COLUMBIA RIVER TECHNICAL MANAGEMENT TEAM

June 25, 2015
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.

Little Goose Dam Flow Operation

Russ Kiefer, ID, provided TMT members with the FPAC Little Goose low flow spill operation recommendation. He recapped the last several years of Little Goose low flow spill operations, noting that as a result of low flows in 2008, it was difficult to maintain constant 30% spill at Little Goose (LGS) when outflows were less than 32 kcfs. TMT coordinated a shift from a target spill rate of 30% to a constant spill of 11kcfs. This adjustment was then included in the 2009 Fish Operations Plan (FOP). In August 2009 flows declined below 28 kcfs, and TMT coordinated an operation that shifted to a constant spill of 9kcfs if flows were less than 28kcfs but greater than or equal to 24kcfs. If flows were less than 24kcfs, the operation would shift down to a constant 7kcfs spill.

Recognizing the multitude of constraints on the Little Goose operations during this low flow season, FPAC suggested targeting flow bands of 11kcfs, 9kcfs, and 7kcfs of spill, to the best of the project's ability.

The FPAC suggested operation for Little Goose spill is as follows:

1. When flows are greater than 32.0kcfs, spill 30%.
2. When flows are greater than or equal to 28.0kcfs, and less than or equal to 32.0kcfs, spill as close to 11kcfs as reasonably possible.
3. When flows are greater than or equal to 24.0kcfs, and less than 28.0kcfs, spill as close to 9kcfs as reasonably possible.
4. When flows are less than 24.0kcfs, spill as close to 7kcfs as reasonably possible.
5. If flows drop too low to support a 7kcfs spill, operate to minimum generation and spill the remainder.

There was discussion about what data should be used to determine when the criteria are met. TMT members on the call decided to use the previous day's observed 24-hour average outflow, which is available on the TMT website. In order to be consistent and manage expectations, the Action Agencies committed to meet internally to coordinate the timing of when to make operational changes once triggers are hit, noting it will be consistent throughout the operation.

It was noted that due to complications, occasionally the data reporting and collection systems go down and the Action Agencies will default to using internal data to determine when criteria are met. Russ Kiefer suggested if the system is down when numbers are close to the flow band trigger, the Action Agencies should alert TMT via email.

Julie Ammann, COE-NWD, noted that today's proposed operation will likely result in exceeding the 30% target prescribed in the FOP. Russ clarified that this operation focuses on targeting constant spill levels that will generally be spilling 30% or more. It was clarified that "flat spill" means targeting a constant flow. The Action Agencies agreed to implement FPAC's suggested operation, noting that they will coordinate with the project and changes will be implemented around 0200-0300 hours. Lisa Wright, COE-NWD, noted that currently the project is spilling 9.3kcfs and averaging 30.2%; when implemented today, spill will shift to 11kcfs based on yesterday's 24-hour average outflow of 30.8 kcfs.

- **ACTION:** The Action Agencies will operate flows at Little Goose Dam as follows: If the previous day's 24-hr average outflow is less than or equal to 32kcfs and greater than or equal to 28kcfs, spill 11kcfs. If outflow is less than 28kcfs and greater than or equal to 24kcfs, spill 9kcfs. If outflow is less than 24kcfs, spill 7kcfs. If outflow is too low to a support 7kcfs spill, operate one unit at minimum generation and spill the rest. If outflow is greater than 32kcfs, spill 30%.

- **ACTION:** The Action Agencies will utilize the previous day observed 24-hour average outflow to determine when flow triggers are met.

- **ACTION:** The Action Agencies will coordinate internally to set a consistent time for operational changes, which will remain constant throughout the operation.

Snake Sockeye Update

Russ Kiefer, ID, provided an update on the Snake River Sockeye returns. He noted that last Tuesday (6/23) 109 PIT tagged Snake River Sockeye has passed Bonneville Dam, this puts the run estimate around 532. Russ noted that those estimates look good for the run this year.

The next TMT meeting will be a face to face meeting on July 1st at 9:00am.

Columbia River Regional Forum
TECHNICAL MANAGEMENT TEAM—OFFICIAL MINUTES

June 25, 2015
Minutes: Pat Vivian

1. Introduction

Representatives of NOAA, Idaho, BPA, BOR, COE, Montana, Nez Perce Tribe and others participated in today's TMT conference call. Doug Baus, COE, chaired the meeting, with facilitation by Emily Plummer, DS Consulting. This summary is an official record of the conversation, not a verbatim transcript.

2. Little Goose Dam Low Flow Operation

The purpose of today's unscheduled TMT call was for FPAC to present its findings and recommendations regarding management of low flows at Little Goose Dam. FPAC agreed to meet yesterday afternoon in response to yesterday's TMT discussion of the triggers for ramping down to flows of 11, 9 and 7 kcfs in lieu of 30% spill at Little Goose. This is the first year the operation has been triggered in June instead of August.

