

COLUMBIA RIVER REGIONAL FORUM
TECHNICAL MANAGEMENT TEAM
April 18, 2007 MEETING

FACILITATOR'S SUMMARY NOTES ON FUTURE ACTIONS

Facilitator: Robin Harkless

Notes: Erin Halton

The following notes are a summary of issues that are intended to point out future actions or issues that may need further discussion at upcoming meetings. These notes are not intended to be the "record" of the meeting, only a reminder for TMT members.

4/ 11 & 13 /07 TMT Meeting Minutes

Jim Adams, COE, noted that the facilitator's notes from the 4/11 and 4/13 conference calls had been posted, and that the official meeting minutes from 4/11 were posted and that the 4/13 minutes would be posted later this week.

Priest Rapids Operations Update

Russell Langshaw, Grant County PUD, updated TMT on Priest Rapids operations; he referred to a graph posted to the TMT agenda, showing no exceedances of the flow bands.

Action/Next Steps: Langshaw will provide another update on the flow protection operation at the 5/2 TMT meeting.

April 17 Inflow Forecasts

Cathy Hlebechuk, COE, referred TMT to inflows whiskers plots and STP/ESP hydrographs for Libby, Dworshak and Hungry Horse, updated as of 4/17 and posted on the TMT website. Hlebechuk noted that the Dworshak augmentation volumes graph shows a 10-day deterministic run with a temperature/precipitation sequence overlaid on this year's existing conditions. She added that the Dworshak April-July volume forecast shows a downward trend, with the current end of April forecast at 1982 kaf.

April 13 ESP HYSSR Model Results

Cathy Hlebechuk, COE, referred to an 'as of April 13' modeling results document linked to the TMT agenda, showing numbers of occurrences out of 44 years, average flows, and flow objectives for Priest Rapids, Lower Granite, Bonneville, and McNary. The document also shows period average flows for all projects and project refill within 1' by June 30th. Hlebechuk clarified that all of the results on the document are based on projections and said the COE was developing daily time-step models that will be used in the future. TMT members asked about the discrepancy between forecasts for the Snake and Columbia Rivers and requested actual historical data for the Upper Columbia and Snake River.

Action/Next Steps: Randy Wortman, COE, will provide TMT members with the requested data. *(note: Hlebechuk sent this data out via an email on 4/20.)*

Dworshak Operations

Cathy Hlebechuk, COE, referred TMT to graphs linked to the TMT agenda that showed daily outflows and extremes of ESP flows. She said that the new end of April flood control target elevation was 1572.1'. (note: the COE later corrected the end of April target elevation to 1572.6'.) TMT members complimented the good job the COE has done in meeting the objectives put forth the by the Salmon Managers.

Next Steps: The COE will keep TMT updated as the operation progresses, and Dworshak Operations will be on the agenda for the 5/2 TMT meeting.

Little Goose Navigation Lock Update

As follow up from the last TMT meeting, the COE reported that work at the project was on track to be completed by the end of April.

Procedure for Initiating Nighttime Spill to Cap at LGS

Paul Wagner, NOAA, said that the initiation of spill to the spill caps at night at Little Goose is likely to occur during the last week of April or the first 2 weeks in May, and that it would depend on transportation operations, passage numbers at Lower Granite, temperatures, and calculated travel time for arrival at Little Goose. BPA requested advance coordination via phone/email and a minimum of 2 days notice. The salmon managers said the indicators would likely provide ample time for advance coordination of the operation with the Action Agencies.

Action/Next Steps: Salmon Managers will coordinate with the COE and the TMT will be notified as soon as indicators are observed.

Transportation Operations

Paul Wagner, NOAA, referred to a graph linked to the TMT agenda, showing the schedule for four research studies at Lower Granite. He said the goals of the studies are to better understand how conditions and timing affect the success and survival of transported fish. Wagner added that FPAC approved the 4/19 barge date for the reach survival study, but that the rest of the studies will not begin until 4/29, with barges leaving 5/1. Russ Keifer, speaking on behalf of FPAC and ID, noted that the agreed upon dates for the studies were a good compromise.

