COLUMBIA RIVER TECHNICAL MANAGEMENT TEAM
March 17, 2017
Facilitator's Summary
Facilitator: Charles Wiggins; 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/2017/

Dworshak Update

Current Operations

Steve Hall, Corps, provided an update on Dworshak operations. Currently the reservoir elevation is 1515.6 ft. and filling. Outflow is 12.5 kcfs, with 4.8 kcfs through the powerhouse and the balance through the RO gates. Discharge was reduced from 22.5 kcfs to 12.5 kcfs on March 16th to reduce flood impacts at Ahsahka and Spaulding (downstream on the Clearwater River). Inflow is 40 kcfs, and has been rising rapidly. On March 16th, inflow was 40 kcfs. The forecast still calls for peak inflow at 70 kcfs late Saturday or early Sunday.

The weather forecast calls for ½ - 1" of rain today and 1-2" tomorrow, a clear day on Monday, and more rain early next week through the next ten days. Below freezing overnight temperatures in the basin should dampen snowmelt over the next ten days.

In river TDG levels currently between 119.8 and 126 percent, and were 119.1 percent this morning. TDG levels at the hatchery are currently 102.6 percent, down from a high of over 105 percent.

The Corps announced that discharge at Dworshak is now being reduced. A Flood Watch was posted for Nez Perce and Clearwater counties because of potential flooding at Ahsahka and Spalding. This requires that DWR outflow is further reduced to balance out high flows in the mainstem Clearwater to help limit damaging river levels. DWR discharge will be reduced to 8 kcfs from Saturday evening through Monday to shave the peak off expected Sunday inflows. The hatchery fish releases will be coordinated to take place during this reduction as well. On Monday, the project will ramp up by 2 kcfs per hour to 25 kcfs, starting at noon, and will hold this rate for the foreseeable future because the reservoir is currently well above the flood control elevation target.

→ **ACTION:** The Corps will drop down to 8kcfs over the weekend and the hatcheries will release their spring Chinook. On Monday at noon, discharge will increase by 2kcfs/hour up to 25kcfs.

Long Term Scenarios

Steve also presented six scenarios of possible operations through mid-June; all are based on STP inflow traces. Scenario 1 models operations based upon the 4 maf 1997 water supply year. The current forecast is for 2.9 maf, with the early bird prediction more than 3.0 maf.

Scenarios 2, 4 and 6 have been superseded by the current flood control operations.

Scenario 3 models operations based upon the 3.3 maf 2013 water year, which had early inflows. This shows a similar pattern until April 15th, when discharge will drop to 8 kcfs for a brief period before settling at 4.1 kcfs through the end of the period.

Scenario 5 models operations based upon the 3.0 maf 1996 water year, which has both early and late inflow peaks. It shows a similar pattern through April 15th, with a step down to 8 kcfs for a short time before settling at 4.9 kcfs through the end of the period.

Discussion

Russ Kiefer and Gary Byrne, ID, and Jay Hesse, Nez Perce, asked whether it was possible to do a slower ramp up rate if forecasted conditions change? Russ understood the need for flood control and noted that the hatchery could adjust the planned Chinook smolt release for Sunday. **However, they would prefer if the ramp up rate were reduced.** The hatchery had requested a two-day reduction to 8 kcfs. It would be better for the releases to have two days to get the fish into a more optimal river environment.

TDG levels are currently 119% at the bottom of the dam, 104% at the Peck gauge, and 102-103% at Lewiston. Because the volume of the Clearwater mainstem is now 10 times that of Dworshak discharge, released fish would not be exposed to high TDG levels for too long. Jay noted that anything greater that 21.5 kcfs creates issues for fish health, and increasing to 25 kcfs will create significant health issues.

Howard Shaller, USFWS, encouraged the group to consider every possibility, noting that there are 2.4 million steelhead still on station that are very important and critical to ESA agreements. They are not yet ready to be released from the hatchery. With the operations proposed, these fish will be exposed to severe conditions. He asked the Corps to consider a ramp up rate of 4.5 kcfs per day, which would conclude the ramp up operation on Thursday.

