

# **COLUMBIA RIVER TECHNICAL MANAGEMENT TEAM**

**May 16, 2012**

## **Facilitator's Summary**

Facilitator: Robin Gumpert

*The following notes are a summary of issues that are intended to 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.*

### **Meeting Minutes**

The following comments on the meeting notes were provided:

- 5/2 Facilitator's Summary: Clarify under section about Bonneville operations that the discussion was around 'spill' (not total flow)
- 4/25 Facilitator's Summary: John Roache, Reclamation, will provide clarifying language under Operations Review for Grand Coulee and Hungry Horse

With these changes, new versions of the summaries will be posted to the TMT page, and all notes through 5/4 will be considered final.

### **Water Supply Forecasts**

Doug Baus, Corps, provided updated water supply forecasts. As of today, The Dalles April-August forecast was 111 MAF (120% of average). May final forecasts were: The Dalles April-August 110 MAF (119% of average); Lower Granite April-July 23 MAF (107% of average); Libby April-August 7.155 MAF (122% of average); and Dworshak April-July 3.226 MAF (120% of average). The Corps added that the residual volume above Grand Coulee as of 5/13 was 77%.

John Roache shared forecast information for Reclamation projects. Hungry Horse May-July was 1,563 kaf (92% of average) and the April-August forecast was 2,209 kaf (107% of average). John noted that the early runoff that happened in April this year, while not seen in a few years, was not unusual.

Doug also shared NRCS SNOTEL and RFC snow site information, indicating variability across the basin.

### **Vernita Bar Update**

Russell Langshaw, Grant County PUD, shared information from the PUD's website about the previous week's Hanford Reach conditions and Priest Rapids operations. He noted that protection flows had officially ended yesterday, that the daily delta was 125.5 kcfs and that there had been no exceedances. Stranding and entrapment crews were out sampling fish and had not observed any problems. Priest Rapids tailrace temperatures were within normal; overall, Russell called this a 'typical year'. He will provide another update at the 5/6 TMT meeting.

### **Upper Snake Flow Augmentation**

John Roache, Reclamation, reported that Upper Snake flow augmentation releases would likely be the full 487 kaf: Preliminary rough estimates on location and timing are as follows: about 200 kaf above Milner in June; about 80 kaf of 'natural flow' (non-diverted) throughout the season;

about 40 kaf out of Boise in late June/early July; and about 170 kaf out of the Payette, mostly in July/August. He will provide updates to TMT as the season progresses.

### **Bonneville Powerhouse 2 Operations**

Paul Wagner, NOAA, reported on higher than usual sockeye descaling at Bonneville – over 23% on 5/14 – leading to a discussion at FPAC about ways to remedy the situation. Upon investigation, they found that the fish screens were clean which suggested it was more likely from the turbulence the fish experienced in the gate well. With peaking passage numbers and a 10% mortality rate, the salmon managers made a request for a special operation to hold the PH2 turbines to the mid-range of 1% for a 3-5 day period (they later clarified their request to implement this operation until Monday 5/21 at 6:00pm).

After some discussion, the Corps' response on behalf of the Action Agencies was to try to meet the request while maintaining a flow/generation neutral operation so as not to exacerbate TDG exceedances downstream, as well as concerns associated with adverse impacts on adult passage associated with delay in the tailrace, as well as fallback. They would take the same approach used for the Spring Creek Hatchery release – operate Powerhouse 2 up to the mid-range of 1% and send any displaced flow through Powerhouse 1 up to open geometry (then go to involuntary spill above the TDG spill cap).

The salmon managers responded that they did not agree with operating Powerhouse 1 to open geometry given that TDG levels were not as high as were seen previously during the Spring Creek release. They were looking for flexibility around TDG management to minimize the risk of uncertainty around how fish are impacted with an open geometry configuration. Several other biological factors were raised for consideration:

- Safe passage of sockeye included PIT-tagged wilds from the Snake River basin that had been detected at Bonneville and John Day dams.
- Delay of adult passage and risk of adult fallback have been observed at spill rates in excess of 110-120 kcfs (currently spilling around 117 kcfs and inflows are forecasted to increase from 340 kcfs to near 400 kcfs over the next several days)..
- Potential debris issues, though the project is currently managing debris so that it is not an issue at this time.

