TECHNICAL MANAGEMENT TEAM

BOR: Pat McGrane\Lori Postlethwait

NMFS: Paul Wagner\Chris Ross BPA: Scott Bettin\Robyn MacKay

USFWS: Howard Schaller\Bob Hallock\Susan Martin

OR: Christine Mallette WA: Jim Nielsen ID: Steve Pettit

MT: Jim Litchfield COE: Cindy Henriksen\Rudd Turner\Dick Cassidy

January 5, 2001 1400 - 1500 hours PST Conference Call

All members are encouraged to call Donna Silverberg with any issues or concerns they would like to see addressed. Please e-mail her at dsilverberg@cnnw.net or call her at (503) 248-4703.

AGENDA

The purpose of the call is to develop a recommended system operation strategy to protect chum salmon and other species. Members should be prepared to provide information on chum and other fishery needs, desired Bonneville flows, water supply forecast, power system conditions, reservoir refill situation, and other relevant information.

Meet-me number is 503-808-5190.

Questions about the meeting may be referred to Cindy Henriksen, (503) 808-3945, or Rudd Turner, (503) 808-3935.

COLUMBIA RIVER REGIONAL FORUM

TECHNICAL MANAGEMENT TEAM
MEETING NOTES
January 5, 2001
CORPS OF ENGINEERS NORTHWESTERN DIVISION OFFICES
CUSTOM HOUSE
PORTLAND, OREGON

TMT Internet Homepage: http://www.nwd-wc.usace.army.mil/TMT/index.html

1. Greeting and Introductions

The January 5 Technical Management Team conference call, held at the Customs House in Portland, Oregon, was chaired by Cindy Henriksen of the Corps. The following is a distillation, not a verbatim transcript, of items discussed at the meeting and actions taken. Anyone with questions or comments about these minutes should call Henriksen at 503/808-3945.

Henriksen welcomed everyone to the meeting, then led a round of introductions and a review of the agenda.

2. Discussion of Lower Columbia Flow Situation.

Henriksen said this conference call had been requested by NMFS and WDFW to allow the TMT an opportunity to discuss the system operation strategy for chum and other species, in light of the newly-released January early-bird water supply forecast and revised reservoir refill probabilities. There was an FPAC call this morning, at which the current status of the Ives Island redd surveys was discussed, Henriksen said; perhaps I could ask one of the salmon managers to summarize that information.

Christine Mallette said the data discussed this morning was not new; it was the same information that was the basis for the most recent SOR, submitted Wednesday. There were a number of redds that were dewatered at that time, she said, three in all. That was at a Bonneville tailwater elevation of 11.8 feet? Scott Bettin asked. Correct, Mallette replied. What is the current viability of those redds? Henriksen asked. We don't know at this time, Jim Nielsen replied. We're waiting to hear about groundwater interactions with redds and viability in the near future, Mallette added.

Will that information be available by next Wednesday's TMT meeting? Henriksen asked. We were asked to develop information on the number of redds by next TMT meeting, but I didn't hear anything about groundwater viability, said Nielsen. Perhaps I can request that that information be made available as well, said Henriksen, adding that the most recent estimate of the total number of redds she has heard ranged between 95 and 400. That's correct, said Mallette. Nielsen said it is doubtful that the

groundwater viability information can be developed by next Wednesday. Perhaps we can at least discuss when that information might be available at Wednesday's TMT meeting, Henriksen suggested.

Pat McGrane asked whether it would be possible for the salmon managers to develop an estimate of the number of redds that would be dewatered if the tailwater elevation at Bonneville drops another foot. Michele DeHart objected to this line of conversation; we're talking about how much more damage we can do, she said, rather than how much damage has already been done. We need to keep this in the context of what has happened to date, said DeHart.

It's important for us to understand what level the fish are at, said McGrane. At your current operation of 135 Kcfs-140 Kcfs outflow from Bonneville, you're exposing some of the redds, said Nielsen – you need a tailwater elevation of 13 feet, or flows of 142 Kcfs, to keep all of the redds covered. The hydrosystem has done significant damage already, said DeHart. There is little point in arguing about history, said Henriksen – it would probably be more productive to focus our discussion today on future operations.

Henriksen added that the email she sent out earlier today will perhaps provide some insight into why McGrane is asking about tailwater elevation levels. How far forward are we looking? Nielsen asked. The model runs go from January through July, Henriksen replied; the first milepost I focused on was April 30. For the January-April period, the Corps developed two bookend scenarios, the first being to operate the system primarily to achieve April 10 flood control elevations. Under this scenario, the model shows an average flow at Bonneville during the January-March period of between 95 Kcfs and 115 Kcfs.

Under the other bookend scenario, we also operated the system to achieve the April 10 flood control elevation at all of the headwater storage projects, but allowed Grand Coulee to draft as much as necessary to achieve an average flow of 140 Kcfs at Bonneville during the January-March period, Henriksen explained. What we saw under this model run is that, given the runoff volumes shown in the early bird forecast, Grand Coulee would be empty by early February, and would miss its April 30 flood control elevation by about 15 feet.

Obviously, what this means is that, if the runoff volumes shown in the early bird forecast do in fact materialize, after early February, even with a maximum draft at Grand Coulee, we don't believe we will be able to meet a 140 Kcfs flow target at Bonneville, Henriksen said – we would probably be looking at flows in the 115 Kcfs-120 Kcfs range during February and March at Bonneville.

What runoff forecasts are these runs based on? Mallette asked. The early-bird forecast, which shows a runoff volume of 80 MAF at The Dalles during the January-July period, Henriksen replied. The Snake River is at 81% of average runoff, according to this forecast, she added, noting that the January 95% confidence interval at The Dalles is 27 MAF.

The group spent a few minutes discussing emergence timing for the chum spawners at Ives Island. McGrane then noted that, if this runoff forecast holds up, if we try to achieve 140 Kcfs outflow from Bonneville, Grand Coulee will be empty – elevation 1208 – by early February; mainstem flows will then drop to about 115 Kcfs. That's correct, said Henriksen. Robyn MacKay added that this assumes that the Canadian projects will be storing the usual 1 MAF in non-treaty storage during this period; other operations are possible there if there is a desire to keep flows up.

Nielsen observed that, if the runoff at The Dalles is indeed in the 80 MAF range this year, it will be difficult to achieve refill at Grand Coulee no matter how the system is operated. Again, said Henriksen, the operations we modeled are bookends, showing what would happen if we operate the system to keep flows as high as requested, and if it was operated to achieve refill.

So with or without any chum salmon consideration, if this early bird forecast comes true, you will not meet the spring flow or refill targets under any circumstances, DeHart observed. I think we could, actually, Henriksen replied. You could, but in real life, it's unlikely to happen, Nielsen said. Bear in mind that the early bird forecast assumes average runoff conditions for the rest of the winter, said Kyle Martin – in all likelihood, the actual water supply will be less than what's shown in the current forecast. As a result, later forecasts could go down from here.

So in other words, there is no good news, said Wagner. Correct, Henriksen replied. NMFS would like to make the point that the BiOp favors refill over flows for chum salmon, he said; now is the time for TMT to find the balance between the needs. The balancing act should begin now rather than later, and tradeoffs are needed, Wagner said. This just points out that the BiOp is inadequate to protect chum salmon, said Nielsen – it provides little or no protection for these fish. It is true that they are at the end of the line, Wagner agreed.

Martin said the tribes would prefer to see the Grand Coulee water stored for use in spring flow augmentation; he noted that CRITFC warned two months ago that Bonneville outflow should not exceed 125 Kcfs in order to avoid just this type of situation. That's a basic philosophical difference between CRITFC and other salmon managers, Nielsen replied.

In response to a question, MacKay said that, until BPA hears otherwise, they're planning to continue to release 135 Kcfs-140 Kcfs from Bonneville. The point is that flows are likely to drop some time between now and March, said McGrane; what we need to decide is whether we want to try to keep Grand Coulee fuller, or whether we want to release more water to keep flows higher in the river. Mallette noted that this discussion is based on very early forecast information; actual runoff will be different. However, based on what we know now, the likelihood is that the forecast will only worsen, said Martin. In response to another question, Henriksen said this is the third-lowest January forecast

on record; in the two worst historic years, the actual runoff was less than the forecast runoff.

NMFS would recommend operating to a tailwater elevation, rather than a specified flow, said Wagner – that could provide some opportunity to conserve water. Is that something we could adopt, from an operational perspective? Wagner asked. I think we can accommodate that, said MacKay. Did you have a specific tailwater elevation in mind? Nielsen asked. We were thinking about a 12-foot tailwater elevation, Wagner replied; while that would dewater a few redds, it would protect the majority.

Observations today showed that one of those three redds was watered at elevation 12.3 feet, said Nielsen. Basically, what NMFS is proposing is that we move toward the emphasis on refill called for in the BiOp, Wagner said. So under the NMFS proposal, 12 feet would be a minimum tailwater elevation at Bonneville? Rich Domingue asked. Correct, Wagner replied.

Mallette said the supporters of the most recent SOR continue to support their fisheries-based recommendation; in my view, she said, a minimum tailwater elevation of 12 feet at Bonneville is not adequate to protect the chum redds. However, given the concerns we have heard about the spring water supply forecast, and the BiOp's emphasis on refill, I think NMFS' feeling is that this might be an appropriate balanced approach, Henriksen said. If the water supply does recede further, as Kyle Martin has suggested is likely, we will face even tougher choices in the future, hence our informational requests, she said. DeHart said a map of the Ives Island redd sites is available via the FPC homepage.

So in essence, the federal response is that you will continue to operate the system as you have in the past two weeks? DeHart asked. Actually, at this morning's federal executive conference call, it was agreed that this would be an appropriate issue for the TMT to discuss, one participant replied. But the tailwater elevations will be approximately the same? DeHart asked. They will be slightly higher, because we're now in a higher tide situation, Wagner said.

MacKay reiterated that BPA is willing to consider a new operation at Bonneville if the TMT recommends one. The question is the impact of Ives Island protection measures on future refill and flow augmentation probabilities, Henriksen said – we would like everyone to think long-term, as well as short-term. If the objective is to maintain tailwater elevation of 12.5 feet or higher, at an average tide, that's a flow of about 145 Kcfs at Bonneville, on average. In other words, it's a higher flow than we have now. Another participant said that, based on his calculations, the Bonneville outflow needed to maintain 12.5 feet in tailwater elevation is closer to 136 Kcfs. Henriksen replied that Bonneville is currently releasing 140 Kcfs and tailwater elevation is right at 12.5 feet.

Schaller observed that the TMT will revisit this issue on a regular basis between now and April; it should be possible to modify operations from week to week, as better

forecast information comes in. Henriksen replied that the Corps would prefer to develop a longer-term strategy, rather than debating and changing operations on a weekly basis.

DeHart reiterated that, in the lowest water years, it will not be possible to meet the April 10 reservoir elevation targets anyway. This being the case, she said, it may make more sense to protect the fish that are already in the gravel. Every 5 Kcfs that goes down the river for a week is the equivalent of about one foot in Grand Coulee elevation, MacKay replied. And maintaining a tailwater elevation of 13 feet, rather than 12 feet, will cost about 1.5 feet in Grand Coulee elevation each week it is maintained, Wagner added.

Martin suggested that it might be useful to develop some estimate of the chum impacts if Bonneville is operated to 125 Kcfs discharge, 130 Kcfs discharge and 135 Kcfs discharge.

Recognizing that the TMT has another meeting scheduled for next Wednesday, perhaps I ask everyone to give some thought to the long-term impacts of the various operations that have been discussed today, Henriksen said. In the meantime, is there any sort of consensus on the 12-foot tailwater elevation proposed by NMFS. McGrane said Reclamation would have no objection to this proposed operation; Henriksen said the Corps would not object either. Schaller said USFWS recommends a tailwater elevation at Bonneville of at least 12.5 feet. So the proposed 12-foot tailwater elevation at Bonneville would not be adequate? Henriksen asked. Nielsen and Mallette said it would not be adequate, from Washington's and Oregon's perspectives.

In response to a question from Wagner, Bettin said BPA cannot guarantee that it will be possible to hold a precise 12-foot tailwater elevation 24 hours a day – actual elevations will fluctuate slightly. But if 12 feet was the minimum, what would the fluctuation be? Wagner asked. Likely 12 feet to 12.5 feet, Bettin replied.

Does that clarification change anyone's mind? Wagner asked. I think if you're waiting for consensus on the 12-foot minimum tailwater elevation at Bonneville, it will not be forthcoming, Nielsen replied. So we have NMFS' recommendation, but we have no consensus on that recommendation, Henriksen observed – from a process standpoint, where does that leave us? We could elevate it to IT, but in all likelihood, according to our IT representatives, that will be their recommendation as well, said Wagner. So in the meantime, the operation will be to release 135 Kcfs - 140 Kcfs from Bonneville? Martin asked. Yes, Wagner replied. Martin added that another cold snap is expected to hit Portland next week; the increased load that will result should be factored into whatever decision the TMT makes.

Do we want to elevate this issue to the IT? Henriksen asked. Not at this time, Nielsen replied. Mallette agreed, adding, however, that Oregon would like to be on record as disagreeing with NMFS' proposal. Typically, when we're in disagreement, don't we send it to the IT? Schaller asked. Not necessarily – it depends on how strong that disagreement is, Rudd Turner said.

In response to another question, Wagner said this operation will be discussed at next week's IT meeting, whether or not it is formally elevated to the IT. After a few minutes of additional discussion, Nielsen reiterated that WDFW does not support the NMFS recommendation, but sees little point in elevating this issue to the IT. The record needs to reflect that all data indicates that, at NMFS' recommended tailwater elevation, some redds will be dewatered, Nielsen said. Wagner agreed that this is highly likely to occur.

McGrane asked whether, given the fact that flows are likely to drop further over the next few months, it may make sense to consider more drastic actions to keep the redds watered, such as sprinklers pumping out of the river.

Steve Pettit said Idaho's position, that no actions be taken that will reduce spring refill probability and jeopardize flow augmentation, stands. With that, Henriksen summarized the outcome of today's meeting by saying that NMFS has recommended a minimum tailwater elevation at Bonneville Dam of 12 feet; we recognize that USWFS, ODFW and WDFW do not concur with this recommendation, and that they believe the minimum tailwater elevation at Bonneville should be higher. Idaho has expressed a preference to emphasize spring flow augmentation over winter flows for chum salmon. The Corps and Bonneville have no objections to maintaining the 12-foot minimum, with the understanding that we will revisit this operation at next week's TMT and IT meetings. At that time, we will have a January final forecast, and will be able to have further discussion of our long-term strategy, Henriksen said.

In response to a question from DeHart, MacKay said a Bonneville outflow of 135 Kcfs - 140 Kcfs is adequate to meet BPA load over the next week. With that, the call was adjourned. Meeting notes prepared by Jeff Kuechle, BPA contractor.

TMT PARTICIPANT LIST

JANUARY 5, 2001

Ruth Abney	COE	503/808-3939
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Cindy Henriksen	COE	503/808-3945
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TECHNICAL MANAGEMENT TEAM

BOR: Kim Fodrea\Pat McGrane

NMFS: Paul Wagner\Chris Ross BPA: Scott Bettin\Robyn MacKay

USFWS: Marv Yoshinaka\Bob Hallock\Susan Martin

OR: Christine Mallette\Chuck Tracy WA: Jim Nielsen ID: Ed Bowles\Steve Pettit

MT: Jim Litchfield COE: Cindy Henriksen\Rudd Turner\Dick Cassidy

January 10, 2001 1300 - 1600 h Rm 118

Custom House

All members are encouraged to call Donna Silverberg with any issues or concerns they would like to see addressed. Please e-mail her at dsilverberg@cnnw.net or call her at (503) 248-4703.

AGENDA

1. Welcome, introductions.

2. Review current system conditions.

    - Reservoir operation and water supply (COE, BOR)
    - Power system status (BPA)
    - Fish status (NMFS)

3. Review operation requests.

4. Develop recommended operations.

5. Reports:

    - River forecasting methods (Northwest River Forecast Center)
    - 2001 forecast (CRITFC)

6. Comments on Water Management Plan.

7. Other.

    - Set agenda for 24 January TMT meeting

Meet-me number is 503-808-5190. Questions about the meeting may be referred to Cindy Henriksen, 503-808-3945, or Rudd Turner, 503-808-3935.

COLUMBIA RIVER REGIONAL FORUM

TECHNICAL MANAGEMENT TEAM
MEETING NOTES
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FACILITATOR'S NOTES ON FUTURE ACTIONS
Facilitator: Patricia McCarty

The following is a list of items the Technical Management Team (TMT) discussed at its last meeting that may require future action or discussion.

New Member: Welcome to Dave Wills, the new TMT representative for the USFWS. Marv Yoshinaka retired on January 3rd, and Dave will sit in as the rep until the FWS determines who the permanent rep will be.

Current system conditions: Rudd Turner stated that the action agencies are operating the system to attempt to provide for chum needs, energy needs and conserve water for the spring migration, which may become more difficult if the water forecasts are accurate. Since the January 5th TMT conference call on this topic, the Bonneville flows have ranged from 129 Kcfs to 137 Kcfs, and the tailwater elevation has ranged from 11.7 – 12.5 feet. The COE and BOR presented more information on the water supply forecasts and potential impacts of various Bonneville flows on reservoir elevations. Both agencies are very concerned about meeting spring refill levels and suggested that in order to do so Bonneville flows need to be reduced soon. Contact Rudd Turner and Pat McGrane for copies of the model runs and projections.

Christine Mallette reported that as of the meeting date no chum redds were dewatered, and that 3 new chum were observed downstream from Hamilton Island; new redds are expected.

The group had a lengthy discussion on changing the Bonneville flow levels and/or the tailwater elevation. The salmon managers were unwilling to agree to a reduction in tailwater elevation or flow at this time. NMFS and the salmon managers will continue to assess the water supply forecasts and the information provided by the action agencies on the potential impacts to spring refill.

> **ACTION:** The COE extended an invitation to TMT members to come in and see how the SSARR runs are developed. This is done every Tuesday morning. If you would like to do this, please contact Christine Mallette, who will coordinate with the COE.

Recommended operations: NMFS recommended that the tailwater elevation be reduced to 11.7 feet, and at a request from the BOR, NMFS agreed to a reduction in the daily average flow to

130 Kcfs, except as needed when the tide is low. During periods of low tides, the day average flow may be greater than 130 kcfs to the extent needed to maintain a tailwater elevation of 11.7 feet.

ACTION: The issue will be discussed again in a TMT conference call on Wednesday, January 17th, at 2 p.m.

Northwest River Forecast Center: Tom Fero and Harold Opitz gave a short presentation on how the water supply forecast is developed.

ACTION: The RFC extended an invitation to TMT members to go out to the RFC office and learn more about the development of the forecasts. If you would like to do this, please contact Cindy Henriksen, and a TMT field trip can be arranged.

CRITFC climate forecast presentation: Kyle Martin gave a brief overview of his submission to TMT, which encourages the consideration of climate forecasts in flow decisions. Kyle asked TMT to review the materials provided and to contact him with any questions. He has offered to make a fuller presentation at a later TMT meeting if the group is interested.

Water Management Plan: Rudd asked the group to review the 2000 Water Management Plan and to give him any suggestions for changes as soon as possible. The COE will begin working on the draft for 2001, and expects to have a draft posted on the TMT page before the next meeting on January 24th.

ACTION: All members should review the Draft 2001 Water Management Plan before the next meeting and be prepared to discuss it.

Next Meeting and Agenda

The next meeting is **January 24th, 2001, 1-4 p.m.** and will be in-person at the COE.

Agenda:

- Review fish needs, water outlook, power needs
- Review Draft 2001 Water Management Plan
- TMT / BPA visit or presentation on the power system
- Continuation of discussion of TMT decision making process

Meeting Minutes

1. Greeting and Introductions

The January 10 Technical Management Team meeting, held at the Customs House in Portland, Oregon, was chaired by Rudd Turner of the Corps and facilitated by Patricia McCarty. The following is a distillation, not a verbatim transcript, of items discussed at the meeting and actions taken. Anyone with questions or comments about these minutes should call Henriksen at 503/808-3945.

McCarty welcomed everyone to the meeting, then led a round of introductions and a review of the agenda.

2. Current System Conditions.

Turner reported that current system operational strategy is to meet energy loads and protect chum salmon spawning areas to the extent feasible, while conserving water for flow augmentation and power system emergencies in a below average precipitation and runoff volume situation. In other words, said Turner, the action agencies are attempting to strike a balance. We're also working on some long-term studies, the first iteration of which is available today.

Since Friday's conference call, said Turner, we have been trying to maintain a minimum Bonneville tailwater elevation of 12.0 feet, with the constraint that Bonneville outflow not exceed 140 Kcfs. Since January 5, flows at Bonneville have averaged between 129.4 and 137.9 Kcfs, with tailwater elevation varying between 12.0 and 12.5 feet. Libby and Dworshak are releasing minimum outflow, 4 Kcfs and 1.3 Kcfs, respectively, an operation that is expected to continue through February.

In response to a question from Jim Nielsen about low tailwater elevations at Bonneville, Scott Bettin said there are two tailwater gauges below Bonneville, one at Powerhouse 1 and one at the spillway. The spillway gauge is the one at which the official tailwater measurement is recorded at that project, said Scott Boyd, adding that the official tailwater readings at the spillway have all been in the 12.0-12.5-foot range. Checking the web site, it was indeed discovered that there were several hours on Saturday and Sunday, January 6-7, when tailwater elevation, as measured at the Powerhouse 1 gauge, sagged as low as 11.8 feet. I'll look into that discrepancy, said Turner. Boyd reiterated that the official tailwater elevation at Bonneville has not fallen below 12.0 feet since the operation discussed at Friday's conference call was implemented.

Moving on, Turner said that, at Dworshak, the current SSARR run shows elevation 1522 ft. at Dworshak at the end of January, 15 feet below that project's January 31 flood control elevation. At Libby, current project elevation is 2410; the SSARR run shows that project at elevation 2407 ft. by the end of January, eight feet below its January 31 flood control elevation. If a power system emergency occurs, these numbers could change, but that's the way the picture looks now, Turner said.

At Grand Coulee, we're currently at elevation 1257, said Pat McGrane; the final flood control elevation is expected to be 1283 on April 30, so we're well below that. We're 33 feet below the 85% confidence interval at Grand Coulee and drafting a foot a day, McGrane said. At Hungry Horse, our intent is to implement VAR-Q flood control elevations beginning immediately; that project is at elevation 3516 and drafting to meet flows at Columbia Falls. The current runoff volume forecast for Hungry Horse is only 75% of normal; the new BiOp says if the forecast is 80% of normal or less, minimum flow at Columbia Falls will drop slightly. In other words, both Grand Coulee and Hungry Horse are being drafted way below where they should be, according to the Biological Opinion, McGrane said; that situation is unavoidable at Hungry Horse, due to the need to maintain minimum flows at Columbia Falls. Given the

forecast, is it fair to say that Reclamation is very concerned about that? McCarty asked. Yes, McGrane replied.

There seems to be a disconnect between what the operating agencies and the fishery agencies are thinking about the current water supply forecast, McGrane said. Again, we've drafted Grand Coulee far below where it should be to achieve an 85% confidence of achieving its April 30 flood control elevation. He showed the following table of Grand Coulee's projected end-of-month elevations under various operating scenarios, based on Reclamation modeling:

Bonneville Flow	December	January	February	March
110 Kcfs	1267.7	1260.5	1271.7	1290.0
120 Kcfs	1267.7	1253.4	1256.9	1270.9
130 Kcfs	1267.7	1245.9	1240.7	1246.5
140 Kcfs	1267.7	1238.8	1222.2	1217.1

McGrane emphasized that these numbers are based on the most optimistic possible assumptions; actual elevations are likely to be lower. Again, he said, Reclamation is extremely concerned about the current forecast situation.

The January final water supply forecast came out yesterday, said Turner; we did both a SSARR and some HYSSR runs. What the final shows is 80.4 MAF, 76% of normal, at The Dalles for January-July; 48.8 MAF at Grand Coulee, 76.2% of normal and about 17 MAF, or 72% of normal, at Lower Granite. We're looking at flows similar to what we saw in the 1992 – 1994 period, in other words, he said; this is the third-lowest forecast in the last 11 years.

The water supply forecast assumes average precipitation during the forecast period, Turner said; so far in January, we're seeing anywhere from 1% to 65% of normal, depending on where you are in the basin. The Snake River plain, for example, has received no precipitation since January 1; overall, there have been no significant precipitation events east of the Cascades so far in January. If the current trend continues, subsequent water supply forecasts could be even lower than this one, Turner said.

In response to a question from Nielsen, Turner said the SSARR run assumes normal precipitation in the future. Moving on, he provided a table similar to Reclamation's of estimated Grand Coulee elevations under various operating scenarios, based on Corps model runs:

Bonneville Flow	January 31 GCL Elevation	February 28 GCL Elevation
110 Kcfs	1246 feet	1249 feet
120 Kcfs	1241 feet	1234 feet
130 Kcfs	1236 feet	1217 feet

Turner noted that these model runs are based on the most recent SSARR information and, in general, show lower end of month elevations that those presented by McGrane.

Turner then summarized the HYSSR model runs, based on the 60-year water record, that the Corps has developed to provide a slightly different viewpoint on future operations at Grand Coulee, Bonneville and McNary. What these model runs show, in essence, is that if Grand Coulee continues to be operated to maintain a minimum discharge from Bonneville of 130 Kcfs, there is only a 2% probability that Grand Coulee will achieve its April 30 flood control elevation. If, on the other hand, Grand Coulee is operated to achieve its April 30 flood control elevation, monthly average flows at Bonneville will fluctuate between 100 Kcfs and 270 Kcfs during the January-July period. If the system is operated to achieve an average flow of 130 Kcfs at Bonneville, said Turner, according to this model run, Grand Coulee's April 30 elevation is estimated to be 1261 feet, 22 feet below that project's end-of-April flood control elevation.

McGrane added that, if 130 Kcfs is maintained at Bonneville, flows at Priest Rapids are estimated to be 84 Kcfs in April, 132 Kcfs in May and 135 Kcfs in June, well below the BiOp flow targets at that project. Nielsen noted that, in an 80 MAF runoff year at The Dalles, it is unlikely that the April 30 flood control elevation will be achieved at Grand Coulee under any operational scenarios.

That is true, said Cindy Henriksen, but the point of this conversation is to ensure that everyone understands the impacts of the decisions and recommendations we're making now on our options during the spring and summer periods. McGrane added that Reclamation feels other projects besides Grand Coulee should be making more of a contribution to flows at Bonneville; the days of drafting only Grand Coulee are numbered, in other words, said McGrane.

In response to another question from Nielsen, Jim Gaspard of B.C. Hydro said Arrow is releasing 38 Kcfs through January; that may fall slightly in February and the first half of March. Beginning the second week in March, Arrow outflow will fall to about 20 Kcfs. Gaspard added that snowpack in the Canadian portion of the basin is about 85% of normal.

The salmon managers understand that we're in a poor water supply situation, Nielsen said; still, the operations shown in SOR 2001-1 are our recommendation, based on the needs of the chum. I just want everyone to be aware that the decisions we're making in January mean we're putting water down the river now that could be used for flow augmentation later this spring, Henriksen said. Or for a power emergency, Nielsen observed.

Chris Ross noted that the three model runs show end-of-February elevations at Grand Coulee varying between 1217 feet and 1256 feet, if Bonneville flows of 130 Kcfs are maintained; the group spent a few minutes discussing the technical differences between the SSARR, HYSSR and Reclamation model tools.

I appreciate the information you've provided, but perhaps we should move on to the operational discussion, said Nielsen. Christine Mallette reported on recent fieldwork at Ives

Island; WDFW had a crew out earlier this morning. At 11:30 this morning, they observed that there were no redds dewatered at this time, although two redds were very close to being dewatered. The crew also observed three new adults that have entered the area below Hamilton Creek. These fish are new to the area and have not yet begun spawning activities, Mallette said; in other words, there could be new redds in the area soon. The crew sampled for juvenile fish this morning, but the results of that survey are not yet available, Mallette said, adding that the survey results are available via the Fish Passage Center web site. It was observed that Bonneville tailwater elevations were in the 12.0-12.3-foot range this morning.

Ross said that, based on the information currently available, NMFS is ready to recommend lowering the minimum tailwater elevation at Bonneville from 12.0 feet to 11.7 feet, to allow an opportunity to save water while protecting the majority of the chum redds. McGrane noted that day-average flows are now capped at 140 Kcfs, and asked whether it is NMFS' intention to retain that cap. We haven't had to use 140 Kcfs at Bonneville to meet the 12-foot minimum tailwater elevation, as we heard earlier, said Ross – NMFS' expectation is that actual flows at Bonneville would be reduced somewhat if we go to a minimum tailwater elevation of 11.7 feet. Ross added that NMFS will be doing some additional analysis and will be watching the Ives Island redd surveys closely, and will make additional recommendations about the Bonneville operation over the coming weeks.

Mallette replied that, at a tailwater elevation of 11.7 feet, field crews have observed some dewatered redds. If the purpose is to protect the existing redds, she said, lowering the Bonneville tailwater elevation to 11.7 feet is not recommended at this time. Ross reiterated that NMFS' intention is to protect the majority of the chum redds while saving some water for use later in the spring period.

The Corps would like to consider dropping the flow cap to 130 Kcfs at Bonneville, said Turner. That should be adequate to meet the 11.7-foot minimum tailwater elevation for most hours, he said, although the tidal influence could cause the tailwater elevation to drop slightly below that level for a few hours on some days. McGrane said Reclamation agrees with the idea of dropping the maximum daily-average flow cap to 130 Kcfs. After a few minutes of discussion, however, no TMT consensus was reached on this issue.

In response to a question from McCarty, Ross said NMFS is not interested in sacrificing chum redds; the best available information is that a minimum tailwater elevation of 11.7 feet should be adequate to protect the majority. And that's over the next week, with the understanding that everyone will look closely at the flow, tailwater elevation and redd survey information between now and the next TMT meeting, he added.

Mallette said that maintaining a minimum tailwater elevation at Bonneville might make more sense than setting an average flow. Bettin agreed, noting that, while it does take some effort, BPA has been able to maintain the agreed-upon 12-foot minimum elevation over the past five days.

Can we make a decision on this today? McCarty asked. My concern is that if we maintain daily average flows in the current range, we're going to be in trouble, even at 130 Kcfs, said

McGrane – that's still too high. Hopefully we can drop flow at Bonneville; if we continue to average 135 Kcfs outflow at that project, we're going to have problems later. Every day counts, he said – as I said, Grand Coulee is drafting a foot per day.

I think we're at the same point we were last Friday, said Nielsen – WDFW does not agree with NMFS' recommendation, although I don't think at this time it makes sense to elevate this issue to IT. Mallette agreed, saying ODFW's position has not changed since last Friday's conference call. As Paul Wagner said on Friday, it is likely that this issue will be discussed at tomorrow's IT meeting, whether or not this issue is elevated, she said. David Wills said the Fish and Wildlife Service agrees with WDFW's and ODFW's position.

Nielsen reiterated that this discussion simply underlines the fact that the 2000 BiOp does not adequately address the needs of newly-listed species. We understand that this is a poor water year, he said; again, in an 80 MAF year, it is unlikely that the flood control refill targets at most projects will be met this year under any operational scenarios.

McCarty noted that the Corps has said that, if the TMT makes a conscious decision to use this Grand Coulee water now to maintain the viability of the chum redds below Bonneville, the Corps is willing to accept that, with the understanding that everyone acknowledge that this is a conscious decision to favor flows for chum over spring and summer flow augmentation. Nielsen replied that he would ask if the converse would also be true – if the salmon managers were to agree to sacrifice some chum redds now in order to save water for flow augmentation later in the spring, that the action agencies would guarantee that any water saved would be available for later flow augmentation. We don't know the future, Bettin replied – we couldn't guarantee that none of that water would need to be used before the spring flow augmentation period.

Turner said the Corps is willing to operate Bonneville to a minimum tailwater elevation of 11.7 feet; they would also prefer to cap Bonneville outflow at 130 Kcfs. McGrane said Reclamation recommends maintaining the lowest possible flow level that will not cause a power system emergency. He added, however, that Reclamation is willing to operate Grand Coulee to achieve a minimum tailwater elevation of 11.7 feet at Bonneville, at least for now. Bettin said BPA would prefer to set the minimum tailwater elevation at Bonneville at 11.5 feet; Ross replied that this would not be acceptable to NMFS.

So the recommended operation is to maintain a minimum tailwater elevation of 11.7 feet, but that there is no agreement on the 130 Kcfs flow cap at Bonneville? McCarty asked. Basically, yes, although we do expect to see flows drop as we implement the 11.7 minimum tailwater elevation, McGrane said. Turner clarified by saying that the Corps will operate Bonneville to a flow cap of 130 Kcfs, except as needed to maintain the 11.7-foot minimum tailwater elevation below that project during low-tide periods. Does that work, at least for now? Turner asked. No further disagreements were raised to this operation as described. And if something drastic is seen during Friday's redd survey by the fisheries agencies, said Turner, we can always discuss the situation via conference call.

3. New System Operational Requests (SORs).

On January 3, the Corps received SOR 2001-1. This SOR, supported by ODFW, USFWS and WDFW, requests the following specific operations:

- Immediately implement the requested conditions in SOR 2000-37 (maintain a tailwater elevation of 13.0 feet and an outflow of 142 Kcfs from Bonneville Dam).

This SOR was discussed during the previous agenda item.

4. Recommended Operations.

Recommended operations were described during Agenda Item 2.

5. Report on River Forecasting Methods.

Tom Fero of the River Forecast Center began this presentation by asking if there are general questions people would like to have answered, given the relatively short time available for this agenda item. How do you forecast the Canadian portion of the basin, and how is your forecast different from B.C. Hydro's? one participant asked. Early in the season, it isn't, Fero replied; we're obligated to use their forecasts up to a certain point. As the season progresses, we start making our own runs, and may begin to question B.C. Hydro's numbers if we see something different.

Fero began the more formal portion of his presentation with a plot of average snowpacks at the current time; in general, he said, snowpacks are well below average throughout the Pacific Northwest. Do you have the same confidence in your modeling tools in these kinds of outlier, low-flow years that you have in normal or above-average years? Glen Traeger asked. I don't have a great deal of comfort with the forecast in any year, Fero replied; the only thing I can guarantee is that my forecast will be wrong. We make as many different runs, using as many different tools, as possible; however, the bottom line is that it is extremely difficult to predict the future.

Why don't you assume anything other than average precipitation into the future? McGrane asked. We can do that, but on January 1, it's too early to say this won't be an average precipitation year from here on out, said Fero. If, as the season progresses, the current pattern doesn't change, after another month or so, we'll probably start making some "what-if" types of runs, he added. At this point, the assumption of normal precipitation is the best we can do – we take our responsibility very seriously, he said, and at this point, we don't see a compelling reason to assume that precipitation will not be within the normal range.

What are you seeing as far as temperature deviations from normal this year? another participant asked. Harold Opitz replied that it has been a mild winter to date; there may be some slight below-normal departures between now and February, but the RFC doesn't foresee any strong departures at this point. The trend is toward slightly above-average temperatures beginning about mid-February, he added.

Can we talk a bit more about how your forecasts are developed? Turner asked. We look at snowpack, temperature and, of course, precipitation, Fero replied; again, in December, precipitation was well below normal through most of the Columbia River Basin. He put up a plot showing the data points for Hungry Horse inflow, January-September, and explained how this information is used, in combination with other sources of data, to develop forecast inflow at that project. Kyle Martin noted that the quality of the early-bird forecast is different than the quality of the final forecast, because the early-bird forecast uses only about half the data points that the final forecast does. Opitz noted that this is not precisely true; the number of data points used for both forecasts varies from month to month.

We actually put out three forecasts, said Fero – final, mid-month and early-bird. The final forecast, as Kyle noted, uses the most data points. Do you coordinate these forecasts with other agencies? Traeger asked. We do coordinate closely with the Natural Resources Conservation Service to develop consistent basin-by-basin values, Fero replied – we try to develop a number both agencies can live with. He added that the RFC is in the process of switching over to the more sophisticated Extended Streamflow Prediction (ESP) model.

Next, Fero spent a few minutes discussing confidence intervals, noting that the RFC uses a 95%-5% confidence interval. What this says, in essence, is that 90% of the data points fall within that range, with 5% of the data points on either side of the bell curve.

Opitz invited any interested TMT participants to visit the RFC to see how the forecasts are developed, and to get answers to any questions they may have. He asked Henriksen to coordinate a site visit, if the TMT feels that would be useful – you could even use our conference room to hold a TMT meeting there, if you wish, he said.

6. Water Management Plan Comments.

Turner said he had hoped to have some discussion today about what the TMT would like to see in the 2001 Water Management Plan, now that the final Biological Opinion has been signed. He said it should be possible to update the tables in the 2000 WMP to reflect the January final water supply forecast prior to the January 24 TMT meeting. In the interim, he said, we need to consider what additional elements may be needed in the 2001 Water Management Plan to accommodate the requirements laid out in the new BiOp.

Nielsen noted that it will probably be necessary to find a way to address the question of the role of the performance standards described in the new Biological Opinion within the in-season management process. The group also discussed the linkage between the one- and five-year plans called for in the BiOp and the Water Management Plan. After a few minutes of additional discussion, McCarty suggested that the TMT review the 2000 Water Management Plan and provide any comments or suggestions directly to Turner.

7. Other.

A. Impact of Current Climate Forecast on Future Operations. Martin distributed a handout, "Impact of Climate Forecasts on 2001 Seasonal Flows," dated January 10. He said that, based on CRITFC's spreadsheet model, which takes into account future climatic forecast information, 2001 will be an extremely dry water year; climatologist Theodor Landscheit of Nova Scotia is predicting that an El Nino cycle will begin in February of this year. In addition, it appears likely that 2001 will be an early runoff year, with higher-than average temperatures in February, March and April. The bottom line, said Martin, is that CRITFC is recommending the following actions:

- Decrease outflows at all projects to minimum, or near minimum, using the CRITFC spreadsheet for guidance, and conserve that water for spring and summer operations, given the current and anticipated dry conditions.
- Implement altered flood control operations, or no flood control operations, at Hungry Horse, Libby, Albeni Falls and Dworshak to conserve water for spring and summer operations.
- Have the Reservoir Control Center and River Forecast Center start the spring SSARR model in early March.
- Generate a SSARR run with an "Early-Hot" temperature sequence.
- Make the results of the full SSARR runs available to CRITFC and its member tribes.

Martin noted that, here of late, the RFC's precipitation forecasts have been less-accurate than usual; they predicted January precipitation to be above-average, but to date, that precipitation has not materialized, nor does it appear likely to materialize, at least given the forecast for the next 10 days or so.

Martin went briefly through the information in his packet, touching on expected spring and summer flows at Priest Rapids, McNary and Lower Granite, as well as forecast inflow, outflow and elevations at Arrow, Hungry Horse, Libby, Queens Bay, Albeni Falls, Grand Coulee, Dworshak, Brownlee, Lower Granite, Priest Rapids and The Dalles. He also provided a summary table of forecast average monthly flows at each project for the period of January 1-September 30, 2001. Martin said this plan will be presented to the tribes next week.

Anyway, those are our recommendations for now; if anyone would like to contact me after the meeting, I would be happy to answer any questions you may have, Martin said.

What about CRITFC's requests regarding the SSARR – would that be doable? McCarty asked. What time frame? Turner asked. Beginning in early March, Martin replied. Let's keep talking about that, said Turner – if temperature and precipitation do start to move toward normal, there may be less of a need to do that. At this point, we're planning to start the SSARR run on March 19, said Opitz.

Turner added that, if any TMT participants are interested in looking on while the SSARR run is developed, they are welcome to visit the RCC one Tuesday in the future, possibly January 23.

8. Next TMT Meeting Date.

It was agreed to convene a TMT conference call at 2 p.m. Wednesday, January 17, to review current operations and updated Ives Island redd survey information. The next face-to-face meeting of the Technical Management Team was set for Wednesday, January 24. Meeting notes prepared by Jeff Kuechle, BPA contractor.

TMT PARTICIPANT LIST

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COLUMBIA RIVER REGIONAL FORUM

TECHNICAL MANAGEMENT TEAM
MEETING NOTES
January 18, 2001
CORPS OF ENGINEERS NORTHWESTERN DIVISION OFFICES – CUSTOM HOUSE
PORTLAND, OREGON

TMT Internet Homepage: http://www.nwd-wc.usace.army.mil/TMT/index.html

1. Greetings and Introductions.

Trish McCarty welcomed everyone to today's conference call, convened Thursday January 18, 2001 to discuss a power system emergency declared by BPA earlier in the day. McCarty facilitated the conference call. TMT representatives from the states and USFWS were attending a meeting at NMFS at the time of the conference call and were unable to participate. Paul Wagner agreed to pass information on to them following the call.

2. Discussion of Current Power System Emergency.

Robyn MacKay recapped current system conditions; she said that Bonneville flows have begun to exceed the 130 Kcfs flow cap, because of the fact that Grand Coulee is being drafted at a rate of 1.2 feet per day for power production. That water, together with increased outflow from Brownlee, has been piling up in the lower river, because of the 130 Kcfs flow restriction at Bonneville, and because BPA has been purchasing as much power as possible. The bottom line, said MacKay, is that we have to increase flow at Bonneville until we can get the lower river back in control.

Wagner asked whether there are any options for storing the water, in, say, John Day pool. The Corps has authorized half-foot exceedences at Bonneville, Ice Harbor, Lower Monumental, Little Goose and McNary, replied Rudd Turner. The extra storage is authorized through Friday, except at McNary where it is authorized through Sunday. Why not John Day? Wagner asked. I'm not sure that would help at this point, MacKay replied – we need to start moving the water out of the lower river, so that we can start next week's operation in a position to do some balancing.

How will you be shaping these flows? Wagner asked – as the tide recedes, it would be helpful if flows could be shaped higher to fill in the gap in Bonneville tailwater elevation. We can certainly look at that, MacKay replied.

The other thing we need to talk about is ramping rates if we have an opportunity to reduce flows somewhat at night or this weekend, MacKay said. I'm not aware of any imminent stranding issues within this flow range, Wagner replied – stranding below Bonneville generally occurs only at flows in excess of 220 Kcfs. If there is concern about

ramp rates on the down side, please let us know, said MacKay – we need to know what those are. Wagner replied that a conservative ramping rate would be 10 Kcfs per hour, but added that he doesn't see a need to do that at this time– it would be more a courtesy than a firm requirement.

Any idea of the anticipated range of flows we're likely to see at Bonneville as a result of this operation? Wagner asked. We're probably looking at the current flow of 160 Kcfs as an upper bound, MacKay replied. Are you going to back off Grand Coulee outflow? Pat McGrane asked. As soon as we can, but we have to balance that with the amount of energy we're bringing into the system, said MacKay.

Is the load decreasing somewhat as temperatures begin to increase? Turner asked. That's unclear at this point, MacKay replied.

The other issue is that we are running out of markets, and prices are becoming prohibitive, said MacKay. Therese Lamb added that BPA has purchased well over $50 million worth of power during the past week; the feeling within the agency is that we need to pause and re-evaluate, she said. We have been developing economic criteria, and will be discussing those at tomorrow's executive conference call, in terms of how they might guide our purchasing over the next few weeks, Lamb said. In terms of how this might impact the operations discussed here at TMT, she said, it may be necessary to exceed the 11.7-foot tailwater criteria at Bonneville starting next week.

Turner said that, in his reading of the email from this morning, the current emergency appears to be a sufficiency issue. That's correct, said MacKay, although we are also concerned that we are having to draft Grand Coulee and fill the lower river projects. Basically, we need to stop and ensure we're being prudent, and are not jeopardizing Bonneville's future financial health through our management of this crisis, said Lamb.

If it is decided, at tomorrow's executive call, to continue the emergency for a longer duration, the TMT will probably need to reconvene to talk about that, said Lamb. Also, if we can come up with acceptable economic criteria, we may want to talk about incorporating those into the TMT's emergency protocols, she said.

How long is this emergency expected to persist? Turner asked. The current RCC teletype allows flows of up to 160 Kcfs at Bonneville until Saturday morning – any sense of how long it may be necessary to continue that operation? We should know more about that tomorrow, after the executive conference call, said MacKay. In response to another question from Turner, MacKay said California is scheduled to return some power to BPA over the weekend, at which point it may be possible to back off the Grand Coulee draft rate somewhat. Basically, said MacKay, I suggest that we wait until the executives talk tomorrow, then set up another TMT conference call if needed. It was so agreed.

With that, the conference call was adjourned. Notes prepared by Jeff Kuechle, BPA contractor.

PARTICIPANTS

Cindy Henriksen	COE
Therese Lamb	BPA
Robyn MacKay	BPA
Patricia McCarty	D.S. Consultants
Pat McGrane	BOR
Lori Postlethwait	BOR
Chris Ross	NMFS
Rudd Turner	COE
Paul Wagner	NMFS

TECHNICAL MANAGEMENT TEAM

BOR: Kim Fodrea\Pat McGrane

NMFS: Paul Wagner\Chris Ross BPA: Scott Bettin\Robyn MacKay

USFWS: Marv Yoshinaka\Bob Hallock\Susan Martin

OR: Christine Mallette\Chuck Tracy WA: Jim Nielsen ID: Ed Bowles\Steve Pettit

MT: Jim Litchfield COE: Cindy Henriksen\Rudd Turner\Dick Cassidy

January 24, 2001 1300 - 1600 h Rm 118

Custom House

All members are encouraged to call Donna Silverberg with any issues or concerns they would like to see addressed. Please e-mail her at dsilverberg@cnnw.net or call her at (503) 248-4703.

AGENDA

1. Welcome, introductions.

2. Review current system conditions.

    - Reservoir operation and water supply (COE, BOR)
    - Power system status (BPA)
    - Fish status (NMFS)

3. Review operation requests.

4. Develop recommended operations.

5. Continue review of Water Management Plan.

6. Continue discussion on TMT decision making process.

7. Other.

    - Determine desired reports and/or visits: power system (BPA), SSARR modeling (RCC and RFC), water supply and flow forecasting (RFC)
    - Set agenda for 07 February TMT meeting

Meet-me number is 503-808-5190. Questions about the meeting may be referred to Cindy Henriksen, 503-808-3945, or Rudd Turner, 503-808-3935.

COLUMBIA RIVER REGIONAL FORUM

TECHNICAL MANAGEMENT TEAM
MEETING NOTES
January 24, 2001
CORPS OF ENGINEERS NORTHWESTERN DIVISION OFFICES – CUSTOM HOUSE
PORTLAND, OREGON

TMT Internet Homepage: http://www.nwd-wc.usace.army.mil/TMT/index.html

FACILITATOR'S NOTES ON FUTURE ACTIONS
Facilitators: Patricia McCarty and Donna Silverberg

The following is a list of items the Technical Management Team (TMT) discussed at its last meeting that may require future action or discussion.

Minutes and notes: TMT has been experimenting with submitting comments and requests for changes to the minutes and facilitator's notes directly to the Corps, rather than reviewing the minutes at the start of each meeting. The nature of TMT comments indicated that the group needs to revisit the issue and clarify the procedure for how comments and changes are handled. Determination of the procedure for finalizing the minutes and notes will be on the next meeting agenda.

Current system conditions: Rudd Turner reported that Bonneville Dam has been operating to maintain a tailwater elevation of 11.7 feet, with daily average flows not to exceed 130 Kcfs, except as needed to maintain tailwater elevation or meet power system requirements. Pat McGrane reported that Grand Coulee is still drafting about 1 foot a day, and Hungry Horse has been releasing to maintain a reduced minimum flow at Columbia Falls. The water supply forecast has not changed, although the lack of precipitation in late January is likely to result in lower February forecasts for sub-basins above projects operated by both the Corps and the Bureau. Scott Bettin reported that the power system emergency is ongoing, and that no one knows when a resolution will occur. It was noted that Federal agency executives were meeting and would be developing system priorities that could affect system operations. Members will be informed as decisions are made at the Federal executive level. It was acknowledged again that current operations are an attempt to balance the needs of the power system, the chum and the BiOp priority of spring refill.

Recommended operations: NMFS commented that it was unlikely that spring refill levels would be met, and given the conditions, there was not enough biological benefit in choosing gains in spring flow augmentation over protecting chum redds. NMFS recommended continuing the current operation to maintain a tailwater elevation below

Bonneville Dam of 11.7 feet, and a daily average flow at Bonneville of 130 Kcfs, except as needed to maintain tailwater elevation, and not to exceed 160 Kcfs for power needs.

Water Management Plan: Rudd reported that the Corps has made some progress on a draft 2001 Water Management Plan but it was not at a point yet to be shared with the group. The 2001 Plan may look different because the draft will reflect the requirements of the 2000 BiOp. The group discussed the idea of writing the 2001 Plan as if it were the first one-year plan under the BiOp, using the priorities in the BiOp as a starting point. This discussion will continue at the next meeting. NMFS suggested that the Plan be written to cover 2001 up to September 1, and that the 2002 Plan encompass September 2002 through August 2003.

Donna Silverberg alerted the group that the Northwest Power Planning Council has expressed an interest in seeing the Water Management Plan, and in seeing the rationale for TMT decisions through the year. She will meet with Council members to clarify what type of information they want, and if their interests can be met with the existing record produced through TMT. She will report back to TMT at the next meeting.

The group began a review of the 2000 Plan to guide the Corps as it drafts the 2001 Plan. The following are some of the suggestions from the group:

- Section I: In the introduction, discuss the transition to a different style to comply with the new BiOp
  - Update the Emergency Protocols appendix
  - Update TMT Goals, Objectives and Triggers appendix (and substitute "Possible Strategies" for Triggers) and move to main body of the Plan; see ACTION item below for more on this
- Section II: restrict the water supply table to those projects mentioned in the BiOp
- Section III: Focus on this winter's operations
- Section IV: Include the NMFS decision on no dredging on the Lower Snake; modify the MOP section accordingly
  - Modify to reflect the possibility of no flow augmentation for sturgeon
  - Modify to reflect the new BiOp requirement for the action agencies to seek state waivers for TDG for spill operations
- State directly in the Water Management Plan any restrictions on operations decisions, and the factors that contribute to any balancing decisions that must be made this year
- Include a new section that states the priorities for operations decisions this year

ACTION: Scott Boyd has compiled a list of the RPAs from the new BiOps that relate to the Water Management Plan. He will share them with Paul Wagner and Bob Hallock. Paul and Bob will prioritize the RPAs under their respective BiOps, and get the prioritized lists back to Scott. These will be available to inform the discussion on the Goals and Objectives section, and the discussion of a section on priorities for decisions.

ACTION: Scott Boyd will update the draft 2001 Plan with comments from this meeting, and it will be posted on the TMT web page. All members should review the draft, get comments to the Corps, and be ready to continue the review at the next meeting.

SSARR modeling visits: Christine Mallette reported that she has arranged a meeting at the COE to get an overview of the input into the model, and hopes to be able to arrange follow up meetings for a more detailed understanding. The first meeting is scheduled for January 31st in the afternoon. Contact Christine to attend.

Changes to the TMT web page: Rudd provided a print out of the new TMT home page. Members can look on the home page for the fish and system links for 2001 that used to appear at the bottom of the meeting agenda/minutes page.

ACTION: All members should look at the minutes and notes, the fish and system information, and any supporting documents in preparation for the next meeting.

Next Meeting and Agenda

The next meeting is **February 7th, 2001, 1-4 p.m.** and will be in-person at the COE.

Agenda:

- Determination of how to handle requested changes to TMT record
- Check-in to see if it is working for members to review information before the meeting, or if meeting time should be given for review
- Current System Conditions and Operations
- Update from Donna Silverberg on the NPPC requests for TMT decision rationale
- Continuation of review of Water Management Plan

Meeting Minutes

1. Greeting and Introductions

The January 24 meeting of the Technical Management Team, held at the Customs House in Portland, Oregon, was chaired by Rudd Turner of the Corps and facilitated by Patricia McCarty and Donna Silverberg. The following is a distillation, not a verbatim transcript, of items discussed at the meeting and actions taken. Anyone with questions or comments about these minutes should call Turner at 503/808-3935.

McCarty welcomed everyone to the meeting, then led a round of introductions and a review of the agenda.

2. Current System Conditions.

Turner reported that the action agencies are operating the system to basically the same parameters outlined at the last TMT meeting, and thus are attempting to maintain a minimum tailwater elevation of 11.7 feet below Bonneville Dam. The 130 Kcfs day-average flow cap is still in place at that project, except as needed to meet power system requirements or the 11.7-foot minimum. BPA declared an emergency late last week for the purpose of meeting Northwest loads, Turner said; the system is still operating in that emergency situation. The current regulation allows instantaneous and day-average flows of up to 160 Kcfs at Bonneville if needed to meet power system needs. The day-average flow at Bonneville on Friday, January 19 was 158 Kcfs, primarily due to the fact that a heavy draft of Grand Coulee earlier in the week had left the lower river reservoirs mostly full. The operating agencies needed to draft those pools down from the upper part of their operating range, hence the higher-than-normal flows at Bonneville on Friday. Since then, the average flow at Bonneville has been in the mid-130 Kcfs range.

It is unclear at this time how long the power system emergency will remain in effect, said Turner; the Federal executives are meeting again this Friday, and will make a decision on whether to continue the operation. To meet power system needs, Dworshak outflow was increased on Monday from 1.3 Kcfs to 6 Kcfs; current elevation at that project is 1515 feet and drafting at a rate of just over half a foot per day. Libby outflows were also increased on Monday, from 4 Kcfs to 9 Kcfs, then up to 10 Kcfs yesterday afternoon. Libby drafted four-tenths of a foot yesterday, said Turner; the current elevation at that project is 2409 feet. These Dworshak and Libby operations are expected to continue at least through this week, and possibly longer, Turner said.

It is expected that both Libby and Dworshak will end the month of January below their flood control elevations, said Turner; Libby's January 31 flood control elevation is 2415.3 feet, and the current SSARR run shows Libby 17-20 feet below flood control through March. To be clear, then, we are operating the system in response to a power system emergency that falls outside the operation called for in the Biological Opinion, said Paul Wagner. [Clarification on operational consistency with the NMFS BiOp: The NMFS view is that the action agencies are operating within the BiOp at this time. NMFS feels that the current operation is outside the fish protection measures called for in the BiOp, due to the power system emergency. This pertains specifically to priority normally given to refill reservoirs for flow augmentation. Refill for spring flow augmentation is not happening, due to power generation requirements. However, NMFS agrees that operation for power system emergencies is allowable. Such operations were contemplated in the BiOp and are recognized as needing to be higher priority than holding water for fish, again in a power system emergency situation. (Telephone conversation, Paul Wagner to Rudd Turner, 1/26/01)]

There are three main factors driving current system operations, Scott Bettin replied – first, the executives are struggling with the power system reliability issue; second, there are the BiOp refill requirements; third, there is the issue of BPA's financial health. We have already spent $200 million this month to purchase energy, Bettin said, and there is considerable debate at the moment over how deeply into its reserves BPA can afford to go. In other words, he said, it's a real balancing act at the moment. There are also at least some hours when the chum operation is holding river flows higher than they otherwise would be, Turner added. In response to a question, Turner said Arrow

continues to release about 38 Kcfs, an operation that is expected to continue until some time in March, whereupon flows could be reduced.

Pat McGrane reported that Grand Coulee is currently at elevation 1246, and is expected to be near elevation 1240 by January 31, given the fact that it has been drafting at a rate of about one foot per day. At Hungry Horse, current project elevation is 3512 feet; the target flow at Columbia Falls is 3.4 Kcfs. To achieve that, Hungry Horse is releasing a flat 2.7 Kcfs-2.8 Kcfs – the minimum necessary to maintain 3.4 Kcfs at Columbia Falls.

Turner distributed the most recent weekly precipitation summary, which shows the accumulated precipitation in the Columbia and other Northwest subbasins through January 23. So far this year, those basins have received between 23% and 77% of normal precipitation, Turner said. The January mid-month water supply forecast is now available; it is down from the January final forecast. In other words, said Turner, things don't look any better than the last time we discussed the water supply. McGrane added that there has been little or no snowpack accumulation in the Columbia Basin since the beginning of January; we expect that, when the February final water supply forecast is released, it will drop dramatically in terms of the percent of normal water supply for virtually every basin in the region, he said.

Moving on to current biological information, Wagner said there is some information available about the effects of the 11.7-foot minimum tailwater elevation at Bonneville; some of the Ives Island chum redds are being dewatered, at least during low-tide periods. He noted that the majority – about 70% – of the large number of spawners observed in the Hamilton Springs area have now been identified as males, tempering the early exuberance about the spawner numbers in that system. So far, only 26 redds have been identified in Hamilton Springs, many of which are superimposed, said Howard Schaller – in other words, we won't see the production we would normally get from 26 separate redds, because some of them have been disturbed.

The bottom line, said Wagner, is that, given the importance of the mainstem spawning areas to the chum this year, NMFS is unwilling to consider a tailwater elevation lower than 11.7 feet at Bonneville at this time. Do you have an estimate of the actual number of chum redds in the Ives/Pierce Island area yet? Turner asked. The most recent number I heard was 132 redds, Christine Mallette replied. Schaller added that 132 is based on a visual count, and is a minimum estimate; the actual number of redds is likely to be higher.

Moving on to the status of chum emergence, Jim Nielsen played a voice-mail message indicating that no fry have yet been trapped on the spawning areas; WDFW's field crews will be back out on the river on Friday. In response to a question, Nielsen said the crews had done some digging next to some of the dewatered redds and found that groundwater was present just below the surface of the gravel. In other words, said Bettin, there really are no dewatered redds.

So NMFS is unwilling to agree to a Bonneville tailwater elevation lower than 11.7 feet? Turner asked. Not at this point, Wagner replied – the operations are really very closely linked, and right now, it would be very difficult to say whether the flow level at any given moment was for power, for chum or for reservoir refill.

Turner observed that, while power needs have, much of the time, driven river flows high enough to meet the 11.7-foot minimum tailwater at Bonneville, there are times – weekends and certain nighttime hours – when flows could be lower and still meet power needs. In other words, TMT members are making a conscious choice to protect the chum redds continuously, rather than taking these opportunities to reduce flow and save a little water. Just so people are clear, said Turner, the effect of this choice is that protecting the chum redds has taken priority over refill, at least at this point in the season.

What that recognizes is that spring refill is unlikely this year, given the power demands on the system, whether or not we dewater the chum redds, said Wagner. Even if we were to agree to reduced flows and dewatered chum redds during weekend hours, the small volume of water you would be able to store will not make a significant difference later in the season, Wagner said – it's certainly not going to get us to upper rule curve on April 10.

Your point, Rudd, is simply to draw attention to the fact that we could be saving a little water right now, but are making a conscious decision not to do so? Silverberg asked. That's correct, Turner replied – I'm not claiming it will make a huge difference if we drop the Bonneville tailwater elevation to, say, 11.5 feet, but it might make a little difference, and in a year like this, it may be that a little difference matters.

As we begin to see chum emergence, said Turner, is it possible that there will be an opportunity by mid- to late February to consider a lower tailwater elevation at Bonneville? Bettin observed that the higher redds were, for the most part, deposited later in the season; fry from those redds will likely emerge later, unless the top strata water is warmer. We've been looking for signs of emergence for the past three weeks and have yet to see any, said Nielsen – that doesn't mean there hasn't been any emergence; chum fry are notoriously difficult to sample.

To be clear, then, is it fair to say that maintaining flows that will fully or almost-fully protect the spawning area is a higher priority, at this point, than storing as much water as possible for spring refill? Turner asked. I think the current operation is a fair balance between the two, Wagner replied. So in NMFS' view, the amount of water that could be saved by reducing flows is not as biologically significant as maintaining the viability of the chum redds? Turner asked. What the BiOp says on this matter is that spring refill is in general the higher priority, Wagner replied; the question then becomes, what's different about this year? If we were looking at flows of 150 Kcfs vs. 140 Kcfs, that would have a significant impact on our ability to meet the April 10 refill targets at the storage projects. We would also have lots of chum redds established at multiple places in the system – Hamilton and Hardy Creeks, for example, which is not the case this year, when the vast majority of the chum spawning occurred in the mainstem

habitat. The statement in the BiOp is intended to apply to years of average water supply, said Wagner; as we all know, this is shaping up to be an exceptionally poor water supply year.

We completely hear you and understand that keeping those redds covered is critical, said Bettin – we are trying to keep them watered up. And the salmon managers understand the problems Bonneville and the action agencies are facing as well, said Nielsen. Right – it's a balancing act, said Bettin, and all we can do is keep talking. We'll keep talking about this operation as new information comes in from the field and the forecasters, said Turner – if there is a point at which most of the fish have emerged, and the risks associated with operating to a lower tailwater elevation at Bonneville diminish, we can explore our options at that time.

Another thing that would really help inform these discussions would be if we can begin to track the probability of refill, and how far off we are, said Jim Litchfield. I think we all understand how unlikely it is that we can meet the system's April 10 refill targets, he said; the more critical goal is complete system refill by June 30-July 1. It would be helpful if we could see some sort of quantitative measurement of just how likely or unlikely it is that we will be able to achieve refill on June 30, given average or even below-average precipitation assumptions from here on out. We're working on that, and hope to have it soon, Turner replied. Is that a request for the Corps alone? Silverberg asked. For the Corps, Reclamation and Bonneville, Litchfield replied. At this point, said McGrane, Reclamation is estimating that we have a one in three chance of filling Hungry Horse this year. That's helpful, said Litchfield – perhaps I could request that that estimate be updated as new forecast information becomes available. Understood, McGrane replied.

What makes this situation interesting, of course, is the fact that, while the TMT is free to discuss the operation and receive input on current physical and biological conditions in the system, it is the executives who will actually be making the call on system operations, Turner said. At Friday's meeting, they will be discussing whether or not the present emergency will continue, and we will have more than minimum flows from the headwater storage projects through next week. I understand that, said Litchfield, but I need to understand what they intend to do. If their action is going to have a significant impact on the Montana reservoirs, then I need an opportunity to make them aware of that and, possibly, to take action.

As Scott said earlier, the executives have set up three basic criteria to drive the present operation of the system, said Turner – the first is power system reliability; the second is economic sustainability and BPA financial solvency; the third is meeting the fish protection measures laid out in the 2000 BiOp. As far as I know, that isn't a prioritized list, Turner added; those are simply the three key factors they're taking into account in their decision. As far as operations at the headwater storage projects – Grand Coulee, Dworshak, Libby and Hungry Horse – the executives may choose to continue the current elevated discharge levels, and they may not, Turner said – that's a decision that has not yet been made.

We should probably attempt to provide some TMT guidance on our operational priorities for this year, perhaps in a new section of the Water Management Plan, as well as through proposals from NMFS and the other salmon managers, said Turner. In general, though, at this point, the Corps intends to continue to maintain a minimum tailwater elevation of 11.7 feet at Bonneville, and to continue to operate to the 130 Kcfs maximum flow at Bonneville, except as needed to maintain the 11.7-foot tailwater elevation and to ensure power system reliability. If power needs dictate flows more than 130 Kcfs in lower river flow, said Turner, they will not exceed 160 Kcfs at Bonneville. Again, the Federal executives will be defining the operation for at least the next week at their meeting this Friday, Turner said. In response to a question from Mallette, Turner said the executives who will be participating in the meeting include the BPA Administrator, the Corps' Division Commander and the Regional Directors from the Bureau of Reclamation, NMFS and the U.S. Fish and Wildlife Service.

Turner said the Corps has completed an updated HYSSR model run; essentially, he said, this is a study of the probability of refill. We presented this last meeting, and have updated the runs for this meeting, he said. The January final water supply forecast was used in this run, rather than the January early-bird; again, the model runs from February through July, and is driven by the 60-year historic water record and an assumed 80 MAF runoff at The Dalles for 2001.

Turner went briefly through some of the other assumptions used in these model runs, then noted that, according to this study, it appears that Libby has approximately 250 Ksfd available above minimum outflow between February 1 and April 30 if a 75% refill probability is maintained at that project – the equivalent of just over 8 Kcfs in additional flow for 30 days. Again, said Turner, this is based on the January final forecast; given our experience in recent months, it may be an optimistic estimate. Similarly, Dworshak was estimated to have approximately 325 Ksfd available above minimum flow between February 1 and April 30 if a 75% refill probability is to be maintained for that project – an additional 11 Kcfs for 30 days. Turner added that the current elevation at Hungry Horse is so low that there is virtually no additional volume available for release if that project is to maintain a 75% refill probability on June 30.

The bottom line, said Turner, is that if we operate the system to meet regional load, there is only a 2% probability that Dworshak will refill by the end of June. If we assume that Grand Coulee will be drafted to empty to provide a flow of 130 Kcfs at Bonneville, then refill through April and May, there is a 97% chance that Dworshak will refill by June 30. Under the "meet load" scenario, average flow at McNary is forecast to be 183 Kcfs in May, 196 Kcfs in June and 148 Kcfs in July; under the "meet Bonneville flow" scenario, the model forecasts average McNary flows of 209 Kcfs in May, 212 Kcfs in June and 145 Kcfs in July.

I don't understand the philosophy behind the scenarios, said Litchfield – one seems to say we will meet load, and the other seems intended to produce a flat flow at

Bonneville. That's correct, Turner replied – the two scenarios are intended to be bookends, and actual operations will likely fall somewhere in between the two.

After a few minutes of additional discussion, Litchfield said he needs a bit more time to review the model runs to evaluate whether or not they meet the TMT's needs. We can have some additional discussion on the modeling next meeting, said Turner; in the meantime, if folks have some additional modeling needs, please let us know.

3. New System Operational Requests.

No new SORs were submitted prior to today's meeting.

4. Recommended Operations.

Recommended operations were covered during Agenda Item 2.

5. Review of the Water Management Plan.

Turner said this is the time the TMT traditionally begins brainstorming on the Water Management Plan for the coming year. He distributed copies of the final 2000 Water Management Plan, then said Scott Boyd is in the process of updating the numbers in the 2000 WMP to reflect current water supply forecast information. Boyd said he should be finished updating those numbers by tomorrow.

Turner said the action agencies also have begun the development of the one- and five-year implementation plans called for in the 2000 FCRPS Biological Opinion. An outline of these plans is nearly ready, and the action agencies have scheduled a meeting for next week with NMFS and USFWS to discuss it. Turner went briefly through the elements that will be included in the 2001 Water Management Plan, particularly those elements that will need to be included in order to satisfy the BiOp requirements. It is unclear at this point whether or not the five-year implementation plan will need to be incorporated into the 2001 Water Management Plan; Turner touched on some of the elements that will need to be covered in the five-year implementation plan as well.

I'm still confused, said Litchfield – it seems to me that the Water Management Plan is the guts of what needs to be in the one-year implementation plan, at least as far as the operational side of things. It seems a bit confusing that the one-year plan is going to be finished later than the five-year plan; given the fact that this is shaping up to be a very poor water year, we should get going on it. We need to hear, from the action agencies, what they think they need to do to meet the RPA, he said. And that is our intention, said Boyd.

The second piece of this is the fact that the BiOp lays out some pretty clear priorities, said Litchfield – it prescribes some fairly specific directions, and it seems to me that that should be the starting-point for the development of the 2001 Water Management Plan. I'm asking the action agencies, basically, to give us a draft of the 2001

Water Management Plan that covers the priorities laid out in the 2000 BiOp, so that we can start discussing the tradeoffs that will need to be made this year, Litchfield said. Again, that's what I'm trying to do, in beginning to revise the 2000 Water Management Plan, Boyd replied.

Our thinking, at least in-house, is that the 2001 Water Management Plan will run through September 30, said Chris Ross; the one-year implementation plan would then lay out our strategies and priorities for the fall and winter period. I think the intent is that we will have a 2001 Water Management Plan, said Cindy Henriksen; it will address what we know now about the water supply forecast in the context of the priorities laid out in the 2000 BiOp. The 2001 Water Management Plan and the one-year implementation plan will lay out our strategies for dealing with what looks like it will be a low water year; the overall priorities for system operation will be laid out in the five-year plan. There was general agreement that the first one-year implementation plan will cover the period October 1, 2001-September 30, 2002.

Most of you were at the recent Implementation Team meeting, where the Council requested that they be allowed to see the 2001 Water Management Plan as well, said Silverberg. They also talked about their desire to see some documentation of the discretionary decisions that are made by this group, including a cost/benefit analysis. We need some additional understanding about what the Council has in mind, in terms of both what constitutes adequate documentation and what they consider to be discretionary, she said; I will be meeting with the Council to obtain some additional clarity on these issues. At this point, however, I wanted to give you a heads-up that there is a desire, on the Council's part, for additional documentation of the rationale behind the decisions the TMT makes during the in-season management period.

What the Council seems to want is a week-by-week incremental decision analysis of the decisions made by the TMT, said Nielsen. My intention is to coordinate a meeting between the Council, the action agencies and FPAC to get a clear idea of what the Council wants and when they want it, said Silverberg. Litchfield said it probably makes sense to request that an appropriate Council staffer attend the TMT meetings for the foreseeable future; if they're that interested in the rationale behind the TMT's decisions, he said, they ought to be willing to make that commitment. My understanding is that the Council has been discussing that suggestion, said Silverberg, and that they agree that that would be appropriate.

The discussion then turned to the format for the 2001 Water Management Plan; Turner went briefly through the components the Corps envisions that the revised document will contain. In response to a suggestion, Boyd said he will incorporate the appropriate language from the 2000 FCRPS BiOp into the introduction of the 2001 Water Management Plan. The BiOp also specifies that we need to lay out some operational priorities reflecting the BiOp's requirements, said Turner. The BiOp is very clear about what those requirements are, said Litchfield – it seems to me that that is an appropriate starting-point for the contents of the 2001 WMP, and we can then argue about how those requirements should be met, in this particular water year.

The group then turned to a page-by-page discussion of the final 2000 Water Management Plan, offering a variety of additional comments and suggestions. Boyd said he will incorporate these comments into the draft 2001 Water Management Plan, and will post the new draft to the TMT homepage as soon as it is available, probably within the next few days.

Turner asked that any additional comments on the 2001 Water Management Plan be emailed directly to him or to Henriksen by close of business Friday, January 26.

6. Discussion of TMT Decision-Making Process.

It was agreed to defer this agenda item until the next TMT meeting on February 7.

7. Other.

A. Desired Reports and Site Visits – Power System (BPA), SSARR Modeling (Reservoir Control Center and River Forecast Center), Water Supply and Flow Forecasting (RFC).

Christine Mallette said she has arranged for an opportunity for the TMT to visit the Reservoir Control Center to review the development of the weekly SSARR runs on the afternoon of Wednesday, January 31; during that visit, RCC personnel will provide a general overview of the model inputs used to develop the SSARR run. Any interested TMT participants are invited to attend.

Scott Bettin asked that any specific presentations or questions for BPA regarding the power system or power marketing be provided directly to him.

8. Next TMT Meeting Date.

The next face-to-face meeting of the Technical Management Team was set for Wednesday, February 7 from 1 p.m. to 4 p.m. Meeting notes prepared by Jeff Kuechle, BPA contractor.

TMT PARTICIPANT LIST

JANUARY 24, 2001

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Russ George	Water Management Consultants	503/253-1553
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On Phone:

Name	**Affiliation**	**Phone**
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Bob Hallock	USFWS	
Nengjin Liu	Idaho Power Co.	
Pat McGrane	Reclamation	
Jim Nielsen	WDFW	

TECHNICAL MANAGEMENT TEAM
MEETING NOTES
January 31, 2001
CORPS OF ENGINEERS NORTHWESTERN DIVISION OFFICES – CUSTOM HOUSE
PORTLAND, OREGON

TMT Internet Homepage: http://www.nwd-wc.usace.army.mil/TMT/index.html

1. Greetings and Introductions.

Trish McCarty, the facilitator for today's conference call, welcomed everyone to the call, held January 31, 2001. The call was chaired by Cindy Henriksen of the Corps.

2. Discussion of Current Power System Emergency.

McCarty reported that the current power system emergency has been extended to February 5. That will run through the next TMT meeting, said Scott Bettin; basically, we wanted to update you about what has been going on. The federal executives are still meeting each week, and the emergency is expected to continue awhile, he said. In terms of current storage project outflow, Bettin said Libby continues to release 10 Kcfs; Dworshak is releasing 6 Kcfs, and Hungry Horse is releasing 2.5 Kcfs.

The current flow at Bonneville is about 135 Kcfs, said Robyn MacKay; BPA is interested in having some discussion of alternatives to drafting Dworshak so heavily at this point in the year. In response to a question, Bettin said one option under consideration is drafting Libby more heavily and reducing the draft at Dworshak. If we back off Dworshak, we may need to bring up both Libby and Hungry Horse, said MacKay. Basically, we would need to make up about 5 Kcfs if we reduce Dworshak outflow to minimum, Bettin said.

The executives would like to develop a longer-term plan, so that they're not having to set reservoir operations week to week, Bettin said. Are the Canadian projects being considered, in terms of our options? Jim Nielsen asked. We're already releasing non-Treaty storage from the Canadian projects, MacKay replied; they have been in proportional draft mode, so we are getting some additional water by essentially front-loading that release.

If we increase flows by even 1 Kcfs from Hungry Horse, we're not going to refill that project this year, said Pat McGrane. What we've been discussing with the Corps is what kind of priorities we want to set for this year – is it even a consideration if Libby and Hungry Horse don't refill to within the top 10 or 20 feet in 2001? McGrane asked.

I think the BiOp calls for a sliding scale of minimum summer flows from those projects, Paul Wagner replied – from 400 cfs to 1 Kcfs from Hungry Horse, and somewhere in the neighborhood of 6 Kcfs from Libby. I think we have some more work to do on those concepts, he said; it's probably not something we can resolve today. Obviously, Dworshak has the most immediate impact on flows and temperatures for summer migrants; for that reason, Dworshak is

a higher refill priority than Libby or Hungry Horse, from a BiOp perspective.

Is Dworshak any better off, currently, than Libby or Hungry Horse, from a refill probability standpoint? Nielsen asked. We have been looking at the probability of refill on June 30 for the headwater projects, Henriksen replied; currently, we're estimating that Dworshak has a 60%-65% probability of getting full by June 30 if we reduce outflow to minimum beginning February 1; the current estimate of June 30 refill probability at Libby is 50%-55%; at Hungry Horse, 20%-25%. That assumes none of those projects will be asked to contribute to spring flow augmentation? Nielsen asked. Correct, Henriksen replied.

Will we have an opportunity to go over these refill probabilities in more detail? Litchfield asked. We should be able to have some discussion on that topic at our meeting next Wednesday, Henriksen replied; I'm not sure how much additional modeling information we'll have to discuss at that point. I would like a better understanding of the tradeoffs involved here, said Litchfield – it's not clear in my mind how much of an impact power system reliability and the chum operation are having on Bonneville outflows at the moment. At the moment, the power operation and the chum operation are pretty much going hand in hand, said MacKay. As we noted before, the operating agencies are under some pressure to reduce Dworshak discharge; if that is done, we'll need to pick up generation somewhere else, she said.

I need to be able to explain to the folks in Montana why Hungry Horse is likely to be dry this summer, said Litchfield – I need to understand the tradeoffs involved before I can explain them. I don't think we have had the necessary discussion on this refill probability information needed to get to that understanding, said Wagner – this is the first time we've seen it.

I would encourage everyone to think about this and come to next Wednesday's TMT meeting ready to have that conversation, said McCarty. I think we're all trying to digest it and put it into a form that is easier to summarize and understand, said MacKay. At this point, though, we just wanted to be sure everyone understood the current status of the emergency situation, she said.

Henriksen said she will check to see what kinds of modeling information will be available by next Wednesday. Litchfield asked whether PNCA energy content curves are available for individual projects; Henriksen replied this is likely somewhat moot, at this point, because actual operations are so different from the expected operations used to develop those curves. What I'm looking for is refill elevation curves for the headwater storage projects, by month, for, say, 50%, 75%, 95% refill probability at each project, said Litchfield – that might give us a better feel for the tradeoffs involved in hitting one reservoir over another. I see what you're getting at, said Henriksen, but I'm not sure we can develop such a family of rule curves by next Wednesday.

I think you can see how the power emergency fits into this, said MacKay; if we get out of the power emergency, flows below Bonneville will likely fall well below the level needed to maintain the 11.7-foot minimum tailwater elevation at Bonneville. That's part of what the executives are wrestling with, she said. If you have strong feelings on that issue, rather than

waiting for the executives to issue a proclamation, it would probably be a good idea to give the executives your views, said MacKay – they don't want to make that decision absent feedback from the other parties involved. Perhaps we can discuss a TMT recommendation on this issue at next Wednesday's meeting, she said – we need to have some discussion about how we share the pain.

Basically, I need a better understanding of what we'll gain if we hit Hungry Horse and Libby harder than expected, so that I can explain that to the folks in Montana, Litchfield said. You want to know what we get in return for turning the knob, in other words, said MacKay. That's correct, Litchfield replied. I think such a discussion would be timely, said Henriksen, and would fit nicely into the discussions we need to have on the 2001 Water Management Plan.

Is there potential for provisional draft at the Canadian projects? Ross asked. We've already taken that provisional draft in November and December, MacKay replied.

McCarty suggested that any official communication from the federal executives be distributed to the TMT membership prior to next week's meeting. We will do so, MacKay replied. It was agreed that, if the executives' decision requires substantive discussion, it may make sense to convene a TMT conference call next week; otherwise, an email should suffice.

On the call:

Tricia McCarty
Cindy Henriksen
Scott Bettin
Pat McGrane
Jim Neilsen
Margaret Filardo
Steve Pettit
Dick Wells
Scott Boyd
Jim Litchfield
Paul Wagner
Robyn MacKay
Rudd Turner
Eric Barker

TECHNICAL MANAGEMENT TEAM

BOR: Pat McGrane\Lori Postlethwait

NMFS: Paul Wagner\Chris Ross BPA: Scott Bettin\Robyn MacKay

USFWS: Howard Schaller\Bob Hallock\Susan Martin

OR: Christine Mallette WA: Jim Nielsen ID: Steve Pettit

MT: Jim Litchfield COE: Cindy Henriksen\Rudd Turner\Dick Cassidy

February 7, 2001 1300 - 1600 hours PST

All members are encouraged to call Donna Silverberg with any issues or concerns they would like to see addressed. Please e-mail her at dsilverberg@cnnw.net or call her at (503) 248-4703.

AGENDA

1. Welcome, introductions.
2. Review current system conditions.
    - Reservoir operation and water supply (COE, BOR)
    - Power system status (BPA)
    - Fish status (NMFS)
3. Review operation requests.
4. Develop recommended operations.
5. Determine how to process requested changes to TMT minutes.
6. Determine extent of need to provide meeting time for information review.
7. Review of Water Management Plan.
    - Main Report (draft dated 02/07/01)
    - Appendix 4, TMT Guidelines
8. Determine 2001 TMT process to develop operational recommendations.
9. Update: NPPC requests for TMT decision rationale (Silverberg).
10. Other.
    - Set agenda for 21 February TMT meeting

Meet-me number is 503-808-5190. Questions about the meeting may be referred to Cindy Henriksen, (503) 808-3945, or Rudd Turner, (503) 808-3935.

COLUMBIA RIVER REGIONAL FORUM

TECHNICAL MANAGEMENT TEAM
MEETING NOTES
February 7, 2001
CORPS OF ENGINEERS NORTHWESTERN DIVISION OFFICES – CUSTOM HOUSE
PORTLAND, OREGON

TMT Internet Homepage: http://www.nwd-wc.usace.army.mil/TMT/index.html

Facilitator's Summary Notes of the Feb. 7, 2001 TMT Meeting

1) Meeting Minutes and process:
The group agreed to adopt meeting minutes at TMT face-to-face sessions. Time will be scheduled on the agenda to discuss any changes to the minutes, rather than one person making changes with which the group may or may not agree. Changes longer than a few words should be brought in written form to ease discussion and aid in the correction process.

Paul Wagner offered changes to the 1/24 meeting minutes to clarify the record on operations for the year. Changes will be incorporated in the web notes.

2) Power & Operations Outlook 2001
Therese Lamb's (BPA) presentation on this year's outlook was intended to both educate and be a spring board for input from TMT. The regional federal executives have been meeting to consider operations and have requested that TMT provide the region with guidance about what the biological objectives ought to be in a year with very low water and very high power prices.

*What should the biological objectives be in such a low water year?

*What reactions or thoughts do TMT members have about the contingency operations in BPA's presentation?

*Do the salmon managers suggest higher priorities for some projects over others?

Therese requested that the group or individuals in the group provide feedback to BPA as soon as possible.

3) Reservoir operations
TMT discussed the appropriate uses of headwater reservoirs this year and reached an impasse on whether or not utilizing HH and LIB now while saving DWK for later is the best strategy. Montana's Jim Litchfield requested that the issue be raised to IT for full consideration of the impacts of such a strategy. He suggested that a spread the risk

strategy may be better for the other "critters" in the upper reaches of the Columbia AND for spring/summer salmon. The group acknowledged a common wish for maintaining headwaters at minimum flows if at all possible. They also acknowledged that low water may foil that wish. In the meantime, the remainder of the group supported the strategy of stepping up LIB and HH flows while maintaining DWK at minimums.

To help save water where possible, BPA's Scott Betting suggested that opportunities to provide water on chum redds from other than elevated BON flows may need consideration. A suggestion was made to find a way to pump water onto the redds, rather than use upriver water to keep elevations at the level they have been.

The group agreed to EXPLORE the possibility, practicality and costs associated with watering chum redds with pumped water. Bettin will report back to the group as soon as he has more information.

4) Operations

The group agreed (with angst) to operate 15 out of LIB, HH at 5, DWK at min, and 1 ft out of GC. BON not to exceed 130kcfs unless needed to meet 11.7 elevation for chum.

The group was reminded of the TMT "Emergency Cold Snap Procedures". These are brought into play when 3 continuos days of 15 degrees below average temperatures are expected in the region. BPA noted that there may be an increased need for load due to power needs outside of the emergency rule. They noted a possibility of up to 20 out of LIB, and promised to convene a conference call if this becomes a reality.

5) Water Management Plan

COE agreed to email the latest draft to TMT members so you may make changes on/in the electronic version. Comments and changes are due back to the COE by Friday the 16th for discussion at the 2/21 meeting.

