COLUMBIA RIVER TECHNICAL MANAGEMENT TEAM

July 22, 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.

Dworshak/Lower Granite Water Temperature

Steve Hall, COE-Walla Walla, updated TMT on Dworshak and Lower Granite water temperatures. He noted that the current Dworshak tailwater temperature is 65 degrees Fahrenheit. Steve directed the group to two modeled scenarios (link on agenda): the first model run forecasts Dworshak operating at full powerhouse, keeping temperatures close to 68 degrees Fahrenheit; the second scenario forecasts Dworshak scaling back to 7.5kcfs on July 22nd, which would be expected to increase temperature to or above 68 degrees by July 28th. He noted that the model runs and observed data are off by a degree or so, if this difference does not persist he would expect the 7.5kfcs operation to cause tailwater to reach 68 degrees sooner. Steve continued that full powerhouse through the end of July will likely mean an average, flat discharge of 6.1kcfs through August. Operating with 7.5kcfs for the next four days will likely result in a 6.4kcfs discharge out of Dworshak through August. It was also noted that Idaho Power is shifting their operation to an increase in discharge of 3- 4kcfs of warm water over the next three weeks, which will result in challenges to maintain temperatures in the Lower Granite tailrace at or below 68 degrees Fahrenheit. Dave Statler, Nez Perce, requested NOAA contact Idaho Power and explore options to shape the augmentation water in an attempt to manage temperature impacts. Paul cautioned that the water will need to come through the system, and waiting to release will only increase the proportion of warm water in the river as Dworshak reduces discharge, resulting in higher temperatures. ACTION: Paul will coordinate connecting with ID Power to explore options to shape augmentation water to manage temperature impacts.

Steve Hall requested input from the Salmon Managers regarding the DWR operation. Following a brief caucus, the majority of Salmon Managers suggested decreasing discharge to 7.5kcfs for two days, then review the operation to determine if there is a need to increase discharge. It was noted that the likely outcome will be returning outflows to 9.5kcfs (full powerhouse), however if temperatures cool, as forecasted, there may not be a need.

It was noted that due to the current adult Sockeye emergency, Idaho does not support decreasing discharge to 7.5kcfs and would prefer the project is operated to the 68 degree criteria (1.5 degree buffer). Idaho noted that decreasing outflows at Dworshak over the next two days will further impact adult Snake River Sockeye migration and will likely increase water temperatures on the Snake.

- **ACTION:** At midnight on July 23, based on NOAA Fisheries recommendation and other Regional Salmon Managers, the Action Agencies will decrease discharge at DWR to 7.5kcfs and maintain the operation for two days. Salmon managers will follow up with the Action Agencies on Friday, July 24 to determine if any operational changes should be made.

Emergency Snake River Sockeye Trap and Haul Operation Update

Doug Baus, COE-NWD, provided an update on the Emergency Snake River Sockeye Trap and Haul Operation. He recapped a previously discussed operation at Little Goose Dam, as recommended by NOAA Fisheries, which he noted that Corps was intending to implement, however, paused in order to get more input from regional managers regarding the biological implications of the operation. The proposed,

2-day operation at Little Goose would be to cut spill during daytime hours from 0400 hours to 2000 hours and shift to nighttime minimum generation on a single unit in accordance with unit priority, and spilling the remainder of outflow from 2000 hours to 0400hours. The Corps noted they plan to continue operating Lower Granite with Unit 1 as the priority unit and deep spill (no RSW), and there is no change to that project, as recommended by NOAA. The Corps requested additional feedback from the Salmon Managers on operations at Little Goose Dam, the following points were made:

- NOAA noted that this year adult Sockeye passage numbers are dismal, with only 10% of the Sockeye over Bonneville passing Lower Snake projects and the majority highly stressed en route, leading to mortalities. Idaho noted that 4,000 fish are estimated to have passed Bonneville and only 300 have converted at Lower Granite. According to NOAA, the proposal to cease spill during the day is intended as an opportunity to pass cooler water downstream. If the operation runs all outflow through the powerhouse, cooler water will be routed downstream to the Lower Granite ladder entrance, which will hopefully result in increased passage.
- NOAA noted that the adult Sockeye trap and haul at Lower Granite is likely the best option for increasing Sockeye survival. Additionally, this proposed operation at Little Goose may bypass more sub-yearling fall Chinook to be transported, which would provide a benefit considering in-river conditions are not ideal for juvenile downstream migration.
- Idaho noted that they support the operation change at Little Goose, however, proposed a 'package deal test' that includes shifting operations at Lower Granite to better support out-migrating juvenile Chinook, hopefully stimulate adult passage by making a change, and having a better chance of being agreed to by all parties. For this package test, ID suggested switching LWG to Turbine 2 and spilling the remainder. Idaho expressed great concern over how many adult Sockeye have already been lost, with the potential of higher mortality if actions are not taken as soon as possible. Because the two project operation did not gain traction at the 7/21 FPOM meeting, ID asked fellow managers, specifically, USFWS and OR, for suggested operations. No alternate operations were suggested.
- USFWS indicated they are not in support of a change in operations at Little Goose Dam based on data that suggest ladder temperatures between 74-77 degrees Fahrenheit are the reason behind poor passage numbers of Sockeye. USFWS would like additional analyses on how the Little Goose RSW operations affect forebay temperatures which then affect ladder temperatures. USFWS also noted that the adult Sockeye passage season is coming to an end and that conditions for sub-yearling fall Chinook migration needs to be considered as well.
- Oregon agreed with USFWS regarding concerns over water temperatures, noting that the data set is not complete. Oregon suggested that it would be best to look over the data, track changes and make decisions regarding actions from a system-wide perspective, instead of what they see as impromptu, reactive, changes at individual projects.
- Umatilla stated they would prefer the paired LWG/LGS operations proposed by Idaho, and objected to only implementing the LGS operation, however, would not elevate. Umatilla would like more data on Little Goose hydraulics and temperatures before supporting the Little Goose operation. Umatilla also noted that low conversion rates at Lower Granite appear to be due to high water temperatures. They expressed concern over modifying Dworshak operations which will greatly impact Fall Chinook runs.

- Nez Perce agreed with Oregon, USFWS and CRITFC/Umatilla stating that temperature data and passage rates need further study, noting that changing the operation at Little Goose may impact sub-yearling Fall Chinook and have questionable benefits to adult Sockeye.
- Nez Perce followed up on their previous request for Sockeye passage data that ID provides to NOAA, and which helps inform daily transport decisions. Idaho noted that the data they are using are available on the TMT website and it indicates that temperatures of 75 degrees Fahrenheit and higher affect passage rates.
- Colville objected to the proposed 'package deal test' operation for LGS and LWG, noting that continuing Unit 1 priority at LWG is preferred due to cooler water and flow pattern from U1 that seems to encourage passage. [*Sheri Sears later clarified via email with the Facilitator that Colville, however, did not object to the proposed 2-day test operation at LGS. She noted that the benefits to Sockeye are questionable and there may be negative impacts to Fall Chinook, however, due to the short duration of the operation, Colville does not object.]*
- Washington noted that they do not object to the proposed Little Goose operation. However, will not oppose the operation as it is a two day experiment under emergency conditions and as Idaho has noted, sometimes a change in pattern may prompt fish to move. WA also stated they understood the concerns expressed by the other managers.
- Montana was in support of the Little Goose operation, noting that action will have to be taken soon in order to improve Sockeye passage and survival. MT also pointed out the relative status of the two species being impacted, with Snake River sockeye in critical condition, whereas Snake River fall Chinook are doing very well.

