

COLUMBIA RIVER TECHNICAL MANAGEMENT TEAM

June 5, 2019

DRAFT Facilitator's Summary

Facilitator: Emily Stranz; Notes: Colby Mills, 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. Official minutes can be found on the TMT website: <http://www.nwdwc.usace.army.mil/tmt/agendas/2019/>.

Review Meeting Minutes

TMT members approved minutes and facilitator's summaries for the 5/10, 5/15, and 5/22 meetings. The YER minutes will be finalized via email.

Dworshak Operations

Alfredo Rodriguez, Corps, provided the TMT with an update on operations at Dworshak Dam. Currently the project elevation is at 1,597.24 feet with inflows between 10-12 kcfs, and releasing 9.6 kcfs. At midnight tonight, the project will drop to 7.5 kcfs discharge. The Northwest River Forecast Center shows inflows slowing down to around 6.5 kcfs over the next 10-day period, with similar predictions for Clearwater River at Orofino.

Climate forecasts show about 1/2 inch of precipitation in the area over the next 10 days. A snow flight on Monday determined that snow has reached an elevation of about 6,000 feet (2-2.5% total snow cover), which allows the project to refill the reservoir with no restrictions. TDG in the Dworshak tailrace and hatchery has been below 100% since June 1, as expected with the cooler than normal temperatures.

The project plans to ramp outflow down to 7.5 kcfs, and then 5.4 kcfs (unit 3) for 3 days. Inflows will be passed to keep the reservoir as full as possible through the week of July 4. Generally the reservoir will be kept full for as long as possible to maintain flows for temperature augmentation.

Alfredo noted that the Lower Granite forebay water temperature is about 58 degrees F. When the temperature hits between 62-64 degrees F, the project will start running the temperature model and keep TMT informed of the results and planned flow augmentation.

FOP Spring Spill

Dan Turner, Corps, reported on FOP spring spill operations. The Corps continues to implement the flex spill agreement. Exceedances of 120% due to involuntary spill were seen at Little Goose, Lower Monumental, and Ice Harbor dams this past week. Dan noted that on May 29 TDG at all 8 projects was at 120%. TMT celebrated with a round of applause.

On the Columbia River, involuntary spill at Bonneville is causing an exceedance of 120%. John Day and The Dalles continue to operate in tandem to meet the 3 goals coordinated at TMT (1. 120% TDG in The Dalles tailwater; 2. Spill cap of greater than or equal to 40% at The Dalles; 3. 120% TDG in the John Day tailwater, if possible), while prioritizing the first two if impacted by changing environmental conditions.

Tony Norris, BPA, reported that the recession in flows is resulting in flexible spilling at most projects, except at Little Goose (operation modifications for adult delay) and the 40% spill cap at The Dalles.

Little Goose Dam Operations

Doug Baus, Corps, summarized Little Goose Dam operations to date (summary document posted on the TMT website) to track operational adjustments made throughout the season. Jay Hesse, Nez Perce,

proposed removing the data on fish counts and conversion rates to only include the summary of operations, and refer people to the Fish Passage Center and DART website for data. It was also noted that FPAC recommendations should not be characterized as “consensus” recommendations, as some members did not support, but chose not to elevate the issue (FPAC uses a different definition of “consensus” than the TMT does).

Today’s operation (#5 in the above stated memo) will continue to maintain spill at 30% for 8 hours/day (0400-1200) and store additional inflows that exceed hydraulic capacity in the forebay above MOP if necessary. Water stored above 634.5 feet will be drafted out over the remaining hours by increasing spill to pass inflow from 1200-1600 hours, then increase spill as necessary from 1600-0400 to draft the pool back to MOP. There is an additional request from FPAC for the Corps to change the Adjustable Spillway Weir (ASW) from low crest to high crest daily from 0400-2000 hours daily starting today. However, the ASW is not adjusting due to a malfunction and remains in the low crest position. The Corps is working to resolve the issue and implement the requested operation as soon as possible. They will notify the TMT when the ASW is adjusted.

- **ACTION:** At the start of the operational summary, add a sentence to reference online FPC and DART metrics for fish data; remove the last 3 columns in each table to leave out fish numbers.
- **ACTION:** Edit language in the operational summary regarding FPAC submitting recommendations reached by consensus.

Paul Wagner, NOAA, reported that flows range from 172 (evening) to 130 kcfs (morning). TDG levels rise proportionately with higher flows. Spill is at 30% between the hours of 4am and 12pm, then picks up to 54%-55% to make up for the differential and maintain 30% during the operation. The current forecast shows flow conditions staying the same for the next week. The forecast then indicates an extreme drop after June 10, which is characteristic for the Snake River at this time.

