

COLUMBIA RIVER REGIONAL FORUM

TECHNICAL MANAGEMENT TEAM

March 25, 2009 Meeting

FACILITATOR'S SUMMARY NOTES ON FUTURE ACTIONS

Facilitator: Robin Gumpert

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

Review of Minutes/Agenda

The 2/25 and 3/11 Facilitator and Official Meeting Minutes were finalized. Notes from the 3/18 and today's (3/25) meeting will be finalized at the 4/1 TMT meeting.

Hanford Reach Protection Flows

Russell Langshaw, Grant County PUD, shared a quick update that temperature units at Hanford Reach were at 952, and that protection flows were expected to begin on April 1. Russell will provide updates to TMT as the season progresses.

Follow up on SOR 2009-01

Dan Feil, COE, shared follow up information that was requested at the 3/18 TMT meeting. The information included updated uncompensated TDG data at the Warrendale gauge for the period March 1-24. He also shared daily kelt counts per observations at the Bonneville juvenile bypass system. Rick Kruger, OR, noted that while there is not enough known about guidance efficiency, current thinking estimates that 50% of the adults entering the powerhouse pass through the bypass system. Dan reported that the COE plans to open the corner collector on the morning of April 10.

In response to a question about causes for increased TDG, Jim Adams shared that investigations suggest that high Bonneville tailwater TDG levels outside of the fish passage season are a result of TDG production in the adult fish ladder diffusers, particularly the ones near the ladder entrance. During the night (when the 2.4 kcfs attraction flows are turned off) TDG from the diffusers accumulates in the tailwater channel at Bonneville. When the attraction flows are turned on, there is enough inflow to the tailwater channel to cause a flow into the P2 main tailwater channel resulting in lowered TDG levels. This effect is seen immediately prior to the fish passage season in March and in September when the fish passage season concludes. Recorded TDG levels during these times can reach 124%. This issue has previously been reported to TMT as well as to the Water Quality Team, Adams said. It was suggested that the region take a closer look at this issue given that it has had impacts on other operations in the system.

ACTION: Dan Feil and Rick Kruger, OR, will bring this issue to FFDRWG. It was suggested this issue might also be taken up by SCT and/or FPOM.

2009 Spring Fish Operations Plan

Rudd Turner, COE, briefed TMT on the draft 2009 Spring Fish Operations Plan, which was linked to the TMT agenda. He referred to a table on page 7 describing the spring spill plan, noting that the COE developed the plan based on direction from Judge Redden to implement 2008 spring spill operations during the March 6 BiOp status hearing; and per regional agreement for specific tests that would require a deviation from the spill that was implemented in 2008. At Little Goose, he reported, 14 days of nighttime spill to the gas cap provided last year was not built into the study design for the TSW test this year, so the COE planned to instead implement Little Goose at 30% day and night for the duration of the spill season. At John Day, the COE will implement 30%/30% on pre-test days as opposed to 0/60% as was implemented in 2008.

Oregon raised concerns that the Little Goose spill plan described in the FOP was different from technical recommendations that had been made that suggested the TSW could still be tested while providing 14 day gas cap spill, if more tags were made available. The COE responded that their objective with the spill plan is to meet performance standards and implement changes to spill based on high priority tests this year.

Idaho raised concerns that the Studies Review Work Group (SRWG), a collaborative regional team, was not consulted on the operation in a way that allowed them to provide input to the decision – from their perspective, applying the backup condition would be useful in the event that the 30% spill did not allow the region to meet its performance standards. Russ Kiefer suggested he would be willing to work on this issue some more before the FOP is finalized.

Rudd continued with his overview of the draft FOP, noting that testing at Ice Harbor will begin when a sufficient size and number of fish are observed at Lower Monumental (this was a similar process as was used in 2008); and that TSWs at McNary will be moved for a test this year. Again, Oregon raised concerns that this plan did not reflect the discussions and recommendations from technical work groups in the region.

