

COLUMBIA RIVER REGIONAL FORUM

TECHNICAL MANAGEMENT TEAM

April 6, 2011

FACILITATOR'S SUMMARY NOTES

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.

Meeting Minutes

The 3/23 and 3/30 Official Minutes and Facilitator's Summary notes were posted to the TMT agenda. Some edits were provided on the 3/23 Facil. Notes that needed to be corrected, including that the COE percentages reported under the Water Supply Forecast Update agenda item were 'precipitation' percentages, not water supply. These corrections will be made and the notes will be re-posted later this week. TMT members said they needed more time to review the 3/30 notes. Notes from the 3/23, 3/30, 4/1 conference call, and today's meeting will be reviewed and finalized at the 4/20 TMT meeting.

Vernita Bar Update

Russell Langshaw, Grant County PUD, reported on Hanford Reach operations and discussed the figures posted to today's agenda. He said, overall, the operation has stayed within flow bands prescribed, with two exceptions: on 3/14, .2 kcfs exceedance occurred due to operator error (which was corrected), and on 4/2, a .6 kcfs exceedance occurred due to changing conditions – higher flows over the weekend – that had also been resolved. Stranding and trapping studies were underway and thus far, Russell reported, no strandings and few entrapments had been observed. This, he said, was likely due to higher flows and early emergence. Peak emergence was a few weeks out. Finally, Russell reported that a lower flow operation would go into effect just long enough to pull the egg tubes in the river to examine egg/fry survival.

Follow Up on SOR 2011-01 re: Lower Granite MOP Operations

Steve Barton, COE, reminded TMT of the COE's response to SOR 2011-01 from the navigation community for a MOP +2 operation at Lower Granite to support safe passage in the Lewiston area. The COE's planned operation for the Lower Granite pool was described as such in an email and during the 4/1 TMT conference call:

Inflows \geq 120 kcfs: Operate for flood control consistent with the Water Control Manual
80 \leq Inflows < 120 kcfs: Operate Lower Granite pool at 734.0-735.0 ft (MOP+1)
50 \leq Inflows < 80 kcfs: Operate Lower Granite pool at 734.5-735.5 ft (MOP+1.5)
Inflows < 50 kcfs: Operate Lower Granite pool at 735.0-736.0 ft (MOP+2)

Steve shared that flows were still ranging above 120 kcfs so the project was operating to meet flood control needs, e.g. MOP. Flows, he said, might drop over the weekend to the next tier, triggering a MOP +1 operation at the project. Steve acknowledged the concerns raised by TMT around finding a more permanent solution to the problem and the desire to have something in place by next year's migration season. The COE has been working internally to explore the possibility to deem the situation an 'emergency' per language in the settlement agreement that would allow them to move forward with dredging without a final Sediment Management Plan, which is expected to be final around December 2012. The earliest dredging season starts during the Fall 2011 but additional procedural steps would need to be completed prior to dredging (NEPA and ESA Consultation). The COE will explore opportunities to do additional soundings to 1) verify the need for MOP+2 during low flow periods this year, and 2) inform dredging actions later on.

TMT members raised questions about how the COE's actions will be coordinated with the ports to address the broader depth concerns in the area that are not part of the federal navigation channel. The COE responded that the settlement agreement allows for the local governments to 'piggy-back' on to the federal action, though there is no requirement to do so. The salmon managers also discussed the potential impacts of the MOP +2 operation on listed fish survival due to delays in travel time and potential temperature increases at the pool and expressed an interest in exploring ways to offset the effects of the operation. It was suggested that this year might also provide an opportunity to study the effects of this different operation on survival. Some TMT members felt it would be difficult to tease out the survival effects of this one operation change, though the salmon managers said it was not insignificant as an action required under the BiOp to avoid jeopardy.

After more discussion, the following next step actions were identified:

- The COE will continue to clarify and reach a decision about whether the sediment and navigation issues in the Lewiston area could be considered an 'emergency' (as defined in the settlement agreement) that would prompt them to move forward with dredging in the near term.
- Steve Barton will update TMT on a regular basis on the COE's process and actions for addressing the situation. Updates will include new data, soundings schedule, process for moving forward on dredging actions (including legally required consultations), and coordination with the ports and other local authorities.
- The salmon managers will discuss and share recommendations for operations elsewhere in the system that would help provide the flows and travel times that would be seen with a MOP operation at Lower Granite.

