

## COLUMBIA RIVER TECHNICAL MANAGEMENT TEAM

June 22, 2016

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.*

### **SOR 2016-2**

Paul Wagner, NOAA, noted that as a result of the planned juvenile fish bypass system upgrade at Lower Granite (LWG) in August, the fish screens will be removed and fish will not be able to be barged out of LWG, at which point Lower Monumental (LMN) and Little Goose (LGS) will be the only transport locations. The Corps suggested trucking fish from LGS to LMN on August 1, 2016 (instead of the intended date of August 15, 2016). A second alternative operation would be to terminate transportation from all three collector projects on August 1, 2016.

Salmon Managers expressed uncertainty regarding how many fish would benefit from truck transport at that point in the season. By August, there are very few fish at LMN and of those remaining, it is not uncommon for fish to have disease issues, thus they are better off to stay in river. Data on fall Chinook transport are available during the early transport season (May-July), as well as later on during the fall (September-October). There are very little data for fall Chinook transport during the month of August.

Salmon Managers presented SOR 2016-2, which requests terminating all Snake River juvenile transport on August 1<sup>st</sup> and allow fish to migrate in river. The SOR does not preclude initiating truck transport at LGS and LMN in September or October as a tool if in-river conditions change and juvenile numbers increase or if it would be beneficial to transport.

Russ Kiefer, ID, noted an error in the SOR regarding spilling to the gas cap at LWG. The SOR should read: "during the construction period spill will be provided from August 1-31 at 18kcfs and beginning on September 1-November 14, spill will be provided through the RSW during daytime hours for 12 hours." By November 15, work in the tailrace will commence and spill via the RSW may change at that time, depending on whether or not construction allows for RSW spill.

Erick Van Dyke, OR, noted that there are some minor language changes in the SOR that were not fully vetted at FPAC, however, should not impact the Corps ability to make their decision. He also noted that the language in the SOR is intended to be flexible, so that it can be implemented while allowing for in-season discussions and refinements. Scott Bettin, BPA, asked whether another SOR was needed if the Salmon Managers recommend starting truck transport in September or October. Doug stated that the Corps will discuss the SOR internally, and if they decide to implement it, they will provide a statement of implementation, Salmon Managers can help clarify details at that point. Doug also asked that TMT members revisit Scott's process question on whether a follow-up SOR will be needed to start truck transportation after August 31st.

- **ACTION:** The Corps will review SOR 2016-2 and provide TMT with an implementation decision in the coming weeks. TMT will revisit this discussion at the July 6 meeting.

### **Dworshak Dam Operations**

Steve Hall, COE-NWW, reported on water temperatures in the Snake River and Clearwater River. Currently, LWG tailwater is at 59.5 degrees Fahrenheit. Temperatures are on the rise and flows are declining in the Snake River at Anatone and Clearwater River at Orofino, as shown in the model temperature results from Monday, June 20<sup>th</sup>. Precipitation is expected in the region to moderate temperatures; however the 10-day weather forecast

indicates air temperatures will warm up considerably by the end of next week. Based on current model results, DWR water releases for temperature augmentation are likely not needed this week. However, given the trend, it is likely releases will start occurring next week. At Dworshak, current outflow is at 4.3kcf and expected to drop down to 3kcf in the next day. By June 25, outflow is again expected to drop down to 2.4kcf; flows will be held until releases for temperature augmentation begin. The model is run every Monday, Wednesday, and Friday. Once the tailrace temperature hits 65 degrees Fahrenheit, the model will then be run daily. Steve asked for feedback from TMT whether the Corps should target tailrace temperatures of 65 degrees Fahrenheit or 67 degrees Fahrenheit. During the conversation, Steve received the morning's model results. He noted that based off of the June 22<sup>nd</sup> model run the Lower Granite tailrace will hit 65 degrees Fahrenheit on June 26, 66 degrees Fahrenheit on June 29, and 67 degrees Fahrenheit on July 1. In this scenario, water would need to be released on June 28th to target 67 degrees Fahrenheit, June 27th to target 66 degrees Fahrenheit, and June 23rd to target 65 degrees Fahrenheit.

Charles Morrill, WA, asked for an update on the weather station installation at Lower Granite. Steve stated that the station is being tested and will be operational in another two weeks. Presently, historical data are used to inform model runs, the weather station, once operational, will provide an additional data point.

