

COLUMBIA RIVER REGIONAL FORUM

TECHNICAL MANAGEMENT TEAM

April 1, 2009 Meeting

FACILITATOR'S SUMMARY NOTES ON FUTURE ACTIONS

Facilitator: Robin Gumpert

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.

Review of Minutes/Agenda

The 3/18 facilitator notes and official meeting minutes were finalized. The following edits to the 3/25 facilitator's notes were made during the meeting:

- On page 1, under Hanford Reach, change temperature units to “952”.
- On page 1, first paragraph under SOR 2009-1, change “juveniles” to “adults”.

With those changes made, the 3/25 facilitator's notes were considered final. Edits to the 3/25 official meeting minutes will be shared at the 4/8 TMT meeting.

Hanford Reach Protection Flows

Russell Langshaw, Grant County PUD, shared a quick update that temperature units at Hanford Reach were at 991, and that rearing protection flows would begin on April 2. Russell clarified that the daily delta maximums are based on project inflows and that plans are to maintain protection flows until 400 temperature units beyond emergence (typically into June.)

Next Steps: Langshaw will provide updates to TMT for the 4/15 meeting.

Dworshak Operations

Stave Hall, COE, reported that Dworshak pool elevation was 1540.5'; the pool was shy of its end of March elevation target of 1542.7', due to increased discharges to support the Dworshak Hatchery releases. Hall noted that the latest water supply forecast shows the April-July volume at 2.66 MAF (99% of average); this new forecast has shifted the end of April flood control elevation target to 1515.6', which is ten feet lower than previously forecasted. Hall said that current inflows and outflows at the project were at 10 kcfs and that the COE likely would increase outflows to 14 kcfs later in the day; Jim Adams, COE said the latest STP run showed inflows rising to 15 kcfs by the end of April, but that estimate was based on an estimated April 1 inflow level of 7.9 kcfs. Hall said if rising water supply conditions persist, there may be a need to spill up to and potentially above the gas cap. Also, depending on Initial Flood Control (ICF) data, refill may need to begin in April. Hall clarified that the objective of the shift is to minimize risks to the extent possible while waiting for the April final forecast to be released next week.

Dave Statler, Nez Perce Tribe, expressed concern for the sharp decrease in the end of month elevation target and for management actions that may result in dramatic elevation

movement. Statler asked whether it might be possible to pass inflows while waiting for the final forecast, thereby using caution up front and ensuring ample water supply later in the year; the COE acknowledged the suggestion and said that it could not deviate from the flood control requirements it is obligated to provide and reiterated that this change in operation is in response to a high probability of higher than anticipated inflows. Hall referred to the 2004 water year, when the COE performed an operation similar to what Statler was proposing; this resulted in high outflows (over 15 kcfs) in June, which is what the COE is intending to avoid this year. The COE acknowledged that there is always room for improvements when it comes to forecasting, but because Dworshak inflows can increase rapidly, it has an obligation to prepare as best it can for dramatic fluctuations in a way that provides good conditions for meeting all interests downstream of the project.

Action/Next Steps: The COE planned to increase discharges up to 14 kcfs later in the day; this item will be on the agenda for the 4/8 meeting.

Follow up on SOR 2009-01

Dan Feil, COE, shared follow up information that as a result of continued regional discussions, the COE plans to open the corner collector on the morning of April 3rd. Feil noted that a crane had become available for use at the project and the OR state waiver began on 4/1, superseding the 105% standard. Paul Wagner, NOAA, noted that the timing was favorable, as chum emergence looked to be completed by 4/1. Feil added that the COE's kelt passage white paper was available for regional review and that discussion on the paper will help guide operations in future years.

Tony Norris, BPA, asked the Salmon Managers whether the timing was right to lift the 11.5' tailwater restriction at Bonneville. Paul Wagner said that FPAC discussion on 3/31 recommended holding the 11.5' to preserve connectivity of flows, so long as it doesn't interfere with other operations or protection measures. Scott Bettin, BPA, encouraged TMT members to weigh in on SCT's review of the monitoring strategy, specifically regarding the placement of gauges. TMT members agreed that long-term data would help support future operational recommendations.

