COLUMBIA RIVER TECHNICAL MANAGEMENT TEAM
March 5, 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 approved the official meeting minutes and facilitator's summary from the February 19 TMT meeting.

Chum Operation - Doug Baus, Corps, provided an update on the current conditions and forecasts for chum. Complete operation details are posted to the TMT website. Bonneville Dam (BON) at 0600 hours this morning had a tailwater elevation of 13.7 feet with a total outflow of 147 kcfs.

The RFC inflow forecast over the next 10-days shows a low of 136 kcfs on March 10 and a high of 150 kcfs today, March 5. Doug emphasized that the March inflow forecast remains below average for the month, with a low of 132 kcfs and a high of 151 kcfs. The water supply forecast at The Dalles (TDA) also continues to be below average, April to August is 74 maf, or 83% of average. He noted that the official water supply forecasts will be finalized by COB today; the topic will be revisited at next TMT meeting. Action Agencies will continue implementing the current chum incubation operation until its scheduled end on April 9 at midnight.

Ben Hausmann, BPA, reported that Grand Coulee Dam (GCL) is drafting to Vernita Bar minimums and supporting chum operations; this is anticipated for the near future based on forecasts. Chris Runyan, Reclamation, commended BPA's recent efforts to manage strong wind conditions affecting chum operations below BON. Kelsey Swieca, NOAA, echoed the Action Agencies' expectations in being able to maintain the current chum operation through April 9.

In response to a Salmon Manager query about the decision-making process for McNary (MCN) spill gates, Doug noted the tentative plan should be similar to last year. The Corps Walla Walla District and Division Office will coordinate on the issue before it is presented at the upcoming FPOM meeting on March 13.

FRM Shift and FRM Refill Start Information - Kasi Underhill and Jessika Solleder, Corps, presented on March FRM shift proposals and refill, the presentation is posted to the TMT website. They reviewed the timeline for FRM data release, explaining the process of FRM shifting and potential impacts to Dworshak (DWR) and GCL reservoirs. The Corps asked for TMT input on the proposed shift from DWR to GCL, based on early-bird water supply forecasts. The final water supply forecast will be available on March 7.

TMT Members discussed potential benefits and risks of a 50% or 75% shift, including potential impacts to the DWR reservoir, including reaching refill early and potentially exceeding gas caps due to spill, impacts to flows during critical migration periods for juvenile fish, operational flexibility, and the ability to adapt to uncertain water supply forecasts. The Corps emphasized the intent to balance fish migration needs with operational constraints. From the Corps' perspective, a 50% shift balances flexibility and operational feasibility.

Salmon Managers that offered input were comfortable with having a shift occur, although there was a range in preference for a 50% or 75% shift. Most input leaned towards the more cautious 50% shift, with some support for a 75% shift to allow for more flexibility. They remained open to reevaluating the situation as conditions change, and the Corps will continue to monitor and coordinate with TMT in response to operational concerns. Kasi and Jessika will return next TMT for further updates on the flood control refill curve and projections for DWR. If TMT Members have additional input or questions, they can contact Jessika and/or Kasi.

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

- **Hungry Horse (HGH)**: the project has experienced warmer than normal temperatures over the last week, leading to a slight increase in inflows. The 10-day forecast shows a dry week, with a potential system arriving next week. In the south fork above Flathead snowpack was 86% of median on March 1. The 3-day average inflow was 1.2 kcfs, with 2.6 kcfs outflow yesterday. Midnight elevation was 3,511.1 feet (48.9 from full). HGH continues to draft (about 1-foot last week), operating to Columbia Falls minimums, 3.54 kcfs yesterday. Minimum flow requirements are 3.41 kcfs at Columbia Falls and 0.75 kcfs on the south fork directly below the dam. Chris noted that the forecast didn't drop from last month, but it only increased 1%.
- **GCL**: inflows yesterday were 43.6 kcfs and outflows were 77.4 kcfs; midnight elevation was 1,278.2 feet (11.8 feet from full). The project drafted about 1-foot last week and storage is 132% of average. GCL continues to conserve water while meeting chum incubation stages below BON and managing and Vernita Bar flows.

Aaron Marshall, Corps, reported on Corps projects:

- **Libby (LIB)**: midnight elevation was 2,406.7 feet, with inflows yesterday of 2.2 kcfs and current outflows of 4.0 kcfs; the project is expected to continue discharging 4 kcfs.
- **Albeni Falls (ALF)**: midnight elevation was 2,051.35 feet, with inflows yesterday of 14 kcfs and current outflows of 11.2 kcfs; the project is operating in the 1-foot winter range until further notice (spring runoff).
- **DWR**: midnight elevation was 1,531.2 feet, with inflows yesterday of 5.5 kcfs and current outflows of 1.7 kcfs; the project is on minimum discharge until further notice.
- **Lower Granite (LWG)**: midnight elevation was 736.5 feet, with inflows yesterday of 48 kcfs and outflows of 66 kcfs.
- **MCN**: midnight elevation was 338.9 feet, with inflows yesterday of 121 kcfs and current outflows of 150 kcfs.
- **BON**: midnight elevation was 73.3 feet, with inflows yesterday of 147 kcfs and current outflows of 156 kcfs.

In response to a query about any forecasted issues for the ALF spill gates moving towards refill, the Corps clarified that there are no expected issues at this time; spill gates will have a very restricted operation this year.

Water Quality – Dan Turner, Corps, reported TDG values are increasing to 106% in the tailwaters. March surface spill (for fish passage) has started at the projects; TDG standards in Washington shifted to 120% and 115% in the tailwaters and forebays respectively, the most restrictive of criteria. Dan has contacted ODEQ about the March spill operation and is working to obtain an exception to the 110% standard in Oregon. This exception is expected to be granted soon.