Another alternative was to pull the fish screens. Because this could have a detrimental effect on steelhead, the salmon managers did not prefer this alternative. For the long term, all TMT members agreed that a more permanent solution is needed. Discussions about future operations, structural modifications and studies of open geometry are being held in various regional forums including FPOM, FFDRWG and SRWG. There is regional commitment to address and resolve the issues at Bonneville.

TMT reviewed guidance in the Fish Passage Plan, under the Bonneville Section 5.2.1 about this operation:

‘Turbine units at PH2 will operate at the mid to lower 1% range (unless total dissolved gas waivers are exceeded in the tailrace) of best efficiency and within cavitation limits at various head ranges as shown in **Table BON-16.**’

The Corps clarified that TDG in the tailrace is currently exceeding the 120% state waiver gas cap and that they were managing TDG consistent with guidance described in the 2012 Fish Operations Plan. Tailrace TDG levels are being calculated with the SYSTDG model until the Cascades Island gauge is returned to service. The gauge at Warrendale can be used in an analog to calculate an approximate value that equates to tailrace TDG, but at this time the SYSTDG model is the preferred methodology to calculate tailrace TDG.

#### Planned Operation and Polling:

After further deliberations, the Corps shared its plan to operate Bonneville in the following sequence beginning today and through Monday evening, 5/21, at 6:00 pm:

- Operate PH 2 up to the 25% of 1% of Best Efficiency Operating Range
- Operate PH 1 up to the upper limit (100%) of 1%
- As needed, operate PH 2 within the 25-50% range of 1%
- As needed to remain flow neutral, operate PH 1 up to best geometry
- As necessary, involuntary spill above the TDG spill cap.

TMT members were polled on their level of support for this planned operation:

- Idaho – No objection
- Washington – No objection
- Oregon—no objection
- Montana – No objection
- CTUIR (Umatilla)– No objection. Strong concerns to operating PH 1 to open geometry; does not feel this is the best adaptive management choice, but will not object
- Colville Tribe – No objection
- Salish-Kootenai Tribe – No comment
- Nez Perce Tribe (polled during the break) – No objection
- USFWS – No objection. Not in support of operating Powerhouse 1 to open geometry
- NOAA – No objection
- BPA – Support the operation
- Reclamation – Support the operation
- Corps – Support the operation. Will implement the operation as described above

Next Steps: The salmon managers will monitor passage numbers, descaling and mortalities and coordinate a call early next week to discuss the impacts from this operation and determine their recommended next steps. TMT will revisit this discussion during a conference call on 5/23.

#### Libby Operations for Sturgeon Pulse and Bull Trout Minimums

Doug Baus, Corps, reported that an SOR for Libby operations was posted to next week's 5/23 TMT agenda and will be discussed in detail at that time. The goal is to poll TMT members on their level of support for the operation then so implementation can be planned. TMT members asked some clarifying questions, and USFWS' Dave Wills said the expectation is that this operation will look similar to last year's, except it will be in "Tier 4" given this year's river conditions. TMT members will review the request and be prepared to discuss it next week.

## **Operations Review**

**Reservoirs** – John Roache, Reclamation, reported on projects. Hungry Horse was at elevation 3533.4 feet, with 9 kcfs outflows and preparing to reduce to 7 kcfs. Grand Coulee was at elevation 1240.7 feet. Doug Baus, Corps, reported on projects. Libby was at elevation 2,400 feet; Albeni Falls was at elevation 2,057 feet; and Dworshak was at elevation 1,550 feet. Inflows at Priest Rapids were 212 kcfs; at Lower Granite were 107 kcfs; and at Bonneville were 336 kcfs. Doug also updated TMT that Lower Monumental was switched back to a uniform spill pattern as of yesterday.

