COLUMBIA RIVER TECHNICAL MANAGEMENT TEAM

November 20, 2019
DRAFT Facilitator's Summary
Facilitator: Emily Stranz; Notes: 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. 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.nwdwc.usace.army.mil/tmt/agendas/2019/.

Review Meeting Minutes

TMT Members approved the minutes and summaries from the October 23, 30, and November 6 meetings.

NWRFC Ensemble Streamflow Prediction (ESP) Updates

Steve King, NWRFC, provided an update on NWRFC techniques, products and services for WY2020, which is posted on the TMT website. One change of note for future forecasts is the removal of the ESP5 from the NWRFC product suite, as well as the addition of the 15-day Hydrologic Ensemble Forecast Service. It was suggested that Steve, or another NWRFC representative, join TMT calls every other week or so between January and May to answer questions on water supply forecasts. Additionally, Steve reminded the TMT of the National Weather Service webinars; upcoming WY2020 briefings will be held on January 9, February 6, March 5, April 2, May 7, and June TBD.

Chum Operation

Doug Baus, Corps, began by reminding the group that the summary of the 2019 chum operation, coordinated at the October 30 TMT meeting, is posted on the TMT website. Current chum operations seek to maintain a Bonneville tailwater elevation range between 11.3 – 13.0 feet. Tony Norris, BPA, clarified that the threshold numbers noted in each stage of the chum operation stem from research done in the Ives Island area on chum spawning elevations and habitat.

Bonneville Dam project tailwater elevation (Tanner Creek gauge) at 0700 hours on November 20 was 11.5 feet. Yesterday, the tailwater ranged from a minimum of 11.4 feet to a maximum of 11.6 feet, averaging at 11.5 feet.

Steve reported dry conditions for the current month and season, with cold temperatures in October. There was precipitation over the weekend in British Columbia, but warm temperatures make snow accumulation unlikely. Moving forward, it looks like the pattern is changing, with a few dry days early on in the next 10-day period and with precipitation moving in towards the latter part of the 10-day period. Tony noted that the range in forecasted inflow volumes is significant, and although they are lower than normal, Steve suggested flows could be above normal in the spring.

According to today's NWRFC The Dalles Dam Official Water Supply Forecast for April through August (10-day QPF) is 91% of average, while the Experimental Water Supply (15-day QPF) is 92%, and the ESP Reference (0-days QPF) is below 95%. Coming off of a weak El Niño year, the current state is neutral, although some model outcomes show a 20% chance for El Niño developing. Runoff at The Dalles is neutral, ranging from -.5 to .5 (currently at 1.0), showing a trend between climate signal and runoff. The current Oceanic Niño Index (ONI) is about 10% below normal for The Dalles.

Grand Coulee Dam has record level forebay elevations well below the 10% mark, and if dry trends continue, the project might have to make some hard decisions regarding chum operations. Hanford Reach is expected to maintain minimum flows. Joel Fenolio, BOR, noted the project elevation is about 5 feet below normal for this time of year.

Claire McGrath, NOAA, reported chum counts from November 12, with 46 live chum, 2 dead and 8 redds in the Ives/Pierce Island complex. During an 11/18/19 site visit, Scott Bettin, BPA, observed good connectivity into Hamilton Creek and noted that spawning habitat looked good. Charles Morrill, WA, expressed the State's desire to ensure that chum have good access to spawning grounds now, given that there may be a chance that there may be a need to increase flows in the future. Claire said that NOAA also wants to be sure connectivity is good for chum to access the tributaries. She plans to visit the site Monday and will share an update with the TMT.

Additionally, Claire noted more chum are passing over Bonneville than usual, with 231 YTD; NOAA would like to revisit chum operations lessons learned at a future TMT process meeting (targeting for early January).

Operations Review

Reservoirs: Joel reported on Bureau of Reclamation projects:

- **Hungry Horse**: is maintaining the Columbia Falls minimum of 3,480 kcfs and is drafting passing inflows. Inflows over the last 5 days have averaged at 1,400 cfs with releases between 1,800 - 1.900 cfs.

