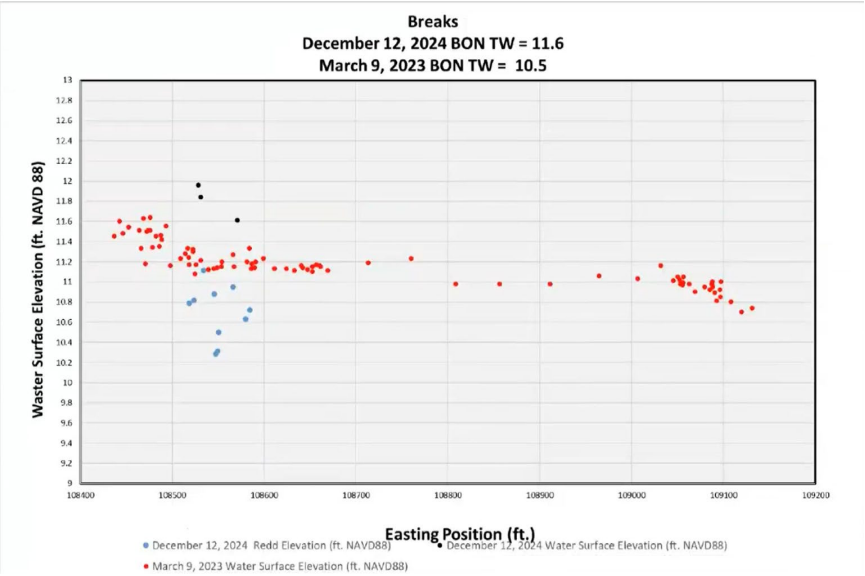



  - The typical places that fish spawn in this area are quite deep.
  - One redd (as mentioned previously) was found above the water surface.

- ***The Breaks***
  - Map

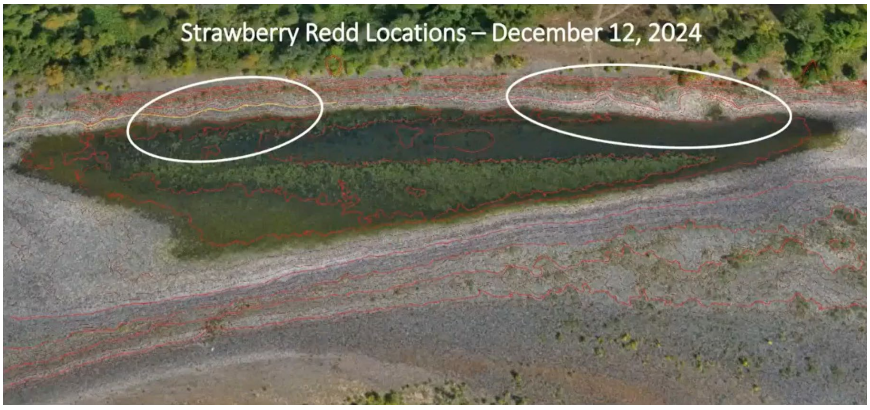
  - The 10.5-foot elevation line shows a variation in shading because there is a break in the water surface across the area.
  - Most redds are all in typical locations seen at this location and would be in decent shape if we had to dewater.

- Plot

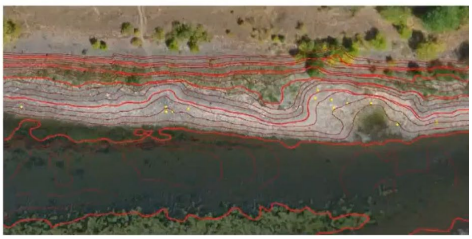


- Photos
  - The photos were taking in a cove that the chum are seen spawning in every year.
  - The photo here shows a shallower area on a bar where there is a break in the water surface.

- ***Strawberry Redd Location***
  - Map

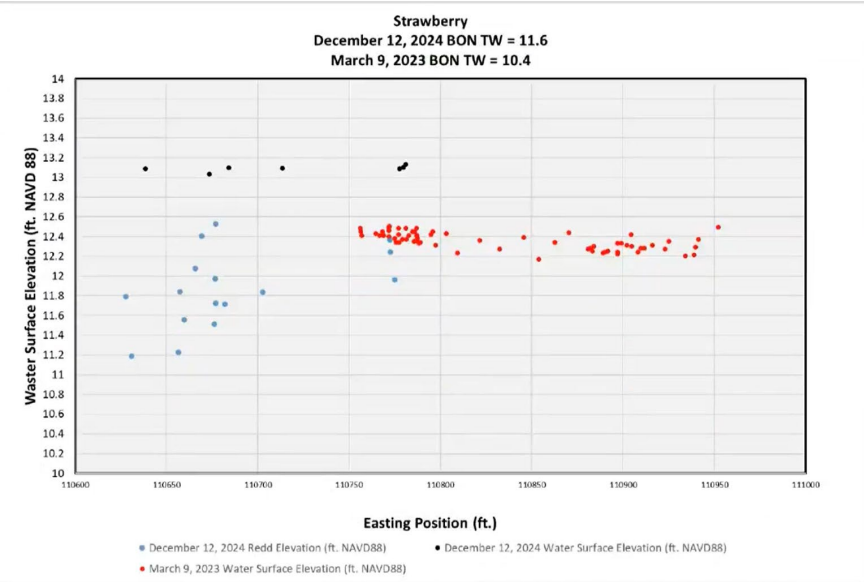


    - There is no blue water surface line because November/December 2022 there were not any redds found in this area. In March 2023, when they went out to measure the dewatered surface this area was not measured as thoroughly.
    - The yellow area was partially measured.



