

COLUMBIA RIVER TECHNICAL MANAGEMENT TEAM

January 5, 2022

Facilitator's Summary

Facilitation Team: Emily Stranz & Colby Mills, DS Consulting

The following Facilitator's Summary is intended to capture basic discussion, decisions, and actions, as well as point out future actions or issues that may need further discussion at upcoming meetings; it is not intended to be the "record" of the meeting. Official minutes can be found on the TMT website: <http://pweb.crohms.org/tmt/agendas/2022/>. 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 minutes and facilitator's summary for the December 15, 2021 meeting.

Chum Operation

Doug Baus, Corps, reported on the chum operation. The spawning phase of the operation is complete and as of December 24, 2021, the incubation phase is being implemented. During the incubation phase the Bonneville Dam will have a minimum tailwater of 13ft. This operation will continue until the beginning of spring spill (April 10) unless otherwise coordinated at TMT.

Doug reviewed Bonneville project data: Tailwater elevation is 18.3ft; elevations have been relatively high due to increased flows. Yesterday's average elevation was 17.3ft, with total outflow averaging 192 kcfs. It is expected that high inflows will continue over the next 10-day period, the inflow forecast ranges from 172-207 kcfs.

Doug noted that the official water supply forecasts will be posted by close of business today and will be linked to the January 19 TMT meeting agenda. Current (un-official) water supply forecasts from the Northwest River Forecast Center are as follows:

- The Dalles (April to August) 92 maf or 103% of average
- Lower Granite (April-July) 21 maf or 103% of average

He pointed out that although we are experiencing significant precipitation, the snowfall and rain are not creating a significant increase in the water supply above average.

Tony Norris, BPA, added that snowpack is increasing nicely. Due to poor weather conditions, chum survey crews were unable to get out for a 2nd redd survey. Additionally, when tailwater levels did rise, they went from 13ft to 16ft quickly and crews were unable to see redds at any higher elevations if they did occur. Despite this, the crews did not think that redds were placed above the 13ft elevation. Tony will present data on redd elevations at the January 19 TMT meeting. Charles Morrill, WA, noted that surveys last occurred in Hamilton Creek on December 30 and 1 redd was observed. WA agrees that Chum spawning activity has concluded.

Zero Generation

Tony reported on BPA's current and historical use of the zero generation operations (posted on the TMT website). He noted that BPA has been utilizing the operations since the adult steelhead abundance criteria were met on December 20, 2021, and that it has been valuable to BPA and the region in the form of cost-effective energy rates. The operation has been implemented extensively at Ice Harbor, Lower Monumental and Little Goose, and less frequently at Lower Granite due to limited flexibility in the forebay due to navigation minimum elevations.

Tony reviewed a summary of percentage of days and hours used compared to the total number of days/hours available. The number of days/hours "available" for the operation includes all potential days/hours within the operational period; this varies by year. Tony noted that the hours used have been mostly centered around midnight, with some implementation during daytime hours on two days. He also pointed out that there are some missing data, so the graph does not capture all daytime hours that the operation was implemented so far. Generally, the operation is used for 4-5 consecutive hours, with a few instances (4) of longer spans of consecutive hours. Due to the recent cold-snap, BPA utilized the operation for multiple consecutive days.

In looking at the historical use data, Jay Hesse, Nez Perce, observed that the number of consecutive days used in the last two weeks has been rare. He added that the 2020 Biological Opinion anticipated using 1 out of every 3-5 days and the historical range shows use ranging from 10-60% of the available days. Jay asked whether BPA sees 60% as a cap to the operation, to which Tony shared that BPA does not consider 60% a cap and does not intend to set a cap on the operation. The average use was calculated as a rough percentage over several years. From BPA's perspective, they are operating consistently with historic operations, which is what was consulted on in the BiOp.

On behalf of the Nez Perce Tribe, Oregon and Washington, Jay, Erick Van Dyke, and Charles Morrill expressed concerns around the biological impacts of the zero generation, or zero flow, operation. They requested that use of the operation is minimized as much as possible in order to maintain the riverine characteristics of the river to benefit fish. Erick added concern that there is no threshold for the upper limit of the operation, which from OR's perspective is not consistent with the good-faith efforts and is not adequate moving forward. He also noted that there are other pillars of benefits to the region, beyond the economic benefits that are being prioritized with this operation.