Fish – Kelsey reported that NOAA expects to receive smolt monitoring data by the end of the month. At BON, the first couple days show a passage index for yearling Chinook in the couple of hundreds; sub-yearling Chinook range from a couple to a few thousand. A handful of coho and steelhead have also been

observed. Kelsey noted that chum fry have begun migrating downstream from BON, with 11 counted in the monitoring program.

For adults, about 10 steelhead are passing BON and TDA each day, while almost 200 steelhead have passed LWG the past couple days. Since start of winter spill operations on March 1, 18 adult steelhead have been detected at the LWG spillway weir, an indication of the operation's efficacy.

Dave Swank, USFWS, reported that a few hundred juvenile lamprey have been counted passing BON in the first couple days of monitoring; lamprey usually have an extended migration period. There has been no significant passage movement for adults. He noted that the BON/WA shore fish ladder is scheduled to be rewatered today (delayed due to passage reconstructions efforts) and is designed to improve adult lamprey passage in the system. Additionally, Dave noted that the Corps is starting an acoustic telemetry study of lamprey passage at the facility, to assess improvements in passage rates.

Power System – Tony Norris, BPA reported that BPA is meeting load with the milder weather, and operating GCL to meet Hanford Reach minimums.

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

The next scheduled TMT meeting will be on March 19, 2025, at 9:00 AM.

Columbia River Regional Forum
Technical Management Team
OFFICIAL MINUTES
Wednesday, March 5, 2025
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. February 19 Summary and Minutes

   - February 19 Summary and Minutes
     - Approved.

2. **Chum Operations –** *Ben Hausmann, 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 Start Date: April 10

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

   - Tailwater Elevation (Hour 6 on 3/5): 13.7 feet
   - Outflow (Hour 6 on 3/5): 147 kcfs

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

   - BON Inflow Forecasted:
     - Low: 136 kcfs (March 10)
     - High: 150 kcfs (March 5)

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

   - Inflow forecast continues to be low.
   - March BON Inflow Forecasted:
     - Low: 132 kcfs
     - High: 151 kcfs
     - March Average: 157 – 201 kcfs

d. Water Supply Forecast

- Continues to be below average
- April – August
  - 74 maf
  - 83% of average
- Official Water Supply Forecast (WSF) will be finalized at COB today.
- TMT will revisit the WSF at the March 19 TMT meeting.

e. BPA Update – *Hausmann*

- Drafting Grand Coulee to Vernita Bar minimums and to support chum.
- BPA anticipates doing so for the near future based on inflow forecasts.

f. Reclamation Update – *Runyan*

- Runyan provided a shout out to BPA
  - A week or two ago there were incredibly strong winds below Bonneville dam which made hitting the incubation stages challenging.
  - Runyan said that he was not aware of the impact of the wind and how much additional water and modeling went into ensuring that stage is met.
  - He said that they did a good job of meeting and also not going over.

| *from Ben Hausmann to everyone: 9:08 AM*

| *Thanks for that Chris. I'll pass it along.*

g. NOAA Chum Update – *Swieca*

- NOAA expects to be able to continue the chum operation through April 9.

Tom Lorz, Umatilla, said at this time last year TMT was talking about what options we had for McNary spill gates because depending on the flow, phase one and phase two may not be used. He asked Baus where in the process is the Corps in making that decision.

Baus said he would like to play the "can I get back to you" -card. He said that he would attempt answering the question. He said that the Corps had gotten some notification that this question would come up at the meeting, but he would have to offer up tentatively that the Corps' plan is to still do something similar to last year. Baus said that he did appreciate Lorz bringing this up because they were not tracking the issues until it was brought up.

Stranz asked for those on the call if this had to do with chum or if it was a different topic.

Lorz said it was a different topic, but it was related to WSF.

Baus said that as an answer to Lorz' question, it is the Corps' intention to do what they did last year. He said that he thought Chris Peery, Corps, was on the call and it was his understanding that there would be additional dialogue on this topic at the FPOM meeting that is scheduled to occur Thursday March 13. He said that the Corps' response would be more formal at that time. Baus said that it was his understanding that the Corps will do what they did last year tentatively and then he requested that Walla Walla District and Division Office do some coordination between now and FPOM and then they will be able to provide a finalized response at that time.

Lorz said that something to think about is that last year it was all or nothing, Bay 1/Bay 2 or nothing. He said given that there is monitoring throughout the year if we come to the point of saying there only can be one, but by May 15 things look comfortable that there can be both. He asked if there is the flexibility or the functionality for the Corps to be able to look at stuff and feel comfortable making these kinds of assessments.

Baus said that he appreciated Lorz' feedback and comments and the Corps' would be in touch as far as running these to the ground. He asked Peery if it sounded like the Corps would be able to do some coordination prior to the next FPOM meeting and be able to respond to Lorz more formally.

Peery said he would mirror what Baus said, it is their plan to do similar to what was done last year. He said that they would wait until the April WSF comes out. The first or second week of April they will let the Corps know what the flows will look like and if it looks like they are not going to hit the 350 kcfs level than they can open gates one and two. He said that there is language in the Fish Passage Plan that if later projections also look low, they can coordinate opening other gates as warranted. There is flexibility in being able to open up other gates or if they do not open gates one and two because of the April projection, it may all they to open them up.