TMT members were polled as to if their agency supported the proposed Little Goose operation (no spill during the daytime hours, and nighttime minimum generation, spill the remainder):

- Idaho – Support.
- Montana – Support.
- NOAA – Support.
- Washington – Does not support; no objection.
- Colville – Does not support; no objection.
- Nez Perce – Object.
- USFWS – Object.
- Oregon – Object.
- Umatilla – Object.
- BPA *[not polled at TMT, however, supports the Corps decision]*.
- Corps *[not polled at TMT, support*].
  Reclamation *[not polled at TMT]*

➢ **ACTION:** The Corps will consult internally with policy and legal staff and report back to TMT members via e-mail, by this afternoon with a decision regarding Little Goose operations moving forward.

Emergency Action List – Summer 2015

Paul will update the emergency action list and submit it to Tony Norris at BPA.

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

Columbia River Regional Forum
TECHNICAL MANAGEMENT TEAM—OFFICIAL MINUTES

July 22, 2015
Minutes: Pat Vivian

1. Introduction

Representatives of Washington, Idaho, NOAA, Montana, Oregon, Umatilla, USFWS, Colville, BPA, COE, Nez Perce, BOR 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. Dworshak/Lower Granite Water Temperature

The Lower Granite tailwater temperature has receded from continual exceedances of the 68 degrees F BiOp standard to 65 degrees F, Steve Hall, COE, reported. Agenda item 2a shows current conditions at Granite. Item 2b is a modeling comparison of water temperatures resulting from two options, based on a request from NOAA for full powerhouse and backing off to 7.5 kcfs releases for two days. The options are:

1. Running full powerhouse keeps the Lower Granite tailwater temperature close to 68 degrees F, with about 1.5 degrees F disparity between the model and observed data. If that disparity continues, conditions will stay relatively cool.

2. Backing off to 7.5 kcfs Dworshak releases tonight would have no apparent effect at Granite until July 28, with 3 days of travel time—as long as the disparity between the model and observed data persists. If it doesn't persist, the effects would become noticeable on about July 25-26.

The take home message, Hall said, is that DWR releases could be backed off to 7.5 kcfs for a short period to save water. Releasing 7.5 kcfs for 4 days to get to elevation 1535 ft would expend approximately 0.3 kcfs per day from the reservoir, leaving an estimated 6.4 kcfs in releases through August. Running full powerhouse through end July would leave a flat discharge of 6.1 kcfs through August.

Hall alerted TMT that Idaho Power will be releasing an additional 3-4 kcfs over the next three weeks to meet flow augmentation requirements. The additional 160 kaf of warm water (probably in excess of 20 degrees C) out of Hells Canyon will create challenges in managing to the 68 degrees F downstream target.

Hall asked the Salmon Managers for a recommendation on how to proceed now that Lower Granite tailwater temperature is down to 65 degrees F. BPA needs at least a day of advance notice for any operational changes, Tony Norris pointed out. There will be an FPAC call Friday, July 24, to check in on the temperature operation.

Paul Wagner, NOAA, asked whether the model indicates a reduction to 7.5 kcfs releases for two days, then reverting to 10 kcfs, would have a measurable impact on temperatures. Hall confirmed that Lower Granite tailwater would most likely remain below 68 degrees F, but the challenge is coordination with BPA's duty schedulers. Temperatures are expected to remain cool through the end of the week; beyond that is unpredictable. The Walla Walla area is expected to warm up over the weekend, and the model indicates that 7.5 kcfs might not be sufficient to counteract warm flows from Orofino and Anatone. Hall said 10 kcfs may be needed over the weekend to maintain the equilibrium between warm and cool water.

Dave Statler, Nez Perce, commented that in past low flow years, releasing a high proportion of Dworshak water has been effective in turning temperatures around and maintaining the 68 degrees F standard. Idaho Power is required to pass approximately 20 feet of reservoir storage by August 7 in order to meet elevation 2059 feet and move 237 kaf downriver, Hall and Wagner replied. The goal of the initial agreement with them was to move hot water downriver when it would have the least impact on fish.

The **Nez Perce Tribe** requested that NOAA confer with Idaho Power to spread out Hells Canyon Dam releases to minimize temperature effects.