    - The yellow line on the left is the water surface measured on March 2023. The image on the right was not measured.
    - This area is flat because it is kind of a pool.
    - The yellow line of the 10.5-foot dewatered line follows the index contour and most of the redds are below that line. It is likely most redds would be protected with a lower tail water elevation.

- Plot



  - Plot shows that the redds are well submerged.
  - The red dots only cover a portion because they did not measure the whole area in March 2023

- Photos

  - The beach is steep in this area so the redds are typically found in the same areas that they have been found in past years.

- Overview: With an 11.3' (11.5' actual) tailwater redds are generally protected through emergence.

Charles Morrill, WA, said that for the figures for Strawberry redd elevation most of it is in the 12s. He said that he was puzzled on how to interpret that figure because Bonneville's tailwater is 11.6'.

Norris said that he needs to be careful when comparing elevations. Norris said that the datum that is used for the project tailwater is the 1929 datum and the datum used to survery the redds is the modern standard of NAVD88. He said that what you would want to compare the redd elevation to the measured water surface and how that correlates to the tailwater elevation that day to determine the minimum protection level. He said that what they want to show is that at the Bonneville tailwater of 11.6' that day, the is

sufficient submergence at the minimum of 11.3'. A 11.6' BON tailwater is not actually a 11.6', it is actually ~2.3' higher for the different datum.

Morrill said that was what he was curious about. He said if Norris said that he thinks that the adjustment is 2.3, then with the data that is shown on the axis shown everything is under the 13.2' or someplace there that would reflect the contour lines in what Norris had shared in the pictures.

Norris said what Morrill would want to correlate is that we were at a 11.6' tailwater that day and if the tailwater were 0.3' lower the redds would still be covered. So, if Morrill wanted to look at the absolute difference between the black dots and the blue dots. This tells him the submergence at a specific tailwater. If he was to lower the tailwater by *X* amount he could subtract that from the elevation that is being shown on a different datum, to see what the submergence would otherwise be. Norris said that in the Strawberry area, as long as there is water flowing over the bar that enters into that area, it is sort of a flat pool in there for the length of that pool.

Morrill said he needs to look at it again and think about it. He said that he understood what Norris was saying.

Norris said that if Morrill needs to spend some more time on it, he would be able to schedule some time at a process meeting. He said that TMT has gone over it in the past but because it is only done once a year, it is understandable. Norris said that you just want to measure the absolute difference between the blue dots and the black dots and that would tell you the submergence on that day. If the tailwater was down closer to the 11.5 or 11.3 there would still be water over the measured redd elevations.

Morrill told Norris thank you. He said that they might chat a little in the Process Meeting, but it was very helpful to catch him up.

Kelsey Swieca, NOAA, said that she had a question about the Strawberry area figure. She said that it was her understanding that the flow out of Hamilton Creek can kind of back water into the Strawberry area. She asked Norris if that was correct.

Norris said yes that was true. He said that in the worst case scenario, if there was not enough water in the system to get water from the riverside into the Strawberry area, if Hamilton Creek was flowing a foot or more above the gauge, some of that Hamilton Creek water can help support the water surface in this area. It does not necessarily all need to come from the river to keep these areas wet. If it came to pass again, Norris would take his surveyors out there to do a more extensive measurement of the water surface through the Strawberry area so that they could have another reference to confirm what was measured in March 2023. It might likely be at a different Hamilton Creek flow to so would help add to the dataset.

Swieca said that was exactly what she was getting at, if we get to a point where we do have to consider dewatering this year, or future years, she thought it was important to contextualize what TMT is seeing in the figures with what is happening at the Creek, in addition to just the BON tailwater.

Norris agreed and said that is why they are out there measuring because it is really helpful to discern any potential impact.

Jonathan Ebel, ID, thank Norris for the annual information. He said that Norris had amassed quite the data set of redd elevations and conditions. Ebel asked Norris where that data lives.

Norris said that he had sent the *.KMZ files in the past so that TMT could see it and load onto Google Earth. He said that images I've shown is not something I can send as it is a GIS model. Norris said that he has also sent CSV files in the past as well.

Ebel told Norris that it is interesting to see where they are, but the elevations and then differences calculated. He said that there is this large dataset but the reason that the Action Agencies are tuned in or are taking this level of precision with this is to try to further optimize or gain flexibility in how to react in terms of water management so that they do not dewater the redds but there is enough data here where you could probably analyze it more than qualitatively, which is what Norris had been showing. Ebel said that he was not sure if BPA or Washington had plans of actually determining what explains redd elevations when under different years. Ebel asked Norris if he had plans to take a deeper look, quantitatively.

Norris said that he thought that Ebel might be overstating the size of the dataset. He said that they still cannot say that they had measured every single redd. He said that they go out there and measure the redds where the chum monitoring crews have told BPA surveyors where the fish had been spawning. He said that he thinks they have at least done due diligence, but they do not go out and measure the water surface along the entire reach every time because they do not have the time or the daylight to do that. He said that there are just so many variables that would influence where the chum spawn each year. He said right now he did not want to overstate. He said that he was not sure how much more quantitatively you can use to analyze the data. He thought that you need to keep it in simpler terms. Norris said that he could do a whole presentation on where a fish spawned year on year with the data that we have now collected to date. He said that they could talk about it more at a different meeting when there is more time because the data that they have is pretty finite and does not capture all of the variables or questions that Ebel might want to discuss or be trying to answer. Norris said that they had come up with this when they were doing the temperature studies out there, we do not have information every single place that chum have spawned so we cannot necessarily completely generalize what is going on out there because every spot out there is unique.