3. **Flood Risk Management Shifts** –*Kasi Underhill, Corps-NWD; Jessika Solleder, Corps-NWW*

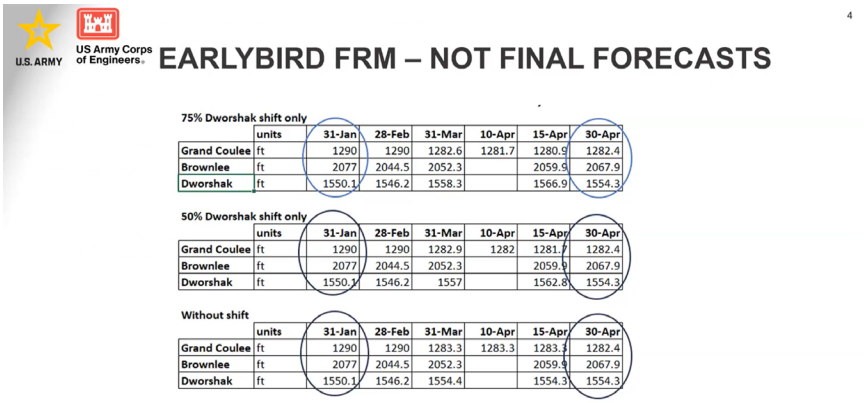
   a. March FRM Shifts

   - Timeline
     - FRM input data: March 6
       - FRM data calculations, processing, and QA will be done that afternoon.
     - FRM data release: March 7

   - Shift Calculation
     - Amount that we can shift is based on the WSF.
     - All shift calculations have to return to April 30 FRM unless there is early refill.
     - There is a WSF cap over a WSF threshold on whether a shift can happen.
       - Dworshak (DWR): 3 maf (April – July)
       - Browlee (BRN): 5.8 maf (April – July)

- BRN has been bouncing around the cap so Underhill said she would not show shift values at BRN this month. Too close to comfort for Underhill and her team.

- Early Bird FRM (not final)



75% Dworshak shift only

	units	31-Jan	28-Feb	31-Mar	10-Apr	15-Apr	30-Apr
Grand Coulee	ft	1290	1290	1282.6	1281.7	1280.9	1282.4
Brownlee	ft	2077	2044.5	2052.3		2059.9	2067.9
Dworshak	ft	1550.1	1546.2	1558.3		1566.9	1554.3

50% Dworshak shift only

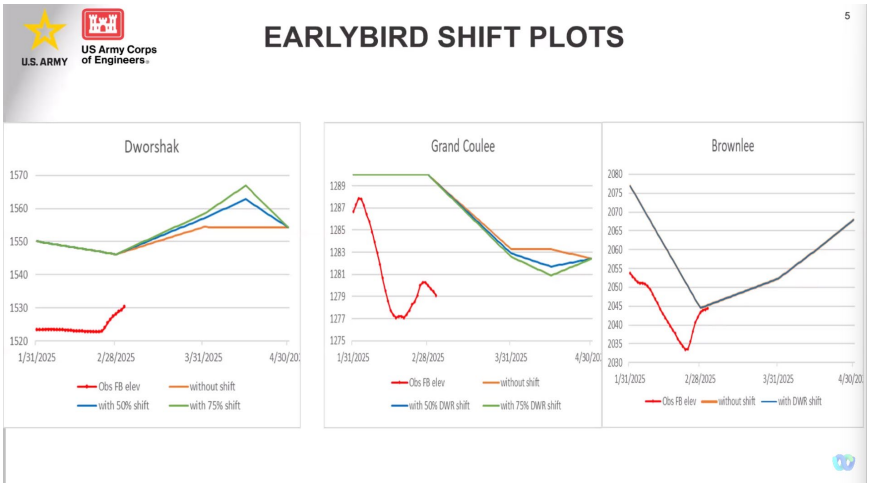
	units	31-Jan	28-Feb	31-Mar	10-Apr	15-Apr	30-Apr
Grand Coulee	ft	1290	1290	1282.9	1282	1281.7	1282.4
Brownlee	ft	2077	2044.5	2052.3		2059.9	2067.9
Dworshak	ft	1550.1	1546.2	1557		1562.8	1554.3

Without shift

	units	31-Jan	28-Feb	31-Mar	10-Apr	15-Apr	30-Apr
Grand Coulee	ft	1290	1290	1283.3	1283.3	1283.3	1282.4
Brownlee	ft	2077	2044.5	2052.3		2059.9	2067.9
Dworshak	ft	1550.1	1546.2	1554.4		1554.3	1554.3

- Currently planning on the 50% FRM shift.
- She wanted to share the 75% and No shift options as well.
- Circled numbers are the fixed numbers.

- Earlybird Plots



- The reservoir elevation at DWR and GCL are well below the FRM elevation in all of the options.
- The Corps proposed the 50% Shift for flexibility in case there are changing conditions, and they get some of the water in there. This would give either a shift or a higher starting elevation for refill.
  - Open to input
- GCL is below FRM elevations for all the options.

- BRN shifts were not shown because of how high the shift is.
  - Shift in this year would not be helpful in general because they like to have a TDG managed flow later in the season, so they are going to start making space to be able to manage that flow later. Being higher now would not be helpful to that operation.

Lorz asked if by doing the shift if that gives a greater chance of leaving DWR at minimums for longer and ideally DWR would be able to get higher. He said right now DWR is so well behind where we need to be by April 30 there is a lot of room to fill.

Underhill said that there is definitely a lot of room. Underhill introduced Solleder as the Water Manager for Walla Walla and said that she would be able to speak to that better than Underhill could. She said in general she would say that it seems like the answer would be yes that you would be on minimum flows.

Solleder said if she understood the question correctly, yes, they are on minimum flows. They do not foresee that changing too much. She asked if Lorz would repeat the question she wanted to make sure she answered all the points.

