COLUMBIA RIVER REGIONAL FORUM

TECHNICAL MANAGEMENT TEAM

April 14, 2010

FACILITATOR'S SUMMARY NOTES
Facilitator: Erin Halton
Notes: Christa Leonard

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 Meeting Minutes for April 7, 2010

Dave Wills, USFWS, had a change to the facilitator's notes on page 2 at the end of the first full paragraph; "high level of predation" should be changed to "low level". Russ Kiefer, ID, sent changes to the facilitator's notes which will be incorporated- those notes will then be considered final.

> **Action/Next Steps:** Doug Baus, COE, will post the 4/7 official TMT meeting minutes by Thursday 4/15; edits to those will be reviewed at the next face-to-face TMT meeting on 4/28.

Updated Weather and Flood Control Forecasts

Steve Barton, COE, directed TMT to two maps, both posted as links to the agenda. Link a. detailed Westside SNOTEL data. As of April 12th, the actual precipitation conditions have been slightly higher than predicted, with some areas in the basin at 100-120% of normal. As to the snow pack data, some areas were in the 90-109% of normal range, but the region is still below normal overall. The April final water supply forecast from the River Forecast Center reported 65% of normal for The Dalles (April- August), and 56% of normal for Lower Granite (April-July).

> **Action/Next Steps:** The COE will continue to present updates on this item at upcoming TMT meetings.

Hanford Reach Update

Russell Langshaw, Grant County PUD, directed TMT to a link, posted to the agenda, which included the previous four weeks' operational data. The graph showed that the critical elevation constraint of 20 kcfs has been met easily, with observed minimums of 61 kcfs, maximums of 74.5 kcfs and 64.5 kcfs for the mean daily discharge. The daily delta was between .2-28.7 kcfs, averaging 7.1 kcfs. Langshaw noted that weekend protections will be occurring for the next four weekends, and they will be based on the mean of the minimum flows for the week prior. He added that the season has been accelerated by the winter's mild temperature conditions.

> **Action/Next Steps:** Langshaw will provide an update to TMT at the 4/28 meeting.

2010 Operations

Steve Barton, COE, discussed several issues surrounding 2010 Operations:

Bonneville Spill: Barton reported that since 4/10, inflows at the project have been higher than expected, in the 100-105 range. Spill has not dipped below 62 kcfs and the project has been on minimum discharges; he added that spill is likely to remain in the mid 60's for the foreseeable future.

Libby Operations: Barton said there are a couple of decisions for TMT to make in the near term, and one is regarding whether to wait for the May final forecast to be released before beginning Libby draft operations. He noted that as of 4/13, the Initial Control Flow Date would be 5/7, but the COE re-evaluates the ICF weekly. VarQ operations begin 10 days prior to the ICF date, so based on the ICF date as of 4/13, the COE would begin to release VarQ flows from Libby on 4/28, unless there was consensus at TMT to keep Libby dam at minimum flow until the May final forecast is released on 5/5. He noted that the May final forecast is binding for determining operations for the Sturgeon operation. Barton said that for today's TMT meeting, the COE was seeking all initial thoughts from TMT members and that for the 4/21 TMT call, the COE will need to do an official poll. TMT members provided the following feedback. This initial operation to stay at minimums until the May forecast is issued is called Phase I:

- ID: no concern with waiting until May 5.
- OR: not much concern with waiting until May 5, but need more time to be able to provide the official position statement.
- WA: not much concern with waiting until May 5, but need more time to be able to provide the official position statement.
- USFWS: not much concern with waiting until May 5, but need more time to be able to provide the official position statement.
- NOAA: not much concern with waiting until May 5, but need more time to be able to provide the official position statement.
- BOR: no concern with waiting until May 5.
- BPA: no concern with waiting until May 5.
- CRITFC, Representing Umatilla Tribes: no concern with waiting until May 5.