Erick Van Dyke, OR, asked about flood control operations. It was noted that Spalding flood stage is at 17 feet. The houses at risk for flooding are immediately downstream of the Highway 95 Bridge. Yesterday the reduction in discharge from Dworshak held peak to 17 feet and the forecasted peak before the flood control operation was 18 Feet. Now the forecast is for a peak of 17.5 feet, which is why there is a 5 kcfs reduction planned: 5 kcfs equates to ½ foot in reduction in stage at Spalding on the Clearwater River.

Steve Hall and Julie Ammann, Corps, stated that they did not have flexibility to slow the rate of increase. With forecasted inflows of 70 kcfs the reservoir would be 40 feet above end of March FRM requirements, so they absolutely need to manage for flood risks. The reservoir filled 100 kaf in the last two days, and expect 150 kaf more this weekend. There is a possibility that they would need to decrease discharge more to avoid flooding homes, if the forecast comes in heavier. They have provided several unexpected days at 12.5 kcfs, and will provide another one and a half days at 8 kcfs for local and system FRM: this is the best that they can do for fish at this point, given the flood risk management needs.

Julie also provided a system-wide perspective. The Corps is operating for flood stage at Vancouver and there is not a lot of space to put water in the system. There are limitations at John Day and Grand Coulee due to maintenance work. Some upstream projects are also increasing outflows to prepare for spring runoff. Dworshak is above the end of month target. The AAs explored whether they could delay the Grand Coulee drumgate maintenance and determined it would not provide much benefit as a short-term fix. Impacting drumgate maintenance would require a 10-day notice to remove equipment, result in higher elevations at Coulee and they will have a deeper draft requirement in April, with increasing water supply forecasts. Being higher will make drafting in April more challenging. Julie stated that with the uncertainty from the flood control perspective, they needed to be aggressive on moving water and had no flexibility to slow down moving water by either lower volume or lower ramp rate.

Given the situation, the Corps agreed to an emergency TMT call on Monday, March 20th, 2017, to check in on the conditions. Jay Hesse said the hatchery is now exploring de-gassing scenarios and fish transport by truck. The hatcheries will update TMT on Monday. Steve Hall committed to notifying the hatcheries over the weekend if conditions change.

→ **ACTION: An unscheduled TMT phone meeting is set for 10:00 AM on Monday March 20, 2017 to check in on conditions.**

Columbia River Regional Forum
TECHNICAL MANAGEMENT TEAM OFFICIAL MINUTES

March 17, 2017
Minutes: Pat Vivian

1. Introduction

Representatives of Washington, USFWS, BPA, Idaho, Warm Springs Tribe, Oregon, BOR, COE, NOAA, NPCC, Umatilla Tribe and others participated in today's TMT call. Doug Baus, COE, served as chair, with Charles Wiggins, DS Consulting, facilitating the conversation.

2. Dworshak Update

Steve Hall, COE, gave TMT an update and led discussion of Dworshak operations in light of high inflows and hatchery concerns about the impacts of total dissolved gas on fish.

2a. Current Operations Data. Dworshak pool is at 1515.6 ft and filling. Inflows peaked yesterday at 50 kcfs and are currently 40 kcfs, with another peak of 70 kcfs predicted by the RFC in the next few days. Current discharges are 12.5 kcfs, of which 4.8 kcfs is passing through the powerhouse and the rest as spill through the RO gates.

2b. TDG Report. The latest TDG reading in the north fork Clearwater River is 119.8% saturation below Dworshak Dam.

2c. RFC Water Supply Forecast. The 10 day RFC water supply forecast for April-July is 106% of normal (2.255 maf); the 5 day forecast is 107% of normal (2.59 maf).

2d. RFC Inflow Forecast. Inflows are predicted to peak at 70 kcfs on March 18-19.

2e. NWRFC 10 Day Weather Forecast. Between .05 and 1.5 inches of precipitation is expected over the next 10 days, with alternating dry and wet spells. Starting March 18, temperatures in the Clearwater Basin are expected to be below freezing and remain cold for the next 10 days. This should help contain the effects of precipitation on snowmelt.

