

## **COLUMBIA RIVER TECHNICAL MANAGEMENT TEAM**

March 28, 2018

Facilitator's Summary

Facilitator: Donna Silverberg; Notes: Nancy Pionk, 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/2018/>

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### **Dworshak Operations**

Steve Hall, Corps, reported on current and proposed operations at Dworshak. He presented several charts that are available on the TMT web site. Current reservoir elevation is 1457.5 ft. with 7-8 kcfs inflows and 8.4 kcfs discharging. TDG levels are 113% in the river and 102% in the hatchery. Steve noted that the inflows were lower than forecasted and discharge was decreased on March 23, as requested by the Salmon Managers to reduce TDG levels.

The current RFC water supply forecast remains about the same, ranging from 2789 – 2863 KAF, depending on the number of QPF days that's included (precipitation forecast). He expected that the Corps' overall water supply forecast will remain at 3.1 maf, with some fluctuation. Current inflow is expected to remain steady through the end of March, and then trend toward higher in early April, as the 10-day forecast shows a wetter trend with nine out of ten days projected to go below freezing at night.

As for climatology, the 6-10 day forecast is colder than normal with above average probability of precipitation. The 8-14 day forecast is neutral, temperature-wise, with an above normal probability of precipitation. For the 30-day forecast, colder than normal temperatures are expected with a slightly above normal chance for precipitation. The 90-day forecast is expected to be below normal with equal chances on temperature and precipitation.

In reviewing the Dworshak 2018 Snowpack Comparison Graph, Steve noted that the 2018 snowpack is still increasing, but has trailed off the 2011 trend line; 2018 is above normal, and above both 2016 and 2017. He noted that snowmelt modeling tends to produce more runoff than observed, as it is difficult for the model to take into account thawing during the day and freezing at night.

Steve presented a series of slides showing models of proposed operations using water years 2008, 2011, 2012, 2014, and 2017. He noted that they cannot plot the Flood Control Rule Curve (FCRC) until after April 1, but it would be ready by the next TMT meeting.

Salmon managers requested that the Corps do what it can to keep Lower Granite flows as close to 90 kcfs to support juvenile and adult fish passage. The Corps is willing to work

with Salmon managers to the extent possible and will communicate changes in discharge flows by email and phone to the hatcheries as they occur.

Dave Swank, USFWS, reported that the hatchery releases of Spring Chinook were being delayed until April 2 and 3 (except for the Clearwater Fish Hatchery). The release of on-site Steelhead is planned for April 2. The Clearwater Fish Hatchery will release Spring Chinook into the North Fork on March 29 and 30. The Salmon Managers requested that the Corps feather in any increase in discharge to the extent possible. Steve noted that discharge flows will be ramped up according to operational requirements (1' per hour), and they will consider this request, depending on inflows and the water supply forecast.

### **Update on LWG RSW Spill and JBS Operations**

Lisa Wright, Corps, noted that the RSW was put into operation on March 25, as requested in SOR 2018-1 from the salmon managers and discussed at TMT on March 21.

Currently, total outflow for Lower Granite is ranging from 55 to 70 kcfs with RSW spilling at 6.8 kcfs. She noted that they are operating the forebay no lower than 734.5 ft (a foot and a half up from normal minimum) due to sediment issues in the navigation channel. The forebay will be operated in the bottom 1-foot of the operating range starting April 3. Lisa also reported that the smolt Passage Index Report for Little Goose Dam showed an index of 74 yearling Chinook and 30 Steelhead passing on 3/26/18.

Ann Setter, Corps, reviewed an email dated 3/26/18 from Eric Hockersmith, Corps, to FPOM, relating to the Lower Granite Juvenile Fish Bypass upgrade status. The emergency bypass wire rope hoist approach failed to meet test requirements and the system is being converted to use the chain fall hoist system. The Corps is doing dry-testing today and then expects to do wet testing tomorrow morning. Once testing is done, they expect to water up the JBS and begin installing the ESBS screens, which could happen as early as March 29, if all goes well. If the screens are not installed by March 29, then the earliest date they could continue installation would be Monday, April 2.

