

## COLUMBIA RIVER TECHNICAL MANAGEMENT TEAM

January 17, 2018

Facilitator's Summary

Facilitator: Emily Stranz; Notes: Charles Wiggins, 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. Official minutes can be found on the TMT website: <http://www.nwd-wc.usace.army.mil/tmt/agendas/2017/>*

### Meeting Minutes and Facilitator's Summary Notes

TMT Official Meeting Minutes and Facilitator's Summary for the December 20, 2017 and January 03, 2018 meetings were adopted with one modification to the minutes (clarifying sea lion species below BON).

### Chum Operations

Tony Norris, BPA, began the report by describing chum-spawning areas in the Ives Island location. He provided a number of photos and maps to aid understanding that are available on the TMT website. In 2017 (and 2016), the majority of redds were located in the Strawberry spawning area. Tony observed that there is a heavy ground water influence in the spawning area. This year, data is available from piezometers and buoys installed throughout the area. The data was verified via surveys which resulted in GPS measurements showing exact depths of redds. All of the redds were more than sufficiently watered during the time of the surveys (11/29 and 12/21) at which time the tailwater elevations were between 12.2 and 12.6 ft. Tony noted that based off of the data, redds are protected down to 11.2ft.

Currently Bonneville outflow is 214.5 kcfs; tailwater elevation is 17.7ft. The NWRFC 10-day forecast is for around 210 kcfs inflows. Their 6-10 and 8-14 day climate forecast anticipate below average temperatures and above average precipitation. The 30-day forecast shows an equal probability of either higher or lower than average temperature and precipitation.

### Dworshak Update

Steve Hall, Corps, provided an update on Dworshak operations. Current elevation is 1,526.5 ft., with 3.2 kcfs outflow after adding 1kcfs on 1/16/18 as a result of a storm and increased inflows. With that increase, TDG levels went up to 98%, but are below the 110% limit. The Corps plans to check the TDG gauge to ensure that it is recording accurately.

Steve noted that inflow is expected to increase with a storm from Thursday through Saturday contributing an expected 12kcfs. This increase would cause a rapid rise in pool elevation, thus the Corps plans to increase outflows to 4 kcfs, which they believe will keep TDG levels below 110% and allow them to manage the pool to meet the January 31<sup>st</sup> end of month pool elevation target. After discussion with the TMT, the Corps agreed to increase to 4kcfs out as soon as possible; they will still plan on checking the TDG gauge.

The Salmon Managers requested that Steve provide "early bird" water supply forecasts to aid with decision making, similar to last year. Steve agreed and noted that the official water supply forecasts will be provided within the first 5 days of the month.

- **ACTION:** The Corps will increase Dworshak outflows to 4 kcfs as soon as possible. They will make best efforts to stay below 110% TDG to reach the end of month elevation target.

### **Release Dates for Clearwater Hatcheries**

Jay Hesse, Nez Perce, reported on preliminary release dates for hatcheries in the Clearwater. The dates are not yet finalized, however, Jay will provide an update once they are. Some release dates were adjusted to minimize fish reaching Lower Granite before the April 3rd spill date in order to encourage spill passage over turbine passage. There are three releases that may require a change in flow request, those releases are planned for: April 17-18, March 26-27, March 28-29. Any requests for change in flow will be brought to TMT. There was a request to see whether the hatcheries could coordinate releases to the same timeframe to cut down on the potential flow limitations. Russ and Jay will look into this. Additionally, they will check in with the hatcheries to determine whether there will be other flow change requests for maintenance (for example last year, intake screens needed to be cleaned and required lower flows).

- **ACTION:** Russ and Jay will check in on coordinating hatchery release dates and inquire as to other potential flow change needs.

### **Operations Review**

**Reservoirs:** John Roache, BOR, reported on Bureau of Reclamation projects:

- Hungry Horse midnight elevation; 3,539.8 ft., current discharge 2.2 kcfs; inflows 1.2kcfs.
- Grand Coulee midnight elevation 1,282.5 ft. The system is slowly drafting. This year's drum gate maintenance decision will be based on the February water supply forecast; if at that time the April 30<sup>th</sup> forecast is 1,255ft or lower, it will trigger maintenance.