Lorz said by doing this shift it allows DWR to stay at minimum and has a less likely chance that DWR would have to do any additional drafts given that it is at 1530' and it needs to be at least 20 feet higher than that by the end of April. He said that he is trying to figure it out from more of a fish standpoint than a flood control management standpoint. He said right now that it is probably best to get DWR as full as soon as possible. Lorz asked if this would get us there.

Solleder said that she believed Lorz' assumptions were correct from what they are seeing.

Jay Hesse, Nez Perce, said that he thought his question was the same as Lorz' but asked if there were graphics that could show the Fish Managers (FM) what the projected outflows from DWR would be under these scenarios and maybe under a drying, normal, and a wet couple of months. He said that the Earlybird Shift Plots are helpful to him, but he is having to do some mental hurdles on what each of the FRM elevations would mean in terms of instantaneous flows early in the season and late in the season. He said that he thought that was the same question that Lorz asked but he needed some help visualizing what that does in river downstream of the project.

Underhill said that she did not have ESP plots for that at the meeting. She said that she thought if Hesse were to picture the outflow for the different operations, he would see DWR on minimum flows. She said that they get out of the way of having to put out higher flow in case it runs into the FRM elevation if we were to see wetter conditions.

Solleder said that she thought that was correct. She said at this time she did not have any graphics, but she could correspond with Hesse more and look into that. She said that she believed that she got an email from Hesse, and she can address that a little bit more in detail there. She said for now what Underhill was saying is basically what she would say as well.

Jonathan Ebel, ID, said that Underhill showed the elevations for a 50% shift and a 75% shift. He said that he knew that the Corps was leaning towards a 50% shift but asked what

the risks associated with the 75% shift under the conditions that they see between now and the middle of April.

Underhill said that she did not think that there is much benefit to _. She said what we are doing is providing flexibility if we do get some water that could get into this space. The tradeoff here is not much, it does not affect_. She said that she did not think that they affect the GCL operation one way or another. She said that the reason that they are choosing the 50% rather than the 75% is to provide more of a realistic shot of where we could end up with. Providing some flexibility but being realistic as to where we would end up with and showing an extreme amount of shift might be more optimistic. Just trying to be reasonable.

Ebel said that it seems in this scenario that since GCL will be drafting to Hanford Reach minimums and it is going to be well below its FRM regardless. He said if you go to the 75% shift it seems unrealistic that you would actually go up towards that elevation at DWR. He said that it seems like that would be almost allocating near maximum flexibility to DWR to be able to absorb some kind of bizarre event without going off of minimums, like rain on snow or something to that end, where as long as it does not exceed some type of refill rate limitation, DWR would be able to stay at minimums until needed for some type of fish operation.

Tony Norris, BPA, said just as a reminder that if you fill to a shifted April 15 at DWR, you have to draft to the April 30 because the shift goes away. So, if you shift too much and fill too much, you may have to exceed gas caps to get down to the April 30 FRM. So that is a risk to shifting.

Ebel said that was where he was going with the risk thing, but it sounded to him like that risk is very low.

Norris said that he did not think so.

Solleder said given what he was tracking Ebel was spot on with that.

Chris Runyan, BOR, said that he was going to mention when he looked at the DWR plot, we know where we are now, that shift, essentially what that will do is, hypothetically we get an inflow event between not and end of March, rather than targeting that lower line, we are already planning and knowing that we have flexibility to potentially fill above that. Then once you get to March 31 the forecast is going to change, so the uncertainty gets larger. The probability that this forecast will stay exactly like this and that we will end up at April 30 is pretty rare, more likely this will give us the flexibility to adapt to a drying forecast at DWR because it sets us up for that. The further we go out the uncertainty gets greater. He said to Norris' point – would we literally fill up to that April 15 only to have to draft super-fast and have potential spill – no, probably not because there would not be a benefit so you would have to adapt. This is all about providing flexibility to adapt to a changing forecast, which will happen. Then the only other thing is with GCL, Runyan said that he thought Ebel understood that correctly based on projections. Currently GCL is going to be below all of the plot lines so from BOR standpoint we are actually not seeing that shift actually impacting GCL and only see potential benefit at DWR, so, the BOR would support this shift.

Underhill said that she had forgotten one very important caveat to add. These are based on yesterday's WSF which are not the official water supply forecasted. These are definitely not the final numbers.

Lorz said that Runyan hit what he was going to hit, that these are definitely not set in stone. He said that we can do a 50% shift, a 75% shift. He said that he is leaning towards the 75% at DWR and in 15 days, two weeks, three weeks, they can adjust again if things start going a different way than anticipated. Lorz said that he sees very little risk right now to not be more water conscious at DWR, giving a chance for us to fill more there.

Hesse said he wanted to verbalize what was in his brain and what he hopes will be informed by the pending graphics of potential flows, building off of what Runyan had said that by doing shift it provides some buffer for a drying forecast and would allow us to get to a higher reservoir and potentially make sure (1) that we refill and (2) provide for higher flows in late April and early May. Under a static normal precipitation forecast, he said that he thought that it provides and slows or reduces flows in late March and early April when we start to see fish moving through the system with the risk of having _ and providing higher flows in late April and then under a wet forecast you are holding flows back and not supplementing the immigration conditions downstream of the project in March/ early April with elevating the risks of elevated TDGs. He said that those are the benefits and risks that he would be thinking about in this. He said that Runyan highlighted the flexibility it provides in a drying forecast. He said that he thought that made sense, but it is balancing against the risks of impacting or reducing flows on the early migrants and elevated TDGs later in the season. He said that would be how he would be thinking about this as TMT looks at it more.

Stranz asked if Hesse had any input on the proposed 50% forecast, or as Lorz was leaning toward the 75%. She asked if Hesse had any input for the Corps on this.