Russ Kiefer stated that during the FPAC meeting on Tuesday, no consensus was reached among salmon managers regarding the Corps' request to target 65 degrees Fahrenheit in the Lower Granite tailrace. The general preference was to target 67 degrees Fahrenheit at Lower Granite.

TMT members had the following questions and comments:

- Paul Wagner asked the Corps to provide volume differences for each target, 65 degrees and 67 degrees. Steve stated that the Corps could provide model runs that look at that difference. He noted that weather is a big driver in water temperatures, but that does not necessarily mean once the tailrace rises above 65 degrees Fahrenheit that it cannot drop back down. However, once control over the temperatures is lost, it takes more water to regain that control. Last year there was a clear indication that sockeye were adversely affected by thermal blockages in the river. The Corps is recommending targeting lower temperatures this year to avoid any adverse effects.
- Paul Wagner noted that the additional auxiliary water supply to the fish ladder at Lower Granite and the pump scheduled for operation at Little Goose on July 1<sup>st</sup> will provide substantial aid in keeping ladder temperatures cool for sockeye.
- Charles Morrill stated that the experimental operations performed last year have not lead to clear conclusions of the benefits achieved. Moreover, the incremental benefits of holding the tailrace at 65 degrees Fahrenheit are uncertain. Salmon Managers want to ensure the DWR pool is maintained to provide enough cool water through August, while balancing impact to sockeye and others in the system currently. He asked if the Corps could lower the pool earlier and still maintain the agreed upon target for the July-August timeframe. With the upcoming Unit 3 out at Dworshak, could additional water be provided this summer to maintain the 65 degree Fahrenheit target operation?
  - Steve noted that if Dworshak is drafted below 1,520ft, then refill will be potentially jeopardized the following year. Doug noted per the RPA, the AAs draft to 1,535 feet by the end of August and 1,520 feet by the end of September in accordance with the Nez Perce Agreement. Salmon Managers would need to complete significant coordination to request modification to these operations specified above.
  - Charles clarified that he was not suggesting the additional augmentation water come out of the 200kaf of the Nez Perce agreement.

Scott Bettin asked if Salmon Managers discussed maintaining tailrace temperatures of 66 degrees Fahrenheit rather than 67 degrees Fahrenheit.

- Russ noted that setting a target of 66 degrees in the tailrace was not discussed at FPAC. Idaho is in favor

of targeting tailrace temperatures of 66 degrees Fahrenheit in an effort to improve conditions for sockeye while being mindful of the total volume of cool water available through August. Charles Morrill asked what volumes would look like if targeting 66 degrees Fahrenheit. Steve stated that flows would likely increase from 2.4kcf to 4.8kcf, which equates to 2.5kcf for one additional day and then a marginal amount going forward. The total volume being discussed is roughly 5kaf, a fraction of an inch. The group was interested in seeing modeling for 65 degrees Fahrenheit, 66 and 67 degree targets in the tailrace.

- Jim Litchfield, MT, reflected that last year TMT struggled to reach consensus and the sockeye suffered as a result. It appears that this same indecisiveness is occurring again. TMT needs provide the best recommendation possible; if TMT would like to be risk averse, it is best not to wait until the last second to make the operation change.
- Tony Norris asked how the adult sockeye conversion rate from Bonneville to McNary is shaping up this year.
  - Paul Wagner noted that 151,000 sockeye have passed Bonneville, 103,000 at The Dalles and 88,000 at John Day. Sockeye are moving and temperatures remain stable at 64 degrees Fahrenheit. Paul noted that it will not take long for temperatures to increase to 68 degrees Fahrenheit if the July forecast is accurate. Temperatures are expected to approach 100 degrees Fahrenheit in the basin by June 30<sup>th</sup>.
- Russ Kiefer reminded TMT members that the 66 degree target tailrace temperature is not a proposal for the entire season, but just for the peak of the sockeye run. As temperatures rise, it is easier to keep temperatures cooler than to try and bring temperatures back down later.

Some Salmon Managers suggested targeting 66 degrees Fahrenheit in the LWG tailrace, while other suggested continuing to manage to the 67 degrees Fahrenheit target. Those in favor of targeting 66 (NOAA, ID, USFWS, Colville, MT) noted that it is important to stay ahead of the temperature curve while drafting minimal volume from Dworshak. There was concern in not acting soon enough with temperatures expected to rise soon and quickly.