Adult passage counts reflect some catching up between projects, however the differential between 19,000 at Lower Monumental and 15,000 at Little Goose still indicates a delay of fish. The DART tool (see graphics on TMT website) reflects an uptick in reach distribution yesterday, and summarizes that most fish pass in the morning at 8am and continue on until 12pm. The FPC passage indicator (see graphics on TMT website) shows about a 25% differential of fish that have not passed Little Goose.

Salmon Managers and Action Agencies share a collective concern over passage, however, with varying degrees of concern. Salmon Managers will continue to discuss passage and the ASW offline. There is concern that adjusting the surface weir won’t have an impact on passage and that methods for evaluating success are unclear.

- **ACTION:** The Corps will work to get the ASW adjusted to high crest daily from 0400-1200 and will revisit the issue at next Wednesday’s meeting. The TMT will be notified via email when the ASW is adjusted.

Operations Review

Reservoirs: Joel Fenolio, BOR, reported on Bureau of Reclamation projects:

- **Hungry Horse:** midnight elevation was 3,551.2 feet (8.5 feet from full), with inflows between 14-15 kcfs. The project is currently releasing 4,000 cfs and will increase up to 5,500 cfs by Friday to control refill. The reservoir should be full by the end of the month.
- **Grand Coulee:** current elevation is 1,281.1 feet, yesterday releasing 100 kcfs, with inflows of 140 kcfs. The current plan is to fill across the month to be 5-6 feet from full going into the 4th of July holiday, the slowly refill and top off by July 14 or 15.

Joel noted that there is a flow allocation of 487 kaf to be released out of the Upper Snake, Boise, and Payette systems, so will transition to release flow augmentation within the next week or two.

Lisa Wright, Corps, reported on Corps of Engineers projects:

- **Libby:** midnight elevation was 2,421.1 feet, with average inflows of 63.5 kcfs and outflows of 20 kcfs. The sturgeon pulse began 1 week ago, with project outflow of 20 kcfs;
- **Albeni Falls:** midnight elevation was 2,060.6 feet, with average inflows of 53.2 kcfs and outflows of 47.1 kcfs;
- **Dworshak:** midnight elevation was 1,597.2 feet, with average inflows of 12.4 kcfs and outflows of 9.6 kcfs;
- **Lower Granite:** average outflows were 154.9 kcfs;
- **McNary:** average outflows were 298.9 kcfs; and
- **Bonneville:** average outflows were 312.3 kcfs.

Water Quality: Dan had nothing further to report.

Fish: Paul Wagner, NOAA, reported that adults at Bonneville continue to pass and numbers are picking up as spring Chinook (May 31) transitioned to summer Chinook (June 1). Total Chinook YTD passage is 54,657, or 37% of the 10-year average. Jack Chinook are 6,728, or 27% of the 10-year average, and summer Chinook and jacks are 5,418 and 533 respectively thus far. Sockeye are showing a steady trend upward at 111, and lamprey are at 1,029 to date. Shad are at 2 million, which Paul noted has raised some inquiries as to if this poses a potential problem to adult salmon, as the shad move upriver where ladders are smaller and could get overcrowded.

At Lower Granite, spring Chinook counts are 13,555, or 27% of the 10-year average and spring Chinook jacks are 2,552, or 28% of 10-year average.

The DART tool shows juvenile yearling Chinook have pretty much passed the Snake River and are trailing off at the lower river projects. Sub-yearlings are picking up, especially at Lower Monumental Dam. Upper river projects reflect similar trends as sub-yearlings are coming down the river and beginning to show. Steelhead are about done throughout the entire river, although passage picked up in last couple of days.

Power System: Tony reported that wind should come into the system as a weak front moves through. Hot weather can be expected in the coming weeks, with subsequently less wind.

The next scheduled TMT meeting is a conference call on Wednesday, June 12, 2019, at 9:00 AM.

This summary is respectfully submitted by the DS Consulting Facilitation Team. Suggested edits are welcome and can be sent to Colby at colby@dsconsult.co.

Columbia River Regional Forum
Technical Management Team OFFICIAL MINUTES
June 5, 2019
Minutes: Melissa Haskin, FLUX Resources

1. Welcome and Introductions

Today's TMT meeting was chaired by Doug Baus, Corps, and facilitated by Emily Stranz, DS Consulting. See the end of these minutes for a list of today's attendees.

2. Minutes

Minutes and Facilitator Summaries for 5/10, 5/15, and 5/22 were approved.