Action/Next Steps: BPA agreed to hold the 11.5' Bonneville tailwater restriction for the short term (up to 10 days); TMT will follow up on this discussion at their 4/8 meeting.

2009 Spring Fish Operations Plan

Rudd Turner, COE, reported that no changes had been made to the draft 2009 Spring Fish Operations Plan as it was presented to TMT last week. Per discussion at the 3/25 TMT meeting, Turner said that the COE had coordinated with the Portland District office and the technical Studies Review Work Group (SRWG) regarding the Little Goose 14 days of nighttime spill to the gas cap provided last year. A technical memo was sent to the COE on 3/31 which made a conclusion that the study could be conducted without purchase of additional PIT tags. However, the COE said this was not built into the study design for the TSW test this year, and the COE plans to operate per the 2008 BiOP and operate Little Goose at 30% day and night for the duration of the spill season. Rick Kruger, OR,

referred to conclusions included in the technical memo and suggested that tests conducted in 2009 would not be useful for testing to the performance standards because the protocols for performance standard testing has not been finalized. The COE acknowledged that the communication to the region regarding the 14 days of nighttime spill could have been clearer, and Turner reiterated that the COE's objective with the spill plan is to meet performance standards and implement changes to spill based on high priority tests this year.

Action/Next Steps: Turner clarified that the 2009 FOP will incorporate the new date for the B2CC opening; a court hearing was scheduled for 4/2.

BPA Generation Emergency Actions Review

FPAC is still reviewing the document; chair Paul Wagner will coordinate offline with Tony Norris, BPA, with any recommendations the group suggests and report any changes to TMT at a future meeting.

Spring Spill Priority List

FPAC is still reviewing the document; chair Paul Wagner will coordinate offline with Jim Adams, COE, regarding any changes group suggests and report any changes to TMT at a future meeting.

Little Goose Low Flow Operations

Dan Feil, COE, reported that spill on the Snake River was scheduled to begin the morning of 4/3. Feil clarified that the COE will use a MOP+1 operation at Little Goose, but will use a 30% spill operation (as opposed to the flat flow operation discussed at the 3/25 meeting) until such time that hourly flows are consistently lower than 30 kcfs or over 50 kcfs. Feil said that operations and recommendations will be discussed at TMT as in previous years. He noted that the TSW will begin in the low crest (higher discharge) position and will likely shift to the high crest position for summer.

Operations Review

Reservoirs: Jim Adams reported on COE projects: Libby was at elevation 2403.5' feet with outflows of 4 kcfs inflows of 2-3.5 kcfs. Albeni Falls was in the range of 2051-2052', with and end of April elevation target of 2055.5'. Dworshak was at elevation 1540.5' with in and outflows of 10 kcfs. The COE is planning to increase outflows up to 14 kcfs soon. 7-day average inflows were 45.3 kcfs at Lower Granite; 142.7 kcfs at McNary and 167.8 kcfs at Bonneville. John Roache reported on BOR projects: Hungry Horse was at elevation 3509.25' with outflows of 2.2 kcfs and inflows in the range of 1.2-1.4 kcfs. Grand Coulee was at elevation 1281.35'; Roache said that objectives ahead were to meet the Vernita Bar Fall Chinook protection flow minimums of 60 kcfs and the April 10 elevation target of 1281.9', however it will be difficult to meet both objectives. Roache and Tony Norris, BPA, clarified that the Action Agency's priority between the two objectives would be to meet minimums at Vernita Bar perhaps at the expense of meeting the April 10 target of 1281.9 feet and asked TMT members present to provide input:

- . NOAA: no objection.

- USFWS: no objection.
- ID: no objection.
- Nez Perce Tribe: no objection.
- COE: no objection.

Fish: Paul Wagner, NOAA, reported that yearling and subyearling Chinook were picking up, with sub-yearling Chinook passing Bonneville at the rate of 1,000 per day. Kokane and Steelhead were beginning to pass Lower Granite.

Power System: Nothing to report at this time.