Those in favor of targeting 67 degrees (OR, Nez Perce, WA), noted that 67 is a buffer to satisfy the actual target of 68 degrees Fahrenheit. Newer weather monitoring and solar radiation tools would be good additions to improve the accuracy of predictions. Also, operational improvements (i.e. the pumps at Lower Granite and Little Goose) may improve conditions. Additionally, it was pointed out that the TMT is focusing on the LWG tailrace temperatures to make these decisions, instead of taking a broader look at the system. Much of the issues in 2015 were the result of high temperatures in the Lower Columbia. It was pointed out that 80% of the sockeye mortality occurred below Ice Harbor Dam.

Tom Lorz, TMT representative for Umatilla was not present for the conversation. BOR and BPA noted that they would support the Corps' decision.

- **ACTION:** The Action Agencies will continue to operate Dworshak Dam targeting 67 degrees Fahrenheit in the Lower Granite Dam tailrace. If Salmon Managers wish to change the operation to target 66 degrees Fahrenheit in the Lower Granite tailrace, an unscheduled call will occur on Friday, June 24<sup>th</sup> to amend the operation.
- **ACTION:** Steve Hall will provide updated model runs on Friday, June 24<sup>th</sup>. These will be posted to the TMT website on the agenda for the June 29<sup>th</sup> meeting.
- **ACTION:** FPAC will convene on Tuesday, June 28<sup>th</sup> and discuss the 66-degree target compared to the 67-degree target and will provide TMT with any requests for changes in operation on Wednesday, June 29<sup>nd</sup>.
- **ACTION:** Emily will contact Tom Lorz to see if there is an alternate Umatilla representative for TMT while Tom is out.

### **Grand Coulee Operation**

Mary Mellema, BOR, stated that BOR was asked by NOAA to consider not refilling Grand Coulee Dam after the July 4<sup>th</sup> operation. BOR reached out to the Colville and Spokane with the operational change and at this time is awaiting feedback from the FPAC chair. If consensus is reached, BOR will go ahead and transition in to the summer draft without touching full at Grand Coulee Dam. Russ Kiefer stated that there was unanimous consensus at FPAC to not touch full after the July 4<sup>th</sup> operation, and instead, begin summer draft operations at Grand Coulee. Sherri Sears, Colville, noted that she shared with Mary the request to maintain a steady flow and no spill, which interrupts the downstream Tribal hatchery. Mary Mellema confirmed that Grand Coulee does not plan to spill.

- **ACTION:** BOR will transition to summer draft at Grand Coulee following the July 4<sup>th</sup> operation and not refill to 1289.7 feet.

### **Little Goose Dam Operation**

Ann Setter, COE-Walla Walla, stated that the latest STP and RFC forecasts indicate the “low flow” criteria defined in the 2016 Fish Passage Plan will be met on Sunday, June 26<sup>th</sup>. The 2016 Fish Passage Plan defines criteria to close the spillway weir in section 2.3.3.7.c as follows:

- (1) Low Flow Criteria: Little Goose daily average outflow < 35kcfs AND forecasted inflow < 35kcfs for at least the following 3 days;
- (2) Date Criteria: on or after August 1<sup>st</sup> for the benefit of subyearling passage. If low flow criteria are met before August 1<sup>st</sup>, the spillway weir may be closed if an adult passage delay is observed or if necessary due to turbine operational constraints at low flows. Closing the spillway weir prior to August 1<sup>st</sup> will be coordinated with the region.

Ann also noted that due to staffing constraints, the spillway weir removal dates can either occur on June 29<sup>th</sup> or week of July 11<sup>th</sup>. The Corps recommends closing the LGS spillway weir on Wednesday, June 29<sup>th</sup> to improve adult passage. Ann noted that once the spillway weir is closed, it will remain closed for the remainder of the spill season and a uniform spill pattern will be implemented.

Russ Kiefer recommended alternative criteria for future seasons which states that if flows are < 50kcfs and the average tailrace temperature is greater the 68 degrees Fahrenheit, then the surface weir can be removed. Ann noted that it would be challenging to manage under this criterion with flows dropping lower than the average. Russ noted that Idaho does not object to the surface weir removal on 6/29 if flows fall below 35kcfs as currently forecasted, but if flows remain above 35kcfs by next Wednesday, surface weir removal should occur on or after July 11<sup>th</sup>. Ann stated that the Corps could wait until Monday morning (June 27<sup>th</sup>) at the latest to inform staff whether removal of the surface weir would occur on Wednesday, June 29<sup>th</sup>.