Hesse for the next part of March and as we are watching this, he can live with either a 50% or 75% based on the graphics. He said that he would certainly want to reevaluate it because we get into the substantial changes later in the month and that is when we start to see the numbers of juvenile fish start moving. He said that he was okay with taking an initial shift upwards, and 50% or 75% are not super different than either one.

Kelsey Swieca, NOAA, said that she appreciated the opportunity to have these conversations with the Corps. She said that they have been particularly helpful in the FM understanding how the system operates at this time of year and what out flexibilities may or may not be in an effort to increase spring flows in the Snake River, which is goal of the FRM shifts ultimately. She said that she thought from NMFS's perspective they are also comfortable with either of the shifts. She said at the moment she was leaning towards 50% shift but with additional conversation about that in the future. As people have mentioned, the impacts to GCL operations are minimal at best, and there is a potential for a positive impact on DWR should we wind up with a drying forecast. She said right now NMFS would advocate for a shift. She said right now she is interested in moving on to the second part of this conversation before offering any final perspectives because should an early refill be triggered that may have implications for their position on that.

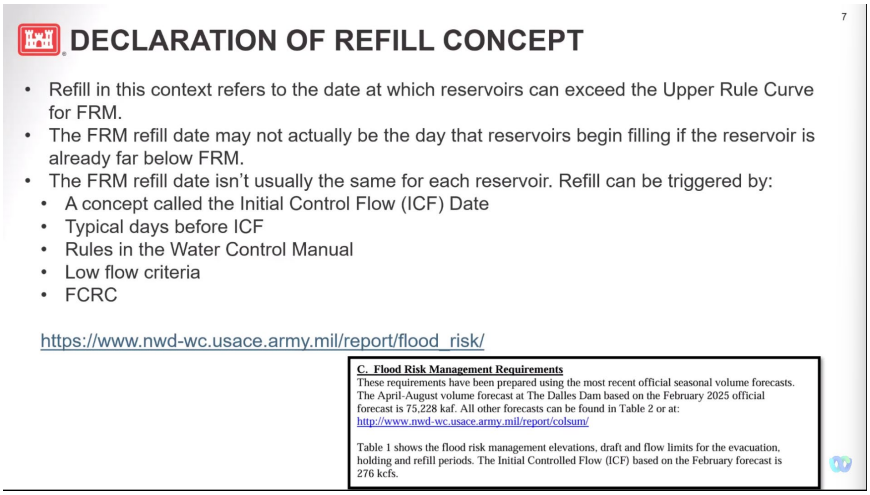
Charles Morrill, WA, said that he really appreciated the discussion as Swieca had said, very informative, very interesting. He said given that we are looking at a potentially drying out, he, like Lorz, would certainly be happy with 50% but right now he would lean toward 75% because he thought we have the chance to make some adjustments should we need to.

Stranz said that everyone is comfortable with the 50% shift, and some are leaning more to the 75% to be more conservative. She asked Underhill if there was any other input at this point that she would like to get from TMT members before moving on.

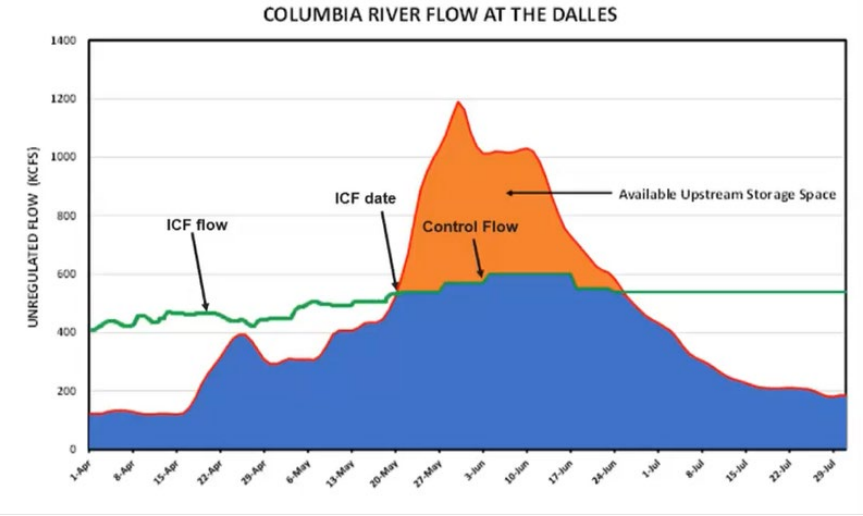
Underhill said no but she really liked how they had alluded to the early refill. She said that it really reduced the risk of having to draft out that space later on. She said that she really loved the input, especially on 50% versus 75%. She said that TMT should dive into this a little more and then we can have a discussion. She said that she wanted to call back to the quick turnaround on this. She said that they have to finalize all the information by tomorrow afternoon. She said that she was looking forward to input at the end of this presentation for what people want to see.

b. FRM Refill Information – Declaring Start of Refill

- Declaration of Refill Concept

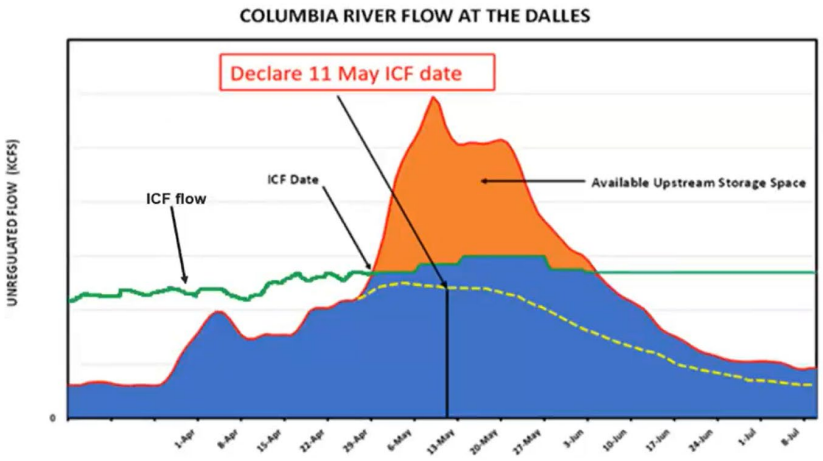


  - Refill may not be the actual day that the reservoir starts refill.
    - If in a dry year, FRM refill may be meaningless, they might be filling well below the Upper Rule Curve (URC).
- ICF Concepts
  - ICF is the estimate of what regulated flow that the Corps can control TDA (even before the freshet) through the refill season.