Ebel said he was just saying that what Norris is describing to an ecologist is just how things work. You never have all the data that you want. He said that he is just pointing out that Norris has an impressive dataset, and he thought that someone could elucidate some patterns and test some of Norris' hypothesis about it if the data was freely available.

b. Bonneville Dam (BON) – Hourly Data – *Baus*

- Tailwater Elevation (Hour 8): 13.3 feet
- Outflow 150.9 kcfs

c. NWRFC – BON Inflow Forecast (10 day) - *Baus*

DIVISION NAME	OBSERVED (in)	NORMAL (in)	DEPARTURE (in)	PERCENT of NORMAL
Snake River above IHR	7.8	9.1	-1.3	86
Columbia River Basin abv The Dalles	10.2	11.7	-1.4	88

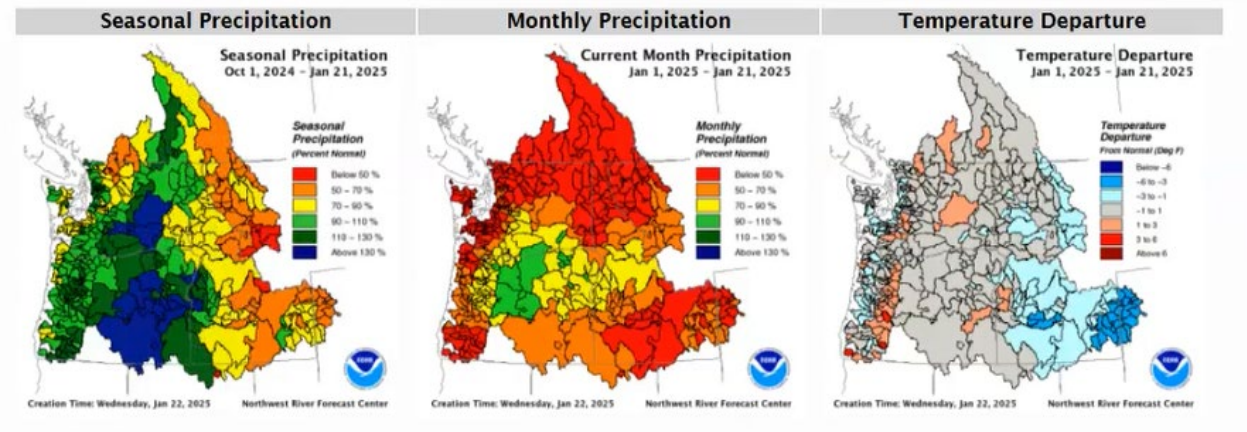
- BON Inflow Forecasted:
  - Low: 126 kcfs (January 27)
  - High: 156 kcfs (January 22)

d. NWRFC – BON Inflow Forecast (45 - 120 day) - *Baus*

- Current Forecast when compared to 90% and 10% climatology: well below 50% climatology
- February BON Inflow Forecasted:
  - Well below 50% climatology
  - Forecasted Inflows: 120 kcfs
- March BON Inflow Forecasted:
  - Low: 120 kcfs (beginning of March)
  - High: 130 kcfs (end of March)

e. NWRFC – Water Year Precipitation Table October 1 – January 21

f. NWRFC – Current Month Water Summary Graphics



- In the Seasonal Precipitation it highlights the gradient
- Western Portion of the Columbia Basin.
  - greens and blue: Near normal seasonal precipitation

- East as highlighted
  - oranges and yellow: Well below average seasonal precipitation

g. BPA Update - *Norris*

- Keeping an outlook on dry conditions.
- The forecast is not great but there is still quite a bit of winter left so we should not be too excited, but we are going to keep a watch on it.

Swieca asked Norris or Runyan what the probability of hitting Drum Gate Maintenance this year.

Runyan said it was looking at lot better on the first of January. He said as everyone knows it is looking dry so he would say it is looking to be unlikely, not out of the realm of possibility. He said if the last week and it really got wet and we had a good series of storms he though that it was still possible, but it seems less likely than earlier this month. The January forecast, just looking at the forecast it would not have triggered drum gate, and we have gotten a little drier. Short summary is it looks unlikely, but we are not quite done yet. The February forecast would be the trigger.

h. NOAA Chum Update – *Swieca*

- No chum have been over BON since beginning of calendar year, as expected.
- No additional spawning updates.

i. WA Update - *Morrill*

- Kyle Dittmer gave FPAC the weather update forecast. It continues to look dry for the next couple weeks. There is a concern that if it stays dry that we may be looking at a lower water year than we had initially thought or expected out of the La Niña winter pattern.

j. Reclamation Update – *Runyan*

- Grand Coulee (GCL)
  - Elevation: 1286.1 feet
  - Feet from Full: 3.9 feet
  - Storage: 118% of average
- GCL is currently at the third highest pool elevation of the last 18 years (2008).
  - We are 4.3 feet higher than last year.
- Reclamation is happy with how the chum operation has gone so far with regards to using storage out of GCL.
- Much deeper drafts out of GCL may happen depending on the weather.
- Storage at GCL is in a good position so far.