Bill Hevlin, NOAA, stated that the spillway weir be removed to avoid potential adult tailrace blockage and high temperatures in the tailrace. Warmer temperatures in river are starting to arrive and waiting until July 11<sup>th</sup> to remove the weir is a risk. Bill shared that NOAA is in favor of removing the weir sooner than later.

Lisa Wright, COE-NWD, noted that TMT is providing feedback on this operation rather than FPOM because the next FPOM is not until July 14<sup>th</sup>.

The majority of TMT members supported removing the weir on June 29<sup>th</sup>, including NOAA, MT, USFWS, Nez Perce, Colville, and WA. Erick Van Dyke, expressed that OR has not opposed weir removal in the past, however, is hesitant to support the operational change. Russ Kiefer, ID, expressed support for removing the weir once flows drop below 35kcfs, whenever that occurs, however, not before. Neither OR or ID expressed a desire to elevate if the Corps decides to remove the weir on the 29<sup>th</sup>.

- **ACTION:** The Corps will use input from TMT and prepare for the operation in anticipation of flows dropping below 35kcfs. On Monday, the Corps will review available data and decide whether or not to

remove the weir on June 29<sup>th</sup>.

**Bonneville Dam, Bradford Island Fish Ladder (B-Branch) Erosion Update**

Doug Baus stated that an e-mail was sent out to FPOM on Thursday, June 16<sup>th</sup> which notified FPOM of a short duration cessation of spill at Bonneville Dam on Friday, June 17<sup>th</sup>, in order to implement an emergency survey of newly discovered erosion at the Bradford Island B-Branch ladder; Doug forwarded the message to TMT members as not all TMT members receive FPOM notifications.

Tammy Mackey, COE-NWP, provided an update on the erosion holes observed in the B-Branch riprap. The ROV inspection occurred on Friday, June 17<sup>th</sup> and did not find any signs of undercutting of the ladder. Going forward, an additional survey is proposed for July 7<sup>th</sup> that will utilize a multi-beam sonar boat to survey the bottom of the river. During the second survey, the spillway will be shut off for approximately four hours in the afternoon to be less impactful towards fish entering the fishway.

Erick Van Dyke asked if the second survey would be deemed an emergency. Tammy noted that the first survey was an emergency as it was inspecting whether the ladder had a solid base and if dewatering was needed. The second survey is to get baseline information and to monitor the rate of erosion while a final repair plan is developed. Erick asked how long the prior repair was expected to last and if the erosion holes were unanticipated. Tammy stated that the Corps did not expect to see erosion this early following the last repair. Erick extended appreciation to the Corps for notifying TMT members of the emergency operational change.

**The next TMT meeting will be a face to face meeting on June 29th at 9:00am.**

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

**June 22, 2016**  
Minutes: Pat Vivian

**1. Introduction**

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

**2. Termination of Transport on August 1, 2016**

Paul Wagner, NOAA, explained the reasoning behind the Salmon Managers' request to end transport early, SOR 2016-2, which is linked to today's agenda. Construction at the Lower Granite (LWG) juvenile bypass requires removal of the fish screens, which means fish cannot be collected for transport there. So FPAC has been deliberating whether to terminate transport as of August 1 at Little Goose and Lower Monumental as well, the only remaining Snake River dams where barge transport will be feasible. The COE has proposed truck transport after August 1, but the few fish that show up at Lower Granite are often diseased and returned to the river to protect the transported population. Logistical challenges make barge transport at LGS and LMN difficult to accomplish. Furthermore, data available on fall chinook indicate the risks and benefits of transport in August are not well defined.

Therefore the Salmon Managers recommend that transport be suspended and fish returned to the river at all Snake projects starting August 1. This recommendation does not preclude resuming transport at Little Goose and Lower Monumental in September or October based on river conditions and the number of fish collected. Truck transport could be initiated in September and October at Little Goose and Lower Monumental as needed.