Barton said that regardless of when the VarQ flows will occur, TMT members will also need to do a poll on Phase II of the spring operation. Joel Fenolio, COE, walked TMT through a presentation that detailed several scenarios and proposed operations for Libby. He acknowledged the fairly large discrepancy between the latest COE and River Forecast Center's water supply forecasts: the RFC was at 4400 KAF and the median ESP was 3300 KAF. Fenolio presented graphs that showed elevation and shaping for April-August water supply levels ranging between 3700 – 5650 KAF. He said that the COE thinks Libby is likely to be in the same position as last year, operating Libby Dam to "Tier 2" requirements while actually being in a "Tier 1" year. He clarified that the cutoff between a Tier 1 and Tier 2 is the May forecast for Libby of 4800 KAF. Jason Flory, USFWS, noted that there is also a spill test planned that will need a forebay elevation of 2415' if a Tier 2 year is declared. TMT members noted concerns for the effects of Libby operations on Grand Coulee operations and also for providing the best flows possible for fish and other system users throughout the spring and summer.

Action/Next Steps:

- TMT members will confer with their agencies internally and the Salmon Managers will discuss the information presented at the FPAC meeting scheduled for 4/20.
- The COE noted that TMT members should refer to the proposed operations on slide 7 and 11 found in link 5-b-i as the illustrations of two comparable options to consider for Phase II.
- TMT members will provide their official statements regarding Libby operations during the TMT call scheduled for 4/21.
- The COE will do outreach to the TMT members not present at today's meeting (MT, Colville Tribes, Shoshonne-Bannock Tribes and the Nez Perce Tribe), so that all TMT members are prepared to participate in the 4/21 call.

Grand Coulee Flow Augmentation: John Roache, BOR, reported that Hanford Reach protection flows are at 60kcfs and he expects a need to increase. Paul Wagner, NOAA, said that this issue was discussed at FPAC and recommended flows of 90kcfs beginning on 4/20.

Action/Next Steps: Action Agencies will begin operations to meet the recommended 90 kcfs on 4/20; however, this could be limited by actual conditions at Grand Coulee. TMT will revisit this issue during the 4/21 call.

Transportation Update

Paul Wagner, NOAA, reminded TMT that the question posed to the ISAB was, "given the low water year, is this a good year to maximize transportation?" Wagner said the recommendation that came back from the ISAB was that 2010 is not a good year for max transportation, and that a "spread the risk" approach would be best. Wagner said the 2010 Fish Operation Plan states that the regional sovereigns are to review the ISAB's recommendation and to consider "when to start transportation" at the technical and policy levels, and that the decision may be made at the policy/RIOG level. Wagner said the issue has been discussed at FPAC and that a request had been made of the Fish Passage Center to help provide technical data that will inform the selection of a transportation start date that would provide as close to a 50/50 transportation/in-river operation as possible.

Margaret Filardo, Fish Passage Center, shared that the FPC is preparing data that they hope to release on Thursday 4/16. TMT members discussed the following technical points of the "when to begin transportation" question:

- Russ Kiefer, ID, suggested - from a technical, biological standpoint, not representative of his agency - that given the forecasted warming temperatures, we will begin to see snow melt which will provide higher flows that could help stimulate outmigration, during the April 20-24th timeframe. He also shared that earlier transport could affect smolt return rates negatively, as they are moved downriver when they are not yet ready for the saltwater environment. If fish are allowed to migrate together because of natural flow increases, it is better for fish.

- Paul Wagner, NOAA, noted that if transportation doesn't begin until May 1, then there is no way to tell how transportation could have benefitted fish if it had begun sooner; therefore, beginning transportation on the earlier side of the April 20-May 1 timeframe would be consistent with the ISAB report. He added that NOAA will look to the data shared by the FPC for guidance in transportation decision-making.
- Tom Lorz, CRITFC, stated that his agency is open to the April 20th- May 1st time frame.
- Charles Morrill, WDFW, said his agency will wait to review the FPC date before taking a position.
- Rick Kruger, OR, stated that he too will reserve his position until the FPC data can be reviewed and added that he appreciates Kiefer's suggestion. He recalled that the NOAA Science Center had reported on the differences observed depending on where fish are tagged, and delays to transportation may impede the analysis/assessment of this year's tagged fish data for those fish tagged further upriver. Traditionally, Oregon supports transportation at any/all collector projects, but for this year, Oregon would not stand in the way of collection on the earlier side of the April 20-May 1 timeframe. Also, one of the factors that improve survival is reducing the number of powerhouse occurrences. He further noted that given the low flow year, the COE might want to consider increasing spill at non-collector projects.

Action/Next Steps: The FPC will post the transportation data findings on their website. Members of RIOG planned to discuss the ISAB report during their 4.16 meeting. This item will be revisited at the next TMT meeting on 4/21.