3. Dworshak Operations – Alfredo Rodriguez, Corps NWW

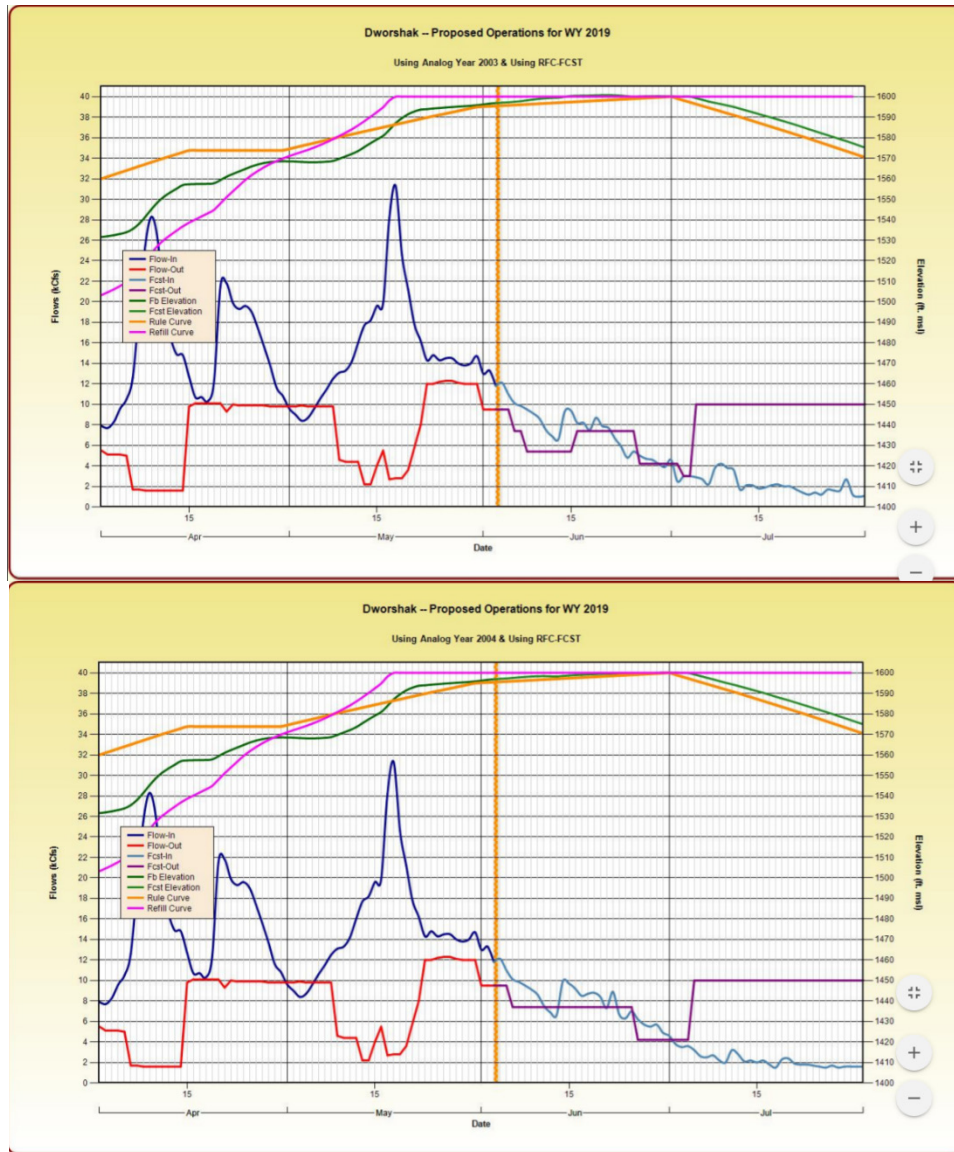
Alfredo Rodriguez, Corps, reported on operations at Dworshak Dam. The reservoir's midnight elevation was 1,597.4 ft. Inflows are ~10-12 kcfs; outflows are 9.6 kcfs. At midnight tonight, outflows will go to 7.5 kcfs. The 10-day inflow forecast shows a substantial drop from ~10.5 kcfs to ~6.5 kcfs. The 10-day NWRFC forecast calls for ~0.5 inch of precipitation.

On Monday, the Corps completed a SNOTEL snow flight that showed the snow elevation at about 6,000 ft. This means that the remaining snow in the area is about 2% -2.5%. This means that the Corps can refill the reservoir with no restrictions on fill, said Rodriguez.

TDG in the tailrace and hatchery has been below 100% since June 1. This will likely continue unless there is an increase in temperature, said Rodriguez. He also noted that it looks like temperatures will stay cooler than normal.

The temperature in the Lower Granite tailwater is 58 degrees F, noted Rodriguez. When that temperature hits 62-64 degrees F, the Corps NWW will begin temperature modeling to plan flow augmentation and will report to TMT.