**Fish** – Paul Wagner, NOAA, reported on fish passage. Adults were seeing good and consistent passage at Bonneville, even after a very high peak of 18,000/day last week. The salmon managers noticed a discrepancy in passage numbers between Lower Monumental and Little Goose, but the numbers picked up again. They will monitor and discuss this at FPOM, and Paul gave a heads up that may also need to use the TMT process if they see a need to recommend an adaptive management operation. Charles Morrill, Washington, also reported on adults. The latest TAC report showed that 67% of passage at Bonneville had occurred so far. Season totals were forecasted at 192,000-217,000. Treaty fishing was continuing.

Paul reported that the juvenile yearling Chinook run was remaining consistent with good daily passage numbers after a very high peak. Subyearling passage counts were about 3,000-7,000/day at Lower Granite – passage is earlier than normal. Steelhead numbers had peaked but daily passage counts had remained consistent so far. Lamprey passage was about 2,000/day at McNary.

**Water quality** – Scott English, Corps, reported that there had been some TDG stabilization in the system, but that forebay exceedances were continuing. Spill had gone down some, and forecasts predict another rise in total river flow over the next few days.

**Power system** – Nothing to report.

## **Next Meeting, 5/23 Conference Call**

Agenda items include:

- Libby SOR
- Bonneville Powerhouse 2 Operations

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

**May 16, 2012**  
Notes: Pat Vivian

**1. Introduction**

Today's TMT meeting was chaired by Doug Baus, COE, and facilitated by Robin Gumpert, DS Consulting. Representatives of COE, Montana, USFWS, Oregon, BOR, BPA, NOAA, Washington, Idaho, CRITFC/Umatilla, Colville, Salish-Kootenai tribes and others attended. This summary is an official record of the proceedings, not a verbatim transcript.

**2. Review May 2 and 4 Meeting Minutes**

The May 2 and 4 official minutes were approved as final. Paul Wagner, NOAA, commented on the May 2 facilitator notes, and John Roache, BOR, commented on the April 25 facilitator notes. The revised notes will be reposted to the TMT website.

**3. Water Supply Forecast**

Baus shared water supply forecast information for the region with TMT, attached in three links to today's agenda. Baus and Roache gave the May final water supply volume forecasts for individual projects:

- The Dalles (April-August) – 110 MAF, 119% of average
- Lower Granite (April-July) – 23 MAF, 107% of average
- Libby (April-August) – 7155 KAF, 122% of average
- Dworshak (April-July) – 3226 KAF, 120% of average
- Hungry Horse (May-July) – 1563 KAF, 92% of average
- Hungry Horse (April-August) – 2209 KAF, 127% of average.

Residual volume is about 77% above Grand Coulee as of May 13, Karl Kanbergs, COE, reported. According to the NRCS SNOTEL site, water supply conditions are at or below average in Oregon, while in Washington conditions are above average.

**4. Vernita Bar Update**

Russell Langshaw, Grant PUD, gave an update on the Hanford Reach fall chinook protection program. Protection flows ended at midnight May 15. Stranding and entrapment measures are expected to end on May 16, as are rearing protections. This coming weekend will be the fourth and final one of weekend protections. The average daily weekend delta (the difference between minimum and maximum flows) is 125.5 kcfs. There have been no program exceedances to date this year. Langshaw will give another update on June 6.

## **5. Upper Snake Flow Augmentation**

The BOR is expecting to be able to provide the full 487 KAF of flow augmentation out of the upper Snake River this passage season, John Roache, BOR, reported. Estimates of where flow augmentation will come from (and when) are:

- 200 KAF from the upper Snake above Milner (mid June-mid-July)
- 80 KAF from natural flows i.e. unclaimed irrigation rights (April-August)
- 40 KAF from the Boise system (June-early July)
- 170 KAF from the Payette system (mid June-July)

Roache emphasized that these are approximate numbers. He will follow up with refined estimates when they are available.

## **6. Bonneville Powerhouse 2 Operations**

TMT discussed the need today for a repeat of the Bonneville powerhouse 2 (PH2) operation the COE implemented in early May to accommodate passage of the second Spring Creek Hatchery release of 2012.