WMP Spring/Summer Update - Comment Process

Steve Barton, COE, reminded TMT that the comment deadline was April 10th, but noted that the COE has yet to receive any official comments. He said the COE will update the current draft and issue a revised draft by next Friday, 4/23. A one week comment period will be open until 4/30. Barton said 5/7 is the absolute drop dead date for comment submission. Per the BiOp, the final Spring/Summer Update is due no later than May 15th. Per a request from Russ Kiefer, ID, the COE will highlight specifically which operations they are looking for input on from TMT members.

Action/Next Steps: TMT members should send comments on the revised draft to Steve Barton by April 30th and may have an extension to May 7th if they request one.

Operations Review

Reservoirs: Grand Coulee was at elevation 1274.7' with outflows meeting the Hanford Reach protection flows of 60 kcfs and drafting slightly. Hungry Horse was at 3521.27', with 1.5 kcfs outflows. The April water supply forecast for Hungry Horse is 71% of average. Libby was at elevation 2402.66', with 1.5 kcfs inflows and 4.0 kcfs outflows. Albeni Falls was at 2053.7' with inflows of 12.4 kcfs, and outflows of 6.2 kcfs. Dworshak was at elevation 1530.5' with inflows of 4.1 kcfs and outflows of 1.2 kcfs. Steve Hall, COE, noted that the current water supply forecast, assuming outflows of 1.4 kcfs, show a 34% probability of Dworshak meeting refill and the project will likely be 5-15' from full at the end of June. Lower Granite flows were at 29.3 kcfs, McNary flows

were at 98.5 kcfs and Bonneville flows were at 109.9 kcfs. Steve Barton added that the BGS work was not performed as planned due to high winds. Rescheduling the date for the maintenance will be discussed at the next FPOM and TMT members will be informed of the FPOM determination.

Fish Paul Wagner, NOAA, directed TMT to the Fish Passage Center's two week passage index. He reported for juveniles: yearling Chinook were at 1,000 fish per day on the Snake River. Lower Granite passage was at 550 (possible record lows). John Day had passage of less than 100 per day. Bonneville passage was just under 1,000 per day. Sub yearlings at Bonneville were at 129,000 to date. Steelhead numbers at Lower Granite and Bonneville were in the 300 and 200 per day range, respectively. Regarding adult passage, Bonneville reached 3,545 Spring Chinook on 4/10 with 1500 the day after. TMT looked at a graph detailing the 10 year average which showed improvements over the past five years.

Power Tony Norris, BPA, had nothing to report.

Water Quality: Scott English, COE, reported two TDG instances at Camas/Washougal on 4/13 of 115.3%. The causes of the exceedances were unknown at the time but a possible correlation with the B2CC operations is being investigated. He also reported that regarding The Dalles' forebay gauge, it was decided that in order to keep operating, the COE might use pieces of the Warrendale gauge. Also, the COE may put in a temperature monitoring system at Warrendale.

The next TMT meeting will be: a conference call on **4/21 at 9:00 am.**
Agenda items will include:

- Libby Operations
- Transportation Update
- Grand Coulee Flow Augmentation

Future TMT meeting schedule:
4/28 - face to face- COE
5/5 - face to face- COE
5/12 - conference call
5/19 - face to face- COE
5/26 - conference call

Columbia River Regional Forum
TECHNICAL MANAGEMENT TEAM OFFICIAL MINUTES
April 14, 2010

Notetaker: Pat Vivian

1. Introduction

Today's TMT meeting was chaired by Steve Barton (COE) and facilitated by Erin Halton (DS Consulting). Representatives of Oregon, Idaho, USFWS, NOAA, COE, BOR, BPA, Washington, CRITFC and others participated. This summary serves as a record of discussion and decisions made, not a verbatim transcript. 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 and Facilitator's Notes for April 7

The April 7 official notes had not been posted yet and will be posted soon, Doug Baus (COE) said. There were comments on the April 7 facilitator's notes:

- Dave Wills (USFWS) provided revisions to the first paragraph on page 2: "When many fish are expected to pass the project and predation is expected to be at a low level," replaces, "…high level."

- Russ Kiefer (Idaho) will submit a revision explaining that Idaho supports spilling to 100 kcfs as planned at Bonneville.