2f. Dworshak National Fish Hatchery Collection Channel (DHCI) Total Dissolved Gas. Current levels of TDG in the Dworshak National Hatchery are 102.6% saturation, down from over 105%, Howard Schaller, USFWS, reported.

2g. Long Term Scenarios. Recently Dworshak outflows were reduced from 22.5 kcfs to 12.5 kcfs and will drop further to 8-7.5 kcfs over the weekend, Hall reported. While this coincides with the hatchery request for two days of 8 kcfs spill for the spring chinook release, it is a local flood control operation.

Dworshak discharges were decreased at the request of emergency managers from Nez Perce and Clearwater counties in order to protect homes at risk of flooding. These properties are

located near the Spalding gauge where Highway 95 crosses the Clearwater. The river was forecasted to exceed flood stage (17 ft at Spalding) on April 19 so the reductions of 10 kcfs (equivalent to 1 ft at Spalding) and another of 5 kcfs (0.5 ft) were implemented as emergency local flood control measures. Discharges of 7.5 kcfs will continue through noon on March 20.

Hall pointed out that previous modeling runs of Dworshak operations have not adequately addressed the flood risk under current conditions. He presented six long term scenarios of April-July operations with that in mind.

- Scenario 1 – Calls for a 4 maf April-July runoff volume at Dworshak using 1997 inflows. This is a worst-case scenario if the weather continues to be extremely wet. While the current RFC inflow forecast for April-July is 2.9 maf, the COE's early bird forecast says Dworshak could see inflows of 3.0 maf or more. The point of this scenario is to show what might happen if the water supply forecast continues to rise.

- Scenario 2 – This has been superseded by the current flood risk operation.

- Scenario 3 – This is based on a 3.3 maf April-July runoff volume and 2012 inflows, which came relatively early in the year. Discharges rise to 25 kcfs through April 22 when the flood control curve intersects the refill curve, then drop to 8 kcfs through end April. Discharges during refill are 4 kcfs with a target of 1600 ft elevation by the end of June.

- Scenario 4 – Superseded by the flood risk operation.

- Scenario 5 – Shows a 3 maf runoff based on 1996 inflows, which came both early and late in the year. Discharges rise to 25 kcfs through mid-April, then transition to refill with 8 kcfs discharge through April 20 and 5 kcfs for the rest of the refill period. This scenario comes the closest to what the COE expects inflows to be through early April.

- Scenario 6 – Superseded by the flood risk operation.

Hall emphasized that the region is in active flood control mode, with an immediate goal of shaving the peak off the March 19 inflow forecast. If things proceed as expected, the ramp-up to 25 kcfs will begin at noon on March 20 and continue at the rate of 2 kcfs per hour until discharges reach 25 kcfs, estimated to occur at 10 pm March 20. This operation is necessary because the reservoir will be 40 ft above its April 15 flood control target if the RFC forecast of 70 kcfs inflows is correct. Discharges will probably be 25 kcfs for the foreseeable future.

Russ Kiefer, Idaho, asked whether the COE would commit to flows of 7.5 kcfs on Sunday, March 19, if the hatchery plans to release the fish then. Hall said yes but couldn't give a 100% guarantee because the Corps needs some flexibility in real-time to address rapidly changing conditions during flood control operations that are currently underway. If there is a change in plans, it's more likely that low flows would be extended, which would work better for the hatcheries. Although flows in the mainstem Clearwater at Orofino are 60-70 kcfs, TDG levels are only 102-3% at Lewiston, so it's not likely the fish will be subjected to elevated levels of TDG for very far. Flood stage at Spalding equates to a flow rate of approximately 100 kcfs.

Jay Hesse, Nez Perce, asked whether Idaho is still requesting two days of 8 kcfs for the Clearwater Hatchery release. Kiefer said yes, although he understood the COE was not in a position to fulfill the request because Dworshak Dam is currently being operated for flood control purposes. Hall reiterated that the COE would do its best and is planning a day and a half of 7.5-8 kcfs discharges plus a few days of 12.5 kcfs discharges, which would help hatchery fish although it's a few days early. It was the best the COE could do during an ongoing flood control operation. If plans must change for the sake of local flood control in the next few days, a decrease in Dworshak discharges is more likely than an increase.