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

- Libby midnight elevation was 2,409.4 ft.; current inflows were 2.0 kcfs; outflows were 8.4 kcfs.
- Albeni Falls midnight elevation was 2,053.8 ft.; yesterday's average inflow was 18.6 kcfs; outflows were 11.4 kcfs.
- Dworshak midnight elevation 1,526.4 ft.; inflows were 6.6 kcfs; outflows were 2.9 kcfs.
- Lower Granite average outflows were 49.2 kcfs.
- McNary average outflows were 203.3 kcfs.
- Bonneville average outflows were 213 kcfs

It was noted that the Corps and NWRFC water supply forecasts for Libby Dam are significantly different (113 and 94maf). Julie noted that the Corps will inform the TMT if there are any changes to their forecast.

**Fish** - Paul Wagner, NOAA, reported on fish. He noted the fish are "on a break," and hopefully this spring will have strong runs.

**Water Quality** - Doug Baus, Corps, reported on water quality. TDG levels at the Lower Granite were 101%, with 98% in the Lower Columbia, 111% at Lower Monumental, and 116% at Ice Harbor. The higher TDG levels at Lower Monumental and Ice Harbor are due to spill as a result of turbine outages.

**Power Supply** - Tony Norris, BPA, reported loads were low because of mild temperatures, and reserves were within bounds.

**The next TMT meeting will be a conference call on January 31, 2018.**

**Columbia River Regional Forum  
TECHNICAL MANAGEMENT TEAM MEETING**

**January 17, 2018**  
Minutes: Pat Vivian

**1. Introduction**

Representatives of the COE, USFWS, BPA, BOR, Washington, NOAA, Oregon, Idaho, Nez Perce, Colville and Umatilla tribes, and others participated in today's TMT meeting chaired by Doug Baus, COE, and facilitated by Emily Stranz, DS Consulting.

**2. Review Meeting Minutes – December 20 and January 3**

Paul Wagner, NOAA, noted that the December 20 official minutes say California sea lions have been preying on chum spawners; they were Steller sea lions. With that change, both sets of minutes and facilitator's notes were approved as final.

**3. Chum Update**

Tony Norris, BPA, gave a presentation on GPS surveying of chum redd depths in the spawning areas below Bonneville Dam this fall. Data from BPA's surveys in December served as a basis for setting the protection level of 11.5 ft elevation for chum incubation.

**3a. Ives Island Spawning Areas.** Surveyors tracked redd presence in five spawning grounds in the Ives Island area – McCord, Woodward Creek, Ives Pocket, the Break, and Strawberry. GPS readings were taken on November 29 and again on December 21, 2017.

Most redds were in the Strawberry area this year instead of the Ives Pocket area downstream of Hamilton Creek, which chum have favored in recent years. This is the most problematic area to maintain as far as keeping redds inundated through incubation. The site consists of two pockets at different elevations, with the lower pocket being 6-10 inches deeper than the upper pocket. Redds in the upper pocket are the highest elevation redds, those most at risk of dewatering if there's a problem maintaining the minimum protection level later.

The photos in the presentation were taken when the Bonneville tailwater elevation was at 11.5-12.5 ft and the upper pocket had 0.8 ft of coverage. Wagner and Charles Morrill, Washington, both requested that redd locations be added to the aerial maps. Norris and Todd Hillson,

WDFW, discussed the elevation when the photo was taken – was it 11.5 or 12.5 ft?

Redds were most plentiful this year in the Strawberry spawning area, clustered along the riverbank on the Washington side. These redds had more water coverage than those in the upper Ives Island pocket. Redd depths at Strawberry ranged from 3 ft on November 29 to just over 0.5 ft on December 21. By the latter date, GPS surveyors observed only 1 or 2 new redds since the November survey. The McCord Creek spawning ground is a shallow area where chum like to spawn. In 2017 those redd elevations were all more than 2 ft deep in the water. Redds in the Break area also tend to be deeply submerged.

By the second survey date of December 21, surveyors found that most of the rocks were coated in algae, making it harder to establish redd elevations. The surveyors also collected data on accumulated temperature units since the start of chum spawning. Typically a surge of redds is seen in the second or third week of December, but in 2017 that didn't happen. Baus asked whether the TU data are applicable to a specific location. Generally so, Norris said, but it's not feasible to measure TU accumulation at every redd. BPA will continue to send GPS surveyors out twice during the chum spawning operation.

Todd Hillson, WDFW, said seining data indicate that tailwater elevations below BON were closer to 11.5 ft early in the season. Steller sea lions fed heavily on chum this year. One big change was a lack of chum spawning in Hamilton Slough on the north side of the Ives Pocket area. For the past two years this area has been heavily populated by Chinook, which discouraged chum from spawning there.