In response to the delayed JBS operation, the salmon managers of FPAC submitted SOR 2018-2 to request spilling flow in excess of what can be passed through screened units, starting as soon as reasonably possible. The intent of the SOR is to provide an alternate route for fish passage when there is not a functional JBS in operation. Lisa Wright, Corps, responded that they understand the intent and need for this request, and will provide an update tomorrow on the status of JBS operations and implementation of the SOR. Since the SOR was received late yesterday, the Action Agencies need some time to coordinate internally and with the project to implement the operation.

**ACTION:** The Corps will provide an email update to TMT on March 30. If the units are not screened, the Corps will operate to SOR 2018-2, within the limitations of minimum generation requirements and the existing gas standard of 110% (which is in effect until April 1, 2018).

### **Updated Power System Emergency Plan**

Trevor Conder, NOAA, reported that the Salmon Managers are reviewing the Power System Emergency Plan. They are concerned there is not sufficient specificity in the

plan and so will be providing input on the Salmon Managers' priorities. They also are concerned about the language change in the plan from "emergency" to "contingency" and questioned whether a power emergency must be declared in order to go to the actions listed.

Scott Bettin, BPA, stated that the language change was meant to address the distinction between a WECC emergency and other power system reliability problems that aren't technically a WECC emergency. The list is meant to define steps that might need to happen quickly, depending on the situation, and may occur more frequently because of this year's spill plans. BPA and the Corps expect a low likelihood of an event occurring to trigger the list, but want to be prepared and transparent. The action agencies would follow the current TMT process, if any action were necessary: 1) Email TMT members regarding the proposed action as soon as possible; 2) Coordinate with TMT members at regular TMT meetings or coordinate an unscheduled TMT meeting, to the extent possible; and 3) Record in monthly FOP implementation reports.

**Next steps:**

- 1) Salmon Managers will provide comments on the Plan to the TMT Chair before April 4, 2018 for discussion on the 4<sup>th</sup>.
- 2) The Corps and BPA will clarify how the process for notification and coordination of contingency actions (e.g. add a section for how this has been coordinated in the past and how they expect to do so this year).

**Agenda Items for April 4, 2018 TMT Meeting:**

1. Dworshak Operations and hatchery release updates
2. Update on LWG RSW Spill and JBS Operations
3. Updated Power System Emergency Plan (including coordination plans)
4. Lower Snake River Dams - Transport Operation and Timing
5. Methodologies to Monitor Adult Passage in the Snake River
6. PIT Tag Passage at Little Goose to Date
7. 2018 Spring Spill
8. Operations Review

**The next regular TMT meeting will be a Face-to-Face Meeting on April 4, 2018, at 9:00 am.**

This summary was prepared by the impartial facilitation team of DS Consulting. Please send questions, comments or revisions to [nancy@dsconsult.co](mailto:nancy@dsconsult.co)

**Columbia River Regional Forum**  
**TECHNICAL MANAGEMENT TEAM OFFICIAL MINUTES**

**March 28, 2018**  
Minutes: Pat Vivian

**1. Introduction**

Representatives of Idaho, Washington, Colville Tribe, BOR, Montana, NOAA, BPA, the COE, USFWS, CRITFC, Oregon, NPCC and others participated in today's TMT call chaired by Lisa Wright, COE, and facilitated by Donna Silverberg, DS Consulting.

**2. Dworshak Operations**

**2a. Hourly Data.** Steve Hall, COE Walla Walla, reported. Dworshak reservoir elevation is 1457.5 ft. Inflows are 7-8 kcfs and outflows are 8.4 kcfs.