3. Updated Weather and Flood Control Forecasts

Precipitation. Barton gave TMT the April final RFC water supply forecasts for April, according to Westside SNOTEL data linked to today's agenda:

- The Dalles Dam – 65% of normal for April-August (60.9 maf)
- Lower Granite Dam – 56% of normal for April-July (12 maf)

As of April 12, precipitation has been running 100-120% of normal basin-wide according to RFC data. The forecast is fairly stable, and precipitation is the main driver of volatility in water supply forecasts. Barton gave TMT the latest precipitation data for April:

- Snake River above Ice Harbor – 119% of normal
- Columbia River above The Dalles – 124% of normal
- Clark Fork of the Snake River – 70% of normal
- Flathead River basin – 61% of normal

Snow Pack. Barton noted a statistical caveat regarding the readings shown in the second link to this item on today's agenda. On an average climate basis, these locations normally would have peaked in accumulation and be

trending downward. This year, the peaks are converging on normal readings for this time of year. The point is that water conditions are below normal throughout most of the basin (60-70% of normal in western Montana). The only areas near normal are low-elevation areas in Washington and to the south.

Link 3b depicts RFC data including Canada, where the water supply is around 70-85% of normal except in the far north. The Canadian portion of the basin has around 80% of normal water supply. The final water supply forecast for April has been incorporated into these RFC data.

4. Hanford Reach Update

Russell Langshaw (Grant PUD) gave an update on Hanford Reach protection flows over the past 4 weeks. The graph linked to this item depicts 4 weeks of operations at Priest Rapids Dam. The operation is still bumping up against critical elevation constraints, which have been around 20 kcfs. Mean daily discharges have ranged from 61 to 74 kcfs, with an average of 64.5 kcfs. Daily deltas have ranged from 0.2 to 28.7 kcfs, with an average of 7.1 kcfs.

Warmer water temperatures this winter have accelerated the protection program. Weekend protection flows are scheduled to begin this weekend and continue for the next 4 weekends. The minimum constraint for weekend operations will be the mean of minimum flows for the previous Monday through Thursday. With flows so low, that isn't expected to be a problem. Langshaw will give TMT another update at the April 21 meeting.

5. 2010 Operations

a. Bonneville Spill Plan. Barton reported on Bonneville operations since spill began April 10. Discharges have been 100 kcfs or more, thanks to higher inflows into the lower Columbia than predicted at last week's TMT meeting according to STP projections. Spill levels have remained stable in the range of 60 kcfs or slightly higher with the project at minimum generation. Total discharges are around 110 kcfs, which is expected to continue for the foreseeable future.

Russ Kiefer (Idaho) and Charles Morrill (Washington) thanked the Action Agencies for providing the best possible operation in response to SOR-2010-01, presented at last week's TMT meeting. The COE will post documentation on disposition of that SOR to the TMT website in the next few days.

Barton noted that high winds made it impossible to close the B2CC and complete BGS repairs which had been planned to coincide with the powerhouse outage. So FPOM is working on rescheduling the repairs, which could have spill implications. The COE will seek recommendations from FPAC and TMT when the work schedule becomes more definite.

b. COE Proposal for Libby Spring Operations. Libby Dam is required to begin refill VARQ operations for flood control 10 days prior to the predicted date

of initial controlled flow, Barton reminded TMT. The project also must release a sturgeon pulse if the COE final inflow forecast for May is 4,800 kaf or more. Given the unusually dry conditions this spring, COE presented TMT with several complex choices and upcoming decisions regarding Libby operations.

Joel Fenolio (COE) presented two links to this topic on the agenda, a series of water supply forecast graphs, and an outline of the COE proposal for Libby operations. The final COE May forecast to be released on May 5 will determine VARQ and bull trout discharges. When the natural hydrograph crosses the ICF value (200 kcfs on May 7, as of yesterday), that triggers VARQ and bull trout discharges starting April 28 under the default Libby operation. The actual ICF date won't be known until after the fact.

A large discrepancy between the latest COE and RFC forecasts for April 2010 (5,100 and 4,400 kaf, respectively) creates high volatility in this year's May forecast and Libby operations. Fenolio foresaw a situation like last year when the May final forecast called for a Tier 2 year operation requiring bull trout flows. However, actual inflows to Libby Dam were lower, amounting to a Tier 1 year. (The 2009 forecast was 5,200 kaf vs. an actual inflow volume of 4,300 kaf.)