Morrill thanked Ruyan for the bright spot. He said that it was definitely a good piece of news that we have that water and have the storage that high for this time of year.

k. TMT Coordinated Chum Operation – *December 18, 2024*

1. EFFECTIVE, DECEMBER 20, 2024, AT 0001 HOURS, UNTIL FURTHER NOTICE, THE BONNEVILLE DAM MINIMUM TAILWATER ELEVATION IS 11.3 FEET DURING ALL HOURS.

3. Brownlee Dam, Flood Risk Management Shift – *Doug Baus, Corps-NWD, and Jonathan Ebel, ID*

a. Columbia River System Flood Risk Management (FRM) Requirements

- Baus got feedback on the current shifted operation that shifts FRM space from Brownlee (BRN) to Grand Coulee (GCL).
  - Feedback asking for conversations at TMT
  - The Corps was available for questions.
- Ebel provided more information about the Corps' FRM requirements.
  - January 10, the Corps provided their FRM requirements following the Fish and Water Supply Forecast.
  - The FRM requirements included a space shift from Dworshak (DWR) and BRN to GCL.
  - The Shift is included in the Water Management Plan (WMP) in section 4.5.
    - Also includes the intent: "…to provide more water for flow augmentation in the lower Snake River during the spring migration."
  - Ebel said that he was surprised that there was a January 10 Shift included in the guidance because shifts from BRN are fairly rare, the last that he could find was in 2015.
  - It has not been included in January guidance since at least 2013.
    - This is because the intent is to increase the flow in the Spring so if the system level space can be moved to GCL where there is more water to refill then it would be able to reach a higher elevation at these reservoirs faster and more water would go down.
  - Ebel said that he hoped that the Corps would explain why they decided to put an FRM shift into the requirements and projections this early in the year and then he would go into why he did not think that it would achieve the intent of the WMP.

| *from Charles Morrill to everyone: 9:46 AM*

| *I can't open this link ....*

| *from Charles Morrill to everyone: 9:46 AM*

| *Error*
Error

This page can't be displayed. Contact support for additional information.
The incident ID is: N/A.

| *from Charles Morrill to everyone: 9:47 AM*

| *3.a.*

| *from Colby Mills, DS Consulting to everyone: 9:48 AM*

| *Hey Charlie I can email you the downloaded PDF if that's helpful!*

| *from Charles Morrill to everyone: 9:48 AM*

| *that worked*

| *from Charles Morrill to everyone: 9:49 AM*

| *thanks Colby*

Aaron Marshall, Corps, said that they could provide some context around this. Marshall said that their FRM requirements are prepared by their RCC partner within Columbia Basin Management, their hydrologic engineering branch. As they were preparing the FRM requirements for January, BPA and BOR reached out and inquired about the possibility of shifting some FRM space from both DWR and BRN to GCL. The benefit there would be lowering GCL elevation which would also lower the Variable Draft Limit (VDL) at GCL and provide some additional water within the reservoir to help support the Chum Operation. Marshall said that as was discussed the Water Supply Forecast (WSF) is pretty dry this year and it has continued to dry out this year. Providing a deeper FRM draft requirement at GCL lowers that VDL and would require the project to draft more in February through April 15 and that would help support the Chum Operation. Marshall added that the shifts from BRN and DWR to GCL do not change any of the FRM elevations for the end of January, that starts to take effect at the end of February, March, and April 15 elevations. He said that then essentially the shift goes away for the second half of April and the Projects have to return to their normal FRM elevations by the end of April anyway with or without the shift; that end of April elevation is the same.

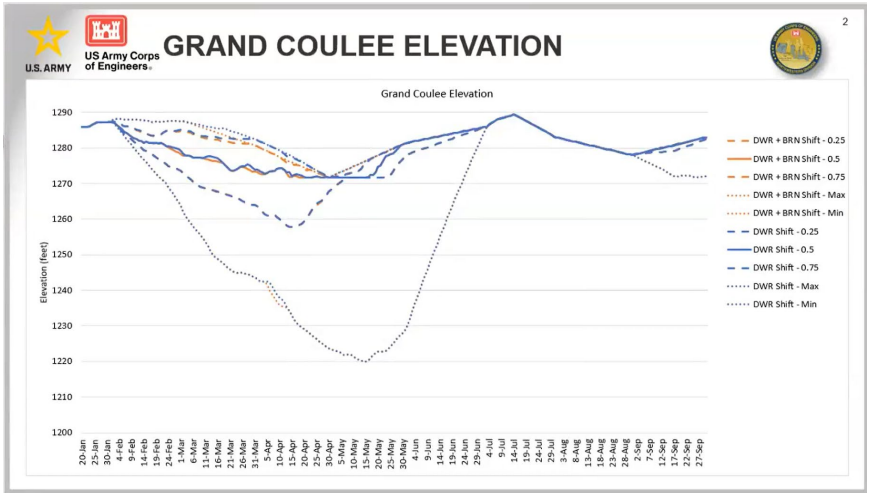
Swieca said that she was trying to understand, she heard what Marshall was saying about the shift being used to support the Chum Operation. She said after their update, what they had heard this morning is there is currently not a big concern about being able to support the Chum Incubation Operation. She said that she was wondering what is different about this year than years previous that makes the shift something we would pursue for chum.

Marshall said that drying up of the WSF is a big part of it. He said that he would like to ask Alexis Mills, Corps, to add information that might help provide some context around what the Corps is seeing for their current forecast during the Spring if they continue to operation for the Chum Operation as it is currently set.

