

COLUMBIA RIVER TECHNICAL MANAGEMENT TEAM

March 16, 2016

Facilitator's Summary

Facilitator: Emily Plummer; 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 of Meeting Minutes

The January 20th, February 3rd, February 17th and March 2nd Official Minutes and Facilitator's Summaries were approved.

Update Water Supply Forecast

Doug Baus, COE-NWD, provided an update on the official March water supply forecast that is posted on the TMT website. Mary Mellema, BOR, noted that the forecast volumes for the final March forecast for Hungry Horse Dam inflow:

- March-July: 1,831.6 kaf (93%)
- January- July: 1,969.1 kaf (94%)
- April-August: 1,800.7 kaf (93%)
- May-September: 1,574.2 kaf (93%)

Mary also noted that the instream flow requirements of Hungry Horse for the rest of the calendar year are as follows:

- Columbia Falls: 3,500 cfs
- Hungry Horse: 900 cfs

Doug noted the March forecast volumes for the USACE projects:

- The Dalles April-August: 87 maf (99%)
- Lower Granite April-July: 18 maf (91%)
- Libby April-August: 6,472 kaf (110%)
- Dworshak April - July: 2,025 kaf (84%)
- Grand Coulee April-August: 56 maf (99%)
- Albeni Falls April-September 11 maf (89%)

Doug provided a brief summary of highlights of the RFC March 2016 Water Supply Briefing (link provided on TMT website). Doug encouraged people to go to the NWRFC website for details on the monthly briefing. He noted that as of now, the 2016 seasonal precipitation is higher than 2015. For example, The Dalles March precipitation average was at 105% of normal for 2016 compared to 91% of normal in 2015.

Temperature departures continue to be above average but observed snowpack conditions appears to be the main factor that is providing a higher forecasted water supply volumes this year compared to 2015. The March 2, 2016, observed snowpack conditions in the Rockies and Cascades were generally average to above average whereas, March 5, 2015,

conditions were generally average to below average for the same locations. Paul Wagner, NOAA, noted that this year is tracking similar to 1983 and 1998 and is not following the El Nino trend.

Chum Operation

Paul provided an update on the current chum operation. He noted that chum redds are well under water and those emerging will hopefully arrive to better ocean conditions than years prior. David Swank, USFWS, asked what emergence monitoring and data are available. Paul stated that there is monitoring at Gray's River and Hamilton Springs, however, there is no mainstem emergence monitoring. Emergence timing data used are from the intensive monitoring program conducted from 1999 to 2006. Erick Van Dyke, OR, asked BPA if the Temperature Unit trajectory is still on track to meet target objectives [*Facilitator's Note: in edits, Erick Van Dyke clarified that the TU trajectory is to reach 825 TU somewhere between the 3rd week of March and the 3rd week in April; with 932 TU reach being met after 3rd week in April*]. Scott Bettin, BPA, stated that the operation is meeting objectives and will continue to be implemented as coordinated at TMT until April 9th, when the emergence protection operation is over.

- **ACTION:** The AA's will continue operating Bonneville with a tailwater minimum of 12.2ft through midnight on April 9, 2016.

Spill Priority List

Doug Baus provided a draft Spill Priority List to TMT members and asked for any recommendations or changes to the order. The Spill Priority List defines the project priority order for lack-of-load spill in order to manage TDG on a system-wide basis. Currently, the winter spill priority is in place; however, on March 23rd the SPL switches to the Springtime spill list (link to list on TMT agenda). Salmon Managers expressed that they were okay with the list as drafted. David Swank asked if the example spill cap number illustrates a typical flow scenario. Scott English, COE-NWD, noted that the example spill cap number is the amount of discharge that would produce TDG levels less than or equal to 110%. Lisa Wright, COE, noted that those caps change based on conditions and are managed on a daily basis. On April 1st, TDG waivers from OR and WA go into effect and allow spill to occur for TDG levels up to 115-120%. Scott English noted that the waiver is in place for OR, but the WA waiver has not been processed. The Corps is hopeful to have Washington's waiver completed in time for spill season.

- **ACTION:** The AA's will implement the Spill Priority List as posted.

Operations Review:

Reservoirs:

Mary Mellema, BOR, reported on Reclamation projects:

- Hungry Horse midnight elevation was 3,516.9ft, with 1.8kcfs outflow.
- Grand Coulee elevation was 1,253.1ft and drumgate maintenance started on March 14th.

Lisa Wright, COE, reported on Corps projects:

- Libby midnight elevation was 2,406.2ft, with 5.6kcfs inflow and 15.1kcfs outflow.