**2b. NWRFC Water Supply Forecast North Fork Clearwater – Dworshak Dam.** The RFC water supply forecast for April–July is about the same as it was last week, currently between 2.789-2.863 maf, depending on precipitation. On March 26 the COE early bird forecast was updated to 3.29 maf. With no snow accumulation since then, but more expected through the rest of March, the COE official April forecast will probably remain around 3.1 maf.

**2c. Dworshak Hourly Total Dissolved Gas Data (tailrace and hatchery).** Inflows on March 26 were lower than previously forecasted, so at noon discharges were dropped to 8.5 kcfs as NOAA and CRITFC requested last week. As a result, TDG levels dropped to 113.5% saturation in the river and 102% in the hatchery. Tom Lorz, CRITFC, said the hatcheries were grateful for the reduction, but were unprepared for the drop in Dworshak discharges, so advance notice would be appreciated. Hall said COE staff will make a point of calling hatchery managers in future if a similar situation arises.

**2d. NWRFC Dworshak Dam Inflow Forecast.** Inflows are predicted to stay about the same through the end of March, then climb rapidly based on a warming trend and continued wet forecast over the next 10 days. With the exception of one day around April 5 or 6, temperatures are expected to dip below freezing over the next 10 days. According to the RFC model there's a general trend toward higher inflows in April.

**2e. NWRFC Climate Forecast.** Over the next 6-10 days, the River Forecast Center is predicting colder than normal temperatures and above average probability of precipitation due to a storm moving through the Clearwater Basin. The 8-14 day forecast shows neutral conditions

temperature-wise but higher than normal probability of precipitation. The one-month forecast calls for a return to colder than normal temperatures and an equal chance of above or below normal precipitation. The 90 day forecast calls for below normal temps and equal chances of above or below normal precipitation. In general, the next 10 days are expected to be colder and wetter than normal, with conditions moving toward average after that.

**2f. Snowpack Comparison and Proposed Operations.** Based on data from eight SNOTEL sites strategically located throughout the Clearwater Basin, snowpack is still substantially above normal and increasing, but not to the extent it did in 2011. Snowpack is also greater than in 2016 and 2017.

Hall presented five scenarios based on analog years 2008, 2011, 2012, 2014, and 2017. A critical factor in how Dworshak operates during the second half of April will be the intersection of the flood control curve with the refill curve, or 95% probability of refill. It's too early now to estimate when that will happen, but next week the projected refill curve, which is based on the official April water supply forecast, will be shown on the five scenarios.

- Runoff was late in 2008. If inflows in 2018 follow the 2008 hydrograph – which would contradict the River Forecast Center's predictions – discharges will remain 8.5 kcfs through the fish release on April 2, as previously coordinated. Then discharges would increase to 11-12 kcfs to reach the April 15 flood control elevation. After April 15, Dworshak would pass inflows until the refill curve is intersected or until May 1.
- If inflows follow the 2011 hydrograph, Dworshak would continue to discharge 8.5 kcfs through April 2, then would have to go to 18 kcfs through April 15 in order to reach the flood control elevation. After April 15, the project would discharge 10 kcfs or less until the refill curve is intersected or until May 1.
- Inflows in April 2012 were greater than they are now. Under this scenario, Dworshak would continue to discharge 8.5 kcfs through April 2, then discharges would increase to 17-18 kcfs to reach the April 15 flood control elevation. For the last half of April, discharges would be 25 kcfs without being able to hold the flood control elevation. The project would probably intersect the refill curve in the third week of April.
- If inflows follow the 2014 hydrograph, Dworshak would need to discharge 18 kcfs from April 3-15 in order to reach the April 15 flood control elevation. For the rest of April, discharges would average 12 kcfs.
- In response to a request at the last TMT meeting, Hall added 2017 modeling. 2017 was a 2.9 maf year with considerably lower inflow

volume than the current forecast. This scenario shows 20 kcfs discharges for the first half of April, followed by 15 kcfs for the second half of April to meet flood control.