Hesse asked whether it would be possible to ramp up to 25 kcfs at a slower rate than 2 kcfs per hour, preferably 4.5 kcfs per day, capping discharges at 21.5 kcfs until March 23. Howard Schaller, USFWS, echoed support for the Nez Perce request. With 2.4 million steelhead still on station, a ramp rate of 4.5 kcfs per day would give hatchery managers time to explore the potential for early steelhead release. They will be exposed to extreme conditions and can't remain on station with discharges of 25 kcfs. These fish are important not only to USFWS and the Nez Perce Tribe, but to all parties to the *U.S. v. Oregon* agreement.

If inflows are 70 kcfs as predicted, that would put Dworshak reservoir at 40 ft above its flood control elevation, which is a serious flood risk, Hall replied. Dworshak reservoir has added 100 kaf in just the past two days. The threat of having to release more than the 25 kcfs channel capacity means the COE doesn't have the flexibility to ramp up more slowly. There are limited places to store water, Julie Ammann, COE, emphasized. Grand Coulee doesn't have space because drum gate maintenance is underway. All projects in the system are increasing their draft rates to provide flood control storage space. As soon as Dworshak can release more without flooding people's homes, it must do so for the sake of system flood control.

Tom Lorz, CRITFC/Umatilla, asked whether drum gate maintenance could be delayed, but Ammann said the Action Agencies already ruled out that option because it would take 10 days to move the equipment. So the current strategy is to pass as much water as possible through the lower river, with Coulee passing inflows if possible. Scott Bettin, BPA, asked whether the current surge is the end of the spring freshet, and Amman said it's probably rain-driven, which could mean the freshet is still coming.

Dave Swank, USFWS, clarified that Dworshak hatchery is planning to release its spring chinook smolts on March 20, not March 19. The fish will be released directly into the middle fork of the Clearwater.

Schaller requested a TMT meeting on March 20 to discuss the potential for flexibility as conditions evolve. Hesse said the Nez Perce would also appreciate a meeting, and Kiefer agreed. In light of the current flood risk, a slower ramp-up isn't feasible, Ammann replied. Nevertheless, the Action Agencies will hold a TMT meeting March 20 to coordinate with hatchery managers.

Baus summarized the COE's planned flood control operation at this time: On March 18 at midnight, Dworshak discharges will be reduced from the current 12.5 kcfs to 7.5 kcfs. On March 20 at noon, discharges will ramp up from 7.5 kcfs to 25 kcfs at the rate of 2 kcfs per hour.

The COE has received a recommendation from USFWS and the Nez Perce Tribe to reduce the ramp rate to 4.5 kcfs per day. At that rate, Dworshak discharges would reach 25 kcfs on March 23. Unfortunately, the COE will not be able to implement the request at this time because it conflicts with the ongoing Dworshak Dam flood control operation. As coordinated over the last several months the COE has taken the recommendations from the TMT and modified Dworshak Dam operations because there was flexibility to modify project operations but unfortunately at this time during and ongoing flood control operation our flexibly is limited. The COE will give an update on operations at our next unscheduled meeting on Monday, March 20 at 10am.

3. Next TMT Meeting

TMT will meet next in a 10 am conference call on March 20.

Name	***Affiliation***
Charles Morrill	Washington
Dave Swank	USFWS
Tony Norris	BPA
Russ Kiefer	Idaho
Gary Byrne	IDFG hatchery
Scott Bettin	BPA
Jen Graham	Warm Springs Tribe
Erick Van Dyke	Oregon
Mary Mellema	BOR
Doug Baus	COE
Paul Wagner	NOAA
Julie Ammann	COE
Lisa Wright	COE
Steve Hall	COE Walla Walla
Wayne Jousma	COE Walla Walla
Eric Hockersmith	COE Walla Walla
Amanda Connell	COE Walla Walla
Howard Schaller	USFWS
Andy Goodwin	USFWS
Dave Benner	FPC
Margaret Filardo	FPC
Steve Rogers	Dworshak National Fish Hatchery
Lynn Palensky	NPCC
Tom Lorz	CRITFC/Umatilla
Nancy Payuk	DSC