

**Columbia River Regional Forum
Technical Management Team Meeting
May 21, 2008**

1. Introduction

Today's TMT meeting was chaired and facilitated by Jim Adams (COE) with representatives of BOR, USFWS, NOAA, BPA, CRITFC, FPC, MT, ID, OR, the Nez Perce Tribe and others attending in person or by phone. The following is a summary (not a verbatim transcript) of the topics discussed and decisions made at the meeting. Anyone with questions or comments about these notes should provide them to the TMT chair or bring them to the next meeting.

2. Review Meeting Minutes

There were no comments on any of the minutes prior to May 7, so these were deemed final. Minutes from the May 7 and May 14 meetings will be posted within the next few days.

3. Priest Rapids Update

Russell Langshaw (Grant Co. PUD) gave an update on Grant County PUD operations at Priest Rapids Dam over the past four weeks. Charts depicting outflows from Priest Rapids are linked to today's agenda.

April 20-May 4 – The weekend of April 26-27 brought the first flow band protections, with a minimum of 90.9 kcfs which was met. There was a minor exceedance on April 21. Other than that, all criteria were met.

May 5-18 – Flows picked up. There was another minor exceedance on May 17, when the weekend minimum was 135.5 kcfs and flows dropped 0.8 kcfs below that. Any impacts of that are imperceivable in the reach. The third weekend of protection flows occurred May 10-11, with a 96.3 kcfs minimum. Flows were well above that.

Now that all four weekends of flow protections have been completed, the standard weekend minimums will be dictated by the flow band for that weekend, based on flow forecasts, Langshaw explained. There are 360 temperature units remaining, which puts the end of emergence at sometime in mid-June.

4. WMP Spring/Summer Update

The latest draft and all of its comments are posted online. Adams asked whether anyone else would be submitting comments.

The summer operation shown in the WMP is defined by the old BiOp, not the new BiOp. This operation is not what Montana seeks, Litchfield said. Beginning at the next TMT meeting, he will work with other TMT members on finding a summer operation that is acceptable to Montana. The TMT guidelines say that TMT will work to implement the BiOp, Brian Marotz added. Many of the measures the current BiOp calls for were actually implemented in 2007.

The COE has an agreement with the court to operate spill according to the 2007 Fish Operations Plan through the end of August, Feil said. At the court hearing when 2007 operations were rolled over, the Department of Justice attorney proposed that the region resolve this issue in 2008 via the TMT process, Litchfield replied. For this reason, Montana views the FOP as not being static, and anticipates some flexibility in how Libby and Hungry Horse will be operated this summer. Litchfield expressed hope that the process won't be dependent on absolute unanimity. He emphasized that Montana is not happy with the WMP as it reads now. TMT will begin working on this issue at its next meeting May 28.

5. Bonneville Fish Descaling Update

Much of today's meeting focused on what to do about fish injury rates associated with heavy debris accumulation on fish screens at Bonneville Dam, with flows high and increasing. To address the situation, the Salmon Managers submitted SOR 2008-3 (attached to today's agenda) consisting of two recommendations for Bonneville operations:

- Decrease total discharge in powerhouse 2 by reducing turbine operations to the lower end of the 1% efficiency range.
- Maintain spill, attempting to not exceed 125% TDG at the Cascade Island monitor.

Descaling samples were taken at the project from 3:20 pm yesterday to 7 am today, Margaret Filardo (FPC) reported. Descaling rates were:

- Yearling Chinook – 51 of 402 fish (13%)
- Subyearling Chinook – 3 of 38 fish (8%)
- Steelhead – 6 of 118 fish (5%)
- Coho – 39 of 466 fish (8%)
- Sockeye – 20 of 54 fish (37%)

These results represent descaling over 20% or more of the fish's body. Fish with the highest injury rates were yearling Chinook (13%) and sockeye (37%). Later sampling has shown no improvement in these rates.