Charles Morrill said a key message from all these data is that ground water has an influence on temperatures, which dictate the pace of development. Eggs in warmer areas hatch faster.

**3c. Bonneville Dam Current Hourly Data.** Bonneville is currently discharging 214.5 kcfs with a 17.7 ft tailwater elevation.

**3d. NWRFC Bonneville Dam Inflow Forecast.** The current RFC 10 day forecast indicates that BON inflows will continue to be approximately 210 kcfs. The 6-10 day and 8-14 day climate forecasts both show a probability of below average temperatures and above average precipitation. The 30 day forecast shows an equal probability that precipitation and temperatures will be above or below average.

At the current chum redd protection level of 11.8 ft in the BON tailwater, how low could the elevation go without endangering redds?

Norris said 11.5 ft, although WDFW might differ. For the time being, the current minimum tailwater elevation of 11.8 ft is clearly supportable; there's no shortage of water. TMT will continue to monitor the chum incubation operation.

#### **4. Dworshak Operations**

**4a. Hourly Data.** Current Dworshak elevation is 1526.5 ft, releasing 3.2 kcfs, a 1 kcfs increase starting at noon yesterday, Steve Hall, COE Walla Walla, reported. This operation is resulting in TDG levels of 98% saturation, well below the 110% state water quality standard, but it's a recent increase the COE will double-check.

**4b. NWRFC Dworshak Inflow Forecast.** Inflows last week were moderate at about 8.5 kcfs, coming in below the 10 kcfs forecast. A storm predicted over the next few days could increase DWR inflows to 12 kcfs. This operation will cause the pool to rise, given that releases are only a little over 3 kcfs at present. So the COE intends to ramp up outflows to 4 kcfs later this week as long as TDG readings are not excessive. This operation is expected to result in TDG levels of around 110%. The goal is to keep the pool from rising excessively during the remainder of January.

**4c. NWRFC Dworshak Dam Water Supply Forecast.** The Corps Dworshak Dam January Runoff Forecast for April – July was 2941 KAF which is 109% of average. Today's (January 17) NWRFC water supply forecast (April – July @ 2511 KAF - 5 days QPF – 104% of average) continues to be below the Corps official January forecast. Snow accumulation in the Clearwater is slightly above normal. The longer range forecast shows some storms and snow building events.

Dave Swank, USFWS, asked whether the January-September forecast of 3.7 maf, 108% of normal, suggests wetter than normal conditions; Hall said yes. The current spell of warmer temperatures is an anomaly. There will probably be a lot more runoff between now and April. The RFC's long range forecast is saying we'll probably see normal to above normal snowpack at high elevations, with a tendency to below normal low-elevation snowpack. These conditions could lead to delayed runoff in early April, although peak runoff will probably occur at the normal time this year.

Yesterday FPAC discussed the possibility of having a mid-month water supply forecast to aid in operational decision making (also known as an early bird forecast), Swank recalled. The COE runs mid-month forecasts using RFC ESP traces, but the COE official water supply forecast doesn't include a process for mid-month forecasting, Hall said.

Using available techniques, the mid-month forecast did not change substantially. Projection of current snowpack yields a 2.7 maf forecast using official methodology, which could be construed as a mid-month forecast. The COE will continue to run weekly forecasts but does not expect any dramatic changes in the water supply. The official forecast comes out on the fifth working day of the month.

Hall said DWR outflows will probably go to 4 kcfs on January 19. Scott Bettin, BPA, asked whether there was interest in ramping up outflows earlier; there's a lot of water to move and no time to waste. Hall said the COE needs to verify the TDG gage reading of 98% saturation in order to move forward with increases. Wagner asked whether an increase to 104% TDG would be acceptable. The COE does not want to assume the risk of ramping up releases without verifying the 98% TDG reading first, Hall said, unless TMT requests a change and absolves the COE of responsibility. Julie Ammann, COE, noted that flood risk management is also involved.

While there was no official poll today, **NOAA** and **USFWS** accepted the risk of ramping up outflows to 4 kcfs before January 19, given that TDG levels are unlikely to exceed 110% as a result. The **Nez Perce Tribe** was comfortable with continuing the current operation or increasing discharges to 4 kcfs since the increase would have a negligible effect on the 1530.5 end of January flood control elevation. **Idaho** supported the increase to 4 kcfs and **Oregon** did not object, assuming that TDG levels would continue to be monitored. As a result of this conversation, Hall said, the COE will increase DWR outflows to 4 kcfs sooner rather than later.