Mills reiterated as Marshall had already mention that the shift would lower the VDL because it was coming very close to full at GCL. She said it was also per the WMP, in section 4.5 there is emphasis that the Action Agencies (AA) “will look for opportunities to shift system FRM requirements from Brownlee and Dworshak to Grand Coulee”. She said that in the STP the GCL results did not look very promising for end of March,

coming in the 60s. Mills said that in addition to the STP, the Corps ran their ESP model a series of 44 traces from 1981 to 2024 in order to get a better picture of some of the outcomes that we might possibly see. She said that Baus showed the 120-day forecast at BON from the RFC, that was the Corps' STP trace, and that showed that low inflows at BON still resulted in an end of March GCL elevation that was far below the VDL. She said that even though it is only January, and there is still some snowpack building potential, it is fair to say that we are looking at a low water supply year.

Mills shared some slides:



This is showing the ESP results under two different scenarios:

- Scenario One: Both DWR and BRN are shifted (with the FRM guidance shown earlier)
- Scenario Two: Without the BRN shift.
- Median: Solid Line
- 25- and 75-percentile: Dashed Line
- Min and Max elevations: Dotted Line

Mills said that this paints a slightly rosier picture than what was sent in the STP trace that was sent out on January 21, but you can still see drafting below the possible VDL elevations at GCL. Mills said that she was not sure that this answered Swieca's question, but she does think that there is concern on behalf of the AA about the water supply outlook. She said that she could go more into the results but was going to leave that for later.

Swieca said that she is still curious. She said that she understood what Mills and Marshall were describing. She said that she is still trying to wrap her head around the new strategy for supporting chum that had potentially not been pursued in the past and maybe the motivation behind. She said what was different about this year that would cause us to try something new. She said that Marshall mentioned that the request came in from BOR and BPA so maybe they have some additional information or maybe we need to take this one

back. She said that she was still curious about what motivated the pursuing of a different strategy than we had seen historically.

Stranz asked Runyan if he had anything to share at this point.

Runyan said that he could not provide much in regard to the chum, but he could provide something that for Reclamation was on their radar. He said that it had been mentioned a few times about the language of the WMP. Looking for shifts is mentioned in section 4.5 and also in section 6.5.1 in the GCL section. Runyan from those two things as he read it was to seek a shift if we can. He said the historical context that Ebel provided was something that he was not aware of but he would like to look back and see how often this has occurred. He said that he was not aware of it not being used that often. Runyan said that from Reclamation's standpoint they were looking at storage. He said, as he had mentioned before earlier, storage at GCL is looking good, if not historically high. He said that on Reclamation's radar also is drum gate maintenance. If drum gate maintenance is triggered, GCL would need to go from whatever elevation we are at on February 1, or whenever the FRM is released, down to 1255' by March 15. Runyan gave some rough numbers, if we are up to ~1287' they are looking at 32' of draft in 45 days. This comes out to be a little over 0.7 feet per day. He said that the BOR's preferred standard operating draft criteria is 0.8 feet per day, anything over that they have concerns about shoreline erosion potential, and the like, up at Lake Roosevelt. Runyan said that when they are looking at FRM and there is a potential that DWR and BRN could potentially ask for a shift the BOR was all for that because it might help GCL be a little deeper by January 31. He said that it would be less than a foot so it would not be a big deal, but it is kind of one of those things where it is if it is in the plan, and it could help GCL meet the draft requirements if we go into drum gate. He said was a lot of the logic for Reclamation. Runyan also mentioned that it had dried out, it has been dry. January has been dry. December was pretty wet in certain locations in the Pacific Northwest. Certain areas are actually at median peak snow as of end of December, so it was pretty active, but since then it has dried up. He also mentioned that these shifts are addressed each month, each month the Corps looks at whether the shift is acceptable, based on FRM. He said that if you do a shift in January we are not locked into the operation. He wanted to make sure that TMT was clear on that. He said that this was a little context of where Reclamation came from with regards to whether the shift could help GCL.

Stranz said that was helpful and asked if Norris or Ben Hausmann, BPA, had anything they wanted to add on behalf of BPA's thinking.

Norris reminded TMT that we do not usually get BRN shift included in the January Forecast because we typically don't get a request from Idaho Power (IPC) until later in the March/April timeframe when conditions may have changed significantly and there is some advantage that IPC wants to gain but it is usually pretty hard to get them to be open to a shift this early in the season. He said, as Runyan had mentioned, that assuming the shift for Brownlee made a small change in the computation of the VDL because it affects the forecasted March 31 and April 15 FRM elevations. Norris reminded TMT that those are forecasted, and they are updated next month so if you look at the impact of including the BRN FRM shift it was ~0.7 of a foot for the end of January VDL elevation and from a VDL perspective we do not really look beyond the end of January based on the January forecast. Norris said with the current drying trend we would expect the current FRM and

VDLs to be well above what is needed to support Hanford Reach and the chum minimums. He said that it is expected that if it continues to stay dry that we would be running to those minimums during that period because the VDL and the FRMs would be above what is forecasted to be needed to meet the minimums at Hanford Reach and chum. Norris said that January inclusion of the shift did adjust the VDL down 0.7 – 0.8 of a foot down and provided some power flexibility for BPA so they did take measures to prop up GCLs elevation by storing water into Lake Pend Orielle with a flexible winter power operations and BPA is releasing that water now to help meet load during the period of cold weather. He said that they fully expect to fill up above the 1286.7' at the end of the month. He reminded TMT that this elevation is roughly 3 feet from full, which is pretty darn full for the end of January regardless.