Rodriguez showed operational scenarios based on historical data using analog years 2003 and 2004 (see figures below). Based on these, he recommended going down to 7.5 kcfs outflow and then down to 5.4 kcfs for a few days. At the end of this, as the Corps tries to refill it will attempt to maintain passing inflow. This would be to keep the pool as full as possible over the week of July 4. After that, the Corps will start lowering the reservoir. The second scenario showed similar results. In this scenario, the Corps would go to 9.4 kcfs down to 7.5 kcfs and hold that for a little longer before dropping to 4.2 kcfs to maintain the pool as full as possible.



4. FOP Spring Spill

4a. Spill & TDG – Dan Turner, Corps

Dan Turner, Corps, reported on spring spill, noting that the Corps continues to implement the Flex Spill Agreement. There have been some exceedances of 120% in some project tailwaters due to involuntary spill. Little Goose, Lower Monumental, and Ice Harbor have all experienced involuntary spill over the last week. Of note was May 29 when all project tailwater gauges were 120%.

During the last two days of involuntary spill, there was also an adult fish passage operation at Little Goose to store above MOP if necessary to maintain 8 consecutive hours of 30% spill. On the website, the hours are reported in the “flex spill” column but technically it’s not flex spill (fixed spill rate and hours).

On the Columbia, there has been involuntary spill at Bonneville. The Corps is continuing to operate John Day and The Dalles in tandem to achieve the following objectives:

1. 120% TDG in The Dalles tailwater;
2. Spill cap of at least 40% at The Dalles;
3. And, if possible, 120% TDG in the John Day tailwater.

4b. Flexible Spill Implementation – Tony Norris, BPA

Tony Norris, BPA, reported on flex hours. With flows receding, BPA should be able to flex at most projects except Little Goose and The Dalles where other operations have been coordinated.

5. Little Goose Dam Operations - Doug Baus, Corps NWD; Paul Wagner, NOAA; and Tony Norris, BPA

5a. Summary Document

The TMT continues coordination on Little Goose operations in an effort to alleviate the delay of adult Chinook that has been ongoing since May 16 according to the DART and FPC tools. Baus walked TMT through a summary of these coordinated operations that is posted to today's agenda:

From April 3-May 20, the Corps and BPA operated within the 2019 Flex Spill Agreement and maintained 30% spill as flows allowed for 4 AM hours/4 PM hours (0600-1100/1600-2000) or for 5 AM hours/3 PM hours (0600-1100/1600-1900). By May 20, the count differential of adult Chinook between Lower Monumental and Little Goose was 4,775. Operational changes to address adult delay were coordinated as follows:

1. Tuesday, May 21 – Friday, May 24: Per recommendation from IDFG received on May 20 and consensus recommendation from TMT at the meeting on May 22, the Corps and BPA implemented 30% spill only as a 5 AM/3 PM operation as flows allowed.
2. Saturday, May 25 – Tuesday, May 28: Per consensus recommendation from TMT at the meeting on Friday, May 24, the Corps and BPA implemented 30% spill for 6 AM hours (0600-1200) and 2 PM hours (1700-1900) as flows allowed.
3. Wednesday, May 29 – Thursday, May 30: Per consensus recommendation from FPAC received on Tuesday, May 28, the Corps and BPA implemented 30% spill for 8 consecutive hours (0400-1200) as flows allowed.
4. Friday, May 31 – Tuesday, June 4: Per consensus recommendation from FPAC received on Thursday, May 30, the Corps and BPA continued to maintain spill at 30% for 8 hours/day (0400-1200) and stored additional inflows that exceeded hydraulic capacity in the forebay above MOP if necessary. Water stored above 634.5 feet would be drafted out over the remaining hours by increasing spill to pass inflow from 1200-1600 hours, then increasing spill as necessary from 1600-0400 to draft the pool back to MOP.

5. Wednesday, June 5 – no later than Wednesday, June 12 (unless otherwise coordinated):
Per consensus recommendation from FPAC received on Tuesday, June 4, the Corps and BPA will continue to implement the operation in paragraph 4 above, with the additional request to change the Adjustable Spillway Weir (ASW) from low crest to high crest daily from 0400-1900 hours.

Currently, there is an issue with the ASW and it remains in the low crest. The Corps attempted to adjust to high crest this morning at 0400, however there was an error code. The Corps is troubleshooting the problem and will repair as soon as possible in order to implement the operation as coordinated. The Corps will send out an email notification to TMT members when the ASW becomes adjustable.

The summary document also includes tables of daily average outflow, percent spill, adult spring Chinook counts, and conversion % (cumulative counts at Little Goose divided by cumulative counts at Lower Monumental). Dave Swank, USFWS, said that only looking at the differential between the two projects gives an incomplete picture and there are other data he looks at in evaluating passage issues, such as travel time and metrics evaluated in the DART tool. He said there will always be a differential at some point in the season and there have been instances of low conversion in 3 of the past 5 years.