Based on his recollection of past Little Goose low flow operations, Russ Kiefer, Idaho, gave some historical context for the solution he proposed and FPAC recommended to the Action Agencies today. In the summer of 2008, the Action Agencies were struggling to manage a constant 30% spill level at Little Goose while maintaining MOP operations and operating the turbines under low flow conditions. So the Salmon Managers agreed on a solution that would provide more spill for fish while smoothing out the operation. They presented an SOR asking the Action Agencies to switch from instantaneous 30% spill to 11 kcfs flat spill (or as close as possible to 11 kcfs) when daily average outflows were equal to 32 kcfs or lower. This operation was implemented and rolled into the 2009 FOP for Little Goose.

In August of 2009, flows dropped below 28 kcfs and TMT agreed to flat spill of 9 kcfs. When flows declined even more, a third step was added, flat 7 kcfs spill when flows dropped below 27 kcfs. These two steps were noted in the 2010 FOP, but TMT didn't define precisely the flow bands at which 11, 9 and 7 kcfs spill would start.

So FPAC proposed today that the Action Agencies adopt the following flow bands for targeting 11, 9 and 7 kcfs flat spill at Little Goose:

- A) AVERAGE OUTFLOW >32.0 KCFS: SPILL 30% (+/- 1% HOURLY), 24 HOURS/DAY.

- B) AVERAGE OUTFLOW >=28.0 AND <=32.0 KCFS: SPILL 11 KCFS, 24 HOURS/DAY.

- C) AVERAGE OUTFLOW >=24.0 KCFS AND <=27.9 KCFS: SPILL 9 KCFS, 24 HOURS/DAY.

- D) AVERAGE OUTFLOW <=23.9 KCFS: SPILL 7 KCFS, 24 HOURS/DAY.

The one thing FPAC didn't agree on was how to define projected daily average flows, Kiefer noted. Two options were considered:

1. Rely on the Action Agencies to forecast conditions, acknowledging that occasionally they'll miss the forecast, but the flow bands and spill levels will generally provide at least 30% spill; or

2. Use observed average flow from the previous day as a predictor. For example, switch to flat 9 kcfs spill when flows on the previous day drop below a daily average of 28 kcfs, and return to 11 kcfs flat spill when daily average flows are equal to or above 28 kcfs. Subsequent TMT discussion showed a preference for this option.

Baus asked for clarification on three points: What are the criteria? How should the data be compiled? And what role will the NWRFC forecast play? To establish a data source for the previous day's outflows, he directed people to the TMT website, where yesterday's spill data for Little Goose can be found under the "project data" link. Kiefer said the Salmon Managers would support the use of data from a public site as a predictor for the next day's operation.

As for the NWRFC forecast, FPAC didn't agree on whether to recommend an official forecast or use of the previous day's observed data to establish the operation for the next day. Karl Kanbergs, COE, said travel time could be filtered into the daily average calculations, but Hells Canyon and Brownlee operations will continue to be unpredictable. Kiefer expressed a preference for using the previous day's outflows over observed inflows.

When discussion turned to the timing of flow changes, the Action Agencies agreed more offline coordination is needed to establish a timeframe (probably around 2-3 am) for switching the operation. Tony Norris, BPA, pointed out there are times when the COE's data communication system goes down for periods not exceeding 8-10 hours. If the COE system is down, BPA scheduling center data could be used instead.

Kiefer suggested the COE only notify TMT via email if Little Goose is close to a flow band trigger when the COE website is down and BPA data are substituted. Dave Statler, Nez Perce Tribe, suggested that, for the sake of consistency, calculations be suspended if the COE data site is down. Baus invited TMT members to call him if any of the data are confusing or contradictory.

There was agreement to manage the Little Goose data to the nearest tenth. The Action Agencies will work on implementing the timing of flow changes, which will probably occur in the morning.

As for implementation of FPAC's suggestion, Julie Ammann, COE, said there will be days when spill is above 30% even with nuances in the data. We are moving from targeting 30% to targeting flat spill levels that will generally be higher than 30%, Kiefer agreed. Kanbergs asked what would happen if Little Goose average outflows rise above 32 kcfs? The answer was to spill 30% of river flows. Scott Bettin, BPA, suggested revising the next FOP so that it reflects today's agreement.

3. Snake River Sockeye Returns

As of June 23, 109 PIT-tagged Snake River sockeye have passed Bonneville Dam, Kiefer reported. That equates to a run estimate of 532 Snake River sockeye, which is considered a good return.

4, Next TMT Meeting

TMT will meet next in person on July 1.

Name	***Affiliation***
Paul Wagner	NOAA
Russ Kiefer	Idaho
Tony Norris	BPA
Scott Bettin	BPA
Mary Mellema	BOR
Julie Ammann	COE
Laura Hamilton	COE
Jim Litchfield	Montana
Dave Statler	Nez Perce Tribe
Erin XX	FPC