Facilitator's note: I recommend that a subgroup (or the whole group, if you wish) of TMT meet prior to the 2/21 meeting to work exclusively on the WMP. We are not making any headway on this and NEED to to meet BiOp and NWPPC deadlines. I suggest 10-12 on 2/21. PLEASE let me know if you can/will be there!

Very truly yours, Donna Silverberg, facilitator

Meeting Minutes

1. Greeting and Introductions

The February 7 Technical Management Team meeting, held at the Customs House in Portland, Oregon, was chaired by Cindy Henriksen of the Corps and facilitated by Donna Silverberg. The following is a distillation, not a verbatim transcript, of items discussed at the meeting and actions taken. Anyone with questions or comments about these minutes should call Henriksen at 503/808-3945.

Silverberg welcomed everyone to the meeting, then led a round of introductions and a review of the agenda.

2. Current System Conditions.

BPA's Therese Lamb provided a presentation on BPA's 2001 Power and Operational Outlook; copies of this presentation are available from Lamb upon request. There are two objectives behind this presentation, Lamb said: to consolidate the information we have about the current water supply situation and its impacts on the power system, and to start talking about what the regional executives have been discussing.

Lamb touched on current water and power supply situations, market prices, the status of efforts to reduce power demand up and down the West Coast, the likely effects of the water situation on fish measures in 2001, and a potential risk management approach. Please refer to Lamb's presentation for detailed information.

Lamb noted that the current (February early-bird) forecast shows a January-July runoff volume forecast of 67 MAF at The Dalles, 63 percent of normal. If this forecast becomes reality, she said, 2001 would be the fourth-lowest water year on record. These below-average streamflows will reduce federal hydrosystem generation by up to 4,000 MW, roughly equivalent to four times the amount of energy used annually by the city of Seattle.

Further complicating the picture is the fact that unit outages and increased power demand in California have made it impossible for California to export generation to the Northwest this winter, as they would usually be doing, said Lamb. The result is an extremely volatile power marketplace; energy prices in December 2000 were 10 times higher than the previous four-year annual average. The daily average market price escalated further in January, from $175 per MW on January 15 to $450 on January 19, with hourly prices in excess of $700.

In an effort to reduce load, Lamb continued, BPA sponsored ads in 17 Northwest newspapers informing the public of measures they can take to conserve energy. BPA also contracted for a total of 1,300 MW in market purchases and DSI load reductions at a cost of $200 million. BPA also worked with the Northwest governors in their public call for a 1,000 MW reduction in energy consumption.

With respect to the impacts of the power and water supply situation on fish, said Lamb, the Regional Executives have made the decision to meet power demand and keep chum redds

protected this winter, thereby reducing the level of April refill. Given the current forecast, it would be necessary to reduce Columbia River flow at Bonneville to below 100 Kcfs in order to refill Grand Coulee and meet the system's April 10 target elevations. She noted that the Biological Opinion does contemplate both poor water years and power emergency situations; all current operations are within the parameters of NMFS' 2000 FCRPS Biological Opinion.

The objectives of these operations are threefold, Lamb said – to maintain the integrity of the 2000 FCRPS BiOp while maintaining:

- BPA's financial health (sufficient cash flow)
- High probability of meeting BPA's Treasury payment this September
- Balance between 2001 end-of-year reserve levels and 2002 rates.

In response to a question from Kyle Martin, Lamb said BPA is not contemplating mitigation for the poor water year, although some mitigation may be possible for the power system emergency operations. She added that the system is not currently in an emergency mode, although Bonneville would characterize this entire water year as an emergency.

Lamb touched briefly on the power system emergency provisions in the 2000 FCRPS BiOp; she added that the most recent power system emergency declaration is consistent with the TMT's emergency protocols in that it was announced through the TMT, the actions and responses have been described during weekly TMT meetings, and the fact that, during weekly meetings, TMT participants have had the opportunity to ask questions about the rationale for actions and associated risks, and to suggest alternative operations.

Lamb then went through BPA's proposed risk management strategy for 2001 system operations; she noted that no decisions have been made on this proposal by the Regional Executives:

- Step 1: Identify failure for each risk (power system reliability, BPA financial health, biological harm to fish)
- Step 2: Define a contingency operation that can avoid failure to all identified risks
- Step 3: Identify indicators that may trigger the contingency operation.

Please refer to the text of Lamb's presentation for further details on each of these steps.

A 2001 contingency operational proposal might look something like this, said Lamb, adding that the TMT's input on these measures would be helpful:

- Operate to a Bonneville tailwater elevation of 11.7 feet/130 Kcfs flow during February and March
- Will not refill at all projects by June 30
- Could have a reduced spring or summer spill program
- Emphasis on summer flow and spill to the extent possible
- A planning operation that will be adjusted by indicators throughout the migration season.

Lamb then went through BPA's calculations of the monthly probability that, under the BiOp and potential contingency operations, Bonneville's cash reserves could drop to unacceptably low levels. She noted that, under the BiOp operational scenario, there is a 67% probability that BPA's cash reserves could reach zero during the month of July, due to the need to purchase power during the month of June so the projects can refill

and spill can occur. She added that a 20% probability that cash reserves could reach zero is all BPA is willing to tolerate.

Lamb highlighted anticipated monthly streamflows at Lower Granite and McNary under both the BiOp and contingency operations (an average of about 150 Kcfs at McNary during the months of May, June and July, followed by about 125 Kcfs during the month of August, receding flows at lower Granite, from about 80 Kcfs during May down to 20 Kcfs during August). Lamb also touched briefly on the current status of BPA's energy exchanges with the California ISO.

Nielsen observed that BPA anticipated the possibility of such a poor water year in its consultations on the 2000 FCRPS BiOp; the only thing that has really changed is the price of power, he said. That's true, Lamb replied; current power prices are four to five times higher than the prices anticipated in the analyses BPA ran during consultation.

In response to a question, Lamb said the significance of BPA's emphasis on making its Treasury payment is that missing that payment would mean dire political consequences for BPA and the region. The outside perception is that the Northwest is fortunate to have a lucrative hydropower system, said Jim Litchfield; if BPA fails to make its Treasury payment, then the Congressional response is likely to be, if BPA can't pay its bills, perhaps they shouldn't be managing that system.

The Regional Executives would like the TMT's reactions and thoughts about these contingency operations, said Lamb; any thoughts you might have about spring flow vs. refill, as well as the 2001 spill program, would also be helpful. What is the contingency spill operation? Wagner asked. No spill in April, minimum BiOp spill during the rest of the spring and full spill during the summer, Scott Bettin replied.

One observation, said Nielsen – this presentation talks about through the end of August, but the reality is that the effects of this situation will likely linger into next winter and beyond. I agree, said Lamb; all we can hope is that the water situation and/or the energy price situation will begin to change by then.

In response to a question from Wagner, Lamb said BPA will be making this same presentation to IT tomorrow. In terms of the time-frame for the TMT's response to these risk management proposals, Lamb said the sooner, the better. Litchfield noted that these are the very topics the TMT needs to address during its development of the 2001 Water Management Plan. We can also begin to discuss at least a portion of the contingency operation when we talk about recommended operations, Pat McGrane observed.

Litchfield asked whether it would be possible for NMFS to develop some analysis of the biological implications of the projected 65 MAF runoff year, similar to what BPA has developed for the economic side. That would be helpful, in the context of our deliberations on the contingency plan, Nielsen said.

The group devoted a few minutes of discussion to Lamb' presentation; Litchfield observed that the two variables that will trigger the contingency operation – water supply and market prices – are completely beyond anyone's control. That's true, Lamb agreed; all we can do is continue to run these analyses as new information comes in. I would suggest that, given what we've heard today, the TMT needs to be as conservative as possible, particularly when it comes to making operational recommendations that will affect our operations later in the season, Litchfield said. The group discussed likely weather patterns in the coming months; Martin said there is some analysis that suggests that the Northwest is entering a new El Niño cycle, which will peak in September 2001.

Is there agreement with Jim Litchfield's suggestion that the TMT be as conservative as possible with its available resources? Silverberg asked. It depends on your definition of "conservative," Nielsen replied – I suspect that my definition of conservative and Jim's may be somewhat different. Perhaps "cautious" would be a better word, said Litchfield; my point is mainly that this will not be a forgiving year if we choose the wrong operations. We need to be as sure as possible that whatever water we have to use is applied to the highest and best biological purpose.

Pat McGrane provided an overview of current conditions at the Reclamation storage projects. Currently, he said, Grand Coulee is at elevation 1239; elevation at that project dropped 27 feet during the month of January. Hungry Horse is currently at elevation 3508, and is releasing 3.8 Kcfs. Henriksen said Libby is currently at elevation 2403, down from elevation 2411 on January 1. Libby is currently releasing 10 Kcfs. Henriksen said Dworshak is currently at elevation 1506 feet, down 12 feet from its January 1 elevation. Dworshak began releasing 6.2 Kcfs on January 23, Henriksen said; on February 2, we backed that project off to minimum outflow.

In terms of future operational scenarios, said McGrane, Reclamation has done some model runs showing expected discharges from Hungry Horse and Libby vs. refill probability at these projects. The bottom line is that, if Libby and Hungry Horse reduce outflow to minimum, Reclamation is now estimating that both projects will be 5 feet from full on June 30; if Libby continues to release 10 Kcfs and Hungry Horse releases 4 Kcfs (the current operation), both projects will be approximately 12 feet from full on June 30; if Libby discharge is increased to 13.5 Kcfs and Hungry Horse discharge is increased to 5 Kcfs, both projects will be approximately 18 feet from full on June 30.

What are the TMT's thoughts on the current operation? McGrane asked. It doesn't meet the chum criteria or the power system reliability criteria, said Robyn MacKay. It was observed that Dworshak operations need to be added into this mix; the TMT hasn't actually made a recommendation about Dworshak operations. We did discuss it at the January 31 TMT conference call, said Bettin. Henriksen added that it was the Federal Executives who made the decision to reduce Dworshak outflow to minimum. Does the TMT agree with that decision? McGrane asked. My understanding was that we were going to discuss the Dworshak operation today, said Litchfield, and I would still like to have that discussion. It would be helpful if we could add the effects of various operational scenarios at Dworshak to Pat's chart, he said -- is there a significant chance

we can completely refill Dworshak this year? Will we be able to store enough water at that project to make a difference later this summer?

The group devoted a few minutes of discussion to the complex question of refill probabilities at various headwater storage projects under multiple operational scenarios. Litchfield said his concern is that the benefits of refilling Dworshak may not outweigh the negative impacts caused by that operation on the Columbia portion of the system.

Henriksen said the Corps has also done some model runs, one of which shows the required end-of-month elevations at Dworshak if that project is to have a 95% confidence, 70% confidence, 50% confidence, 30% confidence and 5% confidence of refill this year. Given the current elevation at Dworshak, said Henriksen, the Corps is estimating that there is about a 70% chance that Dworshak will refill completely in 2001, if we continue to release minimum outflow. This is very helpful information, Litchfield said.

If we were to do a proportional draft and spread the pain, it seems to me that would give us at least some water for both the Columbia and Snake sides of the system, Litchfield said. Even if we can avoid using Dworshak for spring flow augmentation, which is no certain bet, given the recent history of this group, there is still only a 70% chance the project will refill this year, he said. If we choose that operation, that means we'll have to draft Libby and Hungry Horse more heavily, which means there won't be a great deal of water available for the sturgeon pulse or bull trout operations this year, said Litchfield.

McGrane asked which TMT members feel the minimum outflow operation is a better choice than Litchfield's "share the pain" suggestion. Nielsen asked how much of the current operation is for chum, and how much is for power. That's a relevant question, said Litchfield – if the salmon managers said, forget the chum, drop Bonneville flows to 110 Kcfs, would BPA accommodate that? We couldn't accommodate that request during all hours, Bettin replied.

McGrane suggested that, as loads drop later this spring, in order to allow for increased headwater storage, the TMT may want to find some additional, creative ways to keep the chum redds watered up at a lower flow, such as watering the redds with irrigation pumps. That was done successfully on the Rogue in 1977, Dick Cassidy observed. The only problem is that that won't get the emergent fry out of the gravel, said Nielsen. Correct, said Bettin – you would need to bring flows up for part of each day to flush the fry out of the gravel.

Is it fair to say that the TMT is in favor of storing as much water as possible for use later in the season, with headwater projects at minimum outflow? McGrane asked. Litchfield, Wagner, Nielsen, all answered that, if it was possible to store more water, from a power system reliability and chum protection standpoint, they would be in favor of such an operation. The second question is, given the opportunity to drop flows at

Bonneville, would you support doing that if the redds can be protected through mechanical watering, or even if it would mean dewatering the redds? McGrane asked. From Reclamation's standpoint, I would say yes and yes, although I'm not sure about the dewatering proposition, McGrane said.

So if it is feasible to keep the redds mechanically watered, would the TMT support reducing lower river flow in order to store some additional water in the headwater storage projects? McGrane asked. In response to a question, Bettin said the technical feasibility of the mechanical pumping option is unknown at this point, although it appears doable. There are also permitting and land access issues that would need to be resolved, he said; it would also make sense to wait until after the Spring Creek Hatchery release, so that the chinook smolts aren't impacted by the pumping operation.

Lamb observed that, while McGrane's questions are pertinent, the real question that has to be answered this week is whether the current operation should continue, or whether more of an effort should be made to share the pain among all of the upstream storage projects, in terms of maintaining the 11.7-foot tailwater and 130 Kcfs maximum flow parameters at Bonneville. Litchfield said he is very concerned about the current elevation at Hungry Horse; there is very little probability that project will refill this year.

After a few minutes of additional discussion, Wagner said NMFS recommends that the current operation continue, with the recognition that it could cause some hardships at other storage projects. I understand NMFS' rationale, said Nielsen; however, Washington is concerned about the listed species in the Mid-Columbia as well as those in the Snake. If put on the spot, however, I would support NMFS, with the understanding that that concern exists, Nielsen said. David Wills said the Fish and Wildlife Service would also support NMFS' decision, with the caveat that he has not discussed this issue with the Service's policy people. Litchfield observed that Dworshak is a much more efficient delivery-point for water for chum, compared to Libby and Hungry Horse. He advocated a more balanced operation, which would lessen the severity of the current operation's impact on refill probabilities at Libby and Hungry Horse.

Basically, we need to make a decision today about where the increased draft is going to come from – Libby, Hungry Horse or Dworshak, said Bettin, because we can't continue to draft Grand Coulee by more than one foot per day. After a few minutes of additional discussion, McGrane said what he is hearing, from today's discussion, is general support for NMFS' recommended operation, with the exception of Montana; in addition, he said, I'm hearing general support for reducing lower river flows later this spring if it is possible to mechanically water the redds.

Is anyone opposed to continuing the exploration of creative redd-watering technology? Silverberg asked. We deeply regret the situation nature and the power problems have put us in, said Nielsen; WDFW would not oppose such an effort if it comes to that, although there are certainly some potential problems. Litchfield said Montana definitely supports pursuing this option. The NMFS, Fish and Wildlife Service, Reclamation, Corps and BPA representatives at today's meeting all expressed their

support for exploring the redd-watering idea. Cindy and I will talk to Oregon and Idaho about this question as well, said Silverberg.

What about the current operation, said Silverberg – does Montana want to raise this issue to IT? I think it would be beneficial to discuss the Snake/Columbia tradeoff at IT tomorrow, Litchfield replied – it's a very important decision, and people need to understand the tradeoffs. I think we should also note that there is general TMT agreement that outflow from the headwater storage projects be reduced as the opportunity presents itself, said McGrane. No opposition was voiced to this suggestion.

After a few minutes of additional discussion, Litchfield said he isn't necessarily suggesting that this issue be elevated to the IT, only that IT needs to fully understand all of the implications of this issue. Bettin suggested that Dworshak outflow be increased today and tomorrow, by 5 Kcfs, to 6.4 Kcfs, in order to fill in the anticipated reduction in Grand Coulee outflow. We can maintain that through tomorrow, he said, and wait until the IT makes its recommendation. The other question is whether or not we want the IT to make a decision about our long-term operational strategy, Henriksen said.

What NMFS will say at IT tomorrow is what NMFS has already said on this issue, said Wagner – that Dworshak is a higher storage priority than Grand Coulee and the Montana projects. In other words, he said, the likely answer you'll get tomorrow is the same one NMFS is giving you today. MacKay said her preference would be to bring Libby up to 15 Kcfs and Hungry Horse up to 5 Kcfs in the near-term, ramping back down on the weekends. We can continue to evaluate Grand Coulee elevation in light of the changing water supply forecast, she said.

So the TMT needs to do some thinking about long-terms strategy between now and next meeting, Silverberg said. The question I have is the fact that the federal executives wanted this group to make this decision, while the TMT is now planning to ask the IT to make this call, she said. Is that a problem? Mainly, I would like the IT to fully understand all of the implications of this decision for all of the listed species, not just those in the Snake, Litchfield said – to me, a proportional draft of all of the projects makes more sense.

To be clear, said Henriksen, does this issue need to be elevated to the IT? Wagner summarized the proposed operation as follows: increase Libby outflow to 15 Kcfs, increase Hungry Horse discharge to 5 Kcfs, keep Dworshak at minimum outflow, and discuss the wisdom of this operation at tomorrow's IT meeting. No disagreements were raised to this suggested operation. The group also briefly discussed potential cold snap operations, given the fact that up to two weeks of below-normal temperatures are expected starting this Friday. It was observed that, if the cold snap procedures go into effect, it may be necessary to increase Libby discharge up to 20 Kcfs.

Shall we agree to convene an emergency TMT conference call if it becomes necessary to increase Libby outflow above 15 Kcfs, or Hungry Horse discharge to more than 5 Kcfs? Lamb asked. No disagreements were raised to this suggestion.

A few minutes of additional discussion were devoted to the precise constraints agreed to regarding the maintenance of the 11.7-foot tailwater elevation below Bonneville; Wagner observed that it is important to achieve clarity on this issue, because it will help the TMT to figure out any necessary mitigation later. It gets back to the question of what portion of the current operation is for chum protection, and what portion is for power operations, Wagner said; we probably need to talk about this internally at NMFS before I can give you the answer you seek.

3. New System Operational Requests.

No new System Operational Requests were submitted prior to today's meeting.

4. Recommended Operations.

Recommended operations were summarized during Agenda Item 2.

5. Discussion of How to Process Changes to TMT Minutes.

Henriksen said one of the things the group agreed to talk about today was how to handle the meeting minutes each week. We thought this might be a good time to discuss this topic again, she said; as you know, we post the minutes as soon as they come in, usually on Friday or Monday following the meeting. One question is how to handle any changes or corrections to the minutes, she said; we typically allow a week for any changes people would like to make. Are there any other thoughts about how changes should be made? Henriksen asked.

My understanding is that we're to review the minutes prior to the meeting, and bring any changes to the next meeting, said Wagner; after a week, the minutes are considered final. He provided an example from the January 24 TMT meeting; the group briefly discussed this change. Bettin suggested that the group devote some time to the discussion of any changes to the last two weeks' meeting minutes at each face-to-face meeting of the TMT; no disagreement was raised to this suggestion. It was agreed that any extensive changes will be provided in writing, while minor tweaks can be provided verbally.

Henriksen said she will make Wagner's requested change to the January 24 meeting minutes, and will post the revised version of the minutes to the TMT website.

6. Extent of Need for Meeting Time for Information Review.

Discussion of this agenda item was deferred until the next TMT meeting.

7. Review of Water Management Plan.

Boyd said he had incorporated comments received from Pat McGrane into a new draft of the Water Management Plan; that new draft is now available on the TMT website. He agreed to email electronic copies of the current draft of the WMP to the TMT membership, and asked that the group review this document and develop any comments they may have. These comments are to be submitted to Boyd by Friday, February 16, for discussion at the February 21 TMT meeting. .

8. 2001 TMT Process to Develop Operational Recommendations.

Discussion of this agenda item was deferred until the next TMT meeting.

9. Update on NWPPC Request for TMT Decision Rationale.

Discussion of this agenda item was deferred until the next TMT meeting.

10. Next TMT Meeting Date.

The next face-to-face meeting of the Technical Management Team was set for Thursday, February 21. Meeting notes prepared by Jeff Kuechle, BPA contractor.

TMT PARTICIPANT LIST

February 7, 2001

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COLUMBIA RIVER REGIONAL FORUM

TECHNICAL MANAGEMENT TEAM
MEETING NOTES
February 12, 2001
CORPS OF ENGINEERS NORTHWESTERN DIVISION OFFICES – CUSTOM HOUSE
PORTLAND, OREGON

TMT Internet Homepage: http://www.nwd-wc.usace.army.mil/TMT/index.html

1. Greetings and Introductions.

Cindy Henriksen welcomed everyone to today's conference call, convened February 12, 2001 to discuss operational priorities during the ongoing regional cold snap. The following is a distillation, not a verbatim transcript, of items discussed at the meeting and actions taken. Anyone with questions or comments about these minutes should call Henriksen at 503/808-3945.

2. Discussion of Power System Cold Snap Operations.

Henriksen noted that today's conference call was initiated at BPA's request. MacKay said that, as was discussed at last Wednesday's TMT meeting, the action agencies have been operating the system to meet load while holding to the 130 Kcfs flow cap at Bonneville Dam. Because of current weather conditions, we are no longer able to do that, said MacKay; we are going to have to exceed the one-foot-per-day draft limit at Grand Coulee and exceed 130 Kcfs at Bonneville in order to meet load, unless we can pick up additional generation elsewhere in the system, MacKay said.

What about power purchases? Paul Wagner asked. BPA is attempting to purchase anything we consider to be reasonable-cost energy, MacKay replied. Are there any purchases being made? Henriksen asked. Some – not a lot, MacKay replied. The reason for the limited amount of purchases is...? Henriksen asked. Price and availability, MacKay replied.

I have not yet seen an emergency declaration from BPA, said Henriksen, despite the fact that, if we increase the draft rate at Grand Coulee and begin to exceed 130 Kcfs at Bonneville, such a declaration will be required. If you can increase generation elsewhere in the system by around 500 MW, then it may not be necessary to increase Bonneville flows above 130 Kcfs, MacKay said – basically, we need a break in the weather, and we're also working on a deal to interrupt 400 MW of load with McCook Aluminum.

Basically, the options available to us include increased discharge and generation at Libby and Hungry Horse, increased discharge and generation at Dworshak; we could

also push Grand Coulee harder, said MacKay. We would prefer to limit any response to the Columbia side, for the reasons expressed at last week's IT meeting, Wagner said. Why is that? Henriksen asked. Because there is more direct biological benefit for the listed species from flow augmentation from Dworshak than from any other project, Wagner replied. I would have concerns about the effects of such a Columbia project operation on flows at Vernita Bar, said Jim Nielsen.

Libby and Hungry Horse only can give us another 150 MW, said MacKay. Also, anything that comes out of Libby will not reach Grand Coulee, said Henriksen – it will be captured in Kootenay Lake and would not help the Grand Coulee draft at all. Similarly, water from Hungry Horse would be trapped in Kerr reservoir, said MacKay.

If we continue to draft Grand Coulee at this rate, we will exceed the 130 Kcfs flow cap at Bonneville; that water will be gone, and it will not be available for later flow augmentation, Henriksen said. In response to a question from MacKay, Pat McGrane said it would be acceptable to Reclamation to draft Grand Coulee at a rate of up to 1.5 feet per day, with day defined as a running 24 hour period. So that is one option, said MacKay; however, to implement it, we will need to declare a power emergency.

In response to a question from Wagner, MacKay said Dworshak has a higher H over K value relative to the Federal power system than Grand Coulee, so if generation is picked up at Dworshak project, it could potentially reduce the draft rate at Grand Coulee.

If folks are happy with drafting Grand Coulee at a higher rate, MacKay said, that is an option that would satisfy our power needs. We would need a power emergency declaration, said Henriksen. Yes, we would, MacKay replied, adding that such an operation would probably need to continue for several days. The problem is that drafting Grand Coulee harder than we have been will limit our options if something happens later – we'll have to find water and generation from another source, MacKay said. If the 400 MW McCook Aluminum deal doesn't work out, she said, we're going to have to re-think the Grand Coulee operation – it is a short-term solution at best.

We're looking for temperatures next week to continue to average 6 degrees below normal, MacKay said. What has changed since last week, when we were able to meet load and maintain 130 Kcfs in the lower river despite the fact that temperatures were lower? Henriksen asked. We had the 240 MW LCA exchange, in which they were returning power to us, MacKay replied – also, Canada is drawing more heavily on its entitlement exchange this week than they were last week.

Shall we recap where we are? Henriksen asked. First, it sounds as though BPA will be declaring a power emergency. It also sounds as though the TMT's preference is to draft Grand Coulee more heavily, rather than finding water and generation elsewhere in the system, MacKay said. In response to a question from Nielsen, MacKay said it would be possible to save any water released from Dworshak in the upper Columbia side of the system, but any water released from Grand Coulee will simply be gone – it won't be available later in the spring and summer season.

Nielsen asked about the impacts of such a Grand Coulee operation on the Vernita Bar minimum flow operation; it was agreed that BPA will attempt to analyze those effects. When will you be able to provide that information on Vernita Bar? Henriksen asked. We can look at the effects of the 1.5-foot-per-day draft over a week, two weeks or more, MacKay said. Perhaps we can make that an agenda item for Thursday's IT/TMT meeting, Bettin suggested.

Up to this point, the understanding was that the Vernita Bar agreement was implementable this year, said Nielsen – if that's changed, we need to talk about it. Again, we can talk about that on Thursday, Bettin said. That would be my preference, said Henriksen.

Do we want to consider bringing Dworshak up to 2.5 Kcfs, to max out generation on the small units? MacKay said. My concern is that we are running Grand Coulee so close to its limits, she said – running at least some water out of Dworshak would help reduce that draft at Grand Coulee. One large unit at Dworshak would give us about 100 MW of additional generation, MacKay said. I assume this decision about Dworshak won't be made until Thursday? Steve Pettit asked. We need the power right now, MacKay replied. Henriksen added that Dworshak has the highest refill probability of any storage project in the system – about 70%.

In response to a question from Henriksen, MacKay said that, if the decision is made to draft Dworshak, that operation will need to continue at least through this Friday. So that would leave Dworshak in the 60% - 65% refill probability range, Henriksen said. However, it will preclude the potential use of Dworshak for spring flow augmentation, Wagner observed – anything we take out of that project now will make refill less likely this year.

In response to a question from Pettit, Henriksen said Dworshak inflow is currently low enough that, at 1.3 Kcfs minimum discharge, the project is essentially passing inflow. How will another 1 Kcfs help Grand Coulee? Pettit asked. It will help some, MacKay replied; again, it would be 100 MW that doesn't have to come from Grand Coulee. In addition, said Henriksen, Dworshak releases can generate more system power from the same amount of water than any other project in the system – Dworshak releases can generate twice the Federal system power from a single unit of water than would be generated by a comparable release from Grand Coulee.

You know our feelings about drafting Dworshak, said Pettit – we share NMFS' position. We can appreciate your perspective on the energy side, said Wagner; however, from a fisheries perspective, we would prefer that Dworshak discharge not be increased at this time.

MacKay suggested increasing Dworshak discharge by one large generating unit through Friday. If the McCook (aluminum) deal falls through, she said, again, we'll need to talk about the operation further on Thursday. And should we consider drafting Grand

Coulee somewhere between one foot and 1.5 feet per day? Henriksen asked. That would be our preference, said MacKay; again, however, the question is whether we want to exceed 130 Kcfs at Bonneville, which we will do if we draft Dworshak slightly and exceed the one foot-per-day draft limit at Grand Coulee.

I'm not comfortable changing operations at the headwater storage projects without a power emergency declaration from Bonneville, said Henriksen – even if there is an alternative operation that does not cause us to exceed 130 Kcfs, we would still like to have an emergency declaration. I'll check on that and get back to you, MacKay said.

To summarize, then, said Henriksen, we need a power emergency declaration no matter what the flow is at Bonneville; does NMFS agree? That's probably appropriate, Wagner replied; such an operation would run counter to the long-term strategy and priorities we've been discussing. One thing we can do is pick up generation at Hungry Horse and Libby to that next increment, MacKay said. That would still require the declaration of a power system emergency, Henriksen said. I don't believe that's what the executives agreed to on Friday, said MacKay, but again, we can discuss it and get back to you.

So BPA needs another 500 MW of generation, said Henriksen; price and availability mean purchasing that energy is not an option. BPA would like to increase generation on the federal system by 500 MW, Henriksen said; one option is to increase the draft at Grand Coulee to 1.5 feet per day, which will cause us to exceed 130 Kcfs in Bonneville flow.

We also talked about the possibility of increasing Dworshak discharge through Friday, Henriksen said; again, we can discuss that operation, as well as any other changes we make to the current operation, at Thursday's TMT/IT meeting.

How do the other parties feel about the requested Dworshak operation? Henriksen asked. If a power emergency is declared, BPA can make that call, if they feel that is the best and most efficient use of that water, Wagner replied. David Wills of the U.S. Fish and Wildlife Service and Jim Nielsen of WDFW said they agree with NMFS' assessment. Christine Mallette said Oregon agrees that a power emergency declaration is needed before any changes are made in the operation of the headwater storage projects; Pettit said that would be Idaho's position as well.

Idaho? Henriksen asked. What exactly are we voting on? Pettit asked. Increasing Dworshak discharge by 5 Kcfs to run the large generating unit at that project, Henriksen replied. Pettit said he is not at liberty to agree to such an operation until he talks to Jim Yost. Does Idaho have a counterproposal for how to meet regional load? Henriksen asked. Not at this time, Pettit replied – if a power emergency is declared, then the action agencies can use Dworshak if that is what they feel is appropriate – I assume that Dworshak will be used as necessary, Pettit said. If we are not in a power emergency, he said, then I would like to debate any operational alternatives at Thursday's meeting.

The operation does need to start tomorrow, said MacKay. There are some options – we could pick up 150 MW at Hungry Horse and Libby; we could also talk about running one of the small units at Dworshak, rather than the large unit – that would mean Dworshak was releasing 2.5 Kcfs, rather than 5 Kcfs, she said.

So we do not have an operation for tomorrow? Henriksen asked. I'll call Jim Yost and get back to you later today, Pettit replied. It also sounds as though, from what we've heard from Oregon, Washington, NMFS and the U.S. Fish and Wildlife Service, we definitely need a power emergency declaration before we take any additional actions, Henriksen said. That's correct, said Nielsen. In that case, said Jim Litchfield, Montana would likely agree with the position taken by Oregon, Washington, the Fish and Wildlife Service and NMFS.

Where do Libby, Hungry Horse and Dworshak fall in the pecking order? MacKay asked. Pick on Dworshak last, and hit Libby and Hungry Horse first, Wagner replied, with the understanding that, if there is a need, under this power emergency, to draft Dworshak for power purposes, so be it, said Wagner. However, Dworshak has the greatest potential impact on both runs, and the more we run it now, the less it will be available to us later. Again, however, NMFS won't object to BPA using Dworshak now if that's what they have to do, he said.

Unless I'm missing something, it sounds to me as though we're going to need to pick up generation at Libby, Hungry Horse, Grand Coulee *and* Dworshak in order to get the increased generation we need, said Litchfield. That's probably correct, said Bettin – it's probably more important to prioritize which project gets turned off first. There isn't much point, then, in having an academic debate over whether or not Dworshak or Hungry Horse get turned on first, said Litchfield.

After a few minutes of further discussion, Henriksen summarized by saying that changing the operations at the headwater storage projects will require a power emergency declaration; also, she said, what I'm hearing is that it is going to be necessary to increase the draft at all four headwater storage projects in order to meet load – another 5 Kcfs at Libby, another 1 Kcfs at Hungry Horse, another half-foot per day at Grand Coulee and whatever increase might be necessary at Dworshak – either one small unit or one big unit, 2.5 Kcfs or 5 Kcfs. If we run the big unit through Friday, said Henriksen, my guess is that that will draft Dworshak between four and five feet additional by Friday. After a brief debate, Bettin said that, from a planning standpoint, it probably makes sense to plan on running one large unit at Dworshak, an increased draft of 5 Kcfs from that project.

Again, said Henriksen, we are expecting a power system emergency declaration from Bonneville so that we can initiate these operations. They could commence tomorrow, and will run through Friday. We're typing the power emergency declaration even as we speak, said Bettin. And again, there will be additional discussion of the present emergency situation at Thursday's joint TMT/IT meeting, said Henriksen. If Idaho is adamantly opposed to the proposed Dworshak operation, said Henriksen, we could be talking again very soon.

With that, the conference call was adjourned. Meeting notes prepared by Jeff Kuechle, BPA contractor.

3. List of participants:

Scott Bettin	BPA
Dick Cassidy	COE
Margaret Filardo	FPC
Cindy Henriksen	COE
Jim Litchfield	consultant, state of Montana
Robyn MacKay	BPA
Pat McGrane	BOR
Christine Mallette	ODFW
Jim Nielsen	WDFW
Steve Pettit	IDFG
Rudd Turner	COE
Paul Wagner	NMFS
David Wills	USFWS

TECHNICAL MANAGEMENT TEAM

BOR: Pat McGrane\Lori Postlethwait

NMFS: Paul Wagner\Chris Ross BPA: Scott Bettin\Robyn MacKay

USFWS: Howard Schaller\Bob Hallock\Susan Martin

OR: Christine Mallette WA: Jim Nielsen ID: Steve Pettit

MT: Jim Litchfield COE: Cindy Henriksen\Rudd Turner\Dick Cassidy

Joint IT/TMT Meeting

February 21, 2001 1000 - 1600 hours PST

Custom House Portland, Oregon

Room 210 (Executive Conference Room)

All members are encouraged to call Donna Silverberg with any issues or concerns they would like to see addressed. Please e-mail her at dsilverberg@cnnw.net or call her at (503) 248-4703.

AGENDA

1. Welcome, introductions.

2. Review current system conditions.

- Reservoir operation and water supply (COE, BOR)
- Power system status (BPA)
- Chum emergence status (WDFW)
- Fish status (NMFS)

3. Continue developing a 2001 system operation strategy.

- Present additional proposals (BPA, Washington, tribes, NMFS, others).
- Discuss and seek areas of agreement on proposals to date.

4. Review operations requests.

5. Develop recommended operations.

6. Continue review of Water Management Plan.

- Main Report (draft dated 2/26/01)
- Appendix 4, TMT Guidelines

7. Update: NPPC requests for TMT decision rationale (Silverberg).

8. Other.

- Set agenda for 7 March TMT meeting.

Meet-me number is 503-808-5190. Questions about the meeting may be referred to Cindy Henriksen, (503) 808-3945, or Rudd Turner, (503) 808-3935.

COLUMBIA RIVER REGIONAL FORUM

JOINT TECHNICAL MANAGEMENT TEAM/ IMPLEMENTATION TEAM MEETING NOTES

February 21, 2001 9:00 a.m. - 4:30 p.m.
CORPS OF ENGINEERS NORTHWESTERN DIVISION OFFICES – CUSTOM HOUSE PORTLAND, OREGON

TMT Internet Homepage: http://www.nwd-wc.usace.army.mil/TMT/index.html

I. Greetings, Introductions and Review of the Agenda.

The joint February 21, 2001 meeting of the Implementation Team and the Technical Management Team, held at the Corps of Engineers' Northwest Division headquarters in Portland, Oregon, was chaired by Rudd Turner of the Corps and facilitated by Donna Silverberg. The agenda for the February 21 meeting and a list of attendees are attached as Enclosures A and B. Please note that this is a summary, not a verbatim transcript, of items discussed and decisions made at today's meeting; copies of any enclosures referenced can be obtained by calling Kathy Ceballos at 503/230-5420.

2. Current System Conditions.

Turner reported that the most recent power system emergency was lifted late yesterday. Overall, he said, the current operational objective is to meet chum and power system needs, while storing water to the extent feasible in the upper basin storage reservoirs for summer fish and power needs. Turner said daily average flows at Bonneville have been running between 130 and 153 Kcfs over the past week; for the most part, these flows have been needed to maintain the 11.7 foot minimum tailwater elevation at that project during a low-tide period. Turner noted that Bonneville's tailwater elevation peaked at 14 feet on Friday when peak flows occurred.

At John Day, Turner continued, the Corps has authorized a special forebay elevation of 261.5 feet this week, a foot lower than normal, to provide some additional flexibility. Dworshak outflow was reduced to 2.4 Kcfs on February 16, and reduced further to minimum outflow (1.4 Kcfs) on Monday night, February 19. That's where we are at this point, Turner said – Dworshak continues to release minimum outflow, and the current project elevation is 1502 feet. At minimum outflow, he added, the project is just about passing inflow.

At Libby, said Turner, the Corps reduced outflow yesterday from 15 Kcfs to 9 Kcfs in 2 Kcfs hourly increments. One thing we wanted to discuss today is the possibility of reducing Libby outflow further, to 6 Kcfs, he said. Scott Bettin said BPA would like to reduce Libby outflow as soon as possible -- by this afternoon, if we can, he said. Turner added that the current elevation at Libby is 2393, with inflows of 2 Kcfs-4 Kcfs.

Pat McGrane said Grand Coulee elevation is now 1234 feet; the project filled almost two feet over the weekend. Hungry Horse is currently at elevation 3501, three feet below its IRC minimum elevation. McGrane said Hungry Horse outflow was 6 Kcfs on Friday; it was ramped down to 4.4 Kcfs yesterday, and down to 3.8 Kcfs today, following the 600 cfs per day ramping rate in the USFWS BiOp. We have been asked to increase that ramping rate somewhat in order to save water, he said; perhaps we can talk about that later today. Howard Schaller said USFWS personnel have been discussing this issue internally; he said that, if the Hungry Horse rampdown rate is increased, the Fish and Wildlife Service's preference would be to ramp down during daytime hours rather than nighttime hours. Why? Jim Ruff asked. Radio-tag data indicate that bull trout tend to move into shallow-water areas during the night, Jim Litchfield replied – during the day, they hold in deeper water.

Litchfield said the State of Montana has no opposition to the faster ramping rate, which would be 600 cfs per hour and day at the current rate of discharge. So actually, that's no change to the current ramp rate? McGrane asked. Correct, Litchfield replied. It sounds like we can't resolve this right now, McGrane said; if TMT reaches a different resolution today, please let me know via email.

We're in a surplus flow and power position at the moment, said Therese Lamb; BPA is going to be selling power, so this is an opportunity to save some water, if people want to go to a faster rampdown rate. What's the concern about a faster ramping rate? one participant asked. Bull trout stranding, presumably, although there is no direct data to support that conclusion, Schaller replied. Litchfield and Schaller said they will continue to discuss this issue with their respective agencies, because this is an operational nuance that could continue to be an issue later this spring. I would suggest that, once Montana and the U.S. Fish and Wildlife Service reach a decision, that they contact the action agencies directly; we will then let the TMT know what has been agreed to via email, McGrane said. There was general agreement that this would be acceptable.

Will Libby flows be reduced further once you reach 6 Kcfs? Ron Boyce asked. If weather allows, yes, Scott Bettin replied. Bettin added that, to be clear, BPA would prefer to see Hungry Horse release the flow necessary to meet the 3.2 Kcfs Columbia Falls minimum flow – about 2.7 Kcfs out of Hungry Horse, rather than the 3.8 Kcfs the project is currently releasing.

Moving on to water supply, Turner said there isn't a lot of new information to share this week; he distributed an updated forecast which reflects the February final forecast. As you've already heard, he said, the water supply forecast has continued to decline from both the January and February final. The next handout is an updated family of refill curves, showing end-of-June target elevations reflecting the Corps proposal presented at last week's TMT/IT meeting, graphed against current reservoir elevation and forecast information for each of the storage projects, Turner said. He reminded the group that, under the Corps proposal, Dworshak would refill to elevation 1580 feet on June 30, Libby to elevation 2443 feet, Hungry Horse to elevation 3540 feet. The group also briefly discussed the flood control target points for each project.

Are we implementing VAR-Q this year, even if it's a paper exercise at Hungry Horse? Litchfield asked. We did officially switch over to VAR-Q, although the elevations don't reflect that because of the water year, Bettin replied.

Power system status? Silverberg asked. Again, the power system emergency was lifted yesterday afternoon, said Bettin; we're now generating more power than we need, and the power system is back to normal. The headwater projects started backing off Friday afternoon, as temperatures throughout the region began to warm, and we're now trying to store as much water as possible, Bettin said. The current operational strategy is to maintain the 11.7-foot minimum tailwater elevation for chum below Bonneville, he said.

Status of the chum emergence? Silverberg asked. The first emergent chum was logged on February 9 this year, Jim Nielsen replied; they saw another on February 12, and 26 during yesterday's redd survey. The field crews observed two redds that were isolated from the river, but still had water in a pocket or depression, in which chum were emerging from the gravel, then going back down again. We will be developing projections of peak emergence timing, together with start and stop dates, and will share that information with TMT as it becomes available, he added. One thing to bear in mind is that the Hamilton/Hardy Creek chum will emerge later – around mid-March, Schaller said. At Bettin's request, Boyce said he will bring a chum fry mortality to show the TMT at a future meeting.

Turner noted that the Spring Creek Hatchery release is coming up soon; the next TMT meeting is March 7, so if a special operation is needed, the action agencies need to know soon. We may need a TMT conference call next Wednesday, February 28, to discuss that, said Paul Wagner. Boyce added that FPAC will be discussing the Spring Creek release at its meeting next Tuesday, so they should have a recommendation at that point.

3. New System Operational Requests.

No new SORs were presented at today's meeting.

4. Recommended Operations.

Turner said the Corps' operational recommendation would be to release the lowest possible discharge from the headwater storage projects necessary to meet power system needs – 2.7 Kcfs at Hungry Horse, 1.2 Kcfs from Dworshak and 6 Kcfs from Libby. Also, he asked, is it still necessary to maintain an 11.7-foot minimum tailwater elevation below Bonneville? We're at a point in the season when we could drop flows below that level, from a power production standpoint, Turner said, if the salmon managers were willing to consider a slightly lower elevation now that emergence has begun – 11 feet, for example.

Lamb referred the group to the attachment titled "Federal Agencies' Proposed Principals for 2001 FCRPS Operations," dated February 20. Six agencies have been working on this, she said – BPA, the Corps, NMFS, EPA, USFWS and the Bureau of Reclamation. It was developed with the regional executives, she said; it would be a good idea to spend some time talking to

others in the region, with the goal of reaching agreement on a long-term operational strategy by March 2. In response to a question, Ruff said all six federal agencies support this proposed strategy.

Lamb provided a brief overview of this document, which is attached as Enclosure D. Please refer to this document for complete details of Lamb's presentation. The proposed federal strategies included the following main points:

Actions Preceding A Power System Emergency Declaration

In order to meet Pacific Northwest load requirements the following actions will be taken prior to declaring a power system emergency:

- Take all steps to provide for voluntary conservation
- Implement conservation measures to the extent possible
- Exercise contract provisions that reduce firm load obligations
- Pursue purchase of load reductions
- Pursue purchases consistent with economic criteria
- Pursue acquisition of irrigation pumping load or
- Pursue BPA financial options (will be further detailed)

Power Emergencies: Preliminary Criteria and Process

1. Assuming an adjustment in FCRPS operations is required to meet power demands, preliminary criteria for declaring a power system emergency are:

- **Power System Reliability Due to Insufficiency**. Defined as insufficiency of electrical generation to meet Pacific Northwest electrical demand. May also be measured using a quick rise in prices over a few hours or days as an economic indicator of resource scarcity.
- **Power System Reliability Due to Insufficient Funds to Acquire Sufficient Electrical Generation and Maintain Other BPA-Funded Activities, Including Programs to Protect, Mitigate and Enhance Fish and Wildlife**. Triggered by greater than a XX% probability of having negative cash reserves in any month in fiscal year 2001. In the interim, to ensure purchase exposure is not in excess of the XX% probability, BPA will make reasonably priced purchases. (All analysis to date has utilized a 20% probability as the threshold).

Boyce observed that these criteria are too vague to allow others in the region to make an informed judgement of what could trigger a power emergency declaration; he requested that BPA provide more clarity on this issue. Rob Walton agreed. In response to a question from Boyce, Lamb said either of the two cases above could trigger a power system emergency – it is A or B, not A *and* B, she said.

In response to another question, Lamb said Treasury repayment is no longer a concern for Bonneville; you will not find it in this document, she said, adding, however, that there is still some discussion within BPA about what the agency's end-of-year cash reserve needs to be. The group devoted a few minutes of discussion to the relevance of BPA's financial health to decisions affecting fish and wildlife in the region; several participants made the point that the two are intimately linked.

Moving on, Lamb touched on:

2. Procedures to finalize preliminary criteria for declaring a power system emergency include:

- Discuss with state fisheries agencies, tribes, governors' offices and other interested parties in the region, the proposed criteria for declaration of an emergency.
- Finalize the criteria for declaring any additional power emergencies by March 2, 2001.

3. All power emergencies will be declared consistent with the TMT's Interim Protocols for Emergency Operations, dated September 22, 2000, or as subsequently amended, which may be found at http://www.nwd-wc.uscae.army.mil/TMT/2000/ManPlan/emerprotocl0922.PDF.

February and March 2001 Operations as Proposed by Federal Agencies.

- Base chum operation of at least 11.7 tailwater below Bonneville.
- Base operation of up to 130 Kcfs day average flow at Bonneville.
- Pending the adoption of final criteria for declaration of an emergency, it is understood any power operation above 130 Kcfs day average flow at Bonneville will require the declaration of an emergency, and that other power operations may require such a declaration if they also require an adjustment in FCRPS operations.
- Grand Coulee will be operated with the objective to be at or above elevation 1225 feet through March. Deeper drafts may be necessary to respond to changing conditions and priorities.
- Operations will be planned/implemented with the objective of avoiding drafting Grand Coulee at a rate of greater than 1.5 feet.
- Dworshak will be operated with the objective of operating at minimum release levels in order to maximize refill for summer flow augmentation and temperature control. Higher releases may be necessary to respond to changing conditions and priorities.
- Headwater storage reservoirs may be used to balance items 1-5 above, including, but not limited to, consideration of ramping rates at Hungry Horse and Libby for bull trout. Daily and hourly ramping rates at Hungry Horse and Libby may be exceeded during power and transmission system emergencies. In addition, variances to those ramping rates will be negotiated through the TMT process during years where runoff forecasting or storage shortfalls occur, or when variances are necessary to provide augmentation water for other listed species.
- Consistent with existing procedures, convene TMT to seek consensus and recommendations to Federal operators on FCRPS project operations necessary to achieve

the principals above, with elevation to Implementation Team or Regional federal Executives, as necessary.

Proposed Operational Priorities for 2001.

1. Recognizing that conditions may change, the following are the initial priorities for fish operations in the event full spill and/or flow provisions cannot be implemented in 2001.

a. Power/chum flows through emergence or April 10, 2001, whichever comes first
b. Full fish transportation in the Snake River and consideration of transportation from McNary Dam in the spring.
c. Spring spill operations at mainstem FCRPS dams.
d. Balance summer flow augmentation (June 30 refill) and spring spill operations
i) Refill of Dworshak has highest priority for providing fish flow and water quality benefits
ii) Ensure sufficient water in Hungry Horse and Libby to provide bull trout minimum flows
e. Summer spill operations at mainstem FCRPS dams
f. Vernita Bar flows
g. Spring flow augmentation, with emphasis on May.

2. Monitor and evaluate (with EPA technical assistance) and consider effects on water quality and any applicable water quality standards, in determining priorities.

3. Consistent with existing procedures, convene TMT to seek consensus on, and provide greater definition to, these priorities, with elevation to Implementation Team or Regional Federal Executives, as necessary.

4. By March 2, 2001, develop a plan for spring and summer operations based on the agreed-upon priorities.

These proposed priorities reflect the fact that this is such a poor water year, as well as the fact that it is extremely important top the region to maintain BPA's financial viability, said Ruff. The intent is to provide the greatest possible biological benefit for the greatest number of listed species. In response to a question, Lamb said the fact that the federal agencies have agreed that protection for the chum should be the highest priority is primarily a reflection of the fact that flows have needed to be near 130 Kcfs this winter, and may need to stay at or near that level through March, to ensure power system reliability. What happens when loads drop significantly and those two diverge in the future? Litchfield asked. We would need to make a decision, said Lamb -- reduce Bonneville flows to, say, 115 Kcfs and conserve water for use later in the summer, or continue to maintain the 11.7-foot Bonneville tailwater elevation to protect the chum redds.

The group discussed the potential effects of the current cool, wet Pacific Decadal Oscillation (PDO) cycle combined with the current El Niño conditions; essentially, said Ruff, for the first time since 1973, we have cool, wet ocean conditions and dry climate and water supply

conditions. For that reason, he said, monitoring and evaluation are particularly important this year.

In response to a question from Litchfield, Lamb said this IT/TMT group is the first that has seen this document; she assured the group that, if the TMT has specific changes to the proposed strategy, the regional executives are absolutely committed to incorporating those recommendations into the proposed strategies to the greatest extent feasible. Again, she said, this is not a done deal, and the federal agencies definitely want the input of the states, tribes and others in the region – that is a requirement of the Biological Opinion.

Various parties, including Montana and CRITFC, expressed the concern that while the federal parties always give lip service to the idea of cooperative regional decision-making, as a practical matter, the action agencies tend to simply ignore outside input, make the decisions and inform the region later. Ruff replied that the federal agencies are fully aware that Idaho and Montana, Washington, Oregon and CRITFC have all developed, or are in the process of developing, their own strategic proposals for system operations this year. We want that input, and will give it all possible consideration, said Ruff – we hear your concerns, and will be responsive to them. Again, he said, this is a draft proposal – it is not etched in stone, said Ruff.

Schaller noted that this unified federal strategy recommends maintaining the 11.7-foot tailwater elevation below Bonneville. The Corps isn't recommending an 11-foot tailwater elevation, said Turner; we're just asking the question. If the TMT now feels an 11-foot tailwater elevation would be acceptable, said Lamb, the plan can be modified to reflect that – it is intended as a starting-point for our discussion, not as a final plan.

Silverberg asked whether anyone had additional comments or items for clarification regarding the proposed federal strategies. Has there been any discussion of mitigation among the federal parties? Nielsen asked. We have said that we will consider mitigation, Lamb replied. Ruff added that, while there is no specific, detailed mitigation proposal at this time, NMFS expects one to be developed as the season progresses. In response to another question, Lamb said she anticipates no difficulty in documenting and accounting for the items to be mitigated for after the fact.

Boyce said it is hard for him to believe that NMFS would have anticipated such a disastrous year in its consultations on the BiOp; I would urge the federal parties to begin discussing opportunities for in-season mitigation, he said. Bettin observed that this is such a poor water year that it would not have been possible to fully implement the BiOp in 2001, regardless of the power operation chosen.

Again, mitigation is something we have talked about, said Lamb; we are very interested in any thoughts others in the region may have on this subject, but the federal parties have not yet developed a coordinated, unified position on the mitigation issue. We are also interested in any inexpensive in-season mitigative actions people may be able to suggest, she said; however, more expensive items will likely have to wait for a future year.

Various TMT participants weighed in with minor linguistic changes for the "Proposed Principals" document, which Ruff said he will incorporate into a new draft of this proposal. Boyce said it would be helpful if the federal parties could separate out ESA-related actions from actions driven by power system needs. The power operation, at this point, needs about 130 Kcfs flow at Bonneville, Lamb replied; as it happens, that is also what is needed to maintain the 11.7-foot tailwater elevation below Bonneville. If it was strictly a power operation, however, we would be fluctuating flow during light load hours and weekends; we have not been doing that, Lamb said.

Boyce noted that the spring spill and power operations described in Enclosure D are somewhat different than the operations BPA has been discussing – this shows the power operation continuing into April, he said, with slightly lower volumes of spring spill. I don't believe the power operation is substantially different, Lamb replied; with respect to the spill program, our analysis has shown for some time that it is going to be difficult to implement the spring spill program this year. What we have repeatedly said is that the spring is the most difficult period for BPA, from a cash-flow perspective, said Lamb; NMFS has begun to indicate some willingness to discuss the tradeoffs between spring spill and summer flow augmentation in this very difficult water year.

It is difficult to provide meaningful feedback on the federal proposal without more detail on items like what type of spring spill program is being proposed, said Boyce. That is why we put this on the table, Bettin replied – we would like to get your input as to how the available resources should be used. Turner observed that, as the TMT works through its pre-season planning process, many of these questions will likely be answered.

At this point, Bob Heinith provided an overview of the CRITFC proposal for federal management of the FCRPS for the 2001 salmon migration (attached as Enclosure E). Among the tribal plan's key points and recommendations:

Decision-Making

- The tribes expect a seat at the table when the federal agencies make their decisions on how the FCRPS will be operated this year
- The TMT process does not work for the tribes. The federal operators and NMFS should use CBFWA as the technical forum to discuss river operations where tribes can have input. Issues should be raised to the executive committee table.

Energy and Water Conservation

- Late winter and early spring flows below Bonneville are maintained to meet BPA's stated economic viability criteria
- BPA should immediately invoke aggressive energy conservation measures, beyond voluntary pleas to the public. BPA should offer customers economic incentives to conserve energy.
- Irrigators in the Upper Snake and Columbia Basin Irrigation Project should be "bought

out" by BPA for mainstem water withdrawals and energy normally consumed by agricultural production. Water and land acquisition programs should be implemented immediately.

- BPA should renew the contract with Idaho Power to allow flexibility in flow augmentation through power exchanges.

Runoff Forecast

- The Plan assumes that the current 70% of normal precipitation pattern will continue into spring, while the River Forecast Center is continuing to predict normal precipitation. CRITFC believes a continuing pattern of below-normal precipitation is likely. Runoff in the Plan is based on 70% of normal precipitation.

Flow and reservoir Management

- Available storage and runoff is shaped to meet peaking hydrographs at Priest Rapids, Lower Granite and The Dalles index points. The object is to provide some flushing flows during the main portions of the juvenile and adult migrations.
- Meeting Clean Water Act standards for dissolved gas and temperature is a high priority; juvenile salmon should be left in-river to avoid high temperatures in screen and transportation systems.
- Reservoirs are left with some storage at the end of the migration season as a buffer for a possible 2002 El Niño water year, as is being forecast by scientists at the University of Washington.
- Refill of Dworshak Reservoir is a high priority. Drafting of Dworshak should be stopped immediately. Some small volumes are allocated for spring flows, but the majority of flow is dedicated to summer migrants and temperature control to attempt to meet Clean Water Act standards. Dworshak is filled to msl 1585 by July 1 for summer migrants and temperature control. Dworshak is left at msl 1520 at the end of the September migration.
- Brownlee storage augments Snake River spring flows and to a lesser extent, early summer flows. Idaho Power Company is asked to follow plan recommendations. NMFS should release a Biological Opinion for the Hells Canyon Complex that includes Plan recommendations.
- The 427 kaf flow augmentation from the Upper Snake is fully provided. This water is passed through the Hells Canyon Complex to augment early summer flows.
- Lake Roosevelt reservoir elevation is restricted to msl 1220 by mid-April 1 which allows runoff refill for spring flows, Hanford Reach juvenile outmigration protection and summer flows.
- Banks Lake provides 200 kaf in August for flow augmentation and energy production. This volume remains in Lake Roosevelt instead of being pumped into Banks Lake.
- Canadian storage is primarily released in the late winter and early spring in order to leave some storage in Lake Roosevelt for salmon migration and energy needs. An additional 700 kaf from Canadian storage is allocated for downstream flows.
- Libby storage is managed for sturgeon flows and downstream salmon migrations. Libby is drafted to avoid drafting Dworshak, which has temperature control capacity. Libby is

drafted to msl 2325 by the end of May and then refills to msl 2359 by September.

- Hungry Horse is drafted in late winter and spring to msl 3488.5 to provide spring flows and summer storage at downstream reservoirs and then refills to msl 3504 by mid-July.
- Power peaking is restricted to avoid stranding of Hanford Reach juvenile fall chinook, especially during key fry susceptibility period (April 1-30). Fluctuations during this period should not exceed +/- 10 Kcfs during a 24-hour period. Monitoring of the reach during emergence and early migration for impacts and emergency protocols are implemented.
- Power peaking is restricted to avoid impacts to fish ladders and other fish passage facilities and to allow proper conduct of treaty fisheries.

Spill

- Repeatedly, spill has been demonstrated to be the most effective and safest means of juvenile project passage and is the only means to enhance survival in the face of low flows (Fishery Managers 1994). Spill also best protects the beneficial use under the Clean Water Act by providing salmon access to lower temperatures found at depth in the reservoirs instead of the higher temperatures found in dam bypass and transportation systems. Spill also provides safer downstream passage for steelhead kelts and adults that fall back over dams than powerhouse routes.
- The 2000 FCRPS Biological Opinion spring and summer spill should be fully implemented in the Lower Columbia and nighttime spring and summer spill should be implemented in the Snake River.
- The Corps of Engineers should complete their timely application for a total dissolved gas waiver to the appropriate water quality agencies.

Dam Facility Operations and Research.

- Fish facilities should be operated according to CRITFC and other salmon managers' recommendations for the Corps of Engineers 2001 Fish Passage Plan. Inspection of facilities should be increased to daily intervals with tribal participation made possible by the federal operators.
- Fish facilities have full components of spare parts and backup systems, consistent with the salmon managers' 2001 Fish Passage Plan recommendations.
- Monitoring systems for water quality are installed throughout the dams and reservoirs by the federal operators with real-time tracking.
- Mainstem research that involves fish handling and tagging and modification to fish protection measures should be extremely limited and should meet consensus tribal and fishery agency approval.

The CRITFC plan also includes detailed flow and project-by-project, month-by-month elevation recommendations, a detailed 2001 spill program schedule, and a copy of the joint CRITFC/USFWS/ODFW/WDFW/IDFG recommendations on the Corps' Fish Passage Plan. Please refer to the CRITFC operations plan for details.

In general, the intent of this plan is to spread the pain in a very poor water year, rather than dedicating the majority of our resources to one or two species, said Heinith. The tribes haven't formally set species priorities, although Hanford Reach fish and spring migrants are very high priorities. Do you intend to revise this plan, because it contains about 10% more water than it now appears we'll receive this year? Bettin asked. Yes, Kyle Martin replied – in fact, I expect to see these volumes drop another 5% beyond that.

Does this represent a change of direction for the tribe, to an emphasis on juveniles rather than saving some water to help returning adults in the fall? Litchfield asked. I wouldn't characterize it that way, Heinith replied – our intent was to simulate, as nearly as possible, a normative hydrograph for spring migrants.

Heinith asked that the TMT participants review the tribal plan and provide any comments they may have to him. In response to a question from Silverberg, Heinith said the reason the tribes feel that TMT does not work for them is that, particularly since 1996, their recommendations have been ignored in that forum. We are interested in participating a forum in which decisions are made and disputes resolved in such a way that everyone is one equal footing, he said. NMFS will be talking directly with the tribes about the development of these operational priorities, as well as their concerns with the Regional Forum, Ruff replied.

I have jotted down several key areas on which we do not yet have consensus or agreement, based on what I've heard today and from other conversations, said Lamb:

- Snake River transport without spill vs. the tribes' recommendation that the spring spill program be implemented.
- Spring transport from McNary
- Balance of refill for summer flow vs. spring flow augmentation, by project
- End-of-August elevations at each project
- Spill (spring and summer)
- Vernita Bar
- Maintaining 11.7-foot tailwater depth at Bonneville until April 10 vs. the need to store water for use this summer and fall

Heinith suggested that the maintenance of fish facilities (fish ladders and bypass systems) within criteria be added to the above list; he observed that the Corps disagrees with the salmon managers about the need to maintain these facilities within criteria. I'm not sure that issue has the same major, systemwide impact as the five issues listed by Therese, said Turner. I just don't want the fish facility issue to get lost, said Heinith – the juvenile migration season is almost upon us. He said he will provide a report on the status of this issue within the FPOM process at the next TMT meeting. At Nielsen's suggestion, the Vernita Bar minimum flow issue was added to Lamb's list; the 11.7-foot tailwater elevation issue, at Schaller's.

We still need to make a conscious decision about whether to continue to maintain the 11.7-foot Bonneville tailwater elevation through April, or whether a lower elevation would be acceptable in order to conserve water once loads begin to drop later this spring, said Litchfield. It

was agreed that this is one of the highest priorities for resolution on the above list, from a time sensitivity standpoint. Nielsen distributed copies of a letter from the Corps to BPA which indicates that it probably isn't feasible to implement the mechanical redd watering idea this year at Ives/Pierce Islands. It's an option we need to pursue, said Bettin, but the bottom line is, it doesn't appear feasible for this year.

After a few minutes of further discussion, the TMT recommended that the 11.7-foot tailwater elevation below Bonneville be maintained until one week from today, with additional flows from Dworshak as needed to maintain that minimum tailwater elevation; this operation will then be re-evaluated at next week's TMT conference call. The fish are emerging, said Wagner; it doesn't appear that it will be necessary to continue the 11.7-foot tailwater operation for much longer

We will hold the headwater storage projects at minimum discharge through February 28, except as needed to maintain the 11.7-foot minimum tailwater elevation at Bonneville, or for power system needs, or to avoid drafting Grand Coulee by more than 1.5 feet per day, Turner said. I'm not prepared to agree to that operation until I talk to some people back in Idaho, said Steve Pettit. We could also agree to maintain the 11.7-foot tailwater elevation below Bonneville until it becomes necessary to increase discharge at Dworshak, at which point we would convene a TMT conference call, Bettin suggested.

After a brief caucus break, Pettit said he had spoken to IDFG's director and anadromous fish manager; IDFG's position is that they are unwilling to use Dworshak to maintain the 11.7-foot minimum tailwater elevation below Bonneville for chum. If it's a power emergency, of course, all bets are off, but Idaho opposes increasing discharge from Dworshak to protect chum at this time, Pettit said. Heinith and Greg Haller said the CRITFC and Nez Perce tribes also agree that Dworshak not be drafted to protect chum at this point in the season.

Where does that leave us? Silverberg asked. Nielsen said Washington is willing to support the idea of maintaining the 11.7-foot minimum elevation below Bonneville until an additional draft from Dworshak becomes necessary, at which point a TMT conference call will be convened. In that case, said Turner, through February 28, the action agencies will continue to release minimum outflow from Dworshak; drop Hungry Horse outflow to 2.7 Kcfs, the minimum necessary to maintain the flow at Columbia Falls; and, reduce Libby discharge to 6 Kcfs as soon as possible. If it becomes necessary to increase Dworshak discharge in order to maintain the 11.7-foot minimum tailwater elevation below Bonneville, the Corps will convene an emergency TMT conference call, Turner said.

What's the point of a conference call, given the fact that we have a fundamental disagreement on this issue, and the position of the agencies here is unlikely to change? Litchfield asked. It will give me an opportunity to reconfirm that with policy people in Washington, Nielsen replied. In response to a question from Turner, Ruff said NMFS supports maintaining the 11.7-foot minimum tailwater elevation below Bonneville, up to the point that it would be necessary to increase Dworshak outflow to maintain it. So is there a need for an emergency call? Silverberg asked. After a few minutes of additional discussion it was agreed that an emergency

call would be warranted under those circumstances. It was observed that other options beyond drafting Dworshak, such as drafting Grand Coulee below elevation 1225 or changing the operation at Bonneville, exist.

I would like the record to show Grant County PUD is concerned about continuing to draft Grand Coulee for chum, because of the impacts of this operation on Hanford Reach flows this spring, said Richelle Harding.

5. Review of Water Management Plan.

It was agreed to defer discussion of this item until the March 7 TMT meeting.

6. Update on NWPPC Request for TMT Decision Rationale.

It was agreed to defer discussion of this item until the March 7 TMT meeting.

7. Other.

A. EPA Temperature Model. Mary Lou Soscia said EPA had agreed to model the operational scenarios provided by Bonneville for the summer period to give us a preliminary idea of what kind of temperatures we might see; she distributed a handout showing the results of these model runs.

There were three scenarios, Soscia said, we used the 1977, 1994 and 1998 water and temperature years as the basis for those runs. The bottom line, she said, is that we are likely to see very high temperatures this year, particularly at Bonneville – up to 23.5 degrees C. The different cases and scenario years provided by BPA do not show wide variation in predicted temperatures; however, the choice of sample year (1977, 1994, 1998 etc.) does change the predicted temperatures noticeably. The EPA model work also indicates that Grand Coulee flows will be particularly important this year. What about the impact of Dworshak and Brownlee operations? Litchfield asked. I definitely think how those projects are used this year could have a noticeable effect on temperatures, Soscia replied.

Ruff noted that this is a good example of the kind of information the new modeling tools can give us; as runoff shape and volume, weather conditions and system operations become clearer as the season progresses, we will be able to obtain more precise information to aid our decision-making, he said. Can we get that data from the action agencies, as the operational strategies are set? Soscia asked. There was general agreement that this would be possible. Bob Heinith said the Tribes are recommending some very specific flows from Dworshak this summer; he asked whether EPA could model the temperature effects of that operation. We will be happy to do so, Soscia replied.

Turner suggested that this issue – the development of various operational and runoff scenarios for water quality modeling – be added to the March 7 TMT meeting agenda. There was general agreement that this would be useful. Soscia said she will ensure that EPA's Ben Coates attends the March 7 TMT meeting. Lamb said she is somewhat concerned about the delay

inherent in this process; BPA's hope is that the TMT can develop a long-term system operational strategy by March 2, and this issue will not even be discussed again until March 7. We can certainly lay out some general priorities – saving water for use later in the summer period vs. using that water for flow augmentation this spring, for example, Litchfield said. We could also attempt to reach agreement on an operational strategy, and agree to modify that strategy as needed as further information comes in, Lamb said.

8. Next TMT Meeting Date.

After some discussion about how to most efficiently conduct TMT business next week, it was agreed to cancel the TMT conference call which had been planned for 1 p.m. Wednesday, February 28; it was further agreed that there will be additional discussion of TMT-related items at the March 1 IT meeting next week. The next face-to-face meeting of the Technical Management Team was set for 9 a.m.-noon on Wednesday, March 7. Meeting notes prepared by Jeff Kuechle, BPA contractor.

TMT PARTICIPANT LIST

February 21, 2001

Jeff Knechle	BPA Contractor	503/203-1284
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TECHNICAL MANAGEMENT TEAM

BOR: Pat McGrane\Lori Postlethwait

NMFS: Paul Wagner\Chris Ross BPA: Scott Bettin\Robyn MacKay

USFWS: Howard Schaller\Bob Hallock\Susan Martin

OR: Christine Mallette WA: Jim Nielsen ID: Steve Pettit

MT: Jim Litchfield COE: Cindy Henriksen\Rudd Turner\Dick Cassidy

Joint IT/TMT Meeting

March 7, 2001 0900 - 1200 hours PST

Custom House Portland, Oregon

Room 118

All members are encouraged to call Donna Silverberg with any issues or concerns they would like to see addressed. Please e-mail her at dsilverberg@cnnw.net or call her at (503) 248-4703.

AGENDA

1. Welcome, introductions.
2. Review current system conditions.
    - Reservoir operation and water supply (COE, BOR)
    - Power system status (BPA)
    - Chum emergence status (WDFW)
    - Fish status (NMFS)
3. Review operations requests.
4. Develop recommended operations.
5. Continue developing a 2001 system operation strategy.
    - Present additional proposals (WA, OR)
    - Discuss and seek areas of agreement on proposals to date
        - balance of summer vs. spring flow (conclude discussion)

- Vernita Bar
- transport -- Snake River and McNary
- spill
- end of June, end of August elevations, by project
- research, monitoring, and evaluations
- fish facilities

6. Review Water Management Plan.
    - Main Report (draft dated 2/26/01)
    - Appendix 4, TMT Guidelines
7. Update: NPPC requests for TMT decision rationale (Silverberg).
8. Other.
    - Set agenda for next meeting. Next TMT meeting on 21 March.

Meet-me number is 503-808-5190. Questions about the meeting may be referred to Cindy Henriksen, (503) 808-3945, or Rudd Turner, (503) 808-3935.

TECHNICAL MANAGEMENT TEAM
MEETING NOTES

March 7, 2001, 9:00 a.m.-12:30 p.m.

CORPS OF ENGINEERS NORTHWESTERN DIVISION HEADQUARTERS
PORTLAND, OREGON

I. Greetings, Introductions and Review of the Agenda.

The March 7, 2001 meeting of the Technical Management Team, held at the Corps of Engineers' Northwest Division headquarters in Portland, Oregon, was chaired by Rudd Turner of the Corps and facilitated by Donna Silverberg. The agenda for the March 7 meeting and a list of attendees are attached as Enclosures A and B. Please note that this is a summary, not a verbatim transcript, of items discussed and decisions made at today's meeting; copies of any enclosures referenced can be obtained by calling Kathy Ceballos at 503/230-5420.

2. Current System Conditions.

Turner reported that the current system operational objective is to maintain the 11.5-foot tailwater elevation below Bonneville to support the chum emergence. With the warmer weather conditions and reduced power system demand, he said, the flows resulting from this operation are to support chum emergence, rather than power production. The current flow at Bonneville is in the high 120 Kcfs range; Grand Coulee is drafting by about one foot per day to maintain that flow level at Bonneville, Turner said. Dworshak forebay elevation has held steady over the past week at 1501.9; Dworshak continues to release 1.5 Kcfs with inflows in the 1.0-1.6 Kcfs range. Turner said Libby elevation is currently 2389.9 feet; outflow is in the process of being reduced from 4.5 Kcfs to 4 Kcfs outflow. At 4.5 Kcfs outflow, Libby is drafting about 2/10 of a foot per day. In response to a question, Turner said Albeni Falls elevation is now 2053.5 feet.

Turner said there is no new information on the water supply situation; the March final forecast will be available tomorrow, according to the River Forecast Center. As everyone here is aware, he said, we're looking at less than 60 MAF in January-July runoff at The Dalles, so the basin is experiencing an extremely low runoff year.

Turner went briefly through the basin-by-basin reductions predicted in the March early-bird water supply forecast, as well as an updated set of water supply curves for the headwater storage projects. Turner said there is now only a 37% chance Hungry Horse will refill to elevation 3459 feet, 20 feet from full, by June 30; there is only a 2% probability that Libby will refill completely in 2001.

Jim Litchfield objected to characterizing the Libby and Hungry Horse operations as "refill;" he asked whether there might be some other way to characterize the planned operations at these projects.

Pat McGrane reported that Grand Coulee is currently at elevation 1224.5 feet, with a current inflow of 73 Kcfs and outflow of 91 Kcfs. Hungry Horse is now at elevation 3497. With respect to the other Reclamation basins, said McGrane, precipitation continues to be dismal; in the Boise, Reclamation is now predicting that those projects will fall as much as 400 KAF short of refill. Reclamation's Payette Basin projects are expected to miss full refill by up to 200 KAF; Reclamation's Upper Snake projects, by up to 500 KAF. These are the basins that provide the 427 KAF, remember, said McGrane – we will be scrounging to find the 427 KAF, given the fact that we're predicting that there will be no water available in the rental pools this year.

What's the probability Grand Coulee will refill this year? Turner asked. We've been doing various model runs, McGrane replied; when you plug in the 1977 water year, and assume 65 Kcfs at Vernita Bar through June; we will fail to refill Grand Coulee by 20 feet on June 30.

It sounds as though there may be a problem in securing the 427 KAF this year, Ron Boyce observed. We're searching for it, McGrane agreed; there is 313 KAF in potential power head, plus some Reclamation storage. In the past, we've depended heavily on water rentals, McGrane said; this year, it doesn't look like there will be any water available to rent. So far, there is zero rental storage in the system.

Has Reclamation discussed the possibility of delivering some of the Upper Snake water through Brownlee? Boyce asked. We've discussed the fact that we need to have those discussions, but there is no contract in place at this point, Jim Fodrea replied. What is the status of the Hells Canyon BiOp consultations? Boyce asked. Ongoing, Jim Ruff replied – we're hoping to complete them by April 1. Will those consultations resolve the Upper Snake water delivery question? Boyce asked. Yes and no, Ruff replied – the BiOp will address the delivery of the Upper Snake water, but the shaping question will be resolved through the FERC relicensing negotiations.

It's fair to say that the amount of water Reclamation can secure will make it down to the migration corridor, said Fodrea; whether or not Idaho Power will shape that water is still being negotiated. Scott Bettin added that BPA is not interested in contracting with Idaho Power for the shaping of that water in 2001; instead, that issue will be covered in IPC's FERC license.

Therese Lamb then distributed BPA's "Updated 2001 Power and Operations Outlook" presentation, dated March 7. She noted that this presentation is also being made at today's Council meeting. We have re-run the contingency operation, as well as some new load studies, Lamb said; what became clear is that there are some definite "break points" in terms of our ability to stay financially solvent and our ability to deliver spill.

Lamb spent a few minutes going through the contents of this handout, beginning with the updated water situation. Basically, we're on a death spiral, in terms of the water supply situation, she said. Does that mean we're on course for a water year worse than 1977? she asked. If you look at the current Columbia Basin snow pack, which is 53% of average, then assume the lowest streamflows on record for March, April, May and June, we would end up at 51.3 MAF at The

Dalles for January-July, slightly lower than the record 53.8 MAF of 1977. Basically, said Lamb, given the precipitation pattern we've seen so far this winter, it is unlikely that we will drop below the 1977 level.

Lamb went through the efforts Bonneville has made to reduce load so far this winter, then moved on to a summary of operational scenarios:

Proposed Contingency Operation:

- April/May – meet Vernita Bar minimum flow
- Grand Coulee: Partial June refill to 1283 feet, end August at 1278 feet
- Dworshak: partial June refill to 1580 feet; end August at 1520 feet
- Hungry Horse: run minimum making sure to end August at 3540 feet (shape any excess water into August)
- Libby: run 4 Kcfs March through May, 6 Kcfs June through August. End August at 2439 feet (shape any excess water into April 11 through May)
- April 15-June spill: full at Bonneville, 40% at The Dalles, minimum spill levels at other projects
- July-August spill: minimum at all projects

Meet Load Study:

- FCRPS operated to meet load demands
- Assumed no spill
- Did not operate to meet any flow objectives
- Any additional water beyond what is needed to meet load was stored at upriver projects

This assumes no flow augmentation from the Upper Snake or Brownlee? Boyce asked. The 427 KAF was assumed in this study, but there was no shaping from Brownlee, Bettin replied. There was some assumption that Brownlee will draft to a certain elevation during the summer for power, but I don't know what that elevation is, Robyn MacKay added.

Lamb said that, under the contingency operation, the mean of the scenarios run (1951, 1959, 1960, 1967, 1973, 1982, 1987 and 1991) shows 59.3 MAF at The Dalles. Given that volume, flows at the project would peak at 70 Kcfs in late May, then fall to 20 Kcfs by mid-August. At McNary, flows would peak at just over 160 Kcfs in early June, then recede gradually to about 85 Kcfs by August 31. Under the "meet load" scenario, said Lamb, flows at Lower Granite would peak at about 70 Kcfs in late May, then recede gradually to 20 Kcfs by the end of August; at McNary, flows would peak at about 145 Kcfs in early June, then recede gradually to about 75 Kcfs by late August.

Moving on to BPA financial studies, Lamb said the bottom line here is that, under the proposed contingency operation, Bonneville is now estimating that there is a 45.8% chance that the agency's cash reserves could fall below zero by September 1. Under the "meet load" scenario, there is only a 0.5% chance of that occurring. Under the assumption of a 67 MAF

runoff year, the contingency operation met all of our financial criteria, Lamb said. Under the current runoff assumption of a runoff volume of 59 MAF at The Dalles, that is no longer true, she said – the proposed contingency operation would take us to a negative cash flow position, while under the "meet load" scenario, BPA would end FY'01 with fiscal reserves in the $450 million range. If you run the study with an assumed runoff volume of 52.7 MAF at The Dalles, Lamb said, under the proposed contingency operation, there is a 42.4% probability that BPA could drop below zero cash reserves by June 1, a 92% chance by July 1 and a 100% chance by August 1 and September 1.

Obviously, said Jim Nielsen, BPA's financial situation is going to make it extremely difficult to make an unbiased, reasoned decision about what's best for fish. Good point, said Jim Litchfield.

Lamb touched on a summary of the effects of the "meet load" and potential contingency operations on BPA's 2002 financials, then provided further details on the financial aspects of and spill volumes provided under the "meet load" and proposed contingency operations. Please refer to Pages 11-12 of BPA's "Updated 2001 Power and Operations Outlook" presentation, dated March 7 (available via the TMT website) for details.

Lamb then summarized the issue at hand as follows:

If a greater than 53 MAF condition materializes, the region will have several choices about how to operate the system:

- Draft storage reservoirs deeper to enhance summer flows
- spill to improve fish passage and survival
- generate energy and revenue to build cash reserves and avoid cash flow issues in fiscal years 2001 and 2002
- Store water in excess to that required to meet load to enhance 2002 reliability, 2002 conditions for fish and cash flow for FY'2002

53 MAF is the threshold at which BPA cannot simultaneously maintain financial solvency, meet firm load, maintain any spill for fish and keep reservoirs from drafting below summer limits.

Even with a substantial rate increase on October 1, 2001, BPA has a cash flow problem in the first 6 months of the new rate period.

Lamb then provided the following conclusions from the BPA analysis:

- The federal agencies have drafted "Proposed Principals for 2001 FCRPS Operations" and are soliciting feedback from regional parties through IT, TMT and other forums
- The draft principals currently out for review contain proposed operational priorities for 2001
- The basic risk management objective in these principals is to avoid failure in the three risk areas of biological harm to fish, power system reliability and BPA financial health.

- The operation under these principals will be dynamic and will change as conditions change.
- The Federal Executives recognize the importance of engaging the region on operating priorities and principals during this difficult condition and will endeavor to do so.

The bottom line is that the proposed contingency operation will not meet BPA's financial criteria, unless we see a substantial increase in Columbia Basin water supply this spring, said Lamb.

So what happens if we do get a 53 MAF runoff year? Litchfield asked. Turner observed that the most recent RFC forecast shows a runoff volume at The Dalles of 58.6 MAF if we get normal precipitation from here on out; if precipitation is only 75% of normal, however, the RFC is estimating a runoff volume of only 51.3 MAF at The Dalles. In other words, Litchfield observed, the amount of precipitation the basin receives between now and June is critical to both runoff volume and BPA's financial health. To answer Jim's question, said Lamb, what we're looking at is a risk management exercise from here on out – how much risk are we willing to assume in terms of planning for a given runoff volume?

Basically, the Corps is proposing that we assume a 1977 runoff volume, said Ruff; it will then be up to the TMT to recommend how any volume we receive over and above that level is used.

The discussion then moved on to the status of the chum emergence. Nielsen reported that, according to the most recent field observations, 51 chum fry were taken in the beach seining operation on March 6, up from the 28 fry captured during last week's seine. They saw other fry in the water that they didn't catch, he said. Based on these results, he said, it is safe to say that emergence is still on the increase. Nielsen added that, as a general observation, the 11.5-foot tailwater elevation at Bonneville did not result in any more redds being totally isolated from the river than did the 11.7-foot tailwater, but the water over the redds on the margin of the river was significantly shallower. He added that more monitoring is planned for later this week. In response to a question from Kyle Martin, Howard Schaller said the Fish and Wildlife Service is estimating that the chum emergence will be at just over the halfway point by the end of this week.

How many redds are in the "close" area? Litchfield asked. A lot, Schaller replied. Paul Wagner suggested that, given the fact that the TMT is at a crucial decision-point regarding whether or not to continue the chum operation, it would be helpful for Washington and USFWS to step up their seining and fike net efforts. Schaller replied that financial constraints may preclude this increased effort; Nielsen said he will inquire within his agency about the potential for more intensive emergence monitoring.

The Hardy Creek trap has caught zero fry to date, said Dave Wills; the Hamilton Springs trap has caught five fry. In other words, said Schaller, the timing of chum emergence from these systems is similar to last year's.

3. New System Operational Requests.

On March 2, the Corps received System Operational Request 2001-2. This SOR, supported by ODFW, USFWS, CRITFC, WDFW and NMFS, requests the following specific operations:

- The salmon managers are requesting the following fishery operations at the Bonneville Project for up to 10 days (beginning March 9) following the March 8 Spring Creek Hatchery tule fall chinook release:
- No operation of unscreened units at Bonneville Powerhouse I or II and follow the turbine operating priority in the Fish Passage Plan
- Operate Powerhouse II as first priority. Fully load PHII before operating PHI
- Spill 55 Kcfs or up to the 120% TDG level as measured at the Warrendale monitor, assuming a minimum tailwater elevation of 11.5 feet 24 hours a day, while maintaining a level of 105% TDG (factored for depth compensation) at Ives gauge 3 (highest submerged redd at 11.5 feet tailwater).
- Operate Bonneville II ice and trash sluiceway
- Operate turbine units within 1% of peak efficiency
- Operate juvenile and adult facilities according to criteria
- These operations are to begin at 2000 hours on March 9, 2001 and continue up to 2000 hours on March 19, 2001.

Christine Mallette spent a few minutes going through the specifications of and justification for this SOR, the full text of which is available via the TNT website.

Turner noted that the repairs to the Bon PH2 DSM slide gate will be completed by tomorrow, as will the installation of screens.

Scott Bettin observed that it probably makes sense to consider the chum operation and the Spring Creek Hatchery spill request in tandem; he added that there has been some discussion among the federal parties of reducing the Bonneville tailwater depth to 11.3 feet. We are discharging approximately 30 Kcfs for chum at the moment, over and above what we would be releasing to support power production, Bettin said; without the chum operation, flows at Bonneville would be in the 100 Kcfs range. He added that 30 Kcfs is equivalent to the volume needed to generate 1,500 MW. That is not a trivial amount of money, Litchfield observed.

It boils down to a risk preference, said Lamb – the least-risky approach, for Bonneville, is to go immediately to a “meet load” operation. We’re not suggesting that we should do that at this point, said Lamb, but that is the least-risky operational scenario currently on the table.

If we’re in a 53 MAF runoff year, the impact of such a reduction in flow would be insignificant on BPA’s financial health, Schaller observed. In a 53 MAF runoff year, our options definitely narrow, Lamb replied.

I think it’s time to face reality, said Litchfield – this is a very poor water year, and the current chum operation is significantly impacting our options later in the year. We’re selling

1,500 MW of power now when the prices are down, meaning that BPA will then need to purchase power later in the summer, when power prices are much, much higher.