The purpose of the COE proposal is to smooth out the effects of an expected drop in the volume forecast on 2010 releases from Libby Dam. By operating the project at minimum flows instead of VARQ in May, the proposal would create storage at Libby that otherwise would not occur. The stored excess would either be released by the end of May, making it flow-neutral for summer, or by the end of August. Barton emphasized that today's discussion is very preliminary, and the COE wasn't asking for binding recommendations on the proposal until next week. Fenolio explained phase 1 and phase 2 of the proposal, depicted in links to today's agenda.

Phase 1: This phase covers the beginning of refill operations. The project would hold minimum discharges of 4 kcfs after the start of refill (now projected to occur between April 28 and May 1) until the May water supply forecast is issued on May 5. The difference in volume between minimum flows and VARQ flows would be held in the reservoir until it becomes clear whether this is a Tier 1 or Tier 2 year requiring a sturgeon pulse. In either case, the stored excess would be released by May 31. If it's a Tier 2 year, the project would operate at minimum flows for refill. If it's a Tier 1 year, the project would operate to VARQ flows for refill. Two graphs linked to today's agenda compare projected 2010 Libby operations in a Tier 1 and Tier 2 year, both with an assumed actual inflow volume of 4,400 kaf based on ESP traces. The main difference is inclusion of a sturgeon volume. The cutoff point for a Tier 2 designation is a final May forecast of 4,800 kaf or more. Under phase 1 of the proposal, Libby reservoir elevation would be 2,415 feet on May 31 whether it's a Tier 1 or Tier 2 year.

Consensus is required to implement the COE proposal because it deviates from the Fish Operations Plan. If the Salmon Managers reach consensus in favor of phase 1, Libby would release 7,700 kaf in May instead of

7,000 kaf if it's a Tier 1 year with no sturgeon volume. The VARQ flows would be around 7 kcfs. If it's a Tier 2 year which seems likely, the project would pass inflows until May 18, then VARQ flows of around 10 kcfs. Essentially the project would pass inflows until they exceed VARQ, putting the reservoir at a projected elevation of 2,415 feet by the end of May – the cutoff point for spill at Libby. The Tier 2 scenario includes a sturgeon volume of 800 maf. After the sturgeon pulse ends, the project would go to minimum flows.

TMT members (Montana was not present) gave the COE some initial feedback on Phase 1:

- **USFWS** – Fully supports the idea because it increases the likelihood of reaching the required elevation to conduct a spill test of the sturgeon pulse. The spill test is part of a negotiated settlement to the BiOp litigation (see discussion of Phase 2 below). Implementing the proposal is an important first step in setting up a successful bull trout operation this year.
- **Idaho** – Supports phase 1 of the proposal.
- **Oregon** – Neutral at this point. Focused on what would happen in the lower river after May.
- **Washington** – Echoed Oregon's neutrality. Phase 1 appears to make sense.
- **NOAA** – Supports the idea.
- **BOR** – The operation sounds reasonable.
- **BPA** – This simple adjustment in light of current conditions makes sense.
- **CRITFC** – It's too early to say.

TMT members will give their official recommendations on Phase 1 of the COE proposal next week. Meanwhile, the COE will solicit Montana's view of it.

Phase 2: This involves two alternatives – a flow-neutral strategy with excess volume released by the end of June, and a summer flow augmentation strategy – under low, medium and high inflow scenarios for April-August.

Alternative #1 (shown on page 7 of the water supply forecast link) is a flow-neutral scenario that releases an excess stored volume of approximately 240 kaf before June 30 around the sturgeon pulse. This operation would raise the reservoir elevation to 2,415 feet (required for spill of 5 kcfs) around May 31 if inflows don't flatten; timing would be essential to its success. Elevation 2420 feet in Libby reservoir would allow 10 kcfs spill for the test. Alternative 1 targets an August 31 elevation of 2,443 feet in Libby reservoir.

If 2010 is a Tier 2 year as anticipated, the project would release about 4 kcfs through May 14 under alternative 1, then the bull trout minimum of 6 kcfs from May 15-31. VARQ flows would be 10 kcfs. Releasing only minimum flows through May 14 would raise the reservoir elevation by 6 feet on May 31 over the VARQ operation, providing an additional 10 kcfs for the sturgeon spill test. The spillway crest elevation is 2,405 feet. At elevation 2,415 feet, the reservoir would

have sufficient volume for spillway releases of 5 kcfs. At elevation 2,420 feet, the full 10 kcfs would be available for the spill test as written into the settlement agreement. Alternative 1 essentially merges VARQ flows with the sturgeon pulse. Timing is essential to success of this strategy.