Today there was a significant increase in the RFC inflow forecast to 20 kcfs by April 7-8, Hall reported. This is typical at this time of year when temperatures change dramatically. If the forecast materializes, it will force an increase in Dworshak discharges to reach the April 15 flood control elevation, and it would probably result in intersecting the refill curve earlier. While this would be hard on fish in the near term, it would allow an earlier transition to the refill operation with its moderate discharges.

Tom Lorz, on behalf of the Salmon Managers, requested that the Action Agencies feather in Dworshak discharges at 10 kcfs to help maintain 90 kcfs flows at Lower Granite while minimizing TDG levels in the river. Past experience has shown that 90 kcfs at the lower Snake projects is optimal for both juvenile and adult passage. Hall said the Action Agencies will do what they can, but flood control operations are largely driven by runoff and the current situation is volatile.

Charles Morrill, Washington, asked about the methodology of the near term inflow forecast. The RFC's 10 day forecast is based on a deterministic model of precipitation and temperatures, Hall replied. This is a challenging time of year for forecasting inflows because deterministic modeling doesn't accurately reflect how snowpack melts during the day and refreezes at night. As a result, the model tends to produce more runoff than observed.

Dave Swank, USFWS, gave an update on Dworshak Hatchery operations. The early fish releases have been rescheduled in response to the delay in screen installation and JBS operation at Lower Granite. Spring Chinook will be pumped directly into the mainstem Clearwater on April 2-3. On April 3 the COE may have to increase outflows dramatically, but TDG levels are diluted at the confluence where fish will be released. The A-bank Chinook release will benefit from oxygenation, so they will be safe in the hatchery if not released until April 3. The onsite system 2 and 3 steelhead release is still planned for April 2.

As for the Clearwater hatchery, IDFG didn't see a need to change the spring Chinook release scheduled for March 29-30, Russ Kiefer, Idaho, reported. They will go directly into the mainstem Clearwater which has lower spill and TDG levels than the North Fork.

Morrill asked whether it would be possible to ramp up DWR discharges gradually on April 3 to give fish more time to move; Swank said that would be nice but not necessary. It largely depends on inflows and the water supply forecast, Hall said. Also, there's a ramp rate limit of 1 ft of increased elevation

per hour. The increase could be feathered in over a few hours. If flood control and conditions allow, the Action Agencies will delay the full increase to April 4.

### **3. Update on Lower Granite RSW Spill and JBS Operations**

**3a. SOR 2018-1.** Lisa Wright reported. This SOR was implemented on March 25 when the removable spillway weir opened at midnight, per the Salmon Managers' request to provide an alternative passage route to compensate for delayed installation of screens and opening of the Lower Granite juvenile bypass.

**3b. Hourly Project Data.** Lower Granite is spilling 6.8 kcfs through the RSW, with total outflows of 55-70 kcfs.

Trevor Conder, NOAA, asked whether Lower Granite is operating at MOP+2. No, MOP operations don't start until April 3 so the project is operating in the normal range, Wright replied. The minimum elevation is currently 1.5 ft above normal (734.5 ft instead of 733 ft) to account for sedimentation based on current inflow of 55-80 kcfs.

Conder asked why the RSW is only spilling 6.8 kcfs. Spill through the RSW is calculated in the 1-ft MOP range at a semi-fixed spill rate, Wright replied, but it is probably spilling slightly more due to the higher forebay. Hall agreed the data being reported are probably a low estimate. The RSW is at a fixed elevation and can't move, Scott Bettin, BPA, noted.

**3c. Smolt Passage Data.** Index counts indicate that 74 yearling Chinook and 30 steelhead passed Little Goose on March 26.

**3d. Update 3/26/18 FPOM Notification Email.** On March 26, the hoist that opens the emergency bypass hatch at the Lower Granite JBS failed a safety test, Ann Setter, COE Walla Walla, reported. A backup system has been installed and is in the process of being tested. The outcome of the test will determine when the JBS can be watered-up and screens can be deployed.