We have to make the call about ending the chum operation at some point, said Wagner, but in NMFS' view, given the status of the chum emergence and the fact that we've stuck with this operation this long, that time isn't quite at hand. Instead, the federal parties have been discussing a rampdown to an 11.3-foot tailwater depth at Bonneville, which, given the current tidal situation, would require a flow of about 120 Kcfs at Bonneville to maintain. We will continue to monitor emergence, he said, and if seine catches begin to decline, we can convene a call to discuss ending the chum operation. That's what the Corps would propose, said Turner – go to a tailwater elevation of 11.3 feet at Bonneville, hold it through the weekend and continue to monitor. We should probably plan to have a conference call on Monday, he added, to discuss both monitoring results and the Spring Creek operation.

Bettin said Bonneville is willing to spill 50 Kcfs for 24 hours in support of the Spring Creek Hatchery release. If the salmon managers want, he said, it would be possible to shape that spill – 25 Kcfs over two days. We realize the significance of this run, he said, but given the presentation you've heard today, this is all the spill BPA can commit to. In response to a question from Litchfield, Bettin said that, at current market prices, 50 Kcfs of spill for 24 hours will cost BPA about $2 million.

After a brief caucus break, Mallette said that given the conditions on Oregon's support of this SOR and the fact that Spring Creek is a federal facility, she would defer to the Fish and Wildlife Service for a recommendation on the Spring Creek Hatchery spill operation. Wills said the Fish and Wildlife Service requests that spill begin the morning of March 10 and continue for 48 hours through Monday morning, at a volume of 50 Kcfs. That volume is not available to you, Bettin said – until this morning, you were going to get zero spill. You can shape the 50 Kcfs over two days, at a rate of 25 Kcfs, but we can't give you 48 hours of 50 Kcfs spill. We ask that you take our request back to BPA and let us know, Schaller said. Bettin agreed to do so, but said it will make no difference – this is BPA's proposal.

We'll have to go back and think about BPA's proposal, said Schaller – we need some additional time to consider how best to use the available spill volume. In the meantime, he said, we would still like BPA to consider our request. I understand, said Bettin. It was agreed that BPA will discuss this issue directly with the Fish and Wildlife Service later today or tomorrow.

With respect to the other requests in this SOR, Turner said it should be possible to keep the fish passage facilities in criteria for longer than two days; it should also be possible to meet all of the other operational specifications requested, with the possible exception of the ice and trash sluiceway operation. With respect to the latter, erosion at the discharge point is a concern, so Bonneville project personnel will be monitoring that problem.

The discussion then returned to the chum operation; Silverberg recapped the federal proposal as follows: maintain an 11.3-foot Bonneville tailwater depth during the day, then increase tailwater depth to 11.5 for six hours at night. This operation would continue through this

weekend. As Grand Coulee nears elevation 1220, said Lamb, we will need to reevaluate, and decide whether or not to increase discharge from Dworshak to maintain the chum operation. It was agreed that it will likely be necessary to convene a TMT conference call on Monday to discuss this operation.

We should probably decide what our preferred operation will be once Grand Coulee hits elevation 1220, said MacKay. In response to a question, McGrane said Grand Coulee outflow will likely drop by about 13 Kcfs once elevation 1220 is achieved.

The group discussed the priority of which headwater storage project or projects should increase discharge first once Grand Coulee reaches elevation 1220. Wagner said that, as stated at a previous meeting, NMFS is unwilling to increase Dworshak outflow in order to maintain the chum protection operation once Grand Coulee reaches elevation 1220. In response to a question from Ron Boyce, Lamb said the 1220-foot elevation floor at Grand Coulee is a hard system reliability constraint.

Boyce suggested that this is probably a conversation better-suited to TMT's Monday conference call. In the interim, it was agreed to implement the suggested federal operation at Bonneville beginning immediately, dropping to a tailwater elevation of 11.3 feet during daytime hours and increasing the tailwater elevation to 11.5 feet for six hours during nighttime hours through the weekend.

I am uncomfortable with leaving today's meeting without a contingency plan for which projects we're going to turn on once Grand Coulee reaches elevation 1220, said MacKay. I believe the federal proposal specifies that no headwater projects will increase discharge to maintain the chum operation once Grand Coulee reaches elevation 1220, said Nielsen. In that case, said Steve Pettit, it's not a salmon managers' decision – the action agencies just need to make that decision on a power operations basis. Litchfield reiterated his suggestion that Dworshak, Libby and Hungry Horse be drafted proportionately, based on their probability of refill.

Is there agreement with NMFS' suggestion that, once Grand Coulee reaches elevation 1220, the chum protection operation is over, and discharge from the headwater storage projects will not be increased to maintain it? Turner asked. No objections were raised to Turner's characterization, given the critical water supply situation this year.

Boyce made the point that, if the chum operation is discontinued once Grand Coulee reaches elevation 1220 feet, that would be for power purposes, because of the system reliability floor at that project. Have the action agencies investigated all possible sources of water in the U.S. and Canada that would allow us to maintain the chum operation a little longer? he asked. Yes, we have, Lamb replied; the answer is no.

We also need to decide on the drafting priority for the headwater storage projects in order to meet load once Grand Coulee reaches elevation 1220 feet, Turner said. After a few minutes of discussion, it was agreed that the Corps, Reclamation and BPA will make a decision about which

projects will be drafted first once Grand Coulee reaches elevation 1220 feet. Wagner reiterated that NMFS regards Dworshak as the lowest available priority. The operating agencies will let you know once that decision is made, MacKay said.

In response to a question from Lamb, Nielsen said Washington's operational proposal will be available by this Friday; he said he will provide a copy to Turner for posting to the TMT website. Boyce said there is a meeting next Tuesday to discuss the Oregon plan; hopefully it will be available by next week.

4. Recommended Operations.

Recommended operations were addressed during the previous agenda item.

5. Continued Development of 2001 System Operation Strategy.

Discussion of this agenda item was deferred until a future TMT meeting.

6. Review of Water Management Plan.

Discussion of this agenda item was deferred until a future TMT meeting.

7. Update on NWPPC Request for TMT Decision Rationale.

Discussion of this agenda item was deferred until a future TMT meeting.

8. Next TMT Meeting Date.

It was agreed to convene a conference call at 2 p.m. Monday, March 12 to discuss system operations once Grand Coulee reaches elevation 1220 feet. It was further agreed to convene an IT/TMT meeting for 10 a.m. Wednesday, March 14. The next face-to-face meeting of the Technical Management Team was set for Wednesday, March 21 from 1 p.m. to 4 p.m. Meeting notes prepared by Jeff Kuechle, BPA contractor.

TECHNICAL
MANAGEMENT TEAM MEETING NOTES

March 12, 2001, 2:00 p.m.-4 p.m.

CORPS OF ENGINEERS NORTHWESTERN DIVISION HEADQUARTERS
PORTLAND, OREGON

I. Greetings, Introductions and Review of the Agenda.

The March 12, 2001 conference call of the Technical Management Team, held at the Corps of Engineers' Northwest Division headquarters in Portland, Oregon, was chaired by Rudd Turner of the Corps and facilitated by Donna Silverberg. Please note that this is a summary, not a verbatim transcript, of items discussed and decisions made at today's meeting.

2. Continued Discussion of Current System Conditions, Spring Creek Hatchery Spill and Chum Salmon Protection Operation.

Turner reported that, in support of the Spring Creek hatchery release, the Bonneville ice and trash chute was opened up Friday night; with the exception of the spill operation, the other specifications of SOR 2001-2 were implemented as requested on Friday afternoon. The water cannon at the end of the outfall was made operational on Saturday.

With respect to spill, said Turner, the action agencies and the Fish and Wildlife Service agreed to three 12-hour periods of 50 Kcfs spill at Bonneville from 6 p.m. to 6 a.m. on March 10, 11 and 12. The actual spill levels has been just over 47 Kcfs, he said, because we instructed the project not to exceed 50 Kcfs. For technical reasons, we ended up at just over 47 Kcfs, Turner said.

Turner said field personnel were out Saturday night, looking at dissolved gas readings; in general, the dissolved gas readings have stayed within the acceptable range – 103%-104% in Bonneville forebay; up to 111% at Camas/Washougal and just under 102% over the chum redds. We have been holding tailwater at 11.3 feet for 18 hours a day, then going up to 11.5 feet from 9 p.m. to 3 a.m., said Turner, adding that day-average flow at Bonneville has been about 117 Kcfs since this operation began.

With respect to dissolved gas, said Howard Schaller, our readings from the boat were consistent with what Rudd laid out. Near the fike net, the readings were about 100%; they were higher near the Oregon shore. In the channel between Ives and Pierce Islands, we saw TDG levels in the ambient water of about 101%. They sampled today for gas bubble disease, Schaller added; in 104 fish sampled, we saw no signs of GBD.

The other thing we noticed this weekend, when we walked the chum area at night, is that in the edge redds, almost all of them had newly-emerged chum that would swim back into the gravel when they saw our flashlights, Schaller said. And what do you take that to mean? Silverberg asked. We'll talk about that during the chum discussion later in today's meeting, Schaller replied.

Again, we intend to continue the non-spill operations laid out in SOR 2001-2 through March 19, said Turner. Do you have any collection numbers at Powerhouse I? Scott Bettin asked. Margaret Filardo replied that no fish have been collected at Powerhouse I to date, which is not unexpected. We might have an incomplete sample by tomorrow, she said; we do have some observational information that the gulls were working the tailrace pretty heavily under the bird wires. They have also had no trouble collecting fish for the GBD monitoring, she said, so the fish are out there – we're just not able to give you quantitative numbers at this point.

Turner noted for the record that Jim Litchfield sent an email expressing the fact that the State of Montana objects to the spill that is occurring at Bonneville at this time, given the flow situation this year and the power cost. Since this spill is occurring in support of a non-listed hatchery species, Montana objects to this operation in 2001, Turner said.

Silverberg asked whether anyone of the other TMT participants objects to the spill operation, the final round of which is scheduled to take place tonight. None being heard, Silverberg said she will interpret silence as acquiescence.

Moving on to chum operations, Turner reiterated that the system is currently being operated to maintain a tailwater depth of 11.3 feet for 18 hours a day at Bonneville, going up to a depth of 11.5 feet for six hours at night. Grand Coulee continues to draft slightly, and is currently at elevation 1223. Dworshak, Libby, and Hungry Horse are still at minimum outflow. Will Grand Coulee go below 1220 this week? Kyle Martin asked. It depends on the tides and how much water we need to put out, Robyn MacKay replied; it does look like we're headed in that direction. We'll be drafting Grand Coulee across the week to get the lower river full again for the weekend operation, she added – I would say by the end of this week or early next week we will hit elevation 1220 at Grand Coulee. We will be drafting about half a foot per day, roughly, this week, she said, adding that the action agencies' objective is to avoid having to draft Grand Coulee over the weekend at a time when they would be having to sell power heavily. How much we have to fill the lower river projects this week will depend on where each of the lower river projects are, currently. Schaller said this might be critical information in deciding on the operation over the next few days.

After a moment's search, MacKay said it looks as though there will be a need to fill about one foot into Bonneville and John Day pools and 1.5 feet into The Dalles pool prior to this weekend. In response to a question, Paul Wagner said the tides are currently in a receding mode. He added that there has been some discussion among the federal parties of holding the Bonneville tailwater elevation at 11.3 feet around the clock over the next week. We're moving into a period in which there will be almost no net change in elevation from high tide to low, Wagner said; when that occurred last month, it was necessary to release upwards of 130 Kcfs

from Bonneville to maintain the 11.5-foot tailwater elevation. It sounds as though we would need to run about 125 Kcfs at Bonneville to maintain the 11.3-foot tailwater elevation, said MacKay; given that fact, you can probably assume that we'll hit elevation 1220 at Grand Coulee by Friday.

Do you have a solution? Silverberg asked. You can't draft Grand Coulee and the lower river projects to empty on Monday morning and expect to meet load, MacKay replied; we can declare an emergency, and begin drafting Dworshak, or we can cancel the chum operation – that's the physical relationship we're dealing with.

Jim Nielsen then provided some seining results from last week's field surveys at the chum spawning area. He said 56 chum were captured last Tuesday, March 6; 537 were captured on Friday March 9, and about 100 were captured during this morning's seine. That's a total for the seven seining sites? Turner asked. Correct, Nielsen replied.

Wagner said NMFS personnel have been discussing this issue; there is general agreement within the agency to maintain the 11.3-foot tailwater elevation below Bonneville around the clock through this Wednesday, at which point it will be re-evaluated at the TMT meeting. He added that, given the need to maintain an operating range at Grand Coulee, there has also been some debate at NMFS about whether elevation 1220, or elevation 1221, is really the floor at that project. My preference would be to set elevation 1221 as the floor, because that does give us some flexibility, MacKay replied. Pat McGrane said Reclamation doesn't have a strong preference either way, but would probably prefer to set the floor at 1221.

So how far along are we on the chum emergence? Bettin asked. Based on the information Jim has provided, and the fact that we saw one sac fry in our field surveys over the weekend, we're probably at about the 50% emergence point at this time, Schaller replied; we'll be at the 65%-70% point by about a week from now.

McGrane suggested that, given everything he has heard today, it probably makes sense for the chum operation end on Friday. Turner suggested that the group attempt to get as far along as possible on the short-term operation today, to allow the TMT and IT to concentrate on long-term planning at their meeting on Wednesday. Schaller suggested that the Wednesday agenda address long-term planning first, then move on to the short-term operation in the afternoon.

It sounds as though elevation 1220 is the absolute floor at Grand Coulee, although the action agencies would prefer elevation 1221, said Wagner. Really, at this point, we need to talk about feathering in the ending elevation, he said. Bonneville and Reclamation need some flexibility as to how and when they reach elevation 1220 at Grand Coulee, Turner observed.

Bettin noted that, if there is agreement to cut off the chum operation on Friday, it will be possible to drop lower river flows significantly – we'll only need to run about 80 Kcfs at Bonneville over the weekend in order to meet load, and at that point, we can start storing at the upriver projects, he said.

Basically, if we want to continue the chum operation past the end of this week, we have to talk about drafting other projects besides Grand Coulee, said MacKay. After a few minutes of additional discussion, Turner suggested that the system be operated to maintain 11.3 feet of tailwater elevation at Bonneville until Grand Coulee reaches elevation 1221; at that point, BPA and Reclamation will work together to gradually ramp flows down until Grand Coulee reaches elevation 1220. The idea is that this would make the recession in Bonneville tailwater more gradual, on the order of 2/10 or 3/10 of a foot per day, Wagner said.

What would weekday average flows be if we weren't doing the chum operation? Wagner asked. We would likely be running between 100 Kcfs and 105 Kcfs at Bonneville to meet load this week, MacKay replied.

Ultimately, Silverberg summarized the proposed operation as follows: maintain a Bonneville tailwater elevation of 11.3 feet 24 hours per day until Grand Coulee elevation reaches 1221; at that point, Reclamation and Bonneville will develop a rampdown operation to gradually achieve elevation 1220. This operation will be revisited at Wednesday's TMT/IT meeting.

Christine Mallette said for the record that Oregon would prefer to see the chum operation continue for as long as possible this year, and would urge the action agencies to seek all possible alternative sources of water to support this operation, in particular, additional Canadian storage. There is additional water in Dworshak if Oregon feels strongly that the chum operation needs to continue beyond this weekend, said MacKay. No TMT members responded in support of this suggestion.

The group briefly discussed the agenda for this Wednesday's TMT/IT meeting. With that, the conference call was adjourned. Minutes prepared by Jeff Kuechle, BPA contractor.

TECHNICAL MANAGEMENT TEAM

BOR: Pat McGrane\Lori Postlethwait

NMFS: Paul Wagner\Chris Ross BPA: Scott Bettin\Robyn MacKay

USFWS: Howard Schaller\Bob Hallock\Susan Martin

OR: Christine Mallette WA: Jim Nielsen ID: Steve Pettit

MT: Jim Litchfield COE: Cindy Henriksen\Rudd Turner\Dick Cassidy

Joint IT/TMT Meeting

March 14, 2001 1000 - 1600 hours PST

Custom House Portland, Oregon

Room 210 (Executive Conference Room)

All members are encouraged to call Donna Silverberg with any issues or concerns they would like to see addressed. Please e-mail her at dsilverberg@cnnw.net or call her at (503) 248-4703.

AGENDA

Presented at meeting.

Meet-me number is 503-808-5190. Questions about the meeting may be referred to Cindy Henriksen, (503) 808-3945, or Rudd Turner, (503) 808-3935.

COLUMBIA RIVER REGIONAL FORUM

IMPLEMENTATION TEAM/TECHNICAL MANAGEMENT TEAM MEETING NOTES
March 14, 2001, 10:00 a.m. - 4:00 p.m.
CORPS OF ENGINEERS NORTHWESTERN DIVISION OFFICES – CUSTOM HOUSE PORTLAND, OREGON

TMT Internet Homepage: http://www.nwd-wc.usace.army.mil/TMT/index.html

I. Greetings, Introductions and Review of the Agenda.

The March 14, 2001 joint meeting of the Technical Management Team (TMT) and the Implementation Team (IT), held at the Corps of Engineers' Northwest Division headquarters in Portland, Oregon, was chaired by Rudd Turner of the Corps and facilitated by Donna Silverberg. The agenda for the March 14 meeting and a list of attendees are attached as Enclosures A and B. Please note that this is a summary, not a verbatim transcript, of items discussed and decisions made at today's meeting; copies of any enclosures referenced can be obtained by calling Kathy Ceballos at 503/230-5420.

2. Continued Discussion of 2001 In-Season Operations and Priorities.

Turner began with a brief overview of the key work products that need to come out of today's meeting. He reviewed the history of the TMT, stating that it was created as part of RPA # 1 in the 1995 NMFS Biological Opinion (BiOp) on operation of the FCRPS. The Regional Forum, including TMT and the IT, developed to implement the BiOp by discussing salmon recovery measures and providing a forum to resolve disputes among regional entities. Turner noted that, in their quest to implement the BiOp, the IT and TMT have been meeting jointly over the past several weeks because of the unusually low 2001 water supply forecast. What we want to try to do today is determine how best to implement the BiOp this year and protect fish. The conditions under which we are working include the current water supply situation, which, as everyone here has learned, is bad. Basin water supply is not showing signs of improving at this time and could continue to deteriorate, Turner said. You've also been given detailed information by BPA about the power supply situation, and the threat that this very low water year, coupled with the West coast power system situation, poses to BPA's financial solvency.

There is little point in spending further time discussing those realities at today's meeting, said Turner; this group simply needs to assume that those are the conditions we have to deal with this year, and to develop a plan for how whatever operational flexibility we have can best be used to benefit fish this spring and summer. IT and TMT members need to work toward the development of the 2001 Water Management Plan, and in general, focus on how best to protect fish in this extremely challenging water year.

Jim Ruff said Turner is correct in his assessment of the water supply and power

situations; he reminded the group that the Federal Executives have released the Federal Principals document, and have asked IT and TMT to work together to refine some operating priorities for this year. They're waiting to see what we come up with, he said; in the meantime, the Executives will be meeting with the other regional sovereigns – state and tribal – on Friday at the Portland airport. I assure you that they will be discussing operating priorities, said Ruff; our task today is to continue to fill out the draft "Matrix of 2001 FCRPS Operating Priorities" by adding in the Oregon and Washington proposals, and then see if we can come to agreement on at least some broad operational priorities for the 2001 in-season management period.

Jim Litchfield asked about the links between this effort and the development of the annual implementation plan called for in the BiOp. We will see a draft of that plan by early April, Ruff replied; it will be discussed through the spring and summer in IT, TMT and SCT, then finalized in September. The conversations we have today, as well as at Friday's meeting of the Federal Executives and regional sovereigns, will be reflected in the annual implementation plan, added Dan Daley. Turner reminded the group that the TMT also needs to finalize the 2001 Water Management Plan by mid-April, after the April final water supply forecast is available.

Isn't it true that we will be operating the system for power needs this year, given the fact that we're now on pace for a 1977-type water year? Ron Boyce asked. Given that fact, we will have little or no flexibility to do anything for fish this spring and summer, he said. That's a good point, Ruff replied, but there is no way to know what the weather is going to do between now and August, and we need to lay out operating priorities for whatever flexibility we may have so that we can provide the maximum biological benefit for the largest number of fish. Still, I think we shouldn't fool ourselves, said Boyce -- we are unlikely to have any significant flexibility to operate the system to benefit fish this year.

Litchfield urged the group not to write off this year, from a biological standpoint – even in an extremely poor water year, there may be small things we can do to tweak the system, without incurring huge power costs, to benefit fish, he said.

Boyce and Howard Schaller made the point that it is fairly useless to discuss optimal fish operations in the absence of information about how the system will be operated for power generation this summer – that's the real driver, Schaller said. Dan Daley disagreed, saying the task before this group is to develop recommendations about how best to operate the system to benefit fish this spring and summer, without respect to what the power operation will be. We can't predict at this time what market and load conditions are going to be this summer, Daley said – what we do know is that we're in a very poor water year, and if we can agree on priorities with that in mind, that will be very useful information for the Regional Executives. Many of the operational decisions will be made this year by the Federal Executives, he said, but they really are seeking the input of this group, as well as the state and tribal sovereigns, in making those decisions.

Schaller reiterated that he needs more information about planned power operations before he can discuss the fish operation this spring and summer. Litchfield observed that his understanding of the recent BPA presentations is that there is a 50% probability that BPA will

have zero cash reserves by November even with zero spill and a 260% rate increase, unless the water supply forecast improves. It is possible, however, that we will get some precipitation between now and June, and we will have at least some water to use to benefit fish this year, he said – if we can't agree on some priorities for how that water will be used, then it will more than likely be wasted.

If you simply want us to make these decisions without your input, we can do so, and cancel today's meeting, Daley said. It is true that Bonneville will do everything it can to meet load and avoid browning out the region, he added; if Oregon wants to tell the federal Executives on Friday that they want us to brown out the region for fish, they can do so. That is not Oregon's recommendation, Boyce replied.

My understanding of BPA's presentation is that, if the water supply forecast stays about where it is right now – 58 MAF – then there are limited things we can do for fish, said Jim Nielsen. This being the case, he said, we need to develop some recommendations. Nielsen added that the recommendations that are being made by the states and tribes apply only to this unique water year.

Still, said Boyce, it would be useful to have further discussion of BPA's power production needs this spring and summer as better information becomes available. I agree, Ruff replied – my earlier point was simply that that information is not available today, so it would be more efficient to simply assume that we will have very limited flexibility to operate the system for fish this year. That's correct, said Turner – it wasn't my intent to take the topic of power operations off the table forever – my intent was to set the stage for today's meeting, to be responsive to the Federal Executives' needs.

Nielsen then distributed the State of Washington's draft operating plan for the mainstem Snake and Columbia Rivers, dated March 12. He spent a few minutes going through this document, noting that part of the plan, covering water conservation measures, is missing because it is still under discussion within the Governor's office. Nielsen's handout included a background statement, as well as a schedule of recommended hydrosystem operation actions:

- **Winter Season** (Now Through the End of March): Begin storing water in storage projects beyond that needed to support base power operation. Implement conservation measures to reduce power needs.
- **Bonneville Flows**: Provide up to 60 Kcfs spill for a few days in March to move 5.2 million Spring Creek Hatchery fall chinook downstream, as these are the "backbone" of the Washington ocean fisheries. As long as the power system is drafting to support 130 Kcfs daily average at Bonneville Dam continue the current program to manage for listed chum salmon. Once power need is reduced, begin dropping tailwater requirement proportionately. Attempt to provide protection for at least a portion of the chum to emergence. When no longer practical to continue, reduce flows and use reverse load factoring at night to allow for storage in headwater projects and Grand Coulee, and provide some relief to the chum below Bonneville without increasing base power flow.
- **Hanford Reach/Vernita Bar**: continue with the 65 Kcfs instantaneous discharge at

Priest Rapids through completion of emergence, or at least through mid-May. Implement the Hanford Reach Stranding Agreement operations to minimize stranding. The Vernita Bar Settlement Agreement has a section on "Adverse Water Conditions" which stipulates that "*When the National Weather Service/Soil Conservation Service joint official March 1 January-July volume of runoff forecast at Grand Coulee is less than the Critical Runoff Volume (55.6 or 56 MAF) the parties will meet prior to any reductions and discuss allocation of available flows between power interests, fishery interests at Vernita Bar and other non-power interests. In no event shall the effect of this paragraph result in a reduction of the Protection Level Flow of greater than 15% or below 50 Kcfs, whichever provides for a higher Protection Level Flow*."

- **Spring Season** (April through June): Conserve water to improve refill probabilities through maximized juvenile fish transportation and resultant decreases in flow as the result of a reduced spill program.
- **Spill:** Eliminate spill at the Snake River juvenile fish collector projects (Lower Granite, Little Goose, Lower Monumental). Implement spill at Ice Harbor as necessary to pass Lyons Ferry releases, as balanced against CWA compliance and power needs. Implement as close to BiOp spill levels as possible at non-collector projects, within BPA's financial and power constraints. In the Lower Columbia, there is no other measure that can be implemented to aid juvenile migrants, so providing the maximum spill up to the BiOp levels is essential. Implement full FERC-authorized spill programs at all Mid-Columbia PUD projects. These spill programs are the only mechanism available to decrease juvenile passage mortality at these dams.
- **Transportation**: With the elimination of spill at the Snake River collector projects, maximize juvenile fish transportation from the Snake. Implement spring transportation from McNary Dam no earlier than June 1 or when "springlike" conditions of temperature and flow no longer exist. Until transportation is initiated at McNary, it should spill as close to BiOp levels as possible. Eliminate the use of trucks during the early part of the season.
- **Balancing Refill and Flow**: Because of extremely low storage reservoirs going into the spring, to attempt to refill completely by June 30, as directed by the BiOp, would require that spring flows be drastically reduced until runoff begins to peak in May (and it may not be possible at some projects, even then). We recommend targeting partial refill of storage reservoirs by June 30 and sharing some of the runoff with spring migrants. We recommend targeting refill of 75% of the storage volume at the various federal projects identified in the BiOp for flows, understanding that this may still result in very low flows during the spring. As an example, the BiOp calls for refill of Grand Coulee to 1290' elevation by June 30 and drafting to 1278' by August 31. Our recommendation would be to have Grand Coulee refill to no more than 1287' by June 30 and draft to 1278' by August 31. This could provide a limited amount of water for spring flows, but still cause most of the augmentation volume to be available in the summer. We further understand that some projects may not be able to refill even to this reduced elevation because of other operational constraints.
- **Hanford Reach**: Implement the Hanford Reach Stranding Agreement measures through the end of the stranding vulnerability period (approximately early June).
- **Adult Fish Passage Facilities**: Operate all adult facilities within criteria.

Summer Season (July and August)

- **Spill**: Implement spill as close to BiOp levels as BPA's financial and power situation permits at non-collector projects in the Columbia (John Day, The Dalles and Bonneville) and at Ice Harbor Dam in the Snake River. As with the spring, spill at the non-collector projects is the main action available to facilitate fish passage during the summer. Implement full FERC-authorized spill programs at all Mid-Columbia PUD projects. These spill programs are the only mechanism available to improve juvenile passage survival at these dams.
- **Transportation**: Maximum juvenile fish transportation at all collector projects during the summer. Extend the use of barges as long as possible to minimize the use of trucks.
- **Flow for Fish Passage**: Utilize all water available from all BiOp sources by August 31, down to the minimum elevations identified in the BiOp. Releases should be managed in-season. It may be that flows will be so low that attempting to meet BiOp targets even for a short period is impractical.
- **Snake River Temperature Modification**: Begin drafting Dworshak in late June or early July when water temperatures at Lower Granite approach 68 degrees F. Draft at the maximum rate allowable within the Idaho/Nez Perce water quality limits for total dissolved gas until elevation 1520' is reached. This provides temperature compliance with CWA as well as benefits for fall chinook juvenile outmigrants. Available information also shows that this strategy has the greatest benefit for fall chinook and steelhead adults in terms of conversion rates from Ice Harbor to Lower Granite Dam.
- **Adult Fish Passage facilities**: Operate all adult facilities within criteria.
- **Fishery Management**: Implement sport fishery closures of cold-water refugia and/or holding areas (e.g., Drano Lake and Deschutes River mouth) in the mainstem and tributaries if temperatures begin to exceed risk levels.

Rob Walton asked whether Washington has done a cost/benefit analysis on the spill program, in light of Brice Suzumoto's recent presentation to the Council, No, Nielsen replied. Also, said Walton, why does Washington place a lower priority on protection measures for adult migrants? Because to a limited extent, adult migrants can avoid higher temperatures by seeking cold-water refugia – at least, to a greater extent than juvenile migrants, Nielsen replied.

Litchfield said he sees some inconsistency in Washington's advocacy of both conserving water for use later in the summer and their advocacy of spill for the non-listed Spring Creek Hatchery fish. Nielsen replied that there is no real inconsistency; the operation Washington recommended for the Spring Creek Hatchery fish is greatly reduced from what it would have recommended in a normal or near-normal water year.

In response to a question from Nielsen, Jim Athearn said the Corps is investigating ways to improve efficiency in the locking operations at the mainstem dams. He said he will provide an update on this topic as further information becomes available.

Nielsen noted that Washington's overall top priority for protection is juveniles of stocks

listed as endangered under the Endangered Species Act. Within this top priority, first priority is Upper Columbia spring chinook and steelhead as well as Snake River sockeye; the second priority is threatened stocks from the Snake River; the next priority is the listed Lower Columbia stocks, based on the distance these fish have to travel through the hydrosystem.

The second overall priority is unlisted juvenile migrants; the next is adult salmon and steelhead migrants, both listed and unlisted; the next is bull trout in the mainstem, and the last priority, from Washington's perspective, is resident fish production in the mainstem reservoirs.

Various other meeting participants asked clarifying questions about the Washington proposal, to which Nielsen responded. Does Washington have a position on Upper Snake and Brownlee operations? Bob Heinith asked. We do, Nielsen replied – we recommend using all of the available Upper Snake volumes; in addition, there are going to be some shaping requirements included in Idaho Power's FERC relicensing agreement, and we would recommend that those shaping requirements be implemented. We wouldn't rule out the possibility of releasing a portion of the 427 KAF in the late spring period, Nielsen added.

The conversation then turned to the Oregon proposal. Boyce noted that Gov. Kitzhaber has not yet finalized the plan; however, it is my understanding that Eric Bloch will be making some statements at Friday's meeting, Boyce said, though they will not be as detailed as the plans on the table in this forum. In response to a question, Boyce said state officials are meeting this morning to hash out the final details of the Oregon proposal; he agreed to attempt to find out what, if anything, has been resolved and to report back after lunch.

Heinith observed that the highest priority for the CRITFC tribes is maintaining pool elevations within 1.5 feet of full, and the avoidance of power peaking during the tribal treaty fishery. He said specific operational requests will be submitted to the Corps and Bonneville by next week for Bonneville, The Dalles and John Day pools. The Zone 6 fishery is expected to last from April to May; the request will be in force 24 hour per day during the fishery.

Kyle Martin then reviewed the CRITFC analysis, "Comparison of BPA and CRITFC 2001 Seasonal River Operation Proposals" dated March 14. He noted that this analysis factors in the RFC's March final water supply forecast. He said CRITFC is projecting a 2001 runoff volume of 51 MAF; for that reason, the CRITFC plan features data from the 52.7 MAF 1973 water year, the closest to the projected volume in 2001.

Martin noted that the BPA plan drops Grand Coulee outflow to 40 Kcfs during the peak of the salmon outmigration in mid- to late May. The CRITFC plan proposes Grand Coulee outflows of 75 Kcfs-90 Kcfs during April and 100 Kcfs-130 Kcfs during May. He noted that CRITFC is also concerned with BPA's proposed Dworshak operational alternatives; CRITFC believes that the premature release of cold water in July will likely retard the development of Snake River and Clearwater River stocks. He added that the BPA plans give no consideration to adult flow needs in September. The CRITFC plan provides more flow for greater summer temperature reduction in the Lower Snake, into September, which is desirable from a CWA standpoint.

Martin added that CRITFC has asked EPA to run its proposed operating scenario through the Yearsley temperature model. He noted that it is apparent, from CRITFC's perspective, that the BPA plan emphasizes power at the expense of listed and non-listed salmon stocks. The CRITFC plan, on the other hand, strongly emphasizes a peaking hydrograph regime using the limited seasonal volume of water through September.

Nielsen asked how CRITFC can justify their recommendation that Grand Coulee be drafted to elevation 1263' by the end of September. Martin replied that CRITFC is hoping that next winter will be warm and dry, providing some relief on the power side of the equation, rather than cold and dry, as it was this year. Heinith added that there will be large numbers of juvenile and adult migrants moving through the system this spring and summer; those fish need to be protected, he said. Bettin observed that this is a major contradiction in the CRITFC plan. I guess we don't feel that way, Heinith replied.

Basically you're gambling on a good water year next year, said Daley. Actually, we're simply advocating making the best use of the water we have available this year for fish, Martin replied – it is too early for anyone to say what's going to happen next winter. Are you suggesting specific fish facility operations by project? Daley asked. Yes – they're attached to the CRITFC plan, Heinith replied. Turner said the Corps is in the process of finalizing its response to CRITFC's recommendations – the Corps will increase fishway inspection frequency this year, for example, he said, and I think you'll find that, in general, we agree with some of your recommendations and disagree on others.

You suggest turning off both spring and summer transport, said Daley; at the same time, what we would be doing is draining the storage reservoirs to try to meet flow targets and Clean Water Act standards we're not going to be able to meet. In other words, he said, you advocate leaving the fish in the river even though in-river conditions are likely to be very poor. If there is no spill, however, CRITFC would advocate barging the fish in both spring and summer, said Heinith. In response to another question from Daley, Heinith said CRITFC would like to explore the possibility of pulling screens at the mainstem projects during the passage season.

The group devoted a few additional minutes of discussion to the nuances of and assumptions underlying the CRITFC plan. What if BPA doesn't get a 260% rate increase or the federal government doesn't step in with a large pot of money to help us out – would CRITFC still advocate the implementation of this plan? Daley asked. The best answer I can give you is that CRITFC believes the federal government has a treaty trust responsibility, and this plan is the best way for you to meet that responsibility, Heinith replied.

The risk you would run under the CRITFC plan is that the storage system will be dry in the fall, before you even know whether or not the snowpack news is going to be good or bad for the following year, Litchfield observed.

So there you have it, said Silverberg. The next task is to look at the matrix to identify key areas of agreement and disagreement among the various plans on the table. In response to a question, Rock Peters said decisions about the specifics of this year's RM&E efforts need to be

made very soon, for contracting reasons. There will likely be a special SRWG meeting next week to address that issue, he said. The group devoted a few minutes of discussion to this issue, in particular, the possible use of radio tags to evaluate the behavior of fish approaching Lower Granite Dam under this year's extremely low-flow conditions. Peters noted that the lack of flow and spill this year is going to severely limit the number and type of studies it will be possible to do. Ruff noted that NMFS' priority would be to run Bonneville Powerhouse II over Powerhouse I, because passage facilities and survival are better at Powerhouse II.

Turner noted that the Corps is concerned about Libby refill; based on the March final water supply forecast, there is now less than a 50% probability that Libby will refill even to elevation 2439, 20 feet from full. He suggested that the target for Libby's June 30 refill elevation be changed to 2439 feet, rather than the 2443 shown in the "Federal Principals" proposal. This will increase the probability that TMT will have some flexibility to recommend flows over minimum discharge prior to 30 June. He added that the Corps is reasonably confident that it will be possible to provide the 6 Kcfs bull trout flow from Libby during July and August, even at this reduced refill level.

The group then spent a few minutes reviewing the revised "Matrix of 2001 FCRPS Operating Priorities," dated March 14. To get a sense of the group's priorities for the operations listed on this matrix, Silverberg went to the whiteboard and, after a few minutes of discussion, wrote the following:

- Chum/Power Flows
- Spring Spill
- June 30 Refill Priorities/Minimums
- Spring Flows
- Vernita Bar
- Spring Transport
- Summer Spill
- Summer Flows
- Summer Transport
- Fish Facilities
- RM&E
- Temperature and TDG

She then asked the various entities represented at the table today (the federal action agencies, the federal fish agencies, CRITFC, Oregon, Washington, Montana and Idaho) to choose four operational priorities from this list. This exercise had the following results:

- Spring Spill – 2 votes
- Spring Flows – 1 vote
- Vernita Bar – zero votes
- Spring Transport – four votes
- Summer Spill – one vote
- Summer Flows – five votes

- Summer Transport – three votes

For the record, it should be noted that CRITFC, State of Oregon and Idaho Dept. of Fish and Game representatives abstained from this exercise. Nielsen noted that there is no need to assign priorities to the fish facilities, RM&E and temperature/TDG categories; there is agreement among all parties that those should be implemented to the greatest extent possible, he said. There was general agreement that this is the case.

Litchfield said that what this prioritized list suggests, to him, is that, at least in this initial exercise, there is reasonably strong support for spring transportation, actions that will increase summer flows and for summer transportation. Spring and summer spill, on the other hand, enjoy a lesser degree of support. Schaller reiterated that both Oregon and CRITFC, strong supporters of both spring and summer spill, elected not to participate in this exercise.

It sounds as though we've gone as far as we can on this exercise today, Silverberg said; this gives us at least a preliminary indication of where people are coming from. Rob Walton observed that there is another level of detail that needs to be gotten to here; it is too simplistic to say, at this point, that a given agency absolutely does or does not support spill, at any level, at any project. Schaller observed that it would be terribly misleading, at this point, to present this list to the Regional Executives on Friday. What would be more informative, to the Executives, would be to provide them with a completed matrix, which more accurately reflects the recommendations of the individual IT/TMT members. If Oregon can provide their proposal prior to that meeting, said Schaller, that would be the most useful thing to give to the Executives.

Is there support for the idea of filling out this matrix and presenting it to the Executives on Friday? Silverberg asked. No objections were heard, although Litchfield said that, in his view, it would also be useful to present the above-prioritized list to the Executives. Not necessarily this list, said Schaller, but a list that accurately reflects the top four priorities for each of the participating entities. After a few minutes of discussion, there was no clear agreement about whether or not to provide the prioritized list of actions, as currently structured, to the Executives on Friday.

If we can get Oregon's input, as well as any other necessary changes, provided to Jim Ruff by 3 p.m. tomorrow, then we will present the matrix to the Executives on Friday, said Silverberg. Christine Mallette said she doubts whether it will be possible to furnish a final Oregon plan by tomorrow afternoon.

Walton suggested that it might be useful if a row was added to the matrix for entities to list their priorities by species as Washington has done. It was agreed that this might be helpful.

3. Discussion of Short-Term Operations.

Turner said the objective of the current system operation is to maintain an 11.3-foot tailwater elevation at Bonneville, 24 hours a day, as per the agreement at Monday's TMT conference call. Day-average flows at Bonneville are currently in the 118 Kcfs-120 Kcfs range.

Dworshak elevation is now 1503.2, and filling slightly. At Libby, current elevation is 2389.2 feet,; the project has been releasing minimum outflow since last Wednesday, with inflow in the 2 Kcfs-3 Kcfs range.

Grand Coulee is now at elevation 1221.6 feet, getting close to the 1221-foot trigger point TMT discussed on Monday, Turner said. The project is releasing 89 Kcfs; with current inflows in the 69 Kcfs range, Grand Coulee is drafting between seven-tenths and eight-tenths of a foot per day. That only gives us another day or two before we hit the wall, and Grand Coulee outflows will have to drop by 20 Kcfs, Litchfield observed.

Hungry Horse is at elevation 3495, releasing 2.7 Kcfs to meet the Columbia Falls minimum, with inflows of 300-400 cfs, said John Roache of Reclamation. Turner added that the March mid-month forecast will be available later this week.

What is the current status of chum emergence? Ruff asked. Mallette said Monday's field survey found a total of 96 chum; on Tuesday, field personnel captured 29 chum, under very poor seining conditions. There were fish all over the place, said Schaller, but they had to stop seining after 10-15 minutes and three survey areas due to extremely high winds. The main thing to be aware of, said Schaller, is that the chum are still emerging.

Ruff said that NMFS recognizes that water supply conditions have been very poor since last fall, and that much of the habitat these fish generally use in the tributaries was unavailable to them this year. We have taken extraordinary measures, cooperatively, to protect these fish since they're spawned, he said – in particular, going, for the first time, to an operational strategy based on a tailwater elevation at Bonneville. We're now down to a tailwater elevation of 11.3 feet, protecting as many fish as possible while still conserving some water, said Ruff.

NMFS has said all along that its objective this year was to protect the majority of the chum through emergence; our estimate now is that, by the end of the week, between 55% and 60% of the chum will have emerged, Ruff continued. For that reason, said Ruff, NMFS recommends that the chum protection operation end this Friday; this will allow the region to begin storing upwards of 40 KAF per day, and begin refill operations for the other listed species later this summer and spring. This is not an easy decision for us, said Ruff, but it is our recommendation that, on Friday morning, the action agencies go to an operation designed to meet load and the Vernita Bar minimum flow.

Nielsen said that, distasteful though this decision is, NMFS' recommendation is consistent with the language in Washington's operational proposal. He asked whether it would be possible to reverse load-factor at night for the remainder of this month, temporarily raising the Bonneville tailwater elevation to help the fish that are still emerging to reach the river. BPA can attempt to do that, Bettin replied, but I can't promise that we can do it every night – it may conflict with CRITFC's request for stable pools during the fishing season. Actually, the fishing season won't begin until April, so that shouldn't be a conflict, Ruff said. The effects of nighttime load factoring on the storage and refill operation are also a concern, said Bettin; again, we'll see what we can do. Ruff added that the first few days will be most critical, in terms of the reverse

load-factoring operation.

After a few minutes of discussion, it was agreed to end the chum protection operation, and reduce Grand Coulee outflow, beginning at 7 a.m. Friday. Mallette noted, for the record, that while Oregon does not support this decision, they do not oppose it strongly enough to elevate it to IT. I suspect this is only the first of many distasteful decisions this group will face this year, Nielsen observed.

Ruff added that this operation will continue at least through next Wednesday's TMT meeting.

4. Next TMT Meeting Date.

The next meeting of the Technical Management Team was set for Wednesday, March 21 from 1 p.m. to 4 p.m. It was agreed that this will be a TMT meeting only. The IT will revert to its monthly meeting schedule, with the next meeting to be held the first Thursday in April. Meeting notes prepared by Jeff Kuechle, BPA contractor.

TMT PARTICIPANT LIST

MARCH 14, 2001

Jim Athearn	COE	503/808-3723
Scott Bettin	BPA	503/230-4573
Ron Boyce	ODFW	503/872-5252
Scott Boyd	COE	503/808-3943
Jonathan Brinckman	*The Oregonian*	503/221-8190
Dan Daley	BPA	503/230-3066
Ley Garnett	KPAM Radio News	503/223-4321
Russ George	Water Management Consultants	503/253-1553
Richelle Harding	D. Rohr & Associates	503/771-7754
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TECHNICAL MANAGEMENT TEAM

BOR: Pat McGrane\Lori Postlethwait

NMFS: Paul Wagner\Chris Ross BPA: Scott Bettin\Robyn MacKay

USFWS: Howard Schaller\Bob Hallock\Susan Martin

OR: Christine Mallette WA: Jim Nielsen ID: Steve Pettit

MT: Jim Litchfield COE: Cindy Henriksen\Rudd Turner\Dick Cassidy

TMT Meeting

March 21, 2001 1300 - 1600 hours PST

Custom House Portland, Oregon

Room 118

All members are encouraged to call Donna Silverberg with any issues or concerns they would like to see addressed. Please e-mail her at dsilverberg@cnnw.net or call her at (503) 248-4703.

AGENDA

1. Welcome, introductions.

2. Review current system conditions.

    - Reservoir operation and water supply (COE, BOR)
    - Power system status (BPA)
    - Fish status (NMFS, USFWS)

3. Review operations requests.

4. Develop recommended operations.

5. Review Water Management Plan.

    - Main Report (draft dated 2/26/01)
    - Appendix 4, TMT Guidelines

6. Update: NPPC requests for TMT decision rationale (Silverberg).

7. Other.

- Set agenda for 4 April TMT meeting.

Meet-me number is 503-808-5190. Questions about the meeting may be referred to Cindy Henriksen, (503) 808-3945, or Rudd Turner, (503) 808-3935.

COLUMBIA RIVER REGIONAL FORUM

TECHNICAL MANAGEMENT TEAM
MEETING NOTES
March 21, 2001
CORPS OF ENGINEERS NORTHWESTERN DIVISION OFFICES – CUSTOM HOUSE
PORTLAND, OREGON

TMT Internet Homepage: http://www.nwd-wc.usace.army.mil/TMT/index.html

FACILITATOR'S NOTES ON FUTURE ACTIONS

Facilitator: Donna Silverberg

The following is a list of items the Technical Management Team (TMT) discussed at its last meeting that will require future action or discussion:

Current System Operations: COE noted its current goals of meeting power needs and refilling the reservoirs, while keeping headwaters at a minimum and Grand Coulee refilling, to the extent possible. The precipitation for March is running at 60%.
Power Status – BPA is meeting its load for the northwest and will exchange power with California only if it is returned within a 24-hour period.
Fish Status – To date, 15 chum were found in Hardy Creek and 1282 were found in Hamilton Springs. Early to mid-April is the normal peak for Hamilton Springs. This week, 36 chum were found at Ives Island, while 130 were found there March 16.

SOR 2001 C – 1: A handout was distributed describing CRITFC's request for spring 2001 tribal fishing. Kyle Martin explained that this is an important treaty harvest opportunity that allows both ceremonial and substance fishing. The tribes are asking for operations to be within one foot from pool at BON, TDA and JDA from 3/26 through 3/31, 4/2 through 4/7, and 4/9 through 4/19. The group was reminded of a lawsuit pertaining to this issue from 1977. Kyle reported that elevations have a big impact on tribal fishers.

ACTION: The Action Agencies will check with their executives and get a written response to the tribes regarding this request as soon as possible.

Recommended Operations: COE proposed a two-week operation consisting of the following: keep headwaters at minimums, fill Grand Coulee to the extent feasible, and operate to meet power needs. This operation would continue for two weeks unless there are drastic changes in the weather or other conditions. If there are big changes in the weather or other conditions (such as fish needs) that require use of headwaters, a TMT conference call will be assembled to inform the group of the situation. In such a situation, the emergency protocols will be used. TMT agreed with this operation.

Regarding Vernita Bar: TMT agreed that the Vernita Bar policy group should meet before its

scheduled March 29 meeting. Scott Bettin will brief TMT on the outcome of the meeting via email and decide if a TMT call is necessary. COE noted that they are not a party to the VB discussions; however, they urged other TMT members, who are part of the group, to develop a conservative water operation since the fish are a healthy, unlisted stock.

RE: MOP – COE noted plans to operate the IHR and LWG pools at MOP +1 to MOP +2 in 2001, to maintain the Federal navigation channel since no dredging occurred this winter to protect the redds below the projects.

Water Management Tools: The COE circulated possible products or tools they could produce to help TMT in its decision making process. These tools included: the "Family of Curves", which show probabilities of refill, "Volumes Available Histograms" which show confidence of refill and volumes, and HYSSR Model Runs. The COE noted that the old SSARR spreadsheets might mislead people because the flow data are extremely predictive. The new data might show actual and forecasted flows graphically to give a more realistic picture for management purposes. The group gave feedback and said that all the products would be helpful. The COE proposed to have them for each meeting, updated weekly.

ACTION: COE will post the new tool drafts on the TMT web site as examples for any additional comments from the group or others.

The Role of TMT this year: The group heard a brief update on last week's Regional Executives meeting. Due to the high impacts and stakes of this year, the executives may be involved in some of the operations decisions facing the region. This means that TMT will not have as strong a lead role in developing operations and there will need to be more time for issues to get to the executive level before the action agencies can commit to operations or answer SORs.

As a result of this change in process, the action agencies suggested that TMT meet earlier in the week and bring biological and water supply information to the table to discuss. TMT would develop a recommendation, send it to the executives to review, and then get back to TMT with a decision. Members noted that TMT is helpful because it provides a place for sovereigns to get together, look at data and collaboratively develop an operation proposal. It also allows everyone to understand why issues are important to the various participants and sovereigns.

Question: Can TMT move to Tuesday afternoon to allow more time to get Executive input? The salmon managers felt it would be difficult for their process to work if it is too compressed by time. They agreed to raise the issue at their next meeting. In the meantime, TMT decided to move the meetings to Wednesday mornings beginning with the next meeting.

Action: Salmon managers will review the possibility of a Tuesday meeting.
Christine Mallette will send the Oregon proposal to Rudd for circulation to others if she is given the go-ahead.

Next Meeting Agenda: The meeting will be held **Wednesday, April 4 from 9-12**. Topics to be discussed are: water conservation at locks, feedback on COE work products/tools, Water

Management Plan: TMT process issues (Meeting day); Objectives, priorities and criteria; and Guidelines, and an update from the executives.

Meeting Minutes

1. Greeting and Introductions

The March 21 Technical Management Team meeting, held at the Customs House in Portland, Oregon, was chaired by Rudd Turner of the Corps and facilitated by Donna Silverberg. The following is a distillation, not a verbatim transcript, of items discussed at the meeting and actions taken. Anyone with questions or comments about these minutes should call Turner at 503/808-3935.

Silverberg welcomed everyone to the meeting, then led a round of introductions and a review of the agenda.

2. Current System Conditions.

Rudd Turner said the system is currently being operated for refill and power needs -- hence the variation in Bonneville and Grand Coulee flows over the past several days. The headwater storage projects are all releasing minimum outflow. Over the past week, Bonneville day-average discharge has fluctuated between 116 Kcfs and 135 Kcfs. Turner noted that the chum operation ended at 7 a.m. March 16. Since that time, the tailwater elevation below Bonneville has fluctuated with discharge; it has been as high as 14 feet and was also below 10 feet for at least a few hours.

Libby elevation, as of midnight last night, was 2388.6 feet; at 4 Kcfs discharge, Libby is drafting at a rate of about a tenth of a foot per day, Turner said. Dworshak continues to refill slowly; project elevation, as of midnight last night, was 1505.2, up two feet from last week at this time. Turner noted that inflow to Dworshak has increased over the past few days, and the project is now filling at a rate of about half a foot per day. Dworshak is releasing minimum discharge, about 1.5 Kcfs. Flows are also on the rise in the Lower Snake River; day-average flow yesterday at Lower Granite was 34.9 Kcfs.

Pat McGrane reported that Grand Coulee is now at elevation 1223 feet; the project is essentially passing inflow of about 75 Kcfs. The project has filled about two feet since last Friday, when the chum operation ended. McGrane added that Reclamation has now begun pumping from Lake Roosevelt into Banks Lake, an operation that is expected to continue for the foreseeable future. Hungry Horse elevation is now 3493 feet, with inflow of 400 cfs and outflow of 2.5 Kcfs.

In response to a question from Jim Nielsen, Scott Bettin reiterated that the chum

protection operation ended as scheduled last Friday; flows in the lower river were higher than some expected primarily because Snake River flows are on the increase. We did shift the operational priority to refill on Friday, Bettin said, and have been able to fill slightly at Grand Coulee while meeting load.

Turner added that the March mid-month forecast is now available; the predicted runoff volumes have continued to decline from the March final, with forecast January-July runoff at The Dalles now 57.6 MAF, or 54% of normal. Turner added that March precipitation to date has been a little better than were January and February precipitation levels, but is still only 60%-70% of normal.

With respect to power system status, Bettin reported that the federal system is currently able to meet load. As most of you are aware, he said, they are experiencing rolling blackouts in California; we were not able to send them any energy yesterday because they could not return it within a day, as per the agreement that is currently in force.

Moving on to the status of the fish runs, Scott Boyd noted that more than 400 adult spring chinook passed Bonneville Dam on March 19, considerably more than the 6-7 fish that would be seen on that date in a normal year. With respect to chum emergence, David Wills said that, through March 20, a total of 1,282 chum fry have been captured at the Hamilton Springs trap, and a total of 15 fry at the Hardy Creek trap. The normal peak of the Hamilton Springs outmigration is early to mid-April, Wills added.

3. System Operational Requests.

On March 21, CRITFC submitted SOR 2001 C-1. This SOR, supported by the CRITFC member tribes, the Nez Perce Tribe, the Yakama Nation, the Confederated Tribes of the Umatilla Reservation and the Confederated Tribes of the Warm Springs Reservation, requests the following specific operations in Zone 6 (Bonneville to McNary Dams) during the 2001 spring season Treaty fishery (6 a.m. March 26 through 6 a.m. March 31, 6 a.m. April 2 through 6 a.m. April 7, 6 a.m. April 9 through 6 a.m. April 14):

- Bonneville Pool: Operate the pool within 1 foot from full pool (msl elevation 77-76)
- The Dalles Pool: Operate the pool within 1 foot (from msl elevation 159.5-158.5)
- John Day Pool: Operate the pool within 1 foot (from msl elevation 264.5-263.5).

Kyle Martin spent a few minutes going through the details of this SOR, the full text of which is available on the TMT web site. Martin noted that these operations are particularly crucial this year, because the 2001 spring fishery is of unprecedented importance to the CRITFC member tribes. The anticipated escapement of more than 360,000 adult spring chinook to the Columbia River will create harvest opportunities tribal fishermen haven't seen in more than 60 years, Martin said.

Bob Heinith added that the tribes would ask the operating agencies to recognize that there was litigation on this issue back in the late 1970s; it had to do with power peaking, which was

making it very difficult for tribal fishermen to access the treaty fisheries. The courts basically interpreted the treaty rights as including the ability of tribal fishermen to gain access to their fishery; the case ended up in a settlement agreement between the Corps, Bonneville and the tribes, Heinith said. Mr. Sampson wanted to make it clear that we have already plowed a lot of legal ground on this issue, said Heinith; it is essential this year to hold the pools stable at these requested elevations during the ceremonial and subsistence fishery.

Which pools did the settlement agreement cover? Bettin asked. All three in Zone 6, Heinith replied. And did the settlement agreement specify the pool elevations or ranges to be maintained? Turner asked. No, Heinith replied – it essentially says that the Corps and Bonneville have a responsibility to create conditions that will allow treaty fishers to exercise their treaty rights. I was also curious whether Kyle Martin has received any responses to the survey he sent out last year, asking tribal fishermen about the specific impacts of these operations, Bettin said. Kyle did receive some responses, Heinith replied, and the response rate was not high. However, Heinith stated, the important thing is to talk to the fishers themselves – Kyle and I attended a meeting yesterday with about 50 fishers from the Yakama Nation, and they were complaining about the same sorts of impacts we have listed in this SOR. The important thing is that we give these people the opportunity to get out there and get the allocation they have worked hard to negotiate in U.S. v. Oregon, Heinith said – these fish are present in Zone 6 for a limited amount of time, and then they're gone.

Bettin said that, in terms of the impacts to the power system, the pool elevations requested in this SOR would limit the amount of energy available during certain peak hours. In the BiOp, only one pool – John Day – is limited to 1.5 feet of fluctuation during the treaty fishing season; this SOR limits all three pools to a one-foot operating range. Basically, it's something we're willing to take into consideration, said Bettin, but we can't give you an answer at this time as to how we'll operate.

From the Corps perspective, said Turner, recognizing that this is a multiple-use system, as well as the fact that the majority of the nets are deployed in Bonneville pool, we have been regulating for a 1.5-foot range – 75 feet to 76.5 feet – at Bonneville. In years past, he said, that seems to have worked acceptably for all concerned, and is consistent with the agreement that was reached between Ted Strong and General Fuhrman several years ago.

Heinith disagreed, noting that the Zone 6 treaty reserve area covers all three pools, not just Bonneville pool. During this upcoming fishery, there will be a lot of people fishing who haven't fished for decades, Heinith said; for that reason, there is going to be a lot of fishing activity in The Dalles and John Day pools as well as Bonneville pool.

When can we expect to receive an answer to this SOR from Bonneville and the Corps? Heinith asked. We're seeing this request for the first time at today's meeting, so you'll need to give us a couple of days to evaluate it, Turner replied – we should be able to let you know by the end of the week. Turner also noted that Heinith had told IT/TMT the previous week that the tribal fishery wouldn't begin before the beginning of April. This request proposed beginning the regulation a week earlier than that. He added that there may be a conflict with the pool elevations

needed for the orifice test at Bonneville, 74.5-75.5 feet, which is scheduled to run through March 27. The test was scheduled on the assumption that the tribal harvest wouldn't begin before April 1, Turner explained, adding that the tribes' request for a 77-foot elevation at Bonneville is half a foot above the normal full pool at that project.

4. Recommended Operations.

The action agencies would like to develop a two-week operation, if possible, as called for in the Biological Opinion, Turner said; that two-week period to begin Monday, March 26 and end Sunday, April 8. The Corps' recommendation is to continue to release minimum outflow from the headwater storage projects while continuing to operate the system to meet power system needs and filling Grand Coulee to the extent feasible.

One complicating factor is the need to maintain a 65 Kcfs minimum flow at Vernita Bar, said Bettin – with temperatures on the rise and Snake River flows coming up, it may be possible to back off somewhat at Vernita Bar and store more water if we choose to do so. Who does that question go to? Silverberg asked. Probably to the Hanford Stranding Policy Committee, Nielsen replied. Actually, it sounds to me as though this is an issue that needs to go to the Vernita Bar Settlement Agreement parties, said Heinith – it's pretty well spelled out in that agreement. However, that agreement was written before the 2000 BiOp was written, said Bettin – I don't disagree that it needs to go to the Vernita Bar Settlement Agreement parties, but it is a little awkward because the TMT is supposed to be able to make decisions on things like storing water as called for in the BiOp.

I guess the real question is whether or not the TMT is willing to live with whatever the Vernita Bar parties agree to, Paul Wagner observed. Nielsen noted that the Vernita Bar Settlement Agreement is a court-ordered settlement, so it has some standing in law. I think the 2000 FCRPS BiOp has some standing in law as well, Bettin replied; the Settlement Agreement does say that BPA can back the Vernita Bar flows off if we're below the threshold of 43.7 MAF, which we are this year. In other words, we're well within the range in which this clause could be enacted, he said, recognizing that we would need to bring the parties to the Vernita Bar Settlement Agreement together and notify them of our intent.

After a few minutes of further discussion, there was TMT consensus that a meeting of the Hanford Stranding Policy Committee should be convened as soon as possible to discuss this issue. The next question is whether or not the TMT is comfortable with accepting the recommendation of that group, or whether a conference call should be scheduled to discuss their recommendation, Silverberg said. I think we'll need to see what the Policy Committee recommends, said Bettin. Ultimately, it was observed that the Mid-Columbia Coordinating Committee has a scheduled conference call tomorrow; Nielsen suggested that the appropriate parties be contacted to participate in that call. Bettin agreed to send an email to the TMT informing them of any decisions reached at tomorrow's conference call.

Turner said that, from the Corps' perspective, given the nature of the 2001 water year, it would be appropriate for the Vernita Bar parties to reach agreement on the lowest possible flows

needed to protect the majority of the Hanford Reach chinook population this year, similar to the approach the TMT used to protect the chum spawners below Bonneville this year. This is a very poor water year, he said, and it simply isn't going to be possible to protect every fish, particularly given the fact that we're talking about a healthy, non-listed population, better able to take a hit than some of the listed stocks.

The discussion returned to the desire to develop a two-week operation, so that the TMT no longer has to meet every week; there was general agreement that, if weather, fish migration, power system or flow conditions change dramatically, or if it becomes necessary to declare a power system emergency, it will be necessary to convene a TMT conference call. Otherwise, there was general agreement that the proposed two-week operation – continue to operate the system to meet power system demand, keep headwater storage projects on minimum outflow and fill Grand Coulee to the extent feasible – will continue for the next two weeks. In response to a question from Steve Pettit, Turner said it is possible that, if power system and flow conditions change dramatically for the worse, Dworshak discharge could be increased, but only if increased discharge from Libby and Hungry Horse proves insufficient to meet load.

Nielsen observed that the BiOp contains an April 3 planning date for the initiation of spill in the Snake River. We're very much aware of that, Bettin replied; that would be for Ice Harbor only, and we're waiting for the Executives to give us clear direction – we will implement whatever they decide.

Nielsen asked about the current plans for the initiation of transportation from the Lower Snake projects. Turner replied that, at this point, the plan is to begin transport on the regular date laid out in the Fish Passage Plan; he added that the 2001 Fish Passage Plan was signed by the Corps last Friday, March 16. The plan is now being mailed out, said Turner, so you should be receiving a copy very soon.

If the power situation in California worsens, could that precipitate a power system emergency call? Pettit asked. I wouldn't think so, at least in the absence of an Executive Order, replied Robyn MacKay – we've let them go dark so far when they were unable to return energy.

Moving on, Turner informed the TMT that the Corps plans to operate the Ice Harbor and Lower Granite pools at one foot above MOP this year, or a range of MOP +1 to MOP +2. The purpose of this operation is to maintain authorized depths in the Federal navigation channel until dredging can occur, he explained – maintenance dredging was scheduled for this winter, but was deferred due to biological concerns associated with sedimentation. So, said Turner, we wanted to let you know that those two pools will be operated one foot higher than normal. Has the Corps consulted with NMFS on this issue? Nielsen asked. Yes, Wagner replied, and NMFS concurs with the planned operation.

5. Review of 2001 Water Management Plan.

Turner directed the TMT's attention to the most recent draft of the 2001 Water Management Plan, dated February 16, as well as the most recent draft of the "IT/TMT Matrix of

2001 FCRPS Operating Priorities," dated March 20. We wanted to spend a few minutes going through this matrix to ensure that each agency's recommendations are accurately represented, said Silverberg, because at last Friday's meeting of the regional executives, the request was made that the federal parties use this matrix as the basis for a straw dog proposal for how the system should be operated this year. The regional executives will be meeting again in two weeks, Silverberg said; before they once again take up this matrix, they wanted some additional discussion to occur at TMT and IT, to make sure that everyone's priorities are accurately represented.

Mallette said that, in light of the discussion at and new assignments from Friday's regional executives meeting, Oregon is not yet ready to share its 2001 operational proposal with TMT – I need to confirm that what I have is in fact the final draft of that proposal before it can be added to the matrix, she said.

The group briefly discussed the matrix; ultimately, Turner asked that any comments or corrections be provided directly to Jim Ruff at NMFS by close of business tomorrow, Thursday, March 22. Mallette said she will provide a copy of the Oregon proposal to Ruff as soon as the final draft has been approved.

Turner then distributed an updated "family" of refill probability curves for Libby, Hungry Horse and Dworshak, reflecting the March final water supply forecast. He noted that these curves include the June 30 reservoir elevations recommended in the current federal operating proposal – 2439 feet at Libby, 3540 feet at Hungry Horse and 1580 feet at Dworshak -- 20 feet below full for each project. The group spent a few minutes going over this information; Turner noted that the Corps will be updating these curves on a monthly basis as the monthly final forecasts become available.

Turner also went through some of the other forecasting tools available for TMT use during the 2001 in-season management period, including the Corps' most recent HYSSR model runs, with an eye toward discovering which of these tools the TMT finds most useful. The group devoted a few minutes of discussion to this information, offering a variety of suggestions and generally positive comments. The TMT also discussed the future of weekly TMT spreadsheet, which is based on SSARR runs, in light of the Corps' concerns that the spreadsheet is somewhat misleading because some in the region tend to view them as fact, rather than as projections of what is most likely to occur.

Ultimately, Turner asked the other TMT participants to review all of this information, and to provide any comments they may have about the utility of these various forecasting tools to him, with an eye toward further discussion at the April 4 TMT meeting. It was so agreed.

The discussion then turned to the role of the TMT in this highly unusual water year. As everyone is aware, Turner said, TMT has been meeting jointly with the IT to try to reach agreement on a set of operating priorities for 2001; the two groups have now split apart again. There have also been regular meetings of the federal executives and, more recently, of the regional executives, involving the states and tribes as well as the federal executives, where

seasonal operating priorities are being discussed, Turner said. It is important for the TMT to affirm a role for itself in this atypical management year, he said; what that role might be is really up to us to develop.

Silverberg went briefly through some of the decisions made at last Friday's meeting of the regional executives; she noted that, at the end of that meeting, the State of Washington suggested that the federal government describe the decision-making process, with an opportunity to discuss concerns left open to the region. At the end of the day, however, Washington's view was that the final decision should be left up to the federal parties, with input from the states and tribes, given the emergency nature of this year's water supply situation. Montana agreed with Washington's suggestion, Silverberg said; they urged that these conversations also involve the Northwest Power Planning Council, to the greatest extent practical. Oregon agreed with the Washington and Montana positions, said Silverberg, but suggested that there is also a need to develop a strategy. To that end, Oregon suggested that the federal parties use this matrix of operational recommendations to develop a straw-dog proposal, for presentation to the regional executives at their next meeting.

That raises the question of what the most appropriate role may be for the TMT this year, Silverberg said – is it to identify and elevate any issues that arise? Is it to function as more of a liaison between the technical personnel and the executive-level decision-makers? Turner observed that, while the TMT participants have generally been comfortable putting forward and approving operational recommendations in this forum, they are less so this year, because of the critical tradeoffs between biological and economic impacts, and issues like the effects of the TMT's decisions on BPA's fundamental financial viability.

The action agency thinking was that we may want to meet earlier in the week this year, to discuss the flow forecast along with operational and biological information, and attempt to work out a tentative agreement, Turner said. We could then provide that recommendation to the federal or regional executives, and give them a day or two to make their decision. We could talk about the possibility of meeting either Wednesday morning or Tuesday afternoon, Turner said, given the need for that extra level of coordination.

The group devoted a few minutes of discussion to this issue; ultimately, the state and tribal salmon managers said that, from their perspective, it would be difficult at best to attempt to hold the TMT meetings on Tuesday afternoons because much of the biological and flow forecast information needed to inform the TMT's recommendations would not be available at that time. It was agreed that it may be possible for the TMT to meet on Wednesday mornings, but that a move to Tuesday afternoon meetings probably would not be feasible this year.

The group also discussed the TMT's traditional SOR-based system for developing recommended operations; Nielsen said that, in his view, it is useful for the salmon managers to have an opportunity to develop operational requests based solely on what is best for the fish, without consideration for non-biological needs.

Others, such as Bettin, wondered whether, given the unusual nature of the 2001 water

year, it might make sense to shelve the formal SOR-driven recommendation process for this year, or at least to develop any needed SORs as a group at the TMT's weekly meetings. Ultimately, Silverberg asked the salmon managers to discuss this issue further at next Tuesday's FPAC meeting, and to report back at the April 4 TMT meeting. It was so agreed.

To be clear, then, said Turner, it sounds as though the TMT does want to continue to work as a Regional Forum group this year, that it is not interested in giving up its recommendation-making role to the federal or regional executives, and that the TMT participants do want to continue to meet regularly through the season, to exchange information and develop operational recommendations. Silverberg polled each of the TMT members, each of whom agreed with Turner's statement, with the recognition that, for this year only, an additional layer of process may be in place as the TMT's recommendations are approved by the federal or regional executives.

6. Update on NWPPC Request for TMT Decision Rationale.

Discussion of this topic was deferred to a future TMT meeting.

7. Next TMT Meeting Date.

The next face-to-face meeting of the Technical Management Team was set for Wednesday, April 4. Meeting notes prepared by Jeff Kuechle, BPA contractor.

TMT PARTICIPANT LIST

March 21, 2001

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Pat McGrane	Reclamation	
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Steve Pettit	IDFG	
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TECHNICAL MANAGEMENT TEAM

BOR: Pat McGrane\Lori Postlethwait

NMFS: Paul Wagner\Chris Ross BPA: Scott Bettin\Robyn MacKay

USFWS: Howard Schaller\Bob Hallock\Susan Martin

OR: Christine Mallette WA: Jim Nielsen ID: Steve Pettit

MT: Jim Litchfield COE: Cindy Henriksen\Rudd Turner\Dick Cassidy

TMT Meeting

April 4, 2001 0900 - 1200 hours PST

Custom House Portland, Oregon

Room 118

Note Change: Meet-me number is 503-230-3344, passcode 9469.

All members are encouraged to call Donna Silverberg with any issues or concerns they would like to see addressed. Please e-mail her at dsilverberg@cnnw.net or call her at (503) 248-4703.

AGENDA

1. Welcome, introductions.
2. Review current system conditions.
    - Reservoir operation and water supply (COE, BOR)
    - Power system status (BPA)
    - Fish status (NMFS, USFWS)
3. Executive meeting update (Federal Criteria and Priorities) (NMFS).
4. Vernita Bar operation (BPA).
5. Review operations requests.
6. Develop recommended operations.
7. Review Water Management Plan.
    - Main Report (draft dated 2/16/01)

- Appendix 4, TMT Guidelines
- TMT meeting days and times

8. Water temperature modeling (COE).

9. TMT feedback on COE work products and tools.

10. Water conservation at navigation locks (COE).

11. Update: NPPC requests for TMT decision rationale (Silverberg).

12. Other.

- Set agenda for 18 April TMT meeting

Meet-me number is 503-230-3344, passcode 9469. Questions about the meeting may be referred to Cindy Henriksen, (503) 808-3945, or Rudd Turner, (503) 808-3935.

COLUMBIA RIVER REGIONAL FORUM

TECHNICAL MANAGEMENT TEAM
MEETING NOTES
April 4, 2001
CORPS OF ENGINEERS NORTHWESTERN DIVISION OFFICES – CUSTOM HOUSE
PORTLAND, OREGON

TMT Internet Homepage: http://www.nwd-wc.usace.army.mil/TMT/index.html

FACILITATOR'S NOTES ON FUTURE ACTIONS

Facilitator: Donna Silverberg

The following is a list of items the Technical Management Team (TMT) discussed at its last meeting that will require future action or discussion:

Vernita Bar: Joe Lukas has begun posting information on stranding on the web. Please check for the latest information. Questions remain about the Vernita Bar Settlement Agreement. TMT members acknowledged that all parties to the VBSA might need to meet and confer about the allowable elevations for this low water year. Aso, questions were asked about the gages below Priest Rapids.
Action: Pat McGrane will check with USGS regarding re-rating the gages at and below Priest Rapids.

Current Systems Operations: COE and BOR reviewed current reservoir operations and water supply. When asked, NMFS, CRITFC, Washington, Oregon and USFWS expressed a preference to delay refill of Albeni Falls to maintain Vernita Bar flows. Idaho needs to check before stating a preference due to their lawsuit. Montana supports a delay to get water to Coulee, but not to maintain Vernita Bar flows.

Water Rights in Washington: Jim Nielsen will provide an update at the next meeting regarding recent public hearings that may affect WA water rights resulting from the declared drought emergency.

Water Temperature Modeling: COE is working with Battelle to do runs of the MASS1 gas abatement model that will include temperature. These runs will include lower flow years with high temperatures and with more moderate temperatures (’94 and ’77 meteorological conditions). They will have outputs for the next TMT meeting. **Question** for TMT – in simulation 3, should there be no spill or low spill?
Action: Rudd will distribute results for simulations 1 and 2 on Tuesday, April 10. TMT will discuss simulations 1 and 2, and input for simulation 3, on Wednesday, April 11.

RE: TMT Feedback on COE's Work Products and Tools: Overall, the group found the COE tools very helpful. They suggested the following modifications**:**

- Date the files and note the agency author
- Change “refill” to “fill”
- Include both kaf and ksf-days on the histogram

RE: Navigation Locks: Given the poor water conditions this year, COE’s Walla Walla District has agreed to reduce the number of lockages for recreational users from 5 to 3 per day. Portland District is still reviewing its operations for this year. There will be an update on this item at the April 18 meeting.
Action: Rudd will email the megawatt per hour loss for each lockage to TMT members. (Note: this was done last week).

Operations: Due to BPA’s power emergency, there will be no spill in the near future. Headwaters will remain on minimums and Grand Coulee will draft no more than needed for Vernita Bar or the power system. If the Regional or Federal Execs adjusts this, COE will notify TMT members.

Next Meeting: The group determined it was necessary to have a face-to-face meeting on Wednesday, April 11. The agenda will include:
-Temperature models
-Lower Granite operations
-MOP
-Federal Agencies' River Operation Plan

Thank you for your preparation and participation in TMT!

Meeting Minutes

1. Greeting and Introductions

The April 4 Technical Management Team meeting, held at the Customs House in Portland, Oregon, was chaired by Rudd Turner of the Corps and facilitated by Donna Silverberg. The following is a distillation, not a verbatim transcript, of items discussed at the meeting and actions taken. Anyone with questions or comments about these minutes should call Turner at 503/808-3935.

Silverberg welcomed everyone to the meeting, then led a round of introductions and a review of the agenda.

2. Current System Conditions.

Rudd Turner said Dworshak continues to release minimum discharge of about 1.5 Kcfs; Dworshak elevation, as of last night at midnight, was 1512.3 feet. Project inflows have dropped

slightly due to cool weather, but Dworshak is still filling at a rate of 7/10 of a foot per day. Day-average flow at Lower Granite has run between 32 Kcfs and 44 Kcfs over the past week, Turner said; it was 41.8 Kcfs yesterday. At Libby, outflow is now 4 Kcfs; current project elevation is 2387.9 feet, with inflows of about 3 Kcfs – the project is drafting by about 1/10 of a foot per day. At Bonneville, over the past week, day-average flows have run between 111 and 144 Kcfs, with tailwater elevations as high as 14 feet.

The Corps is regulating the forebay elevation at Bonneville, said Turner; following the last TMT meeting, the Corps, BPA, and the tribes coordinated to operate the Bonneville pool within a 1.5-foot operating range, between 75.0 and 76.5 feet, from 6 a.m. Monday through 6 a.m. Saturday, for the treaty fishery. This is a hard constraint from Tuesday through Saturday, Turner added. Kyle Martin said he has not heard of any problems experienced by tribal fishermen since this operation was implemented.

Albeni Falls is releasing 10 Kcfs, Turner said; the planned operation at that project is to fill somewhat in April, to elevation 2056 by April 30. Once this operation begins, filling Albeni Falls to elevation 2056 will require a decrease in project outflow of 6 Kcfs-7 Kcfs, normally not a big deal, but it could be this year, said Turner.

This is a dicey time to do that, from the standpoint of maintaining the Vernita Bar minimum flow, said Paul Wagner, adding that NMFS' preference would be to delay Albeni Falls refill until after the Vernita Bar minimum flow requirement ends in early May. The Tribes concur, said Kyle Martin. David Wills said the Fish and Wildlife Service agrees with NMFS' position; Christine Mallette said ODFW does as well. Steve Pettit said he will have to check with his office to verify Idaho's position. Jim Nielsen said Washington supports deferring refill at Albeni Falls. Jim Litchfield said Montana has no strong position on this issue, but would probably support delaying Albeni Falls refill into May. So noted, said Turner; I'm not prepared to respond to that request today, but we will take it into account.

Pat McGrane said Grand Coulee elevation is holding steady at 1223 feet; Hungry Horse elevation is also holding fairly steady at about 3491 feet. April 1 is the traditional start of the irrigation season in Southern Idaho, said McGrane; withdrawals have been slight so far, due to cold weather. McGrane added that Reclamation's Biological Assessment on the Snake River projects is due out this Friday.

The discussion turned to Grand Coulee and Banks Lake operations; in general, it was observed that these operations are very difficult to predict at this point, before the 2001 runoff season has begun in earnest. Given the complexity of the decisions we will need to discuss, it seems to me that some sort of analysis is in order, said Litchfield. In response to a question about what the absolute bottom elevation is now at Grand Coulee, Robyn MacKay said that, rather than setting a minimum elevation at that project, it probably makes more sense to develop some operational priorities – what gives first, in other words, she said.

McGrane said there is already some analysis taking place; right now, it looks as though everything will be OK. The best thing we can do operationally is to keep Grand Coulee outflow

as low as possible, and avoid exceeding the Vernita Bar minimum, McGrane said. The only viable option we have right now is to cut Vernita Bar minimum flows, he said, adding that it is his understanding that the executives will be discussing that issue this Friday. MacKay said that, currently, the Vernita Bar minimum flow and power needs are approximately in balance; as temperatures rise later in April, however, maintaining the Vernita Bar minimum flow will likely put BPA into a surplus power position, at which point it would be preferable to start storing additional water in Grand Coulee.

Basically, there are a large number of variables and options before us at the moment, said McGrane – the weather, runoff, irrigation demand, power demand, what the Vernita Bar minimum flow will be etc. The discussion then turned to the question of which is the proper venue in which these decisions should be made; there was no clear TMT consensus on this issue.

Silverberg asked what the TMT's recommendation would be, in terms of the best near-term operation for fish. Martin replied that maintaining Vernita Bar minimum flows is one of CRITFC's highest priorities. Wouldn't it make more sense to put the majority of the available water on the most at-risk listed species, such as the Upper Columbia stocks, in this extremely low-flow year, rather than favoring the healthiest run in the basin? Turner asked.

The group then spent a few minutes debating the effects of the current Vernita Bar operation on operations for other listed species later in the season. Wagner observed that the current operation is driven equally by power and the need to maintain the Vernita Bar minimum; there isn't much opportunity to save additional water in Grand Coulee at this time. If there is to be a reduction in Vernita Bar protection flows, NMFS would need to be convinced that there is a real biological benefit for listed species down the road, he said. Nielsen said Washington is also not quite ready to give up on the Vernita Bar protection operation at this time; he objected to the fact that, when push comes to shove, it is always the fish that take the hit while power and irrigation are unimpacted. MacKay took exception to Wagner's statement, noting that BPA has captured significant load reductions, including the purchase of 1,500 MW in DSI load. I stand corrected, on the power part, at least, Nielsen said.

Turner said the April early-bird forecast is now available; at The Dalles, January-July runoff is predicted to be 55.7 MAF, 53% of normal, down about 3 MAF from the March final forecast. Libby dropped 4% to 49% of normal. Lower Granite dropped 8%, to 49% of normal, for the April-July runoff period. Dworshak dropped 5%, to 52% of normal during the April-July period. Hungry Horse dropped 2% to 58% of normal for the April-September period, Turner said. We're expecting the April final forecast this Friday, he added, at which point RCC will update the SSARR runs, the family of curves and the histograms, which will then be posted to the TMT web site or provided to TMT members.

MacKay added that, yesterday, BPA declared a power system emergency, citing the Northwest Power Planning Council's estimates of power system reliability problems during the spring and summer of 2001, as well as the impact of spill for fish passage on West Coast energy prices and power system reliability (please refer to the full text of the emergency declaration, available from the Bonneville Power Administration website, for further details). MacKay said

this emergency situation will continue until further notice.

On the subject of fish passage, Wagner said the outmigration has now begun; yearling chinook numbers are building at Lower Granite, with a protracted run expected this year. Normally, the peak of the juvenile outmigration at Lower Granite occurs between the third week of April and the second week in May, he said; this year, it's hard to predict exactly what will happen, given the low flows these fish are likely to see.

Steelhead have also begun arriving at Lower Granite and elsewhere in the system, Wagner said; again, the steelhead migration is expected to be protracted in 2001. He asked whether the daily historic cumulative passage index graphs NMFS and the Fish Passage Center produced last year were useful enough to continue with in 2001; there was general agreement that they are.

Moving on to adult passage, Wagner said more than 25,000 adult spring chinook have passed Bonneville Dam so far this week, double last year's count for this date. Yesterday alone, 6,721 adult chinook passed the project. Adult chinook and steelhead are also passing John Day, McNary, Ice Harbor, Lower Monumental, Little Goose and Lower Granite Dams. Christine Mallette said the current forecast is for 364,000+ adult spring chinook entering the Columbia system, more than twice as many as last year's very good run. A total of 206,000 spring chinook are forecast to enter the Snake River, four times last year's total.

With respect to chum, the count to date from Hamilton Springs is just over 3,300 fry, from Hardy Creek, just over 800 fry, said David Wills, adding that outmigration timing from those systems appears to be a couple of weeks behind normal this year. Nielsen added that field crews are observing some stranding in the Ives Island area; fry are still being captured in substantial numbers at the index seining sites. With the fluctuations in Lower Columbia flows, the bottom line is that we are continuing to see emergence, Nielsen said.

3. Vernita Bar Operation.

Joe Lukas said he had posted the first Hanford Reach Stranding report of 2001 on the TMT website yesterday. He reported that flows are now about 70 Kcfs at Chief Joseph Dam; we reached the 50-fish criteria on March 21, the earliest date on record, he said. This being the case, said Lukas, program operating constraints began on March 26. On March 28, crews captured 157 chinook at the index seining sites. In other words, Lukas said, it looks like the estimated temperature units are falling a little behind reality this year, and emergence is somewhat earlier than predicted. We are maintaining 68 Kcfs, just above the Vernita Bar minimum flow, Lukas added.

So we're now in the 40 Kcfs (+/- 20 Kcfs) fluctuation band at Priest Rapids? Wagner asked. Correct, Lukas replied -- basically, all we're doing at this point is maintaining the Vernita Bar minimum flow. In response to a question from Litchfield, Lukas said that when Grand Coulee January-July runoff is below the critical level of 42.6 MAF, the Vernita Bar minimum flow can be lowered; we are well below that critical runoff level this year, he said, and while

reducing the Vernita Bar minimum flow has been discussed, to date, that decision has been deferred.

In response to another question, Nielsen said that, if water and air temperatures continue to be similar to last year's, the estimated end of emergence will be about May 5; at that point, the Vernita Bar minimum flow requirement will end. In response to another question from Litchfield, Lukas said the Vernita Bar Agreement allows for the Vernita Bar minimum flow to be dropped from 65 Kcfs to as low as 55 Kcfs under the extremely low runoff conditions we're experiencing this year; however, there is some confusion about exactly how that decision must be made. Nielsen added that, so far, BPA has needed to release at least 70 Kcfs from Grand Coulee in order to meet load.

There is a federal executive meeting to discuss this topic on Friday of this week, Turner noted; at that point, we should have some additional information to share with you. He added that the next meeting of the federal, state and tribal executives is scheduled for April 13.

The discussion turned briefly to the discrepancies noted recently between the flow readings at the Priest Rapids tailwater gauge and the USGS gauge four miles downstream. Pat McGrane said he will contact USGS to find out when – or if – their gauge has been re-rated, and will report back at the next TMT meeting. In the meantime, said Lukas, the next meeting of the Hanford Stranding Policy Group is this Friday, April 6.

4. New System Operational Requests.

No new System Operational Requests were submitted prior to today's meeting.