ACTION: The COE felt that the operating plans for Little Goose and McNary had been coordinated with the region through the AFEP process earlier this year. That said, the COE acknowledged the concerns and said they would take any feedback from SRWG and other technical work groups about these issues and discuss them internally and with the Plaintiffs to the lawsuit for consideration before finalizing the FOP. Rudd Turner offered to contact Walla Walla District to make sure their representatives were aware of the request for a SRWG meeting. Rudd suggested the feedback be sent directly to him, and that it needed to happen by early next week if it was to be considered before sending the document to the court.

Rudd suggested TMT look at the transportation section and noted the need for in-season management and that the COE will need a couple days lead time to get barges in place to begin the operation – similarly to previous years.

A question was raised about a new turbine testing section that was added, and a concern that maintenance would disrupt fish passage operations. Rick Kruger requested more information about when maintenance might occur, how often, and at what incremental level. The COE clarified that they will coordinate with the region for any maintenance needs that would require more than 30 minute deviations from planned operations – and will do their best to coordinate on any unscheduled maintenance actions that are less than 30 minutes in duration.

BPA Generation Emergency Actions Review

Tony Norris, BPA, requested the salmon managers look at the current Emergency Actions list (Attachment 1 of the Emergency Protocols in the Water Management Plan) and provide any suggested revisions at the next TMT meeting. FPAC will take this issue up at their 3/31 meeting and TMT will revisit on 4/1.

Spring Spill Priority List

Jim Adams, COE, shared the latest draft spring spill priority list for spill operations. He also requested feedback from the salmon managers before sending the list to the project operators in time for the spill season. A few points were made:

- The Mid-Columbia projects were included as reference for spill caps, not for having the flexibility that other projects on the list do.
- Dworshak is described as a percentage on the list, and this is a new way of characterizing it – the COE will provide a descriptor of this just below the list in the document.
- The Dalles has been moved to the bottom of the list, per spillwall construction.
- Grand Coulee was moved to below Chief Joseph now that spill deflector construction has ended at Chief Joe. Grand Coulee numbers might change through the season based on forebay elevations and TDG levels.

The salmon managers will provide feedback to Jim Adams prior to the 4/1 TMT meeting, during which the COE will look to finalize the list.

Little Goose Low Flow Operations

Dan Feil shared the COE's contingency plan for operating Little Goose when low flows are at risk of causing fluctuations and wave action at the Lower Granite navigation lock, causing safety issues. Last year, TMT addressed this issue by recommending MOP+1 and flat spill (11 kcfs) and the COE planned to use that contingency plan again this year. Dan did note that further investigation by Walla Walla District COE staff found that the issue occurs at flows up to about 50 kcfs so would need to move to the flat spill/MOP+1 operation during those conditions.

In response to a question, the COE said this operation would not impact the Little Goose study since the low flow issue would occur at the beginning and/or end of the spill season.

Operations Review

Reservoirs: John Roache reported on BOR projects: Grand Coulee was at elevation 1284.3 feet and targeting 1281.6 feet at the end of March. Hungry Horse was at elevation 3509.68 feet with 1.8 kcfs outflows and slight increases to inflows over the past couple days. Jim Adams reported on COE projects: Libby was at elevation 2404 feet with 4 kcfs outflows and 2-4 kcfs in. Albeni Falls was operating between 2051-2052 feet. Dworshak was at elevation 1536.4 feet with minimum outflows and 5-8 kcfs in. The end of March target at Dworshak is 1542 feet. Steve Hall, Walla Walla District, noted that the COE had received a request from the hatchery to increase flows to support the spring chinook release and as such may not meet the specific target at the end of the month. He also noted that RO 2 is back on line and fully functional. 7-day average inflows were 40.7 kcfs at Lower Granite; 117 kcfs at McNary and 138.4 kcfs at Bonneville.

Tony Norris, BPA, shared that meeting all system objectives, including April 10 fill at Grand Coulee, chum protection flows and Vernita Bar requirements might be supported by an earlier start toward refill at Albeni Falls. He put out an informal request to TMT to consider moving toward filling Albeni Falls in March rather than waiting until April 1 so water could be moved to provide increased inflows to Grand Coulee in April. Tony asked for TMT feedback on this issue:

- Idaho: This proposal would not have an adverse impact on kokanee, however current restoration work in the area may be impacted and would need to be coordinated on with project coordinator from IDFG. If there is no impact to the restoration work, Idaho supports the proposal.
- NOAA: The proposal sounds beneficial and NOAA would support so long as there is no impact to chum.
- Oregon: No comment
- Washington: No comment
- BOR: Barring any negative local impacts, the BOR supports the proposal.
- COE: Would like to discuss the implications of the operation further with BPA and IDFG.