Lisa Wright, Corps, clarified that the intent of the document is to summarize the actions the Corps has made thus far and to present a snapshot of conditions during those operations. It is not meant to analyze fish passage issues. Swank noted that there is nothing technically wrong with the document but asked that additional data be included to give the whole picture.

Swank also asked that the phrase “consensus recommendation” be reevaluated since some salmon managers weren’t in support of the operations but didn’t object. Emily Stranz, DS Consulting, noted that per the TMT guidelines, a “consensus recommendation” is defined as “no objections” and is a decision that everyone can live with even if they don’t necessarily agree with it. Erick Van Dyke, OR, noted this was a nuance and that some FPAC members may object to the proposal but are not interested in elevating the issue. Swank pushed for revising the TMT guidelines since they do not convey the intricacies of the decisions. Russ Kiefer, ID, suggested changing the phrasing in the summary document to “a recommendation without objections.” Van Dyke and Swank agreed that this phrasing was more accurate, so the Corps will revise the language to clarify it’s a recommendation with no objections.

Jay Hesse, Nez Perce Tribe, proposed focusing the document on operations only and dropping the fish information. He noted that it can be lengthy and involved to include fish metrics. He recommended directing people to the DART and FPC tools instead. Wagner and Swank said they liked this idea. The Corps agreed to these changes and will remove the fish data and add a reference to the DART and FPC tools.

Van Dyke asked if the MOP operation was utilized on May 31. Bettin replied that the operation was in effect starting May 31 but it wasn’t necessary to fill above MOP until June 1, as noted in the table in the summary document. Baus added that, as in previous years, this operation was coordinated to provide flexibility as necessary and sometimes it’s not necessary.

5b. Hourly Project Data

Wagner reported that today’s project outflows on average are 150 kcfs and dropped to 130 kcfs at 4am (hour ending 5am) per the coordinated 30% operation. When that stops at noon, the “catchup” occurs and outflow increases during the evening hours, last night up to about 172 kcfs, and TDG increases proportionally to 124% or so.

5c. Percent Spill

Wagner reported that spill is being maintained at 30% from 0400 to 1200, then picks up after that period as necessary to draft back to MOP, going up to 54%-55% yesterday.

5d. Little Goose Inflow Forecast

Wagner reported that inflows are forecasted to remain steady to what has recently been observed for the next week or so. Further out, however, inflows are forecasted to drop significantly, which is characteristic of the Snake River at this time of year.