The first paragraph of the SOR contains an error, Wagner pointed out. Instead of referring to "spill to the gas cap" at LWG, the sentence should read "*spill during August 1-31 will be maintained at 18 kcfs. Beginning September 1 and continuing through November 14 spill will be provided through the RSW 12 hours per day during daytime hours. On November 15 work in the tailrace commences and the RSW spill may change at this time to accommodate work on the outfall.*"

The language in the SOR has not been fully vetted through the FPAC process, Erick Van Dyke, Oregon, pointed out. Nevertheless, any changes will be minor and should not delay implementation. It was noted the Umatilla Tribe does not have representation today. Baus said it would not be necessary to revise and resubmit the SOR in order for the COE to decide whether to implement it. He asked the signatories

to participate in subsequent TMT meetings because when the COE makes a decision on the SOR the Corps will clarify any ambiguities associated with the SOR.

### **3. Dworshak Dam Operations**

Steve Hall, COE Walla Walla, led a discussion of Dworshak Dam operations for flow and temperature augmentation. Current water temperatures in the Snake River are shown in attachment 3a to today's agenda, with the Lower Granite (LWG) tailwater at a relatively cool 59.5°F. But temperatures are on the rise upstream in the Snake River at Anatone and in the Clearwater River at Orofino, which will lead to rising temperatures at LWG.

Temperature modeling shown in attachment 3b indicates that flows at Anatone and Orofino are declining and temperatures are expected to rise to approximately 65°F in LWG tailwater in a few days. However, the long-range forecast shows precipitation in the area could help to moderate rising temperatures in the 10-day forecast.

This means flow augmentation out of Dworshak might need to start as soon as next week. Current releases of 4.3 kcfs are expected to drop to 3 kcfs in a day or so, then to 2.4 kcfs starting around June 25 until augmentation and temperature releases begin. The COE is doing model runs every other day, but will switch to daily modeling once temperatures reach 65°F in the LWG tailwater.

Hall asked TMT for feedback on last week's proposal to adopt 65°F in LWG tailwater as the target for Dworshak augmentation flows instead of the typical trigger of 67°F. In response to questions about temperature forecasts, Hall said model runs use weather and solar radiation forecasting to identify trends, not specific temperatures. As discussed at TMT last week, the COE is in the process of installing two new weather stations at LWG to provide better information on the effects of wind mixing in the pool.

FPAC's discussion of Dworshak operations yesterday did not reach consensus on whether to recommend a 65°F or 67°F target at LWG tailrace, Russ Kiefer, Idaho, reported. There are concerns about exhausting the Dworshak water supply if 65°F is adopted as a trigger for the whole season, Wagner added.

The COE could show TMT model runs to illustrate the difference in volume released from Dworshak to support 65°F vs. 67°F, Hall replied. This decision isn't critical while temperatures are still low, but 67°F is a risky target given that 68°F is lethal. Remediation of high temperatures at LWG could cost more in terms of water volume than keeping temperatures under control. Last year, sockeye migration was impeded by thermal blockages in the river. If keeping river temperatures low now is off the table, what other tools have the Salmon Managers considered to keep that situation from happening again?

Charles Morrill, Washington, said last year's experimental operations did not clearly show a benefit. The incremental benefits of maintaining 65°F are uncertain,

while the need to maintain a reserve of cool water at Dworshak through August is indisputable. Wagner acknowledged that measures to keep temperatures low for sockeye have potential negative effects on summer/fall chinook and steelhead. Morrill asked whether the upcoming Dworshak unit 3 outage means the reservoir can be drafted lower this summer; Hall said that's possible but not recommended considering the high uncertainty around winter flows and the risk to refill.

There's risk involved in drafting below 1,520 ft elevation in Dworshak pool by end September, Hall said. That target was established based on a 95% chance of refilling the reservoir next year, so drafting below 1,520 ft for temperature or flow augmentation could adversely impact refill.

Clarifying operations Baus stated per the RPA, the AAs draft to 1,535 feet by the end of August and 1,520 feet by the end of September in accordance with the Nez Perce Agreement. Salmon Managers would need to complete significant coordination to request modification to operations specified in the RPA and with the Dworshak Board.

Morrill asked, would it be possible to draft Dworshak to a lower reservoir elevation without impacting the Nez Perce 200 kaf entitlement? The role of the unit 3 outage that starts in early September needs clarification.

Scott Bettin, BPA, suggested targeting 66°F at LWG instead of 65°F. The concept of drafting below 1,520 ft has policy implications for Idaho, Kiefer said, but there is concern about waiting too long to start augmentation from DWR because conditions at this time of year can change rapidly.