ACTION: Russ Kiefer, Joel Fenolio (Seattle District COE) and Tony Norris will coordinate this operation off line with the restoration coordinator at IDFG. Any resulting changes to the operations will be shared with TMT at the 4/1 meeting.

Fish: Paul Wagner, NOAA, reported that juvenile migrants were beginning to show up in the Snake River; and that with Bonneville screens in place, the juvenile bypass system was showing some increases in yearling and subyearling chinook.

In response to a question, Paul suggested that since there is not much monitoring of chum at this point, solid information is lacking on which to base whether emergence has ended. That said, Paul suggested (on behalf of the salmon managers) that while they would prefer operations to support all fish needs throughout the system, if a management decision needed to be made, they would prefer spill for upriver stocks at this point. BPA said they were not seeing an issue at this point but will continue to monitor this closely and will likely need to revisit the question with the salmon managers at a future TMT

meeting. It was also suggested that TMT members engage in discussions about a longer term monitoring plan for chum that is being coordinated at SCT.

For adults, Paul said steelhead counts were ranging between 25 and 50 per day and that few spring chinook had arrived.

TMT briefly looked at the latest Pinniped Report, March 20, linked to the TMT home page. At this point, hazing efforts are underway and two sea lions were euthanized due to a virus.

Power System: Tony Norris, BPA, shared the latest wind generation report.

Water Quality: Jim Adams directed TMT to the spill link on the TMT home page, and noted that all gauges were installed and operating, and that at this point in the season, TDG levels were not too high.

Next TMT Meeting, April 1: Please note: TMT meetings will likely be held at NOAA Fisheries at least through April due to phone system issues in the Columbia Room at the COE. Please check the meeting agendas for location confirmation.

Agenda items include:

- Hanford Reach Protection Flows Update
- Little Goose Low Flow Operations
- Fish Operations Plan Update
- BPA's Generation Emergency Actions List: Feedback from salmon managers
- Spring spill priority list: Feedback from salmon managers
- MOP Operations? (Note: At the end of today's meeting, it was noted that the salmon managers prefer a cascading start to MOP operations as they have recommended in the past. This issue may need to be revisited at the next TMT meeting.)
- Operations Review

**Columbia River Regional Forum
Technical Management Team Meeting
March 25, 2009**

1. Introduction

Today's TMT meeting was chaired by Jim Adams (COE) and facilitated by Robin Gumpert (DS Consulting) with representatives of COE, BOR, NOAA, OR, BPA, WA, USFWS, WA, CRITFC and others participating. 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 for Feb. 25 and March 11, 2009

The official minutes for Feb. 25, and the facilitator's notes and minutes for March 11 were all finalized today. Facilitator's notes and official minutes for March 18 will be reviewed at the next TMT meeting.

3. Hanford Reach Protection Flows

As of March 23, 952 temperature units had accumulated at the rate of about 5 TU's per day, Russell Langshaw (Grant PUD) reported. At that rate, 1,000 TU's will probably accrue by April 1, triggering emergence and rearing protection flows. Langshaw will give another update at the next TMT meeting.

4. Follow-Up on SOR 2009-01

Dan Feil (COE) presented follow-up information that was requested at the last TMT meeting regarding SOR 2009-01. The first link for this item on today's agenda is to the SOR itself. The second link is to an updated figure showing TDG uncompensated values at Warrendale gage from March 1 through this morning. There is a gap in the data from March 13-18. Beginning around March 20-23, the TDG saturation levels in the Bonneville forebay began to rise above the 105% Oregon state standard.

The third link for this item on today's agenda is to the Fish Passage Center website that shows daily steelhead counts that have been observed passing through the Bonneville PHII juvenile bypass system. These are likely kelts, Feil said. Rick Kruger (OR) suggested that guidance efficiency for these fish has been estimated at about 50%, but that is speculative since no empirical data exists to support that estimate. They are by no means the total number of steelhead passing the project, just those that went through the juvenile bypass system and were observed on the separator. Meanwhile, there has been no agreement reached regarding operating the corner collector before April 10.