Margaret Filardo (FPC) suggested including the predicted shapes of flows in the lower river in the graphs depicting this alternative. Oregon and Idaho asked for confirmation from the COE that flow objectives wouldn't change under this scenario. The COE will report back to TMT on that.

Inflow volumes under the low, medium and high inflow scenarios of alternative 1 are 4,400 kaf, 2,028 kaf, and 5,400 kaf, respectively. The low inflow scenario projects a volume of 214 kaf to be released between the start of refill and June 30, with a reservoir elevation of 2,411 feet on June 30 under the VARQ scenario. Under the low-flow scenario, this alternative wouldn't allow sufficient volume for spill. Dropping to minimum flows in May would yield a reservoir elevation of 2,415 feet on June 30, or 5 kcfs spill. The medium inflow scenario in a Tier 2 year would yield a volume of 5,028 kaf with 5 kcfs spill under VARQ and 10 kcfs spill under bull trout minimums starting June 10. The high inflow scenario would allow enough flexibility to release the stored volume by June 30.

Alternative 2 (shown on page 11 of the water supply forecast link) is a maximum refill operation that targets elevation 2,443 feet by end August, then 2,439 feet by end September, whether VARQ flows or bull trout minimum flows are released in May. The sturgeon pulse would start June 1. Under the high inflow scenario, this option would yield higher summer elevations than alternative 1, as well as sustained outflows after the sturgeon pulse ends. The low inflow scenario (most likely) offers a chance of providing volume for the spill test if the project drops to minimum flows. However, operating to VARQ flows under the low scenario would yield a May 31 elevation of 2,411 feet, which is insufficient for spill. Timing will be crucial, Barton said. It may be impossible this year to achieve the required spillway crest elevation for the sturgeon spill test, whether or not one of these alternatives is implemented.

To summarize, TMT was asked to consider two questions for final polling next week: (1) Is there consensus on going to bull trout minimums in May to increase the likelihood of a spill test this summer? (2) Is there consensus on either a flow-neutral operation by June 30 or a flow-augmentation operation this summer? The Salmon Managers gave the COE some preliminary feedback on the Phase 2 alternatives:

- **USFWS** – The deviation from the FOP depicted in Phase 2 is consistent with the BiOp settlement agreement which says the Action Agencies will operate the system to provide a spill test for sturgeon in June. An elevation of 2,415 feet in Libby reservoir is one component of the conditions needed for the spill test.
- **NOAA** – Concerned about whether pushing Libby volume from May into June would put unacceptable stress on Grand Coulee operations.

- **Oregon** – Concerned about the effects on lower river operations. It appears the difference between the two alternatives would amount to 2-3 kcfs volume passing through Grand Coulee by the end of June.

TMT will revisit Libby operations during its April 21 conference call.

c. Grand Coulee Flow Augmentation. Currently Grand Coulee is operating to provide Hanford protection flows of 60 kcfs at Priest Rapids Dam. But we are expecting a need to increase the objective with the spring fish migration starting, John Roache said. Paul Wagner said the issue was discussed at FPAC and recommended a 90 kcfs flow objective at Priest Rapids Dam beginning April 20.. At current inflows, that would mean drafting Coulee by slightly less than a foot per day. The increased flows would support upper and mid Columbia hatchery releases, Wagner said, as well as wild steelhead and spring Chinook at Rock Island Dam. It's possible that a flow objective of 90 kcfs could be hindered by draft limits at Grand Coulee, Barton and Norris agreed. Grand Coulee reservoir is projected to reach elevation 1,264 feet by the end of April. TMT will revisit the flow augmentation proposal in its conference call next week.

6. Transportation Update

Asked whether it would be advisable to maximize transport this year in light of the near-drought conditions, the ISAB response was no, some spill should be provided, Wagner said. The ISAB report says more information is needed on the comparative effects of spill and transport in a low-flow year such as this one.

The question facing TMT and RIOG is when transport should begin. FPC is researching this question and anticipates reporting its findings by by April 15 in a report posted to its web page.