Doug reported on Corps of Engineers projects for November 19:

- **Libby**: midnight elevation was 2,439.9 feet, with average outflows of 4 kcfs;
- **Albeni Falls**: midnight elevation was 2,051.2 feet, with average outflows of 12.8 kcfs;
- **Dworshak**: midnight elevation was 1,519.1 feet, with average outflows of 1.6 kcfs;
- **Lower Granite**: average outflows were 17.5 kcfs;
- **McNary**: average outflows were 120.6 kcfs; and,
- **Bonneville**: average outflows were 126.6 kcfs.

Water Quality: There was nothing to report on water quality.

Fish: Claire reported on adult fish passage. At Bonneville Dam, fall Chinook adults are at 52% of the 10-year average. Fall Chinook jacks are also at 52% of the 10-year average, Coho are at 66% of the 10-year average, steelhead are at 26%, and wild steelhead are at 38%.

At Lower Granite Dam, fall Chinook are passing between 9-60 per day, with a couple of fall Chinook jacks, and 30-60 steelhead per day.

Claire noted that the trigger for the Snake River zero generation criteria does not come into play until December. However, due to the run size, the triggers for 2019 are less than 20 steelhead and 10 wild steelhead as a 3-day average.

→ **ACTION**: NOAA will notify the TMT when the zero generation trigger is hit between December 1 – December 31.

→ **ACTION**: In response to a lack of fish count data for Priest Rapids Dam, Tom Lorz, CRITFC, will investigate as to why and report back to the TMT.

Power System: Tony reported fairly mild temperatures of late with waves of wind generation due to weather fronts. BPA continues to manage for chum operations and the Grand Coulee Dam forebay.

The TMT discussed whether there is a need for a TMT meeting on December 4th. They decided to leave the meeting on the calendar and asked FPAC Chair, Dave Swank, to notify TMT Chair, Doug Baus, if the meeting can in fact be canceled.

The next scheduled TMT meeting is a conference call on December 4, 2019, at 9:00 AM

This summary is respectfully submitted by the DS Consulting Facilitation Team. Suggested edits are welcome and can be sent to Colby at colby@dsconsult.co.

Columbia River Regional Forum
Technical Management Team OFFICIAL MINUTES
Wednesday, November 20, 2019
Minutes: Melissa Haskin, FLUX Resources

1. Introduction

Today's TMT meeting was chaired by Doug Baus, Corps, and facilitated by Emily Stranz, DS Consulting. See the end of these minutes for a list of today's attendees. Copies of documents discussed and meeting minutes are available on the TMT website.

2. Minutes

Minutes and summaries from 10/23, 10/30, and 11/6 were approved with no additional changes.

3. Northwest River Forecast Center (NWRFC) - Ensemble Streamflow Prediction (ESP) Updates - Steve King, NWRFC

Steve King, NWRFC, updated TMT on its forecasting techniques, which changed this year. The NWRFC switched to using ensemble techniques over deterministic techniques. Additionally, the freezing level on web products will be replaced with the "snow level." For forecasting, the agency will be switching to a national blended model, which picks the best possible forecast out of a variety of outcomes based on past forecast accuracy. It is a blend of models available to the National Weather Service.

The ESP models have been adjusted to include a smaller set of past hydrologic and meteorological data. In the past, data from 1948 onward was included. Now, the models include from 1981 onward. The hope is that this will better represent the current state of the climate and provide a better forecast for the upcoming year. Additionally, the agency hopes this will provide a better characterization of spring temperature. The new dataset assumes past and future distributions are equal. For example, the model would give equal chances that December of this year would be like 2019 as it would 1981. Tony Norris, BPA, asked if in the future the range of years will be updated. For instance, if in 2031, if the low point would be moved to 1991. Steve said that the agency has not discussed that.

Another tool the agency has changed is the ESP products. The ESP5 will be retired; ESP10 (NWS Official) and ESP0 will still be available. A new ESP product based on the NWRFC's new Hydrologic Ensemble Forecast System will be added to replace the ESP5. This method takes advantage of a 15-day weather forecast ensemble (the GEFS, with the added benefit of post-processing using the Meteorological Ensemble Forecast Processor, MEFP). This method will be labeled ESPM (for MEFP). This will hopefully improve short-term forecasts for the first 15 days to be used with ensembles. The model is not perfect yet and the NWRFC is testing it out now.