5. TDG Levels at Cascade Island

TMT discussed the recently high TDG saturation levels at Cascade Island gage, which tend to rise at night to levels as high as 124% then decline to normal levels when attraction flows are turned on in the morning. These TDG spikes have been attributed to circulation in the spillway channel that traps gas generated by the diffusers at the entrance of the adult fish ladder at Bonneville. During the day, when 2.4 kcfs of attraction flows are moving through, the gas gets pushed into the river where it dilutes and moves downstream. At night, when attraction flows stop, the gas gets trapped in the channel and TDG levels rise again, Adams said. This phenomenon is observable in September and March when the CCIW gauge is operating, but no fish passage spill is occurring. A limited investigation suggests that modifications to the fish ladder intake could resolve it. TMT agreed to refer this problem to the Fish Facilities Design Review Work Group and other regional forum groups for further investigation.

6. Draft 2009 Spring Fish Operations Plan (FOP)

Rudd Turner (COE) presented the draft 2009 Fish Operations Plan, which is linked to today's agenda. Table 1 on page 7 of the FOP outlines the spring 2009 spill operation. Part of the court agreement on March 6, 2009, was to roll over the 2008 spring spill operation this year, which is the plan for all of the federal projects except two, John Day and Little Goose.

John Day – Spring spill levels were planned as zero nighttime spill and 60% daytime spill in 2008, but actually went to 30% day and night for last year's spillway weir test. This year, the plan is to spill 30% day and night beginning April 10th and continue while running the test later in April. There were no objections today to this change.

Little Goose – For the past two years, Little Goose has spilled for 14 nights to the gas cap, scheduled between April 22 and May 15 at the Salmon Managers' discretion. This year, beginning April 3rd, the operation will be 30% 24 hours a day throughout the entire spring fish passage season. The 14 nights of spill to the gas cap are being discontinued to provide for consistent spillway operations during weir testing.

Oregon objected to this change. Rick Kruger (OR) advocated purchasing 600 more tags, which researchers have told him they could use to conduct a valid scientific study even with 14 nights of spill to the gas cap. Last year, the 14 nights of spill to the spill cap took place without impacting the study. In 2008, test operations were rolled over at Ice Harbor although there was no test planned, and Camas Washougal gage was rolled over although it's no longer required. Oregon portrayed this as an arbitrary attempt to reduce spill, an assumption the COE challenged. The 30% nighttime and 30% daytime spill regime proposed for John Day Dam this year actually represents a spill increase over the 0% nighttime and 60% daytime spill regime of 2008, Turner pointed out

This decision should go to the Study Review Work Group, Russ Kiefer (Idaho) suggested. It might have been possible to incorporate 14 nights of gas cap spill in a block design into the spring 2009 FOP, a change that might provide the region with more information than a one-treatment test this spring. Idaho offered to work quickly with the COE now to design a study that will provide the best scientific information. Turner will investigate the possibility of altering the scope of the research at this late date. Kruger and Kiefer agreed to work on scheduling a SRWG call soon. There's no certainty that the 2009 spring spill plan will be open for negotiation, and answers on it are needed by this time next week, Turner pointed out.

Lower Monumental and McNary – End-of-spill dates are flexible for these two projects. Research studies will begin when there are enough yearling fish to begin tagging and evaluation. Other than Lower Monumental and McNary dams, all the federal projects have fixed dates for ending spring spill.

At McNary, temporary spillway weir #1 is being relocated from bay 19 to bay 4, with TSW #2 remaining in bay 20. The Salmon Managers were opposed to moving TSW #1 to bay 4 when FFDRWG discussed it in February 2009, Kruger recalled. They preferred to remove TSW #1 from bay 19 and to perform a test using a single TSW in bay 20. From Oregon's perspective, this issue remains unresolved.