This means the JBS could open on March 29, or not until April 2 due to lack of staff on Friday through Sunday. Erick Van Dyke, Oregon, asked about unit priority; Setter said the order is the FPP priority of 1, 3, 4 through 6 any order, then unit deployed 2 last because it has a fixed blade.

**3e. SOR 2018-2.** On March 27, the Salmon Managers submitted this SOR to the Action Agencies asking for spill in excess of the screened units at Lower Granite Dam to provide an alternative route for hatchery and wild fish prior to the April 3 start of spill on the Snake.

The Action Agencies have not yet had time to respond and will provide an update via email tomorrow, March 29, informing TMT members of progress on the screens and JBS at Lower Granite, Wright reported. If no screens are operable tomorrow, the SOR will be implemented. Minimum generation restrictions and a TDG limit of 110% are in effect until April 1.

#### **4. Updated Power System Emergency Plan**

Trevor Conder, NOAA, reported. FPAC has reviewed the general list of actions BPA provided last week and has begun prioritizing the actions in terms of fish impacts. It's difficult to determine which projects can take action in response to a problem. At this point, the Salmon Managers are not all in agreement, and some are waiting for feedback from upper management.

Conder asked BPA to clarify whether a power emergency declaration would be needed in order to take these actions.

Scott Bettin said a WECC power emergency is not declared until the system actually starts shedding load. Actions taken to prevent that from happening are called contingencies by dispatchers. This has long been the case, and BPA plans to change the word "emergency" to "contingency" in the next Fish Operations Plan to reflect the disparity.

Conder expressed concern that the frequency of such events might increase as a result of the word change. There will be no change in how these actions are treated at TMT, Bettin said. There would be notification beforehand if possible, followed by TMT discussion and inclusion in the monthly court report, as is the case now. In the electrical world, change might need to happen too quickly for pre-coordination, which is the reason for having a prioritized list in place. With increased spill and decreased generation this spring, it's best to be prepared, although the frequency of these events is not expected to increase.

A lack of certainty on how often this type of action might occur under gas cap spill calls for detailed consideration of how to prioritize the effects these actions might have on fish, Conder commented. It needs to be coordinated with policy experts. Lorz characterized the name change as giving one's car keys away and said FPAC will revise the contingency actions list to reflect Salmon Manager priorities.

Bettin said the list needs to be in place by the April 4 TMT meeting the day after spill to the gas cap starts. The list will become part of the Water Management Plan and will not be used to accommodate power marketing, only to keep the lights on. Comments should be sent to Doug Baus and Lisa Wright and will be posted to the TMT page for the sake of transparency. Bettin will prepare a written description of how these contingencies will be coordinated and present it to TMT next week.

## **5. Next TMT Meeting**

TMT will meet next in person on April 4. The agenda will include Dworshak operations, a Lower Granite JBS update, the start date for transportation on the Snake, methodologies for tracking adult passage, PIT tag passage at Little Goose, and the start of spring spill to the gas cap.

<b>Name</b>	<b>Affiliation</b>
Russ Kiefer	Idaho
Charles Morrill	Washington
Sheri Sears	Colville
Joel Fenolio	BOR
Jim Litchfield	Montana
Trevor Conder	NOAA
Scott Bettin	BPA
Lisa Wright	COE
Dave Swank	USFWS
Tom Lorz	CRITFC
Erick Van Dyke	Oregon
Nancy Pionk	DS Consulting
Ann Setter	COE Walla Walla
Michelle Yuen	COE
Eric Chow	COE
Steve Hall	COE Walla Walla
Alfredo Rodriguez	COE Walla Walla
Wayne Jousma	COE Walla Walla
John Hietstuman	COE Walla Walla
Shane Scott	PPC
Michael O'Bryant	CBB
Leslie Bach	NPCC