Water Quality: Jim Adams directed TMT to the spill link on the TMT home page, and noted that all gauges were installed and operating; he noted errors in gauge readings on 3/31 had been corrected. Adams said the COE would be coordinating closely with Paul Wagner, NOAA regarding setting spill caps throughout the season.

Next TMT Meeting: April 8: at NOAA

Agenda items include:

- Notes review (3/25 and 4/1)
- Water Supply Forecasts
- Dworshak Operations
- Little Goose Operations
- Operations Review

**Columbia River Regional Forum
Technical Management Team Meeting
April 1, 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, BPA, NOAA, USFWS, Idaho, the Nez Perce Tribe, 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 March 18 and March 25, 2009

There were no comments today on the facilitator's notes or the official minutes for March 18. The facilitator's notes and official minutes for March 25 will be re-posted with comments incorporated and reviewed at the next TMT meeting.

3. Hanford Reach Protection Flows

As of yesterday, 991 temperature units had accumulated, Russell Langshaw (Grant PUD) reported. Tomorrow will bring the 1,000 TU mark, at which point Grant PUD will initiate emergence and rearing protection flows. These flows are daily delta maximums based on project inflows. They begin at the time of emergence and continue until 400 TU's have accumulated after the end of emergence. Typically, the protection flows end in June. Paul Wagner (NOAA) asked if protection flows will start with a 30 kcfs band. The daily delta would be 20 kcfs if inflows are less than 60 kcfs, Langshaw replied. He will provide an update at the April 15 TMT meeting.

4. Dworshak Operations

As of last night, Dworshak pool elevation rose to 1,540.5 feet, Stephan Hall (COE) reported. It didn't reach the shifted end of March flood control target of 1,542.7 feet, partially due to discharges made on March 25-26 for hatchery spring releases.

The updated Dworshak water supply forecast shows an April-July volume of 2.66 maf, 99% of average. That forecast has driven the end of April flood control elevation target down to 1,515.6 feet, more than 10 feet below the unshifted end-of-March target of 1,526.9 feet. This situation led the COE to increase operations to two small units last night, then to full powerhouse (10 kcfs) this morning. The plan now is to increase outflows to the gas cap limit of

approximately 14 kcfs in response to rising inflows and forecast volumes. If these conditions persist, it could be necessary to release flows above the gas cap, Hall said. The forecasts are uncertain, but all indications are that inflows will continue to increase. Another factor is whether the initial controlled flow (ICF) begins early. If so, Dworshak could shift into refill mode before the end of April, the typical month for transitioning from flood control to a refill operation. (The ICF is a trigger for refill to begin on the Columbia River headwater projects.)

Wagner asked what the current plan is for Dworshak in terms of inflows vs. outflows. Current inflows are around 10 kcfs, and the STP run indicates that outflows will increase from today's rate of 7.19 kcfs to 15 kcfs at the end of April, Adams replied.

Dave Statler (NPT) asked how the new forecast influences the mid-month shifted flood control elevation. Analysis of the flood control shift is being worked on now, Hall replied. In general, the difference between the shifted and unshifted elevation at Dworshak equals the difference between an elevation that provides local flood control to the communities below the dam, and the system flood control requirement. The shift must also take into account how much volume Grand Coulee can accept.

Earlier plans for the Dworshak/Coulee shift were based on normal or average inflows, Hall said. Given the rising forecast in inflows, the COE no longer plans on limiting the flood control shift to 100 kaf by April 15. Instead, the COE will be trying to release as much water as possible. The risk of doing a flood control shift is that above-normal inflows and an increasing forecast can make it difficult to achieve the end of month flood control target, while below-normal inflows can result in not being able to maximize the potential of the shift.

Statler acknowledged these risks, while pointing out that the flood control shift provides an additional benefit – it buys time, allowing forecasting information to become more accurate before final decisions must be made. A provisional operation now would reduce the risk of undershooting or overshooting refill targets and would allow better management of the reservoir during evacuation and refill, while avoiding major swings from minimum flows to full powerhouse, Statler said.