Further, there was request from the Nez Perce Tribe, OR, WA, Umatilla Tribe (via Tom Lorz) and Yakama Nation (via Tom Iverson) for the Action Agencies to provide greater clarity around anticipated use of the operation. It was noted that the language in the BiOp is confusing and does not imply that the operation will be used day after day. They suggested that providing clarity around how the AAs plan to operate will help manage partners' expectations. Claire McGrath, NOAA, acknowledged concerns from Co-Managers and noted that NOAA and the AAs are discussing the planned path forward at the policy level.

- **ACTION:** Doug and Tony will share the concerns raised by the Nez Perce Tribe, Oregon, Umatilla Tribe, Washington, and the Yakama Nation with their policy counterparts at the Corps and BPA.
- **ACTION:** Tony will continue to provide updates at each TMT meeting on use of zero generation operations.

Operations Review

Reservoirs: Joel Fenolio, Reclamation, reported on Bureau of Reclamation projects:

- **Grand Coulee:** midnight elevation was 1284.3 feet, with releases of 145 kcfs, and flows averaging 139 kcfs over the last 5 days.
- **Hungry Horse:** midnight elevation was 3547.1 feet, with inflows of 1 kcfs, and releasing 2.5 kcfs since the last week of December. The project anticipates drafting this month and will increase releases to 3.8 kcfs on Thursday, drafting to 3,541 feet or so by the end of January.

Charlie asked for an update on the Upper Snake and reservoirs. Joel will provide a preliminary estimate on this at the January 19 TMT meeting. He noted that although there is no carry-over storage, there has been fairly decent snowpack building over the last month.

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

- **Libby:** midnight elevation was 2410.1 feet, with average inflows of 7 kcfs, and outflows of 20 kcfs;
- **Albeni Falls:** midnight elevation was 2051.6 feet, with average inflows of 21 kcfs, and outflows of 19 kcfs;
- **Dworshak:** midnight elevation was 1532.4 feet, with average inflows of 2.2 kcfs, and outflows of 1.7 kcfs.
- **Lower Granite:** average outflows of 20.2 kcfs;
- **McNary:** average outflows of 165.3 kcfs; and,
- **Bonneville:** average outflows of 191.5 kcfs.

Jon Roberts, Corps, confirmed that the Corps is working on the official January water supply forecast which will be complete today. Willow Walker, Corps, will provide a regional update to partners, along with the upcoming operations for this month (to be released later today/tomorrow morning). He noted that they are anticipating a need to draft in January to meet the updated FRM levels and more details will be provided in Willow's update. Jay requested that the operations to be consistent with objectives of SOR 2021-1, regarding ramping rates and shaping

of flows, minimizing the frequency of up and down changes in flow. Tony noted that it is agreed that in-day shaping of flow will not occur per previous agreements. Jonathan Ebel, ID, echoed the request from Jay. Jon thanked the co-managers for their input and noted that they will continue to operate adaptively to set the system up for both refill and FRM.

- **ACTION:** Willow will send an update on the DWR water supply forecast and anticipated operations to regional partners by 1/6/22.

In response to inquiry, Jon noted that the Walla Walla District has started a long-term study aimed at improving forecast modeling. They are on track; however, the effort will take 2-years or so and will not be available for this water year.

Water Quality: Dan Turner, Corps, reported TDGs all below 110% criteria. McNary hit 110% due to forced spill. There has been some lack of turbine spill due to maintenance and turbine outages over the last couple months.

Fish: Claire reported that daily adult counts at Bonneville show low numbers of steelhead passing, with some Coho as well in the last couple of weeks. Looking back at 2021: adult counts across projects and species were generally above the 4-year average, but below the 10-year average. The exception was Coho, which were well above average. Looking forward to 2022: NOAA ocean ecosystem indicator analysis was recently released. This analysis evaluates a suite of ocean indicators to characterize conditions for juveniles entering the ocean. The 2021 indicators were generally positive and indicate productive ocean conditions for juvenile salmon. The indices were the 2nd best in the 24-year timeseries.

Erick asked why fish are being counted at Little Goose instead of Lower Granite. He noted that inconsistent data collection, or lack of data collection, can be problematic when making management decisions. Erick pointed to this change as an example of where changes in monitoring process impacts decision-making negatively by interrupting data series over time. Chris Peery, Corps, shared that the data collection process was vetted at FPOM and includes winter daytime counts at a rotating project (in addition to Lower Granite) once every 5 years at the request of regional partners. This year, Little Goose was the rotating project to have winter counts until the ladder went out of service. The fishway is down at Lower Granite, and no counts are available for that project either until ladders are back in service towards the end of January or early February. Chris added that the counts posted on the FPC website are 16-hour daytime counts (for all projects) and this has been consistent over the years. For some projects, there are night-time counts as of 1995-1996, however, those numbers are accessed via the FPC website in the data query.