The issue at present is descaling of juvenile sockeye at Bonneville while passage of the run is peaking, Paul Wagner, NOAA, explained. Sockeye are particularly susceptible to descaling and mortality, and it's clear the injuries are caused by turbulence in the gatewells, not debris on fish screens. Descaling rates in general have been between 3-9% of sockeye passing at John Day Dam but increase at Bonneville Dam to rates of 7-24%. Mortality rates for all fish passing Bonneville have been as high as 10% over the past 3 days.

Therefore FPAC is requesting that the Action Agencies (AAs) operate the Bonneville PH2 turbines not to exceed the mid-point (50%) of the 1% of best efficiency operating range for approximately 4-5 days, and then evaluate whether to continue the special operation. Wagner said the request for 4-5 days was based on the fact that sockeye tend to pass in a condensed group. There was general agreement on a proposal to continue the operation until 6:00pm on May 21, unless FPAC's determination on Monday is to extend the special operation.

In response to the FPAC request, Baus said, the AAs propose a flow-neutral operation consistent with the previous Spring Creek operations. The AAs would make best efforts to limit PH2 units not to exceed the mid-point (50%) of the 1% operating range. Flow that would have passed PH2 units under normal operating conditions above the mid-point of the 1% range (approximately 28 kcfs) would be shifted to PH1 by operating PH1 units above the 1% range up to the open geometry point. This proposal would shift up to approximately 28 kcfs of flow away from PH2 to PH1 to reduce gatewell turbulence pressures and fish mortalities. The goal of this operation is to be flow and generation-neutral by increasing generation at PH1 at a rate equivalent to the generation reduction at PH2. Specifics of the Action Agency proposal are as follows, to be implemented sequentially as flows increase:

1. Operate all available PH2 units up to 25% of the 1% operating range.
2. As flows increase, operate all available PH1 units up to the upper limit (100%) of the 1% operating range.
3. As flows increase, operate all available PH2 units one at a time in the order of priority up to the mid-point (50%) of the 1% operating range.
4. As flows increase, operate all available PH1 units one at a time in the order of priority up to the open geometry point.
5. Anything in excess of powerhouse capacity is involuntary spill.

Several Salmon Managers expressed concern that the AAs would operate PH2 units above the mid-point of 1% rather than spill when so many fish are passing. Baus said the AAs are currently managing spill at Bonneville to the 120%/115% TDG spill cap as identified in the FOP. The current TDG spill cap at Bonneville is 95 kcfs. Currently, the AAs are already exceeding the spill cap and inflows are forecasted to increase over the next several days. Therefore the AAs would not be able to restrict PH2 flow at the mid-point of the 1% range without increasing flows through PH1 due to current and anticipated TDG exceedances based on forecast conditions. Scott English, COE, said Bonneville is in involuntary spill, above the FOP and fish passage spill caps.

The Salmon Managers commented on the Action Agency proposal:

**CRITFC/Umatilla Tribe** – When mortality rates are at 10% for all fish and 22% for sockeye at Bonneville, this operation should not be generation neutral. Has concerns about the unknown effects of open geometry.

**Oregon** – Agrees with CRITFC comments above. This is a prime time to pursue funding for research to investigate the effects of open geometry – yesterday SRWG began its process of reviewing one-page research proposals.

**Idaho** – PIT-tagged Snake River sockeye have been found at Bonneville, so it's not just Upper Columbia River sockeye being harmed in the gatewells.

**USFWS** – Commented during the recent Spring Creek Hatchery release discussions that the effects of operating PH1 to open geometry should be evaluated the next time this remedy is used. USFWS generally does not favor open geometry because it's not fully vetted by FPOM.

**Washington** – Would prefer that PH1 not operate to open geometry.

**Montana** – It's important to look at the downside of spill in relation of operating PH1 at open geometry.

**Colville Tribe** – Favors limiting PH1 to 1% of best efficiency if TDG levels are low and fallback is not a problem.

The AAs will continue to coordinate with the region on this important issue, Baus said. In addition to biological implications, the AAs are obligated to consider policy implications, including the potential impacts to juveniles, adults and water quality. Taking these issues into account, the AAs propose a flow and generation-neutral operation that has no potential for adverse effects on adults. Baus noted that ERDC modeling on the open geometry operation suggests that it benefits fish. Russ Kiefer, Idaho, recalled that modeling efforts were what led to altering the gatewell conditions in PH2 in a way that causes turbulence.