A discussion of regional coordination and the connections between technical information and policy decisions ensued. NOAA, BPA, BOR and possibly USFWS worked together on the FOP in response to the March 6 hearing at which the Action Agencies agreed to a rollover, Feil explained. The changes they made to the FOP this year are to accommodate testing. Data show that performance standards for McNary won't be met at 40% spill, and a higher level is needed, therefore FFDRWG advocated a 40/60% spill regime with a single TSW, Kruger said. Scott Bettin (BPA) reminded everyone that the Action Agencies have the responsibility to make decisions regarding fish operations after hearing recommendations from the Regional Forum.

Ice Harbor – This project will spill 45 kcfs during the day and to the spill cap at night when spill begins on April 3rd. This spill operation will continue until the RSW testing begins. When the testing begins, the operations will alternate between 45 kcfs day/spill cap at night and 30% of outflow 24 hours per day. The RSW test is expected to start mid-April contingent on juvenile fish numbers following release at Lower Monumental and last until early June. Fish from Lower Monumental will be used for the study; no fish will be radio tagged and released immediately above Ice Harbor. The test will begin a few days after tagging and release of fish begins at Lower Monumental. Therefore the specific date for beginning spring spill might differ from 2008. It's possible the Sacajawea transformer might be repaired by July 2009, which could also impact spill.

John Day – This is the other project besides Little Goose that will operate differently than it did in 2008. It is an operational change, not for testing purposes. Spring spill at JDA will be 30% for 24 hours a day prior to the spill test, then 30/40% throughout the test. This means zero/60% spill will be eliminated at John Day this year.

The Dalles – This project will operate as it did in 2008 with regard to spring spill. There was discussion of spill bays and patterns. The COE is proposing operating bays 14-22 only at high spill levels. There is erosion under bay 23, Bettin noted. We might need to review spill patterns for The Dalles because modeling showed that bay 22 would cause flows to re-circulate in the stilling basin, Kruger said. Bay 22 would only be used as a last resort because it creates poor egress conditions, Turner replied.

Bonneville – This project will operate the same as it did last spring, with 100 kcfs spill for 24 hours a day.

In terms of changes to the FOP, timing is critical, Turner said. The COE expects the FOP spill operation will be included in a court order, which is needed before April 3 in time for spill to start on the Snake River. That means the FOP should go to the court early next week. The Salmon Managers will coordinate any recommended changes with Turner.

Transportation in 2009 – Turner encouraged people to review the transport section of the FOP. The low flow threshold this year is 70 kcfs, with transport beginning at Lower Granite on April 20, and following a staggered start at other projects, similar to last year. If flows are projected to be above the 70 kcfs threshold, transport would begin at Lower Granite between April 20 and May 1. The exact date to start transport will be made by TMT. The April final forecast is due April 7. Until then, the COE is using STP runs which indicate that flows will be above 70 kcfs.

There is one small change: in 2008, transportation downstream followed Lower Granite, beginning 8 days later at Little Goose and 11 days later at McNary. This year, the actual dates will be up to TMT discretion. A few days' lead time will be needed to get the barges going.

Turbine testing – Referring to the turbine testing section on page 6 of the FOP, Kruger wondered about the meaning of a new paragraph that was added in response to a change request to include it in the Fish Passage Plan. Kruger asked why maintenance is being done during fish passage season that would result in this operation. FPOM is concerned about how often it would happen and whether it would detract from spill. More information is needed so the Salmon Managers could get a better sense of what's involved.

During a low flow operation, when this operation might impact spill, the Action Agencies would avoid it if possible, Turner replied. He couldn't say how often it might need to occur, but it would be coordinated through FPOM on a case by case basis.

The blanket approval requested in the change order is limited to periods of less than 30 minutes, Bettin said. If an unforeseen outage occurs with potential negative impacts, the Action Agencies will coordinate it. The draft FOP covers this at the top of page 9, which says that final test conditions will be coordinated through FPOM and/or SRWG, Kiefer noted. The present situation should be used as an opportunity to provide better information for future management decisions. TMT will revisit the turbine testing issue at its next meeting April 1.

7. Review of BPA Generation Emergency Actions

Tony Norris (BPA) led a discussion of Generation Emergency Action Plan's emergency actions list for 2009, which is Attachment 1 of the TMT emergency protocols, which are available on the TMT web page. The Salmon Managers will review this document for discussion at their FPAC meeting on March 31, 2009.