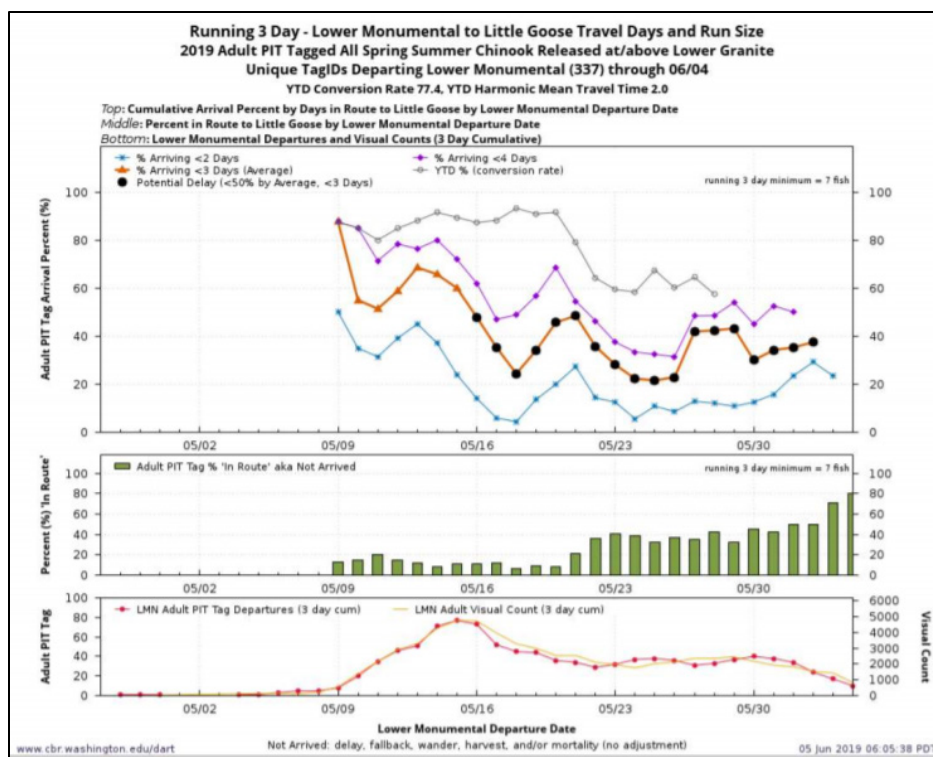
5e. 2019 Adult Salmon Counts

Wagner reported on adult passage. Yesterday, 639 passed Little Goose and 263 passed Lower Monumental. There is some “catching up” happening between the projects. However, there is still a differential of about 4,000 fish between Lower Monumental (19,000) and Little Goose (15,000). If you count the past few days, however, Wagner thinks that number is more like 3,000, which is still a significant margin. There is about a 20% difference between the two projects.

5f-g. DART Lower Monumental to Little Goose Reach Distribution

There was an uptick in conversion yesterday, reported Wagner. Fish that are reported as “in route” ideally should be at a low percentage but have been stuck at a high percentage since before May 20 when the operations started. Another tool to look at is the figure of entry hour that indicates, over the season, fish start to pass by 8am and continue until about noon. The figure of daily diel distribution shows that passage has aligned with this timing since starting the operation to hold 30% for 8 hours. Most fish pass in the morning hours, which is consistent with the operation that was coordinated. Earlier in the season when 30% spill was split into an AM and PM block, passage timing was later in the afternoon and evening.

Looking at the daily conversion table, there have been a total of 357 fish detected departing Lower Monumental and 270 fish detected entering Little Goose, indicating about a 25% differential. This aligns well with the differential in visual counts.