5. Recommended Operations.

Turner drew the group's attention to a document titled "Operation of Lower Granite Project During Spring 2001," explaining that this proposal was developed by NMFS. Chris Ross briefly reviewed the contents of this handout; in essence, NMFS is proposing an evaluation of short-term substantial increases (pulses) in Lower Granite powerhouse discharge during early evening hours this spring, up to 90 Kcfs-100 Kcfs if possible, drafting the volume in the top four feet of Lower Granite's operating range to produce the pulses, then refilling the project during daylight hours. We are proposing this as an operational alternative in order to avoid the negative biological impact of low flows seen in 1992 and 1994, when no special operations were done, Ross explained.

The evaluation would consist of a block test design of control days and test days, Ross said. He noted that there is anecdotal information that a similar strategy used briefly in May 1992 produced a strong positive correlation with increased fish passage; following these pulses, yearling chinook numbers increased 350% over the previous day's total. The monitoring personnel and equipment originally earmarked for the raised spillway weir evaluation will be used instead to monitor fish response to this evaluation, Ross explained.

Ross spent a few minutes going through the details of the NMFS proposal, including the details of the various operational conditions that could be tested. What do you need from TMT today? Silverberg asked. Concurrence with the operation, Ross replied; we probably don't need that today, but the researchers will be ready to go by the third week in April – the week of April 23. Ross said it would be extremely helpful if TMT could provide its input by next Wednesday, April 11.

In response to a question, Ross said the researchers believe they will have at least preliminary observational data within 48 hours after each day's testing. If they can process that information as quickly as humanly possible, if the information is positive, we may want to go to this type of an operation as our operational strategy, rather than just as an evaluation, Litchfield observed. That possibility has occurred to NMFS as well, Ross said.

Mallette said FPAC had discussed this operation yesterday; Scenario C enjoyed the strongest support among the salmon managers, and is a viable option, from the salmon managers' perspective. Can we expect an answer, as far as the salmon managers' support for this proposed evaluation, by next Wednesday? Silverberg asked. Montana supports it, said Litchfield. Steve Pettit said there are a number of questions that still need to be answered before such a decision can be made, such as the availability of flow augmentation from other reservoirs to increase velocities in the upper end of Lower Granite pool.

Martin said this proposal is inconsistent with CRITFC's advocacy of a normal, natural hydrograph; however, he said he will run it by CRITFC's policy people. McGrane said it will be difficult to resolve the augmentation question over the next week. For that reason, said Silverberg, perhaps we should concentrate on Scenario C. MacKay said BPA is willing to consider this operation. From the Corps' standpoint, this operation would be workable, Turner said. We'll discuss this further at next Wednesday's TMT meeting, Silverberg said.

With respect to the actual operation, the next two-week increment would cover the period of April 9-22, said Turner. So far, he said, we have two unanswered questions about that period: the MOP operation, and whether or not to begin implementing the NMFS-advocated "pulsing" operation at Lower Granite. Spill did not begin at Ice Harbor due to the power system emergency, Turner added; the Corps would propose that, from an operational standpoint, we plan for zero spill through April 22. Nielsen observed that BPA has said they will reconsider the emergency declaration on April 16; MacKay replied that she anticipates an ongoing emergency declaration throughout the fish passage season this year, so it is fair to assume that no spill will occur during the next two weeks.

The Corps would propose that headwater projects remain on minimum outflow, with Grand Coulee releasing the minimum flow necessary to meet power system and Vernita Bar minimum flow needs, Turner said. If power system or flow conditions change significantly, or if the Executives make significant changes to the operation prior to April 22, we will inform TMT members via email and telephone, Turner said.

Moving on to MOP at the Lower Snake projects, said Tuner, what does the TMT

recommend, given the fact that April 3 is the BiOp planning date to move to a MOP operation. We can talk about it today, he said, or we can wait another week and discuss it at the April 11 conference call. I would suggest that we wait, said Litchfield – it is going to be a lengthy discussion, and there probably isn't enough time remaining in today's meeting to resolve it. There was general agreement that this issue will be discussed at the TMT's April 11 meeting.

After a few minutes of additional discussion, there was agreement that the MOP decision can wait a week; in the meantime, the operation described by Turner will go forward.

6. Review of 2001 Water Management Plan.

Discussion of this agenda item was deferred.

7. Water Temperature Modeling.

Turner said the Corps has been working with Battelle to do some runs of the MASS 1 model developed for the DGAS study, to try to get a handle on what Snake River temperatures might look like this summer. Nancy Yun distributed a written description of the model, and the reasons it improves on the older COLTEMP model. She said the Corps and Battelle are doing three simulations: Simulation 1, using 1977 hydrologic and meteorological data, Simulation 2 using 1977 hydrologic information and 1994 meteorological data, and Simulation 3, a base case dependent on the output from Simulation 2.

Battelle should have some outputs we can share at the next TMT meeting, Yun said, at least from the first two simulations. Turner noted that there is still time for the TMT to provide input into the parameters of Simulation 3; there was general agreement that this would be useful, once the results from the first two simulations are available. Yun said the results from the first two runs are expected to be available by next Wednesday; Turner said he will distribute this data to the TMT as soon as it is available. In response to a question, Yun said the Corps plans to run a simulation using CRITFC's proposed operation once the MASS 1 base-case is established.

Yun noted that it would be helpful if the TMT could provide their input on Simulation 3 prior to April 18; she said she will check with Battelle to see whether the model runs can be made available by next Tuesday, April 10, so that they can be discussed at the April 11 TMT meeting. If it will not be possible for Battelle to do this, an email will be send out informing the TMT.

8. TMT Feedback on COE Work Products and Tools.

Turner said he has received no additional comments to date on the work products and informational tools discussed at the last TMT meeting; the Corps' plans, at this time, are to continue to update the family of refill curves for the three federal headwater storage projects. The current probability of filling Libby to elevation 2439 by June 30, based on the March final water supply forecast, is edging up slightly, and is now just over 50%. The probability of Dworshak filling to elevation 1580 by June 30 is now estimated to be about 85%, while the probability of Hungry Horse filling to elevation 3540 feet by June 30 is about 50%.

The next work product is the histogram or "bar chart," Turner said, showing the volumes projected to be available for flow augmentation from Hungry Horse, Dworshak and Libby this summer, as well as inflow volume to date and the volume needed to fill to each project's target elevation. The group spent a few minutes discussing this information; in response to a question, Cathy Hlebechuk said there is 358 KAF of storage in the top 20 feet of Dworshak. This being the case, said Litchfield, it appears to me that there is a better-than-50% chance that we could fill Dworshak completely in 2001; perhaps that should be our goal, rather than elevation 1580.

The group spent a few minutes discussing the Corps' bar chart, offering a few minor suggestions as to how it could be improved.

9. Water Conservation at Navigation Locks.

Turner distributed a Walla Walla District Public Notice explaining the Corps' water conservation plans connected with recreational lockages this year; at least at the Snake River projects and McNary, we will be reducing the number of lockages for recreational traffic from five per day to three, he said. This does not apply to commercial traffic, he added, and is for this year only. At Bonneville, The Dalles and John Day, Portland District is considering similar reductions, but has not yet made a decision, Turner added.

10. Update on NWPPC Request for TMT Decision Rationale.

Discussion of this agenda item was deferred.

11. Next TMT Meeting Date.

The next face-to-face meeting of the Technical Management Team was set for Wednesday, April 11, from 1 p.m. to 4 p.m. Another face-to-face meeting was set for April 18. Meeting notes prepared by Jeff Kuechle, BPA contractor.

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April 4, 2001

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On Phone:

Name	**Affiliation**	**Phone**
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Greg Haller	Nez Perce Tribe	
Joe Lukas	Grant PUD	
Jim Nielsen	WDFW	
Steve Pettit	IDFG	

TECHNICAL MANAGEMENT TEAM

BOR: Pat McGrane\Lori Postlethwait

NMFS: Paul Wagner\Chris Ross BPA: Scott Bettin\Robyn MacKay

USFWS: Howard Schaller\Bob Hallock\Susan Martin

OR: Christine Mallette WA: Jim Nielsen ID: Steve Pettit

MT: Jim Litchfield COE: Cindy Henriksen\Rudd Turner\Dick Cassidy

TMT Conference Call

11 April 2001 1300 - 1600 hours

Call in number 503-808-5190

All members are encouraged to call Donna Silverberg with any issues or concerns they would like to see addressed. Please e-mail her at dsilverberg@cnnw.net or call her at (503) 248-4703.

AGENDA

1. Welcome, introductions.
2. Update on Federal agencies' 2001 FCRPS operations plan.
3. Lower Granite spring operation proposal (NMFS).
4. Develop MOP operation.
5. Water temperature modeling -- review scenarios 1 and 2 results, develop scenario 3 conditions (COE).
6. Other.
    - Set agenda for 18 April TMT meeting

Meet-me number is 503-808-5190 Questions about the meeting may be referred to Cindy Henriksen, (503) 808-3945, or Rudd Turner, (503) 808-3935.

COLUMBIA RIVER REGIONAL FORUM

TECHNICAL MANAGEMENT TEAM
MEETING NOTES
April 11, 2001
CORPS OF ENGINEERS NORTHWESTERN DIVISION OFFICES – CUSTOM HOUSE
PORTLAND, OREGON

TMT Internet Homepage: http://www.nwd-wc.usace.army.mil/TMT/index.html

1. Greeting and Introductions

The April 4 Technical Management Team conference call, held at the Customs House in Portland, Oregon, was chaired by Rudd Turner of the Corps and facilitated by Robin Harkless. The following is a distillation, not a verbatim transcript, of items discussed at the meeting and actions taken. Anyone with questions or comments about these minutes should call Turner at 503/808-3935.

Turner welcomed everyone to the meeting, then led a round of introductions and a review of the agenda.

2. Update on the Federal Agencies' 2001 FCRPS Operations Plan.

Cindy Henriksen reminded the group that the Federal Executives have designated a series of operating criteria and priorities for 2001; to flesh out these criteria and priorities, a federal agency team is developing a 2001 Federal Operations Plan, which will in turn form the basis of the TMT's 2001 Water Management Plan. The federal agency team started working in earnest last week, Henriksen said; the current plan is to post the draft 2001 Federal Operations Plan to the Federal Executive web site tomorrow, April 12. The Executives will then be discussing that draft operating plan at their meeting on Friday, said Henriksen; the meeting will be held beginning at 9 a.m. at the Sheraton Airport Hotel. In response to a request, Turner said it should be possible for him to post a copy of the draft Federal Operations Plan to the TMT homepage as well.

3. Lower Granite Spring Operational Proposal.

Turner said NMFS has updated its Lower Granite operational proposal; that update was emailed to the TMT membership earlier today. Turner noted that the April final water supply forecast has dropped for Dworshak and the Snake River; that updated forecast, as well as updated histograms and water supply curves, are available via the TMT homepage.

Chris Ross said that, according to the most recent Corps analysis, Dworshak now has a 69% probability of refilling to elevation 1580, and a 31% probability of filling to elevation 1590, by June 30. In other words, said Ross, the probability of Dworshak's reaching elevation 1580 has

gone down slightly from the March final forecast.

Ross went briefly through the current Lower Granite test design, noting that it involves a six-day sequence of two three-day blocks, followed by a non-test day. This is Scenario A, he said; as we discussed last week; it will require a volume of water if it is going to be coordinated with a spill operation this spring. The issue is, where is that spring water coming from? Discussions are ongoing with Idaho Power Company regarding potential flow augmentation from Brownlee, but at this point, there isn't much water going into Dworshak, said Ross. In other words, things are pretty problematic with respect to the availability of spring flow augmentation.

If no flow augmentation is available, Ross continued, we will need to look at Scenarios B and C, which involve surging from Lower Granite with no flow augmentation. Under Scenario B, there would be a Monday pulse day, followed by four days of slow refill, to avoid drastic reductions in flow while the pool is refilling. This would be a pretty protracted operation, however, he said, with only one pulse per week. Under Scenario C, we would shift some of the load following into the evening hours, Ross explained.

For now, it probably makes the most sense to look more closely at Scenarios B and C, given the likelihood that no spring flow augmentation will be available, said Ross. FPAC has raised a number of concerns about Scenario A; they are more partial to Scenario C, and perhaps the next step should be to attempt to better define Scenario C.

Have you talked to Idaho Power about refilling Brownlee in June? Cathy Hlebechuk asked. Yes, Ross replied. Our understanding is that, for navigation, Idaho Power must maintain 13 Kcfs at Lime Point, Hlebechuk said; in past years, IPC has requested a waiver, because jet boats don't typically need that much water. This year, said Hlebechuk, it is likely that FERC will require IPC to release the full 13 Kcfs, because of the number of jet boat accidents in that reach last year.

The current TMT-recommended operation goes through April 22; it contains no flow augmentation, Turner said. We will develop the next two-week operations block at the April 18 TMT meeting, he said; in other words, we probably don't need to make a final decision on this today, but we will need to make one at next week's TMT meeting.

Steve Pettit said the salmon managers will be providing NMFS with a final set of comments on the proposed Lower Granite "pulse" operation later today. Pettit added that FPAC will continue to discuss the Lower Granite operation at next Tuesday's conference call. Ross said he will email FPAC's final comments to Turner as soon as he receives them, for distribution to the other TMT members. If FPAC develops a specific flow proposal, said Turner, we might be able to run some analyses prior to next week's meeting, if the proposal is available in time. He added that, from the standpoint of Clean Water Act and Endangered Species Act compliance, the Corps regards Dworshak refill as a very high priority.

4. Development of MOP Operation.

The only reservoir operation regulations we have out right now are the 1.5-foot operating range at Bonneville, as well as a minimum elevation of MOP+1 at Ice Harbor and Lower Granite reservoirs until further notice, Turner said. Does TMT see a need to initiate any additional MOP operations at this time? he asked.

Christine Mallette said potential MOP operations were discussed at yesterday's FPAC meeting; our understanding is that the Lower Snake pools are already at or near their MOP elevations, she said. Lower Granite was at MOP yesterday, Henriksen said. We're currently using the full range of the operating pools as needed, said Robyn MacKay, but given the load situation, it wouldn't surprise me if all of the Lower Snake pools were near MOP. Are the pools filling and then coming back down? Ross asked. I would have to look at the hourlies, MacKay replied; however, the pools are being operated to meet power demand, and given the cold temperatures and heavier-than-expected loads over the past few days, it wouldn't surprise me if the pools were near MOP. We have been releasing more water from Grand Coulee this week than we did last week, to meet increased power demand, she added.

If folks are comfortable with the current operation, we will continue it, said Turner. Mallette said FPAC is now requesting that the Snake River pools be maintained at MOP elevations, recognizing the navigation constraints for Lower Granite and Ice Harbor pools, which require MOP+1. What about John Day pool operations? Hlebechuk asked. We did not discuss John Day, Mallette replied. When would you like the Lower Snake MOP operation to begin? Turner asked. Immediately, Mallette replied. To be clear, there is no request for a specific pool operation at John Day at this time? Hlebechuk asked. Not at this time, Ross replied.

In response to a question from Turner, Wagner said yearling chinook and steelhead passage is on the rise at all of the Lower Snake projects, in excess of 1,000 chinook and steelhead per day at Lower Granite in the past few days and up to 8,000 combined at Lower Monumental.

What about the power system impacts of the MOP operation? Turner asked. I don't see that as being a problem at this time, said MacKay. Given that fact, said Turner, in the absence of any objections, the Corps will issue a regulation – MOP at Lower Monumental and Little Goose, and MOP +1 at Lower Granite and Ice Harbor Reservoirs. MacKay said BPA would like the MOP operation to begin tomorrow morning, due to some Grand Coulee-related issues. It was so agreed. The Corps and BPA will coordinate, and the teletype will go into effect tomorrow morning, said Turner. Later in the meeting the Corps and BPA stated they had coordinated a start time of 1000 hours; TMT members agreed that this would be acceptable.

5. Water Temperature Modeling.

The Corps received a report back from Battelle on the first two scenarios run through the MASS-1 model, said Turner; I emailed that report to TMT members yesterday. The group spent

a few minutes going through the Battelle report, offering a few comments and corrections to the data used to calibrate and drive the model. Turner noted that the Battelle report is available via the TMT homepage.

The purpose of this report is to give us an idea of how bad things could get this summer? Pettit asked. The model runs looks reasonably good until the end of the summer period, said Nancy Yun. Kyle Martin objected to the fact that data from only three meteorological stations – Wenatchee, Hanford and Portland Airport – was used in this modeling exercise; he noted that there is a great deal of additional meteorological data available for the Snake River Basin. In response to a request from Yun, Martin said he will work with the Corps to obtain additional meteorological data to inform the model. If we can get that within the next few days, we can re-run these scenarios, said Yun – I'm willing to work with you on that. Nielsen added that, particularly in a low-flow year, it would be very helpful to have model outputs for the first two weeks in September.

The group devoted a few minutes of discussion to the scenarios modeled and the model output. In going through this, it looks to me as though there is a good simulation vs. actual fit at the Lower Columbia projects, Paul Wagner observed, but the fit isn't as good at the Lower Snake projects.

Yun explained that the purpose of this exercise is to establish a base case, then evaluate the water temperature differences we might expect to see under different operational scenarios and weather conditions. Dick Cassidy observed that 1977 was a relatively cool weather year; in looking at these model outputs, what I take away is the fact that, if we were to get both a 1977-type water year and warmer 1994-type weather conditions, peak water temperatures at the Lower Snake projects could be 2-3 degrees C higher than what we actually saw in 1977, he said.

What would TMT like to see at this point, in terms of additional model runs? Turner asked. What are your overall impressions of what you've seen so far? It looks as though the temperature trends you have in there are probably pretty accurate, Martin replied; in my opinion, the 1994 temperature pattern is probably a pretty good guess as to what we're likely to see this summer. The model outputs do seem to be in the right ballpark, Wagner said; it seems to me that this is an upgrade to COLTEMP. I agree, Turner said – both gas and temperature can be evaluated with this tool, and it is more of a systemwide model.

We'll talk about what additional scenarios we would like to see run, and try to keep the final number under 27, Wagner said. That would be appreciated, said Turner; the available funding for this exercise is somewhat limited, and under the current contract with Battelle, we can really only run three additional scenarios. Cassidy noted that the systemwide spill operation chosen will be a particularly important variable, from a modeling standpoint.

After a few minutes of additional discussion, it was agreed that the salmon managers will attempt to develop some additional scenarios for modeling; the TMT will then discuss these additional scenarios and attempt to winnow the list to three at the group's April 18 meeting. In the meantime, Yun said she is available to discuss the model and its outputs, and asked anyone

with questions to contact her directly at 503/808-3937.

6. Other.

A. Update on Tribal Fishery Problem. Martin reported that there is a problem with the tribal fishery; Bob Heinith was out on the river yesterday interviewing tribal fishers, who reported that zero fish are being caught from the platforms and very few are being caught overall. The reason is the lack of spill to attract fish to Bonneville dam, and a lack of adult fish passage, Martin said.

Consequently, he continued, CRITFC has just submitted SOR 2001 C-2; it requests the immediate implementation of 2000 BiOp spill levels at Bonneville. It also requests that all three pools in Zone 6 – Bonneville, The Dalles and John Day – be operated within one foot of full. Commercial fisheries are set to begin soon, he said; CRITFC will be submitting an additional SOR covering those periods.

Martin went through the justification for this SOR, the full text of which is available via the TMT homepage. If this SOR cannot be implemented, he said, we request that the action agencies contact Don Sampson directly, and provide a formal written explanation by this Friday, April 13.

We'll take a look at the SOR, consider it and provide you with a response, Turner said. This is news to us, he said; have the fish managers heard of any adult passage problems at Bonneville? I have not, Nielsen replied; the numbers in the daily counts are consistent with the higher predicted run size this year.

Is the problem occurring in both the net fishery and the platform fishery? Nielsen asked. It is hitting the platform fishers particularly hard, Martin replied; the net fishers are doing somewhat better, but not as well as you would expect, given the magnitude of the 2001 run. Essentially, the fish are concentrating in the middle of the pool, rather than near the shores; our thinking is that spill at Bonneville will change the distribution of those adults within the pool, Martin said.

I'm somewhat mystified about how spill at Bonneville would affect the distribution of fish upstream of that project, Turner said; again, however, we will take a look at the request and provide a response to the tribes.

In a related vein, Greg Haller reported that the Nez Perce Tribe may submit a request for flow augmentation in the Snake River prior to next week's TMT meeting.

B. Albeni Falls Operations. Hlebechuk said the Corps operated Albeni Falls in the 2053-2054-foot range this winter; at last week's meeting, the salmon managers asked that Albeni Falls refill be delayed until after the Vernita Bar operation is over. The Corps is now proposing that Albeni Falls refill begin on May 5, with the goal of refilling that project by June 30. No objections were raised to this proposed operation at today's meeting.

7. Next TMT Meeting Date.

The next meeting of the Technical Management Team was set for Wednesday, April 18, beginning at 9 a.m. It was agreed that this will be a face-to-face meeting. Meeting notes prepared by Jeff Kuechle, BPA contractor

TMT PARTICIPANT LIST

April 11, 2001

Ruth Abney	COE	503/808-3939
Richard Cassidy	COE	
Robin Harkless	Facilitator	503/248-4703
Cindy Henriksen	COE	503/808-3945
Cathy Hlebechuk	COE	
Rudd Turner	COE	503/808-3935
Nancy Yun	COE	503/808-3937

<u>On Phone</u>:

Name	**Affiliation**	**Phone**
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Russ George	Water Management Consultants Inc.	
Greg Haller	Nez Perce Tribe	
Richelle Harding	D. Rohr & Associates	
Nengjin Liu	Idaho Power Co.	

Robyn MacKay	BPA	
Christine Mallette	ODFW	
Pat McGrane	USBR	
Mike O'Bryant	Columbia Basin Bulletin	
Steve Pettit	IDFG	
Bill Rudolph	NW Fish Letter	
Alastair Stevenson		
Rob Walton	Public Power Council	
David Wills	USFWS	
Chris Ross	NMFS	
Kyle Martin	CRITFC	
Paul Wagner	NMFS	
Craig Sprankle	USBR	
Glen Traeger	AVISTA Energy	

TECHNICAL MANAGEMENT TEAM

BOR: Pat McGrane\Lori Postlethwait

NMFS: Paul Wagner\Chris Ross BPA: Scott Bettin\Robyn MacKay

USFWS: Howard Schaller\Bob Hallock\Susan Martin

OR: Christine Mallette WA: Jim Nielsen ID: Steve Pettit

MT: Jim Litchfield COE: Cindy Henriksen\Rudd Turner\Dick Cassidy

18 April 2001 0900 - 1200 hours

Custom House Portland, Oregon

Room 118

Conference call lines: 0900 - 1000 h 503-230-5600

1000 - 1200 h 503-808-5190

All members are encouraged to call Donna Silverberg with any issues or concerns they would like to see addressed. Please e-mail her at dsilverberg@cnnw.net or call her at (503) 248-4703.

AGENDA

1. Welcome, introductions.
2. Irrigation in Washington state (DOE).
3. Hanford Reach update (Grant PUD).
4. Federal river operations proposal (BPA, NMFS).
5. Lower Granite spring operation proposal (NMFS).
6. Review current system conditions.
    - Reservoir operation and water supply (COE, BOR)
    - Power system status (BPA)
    - Fish status (NMFS, USFWS)
7. Review operations requests.

8. Develop recommended operations.

9. Water temperature modeling -- develop MASS1 scenario 3 (COE).

10. Other.

- Set agenda for 25 April TMT meeting

Questions about the meeting may be referred to Rudd Turner, (503) 808-3935 or Dick Cassidy, (503) 808-3938.

COLUMBIA RIVER REGIONAL FORUM

TECHNICAL MANAGEMENT TEAM
MEETING NOTES
April 18, 2001
CORPS OF ENGINEERS NORTHWESTERN DIVISION OFFICES – CUSTOM HOUSE
PORTLAND, OREGON

TMT Internet Homepage: http://www.nwd-wc.usace.army.mil/TMT/index.html

FACILITATOR'S NOTES ON FUTURE ACTIONS
Facilitator: Donna Silverberg

The following notes are a summary of issues that are intended to point our 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.

Hanford Reach Update (Rudd Turner):
Looking at April 9-15, flows increased by 8 kcfs; numbers of fish jumped from 98 to 484. A **question** for Joe Lucas came up regarding the 72 mortalities shown on April 15. Joe was not available for questioning at this meeting, but the group is interested in what the cause may have been.

Federal Agencies 2001 Operations Plan Proposal:
The Operations Plan is currently out for review; the federal executives have asked for comments by April 20. The next Regional Execs. meeting will be held April 27. One area that still needs discussion is the proposed Lower Granite surge and whether to use Snake River storage.
ACTION: TMT members will send comments as requested and will discuss the LGR issue at the 4/25 meeting.

Irrigation in Washington (Phil Cranen, Dept. of Ecology):
Orders are being sent to water right holders that they need to call DOE to see if they can turn on their interruptible water rights. Many programs are currently available for voluntary conservation in Washington, while others may be mandated. One discussed is the buy-back program, involving BPA, Washington State and the Bureau of Reclamation. BPA will use the water for power while the state will buy some water from the BOR to distribute to irrigators. Phil may be asked to update the Team as the season goes forward.

Lower Granite Spring Operations:
NMFS is continuing to consider a surge at LGR, as well as augmentation to refill and keep fish moving through the reservoir. They reported that USGS researchers may begin radio-tagging juveniles next week. NMFS is looking for input from states and tribes on the issue. The salmon managers sent comment to NMFS expressing concern about the spring migration status. They think the proposed action may have a negative impact on fish due to poor run-off predictions.

The problems are related to uncertainties around travel time, possible reservoir depletion and data gains. Oregon specifically objected to the use of DWK water for a LGR surge; Tony Nigro requested that the issue be raised to the Regional Execs.

Regarding initial suggestions for LGR operations:
ID/MT may support some window for minimal augmentation. Steve Pettit suggested use of water to prolong the natural hydrograph peak instead of surging.
WA suggested reversing the load at night to affect the forebay. One problem found with the proposed test is: what is the net effect? Another problem found is that the flows are so low that fish aren't entering the traps, so they won't be counted.

CRITFC objects to pulsing but would like to see a steady increase with the natural hydrograph.

Some salmon managers are considering the possibility of augmentation from BRN. What about Idaho Power Company involvement in TMT next week? **Action**: Rudd will call IPA.

ACTION: All members will consider suggested actions at LGR for next week's TMT meeting.

System Conditions
The current operation is set to meet power system needs. The BPA emergency has been extended and will be reconsidered in early May. Paul Wagner gave a summary on fish status: an exciting abundance of adults have been counted while a depressing number of juveniles have been located. An uncertainty exists as to where the juvenile fish actually are; possibly some are in tributaries and some are in reservoirs that are unable to be counted. Where ever they are, their numbers are unusually low.

Water Temperature Modeling
COE and CRITFC are working together on this matter. CRITFC suggested the group also look at the EPA model. The three scenarios for the next model runs with MASS1 are supported by the group. If an additional scenario is allowed under the contract then a DWR model will be included after checking in with TMT.

Dam Safety Inspection:
A simulated emergency will occur at LGR sometime in the next 2-3 weeks for safety inspection purposes. A request was made to do the inspection as early in the season as possible and at mid-day to reduce effects on the juveniles.

Priest Rapids Update:
USGS re-rated the gauge and it is quite accurate.

Next Meeting:
The next meeting will be a face-to-face Wednesday, April 25 from 9-12 at COE. Topics to discuss are:
--LGR
--Federal Operations Plan

--April Mid-Month forecast
--Hanford Reach Update
--Water Temperature Trend Procedure Proposal
--Brownlee Operations Proposal

Also, the group discussed the possibility of basing it's 'every other week' meeting time on next week's meeting to be more in line with the Regional Exec meetings that seem to be occurring every two weeks.

Meeting Minutes

1. Greeting and Introductions

The April 18 Technical Management Team meeting, held at the Customs House in Portland, Oregon, was chaired by Rudd Turner of the Corps and facilitated by Donna Silverberg. The following is a distillation, not a verbatim transcript, of items discussed at the meeting and actions taken. Anyone with questions or comments about these minutes should call Turner at 503/808-3935.

Turner welcomed everyone to the meeting, then led a round of introductions and a review of the agenda.

2. Irrigation in Washington State.

Phil Crane of the Washington Department of Ecology provided an update on the status of efforts to conserve irrigation water in Washington State in 2001. He noted first that the Columbia River Instream Flow Program sets irrigation volumes at dams from Chief Joseph down to The Dalles. Two weeks ago, Crane said, the Director and Gov. Locke decided to take advantage of the WAC that allows a 23% reduction in irrigation volume during extreme low-flow years; that Governor's order has now gone into effect.

We are sending letters out today to the 300+ people who have interruptible water rights, telling them that they will have to call an 800 number in Olympia to see whether their water is going to be interrupted, Crane said; the total acreage that could be impacted by this decision is on the order of 25,000-30,000. The state is also in the process of purchasing 33 KAF of water through Columbia Basin irrigators' buyback programs, Crane said. People can join this program voluntarily; they will then be allowed to use up to 1.5 KAF during the time that river flows are below minimum, mainly to keep their orchards alive, he explained.

This week, the projected average flow at The Dalles is 118 Kcfs, said Crane. Our adjusted minimum flow is 139 Kcfs, so we're telling people on the hotline that they cannot irrigate this week, Crane continued. So you call this a buyback program? Cathy Hlebechuk asked. BPA has been entering into contracts with growers to buy back their water rights,

essentially, Crane replied. We will then be able to use some of the Roosevelt Lake water from Reclamation's water right to partially offset the interrupted water rights. Irrigators will be able to use up to 1.5 KAF while the river is shut off, Crane said – that's if they sign up for our program. And how many acre-feet of water could be provided through that program? Nielsen asked. About 33 KAF, Crane replied. The intent of the program is to keep orchards alive, added Scott Bettin – they can't go without water for the entire summer. Crane added that, by next week, WDOE will have a better idea of exactly how many water rights and acre-feet will be affected by this program.

Why would anyone not participate in this program, given the fact that it's a freebie? Craig Sprankle asked. It's a political hot-button issue, unfortunately, Crane replied – this summer is likely to be an enforcement nightmare, as well as an accounting nightmare, given the fact that many of the interruptible water rights-holders share diversion structures with uninterruptible rights-holders. I'm sure everyone can appreciate the political sensitivity of this issue, Jim Nielsen observed.

3. Hanford Reach Update.

Joe Lukas was unable to participate in today's meeting, said Turner; however, his weekly Hanford Reach stranding report is available via the TMT homepage under "Discussion Forum," For the week April 9-15, average flows at Priest Rapids were 8 Kcfs higher than the previous week-average; the project continued to operate under the +/- 40 Kcfs flow band. The increased inflows allowed for the sampling of the first 19 random sites of the year, with 75 chinook sampled. Flows dropped to Vernita Bar minimum – about 67 Kcfs – on Saturday and Sunday. Index seining counts jumped from 98 to 484, suggesting that peak emergence is close, according to Lukas' report. Steve Pettit and Paul Wagner both took issue with this statement, saying that, in their opinion, it is too early for peak emergence to be at hand.

4. Federal River Operations Proposal.

Turner distributed copies of the most recent draft of the FCRPS operations plan proposal, dated April 13. There is little that is startlingly new here, said Wagner; it is based on the various position papers the federal parties have released so far this year. Wagner went briefly through the contents of the proposal, touching on the background for the 2001 federal river operations proposal, the current water supply forecast, emergency criteria, spring operations, summer operations, other operations and process issues.

Wagner noted that, under the sliding scale laid out in this document, no spill will occur unless the total January-July volume forecast at The Dalles reaches 60 MAF. In other words, said Scott Bettin, it is unlikely any fish spill will occur before 2002. He added that, this being the case, transport receives a very high priority in this proposal. If spill does occur in 2001, said Wagner, the federal operators are recommending the following spill priority: The Dalles, followed by (in order) Bonneville, John Day, McNary and Ice Harbor. Silverberg added that a concise executive summary can be found on Page 3 of the document.

Turner noted that the current (April final) runoff volume forecast is 56.1 MAF, January-July, at The Dalles. He noted that precipitation so far in April has been above-normal over most of the basin; if this continues to be true, this will be the first month in 2001 that the forecast has improved rather than worsened. The problem is that the Columbia is primarily a snow-driven system, and once you get past March, precipitation does not serve to substantially build snowpack, Turner said – in other words, it's unlikely that the runoff volume forecast is going to improve dramatically in 2001, even if precipitation is above-average between now and June.

The group discussed the results of last Friday's Regional Executives meeting; one issue that was not resolved is the Lower Granite "pulsing" operation, and whether or not storage will be used to support that operation, Wagner said. Do you have the sense that they are waiting for the TMT to work through that issue? Turner asked. The TMT is certainly one body they would like to weigh in on this issue, Wagner replied; they also want to hear feedback from the states and tribes.

The federal parties have asked that any comments on their 2001 FCRPS operations proposal be submitted by April 20, Turner said; the next meeting of the Regional Executives is set for April 27.

5. Lower Granite Spring Operation Proposal.

We've been working on this for a couple of weeks, Turner said; last meeting, I asked that today's meeting participants come prepared to make a TMT recommendation on this issue. That may no longer be necessary, said Turner; however, we do need to talk about a river operation for the next two-week period.

Chris Ross began by saying that, at the low flows projected for 2001, travel time through Lower Granite pool alone is likely to be up to two weeks – hence the NMFS proposal. Since last week's discussion, he said, I have looked at the volume of water needed for an operation that would provide the surges at Lower Granite Dam and use augmentation to refill the pool quickly, adding water at the upper end of the pool to increase velocity through the upper portion of the reservoir.

I assumed a volume of 110 KAF from Brownlee, said Ross, then attempted to calculate the volume needed from Dworshak if we assume a two-pulse, four-week operation. If we do a four-week operation, said Ross, we would need 233 KAF from Dworshak, in addition to the volume from Brownlee. If we assume that Dworshak will refill to elevation 1580 this year, there are 872 KAF between elevation 1520 and 1580. 233 KAF would be 27% of that water, Ross said. We also discussed a three-week operation, he said; that would require about 147 KAF from Dworshak, 17% of the volume available between elevation 1580 and elevation 1520. The four-week operation would draft Dworshak from elevation 1580 to 1565; the three-week operation would drop Dworshak elevation from 1580 to 1571.

The researchers are gearing up, Ross continued; they think that, by the middle of next week, they can start radio-tagging fish and have test fish in the reservoir. Do we need

concurrence on this operation today? Silverberg asked. I'd like to get some TMT input, Ross replied; the Lower Granite pulse is in the Federal River Operations Proposal, which will go to the Regional Executives for decision on April 27.

Steve Pettit reiterated that the salmon managers have been working to develop written comments to be submitted to NMFS on this proposal; that letter was sent to Paul and Chris yesterday. Not all of the salmon managers signed that letter, Pettit said; Oregon and NMFS declined to sign it. The salmon managers who did sign the letter are gravely concerned about the status of this year's spring migration, he said; we are concerned that this proposal will negatively, rather than positively, impact the spring run, because of the in-river conditions we're looking at.

The main concern, said Pettit, is that while we may see an increase in juvenile passage at Lower Granite if we can increase flow and velocity near the powerhouse over 7 or 8 hours, at the back end of the pool, the refill period will have a potentially devastating impact on travel time to Lower Granite dam. If you can't get refill from one or both of the storage reservoirs, he said, in my opinion, this operation will have a negative impact, and will produce a net increase in travel time through the first reservoir on the Snake. The memo was signed by CRITFC, WDWF, the Nez Perce Tribe, the Fish and Wildlife Service and IDFG, added Margaret Filardo.

Wagner agreed to send out copies of the salmon managers' comment letter to the other TMT participants once it has been received. Turner added that Tony Nigro sent him a memo formally opposing the use of Dworshak water to augment Lower Snake flows during the refill period of the Lower Granite pulsing operation. ODFW asks that this issue be formally raised to the Regional Executives on April 27, Turner added.

It sounds, then, as though many of the salmon managers feel the Lower Granite pulsing operation might be more acceptable if Dworshak is not used to augment flows during the refill portion of the pulsing operation, Turner said – however, IDFG and the other salmon managers have additional concerns beyond the use of Dworshak water. That's correct, Pettit replied, adding that IDFG also has some concern about the validity of NMFS' planned data-gathering operations during this test. I guess where I'm headed is, can we talk about what might be an acceptable operation for the salmon managers? Turner asked – I'd like to keep talking and attempt to reach agreement on a Lower Granite operation that might work for everyone.

We talked about that, but did not develop a second memo describing our suggested operation, Pettit said. In the past, Idaho and Montana have made it clear that, if conditions are as dire as they appear to be this year, it might make sense to use any available spring flow augmentation volumes to prolong the peak flow in the Lower Snake – make it five days, rather than a pulse, and get as many juveniles as possible through Lower Granite reservoir so that they can be collected and transported. Pettit emphasized that this is an IDFG proposal only, and has not been endorsed by the other salmon managers.

Nielsen added that Washington has suggested that nighttime reverse load factoring is another option to consider, in terms of increasing flow through the powerhouse at Lower Granite

without detrimentally impacting travel times at the back end of the reservoir. Nielsen added that Washington, too, has concerns about NMFS' ability to monitor and document the net impact on fish passage of the pulsing operation – at times of low to moderate flow, we've actually seen juvenile fish moving back upstream at the top of Lower Granite pool, he said. Pettit added that, because of low flows, fish cannot enter the trap at Lewiston; given that fact, he is concerned that some juveniles might be captured and radio-tagged at Lower Granite, then transported 40 miles back up the reservoir and released at Lewiston.

The USGS researchers have the same problem, Ross said; they have decided that, since they can't get fish at the Snake River trap at Lewiston, they will capture steelhead at Lower Granite, insert an 18-day radio tag and compare their migration rate with PIT-tagged fish captured at the trap, comparing the travel time of the test fish with the run-of-the-river fish. Pettit said IDFG does have purse-seining gear at Lewiston, which would help capture fish there even if the trap is not operational.

CRITFC's position hasn't changed, said Kyle Martin, we object to the Lower Granite pulsing operation, and instead support steadily-increasing flows that would more closely mimic a natural hydrograph.

At least some of the salmon managers are considering an SOR involving Brownlee; that will be forthcoming later this week, Nielsen said. That does raise a process question, he said, because Brownlee is not part of the FCRPS. So the salmon managers might support flow augmentation from Brownlee, but not from Dworshak, this spring? Turner asked. I'm not sure I can speak to that, but it is fair to say that Dworshak is crucial to summer flow augmentation and temperature control, Nielsen replied. You'll get the Brownlee SOR out by the end of this week? Turner asked. That's the plan, Nielsen replied; it might not be a bad idea to schedule a TMT conference call for some time next week. It would also not be a bad idea to invite Idaho Power to participate in that meeting, Bettin suggested. I will do so, said Turner.

6. Current System Conditions.

Turner reported that the system is being operated to store water in the headwater storage projects and Grand Coulee, with Grand Coulee operated to meet the 65 Kcfs minimum flow at Vernita Bar and power system needs. The power system emergency has been extended, according to notification received Monday, April 16; the emergency declaration will be revisited once the May final forecast is available, Bettin said. Over the past week Bonneville day-average flows have varied between 99 Kcfs and 134 Kcfs. The Bonneville forebay is being operated within a 1.5-foot range, pursuant to our agreement with CRITFC, Turner said. The federal executives decided there will be no spill at Bonneville, in reply to the SOR submitted by CRITFC last week.

At Lower Granite, flows have averaged under 30 Kcfs over the past week, Turner said – in other words, Lower Snake flows have yet to pick up. In the past, flows have been on the order of 60 Kcfs-65 Kcfs at Lower Granite during this period? Silverberg asked. Or higher, Wagner replied.

How does BPA feel about the reverse load factoring proposal? Pettit asked. Give us a proposal and we'll study it, Bettin replied – what hours are you talking about? From 7 p.m. to midnight, approximately, Ross replied. That would likely be doable, although not instantly, Bettin replied. The basic idea would be to structure normal project operations to provide a little pulse during peak fish passage hours, Wagner added. Filardo noted that it would be difficult, if not impossible, to do meaningful monitoring of the impact of this operation on fish passage. Bettin said he will talk to others at Bonneville about the possibility of reverse load-factoring -- given how low the flows are, it should be doable, he said.

Turner said Dworshak is currently at elevation 1518.8, and is continuing to release minimum discharge. Last week's inflows ranged between 2.9 Kcfs and 4.1 Kcfs; the project is filling at a rate of 3/10 of a foot per day. Libby, as of midnight last night, was at elevation 2386 feet and, at minimum outflow, drafting about a tenth of a foot per day. At Albeni Falls, the project continues to hold elevation 2053, said Turner; the Corps has agreed to delay Albeni Falls refill until May 5, after the Vernita Bar minimum operation is over. The plan is still to refill Albeni Falls by June 30, Turner added; the TMT needs to be aware that this tradeoff is coming up. He added that current Priest Rapids discharge is about 67 Kcfs.

Bonneville spill bays 1 and 18 are now being closed at night as a water conservation measure, from an hour after darkness to an hour before sunrise, Turner said. That operation started April 12 and will continue through the migration season. MOP and MOP+1 are now in effect at the Lower Snake projects, he said. Also, Portland District is announcing that the number of recreational lockages will be decreased from five per day to three per day, the same as Walla Walla District, in an effort to conserve water, Turner said.

Pat McGrane reported that Hungry Horse is currently at elevation 3488, 72 feet from full. The project is releasing Columbia Falls minimum. There are indications that the freshet is beginning on the Flathead River, he added. Grand Coulee is now at elevation 1218, also 72 feet from full, with inflows of 60 Kcfs and outflows of 65 Kcfs. The ferry is no longer in operation, due to low reservoir elevation, McGrane added.

Turner said the April mid-month forecast is expected to be released tomorrow; again, the forecast actually might improve a little, which would make for a refreshing change. He added that the "family of curves" and volume histograms available on the TMT website have been updated. Turner said the histograms show that, if the TMT wants a 70% confidence that Dworshak will fill to elevation 1580 feet on June 30, there is no flow augmentation volume available from that project this spring. If you feel lucky, and are willing to settle for a 50-50 possibility, there would be 119 KAF, or 60 Ksfd, available for flow augmentation this spring, Turner said.

With respect to the status of the fish migrations, Wagner said that, on the good news side, for adult spring chinook, the daily count peaked at 19,192 at Bonneville on April 15; total passage to date is 198,574 adult spring chinook, an order of magnitude higher than the 10-year average for this date of 19,030. Wagner added that fish counters have reported a 2-1 ratio of un-

adipose-fin-clipped fish to clipped fish so far this spring.

On the bad news side, said Wagner, at Lower Granite Dam, for yearling chinook, we're seeing about 4,000 fish per day, about the same at Lower Monumental. Numbers are much lower at Little Goose and Rock Island Dams. Many of the fish being detected at Lower Granite and Lower Monumental are Lyon's Ferry hatchery fish and Imnaha fish, Pettit added. We should be seeing close to 10,000 juveniles per day at Lower Granite at this time of year, with the daily averages dramatically on the increase, added Pettit. So where are the fish right now? Turner asked. No one knows, Wagner replied – at least a portion are in the reservoir, but others are still working their way down to the reservoir and dam. Pettit reiterated that, until Snake River flows at Anatone reach 40 Kcfs, the Snake River trap is inoperable. Ross added that some fish, at least, are being seen at the White Bird trap, so at least some fish are moving out of the tributaries.

The only good news to report, with respect to juvenile passage, is that the fish that are being transported are not crowded in the barges, Wagner said. Nielsen added that yesterday's index seining at Ives Island found more than 400 chum fry, ranging in size from newly-emerged to 39 mm, chinook numbers are also increasing. At Hamilton Springs, researchers found 9,000 chum fry this week; the researchers think we may be just past the peak in that system. At Hardy Creek, researchers captured about 2,100 chum fry yesterday; that run is still on the increase.

7. New System Operational Requests.

No new SORs were submitted prior to today's meeting.

8. Develop Recommended Operations.

In keeping with the two-week operational time-frame, the next two week period is April 23 through May 6, Turner said. The Action Agencies propose to continue the current operation, storing as much water as possible while meeting the 65 Kcfs Vernita Bar minimum and power system needs, with no flow augmentation or spill during this two-week period unless decided otherwise by the Regional Executives. No objections were raised to Turner's proposal. With respect to the Lower Granite pulsing operation, Turner said, it sounds as though there is still some additional work to be done. Essentially, we wanted to get a better idea of where people stand on that proposal, said Wagner, and we did get that today. It was agreed that the Regional Executives will discuss the Lower Granite "pulse" proposal at their meeting on Friday, and that TMT will take the topic up again next Wednesday.

9. Water Temperature Modeling – Develop MASS1 Scenario 3.

We sent out Battelle's report on the first two MASS1 water temperature scenarios last week, Turner said. Since then, Nancy Yun has had some further discussions with Kyle Martin about the availability of additional meteorological data for Lewiston, but Kyle was not able to find the additional information he was looking for, Dick Cassidy said. That's correct, Martin said – as far as I can tell, there is no available nighttime temperature information for the Lewiston area.

Where that leaves us is with the fact that we probably have greater confidence in the model's outputs for the Lower Columbia projects, Cassidy said; there is more variability associated with the Snake River projects. Pettit said FPAC did discuss this topic at yesterday's meeting; he noted that, back in the 1970s, Dworshak's selector gates were actually used to release warm water for small-mouth bass spawning; the historic record for that period is therefore somewhat distorted, which may have an impact on the MASS1 model outputs for Lower Granite.

Martin suggested that it may make sense for the TMT to compare the MASS1 model outputs with the outputs from EPA's Yearsley temperature model. In terms of future modeling operations, said Turner, what would the group like to see? It would be helpful if the Corps could model the three Dworshak operational proposals now on the table – Dworshak outflows of 14 Kcfs, 10 Kcfs and 7 Kcfs (the CRITFC proposal) beginning July 1, Wagner replied.

Any interest in modeling the potential impacts of the release of some Dworshak water in support of the Lower Granite "pulsing" operation on Lower Snake water temperatures later in the season? Turner asked. In that case, Dworshak would be at either elevation 1565 or 1571, rather than elevation 1580, on July 1. Yes, that would be interesting, Wagner replied. Wagner proposed doing the first three runs, and the fourth depending on results from the three runs. Turner indicated that the fourth run could be done as funding permits.

10. Other.

A. Dam Safety Inspection at Lower Granite. Turner said that each of the spill gates at Lower Granite Dam will be cracked open for several minutes some time before May 8, as part of the Corps' regular dam safety inspection program. This is a simulated emergency operation, he said, to ensure they can open the spill gates, if necessary, in the event of loss of station service during a high-flow emergency. Maximum spill discharge will be 2 Kcfs, he said. Pettit asked that, for biological reasons, this test be conducted as soon as possible; Turner replied that he will see what he can do.

B. Priest Rapids Gauge Calibration. Pat McGrane reported that, subsequent to the TMT meeting two weeks ago, he had discovered that the Priest Rapids gauge had not been re-rated for at least a year; however, when a crew went out to calibrate the gauge, they found that it was within tolerance, so its readings so far this season have in fact been accurate. Essentially, there is a 3 Kcfs difference between the gauge reading and Priest Rapids discharge; the gauge reading is considered more accurate than dam discharge.

11. Next TMT Meeting Date.

The next face-to-face TMT meeting was set for Wednesday, April 25 from 9 a.m. to noon. Another face-to-face meeting was set for Wednesday, May 1. Meeting notes prepared by Jeff Kuechle, BPA contractor.

TMT PARTICIPANT LIST

April 18, 2001

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On Phone:

Name	Affiliation	Phone
Margaret Filardo	FPC	
Kyle Martin	CRITFC	
Pat McGrane	Reclamation	
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Kevin Nordt	PGE	
Craig Sprankle	Reclamation	
Maria Van Houten	ENRON	
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Victoria Watkins		
David Wills	USFWS	

TECHNICAL MANAGEMENT TEAM

BOR: Pat McGrane\Lori Postlethwait

NMFS: Paul Wagner\Chris Ross BPA: Scott Bettin\Robyn MacKay

USFWS: Howard Schaller\Bob Hallock\Susan Martin

OR: Christine Mallette WA: Jim Nielsen ID: Steve Pettit

MT: Jim Litchfield COE: Cindy Henriksen\Rudd Turner\Dick Cassidy

25 April 2001 0900 - 1200 hours

Custom HousePortland, Oregon

Room 118

call lines: 0900 - 1000 h503-808-5191

1000 - 1200 h503-808-5190

All members are encouraged to call Donna Silverberg with any issues or concerns they would like to see addressed. Please e-mail her at dsilverberg@cnnw.net or call her at (503) 248-4703.

AGENDA

1. Welcome, introductions.

2. Hanford Reach update (Grant PUD).

3. Comments on Federal FCRPS Operations Plan Proposal.

4. Lower Granite spring operations proposal (NMFS).

5. Review current system conditions.

- **Reservoir operation and water supply (COE, BOR)**
- **Power system status (BPA)**
- **Fish migration status (NMFS, USFWS)**

6. Review operations requests (Brownlee operation).

7. Develop recommended operations.

8. Water temperature trend procedure (COE).

- **Air Temperature Stations**

- **Water Temperature Stations**

9. Kootenay Lake operation in 2001 (COE).

10. Other.

- **Set agenda for 9 May TMT meeting**

Questions about the meeting may be referred to Rudd Turner, (503) 808-3935 or Dick Cassidy, (503) 808-3938.

COLUMBIA RIVER REGIONAL FORUM

TECHNICAL MANAGEMENT TEAM
MEETING NOTES
April 25, 2001
CORPS OF ENGINEERS NORTHWESTERN DIVISION OFFICES – CUSTOM HOUSE
PORTLAND, OREGON

TMT Internet Homepage: http://www.nwd-wc.usace.army.mil/TMT/index.html

FACILITATOR'S NOTES ON FUTURE ACTIONS
Facilitator: Donna Silverberg

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.

Operations Plan Proposal Update:
CRITFC, Oregon and Idaho have sent comments to BPA for review. The proposal will be discussed at Friday's Regional Executives' meeting.

Power System Status:
The power emergency remains in effect indefinitely until the BPA Administrator makes an announcement to the contrary.

Fish Migration Status:
272,988 adults have been counted thus far! Juveniles are not yet moving out as they normally do this time of year, resulting in a worrisome loss of body mass. A question was raised about the numbers in Alaska – is there a shift down for adult numbers as in past years? 2,300 out-migrant chum were found at Hardy Creek and 12,500 at Hamilton Springs.

SOR 2001-3
The salmon managers have been discussing many options to help speed travel time for smolts. They came up with the plan to draft from BRN in May and refill in June. BPA was encouraged to work with Idaho Power on this matter, as questions still exist whether or not there is a surplus of water in the Snake River. The salmon managers see this proposal as a win-win situation in that water is used before it warms up and BPA pays IPC for the swap as a mitigation effort.
A letter from Idaho Power indicated their desire to get information from parties that were on a conference call held in April. The IPC letter expressed concern that a conflict may exist between the federal plan and this SOR. Also, Oregon was asked to help get water from Oregon water users.
ACTION: Pat and Christine will talk and report on Oregon water availability at next week's TMT.

NEXT STEPS: BOR, NMFS, IPC, BPA and Nez Perce will have a follow-up conversation and report back at the next TMT meeting. Pat McGrane will set up both this call and the one between Oregon and BOR.

Hanford Reach:
Chris Carlson from Grant PUD reported that Vernita Bar is at 847 TU; 1000 is required by the end of emergence, which is expected 5/10. Jim Nielsen reported on emergence numbers, which showed a big jump on 4/18. He noted that this could be the peak, but more current numbers were needed to fully assess the situation. It was noted that the action at VB has an impact on GCL. If a drop in fish numbers is seen, the group may recommend dropping flows on 5/4.

SOR 2001 C-3:
A tribal fishery request for 4/26 through 4/28 asked to hold BON, TDA and JDA within one foot. COE said they would operate BON at a 1.5 foot range, as previously coordinated with CRITFC, and BPA said they would make efforts to do the same at TDA and JDA, noting it as a soft constraint.

NMFS Lower Granite Proposal:
NMFS is waiting to see comments on the Federal Operations plan—including this item. On this issue, the group discussed the possibility of keeping LGR flows up until midnight in order to help the juvenile migrants get past the project at a time most likely for their movement. Robyn discussed the surplus problem and BPA's strategy to bring flows to a minimum at night. She will ask BPA if she has authority to make decisions on this proposed action.
ACTION: Robyn will notify TMT members of the decision regarding running flows until midnight.

Recommended Operations:
Continue to operate headwater projects at Grand Coulee consistent with Vernita Bar until emergence is complete or an acceptable cut-off point to which the VB settlement group has agreed. No spill or augmentation is recommended at this time. LGR – hold flows up until midnight on nights when no surplus exists and within MOP. NOTE: This recommendation may be amended by Regional or Federal executives.

Kootenay Lake Operations:
The COE discussed proposed BC Hydro operations. After reviewing the proposal, BOR and others said they could not support this operation if it effects GCL elevations. However, a possible Arrow swap could make GCL whole. The salmon managers also would not be supportive if there are negative effects on GCL or on flows for fish. BPA said they would support the plan as long as the entire operation is a net neutral at the border. There was a concern that the shift of water from July/August to September would have an adverse effect. COE believes this operation would be either neutral or a gain. **Question**: So long as BC Hydro and Kootenay can work it so no change is seen at the border, is there any opposition?

Next Meeting – Conference call, May 2, 10-1:

IMPORTANT: The group decided to start its Wed. meetings at 10 a.m. to allow for travel time and to get one phone line for the entire meeting.
Proposed agenda items for 5/2 call:
--Update from Pat McGrane regarding Oregon water and Brownlee discussions
--LGR evening flows and status of NMFS BO regarding the Snake River
--VB emergence numbers and decision regarding GCL flows
--Tribal fishery update and possible SOR

The next face-to-face TMT meeting will be held Wednesday, May 9 from 10-1 (note the new time!) [time later changed back to 9 - 12]

Meeting Minutes

1. Greeting and Introductions

The April 25 Technical Management Team meeting, held at the Customs House in Portland, Oregon, was chaired by Rudd Turner of the Corps and facilitated by Donna Silverberg. The following is a distillation, not a verbatim transcript, of items discussed at the meeting and actions taken. Anyone with questions or comments about these minutes should call Turner at 503/808-3935.

Turner welcomed everyone to the meeting, then led a round of introductions and a review of the agenda.

2. Hanford Reach Update.

Chris Carlson of Grant County PUD reported that, as of April 24, the Hanford Reach chinook are at 847 temperature units, with 1,000 required for complete emergence. We're gaining about 9 TUs per day, he said, and we're getting fairly close to the end of emergence, 53 TUs short of 1,000. Jim Nielsen said he had heard an estimate that emergence will be complete some time between May 5 and May 9. At 9 TUs per day, we would be looking at about May 10, David Wills noted; of course, that date will come sooner if the weather warms up.

If we were to drop the Vernita Bar flow this Friday, April 27, do you have any sense of what percentage of the total spawning would be affected? Pat McGrane asked. It's safe to say that we are now entering the period of peak emergence, based on index seining numbers, said Nielsen; in other words, this Friday would not be a good time to drop the Vernita Bar protection flow. He added that Paul Hoffarth of his office has calculated that emergence will end on May 10 this year.

It sounds, then, as though dropping the Vernita Bar minimum flow this Friday is not the preferred operation, said Silverberg. We would like to try to reach agreement on an operation

that will carry us through May 13 at today's meeting, said Turner – is this an issue we can revisit on next Wednesday's conference call? I think we just need to keep our eye on the situation, and discuss it as conditions change, said Robyn MacKay – you need to bear in mind, however, that whenever maintaining the Vernita Bar minimum puts us in a surplus power situation, that water comes our of the flexible storage account, and in essence it is gone.

If the seining counts begin to drop, said McGrane, I think we should consider dropping the Vernita Bar minimum flow on Friday, May 4. If load is higher and temperatures are colder, or if it turns out that the run has not yet peaked, then we will not reduce Vernita Bar flows. However, I think it would be prudent to adopt a similar strategy to the one we used for chum this year – protect the majority, but not the totality, of the run, said McGrane. Silverberg asked whether it would be possible for WDFW to do some additional index seining work over the next week or so, in order to provide some additional data points to inform the discussion of whether or not peak emergence has occurred. Nielsen replied that he will check. It may also make sense to ask the Vernita Bar Settlement Agreement parties to get together to discuss this issue, David Wills observed.

Turner added that, with natural flows starting to increase, it may be possible to decrease Grand Coulee outflow and still meet the 65 Kcfs minimum at Vernita Bar.

3. Comments on 2001 Federal FCRPS Operations Plan Proposal.

You were asked to review this proposal and come to today's meeting prepared to discuss it, said Silverberg, in preparation for the presentation of the proposal to the Federal Executives on Friday. CRITFC submitted comments on Monday, said Kyle Martin. The state of Oregon also submitted comments to the executives, said Christine Mallette. Nielsen said Washington has submitted comments on the Lower Granite operation, and has no further comments at this time. Steve Pettit said IDFG submitted its comments to the Idaho Governor's office. I don't believe we have yet received comments from Idaho, Washington or CRITFC, said Robyn MacKay. BPA is compiling the comments as they come in, and developing responses for Friday's meeting, Turner said. After that meeting, the federal proposal will be revised over the next week or so, and hopefully will be finalized soon after.

4. Lower Granite Spring Operations Proposal.

The status is essentially unchanged from last time, said Chris Ross; this operation is a part of the federal FCRPS operational proposal, and will be discussed by the executives on Friday. We have received comments from a number of co-managers, he said, but we're still awaiting tribal comments. Martin said he will check on the status of CRITFC's comments.

5. Current System Conditions.

Turner reported that Bonneville released releasing day-average between 93 Kcfs and 137 Kcfs over the past week; yesterday's average flow was 120.4 Kcfs, 130 Kcfs during the day and 80 Kcfs at night. Last week, Bonneville tailwater elevation fluctuated between 9.4 and 12.4 feet.

At McNary, over the past week, day-average flows have ranged from 81 Kcfs to 115 Kcfs. At Priest Rapids, the day average was about 68 Kcfs for most of the week, but increased to 73 Kcfs yesterday. That's at the project, not the USGS gauge, he added. Flows at Lower Granite have ranged between 30 Kcfs and 37 Kcfs over the past week. Dworshak is now at elevation1522.6, and filling at a rate of half a foot per day. Inflows to the project have averaged between 4.7 Kcfs and 5.9 Kcfs over the past week, and are rising slightly (5.9 Kcfs was yesterday's inflow). Dworshak is still on minimum discharge, about 1.8 Kcfs.

At Libby, said Turner, elevation is basically holding steady, dropping about a tenth of a foot per day. Current project elevation is 2389.5 feet. Inflows are rising slightly; outflow continues at minimum, 4 Kcfs. At Albeni Falls, at the Hope Gauge, project elevation is currently 2053.6 feet, still holding steady. As the TMT recommended, Turner said, the Corps is delaying refill at that project until Vernita Bar emergence is over. Albeni Falls is currently passing inflow of 10.2 Kcfs. At Brownlee, he said, current elevation is 2075; the reservoir filled about two-tenths of a foot over the past week. Hells Canyon discharge is currently 12 Kcfs. Overall, Turner said, the system continues to operate to refill the upstream storage reservoirs to the extent possible, as allowed by power system needs, and to meet the 65 Kcfs minimum at Vernita Bar.

McGrane said the current Grand Coulee elevation is 1217.5, 73 feet from full, essentially unchanged over the past week. The project is passing inflow of about 60 Kcfs. Hungry Horse is at elevation 3487 feet, also 73 feet from full. We will be releasing the 500 cfs minimum at that project by the end of the week, as snowmelt has begun on the Flathead, McGrane said.

Do you think we'll see an early runoff this year? Nielsen asked. It's hard to say, McGrane replied – I doubt it will be as early as last year, when the runoff peak occurred in April. Martin said the latest projections he has seen say the runoff peak will occur in mid-May. This week's SSARR run, which assumes normal weather, shows the peak at Lower Granite in the last week in May, the peak at McNary in early June. Again, however, that assumes normal weather; warmer or cooler-than-normal weather will obviously move that peak forward or backward.

What about American Falls reservoir? Greg Haller asked. It's full, as are all of the projects downstream from there, McGrane replied; the Henry's Fork projects are also nearly full. Palisades and Jackson Lake are significantly short of full – 200 KAF and 550 KAF short, respectively; the Reclamation projects on the Boise and Payette are also far short of full. Turner said anyone who wants to find out more should consult Reclamation's updated "teacup" diagrams on the TMT homepage.

Will Jackson Lake and Palisades fill this year? Paul Wagner asked. Jackson Lake will come close, but Palisades is about as full as it will get this year. McGrane replied. And how much of this water is designated for irrigation? Haller asked. Virtually all of the space that's full is designated for irrigation, McGrane replied – the empty, last-to-fill space is what is typically used for flow augmentation. Are the irrigators planning to use all of the available water? Haller asked. Hard to say for certain, McGrane replied – it depends on which basin. In the Boise and Payette, there is a water shortage. In the Upper Snake, we don't know yet, but they could use it

all. There could be anywhere from 0 to 300 KAF left over in the Upper Snake, but we won't know until the end of the irrigation season, McGrane said.

The April mid-month forecast came out on April 19, Turner said; the march toward a record low water year seems to have halted, temporarily at least. At The Dalles, the January-July forecast is now 57.7 MAF, 54% of normal, up 1% over the April final. At Grand Coulee, the January-July forecast is now 39 MAF, 62% of normal. At Lower Granite, the April-July forecast is now 10.3 MAF, 48% of normal, but up 2% from the April final. At Brownlee, the April-July forecast is now 2.05 MAF, 35% of normal, again up 2% from the April final. In recent weeks, there as been some snow accumulation, because of the cool weather, Turner added.

Martin said that, overall, he expects precipitation to be about 85% of normal for April, and about 70%-90% of normal in May. On the other hand, the National Weather Service is predicting higher-than-normal precipitation in May, so pick your poison, Martin said.

Moving on to the most recent storage project volume histograms, Turner said little has changed over the past week. There is likely to be little or no water available for flow augmentation from Hungry Horse until June 30, he said -- maybe 30 KAF if you assume 30% confidence of filling to elevation 3540 feet on June 30, -56 KAF if you assume 50% confidence of refill to that elevation and - 136 KAF if you assume a 70% confidence of refill to that elevation. At Dworshak, Turner said, we could have 238 KAF available for flow augmentation if we assume a 30% chance of reaching elevation 1580 by June 30, 117 KAF if you use a 50% probability, -5 KAF if you assume a 70% probability.

At MacKay's suggestion, Turner said he will explore the possibility of using the April-August water supply forecast, rather than the January-July forecast, to drive these histograms. I think that would give us a truer picture of what's going to happen between now and August, she said.

Moving on to the current status of the power system, MacKay said this was a good week; we were able to meet the Vernita Bar minimum and just meet load, she said – the warmer weather helped. The power system emergency declaration continues in force; the plan is to reconsider that at the beginning of May. In response to a question from McGrane, MacKay said she assumes that if the Snake River continues to pick up, there should be an opportunity to back off Grand Coulee outflow somewhat – we're rapidly approaching that decision-point, she said.

Next, Wagner discussed the status of the fish migration. With respect to adults, Wagner said numbers have begun to decline somewhat; the high was 27,000 passing Bonneville on April 18; passage dropped to 6,357 yesterday. The forecast was revised upward to 420,000 adults following the April 18 high; obviously, that jinxed things, Wagner said – I guess we were swept away with irrational exuberance. So far, about 273,000 fish have passed Bonneville, and we'll just have to see where we end up – this is a lot more fish than we've seen for a long time, Wagner said.

With respect to the juvenile migration, yearling chinook numbers at Lower Granite have increased slightly, but we're not even close to where we should be, based on the historic record, Wagner said. We seem to be following a 1998-type outmigration pattern this year, he said – lower flows, cooler weather, a late migration. At Lower Granite, yearling chinook numbers have increased steadily, from 3,771 on April 11 to 22,200 on April 24. The total to date is just over 139,000. At McNary, over the past week, daily passage has been on the increase, but is much lower than expected for this date. Moving on to juvenile steelhead passage, Wagner said a similar seasonal pattern holds true; 26,050 steelhead were counted yesterday at Lower Granite, 9,699 at McNary.

Another concern is fish condition, Wagner said; there have been reports that the Snake River steelhead that have been sampled appear to be using up their reserves very quickly, and are showing signs of stress and emaciation. We have never before observed these conditions prior to the natural peak in runoff, said Steve Pettit. In response to a question from Turner, Pettit said the vast majority of the juveniles sampled by IDFG to date have been hatchery fish.

The group also spent a few minutes comparing the graphic representations of the 1992, 1994, 1998 and 2001 outmigration on the Fish Passage Center homepage; what this shows, said Wagner, is that we are not doing well so far in 2001.

Moving on to chum outmigration, David Wills reported that the Hardy Creek trap has captured 2,300 outmigrants to date. Only 10 females were counted going upstream in that system, so it's not expected to be a great year; still, 2,300 looks low, he said, particularly given the fact that we're likely past the outmigration peak in that system. At Hamilton Springs, the trap has captured 12,500 fish to date, and is catching in the hundreds on a daily basis. About 30 females entered Hamilton Springs this year, so it's doing a little better, Wills said.

6. New System Operational Requests.

On April 19, the Corps received SOR 2001-3. This SOR, supported by ODFW, USFWS, CRITFC, WDFW and the Nez Perce Tribe, requests the following specific operations:

- Evenly draft Brownlee Reservoir from full elevation, 2077.4 feet, on May 1 to elevation 1976 feet on May 31.
- Refill Brownlee Reservoir from June 1 through June 30 with releases, in addition to projected normal operations, of 980 KAF water volume stored in Upper Snake reservoirs.
- Pass natural inflow, projected to be, 10 Kcfs during the refill period.
- Provide as close to the 980 KAF water volume as possible so that spill does not occur at the Hells Canyon Complex.

Greg Haller went briefly through the specifications of and justification for this SOR, the full text of which is available via the TMT homepage. Please refer to this document for details of this SOR.

Turner noted that Idaho Power has provided a response letter to this SOR; in essence, it says that IPC is willing to attempt to cooperate with regional efforts to mitigate for the impacts of the Lower Snake projects on ESA-listed species, provided that BPA is willing to reimburse Idaho Power for any monetary costs or energy losses, and that Brownlee's contribution to the Lower Granite surging operation will be refilled with storage water from upstream Reclamation reservoirs. The letter concludes that given the severe drought conditions in Idaho this year, the prospects for refilling Brownlee with 980 KAF from the Upper Snake projects is highly improbably, if not impossible; SOR 2000-3 "seems to proceed with complete disregard for the hard facts regarding current water conditions in the Snake River Basin."

Martin noted that there is storage water available in Idaho, and a number of farmers have expressed a willingness to sell their water this year. Norm Semanko said that, with all due respect, there is no plethora of water available in the Upper Snake; there is virtually nothing in the water bank. Reclamation may have some uncontracted storage space they can use, but the irrigators have no surplus water this year. You have concerns about salmon in this dry year, but we have the same concerns about the irrigators, Semanko said.

Idaho Power wants to be paid for any contribution, said Haller; I would like to encourage BPA to work with Idaho Power to make that happen. That would have a double benefit for the power system, he said. We are looking into that, said MacKay, but from a physical standpoint, if we don't have water available for immediate backfill, we will have to reduce Snake River flows by up to 30 Kcfs in order to refill Brownlee. Before we talk about the financial side of this question, she said, we probably should talk about the physical limitations imposed by the refill requirements Idaho Power is seeking.

The question is, what kind of conservation burden are Idaho Power and the irrigatros willing to assume? Said McGrane. Two weeks ago, the Idaho Governor signed legislation allowing the use of up to 427 KAF from the Upper Snake projects this year; to date, however, Reclamation has only 38 KAF in hand for flow augmentation. Is it true that Idaho Power is purchasing water from the water banks? Nielsen asked. They have tried, and are even offering six times as much money as Reclamation has offered, McGrane replied – they have found no takers. In essence, the irrigators are holding very tightly to their water this year, he said.

Is BPA willing to beat IPC's price to make this happen? Haller asked. IPC has not yet been successful, so we can't really talk about beating their price, MacKay replied. Again, she said, I don't think the SOR as proposed is physically doable, she said. We can certainly draft the water out, she said, but I'm not sure we could refill Brownlee in the month of June, or even by the end of August.

In response to a question from Haller, Christine Mallette said Oregon supports this SOR as written. There are 700 KAF of irrigation storage in Reclamation reservoirs in Oregon, upstream from Hells Canyon complex, McGrane said. Are you saying Gov. Kitzhaber might authorize legislation allowing Reclamation to use some of that water for flow augmentation? That's one of the assumptions behind our support for this SOR, Mallette replied. McGrane observed that Oregon's process for obtaining water is extremely cumbersome, much more so than Idaho's. He said he will explore this topic in more detail with Mallette following today's meeting.

We are fully aware of the ramifications and difficulties involved in drafting Brownlee this year, particularly with respect to attempting to refill that project and the hardships that might impose, Mallette said. Perhaps we could ask you to report back to the TMT next week, Turner said. I will do so, Mallette replied.

Clearly we have a fish emergency as well as a drought and power emergency, said Nielsen – the question is, how can we share the pain? This is what the salmon managers came up with, he said. We think this is a good operation, said Martin, and would like to see it implemented.

Our assumption is that whoever has authority to get water from Brownlee will do so, Haller said – if nobody has that power, then that's a problem that needs to be addressed. Martin observed that it is extremely disappointing that no one from Idaho Power bothered to attend or call into today's meeting. That silence speaks loudly, said Nielsen.

My sense is that Idaho Power is expecting some additional follow-up from the conference call referenced in the IPC letter, said Turner. Again, said MacKay, we need to address the physical feasibility of the refill operation called for in the letter. McGrane said that Reclamation simply does not have 980 KAF of water available to backfill Brownlee at this time, and can in no sense guarantee that it will have that volume available by June 30. Again, he said, we now have only 38 KAF definitely in hand; we don't know, at this time, how much water we will eventually have for flow augmentation or backfill purposes. We are exploring other sources of water, he said, but that's the only block of water we directly control at this time.

McGrane added that Reclamation will not release any water for fish until the Upper Snake BiOp is signed. When will that be? Nielsen asked. The final draft should be out any day, Wagner replied. The fish do not recognize legal deadlines, said Martin; they need the water now.

Where do you want to go with this today? Silverberg asked. Idaho Power has said no to this SOR, unless certain conditions are met, including guaranteed backfill of Brownlee in June, which may or may not be physically feasible. Idaho Power needs to assume some risk this year,

just like everyone else, said Haller – I'm not convinced that their demands constitute a legitimate constraint. It sounds, from a next steps standpoint, as though Reclamation needs to talk to Oregon about the availability of Oregon irrigation water to backfill Brownlee, Silverberg said; it also sounds as though the parties to the earlier conference call need to follow up with Idaho Power.

What's the status of the Idaho Power Company Biological Opinion? Nielsen asked. Good question, Wagner replied – a draft was finished several months ago, but I can't tell you why that draft has not moved forward. It's because you're getting strong-armed, Haller observed. There has been no movement on the draft, said Wagner; it has been put on hold indefinitely, and I can't tell you why. That is a real problem, from a biological standpoint, Haller said.

McGrane said he will take the lead in organizing the two needed telephone calls, probably this Friday afternoon, and will report back to the TMT next week. I will also try to get a better answer to Jim's question before next week's TMT meeting, Wagner said.

On April 11, the Corps also received SOR 2001 C-3. This SOR, submitted by the CRITFC tribes, requests the following specific operations:

- Implement the following operation during the ceremonial and subsistence treaty fishery, from 6 a.m. April 26 through 6 a.m. April 28:
- Bonneville Pool: operate the pool within 1 foot from full pool (msl elevation 77-76)
- The Dalles Pool: operate the pool within 1 foot (from msl elevation 159.5-158.5)
- John Day Reservoir: operate the pool within 1 foot (from msl elevation 264.5-263.5)

Martin went briefly through the specifications and justification of this SOR, the full text of which is available via the TMT homepage. Please refer to this document for details.

Martin added that additional SORs will be submitted to cover the upcoming treaty commercial fishery periods, beginning April 26-28.

Turner said the Corps' understanding is that they will continue to operate Bonneville pool within a 1.5-foot range during the upcoming treaty fisheries; we have been able to do that so far, he said. MacKay added that BPA will impose soft constraints on the pool levels at The Dalles and John Day, and will attempt to meet the terms of the SOR whenever power system conditions allow. So far, she said, we've been able to do a pretty good job. Turner added that the Corps is working on a formal written response to this SOR, which will be sent to Don Sampson as soon as it is completed.

7. Recommended Operations.

The group briefly discussed current operations at Lower Granite; Wagner noted that, at last week's meeting, Scott Bettin had said he would see how much flow it would be possible to shift into nighttime hours up to midnight. The group looked at hourly flow information from Lower Granite over the past few days, which shows gradually-declining flows up to the midnight hour. MacKay said that, to keep flows up through midnight at peak hourly volumes will create a

surplus power condition, which BPA has been attempting to avoid; it will also cause the Lower Snake projects to go outside of MOP.

However, if you're just talking about a couple of hours leading up to midnight, rather than keeping them at peak levels all the way through midnight, that's less of an impact, said MacKay. I think it may be doable, but there will be tradeoffs. Why couldn't you just pass inflow, and run a flat 35 Kcfs around the clock? Pettit asked. We're trying to operate the projects to avoid power surplus, MacKay replied – our goal is to meet load and not be surplus in any hour. If you keep the flows up at Lower Granite through midnight, but can't back off generation at another project because they're already on minimum generation, then that water is gone from the system, unless you can pond it at the next project or projects downstream.

I guess what I'm trying to say is that all of the projects are going to minimum generation during nighttime hours, said MacKay – the opportunity to back off generation at another project while increasing it at Lower Granite is minimal, which means a forced surplus situation for BPA.

I can't think of a worse operation for fish than peaking flows in the morning and drastically-reduced flows at night, Pettit said. If you do that once we get the meager peak of the runoff this year, he said, you will essentially be dooming the 2001 Snake River outmigration. BPA isn't opposed to this request, said MacKay; I'm simply telling you that it will involve a tradeoff.

Perhaps the salmon managers can discuss this further and develop a recommendation for next week's TMT meeting, suggested Silverberg. When are we going to stop putting things off, and actually do something for fish? Pettit asked. We could sell the surplus power, that's an option, MacKay replied; we could also store outside of MOP at Little Goose as a way to minimize the impacts of this operation. Could you do that tonight? Wagner asked. I'm not sure, said MacKay – is that what the TMT wants? We can consider this request, but at the same time, the federal parties have put forward a proposal which includes building up the federal storage account for use in spill and other fish operations. This is in essence a competing proposal, she said, and it's hard to know which should take precedence. We would be eroding that flexible storage account, at a time when we haven't really decided what it's going to be used for.

Can we ask you to go back to Bonneville and get an answer to this question? Silverberg asked. MacKay agreed to do so, and to send an email to the other TMT members as soon as the answer is known. MacKay added that NMFS, the Corps and Reclamation may also want a say in how this water is used. Turner observed that the Federal Executives have made it plain that they do not want to make decisions on weekly operations; he suggested that it makes sense for the TMT to attempt to reach agreement on a recommendation on this operation at today's meeting. Mallette and Nielsen both said it probably will not be possible to reach such an agreement at today's meeting.

We are just talking about an additional two hours at 15 Kcfs, Wagner observed. It will depend on what's going on in the system, whether or not it this would cause problems in the system, MacKay replied. I think we have agreement, then, that BPA should do this operation on

any night that implementing it will not cause Little Goose to go outside of MOP, Wagner said; there was general agreement that this is the case.

Steve Pettit made a good point a few minutes ago, said Turner – it's late April, fish are showing up at the projects, and TMT needs to recommend actions to help us meet ESA responsibilities.

It sounds, then, as though we will continue to operate the headwater projects and Grand Coulee to store, to the extent feasible, while meeting power system needs and the Vernita Bar minimum of 65 Kcfs, until emergence is complete or we have agreement on an acceptable cutoff date, Turner said. There is more conversation that needs to happen there. We also have a TMT recommendation that the above-discussed Lower Granite operation be implemented on nights when doing so will not cause Little Goose to go outside of MOP, Turner said, adding that the Corps would also like to begin refilling Albeni Falls reservoir on May 5. This operation will continue through May 13, he said, with the understanding that there are a couple of facets of the operation that will be revisited by the Federal Executives on Friday, and by the TMT at a conference call next Wednesday, May 2.

8. Water Temperature Trend Procedure.

This topic was not discussed at today's meeting.

9. Kootenay Lake Operation in 2001.

Turner said a situation has arisen since last TMT; basically, West Kootenay Power and B.C. Hydro have requested, through the International Joint Commission, to be allowed to alter the operation of Kootenay Lake this year to avoid spill during the freshet season, to store water during spring and summer and release it this fall. That will reduce Lower Columbia flows during spring and summer, Turner said. The Corps is developing a response and looking at the main issues; that response is being coordinated through COE Seattle District.

Wayne Wagner of Corps Seattle District went through the letter; in essence, it asks that storage take place up to elevation 1748, five feet over the normal elevation at that project. That additional water would be held until September 1. That is equivalent to about 8 Kcfs through the month of June in lower river flow, Wagner said; it would result in an additional draft of six feet from Grand Coulee in June, if that project was required to make up the shortfall. On the flip side, he said, we would get an additional 2 Kcfs in Columbia River flow during July, an additional 3 Kcfs in August and September.

This issue was discussed at a meeting yesterday, he said; at that meeting, Reclamation informed us that they will not support this proposal if it resulted in lower elevations at Grand Coulee this summer. We are now discussing the possibility of making Grand Coulee whole through increased outflow from Arrow, Wagner said; that discussion is, however, in its preliminary stages.

The IJC has asked us to do a quick evaluation and response, said Wagner, to determine if it is regionally acceptable. We thought the TMT would be an appropriate place to gather that input, he said, noting for the record that the Corps is in no way advocating that this operation be implemented.

Bob Hallock said the Fish and Wildlife Service views this as a real opportunity to explore an alternative operation at Kootenay Lake, which could have long-term benefits for sturgeon. McGrane said that, as long as this is essentially a resource swap, and Grand Coulee is made whole, Reclamation has no problem with the requested Kootenay Lake operation. Nielsen said the salmon managers would oppose this proposal if it reduces Grand Coulee storage and/or outflow; however, it may be acceptable if the net effect on Grand Coulee is zero. There would be no adverse impact to sturgeon, Hallock said. Mallette said she will need some additional time to analyze this proposal; however, at first glance, it would not appear to be beneficial, from a summer flow perspective in the Lower Columbia. If it is a net zero, would Oregon oppose this proposal? MacKay asked. My concern is timing, Mallette replied. Supposedly, it will be timing-neutral as well, said MacKay; if that is the case, BPA would not oppose this proposal.

If we pursue this, there will definitely need to be a public involvement process, so that we can get input from the farmers and other stakeholders who will be affected, Wayne Wagner added.

The group devoted a few minutes of additional discussion to the details and implications of the proposed Kootenay Lake operation. Ultimately, Mallette reiterated that she needs some additional time to consider this proposal, but her initial impression is that it would not benefit summer flows in the Lower Columbia. If they can augment flow from Arrow, such that the net effect is zero in terms of flow and timing, Bonneville would not oppose this proposed operation, said MacKay. That would certainly be the objective, Wayne Wagner observed. Ross raised the concern that the proposed August 31 Kootenay Lake elevation is two feet higher than normal; in effect, this proposal would shift the volume in that two feet of storage from August into September. Wayne Wagner replied that, according to his analysis, the worst case is that the effect of this operation on summer flows would be neutral, while in the best case, it could result in increased summer flows.

Is it fair to say that, if B.C. Hydro and West Kootenay Power can work out an operation such that the net effect on summer flow volume, timing and Grand Coulee elevation is zero, the salmon managers would not oppose this proposal? Wayne Wagner asked. I'll need to run this past the tribal commissioners, Martin replied; my initial reaction is that we would oppose this proposed operation, and would prefer to stick with the IJC base case.

How much time do we have before this decision needs to be made? Nielsen asked. It needs to be made some time in mid-May, Wayne Wagner replied. It sounds, then, as though we can leave it here for today, said Silverberg; B.C. Hydro will be receiving additional input from the TMT once various members have an opportunity to study the proposal in more detail; that input is needed soon. That's correct, Wayne Wagner replied – the decision needs to be made by mid-May, but before it can be made, we need to complete the public involvement process.

10. Other.

A. Transport at McNary. Paul Wagner reported that the Federal Executives have proposed McNary transport as a salvage operation in 2001, given the low flow and spill conditions that will occur in the lower river. In terms of the process steps needed to modify the permit, a Biological Opinion has been completed and attached with the permit, which requests an amendment to the existing transport permit. This package has been sent to Washington D.C. for approval, Wagner said. The requested date for the permit modification is April 26, tomorrow. Upon receipt of that permit, transport from McNary may start on an every-other-day basis, said Wagner, adding that he expects this operation to be the subject of additional discussion at the upcoming Federal Executives meeting.

11. Next TMT Meeting Date.

The next TMT meeting (a conference call) was scheduled for Wednesday, May 2 from 9 a.m. to noon. The next face-to-face meeting of the Technical Management Team was set for Wednesday, May 9 from 9 a.m. to noon. Meeting notes prepared by Jeff Kuechle, BPA contractor.

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April 25, 2001

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TECHNICAL MANAGEMENT TEAM

BOR: Pat McGrane\Lori Postlethwait

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USFWS: Howard Schaller\Bob Hallock\Susan Martin

OR: Christine Mallette WA: Jim Nielsen ID: Steve Pettit

MT: Jim Litchfield COE: Cindy Henriksen\Rudd Turner\Dick Cassidy

TMT Conference Call

2 May 2001 1000 - 1300 hours

Conference call line: 503-808-5190

All members are encouraged to call Donna Silverberg with any issues or concerns they would like to see addressed. Please e-mail her at dsilverberg@cnnw.net or call her at (503) 248-4703.