Given that LWG tailwater temperature is projected to hit 65°F on June 26 and 66°F on June 29, Hall made the following stipulations:

- If the trigger for Dworshak augmentation remains 67°F at the LWG tailwater, augmentation needs to start June 28.
- If the trigger is 66°F, augmentation needs to start June 27.
- If the trigger is 65°F, augmentation needs to start June 23.

With no consensus to manage the LWG tailwater to 65°F, Hall asked whether TMT advises adopting 66°F or defaulting to 67°F. Targeting 66°F would mean increasing DWR releases from 2.4 kcfs to approximately 4.8 kcfs with minimal impact on the water supply. Total volume expended would be around 5 kaf, a fraction of an inch in lost reservoir elevation.

The Salmon Managers discussed their views of Dworshak Dam operations:

- **NOAA** – Prefers augmentation releases of 4.8 kcfs (66°F target) as an interim measure. It won't take long for the LWG tailwater to heat up from the current 64°F to a lethal 68°F. Often the battle to keep temperatures from exceeding 68°F starts on July 1.

- **Idaho** – Targeting 66°F at LWG for the next week seems reasonable. Beyond that, COE modeling will provide guidance. Given that not all tribal stakeholders were present on today’s call, it seems prudent to target 66°F. The need for temperature control extends from Ice Harbor Dam to the mouth of the Snake River, not just in the LWG tailrace.
- **USFWS** – Agrees that 66°F is a good interim target at minimal cost in terms of water volume.
- **Oregon** – Hesitates to endorse changes without representation from the Umatilla Tribe. It’s important to keep the whole Snake River cool, not just LWG. Because the loss of sockeye last year was so widespread, it doesn’t make sense to focus on temperature management in one location; we need to look broadly at potential solutions. Oregon recommends the COE follow the current process (target 67°F) and not initiate change too early in the year. Oregon is concerned about the water supply if augmentation flows start now, but will not elevate the issue if the COE decides to manage to 66°F.
- **Montana** – Last year, difficulties in achieving consensus got in the way of implementing effective remedies. The amount of water involved in managing LWG tailrace to 66°F is negligible. Let’s not repeat last year’s indecision.
- **Colville Tribe** – Would not object to managing LWG tailrace to 66°F.
- **Washington** – Agrees with Oregon’s concerns about managing too narrowly to one section of the river. Last year, 80% of sockeye mortalities occurred below Ice Harbor Dam.
- **Nez Perce** – Prefers to continue targeting 67°F at LWG tailrace. The model has been doing well at predicting increases due to changes in weather and solar radiation. Cooling from DWR will be important later in the season.

In light of the concerns about adult sockeye that fueled this debate, Wagner provided current conversion rates on the lower Columbia. To date, 151,000 adults have been counted at BON, 103,000 at TDA, and 88,000 at The Dalles. These numbers indicate a healthy portion of the adult sockeye run is finding its way upriver.

Given the lack of a consensus to target cooler temperatures for the benefit of adult sockeye in the LWG tailwater, the COE will continue to operate in accordance with previous years’ operations of targeting 67°F in the LWG tailrace. A request to operate to 66°F on Friday, June 24, could be accommodated, Hall and Bettin agreed. The COE will post the latest modeling results to the TMT page on June 24 and convene an unscheduled TMT call that afternoon if needed. TMT will revisit Dworshak operations at its next meeting.

#### **4. Grand Coulee Operations**

NOAA has asked the BOR to examine the possibility of not refilling Grand Coulee this year after the July 4 operation, Mary Mellema reported. Since the Colville and Spokane tribes were not represented at the FPAC meeting where this was discussed last week, she contacted them last Friday. The Colville and Spokane tribes did not have a problem with the proposed operation. Yesterday FPAC reached unanimous consensus that flows should not be cut after the July 4 operation to refill Grand Coulee, and summer flows should begin without touching full, Kiefer reported. The BOR will operate Grand Coulee accordingly. This means a gradual decrease in flows across the month as natural streamflows recede, Tony Norris, BPA, pointed out. Sheri Sears, Colville Tribe, said it would be nice to keep flows steady, and the tribe doesn't want tribal hatchery operations below Chief Joseph Dam impacted by spill. There is no plan to spill from Grand Coulee, Mellema replied.