Start of Transport

Paul Wagner, NOAA, characterized the factors that will signal the start of transport as a mix of qualitative and quantitative data. Factors will include: temperatures, flow rates, shape of runoff to date / anticipated runoff, and fish passage numbers. Wagner added that the run is below average and that flows and temperatures are low at this point. Paul Ocker, COE, said that a 3-day minimum notification will be necessary to get the barges in place for transport. He also said that the COE has a concern for steelhead, and, given the uncertainty of the transportation start date, the COE will need ESA coverage for take in writing from NOAA.

Action/Next Steps: Paul Wagner and Paul Ocker will coordinate offline about the coverage issue with a call on Monday, 4/23; FPAC will discuss transportation at their meeting on 4/24; and there is a placeholder for a TMT call on this issue at 10 a.m. on 4/25.

Chum Emergence

No new information was presented at the meeting; there will be a check-in at the 5/2 TMT meeting.

Water Management Plan Spring/Summer Update

Bernard Klatter, COE, said that the comments received were posted on the TMT website, and that he would incorporate them into an update by the end of the week.

Action: Klatter will update the plan by 4/20, and TMT will finalize the draft update at the 5/2 meeting. IT will review the revised update at their 5/3 meeting.

Operations Review

Reservoirs – Grand Coulee was at 1255.9', and drafting to meet the 4/30 flood control elevation target of 1249.4'. Hungry Horse was at 3534.67', releasing 3 kcfs and preparing to shift to VARQ outflows on 5/1. Libby was at 2395.15', with outflows between 26-27 kcfs and inflows of 10-11 kcfs and an end of April target elevation of 2378.7'. The commencement of Kootenai Lake spring rise was officially declared at 0001 hours on 4/17. Dworshak was at 1571.35', with the COE operating as needed to meet the 4/30 target elevation of 1572.1' (note: the COE later corrected the end of April target elevation to 1572.6'). Albeni Falls was at 2054.6' and releasing 33 kcfs. The seven-day average at Priest Rapids was 162 kcfs; McNary was averaging 226 kcfs; Lower Granite was averaging 48.4 kcfs; and Bonneville was averaging between 205-267 kcfs.

Fish – Paul Wagner, NOAA, said that passage numbers were seeing a climb in yearling Chinook and that passage at Grande Ronde, Lower Granite and the Lower Columbia projects were increasing overall, but were still below the projected peaks of 200,000-400,000. He noted that a date for the May release from the Spring Creek hatchery was still being discussed. Cindy LeFleur, WA, said the cumulative adult count at Bonneville was 4,245, and well behind the 10-year average. She reported that sport fishing below Bonneville ended 4/15 and that there were indications that actual counts will be close to those forecasted.

Power – *nothing to report*

Water quality – Jim Adams, COE, referred to a graph linked to the TMT agenda, showing TDG exceedances at Ice Harbor, McNary and Lower Monumental.

(Note: There is a placeholder for a TMT conference call at 10 a.m. on 4/25.)

Next face-to-face TMT meeting: May 2nd

Agenda items will include:

- Dworshak Operations

- Updated ESP / STP
- Snake River Transport
- Procedure for Night Caps at Little Goose
- Priest Rapids Update
- Schedule for Start of Transport
- Chum Emergence
- Sturgeon Pulse
- WMP Spring/Summer Update – Comments Finalized
- Operations Review

**Columbia River Regional Forum
Technical Management Team Meeting
April 18, 2007**

1. Welcome and Introductions

Today's TMT meeting was chaired by Cathy Hlebechuk and facilitated by Robin Harkless, with representatives from CRITFC, BPA, COE, BOR, USFWS, NOAA, Idaho and Washington attending in person or by phone. The following is a summary (not a verbatim transcript) of the topics discussed and decisions made at the meeting. Anyone with questions or comments about these notes should provide them to the TMT chair or bring them to the next meeting.