- Albeni Falls midnight elevation was 2,054.7ft, with 27.8kcfs inflow and 26.0kcfs outflow.
- Dworshak midnight elevation was 1,562.2ft, with 12.5kcfs inflow and 7.4kcfs outflow.
- Lower Granite average outflow was 62.4kcfs.
- McNary average outflow was 217.0kcfs.
- Bonneville average outflow was 228.3kcfs

Fish: Paul Wagner, NOAA, reported on fish. For adults, a total of 39 Spring Chinook have passed Bonneville so far this season. This is about average for this time of year and still very early in the season. Steelhead numbers are 2,010, which is somewhat above the 10-year average. As is generally expected, very few winter Steelhead populations originate above Bonneville. Adult steelhead counted at Lower Granite, and the other projects above Bonneville are generally considered summer Steelhead that spent the winter in the system and are now reinitiating their migration upstream, as the ladders are brought back into service.

For juveniles, Bonneville has begun sampling, but the others, including the Lower Snake river projects have not yet. There are traps up river collecting and tagging fish, White Bird on the Salmon River collected higher than expected numbers of juveniles for this time of year. It is possible that with higher flows, fish are migrating earlier this year. At Bonneville, some juvenile passage occurred. Yearling Chinook comprise of most juvenile passage numbers with some sub-yearlings as well. Erick Van Dyke clarified that the trap number is an actual collection count and the index is a relative index. *[Facilitator's Note: In edits, Erick Van Dyke clarified that is important to note is that none of these counts are an estimate of a population size. They are relative in nature and simply provide what is seen (for collection counts) or expected to occur at a state volume of flow to the bypass collection facilities. Both numbers serve as a gauge to what patterns of observations at a specific point in the system but are in no way absolute values or estimates of a populations size.]*

Paul directed TMT members to NOAA's Adult Salmon Forecast page (link on TMT website), which provides a gauge as to if adult returns are expected to be poor, intermediate, or good based on ocean conditions. Coho spend one year in the ocean, so returns in 2016 are expected to be low due to poor ocean conditions in 2015. Also, Spring Chinook numbers for 2016 are expected to be down from last year and even lower in 2017. This information is updated once a year and offers one explanation as to why adult returns may be high or low depending on the ocean conditions in prior years.

Water Quality: Scott English, COE-NWD, noted that forebay gauges that were dormant in the winter are being tested and verified. It is expected that gauges will be operational by the end of the month. Erick Van Dyke asked if there is another method for monitoring TDG levels when stations are turned off during the winter months. Laura Hamilton, COE-NWD, noted that there are some gauges that stay up year round to collect data. Scott stated that the Monitoring Plan of Action (link on TMT website) describes in detail how collection methodology. To review this information, see the Annual TDG and Temperature Report

for 2015, Appendix B.

Power System: Nothing to report.

The next TMT meeting will be a conference call on March 30th at 9:00am.

Columbia River Regional Forum
TECHNICAL MANAGEMENT TEAM OFFICIAL MINUTES

March 16, 2016
Minutes: Pat Vivian

1. Introduction

Representatives of the COE, BPA, NOAA, Oregon, USFWS, Idaho, BOR, Colville Tribe, Montana and others participated in today's TMT meeting chaired by Doug Baus, COE, and facilitated by Emily Plummer, DS Consulting. These minutes are an official record of the conversation, not a verbatim transcript.

2. Review Meeting Minutes – January 20, February 3, February 17, March 2

All of the facilitator's summaries and official minutes for these meetings were approved.

3. Water Supply Forecast

3a. Official March Forecast. Mary Mellema, BOR, and Doug Baus, COE, gave official inflow forecasts for individual basins this month:

- Hungry Horse (March-July) –1832 kaf, 93% of average
(January-July) – 1969 kaf, 94% of average
(April-August) –1801 kaf, 93% of average
(May-September) –1574 kaf, 93% of average

Minimum flows downstream of HGH are set for the calendar year based on the March 1 official forecast. Minimum flows for 2016 are now established as 3500 cfs at Columbia Falls and 900 cfs at the south fork downstream.

- The Dalles (April-August) – 87 maf, 99% of average
- Lower Granite (April-July) – 18 maf, 91% of average
- Libby (April-August) – 6472 kaf, 110% of average
- Dworshak (April-July) – 2025 kaf, 84% of average
- Grand Coulee (April-August) – 56 maf, 99% of average
- Albeni Falls (April-August) – 11 maf, 89% of average

3b and c. Current Water Supply Forecasts at TDA and LWG. Current water supply forecasts at both dams have improved since the official March water supply forecast was released on March 7, Baus reported. The April-August forecast for The Dalles increased to 102% of average at 89 maf, and the April-July Lower Granite forecast similarly increased to 101% of average at 20 maf. Steve Hall, COE, noted that Dworshak will provide the full allowable flood control shift this year (1569 ft elevation).