Finally, Steve shared that, in the event that flows go above 120 kcfs, the project would need to be operated below MOP due to flood control.

Spring Creek Hatchery Releases

Dave Wills, USFWS, shared the plan for releasing Fall Chinook hatchery fish on 4/12, and shared the USFWS proposed turbine operation at Bonneville to support passage of

those fish. He said the recommendation reflected that from past years, to operate the turbines at the lower end of 1% efficiency. This year, though, the sampling facility would be set up to monitor around the clock so the Bonneville operation could start and end in line with real time arrival and completion of passage. The recommended operation would reflect that language, to start and stop the operation when notified by smolt monitoring program personnel (and as a soft constraint, around 4 days from the period 4/13 to 4/17).

Action/Next Steps: Dave Wills will send the specific request to the COE. The COE/BPA will provide the operation as was implemented last year, with the caveat that start and stop of the operation will be coordinated real time between project operators and smolt monitoring program personnel. The language for the operation will be included in the seasonal update to the Water Management Plan. Dave will report on the operation at the 4/20 TMT meeting.

Chum Emergence

Paul Wagner, NOAA, shared that there has been plenty of depth compensation at the chum spawning areas this year. That said, an official ‘chum emergence’ date will be set based on the chum emergence model estimates, which will be run before the next TMT meeting. TMT will revisit this issue on 4/20 when an official estimated date for chum emergence is known.

Water Supply Forecasts

Steve Barton, COE, updated TMT on actual conditions and the latest water supply forecasts. March precipitation was above normal in all parts of the basin including Canada. The water year (October-March) also showed normal to above normal conditions overall, with the Snake above Grand Coulee at 115% of normal; above Ice Harbor at 123% of normal, and the Columbia above The Dalles at 116% of normal. More precipitation was expected to enter the system in the near term, with possibly some cool temperatures indicating that snow melt/ runoff was not going to begin just yet. Steve also reported that SNOTEL sites indicated normal to above normal snow pack in the Canadian and US Columbia Basins, with highest percentages in the Flathead and Kootenai areas.

Looking ahead, early bird forecasts showed the following runoff:

- Grand Coulee April-September – 70.1 MAF (110% of normal)
- Lower Granite April-July – 24.5 MAF (114% of normal)
- Libby April-August – 7.02 MAF (112% of normal)
- Dworshak April –July – 2.96 MAF (112% of normal). Steve noted that other forecasts for Dworshak showed a range up to 3.38 MAF.

Reclamation’s April final forecast for Hungry Horse:

- April-July – 2.56 MAF (128% of normal)

Dworshak Operations Update

Steve Barton, COE, showed the inflow and elevation graph for Dworshak, noting that there was an inflow spike of 35 kcfs around 4/1. The project was currently operating outflows at 22 kcfs (up from the previous 18 kcfs) to manage the high inflows in to the

project. Discharge of 22 kcfs resulted in TDG levels of 118%. Steve said the project would likely intersect with the flood control rule curve before the end of April, which would dictate the target elevation.

Operations Review

Reservoirs – Libby was at elevation 2364.6’ and passing inflows, with 4.7 kcfs in and 7.7 kcfs out. Albeni Falls was passing inflows with 40.6 kcfs in and 39.7 kcfs out, at elevation 2055.6’. Dworshak was at elevation 1472.2’ with 22.3 kcfs outflows. Day average outflows were: 138.6 kcfs at Lower Granite; 181.2 kcfs at Priest Rapids; 349.8 kcfs at McNary; and 391 kcfs at Bonneville – all were above the previous week’s average. Hungry Horse was at elevation 3497’, with 9.5 kcfs outflows (1 kcfs spill at 105% TDG). John Roache, Reclamation, shared that Hungry Horse would likely need to increase spill and that the flood control target would likely drop with the increase in the water supply forecast; TDG monitoring equipment is in place to record TDG during spill operations. Grand Coulee was at elevation 1245.8’ and drafting based on early bird forecasts; adjustments will be made once the final forecast is out on 4/11.