8. Spring Spill Priority List

Every year on April 2, the COE sends a spill priority list to project operators, which lists for each project what level of spill is expected to produce a given percentage of TDG saturation, Adams said. The order in which the projects are listed is flexible. The general strategy at the start of spill season is to spill at upriver projects first to give juveniles an extra push downriver. The draft 2009 spill priority list is linked to today's agenda, open to comments and suggestions from regional participants.

Mid-Columbia project operators follow their own spill protocols, so the COE doesn't send them the spill priority list, but they are included here for the sake of BPA's real time schedulers, Adams said.

Dworshak TDG percentages are very dependent on outflows. The percentages on the spill priority list are percentage of spill related to total outflow at Dworshak. Adams will follow up on a suggestion to add a footnote to the chart explaining this to BPA's schedulers.

Chief Joseph is on the spill priority list, with spill caps that are about the same as they were in the past. This is due to uncertainty regarding the impacts of spilling over the newly constructed deflectors. The Dalles is at the very bottom of the list, due to concerns about flow conditions over the partly constructed spill wall, the leveling slab in particular.

Grand Coulee is now below Chief Joseph on the list. One problem with spill at Grand Coulee is that the fixed monitoring station is 6 miles downstream. Therefore, forebay TDG levels at Grand Coulee have a big impact on TDG levels measured at the tailrace gage. Spill caps for Grand Coulee may need to be adjusted depending on river conditions in coordination with BOR, Adams said. John Roache will check to see if any catwalks are installed that need to be removed before spilling over the drum gates. TMT will revisit the spill priority list at its next meeting April 1. In the meantime the Salmon Managers will provide feedback to the COE on it.

9. Little Goose Low Flow Operations

Dan Feil (COE) led a discussion of problems at Little Goose Dam. Last year, the combination of 30% spill, MOP operations and low flows caused elevations to drop below the necessary depth at the entrance to the navigation lock. The cause of this is a wave in the reservoir created by having to switch back and forth between a one-unit and two-unit operation in order to keep forebay elevations within MOP constraints.

Last year, the COE dealt with the problem by raising the pool level to MOP plus 1 foot, and also went to 11 kcfs flat spill later in the season. This year, because of potential low flows, the latest estimate is there may be a need to operate the Little Goose pool at MOP+1 to MOP+2 and possibly adopt a flat spill operation when flows are in the range of 40-50 kcfs at Little Goose. There was discussion of how low the percentage of spill might have to go in relation to TDG exceedances. This concern is based on elevations measured at the navigation lock, not at the powerhouse gage, Adams said. Feil alerted people that the COE will likely go to a flat spill pattern at Little Goose if flows get down to a range that threatens navigation. The flat spill rate would be coordinated at TMT.

Flow levels associated with navigation problems may be different than flows that cause problems for spill, Laura Hamilton (COE) pointed out. This relates to impacts downstream caused by switching between the two operations at Little Goose, Bettin added. Flat spill would help solve that problem, Norris said. This will probably happen before the study begins at Little Goose on the third or fourth week from April, Feil said. Spill at Little Goose will be a likely topic for the next several weeks on TMT meeting agendas.

10. Albeni Falls Operations

As of today things look good in terms of meeting chum emergence, April 10 refill, and Vernita Bar minimum flows, Norris said. However, that assumption is based on streamflow predictions and aren't certain to occur. As a tool to help ensure there is enough water to meet these objectives TMT could consider refilling at Albeni Falls early, which would probably put the end of month elevation approximately 1 foot above the end of March elevation. The project

typically refills gradually from April 1 to April 30, from approximately 2,052-2,056 feet. This action would increase inflow into Grand Coulee in April. BPA is proposing to begin refill as soon as possible and refill on at trajectory that reaches 2056 by April 30. It's expected to have several benefits downstream, including adding to Coulee inflows in April and improving the odds of achieving April 10 refill. The difference equals about 5 kcfs. That's about 6 inches above elevation 2,052 feet, Joel Fenolio (COE Seattle) said.

Norris asked Kiefer whether the proposal would affect kokanee spawning in Idaho. Kiefer said that kokanee would not be affected by an early refill. Then TMT members voiced their views.

