COLUMBIA RIVER TECHNICAL MANAGEMENT TEAM

November 16, 2016

Facilitator's Summary

Facilitator: Emily Stranz, Notes: Tory Hines, 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. These notes are not intended to be the "record" of the meeting, only a reminder for TMT members.

Review Meeting Minutes

The October 19th, 26th and November 2nd meeting minutes and facilitator's summaries were approved pending the following change to the November 2nd facilitator's summary:

- **ACTION:** Correct the tailwater elevation range on bullet 1 on the chum operation to read "at all hours, operate project tailwater to provide an elevation between **11.5-13.0**ft".

Chum Operation

Paul Wagner, NOAA, shared an update on chum operations. He noted that chum counts at Bonneville are at 42, with 39 live and 3 dead. Chinook have the largest presence below Bonneville at this time, with close to 3,000 live Chinook observed in the Ives/Pierce Island Complex on November 8th. The group revisited the current chum operation:

1. Effective Tuesday, November 1, at 0600 hours until further notice.
2. Operation of the Bonneville Dam tailwater in the following order of operating ranges as project outflow increases.
3. During all hours, operate project outflow to provide a tailwater elevation in the range of 11.5 to 13.0 feet.
4. Then, if necessary to increase project outflow, the tailwater may be operated up to 16.5 feet during nighttime hours (1700-0600). Concentrate highest elevations around 2400 hours.
5. Then, if necessary to increase project outflow, the tailwater may be operated up to 18.5 feet during nighttime hours (1700-0600).
6. Then, if increasing river flow precluded the ability to manage tailwater within the steps above, operate to provide a tailwater in the range of 13.0-16.5 feet during daytime hours (0600-1700) and up to the maximum within project 24-hour ramp rate limits during nighttime hours (1700-0600).

Paul explained that the State of Washington would like to propose changing the current operation after operating at a minimum11.5ft tailwater during daytime hours and increasing outflows at nighttime to 16.5ft, if necessary due to an increase in flow, operate up to 16.5ft at all hours rather than increasing tailwater up to 18.5ft during nighttime hours. Charlie Morrill, WA, stated that the desire to increase tailwater to 16.5ft at all hours is intended to avoid increasing to 18.5ft which is known to push the fish off the redds. Research suggests that at 16.5ft some chum stay on redds to spawn while others move off and come back. Limiting the protection level to 16.5ft allows chum the opportunity to stay or move, whereas increasing tailwater to 18.5ft pushes the chum off the redds. He shared that WA recognizes the priority of spring flow and Grand Coulee refill and acknowledges that there is a risk fish will spawn at higher elevations than can be protected; however over the last few years no redds were observed at higher elevations once water receded. He also noted that WA is not expecting that any redds made at the 16.5ft tailwater elevation would be protected once flows recede.

Tony Norris, BPA, said that there is a good chance that the project will be up against needing to increase above 16.5ft during nighttime hours towards the end of this week. He expressed concern that Charlie's proposed operation could be a paradigm shift and noted that the current operation was designed to avoid risk of putting redds at a higher elevation than could be supported throughout the winter. He noted that the Action Agencies need reassurance that the salmon managers are not trying to permanently set a higher protection level, as it will be at the risk of April 10 because the protection level is set prior to any real knowledge of water supply. He continued that he is fine increasing the level for the current year's operation, but not for future years. Dave Swank, USFWS, noted that a key question is around the uncertainty of fish behavior at higher elevations. He asked if there are available data from previous years to shed light on this question. Paul noted that the available data do not provide enough insight, mainly because surveys do not reveal much information during high water levels due to high turbidity and thus inability to see the redds.

Tony suggested the region consider another operation that would set the minimum protection level of 12.2ft all hours now and take away the higher steps, allowing the project to have more flexibility with moving the water through. Scott Bettin, BPA, proposed that TMT members consider Tony's recommendation to set the minimum protection level at 12.2ft and come back to TMT next week with feedback. Paul agreed that more discussion on this proposal is needed. He noted that if the operation sets a minimum protection of 12.2ft and a large amount of fish spawn at 14ft, they will not want to dewater those redds. Charlie said that he is not opposed to Tony's proposal, however, he wanted to know if 12.2ft was enough to protect the spawning grounds accessed by 11.5-13.0 tailwater.