Fish – Paul Wagner, NOAA, updated TMT on fish counts. Yearling Chinook counts at Lower Granite were 24,000; subyearling counts were 361. Juvenile coho counts were 200 at Lower Granite and Bonneville. Steelhead counts at Lower Granite spiked up to 311,000 on 4/3 mostly due to hatchery releases. More recently, counts were 76,000. Sockeye counts (likely kokanee) at Lower Granite were 2,000. Lamprey counts at Lower Granite were 400, and 5,000 at John Day. Adult Spring Chinook counts at Bonneville were 44, and 70 steelhead were counted at Bonneville. A commercial fishery began yesterday (4/5); Washington’s Charles Morrill said he would share a more detailed update at the next TMT meeting.

Power system – BPA is working on an ‘environmental re-dispatch’ plan to manage wind integration with the current situation of below market spill in the system. This plan was not yet final or in place.

Water quality – Scott English, COE, showed a table of TDG percentages at each of the projects, noting that with involuntary spill happening at almost all projects across the system, some TDG exceedances had occurred – although not far outside the state water quality waivers. It was noted that McNary, Lower Granite, John Day and Bonneville were all being operated at full load capacity. While the exceedances were not causing concerns for the fish yet, BPA’s Scott Bettin offered that one solution would be to operate McNary outside 1% generation to help manage TDG levels. Also, the smolt monitoring program planned to study gas bubble trauma effects and Paul Wagner, NOAA, said he would report on this at the next TMT meeting.

Russ Kiefer, Idaho, raised a potential concern and requested more discussion about how to best manage TDG in the system, considering that two turbines are out of service at Lower Granite causing higher gas levels at the project and impacting how downstream projects (Little Goose and Lower Monumental) are operated in order to meet TDG waiver criteria at those projects. Russ expressed interest in having regional discussions

about ways to address this issue to allow for the best in river migration conditions possible. It was noted that Washington has maintained a 115% TDG limit at the forebay of these projects and that any change to that was unlikely this year due to ongoing litigation. That said, Charles Morrill, Washington, offered to work with Russ to pass on the concern to Washington DOE and inquire as to any possible flexibility on this issue this year. Likewise, Steve Barton, COE, offered to work with Russ to review the action agency's operating documents to determine if there might be flexibility for addressing the concern raised, keeping in mind the impacts on the whole system. It was also noted that, during high flows such as the current condition, the projects are managed to their tailrace spill caps, which are 120% TDG.

Next Meeting, Conference Call, April 13, 9 am

Agenda items include:

- April final water supply forecasts
- Lower Columbia spill operations
- Dworshak operation update
- Review spill priority list

Next Face to Face Meeting, April 20, 9 am

Agenda items include:

- Hanford Reach/Vernita Bar update
- Follow up on MOP operations/navigation issues at Lower Granite
- Spring Creek hatchery release operations debrief
- Chum Emergence
- Dworshak operations update
- Follow up on TDG/spill management issues
- Operations review

Columbia River Regional Forum
TECHNICAL MANAGEMENT TEAM OFFICIAL MINUTES

April 6, 2011

Notes: Pat Vivian

1. Introduction

Today's TMT meeting was chaired by Steve Barton, COE, and facilitated by Robin Gumpert, DS Consulting. Representatives of the COE, USFWS, Washington, Montana, BPA, NOAA, CRITFC/Umatilla, Oregon, the Nez Perce Tribe and others attended. This summary is an official record of the proceedings, not a verbatim transcript. Any questions or comments should be directed to the TMT chair.

2. Review March 23 and 30 Meeting Minutes

Finalizing the facilitator's notes and official minutes was postponed until the next face-to-face TMT meeting on April 20.

3. Vernita Bar Update

Russell Langshaw, Grant PUD, gave a report on the Priest Rapids spawning protection program. Currently the operation is 1,047 temperature units from the initiation of spawning. In the last 30 days, mean discharges were 137.4 kcfs and the mean daily delta was 132.5 kcfs. There was a minor exceedance of 0.2 kcfs in March. In the past week, discharges have been 152.2 kcfs with a daily delta of 37.9 kcfs and a daily delta constraint of 51.4 kcfs. There was another minor exceedance of 0.6 kcfs on April 2, a result of changing conditions over the previous weekend. Flows were bumped up to 175 kcfs for the rest of the weekend which resolved the situation.

Entrapment studies are going well, and no stranded fish have been found in Vernita Bar Reach so far. Flows are high so emergence should pick up quickly. The 36 kcfs zone reached 1,008 TUs a week ago, which means emergence is nearly through its first quarter. Removal of tubes in the reach tomorrow will put discharges in the 80 kcfs range for 5-6 hours, then protection flows will return to normal. Langshaw will give TMT another report on April 20.