AGENDA

1. Welcome, introductions.

2. Hanford Reach/Vernita Bar update (Grant PUD).

3. Brownlee operation; upper Snake and eastern Oregon water (BOR, ODFW).

4. Lower Granite spring operations proposal (NMFS).

5. Spill for fish passage (NMFS, BPA).

6. Lower Granite evening flows update (COE).

7. Zone 6 tribal fishing update.

8. Other.

- **Set agenda for 9 May TMT meeting.**

Questions about the meeting may be referred to Rudd Turner, (503) 808-3935 or Dick Cassidy, (503) 808-3938.

COLUMBIA RIVER REGIONAL FORUM

TECHNICAL MANAGEMENT TEAM
MEETING NOTES
May 2, 2001
CORPS OF ENGINEERS NORTHWESTERN DIVISION OFFICES – CUSTOM HOUSE
PORTLAND, OREGON

TMT Internet Homepage: http://www.nwd-wc.usace.army.mil/TMT/index.html

FACILITATOR'S NOTES ON FUTURE ACTIONS

Facilitator: Richard Forester

The following notes are a summary of issues that are intended to point our 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.

Hanford Reach/Vernita Bar Update:
Joe Lucas reported, saying that, currently, typical level flows exist above Bar minimum. An emergency was called due to an April 24th operator error causing fluctuations over a 4-hour period. The flows resulted in multiple entrapment of large fish population and some thermal shock, causing serious damage. The incident points out the extreme sensitivity to operating conditions during low water flow.

Emergence is still on track to end May 9. A question was raised whether more frequent sampling would be possible to determine whether we are nearing emergence peak and to determine when the emergence is over. BOR requested that flows on Priest Rapids be dropped 65,000 to 55,000 beginning this Friday. The justification for the request ran as follows: The first fish emergence commenced on March 21 and based on past records is over within 7 to 8 weeks. Also based on past performance 10k flow reduction would negatively impact 20% of the emerging fish. If the emergence is 80% over, that would mean that with 10k flow reduction would impact 20% of the remaining 20%, or 96% of the fish would have emerged, which is consistent with the balancing policy. After some discussion, there was no consensus on these assumptions; however it was agreed that the VB Settlement group had jurisdiction to determine whether or nor to reduce flow, with BPA having final authority to reduce flow in low water years. **Action**: TMT will accept VB Settlement group decision to drop the flows at Priest Rapids as requested by BOR; however, a decision to keep the present flows or elevate them should be discussed at IT. A conference call decision in time for the IT meeting tomorrow (4/3/01) was going to be attempted.

Rudd reminded the group that refill at Albeni Falls will begin May 5, to be completed by the end of June. Spills at Albeni will be avoided in order to resume traditional summer operations. A

request from Washington to further explain this activity will be responded to by the COE before May 5.

Brownlee:
BPA and Idaho Power are currently trying to work out two proposals to help Lower Granite surging operations in May. Idaho Power is currently looking at the proposals and will make decisions soon. **Action:** if a decision is made before the next TMT meeting, the COE will be contacted and will set up a TMT conference call.

Oregon and BOR met to discuss water in eastern Oregon. There was no water available for sale in Oregon; Oregon has agreed to convene a group, including water rights experts to look at the long term institutional barriers to obtaining additional water. Likely, this will have no impact on the current year.

Lower Granite Spring Operation Proposal:
The proposal is on hold due to its reliance on actions taken for Brownlee in the spring. The group will discuss this at the next meeting.

Spill:
BPA is developing a contingency plan. They are still looking at proposals and reliability problems. NMFS reported that the Dalles will be the first place for spill (20% for a 24-hour period, minimum 50kcfs), then Bonneville, then McNary and/or John Day. Shaping of the spills could accommodate various scenarios. There also may be no spills, depending on the final May forecast. This will be discussed at the Regional Executives meeting. Washington noted that the fish are moving as a result of rain and has moved a lot of fish to the lower river at John Day. Rudd told the group that the May final is set for May 8, just prior to the next TMT meeting.

Lower Granite Evening Flows Update:
COE sent out a teletype last Friday to operate Lower Granite to maintain higher flows later in the evening, until midnight. This is a "make best effort" regulation. Currently, the MOP+1 to MOP+2 range is being adhered to, but the group discussed allowing some leeway. An initial request was made for greater flexibility, to exceed MOP by a half foot in Lower Goose to continue the evening flows that will aid fish movement up to midnight. There was considerable discussion concerning the need to add Lower Granite, just to include Lower Granite and exclude Lower Goose, how to evaluate the benefit of this action in order to justify the operation, and the need to monitor naive fish at the head of the reservoir. **Action:** Provide an additional 0.5 foot range (MOP+1 to MOP+2.5 feet) for the evening flows in Lower Granite and no MOP change at Little Goose, with some monitoring at the head of the reservoir. The group will revisit the issue next week, with a report from biologists on the effects. Chris Ross from NMFS will contact Dennis Rondorf of USGS-BRD before the next meeting.

Zone 6 Tribal Fishing Update:
A handout shows the request to operate (SOR 2002 C-4) the Bonneville pool within 1.5 feet from May 4 through May 6 (a 36-hour period). The COE sent a teletype out last evening concerning this manner. Kyle of CRITFC noted the importance of this current fishing

opportunity to the tribes and identified some Treaty compliance concerns based on uneven levels and said this proposal should be the last until August.

Navigation Locks:
Chris Ross had requested information from the COE on elimination of half of the commercial navigational locks. While the Portland District had responded, there was information missing from Walla Walla District projects and a response is being put together to understand the impacts of the barge operations on water availability for other purposes.

Next Meeting:
The next TMT meeting will be face-to-face, held **May 9 from 9-12**, followed by a Regional Executives meeting May 11.

UPDATES:
--Vernita Bar
--Brownlee and Upper Snake operations
--Lower Granite operations and spill
--Water Quality temperature info. (Dick Cassidy, COE)

Meeting Minutes

1. Greeting and Introductions

The May 2 Technical Management Team meeting, held at the Customs House in Portland, Oregon, was chaired by Rudd Turner of the Corps and facilitated by J. Richard Forester. The following is a distillation, not a verbatim transcript, of items discussed at the meeting and actions taken. Anyone with questions or comments about these minutes should call Turner at 503/808-3935.

Turner welcomed everyone to the meeting, then led a round of introductions and a review of the agenda.

2. Hanford Reach/Vernita Bar Update.

Joe Lukas reported that for the week of April 23-29, average flows at Priest Rapids Dam were just above the Vernita Bar minimum of 65 Kcfs. A combination of a full reservoir at Priest Rapids and operator error caused flows to reach 128 Kcfs for an hour on April 24, resulting in significant stranding and entrapment below the project. I'm not sure if it was multiple entrapments or one large one, Lukas said. We got an emergency call on April 26; during that call, it was determined that higher flows or rewetting was not in the best interest of the fish.

The count was made on April 25? Paul Wagner asked. Correct, Lukas replied – obviously, this year, with the low flows, there is a great deal of sensitivity, in terms of fish response to flow changes. We're seeing record numbers in the index seine; numbers are off the charts, probably because the fish are really packed into a reduced area of available habitat. The most recent fork lengths of the sampled fish ranged from 38-70 mm, he added.

At the last TMT meeting, I asked about the possibility of more frequent seining to try to get a better feel for where we are in emergence timing, Wagner said. Paul Hoffarth said he would see what he can do, said Wagner, but I have not yet heard any results from Monday's seining. Jim Nielsen said Hoffarth has been off work with a bad back; however, sampling is underway today, and those results should be available this afternoon. In response to a question from Wagner, Nielsen said he was not sure whether or not index sampling was conducted on Monday.

You're trying to get a better sense of when the emergence might begin to decline? Scott Bettin asked. That's correct, Wagner replied. In this particular water year, fish size and accumulated celsius temperature units (CTUs) are a better measurement of the end of emergence, Lukas said; we're at 857 CTUs currently, still gaining about 9 CTUs per day.

I had heard an estimate that we're at about the 80% point of the emergence cycle, said Pat McGrane. I would be hesitant to assign a numerical value, Lukas replied; we do know that emergence started about seven weeks ago, and emergence is typically a 7-8 week process. However, pinning down an exact percentage is very difficult. Reclamation is very concerned about the current elevation at Grand Coulee, said McGrane; if we were to drop flows at Priest Rapids from 65 Kcfs to 55 Kcfs, according to my math, at least, only 4% of the total run would be at risk, meaning you would get 96% of the run out. The 2001 federal operating principals instruct us to balance Vernita Bar protection with Grand Coulee elevations; I would argue that, if we can protect 96% of the Hanford Reach chinook run, in this water year, that's pretty good, said McGrane. That would be consistent with the philosophy we adopted in protecting the majority of the chum emergence earlier this year. My understanding is that BPA doesn't need to run 65 Kcfs at Priest Rapids in order to meet load, and with that in mind, I would propose that we reduce Grand Coulee outflow by 10 Kcfs, beginning this Saturday, May 5, he said.

We don't know what percentage of the run has emerged at this time, said Nielsen – I don't feel comfortable making that call at this point. With respect to this year's chum operation, I think our subsequent seining showed we may have been less far along in the emergence than we thought. However, I don't believe there is any evidence that the chum were adversely affected by our chum operation this year, another participant noted. Scott Bettin added that, because of low flows and constricted habitat, this year's index seining data is basically useless. I'm not sure that's true, said Nielsen, but I would agree that this year's length-frequency information is probably the best indicator of the status of the emergence.

We're going to have to make some decisions with less-than-perfect information, said McGrane; again, I would like to propose that we drop the Vernita Bar minimum flow from 65 Kcfs to 55 Kcfs this Saturday, in the belief that the majority of the Hanford Reach chinook run

has now emerged. That will allow us to store about 100 KAF additional into Grand Coulee, McGrane said; I would be interested to hear each agency's response to that proposal.

My suggestion is that this is probably a more appropriate discussion for the Vernita Bar signatories, once they receive the most recent index seining information, Nielsen said. BPA is willing to have that group make the call on this issue, said MacKay, but it would be helpful if the TMT could frame something for that group to discuss. There is a specific Reclamation proposal on the table, Turner replied. But has the TMT endorsed that proposal? MacKay asked. The other question is whether the proposed reduction in the Vernita Bar minimum flow will actually result in net storage at Grand Coulee, said Nielsen. Yes it would, absolutely, MacKay replied. Also, are we talking about storing water on the weekend, then running the water out during the week? Nielsen asked. If so, it doesn't make much sense to sacrifice these fish. I agree, said McGrane.

Snake River flows are coming up, said Turner; yesterday's average flow at Lower Granite was 68 Kcfs, and we saw in excess of 160 Kcfs at McNary. Do you expect that to continue? Wagner asked. For awhile, said Turner; it is a snowmelt/precipitation event. We're looking at a warming trend in the longer-term forecast, he added.

BPA could certainly sustain a cut in flows, from a load standpoint, said MacKay. In response to another question, McGrane reiterated that five days of 10 Kcfs flow reduction at Grand Coulee is equivalent to 100 KAF, or 1.5 feet in Grand Coulee elevation. The project is currently at elevation 1223, 67 feet from full. It has gained five feet in elevation over the last five days, but this is the time of year when Grand Coulee storage has to increase.

Are there any objections to asking the Vernita Bar signatories to consider the Reclamation proposal? asked Forester. I think it would be helpful, again, to hear how everyone feels about the Reclamation proposal, said McGrane; we could also discuss it further at tomorrow's IT meeting and Friday's Federal Executives conference call. Nielsen and Wagner said that approach makes sense to WDFW and NMFS. I think the Tribes will object to the Reclamation proposal, but keep us informed, said Kyle Martin.

I would still like to be able to characterize this, or some operation, as the TMT's recommended operation, said MacKay. Otherwise, you're asking Bonneville to make this decision, without input from the other parties in the region. We need to see today's index sampling and length-frequency information before we could make an informed recommendation, Nielsen replied; again, that information will be available late this afternoon or early this evening.

Can we ask everyone to state their position at this time, so we have a feel for where everyone stands in terms of moving this proposal on to IT? Forester said. Washington's position, again, is that this discussion needs to take place among the Vernita Bar signatories, once they have received the latest index seining information, Nielsen said. If they agree that this is a reasonable operation, he said, then I assume it moves on to IT. If the information indicates that we're still approaching peak emergence, and there are still significant numbers of newly-emerged fish out there, WDFW will not support this operation.

It sounds, then, as though BPA needs to have a conference call late today or early tomorrow and ask the Vernita Bar group to make their recommendation, McGrane said. The problem is that if the Vernita Bar group doesn't reach a decision tomorrow, there is nothing to take to IT, Bettin replied. Without this additional meeting, it's BPA's call, said Bettin; in all likelihood, the Vernita Bar protection operation, in that case, will end on May 9.

We'll call the Vernita Bar signatories together, then, and implement whatever they decide, Bettin said. Actually, I think you should get the Vernita Bar group's input, then take it to IT, said McGrane. We can do so, if that's what the TMT wants to do, said MacKay.

The Vernita Bar agreement is an entity unto itself, said Wagner; the decisions that are made by the signatories to that agreement do not need to be ratified in another forum. That's an important point, said Nielsen – again, I would suggest we ask that group to look at the latest data, then make their decision.

If the Vernita Bar Settlement agreement parties decide that it would be acceptable to drop the flows from 65 Kcfs to 55 Kcfs this Saturday, would there be any objections from the TMT to doing so? Turner asked. That is acceptable to Washington, said Nielsen. Jim Litchfield said Montana would have no objection; Christine Mallette said neither would Oregon. It sounds, then, that we have a decision – that the TMT will accept the recommendation of the Vernita Bar Settlement Agreement parties with respect to reducing or maintaining Vernita Bar minimum flows, Forester said. If the decision is to maintain the Vernita Bar minimum at 65 Kcfs through May 9, does Reclamation want to raise that issue to IT? Bettin asked. I would like the IT to discuss it, McGrane replied, although that does not mean Reclamation will object to or formally raise that issue to IT – we feel there should be some IT discussion, because of the level of regional interest in the Vernita Bar operation. The Corps would not object to that, said Turner.

Turner added that the Corps plans to initiate refill at Albeni Falls on May 5, as discussed at previous TMT meetings. There will be some smoothing of discharge, but once refill begins, outflow from that project will average about 7 Kcfs less than inflow. The project is actually filling slightly, currently, because inflows are about 31 Kcfs, 5 Kcfs over full powerhouse capacity. The current Albeni Falls elevation is 2054.1 at the Hope gauge, said Turner, adding that the plan is to fill Albeni Falls by June 30, and maintain it at full through the summer. In other words, he said, once the project fills, we will pass inflow at Albeni Falls.

What is driving that refill requirement? Nielsen asked. It is our traditional summer operation, Turner replied; there are a lot of shoreline interests at that project. Still, this is not a typical summer, said Nielsen; I'm curious why Albeni Falls is not sharing the pain. Would you like us to look into that? Turner asked. Yes, Nielsen replied. I'll see what I can find out, and will email the TMT membership by the end of this week, said Turner. [Turner provided additional information relative to ongoing court actions at the TMT conference call on Friday 4 May].

3. Brownlee Operation, Report on Availability of Upper Snake and Eastern Oregon Water.

McGrane briefed the TMT on the status of the negotiations regarding Brownlee and Upper Snake operations this spring. First, he said, Bonneville has made a proposal through the

State of Idaho to Idaho Power to draft 180 KAF from Brownlee during May to facilitate the Lower Granite surging operation. The proposal includes an energy exchange under which BPA would return an equivalent volume of energy to Idaho Power in June.

Reclamation is also trying to reach an agreement with Idaho Power with respect to the delivery of the Upper Snake water in 2001, said McGrane; however, there isn't a great deal to report at this point. Ningjen Liu said that he has nothing to add to the BPA proposal discussion at this time. When will IPC make a decision on the BPA proposal? Turner asked. I have no information at this time, Liu replied. Let's put it on the agenda for next week's TMT meeting, Bettin suggested; it was so agreed. So there will be no flow augmentation from Brownlee over the next week? Turner asked. That's correct, MacKay replied – in the absence of an agreement, there will be no Brownlee releases. McGrane added that the Upper Snake BiOp is due any day now.

Mallette said she had followed up on the conversation at last week's TMT meeting regarding the potential use of eastern Oregon storage to backfill Brownlee Reservoir; we agreed to recruit several people who we feel should be involved in that discussion, she said, and a meeting has been set between Oregon and Reclamation for the week of May 14. At that meeting, we're going to discuss the institutional barriers to renting water in Oregon, McGrane added; at this point, however, it does not appear likely that any water will be available from Oregon storage reservoirs to backfill Brownlee this year.

That's surprising, given the critical nature of the water supply this year, said Chris Ross. I can continue to pursue it, but I don't want to mislead you by sounding too optimistic, Mallette replied. There is some water stored in eastern Oregon, said McGrane, but at this point, there are no willing sellers.

4. Lower Granite Spring Operations Proposal.

Was there any further discussion of the Lower Granite surging proposal at yesterday's FPAC meeting? Turner asked. Not much, Ross replied; as you know, one of the scenarios is contingent on having water available to backfill Lower Granite reservoir from either Dworshak or Brownlee. We have received comments that many agencies are unwilling to use Dworshak in such a manner this spring; that leaves Brownlee, and until we hear the outcome of the BPA/IPC discussions, this operation is one hold, Ross said.

We do have the option of using Lower Granite without backfill and augmentation, Ross continued, but that would be a less-desirable operational alternative. Basically, we need to see where BPA and Idaho Power end up. So there will not be a request to begin the Lower Granite surging operation prior to next week's TMT meeting? Turner asked. Not unless BPA and IPC can reach agreement before next Wednesday, Ross replied. If that proves possible, agreement is reached and there is a desire to get the Lower Granite surging operation underway, if you'll let the Corps know, we can convene a TMT conference call prior to next week's TMT meeting, said Turner.

5. Spill for Fish Passage.

Turner said that, at last Friday's Regional Executives meeting, the Federal Executives agreed to take a look at the spill situation for 2001. BPA is looking at the assumptions in the operations plan proposal now, Turner said.

MacKay said BPA is still looking at the spill proposal; we need to see what kind of a contingency plan we can develop, given the continued power system reliability problems and the current water supply forecast. We are still looking to develop some contingency proposals, she said.

NMFS had a meeting yesterday to discuss the importance of spill for fish passage, the number of MW-months available for spill and what the spill program should look like this year, given the recent recommendations from the Power Planning Council and the Tribes, said Turner. Ross said the participants in that meeting agreed that The Dalles should be the first priority for any available spill, while Bonneville Dam was the second priority. The group then talked about the priorities for any additional spill volume that should become available, said Ross – increased spill at The Dalles or Bonneville, or adding spill at John Day or another project.

The alternatives considered were based on assumptions of 200 MW-months, 400 MW-months, 600 MW-months and 800 MW-months being available for spill, said Nielsen; there was no agreement at yesterday's meeting about whether to increase spill at The Dalles and Bonneville, or to add spill at other projects, if additional spill volumes are available, Nielsen said. Basically, he said, at this point, we need to wait and see what BPA is going to have available to give us this year.

When would you like to see spill start? Turner asked. There wasn't any resolution on that question at yesterday's meeting, said Nielsen; I'm sure it will be discussed further at Friday's Federal Executives conference call. Nielsen added that the fish are moving in response to the recent increase in Snake River and Lower Columbia flows; Ross reported that the yearling chinook index at Lower Granite doubled on four consecutive days this week, and a similar response was seen in juvenile steelhead numbers at Lower Granite and John Day.

We're still assessing the situation, said Bettin; we understand that the fish are there, but we're still trying to weigh biological concerns with concerns about power system reliability. You need to be aware that there still may not be any spill for fish, said Turner; the May early-bird forecast is now 57 MAF, January-July, at The Dalles, up about 1 MAF from the April final. However, BPA has made it clear that May Final forecast from the RFC of at least 60 MAF is needed if any spill is to be provided. In other words, said Turner, don't get your hopes up – the water supply forecast is still very low. May 8 is the expected delivery date for the May final forecast, he said.

6. Lower Granite Evening Flows Update.

We discussed this at last week's TMT meeting, said Turner; the Corps subsequently worked with BPA to explore the feasibility of keeping flows at Lower Granite higher up until midnight, and sent out a teletype to that effect. In other words, he said, that operation has now been implemented.

Since its implementation, juvenile passage numbers have increased dramatically, Turner said. As noted at last week's TMT meeting, this is a soft constraint; the action agencies have agreed to make best efforts to implement this action, with the understanding that doing so will not put BPA into a surplus power condition. In response to a question from Ross, MacKay said it is her understanding that the Federal Executives have directed BPA not to go outside of MOP at Little Goose in order to implement this operation. After a few minutes of discussion, it became apparent that while there is some confusion about what the Federal Executives actually recommended on this subject.

If BPA can maintain a higher discharge at Lower Granite into the later evening hours, would the TMT object to some minimal exceedence of MOP at Little Goose, given the benefits we're seeing in terms of increased passage at Lower Granite? Ross asked. I assume that the extra water at Little Goose would be released during the following day? Turner asked. Correct, Bettin replied. Would that help BPA, if they could capture that extra water at Little Goose? Ross asked. Yes, Bettin replied.

Steve Pettit observed that the salmon managers feel that, if there is any additional water available from Brownlee, it would provide more biological benefit if it was used to prolong the natural peak in flows, rather than to backfill Lower Granite pool during the pulsing operation. After a few minutes of further discussion, Pettit added that IDFG supports going outside of MOP by a foot or so at Little Goose in order to keep flows up at Lower Granite during nighttime hours, but does not support any operation that causes Lower Granite to go outside of MOP. It is our best judgement that the Lower Granite operation NMFS proposed has just as much potential to have a negative biological impact as it does a positive biological impact, Pettit said.

That's a longer-term question, said Ross; what we're attempting to decide today is whether or not BPA should have the flexibility to exceed MOP at Little Goose for a short period, in order to increase fish passage at Lower Granite. I have no objection to granting BPA that flexibility, said Litchfield. Bettin added that making the Lower Granite operating range 1.5 feet, rather than 1 foot, would be extremely helpful in providing increased flow at Lower Granite through the midnight hour.

I would support approving that type of operation, said Litchfield. Is there any hard evidence that suggests this type of pulsing operation actually produces a biological benefit? Margaret Filardo asked. Because in essence, by ponding during the day and holding the fish in front of Lower Granite until nighttime hours, when passage increases, but over a limited duration, we may not see any increase in total passage, Filardo said. What is the biological basis for that operation? Filardo asked. Passage is always higher during nighttime hours, Ross replied; by keeping flows up during nighttime hours, rather than allowing them to decline, as they normally would given load-following, we should see a net increase in passage.

After a few minutes of additional discussion, Pettit said he would have little problem with increasing the operating range at Lower Granite by half a foot, as proposed by Bettin. I would propose, then, that we try that operation for a week, then discuss it again at next week's TMT meeting, said Bettin. How would you evaluate the biological effects of this operation? Nielsen asked. Perhaps we could ask the biologists at that project to give us their assessment of the impacts of that operation, Litchfield said. There was general agreement that this would be useful. After a brief additional discussion, no TMT objections were raised to Bettin's suggested operation, despite concerns, raised by Nielsen and Pettit, about the possible negative impacts of the higher pool elevation on travel time through the Lower Granite pool. Turner said the Corps will issue a teletype ordering Lower Granite to increase its operating range to MOP+ 1 to MOP+ 2.5 feet, effective tonight.

If it would be possible to have some radio-tag monitoring of naive fish movement at the head of Lower Granite pool, that would ease my mind somewhat, Pettit said. I'll look into that, Ross replied. In response to a question from Pettit, Ross said he will also contact Dennis Rondorf to see whether or not there are radio-tag antennas in the Lower Granite gatewell, and will send an email to Turner for distribution to the other TMT members. We'll discuss this further at next week's TMT meeting, Turner said.

Juvenile fish collection for transport has now begun at McNary, and is also continuing every day at the other collector projects, Turner added.

7. Zone 6 Tribal Fishing Update.

Turner said the Corps received SOR 2001 C-4 from CRITFC on May 1; it requests the following specific operations:

- Implement the following operations for a short commercial fishery, from 6 a.m. May 4 through 6 p.m. May 5:
- Bonneville Pool: operate the pool within 1.0 foot from full pool (msl elevation 77-76)
- The Dalles Pool: operate the pool within 1.0 foot (from msl elevation 159.5-158.5)
- John Day Reservoir: operate the pool within 1.0 foot (from msl elevation 264.5-263.5)

The Corps has agreed to maintain a 1.5-foot operating range (75 - 76.5 ft.) at Bonneville pool through May 5, Turner said. Martin noted that, over the five weeks of the 2001 Treaty fishery, the action agencies have actually maintained the one-foot pool fluctuation recommended by the Tribes 10% of the time at Bonneville, 65% of the time at The Dalles, and 90% of the time at John Day. They have maintained a 1.5-foot operating range 60% of the time at Bonneville, 95% of the time at The Dalles and 100% of the time at John Day. This will probably be the last week of the Treaty fishery, until the fall season, given declining adult passage numbers, Martin added.

Have the fishers reported any problems in connection with the forebay operation? Turner asked. As I reported earlier, the platform fishers are having more problems than the boat fishers,

said Martin; that could be due to a combination of a lack of spill and pool fluctuation. I have brought this point up time and time again; he said, these tribal fishers have a very limited time in which to conduct their harvest this year. Many of these fishers live in borderline poverty; we implore the federal operators to implement this requested operation and live up to their tribal trust responsibilities. If there are issues or problems connected with our efforts to hold the pools as steady as possible, please let us know, said Turner. I'll check with the Tribal enforcement office, Martin replied.

8. Other.

A. Navigation Lockages and Power Loss. At a previous TMT meeting, said Ross, I had asked that the action agencies analyze the impacts on flow and power generation if commercial lockages were reduced by half. We're considering that request, said Turner; however, I can tell you that it would have a significant impact on the federal parties' ability to provide lockages, which is one of the multi-purpose uses of these projects. Cutting the number of commercial barge lockages in half is not an option, added Cathy Hlebechuk of the Corps; the Corps is required by law to pass any commercial vessel as it arrives at the project. Understood, said Ross; at this point, we're just asking for an assessment of the effects of navigation on power system reliability. In a year like this, said Nielsen, it is appropriate to look at all of the authorized uses of the federal parties, in order to share the pain as evenly as possible. It was agreed that the Corps can provide this information, and will do so as soon as possible.

9. Next TMT Meeting Date.

The next meeting of the Technical Management Team was set for Wednesday, May 9, from 9 a.m. to noon. Meeting notes prepared by Jeff Kuechle, BPA contractor.

TMT PARTICIPANT LIST

May 2, 2001

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Mike O'Bryant	Columbia Basin Bulletin	
Maria Van Houten	ENRON	
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Robyn MacKay	BPA	
Jim Litchfield	Montana	
Chris Ross	NMFS	
Glen Traeger	AVISTA Energy	
Ningjen Liu	Idaho Power Co.	
Bill Rudolph	NW Fish Letter	

COLUMBIA RIVER REGIONAL FORUM

TECHNICAL MANAGEMENT TEAM

May 4, 2001 Conference Call

FACILITATOR'S NOTES

Facilitator: Richard Forester

The following notes are a summary of issues that are intended to point our 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.

Spill:

The Executives are considering spill on the lower Columbia River and have requested TMT to indicate what should be the timing of such potential spill to provide maximum fish benefit. NMFS has previously reported planning that the Dalles would be the first place for spill (30% for a 24-hour period, minimum 50kcfs), then Bonneville (50 kcfs), for 30 or 31 days with several Megawatt-month options (200, 400, 600, 800) developed. There was a salmon managers conference yesterday and Rod Woodin (WDFW), Christine Malette (ODFW) and Paul Wagner (NMFS) reported their recommendation that for maximum benefit under current circumstances the spill should commence on May 9. Further discussion established a 6pm (Wednesday) starting time, unless a different time is suggested by FPAC meeting, with due consideration given to the lead time necessary to commence spill operations. Rudd Turner, on behalf of COE indicated, based on past experience, the need to monitor water quality (dissolved gas) at the Camas/Washougal gage. This may necessitate some adjustments, such as less than 24 hour continuous spill. **Conclusion:** There was no disagreement with commencing the spill at 6pm on May 9th, at Bonneville and The Dalles under the 400 megawatt option, with the contingencies indicated: monitoring for water quality and time alteration based on FPAC meeting early next week.

Next Meeting:

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TECHNICAL MANAGEMENT TEAM
MEETING NOTES
May 9, 2001
CORPS OF ENGINEERS NORTHWESTERN DIVISION OFFICES – CUSTOM HOUSE
PORTLAND, OREGON

TMT Internet Homepage: http://www.nwd-wc.usace.army.mil/TMT/index.html

FACILITATOR'S NOTES ON FUTURE ACTIONS
Facilitator: Donna Silverberg

The following notes are a summary of issues that are intended to point our 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.

Hanford Reach/Vernita Bar Update:
Flows were held at VB minimum through May 6. The policy group had a conference call and agreed to keep water up 5/9 and 5/10, with a downward ramp beginning Tuesday, 5/8.

Brownlee Operations:
BPA and Idaho Power were unable to reach agreement on a surging operation because the proposal involved in May instead of June. As it stands, Idaho Power will maintain minimum flows at Brownlee: 8200 cfs in May and down to 6500 for the second half of June.
Regarding BOR water: Idaho Power will pass any water the BOR releases, but is unable to shape that water for the regional system. The Snake River will be dry as early as 5/16 below Milner. BOR would like to begin releasing water soon.
Consensus: TMT members will request shaping of water released into Brownlee in a condensed (2-day) period so Lower Granite can pulse. This action would be tentatively scheduled for May 14 and 15, the trigger being an observed sharp rise in tributary flows. The BOR will release 230 cfs/day until Friday, then up to 1500; in the meantime, Pat McGrane will give the TMT shaping request to Idaho Power. The FWS need also to make a statement on possible mitigation obligations to snails.
Action: Pat McGrane will check about whether Idaho Power is willing to shape in May and recapture in June. Dave Wills will check about any possible problems with the snails. If any action is to be taken prior to the next TMT conference call, Paul Wagner will notify the COE and TMT for an emergency conference call.

Spill for Fish Passage:
TMT had recommended, at the Federal Executives request for input, to begin spill on 5/9 at 6 pm. BPA is working with other parties (Grant PUD's and upriver tribes) to establish a final resolution to the issue, which involves a swap. More on this issue at a later time.

Current System Conditions:
Operations: Nothing has changed from recent weeks except the ramping down of Vernita Bar flows, which began 5/8. SSARR is showing a projected migration peak May 15. The power system emergency continues.
Action: Kyle Martin expressed a need to double check with the RFC on the Dalles volume forecast. He will check on this and then email his findings to TMT members or give a report at next week's TMT call.

Lower Granite Spill Operation Proposal:
In response to salmon managers' input, Dworshak water will not be used for augmentation. NMFS would like to see a combination operation using Brownlee water: surging operation and an increase at Lower Granite to help increase flows at upper and lower portions of the pool. One option would be to go four days, then refill, and then four days again. More on this once the group hears from IPC.

SOR 2001-4:
This is a request from Oregon, Washington, USFWS and CRITFC to pass inflow up to powerhouse capacity at Albeni Falls, keeping elevation at 2054. Since Albeni Falls is the only reservoir scheduled to fill this year, the suggestion is to share some of the water to ease other areas of the system for fish and other users.
The COE expressed a need to recognize commitments made to plaintiffs in a prior lawsuit settlement to fill the lake this summer. In order to carry out the proposal, TMT needs to make a strong case for why to make changes to the operations established in April. One option is to fill the reservoir just high enough to get bull trout over gravel bars. This drought season could be an unusual opportunity to provide new minimums for bull trout at Albeni Falls.
Action: The salmon managers will work with resident fish folks and bring information to the next meeting.

Recommended Operations:
The recommended operation for 5/14 through 5/28 is to meet power system needs, hold headwater projects at a minimum, refill Grand Coulee and meet the FERC minimum of 36,000 for VB. There has been no agreed upon spill or augmentation, although some is expected from the Upper Snake. Lower Granite will continue to keep flows higher through midnight and operate at a 1.5 forebay range (MOP+1 – MOP+2.5). If Upper Snake water is made available, it will be added to Lower Granite.

Water Temperature Trend Procedure:
Dick Cassidy reported the results of modeling efforts recommended by TMT; these results can be found on the TMT web page link to WQT.
Action: The COE will continue to run more scenarios in order to document attempts to use any and all options that may be available.

Kootenay Lake Follow-up:
Regarding the possible net-neutral water trade with West Kootenay Power, there will need to be further public outreach in Canada for a possible release at the end of May. This means there is a

low probability that the trade will occur, but best efforts are ongoing to make it happen.

Treaty Fisheries Update:
Rudd showed tracking of COE's operations for the treaty fishery. The operation was within the 1.5 foot range (75 - 76.5 ft.) established in RCC teletypes for almost all hours of the fishery.

Next Meeting:
The next TMT meeting will be a conference call from 9-12. Brownlee details and Albeni Falls/Bull Trout will be discussed. [Note this call was cancelled to allow additional time to gather information on ALF bull trout conditions.]

Meeting Minutes

1. Greeting and Introductions

The May 9 Technical Management Team meeting, held at the Customs House in Portland, Oregon, was chaired by Rudd Turner of the Corps and facilitated by Donna Silverberg. The following is a distillation, not a verbatim transcript, of items discussed at the meeting and actions taken. Anyone with questions or comments about these minutes should call Turner at 503/808-3935.

Turner welcomed everyone to the meeting, then led a round of introductions and a review of the agenda.

2. Hanford Reach/Vernita Bar Update.

Joe Lukas reported that, for the week of April 30-May 6, Priest Rapids Dam was operated to maintain the 65 Kcfs Vernita Bar minimum flow; the fluctuation band was 60 Kcfs, with an actual range of 4 Kcfs-12 Kcfs during the week. Flows were low and stable, Lukas said. There was no random sampling this week, he said, but we did sample 6,136 fish at the index sites, average fork length 43.5 mm, range 36-68 mm. The transition to a lower Vernita Bar flow began May 8; flow has been dropping by 5 Kcfs per day, such that we'll be down to a minimum Vernita Bar flow of 36 Kcfs on May 12, Lukas said. The flow band will remain at 60 Kcfs for the next two weeks, he added.

Turner distributed a memo describing the outcome of the May 3 Vernita Bar Settlement Agreement parties conference call, at which this operation was agreed to. Day-average flow at Priest Rapids was about 61 Kcfs yesterday, Turner added. With respect to the status of the fall chinook emergence, said Lukas, we'll hit 1,000 CTUs today or tomorrow.

3. Brownlee Operation and Water for Refill.

Scott Bettin said there have been two separate negotiations regarding the use of Brownlee Reservoir for flow augmentation and shaping. With respect to BPA's negotiations with Idaho Power to use 180 KAF of Brownlee water to backfill Lower Granite pool for the surging operation, he said, we were not able to reach an agreement because Idaho Power wanted refill to occur in May, rather than June. Because of the poor runoff conditions, we decided to end negotiations on the 180 KAF, Bettin said.

Clearly that was much too large a volume, added Robyn MacKay; Idaho Power suggested one pulse of 45 KAF, but again, with the low runoff conditions and Idaho's minimum flow requirements in June, they wanted the water to be returned in May, which NMFS was unwilling to agree to. The idea behind the exchange was that June is a low point in the chinook and steelhead migration, said Paul Wagner; the idea was to increase Snake River flow in May and decrease it in June. Idaho Power replied that they wanted the water returned in May, so the deal was, at that point, off, Wagner said.

What is Idaho Power's minimum flow in May? Bettin asked. It's 8.2 Kcfs, Ningjen Liu replied. And in June? Bettin asked. It's 8.2 Kcfs in the first half of June, 6.5 Kcfs in the second half, Liu replied. That 6.5 Kcfs is a recreation constraint? Bettin asked. Correct, Liu replied.

Pat McGrane said Reclamation has also been in negotiations with Idaho Power regarding the delivery of the Upper Snake water; so far, they are only willing to pass that water through, without shaping.

There's another twist, McGrane said; we have to start augmenting flows in the Snake River, or it will run dry below Milner in the next two days. Reclamation's proposal is to start releasing the 38 KAF of Upper Snake water we currently have available at a rate of 230 cfs per day, said McGrane; IPC is willing to deliver that water over the next 83 days. At 230 cfs, all of the Upper Snake water will be delivered by late July or early August. When would that operation begin? Silverberg asked. Some time in the next two days, McGrane replied, adding that the last time this section of the Snake ran dry below Milner was 1992. The FERC minimum is 200 cfs below Milner? Jim Nielsen asked. Correct, Liu replied. McGrane noted that the minimum flow requirement says "if the water is available;" IPC is running out of water, the same as we are.

Any possibility of shaping that water into one month? Bettin asked. IPC won't shape it, McGrane replied; our feeling is the best way to deliver it is to keep the river wet as long as possible. In the meantime, more Upper Snake water may become available; we'll keep our fingers crossed. In reply to a question from Steve Pettit, McGrane said the 38 KAF is rented from the Shoshone-Bannock Tribes; it will come out of American Falls Reservoir. Pettit said IDFG is looking at whether or not this is the most beneficial use of the 38 KAF, in terms of anadromous fish needs; he said he will have IDFG's recommendation by the end of today's meeting.

Wagner said that, from NMFS' perspective, the proposed timing of this release is poor; it would be better to target it at the peak of the Snake River migration, rather than trickling it out

when few fish are present. Do we know why Idaho Power is reluctant to shape this water? Silverberg asked. I'm not sure of the reasons, Liu replied. Perhaps we should draft a TMT request to IPC to consider shaping this water, Bettin suggested.

It is unfortunate that Idaho Power refuses to participate in the discussions of how to ameliorate conditions for anadromous fish below Hells Canyon Dam, Nielsen said. I disagree, said MacKay – we have been negotiating for the release of Brownlee water, but they can't do it because of their minimum flow requirement. That's a separate issue, said Bettin – we're talking about shaping the Upper Snake water, which they seem to be unwilling to do unless they benefit.

Do we want to draft a letter from TMT today? Silverberg asked. There was general agreement that this would be an appropriate course of action. McGrane suggested that it probably makes sense to start Upper Snake flow augmentation as soon as possible, in the hopes that additional water may become available later to keep the operation going; Bettin agreed.

Pettit said that, after consultation with IDFG headquarters, the Department's official position is that, with only 200 cfs per day coming down, water temperatures would be lethal for fish, so it would be better to provide a 10-day pulse that would provide some benefit to anadromous fish, rather than dribbling out that water and essentially cooking fish. That would give us about eight days at 1.5 Kcfs, said McGrane, with some sort of rampdown period at the end. Any thoughts on that proposed operation? Silverberg asked. Is there some other way to shape this volume of water that would confer more benefit to salmon? IDFG's proposal is consistent with NMFS' recommendation, Wagner replied; the original proposal, to draft Brownlee in May and backfill it in June, would still be the preferred operation.

After a brief caucus, the salmon managers developed the following proposal for the Upper Snake water: to shape the water by releasing it from Brownlee over two days, increasing Snake River flow by 5 Kcfs-7 Kcfs, probably on May 14-15 (planning date only). The intent is to release the water at or just after the peak of the natural hydrograph, said Wagner; the exact timing of the operation will depend on fish movement, flows and, in particular, the moment when a sharp rise in tributary flows occurs. This should meet Idaho Power's criteria that Brownlee be refilled in May, he said; the water will be delivered out of Milner in a pulse, and delivered out of Brownlee in a faster pulse. I will pass that proposal along to John Bowling, said Liu.

I take it that we should start releasing water at Milner as soon as possible, probably tomorrow, at a rate of 1.5 Kcfs, given the fact that it takes four to five days for that water to get to Brownlee? McGrane said. David Wills said he had conferred with the Fish and Wildlife Service's Boise office; the snail experts were not in the office, but they are going to check to see if there are any snail conflicts with this proposed operation, particularly obligations for this water to be used for snails. If there is such an obligation, they are probably going to want to keep the river wet for snails below Milner. If the river stays wet for 80 days, then goes dry, isn't that going to kill them anyway? Pettit asked. At least one of the snail species has the ability to move from a dewatered area, Wills replied. My understanding is that the only obligation Reclamation has is to ramp down salmon flows by 100 cfs per day, McGrane said.

We need to know whether or not Idaho Power is willing to do some shaping in support of this operation, said Bettin; we also need to be sure there isn't some snail obligation we're unaware of right now. My suggestion is that we start releasing 1.5 Kcfs as soon as possible, and discuss any snail mitigation later, Wills said. In essence, this is a new proposal, said MacKay; we would be asking Idaho Power to do the pulse, and backfill them with the Reclamation water.

After a few minutes of further discussion, the TMT recommended that Reclamation release 230 cfs at Milner through Friday; if no shaping agreement is reached with Idaho Power, Reclamation will then increase Milner flow to 1.5 Kcfs until the 38 KAF is exhausted. If there is a snail constraint, McGrane said, under the worst-case scenario, we would get 6 days at 1.5 Kcfs, at which point we would have to start ramping down at a rate of 100 cfs per day. It is unlikely that the Fish and Wildlife Service will insist on that point, however, given water conditions this year.

McGrane said he will contact Idaho Power and ask if they would be willing to deliver, in a two-day pulse from Brownlee, at the request of TMT including NMFS, the 38 KAF of Upper Snake flow augmentation water, some time around May 14-15. We would prefer to backfill them at a rate of 230 cfs over the course of the summer, McGrane said; if they decline, we will provide 1.5 Kcfs at Milner starting Friday, and will work out the details of any snail rampdown with the Fish and Wildlife Service later.

I believe we have TMT consensus on this operation, said Silverberg. No objections were raised to this statement. If any additional pockets of Upper Snake water become available, said McGrane, I'll communicate that to TMT.

4. Lower Granite Spring Operations Proposal.

Ross said that, after getting comments from the salmon managers and others, the decision was made not to use Dworshak for spring flow augmentation, specifically to backfill Lower Granite pool during the proposed Lower Granite pulsing operation. We have been negotiating for the use of Brownlee water with Idaho Power, he said; you've just heard the status of those negotiations. Our preference is still to use Brownlee to backfill Lower Granite during the pulse operation, increasing velocities in both the upper and lower ends of the pool, said Ross; the status of that operation, again, depends on the outcome of the discussions with Idaho Power. Right now, doing both would be the best way to increase velocities in the whole pool, but that depends on the outcome of the IPC negotiations.

5. Spill for Fish Passage.

There was an emergency TMT call on Friday, said Turner; the Federal Executives asked TMT to make a recommendation, if spill was to be provided this spring in the range of 400 MW-months, about the best time, biologically, to begin that operation. TMT's recommendation was May 9, today, at 6 p.m., said Turner. At this point, BPA is working with the tribes, FERC and Grant PUD to see if a deal can be struck to make at least some spill available, said MacKay.

There are some tribal concerns, particularly among the upriver tribes, having to do with the nature of the spill exchange agreement, Turner said. Spill would be provided in May for about 30 days; if the water supply forecast deteriorates, Grant PUD will reduce spill over the summer. The Colvilles don't want to see a reduction in summer spill at the Grant County projects, Nielsen explained.

Bettin said BPA appreciates the TMT's input; unfortunately, he said, we're still waiting to finalize the deal that will allow spill to happen. The details have to be worked through FERC and the tribes, he said.

Wagner distributed a series of graphs showing the estimated benefits of 800, 400 and 0 MW-months of spill for various ESA-listed species; essentially, providing 400 MW-months of spill is estimated to provide about a 10% reduction in mortality for the listed species in this graph, compared to the estimated mortality associated with providing zero spill. The reason for such a significant increase in survival is that the 50 Kcfs minimum spill at Bonneville will represent about half the total river flow this summer, Wagner explained.

We'll watch our emails hopefully, in the hope that a deal can be struck, said Silverberg.

6. Current System Conditions.

Turner reported that current system operation remains essentially unchanged: maintain minimum outflow at the headwater projects, fill Grand Coulee to the extent feasible, consistent with maintaining the Vernita Bar minimum and meeting power system requirements. Outflow at Bonneville Dam has ranged between 132 Kcfs and 162 Kcfs over the past week. The Lower Snake is on weekly load shaping, with lower flows on the weekend. Flows last week at McNary ranged between 112 Kcfs and 140 Kcfs. The most recent SSARR predicts peak McNary flows of about 180 Kcfs some time around May 17. At Lower Granite, the day-average flow was 49 Kcfs yesterday; Snake River flows are once again on the rise. The latest SSARR predicts a peak flow in the mid-80 Kcfs range at Lower Granite during the week of May 14. Brownlee elevation is 2076.4 feet, with outflows in the 5 Kcfs-8 Kcfs range. We have implemented the 1.5-foot operating range at Lower Granite, as agreed at the last TMT meeting, Turner said; we are using that flexibility on some nights.

Dworshak elevation, as of midnight last night, was 1542,5 feet; the project filled eight feet last week, Turner said. Albeni Falls elevation is now 2054.6; the project is filling gradually, with inflows of 25 Kcfs and outflows of 15 Kcfs. The intent is to continue to fill that project slowly through June, releasing about 7 Kcfs under inflow. Priest Rapids released a day-average of 61 Kcfs yesterday. Libby was at elevation 2389.1 as of midnight last night, filling slowly (about two-tenths of a foot per day), with outflows of 4 Kcfs. Inflows are dropping; they were 5.8 Kcfs yesterday. We're hoping inflows pick up at that project before too much longer, Turner said.

He distributed updated volume histograms and "families of curves" for the upstream storage projects, revised to reflect the May final water supply forecast. The May final forecast

showed little change in the key basins, perhaps a slight drop-off, he said – about 70% confidence we'll reach elevation 1580 at Dworshak by June 30, and about 30% confidence that we'll achieve the June 30 refill targets at Hungry Horse and Libby. The Dalles January-July forecast is now 56.5 MAF, an increase of 0.4 MAF from the April final.

Kyle Martin observed that the fact that precipitation and snowpack went up last month, but the May final forecast went down slightly, seems counterintuitive to him – to me, he said, the numbers don't jive. It is suspicious to me that the volume forecast didn't go up more, and actually fell from the May early-bird forecast, given the fact that 60 MAF at The Dalles is the critical number BPA has said it needs to provide spill this spring. Martin agreed to call the River Forecast Center to get an explanation, and to report his findings at next week's TMT meeting. The bottom line is that we're still on-track to have the second-worst water year on record, Turner said.

McGrane said Grand Coulee elevation is now 1232 feet, with inflows of 95 Kcfs and outflows of 65 Kcfs. The project is 58 feet from full, and filling a foot per day. Hungry Horse has filled four feet in the past week. In the Upper Snake, he said, some projects are filling, many are drafting for irrigation. What about the Flathead? Litchfield asked. There has been a request to hold Flathead flows at 9 Kcfs, rather than the 12 Kcfs-13 Kcfs they would normally be this time of year, McGrane replied; it's hard to know right now what will happen there. Banks Lake is at 1569.2 feet, in the top foot of its operating range, he added.

Power system status? Silverberg asked. The emergency continues, Bettin replied; there are currently rolling blackouts in California, the status quo we expect to continue through June. Power prices have increased by $300-$400 per MW/h over the past three days, noted Sean Crandall.

Wagner said that, with respect to the current status of the fish migration, passage indices are falling sharply, in general. Yearling chinook indices peaked about a week ago, and are now sliding downward. Steelhead are showing a similar pattern. As the hydrograph comes back up toward the peak, we would expect to see the passage indices start to rise again, Wagner said. Overall, we're at about the 65% point in the expected yearling chinook run at Lower Granite; for steelhead, at about the 40% point.

The concern is that any fish that don't pass Lower Granite by June 1 probably won't pass at all, said Wagner, so hopefully, we'll see these numbers coming up. Passage at McNary is a sadder story, Wagner said; that's why if there is something we can do at McNary, in terms of powerhouse operations, similar to what we've done at Lower Granite this year, we had better start doing it very soon. Wagner added that the cumulative passage index at Bonneville Dam looks better, but this reflects large numbers of hatchery juveniles as well as the wild listed species.

With respect to adult passage, said Wagner, cumulative passage is now in excess of 340,000 spring chinook at Bonneville; it looks as though we may get to more than 360,000 by the time the run is finished. More than 108,000 adult spring chinook have now passed Lower

Granite Dam; that compares to just over 41,000 in 2000.

With respect to chum outmigration, the Hamilton Springs and Hardy Creek outmigrations are both past the peak and winding down, said David Wills. A total of 14,500 chum outmigrants have been captured to date at the Hamilton Springs trap, about 3,000 at the Hardy Creek trap

7. New System Operational Requests.

On May 3, the Corps received SOR 2001-4. This request, supported by ODFW, USFWS, WDFW and CRITFC, requests the following specific operations:

- Beginning immediately, pass inflow up to powerhouse capacity at Albeni Falls. Albeni Falls Reservoir should maintain its current elevation of 2054 feet.

Christine Mallette spent a few minutes going through the contents of this SOR, the full text of which is available via the TMT homepage. Please refer to this document for details of justification.

We started refilling Albeni Falls last Saturday, because we have made public commitments to do that this summer, Turner said – the federal government has made those commitments to the federal courts. He distributed a letter on this topic from John Cruden, the acting Assistant Attorney General, Environmental and Natural Resources Division, to the parties in the suit Lake Pend Oreille Idaho Club v. Corps of Engineers, indicating that the Corps does plan to refill Albeni falls by June 30.

The Corps agreed to delay the onset of refill at Albeni Falls as the TMT requested, Turner said; however, we did not agree to do away with refill, and at this time, we feel we need to continue on the path we have committed to publically. However, we also want to seek TMT input on the best operation to accomplish that, Turner said. Holding elevation 2054 through the summer at Albeni Falls, in other words, is very unlikely, he said.

Turner spent a few minutes going through the contents of this letter, noting that Kerr Dam outflow is also a factor in this operation. We have just learned that discharge from Kerr is going to be decreased this year, he said; we're going to get 9 Kcfs, rather than closer to 13 Kcfs as we would in a normal year.

Our view is that we told the court, less than a month ago, that this was the planned operation, Turner said. If we are going to go back to the court and seek to change this operation, we're going to have to be able to make a pretty persuasive case that conditions have changed, Turner said. He explained that a lawsuit was filed two years ago; in the process of doing the kokanee/bull trout interaction study, there was a desire to get Lake Pend Oreille to lower levels. This lawsuit, filed by the lake residents, enjoined us not to do that, Turner said. There have been settlements worked out for the past two years, he explained, and we have operated the lake to elevation 2053 during the fall. As part of that settlement, the Corps committed to a year-round operation, but there may be some flexibility to go to a different operation.

The bottom line is that our answer to this SOR is not exactly no, Turner said; there may be some flexibility to implement it, but it's pretty late in the game, and we will need to make a persuasive case that conditions have changed significantly. There is also some risk that, even if we change the operation at Albeni Falls, the water may be impounded at Grand Coulee, and may not even benefit fish downstream. If Grand Coulee reaches elevation 1278, said McGrane, you can assume that the water will make it downstream by the end of September.

This letter is to the plaintiffs, not the court, said a representative from the Corps legal counsel's office; notification of the plaintiffs is required under the terms of the stipulation. In response to a question from Litchfield, Turner said there is a total of 780 KAF on the table here, the difference between elevation 2054 and full (elevation 2062) at Albeni Falls. Another thing to consider, said Turner, is that if we don't refill Albeni Falls this summer, that will decrease the volume of water available to augment flows for lower river chum spawning this fall.

Wagner said NMFS did not support this SOR because it was a party to the settlement of this lawsuit; he needs to coordinate with NMFS legal staff to see whether or not it can support it under the terms of the settlement. Pettit said IDFG has serious concerns about keeping Albeni Falls so far from full, related mainly to bull trout access to tributary spawning areas.

Wills said he had contacted Fish and Wildlife Service biologists in the area prior to expressing his support for this SOR; however, the bull trout tributary passage issue was not brought to his attention at that time. We do have some concerns about this SOR, he said, and would be less than enthused about seeing lake levels this low during the bull trout spawning season. It sounds, then, as though the Fish and Wildlife Service may no longer support this SOR, said Silverberg.

So the Corps would like the TMT's input? Silverberg asked. We need to give the court a real good reason as to why we've changed our mind, Turner said; after considering all of the tradeoffs, are we doing the best we can for all listed species, lawsuits aside?

What minimum lake elevation is needed to ensure adequate bull trout passage? Mallette asked. My understanding is that field personnel have never seen lake levels this low at this time of year, Will replied, so I can't really answer that question – there are barriers to passage into some tributaries right now.

Could we monitor this year, as the lake refills, to see at what elevation reasonable passage conditions are provided? Mallette replied. Possibly, Wills replied. With that information, we might be able to set a new minimum elevation at Albeni Falls, Mallette observed.

After a few minutes of further discussion, Turner said that, in the absence of a compelling reason to do otherwise, the Corps intends to continue with refill at the current rate of about a foot per week, at least until a sufficient lake elevation is achieved to allow adequate bull trout passage to the tributaries. He asked the salmon managers to pursue field surveys that might help identify the elevation at which that occurs. We will discuss this issue again at next week's TMT

conference call, Silverberg said.

8. Recommended Operations.

For the period May 14-28, said Turner, the operation will be much the same as it has been in recent weeks – operate the system to meet power needs, refill Grand Coulee and the upriver storage projects to the extent feasible while meeting the 36 Kcfs minimum flow at Vernita Bar. There is still no spill program, he said, but we will start seeing some flow augmentation water from the Upper Snake in the next day or two. The current operation at Lower Granite, keeping flows as high as possible through midnight, will continue through the use of a 1.5-foot operating range at that project.

The group discussed whether or not, if it is possible to shape the Upper Snake water through Brownlee into a two-day period, that water should be passed through Brownlee without exceeding the 1.5-foot operating range at that project, or should used to fill the pool higher for a pulse to be released during nighttime hours; ultimately, it was agreed that, if the Upper Snake "pulse" can be shaped through Brownlee, it will be passed through Lower Granite, using the 1.5-foot operating range at that project to shape it as much as possible into evening hours.

9. Water Temperature Trend Procedure.

Dick Cassidy said he had made a presentation to IT last week on some recent MASS1 modeling work the Corps has been conducting; we modeled a "worst-case" scenario by combing the 1977 flow year with 1994 meteorological conditions, both the worst on record, he explained. This report is available via the TMT homepage, Cassidy said. We assumed a release of 10 Kcfs at 48 degrees from Dworshak beginning July 1 and running through September, the best possible contributions from Dworshak, in other words. The bottom line is that the best that can be achieved is a 1-degree C reduction in temperatures at Lower Granite, with reduced water temperature benefits at downstream projects.

According to the model results, this operation did reduce the number of days we would be above the critical level of 20 degrees C from 35 to about 20, said Cassidy, so that 1-degree reduction in temperature is not insignificant. We can model some additional scenarios if the TMT desires, he added, but this gives you a sense of what benefits the Dworshak water might provide under the worst-case scenario.

Wagner said that, in his view, it would be useful for the Corps to model the full range of Dworshak operational alternatives, in order to further inform and document whatever Dworshak operation is ultimately recommended. No TMT disagreements were raised to Wagner's suggestion.

10. Other.

A. Kootenay Lake Update. Turner said "wait and see" is the status of this operation; this is a follow-up to the discussion of West Kootenay Power's request to hold water in the lake and

release it later in the year. The flow and timing neutrality of this operation is the issue; also, West Kootenay will likely need a variance from the International Joint Commission, then conduct a public outreach process on both the Canadian and U.S. sides of the border. It sounds as though the IJC, in other words, will be the entity that makes this decision, Turner said. This will need to be approved by the end of May if the requisite storage is to be captured from the freshet, said Turner, so to put it mildly, time is tight if this is to be done this year. Ross reiterated his earlier comment that the requested operation needs to be water-neutral by August 31.

B. Treaty Fishery Operations. Turner distributed a series of graphs showing operations during the treaty gillnet fishery, to show the hourly forebay measurements at Bonneville during the hours of the treaty fishery. At last week's TMT meeting, Kyle Martin presented information showing that Bonneville Pool was in compliance with the requested reservoir elevation only 60% of the time, said Turner; according to the Corps' information, the actual percentage of time in compliance was closer to 75%. CRITFC is working on its response – stay tuned, Martin said.

11. Next TMT Meeting Date.

The next meeting of the Technical Management Team (a conference call) was set for Wednesday, May 16 from 9 a.m. to noon. It was agreed that there will be an earlier TMT conference call if flow conditions change such that the Upper Snake "pulse" is triggered prior to next Wednesday's meeting. The next face-to-face meeting of the TMT will take place May 23. Meeting notes prepared by Jeff Kuechle, BPA contractor.

TMT ATTENDANCE LIST

MAY 9, 2001

Scott Bettin	BPA	503/230-4573
Dick Cassidy	COE	
Sean Crandall	Enron	503/464-3815
Jim Litchfield	Montana Consultant	503/222-9480
Christine Mallette	ODFW	503/872-5252
Kyle Martin	CRITFC	503/731-1314
Jim Nielsen	WDFW	360/902-2812
Rudd Turner	COE	503/808-3935
Paul Wagner	NMFS	503/231-2316
David Wills	USFWS	360/696-7605

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Barry Espenson	Columbia Basin Bulletin	503/696-4005
Robyn MacKay	BPA	503/230-3385
Russ George	Water Management Consultants Inc.	503/253-1553
Cathy Hlebechuk	COE	503/808-3942
Chris Ross	NMFS	503/230-5416
Maria Van Houten	Enron	503/464-3815

<u>On Phone</u>:

Name	**Affiliation**	**Phone**
Margaret Filardo	FPC	
Nengjin Liu	Idaho Power	
Glen Traeger	AVISTA Energy	
Joe Lukas	Grant PUD	
Pat McGrane	Reclamation	
Steve Wallace	PacifiCorp	
Bill Rudolph	NW Fish Letter	
Steve Pettit	IDFG	
Kevin Nordt	PGE	
Mike Butchko	PowerX	

TECHNICAL MANAGEMENT TEAM
EMERGENCY MEETING NOTES
May 17, 2001
CORPS OF ENGINEERS NORTHWESTERN DIVISION OFFICES – CUSTOM HOUSE
PORTLAND, OREGON

TMT Internet Homepage: http://www.nwd-wc.usace.army.mil/TMT/index.html

1. Greeting and Introductions

The May 17 Technical Management Team emergency conference call, held at the Customs House in Portland, Oregon, was chaired by Rudd Turner of the Corps. The following is a distillation, not a verbatim transcript, of items discussed at the meeting and actions taken. Anyone with questions or comments about these minutes should call Turner at 503/808-3935.

Turner welcomed everyone to the meeting, then led a round of introductions and a review of the agenda.

2. Lower Snake MOP Operations.

Cathy Hlebechuk reported that Lower Snake River flows are, in all likelihood, now peaking for the season. Lower Monumental and Ice Harbor are both currently operating above their desired operating range; Lower Monumental pool elevation is now 538.8 feet, while the project is supposed to be operating in a range of 537-538 feet. Ice Harbor is supposed to be operating in the 438-439-foot range, while current elevation at that project is 439.4 feet. Ice Harbor is running full load, six units, Hlebechuk said; despite that, both projects have been outside of MOP since Tuesday. She added that pool elevations at Little Goose and Lower Granite are within their acceptable ranges.

Why have Lower Monumental and Ice Harbor been operating outside of MOP? Chris Ross asked. It's mainly due to the rise in inflows, Hlebechuk replied – Ice Harbor has been operating at full load since Tuesday, and has not been able to get all of the water out. At Lower Monumental, said Scott Bettin, we've been trying to hold some water back, because we can't get it through Ice Harbor right now. In essence you've been holding water at Lower Monumental to avoid spill at Ice Harbor? Ross asked. Correct, Bettin replied, adding that inflows are now beginning to recede, to the point where it should be possible to start getting the extra water out by tomorrow.

Yesterday's Lower Granite inflow was 88 Kcfs, Hlebechuk said; the RFC forecast is for a day-average of 88 Kcfs at that project today, 82 Kcfs tomorrow and 75 Kcfs on Saturday. Actually, I think Lower Snake flows are falling off more rapidly than that, said Steve Pettit.

We have two options, said Hlebechuk – we can wait a day or a day and a half to get the extra water out of Lower Monumental and Ice Harbor pools, or we can spill the extra water, which could be counted against the 300 MW-months of spill BPA has agreed to provide this

spring. There is a third option, said Bettin – we could also run those projects outside of 1% peak efficiency to increase powerhouse capacity by a few megawatts. Why would this spill be charged against the 300 MW-month spill program? Pettit asked. Because we are still in a power system emergency, replied Therese Lamb; we have agreed to the 300 MW-months because it is based on backup from Grant PUD. Essentially, BPA has agreed to provide 300 MW-months of spill, but no more than 300 MW-months of spill, she explained.

How long will it take to run the water out if we stay within 1% peak efficiency? Jim Nielsen asked. We could be there tomorrow if Snake River flows continue to recede as forecast, Bettin replied. If inflows stay up, it could be as late as Saturday, Lamb added. In response to a question from Ross, Bettin said it should be possible to continue reverse load-factoring to keep flows up at Lower Granite during the 10 p.m.-midnight period at Lower Granite, while the additional water is being evacuated from Lower Monumental pool.

Is the TMT's recommendation, then, to continue running the water out of Lower Monumental pool and get back to MOP as quickly as possible, given Ice Harbor's constraint, while staying within 1% peak efficiency? Bettin asked. Given the other choices, that would be my recommendation, Nielsen replied.

At Nielsen's request, Lamb went through the parameters of the 2001 spill agreement. Where we are with Grant County PUD is that, a week ago, they filed for a fairly broad emergency order with FERC, which would allow for a reduction in spill and transfers of spill, she said. BPA developed a filing, in collaboration with Grant County PUD, which describes an agreement we have reached with Grant PUD with respect to how a trade would work, said Lamb; NMFS is also filing a letter of support, she said.

Embodied in that filing is an arrangement by which we will spill during the month of May, Lamb said; then, based on certain triggers in June – Grand Coulee elevations and volume forecasts – we may ask Grant PUD to reduce their summer spill to eight hours at night at FERC levels, and to send us energy if needed. If Grand Coulee elevations or volume forecasts are above the stipulated levels, said Lamb, we will not trigger the return, and will simply spill. As part of this agreement, Grant PUD has said that, first, they need FERC approval in order to reduce their spill; second, they would like concurrence from various regional parties – specifically, the State of Washington, NMFS, the Yakima Tribe and the Power Planning Council. The State of Washington, NMFS and the Power Planning Council have all given their verbal support to this arrangement, Lamb said; at this time, we do not have support from the Yakima Tribe.

Absent FERC approval, Bonneville is on its own, with respect to providing spring spill in 2001, said Lamb. However, she said, after weighing the power system reliability risks and the dangers of waiting for the FERC process to be completed before providing any spill this spring, Steve Wright has made the decision to go forward with 300 MW-months of spill, with 50 Kcfs of spill at Bonneville for 24 hours and 30% spill at The Dalles for 24 hours.

In response to a question from Turner, Lamb said the triggers are a Grand Coulee elevation of 1260 or below on June 1 and a runoff volume forecast of 57.5 MAF or less on June 1. There are also July 1 triggers, she said – a Grand Coulee elevation of 1280 or less and a runoff

volume forecast of 57.3 MAF or less.

Turner observed that what the trigger means is that, if these levels are not achieved, then BPA has the option of asking for an exchange; depending on economic and system reliability concerns, they may or may not do so, even if the triggers are activated. Correct, said Lamb, adding that, while the FERC approval process normally takes up to four weeks, it is possible for the FERC commissioners to expedite this request if circumstances warrant. In response to a question from David Wills, Lamb said the 300 MW-months of spill at The Dalles and Bonneville should last approximately 21 days.

As most of you are aware, the spill program started last night, said Turner; how do the TMT members feel about the timing of this operation, given the fact that we have only 300 MW-months to work with this year? I think it's appropriate to continue the spill operation as planned, given the amount of fish movement we're seeing currently, Nielsen said. Ross agreed, saying substantial numbers of juvenile spring chinook, coho and steelhead have been counted past John Day and Bonneville dams over the past week. Is the spill occurring during the peak? Turner asked. We don't know that for sure at this point, Ross replied; however, it is safe to say that we have substantial numbers of juvenile migrants passing the lower river projects, currently, and this spill will provide good protection.

The group then devoted a few minutes of discussion to next week's spill survival test at The Dalles; in particular, the question of whether to spill 30% or 40% of river flow during the test. Turner said the researchers would like to begin marking fish on May 21, then start their releases on May 22. The test would last four days, through Friday, May 25, Turner said; the researchers have requested that spill be increased from 30% to 40% during that period, from 8 a.m. to 6 p.m. daily. The consequence is that BPA has agreed to a total of 300 MW-months of spill, said Turner; increasing the spill volume during the test at The Dalles will mean that we will exhaust that spill volume sooner, perhaps as much as a day sooner.

The researchers can conduct the test at 30% spill, Turner added; however, they feel 40% spill would be a more direct test of the conditions prescribed in the new BiOp. After a few minutes of further discussion, Nielsen said that, given the fact that the higher spill volume during the test would total only about 3 MW-months, he would have no objection to doing the test at 40% spill. Wills said the Fish and Wildlife Service agrees; Ross said NMFS does as well. It sounds, then, as though we have agreement on this point, said Bettin; no disagreement was raised to this characterization.

The discussion returned to Snake River operations; Nielsen said that, if spill at Lower Monumental will be charged against the 300 MW-month "account," he would prefer to see the extra water evacuated from the Lower Monumental and Ice Harbor pools over the next several days, without spill, and without any exceedence of 1% peak efficiency. Ross said NMFS agrees with Washington's position; Wills said the Fish and Wildlife Service does as well. To clarify, said Bettin, Ice Harbor and Lower Monumental pools will be returned to their respective MOP elevations as soon as we can get the water out through Ice Harbor.

The next TMT meeting was set for Wednesday, May 23 from 9 a.m. to noon at the Custom House in Portland, Oregon (this will be a face-to-face meeting). Meeting notes prepared by Jeff Kuechle, BPA contractor.

TMT PARTICIPANT LIST

MAY 17, 2001

Scott Bettin	BPA	503/230-4573
Dick Cassidy	COE	
Jim Nielsen	WDFW	360/902-2812
Rudd Turner	COE	503/808-3935
Paul Wagner	NMFS	503/231-2316
David Wills	USFWS	360/696-7605
Cathy Hlebechuk	COE	503/808-3942
Chris Ross	NMFS	503/230-5416
Steve Pettit	IDFG	

TECHNICAL MANAGEMENT TEAM

BOR: Pat McGrane\Lori Postlethwait

NMFS: Paul Wagner\Chris Ross BPA: Scott Bettin\Robyn MacKay

USFWS: Howard Schaller\Bob Hallock\Susan Martin

OR: Christine Mallette WA: Jim Nielsen ID: Steve Pettit

MT: Jim Litchfield COE: Cindy Henriksen\Rudd Turner\Dick Cassidy

23 May 2001 0900 - 1200 hours

Custom House Room 118

Portland, Oregon

Conference call line: 503-808-5190

All members are encouraged to call Donna Silverberg with any issues or concerns they would like to see addressed. Please e-mail her at dsilverberg@cnnw.net or call her at (503) 248-4703.

AGENDA

1. Welcome, introductions.
2. Hanford Reach/Vernita Bar update (Grant PUD).
3. Emergency barged fish release at Ice Harbor (COE).
4. Upper Snake water delivery (BOR).
5. Spill for fish passage/studies (COE, BPA).
6. Review current system conditions.
    - Reservoir operation, water supply, water quality (COE, BOR)
    - Power system status (BPA)
    - Fish migration status (NMFS, USFWS)
7. Review operations **requests**.
8. Develop recommended operations.
9. Other.

- Set agenda for 6 June TMT meeting

Questions about the meeting may be referred to Rudd Turner, (503) 808-3935 or Dick Cassidy, (503) 808-3938.

COLUMBIA RIVER REGIONAL FORUM

TECHNICAL MANAGEMENT TEAM
MEETING NOTES
May 23, 2001
CORPS OF ENGINEERS NORTHWESTERN DIVISION OFFICES – CUSTOM HOUSE
PORTLAND, OREGON

TMT Internet Homepage: http://www.nwd-wc.usace.army.mil/TMT/index.html

FACILITATOR'S NOTES ON FUTURE ACTIONS
Facilitator: Donna Silverberg

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.

Hanford Reach/Vernita Bar Update:

Joe Lukas reported on fish survey data. Also, he said flows were kept at 60 instead of increasing to 80. Low flows are expected over Memorial Day weekend because Grand Coulee will go down to 20 kcfs discharge to meet load; Priest Rapids has a minimum flow of 36 kcfs. Salmon managers expressed concerns that the minimum flows will disturb prime rearing habitat for migrating sub-yearling fall chinook. They encouraged BPA to keep flows higher than 36 over the weekend as a result of a dramatic drop in recovery rates. Oregon stated that biological risks are being taken with every decrease and we should be made conscious of those risks.

BPA said they are aware of the effects on fish and because they are in a power emergency, they will see where loads take flow levels. BOR suggested making efforts to smooth out the fluctuation of flows since there is less than a 50% chance of filling Grand Coulee to within 10 feet. BPA is still willing to move loads to different projects in the Snake River (operations outside of MOP). Montana agreed that the swap may be worth considering since Mid-Columbia stocks are fairing so poorly this year. The COE pointed out that the decisions already made had been coordinated throughout the region and this year is bad for all involved, not just fish. NMFS feels that no changes should occur because of the power emergency and decisions made a month ago. There was no agreement on this issue, nor an expressed desire to raise it to IT. USFWS said they will raise the issue at the federal executive level.

Emergency Barged Fish Release at Ice Harbor:

Rudd reported on problems that occurred on barges last weekend. Fish were released and supported with 40 kcfs spill at the dam because of a blockage on the barge. The cause is still unclear, although lamprey, a tribal resource, were involved.

ACTION: COE will give a follow-up report on the investigation and review standard operating procedures for screen maintenance on barges. CRITFC will report information on whether or not there is an increased number of lamprey this year and if so, what explains it.

Upper Snake Water Delivery:
Pat McGrane reported on discussions with Idaho Power regarding shaping Brownlee water. They tried to reach a "shaping agreement", but it was not acceptable to all parties. BOR released 1500 cfs on 5/11 and held for 6 days, then began ramping down 100 cfs per day. They were able to add an additional 5000 acre feet and they plan to release water out of the Payette run until June 10. BOR has now received up to 90 kaf. They want to release water now instead of later for a number of reasons, including fish, recreation, sport and most importantly, the inability to shape Brownlee.

Spill for Fish Passage:
Spill began last Wednesday at the Dalles and Bonneville for 300 mw months. RCC has been tracking levels and it is believed the spill may occur for 19 days. General Strock told the COE that he would like to spill for spring fish what is reasonable given the power system. Also, there is currently a daily spill level test at the Dalles.

ACTION: TMT will look at the results of the spill test at the Dalles as soon as they come out.

Current System Conditions:
Current operations are meeting power requirements, with spill at Bonneville and the Dalles. Grand Coulee filled twelve feet in the last week. The May final forecast is 56.5. Harold, from the National River Forecast Center, provided an explanation of forecast methods (handouts were presented).
Fish Migration Status: Yearling steelhead and chinook numbers look grim at McNary and in the Mid-Columbia reaches. It is taking them twice as long as last year to move through the system. Other stocks are looking promising, especially those returning to spawn.

SOR 2001-4 Albeni Falls:
USFWS has reported that there will be passage problems for bull trout concerning the request, but they are still unsure at what point. No survey work has been done nor has there been success yet with bathymetric reviews. (There is concern with alluvial fans.) The COE noted that it is looking for substantial information from salmon managers in order to stray from current and planned operations. They will continue to fill through June unless such information is presented. Their concerns regarding this request are: water may not get beyond Grand Coulee anyway, the effects on bull trout, there is no mention in any BiOps. to draft Albeni Falls, prior commitments have been made to local residents, and there are other local concerns. The issue is whether the bull trout can safely pass sand and other structures if the lake isn't raised.

ACTION: COE will need solid information from NMFS and USFWS before they are willing to make changes to planned operations. This will be discussed at the next meeting.

SOR 2001 C-5:
CRITFC has requested a May 24-25 operation to hold Bonneville, the Dalles, and John Day within 1 foot for tribal fisheries. The COE requested clarification regarding the type of fishery before taking action. Kyle said this is primarily a commercial fishery request.

ACTION: Kyle will double check the type of fishery for which this action was requested.

Recommended Operations:
For two weeks, the recommendations are to: continue meeting power system needs; fill headwater projects, Grand Coulee, and Albeni Falls; release 30k from Payette; and continue spill at Bonneville and the Dalles for 300 m/w-months unless other agreements are made at the Regional/Federal Executives level.

June 6 Face to Face Meeting, 9-12:
Meeting items are:

- COE update on barge incident
- CRITFC sun spot presentation
- COE/EPA temperature modeling results
- TDG update
- Hanford update
- Process discussion
  - WMP
  - guidelines
  - feedback from facilitator survey evaluations

May 30 Conference Call:

- Albeni Falls update
- TDG update
- Spill update
- Hanford update

Meeting Minutes

1. Greeting and Introductions

The May 23 Technical Management Team conference call, held at the Customs House in Portland, Oregon, was chaired by Rudd Turner of the Corps. The following is a distillation, not a verbatim transcript, of items discussed at the meeting and actions taken. Anyone with questions or comments about these minutes should call Turner at 503/808-3935.

Turner welcomed everyone to the meeting, then led a round of introductions and a review of the agenda.

2. Hanford Reach/Vernita Bar Update.

Joe Lukas reported that, for the week of May 14-20, the average flow at Priest Rapids Dam was 48 Kcfs, with Grand Coulee in refill mode. Average flow at Priest Rapids was 56 Kcfs the previous week, Lukas added. The 60 Kcfs fluctuation limitation was in effect last week, although the full fluctuation range was only used on Tuesday and Saturday. Field personnel sampled 50 random sites last week and found 19 fall chinook, down from 68 sites and 922 fish sampled the week before. Index monitoring sampled 3,500 fish, a sharp drop from the 7,000+ the previous week. Average size was up about one millimeter, to 45 mm, said Lukas.

There was a conference call on Monday to discuss some changes to the Hanford stranding protection program given, the higher level of biological impact we're seeing from fluctuations in flow this year, Lukas continued. At that call, we agreed to keep the flow fluctuation limitation at 60 Kcfs; we also discussed expected low flows over Memorial Day weekend. It now appears that the Grand Coulee releases will be higher than we thought they would be on Monday, Lukas said. Robyn MacKay said Grand Coulee will be operated to meet load over Memorial Day weekend; it has been going down into the 20s over the weekend, and I would expect to see that over Memorial Day as well, she said. The minimum flow at Priest Rapids is 36 Kcfs, so that will be maintained, she said. Howard Schaller observed that, at 36 Kcfs of flow at Priest Rapids, rearing habitat for juvenile fall chinook is all but eliminated.

Paul Wagner observed that two significant mortality events occurred on May 9 and 10. That seems to be something of an anomaly, said Lukas – there were no significant flow fluctuations on those dates – only about 10 Kcfs -- but that illustrates how sensitive the fish are to even minor fluctuations in flow when river flows are as low as they are this year.

The only other thing to report is that we're going to look at what flexibility we have to smooth out the sizable drop in flows over Memorial Day weekend, Lukas said. In general, said Jim Nielsen, I think it's fair to say that the low flows have contributed to higher stranding and mortality this year than we've seen at what might be called more normal flows. Schaller encouraged the action agencies to consider keeping flows as high as possible over Memorial Day weekend, because of the dire situation the Mid-Columbia migrants are currently facing. Rob Lothrop of CRITFC agreed with Schaller's suggestion, as did Nielsen. We have lost so many fall chinook already that we if there is anything we can do to reduce the peril these fish are facing, we should do it, said Schaller – the fall chinook are an extremely important stock to fisheries up and down the coast.

Given the water conditions this year, BPA isn't in a position to increase flows from Grand Coulee to the extent it puts us in a surplus power condition, MacKay said – we're just going to have to see where loads take us. I don't think it's reasonable to expect flows through the mid-Columbia to be as high as they were during the week, she said; we know the bottom is 36 Kcfs, and they could be higher. Any water we take out of Grand Coulee for spring migrants now won't be available for summer migrants later, MacKay said. We are talking about a summer

stock, said Schaller – it's just a question of whether you kill them now or later. It's a policy call, said MacKay – if folks want to raise this to IT, they can do so.

What would be the point? Nielsen asked – the reality is that we're in a power system emergency. Do the states and tribes feel the IT is an adequate venue to decide this issue? Silverberg asked. The state fishery agencies want the action agencies to be aware that reducing flows through the Mid-Columbia to this extent, at this time, carries a significant biological risk, said Christine Mallette. The other thing to add is that I don't think we anticipated that mortality would be a magnitude higher this year than what we've seen in the past, Schaller said – presumably the sampling areas are representative of the population as a whole. However, the fish have now emerged, and presumably are less-vulnerable than they were earlier in the season, Turner observed. However, when flows are this low, you eliminate the rearing habitat, and these fish are forced out into the mainstem, said Schaller. Turner noted that a number of actions, such as the delay of Albeni Falls refill, have been taken to maintain that rearing habitat as long as possible in this very difficult water year.

To me, it seems the biological reality of the 2001 flow situation is now at hand, and it's not a comfortable place to be, said Wagner. Is there something the TMT can do today that will have an effect on this situation? Silverberg asked. Given the water and power system emergency situations we find ourselves in, if we want to draft Grand Coulee over Memorial Day weekend, that is a policy call, said MacKay. If that is the TMT's recommendation, said Turner, we need to frame it for the IT or the Regional Executives.

Pat McGrane said the latest projections show less than a 50% chance that Grand Coulee will fill to within 10 feet of full by June 30. We've been at the 36 Kcfs Priest Rapids minimum for long periods since May 12, he said; if there is damage at that flow level, it's already been done. It seems to me that fluctuations are the real problem at this point; it may be a better operation to hold flows steady at 36 Kcfs rather than peaking up and down, he said.

Wagner observed that, in such a poor water year, this is just another thing the fish are going to have to live with. We're all part of this regional process, he said, and if others feel another operation is warranted, they need to elevate that issue. Mallette said the action agencies need to explore all possible alternatives that might keep flows at Priest Rapids above the minimum. Again, said MacKay, we will be following load over Memorial Day weekend; we understand how grim the situation is this year, but given the flows we have to work with, that's all we can do. There is one other possibility, she said – fill the Lower Snake projects outside of MOP and transfer generation to the Mid-Columbia projects. However, at least at this point, the states and tribes are not willing to consider that alternative, she said.

It is the job of the salmon managers to point out the biological consequences of the operating agencies' actions, said Nielsen. I think that's a mischaracterization, said Turner – we have developed operating guidelines and priorities, and while maintaining later flows for Hanford Reach juveniles isn't on that list, summer flows are. This is a bad situation for everyone, he said – BPA, the irrigators and others are all taking some major risks this year. It's not just the fish that are at risk, he said – it isn't accurate to say only that this situation is bad for fish.

Wagner added that the TMT made a conscious decision to maintain Priest Rapids flows at 65 Kcfs during the critical emergence period, in the knowledge that this could compromise flows later this spring and summer.

I'm not hearing anyone say they want to elevate this to IT, said Silverberg. Again, the question is, what would be the purpose? Nielsen said – the answer is a foregone conclusion. It would be appropriate to revisit the priority for the available water, said MacKay – if the TMT feels spring flow augmentation is more important than summer flow augmentation, then we can talk about that. The question is, are we talking about summer flow only for Snake River migrants, or for all summer migrants? Schaller said. All we're asking, given the fact that mortality is much higher than anyone anticipated, is whether there are any other operational alternatives we can explore to keep flows up through the Hanford Reach. Again, said MacKay, BPA will be meeting load over Memorial Day weekend, but we will not consciously put ourselves in a surplus power position. The fact is, if water leaves Grand Coulee now, it's gone. In response to a question from Nielsen, MacKay said any energy exchanges with California are returned within 7 days, so it's no net change to the system over seven days.

Are we ready to move on, or is more discussion needed? Silverberg said. Schaller said this topic will be on the agenda for Friday's Regional Executives conference call.

3. Emergency Barged Fish Release at Ice Harbor.

Turner reported an incident early Saturday where a barge transporting 359,000 juvenile fish, mostly steelhead, had to release its fish in the Ice Harbor forebay. The biologists on the barge, after coordination with others at the Corps, released the fish, after which we authorized six hours of 40 Kcfs spill at Ice Harbor that project to help the fish pass the project, he explained.

The cause of the incident was plugging of the outlet screens by juvenile lamprey mortalities in the barge, Turner said; the estimate of salmon mortality during the incident was 0.2%. There was a danger that the barge would overfill – they were losing hydraulic control of the barge, so the decision was made to release the fish, Turner explained.

They're not sure of the actual cause of the incident, Turner continued; there has been some speculation that the barge may have passed through a zone of contamination that affected lamprey, but not salmon. Is this something that is going to recur in the future? Litchfield asked. We don't know, Turner replied; all we can do now is keep cleaning the screens while the barges are moving fish. Kyle Martin observed that, while others in the region may not appreciate the lamprey, the tribes view them as an important fishery resource, so this situation is cause for concern. Mallette asked that the Corps provide a follow-up report once the cause of this incident is known, and also asked that the Corps review its SOPs covering such situations. It would also be helpful if we could get a sense of how many lamprey we're transporting, she said, and whether the lamprey that were loaded aboard this particular barge were typical in number. Martin said he will check with CRITFC biologists.

4. Upper Snake Water Delivery.

McGrane reminded the group that, at the last TMT meeting, he was asked to approach Idaho Power about shaping a 2-3 day pulse from Brownlee to help move fish past Lower Granite. IPC replied that they would not do so without a shaping agreement with BPA or Reclamation, said McGrane. BPA and Idaho Power pursued that agreement, but it never came together, he said.

Reclamation then started releasing 1.5 Kcfs at Milner on May 11, said McGrane; Milner flows were held at that level for six days before we began ramping down at a rate of 100 cfs per day. In the meantime, he said, we've found an additional 5 KAF of water, making the total Upper Snake release 43 KAF, so we've tacked that volume on to the Milner release; Milner is currently passing 800 cfs.