Fine, leafy debris has been entering the gatewells and plugging the vertical barrier screens (VBSs), causing open areas on the VBSs to become high velocity hot spots that are likely causing the observed increase in descaling, Dan

Feil (COE) explained. Project staff have been cleaning the VBSs continuously over the past few days. There are two types of screens. Guidance screens that guide fish from the turbine intake into the gatewell, while VBS inside the gatewell keep fish from passing from the gatewell back through the turbine unit. The cleaning process involves lifting the primary VBSs out of the slot while installing a secondary VBS in the slot downstream of the primary VBS to prevent fish from passing back through the turbine and then flushing debris from the primary VBS back into the gatewell and onto the secondary VBS.

A recent email from Tammy Mackey (COE) asked the region, via the FPOM process, to consider removing the primary VBS without using a secondary VBS then flushing debris contained in the gatewell through the unit. This would speed up the cleaning and hopefully reduce the number of injuries. The problem is, fish in the gatewell would also be flushed through the turbine unit. Survival rates through turbines at the Bonneville powerhouse 2 are well above 90%, Feil noted. Jim Litchfield (Montana) noted that if descaling rates represent future mortalities, it appears that turbine passage is a safer route than the bypass system under these high flows. The fish screens are new, and this is the first time they have had to handle such flows and heavy debris, Feil said. The lack of a TIE crane onsite compounds the problem. (TIE crane repair is included in the 2008 CRFM program budget, so that problem will get resolved.)

Dennis Schwartz (COE) pointed out that this is the first year all the FGE improvements have been in place at Bonneville Dam, and flows are extremely high. This is the first real worst case test of the bypass system. Of the seven turbine units operating, the three closest to the corner collector (units 11, 12 and 13) consistently accumulate the most debris.

Discussion turned to SOR 2008-3. There are basically two options, clean the screens or reduce the number of fish going through the powerhouse, Paul Wagner (NOAA) said. What appeared as mortalities in the tiny Spring Creek fish probably showed up in these larger fish as descaling. The SOR calls for decreased turbine loading during periods when high descaling rates were observed. The challenge is finding a balanced solution that improves juvenile passage without impeding adult migration. A desirable goal for adults would be an upper limit of 120 kcfs spill at the project. Higher levels increase the potential for fallback above ladders and subsequent survival of those fish passing upstream. The Salmon Managers recognize that implementing this SOR will cause more spill at the project, and would like to keep TDG levels in the Bonneville tailrace below 125%.

Current heavy flows are projected to increase by about 20 kcfs, Feil said. According to projections over the next few days, that will raise TDG levels at the Cascades Island gage by about 3 to 5%. The current level is around 123%, so that would put TDG levels well above 125% if turbine loading is reduced. We could probably operate the units at the mid range of 1% and stay closer to the 125% cap, Schwartz said. Based on SYSTDG model runs, an additional 40 kcfs

of spill as a result of taking this action would create TDG levels of more than 125%, Laura Hamilton (COE) said. There is no monitoring below Bonneville dam to assess the effects of increased TDG on smolts. In addition, there is no adult monitoring in place to assess the affects of increased spill at Bonneville on adult fallback, Dan Feil said.

There are two options, either pulling the screens or reducing the number of fish going through the system, Tom Lorz (CRITFC) said. The group considered a third option, partial screen removal. Pulling only the difficult screens would put the most fish through turbines, Tom Lorz said. Studies in 2000 indicated that only shutting off spill will stop fallback.

Wagner suggested that spill be limited during the day when adults are passing and increased at night, similar to recommendations in the salmon managers' spill priority list. The COE has a CWA-related regulatory issue with managing spill above TDG levels of 120% at the Cascades Island gage, Rudd Turner said. While DEQ recognizes that keeping TDG below 120% might not be possible at current rates of involuntary spill, the COE is expected not to make the situation any worse, Adams said. Feil acknowledged this is a complex dilemma. Protecting fish at the bypass by reducing loading in the Bonneville powerhouse 2 will increase spill and gas, which will affect the entire population of smolts passing Bonneville, in addition to adults. On the other hand, it's urgent to protect fish in the bypass system.

If running at mid-load and continuous cleaning doesn't curtail descaling, the next step is to pull fish screens and run the units at the high end of efficiency in order to clear out the debris and minimize spill, Schwartz said. Each time the powerhouse 2 units are shut down to pull screens, the opportunity to spill 20 kcfs through the powerhouse is lost. It takes approximately 1.5 hours to pull the screens at each unit.