Idaho – Rehabilitation work at the Pac River delta might mean waiting until April 1 to start refill at Albeni Falls. Idaho does not object as long as there are no significant impacts to the restoration work. The proposal offers some potential benefits if it doesn't interfere with restoration.

NOAA – The proposal will move more water into April at the expense of March. The water is not really needed in March from a BiOp perspective, other than to meet the chum incubation objectives. Therefore NOAA has no objections.

Oregon – No comment at this time.

WA – This proposal doesn't sound like a problem. No objection.

BOR – Barring any local impacts at Albeni Falls, the proposal would have positive effects. BOR supports it, barring local impacts.

CRITFC – No comment at this time.

BPA, IDFG and the COE will coordinate on this proposal and report back to TMT soon.

11. Operations Review

a. Reservoirs. Grand Coulee is at elevation 1,284.3 feet, headed to a March 31 flood control elevation of 1,281.6 feet. The April 10 elevation is 1,281.9 feet, which essentially means passing inflows after April 1.

Hungry Horse is at elevation 3,509.68, discharging 1.8 kcfs, Inflows have come up the past few days so the project is almost passing inflows.

Libby is at elevation 2,404 feet, with outflows at the 4.0 kcfs minimum. Inflows are hovering between 2-4 kcfs, so the reservoir is being slightly drafted. Minimum outflows are expected for a while.

Dworshak is at elevation 1,536.4 feet, still operating at minimum outflows of 1.6 kcfs. Inflows are running between 5-8 kcfs. The end of March elevation is approximately 1,542 feet. A March 24 request from Dworshak Hatchery to increase flows today and tomorrow for the spring Chinook release means the reservoir will probably be below its target elevation of 1,542 feet at the end of March. The RO #2 gate is now fully functional in time for spring flows.

Albeni Falls is still operating between 2,051-2,052 feet elevation, slowly filling. See above discussion under agenda item 10.

Seven-day average inflows are 40.7 kcfs at Lower Granite, 117 kcfs at McNary, and 138.4 kcfs at Bonneville.

b. Fish. Smolts have been showing up in traps along the Snake River, Paul Wagner (NOAA) reported. There was a recent bump of 4,800 yearling Chinook passing Bonneville. Low number of coho and steelhead are now passing Bonneville daily. Adults are passing Bonneville Dam at the rate of 25-50 steelhead per day, and about 10 spring Chinook per day.

According to temperature data on the FPC web site, chum emergence is estimated to be nearly done, Wagner reported. However, there isn't much information available. Tony Norris (BPA) asked how the Salmon Managers would prioritize chum emergence protection vs. meeting April 10 objectives if a choice must be made. The preference would be to support both operations, Wagner said, but the April 10 operation would probably have highest priority. Forecast information regarding the April 10 objective is not yet available, Norris said. At present, current streamflow forecasts show that we expect to achieve all the objectives. The intention is to provide both operations. However, there have been years in which it wasn't an option. If that situation arises in 2009, TMT would discuss it and weigh the relative risks.

Conditions look good below Bonneville between now and the end of March because the BOR needs to draft 2 to 3 feet of water from Grand Coulee Dam before the end of March, Roache reported. After March 31, Grand Coulee will essentially be passing inflow until April 10 but under the current forecast, it looks like all fish objectives will be met. There was discussion of probable dates when chum emergence ended in previous years, based on river and groundwater temperature data.

As of March 20, 2 sea lions had been trapped below Bonneville Dam and euthanized because they had a contagious virus, according to the weekly sea lion hazing report published on the TMT website.

c. Power System. There have been recent days of wind generation at 1,700 aMW, Norris said. Other than that, there was nothing to report today.

d. Water Quality. All gages in the Columbia and lower Snake are currently installed and operating, Adams reported. TDG levels are not terribly high except at Cascade Island gage for the reasons discussed earlier today.

9. Next Meeting

The next regular TMT meeting will be on April 1, 2009, location to be determined. The agenda will include follow-up on the Fish Operations Plan; any revisions to the BPA emergency actions list and the spring spill priority list; Little Goose operations; chum operations in relation to Vernita Bar flows and Grand Coulee refill; and the standard operations review. This summary prepared by consultant and writer Pat Vivian.

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