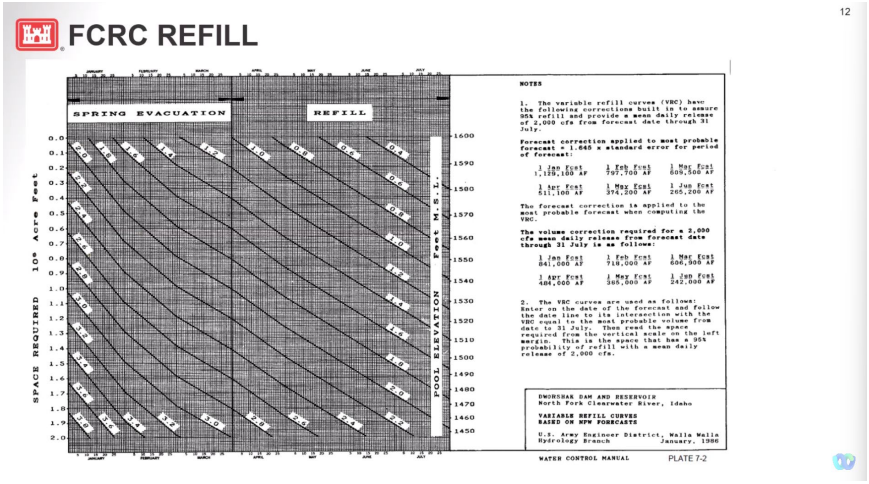
- Orange: What is needed to fill into the upstream storage space.
- Green line: What the Corps thinks they can control TDA to with the flat flow throughout the refill season
  - Initial Control Flow (ICF) changes to the Control Flow after passing the green line which is issued if there is a risk of flooding.
- Red line: The flow if there were no reservoirs on the system (Unregulated Flow).
- The date that the ICF crosses the Unregulated Flow is the ICF date.
- When the ICF crosses the Unregulated Flow that is when they declare system refill.
  - The Corps likes to look ahead to make sure that it is a persistent crossing for at least 7 days so that they know that they are in the freshet.

- Determine ICF date
  - Each reservoir has a number of days prior to the ICF date that refill can begin, this is generally based on travel time.
  - Every project has slightly different rules and little caveats.
    - These will show up in the Corps' Flood Risk Management.
    - Some Caveats
      - HGH not before May 1
      - LIB has own Water Control Manual rules that set it to not be after May 1
- Low Flow Criteria for ICF Date
  - The Corps also wants to protect against when in dry years the Unregulated Flow never crosses the ICF by having fail safe date.



- If the forecast is below 82 maf (April – August) at TDA.
  - If it has not crossed already.
  - Fail safe ICF date of May 11.
  - Just had done studies on what date and what threshold would not impact flood risk. That is how they came up with this date.

- FCRC Refill
  - When they are looking to refill DWR they look at the Flood Control Refill Curve (FCRC) also known as the Variable Refill Curve (VRC).
    - Take specific input into consideration to come up with target elevations to guide operations and ensure refill within a 95% confidence interval.
    - Inputs considered:
      - Volume the Project has to fill
      - Volume of runoff (based on the FRM forecasts for the April 1 through July 31 timeframe)
      - Volume the Project needs to release (minimum flow at DWR that would be a minimum of 1.7 kcfs daily)
  - As we progress through the season, we will see the FRM URC target elevation approach the FCRC elevation.
    - Where they meet is the date that the project can theoretically begin refill
    - DWR needs to be released by Division to begin refilling.
      - To consider remaining things like snow cover.
- FCRC (VRC) Refill



- In the water control manual for DWR.
- Pick date for anticipated volume of water (maf) crossed with the equivalent pool elevation.

Ebel asked how the values arrived at, what calculations were used to come up with this. When and how.

Solleder said that those are great questions and unfortunately she was not sure that she could answer right now but she could definitely shoot an email and look into it a bit more. She said that it looks like this is coming from January 1986 though and it was done by their hydrology branch which must have been more of their study crew. She said that she could get a more pointed answer after the discussion was done. She apologized for not having the answer ready to go for Ebel, but she can certainly get that information for him.

Hesse said he was looking at the notes in what it assumes for the mean daily releases, and that being 2 kcfs. He said that he needed to understand how much that affects that. He said that during that Spring timeframe we do not want to be constraining flows to 2 kcfs.

Solleder said because we are looking at this graph, you can look as soon as January. That seems to be, especially when it was created, the best assumption of an average it can be. She said that when we go into the Spring we are not looking necessarily at always staying at DWR minimum so it is smart to consider the impacts. Solleder said that they do think about the impacts when they do their own projections but how this graph was created does assume that mean daily release. She said that because it is looked at over the long-term it does seem to be the best working operative average for this chart to be created. Solleder said a lot of what they do, the science is in the real-time, it is more complex than just looking at the chart and saying that is the number. They consider multiple factors.