There was discussion of Bonneville spill levels, adult fallback and juvenile passage numbers. Passage rates have been around 8,000 juveniles per day, Paul Wagner, NOAA, reported. Adult fallback rates are not measured on an ongoing basis, but higher fallback rates typically are seen when spill reaches 120 kcfs. Currently, inflows at Bonneville are around 330-340 kcfs and the project is spilling around 120 kcfs. Forecasts indicate inflows will continue to increase, requiring increased spill above 120 kcfs. Capping PH2 to the mid-point (50%) of the 1% range would result in approximately 28 kcfs that would need to pass the project either via the spillway or PH1. Increasing spill by 28 kcfs at a time when AAs are already spilling in excess of 120 kcfs could have an adverse effect on the significant number of adults currently passing Bonneville Dam by delaying their passage of the project, and potentially increasing fallback rates as well. The project head (difference between forebay and tailwater elevation) plays a big role in how much the turbines can pass, Dave Wills, USFWS, said. Another factor is debris, Baus noted.

Kiefer referred to section 5.2.1 on page BON-34 of the 2012 Fish Operations Plan which says, "Turbine units at PH2 will operate at the mid to lower 1% range (unless TDG gas waivers are exceeded in the tailrace) of best efficiency and within cavitation limits at various head ranges as shown in Table BON-16." Baus clarified that Bonneville is already exceeding the TDG gas cap due to involuntary spill, which is forecasted to increase over the next several days. The current TDG reading at the Camas Washougal gauge is 115.4% TDG with involuntary spill of 117 kcfs, which is over the FOP spill requirement of 100 kcfs, Scott English, COE, reported. Bonneville operations are currently limited not by the 120% standard in the tailrace but by the 115% downstream standard. Charles Morrill, Washington, said language in the state waiver allows for TDG levels of more than 120%<sup>1</sup>.

Discussion turned to the use of Camas Washougal gauge. Lorz and Kruger wondered why the FOP couldn't be changed to eliminate Camas Washougal gauge from consideration if the FOP could be changed for the sake of MOP operations. Kim Johnson, COE, replied that the COE manages to Camas Washougal gauge in accordance with the court order to implement a rollover operation.

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<sup>1</sup> The Washington State TDG requirements waiver states: "A maximum TDG one hour average of 125% must not be exceeded during spillage for fish passage." The Oregon State TDG requirements waiver states: "TDG may not exceed 125% of saturation for more than 2 hours in every 24 hours in the forebay and tailrace."

After extended discussion, TMT members were polled regarding implementation of the Action Agency proposal. AAs contacted the Nez Perce Tribe, not represented today, for their view during the break. Poll results were:

- **Idaho** – No objection.
- **Washington** – No objection.
- **Montana** – No objection.
- **Umatilla/CRITFC** – No objection, although this isn't the best operation.
- **Colville** – No objection.
- **Nez Perce** – No objection.
- **Salish-Kootenai** – Attended meeting by phone but did not vote.
- **USFWS** – No objection, but does not support open geometry at PH1.
- **Oregon** – No objection. Considered abstaining pending internal consultation, but did not object so the proposed operation could be implemented without delay. Because it deviates from the FOP, regional consensus is required for the operation to be implemented.
- **NOAA** – No objection.
- **BOR** – Supports the operation.
- **BPA** – Supports the operation.
- **COE** – Supports the operation.

The COE will implement the proposed operation beginning today through 6 pm, May 21. Results will be discussed at next week's TMT call on May 23.