Charles Morrill, WA, asked if the NWRFC forecast is manually inputting data around the clock or if it is done by computers. Steve said the staff works 6 a.m. to 6 p.m. during the winter with extended hours during peak season. There are about 14 days a year when the staff works 24 hours per day.

4. Chum Operation - Doug Baus, Corps-NWD; Steve King, NWRFC; Claire McGrath, NOAA Fisheries; Joel Fenolio, BOR, and; Tony Norris, BPA

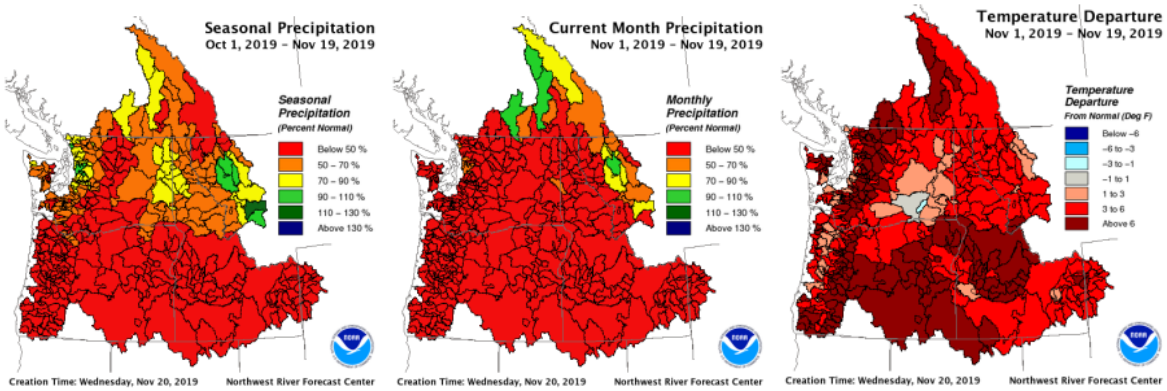
The chum operation has not changed since it was coordinated on October 30 and implemented starting November 4. The water supply is still low and the Corps has been operating to manage project outflow.

As the operation moves through the steps to pass increasing flow, the tailwater during certain hours may go as high as 18.5 ft. This threshold was a product of research completed on Ives Island regarding spawning chum as it relates to flow through the area. At 16.5 ft., chum are still able to hold and spawn. When the tailwater rises during the night, the chum move away but then return during the day when the tailwater lowers.

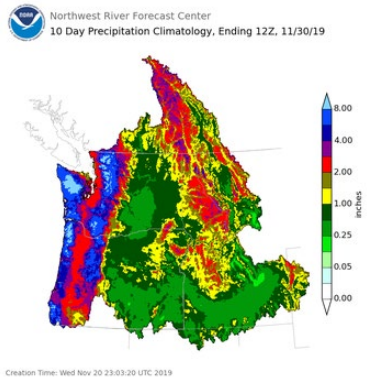
At Bonneville Dam, the tailwater elevation at 0700 today was 11.5 ft at the Tanner Creek gauge. The tailwater elevation ranged from 11.4-11.6 ft.

Steve King shared some RFC products that are used by salmon managers and action agencies during chum operations.

The current month summary statistics (below) show precipitation below 50% of normal and warm temperatures. Last month, there was a storm that brought some precipitation to Western WA. October temperatures were below average. Recently, there was a storm that brought precipitation to British Columbia, which may help the region. However, snow accumulation is not at a good starting point. November has been very dry and very warm.



The 10-day forecast shows some precipitation around Thanksgiving:



The water supply forecast for April-September is showing below normal conditions. At The Dalles, Steve showed that the forecast started with a median slightly above normal but then dropped down. There is a significant range in possible volumes and some outcomes show flows above normal in the spring. He showed that the ESP 0 is valuable for evaluating how the official has changed (with respect to 10-day forcing).