4. SOR 2011-01 Lower Granite MOP Plus Two

Today's discussion followed up on SOR-2011-1, discussed in detail on TMT's April 1 conference call. The COE's response and operational proposal to SOR-2011-01 identified minimum safe navigation depths and took backwater effects into consideration, which will minimize the effects on MOP operations to the extent possible while providing safe navigation in the federal channel. Concerns were expressed that a long-term solution be found to this problem

between now and when the sediment management plan is scheduled to be completed in December of 2012.

In response to these concerns, the COE is working on intermediate measures to address this situation. Meanwhile, inflows at Lower Granite since April 3 are in excess of 120 kcfs, thus the maximum flood control elevation for Lower Granite is 734 feet, i.e. MOP. Current projections show inflows in excess of 120 kcfs through April 9, so the project will likely remain at MOP until then. Inflows this weekend are expected to drop below 120 kcfs, at which time the operation will shift to MOP plus 1, or 734-735 feet until flows drop below 80 kcfs. In the April 1 TMT call, there were no objections to implementing this operation in light of the safety concerns, and the COE is moving forward with the proposed operation. Between now and the next passage season, the COE will work on tools to improve channel conditions and look for opportunities to avoid having to operate outside of MOP again next year. This SOR will be posted to the TMT website and as a seasonal update to the WMP.

Rick Kruger, Oregon, asked why the COE doesn't dredge immediately under the emergency conditions clause in the settlement agreement. The COE is looking closely at language in the settlement agreement that might provide some flexibility, Barton replied. It would take an aggressive schedule to meet the ESA requirements to dredge this coming fall or winter, Steve Hall, COE, said. Another sounding is planned for next September, including a full survey of the confluence, which will pinpoint the actual depths needed for navigation. Tom Lorz, CRITFC/Umatilla, cautioned against pursuing fixes that only shift problems around with flows.

As we move closer to MOP plus 2, we need to look at some other operations, maybe trying to decrease the travel time of fish at other projects, Kruger said. More information is needed on why light loading can't be used to reduce the depth requirement. Oregon won't consider this issue resolved until we don't have to face it again. There are places outside the navigation channel that won't meet the navigators' requirements anyway. Barton said the ports are pursuing dredging by "piggybacking" onto the federal dredging effort.

Jim Litchfield, Montana, asked how MOP plus 2 will affect particle travel time. In a worst case scenario of 40 kcfs in the river, the change in water particle time, based on one estimate was 5 hours through Lower Granite, Russ Kiefer, Idaho, replied. This is estimated to increase steelhead travel time by 7 hours. Because Idaho doesn't run smolt monitoring traps in Lower Granite reservoir for subyearling summer migrants, we don't have a good understanding of their travel time through the reservoir. Kiefer asked, have the Action Agencies thought about ways to adjust operations to keep fish protection measures in the same range we'd normally get in a good flow year like this? Barton said he wasn't aware of any such adjustments but suggestions would be welcome. FPAC will discuss this issue further.

Russ Kiefer said Idaho is concerned the MOP plus 2 operation deviates from the suite of actions that NOAA determined would operate together to avoid jeopardy in all types of flow years. For this effort to work, the lower Snake reservoirs need to operate at MOP during passage season. Litchfield and Wagner noted that survival data already exists to analyze this effect.

Dave Statler, Nez Perce, pointed out that, in addition to travel time, MOP plus 2 could impact temperature operations during the hottest period of summer. A higher pool means increased volume in Lower Granite, which the augmentation and temperature cooling releases from Dworshak are trying to moderate. Wagner said the operation will probably be close to MOP for a good part of the season. The varied life history of subyearlings makes measuring their survival rates difficult.

To respond to the MOP plus 2 concerns, Gumpert suggested the COE document progress toward a solution by putting the steps and timeframe into a document to share with TMT. Under peak flow conditions, Lower Granite might have to operate at lower than MOP to provide flood control at Lewiston, Barton said. TMT will follow up on this issue at its next meeting.

5. Spring Creek Hatchery Releases

Spring Creek Hatchery is getting ready to release approximately 6.15 million juvenile fall Chinook on April 12, Dave Wills, USFWS, reported. On the same date, the Little White Salmon hatchery will release 1.2 million tule fall Chinook. USFWS would like to request the same operation as in past years, operating the turbines in the lower portion of the 1% range.