If powerhouse loading and fish passage through the powerhouse is decreased, that increases passage through the spillway, which reduces risk to those fish, Wagner summarized. At current high spill levels, a 20 kcfs increase won't increase fish passage much over the spillway, Turner replied. Monitoring descaling rates over the next few days while implementing the operation recommended by the SOR is the most prudent course of action, Filardo said.

There was discussion of whether special handling of problem units is a viable option. Projected inflows at Bonneville indicate that spill will be an ongoing issue over the next several weeks. Flows are projected to be in the 440-450 kcfs range from June 3-7, Adams said. Schwartz debunked a rumor of debris building up on the BGS; only the fish screens are clogging.

Just before a brief break, TMT settled on the following round-the-clock operation at Bonneville: run units 11-13 closest to the BGS and corner collector

at the lower end of 1%, while running the other four units at the mid-range. They scheduled a TMT call for 11 am Friday to reassess the situation.

COE representatives returned from the break with bad news: Project staff had called to report the debris accumulation was overwhelming. The only remaining options, in terms of available workforce, were to pull the screens or shut down the fish ladders in order to keep up with cleaning.

As a result of this new information, the COE recommended the following operation: Pull all fish screens at Bonneville and operate the 2nd powerhouse units at the high end of 1% efficiency. The fish screens will not be repositioned until after the Memorial Day weekend. This basically means passing fish through the turbines because that appears to be a safer route than the bypass system at present, due to unmanageable debris.

NOAA, USFWS, BOR, BPA, CRITFC, the Nez Perce Tribe, Montana and Oregon did not object to this operation. **Idaho** expressed concern about pulling the screens and putting more fish through the turbines, as well as reducing adult return rates by generating high levels of TDG. Idaho cares more about long term return rates than short term mortalities. There was discussion of possible ways to clean the screens more effectively instead of pulling them. COE representatives emphasized that project staff can't keep pace with the rate at which debris is piling up, and changing the cleaning process wouldn't solve that beyond an hour or two. The difference in TDG levels produced by operating at the high and low end of 1% efficiency is expected to be about 3-5%. There was no representation by **Washington** today; COE will communicate with state representatives not present at the meeting outside of the TMT meeting. After noting the state's concerns for the record, Idaho did not object to the proposed operation.

6. Lower Monumental Transport Operations

The intensity of river flows on the Snake, especially at Lower Monumental, have made it infeasible to shut off spill there so the barge can navigate into place and pick up fish, Feil reported. The COE's solution was to suspend transportation operations for a few days until flows subside.

Transportation operations continue as planned at Lower Granite and Little Goose dams. However, Lower Granite is also receiving high flows, and transportation might have to be suspended there too if flows increase. Meanwhile, TMT might notice variations in forebay levels during the early morning hours (6:30-9:30 am) when spill is reduced for the barge loading operation.

Most TMT members had been contacted by phone regarding the transportation changes prior to today's meeting. There were no objections or extended discussion of these changes today.

7. Spill Priority list

The spill priorities recommended by the Salmon Managers are linked to today's agenda. Their list requests that excess spill occur first at Ice Harbor, Lower Monumental, Little Goose, Lower Granite, Bonneville, The Dalles, John Day, Wanapum, Priest Rapids, Rocky Reach, Wells, Rock Island, Chief Joseph, Grand Coulee, The Dalles, McNary, John Day, and Bonneville dams, in that order. If there is too much generation available, this is where the Salmon Managers want it reduced first, as opposed to too much water passing the project. SOR 2008-3, discussed today under agenda item 5 (Bonneville descaling update) represents a temporary change in the spill priority list by suggesting that nighttime spill at Bonneville be increased to 125% TDG, Wagner pointed out.

The conversation then focused on Chief Joseph Dam, whose 19 bays will all be equipped with spill deflectors soon. Carol Fitzgerald (COE-Seattle) gave an update on construction work at that project. The deflector installation is nearly finished, with deflectors in 18 of 20 spill bays. Spillway joint repairs are also underway, a high-priority project to address monolith uplift issues.