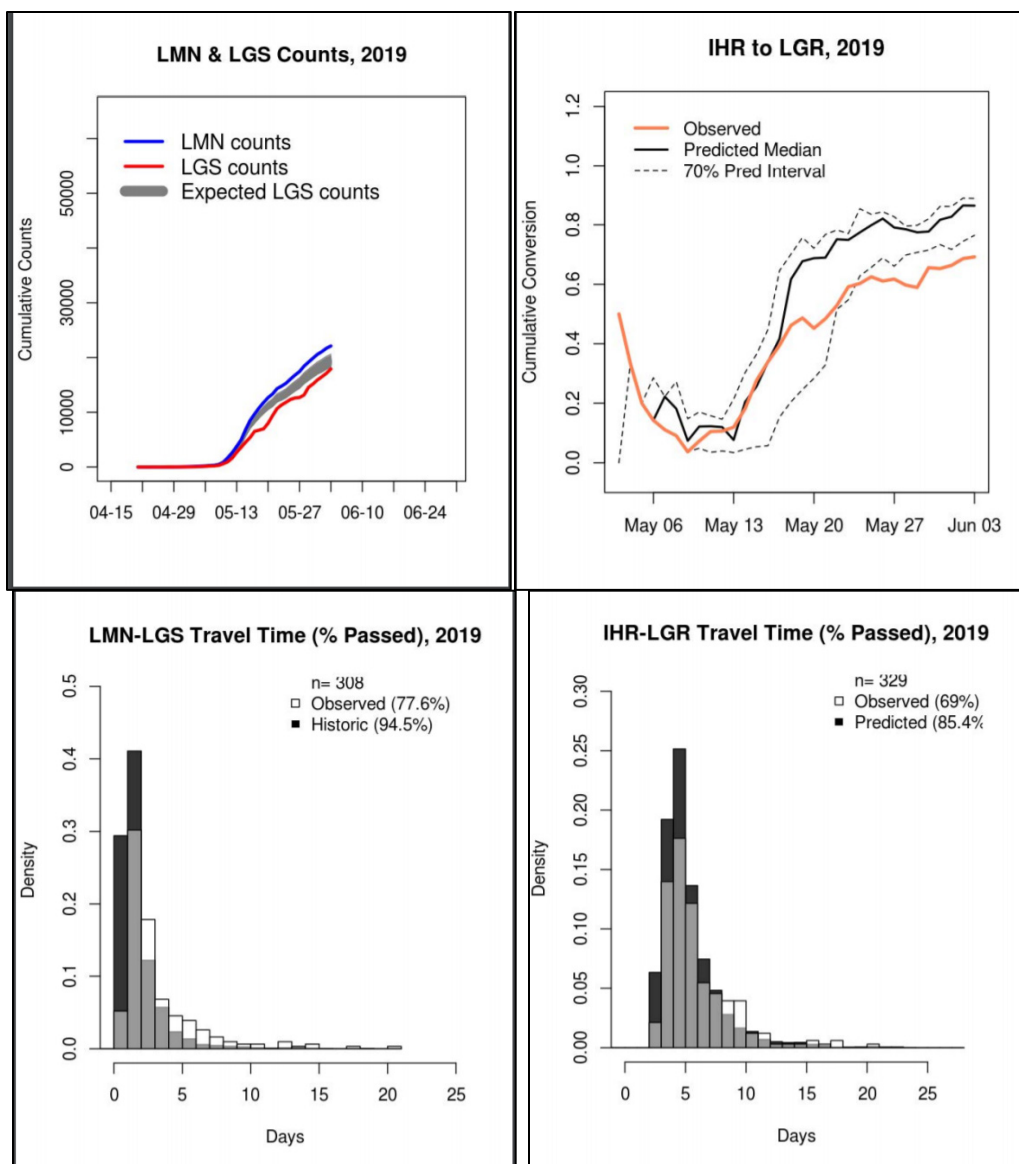


5h-i. FPC Passage Indicator, 6/5 at 6:00am

Wagner reviewed the FPC tool that shows Little Goose counts are below what would be expected, indicating delay. Kiefer noted that the expected counts calculated by FPC take into account fish that turn off into the Tucannon River between Lower Monumental and Little Goose, which explains why expected counts are below the line for Lower Monumental counts. The figure for IHR-LGR similarly shows observed conversion has been below the 70% predicted interval since about May 24.

Regarding travel time, the figures for LMN-LGS and IHR-LGR show longer than historic travel times. Kiefer explained that ideally the bars would be all grey, which would indicate that travel time is in-line with historic travel times. The black bars indicate the percentage of fish that should have passed based on historical data. The white bars indicate the observed percent is higher than historical due to those fish being delayed (i.e., they should have passed sooner).

Claire McGrath, NOAA, asked if the figures are biased to the left due to missing data since not all fish have passed yet. Kiefer responded that hopefully these fish will show up and that will result in more white bars to the right, which would indicate longer travel times compared to historical.



Moving forward, the next step is to adjust the ASW to high crest elevation from 4am to 8pm daily, then back to low crest from 8pm to 4am. Jim Litchfield, MT, asked if the hypothesis is that increased flow through the ASW in low crest adds to the eddy that reduces passage. Wagner replied that is the assumption based on available data. The ASW is very good for subyearling passage so the intent is to put it back to low crest and pass more water overnight for the subyearlings. Kiefer added that the ASW in low crest spills about 11 kcfs, which is a higher proportion of spill compared to the high crest. The thinking is that putting so much energy in one bay contributes to the eddy, which may contribute to adult delay. The hope is that moving to the high crest to spill 7 kcfs through the ASW and spreading the rest through the other bays may reduce the eddy and fish will be better able to find the ladder entrances.

Baus asked about the impact of harvest on expectations. According to data provided by Charles Morrill, WA, there were 402 adult Chinook harvested and 53 released on May 27. Since these fish will not convert, Baus wondered what the definition of success is. Morrill responded

that since the harvest numbers were relatively small, they don't need to be factored into the conversion and it doesn't appear that the sport fishery had a significant impact on passage. The harvest numbers are estimates based on creel census data that are used to manage the fishery and limit the take of ESA-listed fish.

Bettin asked if a note should be added to that day's count of 21 fish at Little Goose to account for the 400 fish harvested. Otherwise it looks like there was something wrong with the operation. Swank pointed out that the harvest number may be from multiple days and wouldn't explain the low count at Little Goose on Memorial Day. However, he acknowledged the low counts are odd and also pointed out that the ratio of adults to jacks was reversed from normal on that day. Salmon managers will investigate and report back to TMT if necessary.

McGrath pointed TMT members to DART, which emphasizes conversion may never get to 100% for many days because fish are lost due to harvest, fallback, mortality, and strays.

Morrill reviewed percent conversion totals through June 3 this year compared to previous years. This year's conversion rate from Ice Harbor to Lower Granite is only 68%, which is well below last year's 83% and the 10-year average of 84%. Usually it's 96-97% by the end of the season. Conversion from Ice Harbor to Lower Monumental is very high at 99%, consistent with last year and the 10-year average. But from Ice Harbor to Little Goose, conversion so far this year is 76%, which is below last year's 86% and the 10-year average of 87%. This is similar to conversion from Lower Monumental to Little Goose which is 77% so far this year, below last year's 80% and the 10-year average of 88%. Therefore, looking at the conversion percent over time, adults are moving much slower this year, which is a significant concern. Morrill reported that once they get above Little Goose, they convert very well.

Swank added that at FPAC, there was no opposition to the ASW proposal, but there also was not a whole lot of strong support. Some of the concerns noted were:

- 1) Although passage is slower than average, some members don't consider it a passage emergency for spring Chinook migrating in cold temperatures with no sea lions;
- 2) TMT already coordinated 8 hours of 30% spill, which has shown to be successful;
- 3) Adjusting the ASW crest may not do anything based on ERDC model results;
- 4) It is a relatively minor change and there's no way to evaluate whether or not it's having an impact.