The mid-month shifted Dworshak elevation, based on last month's forecast and a limited shift of 100 kaf was 1,534.1 feet, Hall said. That elevation will go lower because of the increase in forecasted volumes. Essentially, the COE is planning to aid early spring juvenile outmigration by providing 15 kaf of outflows in April and May, which means pushing high flows out of Dworshak in April. The full shift operation typically sets up high flows in April, followed by lower discharges in May and June.

Typically, the Nez Perce Tribes sets a minimum flow target of around 5-6

kcfcs during the refill period, Statler said. He advocated taking a middle ground approach now, matching outflows with inflows to the extent possible until mid-April, while capping outflows at 14 kcfcs until a more definite forecast is available.

A new federal interagency group (Columbia River Forecast Group) has formed to work on Columbia River forecasting, and Dworshak flow management would be a perfect topic for them, Kyle Dittmer (CRITFC) said. New forecasting technologies are available that could be used to improve the Dworshak operation. Dittmer offered to serve as a connection between TMT and that group. He expressed frustration that flood control needs seem to have priority over fish needs. How can we maximize the use of water for fish and also still meet flood control objectives? That's a balance TMT ought to strive for. Unfortunately, the way the projects are operated, fish are always the last priority. Dan Feil countered, saying that was not true and that the whole reason for the shift operation was to benefit fish in late April and May.

The COE is obligated to manage Dworshak so that it provides the flood control benefits it was authorized to provide, Hall said. As the project refills, it must follow a refill curve that balances flood control with refill objectives. The COE is doing its best to provide flows for fish within the flood control limits.

The flood control shift has yet another benefit – it guards against a falling forecast, Tony Norris (BPA) added. Forecasting for Dworshak was done using the latest information and a modern method, principal components forecasting. The COE is utilizing the latest information to operate in a prudent manner in terms of evacuating the required volume required by flood control without exceeding water quality standards.

The point, Statler said, is that at this point the forecast is still preliminary. There's an opportunity over the next 15 days to take advantage of the flood control shift and release water slowly until there is more assurance regarding the runoff forecast.

In 2004, that essentially was the operation, and it resulted in outflows above 15 kcfcs, which is what we're trying to avoid, Hall said. The final April forecast will be released tomorrow, the final shift analysis at the end of this week or early next week. Given rising inflows, the COE will have to increase flows just to meet the previous April 15 shifted target. TMT will revisit Dworshak operations at its next meeting April 8.

5. B2 Corner Collector Operation Update

In response to SOR 2009-01, in coordination with Accord signatories, the COE will open the Bonneville 2nd powerhouse corner collector the morning of April 3, 2009, Dan Feil (COE) reported. A crane will be available to perform the work. Since the Oregon TDG waiver kicks in as of today, the 105% TDG criteria

in hatchery waters and waters less than 2 feet in depth is no longer applicable. Therefore, additional depth compensation due to increased TDG levels generated by the B2CC will not be necessary.

Tony Norris (BPA) asked whether the 11.5-foot minimum tailwater elevation below Bonneville could be relaxed. There's not much risk to chum at this time, Wagner said. As discussed at last week's TMT, based on temperature units, emergence should be complete for all known redds. Total dissolved gas levels are therefore not a concern now. However, tailwater elevations still need to be maintained at 11.5 feet below Bonneville for a different reason – maintaining channel connectivity below Ives Island and Hamilton Creek. It might be possible to go lower than 11.5 feet elevation and keep that area wet, but the actual elevation is uncertain. FPAC has discussed this issue, Wagner said, and the desire is to maintain 11.5 feet elevation below Bonneville if at all possible. The absolute minimum is 10.5 feet, Scott Bettin (BPA) said.

Feil announced the availability of a white paper on kelt passage at Bonneville. The COE expects the region to discuss and consider that information and, sometime over the next year, to define optimal operation of the corner collector for kelt passage. In future years, the corner collector will be automatically opened and won't require a crane, making plans easier. The COE wants feedback from regional technical forums on a plan for determining when the corner collector should operate in response to numbers of kelts observed.