The contractor's cofferdam is still attached to the face of the spillway. As the risk of having to spill increases, the contractor has been notified to suspend work after May 22 for safety reasons. Spilling before May 22 at Chief Joseph is therefore not an option. If spill after May 22 does damage the cofferdam, it could slow completion of the project by 6 months or more. During a recent spill test through gates 12 and 13, which are several bays away from the cofferdam, the spill created rough recirculation patterns, which sent waves crashing into the cofferdam. If spill at Chief Joe becomes necessary, only 8 of the 19 gates (#8-12 and 16-19) would be available due to the need to protect the cofferdam from damage. Gates 13-15 could be pressed into service in a pinch.

Because the deflectors are designed for optimal performance when spilling across the entire spillway, project improvements won't be apparent until the installation is complete and all bays can be used simultaneously, Fitzgerald said. In an emergency spill situation, workers might not have time to remove the cofferdam from the spillway. For all of these reasons the COE prefers to keep Chief Joseph near the bottom of the spill priority list, just before Grand Coulee; NOAA did not object to this provision.

John Roache (BOR) asked what the hydraulic capacity of the Chief Joseph powerplant is – approximately 180 kcfs. BOR and COE agreed that there may be no choice but to spill at Chief Joseph, flows being what they are.

Regarding the spill priority list, Adams showed TMT a draft teletype the COE is composing to send to staff operating the projects. The COE has been

managing TDG values up to 125% based on tailwater conditions only, a standard operating procedure during high flows. The COE will send the draft teletype to TMT members for review, and will post the final teletype online after all TMT members have approved it.

8. Operations Review

a. Reservoirs. Grand Coulee is at elevation 1,242.4 feet and filling fast, about 2-3 feet per day.

Hungry Horse is at elevation 3,517.87 feet, also filling fast, with inflows in the 30 kcfs range, or 3 feet per day. Flows had to be cut back for flood control at Columbia Falls.

Libby is also filling, with current outflows of 13.8 kcfs. The operation was reduced last Friday night to two units and 8.8 kcfs outflows, due to the potential for flooding at Bonners Ferry.

Albeni Falls is on free flows at present.

Dworshak is refilling and went to minimum outflows on May 17, where it has remained since then. This operation is expected to continue for the next several days until flows on the Snake begin to recede.

Inflows at Lower Granite are 197.8 kcfs, expected to peak in the next day or so. The 7-day average for inflows at McNary is 339 kcfs. The 7-day average for inflows at Bonneville is 410 kcfs.

b. Fish. Adult fall Chinook passage at Bonneville is dropping faster than expected. Smolt passage has increased, peaking at an index of 189,000 fish at Lower Granite, 158,000 at Little Goose, and 125,000 at Lower Monumental. Steelhead passage numbers are 200,000 fish at Lower Granite and 150,000 at Little Goose.

The cumulative passage index for steelhead at McNary is so high as to suggest the beginning of a new era – 400,000 fish, when projections with the TSWs in place, improving passage efficiency, were for 250,000 fish at the most. Steelhead counts this high are unprecedented, Wagner said. It will be interesting to see how many of these fish return as adults.

c. Power System. There was nothing to report at today's meeting.

d. Water Quality. High levels of spill have correspondingly raised gas levels on the river, with exceedances at several projects. The lower Snake projects have been experiencing gas levels of 130-132% which exceeds state water quality standards, Adams reported. There were no GBT data available at

today's meeting, but impacts can unfortunately be expected from TDG levels this high, Wagner said. Conditions are quite a bit better on the Columbia, with tailwater TDG levels just over the 120% criteria at McNary. Tailwater readings at Bonneville are around 123% and forebay levels are at 117.5%, barely exceeding state water quality standards. Recently there has been a big drop in TDG levels at both the Bonneville and The Dalles forebays. Wind in the Columbia Gorge is apparently stripping gas out of the river.

12. Next Meeting

There will be a TMT conference call on May 28. The next meeting in person will be on June 4. This summary prepared by consultant and writer Pat Vivian.

Name	Affiliation
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Robyn MacKay	BPA
Tom Lorz	CRITFC
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Margaret Filardo	FPC
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