Stranz moved the conversation back to Marshall.

Marshall asked Baus to bring up the FRM requirements

Table 1. Flood Risk Management Requirements

Project	31 Jan	28 Feb	31 Mar	15 Apr	30 Apr[3]	Date Refill Started	31 May[3]	30 Jun[3]	31 Jul[3]
MCDB+ARDB (kaf)[1]	1632	2180	3485	3485	3485	-	1708	0	0
ARDB (kaf)[1]	1632	2180	3485	3485	3485	-	1708	0	0
DCDB (kaf)[1]	-	-	-	-	-	-	-	-	-
LIB (ft)[4]	2411.5	2408.2	2403.8	2403.2	2402.5		2441.6	2459.0	2459.0
LIB (kcfs)	n/a	n/a	n/a	n/a	n/a	-	n/a	n/a	n/a
HGH (ft)	3546.3	3543.6	3540.6	3539.1	3537.6		3555.3	3560.0	3560.0
HGH (kcfs)	n/a	n/a	n/a	n/a	n/a	-	n/a	n/a	n/a
SKQ (ft)	n/a	n/a	n/a	n/a	n/a	-	-	-	-
ALF (ft)[2]	2060.0	2060.0	2056.0	n/a	2056.0	-	-	-	-
GCL (ft)	1290.0	1288.0	1280.7	1275.9	1271.7		1281.3	1290.0	1290.0
BRN (ft)[7]	2077.0	2065.1	2066.5	2067.5	2061.6		2074.7	2077.0	2077.0
DWR (ft)[7]	1550.1	1549.0	1562.3	1573.5	1558.7		1587.3	1600.0	1600.0
WEL (kaf)	0	0	0	0	-[5]	-	0[6]	0[6]	0[6]
RRH (kaf)	0	0	0	0	-[5]	-	0[6]	0[6]	0[6]
WAN+PRD (kaf)	0	0	0	0	-[5]	-	0[6]	0[6]	0[6]
JDA (kaf)	0	0	0	0	-[5]	-	0[6]	0[6]	0[6]

The April 15 elevation is what Marshall wanted to key in on. He said for GCL, with the shift, the FRM elevation on April 15 is 1275.9', without the shift from BRN to GCL the elevation will be 1277.7'. He said that he wanted to make sure that everyone is aware of the magnitude of that potential difference, which is just 1.8 feet.

Stranz circled back to Ebel so that he could provide more perspective on the topic.

Ebel said that he got what expected from this. He said that he wanted to read the WMP language on shifts: "The AAs will look for opportunities to shift system FRM requirements from Brownlee and Dworshak to Grand Coulee periodically from January through April to provide more water for flow augmentation in the lower Snake River during the spring migration." He said that the reasons provided by the Corps, Reclamation and some other information from BPA do not align with that intent. He said that one is that he does not think, and he thinks NMFS was also questioning this, that this is necessary for chum. He said that Reclamation said that they wanted some space or could use some flexibility in having more space in GCL. Ebel said that he was not sure what BPA was referring to as pinning IPC down on these things, but IPC can speak for themselves on these topics, but it seemed to him that TMT got a runaround in terms of the rationale for doing this. He said that while he understood the amount of water is

small, just as Marshall said, about 1.8 feet in GCL, the intent is for fish in the Snake River, and this is not aligning with that intent. He said the Corps recognized that they will revisit this for next month, but he is obligated to point this out that this is not aligning with the intent of the operation, and it is very much a stretch to say that this is for fish.

Norris asked why Ebel believed it will not improve flow in the Lower Snake. He asked if there was something that Ebel was aware of with IPC operations that the AA are not. Norris said that their model forecast showed them achieving their shifted FRM elevations when it was modeled, and they do not have any information otherwise. He asked if BRN shift is no longer something that the AAs should pursue in the future.

Ebel said that he was thinking about that more broadly. He said that BRN is already below or is about at the end of February FRM elevation and WSF forecasts are such and BRN is not huge, especially relative to GCL, that IPC needs to move water for other reasons. They also do not have requirements to be at FRM elevation on April 30, they need to be ~10 feet from full by May 20. He said that there is a mismatch between_. He said that it is not a federal_ it does not have the same fish related requirements as the federal storage reservoirs or FRM reservoirs, so they are already_, that space that is being shifted on paper already exists, it already there in BRN, and it is going to_, BRN is going to draft more, so essentially all this is doing is it is moving_, it is a paper exercise where if we took the sum of BRN, DWR, and GCL storage it is actually going to lead to a lower total amount of stored volume relative to FRM than if the shift did not occur. He said as a whole this is not going to help fish in the Snake River, and it will, at least a little bit, decrease flows in the spring in the Upper and Lower Columbia a small amount. He said from his perspective in the Snake River for fish to coming to and from Idaho that they essentially do not get the benefit in the Snake from a shift of BRN and it could potentially lead to be detrimental when they reach the Lower Columbia by a small amount. He said that is why he thinks that he would like the Corps to think hard about that in the next release, the FRM shift is not for power generation or flexibility, it is not for flexibility in operating GCLs elevations for the ease of management for Reclamation, it is for the Snake River fish.