The one change is that the smolt monitoring facility plans to monitor sampling during off-hours, so when tule fish hit the project, they can notify the control room to start and end the operation in real time. Wills requested this operation to begin when notified by SMP personnel, no later than 0600 hours on April 13, continuing as a hard constraint until SMP personnel report a significant drop on tule collection, or at 1700 hours on April 17, whichever comes first. Then the operation would continue as a soft constraint for another 4 days or so for fish that lag behind.

Scott Bettin, BPA, asked why all 7 million fish are being released on the same day if gatewell crowding is an issue. Researchers tested gatewells and found they were not crowded like when Spring Creek fish were passing. The advantage of releasing them all at once is less time for the constrained turbine operation, Wills explained. Caveats from last year's operation should carry over to this year, with adjustments as flows increase.

The COE can accommodate the real-time aspect of this request, assuming staff are available in the smolt monitoring facility, Barton said. The COE will issue a teletype to implement the operation as requested. This operation will become part of the seasonal update to the 2011 WMP. Wills will report back to TMT on April 13.

6. Chum Emergence

Chum are well protected this year with a Bonneville tailwater elevation of 28 feet, so there's plenty of depth compensation, Wagner said. The pre-season estimate for emergence is April 28, Bettin said. He will present TMT with chum emergence data at its next meeting, based on the preseason estimate.

7. Water Supply Forecast

Precipitation: Barton described how precipitation has verified relative to assumptions in March. The official forecast for April assumed 110%, then 90% of normal, which turned out to be low. Observed precipitation has exceeded 100% of normal throughout the basin to date.

Barton gave basin by basin data for March 1-27:

- Canadian portion of Columbia – 132% of normal
- Kootenai basin – 176% of normal
- Pend Oreille/Spokane – 163% of normal
- Snake River above Ice Harbor – 188% of normal
- Columbia basin above The Dalles – 178% of normal
- Clearwater – 134% of normal

For October through March, all basins were above normal:

- Columbia above Grand Coulee – 115% of normal
- Snake River above Ice Harbor – 123% of normal
- Above The Dalles – 116% of normal

The basin as a whole is above normal for the entire water year, Barton said. If it stopped raining now for the rest of the year, precipitation would still be above normal for the year. The first half of April is expected to continue this pattern, with 120% of normal precipitation according to the RFC.

Snow pack: According to SNOTEL data the entire basin has normal to above normal snow pack, with the highest amounts in the Flathead region. Snow pack is near normal in the central Washington Cascades and Okanogan ranges. This is the peak of the snow accumulation period, especially in the Snake. With the cool wet weather recently, snowpack is increasing. Snowpack percentages are as follows:

- Kootenai basin – 131% of normal
- Flathead basin – 138% of normal
- Idaho panhandle – 116-120% of normal
- Salmon River basin – 98%-108% of normal
- Cascades – 120% of normal
- Above the Cascades –115% of normal

Runoff: The RFC early bird forecast was issued March 31, Barton said. Future precipitation is assumed to be 120% of normal for the first half of April and normal for the rest of the period. RFC projections are:

- Grand Coulee, April-September – 70.1maf, 110% of normal
- Lower Granite, April-July – 24.5 maf, 114% of normal
- Libby, April-August – 7.02 maf, 112% of normal
- Dworshak, April-July – 2.96 maf, 112% of normal

The latest COE official forecast for April-July at Dworshak is 3,387 kaf, a slight increase from the COE's March final forecast. The early bird water supply forecast is still 2,900-3,000 kaf, with an STP average around 3,300 kaf, Barton said. The standard regression forecast is about the same as earlier, about 2.9 maf, Hall said. The standard regression and RFC water supply forecasts are all around 2,900-3,000 kaf, with the ESP and principal components forecasts hovering around 3,300 kaf, Barton said.

The BOR released its official runoff forecast for Hungry Horse yesterday – 2,566 kaf for April-July, or 128% of normal, John Roache reported. Significant snow has been building since then.