Tom Lorz, Umatilla, stated that in both operations on the table there are unknowns. If the operation allows tailwater to increase up to 18.5ft there is concern that fish will be pushed off redds and will not be able to spawn. Conversely, maintaining tailwater up to 16.5ft during daytime hours may risk needing a higher protection level and impact spring flows and refill. Salmon managers agreed to meet prior to next Tuesday's TMT meeting to discuss the desired operation moving forward.

- **ACTION:** TMT will revisit the chum operation at 9:00 on Tuesday, November 22nd.

Operations Review

Reservoirs: Lisa Wright, COE, reported on Corps projects:

- Libby midnight elevation was 2,450.98ft, with 14.7kcfs inflow and 24.5kcfs outflow.
- Albeni Falls midnight elevation was 2,051.94ft, with 28kcfs inflow and 31.1kcfs outflow.
- Dworshak midnight elevation was 1,530.6ft, with 5kcfs inflow and 1.6kcfs outflow.
- Lower Granite average inflow was 20.6kcfs.
- McNary average inflow was 124.9kcfs.
- Bonneville average inflow was 139.5kcfs

Peter Cooper, BOR, reported on Reclamation projects:

- Hungry Horse midnight elevation was 3,551.68ft with 3,000cfs inflow and 4,5000cfs outflow.
- Grand Coulee elevation was 1,286.3ft.

Fish: Paul reported on fish. The juvenile season is complete and sampling is done at all projects. For adults, passage at Bonneville is all but done, except for fall Chinook and steelhead. Steelhead numbers are less than 20 per day and fall Chinook numbers are less than 100 per day. At Lower Granite, fall Chinook numbers are low, with 7 counted on November 13th. For steelhead, a couple hundred per day were observed and 97,000 total for the season (slightly above 50% of the ten-year average). As noted earlier, 42 chum have passed Bonneville to date.

Water Quality: Laura Hamilton, COE-NWD, noted that at Warrendale TDG levels of 104%, 105% and 106% were due to consistent hourly spilling at Bonneville. Tony noted that the second powerhouse went out on Monday, which is when significant spill began.

Power System: Tony shared that there was nothing to report.

Dworshak Unit 2 Salmon Kill

Tom expressed deep frustration that over the weekend there was a salmon kill at Dworshak Dam and TMT members were not alerted to the issue. Russ Kiefer, ID, shared that he heard of the kill from a citizen poaching report. They both requested that in the future the Corps provide TMT members with some level of information in a timely manner, as these situations impact regional partners and this is the point of having regional coordination. Doug explained that the Corps has been working to gather information and had planned to provide details when they had sufficient information to provide. Tom suggested that a "heads up" with additional details to follow would be sufficient.

The next TMT meeting will be a conference call on Tuesday, November 22nd.

Columbia River Regional Forum
TECHNICAL MANAGEMENT TEAM MEETING OFFICIAL MINUTES

November 16, 2016
Minutes: Pat Vivian

1. Introduction

Representatives of the COE, NOAA, BPA, USFWS, Montana, Oregon, Idaho, Washington, CRITFC/Umatilla and others participated in today's TMT meeting. Doug Baus, COE, chaired the meeting with Emily Stranz, DS Consulting, as facilitator.

2. Review Meeting Minutes – October 19, 26 and November 2

Dave Swank, USFWS, pointed out the tailwater elevation range for the Bonneville chum operation was quoted as 11.0-13.5 ft in the November 2 facilitator's summary; the range is actually 11.5-13.0 ft. With this change, all these summaries and meeting minutes will be considered final.

3. Operations Review

3a. Reservoirs. Libby is at elevation 2450.98 ft with average inflows of 14.7 kcfs, discharging 24.5 kcfs. Albeni Falls is at elevation 2051.9 ft with average inflows of 28 kcfs, discharging 31.1 kcfs. Dworshak is at elevation 1530.6 ft with average inflows of 5 kcfs, discharging 1.6 kcfs.

Lower Granite releases are 20.6 kcfs, McNary releases are 124.9 kcfs, and Bonneville releases are 139.5 kcfs.

Grand Coulee is at elevation 1286.3 ft. Hungry Horse is at elevation 3551.68 ft with average inflows of 3 kcfs and discharges of 4500 cfs.

3b. Fish. Paul Wagner reported. Juvenile passage season has ended, with sampling at all projects shut down for the winter. Adult passage season is all but over at Bonneville for fall Chinook (less than 110 fish per day, with 52,000 for the season) and steelhead (less than 20 fish per day). At Lower Granite, there were 7 fall Chinook on November 13 and generally less than 20 per day. Steelhead passage at Lower Granite is a few hundred per day, and 97,000 for the season, which is above 50% of the 10 year average.