2. Review Meeting Minutes

The facilitator's notes and official minutes for April 11, and the facilitator's notes for April 13, have been posted for review.

3. Priest Rapids Update

For the first few days of emergence, minimum flows were 150 kcfs, Russell Langshaw (Grant County PUD) said. From then on, Grand County PUD has released 60 kcfs flow bands with no TDG exceedances. Daily deltas ranged from 20.4 to 51.8 kcfs, except on April 6, which was 67.9 kcfs on a day with a 150 kcfs minimum flow. Langshaw will provide another Priest Rapids update at the next TMT meeting May 2.

4. April 18, 2007 Flow Forecasts

Hlebechuk presented links showing forecasted inflows and daily inflows similar to recent TMT presentations. Graphs depicting inflow ranges (box whiskers) and daily inflows (hydrograph) are linked to today's agenda. These flow forecasts were updated based on April 18 ESP data. Hlebechuk reminded TMT that the first 10 days of an ESP run are based on current temperature and precipitation forecasts; beyond that, 44 years of historical temperatures and precipitation levels are overlaid on the existing soil and snow conditions, resulting in 44 different inflow traces.

What's different from recent week TMT project modeling presentations is that a graph of augmentation volumes for the 44 ESP years has been added ([see link on agenda item](#)). Hlebechuk explained the new graph: The purple bar show the volume that has run off to date (April 1 – 16). This is approximately 250 kaf. The beige bars show the volume needed to maintain minimum flow April 17 – June 30. This is approximately 250 kaf. The blue bars show volume to fill at Dworshak. This volume is about 500 kaf. The green bars show the volume of augmentation water available. This volume varies between 686 and 1226 kaf,.

Cathy Hlebechuk (COE) showed TMT another new item (see link on agenda item 4 b iii) on today's agenda, a volume forecast comparison for April 3, 10, 13, and 18 ESP volumes and Corps and RFC April final regression forecasts. The chart shows the volume forecast trending down for Dworshak, with the most recent forecast (April 18) ranging from 1,800 - 2,400 kaf. The Corps final April volume forecast is 1,982 kaf.

5. ESP HYSRR

These streamflow predictions are from the April 13 ESP run, Hlebechuk said. The HYSRR chart combines current basin conditions with 44 historical temperature and precipitation amounts to produce 44 different ESP inflow and outflow hydrographs. The end product is 44 different possible outflows, including regulated flows, for each project. Hlebechuk noted other assumptions on the first page of 5.a . For example, flood control levels are based on the April final water supply forecast at each dam.

Grand Coulee operates to meet flows of 135 kcfs at Priest Rapids and 237 kcfs at McNary from April 16 to June 30, then the project refills to 1,289 feet elevation in June for all 44 years. Late summer targets are 1,285 feet for July and 1,280 feet [Note: Based on the April final forecast at The Dalles, August 31 target should be 1278 feet] for the end of August of each of the 44 years.

Hungry Horse operates April through May for controlled refill by the end of June, while meeting a minimum project outflow of 900 cfs and a minimum flow of 3,500 cfs at Columbia Falls, then the project drafts to elevation 3,540 feet by the end of August. Minimum flows for the rest of the calendar year are based on the March final forecast.

Brownlee operates to flood control elevations in April, refills by end June to elevation 2,077 feet. Then it drafts in July and August to provide 237 kaf of flow augmentation in the upper Snake.

Dworshak operates for flood control in April, this particular year targeting an elevation of 1,574.8 feet because that was the flood control rule curve last week, Hlebechuk said. That elevation has since been changed, a topic for discussion later in today's meeting (see agenda item #8). Dworshak drafts to 1,535 by end August, which saves 200 kaf per the Snake River Basin Adjudication for September, then drafts to elevation 1,520 feet in September.