Stranz asked Ebel to clarify about when he said he wanted the Corps to think harder about that for the next shift.

Ebel said that he meant for when they release the next FRM requirements. He said he would have liked to have this current FRM requirement changed, but it is not going to do that. He said that he thinks that this FRM shift has a purpose and that this year things are aligning wherein we will see where that WSF goes but that they need to consider the actual intent of the shift as written in the WMP.

Stranz thanked Ebel for the clarification.

Ebel said that he expects them to for the release for the requirements for February. He said that he can go in, he went through and look at 2015 to compare what we are seeing today versus today versus 2015 and usually the shifts are implemented when water supply in the Snake is low relative to the Upper Columbia. More relative to normal and that is not the case right now.

Jay Hesse, Nez Perce, said as this discussion continues, he would like to better understand the assumptions that the US government has collectively on actually having the BRN and DWR reservoirs at the adjusted FRM elevations because it was his understanding that as Ebel described that BRN really would not change, and they will be well below their FRM elevation and even further below a shifted one. He said that he thought that Ebel did a good job of teeing up that concern of what the cumulative effects would be if we are practically below the FRM elevations in both DWR and BRN, yet we are allowing more water to be released from the Upper Columbia. The out, the future requirements, to hold more water back become more problematic. He said that he wanted to better understand the assumptions for actually being at FRM. He said that he also needed to understand better the practicality of being back at the FRM levels by April 30 and how that affects water management between now and then. He asked how this affects water flows in May.

Stranz asked Marshall or Mills if they would kick that off.

Marshall said that he did not think that they have that information at the moment, so they will have to get together on that on and follow up with him. He said that it is a little early to look out into May, but they can do that, they have the ESP forecast model running so they could take a look. He said that he would offer that it might not provide a lot of value to look that far out in the water year yet because we still have a lot of potential snow building ahead. He said that he would offer that they can take all of the feedback they are receiving today into consideration, and they will be back to talk about this topic again.

Runyan said that he wanted to cover one thing with regards to Ebel's comment. He said that when he was explaining his thought process, he should have made it more clear that the primary reason that they were even looking at a shift was because of the benefit of flow augmentation. He said that the reasons that he had talked about were secondary, he had assumed, which was wrong, that people understood that flow augmentation was the primary reason a shift was in the plan and why it has been there for many years and from his perspective the idea is that any ability for them to allow BRN or DWR to be a little higher can only help things. He assumed it was like a default that any ability to let them be a little high is going to help us out with flow augmentation in the Lower Snake. He said that maybe that is not always the case. He said he was not aware of these concerns, and it sounds like there has been a lot of thought on it. He said that he would like to hear more about when to do these and when not, and maybe they need to modify guidance on that. He said that characterizing Reclamation's only objective as its flexibility is not accurate. The primary reason for the shift is for flow augmentation. The secondary reason is to help them out with other operations. Runyan said that another thing he would like to mention is that for January the forecast at BRN was 98% of average, so about average, and DWR was a little less at 87%. He said that they were in a slightly below average year so it did kind of meet the intent as well.

Stranz said that it helpful to know that Runyan was not aware of the concerns that Ebel and others had shared and that it was helpful information for him to have for moving forward.

Swieca said that she did not want to cut the conversation off in any way if TMT wanted to keep it going but she did want to say at a minimum, it had become clear after the

conversation today that there is a little bit of a lack of understanding of process as it relates to the FRM shifts from the Snake River to GCL. She said that she thought that there was an opportunity to clarify who puts in a request, what are their criteria for putting in the request, and how do they back check that those requests are going to adhere to the intent of the operation. She said that some of those conversation is a little difficult because those that have the conversations are not necessarily those in the room with us at TMT. She said that she was not sure what the right forum would be to have a conversation like this, to get all the people in the room who are the ones actually having the conversations before we see the WSF come out. She said that she wanted to point out that she thought there is a really big opportunity for increased understanding of how this process works behind the scenes so that we can better make sure that it meets the intent of the operation.

Norris added a couple things. He said that this is not just a below average water year thing, there is no necessary prescription for when to shift FRM. Except for DWR when you have a DWR WSF approaching 3 maf there is no shift there because their local flood control supersedes the system's flood control there. Norris said that it was the first time that he had heard pushback on accepting shift when they were able to get it there. Not accepting shift at BRN precludes their ability to fill to those elevations. He said that what he was almost hearing from Hesse and Ebel is that we should not necessarily even consider DWR shift if we are drafted well below FRM elevations and that could be problematic from a water management standpoint because as you move through the year and approach the March forecast you run out of time at DWR to move water if you have big changes in water supply. Norris said that he thought that was one of the reasons we had seen BRN available to shift, that they want to have the flexibility to manage changes in water supply.

Stranz said that TMT should check in on Norris' understanding of Hesse and Ebel, not wanting to consider a shift at DWR. She said that she was not sure that she had heard that, so she wanted to check in. She asked Hesse to check in.