The FPAC recommendation is to maintain a fish operation that is advantageous if it doesn't conflict with any other, Wagner said. When the operation shifts from chum protection to operation of the corner collector for kelts, there's a potential tradeoff between allowing passage for kelts and downstream juvenile migrants, and any chum that might still be incubating. If April is a transition period, it would be better to maintain continuity in the April operation if possible so there is some level of protection throughout. If there's a low cutoff point in flows, it should be identified because half a foot or a foot of elevation can make a big difference in spring discharges, Norris said.

Bettin asked TMT members to provide feedback on temperature monitor locations and the long-term protocol BPA uses to manage them. There was acknowledgement that operations will be tight this year in terms of meeting all objectives. For the next 10 days at least, maintaining the 11.5-foot minimum elevation below Bonneville without exceeding Vernita Bar minimum flows should not be a problem, Norris said. TMT will revisit this topic at its next meeting.

6. Draft 2009 Spring Fish Operations Plan (FOP)

The draft spring 2009 FOP, posted on March 24, 2009, remains the current version, Rudd Turner (COE) reported. Meanwhile the spring 2009 FOP is being discussed in other regional arenas, including litigation and the

policy/executive level. Last week, two new issues arose:

The first was concern about discontinuing 14 nights of springtime gas cap spill at Little Goose for the sake of conducting a single-treatment test of the newly installed spillway weir. This change was not highlighted, although the Little Goose configuration and operations plan was discussed at length. On March 30, SRWG discussed the provision for 14 nights of gas cap spill. On the following day, the COE received a joint technical staff memo on the issue.

One thing SRWG agreed on is that the CRFM budget won't absorb an additional \$300,000-600,000 in costs to purchase more tags so the test could be conducted while allowing for 14 nights of gas cap spill, Turner said. The RPA in the BiOp for Little Goose doesn't include 14 nights of gas cap spill, but it does specify a 30% spill operation to meet the performance standard at Little Goose. Therefore, a key objective of the test, from the Action Agency perspective, is to evaluate the new spillway weir at 30% spill.

There's no need for more tags because the study can be done including 14 nights of gas cap spill with the same level of precision, Rick Kruger (Oregon) said. Therefore, the study should be done with the tags available. He recalled that the SRWG discussed Little Goose operation in terms of testing to BiOp performance standards and decided that would be premature this year, for two major reasons: (1) the outfall is being moved; and (2) the protocol for testing to the performance standards isn't complete, and the current methodology needs work because sometimes it yields test results of over 100%. Therefore SRWG concluded that it's not appropriate to test to BiOp standards at this time. They did agree the new spillway weir should be tested to ensure that it's operating properly. In the context of a rollover, Kruger said, operating to BiOp standards at Little Goose is inconsistent.

If everything is assumed to be a single treatment regardless of the operations that occur, the study can be done with the same degree of precision, Turner said. However, as far as research is concerned, the 14 nights would represent a changed condition, which would have to be dealt with in the analysis. The study results for 30% spill round-the-clock (the BiOp level) would then be based on only the beginning and end of migration season. SRWG suggested that the 14 nights could be broken up rather than consecutive, but that would still require additional tagging for each species being evaluated. The goal of testing the spillway weir under 2008 BiOp spill operations is a top concern for operating this project. In the past, the court has accepted minor changes to rollover operations for the purpose of testing a new structure. Therefore, the COE sees that change this year as consistent with previous operations.

Even 30% flat spill this year won't be useful for determining performance standards compliance because the conditions will change, Kruger said. The Action Agencies are now in the implementation period of the 2008 BiOp and are

responsible for meeting the performance standards in 2009, even with new metrics and a new outfall coming, Turner replied. The new outfall is high on SCT's priority list. Nevertheless, an estimate of survival rates at Little Goose under the BiOp operation is needed, even if it's not a final estimate. Research shows that 30% spill will achieve the Little Goose performance standard for survival, and if 30% spill falls short, that's what subsequent studies are for.