#### **5. Little Goose Operations**

With flows on the Snake dropping, the low flow trigger for closing the Little Goose (LGS) spillway weir (SW) may occur before August 1, Ann Setter, COE Walla Walla, reported. The FPP trigger to close the SW is on or after August 1 when LGS outflow is below 35 kcfs and forecasted to remain below 35 kcfs for 3 consecutive days. The current forecast indicates LGS will meet the flow criteria on Sunday, June 26. The project can close the SW on Wednesday, June 29. The next available date the project could remove the SW is the week of July 11.

FPAC has discussed a long-term FPP change form that calls for closing the SW when flow drops below 50 kcfs in conjunction with a temperature criteria of greater than or equal to 68°F in the LGS tailrace, Kiefer reported. Idaho favors as much surface passage as possible. However, Idaho would not object to closing the SW when flows drop below 35 kcfs for 3 consecutive days. If flows are still above 35 kcfs on June 29, closing the SW should be deferred until July 11.

The FPP says this decision will be made based on the forecast, Baus recalled. It's possible to wait until Monday's forecast to make that decision, Setter said. Staff will be scheduled to do the work, and it can be canceled if necessary. An added consideration is that pumps will be installed this year to cool the LGS ladder for migrating adults. Because the SW creates an eddy in the tailrace, continued use might not be beneficial to adult sockeye migration.

The Salmon Managers gave their views of whether the LGS SW should be removed prior to August 1:

- **NOAA** – Favors removal on June 29 in order to avoid a potential adult blockage from either high temperatures or poor hydraulic conditions in the tailrace. It would be risky to wait until July 11 for removal.

- **Idaho** – The final decision should be made based on the latest forecasts and model projections. Would not object to closing the SW on June 29 if flows are forecasted to be less than 35 kcfs for 3 consecutive days.
- **Montana** – This is a Fish Passage Plan issue and the criteria are already defined so the COE should implement the operation accordingly. The rationale for closing the SW on June 29 seems consistent with this criteria.
- **USFWS** – No objection to closing the SW on June 29.
- **Nez Perce** – No objection to closing the SW on June 29.
- **Colville** – No objection to closing the SW on June 29.
- **Washington** – No objection to closing the SW on June 29.
- **Oregon** – Reluctant to endorse closing the SW before August 1, but would not object if the COE decides to close it on June 29 as long as spill is maintained.
- **BPA** – Supports the COE's decision regarding closing the SW.
- **BOR** – Supports the COE's decision regarding closing the SW.

The COE will make a decision Monday based on whether forecasts indicate 3 days of flows lower than 35 kcfs at Little Goose. If forecasts indicate flows of 35 kcfs or more, the TMT will revisit this issue at its next meeting.

## ***6. Bonneville Dam Bradford Island B-Branch Erosion Update***

Tammy Mackey, COE, gave TMT an update on the brief interruption of spill at Bonneville Dam on June 17 resulting from an emergency survey of new erosion at the Bradford Island B-Branch fish ladder. Damage to the concrete apron at the fish ladder raised concerns because the COE did not expect to find erosion this soon after the area was previously repaired. An emergency survey was required to establish how far the erosion on the concrete apron went underneath the ladder. However, the B-branch survey didn't find undercutting was extensive enough to warrant immediate dewatering for repairs at this time.

The COE plans to do a side-scan sonar bathymetry survey soon, probably the afternoon of July 7, if the survey boat is available. It will require approximately 4 hours of no spill. The goal is to establish baseline information for monitoring the area to determine if the erosion is changing over time. Results of the bathymetry survey will be shared with TMT and FPOM.

## **6. Next TMT Meeting**

The next regular TMT meeting will be in person June 29, with updates on Dworshak augmentation and the Little Goose spillway weir on the agenda. The July 6 meeting will include an update on the Transport SOR. It was noted that the Umatilla Tribe does not have representation today or for the next few weeks.

<b>Name</b>	<b>Affiliation</b>
Tony Norris	BPA
Russ Kiefer	Idaho
Erick Van Dyke	Oregon
David Swank	USFWS
Mary Mellema	BOR
Doug Baus	COE
Aaron Marshall	COE
Julie Ammann	COE
Paul Wagner	NOAA
Scott Bettin	BPA
Lisa Wright	COE
Laura Hamilton	COE
Karl Kanbergs	COE
Charles Morrill	Washington
Bill Hevlin	NOAA
Margaret Filardo	FPC
Paula Calvert	ODEQ
Tory Hines	DSC
Laura Berg	Energy News Data
Ann Setter	COE
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