Hesse asked if it would be possible to come up with an ideal or desired release schedule that is more aligned with current fish objectives, hatchery and natural environment, and lower river for augmentation. He said that it seems like we could be much more educated and intentional on the outflows that we are trying to achieve.

Solleder said absolutely. She said that she has a long career wish list for DWR and one thing that they are working on, unfortunately they did not start with this particular basin, but they are working on updating their Water Control Manuals. Soe said that they have been able to do that for other parts of their basin and in those updates these types of tables and these issues would be looked at and corrected. She said for now that it is something that is not quite ready to go for DWR but that is certainly an option for the future and definitely something that they have talked about a lot. She said that everything costs money and sometimes that makes things go a little slow. She said that she would agree with Hesse that option is definitely something on her wish list there. She said that that is why they do not use one method for projecting and observing basin conditions and forecasts. They use a couple of different strategies just to make sure that their operations reflect real-time demands.

Swieca said thank you for the information and asked if Solleder could offer any projections about expectations for this year in terms of timing for refill at DWR. She said that she knows that we expect a lot to change in the coming months and the WSF are not finalized and we may not have the information that is needed to offer a solid perspective but if Solleder felt comfortable Swieca asked if she might be able to offer what her expectation might be.

Solleder said that at this time they have been looking at this, she said that she does not officially know, and she does not have enough information at this point to give something with confidence, but she is happy to keep updating within TMT and pre-TMT as soon as they know more. At this point she did not have a definitive answer.

- Summary and next steps
    - Shift and FRM will be posted COB Friday
    - Kasi Underhill: kasi.a.Underhill@usace.army.mil
    - Jessika Solleder: jessika.e.solleder@usace.army.mil

Swieca said that it is unfortunate that TMT does not have the information to truly understand what refill might look like this year to inform the recommendation in that way. She said that NMFS is fully supportive of a shift from DWR to GCL and at this time given the information that we have believes that NMFS's recommendation would be to move forward with the Corps' planned 50% shift. Swieca said that it was because of the uncertainty associated with the potential backside of the April 15 – 30 period of time. She said that she though that 50% shift is likely the safest scenario at this point.

Underhill said that she would be back for the March 19 TMT meeting to reevaluate and represent this. She said that you can tell that 75% and 50% are pretty close together for this month and then maybe we could revisit in March to see if conditions had changed, and we have gotten some water.

Stranz summarized saying that all of the TMT members that had weighed in are comfortable with the 50% shift from DWR to GCL. She said that there were a couple that leaned closer to 75% but not with a strong preference.

Erick Van Dyke, OR, said that he would characterize that the FRM are comfortable with having a shift occur there is less certainty on the level. He said that where the decisions lies is what Stranz is asking.

Stranz said that it was her understanding that at this point the Corps is looking for any input that TMT members want to provide, and the decision lies with the Corps.

Van Dyke asked if the Corps received the input on what the FM think.

Underhill said that she thought so. She said that she thought that she wanted to make sure that TMT was comfortable with putting in a shift even though it is optimistic. She said that it was her thought process that she wanted to stay out of the way of the operation and make sure that we are in a good place to capture that water.

Van Dyke said that FM are feeling like they are little more aware of what the good place is, and he said that he thought Underhill's actions could help them feel comfortable later knowing that things change. He said that they would keep their eyes on that too.

Stranz said that TMT would appreciate having Underhill and Solleder back to provide any updates. She said that she appreciated the conversation and information, it has been helpful.

Underhill said that if there is any additional knowledge sharing or other information that TMT would like at future presentations to shoot her a line or Solleder a line and let them know.

4. Operations Review

a. Reservoirs

Reclamation – Chris Runyan

- Hungry Horse Dam
  - Last Week Conditions: Warmer than normal temps, inflows came up.
  - Future Conditions: Ten-day forecast is showing a dry week, but then a potential system moving in next week.
  - WSF did not drop from last month but only increased 1%.
  - Snowpack (S. Fork of Flathead): 86% of median (March 1)
    - Includes snow courses and snow tails.
  - Inflows (3-day average): 1.2 kcfs
  - Outflows (March 4 average): 2.6 kcfs
  - Midnight elevation: 3511.1 feet
    - From Full: 48.9 feet
    - Drafted: 1-foot last week.
  - Operations: Continues to operate to minimum flows at Columbia Falls

        - Columbia Falls (3/4): 3.54 kcfs
    - Minimum flow requirement based on the updated March forecast of 78% average.
        - Columbia Falls: 3.41 kcfs
        - Below the Dam (S. Fork): 0.75 kcfs

Lorz asked said that some of the FM look at the RFC. He said that there was a significant difference between what RFC was forecasting and what the Action Agencies were forecasting. He said that the RFC was projecting HGH was closer to average forecast. They have a higher forecast for HGH. He said that he was wondering if Runyan knew why that was. Lorz said that he was remembering it wrong but that was what he thought they looked at yesterday. He asked if they do a different methodology or different sites.

Runyan said that they definitely do a different methodology which is awesome because we want a lot of different ways of looking at this. Runyan said that he was looking at the RFC forecast right now, and they are coming in at a 77% of average.

Lorz said that maybe they had been looking at an old one, so no problem.

Runyan said that they were a little different earlier in the year and it may be that was part of what Lorz was thinking but right now they are aligned.

Ebel said that he thought maybe FPC had said that it was the opposite, FPC had the Corps' forecast up closer to average whereas the RFC forecast was lower.

Lorz said that he had looked at it and confirmed that it was closer now to the RFC, so everything is good.