## ***5. Release Dates for Clearwater Hatcheries***

Jay Hesse said Final release dates for four hatcheries in the Clearwater basin will be made public after a meeting January 18 (the results are linked to today's agenda). Dates will be provided for releases from Dworshak National Fish Hatchery, the Clearwater Fish Hatchery, Kooskia National Fish Hatchery, and the Nez Perce tribal hatchery.

These hatcheries release spring and summer Chinook at a number of sites throughout the Clearwater basin. The main goal of release scheduling is to minimize the number of fish who reach Lower Granite before spring spill starts because those fish will have to pass through the turbines, the route of lowest survival. The hatcheries also schedule releases to accommodate the start of spring spill and the juvenile bypass system reconstruction schedule.

Julie Ammann, COE, asked whether any of those releases correspond to a required reduction in flows for TDG management. Hesse said the hatcheries are playing this by ear. Typically hatcheries request flow increases, but 2017 was the opposite, with the focus on releasing fish into a low TDG environment.

Hatchery release dates are being planned for steelhead from Dworshak (tentatively April 17-18); for spring Chinook from the Dworshak National Hatchery in the North Fork (March 28-29); and for IDFG spring Chinook at the North Fork hatchery (March 26-27). These releases could involve a request for a change in flows. Hall asked whether the Dworshak and North Fork hatchery releases could be combined. Kiefer recalled that's what happened last year during a window of spill at TDG reduction provided by the Action Agencies and said he will follow up.

Baus asked whether there are any plans for O&M projects coming up that would involve requests for a reduction in flows. Kiefer said he will coordinate with the COE on plans for cleaning IDFG hatchery intakes in relation to TDG management as well as combining the two spring Chinook releases in March, like last year. Hesse will also coordinate with the COE on any Nez Perce hatchery needs regarding flows for maintenance work.

### ***Operations Review***

**6a. Reservoirs.** John Roache and Lisa Wright reported. Hungry Horse is at 3539.8 ft, slightly drafting to release 2.2 kcfs for Columbia Falls minimums. Inflows are around 1.2 kcfs. Grand Coulee is at 1282.5 ft, slowly drafting with plenty of water for chum incubation. The BOR will decide whether to do drum gate maintenance based on the official February forecast. A projected April 30 elevation of 1255 ft or lower is the trigger for drum gate maintenance. The January forecast of 1248.5 ft indicates that 2018 could be a drum gate maintenance year.

Libby is at elevation 2409.4 ft with inflows of 2.0 kcfs, discharging 8.4 kcfs. Albeni Falls is at elevation 2053.8 ft with inflows of 18.6 kcfs and outflows of 11.4 kcfs. Dworshak is at elevation 1526.4 ft with inflows of 6.6 kcfs, discharging 2.9 kcfs. Lower Granite outflows are 49.2 kcfs, McNary outflows are 203.3 kcfs, and Bonneville outflows are 213 kcfs.

Wagner asked whether a slight disparity between RFC and COE forecasts for Libby could lead to a deviation request based on snowpack. There's always the potential for a flood risk management deviation, Julie Ammann, COE, replied, but that seems unlikely. The COE will keep TMT posted.

**6b. Fish.** Wagner said there's basically nothing to report on fish migration at this time of year.

**6c. Water Quality.** Current TDG readings are 101% at Lower Granite tailwater, 98% at The Dalles tailwater, 116% at Ice Harbor tailwater, and 111% at Lower Monumental tailwater. The readings over 110% at IHR and LMN could be due to maintenance work and limited generation capacity, which is typical for this time of year. Spill this time of year generally indicates a lack of hydraulic capacity.

**6d. Power System.** There was nothing significant to report. Temperatures have been mild lately, Norris said, and reserve deployments are within the norm for system stability.

## **7. Next TMT Meeting**

TMT will meet next in a conference call January 31.

<b>Name</b>	<b>Affiliation</b>
Doug Baus	COE
Dave Swank	USFWS
Tony Norris	BPA
John Roache	BOR
Charles Morrill	Washington
Paul Wagner	NOAA
Scott Bettin	BPA
Lisa Wright	COE
Charles Wiggins	DSC
Aaron Marshall	COE
Erick Van Dyke	Oregon
Julie Ammann	COE

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Sheri Sears	Colville Tribe
Tom Lorz	CRITFC/Umatilla
Todd Hillson	WDFW