King shared that we're coming off a weak El Niño last year. This year the forecast is for ENSO neutral and will likely stay that way, however, there is about a 25% chance of an El Niño developing.

Joel Fenolio, Reclamation, updated TMT on conditions at Grand Coulee, which are at almost record-breaking lows in regards to the forebay elevation. Right now, the reservoir is about 5 feet below normal. If conditions continue, there may need to be some tough conversations about priorities, said Fenolio.

Charles Morrill, WA, shared that FPAC is discussing the possibility of increasing the chum tailwater minimum to 11.5 ft. to allow access to the tributaries.

On November 12, the survey counted 46 live chum, 2 dead chum, and 8 redds. Tony Norris, BPA, reported that there has not been a loss in connectivity this year.

Year-to-date counts of chum at Bonneville Dam are above average at 231.

At the end of the season, the salmon managers would like to revisit the chum operation and have a discussion about the history of the operation and its intention. This will likely take place at a January process meeting.

One question raised was why Hamilton Creek counts are not coming in at same pace as Ives. Morrill will look into it.

5. Operations Review

5a. Reservoirs – Joel Fenolio, Reclamation, and Doug Baus, Corps

Hungry Horse – Midnight elevation 3,480 ft. Outflows 1,800-1,900 cfs, inflows 1,400 cfs.
Libby – Midnight elevation 2,439.1 ft. Outflows 4 kcfs (the bull trout minimum).
Albeni Falls – Midnight elevation 2,051.2 ft., yesterday's average outflows were 12.8 kcfs.
Dworshak – Midnight elevation 1,519.1 ft., yesterday's average outflows were 1.6 kcfs.
Lower Granite – Yesterday's average outflows were 17.5 kcfs.
McNary – Yesterday's average outflows were 120.6 kcfs.
Bonneville – Yesterday's average outflows were 126.6 kcfs.

5b. Water Quality – Dan Turner, Corps

N/A

5c. Fish – Claire McGrath, NOAA

Adults:

Species	Daily Count	YTD	% of 10-Yr Average	Notes
Bonneville Adults				
Chinook	15-72/day	275,000	52%	150% of last year
Chinook Jacks	-	-	52%	134% of last year
Steelhead	-		26%	
Steelhead Unclipped	-		37%	
Coho	312 yesterday	71,000	66%	184% of last year
Lower Granite Adults				
Chinook	9-60/day			
Steelhead	30-60/day			

*This table is a combination of data available through FPC and DART as discussed by Claire McGrath, NOAA.

Sheri Sears, Colville, wondered why data are not coming in at Priest Rapids. It is counted by the counties not the Corps. It could be blip in data, but Tom Lorz will investigate.

The trigger for the Snake River zero generation criteria does not take effect until December. Claire will notify TMT if the zero generation trigger is hit this year.

5d. Power – Tony Norris, BPA

Temperatures have been mild with periods of wind generation from fronts passing through.

6. Next TMT

The next meeting is a conference call on December 4, 2019.

Today's Attendees:

Agency	TMT Representative
Army Corps of Engineers	Doug Baus (Chair), Julie Ammann
Bonneville Power Administration	Tony Norris
Bureau of Reclamation	Joel Fenolio
NOAA Fisheries	Claire McGrath, Paul Wagner
US Fish & Wildlife Service	Dave Swank
Washington	Charles Morrill
Oregon	Erick Van Dyke
Idaho	N/A
Montana	N/A
Nez Perce Tribe	Jay Hesse
Umatilla Tribe/CRITFC	Tom Lorz
Colville Tribe	Sheri Sears
Warm Springs Tribe	Jen Graham
Kootenai Tribe	N/A
Spokane Tribe	N/A

Other Attendees (non-TMT members):
Army Corps of Engineers – Jon Roberts, Aaron Marshall
DS Consulting – Emily Stranz (Facilitator), Colby Mills
FLUX Resources – Melissa Haskin (Note taker)
Columbia Basin Bulletin – Mike O'Bryant
NWRFC – Steve King
Yakama Nation Fisheries – Tom Iverson
PPC – Shane Scott