### ***7. Libby Releases for Sturgeon and Bull Trout Augmentation Flows***

The SOR for 2012 sturgeon and bull trout augmentation flows at Libby is posted to the TMT website and will be discussed and polled on during next week's TMT call, Baus said. The requested operation is similar to last year except it will involve less volume because 2012 is a tier 4 year, not tier 5 like 2011. Wills said enough volume is expected this year to reach the elevation required per the SOR for a spill test at Libby. The spillway crest is located at elevation 2405 feet, Brian Marotz, Montana, noted. The SOR includes details and triggers for the operation. TMT will discuss the SOR in detail and poll on May 23.

### ***8. Operations Review***

**a. Reservoirs.** Grand Coulee is at elevation 1240.7 feet, managing refill with residual volume. Hungry Horse is at elevation 3533.4 feet. Discharges of 9 kcfs through May are being reduced to 7 kcfs today.

Libby is at elevation 2400 feet. Albeni Falls is at elevation 2057 feet. Dworshak is at elevation 1550 feet.

Priest Rapids inflows are 212 kcfs, Lower Granite inflows are 107 kcfs, and Bonneville inflows are 336 kcfs. Baus informed TMT that Lower Monumental Dam switched from a bulk to uniform spill for TDG management and a rising inflow forecast .

**b. Fish. Adults:** This week is peak passage time for adults at Bonneville with a high count of 18,436 fish, Wagner reported. Passage has since fallen into the range of 7-8000 fish per day. Jack counts are picking up, setting a new record for lateness in the year. Spring chinook passage this year set a record with the single daily highest count since 1938. On May 13, adult passage at Bonneville was 67% complete based on the 5-year average, Charles Morrill, Washington, reported.

Wagner reported that adults were apparently being delayed at Little Goose, as evidenced by counts of only 3,000 fish per day compared to counts at Lower Granite of 14,000 fish per day. FPOM was considering whether the spillway weir at Little Goose was causing problems when passage numbers returned to normal: 1100 fish yesterday and 1500 fish today. Wagner noted that flows were around 90 kcfs and spill was in the 30% range at the time the problem occurred. FPOM will continue to monitor this issue and report to TMT as needed.

*Juveniles:* Yearling chinook passage at Lower Granite is in the range of 50,000 fish per day which is good news, Wagner reported. Passage counts downstream are 175,000 fish per day at McNary, 100,000 fish per day at John Day and 100,000 fish per day at Bonneville. Kruger and Morrill noted that yearling chinook passage is earlier and much higher this year than in recent years. Subyearlings are showing up at Snake River projects at the rate of about 3000-7000 fish per day with more to come. Steelhead are following the same pattern as chinook, with peak passage occurring a few weeks ago. Now is prime sockeye time: 211,000 fish passed McNary a week ago and have been showing up at Bonneville at the rate of nearly 100,000 per day over the past few days. Lamprey passage is 2,000 per day at McNary and 100 per day at John Day.

**c. Water Quality.** Scott English, COE, gave an update. Levels of TDG saturation throughout the region have recently stabilized after several forebay exceedances over the past few days. Governing factors have been low wind and high ambient temperatures, water temperatures are increasing in many reaches also, but conditions seem to be improving. Flows are forecasted to rise through the Snake and Columbia rivers, and several projects are already spilling involuntarily. High flows late April put the Bonneville tailwater gauge gaugeout of commission, and the Portland District is working on getting that gauge back online as soon as possible.

**d. Power System.** There was nothing to report today.

## **6. Next TMT Meeting**

There will be a TMT conference call on May 23 and another May 30. The next regular TMT meeting will be on June 6.

<b>Name</b>	<b>Affiliation</b>
Doug Baus	COE
Paul Wagner	NOAA
David Wills	USFWS
Rick Kruger	Oregon

Lisa Wright	COE
Jim Litchfield	Montana
John Roache	BOR
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Heather Dohan	Puget
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Ed Polk	Snohomish PUD
Barry Espenson	CBB
Richelle Beck	Grant PUD
Greg Lawson	Thompson Reutters
Bill Rudolph	NW Fish Letter
Shane Scott	PPC
Laura Hamilton	COE
Russell Langshaw	Grant PUD
Russ Kiefer	Idaho
Brian Marotz	Montana