At this point, the Salmon Managers briefly caucused to make a recommendation. The caucus (represented by**, Oregon, Umatilla/CRITFC, Nez Perce, Washington, Idaho, USFWS** and **NOAA**) did not yield a consensus opinion. Wagner reported that initially most of the Salmon Managers preferred to maintain around 10 kcfs releases, while others (e.g. Nez Perce) advocated a more conservative use of remaining Dworshak water. The final outcome was a recommendation of 7.5 kcfs releases for two days, then FPAC will consult the COE temperature modeling results on Friday, July 24, and decide whether to advocate continued 7.5 kcfs releases or an increase to 9.5 kcfs from DWR. It is assumed that 9.5 kcfs will be needed over the weekend, but if the weather turns out cooler than the model predicts, this step could save some water.

Idaho doesn't support cutting releases during a sockeye passage emergency, Russ Kiefer emphasized. The COE should continue to manage Dworshak flows to the 68 degrees F criteria at Lower Granite with a 1.5 degrees F buffer. At the FPAC meeting yesterday, Idaho made a proposal (see agenda item 3 below) to facilitate sockeye passage, but USFWS and Oregon objected. Now they are supporting a proposal to reduce Dworshak flows, which makes no sense. What do they recommend to help fish?

Because BPA needs at least a day's notice for a change in operations, Hall said the COE would implement the recommendation for 7.5 kcfs releases from DWR at midnight Thursday, July 23, and continue for two days, subject to FPAC recommendations on Friday, July 24.

If the temperature forecast rises, the default operation would be a swift return to 9.5 kcfs releases from Dworshak, Wagner said. Statler asked whether the model indicates this operation would meet the 68 degrees F standard at Lower Granite. Hall said yes, but that's subject to change if the disparity between observed and modeled outflows changes.

Due to the lack of a concensus recommendation from Regional Salmon Managers regarding Dworshak outflows the Corps will defer to NOAA Fisheries recommendation and reduce outflows to 7.5 kcfs. TMT will revisit the temperature operation at its next meeting July 29.

3. Emergency Snake River Sockeye Trap and Haul Update

On July 10, NOAA gave Idaho a memo authorizing emergency transport of Snake River sockeye, Baus reported. Agenda item 3a is a link to a NOAA memo describing the emergency trap and haul operation, and 3b shows current fish counts at Lower Granite.

Yesterday, July 21, the COE at the request of Idaho convened an emergency FPOM meeting on adult sockeye passage at Lower Granite and Little Goose dams, with an experimental proposal by NOAA to suspend daytime spill at Little Goose for two days. The outcome was lack of consensus on a specific operation. Despite this, the at the urgent request of NOAA Fisheries associated with the emergency nature of the request COE committed to implement the emergency NOAA proposal, which called for no daytime spill at Goose from 4 am-8 pm and nighttime spill from 8 pm-4 am with minimum generation on one unit while spilling the remainder of outflow. During the FPOM meeting on Tuesday, July 21 the Corps informed the FPOM they would implement NOAA Fisheries request for an emergency experimental operation for 2 day starting Wednesday, July 22 at 4am.

Later that day (7/22) via email Baus notified the FPOM and TMT the commitment made to implement the experimental emergency operation on July 22 would not be implemented until internal Corps Legal and Policy coordination had been completed and the Corps would coordinate this operation with Regional Salmon Managers and the next TMT meeting scheduled for Wednesday, July 22. The main goal of today's TMT meeting was additional coordination of the Goose operation due to lack of FPOM consensus. Additional biological information is sought regarding the benefits of recommended operations for adult sockeye passage.