Absent any TMT objection, he said, we're planning to start releasing 900 cfs above irrigation demand out of the Payette system; that is water that would normally be used to keep flows up for bull trout below Deadwood Reservoir this winter. The total we have available is 30 KAF out of Cascade Reservoir, McGrane said; we will be releasing a total of 1.1 Kcfs from that project through June 10. McGrane added that Reclamation has reached an agreement with local irrigators to provide this water now, and still provide bull trout flows this winter.

Why release it now, rather than this summer? Nielsen asked. We're trying to put the water on the fish now, while temperatures out of Brownlee are still relatively cool, McGrane replied; there are also a number of other benefits to releasing that water now. The fact that we do not have a shaping agreement with Idaho Power, and Brownlee is full right now, so that water will be passed downstream, also played a role, he said. This is particularly true given the fact that IPC has said, in writing, that they are not only unwilling to shape water absent a shaping agreement this year, but are unwilling to pass water downstream when Brownlee is less than full unless they receive some sort of compensation. Reclamation's position is that intercepting flow augmentation is an illegal diversion, said McGrane; there are specific statutes in place to protect the water Reclamation releases for salmon flow augmentation.

What would be the consequence of delaying this release until July? Nielsen asked. Confrontation with Idaho Power, higher water temperatures and a detrimental impact on recreational flows in the Payette, McGrane replied. In response to a question, McGrane said flows at Milner will stay at 230 cfs at least through June 12; at that point, Idaho Power will have to go to the water bank to try to find some additional water to maintain those flows. If they are unable to find any water, and it is unlikely that they will, then the Snake will go dry at Milner, said McGrane.

5. Spill for Fish Passage and Studies.

Spill for fish passage started on May 16, last Wednesday, said Turner; the agreement is that spill will be provided up to 300 MW-months at The Dalles (30% of instantaneous flow) and Bonneville (50 Kcfs spill). Through midnight last night, said Turner, this operation is estimated to have used, in six days and six hours, 97.3 MW-months, almost a third of the total amount. The

Dalles has been spilling between 24 Kcfs and 66 Kcfs, he said. At this rate, although flows will vary considerably, it looks as though we will get about 19 days of spill with the 300 MW-months total allocation, Turner said.

I had heard that, absent an agreement with Grant County PUD, the spill program could end as soon as tomorrow, said Litchfield – what is the status of that agreement? My understanding is that BPA is working on that agreement, Turner replied. What we're talking about is a swap between BPA and Grant County PUD, which would require an application to FERC, MacKay said; the agreement would allow Grant PUD to exchange its summer spill with Bonneville for spring spill. There was a poll taken at Friday's Regional Executives conference call, Silverberg said; Oregon supported the swap; Montana did not support this agreement; Idaho and Washington did not participate in the poll, said Silverberg. I have subsequently read that both states do support the swap. The tribes that were present – Umatilla, Colville and Warm Springs – weren't sure what they were going to do, although the Colvilles said they did not support it but will not intervene at FERC, Silverberg explained.

The Executives said that, based on this input, they would not endorse the swap at this time, but would wait to see how the FERC process played out, said Silverberg; however, Steve Wright has made the decision to go ahead with the spill program anyway. That still doesn't answer my question, said Litchfield. We'll discuss the spill operation later in today's agenda, said Turner; at this point, the Corps is planning on 300 MW-months, because General Strock would like to see some fish spill this year. If BPA decides to curtail the spill program, we'll have to revisit this topic, said Turner.

The spillway survival test at The Dalles is underway, Turner continued, and will continue through Friday at a rate of 40% of total river flow from 8 a.m. to 6 p.m. yesterday and today, and 30% of total river flow this Thursday and Friday, Turner said. We're holding daily conference calls to discuss the test operation, he added. Litchfield asked that the results of the spill survival test be provided to the TMT as soon as it becomes available.

6. Current System Conditions.

Turner said the system is operating to meet power system requirements, to maintain minimum flows at the Corps storage projects to fill reservoirs as high as possible by June 30, and to fill Grand Coulee as full as possible by June 30 consistent with meeting power system demand. We're also providing spill, as just described, at Bonneville and The Dalles. Day-average flows varied from 126 Kcfs to 180 Kcfs at Bonneville over the past week. At Lower Granite, day-average flows varied between 60 Kcfs and 91 Kcfs over the past week; they were 60 Kcfs yesterday, The River Forecast Center is forecasting another flow peak this weekend, said Turner, but 91 Kcfs may have been the peak Snake River flow this year. Current Dworshak elevation is 1563.5 feet, with inflows of 17 Kcfs; the project filled eight feet last week. Libby is now at elevation 2397.3 feet; inflows to the project are dropping, from 19 Kcfs last week to 9 Kcfs yesterday. The most recent SSARR run predicts that Libby will be at elevation 2433 by the end of June, Turner said. The SSARR does show Dworshak filling to elevation 1580 by June 30, however, he added.

At Albeni Falls, current project elevation is 2057.6 feet, Turner said; inflows varied between 28 Kcfs and 42 Kcfs over the past week, with outflows of 27 Kcfs. The project filled about a foot last week, which is about what we need to fill the project by June 30, Turner said.

McGrane said current Grand Coulee elevation is 1257 feet, 33 feet from full. The project filled 12 feet over the past week, and is now filling about a foot per day, due primarily to the fact the WNP-2 is down for maintenance for the next month. Hungry Horse elevation is currently 3513, 47 feet from full; the project filled six feet last week. Banks Lake is within the top foot of its operating range; the pump generators are back in operation, so everything is fine there. Reclamation still feels there is a 50-50 chance of filling Hungry Horse to within 20 feet from full, he said; the current SSARR run shows Hungry Horse filling to elevation 3543 by June 30. At Grand Coulee, it's harder to forecast, but we still feel there is nearly a 50-50 chance we'll fill to within 10 feet from full on June 30, McGrane said.

The May mid-month forecast is now available, said Turner; there is very little change from the May final forecast. Hungry Horse and Grand Coulee are looking a little better, both 60% of normal, he said.

Moving on to water quality, Ruth Abney went briefly through TDG information below The Dalles and Bonneville; both projects are within the gas cap, although with three days of lower river flow at Bonneville coming up this weekend, the Corps will be watching TDG levels there closely, given the fact that we're spilling 50 Kcfs around the clock. Chris Ross noted that he has seen diel temperature changes of 3-4 degrees C at that project, which seems somewhat excessive to him. Abney replied that a 3-4 degree change is not inconsistent with what has been seen in the past at that gauge.

Martin said he had sent an email to the RFC relaying some of the questions raised at the last TMT meeting. An RFC representative spent a few minutes explaining how the RFC's May final water supply forecast was developed. The TMT offered a variety of clarifying questions and comments. Ultimately, the RFC representative said that, statistically, the chances are low that the region will see two consecutive drought years. He added that, in the future, the RFC is considering providing a narrative explanation of how its water supply estimates are generated. In general, he said, it is important to state that the RFC takes a rigorously unbiased approach to the development of these forecasts, uninfluenced by any outside pressures or input.

Turner clarified that the questions for the RFC were raised and crafted by CRITFC, not by the TMT as a group. Thank you for following up on this, said Silverberg.

Moving on to fish movement, Wagner reported that combined yearling chinook indices at Lower Granite peaked on May 15 at 141,000 fish, down to about 70,000 today. At McNary, things are picking up somewhat, in terms of yearling chinook numbers; at John Day, the numbers have been pretty consistent recently. The steelhead run continues strongly at Lower Granite, and also peaked at about 250,000 fish on May 15. The count yesterday was 88,000. At McNary, steelhead have been slow to arrive, although the Ice Harbor barge release did provide a brief

bump in numbers. Looking at cumulative passage, for yearling chinook at Lower Granite, the numbers are surprisingly high – we're right there within the realm of expectations, which is pretty good for this flow year. The May rain events were very helpful, he said; normally, it doesn't rain much in Idaho in May. Steelhead show a similar trend, said Wagner; at Lower Granite, cumulative passage has now crept within the 95% confidence interval.

The picture is less rosy at McNary, he said; there have been no Mid-Columbia rain events, and things look dire. Time is running out for these fish, he said, and we don't have much time to turn things around. The data shows that the steelhead that don't make it out by about June 10 don't make it out at all, he said – they have a window of opportunity, and if they miss that window, they die or, in some cases, residualize. Date from previous drought years suggests that the majority of the juveniles leave early, he said, so from that perspective as well, this year's numbers don't look very encouraging.

The group devoted a few minutes of discussion to what the cumulative passage numbers mean; in particular, the fact that cumulative passage at Bonneville looks relatively good this year despite the fact that McNary passage is very poor. Margaret Filardo observed that this is not an error; the indication is that juvenile passage from the Mid- and Upper Columbia is very poor this year. Ross noted that passage time to McNary for chinook and steelhead marked at Rock Island is almost twice as long this year as last year. Given that fact, and the numbers we've seen for passage through the Snake River so far this spring, said MacKay, I don't understand why the salmon managers would be opposed to the idea of exceeding MOP at the Lower Snake projects and transferring generation at the Mid-Columbia projects.

How much increase in Mid-Columbia flow would you expect such an operation to yield? Wagner asked. About 10 Kcfs over the three-day weekend, MacKay replied. In response to another question, Cindy Henriksen said it is still possible that, even with the swap, Priest Rapids flows could still be near the 36 Kcfs minimum, depending on how Grant County PUD operates its projects.

Ultimately, Nielsen said the salmon managers have discussed this proposal in detail, and do not support shifting generation to the Mid-Columbia projects if it means going outside of MOP at the Lower Snake projects.

7. New System Operational Requests.

Prior to today's meeting, the Corps received SOR 2001 C-5, covering reservoir elevations during the upcoming spring chinook commercial harvest. This SOR, submitted by CRITFC, requests the following specific operations:

- Bonneville Pool: operate the pool within 1.0 foot from full pool (msl elevation 77-76)
- The Dalles Pool: operate the pool within 1.0 foot (from msl elevation 159.5-158.5)
- John Day Reservoir: operate the pool within 1.0 foot (from msl elevation 264.5-263.5)

Martin spent a few minutes going through the specifics contained in this SOR, the full text of which is available via the TMT website.

We're confused about the nature of the fishery, said Turner – is this a ceremonial and subsistence fishery, or a commercial fishery? It's primarily a commercial fishery, but there is a ceremonial and subsistence component as well, Martin replied. Which is it? Turner asked – we don't typically hold the pools at a given elevation for subsistence fisheries. Again, it's both a gillnet and a platform fishery, Martin replied. Can you clarify that for us and send over a compact notice? Turner asked. I'll do that this afternoon, Martin replied.

8. Recommended Operations.

We would like to develop a two-week operation, said Turner, covering the period May 29-June 10. We will continue to operate the system to meet power system needs, and to fill the headwater storage projects, including Albeni Falls, to the extent feasible. We are still receiving the Upper Snake water, and will be receiving the Payette water as well, he said; we are also providing spill at The Dalles and Bonneville up to the equivalent of 300 MW-months.

9. Other.

A. Albeni Falls Operations. At the May 9 meeting, the TMT discussed an SOR regarding Albeni Falls operations, said Silverberg; the salmon managers were going to develop some additional resident fish information before a decision can be made on that SOR. My understanding of the question was what elevation at Albeni Falls provides reasonable tributary passage for bull trout, Schaller said; the answer is, we're not sure at what elevation passage problems occur. They're working on that question, but at this point, there isn't a lot of data. We're trying to find out whether there may be some bathymetry work out there, done for navigation or some other purpose; there is some concern, on the part of IDFG biologists, that the alluvial fans at the mouth of each tributary may interfere with bull trout passage if Lake Pend Oreille elevations are too low. However, at this point, we can't specify an elevation at which passage problems occur, Schaller said.

Where does this leave us with SOR 2001-4? Silverberg asked. From the Corps' standpoint, given that filling Albeni Falls by the end of June is the planned operation, that this is such a tight water year and Albeni Falls will be needed to help keep Columbia flows up this fall, the Corps was looking for a compelling justification to change that operation, Turner said; at this point, we don't see that compelling justification, so the plan continues to be to fill Albeni Falls by the end of June and keep it full through August 31. Even if water is released from Albeni Falls, he said, given the current water supply situation, there is a good chance it will be held up in Grand Coulee, and will not benefit listed species downstream. In addition, he said, we have concerns about the impacts of holding Albeni Falls at a lower elevation on listed bull trout in that

reservoir. Further, drafting Albeni Falls in the fall is intended, in the BiOp, to help keep lower river flows up while other storage projects are refilling after August 31.

In my view, we haven't looked at all of the information, said Nielsen – it probably makes sense to discuss fish status and the Mid-Columbia situation before we draw that conclusion. Doug Marx added that his understanding is that IDFG's position is that bull trout will be significantly impacted if the lake level isn't raised – there may be no spawning passage at all.

Again, said Cindy Henriksen, the Corps is waiting for compelling information that would encourage us to change this operation; the Fish and Wildlife Service doesn't have that compelling information at this point. Schaller said the Fish and Wildlife Service will continue to investigate the minimum lake level that will allow good bull trout passage into tributary spawning habitat. Marx observed that the entire economy of the area is dependent on the lake; local residents are engaged in litigation with the Corps and argue that they have a water right to elevation 2062.5 feet. If the Corps is going to change its normal summer operation at that system, he said, we need to know as early in the process as possible.

So we will hear back from the Fish and Wildlife Service next week, and if they are able to develop that compelling information, they will present it at that time? Marx asked. Correct, Schaller replied. In response to another question, Turner said the Corps has the authority to operate Albeni Falls, and will make the ultimate decision. We will need to have both NMFS and the Fish and Wildlife Service solidly in support of any proposed change to the operation before the Corps makes such a change, added a Corps legal representative. The Corps will coordinate with the other salmon managers before any decision is made, she added.

10. Next TMT Meeting Date.

The next face-to-face meeting of the Technical Management Team was set for Wednesday, June 6, from 9 a.m. to noon. Meeting notes prepared by Jeff Kuechle, BPA contractor.

TMT Participant List

May 23, 2001

Name	**Affiliation**
Ruth Abney	COE
Scott Boyd	COE
Robin Harkless	Facilitation Team
Cindy Henriksen	COE
Cathy Hlebechuk	COE

Jim Litchfield	Montana Consultant
Rob Lothrop	CRITFC
Robyn MacKay	BPA
Christine Mallette	ODFW
Kyle Martin	CRITFC
Pat McGrane	Reclamation
Jim Nielsen	WDFW
Kevin Nordt	PGE
Mike O'Bryant	Columbia Basin Bulletin
Chris Ross	NMFS
Howard Schaller	USFWS
Donna Silverberg	Facilitation Team
Rudd Turner	COE
Paul Wagner	NMFS

Phone

Name	**Affiliation**
Margaret Filardo	FPC
Jim Gaspard	B.C. Hydro
Russ George	Water Management Consultants Inc.
Bart Jones	
Joe Lukas	Grant PUD
Doug Marx	Attorney, Lake Pend Oreille Idaho Club
Ralph Slediger	Waterfront Property Management
Glen Traeger	AVISTA Energy
Marian Valentine	COE
Steve Wallace	PacifiCorp
Victoria Watkins	PYRA Energy Group

TECHNICAL MANAGEMENT TEAM

BOR: Pat McGrane\Lori Postlethwait

NMFS: Paul Wagner\Chris Ross BPA: Scott Bettin\Robyn MacKay

USFWS: Howard Schaller\Bob Hallock\Susan Martin

OR: Christine Mallette WA: Jim Nielsen ID: Steve Pettit

MT: Jim Litchfield COE: Cindy Henriksen\Rudd Turner\Dick Cassidy

TMT Conference Call

30 May 2001 0900 - 1200 hours

Conference call line: 503-808-5190

All members are encouraged to call Donna Silverberg with any issues or concerns they would like to see addressed. Please e-mail her at dsilverberg@cnnw.net or call her at (503) 248-4703.

AGENDA

1. Welcome, introductions.

2. Hanford Reach update (Grant PUD).

3. Upper Snake water delivery (BOR).

4. Albeni Falls operation -- bull trout update (USFWS).

5. Spill for fish passage and studies (COE, BPA).

6. TDG update (COE).

Questions about the meeting may be referred to Rudd Turner, (503) 808-3935 or Dick Cassidy, (503) 808-3938.

COLUMBIA RIVER REGIONAL FORUM

TECHNICAL MANAGEMENT TEAM
MEETING NOTES
May 30, 2001
CORPS OF ENGINEERS NORTHWESTERN DIVISION OFFICES – CUSTOM HOUSE
PORTLAND, OREGON

TMT Internet Homepage: http://www.nwd-wc.usace.army.mil/TMT/index.html

(conference call)

FACILITATOR'S NOTES ON FUTURE ACTIONS
Facilitator: Richard Forester

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.

Hanford Reach/Vernita Bar Update:
John Lukas reported that the attempt to keep fluctuations within 60 kcfs in the week of May 21 has not been uniformly successful due to dispatcher error (using gage data instead of dam data). This week the average fluctuation should be within 60 kcfs range. Future fluctuation reports will be part of operations report.

Upper Snake Water Delivery:
Pat McCrane (BOR) reported that flow augmentation out of Payette is winding down, ending tomorrow. Idaho Power will be responsible for minimum flows after tomorrow.

Spill for Fish Passage:
Rudd Turner reported on the addition of McNary and John Day to the spill program on May 25, 2001. The 300 Megawatt-month level will be reached by Saturday. The Regional Executives meeting this Friday, June 1 will discuss spill and whether to extend it beyond this weekend. The Northwest Power Planning Council analysis will be out, which will be considered in making decisions on this matter. There may be non-hydro resources available.

TDG Update:
Gas levels appeared acceptable thru out the system, except on May 23th at Bonneville as read at the Camas-Washougal gage. Bonneville spill was curtailed for a few hours, which resulted in reduced TDG levels from 116.2% to 115.4% on May 24th. TDG dropped further to 110.4% by May 28th.

Albeni Falls Operation:
Howard Schaller (USFWS) reported that lake levels were five feet higher than last week, reducing the urgency of the previous discussions. A goal to have the lake full by August may be

acceptable for bull trout. There do not seem to be any bull trout passage problems. Tressel and Gold Creeks could be impacted because 20% of their trout are early migrants. Filling of the reservoir can be delayed until July because it is only 3 feet below expected levels. Bull trout enter the tributary in the end of July. Bull trout research shows that the lake could remain at its current elevation until mid- to the end of July before refilling without any real detriment to the bull trout. USFWS supports the previous SOR proposal (2001-4) from the salmon managers; however, we are now past the lake level (2054) when the SOR was submitted, and the project is operating at or close to the power house capacity and filling at 1 foot per week. COE is operating at or close to power house capacity at Albeni Falls and they plan to continue operating according to the NMFS and USFWS BiOps until they receive compelling information to do otherwise. The current operation is consistent with the BiOps. Several public questions were raised as to the impact of releasing water from Lake Pend Oreille. Paul Wagner from NMFS said that under the final litigation settlement, specific elevation targets are more flexible. Salmon Managers are likely to have a conference call soon to discuss whether a new or revised SOR may be needed in light of new conditions.

ACTION: Any new information and/or proposals will be discussed at the next TMT meeting. [SOR # 2000-5, asking to pass inflow at ALF, was received later the same day, 30 May. A TMT emergency conference call was set for 31 May to discuss the SOR.]

June 6 Face-to-Face Meeting, 9-12:

Meeting items are:

- COE update on barge incident at Ice Harbor
- CRITFC sun spot cycles effect on climate
- COE/NMFS temperature modeling MASS-1 results
- TDG update
- Hanford update
- Process discussion (How we fit into the regional process and TMT guidelines)
- Lower Granite upper forebay operation request (refill 2 feet outside of MOP)

Meeting Minutes

1. Greeting and Introductions

The May 30 Technical Management Team conference call, held at the Customs House in Portland, Oregon, was chaired by Rudd Turner of the Corps and facilitated by J. Richard Forester. The following is a distillation, not a verbatim transcript, of items discussed at the meeting and actions taken. Anyone with questions or comments about these minutes should call Turner at 503/808-3935.

Turner welcomed everyone to the meeting, then led a round of introductions and a review of the agenda.

2. Hanford Reach Update.

Joe Lukas reported that, for the week of May 21-28, the average flow at Priest Rapids Dam was 76 Kcfs. At a conference call on Monday, it was agreed to keep the fluctuation limitation at 60 Kcfs. We weren't very successful in doing that, Lukas said, particularly late in the week, on Thursday and Friday – flows during the week were as low as 60 Kcfs and as high as 140 Kcfs for a few hours at a time. Lukas explained that the cause of this deviation was a communication problem with the night shift dispatchers at Priest Rapids; they were using the USGS gauge, rather than the dam data, to set flows at the project. The problem has now been rectified, Lukas said, and they will be using the dam data in the future. Again, he added, most of those fluctuations were of short duration.

On the biological side, said Lukas, field crews sampled 80 random sites, finding only 19 subyearling chinook. Index seining sampled 4,764 juveniles this week, a slight jump from the 3,500 sampled the previous week. Average fork length on the fish sampled this week was 45.5 mm, Lukas said, so the fish are starting to grow beyond peak stranding susceptibility size. Lukas added that, by June 10, the Hanford Reach juveniles will be 400 CTUs beyond the end of emergence, so we're nearing the end of this operation.

In response to a question from Wagner, Lukas said the 60 Kcfs flow fluctuation limitation will remain in effect through Sunday, June 3, after which an 80 Kcfs fluctuation limitation will be implemented. It sounds, then, as though we can expect another two to three weeks of reports on the Hanford Reach stranding operation, said Turner.

3. Upper Snake Water Delivery Update.

Pat McGrane said Reclamation began flow augmentation out of the Payette system on May 25. We're currently releasing 1,020 cfs from the Payette, he said; that operation is expected to continue through Sunday, June 10, although there may be a short ramp-down period prior to that date. Reclamation is also releasing 300 cfs at Milner, ramped down from 1.5 Kcfs over the past two weeks. That operation will end tomorrow. When the river gets down to 200 cfs, said McGrane, Idaho Power will be responsible for maintaining the minimum flow of 200 cfs according to the terms of their FERC license. We're still working on the 2001 release from the Boise system, McGrane said, but whether or not that will be possible is still up in the air – in other words, we may be done for the year, he said. It was agreed to revisit this topic under "Current Operations" at next week's TMT meeting.

4. Albeni Falls Operation.

Howard Schaller reported that, since last week's TMT meeting, Lake Pend Oreille has gained about 5 feet in reservoir elevation – it is currently at elevation 2059, 3.5 feet from full. With respect to the issues we've been discussing surrounding bull trout spawning access at lower lake levels, said Schaller, because these fish are fall spawners, it looks as though, from a biological perspective, there shouldn't be any problem if Lake Pend Oreille isn't quite full during the mid-end of July period; as long as the lake is full by August 1. In mid-July, any biological impacts would be confined mainly to Trestle and Gold Creeks, where there are some earlier migrants entering those systems – perhaps 20% of the total spawning populations in those

systems, Schaller said. It is unknown at this time whether the current lake elevation would impact those earlier migrants detrimentally. At this point, said Schaller, there don't appear to be any bull trout passage problems, which means that, from the Fish and Wildlife Service's standpoint, there would be no problem with holding Lake Pend Oreille less than full, at least for now.

So you're saying that if we maintain the current elevation through the end of July, that will be OK? Mike Geralds asked. We're saying that, from a biological perspective, we could pass inflow for the time being, as long as Lake Pend Oreille is full on August 1, Schaller replied. The majority of the bull trout start to enter the tributaries in mid-July, he said. Where are you getting your information? Doug Marx asked. This is from IDFG trap information, Schaller replied.

So is the Fish and Wildlife Service proposing a pass inflow operation from now until the end of June? Turner asked. We're simply providing information, Schaller replied; we're not proposing anything. In response to a question from Marx, Schaller replied that, from the available information, IDFG estimates that 20% of the Trestle Creek population enters the tributary from June through the end of July. The bulk of the population, again, are fall spawners, Schaller said.

Steve Pettit asked whether, with this information in hand, the Fish and Wildlife Service now supports SOR 2001-4. Yes, we support it, Schaller replied, based on the fact that we don't think there will be a significant biological impact, and the fact that we're already at elevation 2059. The SOR was submitted when the lake was at elevation 2054, he added. The essence of the SOR was to pass inflow up to powerhouse capacity, Christine Mallette noted. That is the current operation at Albeni Falls, Turner said; we're filling the lake, while operating at or close to powerhouse capacity to achieve a fill rate of one foot per week. Over the past week, the lake has filled 1.3 feet.

If you accelerate outflow, would you be spilling at Albeni Falls? George Eskridge asked. Inflows yesterday were 36 Kcfs, so yes, we would be spilling, Turner replied. What is powerhouse capacity, currently? Margaret Filardo asked. They're running at capacity now, Turner replied. Vern Parry added that generating capacity at Albeni Falls is influenced by project head; the higher the reservoir elevation, the higher the generating capacity.

The field data then indicates that we are at the minimum acceptable elevation for bull trout passage? Geralds asked. I said we're trying to optimize bull trout passage, Schaller replied. Wouldn't full pool provide optimal passage conditions? Eskridge asked. We are having serious difficulties in trying to provide flow augmentation for all listed species, including migrating juvenile chinook and steelhead, through the Upper and Mid-Columbia reaches, as well as good bull trout spawning conditions, Schaller replied – that is the Fish and Wildlife Service's concern.

What is the Corps' perspective? Geralds asked. We need to have NMFS and the Fish and Wildlife Service discuss this new information, in light of the change in reservoir elevations since the SOR was submitted, Turner said, to see whether they want to put a new proposal on the table.

What is the probability that any additional water from Albeni Falls will make it past Grand Coulee? Eskridge asked. Will this really help conditions in the salmon migration corridor, given the potential negative impacts of this operation on bull trout, winter refill probability and the local economy? The question is, will Grand Coulee reach 1280 by June 30? McGrane asked. If that happens, then any additional water released from Lake Pend Oreille will make it through Grand Coulee. I'm not sure what the current probability is of that happening, he said; it has to do with power demand, runoff pattern and Canadian releases. The current project elevation is 1271 feet; we still have a month to achieve the target elevation of 1280 feet, so I'm fairly confident that we will – in other words, said McGrane, if we delay refill at Albeni Falls, that water will likely be passed downstream at Grand Coulee.

Again, how much will this operation improve conditions for salmon downstream, in exchange for the negative impacts on the local population? Eskridge asked. It's water from upriver, Paul Wagner replied; if it gets trapped at Grand Coulee, it doesn't help migrating salmon. We're at about the 65% point of passage right now, he said, and entering prime time – if the yearling spring chinook don't pass through the system by about the second week in June, they don't pass at all, so this is an important time in the migration. We want to provide as much water as we can, before the window of opportunity closes, Wagner said.

If lake refill is delayed, said Marx, there has been a lot of talk up here about an additional volume request in the fall, such that the lake elevation would be lowered earlier than normal. There hasn't been any discussion of that, Wagner replied; the water in the fall is needed for chum salmon spawning in the late October-December time frame. In other words, he said, with respect to fall releases from Albeni Falls, the plan is to stick with the traditional timing. The Corps' planned operation is to get to full (elevation 2062.5 feet) by June 30, remain full through August 31, then draft a foot during September, Turner added. The project will then draft to 2051 ft. by mid-November.

What kind of compelling information would you be looking for in order to change that operation? Geralds asked. Some sort of recommendation from NMFS and the Fish and Wildlife Service, Turner replied. Can we request that any written recommendation, whether in the form of a revised SOR or some other form, be provided to us if you receive it? Geralds asked. Certainly, Turner replied – the SORs, SOR justification and the meeting minutes are all public and available.

I'm a bit confused, said Wagner – last TMT meeting, there was significant discussion of the status of the migration and the desire to increase flows. The other outstanding issue was the USFWS position on the bull trout situation; that information has now been presented. Does the Corps need something more formal from NMFS and the Fish and Wildlife Service? Wagner asked. My interpretation of the Settlement Agreement is that we are not bound to achieve a specific Albeni Falls elevation by a specific date, Wagner said, but that the Corps can make the call consistent with meeting the project purposes. That is the heart of the issue for us, said Eskridge – recreation is one of those project purposes, and the Corps operating other than how we ask is not meeting the project purposes.

So NMFS didn't support the SOR because they felt they were precluded by the settlement agreement, but now you feel that NMFS is no longer bound by that agreement? Marx asked. Essentially, that is my interpretation, yes, Wagner replied.

Cindy Henriksen went briefly through the background for this issue, then noted that, at this time, the Corps has not seen a proposal to change the operation at Lake Pend Oreille. The Corps appreciates the information the Fish and Wildlife Service has generated, she said, but in the absence of a new proposal, the Corps will continue with its planned operation, which is to fill Lake Pend Oreille by June 30. Would such a proposal take the form of an SOR? Marx asked. Probably, Henriksen replied; we would certainly need something clear, in writing, from NMFS and the Fish and Wildlife Service. So is SOR 2001-4 now dead? Marx asked. We have just received the requested information from the Fish and Wildlife Service on bull trout spawning, so that is unknown at this time, Henriksen replied.

In response to a question from Eskridge, McGrane said there is no specific recreational elevation required at Grand Coulee; again, he said, the plan is to fill to elevation 1580 by June 30. But will you let all of the additional release from Albeni Falls go, or will you catch some of it? Eskridge asked. If we're not on track to fill to 1280 by June 30, some of the additional flow could be captured in Lake Roosevelt, McGrane replied. If you continue to fill Lake Pend Oreille, obviously, none of that water will make it down below Grand Coulee; if you delay refill, and release some additional water from Albeni Falls, then there is a good chance that water will make it downstream, said McGrane.

Let me make a process suggestion, said Turner – Cindy and I have both stated the Corps' planned operation. If that operation is to be changed, again, we need to receive a formal written proposal. So again, is SOR 2001-4 dead? Marx asked. The Corps does not plan to implement SOR 2001-4 as written, Turner replied. And what is our opportunity to provide input into whatever new SOR is submitted? Ralph Slediger asked. I would anticipate a conference call among the salmon managers to discuss this new information, possibly with the result that a new SOR is generated, Mallette replied; that is not a given, but it is a possibility. Any SOR would then be submitted to the Corps, she said; that SOR would then be posted to the TMT website.

Slediger asked a series of questions about the TMT process, the "rules of engagement" and the opportunities for the public to provide input to the TMT process. There are a lot of questions here about the TMT charter and process, Schaller said; I would suggest that you call the Corps or NMFS directly to obtain the information you desire. Eskridge asked if there is a document that outlines the TMT decision-making process; Turner directed him to www.nwd-wc.usace.army.mil/TMT/index.html, the internet address at which supporting documents – such as the 2001 Water Management Plan's Appendix 4, "TMT Guidelines," can be obtained. That lays out the SOR process, as well as the parameters for providing public input to this technical process, Turner said.

When will the salmon managers' conference call take place, and can we participate in it? Marx asked. We don't know when the call will take place at this time, Mallette replied; I would be willing to take your suggested participation to the other members. That would be a precedent-setting occasion, if it occurs, in my 25 years of participation in FPAC, said Pettit. I'm not making

a recommendation one way or the other, he said, I'm just saying it will be a precedent-setting event.

5. Spill For Fish Passage and Studies.

Turner reminded the TMT that spill began at The Dalles and Bonneville on May 16. In addition, he said, spill started at John Day and McNary on the evening of May 25. Agreement was reached among the Federal Executives to extend the spill operation to the next two projects on the spill priority list; we are now spilling 12 hours at 30% of instantaneous discharge nightly at John Day, and 12 hours every other night at 30 Kcfs at McNary. Turner noted that tomorrow night is the last authorized night of spill at John Day and McNary. Essentially, he said, we are providing spill at McNary during non-collection periods, when fish are being bypassed through the project.

With spill at the two additional projects, Turner said, we're spilling about 20 MW-months per night; the spill program to date has used between 215 and 220 MW-months. At this rate, we'll reach the 300 MW-month limit by this Saturday, June 2, he said. The Regional Executives meet this Friday, and spill will be discussed at that time. The Executives are reviewing a Council analysis that shows that some additional non-hydro resources may be available later this year, Turner said, so they will be discussing whether or not to extend the spill program past this weekend at Friday's meeting. He added that Bonneville continues to spill 50 Kcfs for 12 hours nightly, while The Dalles continues to spill 30% of total river flow at The Dalles nightly.

Turner touched on the spill levels provided for studies at The Dalles during the past week -- 40% for the first two days of the test and 30% for the last two days of the test. In response to a question from Chris Ross, Turner said NMFS, in the form of Paul Wagner and Gary Fredricks, were consulted about the change from four days at 40% spill to two at 40% and two at 30%.

6. TDG Update.

Nancy Yun said there is little of consequence to report on the TDG front. The Dalles tailwater is below 115%; John Day is just over 115%, but is looking good on the 12-hour averages. TDG levels below McNary are within standard levels. Below Bonneville, on May 23, the 12-hour average shot up to 116.2% at Camas/Washougal, Yun said; spill was subsequently stopped at that project from about 8:30 p.m. to about 3 a.m. As a result, she said, TDG levels dropped down to 115.4% on May 24 at Camas/Washougal. It looks as though the cause of this exceedance was a combination of warm weather and the 40% spill level during the test at The Dalles, Turner said; the Corps then made the decision to stop spill at Bonneville. Yun added that TDG levels were just over 114% at Camas/Washougal on May 25; since then, TDG levels have continued to decline to near 110%. Turner added that the Corps sent out an email to the TMT describing the spill curtailment operation; since that date, there have been no further spill curtailments.

7. Next TMT Meeting Date.

The next face-to-face meeting of the Technical Management Team was set for Wednesday, June 6 from 9 a.m. to noon at the Custom House in Portland, Oregon. Meeting notes prepared by Jeff Kuechle, BPA contractor.

Attendance List

Name	Affiliation
Scott Bettin	BPA
Scott Boyd	COE
Mike Butchko	Power X
George Eskridge	Idaho State Representative
Margaret Filardo	Fish Passage Center
J. Richard Forester	Facilitation Team
Russ George	Water Management Consultants Inc.
Mike Geralds	Sand Point (ID) *Daily Bee*
Richelle Harding	D. Rohr & Associates
Cindy Henriksen	COE
Jim Litchfield	Montana Consultant
Ningjen Liu	IdaCorp Power Co.
Joe Lukas	Grant PUD
Robyn MacKay	BPA
Christine Mallette	ODFW
Kyle Martin	CRITFC
Doug Marx	Attorney, Lake Pend Oreille Idaho Club
Pat McGrane	USBR
Steve Pettit	IDFG
Chris Ross	NMFS
Glen Traeger	Avista Energy
Rudd Turner	COE

Paul Wagner	NMFS
Victoria Watkins	PYRA
Nancy Yun	COE

TECHNICAL MANAGEMENT TEAM

BOR: Pat McGrane\Lori Postlethwait

NMFS: Paul Wagner\Chris Ross BPA: Scott Bettin\Robyn MacKay

USFWS: Howard Schaller\Bob Hallock\Susan Martin

OR: Christine Mallette WA: Jim Nielsen ID: Steve Pettit

MT: Jim Litchfield COE: Cindy Henriksen\Rudd Turner\Dick Cassidy

TMT Conference Call

31 May 2001 1500 - 1600 hours

Conference call line: 503-808-5190

All members are encouraged to call Donna Silverberg with any issues or concerns they would like to see addressed. Please e-mail her at dsilverberg@cnnw.net or call her at (503) 248-4703.

AGENDA

1. Welcome, introductions.

2. Discuss SOR # 2000-5, dated 30 May 2001, regarding Albeni Falls operation.

Questions about the meeting may be referred to Rudd Turner, (503) 808-3935 or Dick Cassidy, (503) 808-3938.

COLUMBIA RIVER REGIONAL FORUM

TECHNICAL MANAGEMENT TEAM
MEETING NOTES
May 31, 2001
CORPS OF ENGINEERS NORTHWESTERN DIVISION OFFICES – CUSTOM HOUSE
PORTLAND, OREGON

TMT Internet Homepage: http://www.nwd-wc.usace.army.mil/TMT/index.html

Emergency Conference Call

FACILITATOR'S NOTES

Facilitator: Richard Forester

The following notes are a summary of issues that are intended to point our 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.

SOR 2001-5:

An emergency TMT conference call was held, at the request Christine Mallette, ODFW, beginning at 1500 hours PDT to discuss SOR # 2001-5, regarding Albeni Falls operation, submitted on May 30th, by ODFW, USFWS, WDFW, and CRITFC. The SOR requested immediate pass inflow at Albeni Falls maintaining the current lake elevation at 2058.2 through June 30, 2001 and to refill the lake to 2062.5 at an even rate beginning July 1 and extending through July 22nd or later depending on in-season observation of bull trout passage conditions at the mouth of Trestle and South Gold creeks. It was estimated that this may result in additional 201.8 ksfd for augmentation in Mid Columbia River during June. Mallette and Howard Schaller (USFWS) stated that the biological objective of the request is to improve passage for fish in the Mid-Columbia and Hanford Reach by providing higher flows in that area. Pat McGrane (BOR) stated that, even without Albeni Falls increases, there should be no problem reaching 60+ kcfs at Priest Rapids while maintaining minimum elevations at Grand Coulee which required 10 additional feet to reach the required elevation (1280) and is expected to be at 1275 by June 1. Short-term flows could reach up to 90 kcfs.

Conclusion: There was no disagreement with shelving the SOR consideration until June 6 TMT meeting with the understanding that without any additional inflow from Albeni Falls, that the goal for flows at Priests Rapids will be 90 kcfs on week-days and 65+ kcfs on the week-end. The COE will continue its planned operation to refill Albeni Falls by the end of June.

Next Meeting:
The next TMT meeting will be face-to-face, held **June 6 from 9-12.**

Meeting Minutes

1. Greeting and Introductions

The May 31 Technical Management Team conference call, held at the Customs House in Portland, Oregon, was chaired by Rudd Turner of the Corps and facilitated by J. Richard Forester. The following is a distillation, not a verbatim transcript, of items discussed at the meeting and actions taken. Anyone with questions or comments about these minutes should call Turner at 503/808-3935.

Turner welcomed everyone to the conference call, then led a round of introductions.

1. Albeni Falls Operations.

Forester briefly reminded the group of the general rules of discussion in the TMT Guidelines. Turner said that, following yesterday's TMT meeting, the Corps received SOR 2001-5. This SOR, supported by ODFW, USFWS, WDFW and CRITFC, requested the following specific operation:

- Pass inflow at Albeni Falls beginning immediately.

Since receiving SOR 2001-5, said Turner, we have had some additional discussion between the salmon managers and the action agencies; we think it would now be beneficial to have some larger-context discussion of the objectives of and biological need for this SOR, he said, in particular, the salmon managers' desire to increase flows in the Mid-Columbia reach during June.

Christine Mallette noted that there are two Fish Passage Center memos attached to SOR 2001-5, depicting the status of the 2001 migration; she referred the TMT participants to these documents for the justification behind this request. In general, she said, the intent of SOR 2001-5 is to improve flows in the Mid- and Lower Columbia River during the month of June; the volume of water this SOR would free up for flow augmentation is about 200 Ksfd.

Are you intending to focus on the whole month of June, or a specific part? Turner asked. We would like Albeni Falls to pass inflow starting immediately, and continuing through the end of June, Mallette replied. Refill would then recommence on July 1, with the project reaching elevation 2062.5 by July 21 or later. The answer to Rudd's question is that the intent of this SOR is to improve flows in the Mid-Columbia through the month of June, Howard Schaller said,

adding that the salmon managers would like to see Mid-Columbia flows of at least 60 Kcfs during June.

What if we don't use Albeni Falls? Turner asked. Could we use Grand Coulee to provide at least 60 Kcfs, on average, at Priest Rapids during the month of June, and still reach elevation 1280 by June 30? I don't think that will be a problem, Pat McGrane replied. What Reclamation is now proposing is a series of interim minimum elevation targets for Grand Coulee – 1275 on June 11, 1278 on June 18 and 1280 on June 30. Frankly, even as we meet these elevation targets at Grand Coulee, I think June flows at Priest Rapids will be much higher than 60 Kcfs, McGrane said – we're at elevation 1272 right now, and could be at elevation 1275 as early as Monday, June 4, regardless of what the Albeni Falls operation is. After that, said McGrane, we've only got five feet to fill during the month of June to reach elevation 1280, and right now, Grand Coulee is filling one foot per day.

Would it work from a power standpoint if we were to use Grand Coulee to maintain 60 Kcfs at Priest Rapids during June? Turner asked. Yes, Scott Bettin replied – from BPA's perspective, that would not be a problem. In response to a question from Rob Lothrop, Bettin said there is a good chance Grand Coulee will fill above elevation 1280 by June 30; the Executives have said that is a desirable operation, if it can be done. The TMT will need to decide whether they want to use that water for flow augmentation in the spring, or store it for use later in the summer, Turner said.

With respect to the Albeni Falls operation, said Turner, given the fact that there appears to be enough water in Grand Coulee to meet the requested 60 Kcfs flow at Priest Rapids during the month of June, is there still a need to alter the refill schedule at Albeni Falls? Turner asked. Yes, from the salmon managers' perspective, Mallette replied – that is the intent of the SOR. The additional water from Albeni Falls could be used, given TMT flexibility, to extend the time period of Grand Coulee flow augmentation. You're talking about additional flow augmentation in June? Turner asked. I don't see a necessity to pass inflow at Albeni Falls at this time, if we can meet the 60 Kcfs flow objective at Priest Rapids with water from Grand Coulee, said Schaller.

Jim Nielsen noted that the requested flow level is 60 Kcfs or greater at Priest Rapids. We will exceed 60 Kcfs at Priest Rapids if we operate Grand Coulee to achieve elevation 1280 on June 30, rather than storing the additional water for use in summer, Cindy Henriksen replied. In response to a question, Henriksen said the average flow at Priest Rapids would likely be about 70 Kcfs through June 30, if that is the recommended alternative. As we have heard, she said, Reclamation and BPA are willing to implement that operation.

Wagner suggested that it would make sense, from the standpoint of providing higher flows, to stretch out Grand Coulee refill to the next target of 1275 feet until the target date of June 11, rather than this Monday. I can't promise that we can do that, but we will make our best efforts, Bettin replied. Just so the record is clear, that is what we're requesting, said Schaller.

It would be helpful to have a clear picture of how much volume we'll have above elevation 1280 at Grand Coulee in June, said Lothrop – that would be useful in making this

decision. The fish are hung up in the Mid-Columbia, he said; we need to figure out a way to get them out, probably through a spike in flows. I think we agree, Henriksen replied – my understanding is that the objective is to maintain a minimum flow of 60 Kcfs at Priest Rapids; based on current information, it appears that we can maintain a flow of closer to 70 Kcfs on a month-average, if we want Grand Coulee to be at elevation 1280 – no higher – on June 30. We could then choose to reduce Grand Coulee outflow in a couple of weeks, to store more if we see that the Mid-Columbia outmigration is over, she said.

Again, the objective is to get the fish out, Lothrop said – it may take more than 60 Kcfs flow to do that. Washington agrees, said Nielsen; we need a spike. I agree with Paul Wagner, said McGrane – we need to look at the shorter-term Reclamation targets; if we defer refill to 1275 until June 11, chances are we'll see flows of closer to 90 Kcfs in the short term, while still being able to meet that elevation target. That will give you a decent surge of water through the Mid-Columbia, just by slowing Grand Coulee refill, McGrane said.

Kyle Martin said that, according to his most recent analysis, it should be possible to achieve flows of 100-110 Kcfs over the next two weeks by doing as Reclamation suggests.

Bettin suggested that the TMT agree to this operation through Wednesday, at which point it can then be discussed again. Loads are lighter over the weekend, he said; still, it should be possible to maintain 65-70 Kcfs over the weekend, and on Monday, loads will pick up significantly.

What I'm hearing, then is that flows will be maintained at 65-70 Kcfs over the weekend, flows will be higher starting Monday, closer to 90 Kcfs, and the TMT will revisit this operation at its Wednesday meeting, said Forester. We can do that, Bettin replied – we'll set the weekend minimum at 65 Kcfs, shoot for 70 Kcfs, target 90 Kcfs during the week, then revisit topic this on Wednesday. No TMT disagreements were raised to Bettin's suggested operation. And on the other hand, said Turner, we will continue to refill Albeni Falls.

I just want to be on the record as saying we have many concerns about the non-refill of Albeni Falls, said George Eskridge, and if you propose making any changes to the current operation, we would like to be kept informed.

The next face-to-face meeting of the TMT was set for Wednesday, June 6 at 9 a.m. Meeting notes prepared by Jeff Kuechle, BPA contractor.

TMT PARTICIPANT LIST

May 31, 2001

Jeff Allen	Sen. Mike Crapo's office

Scott Bettin	BPA
Scott Boyd	COE
Chip Coursey	
George Eskridge	Idaho State Rep.
J. Richard Forester	Facilitation Team
Mike Geralds	Sand Point (ID) *Daily Bee*
Cindy Henriksen	COE
Cathy Hlebechuk	COE
Gail Laird	COE
Milo Maioli	
Christine Mallette	ODFW
Doug Marx	Attorney, Lake Pend Oreille Idaho Club
Pat McGrane	USBR
Jim Nielsen	WDFW
Mike O'Bryant	Columbia Basin Bulletin
Steve Pettit	IDFG
Howard Schaller	USFWS
Rudd Turner	COE
Marian Valentine	COE
Paul Wagner	NMFS
Dan Whiting	Sen. Larry Craig's office

TECHNICAL MANAGEMENT TEAM

BOR: Pat McGrane\Lori Postlethwait

NMFS: Paul Wagner\Chris Ross BPA: Scott Bettin\Robyn MacKay

USFWS: Howard Schaller\Bob Hallock\Susan Martin

OR: Christine Mallette WA: Jim Nielsen ID: Steve Pettit

MT: Jim Litchfield COE: Cindy Henriksen\Rudd Turner\Dick Cassidy

6 June 2001 0900 - 1200 hours

Custom House Room 118

Portland, Oregon

Conference call line: 503-808-5190

All members are encouraged to call Donna Silverberg with any issues or concerns they would like to see addressed. Please e-mail her at dsilverberg@cnnw.net or call her at (503) 248-4703.

AGENDA

1. Welcome, introductions.
2. Hanford Reach update (Grant PUD).
3. Review current system conditions.
   - Reservoir operation, water supply, water quality (COE, BOR)
   - Shaping flow in the Mid-Columbia Reach.
   - Power system status (BPA)
   - Fish migration status (NMFS, USFWS)
4. Review operations **requests** .
5. Develop recommended operations.
6. Update on emergency barged fish release at Ice Harbor (COE).
7. Sunspot cycles and effects on 2001 - 2002 climate (CRITFC).
8. Water temperature modeling results (COE, NMFS).
9. TMT process discussion.

- feedback from facilitator evaluation survey
- update TMT guidelines
- Water Management Plan

10. Other.
    - Set agenda for 20 June TMT meeting.

Questions about the meeting may be referred to Rudd Turner, (503) 808-3935 or Dick Cassidy, (503) 808-3938.

COLUMBIA RIVER REGIONAL FORUM

TECHNICAL MANAGEMENT TEAM
MEETING NOTES
June 6, 2001
CORPS OF ENGINEERS NORTHWESTERN DIVISION OFFICES – CUSTOM HOUSE
PORTLAND, OREGON

TMT Internet Homepage: http://www.nwd-wc.usace.army.mil/TMT/index.html

FACILITATOR'S NOTES ON FUTURE ACTIONS
Facilitators: Donna Silverberg and Richard Forester

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.

Hanford Reach/Vernita Bar Update:
Joe Lukas reported that the operation restrictions are to be lifted June 10 or 11. He will complete a stranding summary report from this season that will be finished in August or September.

System Operations:
- Operations and Water Supply:

Rudd Turner reported on COE operations. Albeni Falls is set to fill by the end of June. Spill is to be discussed at the Regional Executives meeting. Robyn MacKay stated that FERC ruled in favor of the Grant County application for the 300 mw/mos. Swap with BPA for spill that began in May. Regarding Hungry Horse, Pat McGrane said that BOR is beginning operating discussions with USFWS and MDFWP due to lightning in the area and possible operation changes resulting from it.
BOR suggested a website that has been recently opened to the public for water supply information, http;//mac1.pn.usbr.gov/PN6200/esatea.html , which shows actual hydrographs with hourly data. This data could be useful in conjunction with COE's information. Turner stated that the June Final Water Supply Forecast is due June 8.

- Water Quality: The Oregon Environmental Quality Commission has requested a report from the COE at their June and August meetings. The June report was delivered. Contact Dick Cassidy for more information.

A question was asked to Idaho Power regarding Brownlee, which is now a foot from full. Payette water is passing and IPC plans to keep Brownlee full until there is a need to draft for power. They are unable to rent water for users downstream at Milner as yet. They will continue to try to reach the 200 target flow at Milner. TMT appreciated having an Idaho Power representative at the meeting.

- Power System Status: The system continues to operate according to a power system emergency. A meeting with the Federal Executives Friday will determine spill operations. Discussions will continue at the Regional Executives meeting, which will be held June 15.

- Fish Migration Status: The peak for juvenile spring migration appears to have passed. Fish are still passing but not at the rate they were two weeks ago. Mid-Columbia juvenile steelhead are still a big concern. At Bonneville, 398,565 spring chinook adults were counted, which is the largest return since the dam was completed in 1938. Welcome back!

SOR 2001-6:
All salmon managers support this request, which asks to maintain flows at Priest Rapids at 91 kcfs for the week ending June 10, and a weekly average of 117.5 kcfs for the week of June 11-17. The request also calls for no less than 80% flow over the weekend. The Biological Opinion calls for 135 kcfs minimum at Priest Rapids and the salmon managers observed a stall of migration that was affected by the lower flow average. The request calls for operations to continue only until June 17 and if Grand Coulee isn't meeting the expected target, TMT will discuss the request again next week. The Action Agency response to the request was to keep minimums of 90/70 the week of June 11, remain mindful of the requested target in the following week, and watch the 1280' minimum level at Grand Coulee. A desire was expressed, for both power and fish needs, to end the month of June above 1280 ft. at Grand Coulee, for example 1283.5 ft.
ACTION: TMT will discuss the actions from this SOR on the June 13 conference call.

Operating Plan:
Headwater projects will continue to operate at minimum discharges, Albeni Falls will continue to refill by the end of June, power system needs will be met, spill at the Lower-Columbia will continue, and Mid-Columbia flows requested in the SOR will be considered.

Sunspot Cycles:
Kyle Martin gave a presentation, which can be found on the TMT website. Links have been found between sunspots and drought events and this new information could allow for future predictability of low water years.

Update on Emergency Barged Fish Release at Ice Harbor:
Rudd Turner reported on the results of the COE investigation. The overflow drains may be undersized for the size of the holding compartments in the large barge. As a result, debris and fish can become impinged on the screens that cover the drains. The Walla Walla District Engineering team is studying the barge to determine the feasibility of enlarging the overflow drains. TMT members will receive an update on any new information regarding this matter.

Water Temperature Modeling Results:
Paul Wagner and Dick Cassidy reported on water temperature modeling data. Paul will update TMT when more information is gathered. Dick noted that the previous model had some problems so changes were made and updated on the TMT webpage.

Process Discussion:
A time crunch cut this discussion short – again! To help move this agenda item along, the following actions will occur:
ACTION: Donna will send the facilitation services evaluation summary to TMT members.

ACTION: Members will review TMT guidelines and send changes to Rudd by June 15. This will be discussed at the June 20 meeting.
ACTION: Members will also review the Water Management Plan and send any changes to Rudd by June 15.

Conference Call June 13, 9-12: TMT will review the system operation and SOR 2001-6.

Face-to-Face Meeting June 20, 9-12:
The group will discuss the following agenda items:

- Water Management Plan
- TMT guidelines
- Water Temperature Modeling
- Hanford Reach/Vernita Bar
- Current System Conditions
- Develop Recommended Operations

Meeting Minutes

1. Greeting and Introductions

The June 6 Technical Management Team meeting, held at the Customs House in Portland, Oregon, was chaired by Rudd Turner of the Corps and facilitated by Donna Silverberg. The following is a distillation, not a verbatim transcript, of items discussed at the meeting and actions taken. Anyone with questions or comments about these minutes should call Turner at 503/808-3935.

Silverberg welcomed everyone to the meeting, then led a round of introductions and a review of the agenda.

2. Hanford Reach Update.

Joe Lukas reported that, for the week of May 28-June 3, average flows at Priest Rapids were 80 Kcfs; the flow fluctuation band was 60 Kcfs. Day-average flows for the week were between 75 Kcfs and 110 Kcfs-120 Kcfs. Field crews monitored two random sites last week, sampling two juvenile chinook. Index seining numbers decreased to 1,110 last week; average fork length of the fish sampled increased 2 mm over the previous week, to 47.5 mm.

We're now nearing the tail end of the stranding susceptibility period, Lukas said. This week, we're on an 80 Kcfs fluctuation band; flows are rising, they're at 88 Kcfs today, the highest Priest Rapids flows of the year. Lukas said the stranding protection operational restrictions will end on June 10 or 11; therefore, this will therefore be the second-to-the last Hanford Reach stranding report of the year. When do you expect that your annual written

Hanford stranding report will be available? Jim Nielsen asked. Within two months of the end of the stranding protection operation, Lukas replied – traditionally, it's out in August or September.

3. Current System Conditions.

Turner said that, over the past two weeks, day-average flows at Bonneville have ranged between 116 Kcfs and 175 Kcfs; they were 154 Kcfs yesterday. Spill at 50 kcfs continues at that project; except for the morning and early afternoon of the 24th of May, that spill has been continuous. Day-average flows last week at McNary ranged between 106 Kcfs and 158 Kcfs. The 158 Kcfs occurred on June 1, and is the highest McNary day-average of the year to date. McNary flows averaged 157 Kcfs yesterday; we're spilling every other night at that project. The day-average flow yesterday at Lower Granite was 43.4 Kcfs; flows have been dropping at that project and should continue to slowly do so. It looks like 91 Kcfs on May 16-17 is the Lower Granite peak flow for the year, Turner said.

Continuing on, Turner said Dworshak continues to fill, and was at elevation 1577.9 feet as of midnight last night. Last week's Dworshak inflows ranged from 7 Kcfs to 13 Kcfs, with outflows of 1.7 Kcfs. Dworshak filled 6 feet last week. Libby was at elevation 2415.4 feet at midnight last night; inflows to the project averaged between 21 Kcfs and 37 Kcfs during the last two weeks, and are now beginning to decline. Turner said the most recent SSARR run shows Libby reaching elevation 2431 feet on June 30, 8 feet below the goal set for that project in the federal operating plan. Albeni Falls was at elevation 2059.76 feet at the Hope gauge as of midnight last night. The project has filled 1.7 feet over the past two weeks, Turner said; inflows yesterday were 31 Kcfs, with outflows of 22 Kcfs. In response to a question, Turner said the Corps still plans to fill Albeni Falls by June 30, but not before.

Turner said spill continues at the four Lower Columbia projects -- 50 Kcfs 24 hours a day at Bonneville, 30% of total river flow 24 hours a day at The Dalles, 30% of total river flow nightly at John Day and 30 Kcfs every other night at McNary. To date, the 2001 spill program has used 388 MW-months of power equivalency; last week, the Executives agreed to go beyond the 300 MW-months limit set earlier. The Executives have been discussing the possibility of extending the 2001 spill program to 600 MW-months, Turner said; that issue will be discussed at the Executives' meeting this Friday. If we get a total of 600 MW-months of spill this year, Turner said, the spill program could continue to about June 15. Jim Litchfield noted that FERC has now approved the Grant County PUD/BPA spill exchange.

Pat McGrane reported that Grand Coulee is currently at elevation 1277.7 feet, 12 feet from full, up 5 feet over the past week. Current inflows to the project are about 112 Kcfs, with outflows of 66 Kcfs. McGrane said last week's flow at Priest Rapids Dam averaged in the 90 Kcfs range during the week and 75 Kcfs over the weekend; this week, Priest Rapids flows have been running in the 90s as well. Hungry Horse is now at elevation 3528.5 feet, 31.5 feet from full, up 5 feet in the past week. Inflows to the project averaged 10 Kcfs last week, outflows 500 cfs. There was 1.5 inches of rain in the Flathead last week, McGrane said, so flows in that system have stayed up pretty well.

We're now entering the lightening season at Hungry Horse, said McGrane; when lightening storms are in the area, we need to bring Hungry Horse up to 3 Kcfs to maintain transmission system reliability. McGrane noted that Reclamation is discussing a variance on the ramping rates to accommodate this operation if needed with the Fish and Wildlife Service and the State of Montana; the purpose of the variance would be to save water in Hungry Horse by ramping down more quickly from 3 Kcfs outflow than the rate specified in the BiOp.

Flow augmentation from the Payette will continue through Sunday, McGrane added. What are Idaho Power's planned operations for the remainder of the spring and into the summer? Jim Nielsen asked. John Bowling replied that Brownlee is 1.5 feet from full, so the Payette water is, for all intents and purposes, being passed through; he added that IPC plans to keep Brownlee as full as possible until they have to start drafting for power, as inflows to the project decline. You intend to maintain the minimum flow of 8 Kcfs-9 Kcfs below Hells Canyon? Nielsen asked. That's probably close, Bowling replied, but again, we will draft the project as needed to meet power demand.

Cathy Hlebechuk asked about the delivery of the 237 KAF from Brownlee; Bowling replied that a considerable volume of water will come out of Brownlee just because of water conditions this year. Whether we'll reach 2059 feet by July 31, I don't know, Bowling said; as you know, we don't have a shaping or delivery agreement with BPA this year. Has IPC been able to rent any water from the rental pool? McGrane asked. We have not, although we are continuing to inquire, Bowling replied; our FERC license requires us to inquire about water rentals in order to maintain the 200 cfs minimum at Milner. We have not been able to rent any water to maintain that flow at this time, Bowling said; we will continue to inquire. In the absence of that water, said McGrane, some time soon, the Snake River will go dry at Milner.

Litchfield asked about the most recent Corps volume histograms, noting that, at Libby, the SSARR is showing elevation 2431 feet by June 30 (see document to check), nine feet below the June 30 target elevation at that project. Will that be the maximum elevation for that project this year? Litchfield asked. Not necessarily, Turner replied – even during dry years, July inflows at Libby often exceed the 6 Kcfs the project will be releasing during that period. The SSARR run is currently predicting that Libby will be at elevation 2431 on July 1, but at 2445 feet on August 1, even with 6 Kcfs outflow, Turner said. The SSARR then shows Libby at elevation 2439 feet on August 31, with some additional outflow above 6 Kcfs from that project during August.

Does Reclamation still believe there is a 50-50 chance Hungry Horse will achieve its June 30 target elevation? Litchfield asked. It depends on what the TMT wants to do, McGrane replied; the forecast there looks OK, as far as being able to reach the 20-foot-from-full target on June 30. What we're seeing on our spreadsheet looks pretty good, given the recent rain events in that basin. The lightening situation is the wild-card, McGrane said. Turner added that the most recent SSARR run forecasts that Hungry Horse will be at elevation 3546 on June 30, elevation 3549 by the end of July and elevation 3540 on August 31. Hlebechuk cautioned that the water supply assumptions used to develop the SSARR are potentially somewhat optimistic, compared to the River Forecast Center's water supply forecast, particularly at Libby.

Turner said the June final water supply forecast will be out this Friday; the June early-bird shows little change from the May final. On the water quality front, Dick Cassidy said that, because of the drought, the State of Oregon requested water quality reports from the Corps on June 1 and August 1. We did provide the June 1 report, Cassidy said, but the only significant thing we reported was the May 24-25 TDG exceedance below Bonneville, which persisted for less than a day.

With respect to the status of the power system, Scott Bettin reported that nothing has changed – the power system emergency continues, and on Friday, the Federal Executives will decide how long the 2001 spill program will continue. If they agree to extend the spill program to 600 MW-months, said Bettin, the program will continue through approximately June 15. He added that the BPA rate case information will be out later today; it is expected to show a 155% increase in power rates for this year.

With respect to the status of the fish migration, Paul Wagner reported that for yearling chinook, the peak has passed, but fish are still present in the system. At Lower Granite, he said, we're well past the peak of the outmigration, with 4,700 yearling chinook passing the project yesterday. At McNary, said Wagner, we're in a bouncing mode to some extent, but the bounces aren't as high as they were. The peak at McNary was 195,000 yearlings about two weeks ago; those fish are now arriving at John Day and Bonneville. Subyearling chinook are beginning to pass Lower Granite in small numbers, he added; these are mainly hatchery fish, and we don't expect to see these numbers climb significantly for another week or two. At McNary, subyearling numbers are on the rise, and include some Mid-Columbia fish.

With respect to steelhead, the peak, again, is well past at Lower Granite, Wagner said; at McNary, we never really saw a steelhead peak this year. That is quite disturbing, said Howard Schaller; the numbers look very bad for Mid-Columbia steelhead this year. This is really the last chance for the Mid-Columbia steelhead to get out, said Wagner; if they don't outmigrate by the second week in June, historically, they don't outmigrate at all.

Referring to the passage index graph information on the FPC homepage, Wagner said that, for yearling chinook at Lower Granite, we actually got pretty close to the number of fish that were expected for the year – we got a couple of natural rain events at just the right time to send these fish downstream. For steelhead at Lower Granite, the picture is much the same – we came close to expectations, and things are now tailing off. At McNary, the yearling chinook graph is now near the 95% historic confidence interval, and has increased here of late, so the picture, for this species at least, may continue to improve. With respect to steelhead passage at McNary, Wagner said, the situation is very poor -- less than half of the expected number of steelhead have passed McNary to date.

So even though flows increased significantly at Priest Rapids this past week, we didn't really see an increase in passage in response? McGrane asked. There is a slight upward trend, but the response hasn't been tremendous, Wagner replied. Is there a chance these fish aren't there, and just never made it out of the gravel? Bettin asked. These are mainly hatchery fish, Wagner replied; more than 2 million of these fish were released this year, but only about 600,000 have

passed McNary to date. Schaller said the increase in flow may or may not produce an immediate biological response.

Wagner also touched briefly on adult passage; 398,000 adult chinook have passed Bonneville to date, the highest total since the dam was completed in 1938, and about 10 times the 10-year average. In response to a question from Turner, Schaller said the 2001 jack count is about seven times the 10-year average, an indication that 2002 adult returns should also be well above average. At Lower Granite, 157,000 adult chinook have passed to date; again, more than 10 times the 10-year average of 11,178 fish for this date.

4. New System Operational Requests.

On June 5, the Corps received SOR 2001-6. This SOR, supported by ODFW, USFWS, WDFW, NMFS, CRITFC and IDFG, requests the following specific operations:

- For the week ending June 10, 2001, maintain Priest Rapids flows at a weekly average of 91 Kcfs. For the week of June 11 to June 17, maintain Priest Rapids flows at a weekly average of 117.5 Kcfs. Weekend flows should not be less than 80% of the previous five-day average. The attached spreadsheet describes the expected operations under this request. This operation would still fill Grand Coulee Reservoir to at least 1280 feet and probably higher by the end of June.

Mallette spent a few minutes going through the specifics of and justification for this request, the full text of which is available through the TMT's Internet homepage. Martin noted that, according to the most recent SSARR results, this operation is expected to result in a Grand Coulee elevation of 1283.5 feet on June 30. Mallette added that the intent of this SOR is to increase Mid-Columbia flows during the extremely critical next two weeks of the outmigration.

The group briefly discussed the assumptions underlying the salmon managers' analysis; Nielsen noted that it appears that even if this SOR is implemented as requested, Grand Coulee could be above elevation 1280 on June 30. Are we really seeing a corresponding increase in juvenile passage in response to the recent increase in flow at Priest Rapids? Litchfield asked. The group spent a few minutes going through the DART smolt index data; Wagner said that, in NMFS' view, there is a clear positive correlation between increased flow at Priest Rapids and increased passage at McNary.

Is it fair to say that perhaps 15% of the fish are left? McGrane asked. That may be true of chinook, said Silverberg, but what we heard earlier is that the steelhead are MIA. Bettin noted that some steelhead, at least, will residualize if passage conditions are poor; Schaller replied that the survival rate for residualized steelhead in the Mid-Columbia is very poor.

The goal of this request is to reach elevation 1283 at Grand Coulee by June 30? Henriksen asked. That's one objective, Kyle Martin replied; the interim objective is the requested flow level at Priest Rapids. Henriksen noted that the current SSARR run shows an average flow of 104 Kcfs next week; do the salmon managers want us to reduce Grand Coulee outflow to meet the requested weekly average of 91 Kcfs? Schaller replied that the objective is as stated in the SOR – a week-average flow of 91 Kcfs at Priest Rapids for the week ending June 10, and a week-average flow of 117.5 Kcfs at Priest Rapids for the week ending June 17.

What do you want us to do if we're not at elevation 1286 feet this Sunday? Bettin asked. We would like to see you meet the requested flow objective at Priest Rapids Dam, Mallette replied. How likely is it that we will achieve 1286 by that date? she asked. Not likely, in my view, Bettin replied – Grand Coulee inflows are on the decline, from 125 Kcfs on May 30 to 100 Kcfs on June 4.

Turner displayed an overhead showing various operational scenarios at Grand Coulee, based on the most recent SSARR run, and the effects of these operations on flows at Priest Rapids – Scenario 0, Scenario 1 and Scenario 2. Scenario 0 takes Grand Coulee to elevation 1280 on June 30; under this scenario, day-average flows would stay above 80 Kcfs at Priest Rapids through Mid-July. Scenario 1 shows what would occur if the elevation target is full – 1290 feet – at Grand Coulee on June 30; under this scenario, flows would fall steadily, from 85

Kcfs in mid-June to about 60 Kcfs by mid-July, after which they would increase dramatically, to over 100 Kcfs, as the project begins to draft to elevation 1280 by August 31.

Scenario 2 shows the Corps' estimate of what will happen if the SOR is implemented as requested; Priest Rapids flows would still be nearly 80 Kcfs on July 1, at which point Grand Coulee would be at the requested elevation of 1283.5 feet. In order to meet the requested parameters, he said, there would be a significant drop in flow at Priest Rapids during the second half of June, from 117 Kcfs to just under 80 Kcfs. Essentially, compared to Scenario 0, the peak in Scenario 2 would be higher in mid-June, but flows would then be lower during the remainder of the month.

So it's a question of where we want to concentrate the water? Nielsen asked. Exactly, Turner replied – the action agencies' goal is to achieve elevation 1280 at Grand Coulee by June 30; given the fact that it looks like we have a volume to work with in excess of that needed to achieve that refill target, there is some flexibility for the TMT to tell us how that water should best be used. So the question is, do we want to store as much water as possible for use later in the summer, or provide more water now, to help move the last of the Mid-Columbia migrants out? Litchfield asked. Correct, was the reply.

We're primarily concerned, again, with keeping flows up to move as many of the Mid-Columbia steelhead migrants out as possible in the next two weeks, with the understanding that Priest Rapids outflow would then drop off during the last two weeks in June, Nielsen said. He continued by stating that the next 10 days, for the spring migrants, are critical, and in the salmon managers' view, this is the best we can do with the water we have available this year. That was the essence of our discussion yesterday, he said, and the reason for this SOR.

Once we get past the next 10 days, said MacKay, is there a lower limit on flow at Priest Rapids, or on Grand Coulee elevation, if it looks as though we can't meet elevation 1280 on June 30? We know there is uncertainty, Schaller replied; this SOR is intended to provide some guidance, from the salmon managers' perspective. If Grand Coulee isn't filling as fast as anticipated, we will need to reconvene to discuss the operation next Wednesday, at which point we would only be two days into the 117.5 Kcfs flow period. In other words, said Silverberg, it sounds as though there is some flexibility here, if Grand Coulee doesn't refill as quickly as anticipated, to revisit this operation. That flexibility always exists, Schaller replied; there is no reason to spell that out in an SOR. To be clear, he said, this is the salmon managers' recommendation, but we will revisit the operation, if conditions warrant, next Wednesday.

Bettin observed that the forecast isn't that precise; it may be that we can only deliver 116 Kcfs at Priest Rapids next week, or may not quite achieve elevation 1286 by this Sunday. The salmon managers understand that these recommendations are based on estimates, and actual operations will doubtless be slightly different, even under the best circumstances, Nielsen replied. If we miss the target by 1.5 Kcfs next week, he said, we're not going to make the action agencies' life miserable.

The group devoted a few minutes of discussion to tradeoffs and contingency operations in the event that it isn't possible to meet all of the recommended target flows, elevations and

dates contained in the SOR. Ultimately, Turner stated, none of the Federal Action Agencies would support an operation that would result in a Grand Coulee elevation of less than 1280 on June 30. Robyn MacKay added the observation that, if Grand Coulee is indeed at elevation 1280 on June 30, flow augmentation from that project is done for the year – Grand Coulee will essentially be passing inflow until August 31.

It was agreed to take a brief Action Agency caucus break. When the meeting resumed, McGrane said that what the operators have decided to do is, through Monday, June 11, to provide at least 90 Kcfs at Priest Rapids during the week and 70 Kcfs on the weekend, possibly higher. Next week, flows will be higher still, being mindful of the 117.5 Kcfs flow target – in other words, he said, you can grade us on Wednesday. Our Grand Coulee target elevation is 1280 feet by the end of June, but the 1283.5-foot target mentioned today is in the back of our minds.

Again, said McGrane, see how we do next week, and we will revisit this topic on Wednesday. In other words, he said, I can't say for sure that we'll be able to provide exactly 117.5 Kcfs next week; if we are to provide the flow levels requested in this SOR through the end of June, it appears likely, to Reclamation, that Grand Coulee will be lower than elevation 1283.5 feet on June 30. So it's a definite maybe? Nielsen asked. Essentially, yes, McGrane replied.

Ralph Sletager asked how the action agencies plan to fill Albeni Falls the rest of the way, given the fact that the snowmelt in that basin is now gone. Cathy Hlebechuk reiterated the Corps' intent to fill Albeni Falls by June 30; she said other projects upstream are continuing to release water, and there is still water coming downstream. In other words, she said, don't worry – the Corps is confident that Albeni Falls will refill by June 30.

5. Recommended Operations.

Turner added that the headwater projects will continue at minimum outflow, and Albeni Falls will continue on a refill curve to reach full by June 30. Other than that, spill will continue until decided otherwise by the Federal Executives, and in general, the system will be operated to meet power system demand, Turner said.

6. Update on Emergency Barged Fish Release at Ice Harbor.

Turner said the Corps has identified overflow drains as the issue with the two large barges that were built three years ago, including the barge in which the recent problem occurred at Ice Harbor; basically, the systems work OK as long as there isn't too much debris impinging on the single drain in each compartment. Walla Walla District engineers are going to go through one of the barges in the next two weeks to see whether it will be possible to add some additional drains to these barges without a major overhaul. This is the first time in three years that we've seen this problem, Bettin observed. It was noted that these barges were not in operation in 1997, the last high-debris year. The intent is to get this problem fixed prior to next spring, Bettin added.

7. Sunspot Cycles and Effects on 2001-2002 Climate.

Martin provided a presentation on "Sunspot Cycles and the Drought of 2001;" he noted that the full text of this presentation is available via the TMT website. Please refer to this document for full details of Martin's presentation. Martin touched on the background and magnitude of the current drought, possible causes of the drought (sunspot cycles triggering El Niño events), whether or not another El Niño is on the way, expected impacts to Pacific Northwest rivers and salmon, and the following summary:

- Sunspot maxima occur 1-3 years before an El Niño event. Droughts may occur then.
- Solar cycle analyses could help the federal managers better utilize Columbia Basin water resources on a 1-2-year time scale.
- Sea-surface temperature forecasts suggest a "near-normal" winter for 2001-2002.
- Expect precipitation to be 60%-70% of normal through October, then 80%-90% of normal in the winter of 2001-2002. Analogy: 1992-1993.

Martin noted that one thing that has been missing, in the meteorological realm, is what actually triggers an El Niño event; this research suggests that El Niño events follow 1-3 years after the cyclical peak of sunspot activity. The most recent peak in solar activity occurred in March 2000, so if this theory is correct, the peak of the next El Niño will occur in the fall of 2002. In other words, said Martin, it now appears that 2002 will be a near-normal water year, but 2003 will likely be a drought year.

Martin added that CRITFC advocates using water now to assist the record number of returning salmon adults, knowing that reservoir levels will be impacted. Winter rain in 2001-2001 beginning in November 2001, will help regional refill.

8. Water Temperature Modeling Results.

Wagner reported that the Corps has done some modeling work using the Battelle model to examine various proposed Dworshak and Brownlee summer operational scenarios; the expectation is that Brownlee will release about 10 Kcfs through the remainder of the season, resulting in a draft at that project to approximately 2040 by August 31. Under Scenario 1, Dworshak would release 14 Kcfs, starting July 1, for three weeks, then reduce outflow to 10 Kcfs, then to 6 Kcfs, to reach elevation 1520 by about August 25. Under Scenario 2, Dworshak would release 10 Kcfs from July 1 to September 1. Scenario 3 is CRITFC's proposed operation, under which, beginning July 1, Dworshak would release 7 Kcfs for two weeks, then 8 Kcfs for two weeks, then 10 Kcfs for two weeks, then a rampdown to elevation 1537 by August 31 followed by two additional weeks of augmentation from Dworshak.

Dick Cassidy provided some preliminary Battelle modeling results for these scenarios. In essence, what these runs show is that, under worst-case conditions (1977 water year, 1994 meteorological conditions), Scenario 2 provides the coolest Lower Granite forebay temperatures during July and August. The CRITFC alternative (Scenario 3) falls in between the worst-case scenario and Scenario 2 in terms of cumulative degree-days, Cassidy said -- under Scenario 3, the model predicts about 28 days of temperatures in excess of 20 degrees C, compared to 18 days for Scenario 2 and 38 days for the worst-case flow scenario. At McNary, there is virtually no difference in the temperature impacts between the three scenarios, he added. He noted that, to

date, Lower Granite forebay water temperatures in 2001 are running in between the temperatures recorded in 1977 and 1994. The 14 Kcfs scenario was not modeled.

9. TMT Process Discussion.

Discussion of this agenda item was deferred until the June 20 TMT meeting; Silverberg asked that the other TMT participants look over the TMT Guidelines and the most recent draft of the 2001 Water Management Plan with an eye to what is working and what is not, and to provide any comments they may have to Turner by Friday, June 15. It was so agreed.

10. Other.

A. Lower Granite Forebay Exceedence. The Corps needs to fill Lower Granite forebay by a foot or so outside of MOP for a few hours to move a bulkhead, said Turner; does the TMT have a recommendation as to when that should occur? After June 20, Mallette replied.

11. Next TMT Meeting Date.

The next meeting of the Technical Management Team was set for Wednesday, June 13 beginning at 9 a.m.; it was agreed that this meeting will be a conference call. The next face-to-face meeting of the TMT was set for Wednesday, June 20. Meeting notes prepared by Jeff Kuechle, BPA contractor.

TMT ATTENDANCE LIST

JUNE 6, 2001

Name	**Affiliation**
Ruth Abney	COE
Scott Bettin	BPA
John Bowling	IdaCorp Power Co.
Scott Boyd	COE
Dick Cassidy	COE
Richard Forester	Facilitation Team
Richelle Harding	D. Rohr & Associates
Robin Harkless	Facilitation Team
Cindy Henriksen	COE
Cathy Hlebechuk	COE

Jim Litchfield	Montana Consultant
Robyn MacKay	BPA
Christine Mallette	ODFW
Kyle Martin	CRITFC
Pat McGrane	USBR
Jim Nielsen	WDFW
Tony Norris	USBR
Howard Schaller	USFWS
Shane Scott	WDFW
Donna Silverberg	Facilitation Team
Rudd Turner	COE
Paul Wagner	NMFS

On Phone

Mike Butchko	Power X
Chip Coursey	IDFG
George Eskridge	
Russ George	Water Management Consultants Inc.
Mike Geralds	Sand Point (ID) *Daily Bee*
Tim Heizenrater	ENRON
Jeff Laufle	COE
Joe Lukas	Grant County PUD
Milo Maioli	IDFG
Doug Marx	Attorney, Lake Pend Oreille Idaho Club
Craig Sprankle	Reclamation
Maria Van Houten	ENRON
Steve Wallace	PacifiCorp

TECHNICAL MANAGEMENT TEAM

BOR: Pat McGrane\Lori Postlethwait

NMFS: Paul Wagner\Chris Ross BPA: Scott Bettin\Robyn MacKay

USFWS: Howard Schaller\Bob Hallock\Susan Martin

OR: Christine Mallette WA: Jim Nielsen ID: Steve Pettit

MT: Jim Litchfield COE: Cindy Henriksen\Rudd Turner\Dick Cassidy

TMT Conference Call

8 June 2001 1200 - 0100 hours

Conference call line: 503-808-5190

All members are encouraged to call Donna Silverberg with any issues or concerns they would like to see addressed. Please e-mail her at dsilverberg@cnnw.net or call her at (503) 248-4703.

AGENDA

1. Welcome, introductions.

2. Develop fish spill plan for the reminder of the spring spill period at the lower Columbia projects.

Questions about the meeting may be referred to Rudd Turner, (503) 808-3935 or Dick Cassidy, (503) 808-3938.

COLUMBIA RIVER REGIONAL FORUM

TECHNICAL MANAGEMENT TEAM
MEETING NOTES
June 8, 2001
CORPS OF ENGINEERS NORTHWESTERN DIVISION OFFICES – CUSTOM HOUSE
PORTLAND, OREGON

TMT Internet Homepage: http://www.nwd-wc.usace.army.mil/TMT/index.html

FACILITATOR'S NOTES
Facilitator: Richard Forester

The following notes are a summary of issues that are intended to point our 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.

Shaping the 600 MW-months spill:

Federal Executive discussion in the morning of June 8, 2001 agreed to complete the spring spill for fish passage to 600 MW-months. At midnight June 7 a little more than 430 MW-mo. of spill had been used. The question for TMT was whether to continue with the current spill design and stop when we reach 600 MW month total. A proposal from Paul Wagner (NMFS) was to stop the spill at McNary and John Day after this Saturday and extend the spill period at The Dalles and Bonneville for a few more days. The final consensus was to continue with the current spill program until 6am on Monday and to allow salmon managers to consider the issue further on Monday. The salmon managers' recommendations would be accepted by TMT and may include any combination of adjustments, including changing the spill schedule at Bonneville and The Dalles to extend the spill program even longer. In absence of further input from the salmon managers, the default decision will be to stop the spill at McNary and John Day on Monday at 6am and extend the current spill regimen at Bonneville and The Dalles until 600 MW-mo. is expended.

Next :
Salmon Managers will communicate their decision to Cindy Henriksen or Rudd Turner by 3:00 p.m. on Monday. Next TMT conference call is Wednesday June 13, 9am.

Meeting Minutes

1. Greeting and Introductions

The June 8 Technical Management Team conference call, held at the Customs House in Portland, Oregon, was chaired by Cindy Henriksen of the Corps and facilitated by Richard Forester. The following is a distillation, not a verbatim transcript, of items discussed at the meeting and actions taken. Anyone with questions or comments about these minutes should call Rudd Turner at 503/808-3935.

Henriksen welcomed everyone to the meeting, then led a round of introductions and a review of the agenda.

1. Prioritization of Remaining Spring Spill Volume.

Henriksen said that, at today's Federal Executives conference call, the TMT was instructed to convene this call to discuss the prioritization of the remaining spill volume this spring. As you will recall, said Henriksen, at Wednesday's TMT meeting, we thought there may be as much as 600 MW-months of spill available this year; the Executives made a decision this morning to approve that total.

As of midnight last night, said Henriksen, the 2001 spill program had used about 430 MW-months of power equivalency, leaving 170 MW-months to go. The Executives asked us to discuss the current spill program, to see whether we want to continue it or change the spill design for the remaining volume. That, then, is the question to TMT today, Henriksen said.

If we continue with the current spill program, we estimate that the 600 MW-months will be exhausted by about midnight on June 15, Henriksen said. She noted that the current program includes 30 Kcfs at McNary every other night, 30% of instantaneous flow at John Day nightly, 30% of instantaneous flow 24 hours a day at The Dalles and 50 Kcfs 24 hours a day at Bonneville.

In response to a question, Rudd Turner said the current program is using about 7 MW-months/day at Bonneville, 8 MW-months/day at The Dalles, about 4 MW-months per day at John Day and less than 2 MW-months per day at McNary – about 21 MW-months per day in all.

Paul Wagner said his recommendation is to keep the current program in place through tonight, then stop spill at McNary after tonight. The goal of this change would be to allow spill to continue at Bonneville and The Dalles for two to three additional days beyond May 15. The greatest number of fish are now at Bonneville, Wagner said, and this will continue to be the case from this time forward. Because there are no screens at The Dalles, he added, NMFS would also like to see spill continue at that project for as long as possible.

Christine Mallette asked the other salmon managers to share their thoughts; Margaret Filardo said observed that there is one mitigation measure underway to encourage additional passage from the Mid-Columbia, yet NMFS is recommending that spill be stopped at McNary – is there a downside to waiting to make this decision until more of the salmon managers are available to discuss this issue? she asked. Just that there would be 12 fewer MW-months available to work with on Monday, if we continue to spill at John Day and McNary over the weekend, Henriksen replied.

Mallette said she agrees with Filardo; the additional spill that would be expended over the weekend until a fuller group of salmon managers can convene to discuss this issue is acceptable. Mallette said she will attempt to engage the other salmon managers in a discussion of this issue as early as possible next week. That would also give us an opportunity to look at fish passage over the next few days at McNary, she said; I'm curious to see whether we see an increase in passage at McNary as a result of the increased flow in the Mid-Columbia. Wagner noted that, if the TMT waits until Monday to make this decision, there will likely be only one additional day of spill at The Dalles and Bonneville if the decision is made, at that point, to curtail spill at John Day and McNary.

Tom Lorz said neither of these alternative operations is acceptable to CRITFC; neither alternative would yield significant biological benefit, so the tribes would prefer to continue with the current spill operation. Henriksen said she has spoken to Jim Litchfield, who reiterated Montana's position that there should have been no spill this spring.