The main concern at present is chum, with 42 spawners surveyed below Bonneville at Ives/Pierce Island complex so far, which is below average. There was no chum tally for this week's survey on the FPC web page, but Scott Bettin, BPA, said a typical count is around 150-170 spawners by the first of the year.

3c. Water Quality. TDG levels at Bonneville tailwater were in the range of 104-107% saturation at Warrandale gauge when the 2nd powerhouse was out of service, Laura Hamilton reported. Spill during the powerhouse outage has been up to 60-65 kcfs recently, Tony Norris reported.

3d. Power System. There was nothing to report today.

4. Chum Operation

This was the main topic of today's meeting. To date, 42 chum (39 live, 3 dead) have been counted at the Ives/Pierce Island complex below Bonneville. Fall Chinook are having a stellar return, with close to 3,000 spawners arriving at Ives Island as of November 8.

Discussion focused on the current chum operation, which was coordinated at TMT on November 2 with the following steps:

1. During all hours, operate project outflow to provide a tailwater elevation in the range of 11.5 to 13.0 feet.
2. Then, if necessary to increase project outflow, the tailwater may be operated up to 16.5 feet during nighttime hours (1700 to 1600). Concentrate highest elevations around 2400 hours.
3. Then, if necessary to increase project outflow, the tailwater may be operated up to 18.5 feet during nighttime hours (1700-0600).
4. Then, if increasing river flow precludes the ability to manage tailwater within the steps above, operate to provide a tailwater in the range of 13.0-16.5 feet during daytime hours (0600-1700) and up to the maximum within project 24-hour ramp rate limits during nighttime hours (1700- 0600).

The tradeoff is how to pass high flows while keeping daytime tailwater elevations low enough to accommodate chum spawning and incubation. Paul Wagner, NOAA, said the current operation can be bumpy at night, and keeping elevations below 13.0 ft during the day raises the likelihood of needing to pass more water at night and high tailwater elevations. Chum may spawn at night, but mate and location selection happens in daylight. Thus the objective of the chum operation

is to maintain a daytime elevation that encourages spawning at an elevation range that will be sustainable through incubation.

Bonneville is operating now at step 2 of the current chum operation and will move to step 3 to manage inflow if there is any increase in river volumes, Tony Norris, BPA, said.

TMT considered a proposal by Charles Morrill, Washington, to avoid going up to 18.5 feet at night (step 3) by accepting higher daytime elevations in exchange for a limit of 16.5 ft all hours. This revision to the chum operation would increase tailwater elevations to up to 16.5 ft during all hours instead of allowing elevations to rise to 18.5 feet at night. Washington's proposal is summarized in attachment 3d to today's TMT agenda.

Yesterday FPAC discussed the proposal, Wagner said. A previous analysis concluded there's about a 30% chance of having enough water to keep redds at 14-15 ft inundated through incubation. One option the Salmon Managers have is to risk having to maintain redds that are established at a higher daytime tailwater elevation in order to find out how many fish actually spawn there.

Baus emphasized that providing a higher tailwater elevation during the day could encourage chum to spawn in places where the redds might be dewatered later. Wagner said the risk is understood.

Washington's proposal is based on a biological finding that chum might stay on their redds at 16.5 feet tailwater elevation, but 18.5 ft would push them to another location, Morrill explained. Research indicates that 16.5 ft elevation around the clock poses less risk to chum survival than allowing 18.5 ft tailwater elevations at night, which might cause chum spawners to leave the area. Washington acknowledges the risk that some may spawn above the sustainable protection level if the recommendation is adopted. But in the past few years after high flows, WDFW crews have found no redds on the banks when flows recede.

Tom Lorz, CRITFC/Umatilla, asked, what are the chances of the tailwater hitting 18.5 ft during chum spawning season? The odds are high, Norris replied. Is Washington's recommendation temporary, or does it imply a permanent change to chum redd protection levels? BPA could accommodate the recommendation if the Salmon Managers acknowledge and accept that redds may not be supported at higher protection levels than the typical 12.2 ft as a result of this proposal. Morrill said this is understood.

Dave Swank, USFWS, asked whether previous surveys could answer the question of whether chum actually do spawn at higher elevations. It can be difficult to survey redds accurately during high water conditions so the available information isn't precise, Wagner replied.