Libby operates to VARQ flood control. The project meets minimum bull trout flows of 6 kcfs starting May 1, then the sturgeon pulse based on the April – August volume. After the sturgeon pulse, Libby releases a flat flow and targets 2439 ft by the end of August.

COE has been testing a ResSim model using ESP inflows which regulates on a daily time step, Hlebechuk said.

She showed TMT the ESP HYSRR monthly time step model results Priest Rapids meets its flows objectives as shown in the middle column listing average flows in kcfs for each of the 44 years. Generally, Priest Rapids has been meeting the 135 kcfs flow objective due to McNary flow targets, except in low water years.

ESP HYSRR results for Lower Granite show that, through April 15, the project met the 85 kcfs flow objective zero times out of 44 years. Through April 30, the objective was met 4 times in 44 years. For May, it was 30 times in 44 years. Then on June 20, the flow objective drops to from 85 to 50 kcfs, resulting in an average flow objective of 75 kcfs for June, Hlebechuk said. In July, the project met the 50 kcfs target (which was based on the April final forecast) twice in 44 years. Hlebechuk said 50 kcfs is the lowest objective the COE uses. These data are all projections based on ESP inflows.

ESP HYSRR results for McNary show that the spring flow objective of 237 kcfs by April 30 was met 19 times in 44 years. The summer objective for McNary is always 200 kcfs for the BiOp. Data show that Bonneville met its flow objective of 125 kcfs for April in all of the 44 years.

Paul Wagner (NOAA) noted a disparity this year between the Columbia and Snake basins in terms of forecasted water supply and how often the projects have been meeting their flow targets. He asked, how frequently do the basins vary by this amount (70% for the Snake compared to nearly 100% for the upper Columbia)? In some years the Snake was well above average, and the Columbia was below average, Cindy Henriksen (COE) said. It's common to have different parts of the basin differ from the basinwide average, Randy Wortman (COE) said. There is often extreme variability of weather patterns during winter storms, Kyle Dittmer (CRITFC) said. Earlier this year, the upper Columbia got more precipitation, now the lower Columbia is getting more precipitation, which could change.

Cindy LeFleur (WDFW) wanted more information regarding variability in water supply forecasts for the Snake and upper Columbia. The COE will share historical information regarding differences in actual conditions for the basins. The forecast period for the Snake is April through July, for Grand Coulee it's April through September. LeFleur asked, is McNary not meeting its flow objectives because of conditions on the Snake? Probably, Hlebechuk said. The COE will update the ESP HYSRR presentation as the season progresses.

6. Dworshak Operations

Hlebechuk presented a box whiskers graph of daily outflows, which shows the daily range needed to meet end of April flood control elevation targets at

Dworshak. The end of April target was 1,574.8 feet at the time this graph was generated; the current target is 1,572 feet. Generally, outflows in May are higher than in June. Hlebechuk will continue to email TMT members when COE changes the target elevations for Dworshak.

Russ Kiefer (Idaho) thanked the COE on behalf of salmon managers who remarked at a recent FPAC meeting that the COE has been doing a good job of understanding fish-related objectives and meeting them.

7. Little Goose Navigation Lock Update

This repair is on track and should be completed by April 30, Don Faulkner (COE) said.

8. Procedure for Initiating Nighttime Spill to Cap at Little Goose

It's difficult to predict when this will happen because it's connected to the criteria for starting transport, which are somewhat subjective, Wagner said. The need for spill at Little Goose will be driven by the number of fish arriving at Granite, allowing time for these fish to migrate. Wagner predicted nighttime spill caps would need to start any time from April 25 to May 10 and probably run for 14 days straight, allowing a lag time of approximately two days for the fish to travel from Lower Granite to Little Goose.

The Action Agencies don't care when this spill happens, but will need lead time to plan for it, Robyn MacKay (BPA) said. The salmon managers will need to decide when the number of fish at Lower Granite warrant this extra measure of protection, taking into account their anticipated travel time to Little Goose. When it's time, Wagner will notify Hlebechuk, who will send out an email notifying all TMT members.