3c. Snow. Baus showed TMT some slides from the most recent RFC monthly briefing on water supply conditions and encouraged TMT members to participate in these sessions. Seasonal precipitation is higher this year (Columbia River Basin above The Dalles Dam) at 105% of normal than it was as of this date in 2015 when it was 91% of normal. The region continues to see above average temperatures in 2016 throughout the Cascades and the Rockies. Current forecasted runoff this year is about average (98 maf), a vast improvement over 63 maf in 2015.

4. Chum Operation

Chum emergence is going well and juveniles are traveling quickly to the estuary, Paul Wagner, NOAA, reported. Ocean conditions are expected to be better in 2016 than they were in 2015. Dave Swank, USFWS, asked whether chum emergence is being monitored. There are traps where juvenile passage is monitored at Grays River and Hamilton Springs, Wagner said, but monitoring of mainstem emergence was discontinued due to difficulties in counting such small fish accurately. This year, flows are so high that monitoring below BON is not possible because chum redd elevations have been totally submerged. Accumulation of temperature units is on target for full emergence by April 9 when the special operation for chum will end. Until then, the COE will operate BON to a 12.2 ft minimum tailwater (actual elevations are much higher).

5. Spill Priority List

Baus showed TMT the draft spill priority list for 2016 spring spill season, attached to today's agenda. The proposed list defines project priority order for lack of load spill for management of TDG system-wide. The spring list will go into effect on March 23 when winter spill priorities end. On April 1 state water quality waivers go into effect, allowing spill up to 115% TDG in the forebay and 120% TDG in the tailrace. There were no issues regarding spring spill priorities, so the COE will implement the list as proposed.

6. Operations Review

6a. Reservoirs. Mary Mellema, BOR, and Lisa Wright, COE, reported on individual projects. Hungry Horse is at elevation 3518.5 ft, discharging 1.0 kcfs. Grand Coulee is at elevation 1253.1 ft, and drum gate maintenance started March 14.

Libby is at elevation 2406.2 ft with inflows of 5.6 kcfs and releases of 15.1 kcfs. Albeni Falls is at elevation 2054.7 ft with inflows of 27.8 kcfs and releases of 26 kcfs. Dworshak is at elevation 1562.2 ft with inflows of 12.5 kcfs and releases of 7.4 kcfs. Lower Granite outflows are 62.4 kcfs, McNary outflows are 217.0 kcfs, and Bonneville outflows are 228.3 kcfs.

6b. Fish. Adults: BON has passed 39 spring chinook to date, which is typical for this early in the season. Winter steelhead passage at BON is slightly above the 10 year average. Overwintering steelhead at LWG are beginning their migration up river.

Juveniles: Sampling has started at BON and will begin soon on the lower Snake River. Fish counts at the White Bird trap on the Salmon River (mainly yearling and subyearling chinook) are well above any as of this date for the past 10 years.

Wagner showed TMT NOAA's adult salmon forecast, linked to the TMT page, which predicts adult returns according to ocean ecosystem indicators. These forecasts are based on ocean conditions, not previous years' jack returns. The current adult forecast indicates that coho returns will be poor in 2016 because they are 1-year fish, and 2015 ocean conditions were adverse with high temperatures and low copepod diversity. Because chinook are 2-year fish, they might have strong returns in 2016 because 2014 was a better year for ocean conditions.

6c. Water Quality. Forebay gauges are being brought on line after shutting down for winter, Scott English, COE, reported. By April 1, all stations will be operating. Erick Van Dyke, Oregon, asked about monitoring of TDG levels from debris spill. The tailwater monitoring gages are up year around so they can be used to know what the TDG levels are from debris spill. Debris spill lasts for 1-2 hours at the most, English replied.

6d. Power. There was nothing to report today.

7. Next TMT Meeting

TMT will meet on March 30 in a conference call.

<i>Name</i>	<i>Affiliation</i>
Doug Baus	COE
Lisa Wright	COE
Tory Hines	DSC
Tony Norris	BPA
Paul Wagner	NOAA
Scott English	COE
Julie Ammann	COE
Erick Van Dyke	Oregon
Scott Bettin	BPA
Dave Swank	USFWS
Dave Coleman	COE
Michelle Yuen	COE
Laura Hamilton	COE

Phone:

Russ Kiefer	Idaho
Mary Mellema	BOR
Sheri Sears	Colville
Mike Shafley	Snohomish PUD
Steve Hall	COE

Michael Bryant
Laura Burns
Jim Litchfield

CBB
Clearing Up
Montana