Tom Lorz requested that the fish kill downstream of Dworshak be added to next week's FPOM agenda; Chris Perry noted that he will add the item to the agenda.

- **ACTION:** Chris will add the Dworshak fish kill to next week's FPOM agenda.

Power System: Tony reported that the region is coming out of a recent cold front and there are significant loads and higher power prices. A high-pressure system has come through recently and created some wind generation. ID and OR expressed interest in more information around regional energy demand and how loads are managed.

Questions or comments from members of the public: there were no questions or comments from members of the public

The next scheduled TMT meeting is a conference call on January 19, 2022, at 9:00 AM.

Columbia River Regional Forum

Technical Management Team

OFFICIAL MINUTES

January 5, 2022

Minutes: Melissa Haskin, BPA (contractor, FLUX Resources)

Today's TMT web meeting was chaired by Doug Baus, Corps, and facilitated by Emily Stranz, DS Consulting. See the end of these minutes for a list of attendees.

1. Review of Official Minutes and Summaries

The December 15 official minutes and facilitator's summary were approved with no edits.

2. Chum Operation – Doug Baus, Corps; Claire McGrath, NOAA; Tony Norris, BPA; and Charles Morrill, WA

Doug Baus, Corps updated the TMT on chum operations coordinated at TMT and available on the TMT website. As coordinated, the chum operation transitioned from spawning to incubation on December 24 at 0001 hours with a Bonneville Dam minimum tailwater elevation of 13 feet at all hours. Incubation will continue until the start of spring spill on April 10, unless coordinated otherwise at TMT.

The Bonneville Dam tailwater at 0700 was 18.3 ft. Yesterday, the tailwater elevation averaged 17.3 ft and outflow was 192 kcfs. The RFC inflow forecast for Bonneville Dam calls for high inflows of 172-207 kcfs over the next 10 days.

Baus noted that while precipitation, both in the form of snow and rain, has been observed throughout the region, water supply forecasts are still near normal. He highlighted the RFC forecast for The Dalles April-August runoff of 92 maf, which is 103% of average. The Lower Granite water supply forecast for April-July is also 103% (21 maf). The official water supply forecasts for January will be posted by the close of business today and discussed at the January 19 TMT meeting.

Tony Norris, BPA, added that snowpack is increasing nicely. BPA did not go out with the chum surveyors because there was nothing to see due to the high tailwater (16 ft.), and low visibility making it nearly impossible to see redds. He noted that the crews in the field did not observe chum redds at the higher elevation but there is not enough information currently to inform a decision about if the protection level should be lowered. Additionally, there is no current need to lower the protection level, he added. The protection level can be revisited if there is a need later in the winter. He will present data at the next TMT from redds counted before the tailwater rose.

Charles Morrill, WA, added that his agency's information aligns with what Norris reported. So far only one redd was counted at Hamilton Creek on December 30.

3. Zero Generation – Tony Norris, BPA, and Claire McGrath, NOAA

Zero generation operations were allowed to begin on December 20 after the adult steelhead abundance trigger was met. With the cold temperatures in December and January, BPA has been

utilizing zero generation. Norris noted that BPA has been implementing zero generation operations as allowed at Ice Harbor, Lower Monumental, and Little Goose dams. He added that BPA is using it at Lower Granite, but less often due to management of the forebay (there is a 3-foot operating band in place, currently) and the stage at Lewiston.

Norris showed the TMT a summary of days and hours used at each project, available in full on the TMT website under today's agenda. He noted that hours have clustered around midnight, per typical. There have only been 4 instances of greater than 5 consecutive hours. Primarily zero generation is being used less than 4 or 5 hours at a time. The operation was used several days in a row at Ice Harbor, Little Goose, and Lower Monumental when it was cold for multiple days in a row in December. There are some gaps in the data on the Corps' database that should fill in later in the season.

Norris also provided a presentation on Historical Use Of Zero Generation Flexibility from 2004 – today. He noted that BPA is currently using zero generation consistent with historical use, as defined in the BA and evaluated in the Biological Opinions. Norris noted that during cold snaps, consecutive use has historically occurred up to 13 days in a row. Norris also provided information on zero generation operations dating back to 1988.