Hesse said that he thinks that this discussion needs to play out and we should not be applying it to long term applications. The questions that Hesse had asked were really to better understand the reality of those Projects being able to respond to the shifted FRM. He said that his understanding is IPC will not shift because of their local conditions, so elevating that as Ebel indicated is a paper exercise. He said that it was also his understanding that DWR is at minimum base flow operations for the foreseeable future, so again elevating it FRM is a paper exercise. Hesse said that he wanted to understand what is real and what is just shifting things to other areas. In concept this does have the potential to help spring flows and that is why it is in the WMP. He said that he does not think TMT wants to take in out of that, but he thinks Ebel and himself were both questioning whether this actually has a benefit at this time to Snake River fish or if it is just creating a bigger problem for lower flows in the Lower Columbia later on. He said those are the discussions that they need to have. It is a reality check of how people can change or will change operations at BRN and DWR given local requirements that IPC has and local environmental conditions that are just low flows for DWR.

| *from Alexis Mills to everyone: 10:18 AM*

- *If we do want to take time to look at our current ESP modeling results below BRN and DWR, I can provide those.*

Ebel said first, part of it, is just how early in the season this shift was implemented, it was not implemented this early in 2015, which is kind of one of the things flags it as abnormal or a headscratcher. He said no, he does not have a problem at the moment, other than that it is really early to shift at DWR. He said that he thinks that this needs to acknowledge the reality of how BRN is managed and the requirements that IPC has. It limits, at least right now, under how the water is distributed in the system, the ability for an FRM shift to increase flows in the Snake. He reiterated that this is really early in the year and our forecasts are very uncertain and he understands that but that is what he is trying to point out. He said that he does not want something in the WMP to be implemented for a reason, in this case, something that would be for fish, to try to rationalize how it is for fish in the Snake River when it does not appear to be that way. He said a lot of this goes back to, and what he was hearing, is operational flexibility. He said that as Norris said this gives IPC, DWR and GCL a little more operational flexibility. He said that is reasonable, but it needs to be connected to Snake River fish because that is what that is for.

Norris reminded TMT that accepting the FRM shift in January only affected the forecasted FRMs way out in March 31, and April 15 and there is no direct immediate water management impact other than it adjusted the forecasted April 10 elevation, not the official April 10 elevation. This adjustment in January indeed adjusted the VDL downward by less than a foot at GCL for the end of January. It did not affect anything beyond that because we are nowhere near those elevations. He also noted that as we move through the season the Salmon Managers (SM) can provide guidance on whether or not we accept shift at DWR and BRN. As a reminder though, if we do not implement the shift, it precludes the ability to fill to the shifted elevations because they would need time to plan for that adjustment at GCL, BRN, or DWR. He said that not accepting the shift at BRN precludes their ability to fill to those elevations, so you eliminate the opportunity to create more flow for fish and the Lower Snake. It is not always a definite, of course, as Ebel noted. Norris said that BPA does not control those Projects, IPC does, and right now BPA was modeling IPC filling to those elevations. He said that BPA does not have information otherwise so we can only assume that they can fill to those elevations, that those flow increases could be realized. Not accepting the shift precludes that the opportunity for the intended higher flows. Norris also said that 2015 was not the best example, 2015 was a drum gate year, and a dry year so FRM elevations were well above actual elevations, so shift was irrelevant at that point.

Ebel said when Norris says “accept”, from his understanding_. He asked Norris who is accepting the FRM shift when he says_.

Norris said If IPC wants to shift their system space out of their reservoir it is shifted to GCL so Reclamation has to consider accepting it. So, if as Runyan mentioned that it provided some operational flexibility for Reclamation and BPA at GCL by small increments. He said that there are times in larger, above average water years when BRN, the system space at BRN would put GCL below critical elevations, like below 1240’, or would result in potentially requiring a draft rate exceedance to achieve that elevation then

Reclamation would not accept either the full shift or any of it depending on those conditions. So there are a variety of different outcomes.

Ebel said that from his understanding IPC did not ask for the shift,

Norris said that it is usually too early for them to come forward with a request. They do not usually start asking for it until later in the.

Stranz said she thought at this point this was an ongoing conversation. She said that they have a TMT process meeting today so she was wondering if it is a good time to close out the business meeting and shift into process, recognizing that this conversation is not ending today.

4. **Set agenda for next meeting – February 5, 2024**

   a. Chum
   b. Continued Brownlee Conversation (depending on the process meeting)
   c. Operations Review

Today's Attendees:

Agency	TMT Representative(s)
NOAA Fisheries	Kelsey Swieca
Oregon	Erick Van Dyke
Washington	Charles Morrill
Kootenai Tribe	
Confederated Tribes of Colville Reservation	Dennis Moore
Umatilla Tribe (CRITFC)	Tom Lorz, Pete McHugh
Yakama Nation	Keely Murdoch
Bureau of Reclamation	Chris Runyan, Peter Cooper
Army Corps of Engineers	Doug Baus (Chair), Aaron Marshall
US Fish & Wildlife Service	Dave Swank
Idaho	Jonathan Ebel
Montana	Brian Marotz
Spokane Tribe	
Nez Perce Tribe	Jay Hesse
Warm Springs Tribe	
Confederated Salish and Kootenai Tribes	
Bonneville Power Administration	Tony Norris, Ben Hausmann

Other Attendees (non-TMT members):

COE – Dan Turner, Alexis Mills, Tom Conning, Catherine Dudgeon, Kasi Underhill, Tiffany Stoeckig-Dixon, Eric Chow

Washington Ecology – Thomas Starkey

DS Consulting – Emily Stranz (Facilitator), Colby Mills

CorSource – Andrea Ausmus (BPA note taker, Contractor)

EKI – Eve James, Eddie Sparks

Chelan PUD – Brandon Carnahan, Jay Fintz

Columbia Basin Bulletin – Mike O'Bryant

NPCC – Kate Self

Avista Utilities– Mike Dillon