At the FPAC meeting, NOAA proposed to turn off daytime spill at Little Goose and run one unit at minimum generation at night, spilling the remainder. Running just the powerhouse, as opposed to powerhouse plus spill, is an opportunity to pass cooler water downstream, as well as supply relatively cooler water directly to the adult ladder. While temperatures at the 3 meter depth that feeds the adult ladder are uniformly warm, the water begins to cool at 15-20 meters depth. In response to a question from the Nez Perce, Wagner said ladder temperature changes are unlikely because ladder

temperatures come from the top 3 meters in the forebay; the proposed operation won't change that. NOAA's proposal is predicated on Lower Granite temperatures remaining in the 21 degrees C range. It is based on shared concern about the impact of sockeye operations on juveniles.

Also at the FPAC meeting yesterday, Idaho proposed a package of changes that includes operating Lower Granite unit 2 as a priority and spilling in a uniform pattern without operation of the RSW, while testing passage at Goose with a daytime operation of no spill and a nighttime operation of one unit on minimum generation while spilling the remainder of outflow. Idaho strongly objects to a reduction in Dworshak augmentation flows in the middle of a sockeye passage emergency.

NOAA agreed there is a sockeye passage emergency; with Little Goose passing fewer than 10% of adult sockeye from Bonneville, 90% of this year's run have perished in what would have been a boom year for them. The only hope for sockeye is an emergency trap and haul operation, Wagner said. Because a 2013 evaluation found sockeye passage rates were higher when unit 1 operated relative to unit 2, NOAA regards unit 1 operation as a requirement at Lower Granite. Baus noted this is why NOAA can't support Idaho's recommendation at LWG of operation unit 2 as the priority unit. NOAA continues to support unit 1 operation over unit 2 based on a 2013 analysis that found sockeye passage rates were three times higher when unit 1 was operating. Trevor Conder said in 2013 we found that the unit 1 operation increased adult passage likely because it reversed the tailrace eddy and it may have also provided a cooling benefit.

The COE is currently operating Lower Granite with unit 1 priority per NOAA's recommendation, Baus said. In a poll of the NOAA proposal for no daytime spill at Goose and running one unit with spill at night, the Salmon Managers gave their views:

- **Umatilla/CRITFC** – Recommends that anything possible be done to help sockeye. Transportation to Ice Harbor should be considered. Has a difference of opinion with NOAA regarding temperature effects in the LGS tailrace associated with not spilling vs normal spill operations. Spill at Lower Granite is a good idea, but not at Goose in terms of temperature management. In releasing Dworshak water to benefit sockeye, it's important not to impact fall chinook, also a listed species—save some water for them.

- **USFWS** – Objects to the NOAA proposal without more data review. Current adult ladder counts at Little Goose indicates that poor sockeye passage is associated with ladder temperatures of 74-77 degrees F. The dates on which Goose had little or no passage and temperatures in that range were June 8-9, June 27-28, and July 6, 8 and 9. Based on these findings, USFWS doesn't support a change in Little Goose operations. Questions whether termination of RSW spill at Goose and Granite exacerbated the sockeye passage problem. It's important to think not only of sockeye but juvenile fish passage. Analysis needs to be done quickly of how the NOAA proposal might affect forebay temperatures, which in turn affect

ladder temperatures. (NOAA questioned this because temperatures at the ladder are down to 71 degrees F, yet sockeye passage at Granite has slowed to 5 fish over the past few days.)

- **Oregon** – Objects to the NOAA proposal without more data review. The discussion started with Lower Granite and morphed into a conversation about Little Goose. Pressure to act is countered by a need for information summarized from all sources. Lacking that, what's happening is a shift from a balanced operation aimed at protecting all Snake River fish to a reaction at specific points in the system, whether the change is beneficial or not. For this reason, Oregon does not support a change from what was described as an emergency operation at Lower Granite. Wants supplemental information from NOAA and Idaho regarding the NOAA proposal and its operational objectives before offering support. IDFG acknowledged Oregon's concern but pressed Oregon for what we should do to which Oregon did not respond with any operational recommendation.