- Grand Coulee Dam
    - Inflows (3/4): 43.6 kcfs
    - Outflows (3/4): 77.4 kcfs
    - Midnight elevation: 1278.2 feet
        - Feet from Full: 11.8 feet
        - Drafted: 1-foot last week
    - Lake Roosevelt Storage: 132% of Average
    - Operations: GCL will continue to conserve water as best as it can while also meeting chum incubation below BON and Vernita Bar flows
        - Currently Vernita Bar flows are controlling the operation at GCL.

Corps – Alexis Mills, Corps

- Libby Dam (Lake Koocanusa)
    - Midnight Elevation: 2406.7 feet
    - Inflows (3/4): 2.2 kcfs
    - Outflows: 4 kcfs

  - There is no official WSF for March – should have by the end of this week.
  - Operations: LIB is expected to continue to discharge 4 kcfs until further notice. The reservoir is well below end of month FRM elevation.

- Albeni Falls (Lake Pend Oreille)
  - Midnight Elevation: 2051.35 feet
  - Inflows (3/4): 14 kcfs
  - Outflows: 11.2 kcfs
  - Operations: Operating in the one-foot winter range of 2051 – 2052' until Spring runoff begins.
- Dworshak Dam
  - Midnight Elevation: 1531.2 feet
  - Inflows (3/4): 5.5 kcfs
  - Outflows: 1.7 kcfs
  - Operations: Expect to remain on minimum discharge until further notice.
- Lower Granite Dam
  - Midnight Elevation: 736.5 feet
  - Inflows (3/4): 48 kcfs
  - Outflows: 66 kcfs
- McNary Dam
  - Midnight Elevation: 338.9 feet
  - Inflows (3/4): 121 kcfs
  - Outflows: 150 kcfs
- Bonneville Dam
  - Midnight Elevation: 73.3 feet
  - Inflows (3/4): 147 kcfs
  - Outflows: 156 kcfs

Ebel said that the forecast is pretty poor for above Pend Oreille and Albeni Falls. Ebel asked if as we move towards refill the Corps is seeing any issues that may be caused by some of the spill gate problems that the Corps is addressing.

Marshall said not at this time, it does look like a low WSF for the Pend Oreille basin. He said that spill gates will be very restricted in operation again this year. He said that he is not seeing any issues at this point in time.

b. Water Quality – *Dan Turner, Corps*

- TDG
  - TDG values are going up to 106% TDG in the tailwaters.

- Surface Spill
  - The Corps has started the March Surface spill at the projects.
  - TDG standards are now for the State of Washington are now 120% TDG in the tailwater and 115% TDG in the forebay. This is the most restrictive of the criteria.
  - Turner sent a notice to the Oregon DEQ saying there is this March spill operation.
    - There is a little more paperwork and notification that have to be done to get an exception to the 110% TDG standard.
    - David Gruen and Turner are working through this but anticipate having the exception soon.

c. Fish

Salmon – Kelsey Swieca, NOAA

- Juveniles
  - Expect to receive smolt monitoring data soon from the participating projects.
    - Only started to receive from Bonneville so far
    - The rest of the participating projects should have data coming in by the end of the month at the latest.
  - Bonneville
    - Yearling Chinook
      - Passage index of only a couple hundred
    - Subyearling Chinook
      - Couple of thousands to few thousands
    - Coho and Steelhead
      - handful
    - Chum fry
      - Have started to migrate down
      - 11 counted since yesterday
- Adult Salmon Counts
  - Bonneville and The Dalles(Lower Columbia):
    - Steelhead
      - 10/day passing in the upstream direction
  - Lower Granite (Lower Snake River):
    - Steelhead
      - Much more substantial.

- ~200/day in the upstream direction

- Since the start of the Winter Spill Operation on March 1, NOAA has seen 18 adult steelhead detected at the LWG spillway weir. This is just an indication of the efficacy of that operation.

Lamprey – Dave Swank, USFWS

- Juvenile Lamprey Passage
  - Only data from Bonneville so far.
    - Few hundred lamprey juveniles counted passing BON in the first couple days of data.
    - Not unusual as they tend to have an extended migration period
- Adults
  - Not much happening in terms of passage.
- BON Fish Ladder
  - Bonneville Washington shore fish ladder is scheduled to start rewatering today.
  - Delayed rewatering as compared to a normal year due to the reconstructed Serpentine or control section of the fish ladder which is designed to help improve passage for adult lamprey.
  - In that section there is a bottleneck in the system and the Corps is starting the acoustic telemetry study of lamprey passage at that facility.
  - Swank said that he hopes that this will show an improvement in passage rates.
  - Corps deserve credit for getting the project happen given the roadblocks given the contracting and the protesting to that awarded contract.

d. Power System – *Tony Norris, BPA*

- In the period of the year that temperatures are milder.
- Meeting load and operating GCL to meet Hanford Reach minimums.

5. Set agenda for next meeting – March 19, 2025

a. FRM Shift

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
Yakama Nation	Keely Murdoch
Bureau of Reclamation	Chris Runyan
Army Corps of Engineers	Doug Baus (chair), Lisa Wright
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	Ben Hausmann, Tony Norris

Other Attendees (non-TMT members):

COE – Dan Turner, Tom Conning, Chris Peery, Tiffany Stoeckig-Dixon, Jessika Solleder, Kasi Underhill

BPA – Tammy Mackey, Jaden Boehme

ODEQ – David Gruen

DS Consulting – Emily Stranz (Facilitator), Colby Mills

CorSource – Andrea Ausmus (BPA note taker, Contractor)

EKI – Eve James

Clearing Up – KC Mehaffey

CHPM – Lance Beyer, Jay Fintz

NPCC – Kate Self

Douglas Co PUD – Mike O Bryant

Snohomish PUD – Scott Richards

Avista Utilities – Mike Dillon