In the meantime, the 30% operation being proposed is the culmination of work at the staff and supervisory level as a good approach to managing fish operations and research at Little Goose in 2009 with the new spillway weir in place. Turner expressed regret that this aspect of Little Goose operations wasn't discovered and aired sooner in the SRWG review process. For now, the COE plans to initiate spill operations on April 3 per the draft FOP. The corner collector will now open on April 3 as well, not April 10 as the current draft says. For the next few days, pending the outcome of a meeting in Judge Redden's chambers tomorrow, the COE will operate according to the draft FOP.

The COE will keep TMT apprised of any changes. TMT will review the spring FOP at its next meeting April 8.

Tom Lorz (CRITFC) asked when the summer FOP will be released. Turner said he did not know, but possibly before the end of June.

7. Review of BPA Generation Emergency Actions List

The FPAC is reviewing this list at present, Wagner said. Norris and Wagner agreed to finalize the list outside of TMT.

8. Spring Spill Priority List

This list is also under FPAC review, Wagner said. He didn't expect the priorities to change, but consensus hasn't been reached on that yet. FPAC members did agree that The Dalles is rightly placed at the bottom of the list. The COE will send the list as-is to project managers, and Wagner will notify TMT if it needs to be discussed again.

9. Little Goose Low Flow Operations

Dan Feil (COE) led discussion of the latest developments regarding Lower Granite Dam navigation lock problems. Apparently, the MOP elevation of 633-634 feet for the Little Goose pool, combined with a 30% spill operation at Goose and flows of less than 50 kcfs, can result in navigation problems at Lower Granite. The COE will keep a close eye on the navigation lock elevations at Lower Granite and will begin spill operations with a Little Goose forebay operating between MOP+1 and MOP+2. As soon as hourly flows are consistently higher than 50 kcfs, the Corps will lower the pool to the normal MOP

range.

FPAC has reviewed this operation and expressed a preference for handling it on a case by case basis, Wagner said. There was mention of steps to the flat spill, which Wagner and Wills agreed they didn't understand at the time it was first discussed. The FOP says this will be coordinated at TMT, Norris pointed out. Flat spill of 11 kcfs isn't necessarily a magic number, Adams added. The spillway weir at Little Goose will be in the low crest position for spring, discharging 11-12 kcfs depending on inflows. For summer, the spillway weir crest will be in the high position, with a lower rate of discharge.

To sum up, the operational plan for Little Goose is to begin by implementing a MOP+1 operation based on inflows. The operation will begin with 30% spill at the beginning of spill season. If hourly flows are consistently above 50 kcfs, it will trigger a transition from MOP+1 to MOP operations.

10. Operations Review

a. Reservoirs. Libby is at elevation 2,403.5 feet, with outflows steady at the 4 kcfs minimum. Inflows are ranging from 2-3.5 kcfs.

Albeni Falls has been operating between elevations 2,051-52 feet. Beginning today, the project will start filling. The expected end-of-April elevation is 2,055.5 feet.

Hungry Horse is at elevation 2,509.25 feet, discharging 2.2 kcfs. Inflows are ranging from 1.2-1.4 kcfs, and the reservoir is slowly drafting.

Seven-day average inflows are 45.3 kcfs at Lower Granite, 142.7 kcfs at McNary, and 167.8 kcfs at Bonneville.

Dworshak, discussed above under agenda item 4, is currently at elevation 1,540.5 feet. Until yesterday, it operated at minimum outflows of 1.6 kcfs. Yesterday the operation went to two small units, and then ramped up around midnight to one big unit. By 2 am, outflows were 10 kcfs. This operation will continue until the forecast is more definite. Within a few days, outflows could increase to 14 kcfs in response to the need to release water to get to the end of April flood control elevation. While waiting for the final April forecast, the operational plan is to minimize the risk of having to exceed 14 kcfs outflows later.

Grand Coulee is at elevation 1,281.35 feet. Yesterday Grand Coulee reservoir achieved its end of March flood control elevation of 1,281.6 feet. The current objective is to reach the April 10 refill goal of elevation 1,281.9 feet. It will be difficult to meet all the fish management objectives as Grand Coulee this year, John Roache said. If choices must be made, the BOR preference is to maintain Vernita Bar minimum flows of 60 kcfs and hope that the pool elevation hits the April 10 target within a foot or so.