It sounds, then, as though we have two choices, said Henriksen – stop spill at McNary and John Day after tonight, or continue spill and re-evaluate, based on McNary passage information, on Monday. After a few minutes of additional discussion, Mallette said she will attempt to convene the salmon managers on Monday morning. At this point, however, without the input of Washington or the U.S. Fish and Wildlife Service, I am uncomfortable with changing the current operation, she said. Wagner checked the current passage numbers again; after doing so, he reiterated that NMFS' first preference would be to implement the operation he suggested earlier, but he is not averse to waiting until Monday – the stakes are not that high, Wagner said.

Mallette reiterated her proposal: continue the current spill operation until the salmon managers can have a fuller discussion of this issue, hopefully on Monday. If we are unable to meet on Monday, she said, the John Day and McNary spill programs would cease on Monday morning at 6 a.m. if we are unable to reach a salmon managers' recommendation. It was agreed that the TMT will accept whatever recommendation the salmon managers make without an additional conference call.

We haven't discussed the alternative of reducing the spill amounts at Bonneville or The Dalles, said Turner – is that on the table? The salmon managers will discuss all available options on Monday, Mallette replied.

To be clear, the TMT recommendation today is to continue the current spill program through Monday, said Henriksen; the salmon managers will attempt to meet on Monday; if they are able to reach a recommended operation, the Action Agencies have agreed to implement that recommendation without an additional TMT conference call. If they are unable to reach a recommendation, it was agreed that spill will cease at McNary and John Day on 6 a.m. Monday morning. That is the default, then, unless we hear otherwise from the salmon managers, Henriksen said. It as agreed that Mallette will contact Turner or Henriksen by 3 p.m. Monday if the salmon managers are able to reach a recommendation; otherwise the default will be implemented.

With that, the conference call was adjourned. Meeting notes prepared by Jeff Kuechle, BPA contractor.

TMT PARTICIPANT LIST

JUNE 8, 2001

Name	Affiliation
Scott Bettin	BPA
Ed Buettner	IDFG
Scott Boyd	COE
Dick Cassidy	COE
Margaret Filardo	FPC
Richard Forester	Facilitation Team
Russ George	Water Management Consultants Inc.
Cindy Henriksen	COE
Tom Lorz	CRITFC
Christine Mallette	ODFW
Tony Norris	USBR
Rudd Turner	COE
Paul Wagner	NMFS

TECHNICAL MANAGEMENT TEAM

BOR: Pat McGrane\Lori Postlethwait

NMFS: Paul Wagner\Chris Ross BPA: Scott Bettin\Robyn MacKay

USFWS: Howard Schaller\Bob Hallock\Susan Martin

OR: Christine Mallette WA: Jim Nielsen ID: Steve Pettit

MT: Jim Litchfield COE: Cindy Henriksen\Rudd Turner\Dick Cassidy

13 June 2001 0900 - 1200 hours

Portland, Oregon

Conference call line: 503-808-5190

All members are encouraged to call Donna Silverberg with any issues or concerns they would like to see addressed. Please e-mail her at dsilverberg@cnnw.net or call her at (503) 248-4703.

AGENDA

1. Welcome, introductions.

2. Hanford Reach update (Grant PUD).

3. Review system operation, including Mid-Columbia flows and fish migration.

4. End of spring spill for fish passage.

5. Other.

- Set agenda for 20 June TMT meeting.

Questions about the meeting may be referred to Rudd Turner, (503) 808-3935 or Dick Cassidy, (503) 808-3938.

TECHNICAL MANAGEMENT TEAM
MEETING NOTES
June 13, 2001
CORPS OF ENGINEERS NORTHWESTERN DIVISION OFFICES – CUSTOM HOUSE
PORTLAND, OREGON

TMT Internet Homepage: http://www.nwd-wc.usace.army.mil/TMT/index.html

COLUMBIA RIVER REGIONAL FORUM

FACILITATOR'S NOTES ON FUTURE ACTIONS
Facilitator: Richard Forester

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.

Hanford Reach/Vernita Bar Update:
Joe Lukas reported that operational restrictions ended June 10. Joe said he would like to start looking at a longer-term operational plan. This will be his last TMT Vernita Bar update report for the year. There will be over-all data review and analysis later in the year. Joe said he would post any worthy information on the TMT web page.

System Operations:
Regarding SOR # 2000-6, Priest Rapids flow was up after last week's meeting, although the 117,000 cfs weekly flow objective would not be met. Grand Coulee is also up from last week, at 1279.4. The operational plan for flow at PRD will be to operate close to 90 kcfs on weekdays for the rest of this week and next, and lower on weekends (below 70 kcfs). Robyn MacKay expressed that BPA wants to end the month with Grand Coulee at or above 1280. The salmon managers continued to express a strong preference for higher flows at Priest Rapids this week (as close to 117 kcfs as possible) and compensated by lower flows later this month. They recognized that last week's flow increase helped with out-migration. In response, MacKay's main point was that to be at 1280 or higher at Grand Coulee by the end of June they did not want to be in a position to catch up on the refill during the upcoming period of declining inflows and wanted to be assured of adequate operating room for the summer. Dworshak gained three feet in elevation last week, to 1581.9. See the web pages or minutes for other results.

The Regional Executives decided to continue spill at John Day and McNary until 600 mw/mos. is reached. COE expects this to occur around midnight Friday, June 15. The Execs will discuss summer spill on June 15th.

End of Spring Spill for Fish Passage:

Spill at the Lower-Columbia is approximately 23 mw/mos. per day until the 600 agreed upon by the Regional Execs. is met. Rudd asked TMT members how to end the program. CONSENSUS: Members decided to spill from seven to midnight on Friday June 15th, 2001 at John Day, with spill to also end at midnight at Bonneville and The Dalles. Spill at McNary ends Thursday.

Full Transport at McNary:

The COE proposed that full transport begin Saturday, June 16 due to the following events:

- An increase in sub-yearling fish moving through the project
- A drop in flows beginning this weekend
- An increase in water temperatures
- The spill program ending

TMT members were asked for their thoughts, and no opposition was stated
ACTION: Full transport at McNary will begin June 16.

Water Temperature Modeling at Dworshak:

Christine Mallette (Oregon) asked to review the modeling scenarios at Dworshak. Dick Cassidy responded:

1. 1977 flow conditions
2. 1977 hydrological conditions, 1994 meteorological conditions
3. Dworshak at 10,000 cfs from July through September
4. Variable flows for the summer (three scenario's were discussed)

Kyle Martin (CRITFC) introduced a suggested revision of August flows in scenario #3 (11,11,8.5, 8, 7) There was a discussion as to whether scenario two is most likely (realistic). The Corps stated that DWR powerhouse capacity was closer to 10 kcfs rather than the 11 kcfs in the model. The August scenario was changed to 10,10,10,8,7 to be more consistent with DWR operation without spill. There was no dissent expressed by TMT members or CRITFC to this change. It was agreed that MASS-1 and EPA runs should cover the same scenarios for comparison purposes, even though there were some different weather inputs in each run. It was requested that both models be run using scenario # 3 next and that those results be available for the 20 June TMT meeting.
ACTION: COE will contact EPA with the alterations and ask that they use the same run for next week.

Lower Granite Removable Spillway Weir (RSW):

The RSW will come from Vancouver to Swan Island and float to Lower Granite beginning tomorrow and ending the 18th or 19th of June. It will take three weeks to install, during which time Unit 6 won't be working. It will require 6 kcfs spill over several weeks to see if it works. One request is that it is delayed until mid-August. This issue will be discussed at the face-to-face meeting.

Next Meeting June 20, 9-12:

Agenda items are:

- Water temperature results
- System operations update, requests, and development

- Chum report – Jim Nielson
- Guidelines from Walla Walla district on water temps.
- WMP review and revision
- TMT guidelines review and revision
- Facilitation evaluations

***Comments on the last three agenda items are to be sent to Cindy or Rudd by Friday!
***Cathy Hlebechuk will chair next week's meeting.
***Members present agreed on meeting Tuesday, July 3 from 1-4 pm due to the holiday. Put it on your calendars!

1. Greeting and Introductions

The June 13 Technical Management Team conference call, held at the Customs House in Portland, Oregon, was chaired by Rudd Turner of the Corps and facilitated by Richard Forester. The following is a distillation, not a verbatim transcript, of items discussed at the meeting and actions taken. Anyone with questions or comments about these minutes should call Turner at 503/808-3935.

Turner welcomed everyone to the meeting, then led a round of introductions and a review of the agenda.

2. Hanford Reach Update.

Joe Lukas reported that, for the week of June 4-11, average flow at Priest Rapids Dam was 97 Kcfs, the highest weekly average flow of the year. An 80 Kcfs flow fluctuation band was in effect last week. Hourly flows peaked at about 140 Kcfs, with low flows in the 60 Kcfs range. Monitoring last week showed the lowest number of fish since the 2001 Hanford stranding protection operation began; field crews sampled 40 random sites and found one fall chinook. Index seining showed the same trend, said Lukas; crews sampled only 588 fish, average size 48.8 mm.

We are now at the end of the emergence period and the Hanford stranding protection period, Lukas said; on June 10, we reached 400 CTUs post-emergence, so June 10 was the last day of operational restrictions. It was agreed that, once the final written 2001 Hanford Stranding report is available, the TMT will review the Hanford protection operation for the year. Jim Nielsen observed that, in all likelihood, 2001 will be a year of heavy mortality. One positive is that we should be able to gain a large amount of information about how to operate more effectively in low-water years, Pat McGrane observed. Lukas agreed, saying that, after five years of monitoring, it should be possible to craft a longer-term Hanford reach operating plan for next year. Lukas added that this will be his last Hanford stranding report of the year, unless special questions arise.

3. Review of System Operation, Including Mid-Columbia Flows and Fish Migration.

Turner reminded the TMT that last week, in response to SOR 2001-6, the action agencies agreed to provide minimum weekend flows of 70 Kcfs and minimum weekday flows of 90 Kcfs at Priest Rapids, with the understanding that they would attempt to keep flows higher. The action agencies also made it clear that they would be balancing the higher flows at Priest Rapids against the need to achieve an elevation of at least 1280 feet at Grand Coulee on June 30, Turner said; the salmon managers also expressed a desire to have Grand Coulee somewhat higher than elevation 1280 on June 30, if feasible, to provide some operational flexibility this summer. McGrane said that, in the six days since the last TMT meeting, day-average flow at Priest Rapids was 102 Kcfs and that, for four of the six days, the action agencies were able to provide flows that came pretty close to the requested 117 Kcfs at that project. Current Grand Coulee elevation is 1279.4, 1.4 feet higher than last week. McGrane explained that it was necessary to draft Grand Coulee when Priest Rapids flows exceeded 100 Kcfs; we were then able to refill Grand Coulee somewhat over the weekend, he said.

At Hungry Horse, said McGrane, current elevation 3533.5, up four feet from last week. We're still looking at a 50-50 chance to fill the last 6 feet to the June 30 target elevation of 3540 feet, said McGrane; whether or not that target is achieved will depend on whether or not we have to increase project outflow in response to any lightning storms. McGrane reported that the decision has been made not to alter the Hungry Horse rampdown rate following a lightning incident; the Montana Department of Fish Wildlife and Parks and the Fish and Wildlife Service both thought it was more important to protect the river than it was to retain storage water in Hungry Horse, McGrane said.

Elsewhere, all of the Reclamation projects are drafting for irrigation, McGrane said; on June 9, the Snake ran dry below Milner. Idaho Power is required to provide a minimum flow of 200 cfs below Milner if that water is available, said McGrane; however, at this point, Idaho Power has used up its water right, because they're been on 200 cfs for most of the year. I'm postulating, said McGrane, but it appears that IPC has been unable to acquire any water from the rental pool, so under the terms of their FERC license, they are allowed to let the Snake run dry. McGrane added that Idaho water law gives preference to agricultural users, so it will be extremely difficult for Idaho Power to acquire water for this use. McGrane added that flow augmentation from the Payette is now finished for the year; there will be no more Reclamation water coming out of the Snake River this summer, unless some additional sources of water are found.

Turner noted that Dworshak is currently at elevation 1581.9 feet, with outflows of 1.7 Kcfs and inflows of 6 Kcfs-7 Kcfs over the past week. The project filled three feet over the past week, he said, but the rate of fill is slowing. Current Libby elevation is 2420.4 feet, with 17 Kcfs inflow and minimum discharge out. Libby filled 4.3 feet last week. Albeni Falls, at the Hope Gauge, was at elevation 2060.7 feet as of midnight last night, Turner said, with outflow 20 Kcfs and inflow, yesterday, of 30.3 Kcfs. Albeni Falls filled eight-tenths of a foot last week. Turner added that yesterday's day-average flow at Lower Granite was 39.4 Kcfs; day-average outflows at McNary have varied between 111 Kcfs and 166 Kcfs over the past week. The 166.3 Kcfs recorded yesterday was the highest day-average of the year at that project. Day-average Bonneville flows have also

varied between 117 Kcfs and 166 Kcfs over the past week, said Turner; the peak 2001 flow at that project was 180 Kcfs in mid-May.

We continue to spill 50 Kcfs around the clock at Bonneville, 30 Kcfs every other night at McNary, 30% of total river flow around the clock at The Dalles, and 30 % of total river flow at John Day during nighttime hours, Turner said. To date, the 2001 spill program has used the equivalent of 538.6 MW-months; at the current rate of about 23.8 MW-months per day, we will hit the ceiling of 600 MW-months on the night of Friday, June 15, he said. Turner noted that the June final water supply forecast is now out; it declined slightly, to 55.5 MAF at The Dalles, 52% of normal, for the January-July period.

In terms of the planned operation, said Robyn MacKay, it looks as though we will see weekday flows at Priest Rapids on the order of 90 Kcfs, with flows lower than that on the weekend. That should continue into next week as well, said MacKay; Grand Coulee is almost to elevation 1280. The action agencies would like to keep Grand Coulee at that elevation, essentially passing inflow and filling a little on the weekends so that the project does not draft. The goal is to be at elevation 1281 or 1282 by June 30, MacKay said.

In response to a question, MacKay said the action agencies do not intend to draft Grand Coulee heavily, then have to refill that project during the latter part of June. My guess is that weekend flows at Priest Rapids will have to dip down below the 70 Kcfs range to get much fill, MacKay added, as the hydrograph continues to decline, flows overall at Priest Rapids will be coming down. In response to a question from Nielsen, MacKay said BPA does not intend to meet the requested day-average flow of 117 Kcfs at Priest Rapids for the remainder of this week, because doing so would result in a daily draft of three-quarters of a foot at Grand Coulee. If we do that, said MacKay, we don't think Grand Coulee will be at elevation 1280 on June 30, and again, we don't want to dig a hole now, and have to fill that project while flows are on the decline.

The salmon managers would prefer higher flows this week, and lower flows toward the end of the month, said Chris Ross. And they have been higher, in the 90 Kcfs range, MacKay replied. We asked for 117 Kcfs this week, said Nielsen. We didn't agree to that, MacKay replied; at this point, we're doing the best we can. What's the problem with delaying refill at Grand Coulee until the first week in July? Kyle Martin asked. The principals set out by the federal agencies said fill Grand Coulee to elevation 1280 by June 30, MacKay replied; summer flows were pretty high on the list as well.

The salmon managers consider 1280 to be a critical elevation on June 30, said Christine Mallette; where we differ is how we get there. Our preference would be to keep flows higher this week, recognizing that flows will drop sharply on June 18, she said. And were have been able to maintain flows higher than the 90 Kcfs minimum during the week, said MacKay, particularly last week. And that was an excellent operation, by the way, said Ross – we did see a positive biological response, in terms of increased collections at McNary. Basically, we would like to keep flows as high as possible this week, recognizing that flows will be lower as Grand Coulee fills the rest of the way during the latter part of June, said Nielsen.

What we're hoping the salmon managers will appreciate is that the flows over the past week have been a little different shape than those requested, higher than the week-average requested in the SOR for last week, slightly lower than the week-average requested for this week, Turner said. Our hope is that the intent of the SOR has been met, with flows in excess of 100 Kcfs for several days at Priest Rapids, and a corresponding biological benefit in terms of fish movement, Turner said. While flows are declining somewhat this week, he added, our hope is that the intent of the SOR has been met.

Is there any chance of Grand Coulee ending June above elevation 1280? Turner asked. Right now, we're shooting to get to 1280 and hold it, MacKay replied; however, we will need some operating space going into summer. If we can get a few feet over 1280, that would be fine, although from Reclamation's standpoint, that extra space isn't critical, said McGrane – achieving 1280 feet on June 30 would meet our needs. For reliability purposes in such a low water year, we're going to need to have some room at Grand Coulee, at least three feet, said MacKay. Does that mean elevation 1281, or 1283? Nielsen asked. Reclamation would like to keep Grand Coulee near elevation 1280 for most of the summer, and hit 1278 on August 31, said McGrane – ideally, we would like to stay above 1280 through the summer, if possible, for recreational and power needs.

My sense was that the majority of the salmon managers would like to see at least some summer flow augmentation from Grand Coulee, said McGrane; at last week's meeting, we talked about achieving elevation 1283.5 feet at Grand Coulee on June 30. Only if we had the water to do so and meet the requested flow targets at Priest Rapids, Nielsen replied – it now appears that we don't have quite as much water to work with as we thought, and the salmon managers' primary goal is to keep flows as high as possible through the end of this week.

So the planned operation is? Nielsen asked. To pass inflow at Grand Coulee during the week, and opportunistically store water over the weekend if possible, given BPA's load situation, McGrane replied. There is not a great deal of confidence at Reclamation or at BPA that we will be able to be much above elevation 1280 at Grand Coulee on June 30, he added – it will be weather-driven, and if it gets hot the last two weeks in June, chances are we won't be able to store much, if at all.

And what will the Albeni Falls operation be, once it refills on June 30 – what do you expect Albeni Falls discharge to be at that point? Ross asked. Currently, Albeni Falls is releasing 20 Kcfs, said Cathy Hlebechuk; I would expect that, once the project starts passing inflow, we will see about 10 Kcfs outflow.

We would like to craft an operation that will run through June 24 at today's meeting, said Turner. One further question, said Nielsen – if we're looking at 90 Kcfs during the week, 80% of that operation would be about 70 Kcfs, but that's not what Robyn said was going to happen. If we want to fill Grand Coulee over the weekend, MacKay replied, flows over the weekend will likely be closer to 50-60 Kcfs at Priest Rapids. Essentially, she said, we can't sustain this operation indefinitely.

We would like to see weekend flows of closer to 70 Kcfs, said Howard Schaller – I want to make it real clear that that is the salmon managers' recommendation. Two weeks ago, you said 60 Kcfs would be acceptable, said Turner – what has changed? Actually, what we said was that 65 Kcfs would be an acceptable minimum, while we would prefer closer to 70 Kcfs, Schaller replied. MacKay observed that, in this inflow-driven year, operational flexibility is far more limited than usual.

4. End of Spring Spill for Fish Passage.

Turner reiterated that spill continues at all four Lower Columbia projects; however, the 600 MW-month spill allocation is almost used up. We will be at 606 MW-months if spill continues until midnight this Friday, June 15, Turner said. McNary spill would end after the Thursday night spill period; John Day would receive six hours of spill on Friday night. The Corps would be interested to hear any alternative operations the TMT would care to suggest, he said; however, at this point, we're planning to continue the current spill operation until the spill volume is exhausted on Friday night.

MacKay suggested that, since Friday is the longest day of the year, it might make sense to start spill two hours later, at 8 p.m., and end it at midnight to achieve a volume of exactly 600 MW-months. Peak passage at John Day tends to occur at about 10 p.m., said Ross; I think that, last year, as the days got longer, we did start spill at 7 p.m. Starting at 7 p.m. would be acceptable to NMFS, Ross said, as long as spill can continue until midnight.

This suggested operation would be for Friday night only? Mallette asked. Yes, Turner replied. That would be acceptable to Oregon, said Mallette. And spill would also continue until midnight at The Dalles and Bonneville Dams? Ross asked. Correct, Turner replied. That will likely put us over 600 MW-months, said MacKay, but I'm not going to get too excited about that – it's not an exact science, given the variation in flow and spill volume at The Dalles.

Has there been any discussion of the possibility of providing at least some summer spill? Mallette asked. There has, Turner replied; it will be discussed further at this Friday's Executives meeting. However, for the record, spring spill for fish passage will end this Friday night at midnight, Turner said.

5. Other.

A. Full Transport at McNary. Turner said that, given current flow, fish passage and water temperature information, the increase in subyearling chinook passage at McNary and the upcoming drop-off in flows at that project, the Corps' opinion is that spring-like conditions are now at an end, and it is appropriate at to begin full transport from McNary starting this Saturday, June 16. Barging would continue every other day from McNary, Turner said.

Ross agreed that events seem to be converging; we are on the upswing in subyearling passage, while flows are headed downward. After this weekend, it does appear that springlike conditions will be at an end, he said; the BiOp gives the TMT the flexibility to decide when to switch from spring to summer operations. Ross said June 16 sounds like a reasonable date on which to make this changeover, from NMFS' perspective. Nielsen said that, given circumstances this year, WDFW would not oppose that operation. Any objections to starting full transport from McNary this Saturday, June 16? Turner asked, No objections were raised at this time.

B. Dworshak Water Temperature Scenarios. Mallette said she wanted to be clear about who will be modeling the three Dworshak operational scenarios put forward by Paul Wagner at last week's TMT meeting, as well as what, exactly, is going to be modeled. Dick Cassidy replied that the first scenario the Corps asked Battelle to run was the actual 1977 flow conditions, to verify the accuracy of the model. Scenario 2 was 1977 flow data and 1994 meteorology. Scenario 3 had Dworshak releasing 10 Kcfs beginning July 1 and ending September 30. Under this scenario, said Cassidy, Dworshak would start the flow augmentation period at elevation 1575 and would draft to elevation 1475 feet by September 30. Turner clarified that this is not a recommended operation; it is simply a modeling scenario. Scenario 4, the CRITFC alternative, had Dworshak releasing variable flows – from July 1-15, 7 Kcfs outflow, from July 16-30, 8 Kcfs, from August 1-15, 10 Kcfs outflow, from August 16-31, 8 Kcfs, from September 1-15, 4.5 Kcfs, and from September 16-30, 1.5 Kcfs. Those numbers have since been updated, said Kyle Martin; we're now requesting slightly lower flows during July and a slightly-higher peak – 11 Kcfs – during August.

In response to a question, Cassidy said Battelle has run the three scenarios requested by Paul Wagner at the last TMT meeting, including Scenario 4, above. The Dworshak 1 scenario, under which Dworshak would release 14 Kcfs from July 8-22, is also being considered for modeling. In response to a question from Martin, Cassidy said the Corps has not yet run the latter scenario.

Mallette suggested that the Corps look at Scenario 2 as a more realistic Dworshak operation for 2001; she asked that the Corps model this scenario, in addition to Scenario 1. In response to a question from Ross, Cassidy said the Corps is running these scenarios through the MASS 1 model; Turner said his understanding is that NMFS was also going to ask EPA to run these scenarios using their temperature model.

We have two MASS 1 model runs left in the budget this year, said Cassidy. It would be interesting if we could compare the results for the CRITFC scenario from MASS 1 and the EPA model, said Martin.

The TMT devoted a few minutes of discussion to the question of which scenarios should be modeled by Battelle; Ross observed that, given the low water supply this summer, spill at Dworshak is unlikely to be an option; for that reason, Dworshak outflows of 14 Kcfs are not likely to be an option. For that reason, he said, Scenarios 2 and 3 are probably the most appropriate bookends for this year. After a few minutes of

further discussion, it was agreed that the Corps and EPA will model a slightly modified version of Scenario Dworshak 3 next with no spill at Dworshak, and will model Dworshak 2 after that.

C. Removable Spillway Weir at Lower Granite. Turner reported that the removable spillway weir began being towed upstream this morning. It will take four to five days to make the trip to Lower Granite, so it is expected to arrive at the project on June 18 or 19. It will take about three weeks to install the RSW in Spill Bay 1; during that period, Unit 6 will not operate, which, given current river flows, should not be a problem, Turner said. Project personnel would then like to operate the RSW for a period of several hours, likely during the latter part of August; that operation will require about 6 Kcfs spill, Turner said. He went through a few additional operations the operators would like to do in order to test the RSW's functionality this summer. The only special operation needed to accommodate this equipment this summer, however, is several hours at 6 Kcfs spill at some point in August, Turner said.

6. Next TMT Meeting Date.

The next meeting of the Technical Management Team was set for Wednesday, June 20; it was agreed that this will be a face-to-face meeting. Meeting notes prepared by Jeff Kuechle, BPA contractor.

TMT ATTENDANCE LIST

JUNE 13, 2001

Name	**Affiliation**
Ruth Abney	COE
Scott Boyd	COE
Mike Butchko	PowerX
Dick Cassidy	COE
Richard Forester	Facilitation Team
Russ George	Water Management Consultants Inc.
Richelle Harding	D. Rohr & Associates
Robin Harkless	Facilitation Team
Cindy Henriksen	COE
Cathy Hlebechuk	COE

Joe Lukas	Grant PUD
Robyn MacKay	BPA
Christine Mallette	ODFW
Kyle Martin	CRITFC
Doug Marx	Attorney, Lake Pend Oreille Idaho Club
Pat McGrane	Reclamation
Jim Nielsen	WDFW
Tony Norris	Reclamation
Mike O'Bryant	Columbia Basin Bulletin
Chris Ross	NMFS
Bill Rudolph	NW Fish Letter
Howard Schaller	USFWS
Rudd Turner	COE
Maria Van Houten	ENRON
Steve Wallace	PacifiCorp
Victoria Watkins	PYRA Energy Group

TECHNICAL MANAGEMENT TEAM

BOR: Pat McGrane\Tony Norris

NMFS: Paul Wagner\Chris Ross BPA: Scott Bettin\Robyn MacKay

USFWS: Howard Schaller\Bob Hallock\Susan Martin

OR: Christine Mallette WA: Jim Nielsen ID: Steve Pettit

MT: Jim Litchfield COE: Cindy Henriksen\Rudd Turner\Dick Cassidy

20 June 2001 0900 - 1200 hours

Custom House Room 118

Portland, Oregon

Conference call line: 503-808-5190

All members are encouraged to call Donna Silverberg with any issues or concerns they would like to see addressed. Please e-mail her at dsilverberg@cnnw.net or call her at (503) 248-4703.

AGENDA

1. Welcome, introductions.

2. Review current system conditions.

   - reservoir operation, water supply, water quality (COE, BOR)
   - power system status (BPA)
   - fish migration status (NMFS, USFWS)

3. Review operations **requests** .

4. Develop recommended operations.

5. TMT process discussion.

   - feedback from facilitator evaluation survey
   - update TMT guidelines
   - Water Management Plan

6. Chum salmon genetics (WDFW).

7. McNary warm temperature operations -- FPOM discussions (COE).

8. Water temperature modeling results (COE, NMFS).

9. Other.

- set agenda for 3 July 1-4 p.m. TMT meeting

Questions about the meeting may be referred to Cathy Hlebechuck, (503) 808-3942 or Dick Cassidy, (503) 808-3938.

TECHNICAL MANAGEMENT TEAM
MEETING NOTES
June 20, 2001
CORPS OF ENGINEERS NORTHWESTERN DIVISION OFFICES – CUSTOM HOUSE
PORTLAND, OREGON

TMT Internet Homepage: http://www.nwd-wc.usace.army.mil/TMT/index.html

FACILITATOR'S NOTES ON FUTURE ACTIONS
Facilitator: Richard Forester

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.

Current System Conditions:
Cathy Hlebechuk chaired today's meeting and reported on COE projects. Dworshak is expected to be at 1589 by the end of the month. Tony Norris reported on BOR projects. Chris Ross reported on fish migration. The group focused on low steelhead numbers at McNary. In reviewing the index the group identified the need to adjust Bonneville index for spill. Spring spill ended Friday, June 15 at midnight with total 599 mw months expended. The system continues to run under a power emergency; no SOR's were brought to the meeting. At their 29 June meeting, the Federal Executives are scheduled to discuss whether or not summer spill shall take place this year.
ACTION: Update Bonneville fish index numbers for spill and report next Wednesday.

Recommended Operations:
Libby is set to go to 6kcfs, on July 1, 2001, unless there is contrary indication. This is an agenda item for next week's conference call. Decisions regarding summer spill will be made at the June 29th Regional Executives meeting. Grand Coulee is at 1282 elevation and expects to hold there. Lower Granite will have repairs done June 25 and a request has been put in to shape flows in the evening; this will be monitored and more discussion will occur as the date approaches.
ACTION: Decision on Libby operations at next weeks TMT conference call.

GUIDELINES FOR TMT AND TMT 2001 WATER MANAGEMENT PLAN Discussion:
Comments regarding TMT guidelines, and the Water Management Plan should be sent to Cathy by Friday and they will be finalized next week. Changes from last week's comments have been made and posted on the web page. Richard Forester submitted Donna Silverberg's proposed changes to the Facilitator's portion of said guidelines (Section V. Operating Procedures, f) Meeting Facilitation, page 5). These proposed changes reflect some of the evaluation comments and will also be posted.
ACTION: Post of the proposed changes on the web and adopt the amended TMT process guidelines and Water Management Plan at the next TMT meeting.

Chum Salmon Genetics:

Jim Nielson handed out this report identifying different genetic strains of Chum and said to contact Joe Lukas with any questions.

McNary Warm Temperature Operations - FPOM Discussions:
COE and BPA are in the process of coordination on this operation. Since summer spill is not now authorized, BPA identified other hydraulic operations that impact temperatures. There can be as much a 4-degree difference from south side of the dam to the north. Wind can also affect temperatures. Switching unit operation priorities to 14-1 (from 1-14) allows a cooler water mix to be created. Those 14 to 1 priority operations will start now in order to take advantage of the temperature differential and weekly updates will be provided (This will become a weekly agenda item). Christine Mallette requested information on the location of the thermometer used to run this operation.
ACTION: Change priority operations at McNary from unit 1 to unit 14, as required to provide cooler water outflow and provide weekly updates.

Water Temperature Modeling:
Chris Ross shared EPA's model runs with the group. All the model runs start with a temperature spike above 20 C in early July and there was a discussion as to how to avoid that. Water temperatures at Lower Granite have to be monitored carefully so that a timely decision regarding Dworshak can be made, because given the current water levels temperatures can rise rapidly. It was agreed that a two-day running average above 64 F at the forebay should trigger an emergency TMT conference call. The group reaffirmed that for the Nez Perce model run it had agreed to reduce than number to 10kcfs as a more likely scenario since any flow over 10 kcfs at Dworshak would be considered spill and would require decisions by the Execs to allow spill and an SOR approval. There remains one more MASS-1 run to be made, whose parameters will be decided after the report from the Lewiston meting (convened by CRIFTIC). It was also agreed that in terms of timeliness, EPA and MASS-1 runs were producing similar enough results that reliance could be placed on the more timely model run. The Bechtel contract for MASS-1 allows a two week turn around.

ACTION: Tom Lorz will inquire about Lewiston discussions and report back to TMT members. COE will call an emergency TMT conference if Lower Granite forebay running average temperatures exceed 64F for two days.

Conference Call June 27, 9 am:
Agenda items are:
- Lewiston update/ Dworshak modeling
- Fish run graphs adjusted for spill at BON B Chris Ross
- Libby operations
- McNary Update
- Lower Granite Temperature update
- Finalize TMT guidelines and 2001 Water Management Plan
- July 3 Agenda

July 3, 1-4 Meeting (possible Conference Call) Agenda items are:
- Continuation of Dworshak/water temperature discussions

Summer Spill Discussion/ Report on Execs decisions
Operational Updates

1. Greeting and Introductions

The June 20 Technical Management Team conference call, held at the Customs House in Portland, Oregon, was chaired by Cathy Hlebechuk of the Corps and facilitated by Richard Forester. The following is a distillation, not a verbatim transcript, of items discussed at the meeting and actions taken. Anyone with questions or comments about these minutes should call Turner at 503/808-3935.

Hlebechuk welcomed everyone to the meeting, then led a round of introductions and a review of the agenda.

2. Current System Conditions.

Hlebechuk reported that Libby elevation was 2424.5 feet as of midnight last night, 14.5 feet below the June 30 target. Libby is still on minimum outflow, 4 Kcfs; outflow will be increased to a minimum of 6 Kcfs in July and August for bull trout spawning and incubation. The current Albeni Falls elevation is 2061.74; outflow from that project was 22 Kcfs yesterday. Upstream of Albeni Falls, Kerr outflow is increasing from 9.8 Kcfs to 12.7 Kcfs at a rate of 500 cfs per day. Average Priest Rapids discharge last week was 90 Kcfs, Hlebechuk said. Dworshak is still on minimum outflow of 1.4 Kcfs, project elevation was 1584.8 feet as of midnight last night, 4.8 feet above the June 30 target and filling about three-tenths of a foot per day. We're now anticipating that Dworshak will reach elevation 1589 by June 30, Hlebechuk said. At Lower Granite, the average flow was 39 Kcfs last week, with day-averages ranging from 37 Kcfs to 42 Kcfs. Average flow last week at McNary was 132 Kcfs, with day-averages of between 111 Kcfs and 166 Kcfs. At Bonneville, last week's average flow was 140 Kcfs, with day-averages ranging between 117 Kcfs and 166 Kcfs.

Tony Norris reported that Grand Coulee is now at elevation 1282.2 feet, two feet above the project's end-of-June target. Flows are expected to be higher next week, said Scott Bettin; we plan to maintain this elevation through the end of the month. Norris added that the current Hungry Horse elevation is 3537 feet.

Bettin said there is no change to the power system status; we're still meeting load, and everything looks OK so far, he said.

With respect to the status of the fish migration, Chris Ross said combined yearling chinook indices at Lower Granite have dropped to 400-500 per day; the indices have also dropped off at McNary, from about 11,000 per day last week to about 5,000 per day currently. The yearling chinook index at John Day is now around 4,000 fish per day. With respect to subyearlings, at Lower Granite, we're now seeing quite a few Lions Ferry fish, Ross said – about 10,000 per day. Many of those fish have also begun to arrive at Little Goose. Wild fish numbers are still very low; he said; only eight wild fish have arrived to date at Lower Granite. At McNary, we saw a peak of about 100,000 yearling chinook per day a week ago; the indices at

that project are now down to about 25,000 per day. Coho bumped up to 22,000 a week ago at Lower Granite, Ross said; we're now seeing a few thousand per day.

Moving on to cumulative passage index information, Ross said steelhead collections at McNary continue to be well below expectations. Mid-Columbia conditions undoubtedly provide part of the explanation, Jim Nielsen observed. Yearling chinook started to arrive late, but have since begun to catch up, said Ross. He noted that these are expected numbers, not actual numbers, based on the number of fish expected given what the salmon managers knew would be coming down through the system, this year. Yearling chinook at Bonneville Dam have exceeded expectations, probably because of the large number of hatchery fish released into Bonneville pool, Ross said.

With respect to subyearling passage at McNary, said Ross, we're in the first inning. Moving on to adults, he said the spring chinook run totaled more than 391,000 adult fish past Bonneville, and 172,000 past Lower Granite, the highest totals in many, many years. David Wills noted that the Hardy Creek and Hamilton Springs juvenile traps were pulled May 21; field personnel sampled just under 15,000 juvenile chum from Hamilton Springs and just under 3,000 from Hardy Creek.

Hlebechuk noted that spring spill for fish passage in the Lower Columbia ended as planned at midnight on Friday; the Corps calculated that 599 MW-month of spill was achieved.

3. New System Operational Requests.

No new SORs were submitted prior to today's meeting.

4. Recommended Operations.

We are planning to increase Libby discharge to 6 Kcfs on July 1 unless otherwise instructed, said Hlebechuk; is that still the Fish and Wildlife Service's intent? I'm in the process of checking on that, said Wills. In the absence of other instructions, said Hlebechuk, we will begin ramping up Libby outflow up to 6 kcfs on July 1, using the Biological Opinion ramping rates.

What about summer spill? Jim Nielsen asked. My understanding is that the Executives intend to make a recommendation about summer spill at their meeting on June 29, Hlebechuk replied. Ross noted that there is a NMFS analysis of the biological benefits associated with various volumes of summer spill on the salmonrecovery.com website; he said NMFS is seeking comments on this analysis.

Does BPA plan to invoke the spill exchange with Grant County PUD? Nielsen asked. They shifted over from their spring spill program to their summer spill program on Friday night, Bettin replied, reducing spill to the MOA level at that time.

Hlebechuk said that, next week, Albeni Falls will continue to operate to refill by June 30. Dworshak remains on minimum outflow until the temperature control operation begins, she said.

Bettin noted that it may become necessary to increase Dworshak outflow soon if that project is to achieve elevation 1520 on August 31 without spill. It is possible that some spill will be allowed from Dworshak, he said; however, that will be an Executives call. Would that be considered part of the summer BiOp spill program? Christine Mallette asked. Sure, Bettin replied – we would be working toward a MW-month target, and it doesn't matter where that spill occurs. It was noted that a meeting is taking place today in Lewiston to discuss long-term planning and 2001 summer water temperature model operations at Dworshak and elsewhere; this meeting has been called and includes representation from CRITFC, the Corps, Reclamation and EPA.

Norris said Hungry Horse will continue to fill next week, except when lightning is in the area and it becomes necessary to increase generation at that project to energize the second transmission line. At Grand Coulee, he said, we have now achieved our target elevation, and plan to maintain the project at elevation 1282 so that project operators have a small amount of operational flexibility. The plan, then, is to basically pass inflow at Grand Coulee for most of the summer? Nielsen asked. Correct, Bettin replied.

On June 25, there is a special operation at Lower Granite, Hlebechuk said; we need to fill the project to elevation 736.5-737.5 for a three-hour period to move a bulkhead and repair the seals. We will work out the details about how best to get the water out once the operation is complete, she said. Ross suggested that the water be shaped into the evening, keeping flows higher until 11 or 12 o'clock at night. We can talk about it further as we get closer to the operation, Bettin said.

5. TMT Process Discussion.

Hlebechuk noted that the facilitator evaluation survey is available; there is also some need to discuss the TMT Guidelines and Water Management Plan. We plan to finalize those documents next Wednesday, she said, so please get me any additional comments by this Friday, June 22.

Forester went briefly through some of the comments received on the facilitation surveys, noting that a few minor tweaks, but no major changes, have been suggested. Forester asked that any additional comments on the facilitation process be submitted to Hlebechuk by this Friday as well.

6. Chum Salmon Genetics.

Nielsen said a report is now available detailing the results of genetic analyses on a series of chum samples taken over the past nine years; he went through the various sources of those samples: Greys River Hatchery, Sea Resources Hatchery, Hardy Creek, Hamilton Creek, Ives Island and I-205 beach. Without going into excruciating detail, said Nielsen, the take-home message is that the upper river stocks – I-205 beach, Ives Island, Hardy and Hamilton Creeks – are all closely related; the Greys River samples are less-closely related. The Sea Resources 1996 sample is distinctly different from all of the above. No big surprises, in other words, Nielsen said; with the exception of the Sea Resources sample, all of these fish are a part of the Lower Columbia chum ESU. The Ives Island and I-205 beach samples showed the greatest genetic

difference from the Greys River and Sea Resources samples, Nielsen said. In my view, he said, this analysis points out the danger, in terms of the potential for lost genetic diversity, if we attempt to manage the Lower Columbia chum as a single stock.

7. McNary Warm Water Temperature Operations.

Hlebechuk said the Corps has been discussing McNary operations with FPOM as water temperatures begin to warm; the Corps and BPA are in the process of coordinating on a couple of concerns. We're approaching the period of concern, said Bettin; once the temperature difference across the powerhouse exceeds 4 degrees, we plan to shut off McNary Units 1-3 if possible. Operation of the remaining 11 units will give us a hydraulic capacity of 130 Kcfs at the project. Starting today, TMT members agreed to change the unit priority at McNary from Unit 1 to Unit 14 to Unit 14 to Unit 1 to try to cool down water temperatures.

In response to a request from Mallette, Hlebechuk said she will find out the location of the monitoring stations that measure the temperature difference across the powerhouse, and will e-mail that information to her.

8. Water Temperature Modeling Results.

Chris Ross reported that the EPA model runs have now been done for four scenarios. The first scenario run was Dworshak 1, which starts Dworshak at 14 Kcfs outflow in July, then reduces it to 10 Kcfs in August. Ross said that, in this model run, Dworshak starts releasing 14 degrees C. when Lower Granite forebay temperature is 21 degrees C; the cool water from Dworshak then takes the forebay temperature down to about 16 degrees C. You get a strong effect with the 14 Kcfs, in other words, and that holds through much of the season, he said, adding that this model run assumes 1998 meteorology and 1977 flow conditions – the worst-case assumptions, in other words. Once the operation ends in September, there is a little rebound in temperatures until natural cooling can kick in, said Ross.

Under Simulation 2, we would run 10 Kcfs straight through the end of August, Ross said. One piece of good news is that Lower Granite temperatures are only about 15 degrees C right now, which is significantly cooler than the temperatures used in the model run. Ross said Simulation 2 shows an initial elevation in water temperatures, followed by a consistent lowering effect on temperatures, again until the operation ends on August 31, after which temperatures rebound somewhat.

Scenario 3 is the first CRITFC proposal, Ross said; according to the EPA model, this would result in warmer temperatures in late July, and cooler temperatures later in August, in comparison to Scenarios 1 and 2. Scenario 4 is the modified CRITFC proposal, which shifts a bit more water later into August; this results in a few more days above 20 degrees C. in late July and early August, but from a practical standpoint, the difference in results between Scenarios 2 and 3 isn't that significant.

The group devoted a few minutes of discussion to the EPA model results; in general, it was noted that July water temperatures would be lower, but September water temperatures would be higher, under Scenarios 1 and 2; August water temperatures would be fairly similar

under all four scenarios. There was general agreement that, whatever Dworshak operational scenario is ultimately chosen, it is important to start it before Lower Granite temperatures reach 20 degrees C. Mallette observed that the TMT also needs to be mindful of the importance of the Dworshak releases to total flow at Lower Granite.

Nancy Yun then spent a few minutes going through the Corps' MASS 1 water temperature modeling results for these four scenarios. In general, she said, the MASS 1 results tended to be a little lower for all four scenarios – about 2 degrees C. The TMT spent a few minutes discussing the details of these model results; ultimately, Yun noted that it would still be possible to have Battelle run one more modeling scenario if the TMT so desires. Litchfield suggested that the TMT wait for the outcome of today's meeting in Lewiston to see whether or not the participants recommend an operational scenario that could be modeled. The TMT also discussed the utility of having the EPA modelers run the last MASS 1 scenario.

Forester suggested that the TMT review results from the various EPA and MASS 1 model runs and come to next Wednesday's meeting prepared to make a recommendation as to which Dworshak operational scenario is preferred for 2001, given the fact that Lower Granite forebay temperatures are now on the rise – they were as high as 64 degrees yesterday, noted Ruth Abney.

In the meantime, it was agreed to convene an emergency TMT conference call to discuss temperature control operations if day-average water temperatures in the Lower Granite forebay exceed 64 degrees F for two consecutive days. The bottom line is that we have now reached the point in the season when we need to monitor water temperatures very carefully, said Hlebechuk; we will discuss this situation again next Wednesday, if not sooner.

9. Next TMT Meeting Date.

The next meeting of the Technical Management Team was set for Wednesday, June 27 from 9 a.m. to noon. Meeting notes prepared by Jeff Kuechle, BPA contractor.

TMT Attendance List

June 20. 2001

Name	**Affiliation**
Ruth Abney	COE
Scott Bettin	BPA
Richard Forester	Facilitation Team
Russ George	Water Management Consultants Inc.
Robin Harkless	Facilitation Team

Cathy Hlebechuk	COE
Sharon Kiefer	IDFG
Jim Litchfield	Montana Consultant
Tom Lorz	CRITFC
Christine Mallette	ODFW
Doug Marx	Attorney, Lake Pend Oreille Idaho Club
Jim Nielsen	WDFW
Tony Norris	Reclamation
Mike O'Bryant	Columbia Basin Bulletin
Chris Ross	NMFS
Bill Rudolph	NW Fish Letter
Maria Van Houten	ENRON
David Wills	USFWS

TECHNICAL MANAGEMENT TEAM

BOR: Pat McGrane\Tony Norris

NMFS: Paul Wagner\Chris Ross BPA: Scott Bettin\Robyn MacKay

USFWS: Howard Schaller\Bob Hallock\Susan Martin

OR: Christine Mallette WA: Jim Nielsen ID: Steve Pettit

MT: Jim Litchfield COE: Cindy Henriksen\Rudd Turner\Dick Cassidy

27 June 2001 0900 - 1200 hours

Portland, Oregon

Conference call line: 503-808-5190

All members are encouraged to call Donna Silverberg with any issues or concerns they would like to see addressed. Please e-mail her at dsilverberg@cnnw.net or call her at (503) 248-4703.

AGENDA

1. Welcome, introductions.
2. Review current system conditions.
3. Review operations requests.
4. Libby Operations.
5. Lower granite Temperature update.
6. Lewiston update/Dworshak modeling.
7. Dworshak operations.
8. Develop recommended operations.
9. Finalize TMT guidelines and 2001 Water Management Plan.
10. Others.

- Set agenda for 3 July 1- 4 p.m. TMT meeting (possible Conference Call)

Questions about the meeting may be referred to Cathy Hlebechuk (503) 808-3935 or Dick Cassidy, (503) 808-3938.

TECHNICAL MANAGEMENT TEAM
MEETING NOTES
June 27, 2001
CORPS OF ENGINEERS NORTHWESTERN DIVISION OFFICES – CUSTOM HOUSE
PORTLAND, OREGON

TMT Internet Homepage: http://www.nwd-wc.usace.army.mil/TMT/index.html

FACILITATOR'S NOTES ON FUTURE ACTIONS

Facilitator: Richard Forester

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.

Current System Conditions:

Cathy Hlebechuk reported on COE operations and Tony Norris reported for the BOR. Grand Coulee is operating between 1280 and 1282 and Dworshak was at elevation 1586.5 feet last night. Regarding systems operations, there is a transmission problem involving Libby, Dworshak, Hungry Horse and Albeni Falls, there is a need to schedule flow changes about 4 days in advance.

SOR 2001-7:

Oregon, Washington, USFWS and NMFS requested that Dworshak begin a discharge level of 5 kcfs July 2-4, then ramp up to 7 kcfs July 5-7 and begin 10 kcfs July 7. The justifications surrounding this request regard benefits to juvenile fall chinook and rising temperatures in the Snake River. Paul Wagner reported that average temperature for the last 18 hours in the Lower Granite forebay was 66.8 F. The Nez Perce Tribe, CRITFC, and Idaho disagreed with discharging before July 4 and are concerned with impacts on premature Clearwater Chinook as well as recreational problems for the holiday. Part of the opposition argument was based on a hypothesis that not as much cold flow augmentation water may be needed in order to cool water in the Snake because Snake River flows are so low. Consequently augmentation discharge can be delayed or phased in more slowly. Proponents suggested that the lower water levels were already taken into account as illustrated by the smaller start up discharges (from 5 kcfs to 7, to 10). Idaho suggested augmentation to start July 8; the Nez Perce may be in the process of developing another SOR regarding Dworshak. There being no consensus, the SOR was elevated to IT for Thursday, June 27 at 3pm. The question posed to IT by Idaho and Nez Perce is:

> **Due to biological concerns regarding Clearwater fall chinook subyearlings and recreational concerns surrounding the July 4th holiday, should the proposed SOR be delayed a week?**

ACTION: COE will coordinate tomorrow's IT meeting with NMFS. Kathy Ceballos will fax the information out to TMT representatives and IT chairs. Cindy Henriksen will e-mail a meeting announcement to TMT and IT members.

Libby Operations:
The COE proposed to ramp up to 6 kcfs beginning Monday, July 2. No disagreement was voiced. The COE will monitor inflows and increase flows if needed to draft to 2439' by the end of August.

ACTION: Libby will ramp up to 6 kcfs July 2.

Develop Recommended Operations:
Tony Norris reported that an agreement was made with Montana to continue to fill Hungry Horse and begin a flat flow of 1.5 kcfs beginning July 2 and draft to 3540' by the end of August. Montana agrees as long as the run-off forecast continues as predicted. BOR and Montana will continue to coordinate throughout the summer and HH outflows will be adjusted if needed to draft to 3540' by the end of August. Grand Coulee remains at 1280-1282. It is expected to be drafted to 1278 by the end of August; NMFS suggested to do this earlier rather than later in the month of August.

Finalize TMT Guidelines and 2001 Water Management Plan:
Cathy Hlebechuk posted finals last Wednesday. The TMT guidelines are now finalized. Regarding the WMP, Paul Wagner raised concerns over consistency of language of decisions already made and submitted edits to the WMP.

ACTION: Scott Boyd will revise and post changes to WMP 2001. Send comments to Cathy Hlebechuk before Friday and finalize the WMP 2001 at Tuesday's meeting.

Lewiston Update/ Dworshak Modeling:
Paul Wagner reported on the meeting, which mainly discussed the long-term gas waiver and temperature modeling done by John Yearsley. No conclusion was made as to the best scenario. The states and tribes are committed to sending a letter with concerns to COE regarding the long-term waiver.

ACTION: Cindy Henriksen will send John the TMT schedule and invite him to present his scenarios.

Face-to-Face Meeting, July 3, 1-4:
Agenda items are:
X Results of Dworshak operation discussion at IT meeting
X Summer Spill Results from the June 29 Regional Execs. Meeting
X Operation Updates
X Finalize WMP
X EPA Modeling
X Update on Fish Runs Indexes Adjusted for Spill at Bonneville B Chris Ross

1. Greeting and Introductions

The June 27 Technical Management Team conference call, held at the Customs House in Portland, Oregon, was chaired by Cathy Hlebechuk of the Corps and facilitated by Richard Forester. The following is a distillation, not a verbatim transcript, of items discussed at the meeting and actions taken. Anyone with questions or comments about these minutes should call Rudd Turner at 503/808-3935.

Hlebechuk welcomed everyone to the meeting, then led a round of introductions and a review of the agenda.

2. Current System Conditions.

Hlebechuk reported that last night's Libby elevation was 2428.9, 10 feet below the end-of-June target elevation in the Federal operations plan. Libby filled 4.3 feet last week. Albeni Falls is still refilling; it was at 2061.9 feet as of midnight last night, so we're closing in on the end-of-the-month elevation of 2062-2062.5 feet there, she said. Week-average flows at Priest Rapids last week were 98.4 Kcfs, with day-average flows of between 60 Kcfs and 119 Kcfs.

At Dworshak, the current elevation is 1586.5 feet, Hlebechuk said. Last week's average flow was 28.7 Kcfs at Lower Granite, 125 Kcfs at McNary and 134 Kcfs at Bonneville Dam. Hlebechuk reported that the Corps conducted its special operation on Monday, filling Lower Granite pool over the weekend to allow project personnel to move a bulkhead. On Monday night, the excess water was evacuated to return the project to MOP, yielding a 50 Kcfs flow pulse at that project from 7 p.m. to midnight.

Tony Norris said Hungry Horse has now reached its June 30 target elevation of 3540 feet; project discharge continues at minimum, 500 cfs. Grand Coulee is currently at elevation1282 feet and passing inflow, which will be the operation for the rest of the summer.

Rick Pendergrass said the power system continues to operate to meet load; things are going smoothly at this time, although there is a transmission system problem west of Hatwaii. Hlebechuk explained that the problem involves Libby, Dworshak, Hungry Horse and Albeni Falls; essentially, we need to know generation ahead of time for those four projects – it requires a bit more advance notice for the scheduling, she said.

3. New System Operational Requests.

On June 26, the Corps received SOR 2001-7. This SOR, supported by ODFW, USFWS, WDFW and NMFS, requests the following specific operations:

- Beginning July 2, operate Dworshak at the following discharge levels: July 2, 3 and 4, release 5 Kcfs; July 5 and 6, release 7 Kcfs, July 7 and 8, release 10 Kcfs. Maintain the same temperature regulation as implemented this week (48-52 degrees F).

Christine Mallette spent a few minutes going through the contents of this SOR, the full text of which is available via the TMT homepage. Please refer to this document for full details and justification.

Mallette noted that temperatures in Lower Granite forebay are now exceeding 66 degrees F, and have increased by 2 degrees F over the past few days. In addition, flows at Lower Granite are significantly lower than the flows called for at this point in the season in the 2000 FCRPS Biological Opinion; this operation will help increase flows at that project. Given the fact that the subyearling fall chinook migration is now well underway, it is imperative to begin Dworshak flow augmentation as soon as possible, she said.

Paul Wagner noted that over the past 18 hours, the average water temperature in the Lower Granite forebay has been 66.7 degrees; in addition, the weather forecast for the Lewiston area shows temperatures in the 90s next week. It is, however, 60 degrees and pouring rain in Lewiston at the moment, Steve Pettit observed. The concern is that we need to get ahead of the temperature curve in the reservoir, Wagner said.

Traditionally, we have held off on the Dworshak releases until after the July 4 holiday, said Greg Haller.

True, Wagner replied; that's why we have limited the release to 5 Kcfs until that point. There is a recreational concern, said Hlebechuk; any draft will make the fringes of the reservoir muddy and slippery over the holiday. Chris Ross observed that inflows are in the 2-3 Kcfs range at Dworshak, currently; at most, the planned operation would expose a foot or two of bank during the 5 Kcfs release period.

Kyle Martin noted that the power market is also soft at the moment; which is another reason to delay the onset of this operation. Wagner and Jim Nielsen replied that, with temperatures at 66.7 degrees in the Lower Granite forebay and rising, they do not see a great deal of prematurity in this operation.

The group devoted a few minutes of discussion to which temperature modeling scenarios yielded the fewest days in excess of 20 degrees C at Lower Granite; there was some disagreement about which showed the best results.

Haller asked whether the fact that there are still wild Clearwater fall chinook subyearlings rearing in the Lower Clearwater has been considered in this SOR. Yes, Wagner replied; that is the reason for the slower ramp-up rate, as well as the slightly higher release temperatures, called for in this SOR. Dave Statler said the needs of the Clearwater fall chinook also have to be considered in this SOR; those fish need more growth before they make their way downstream. There needs to be a balance between the needs of the Clearwater fall chinook and the needs of subyearlings at lower Granite, and the Nez Perce would like to wait until the second week of July before Dworshak discharge is ramped up to 10 Kcfs, he said. Releasing 5 Kcfs should be adequate to meet flow and temperature needs at Lower Granite, he said; we feel that ramping up higher than that would be too detrimental to the fall chinook in the Clearwater. Statler added that the tribe is currently working on an SOR outlining the release volumes they feel would be appropriate. Our feeling is, in essence, why go to 10 Kcfs at this time, while weather conditions are still relatively cool? Statler said.

Haller said the Nez Perce recommend that, until the Lower Clearwater fall chinook acquire a few more temperature units – by July 15 or so – it doesn't make sense to dramatically increase Dworshak outflow. Given the low volume currently passing Lower Granite, we can have a much larger temperature impact through a smaller Dworshak release, he said. The group discussed current water and air temperature forecasts and likely future conditions. Wagner reiterated that, in NMFS' view, water temperatures are already perilously close to the 68-degree threshold at Lower Granite forebay and more hot weather is in the forecast.

What Dworshak flow level does the tribe consider to be appropriate for next week? Nielsen asked. I don't know that we have a number, as far as the Lower Granite water temperature that should trigger the onset of flow augmentation from Dworshak, Haller replied. Essentially, we were hoping to resolve this next week, Haller said – we're seeking some balance here. Likewise, said Wagner – that is the intent of this SOR. Again, said Haller, starting the Dworshak releases before July 4 is a new wrinkle. Nielsen observed that the operation proposed in the SOR is a compromise – the initial proposal was to begin releasing 10 Kcfs from Dworshak on July 2. He added that Billy Connor's latest forecast shows that 50% of the subyearling migration will have passed by July 16.

Haller and Kyle Martin observed that this proposed operation may be in violation of Idaho water law. Henriksen noted that the SOR proposes a fairly broad range of temperatures for the Dworshak release; she said her perception is that the 50 degree middle range is acceptable to most TMT participants. Statler said the Nez Perce might prefer to see a lesser volume released at a lower temperature, to keep more volume available in Dworshak for use later in the season; in general, however, the tribe has no problem with a 50-degree release temperature.

The other thing to bear in mind is that, according to the model results, it could be up to a week before the impact of the Dworshak releases will be felt on water temperatures at Dworshak, Wagner said. At a higher rate of Dworshak discharge, the impact is felt sooner. That would argue for waiting until after the Fourth of July weekend, and beginning the release at a higher volume, Haller said – if we start July 9, we would see an impact around July 12, while if we start the release on July 2 at a lower volume, we would see the impact around July 9. The longer you wait, however, the higher the starting temperature will be that you're trying to reduce, Wagner said.

The discussion continued in this vein for some time. After a few minutes of further debate, Haller said the tribes have laid out their reasons for opposing this SOR; he asked that the salmon managers wait a week – until July 9 – before beginning the Dworshak draft. The discussion then reverted to the question of current fish size, and the

potential impacts of the proposed operation on undersized juveniles in the Clearwater and Snake Rivers; the bottom line, said Statler, is that these fish are still in the river, and will be detrimentally impacted if we start releasing cold water from Dworshak too soon.

Steve Pettit said he had spoken to Jim Yost this morning; Idaho does not support this SOR, because of the management plan adopted by the Idaho legislature. Idaho would like to strike some sort of compromise, he said, by allowing for flow augmentation to begin July 8, after the Fourth of July holiday week. Pettit added that a joint Idaho/tribal Dworshak release plan is under development, and should be available for discussion next week. What flow level does Idaho advocate on July 8? Jim Litchfield asked. We didn't have a specific Dworshak discharge level in mind, Pettit replied; essentially, we would propose a ramp-up to full powerhouse capacity at Dworshak. Recreational access over the Fourth of July is a concern, he said, particularly given the fact that Dworshak is nearly 14 feet below full pool.

Do we need to elevate this issue to the IT? Forester asked. Nielsen said Washington does not feel it would be appropriate to delay implementation of this SOR, given the current weather and temperature forecast information, and the current temperatures in the Lower Granite forebay. Mallette said Oregon agrees with Washington's position, and would be in favor of elevating it to IT. Since Idaho is opposing this SOR, is it up to them to raise it to IT? Forester asked. Idaho or the Nez Perce Tribe, Pettit replied. After a brief debate, it was agreed that Idaho and the Nez Perce will elevate this issue to IT, which will take up this issue at a conference call tomorrow.

What is the specific question we will ask the IT to consider? Henriksen asked. After a brief caucus, Idaho and the Nez Perce framed the question as follows: "Due to biological concerns regarding fall chinook subyearlings in the Lower Clearwater River, and recreational concerns during the Fourth of July holiday, should the proposed SOR be delayed a week?"

The time of the IT conference call will be determined by the availability of the required parties; Henriksen said the Corps will take responsibility for coordinating this meeting. The TMT Guidelines suggest 3 p.m. Thursday for IT conference calls, Ross observed.

4. Libby Operations.

Hlebechuk said that, at its last meeting, the TMT talked about ramping up to the minimum bull trout flow of 6 Kcfs at Libby on July 1 unless the action agencies were otherwise instructed. We're now thinking about starting that operation on July 2, rather than July 1, since July 2 is a Monday, she said. That would be acceptable to Montana, Jim Litchfield replied; there is some concern about the large runoff volume forecast for that basin, but we'll just have to keep an eye on that, he said. David Wills added that the Fish and Wildlife Service has no objection to this planned operation. We will ramp up Libby outflow, starting Monday, July 2, at a rate of 1 Kcfs per hour, until we reach a discharge rate of 6 Kcfs, Hlebechuk said.

5. Lower Granite Temperature Update.

Wagner reiterated that, as discussed in Agenda Item 3, forebay temperatures are rising steadily at Lower Granite forebay; they are currently 66.8 degrees F.

6. Lewiston Meeting Update/Dworshak Modeling.

Last meeting, Tom Lorz said he would report on this item, Hlebechuk said. Wagner replied that the Lewiston meeting focused on two main issues, the first of which was long-term Dworshak operations. The Corps is seeking a long-term TDG waiver at Dworshak, said Haller; essentially, the state and tribes listened without endorsing that concept. The second part of the Lewiston meeting focused on John Yearsley's temperature modeling at Dworshak, Wagner said; these were the same results presented at last week's TMT meeting by Chris Ross. We discussed the relative merits of these runs at the meeting, he said; the scenario that resulted in the fewest exceedences of the 68 degree threshold was to release 10 degrees C straight through once Lower Granite forebay temperatures exceeded 66 degrees for two consecutive days, Wagner said. Ultimately, however, there was general agreement that the TMT will be the forum in which this operation is determined. Haller said Idaho and the Nez

Perce agreed at the meeting to send a letter, outlining their concerns, to the Corps. Henriksen said she will invite John Yearsley to a future TMT meeting to present his most recent modeling results.

7. Dworshak Operations.

Dworshak operations will be determined at tomorrow's IT conference call.

8. Recommended Operations.

Hlebechuk reiterated that Libby will continue to release 4 Kcfs until the morning of July 2, at which point it will be ramped up to 6 Kcfs. Norris said Hungry Horse will be providing a flat 1.5 Kcfs flow through the end of August, which is expected to put that project at elevation 3540 on August 31. Reclamation plans to start that operation on Monday, July 2; the only variation will be to increase generation and outflow in response to the presence of lightning in the Hungry Horse area. Litchfield said Montana supports this Hungry Horse operation, with the caveat, again, that the forecast needs to be watched closely.

Grand Coulee will continue operate to maintain an elevation of 1280-1282 feet through the end of summer, Norris added, essentially passing inflow while maintaining a two-foot operating range. Pendergrass said that, while Grand Coulee elevation might float slightly above that 1282-foot ceiling, that will be the approximate elevation range at that project. When do you think you might draft Grand Coulee to elevation 1278? Ross asked. I can't answer that right now, Pendergrass replied. NMFS would prefer to use that water earlier in the summer, rather than later, so that the operating range would be a little lower than it is currently, Ross said. We don't need to decide that right now, but it's something to consider.

9. Finalize TMT Guidelines and 2001 Water Management Plan.

Hlebechuk said she had posted the most recent version of the Guidelines and 2001 Water Management Plan on the TMT homepage last week; any further comments were to be submitted by last Friday. No comments were received, she said; however, this morning, Paul Wagner called and said he had some additional comments on the Water Management Plan that need to be included. It was agreed that the TMT Guidelines can now be considered final. Wagner went briefly through his proposed changes to the 2001 Water Management Plan; at the end of this discussion, it was agreed that Wagner's edits are acceptable, and that once they are incorporated, the 2001 Water Management Plan will be considered final.

10. Next TMT Meeting Date.

The next meeting of the System Configuration Team was set for Tuesday, July 3 from 1-4 p.m. It was agreed that this meeting will be a conference call. Meeting notes prepared by Jeff Kuechle, BPA contractor.

TMT PARTICIPANT LIST

JUNE 27, 2001

NAME	**AFFILIATION**
Ruth Abney	COE
Scott Boyd	COE
Ruth Brooks	PGE
Mike Butchko	PowerX
Dick Cassidy	COE

Margaret Filardo	FPC
Richard Forester	Facilitation Team
Russ George	Water Management Consultants Inc.
Richelle Harding	D. Rohr & Associates
Robin Harkless	Facilitation Team
Cindy Henriksen	COE
Cathy Hlebechuk	COE
Jim Litchfield	Consultant (Montana)
Ningjen Liu	IPC
Christine Mallette	ODFW
Kyle Martin	CRITFC
Jim Nielsen	WDFW
Tony Norris	Reclamation
Mike O'Bryant	Columbia Basin Bulletin
Steve Pettit	IDFG
Rick Pendergrass	BPA
Chris Ross	NMFS
Dave Statler	Nez Perce Tribe
Glen Traeger	AVISTA Energy
Paul Wagner	NMFS
Steve Wallace	PacifiCorp
David Wills	USFWS
Greg Haller	Nez Perce Tribe

TECHNICAL MANAGEMENT TEAM

BOR: Tony Norris\Pat McGrane *BPA: Scott Bettin\Robyn MacKay*

NMFS: Paul Wagner\Chris Ross *USFWS: David Wills\Howard Schaller*

OR: Christine Mallette *WA: Jim Nielsen* *ID: Steve Pettit* *MT: Jim Litchfield*

COE: Cindy Henriksen\Rudd Turner*Cathy Hlebechuk*

TMT Meeting

3 July 2001 1300 - 1600 hours

Custom House Room 118

Portland, Oregon

Conference call line: 503-808-5190

All members are encouraged to call Donna Silverberg with any issues or concerns they would like to see addressed. Please e-mail her at dsilverberg@cnnw.net or call her at (503) 248-4703.

AGENDA

1. Welcome, introductions.
2. Results of Dworshak operation discussion at June 28 IT meeting
3. Results of summer spill operation discussion at June 29 Regional Exec meeting
4. Water temperature modeling results (EPA)
5. Review current system conditions.
    - reservoir operation, water supply, water quality (COE, BOR)
    - power system status (BPA)
    - fish migration status (NMFS, USFWS)
        - Discussion of Billy Connor's paper
    - update on fish run indices adjusted for spill at Bonneville (Chris Ross)
6. Review operations requests.
7. Develop recommended operations.

8. Finalize Water Management Plan

9. Emergency Procedures

10. Other.

- set agenda for 11 July 9 – 12 p.m. TMT meeting

Questions about the meeting may be referred to Cathy Hlebechuk (503) 808-3935 or Dick Cassidy, (503) 808-3938.

COLUMBIA RIVER REGIONAL FORUM

TECHNICAL MANAGEMENT TEAM
MEETING NOTES
July 3, 2001
CORPS OF ENGINEERS NORTHWESTERN DIVISION OFFICES – CUSTOM HOUSE
PORTLAND, OREGON

TMT Internet Homepage: http://www.nwd-wc.usace.army.mil/TMT/index.html

FACILITATOR'S NOTES ON FUTURE ACTIONS

Facilitator: Richard Forester

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.

Dworshak Operations:

Results of Dworshak operation discussion at June 28 IT meeting was made by Paul Wagner, NMFS. Wagner reported that while the concerns raised by Idaho and the Nez Perce Tribe regarding SOR 2001-7 were recognized, the decision was not to delay the operation by a week as requested and move forward with the SOR. The decision was based water temperature modeling, delay in impact at LWG caused by low water levels, and known benefits to Snake and Clearwater River fish. The COE began this operation July 2; however, there could be transmission constraints (see immediately below).

John Anasis (BPA Transmission group) informed TMT of the limitation created by the constrained path on the west of Hatwai cut plane in Washington. The west of Hatwai path integrates transmission of electricity coming into the NW from public and private sources in Montana, Idaho Panhandle, Libby, Hungry Horse, Dworshak, and Albeni Falls. Under FERC open access rules, the grid has to be open to all those who want to use it, with the usage constrained on a pro-rata basis. BPA tries to manage the constraint on a pre-schedule basis. With the closure of aluminum plants and other measures there are load reductions which may result in an excess of generation trying to pass through the transmission pathway. The load and generation have to balance to prevent overload. Release of 10 kcfs at Dworshak produces 450 MW of energy, which may overload the pathway at times during light load hours. The only other flexibility, in light of the BiOp, may be to reduce the flow at Hungry Horse to .5 kcfs (see operation discussion below). As a result operations at Dworshak will have to be monitored on an hour-to-hour basis, with evenings and Sundays causing greater problems because these are light load hours. Dworshak has the operational flexibility to quickly adjust its operations. During light load hours the SOR 2001-7 requested discharges may not be released. It was not anticipated that releases would fall below 7 kcfs, and it was anticipated that for the next two weeks, the release levels may typically fall 1 kcfs short of the SOR 2001-7 during light load periods. The discussion will continue at the next conference call meeting; John will be available next week as well.

Summer Spill:
The report on the Regional Executives meeting last Friday summarized the decision not to provide summer spill at this time. Some of the alternatives to spill discussed at that meeting may be referred to TMT for elaboration and implementation.

Water Temperature Modeling Results:
Paul Wagner discussed the handout of NMFS and CRITFC model runs conducted by John Yearsley. John gave a preliminary analysis and reminded the group that the model is conservative. Dick Cassidy also warned the group to use caution when relying on these models for prediction purposes. The models are good at showing relative magnitude of differences and less certain in making precise predictions. Kyle Martin reminded everyone that 1998 used in the meteorological part of the model was a hot and dry summer whereas the forecast for this summer is moderate to warm. Paul Wagner also reminded everyone that the model run dates were end of the week, not beginning of the week. Finally, it was clarified that the LWG temperatures were tailrace and not forebay, and those were usually cooler. The model runs can be found on the website: www.epa.gov/r10earth/columbiamainstemtmdl.htm

Review Current System Conditions:
Rudd Turner and Pat McGrane reported on reservoir operations. Pat said that they began 1.5 kcfs discharge at Hungry Horse July 2 and proposed reducing it to .5 kcfs to help mitigate the Hatwai cutplane transmission constraint. Scott Bettin reported that they are still operating in a power emergency and no summer spill will be provided. Paul Wagner reported on fish migration, saying that many subyearling chinook were seen at McNary, most of which were hatchery fish. Billy Connor summarized his paper on juvenile Snake River fall chinook at Lower Granite. He observed that a great amount of Clearwater fish are in the reservoir.
ACTION: On behalf of TMT, Rudd will ask RFC for a July Final water supply forecast. He will also find out why the final water supply forecast was approximately 2 MAF lower than the previous forecast.

Update on Fish Run Indices Adjusted for Spill at Bonneville:
Chris Ross reported on the handout, which can be found on the Fish Passage Center website. NMFS adjusted the graph and put changes on the website.

SOR 2001-8:
The Salmon Managers requested a continuation of 10 kcfs release at Dworshak as long as no summer spill is provided. They requested to maintain temperature regulation at 48 degrees F. This operation would begin July 9. Christine Mallette also introduced a separate SOR 2001-ODFW-01 from Oregon. This request is the same as SOR 2001-8, but it calls for operations to continue at least until August 31. The COE voiced concerns with operating for more than two weeks at a time. The issue of dropping Dworshak below 1520' may also have to be resolved in the future and Nez Perce consulted on their specific cultural resources concerns with Dworshak below 1520'.

ACTION: TMT will continue to release Dworshak at 10 kcfs for two weeks and continue

discussions on a two-week basis. Two caveats exist regarding this operation. Transmission problems and/or powerhouse capacity may drop the release at times. Any drops can be monitored on the website.

Develop Recommended Operations:
Dworshak will continue ramping up, on July 5 & 7, and reach 10 kcfs July 9 then hold for two weeks, with caveats noted in the above discussions. Libby remains at 6 kcfs while Hungry Horse will reduce to .5 kcfs on Saturday, July 7, with more discussion at the next meeting. Chris Ross summarized a peer review paper referred to during IT discussion which showed that the SOR 2001-7 augmentation balances the needs or the Snake and Clearwater fish. He distributed a graph of the research done on augmentation at Dworshak and effects on Fall chinook. He said optimum growth rates are around 62 F.
ACTION: Reduce Hungry Horse flows to .5 kcfs on Saturday, July 7 and track it on TMT's future agendas.

Finalize Water Management Plan:
Paul Wagner's edits were discussed and Water Management Plan finalized, except the Appendix 2, relating to the Emergency Protocols. Christine Mallette requested more discussion on emergency protocols at the next face-to-face meeting. The final version will be edited for typos and minor grammar and tense errors.

Emergency Procedures:
Cindy Henriksen is developing an emergency team list. Any member who is interested in being on the list should give her a phone number, which she'll print on business cards and circulate to everyone on the list.

Next Meeting July 11 Conference Call 9-12:
Agenda items:
- Update on Dworshak regarding the west of Hatwai transmission issue
- Update on Hungry Horse

Meeting Minutes

1. Greeting and Introductions

The July 3 Technical Management Team conference call, held at the Customs House in Portland, Oregon, was chaired by Cindy Henriksen of the Corps and facilitated by Richard Forester. The following is a distillation, not a verbatim transcript, of items discussed at the meeting and actions taken. Anyone with questions or comments about these minutes should call Henriksen at 503/808-3945.

Forester welcomed everyone to the meeting, then led a round of introductions and a

review of the agenda.

2. Results of Dworshak Operation Discussion at June 28 IT Meeting.

Paul Wagner reminded the group that the TMT was unable to reach a decision about Dworshak operations in response to SOR 2001-7 at last week's meeting. Idaho and the tribes objected to this SOR, and asked the IT to consider the question of whether implementation of this SOR should be delayed until July 8. At a conference call on June 28, the IT elected not to delay the implementation of SOR 2001-7, said Wagner, so flow augmentation from Dworshak began on July 2 as requested.

Henriksen reminded the TMT of Cathy Hlebechuk's report at last week's TMT meeting about the West of Hatwai transmission system problem; we thought that by scheduling changes in generation in advance, that would take care of that concern, but my understanding is that there is still some concern at Bonneville's Transmission Business Line (TBL) about the increased generation at Dworshak, and the status of the cut plane, Henriksen said.

John Anasis of BPA-TBL explained that West of Hatway refers to a section of the transmission system that slices through eastern Washington. The bulk of that path consists of federally-owned transmission facilities, he said; other facilities are owned by Avista. This transmission path integrates all of the generation coming into the Northwest from the Colstrip steam plants and other resources in Montana, from the Idaho panhandle, from Libby, Hungry Horse, Dworshak and Albeni Falls Dams, and from various Canadian projects as well.

This pathway was identified as a potential bottleneck in the transmission system as early as 1990, Anasis said; BPA and Avista have developed procedures and implemented system improvements to mitigate those potential overload issues.

More recently, however, Anasis said, the closure of the DSI load at Columbia Falls Aluminum and the Kaiser Aluminum plant in Spokane has caused local loads to fall dramatically. As a result, there is a lot of generation that is trying to move west through that pathway, which is leading to some overload problems, Anasis explained – in other words, without that DSI load, there is less local load to absorb the excess generation.

Prior to this point, when loads were higher, things were more manageable, Anasis said. We're discussing, with the owners of Colstrip, a generation dropping scheme which would remove some of their output from the grid if certain operating conditions occur, he said. Other generation dropping schemes are in place at Dworshak and Libby, and BPA is working on additional agreements with other resource owners on that portion of the grid.

The other thing to keep in mind is that TBL has to operate under the new FERC open access rules and requirements, Anasis said, which means we are required to provide comparable and open service to everyone who wants to use the transmission grid. That requires us to curtail usage of the path among all of our firm customers on a *pro rata* basis, he explained. To the extent that the sum of the generation at Libby, Hungry Horse, Dworshak and Albeni Falls has to

be curtailed, it will need to be prorated among all of the firm customers of the path – in other words, those reductions in transmission system capacity need to be shared evenly, Anasis said.

A slightly different scheduling paradigm is under consideration, which would allow all of our customers to pre-schedule the capacity they need, Anasis said; we would then make whatever adjustments are needed to keep the transmission system within the limits defined by our transfer capability.

We're talking about increasing discharge from 7 Kcfs to 10 Kcfs at Dworshak, said Scott Bettin – my understanding is that this could cause problems during the evening light-load hours. We're forecasting that we may encounter difficulties when generation at the four federal projects (Dworshak, Libby, Hungry Horse and Albeni Falls) exceeds 530 MW during light-load hours and 600 MW during heavy-load hours, Anasis replied. When that occurs, those four projects may then be subject to a pro-rata curtailment. We are now approaching those levels of generation, he said, so we may be looking at some degree of load reduction at Dworshak and elsewhere during certain light-load hours.

Is this going to be an ongoing issue? Wagner asked. Essentially, yes, Bettin replied, if we don't have non-firm transmission available during certain hours. In other words, he said, there is a chance that Dworshak outflow could surge depending on the need for hourly load curtailments. Steve Pettit raised the concern that raising and lowering Dworshak discharge could cause juvenile stranding in the Clearwater River downstream of that project.

In response to a question from Pat McGrane, Anasis said this is likely to be a problem for some time, until transmission system improvements can be made. The situation will be eased if we can get some of the generation curtailment agreements I discussed earlier in place, he said; also, as weather cools and loads pick up this fall, the situation will improve. In response to another question, Anasis said it is likely to be 2004, at the earliest, before a new 500 MW transmission line can be constructed to serve the West of Hatwai area. It's certainly one of the top high-priority projects BPA wants to get moving on, he said. It might also help if we could get the Columbia Falls aluminum plant back up and running, Pat McGrane suggested. In response to another question, Anasis said the load curtailment negotiations should eventually yield an additional 400-600 MW in transmission capacity, which will ease the bottleneck considerably.

The bottom line is that it looks as though we can maintain 7 Kcfs from Dworshak with no problem, Bettin said; however, once we go to 10 Kcfs outflow on July 7, during light-load hours, we may have to curtail Dworshak outflow by 1 Kcfs or so unless we can purchase non-firm transmission capacity during those hours.

Basically, we just wanted the TMT to be aware of this problem, and the fact that it might be necessary to drop generation and outflow at Dworshak during light-load hours, at least until the generation curtailment agreements are in place some time in the next two weeks, Bettin said. That begs the question of why you didn't see this coming, Henriksen said. No one anticipated or modeled the fact that the two aluminum plants with their combined load of 700 MW, would suddenly go off-line, Bettin replied. In response to a question from Christine Mallette, Bettin

said it may be possible to drop generation at the other three federal projects, although there are some challenges involved there. McGrane said Reclamation would not oppose reducing Hungry Horse discharge to 500 cfs, down from its current level of 1 Kcfs.

My suggestion is that we try this until next Wednesday, Bettin said. We will bring Dworshak outflow up to 10 Kcfs on Saturday, use non-firm transmission capacity when available, and just see how we do, he said. I think we can get by until the next TMT meeting, using non-firm transmission, he said. In response to a question, Anasis said that, in his opinion, there is a 50-50 chance that a portion of the Dworshak load may need to be curtailed over the next week, probably on the order of 1 Kcfs if no non-firm transmission capacity is available during light-load hours.

After a few minutes of additional discussion, Anasis agreed to participate in next week's TMT meeting to provide an update on this issue.

3. Results of Summer Spill Operation Discussion at June 29 Regional Executives Meeting.

Forester said the Regional Executives decided that there will be no summer spill program this year. At last Friday's Regional Executives meeting, CRITFC urged BPA to spend the $30 million necessary to provide some spill, Forester said; BPA replied that, from a system reliability standpoint, spill is simply not a feasible alternative this summer. The Regional Executives agreed, and at least for the time being, there will be no summer spill. No further Regional Executives meetings have been scheduled at this time, Forester added.

4. Water Temperature Modeling Results.

Wagner distributed a handout showing the results of EPA model runs evaluating the temperature effects of different outflow regimes at Dworshak during the remainder of the summer period. The first, Dworshak 1, would increase Dworshak outflow to 14 Kcfs for three weeks, then go to 10 Kcfs for another three weeks, then ramp outflow down to 6 Kcfs until project elevation reaches 1520 feet. Under Scenario 2, Dworshak would release 10 Kcfs straight across the season, beginning the week of July 8. Under Dworshak 3, designed by CRITFC, Dworshak would begin by releasing at 5.5 Kcfs, and would then ramp up to 10 Kcfs by mid-July. Under Dworshak 4, the second CRITFC scenario, Dworshak outflow would ramp up to 11 Kcfs by mid-August.

The bottom line, said Wagner, is that given anticipated flow and meteorological conditions this year, there is as much as a 5-degree C difference between these scenarios. Essentially, what the EPA model said is that the higher the output from Dworshak earlier in the season, the lower the water temperatures early in the season – 17 degrees C under Dworshak 1 vs. 22 degrees C for Dworshak 4.

The group discussed some of the assumptions used in these model runs, with Kyle Martin arguing that the weather this summer is likely to be cooler than the 1998 meteorology assumed in the model. Soscia and John Yearsley then discussed the background and basic structure of the

EPA temperature model; Yearsley went through each of the four runs in some detail, noting that, as Wagner said, releasing Dworshak storage early resulted in lower water temperatures earlier in the season; releasing Dworshak water later resulted in lower water temperatures later. As was mentioned at the Lewiston meeting, Yearsley said, Dworshak 2 resulted in the fewest days in exceedence of the 20-degree C temperature threshold at Lower Granite – 15 days vs. 22 days for Dworshak 1 an 24 days for both Dworshak 3 and 4.

So far, we have had only one day in excess of the 20-degree temperature standard, as measured at the forebay monitoring station, said Wagner – exactly what the model had predicted.

Dick Cassidy noted that the Corps has also been doing model runs using the MASS-1 model, using similar scenarios to the ones run through the EPA model. He made the point that these are comparative studies, not predictions of what is actually going to happen in the river this year. They are intended for use as a guide to operational decision-making, he said, but they are not forecast models – we don't know what the meteorology, for example, is going to be this year. They simply give us a sense of the comparative magnitude of difference between the various scenarios, he said.

Henriksen added that both the MASS 1 and EPA water temperature models show the same thing – that Dworshak 2, which runs a straight 10 Kcfs from Dworshak through the summer, significantly reduces Lower Granite water temperatures, when compared to the other scenarios, and also results in the lowest number of days in exceedence of the 20-degree standard.

Rudd Turner said that, if water temperatures are well under 20 degrees C at Lower Granite in mid-August, as both models show under scenario Dworshak 2, there may be an opportunity to reduce Dworshak outflow somewhat and conserve some cool Dworshak water for use in late August and early September. It was agreed that this may be a possibility.

Soscia noted that all of the EPA model results, including those from last year, are available at the following internet homepage:
www.epa.gov/r10earth/columbiamainstemtmdl.htm.

5. Current System Conditions.

Rudd Turner reported that the system has now transitioned into summer operations, and is being operated to meet power system needs. SOR 2001-7 is being implemented; Libby went to 6 Kcfs outflow on July 2 to supply bull trout flows. Dworshak reached 1587.4 feet as of midnight on June 30; Libby, elevation 2431.1 feet, 8 feet below the target elevation in the Federal 2001 Operations Plan. Albeni Falls was at elevation 2062.1 feet as of midnight June 30. Turner said the spring seasonal average flow at McNary was 123.9 Kcfs for the period of April 10-June 30; at Lower Granite it was 47.5 Kcfs for the period of April 3-June 20; and at Priest Rapids, for the period of April 10-June 30, seasonal average flow was 76.7 Kcfs. Turner added that current day-average Columbia River flows at Bonneville are about 130 Kcfs during the week and about 100 Kcfs during the weekend.

Cassidy added that he had provided a sheet of water temperature information (average daily temperatures) at various projects in the system over the past week. He noted that, in general, water temperatures are on the increase throughout the system.