9. Snake River Transport

A number of transportation studies are scheduled to occur this year at Lower Granite, Paul Wagner (NOAA) said. He showed TMT members the research schedule and information regarding the start of normal transportation operations. There's a lot of variation in terms of when transport benefits wild spring Chinook, he said.

A. Transportation Studies. The first link to this agenda item is a table showing four of the planned transportation studies. Previous findings indicate that wild spring Chinook that are transported don't do as well as in-river fish if they're transported before a certain date, which can be anytime from April 20 to May 15, Wagner said. The link shows relative SARs for fish returning within 2-3 years.

Steelhead have been shown to benefit from earlier transport that wild spring Chinook, but they also vary in terms of timing, Wagner said. The long term goal of the in-river transport study is to understand what conditions are responsible for this phenomenon. Better information will result in better decisions about when to transport fish. Wagner speculated that it might have something to do with the ocean environment.

Another study scheduled is the alternate barge release which looks at releasing fish at the Astoria Bridge vs. below Bonneville. A major concern is whether fish released nearer the estuary are more likely to be preyed upon by birds than fish released below the dam. The study asks: Do fish released closer to the estuary have a better chance of surviving to adulthood?

The extra-mortality study will examine daily tagging goals, study by study, Wagner said. The main question is, does releasing fish below Ice Harbor, which reduces the number of projects they must pass, improve their survival over reducing them in the river to migrate? This study was scheduled to start April 23.

Though all these studies were scheduled to start in spring, this year's fish operations plan said that barging wouldn't begin until TMT had agreed on a starting date, which for planning purposes was assumed to be May 1, Wagner said. This limitation has put a number of these studies in question. At the FPAC meeting yesterday, managers agreed the reach survival study could proceed as early as April 19. However, collection and tagging for the rest of the studies will not begin until April 29.

Dan Spear (BPA) asked, won't this delay limit data collection on fish survival in the future? The salmon managers favor continuing the index marking and reach survival portion of the study, Kiefer said. Data indicate that it is better to leave fish in the river early in the season, once they've gathered at Lower Granite. Idaho supports continuing this research to identify causes for the date fluctuating from late April to mid May. Salmon managers didn't see the benefit of starting the alternative barge release strategy in mid April. FPAC reached a compromise that would keep management objectives intact and still fit the salmon managers' view of optimal water management for spring migrants, Kiefer said and Wagner agreed.

B. Start of Transport Operations. The expected date is still May 1, Wagner said. He made an analogy between the criteria for starting transport and those for beauty – it's subjective, more than the sum of its parts. Major factors in the decision will be the status of the run, the percentage that has already passed, how many steelhead and Chinook are in the river, the temperature forecasts, and the shape of the runoff throughout the season.

When the decision is made to transport, the COE needs three days of lead time to provide a tug ready for transport, said Paul Ocker, a COE fisheries

biologist. He recommended a Monday meeting to firm up plans for the start of transportation. Also, regarding ESA consultation, COE needs written confirmation from NOAA that COE's incidental take is covered if transportation starts before April 20 or after May 1. He recalled that transportation used to start on April 3 until two years ago. Ocker and Wagner agreed to work together on the ESA coverage issue. Kiefer suggested that FPAC discuss the start of transportation at its next meeting on April 24.

With the numbers of steelhead in the river now, few are likely to pass unless flows rise substantially soon, Wagner said. He estimated that 50% of these fish would pass Lower Granite by May 5-7 and will be collected for transport downstream. The parties to the remand process wanted 50% of the fish to pass in river, but steelhead are unlikely to accomplish that, Wagner said. Modeling indicates that 60-70% will need to be transported.

10. Chum Emergence

There have been no changes since the last TMT meeting, said Dave Wills (USFWS) on behalf of Rick Kruger (Oregon), who was not present today. This issue will be on the agenda for the next TMT meeting.