Morrill also noted that changing the ASW could negatively impact juveniles that are also passing. He reminded TMT members that there is a tradeoff between adults and juveniles.

The Corps will implement the ASW operation as soon as repairs are made and will notify TMT when that happens. This will be revisited at next Wednesday's TMT.

6. Operations Update

6a. Reservoirs – Joel Fenolio, Reclamation, and Lisa Wright, Corps

Hungry Horse – Hungry Horse is releasing 4,000 cfs. Midnight elevation was 3,551.2 ft. (about 8.5 ft. from full). Inflows are about 14-15 kcfs. By Friday, releases will be increased to about 5.5 kcfs to control for refill.

Grand Coulee – Released 100 kcfs yesterday. Inflows have been around 140 kcfs; midnight elevation 1,281.1 ft. Reservoir should be 5 to 6 feet from full by the July 4 holiday and full by the end of the following week. Refill will likely be Sunday, July 14 or Monday, July 15. Upper Snake Flow Augmentation: There is a full allocation for 487 kaf to be released out of the Upper Snake, Boise and Payette systems. Flow augmentation will likely start in the next week or two.

Libby – Midnight elevation 2,421.1 ft., yesterday's average inflows were 63.5 kcfs and outflows were 20 kcfs. The sturgeon operation started last week.

Albeni Falls – Midnight elevation 2,050.6 ft., yesterday's average inflows were 53.2 kcfs and outflows were 47.1 kcfs.

Dworshak Dam – Midnight elevation 1,597.2 ft., yesterday's average inflows were 12.4 kcfs and outflows were 9.6 kcfs.

Lower Granite – Yesterday's average outflows were 154.9 kcfs.

McNary Dam – Yesterday's average outflows were 298.9 kcfs.

Bonneville – Yesterday's average outflows were 312.3 kcfs.

6b. Water Quality

Nothing further to report.

6c. Fish – Paul Wagner, NOAA

Adults: At Bonneville, adults are still passing and counts have picked up. Spring Chinook counting ended on June 1 and are now being counted as summer Chinook. The total count of spring Chinook this year was 54,657 adults (37% of the 10-year average) and 6,728 jacks (27% of the 10-year average). Summer Chinook counts through yesterday are 5,418 adults and 533 jacks. Sockeye are picking up with 111 passing today. Same with lamprey. Shad are coming in at 2 million thus far, about 100,000 per day. There is some concern that with this many shad in the system, there is potential on the Snake River for the ladders to become crowded. There is less concern for this on the Columbia, where the ladders are larger. The year-to-date spring Chinook count at Lower Granite is 13,555 adults (27% of the 10-year average) and 2,552 jacks (28% of the 10-year average).

Juveniles: The FPC count page was down so Wagner reviewed juvenile data on the DART website. Yearling Chinook have pretty much passed the Snake River. Subyearling Chinook are doing well. Steelhead are mostly done. The passage index did show a few at Lower Granite, so some fish are still passing but the numbers are diminished.

6d. Power – Tony Norris, BPA

BPA is expecting wind on the system as well as hot weather and increasing load.

7. Next TMT

The next meeting will be a conference call on June 12 at 9 a.m.

8. Today's Attendees

Agency	TMT Representative
Army Corps of Engineers	Doug Baus (Chair), Lisa Wright
Bonneville Power Administration	Tony Norris, Scott Bettin
Bureau of Reclamation	Joel Fenolio
NOAA Fisheries	Paul Wagner, Claire McGrath
US Fish & Wildlife Service	Dave Swank
Washington	Charles Morrill
Oregon	Erick Van Dyke
Idaho	Russ Kiefer
Montana	Jim Litchfield
Nez Perce Tribe	Jay Hesse
Umatilla Tribe/CRITFC	N/A
Colville Tribe	Sheri Sears
Warm Springs Tribe	Jen Graham
Kootenai Tribe	N/A
Spokane Tribe	N/A

Other Attendees (non-TMT members):

Corps – Dan Turner, Steve Hall, Jon Roberts, Alfredo Rodriguez, Alexis Mills, Aaron Marshall, Eric Hockersmith, Catherine Dudgeon, Michelle Yuen, Heather Baxter

DS Consulting – Emily Stranz (Facilitator), Colby Mills

FLUX Resources – Melissa Haskin (Note taker)

Clearing Up – K.C. Mehaffey

Columbia Basin Bulletin – Mike O'Bryant

Public Power Council – Shane Scott

NPCC – Lynn Palensky