Default mode is to start transporting on April 20 at all projects in years of less than 70 kcfs, such as this one. Other options in the 2010 FOP include beginning transport no later than May 1 at Lower Granite, stopping spill at the same time. If transportation starts too late, it would result in a lack of comparative information on how transported vs in-river populations fared. NOAA research on this to date is limited by lack of early migrants. Dan Feil (COE) added that any comparison of 2010 to 2007 as another low-flow year should take into account the lack of surface passage structures at Lower Monumental and Little Goose in 2007.

The Salmon Managers shared their initial views of transport in 2010:

- **Idaho** – No official position yet. Kiefer's technical recommendation is to allow the early peak of migrants to travel in-river, then start transporting after the first wave of migrants but before May 1.
- **CRITFC** – No position yet.
- **Washington** – No position yet.

- **Oregon** – Doesn't oppose starting transport later than April 20 this year. Under such low flow conditions, the Action Agencies should definitely consider providing spill, per the BiOp protocol for dry years. Increased spill at the non-collector projects might improve river conditions and aid migration. Reducing the number of powerhouse passages tends to improve survival rates.

7. WMP Spring/Summer Update Comments Due April 10

The COE has yet to receive any comments on its preliminary draft of the Water Management Plan spring/summer update, Barton reported. The COE will update the draft in light of new information and reissue it on April 23, with a revised comment deadline of April 30 instead of May 7 as initially planned. There's some flexibility in the April 30 deadline if needed, but the final deadline of May 15 is established under the BiOp.

8. Operations Review

a. Reservoirs. Grand Coulee is at elevation 1,274.7 feet, releasing flows to meet the 60 kcfs for Hanford Reach protection flows. Hungry Horse is at elevation 3,521.27 feet, with discharges of 1.5 kcfs. Libby is at elevation 2,402.66 feet, with inflows of 1.5 kcfs and outflows of 1.2 kcfs.

Albeni Falls is at elevation 2,053.7 feet, with 12.4 kcfs inflows and 6.1 kcfs outflows. Dworshak is at elevation 1,530.5 feet, with 4.1 kcfs inflows and 1.2 kcfs outflows.

Lower Granite inflows are 29.3 kcfs; McNary inflows are 98.5 kcfs; and Bonneville inflows are 109.9 kcfs.

b. Fish. Juveniles: Passage numbers at the Salmon River trap have remained around 1,000 fish per day for the past few weeks. There was a peak of 9,000 per day at the Imnaha trap, now at 5,000 per day. Lower Granite is now passing 550 yearling Chinook per day, with the migration still delayed by low flows. John Day is passing 100 fish per day, and Bonneville just under 1,000 fish per day. Subyearlings are passing Bonneville at the rate of 129,000 per day due to the recent Spring Creek Hatchery release. The project is spilling, so they're not passing through the powerhouse. The steelhead subyearling migration is lagging behind Chinook, with a peak so far of 300 fish per day at Lower Granite and 200 fish per day at Bonneville.

Adults: The good news is they're passing in the thousands at Bonneville, with a peak of 3,545 fish on April 10 when spill started. This represents an improvement over passage in the past 5 years and is closer to the 10-year record for passage by this date.

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

d. Water Quality. There have been two borderline exceedances this week, one yesterday at Camas Washougal gage. These may correlate to operation of the B2CC for kelts; the COE is investigating a connection. The Dalles forebay gage has been operating intermittently and the COE is pursuing a temporary fix.

9. Next Meeting

The next TMT meeting will be a conference call on April 21, with Libby operations and the initiation of transport as the two main topics on the agenda. TMT will meet next in person on April 28 at the COE NW division office.

Name	***Affiliation***
Rick Kruger	Oregon
Russ Kiefer	Idaho
David Wills	USFWS
Paul Wagner	NOAA
Doug Baus	COE
John Roache	BOR
Tony Norris	BPA
Steve Barton	COE
Rob Allerman	Deutsch Bank
Rob Dies	Iberdrola Renewables
Joel Fenolio	COE
Kim Johnson	COE
Mark Fisher	EDF Trading
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Russ George	WMC
Glen Trager	Shell Energy
John Hart	EWEB
Richelle Beck	DRA
Greg XX	Endure Energy
Tom Le	Puget Sound Energy
Don Faulkner	COE