1. Comments and questions from TMT included: Jay Hesse, Nez Perce, asked for the definition of an "available day". Norris replied it is the number of days available between the start date per the SOR since 2004 through current. This year that would be December 20 through today. Available hours are computed based on the 6-hour operation for 2004-2020. Last year, the available operation included the expanded hours.
2. Hesse commented that the 2020 BiOp and associated documents mention anticipated use as 1 out of every 3 days. Hesse said he understands that was not great wording used by the Action Agencies, and that instead they meant the focus should be historic use. Historical use seems to range from 10% to 50% of available days, said Hesse. He wondered if Norris sees 60% as a cap for implementation.
 - a. Norris replied that the average use, historically, is about 1/3 of available days and even less with the available hours. It was a rough percentage of how it was used over several years. This is what was presented when BPA developed the BA. He added that there are factors that influence how often zero generation is used. There is a distribution of outcomes, he noted. The cap is the start date, the end date, and the bounds given to the Action Agencies. Over many years, there have been a few instances where zero generation was used consecutively. It is rare to use it more than a few weeks at a time.
 - b. Hesse commented that the graphs indicate that BPA does not use 100% of available hours and days. He asked again if there is a threshold for historic use. Norris said BPA does not have plans to put an official cap on the operation.
 - c. Hesse replied that while zero generation/flow is allowed and anticipated, it is the Nez Perce Tribe's desire to minimize the utilization of it and instead maximize riverine conditions and maintain some sort of flow through the system.
3. Dave Swank, USFWS, asked about the forebay constraints at Lower Granite. He asked if that is due to low flow in the Snake River. Norris replied that it is due to the raised

minimum navigation depth. Swank noted that this happened in 2016 as well. Norris said it could have been anything from outages to project-specific issues. He would have to look through log notes to find out why.

4. Charles Morrill, WA, echoed Hesse's desire to minimize zero flow in favor of maintaining riverine conditions.
5. Erick Van Dyke, OR, started that OR does not consider this operation beneficial to fish. OR has concerns about its use. OR would like to see this operation used as sparingly as possible. He finds it troubling that there is no threshold. He finds this inconsistent with good path concepts the region has been working on for the past year. He would like to see more structure. He does not want to see the river turned into a lake. OR is not supportive of BPA maximizing the operation.
6. Norris noted that BPA intends to use zero generation when there is a significant benefit to the region. During extreme cold, there is a significant benefit to the region. Reshaping water and thus energy out of light-load periods, it benefits the economy of the region and affects the ability of BPA to keep rates cost effective.
7. Tom Lorz, Umatilla Tribe/CRITFC, asked if there are talks about refining the language. Claire McGrath, NOAA, said she is not aware of a plan. She commented that as everyone knows, there was some grey area in the language of the proposed action that NOAA evaluated. NOAA acknowledges the concerns of its co-managers but does not have a biological fish concern at this time that would prompt immediate action. McGrath said NOAA is discussing the planned path forward with BPA at the policy level.
8. Van Dyke added that there are more pillars to benefiting the region than the economy. Those benefits are being lost, he said.
9. Tom Iverson, Yakama Nation Fisheries, added to the ongoing discussion about the wording confusion in the BiOp. He noted that the implication of the term of the metric was confusing and implied there would not be consecutive use repeatedly. He was caught off-guard to see that it is being used every day consecutively during this cold weather.

Following today's discussion, BPA and the Corps (Baus and Norris) will share the concerns raised here with their internal policy teams.

4. Operations Review

4a. Reservoirs – Joel Fenolio, Reclamation; Lisa Wright, Corps

Reclamation projects: Hungry Horse – Elevation 3,547.1 ft.; inflows 1 kcfs; releases 2.5 kcfs. The project may draft this month and will increase releases to 3.8 kcfs tomorrow. The water supply forecast came in at 113% of average. The end of month target is ~3,541 ft. **Grand Coulee** – Midnight elevation 1,284.3 ft. Inflows 145 kcfs outflows 139 kcfs.

Morrill asked about the status of the Upper Snake reservoirs. Fenolio is not able to give that analysis right now but could loop back at the next TMT meeting. He did say the region is below-average on carryover. There has been good snowpack accumulation over the past month.

Corps Projects: Libby Dam – Midnight elevation 2,410.1 ft., yesterday's average inflows 7 and outflows 20 kcfs. **Albeni Falls** – Midnight elevation 2,051.6 ft., inflows 21 kcfs and outflows 19

kcfs. **Dworshak Dam** – Midnight elevation 1,532.4 ft., inflows 2.2 kcfs, and outflows 1.7 kcfs. **Lower Granite** – Yesterday’s average outflows 20.2 kcfs. **McNary Dam** – Yesterday’s average outflows 165.3 kcfs. **Bonneville Dam** – Yesterday’s average outflows 191.5 kcfs.