11. Water Management Plan Spring/Summer Update

COE has received written and verbal comments, Bernard Klatte (COE) said. The written ones are posted to the TMT website, and the draft update will be revised accordingly later this week. The plan is to present to IT on May 3, then TMT will finalize it at its May 15 meeting.

12. Operations Review

A. Reservoirs. Grand Coulee is at elevation 1,255.5 feet, heading for a 1,249.4 flood control elevation on April 30, Roache said.

Hungry Horse is at elevation 3,534.67 feet, releasing about 3 kcfs. VARQ outflows will start around May 1, now estimated to be about 7 kcfs.

Libby is at elevation 2,395.15 feet, and the commencement of the spring rise at Kootenay Lake was proclaimed at 0001 am April 17. With the commencement of spring rise, Kootenay Lake went from the fixed Kootenay Lake flood control elevation to the lowering formula flood control elevation. This allowed Libby to increase discharges. Inflows have been 10-11 kcfs. Discharges were increased yesterday, and the project went to full powerhouse today (April 18), with outflows of about 26 kcfs and no spill.

Dworshak is at elevation 1,571.35 feet; the end of April flood control elevation is now 1,572.1 feet. Correction: 1572.6 ft. Hlebechuk reminded TMT

members that COE will be adjusting the end of April flood control elevation, and based on this, adjusting outflows and emailing Salmon Managers of the flow changes.

Albeni Falls is at elevation 2,054.6 feet, operating between 2,054-2,055 feet with 33 kcfs outflows and spilling. The Priest Rapids flow objective of 135 kcfs started April 10; the last 7-day average was 162 kcfs. McNary has ranged between 216-235 kcfs for the last 7 days with a 226 kcfs average; the spring flow objective is 237 kcfs. Lower Granite has an objective of 85 kcfs and has discharged only an average of 48.4 kcfs over the last 7 days. Bonneville has been discharging between 205-267 kcfs.

B. Fish. We're seeing about 1,000 fish per day at White Bird trap, Paul Wagner (NOAA) said. Imnaha was up to 13,000 for a few days. In terms of getting to Lower Granite, the trend during the first part of April was about 1,000 fish per day; now it's up to several thousand fish a day. When we get into peak migration, the numbers will be in the 100,000 range at Lower Granite, Cindy LeFleur (Washington) and Wagner agreed. In general, the pace of migration is picking up but not going strong yet in the lower river.

Nearly 3 million fish (approximately 25% of this year's total Spring Creek Hatchery release) encountered up to 10% mortality when they reached Bonneville Dam on April 13. As a result, a special operation was requested, and the changes appear to have resolved the mortality problems, Wagner said. There has been debate at FPAC over whether the next group of Spring Creek fish scheduled for release the first week in May should leave the hatchery all at once or in two separate groups to spread their risk.

LeFleur agreed with Wagner that this year's migration season is running late – somewhat ahead of the past two years, but well below the 10 year average for this time of year, as the past three years have been. Steelhead passage at Lower Granite is still less than 10,000 per day for both wild and hatchery fish.

C. Power. There is nothing new to report, Robyn MacKay (BPA) said.

D. Water Quality. Recently there have been a couple of exceedances in the Ice Harbor forebay, so COE is backing off spill at Lower Monumental, Jim Adams (COE) said. There have also been a few exceedances in the McNary forebay. Other than that, all projects have been meeting their operational targets. Kiefer asked, what's the plan regarding spill at Lower Monumental? COE instituted a 26.4 kcfs spill cap the morning of April 17, Adams said. The model predicts reduced gas levels in Ice Harbor forebay.

13. Next TMT Meeting

The next meeting is scheduled for May 2, 2007. Agenda items will include a Priest Rapids update, updated flow forecasts, Dworshak operations, Snake River transportation, chum emergence, finalizing the WMP spring/summer update, and the usual operations review. This meeting summary was prepared by consultant and writer Pat Vivian.

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