Even a modest increase in the forecast for The Dalles will produce some flood control draft at Grand Coulee, and the change can be dramatic, Norris pointed out. Based on preliminary STP runs, Grand Coulee reservoir is expected to hit elevation 1,279.7 feet on April 10, a bit short of the April 10 refill goal of 1,281.9 feet, Adams said. Norris observed that the February water supply forecast is about 3 maf above the March final forecast, and the April 30 flood control elevation based on the February forecast was 1,267 feet at Grand Coulee. This demonstrates that even a small change in forecast can have a dramatic effect on Grand Coulee's April 30 flood control elevation. Considering the prospect of at least some flood control draft, it is prudent to follow Vernita Bar flows as the primary operation. The goal of this operation is to avoid dewatering Vernita Bar with the consequence of not achieving the April 10 elevation goal. Norris and Roache asked the Salmon Managers whether they'll object if Grand Coulee doesn't meet its current April 10 elevation target of 1,281.9 feet. Roache pointed out that this elevation was based on the March forecast and the shifted flood control elevations at Dworshak and Grand Coulee. TMT members gave their views:

NOAA – Supports the proposed operation because the April 10 target is open to change. TMT can make adjustments to this proposal as needed, which is very much in the spirit of adaptive management.

USFWS – Supports the operation for the reasons NOAA stated.

Idaho – Has no objection to the proposed operation.

COE – Agrees with the proposed operation.

There was no representation from Oregon (Rick Kruger left the meeting following the discussion of Item #6), Washington, or Montana on this issue at today's meeting.

b. Fish. Juveniles – Yearling Chinook are on the move, Wagner reported. Passage indices at Lower Granite, with fish screens in place, range from 200-500 fish per day. At Bonneville, 500 fish recently passed, while 145 recently passed John Day. Subyearling Chinook are passing Bonneville at the rate of about 1,000 fish per day. Coho have been relatively inactive. Steelhead are beginning to show up at Lower Granite Dam, but not yet in the traps. Kokanee are beginning to migrate out of Dworshak.

Adults – Steelhead passage has been holding steady at the rate of about 40 fish per day at Bonneville. About 10 spring Chinook adults per day are passing Bonneville. Kelt passage has increased to about 4-5 fish per day over the past few days. According to PIT tag data, these are subyearlings, but they are big fish.

c. Power System. There was nothing to report today.

d. Water Quality. All gages in the Columbia and lower Snake were installed and operating as of last week, Adams said. TDG levels in the Bonneville forebay have been 148% due to gas from the fish ladders. Early next week, the gas from the first days of spill can be expected to hit downstream gages, at which time the COE will make needed spill adjustments. In general, it will take 10-12 days to establish TDG equilibrium on the Snake.

9. Next Meeting

The next regular TMT meeting will be April 8, 2009. The agenda will include review of final Dworshak and Libby water supply forecasts for April; follow up on Dworshak operations; the Little Goose low flow operation; finalizing minutes for March 25 and April 1; and the standard operations review. This summary prepared by consultant and writer Pat Vivian.

<i>Name</i>	<i>Affiliation</i>
John Roache	BOR
Tony Norris	BPA
Paul Wagner	NOAA
David Wills	USFWS
Jim Adams	COE
Adam XX	BPA
Cheryl XX	BPA
Kim Johnson	COE
Rudd Turner	COE
Scott Bettin	BPA
Tiffany Jenks	BPA
Russ George	WMC
Dan Feil	COE
Rick Kruger	Oregon

Phone:

Karl Kanbergs	COE
Russ Kiefer	Idaho
Dave Statler	Nez Perce
Kyle Dittmer	CRITFC
Glen Trager	Shell Energy
Tim Heizenrader	Centaurus
Margaret Filardo	FPC
Richelle Beck	DRA
Bob Diaz	Integral Renewables
Tom Le	Puget Sound Energy
Ruth Burris	PGE

Barry Espenson
Tom Lorz
Steve Hall
Russell Langshaw
Cathy Hlebechuk
John Hardy

CBB
CRITFC
COE
Grant PUD
COE
EWEB