Other: Jon Roberts, Corps, said the Corps will be releasing a regional update with the water supply forecast and planned operations at Dworshak Dam. It will be released and posted this afternoon or tomorrow morning. Additionally, based on preliminary flood risk management information, there may be a 6-foot draft out of Dworshak Dam to reach the end of month elevation. Hesse shared his expectation that the ramp rates and shaping would continue to follow the efforts over the past year to reduce repeated ups and downs of flow (including SOR 2021-1). Norris noted the SOR Hesse referenced related to within-day shaping, which has already been agreed would not happen this year. Hesse said footnote 1 addresses repeated ups and downs.

4b. Water Quality – Dan Turner, Corps

Dan Turner, Corps, reported that TDG is below the 110% water quality criteria. McNary hit 110% likely due to forced spill during turbine outages for maintenance.

4c. Fish – McGrath

Adults: Low numbers of steelhead (single digits) are passing Bonneville daily. There are individual coho as well passing the project.

2021 Wrap-up: McGrath shared that adult counts across projects and species were above the 4-year average but below the 10-year average, except for the large coho return (200-400% of the 10-year average).

Other: The NOAA Ocean Ecosystem Indicators Analysis has been updated for 2021 (link provided on the TMT homepage). This report helps to forecast adult returns. The 2021 indicators were positive, ranking 2nd-best in the 24-year time series. This indicates productive ocean conditions for juvenile salmon. Data are available online.

Comments: Van Dyke wondered why we’re getting counts at Little Goose instead of Lower Granite after October. He said it seems like a new pattern and wondered why. Chris Peery, Corps NWW, said once every 5 years, counts are completed at a dam they are not normally counted at to provide additional information on adult abundance, as requested by salmon managers at FPOM. Bonneville and Lower Granite conduct winter counts each year. On a rotating basis, an additional dam is selected for counting. This year it was Little Goose. The reason there are no counts at Lower Granite after January 1 is because the ladder is down for winter maintenance. The Little Goose ladder went down yesterday, and there will be no counts until the ladder comes back up. Van Dyke commented on the lack of consistency and that actions such as this can add confusion to management decisions. Norris said that ladder counts used to stop at the end of November. They were extended into December when TMT started using the abundance trigger for the start of zero generation operations. Ladders go out of service after that and there is nothing to count. Van Dyke highlighted the inconsistency in monitoring. Peery noted the schedule for the fish count contract was vetted through FPOM. The rotation of an additional project in winter was at the request of the regional managers to get additional information during winter. For the bulk of fish counts, monitoring occurs 16 hours per day as it has in the past. Nighttime counts were added when folks were interested in lamprey passage. That started at

Bonneville around 1995/1996. In the early 2000s, it was added The Dalles, John Day, McNary, and Lower Granite from the middle of June to the end of September.

4d. Power – Norris

Coming out of the cold snap, there were high power prices and significant load. During the high-pressure system, there was not a lot of wind generation in the balancing authority (around New Year’s). Current weather systems are generating some wind.

5. Other

Lorz requested an update on reported fish kills downstream of Dworshak be discussed at FPOM. Peery will add it to the next agenda.

Today’s Attendees:

Agency	TMT Representative
Army Corps of Engineers	Doug Baus (Chair), Lisa Wright, Julie Ammann
Bonneville Power Administration	Tony Norris, Scott Bettin
Bureau of Reclamation	Joel Fenolio
NOAA Fisheries	Claire McGrath, Trevor Conder
US Fish & Wildlife Service	Dave Swank
Washington	Charles Morrill
Oregon	Erick Van Dyke
Idaho	Jonathan Ebel
Montana	Brian Marotz
Nez Perce Tribe	Jay Hesse
Umatilla Tribe/CRITFC	Tom Lorz
Colville Tribe	Absent
Warm Springs Tribe	Absent
Kootenai Tribe	Absent
Spokane Tribe	Absent

Other Attendees (non-TMT members):

Corps – Aaron Marshall, Chris Peery, Dan Turner, Catherine Dudgeon, Heather Baxter, Willow Walker, Scott St. John, Jon Roberts, Elizabeth Holdren, Ashlynn Tate

Yakama Nation Fisheries – Tom Iverson

DS Consulting – Emily Stranz (Facilitator), Colby Mills

BPA – Melissa Haskin (CONTR, FLUX Resources, Notetaker)

Clearing Up – K.C. Mehaffey

Columbia Basin Bulletin – Mike O’Bryant

Portland General Electric – Ruth Burris

West Power Trading – Mark Kruzel

Unidentified – Felix Huang