- **Idaho** – Supports the proposed Little Goose operation for no daytime spill (4am – 8pm) and one unit minimum generation while spilling the remainder of outflow during the night (8pm – 4am). While Lower Granite unit 1 provides cool water directly to the ladder, the tradeoff is that it consumes 18 kcfs due to its fixed blade status. Idaho recommends switching to turbine 2 and spilling the rest at Granite, commensurate with increasing powerhouse flows and reducing spill at Little Goose in a critical effort to get sockeye moving. Because ladder temperatures have declined and sockeye passage remains stalled at Goose, Idaho advocates a two day test with a check-in Friday at FPAC. Has been tracking adult sockeye passage at Goose and Granite for over a month using forebay temperature strings, assuming that temperatures at 3 meters depth represent ladder temperatures. In response to comments by **USFWS** and **Oregon** that more data analysis is needed, that makes no sense when fish are dying. Furthermore, Idaho continued to press agencies that opposed the operations specifically, Oregon and the USFWS for a recommended alternative recommendation other than just objection to operations being discussed to which OR and the USFWS did not provide any alternative operational recommendations.

- **Nez Perce Tribe** – Objects to stopping daytime spill at Little Goose. Asked whether NOAA has done analysis that shows movement toward the Lower Granite ladder would be canceled out by poor ladder conditions. Wagner said there are no tracking data to indicate whether fish use the ladder or remain in the forebay. With that observation, the Nez Perce joined **CRITFC, USFWS** and **Oregon** in terms of concerns for juvenile passage, given there are apparently no temperature benefits at the ladder from changing unit priorities at Granite.

- **Colville Tribe** – Objects to stopping daytime spill at Little Goose. Supports the provision of cool water to the ladder from Lower Granite unit 1.

- **Washington** – Does not object to NOAA's proposal for a change in Little Goose operations to see if it helps, but doesn't support it either. Existing data suggest that ladder temperatures are more critical to sockeye survival than the passage route they take. The loss of sockeye is tragic, but are there really 300 fish still alive and waiting to pass the project?

- **Montana –** Supports Idaho's proposal for a spill test at Goose, given that conditions are desperate for sockeye. If we have to take a risk this year, it should be with fall chinook because the run is in good condition, but the sockeye run is on life support.

The **COE** will maintain unit 1 priority at Lower Granite with uniform spill and the RSW shut off, Baus said. In accordance with NOAA's request, the COE will consider operating Little Goose for daytime generation only, with no spill from 4 am-8 pm, and one unit at minimum generation at night, spilling the remainder of outflow from 8 pm-4 am. Based on TMT's feedback today, the COE will consult with legal and policy staff on this operation and email TMT its decision this afternoon. Further discussion of sockeye passage and survival will occur at the next TMT meeting July 29.

4. Emergency Action List

Tony Norris asked TMT for feedback on the summer 2015 Emergency Action List linked to today's agenda. Tom Lorz, CRITFC/Umatilla, proposed that "Spill 19 kcfs while maintaining use of BON corner collector" be added prior to the fifth operation from the bottom of the list ("Reduce spill at BON to 0 while maintaining B2CC spill"). CRITFC will consult with NOAA and NOAA will provide BPA with the updated list.

4. Next TMT Meeting

TMT will meet next in person on July 29.

Name	***Affiliation***
Charles Morrill	Washington
Russ Kiefer	Idaho
Paul Wagner	NOAA
Trevor Conder	NOAA
Jim Litchfield	Montana
Kathryn Kostow	ODFW
Erick Van Dyke	Oregon
Tom Lorz	CRITFC/Umatilla
Steve Haeseker	USFWS
Sheri Sears	Colville
Tony Norris	BPA
Doug Baus	COE
Lisa Wright	COE

Agnes Lut	BPA
Karl Kanbergs	COE
Steve Hall	COE
Alfredo Rodriguez	COE
Scott Bettin	BPA
Margaret Filardo	FPC
Brian xx	Snohomish
Dave Benner	FPC
Scott Everett	Nez Perce
Paula Calvert	ODEQ
Michael Bryant	CBB
Dave Statler	Nez Perce
Mary Mellema	BOR
Tory Hines	DSC