The proposal seems to represent a paradigm shift from prioritizing spring refill over chum incubation, Norris said. The current chum operation is designed to postpone having to set the protection level for as long as possible. He suggested simplifying it by raising the protection level now to a 12.2 ft minimum elevation through winter.

It was noted that Washington's proposal would flatten flows when the chum operation shifts to the incubation phase around January 1. WDFW survey crews are scheduled to work on December 20-21 and again on December 27-28, but it can be difficult to set a protection level accurately if prevailing weather conditions and high water levels limit surveying.

BPA would be uncomfortable supporting Washington's proposal unless there is assurance it will not result in a higher protection level, Norris said. One option is to decide now to operate the project to a tailwater elevation range between 12.2 and 16.5 ft. Lorz said ramp rates are needed to prevent stranding.

Scott Bettin, BPA, suggested continuing the current operation for the next week, while TMT considers the options for moving forward. Wagner suggested that TMT reconvene in a week, giving the Salmon Managers time to seek consensus on a recommendation.

Baus asked if Washington would support clarifying the range in step 3 as 13.0 – 16.5 feet in Washington's proposed revised chum operation as described in agenda item 3d on today's agenda. Morrill said yes, Washington's highest priority is to prevent pushing chum off their redds with 18.5 ft. Morrill's focus is on whether a 12.2 ft minimum elevation is the right one for a spawning range of 11.5-13.0 ft. Washington is not asking for an increased protection level, just protection from 18.5 ft in the tailwater at night. Washington supports a daytime operating range of 11.5-13.0 ft elevation whenever possible.

Dave Swank, USFWS, asked why the COE proposed a 13.0 ft maximum tailwater elevation in step 1. It was believed that spawning habitat above that elevation wasn't good, Wagner replied. However, at about 14.5 ft elevation there was an area where fish historically preferred to spawn. It was difficult to maintain those redds over the winter. So

setting the maximum spawning elevation at 13 ft avoids having to maintain it.

Lorz said the best way to address this dilemma is to pick an operation and test it. Baus suggested another option: raising the daytime elevation range in step 1 to 11.5-14.0 ft, which would leave less water to pass at night.

Norris asked the Salmon Managers to confer over the next week on their desired protection level in light of the tradeoffs involved. In the meantime, any increase in river flows will push the Bonneville tailwater operation to step 3.

Swank asked how often the Bonneville tailwater reaches elevation 16.5 ft and 18.5 ft in a typical year. Once or twice every November and December, the project has to exceed the limitations of the daytime chum operation at 11.5-13.0 ft, Norris replied. Revising the current operation means a greater likelihood that elevations will exceed 13 ft during the day.

TMT agreed to meet in a conference call Tuesday morning, November 22, to revisit the chum operation.

5 Dworshak Unit 2 Operation

Tom Lorz said he's gotten many frantic phone calls and emails recently since hearing of a salmon kill that occurred November 9 at Dworshak unit 2. He asked why the COE hadn't notified him of the incident. His concerns were intensified when he received an email announcing that flows at unit 2 would be increased – with no explanation of the fish kill.

Lorz said lack of coordination on this issue put him in a bad position professionally and made him question the efficacy of regional coordination. An informal heads-up via phone or email would have sufficed, with explanation and details to come later. He noted that dewatering of DWR unit 2 killed 800 steelhead in 2010 so this problem has occurred before. Russ Kiefer, Idaho, added that he was likewise embarrassed to learn of the recent fish kill from an angler who filed a poaching report on the IDFG web page.

Baus said the COE takes fish kills seriously enough to gather and verify information before issuing a public report. The COE is working hard to clarify what happened at Dworshak unit 2 and will share the facts with TMT when more is known.

Next TMT Meeting

TMT will meet next in a November 22 conference call to revisit the chum operation.

Name	***Affiliation***
Doug Baus	COE
Paul Wagner	NOAA
Lisa Wright	COE
Julie Ammann	COE
Tony Norris	BPA
Tory Hines	DSC
Dave Swank	USFWS
Scott English	COE
Laura Hamilton	COE
Tom Lorz	CRITFC/Umatilla

Phone:

Brian Marotz	Montana
Peter Cooper	BOR
Michael Bryant	CBB
Margaret Filardo	FPC
Erick Van Dyke	Oregon
Katrina XX	EWEB
Russ Kiefer	Idaho
Charles Morrill	Washington