8. Dworshak Update

Barton presented an updated plot for Dworshak, which reflects the recent spike in inflows. Peak Inflows on a daily average basis were around 35 kcfs. Discharge was 18 kcfs, recently ramped up to 22 kcfs. The COE plans to make releases from Dworshak to meet system flood control requirements with refill triggered by intersection with the flood control refill curve. Official flood control guidance for mid-April is 1,445 feet elevation, with a deviation granted to 1,451.4 feet. Gas levels at Dworshak are 118% TDG. The project has filled a little over 10 feet with recent rains. The challenge is to manage release with all these factors in mind, transitioning to refill while still providing system flood control. The project will likely intersect the FCRC prior to the end of the month, which is typical of Dworshak.

9. Operations Review

a. Reservoirs. Libby is at 2,364.4 feet elevation, operating at flood control with inflows of 4.7 kcfs and discharges of 7.7 kcfs. Albeni Falls is at 2,055.6 feet

elevation, passing inflows of 40.6 kcfs and discharges of 39.7 kcfs. Dworshak is at elevation 1,472.2 feet, with inflows of 22 kcfs.

Lower Granite is releasing outflows of 138.6 kcfs. The prior week's average was 113.2 kcfs. Priest Rapids is releasing 181.2 kcfs, with a prior week average of 162.2 kcfs. McNary is releasing 349.8 kcfs with a prior week's average of 287.7 kcfs. Bonneville's highest discharge of the season so far yesterday was 391 kcfs, with a prior week's average of 301.7 kcfs.

Hungry Horse is at elevation 3,497 feet, with outflows of 9.5 kcfs. One kcfs of that is spill, with another 1 kcfs spill expected tomorrow. Gas levels yesterday were 105-106%. The end of April flood control target is 3,493.7 feet based on the March forecast of 121% of normal. Grand Coulee is at 1,245.8 feet, with a goal of drafting a foot per day. The early bird forecast indicates this much draft is needed. Drumgate maintenance is proceeding on track.

b. Fish. Juveniles: The yearling Chinook 2-week passage index shows 3,000 per day being caught at the White Bird trap, Paul Wagner reported. Close to 1,000 were caught at Imnaha and 250 at Grande Ronde. Lower Granite is passing 24,000 per day. Subyearling passage at Bonneville is around 1,000-3,000 per day. A few hundred coho per day are passing at Lower Granite and Bonneville. Steelhead passage numbers are a surprise at 311,000 on April 3. The hatchery release was around 76,000 fish. John Day is passing 1,600 steelhead per day. Lamprey are passing Lower Granite at the rate of 400 per day, a high based on historic reporting. They're passing at a rate of 5,000 per day at John Day.

Adults: It's spring Chinook season but they're not showing yet. Snake River steelhead are passing after overwintering.

c. Power. BPA is close to finalizing its environmental redispach procedure for taking wind off line when gas levels rise, Bettin said.

d. Water Quality. Scott English, COE, presented the Oregon high 12-hour average chart for April, which gives a snapshot of TDG levels across the region. All gages are operating, ready for spill to start April 3 on the Snake and April 10 on the mainstem Columbia. The rest of the system is in involuntary spill on all projects except Little Goose and Lower Monumental. Chief Joseph is spilling to 111% TDG. A number of projects are exceeding the state water quality standard. Bonneville could go outside the 1% efficiency operation to increase generation and reduce those numbers, Bettin said. Wagner will present a report on gas bubble trauma incidence at the next TMT meeting April 20.

Research shows that fish collected now at Lower Granite are better off bypassed than transported, Russ Kiefer, Idaho, explained. So fish are in the river, but because gas reduces spill at Little Goose and Lower Monumental, more

fish go through the bypass collection systems there. In trying to help fish, we end up passing them through the bypass system at Little Goose and Lower Monumental which reduces adult return rates. Kiefer said he wants TMT to work together to solve this problem. Barton noted that potential solutions to that problem are all in litigation. We have to look for flexibility in the court order and the WMP. He suggested that Washington coordinate with the Department of Ecology to relax the 115% forebay standard, which would help alleviate this problem. TMT will follow up on this issue at its next meeting.

10. Next Meeting

TMT will have a conference call on April 13 to discuss lower Columbia spill and the Spring Creek hatchery release. The next regular face-to-face meeting will be on April 20.

<i>Name</i>	<i>Affiliation</i>
Steve Barton	COE
Charles Morrill	Washington
David Wills	USFWS
Jim Litchfield	Montana
Scott Bettin	BPA
Paul Wagner	NOAA
John Roache	BOR
Tom Lorz	CRITFC/Umatilla
Rick Kruger	Oregon
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