McGrane said current Hungry Horse elevation is 3542 feet, up 1.5 feet since last week. Discharge went from 500 cfs to 1 Kcfs on July 2; we need to know whether that water is going to be released from Flathead Lake before we bump it up to 1.5 Kcfs, he said. Grand Coulee is now at elevation 1281 feet, down 1 foot from last week.

Bettin said there is no change in the status of the power system. The July early-bird water supply forecast was issued last Thursday, said Turner; it included a January-July runoff volume forecast of 53.9 MAF at The Dalles, which is close to the lowest water supply on record. The forecast for the other basins generally fell slightly or held steady.

Martin asked why the forecast for The Dalles would have fallen, given the fact that June precipitation in the Mid- and Upper Columbia basins was 150%-200% of normal. It was agreed to ask the River Forecast Center to explain this apparent discrepancy; Turner said he will try to provide that information at next week's TMT meeting.

Wagner went briefly through the current status of the fish migration; we're seeing tremendous numbers of subyearling chinook at McNary, currently, he said. The peak of 22,000 occurred about 10 days ago at Lower Granite; indices have since fallen to about 10,000 fish per day at that project. The cumulative indices show that we're at about the 30% passage point, currently, at McNary, Wagner said; according to project personnel, the vast majority of the subyearlings that have passed McNary to date have been hatchery fish, and the wild run from the Mid-Columbia has yet to begin in earnest. Adult passage continues at a rate of 1,200 chinook per day at Bonneville, which is amazing, for this point in the season, Wagner added.

Billy Connor noted that his in-season update has now been posted on the TMT website; he agreed that the majority of the subyearlings that have passed both Lower Granite and McNary so far are hatchery fish. The vast majority of the wild Snake River subyearlings are still in Lower Granite Reservoir, he said; I would guess that most of the Clearwater subyearlings are still in the river or in Lower Granite Reservoir, Connor said. Are you still predicting mid-July as the midpoint of the subyearling migration at Lower Granite? Chris Ross asked. Yes, Connor replied.

Ross noted that, at a previous TMT meeting, an issue arose regarding the fish guidance efficiency assumptions FPC had used to develop its cumulative yearling chinook passage indices at Bonneville; he said the Fish Passage Center has now updated their graphs as you see here, and provided a memo with an explanation. Ross also updated the TMT on cumulative juvenile steelhead passage numbers at Bonneville.

6. New System Operational Requests.

On July 3, the Corps received SOR 2001-8. This SOR, developed and supported by ODFW, USFWS, WDFW and NMFS, requests the following specific operations at Dworshak

Dam:

- Beginning July 9, continue releasing 10 Kcfs daily from Dworshak Dam, as long as the decision by the Federal Executive Group not to provide summer spill is in effect. Maintain temperature regulation at 48 degrees F.

Also on July 3, the Corps received SOR 2001-ODFW-01, developed and supported by ODFW. It requests the following specific operations:

- Beginning July 9 and continuing until at least August 31, release 10 Kcfs from Dworshak Dam, as long as the decision by the Federal Executive Group not to provide summer spill is in effect. Maintain temperature regulation at 48 degrees F.

Mallette spent a few minutes going through the contents of and justification for these SORs, the full text of which is available via the TMT homepage. She noted that SOR 2001-ODFW-01 differs from SOR 2001-9 in that it includes an ending date and minimum duration for the Dworshak operation.

Turner noted that, according to the most recent SSARR run, Dworshak would be at elevation 1525 feet on August 31 if discharge from the project is maintained at an average of 9.6 Kcfs through that date. Martin disagreed, saying that, according to his calculations, Dworshak would reach elevation 1520 several days in advance of August 31.

Why have you submitted two essentially identical SORs? Bettin asked. We wanted to ensure that, given the lack of summer spill this year, Dworshak flow augmentation will continue through at least August 31, Mallette replied. If the TMT adopts this SOR, does that mean it will consider no further Dworshak SORs? Greg Haller asked. No, it does not, was the reply.

From the Corps' standpoint, said Turner, we would be extremely reluctant to commit to a two-month operation of this type; our intent is to continue to describe two-week operations at TMT, and re-evaluate those operations as we continue through the summer season. Forester added that the Regional Executives considered the possibility of drafting Dworshak below elevation 1520 this year, as one way to mitigate for the lack of summer spill; it is my understanding that they have now asked the IT to take up that issue, he said.

What if some summer spill is provided? Bettin asked. We would consider that information as it comes up, and evaluate whether or not to revise our requested Dworshak operation, Mallette replied.

It sounds, then, as though the action agencies are unwilling to commit to anything beyond maintaining the 10 Kcfs discharge from Dworshak for the next two-week period, with the understanding that TMT will reconsider that operation during the next two weeks, Forester said. That's correct, said Henriksen – we do intend to implement SOR 2001-7 and SOR 2001-8, with the understanding that the action agencies are not committing to maintain 10 Kcfs outflow from Dworshak past the next two-week period.

I would add the caveat that we will attempt to maintain full powerhouse discharge from Dworshak (closer to 9.6 Kcfs) but that there may be some curtailment of Dworshak outflow if the West-of-Hatwai transmission system problems described earlier in today's meeting occur, Bettin said. It was pointed out that full powerhouse capacity will increase to 10.5 Kcfs at Dworshak as the reservoir level drops.

Mallette asked about a potential mechanism for notification if the West-of-Hatwai transmission system restriction occurs; Henriksen recommended that the TMT membership monitor the hourly operational information on the TMT homepage.

7. Recommended Operations.

Time period for the recommended operation is Monday 9 July through Sunday 22 July, Turner stated. The Dworshak operation was just described, said Turner; the plan is to ramp up to 7 Kcfs discharge on Thursday and to full powerhouse outflow on Saturday, to address the request in SOR 2001-8. Libby will hold 6 Kcfs; there will be no spill for fish passage, and the Grand Coulee reservoir will operate between elevations 1280 and 1282 ft., essentially passing inflow. It was agreed that Hungry Horse discharge will be reduced from 1 Kcfs to 500 cfs beginning this Saturday, when Dworshak discharge is increased to 10 Kcfs, which will reduce by about one-third the likelihood that Dworshak discharge will need to be curtailed due to the transmission system problem.

Ross noted that, during last week's IT conference call, he had provided some physiological information, from a recent peer-reviewed paper, on the water temperature at which optimum fall chinook growth occurs, in reference to the effects of cold-water releases from Dworshak on fall chinook growth in the Clearwater River. According to the authors of this paper, the temperature of optimum growth rate is approximately 16 degrees C, or 60-62 degrees F. The temperature in the mixed section of the Clearwater has fallen in recent days as Dworshak releases have increased, such that the ambient temperature in that system is now pretty close to optimal, said Ross.

8. Finalize Water Management Plan.

The most recent draft of the 2001 Water Management Plan, dated June 27, is now available on the TMT website; this draft incorporates NMFS' most recent comments, said Turner. He reviewed the changes made to this draft of the document. After a brief discussion, at Mallette's request, it was agreed that finalization of the 2001 Water Management Plan will be postponed to allow some additional time to review the Emergency Protocols section. Henriksen added that the Corps will read through the document one last time to clean up any typographical or textual errors. It was agreed that the TMT will attempt to finalize the 2001 WMP at next week's conference call.

9. Emergency Procedures.

Henriksen said the purpose of this agenda item is to check with the TMT to see who would like to be on the 2001 emergency notification list, to be contacted at home if an emergency situation occurs outside of business hours. Several TMT members provided phone numbers to Henriksen.

10. Next TMT Meeting Date.

The next meeting of the Technical Management Team was set for Wednesday, July 11 from 9 a.m. to noon at the Corps' Northwestern Division headquarters in the Custom House, Portland, Oregon. It was agreed that this will be a conference call, rather than a face-to-face meeting. Meeting notes prepared by Jeff Kuechle, BPA contractor.

TMT Attendance List

Name	**Affiliation**
Ruth Abney	COE
John Anasis	BPA
Scott Bettin	BPA
Dick Cassidy	COE
Billy Connor	USFWS
Richard Forester	Facilitation Team
Robin Harkless	Facilitation Team
Tim Heizenrater	ENRON
Cindy Henriksen	COE
Cathy Hlebechuk	COE
Ningjen Liu	IPC
Kyle Martin	CRITFC
Doug Marx	Attorney, Lake Pend Oreille Idaho Club
Pat McGrane	USBR
Mike O'Bryant	Columbia Basin Bulletin
Steve Pettit	IDFG
Dennis Rohr	D. Rohr & Associates

Chris Ross	NMFS
Mary Lou Soscia	EPA
Glen Traeger	AVISTA Energy
Rudd Turner	COE
Maria Van Houten	ENRON
Paul Wagner	NMFS
David Wills	USFWS
Rod Woodin	WDFW
John Yearsley	EPA

TECHNICAL MANAGEMENT TEAM

BOR: Tony Norris\Pat McGrane *BPA: Scott Bettin\Robyn MacKay*

NMFS: Paul Wagner\Chris Ross *USFWS: David Wills\Howard Schaller*

OR: Christine Mallette *WA: Jim Nielsen* *ID: Steve Pettit* *MT: Jim Litchfield*

COE: Cindy Henriksen\Rudd Turner*Cathy Hlebechuk*

TMT Conference Call

11 July 20010900 - 1200 hours

Portland, Oregon
Conference call line:503-808-5190

All members are encouraged to call Donna Silverberg with any issues or concerns they would like to see addressed. Please e-mail her at dsilverberg@cnnw.net or call her at (503) 248-4703.

AGENDA

1. Welcome, introductions.
2. Dworshak and Hungry Horse operations (COE, BOR).
3. Power transmission status (BPA).
4.Others.
Set agenda for 18 July 9-12 TMT meeting

Questions about the meeting may be referred to Rudd Turner at (503) 808-3935, or Cindy Henriksen at (503) 808-3945.

TECHNICAL MANAGEMENT TEAM
MEETING NOTES
July 11, 2001
CORPS OF ENGINEERS NORTHWESTERN DIVISION OFFICES – CUSTOM HOUSE
PORTLAND, OREGON

TMT Internet Homepage: http://www.nwd-wc.usace.army.mil/TMT/index.html

FACILITATOR'S NOTES ON FUTURE ACTIONS
Facilitator: Richard Forester

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.

Dworshak/Hungry Horse Operations:
Rudd Turner reported that Dworshak inflows are dropping, but operations continue as developed at the last meeting. RCC authorized up to a 2 kcfs flow reduction if required due to transmission limitations, although a reduction has not been necessary to date. Discharge should remain at full powerhouse capacity (*circa* 9.7 kcfs) until July 22. The COE and BPA are in constant coordination relative to this operation; RCC can modify teletypes if needed due to transmission problems.

Tony Norris reported that Hungry Horse discharge was reduced to 500 cfs as requested by TMT. The BOR indicated that 1000 cfs flows remain consistent with the 3540' end of August elevation and projected minimum flows at Columbia Falls through August. The question was asked whether to return Hungry Horse flows to 1000 cfs. The difference between 1000 and 500 cfs at Hungry Horse is equal to approximately 15MW, which BPA said should be manageable under the transmissions constraints. Flathead Lake users, through a PP&L Montana proposal, are asking for to keep the lake at recreational levels using Hungry Horse. This issue has been pressed at Dept of Interior in DC through the Montana Congressional delegation. Jim Litchfield will talk to Montana regarding this issue. It was agreed in the meantime, to hold Hungry Horse at 500 cfs in order to meet Columbia Falls minimum, reach 3540' at the end of August, assist with Dworshak operations, and implement the NMFS BiOp to benefit mainstream Columbia fish.
ACTION: Maintain Hungry Horse at 500 cfs and review the decision at subsequent TMT meetings as necessary. Tony will email Rudd and Cindy if new developments with this proposal occur before next week. Dave Wills will also report if bull trout are an issue.

Power Transmission Status:
John Anasis (BPA Transmission group) reported that there was an approval for increased transfer limits in lighter load hours. A combined 600 MW is being used over Hungry Horse, Albeni Falls, Libby and Dworshak. BPA has picked up non-firm energy and

Anasis said they could handle a small increase in generation (i.e. Hungry Horse). Transfer limits should remain through the summer and Anasis expects no change over the next week. As there is not a lot of headroom, if f generation picks up significantly we may experience curtailment. Dworshak will have to be monitored for transmission conflict issues. A major line going down would require significant adjustments to work around the resulting constraint issues. More discussion will continue at next week's face-to-face meeting.

SOR 2001-9

The Salmon Managers (all except Montana) asked that Grand Coulee discontinue refill and draft so that the reservoir reaches 1280' by July 22. This request was justified by the critical passage period for the subyearling chinook, during which flows at McNary have decreased dramatically over this week, averaging 83.34 kcfs over past five days, in comparison to the 200 kcfs summer flow objective contained in the 2000 BiOp. Scott Bettin said BPA will stop filling and keep this goal in mind, but does not anticipate getting down to 1280' before July 31. One of the problems with the July 22 request is that BPA feels it cannot afford to sell surplus generated by the more rapid draft, in a manner that will allow them to store and make the necessary purchases later. The fish managers continued to stress the benefits of front loading Grand Coulee flows as being most beneficial to the current migration.

The ensuing discussion disclosed new reliability calculations based on 28,000 MW-months of storage capacity needed by 10/1/01 meet long-term reliability needs.

ACTION: TMT asked for a BPA presentation on the 28,000 MW-months storage/reliability topic at the next face-to-face TMT meeting. BPA agreed to do this.

July Final Water Supply Forecast:

Rudd reported that, following a TMT request at last week's meeting, a July Final water supply forecast was issued Monday by the River Forecast Center. The July Final moved slightly upward to 54.7 MAF, from the early-bird volume of 53.9 MAF (based on January - July at The Dalles). The downward trend in forecasts remains at approximately 1 MAF per month. Actual January - July calculations will be available in August.

McNary:

An electrical failure that affected the Oregon adult fish ladder at McNary resulted in a forebay regulation for a one-foot operating range. Also, the weekends of July 21/22, 27-29, and August 4/5 call for the upper one-foot operating range for recreational purposes. This will hold McNary forebay between 339 and 340.

Temperatures: Temperatures are rising with 75F recorded at LWG forebay and 68 at tailwater, and 68F – 72F in the McNary forebay and 67F in the tailwater.

Next Face-to-Face Meeting July 18, 9-12:

Agenda items:

- Dworshak and Hungry Horse Updates
- Power Transmission Status
- System Operations Update

- Grand Coulee Update
- Libby Operation Proposal (Jim Litchfield)
- Water Management Plan – Emergency Protocols
- Temperature Conditions
- 28,000 MW/months Presentation – BPA

1. Greeting and Introductions

The July 11 Technical Management Team conference call, held at the Customs House in Portland, Oregon, was chaired by Rudd Turner of the Corps and facilitated by Richard Forester. The following is a distillation, not a verbatim transcript, of items discussed at the meeting and actions taken. Anyone with questions or comments about these minutes should call Turner at 503/808-3935.

Forester welcomed everyone to the meeting, then led a round of introductions and a review of the agenda.

2. Dworshak and Hungry Horse Operations.

At last week's meeting, said Turner, we discussed upcoming operations at Dworshak and Hungry Horse Dams in light of power transmission limitations across the West of Hatwai cutplane; the action agencies agreed to update the TMT on the operation of those projects at today's meeting. Dworshak elevation, as of midnight last night, was 1581.8, down about 5 feet over the past week. Inflows to the project have now dropped to less than 2 Kcfs, with outflows of 9.7 Kcfs, full powerhouse capacity, Turner said. He added that Dworshak outflow was increased to 7 Kcfs on the morning of Thursday, July 4; discharge was increased to full powerhouse capacity on Saturday morning, July 6. Turner added that the Reservoir Control Center has issued a teletype authorizing a reduction in Dworshak outflow of up to 2 Kcfs if needed to alleviate the transmission system problem; however, that has not yet been necessary.

Tony Norris reported that Hungry Horse experienced a lightening operation over the weekend, with outflows from the project increasing to 2 Kcfs+ for a few hours, then reducing to the current discharge volume of 500 cfs. Hungry Horse elevation is currently 3542.8 feet, with inflows in the 1-3 Kcfs range.

What's the status of the Hungry Horse releases? Paul Wagner asked. My understanding is that PP&L Montana is refusing to pass that water through Flathead Lake, Norris replied; for that reason, it doesn't seem too beneficial to release any additional water from Hungry Horse at this time.

Lance Elias of PP&L Montana said the Montana Congressional delegation has received a lot of pressure from local residents to fill Flathead Lake, which is currently 1.8 feet below full pool at a time when it would normally be full. Senator Burns has been in contact with the Department of the Interior, Elias said, and was told that the situation will be resolved. Interior asked PP&L Montana to develop a proposal about how to resolve

this situation, Elias said; our proposal was to increase discharge from Hungry Horse enough to allow us to meet minimum flows downstream and add half a foot of storage to Flathead Lake. I don't know the status of that proposal, however, Elias said.

We thought that, by releasing 1.5 Kcfs beginning several weeks ago, we would barely be able to meet the August 31 BiOp elevation of 3540 feet at Hungry Horse, and still meet the Columbia Falls minimum, Norris said. If we're asked to provide more water out of Hungry Horse, he added, it will make it much more difficult to meet the Columbia Falls minimum. Elias noted that it may not be correct to say that PP&L Montana is unwilling to pass the additional Hungry Horse water through Flathead Lake; they were initially willing to do so, but he is unsure of the status of that issue, currently.

John Roache of the BOR said his understanding is that if Hungry Horse releases 1 Kcfs, the volume above minimum outflow (500 cfs) will be stored in Flathead Lake. That's probably true, at least until we find out what the Department of the Interior is going to do, Elias replied.

What is the Montana delegation's objective, in terms of lake elevation at Flathead? Cathy Hlebechuk asked. That's a great question, but I don't know the answer, Elias replied – again, our proposal was to increase Flathead Lake elevation by half a foot. And how much water would be required from Hungry Horse to accomplish that? another participant asked. One foot of Flathead lake elevation is equivalent to about five feet in Hungry Horse elevation, Norris replied; frankly, I would be very surprised if the Bureau is willing to approve that request. Wagner added that the 20-foot draft of Hungry Horse called for in the BiOp is intended to help anadromous fish in the Lower Columbia, not local recreators. It sounds like there are still a number of issues that need to be resolved regarding Hungry Horse operations, he said, but I don't think we can resolve them on this call.

3. Power Transmission Status Update.

John Anasis reported that BPA has now received permission from WSCC to increase the transfer limits in the West-of-Hatwai transmission corridor, which has helped the cutplane transmission situation, particularly during light-load and shoulder hours. The federal resources tend to be the ones that vary, because the private users have fixed demand, Anasis said. It looks as though, right now, local loads are high enough to absorb most of the daytime generation. At night, however, when loads drop, it's a different story – it looks as though; once we prorate available transmission capacity among all of the users, we have about 590 MW of light-load pathway usage to divide among the federal projects, which means we could need to curtail up to 90 MW of federal usage of the pathway.

So far, said Anasis, BPA's Power Business Line has been able to purchase enough non-firm transmission capacity to avoid any flow/generation reductions at Dworshak. However, if generation picks up significantly, it will be more difficult to obtain excess capacity – we don't have much headroom, in other words, Anasas said.

We're only talking about an increase in 15 MW if Hungry Horse discharge is increased from 500 cfs to 1 Kcfs, Wagner said. We should be able to accommodate that, Anasas replied – again, we have received an increase in transfer limits during nighttime hours, which will help. Once the weather begins to cool, that will help also, he said – the cooler the weather, the more capacity we have in the lines, because what we're trying to protect against is thermal overload.

What's the prognosis for the future? Turner asked – at least over the next week or two? I don't see any major changes over the next week, Anasis replied; the increased transfer limits should be good for the rest of the summer and into September, as long as the proper control schemes remain in place. After that, planning staff will be looking at how things will change once we move into the fall, Anasis said; again, the situation will improve as the weather cools.

The bottom line is that, over the next few months, we need to be able to back off Dworshak if necessary, said Scott Bettin – we hope that won't be necessary, but we need to have that in our back pocket. However, we will continue to purchase non-firm transmission capacity as long as it is available, he said.

The current teletype has removed the stipulation that Dworshak flows can be backed off, Turner said; however, we can put that back in if you need it. I would recommend that you do so, Anasis replied; if we lose a major line, we're looking at major curtailments for all users of the transmission pathway.

It sounds, then, as though we will continue to release full powerhouse capacity at Dworshak, with the understanding that if West of Hatwai transmission problems occur, Dworshak discharge could be curtailed by up to 2 Kcfs, Turner said.

What about Hungry Horse operations, said Turner – should TMT recommend increasing the discharge at that project to 1 Kcfs? Reclamation is fine either way, said Norris; to my way of thinking, however, if that extra water is just going to be trapped in Flathead Lake, it doesn't make much sense to release any more water than we have to at this time. NMFS agrees, said Wagner; it makes more sense to us to wait until August 1, then increase Hungry Horse discharge to 1.5 Kcfs.

Why don't we leave Hungry Horse discharge at 500 cfs for now, suggested Bettin; we can discuss this issue again at next week's TMT meeting. For the time being, then, it sounds as though Hungry Horse discharge will remain at 500 cfs, at least until next week's TMT meeting, Forester said. Does that work from a bull trout standpoint, for the Fish and Wildlife Service? Turner asked. Yes, David Wills replied. That operation also sounds reasonable from Montana's standpoint, Jim Litchfield said. If there are any new developments in the negotiations between Montana, Interior, PP&L and the Bureau of Reclamation, perhaps we can ask Tony Norris to send an email to the TMT membership, Turner said. Norris agreed to do so.

4. Other.

A. New SORs. On July 10, the action agencies received SOR 2001-9. This System Operational Request, prepared and supported by USFWS, NMFS, ODFW, IDFG, CRITFC and WDFW, requests the following specific operations at Grand Coulee Dam:

- Between now and July 22, discontinue refill and pass inflow from Grand Coulee, plus the additional volume of water stored between elevation 1280 feet and the present elevation of 1283.3 feet, to reach an elevation of 1280 feet by July 22. Based on inflows projected in the July 9 SSARR and the projected additional volume of 147.8 Ksfd now in the reservoir, we estimate an average outflow from Grand Coulee of 72.4 Kcfs during this period.

Wagner spent a few minutes going through the contents of this SOR, the full text of which is available via the TMT's Internet homepage. Please refer to this document for full details and justification.

Bettin said it is highly unlikely that this volume can be drafted by July 22 without putting BPA in a surplus power position, which would be contrary to the federal operating strategy; it could also have adverse effects on our refill ability this winter, and our ability to meet load without purchasing, he said. However, said Bettin, we can keep this in mind as a goal.

Eric King of BPA provided a brief description of the most recent Power Planning Council load study, and its implications for system storage and winter power system reliability. Basically, BPA feels that we will need a total of 28,000 MW-months of storage as of October 1 to meet the reliability criteria in the Council's study, King said. That will require some refill once the BiOp's August 31 elevation targets are met, he added.

Your concern is the winter period? Wagner asked. That was the focus of the study, yes, King replied – December, January and February. Inflow assumptions are a key, said Turner – what water years were assumed? The 1944 and 1977 water years were used, Bettin replied.

If I understand, then, drafting Grand Coulee by July 22 could take you outside the elevation range needed to achieve 28,000 MW-months of storage by October 1, Wagner said. That, and it could put us into a surplus power condition, Bettin said. What does that mean, operationally? Forester asked. That Grand Coulee elevations will begin heading downward from here, Bettin replied; however, it is unlikely that the project will achieve the elevations requested in this SOR. In response to another question, he added that he expects to see Grand Coulee discharges in the 50 Kcfs-60 Kcfs range over the next two weeks.

In response to a question from Wills, Bettin said BPA is also concerned that if it goes into a surplus power condition to achieve the operations requested in this SOR, then

has to purchase power for the last week of July, there is no guarantee that the energy needed will even be available, given typical late-July temperatures on the West Coast.

Can we at least avoid any sharp drop-offs in weekend flows? David Wills asked – after all, the fish don't take the weekends off. We'll do the best we can, Bettin replied – I don't think you'll see flow reductions as sharp as they've been earlier in the season.

What do you expect flows at McNary to be in August? Margaret Filardo asked. About what they are now, Bettin replied – somewhere between 90 Kcfs and 100 Kcfs. Again, our plan is to draft Grand Coulee to elevation 1280 by July 31. The most beneficial use of the Grand Coulee water, from a biological standpoint, would be for the operating agencies to front-load the release of the water, to the greatest extent possible, Wagner said. We understand, and will do our best to accommodate this request, Bettin replied.

That would be helpful, because at this point, the subyearling migration has pretty much stopped, Filardo said. Do you have a sense of how many fish have yet to pass McNary? Turner asked. We hope there are still a lot of fish above McNary, Filardo replied; however, if they don't get out soon, they won't get out at all this year. Chris Ross added that, according to historical passage records, the 80% subyearling passage point at McNary occurs around the end of July, so there should still be substantial numbers of fish above McNary. Wills added that the higher flows will benefit fish in the lower river downstream of McNary as well.

The action agencies would like to provide more water, said Bettin; however, as everyone is aware, the drought conditions are horrible this year. Again, we will front-load the available water to the greatest extent feasible, he said.

B. July Final Water Supply Forecast. Turner said the July Final water supply forecast for January - July at The Dalles is 54.7 MAF, up slightly from 53.9 MAF in the July early-bird forecast. Turner said he had talked to Harold Opitz at the RFC, who said that higher Canadian runoff not factored into the early-bird was one reason for this slight increase; the protracted nature of the 2001 runoff is the main reason the water supply forecast has continued to drop slightly every month of this year. This is because some volume is lost to infiltration, evaporation, and infiltration, and does not show up as surface runoff as much as in years where it comes off more quickly. At Lower Granite, the forecast is now only 9.9 MAF, just 47% of normal; at Libby, 3.57 MAF, 53% of normal; at Dworshak, 1.3 MAF, 53% of normal. And the good news is? Jim Litchfield asked. I'm afraid there isn't any, Turner replied.

C. McNary Operations. Just a heads-up, said Turner – there was an electrical failure at McNary yesterday that affected the upper portion of the Oregon-shore adult fish ladder; there is now a hard constraint in the project forebay regulation not to go below elevation 338, and to operate within a tight elevation range of one foot – elevation 338-339, to maintain an acceptable flow through the ladder's fish exit area, he said. The project hopes to resolve the problem by later today, he added.

Also, the Columbia Cup hydroplane races are coming up the last two weeks in July; McNary forebay elevation will need to be maintained in the top foot, 339-340 feet. There will be another race, during which the same elevation will need to be maintained, the first weekend in August, as well, Hlebechuk added.

5. Next TMT Meeting Date.

The next meeting of the Technical Management Team was set for Wednesday, July 18 from 9 a.m. to noon. It was agreed that this will be a face-to-face meeting. Meeting notes prepared by Jeff Kuechle, BPA contractor.

LIST OF MEETING PARTICIPANTS

JULY 11, 2001

Name	**Affiliation**
John Anasis	BPA
Scott Bettin	BPA
Lance Elias	PP&L Montana
Margaret Filardo	FPC
Richard Forester	Facilitation Team
Russ George	Water Management Consultants Inc.
Richelle Harding	D. Rohr & Associates
Cindy Henriksen	COE
Cathy Hlebechuk	COE
Eric King	BPA
Jim Litchfield	Consultant (Montana)
Kyle Martin	CRITFC
Doug Marx	Attorney, Lake Pend Oreille Idaho Club
Tony Norris	USBR
Mike O'Bryant	Columbia Basin Bulletin
Steve Pettit	IDFG

Chris Ross	NMFS
Glen Traeger	AVISTA Energy
Rudd Turner	COE
Bill Tweit	WDFW
Paul Wagner	NMFS
Steve Wallace	PacifiCorp
David Wills	USFWS

TECHNICAL MANAGEMENT TEAM

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OR: Christine Mallette *WA: Jim Nielsen* *ID: Steve Pettit* *MT: Jim Litchfield*

COE: Cindy Henriksen\Rudd Turner*Cathy Hlebechuk*

TMT Meeting

18 **July 2001** **900 - 1200 hours**

Custom House **Room 118**

Portland, Oregon

Conference call line: 503-808-5190

All members are encouraged to call Donna Silverberg with any issues or concerns they would like to see addressed. Please e-mail her at dsilverberg@cnnw.net or call her at (503) 248-4703.

AGENDA

1. Welcome, introductions.
2. Operational updates: Dworshak, Hungry Horse, transmission constraints (COE, BOR, BPA).
3. Grand Coulee operation (BOR, BPA).
4. Hydrosystem storage needs for power system reliability (BPA).
5. Water temperature update (COE).
6. Review current system conditions.
    - reservoir operation, water supply, water quality (COE, BOR)
    - power system status (BPA)
    - fish migration status (NMFS, USFWS)
7. Review operations requests.
8. Libby increase to remove downstream algal growth (MT, COE)
9. Develop recommended operations.

10. Review TMT Emergency Protocols (WMP Appendix 2).

11. Other.

- set agenda for 1 August TMT meeting

Questions about the meeting may be referred to Rudd Turner, (503) 808-3935 or Cindy Henriksen, (503)3945.

TECHNICAL MANAGEMENT TEAM
MEETING NOTES
July 18, 2001
CORPS OF ENGINEERS NORTHWESTERN DIVISION OFFICES – CUSTOM HOUSE
PORTLAND, OREGON

TMT Internet Homepage: http://www.nwd-wc.usace.army.mil/TMT/index.html

FACILITATOR'S NOTES ON FUTURE ACTIONS
Facilitator: Donna Silverberg

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.

Transmission Constraints:
John Anasis reported that no changes have occurred from last week's TMT discussion, although the cooler temperatures have slightly improved the situation. 600 MW is being used over Hungry Horse, Albeni Falls, Libby and Dworshak. John foresaw little to no change in the next two weeks regarding this operation, depending on weather conditions.

Grand Coulee Operation:
The operation plan continues to have Grand Coulee reach 1280' by the end of July and 1278' by the end of August, with a two foot operating range. It is currently at 1283'. Bob Heinith asked what the differential in cost is between releasing water now versus in August.

Water Temperature Update:
Dick Cassidy reported on Lower Granite forebay and tailwater, Anatone, and Peck temperatures for a 24-hour average. He pointed out that significant cooling occurred at the forebay due to releases at Dworshak and cooler weather. This is fairly consistent with the EPA and COE models.
ACTION: Dick will try to distribute information from the thermograph at the next face-to-face meeting. He will also check out whether the McNary mixing device has been used and, if yes, whether it has been effective.

Review Current System Conditions:
Libby and Albeni Falls reservoir levels remain consistent. There was a discharge increase yesterday at Lower Granite. Dworshak drafted over the past week. Hungry Horse is operating at 1000 cfs. Flathead discharges were ramped down and held at 4000 cfs. The remainder of the volume will be used at Columbia Falls. Paul Wagner reported on fish migration, saying that peak migration has passed McNary and most of the fish are in the lower Columbia.

Libby Operations:

Montana has requested an increase in flows to flush out algae that may be detrimental to bull trout in the area. They would also like to test this action to find benefits to bull trout. The proposed operation would involve a pulse and gradual ramp-down over a 24-hour cycle lasting six days. The sheriff in that county has also requested an increase in flows to recover a body reported missing a few days ago.
ACTION: While there was no disagreement from TMT, Rudd Turner and Jim Litchfield will work out the details of the operation. Jim will provide documentation on the possible causes of the algae bloom, any alternatives considered and continual monitoring of the operation's effects on bull trout.

Hydrosystem Storage Needs for Power System Reliability:
Therese Lamb provided a handout on BPA's storage target, which currently is to have 28,000 MW/months of storage in the Federal hydrosystem on October 1. This may change based on the following on-going evaluations: transmission constraints, 12% loss of load probability, and a change in market conditions. BPA remains concerned, both over reaching their storage needs for winter reliability and whether the 28K MW/mos. is sufficient. Their current plan is to meet regional load requirements and make purchases so as much water as possible can be stored.
ACTION: As requested by TMT members, a status report on BPA's system reliability will be presented every two weeks.

SOR 2001 C-6:
CRITFC requested 600 MW/mos. of spill, duplicating the spring spill program, to begin immediately. The justifications for this SOR were the high numbers of fish remaining in the river as well as rising temperatures. Other TMT members were asked to respond:

COE can't support the SOR due to prior agreements not to spill because of the power emergency. Also, flows are so low that project powerhouse and spill minimums may not be met. Oregon supports the request; they say fish migration has suffered to unprecedented levels and they would like The Dalles to be of highest priority. Washington also supports the SOR and says that time is of the essence. This SOR, they feel, is a good compromise based on last week's request. NMFS supports the concept but recognizes the power system emergency constraints as provided for in the BiOp. The BOR and USFWS agree with NMFS. Montana does not support the SOR given the analysis presented at the last Regional Executives meeting regarding the benefits to fish versus the costs to system reliability. Idaho had no representative at the meeting. BPA reminded the group that this is a reliability issue, not a financial issue.

One suggestion was made to spill for two to three weeks at Bonneville and the Dalles. The group wanted to look at this request relative to biological benefits and the increased risk to BPA. TMT members did not feel they could make a decision on this issue, so Oregon asked that it be raised to IT for resolution.
The question posed from TMT to IT is: *Can the planned lower Columbia flows be reallocated to provide a limited amount of spill for fish so that no additional water is used while energy is purchased elsewhere for an initial 2-week period?*
The question will be asked tomorrow at an IT conference call at 3:00 pm.
ACTION: If IT makes a decision tomorrow regarding spill but needs TMT to specify the action, an emergency TMT conference call will be held Friday at 9:00 am.

Next Face-to-Face Meeting, August 1, 9-12:

Agenda items:

- Libby Update
- 28,000 MW Update (Reliability Criteria)
- Water Management Plan
- Emergency Protocols
- IT Update

A conference call is not planned for next week.

1. Greeting and Introductions

The July 18 Technical Management Team meeting, held at the Customs House in Portland, Oregon, was chaired by Rudd Turner of the Corps and facilitated by Donna Silverberg. The following is a distillation, not a verbatim transcript, of items discussed at the meeting and actions taken. Anyone with questions or comments about these minutes should call Turner at 503/808-3935.

Silverberg welcomed everyone to the meeting, then led a round of introductions and a review of the agenda.

2. Operational Update.

John Anasis of BPA's Transmission Business Line reported that little has changed on the system reliability front since last week's TMT meeting; unseasonably cool weather has yielded some improved transmission capacity during daytime hours, and nighttime transfer capacity has not changed. During the day, federal loads have been exceeding the current level of federal generation, which has been helpful,, Anasis said. At night, loads drop, so the federal units are a net user of transmission capacity during light-load hours, by between 85 and 100 MW. Unless there is a major change in load or generation levels, I don't foresee much change from where we are right now, although if the weather heats up, we will start losing capacity during the day, Anasis said.

What's the prognosis for the next two weeks, through, say, August 5? Turner asked. As I said, it depends on the weather, Anasis replied – I haven't seen a long-term projection, but that is the only variable that is likely to change. If the wather stays similar to the pattern we've seen over the past week or so, the transmission system will likely be unchanged, but if the weather heats up significantly, that will likely cause a loss of about 300 MW in daytime transmission capacity, which will have to be prorated among all the users of the pathway. It will then be up to the Transmission Business Line to find non-firm capacity, if generation curtailments are to be avoided, Anasis said.

Kyle Martin said that, while the weather is expected to heat up somewhat over the next week or so, there are no dramatic warming trends on the horizon. Anasis said 30 degrees C – about 86 degrees F – is the threshold at which transmission capacity begins to be reduced.

3. Grand Coulee Operation.

Tony Norris said Grand Coulee is headed toward elevation 1280 by the end of July, and 1278 by August 31 – that is still Reclamation's planned operation, he said. The current elevation is 1283 feet, with 57.3 Kcfs outflow yesterday. In response to a question from Bob Heinith, Scott Bettin said that, over the next few weeks, Grand Coulee will likely fill slightly on the weekends, then draft during the week to meet load. Again, he said, the plan is to reach elevation 1280 by July 31.

The group devoted a few minutes of discussion to the reasons why SOR 2001-9, submitted last week, was not implemented; Bettin reiterated that it was because the power system emergency is still in force, and implementing the SOR would have put BPA into a surplus situation, which would run counter to the federal operating principals. In addition, he said, we didn't know whether or not it would be possible to buy the power we would need later in August to replace this energy. We're running the river to meet load, he said; drafting Grand Coulee an additional three feet would have put us into a surplus position. Is there an opportunity for an exchange? Christine Mallette asked. We've pursued that, but have not yet found anyone willing to do such an exchange, Bettin replied. Heinith requested that BPA provide some additional information about energy pricing at the next TMT meeting.

4. Hydrosystem Storage Needs for Power System Reliability.

Terese Lamb of BPA distributed a handout describing storage targets for the federal projects. She provided an overview of BPA's system reliability concerns for this fall and winter, describing some of the studies BPA and the Power Planning Council have been doing to determine the amount of federal storage needed by October 1 to assure an acceptable (no more than 12% probability of loss of load) level of system reliability: 28,000 MW-months of storage equivalent.

Lamb said it may be necessary to store up to 2,000 MW-months into the federal storage projects by September 30 if the 28,000 MW-months target is to be met. In response to a question from Mallette, Lamb explained the term "loss-of-load probability," essentially, it is an industry-standard term for a situation in which the system would be unable to meet load by any amount or duration.

Lamb noted that the Council has said the next version of this analysis will be available in late August or early September; this is a concern to BPA, she said, because there are a number of facets of this situation we feel need some additional analysis sooner than that.

Lamb touched on the potential impacts of the West-of-Hatway transmission constraint on overall system reliability and storage needs, noting that this situation has not yet been factored into the Council's analysis. She noted that BPA would prefer no more than a 5% loss-of-load possibility, while the Council has concluded that additional storage will yield no more than a 12% loss-of-load probability. BPA feels some additional storage could get us closer to the 5%

loss-of-load target, Lamb said. She added that the Council's analysis assumes that a significant amount of diesel generating resources will be brought on-line this winter; given falling energy prices and the high cost of diesel generation, she said, BPA isn't sure how much diesel generation can realistically be expected to be available this winter. However, the capacity is there if the price is right, Heinith observed.

BPA is also concerned that we need to watch our storage levels very carefully during August and September, said Lamb, given record low runoff and storage levels, and the fact that the runoff volume forecasts only run from April through July. We had an early runoff this year, which has translated into falling water supply forecasts since this spring, Lamb said; BPA is now estimating that the August and September water supply forecast will be 1.5 MAF lower than we thought in the spring. That further erodes our ability to meet the 28,000 MW-month October 1 federal storage target, Lamb said.

We have now exceeded the 28,000 MW-month storage target in the federal system, Lamb said; however, to meet load and maintain minimum flows for fish, we will have to draft the system between now and August 31. The bottom line is that August and September streamflows are a source of great concern at BPA, in terms of our ability to meet the 28,000 MW-month target, she said – we're in a record low water year, and are consequently in uncharted territory.

One positive factor is that there is power available on the market, currently, and prices are falling, Lamb said. BPA has been buying, although the concern there is that the more power we buy, the more water we're able to store and the lower streamflows fall. The other concern is that, so far, temperatures in California, the Northwest and the Southwest have been moderate; once they pick up, as they are sure to do at some point this summer, the entire power market will change significantly for the worse. The bottom line is that we are at the ragged edge, in terms of the likelihood that we will meet the 28,000 MW-month federal storage target, Lamb said.

We should get a pretty good indication of whether or not the target is going to be met over the next week or two, Turner observed. That's correct, said Lamb – we're now entering the critical period. The group then spent a few minutes discussing the assumptions underlying BPA's system reliability analysis; Martin noted that, according to his estimate, the region will see only 50%-70% of normal precipitation during August and September.

The bottom line is that BPA would like to operate the system to meet federal system load, Lamb said; any available water over and above what is needed to maintain federal system reliability will be stored. She noted that last year, the second-lowest water year on record, BPA was able to tap 9 MAF of Canadian storage; we have not been able to replace that water, she said, so we can't count on it this year.

The TMT devoted a few minutes of discussion to this issue, offering a variety of clarifying questions and comments. Ultimately, the discussion moved on to the new System Operational Request, SOR 2001 C-6.

5. Water Temperature Update.

Dick Cassidy distributed a summary of current Lower Granite, Anatone and Peck water temperatures. In general, he said, water is coming out of Dworshak at 48 degrees; five miles downstream at Peck, the water temperature in the Clearwater is 56-58 degrees, and by the time it gets to Lewiston, it is 56-60 degrees. That water provides significant cooling at Lower Granite, he said; forebay temperatures were in the mid-70s on July 12, and are now just under 68 degrees F. Cassidy noted that, even when Lower Granite forebay water temperatures were at their peak, tailwater temperatures at the project were in the high 60s – obviously, there is some stratification in that reservoir.

The group spent a few minutes reviewing current water temperatures at Lower Granite, Ice Harbor and McNary from the Corps homepage. What we're seeing are water temperatures that are consistent with both the EPA and MASS-1 model predictions, Cassidy said; so far, we are seeing significant cooling as a result of the Dworshak operation. If we stay on top of the situation, Cassidy said, we're hopeful that it will be possible to keep Lower Granite tailrace temperatures below 70 degrees. In response to a question from Heinith, Cassidy said he will try to provide recent tri-level thermograph data at next week's TMT meeting.

6. Current System Conditions.

Turner reported that yesterday's day-average flow at Bonneville was 86.2 Kcfs; at McNary, 77.3 Kcfs, with a day-average range of 69 Kcfs-90 Kcfs over the past week. Lower Granite's day-average was 29 Kcfs yesterday, up from 24 Kcfs earlier in the week, possibly due to an increase in Brownlee discharge. Dworshak was at elevation 1574.7 feet as of midnight last night; releasing full powerhouse discharge of 9.8 Kcfs, with 1.5 Kcfs inflow, the project is drafting at a rate of about 1 foot per day. The West-of-Hatway situation caused no curtailments of Dworshak outflow last week, Turner added.

Current Libby elevation is 2435.8 feet, Turner continued, up a foot over the past week with 6 Kcfs outflow and 9.4 Kcfs average inflow. The current Albeni Falls elevation is 2062.3 feet at the Hope Gauge, up a tenth of a foot over the past week, with 8.8 Kcfs outflow yesterday and 7.8 Kcfs inflow. Overall, said Turner, the system is being operated to meet power needs and ESA requirements, and to meet end-of July and end-of-August reservoir elevations. There is no spill for fish this summer, he said.

Turner noted that the most recent SSARR run shows that, given falling inflows, Libby is likely to miss its August 31 refill target of 2439 feet by about two feet. We should probably talk about that at a future TMT meeting, he said; it was so agreed.

Norris reiterated that Grand Coulee is now at elevation 1283 feet, with 57.3 Kcfs outflow; again, the plan is to reach elevation 1280 at that project by July 31. There was a lightning event at Hungry Horse last week, which meant Reclamation had to exceed the 1 Kcfs outflow from that system for a short period. Norris said Hungry Horse is once again releasing 1 Kcfs; it now looks as though it will be possible to meet the Columbia Falls minimum flow and reach elevation 3540 by August 31 – in other words, the 20 feet of Hungry Horse storage will make it downstream for salmon this summer, Norris said.

With respect to the status of the fish migration, Paul Wagner said subyearling passage at Lower Granite is now past the peak – that occurred about two weeks ago – and we're now on a decreasing trend. At McNary, subyearling chinook numbers are back up – the index was 140,000 yesterday, much better than the 17,000 we saw one day last week, Wagner said. What percentage of the 140,000 is Snake River wild chinook? Turner asked. Very small, Wagner replied – most of those are hatchery fish, but they are all listed fish.

Moving on to the cumulative index at Lower Granite, Wagner noted that the curve is flattening out as the run begins to decline; however, we are running within the expected range, as far as total passage, he added. The McNary numbers are somewhat on the low side, he said, but again, we're close to the range we expected to see. One interesting facet is the smolt index compared to outflow, Wagner said; they went pretty much hand-in-hand as flows decreased, and were generally hand-in-hand when flows increased, although there is more variation when things were on the increase. In general, we have seen a correlation between increased flow and increased passage, although in some cases there is a delay of several days before we see that response, Wagner said.

So what does all this tell us? Silverberg asked. That we're well into the subyearling passage period in the Lower Columbia, although there are still substantial numbers of migrants that have yet to come down in both the Columbia and Snake Rivers, Wagner replied. In response to a question, Wagner said there was some mortality last week at Little Goose, with up to 13% mortality seen on one day before the cooling effects of the Dworshak releases reached that project. After that one-day spike, daily barge mortality has gone back down to 2% or less, he said.

The group devoted a few minutes of discussion to the continued high adult returns; one participant noted that 2001 jack counts are running 200%-300% of the 10-year average – not as high as last year, he said, but still an indicator that 2002 adult returns will be better than average.

7. New System Operational Requests.

On July 17, the Corps received SOR 2001 C-6. This SOR, developed and supported by CRITFC, requests the following specific operations:

- Provide immediate 600 MW months of spill at the Spring 2001 levels:

  Bonneville_ 50 Kcfs for 24 hours

  The Dalles_ 30% of daily average flow for 24 hours

  John Day_ 30% of daily average flow for 12 nighttime hours

  McNary_ 30 Kcfs for 12 nighttime hours

Heinith spent a few minutes going through the contents of this SOR, the full text of which is available via the TMT's Internet homepage; please refer to this document for full justification and details. In general, he described this requested spill program as modest, doable and extremely beneficial for fish; it is implementable, given the fact that power prices are low and power is available; he urged BPA to use its reserves to spread the pain to the energy side as well as the biological side in this very difficult water year.

Turner replied that the Executives made a decision earlier this summer not to provide summer spill; he added that, if total river flows fall much lower, it would be difficult to physically implement this SOR, due to powerhouse minimum requirements. Mallette said Oregon supports SOR 2001 C-6, given the tremendous suffering the fish have undergone this year; 600 MW-months is a very modest program, which isn't anywhere close to the BiOp spill program. Bill Tweit said Washington also supports SOR 2001 C-6.

Wagner said NMFS supports the concept of spill, and agrees with the biological benefits CRITFC has listed in their justification. At the same time, he said, the BiOp recognizes that power system stability must remain intact. If spill can be provided, that would be beneficial, he said; however, it doesn't sound as though we have reached the runoff volume threshold that will allow summer spill to proceed. Jim Litchfield said Montana does not support this SOR, given its impacts on system reliability this winter, as well as the limited evidence of biological benefit that would result from the requested spill operation.

Lamb observed that the issue here is not financial; it is a water risk issue and a system reliability issue. In order to meet the 28,000 MW-month winter reliability storage target, we will need to buy power and store water, she said. If we buy power and spill water, we will need to replace that water through purchases later; our concern is that the power we need will not be available, and that what power is available will be much more expensive than it is right now. One thing we've learned over the past year is, don't count on anything – the market is so volatile that we don't feel comfortable taking risks, she said.

Tweit observed that it would be possible for BPA to buy power now, at least for the next few weeks, at a relatively low cost, to implement this SOR. We're not asking you to buy a lot of additional power, he said; this is the time when spill would have the greatest biological benefit, and happily, it is also the time when power rates are as low as

they have been for the past six months. Mallette said Oregon agrees with Tweit's comments. Litchfield noted that if BPA starts buying power so that it can spill, that will affect the power market significantly.

The discussion continued in this vein for some minutes. Ultimately, Turner suggested that BPA could implement the requested spill program, at least for the next two weeks, by setting a price ceiling under which they would be willing to purchase power for the spill program.

Would there be a biological benefit to a two-week spill program at Bonneville and The Dalles? Silverberg asked. Definitely, Heinith replied – survival at Bonneville would be four to five times better through spill than through turbine passage. What do you base that on? Turner asked. Mortality is 10%-20% through the turbines and only 4% through spill, Heinith replied.

Wagner spent a few minutes describing the biological benefits that could be expected to result from a two- to three-week spill program at The Dalles and Bonneville; the bottom line, he said, is that without summer spill, we would predict up to a 14% decrease in survival for some stocks, such as the Umatilla chinook, compared to the survival we would expect to see under the BiOp spill program.

After a few minutes of additional discussion, Lamb reiterated that the main risk associated with this SOR is that it diminishes the ability to meet the region's system reliability storage target. BPA feels that risk is too great, she said – we are already purchasing to meet that target, and to implement this request, we will need to be able to purchase up to 1,600 megawatts every day for a month (the current level of BPA purchases plus 600 MW-months for the spill program). What it all comes down to is the level of risk Bonneville is willing to assume, she said; the more we have to rely on the market to meet our storage targets, she said, the greater that risk will be. There is also a risk to the tribes, Heinith observed – the risk for them is that, two or three years from now, there will be no fish for them to catch and eat. We're just looking for some equity here, he said.

Lamb said it is not accurate to say that fish are assuming 100% of the risk and taking 100% of the hit during this poor water year; we have done the fish operations we can given our system reliability constraints and what we have to work with, water-wise, she said.

Tweit expressed frustration with the fact that, even in the Biological Opinion, a power emergency trumps a very real fish emergency. The tribes still feel that, given current conditions in the power market, it should be possible to implement a modest spill program this summer, Heinith said.

Turner reiterated his suggestion that BPA consider a two-week spill program at Bonneville and The Dalles, with a price cap for its energy purchases. Lamb replied that she has no flexibility to commit to such a spill program at this time. It sounds, then, as

though we need to elevate this issue to the IT, Turner said. After a few minutes of further discussion, the issue was framed for IT as follows:

"Can the planned allocation of flow be shaped to provide a limited amount of spill for fish so that no additional water is used while energy is purchased elsewhere for a two to three-week period?"

It was agreed that Oregon will elevate this issue to IT, for resolution at a conference call tomorrow.

8. Libby Increase to Remove Algal Growth.

Turner reiterated that Libby is releasing 6 Kcfs, currently; there has been a verbal request to increase Libby discharge to remove algal mats below the project. This is something project personnel haven't really seen before, he said, but this is also the first year that there has been no large increase or "pulse" in Libby outflow this year. The request is for a one-day pulse, he said.

There was also a drowning several days ago below Libby, Turner added; we have received a request for increased Libby discharge from the local sheriff's office as well, to aid in the body recovery effort. Typically, we cooperate with such requests, he said, although in this case, the sheriff has requested an increase to 20 Kcfs for 45 hours, which probably won't be possible. We have talked about providing a pulse of 10 Kcfs, Cathy Hlebechuk added.

The concern is that the algae is covering the rocks, and may smother the normal insect population downstream of Libby, negatively impacting primary productivity, Jim Litchfield explained. The request is to bring the project up an hour after sunrise, hold the flow for 24 hours, then begin the rampdown during daylight hours the following day. Montana FWP has requested an increase to 12 Kcfs; the Corps replied that 10.5 Kcfs is the discharge limit at Libby, given the powerhouse situation there. We would then ramp down slowly, and hold a stable outflow at that project through the end of August, Litchfield said.

Could this be a septic system or nutrient inflow problem? Bettin asked. I don't know, Litchfield replied – I'll ask. Do you know the upstream extent of the problem? Jeff Loughly asked. I don't know, Litchfield replied – I do know that it covers an extensive area.

Is this something that needs to be put in the form of an SOR? Silverberg asked. If people want to formalize this request, we can do so, Litchfield replied; our feeling was that this is a short-term operation with limited effects on overall system operations. Mallette asked what other solutions Montana has considered for this problem; Litchfield replied that this is a problem that has not been seen before, and that he is not aware that other solutions, such as herbicide treatment, have been seriously considered.

After a few minutes of further discussion, Mallette recommended that Montana investigate other alternatives before using a flush of water from Libby Dam to accomplish the algae removal. With respect to the body recovery effort, she said, obviously that is a request that has to be accommodated, but 45 hours at 20 Kcfs outflow is probably not realistic. Wagner noted that algae like water, and one possibility may be to reduce Libby outflow, rather than increasing it. Litchfield replied that this may be inconsistent with the needs of both the Sheriff's department and aquatic insects downstream from Libby.

Ultimately, Bettin suggested that the action agencies begin ramping up Libby outflow to 10 Kcfs at 2 p.m. tomorrow, a process that will take four hours, then begin ramping back down at 6 a.m. Turner made a counterproposal, containing slightly different details of timing and ramping rates. After a few minutes of discussion, Bettin noted that there seems to be no TMT opposition to this suggested operation; he suggested that the Corps and Montana work out the specific details of how and when the operation will be implemented. Mallette asked that Montana provide a written response to the question of what other alternatives have been considered to accomplish the algae removal; Litchfield said he will attempt to provide one, but noted that extensive scientific justification for the algae removal operation does not exist – again, he said, we've never seen this situation before. It would also help if any effects of this operation on listed bull trout could be documented, Turner said.

9. Recommended Operations.

The development of recommended operations was deferred pending the resolution of tomorrow's IT conference call.

10. Review of TMT Emergency Protocols.

Discussion of this agenda item was deferred until next week's TMT meeting.

11. Next TMT Meeting Date.

The next meeting of the Technical Management Team was set for Wednesday, July 25 from 9 a.m. to noon; it was agreed that this meeting will be a conference call. Meeting notes prepared by Jeff Kuechle, BPA contractor.

Name	**Affiliation**
Ruth Abney	COE
John Anasis	BPA
Scott Bettin	BPA
Scott Boyd	COE
Mike Butchko	PowerX

Dick Cassidy	COE
Margaret Filardo	FPC
Russ George	Water Management Consultants Inc.
Robin Harkless	Facilitation Team
Bob Heinith	CRITFC
Tim Heizenrater	ENRON
Kyle Johnson	BPA
Jerry Keith	Reclamation
Therese Lamb	BPA
Jim Litchfield	Consultant (Montana)
Ningjen Liu	IPC
Dean MacAfee	Transalta Energy
Christine Mallette	ODFW
Kyle Martin	CRITFC
Doug Marx	Attorney, Lake Pend Oreille Idaho Club
Tony Norris	Reclamation
Chris Ross	NMFS
Donna Silverberg	Facilitation Team
Craig Sprankle	Reclamation
Glen Traeger	AVISTA Energy
Rudd Turner	COE
Bill Tweit	WDFW
Maria Van Houten	ENRON
Paul Wagner	NMFS
Steven Wallace	PacifiCorp
David Wills	USFWS

TECHNICAL MANAGEMENT TEAM

BOR: Tony Norris\Pat McGrane *BPA: Scott Bettin\Robyn MacKay*

NMFS: Paul Wagner\Chris Ross *USFWS: David Wills\Howard Schaller*

OR: Christine Mallette *WA: Jim Nielsen* *ID: Steve Pettit* *MT: Jim Litchfield*

COE: Cindy Henriksen\Rudd Turner*Cathy Hlebechuk*

TMT Conference Call

19 July 2001 1500 - 1700 hours

Portland, Oregon
Conference call line: 503-808-5190

All members are encouraged to call Donna Silverberg with any issues or concerns they would like to see addressed. Please e-mail her at dsilverberg@cnnw.net or call her at (503) 248-4703.

AGENDA

1. Welcome, introductions.
2. Continue discussions of summer spill.

Questions about the meeting may be referred to Rudd Turner at (503) 808-3935, or Cindy Henriksen at (503) 808-3945.

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20 July 2001 1000 - 1200 hours

Portland, Oregon
Conference call line: 503-808-5190

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TECHNICAL MANAGEMENT TEAM
CONFERENCE CALL NOTES
July 20, 2001
CORPS OF ENGINEERS NORTHWESTERN DIVISION OFFICES – CUSTOM HOUSE
PORTLAND, OREGON

TMT Internet Homepage: http://www.nwd-wc.usace.army.mil/TMT/index.html

1. Greeting and Introductions

The July 20 Technical Management Team conference call to discuss a potential summer spill program was chaired by Cathy Hlebechuk of the Corps and facilitated by Richard Forester. The following is a distillation, not a verbatim transcript, of items discussed at the meeting and actions taken. Anyone with questions or comments about these minutes should call Rudd Turner at 503/808-3935.

Forester welcomed everyone to the meeting, then led a round of introductions and a review of the agenda.

2. Technical Discussion of Potential 2001 Summer Spill Program.

Hlebechuk said she was hoping to get an update on the Council reliability analysis at today's meeting; Paul Wagner and Christine Mallette said it is not possible to re-do the analysis so quickly – the point at yesterday's conference call was simply that there is a desire to get that update as soon as possible, Wagner said.

The discussion then turned to spill and powerhouse minimums at Bonneville, The Dalles and John Day Dams. Bill Maslen said the region is looking at declining total river flows during the remainder of the summer, with flows during August and September projected to be record lows – in the 75 Kcfs-80 Kcfs range. The current powerhouse minimums are 30 Kcfs at Bonneville, 50 Kcfs at The Dalles and 50 Kcfs at John Day. Maslen added that minimum spill volumes are 40 Kcfs-45 Kcfs at Bonneville and about 25 Kcfs at The Dalles and John Day. The question is whether the spill can be distributed, given these extremely low flows, to provide a biological benefit, Maslen said.

So the proposal is 30% spill for 12 hours at John Day, 30% spill around the clock at The Dalles and 50 Kcfs around the clock at Bonneville, Wagner said. Again, my concern is tailwater hydraulics, given these very low flows, said Maslen – is that a concern, from the standpoint of fish passage and survival?

Rock Peters said the recent Synthesis report for John Day and The Dalles and Bonneville pulls together all of the available fish passage information at these projects. At John Day, based on those reports, we would estimate an overall reduction in subyearling chinook survival if we spill 30% for 12 hours at these very low flows, compared to survival under the current no-spill

conditions, Peters said. Powerhouse survival would likely be significantly reduced as well. Peters added that there is a fair amount of uncertainty about the John Day numbers.

At The Dalles, the story is different, because there is no bypass system at that project, said Peters. It looks as though 24-hour spill at 30% would produce about a 3% survival increase, from 87% without spill to 90% with 24-hour spill at 30% of total river flow. You're assuming similar spillway and sluiceway survivals? Maslen asked. They're very close, yes, Peters replied. Wagner observed that sluiceway predation is higher than spillway predation, particularly in summer.

Were you assuming a particular total river flow in your modeling? Hlebechuk asked. That's almost impossible to do, Peters replied; he explained that at John Day, he had an actual spring spill survival estimate of 98%; he doubled the mortality for summer, to 4%, then added another 2% mortality for the low-flow conditions, to yield an estimate of 94% survival at John Day with spill. Bear in mind, too, that given powerhouse minimums, there may simply not be enough water in the river to spill 30% of total river flow, Hlebechuk said – it may only be 10%-15% at times. Particularly at John Day, that could cause increased predation and mortality, because it's such a wide basin that such a small volume of spill would just sit there, Peters said.

Is there any flexibility in the project minimums? Margaret Filardo asked. That's unclear at this time, Maslen replied – the project minimums were established in the 1995 BiOp. There may be some tradeoffs possible between, say, The Dalles and John Day, with higher spill and lower generation at The Dalles and less spill and more generation at John Day. I will check on that, he said; if there is an opportunity to obtain some flexibility at one project or another, allowing us to enhance the biological benefits at a given project, then we need to know about that so we can factor it into our analysis, Maslen said.

At Bonneville, said Peters, from an FPE standpoint, current powerhouse operations with a priority on B2, total project FPE is about 74%. Bypass survival has been running 96%, Peters said; with a 5-6 unit operation, total survival through B2 without spill is about 93%, down from almost 95% last year. Looking at adding a 24-hour spill of 50 Kcfs at Bonneville, Peters said, about 67% of the fish would go through the spillway. Survival calculations become a bit problematic at this point, he said; powerhouse survival would drop to about 87% because we would drop to 1-2 units operating. Less flow through the basin means increased powerhouse mortality. Spillway survival is expected to be about 93%, so the bottom line is that, according to the Corps' estimate, survival at Bonneville would be a wash with and without spill. The only real question is whether outfall/bypass survival is really as high as I'm currently assuming, Peters said – I don't have any evidence to back up my assumption there.

Is it fair to say that there isn't necessarily a biological benefit to implementing 12-hour spill of 30% at John Day, based on your analysis? Cindy Henriksen asked. That's my interpretation, but others may have a different view, Peters replied. It would also be a wash at Bonneville, and a 2-3% increase in survival through spill at The Dalles? Henriksen asked. Correct, Peters replied. There is considerable uncertainty associated with Rock's analysis, however, Wagner said. That's correct, said Peters.

Wagner noted that Jim Ruff is doing some Sympass model runs in preparation for this afternoon's IT conference call; the concern is that the in-river conditions this year are so far outside of the normal range that customary modeling tools may or may not be valid, Wagner said. That is the concern, said Maslen; there is a lot of uncertainty about what spillway survival will actually be under such low-flow conditions. I hope NMFS is taking that into account in its modeling work, he said. It's true that we're well outside the norm this year, said Wagner; however, NMFS would argue that there is biological benefit to spreading the risk and providing multiple passage routes.

Henriksen added that there is some breaker changeout maintenance scheduled at Bonneville Powerhouse 1, starting July 30 and running through August and September; it will be necessary to run PH1 for at least some hours during the week, she said. Would that change your Bonneville survival estimates? Henriksen asked. Definitely, Peters replied – if we're talking about splitting flow between powerhouses, I would need to re-run the analysis. Based on 1992 study results, I would anticipate lower survival if Bonneville 1 is operated, Peters said. Maslen said that if this maintenance work results in lower fish survival, the timing would be unfortunate, to say the least. The group discussed the possibility of deferring the breaker work at B1; Boyd replied that his understanding is that the funds have been allocated this fiscal year, so the Corps feels that work needs to go forward as scheduled.

Mallette said Oregon would recommend delaying the onset of the breaker work until after any spill program is completed; that would likely allow the B1 breaker work to begin in mid-August. David Wills said the Fish and Wildlife Service agrees; Margaret Filardo said the Fish Passage Center would recommend no operation of Powerhouse 1 until September 1. Henriksen replied that her understanding is that the funds have to be expended by September 30, but said she will check to see if some delay may be possible.

Are there any other alternatives to the spill program that has been proposed in SOR 2001 C-6 – every-other-day spill, for example, or lower spill volumes at some project? Henriksen asked. In my opinion, we need more information about the extent or volume of the spill that may be available before we can talk about that in a meaningful way, Mallete replied. For the sake of argument, let's assume that we will have less than the 600 MW-months requested in the SOR to work with, Henriksen said – is there an alternative spill program that might still provide some biological benefit?

The group discussed the sustainability of summer spill, given the likelihood of hotter weather later in the summer, rising power prices and potential resource outages. It's hard to say what limitations may be placed on a potential spill program, said Wagner; the federal principals, however, do say summer spill is a priority, with the first preference being The Dalles, the second being John Day and the third being Bonneville.

Does the TMT still feel the priority should be The Dalles, then Bonneville, then John Day, given the limited amount of water that will be available for spill this year, and the fact that we know WNP-2 is going down later this month? Maslen asked. The fact of the matter is, we

cannot give you a spill volume or duration at this point, but it would be useful if TMT could do some "what-if" thinking about where and how spill should occur if a lesser volume is all that is available this summer. For example, if Rock's analysis is correct and survival with and without spill is a wash at John Day and Bonneville under these flow conditions, but there is a survival benefit associated with spilling at The Dalles, perhaps that's where the greatest spill program emphasis should be this summer, said Maslen.

We have identified The Dalles as the highest priority for spill, Mallette replied; I agree with NMFS that it is more prudent, from a biological perspective, to spread the risk and provide multiple routes of passage at John Day and Bonneville, even if overall survival is a wash, according to the available analyses. There will be benefit, she said; I'm just not sure if we can quantify it precisely. I don't agree, said Maslen; we would be spreading the low volume of water available across a wider stretch of river, rather than concentrating it at the powerhouse. I'm not sure, in other words, that it is valid to say that spill will provide a biological benefit under these flow conditions, he said.

Bob Heinith disagreed, saying that the available evidence shows that, under very low-flow conditions, concentrating all of the flow through the powerhouse also concentrates predators in both the forebay and tailrace at Bonneville, increasing predation loss. There is no question, from CRITFC's perspective, that there is a biological benefit to providing spill and spreading out the available flow and passage routes, Heinith said. It's a very complex analysis, he said, but I don't think there is any question that spill would provide a biological benefit. The problem is that there is a potential for spill, under these low flow conditions, to set up a back-roll condition in the tailrace, Maslen said – that's why I say it is not at all clear that spill will provide a biological benefit this summer.

There seems to be agreement that there would be a biological benefit to spill at The Dalles, Forester said; however, there doesn't appear to be agreement on any other aspect of this issue, particularly on the benefits associated with spill at John Day and Bonneville. I'm not sure that's true, said Wagner; the Corps has presented information which questions the benefits of spill, which BPA has embraced wholeheartedly; I don't think the other participants have changed their views about the benefits of spill, Wagner said.

I wouldn't say BPA embraces this analysis wholeheartedly, Maslen replied; I would say rather that we would like to see some documentation of the benefits of spill, given our concern that the extremely poor flow conditions here may invalidate assumptions about the benefits of spill that would normally be a given. BPA is concerned about the potential that we could actually harm fish through spill this year, despite our best intentions, he said. Henriksen added that the Corps is in no way attempting to question the biological value of spill; again, however, the extreme low-flow conditions this year mean the normal assumptions about the value of spill may or may not be valid in the summer of 2001.

The group devoted a few minutes of discussion to the current status of the migration, in terms of the percentage of the fall chinook run that has passed John Day and The Dalles. Heinith noted that, during the last low-flow year, the 50% passage point for the fall chinook migration

occurred July 18 at John Day.

Mallette observed that more information is needed about the absolute powerhouse minimum requirements for all three dams, particularly Bonneville; I would also suggest that we do everything we can to delay the scheduled maintenance work at Bonneville, she said. I would suggest further that, as a starting point, that we adhere to the spill volumes laid out in SOR 2001 C-6 until we get a determination from the action agencies about what is financially possible, she added.

If it is not possible to delay the maintenance work at PH1, and we have, say, 300 MW-months of spill to work with, would the TMT recommend sticking with the spill volumes in the SOR at all three dams for a shorter duration, or would the preference be to concentrate the available spill at The Dalles? Henriksen asked. We would need to take a look at whether spill would be more advantageous at Bonneville if the maintenance work goes forward, or less, Wagner replied – at this point, we just don't know. NMFS' preference would be to spill at all three projects, he said.

Heinith said CRITFC feels it is important to spill at all three projects, as soon as possible, because that will provide biological benefit to the broadest spectrum of the migration. We need to know what BPA can provide, in terms of MW-months of spill, he said; once we have that information, perhaps we can sharpen our pencils as far as the specific spill operations at each of the projects.

Is that the consensus of the rest of the salmon managers? Henriksen asked. I would give you an equivocal yes, replied Wills; we're concerned about the fall chinook that are entering the system between The Dalles and Bonneville, for example, from the Deschutes. It all depends how much spill we have to work with, he said.

It sounds, then, as though the salmon managers are still recommending that spill be implemented as requested in the CRITFC SOR, Forester said.

What about the question of attempting to spill 50 Kcfs at Bonneville if total river flow is only 70 Kcfs? Wagner asked. Wouldn't that put the project below its minimum powerhouse flow of 30 Kcfs? It would, Maslen replied; to me, that's the big issue here. My thought is that you would spill when you could at Bonneville, said Wagner, presumably during the day when flows were higher, or after you've been able to use the reservoir flexibility to store enough water in the forebay to allow a nighttime spill of 50 Kcfs. NMFS' recommendation would be to spill in blocks of 12 hours, as possible; our further recommendation is that, if you can't spill at least 50 Kcfs, then you shouldn't spill at Bonneville, Wagner said. In response to a question from Scott Boyd, Peters said that 18 Kcfs-20 Kcfs is probably the minimum spill at The Dalles to ensure reasonable egress conditions.

To me, that's the real issue, said Maslen – we really are at the flow threshold below which we simply can't meet both the minimum spill volumes needed to provide a biological benefit and the minimum powerhouse flows at each of the projects. He added that BPA is

anticipating having to purchase power in order to maintain minimum project discharges while storing water to meet the 28,000 MW-month system reliability storage target by October 1.

If the available spill volume is such that distributing spill to all three projects would mean spilling less than the minimum recommended volumes, would the salmon managers still want spill at all three projects? Maslen asked. For example, if we have 75 Kcfs in the river, and the minimum powerhouse flow at Bonneville is 30 Kcfs, such that we could only spill 45 Kcfs at Bonneville, would the salmon managers still want to spill at that project? NMFS' recommendation is that it may be possible to use the flexibility in Bonneville pool to store enough water to provide a 12-hour block of spill at 50 Kcfs, probably during the evening hours, Filardo replied. That would be more beneficial than providing 45 Kcfs 24 hours a day? Henriksen asked. CRITFC would prefer to see 45 Kcfs around the clock, Heinith replied; 12-hour spill blocks could result in stranding problems. Is that something NMFS would consider? Henriksen asked. NMFS would be willing to consider that, Wagner replied.

Again, the most problematic project, information-wise, is John Day, said Peters; we simply don't know what the minimum spill volume is at that project – we just have no data. The concern is that such a small spill volume simply wouldn't clear the basin, so the fish will be sitting ducks for predators. He added that, during the spring, at least, survival at John Day was significantly worse at 30% than it was at 50%-60%. Again, he said, my analysis shows a 1% decrease in overall project survival if we introduce 30% spill at John Day under these low-flow conditions, he said.

So if we see day-average flows of 75 Kcfs at John Day, 30% of that would be about 22 Kcfs of spill, Henriksen said; it is possible, however, that we could see daytime flows closer to 100 Kcfs and nighttime flows closer to the minimum powerhouse flow of 50 Kcfs. What would the salmon managers recommend under that scenario, given the fact that there would then be zero spill at night? Henriksen asked. Heinith and Wagner recommended that, under those circumstances, daytime spill only would be more beneficial than zero spill; the request for John Day, again, is for 30% spill 12 hours per day, not 24 hours. As long as you spill a minimum of 30% of total river flow, daytime spill would be acceptable, Wagner said. Is the same true of The Dalles? Henriksen asked. If there is any project where spill should not stop and start, it is probably The Dalles, Wagner replied. Actually, the tribes would recommend Bonneville as the first priority where 24-hour spill must be maintained, then The Dalles, Heinith said.

The bottom line is that, given the flows we are most likely to see later this summer and the powerhouse minimums at all three projects, we are likely to be below 50 Kcfs spill at Bonneville, and below 25 Kcfs at The Dalles and John Day, said Maslen – is that all right with the salmon managers? It's all right with CRITFC, Heinith replied. Wagner said NMFS would need to know how far below 50 Kcfs spill at Bonneville would be before making such a determination – if you're talking about 47 or 48 Kcfs, that would probably be acceptable; if you're talking 35 Kcfs-40 Kcfs, I'm not sure that would, he said.

The group also discussed the possibility of any flexibility in terms of shaping the available water more into the July period; it was agreed to discuss this further in this afternoon's

IT meeting.

To summarize, then, it sounds as though there is a preference for spill at all three projects, Henriksen said; it sounds as though at John Day and Bonneville, there is some flexibility in terms of turning spill on and off if needed, while at The Dalles, the salmon managers recommend that spill continue 24 hours a day. With that, the meeting was adjourned. Meeting notes prepared by Jeff Kuechle, BPA contractor.

LIST OF TMT MEETING PARTICIPANTS

JULY 20, 2001

Name	Affiliation
Margaret Filardo	FPC
Richard Forester	Facilitation Team
Cindy Henriksen	COE
Cathy Hlebechuk	COE
Therese Lamb	BPA
Christine Mallette	ODFW
Kyle Martin	CRITFC
Bill Maslen	BPA
Kevin Nordt	PGE
Tony Norris	Reclamation
Mike O'Bryant	Columbia Basin Bulletin
Rock Peters	COE
Paul Wagner	NMFS
David Wills	USFWS

TECHNICAL MANAGEMENT TEAM

BOR: Tony Norris\Pat McGrane *BPA: Scott Bettin\Robyn MacKay*

NMFS: Paul Wagner\Chris Ross *USFWS: David Wills\Howard Schaller*

OR: Christine Mallette *WA: Jim Nielsen* *ID: Steve Pettit* *MT: Jim Litchfield*

COE: Cindy Henriksen\Rudd Turner*Cathy Hlebechuk*

TMT Conference Call

23 July 2001 1300 - 1500 hours

Portland, Oregon
Conference call line: 503-808-5190

All members are encouraged to call Donna Silverberg with any issues or concerns they would like to see addressed. Please e-mail her at dsilverberg@cnnw.net or call her at (503) 248-4703.

AGENDA

1. Welcome, introductions.
2. Continue discussions of summer spill.

Questions about the meeting may be referred to Rudd Turner at (503) 808-3935, or Cindy Henriksen at (503) 808-3945.

COLUMBIA RIVER REGIONAL FORUM

TECHNICAL MANAGEMENT TEAM
CONFERENCE CALL NOTES
July 23, 2001
CORPS OF ENGINEERS NORTHWESTERN DIVISION OFFICES – CUSTOM HOUSE
PORTLAND, OREGON

TMT Internet Homepage: http://www.nwd-wc.usace.army.mil/TMT/index.html

FACILITATOR'S NOTES ON FUTURE ACTIONS
Facilitator: Donna Silverberg

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.

Summer Spill:
In a continuation of last week's TMT and IT meetings, today's conference call focused on the possibility of summer spill and the specifics around a summer spill program in the lower Columbia River. The group today dealt with the possibility of 200 mw/mos of spill over three dams – Bonneville, John Day, and The Dalles. The decision on whether or not to spill will be made at tomorrow's IT meeting.
Rock Peters, Bill Maslin and Gary Fredericks met prior to the meeting to discuss biological benefits and/or detriments to spilling at each of these dams. Their recommendations were:

John Day: 24 kcfs is not enough to provide good fish egress conditions, which may be a detriment to fish, so do not spill at this dam.
The Dalles: 24-hour spill up to 40% (BiOp level), factoring in the 50 kcfs powerhouse minimum, if flows are 71 kcfs or higher. If there is less than 15 kcfs of spill, then stop spilling.
Bonneville: If there is 84 kcfs in the river, spill a minimum of 50 kcfs in addition to the 30 kcfs powerhouse minimum. If the river flow is lower, spill no less than 45 kcfs over a 24-hour period.

Rudd told the group of certain "miscellaneous" operations that aren't included in the total outflow from power generation. This would add an additional discharge of 9.2 kcfs to Bonneville and 5-7 kcfs at the Dalles to power and spill flow requirements.

Consensus: Members agreed to the suggested The Dalles hourly operation and no opposition was voiced concerning no spill at John Day. Most TMT members agreed that an on-off operation at the Dalles would be less detrimental to the fish than a similar operation at Bonneville. Pursuing stabilized flows that support spill is the preferred operation.

Bonneville:

A question was raised about whether or not it would be appropriate or safe to spill lower than the 45 kcfs minimum at Bonneville. CRITFC, Oregon and Washington said that spilling whenever and as much as possible, even on an hour-to-hour basis, is beneficial to fish. Idaho raised concerns about the effects on adults and wanted to find a happy medium between no spill and 45 kcfs. Montana asked to see data that supports the biological benefits of such an action. NMFS did not support spilling below 45 kcfs because their biological models show that levels less than this create a higher risk to fish. NMFS supported the idea of hourly monitoring and spilling when the powerhouse could allow 45 or more kcfs. This might provide some spill every day. USFWS agreed with NMFS.

The COE suggested that one approach would be: whenever projected flows are 84.2 or above for a 5-hour period, spill for those hours. It was agreed that avoiding a multiple "on-off" operation is preferred. Salmon Managers suggested that 5 or more hours of spill a day, preferably in the morning or at dusk, would provide a benefit to safe fish passage. While there was no consensus on the final operation, TMT members agreed to take this proposal to IT.

ACTION: BPA and the COE will draft details of the proposal and present it at the IT meeting tomorrow. Salmon Managers will explore the optimal times for the spill operation.

Next Face-to-Face Meeting, August 1, 9-12:
Agenda items:

- Libby Update
- 28,000 MW Update (Reliability Criteria)
- Water Management Plan
- Emergency Protocols
- IT Update

***Note: Due to the Regional Executives meeting that has been scheduled for August 1, 9-1 pm, there may be a need to change the time of the TMT meeting.**

Meeting Minutes

1. Greeting and Introductions

The July 23 Technical Management Team conference call to discuss a potential 2001 summer spill program was chaired by Cindy Henriksen of the Corps and facilitated by Donna Silverberg. The following is a distillation, not a verbatim transcript, of items discussed at the meeting and actions taken. Anyone with questions or comments about these minutes should call Henriksen at 503/808-3945.

Silverberg welcomed everyone to the meeting, then led a round of introductions and a review of the agenda.

2. Technical Discussion of Potential 2001 Summer Spill Program (Continued).

Just to bring everyone up to date, said Silverberg, TMT had a technical discussion about this issue last Friday morning; that conference call was followed on Friday afternoon by an IT discussion of the larger policy question of whether or not any sort of a spill program is feasible this summer. The outcome of that meeting was an IT request that TMT flesh out the specific details of a recommended spill program at Bonneville, The Dalles and John Day Dams, she said, including duration and volume. That discussion needs to touch on the limitations imposed by the 2001 water year, and the physical ability, or lack thereof, to provide spill and meet powerhouse minimum flows under the extremely low total river flows expected later in July and August. Paul Wagner added that the total summer spill volume discussed at Friday's IT conference call was 200 MW-months.

The group devoted a few minutes to a discussion of how this issue, and the spill program under consideration, evolved. The discussion then moved on to this morning's ad hoc technical discussion between NMFS, the Corps and others; Gary Fredricks said this group focused on the question of specific spill and powerhouse minimums at each project.

At John Day, said Fredricks, our conclusion was that the 24 Kcfs of spill that would result if we were to spill 30% of a total river flow of 80 Kcfs would not provide adequate egress conditions – that, at least, is NMFS' opinion, based on model results to date.

At The Dalles, said Fredricks, we're recommending spill of up to 40% of total river flow, as called for in the BiOp, with a minimum spill volume of 18 Kcfs spill at that project. That's for 24 hours, he added. At Bonneville, said Fredricks, the powerhouse minimum is 30 Kcfs; as long as total river flow is 80 Kcfs or more, it shouldn't be a problem to deliver 50 Kcfs spill. If total river flow falls below 80 Kcfs, Fredricks said, our recommendation is that Bonneville spill at least 45 Kcfs, 24 hours a day. What if total river flow at Bonneville falls below 75 Kcfs? one participant asked. Let's not go there, Fredricks replied. If flows do drop below 75 Kcfs for some hours, our basic recommendation is not to go below 45 Kcfs spill at Bonneville, said Peters; if you go below 45 Kcfs spill, that would likely be detrimental, rather than beneficial, to total project survival.

Turner noted that there is a 9.2 Kcfs "miscellaneous flow" discrepancy between hourly flows at Bonneville and combined powerhouse discharge and spill, because of things like navigation lock and fish ladder operations. What that means, he said, is that we probably need total river flows of closer to 89 Kcfs to maintain both the 30 Kcfs powerhouse minimum and the 50 Kcfs spill minimum. If spill drops below 45 Kcfs at that project, said Turner, would it make sense to stop spilling for an hour or two? We don't want to strand fish in the tailrace because spill falls too low or stops altogether, Fredricks asked.

In response to a question, Turner said the system is now at the point of real concern – day-average flow yesterday at Bonneville was 78 Kcfs. What about the suggestion that, if Bonneville spill falls below 45 Kcfs, spill would cease for a few hours until enough water can be

stored to maintain 45 Kcfs spill once again? Silverberg asked. I'm not comfortable making that call, Fredricks replied; there simply isn't any data that would allow me to make an informed decision.

Bill Maslen said BPA is continuing to purchase power to maintain both minimum flows in the lower river and upriver storage; you can probably take 75 Kcfs as the minimum flow that will be provided at Bonneville for the foreseeable future, he said. With the 9 Kcfs miscellaneous flow constraint, we're likely to be well below the 45 Kcfs spill threshold at Bonneville for long periods in July and August, Maslen said. Does that mean spill at Bonneville is simply not practicable when flows are this low? Silverberg asked. That would be my interpretation, Maslen replied.

Fredricks noted that the second powerhouse fish unit passes 5 Kcfs; since that unit is generating power, shouldn't that 5 Kcfs apply to the 30 Kcfs powerhouse minimum? he asked. Turner said he would check on that; when he returned, he said that the 9.2 Kcfs "miscellaneous flow" total includes those portions of the second powerhouse fishway water that are supplied from the forebay through diffusers and the ladder exit, without going through power generating turbines. That portion that goes through F1 and F2, which is most of the fishway flow, is part of the powerhouse discharge and is applied to the 30 Kcfs minimum. The bottom line, Turner said, is that a total river flow of 89 Kcfs is still needed if the action agencies are to provide 50 Kcfs spill at Bonneville, and a total river flow of 84 Kcfs is needed if they are to provide 45 Kcfs spill at Bonneville.

Moving on to The Dalles, Fredricks reiterated that the recommendation of the ad hoc technical group was, again, to spill up to 40% of total river flow, but no less than 18 Kcfs. And what are today's flows at The Dalles? Jim Litchfield asked. Yesterday's average was 68.4 Kcfs, Ruth Abney replied. In other words, said Litchfield, we're already at the spill minimum at The Dalles. Maslen noted that the same question applies at The Dalles; what does the 5-7 Kcfs miscellaneous discharge represent? Henriksen said it is her understanding that, like at Bonneville, fish unit flows apply toward the powerhouse discharge while upper fish ladder and navigation lock discharges are accounted for in the miscellaneous flow. The bottom line is that, to provide 18 Kcfs of spill, total discharge at The Dalles needs to be 73 - 75 Kcfs, she said.

Is there a value to doing spill whenever you can at The Dalles, even a few hours at a time? Silverberg asked. I would say yes, Fredricks replied. Rock Peters stated that he agreed.

Bob Heinith said he is somewhat puzzled by this discussion of minimum flows, given the fact that there is four feet in Lake Roosevelt storage that needs to come downstream in the next six weeks. It's really only two feet, Tony Norris replied – Grand Coulee is at elevation 1281 today. That water will come down gradually over the next few weeks, but it's not going to make a huge difference in flow, he said – essentially, we're at 1281 feet plus operating range right now, and plan to draft the project to 1278 feet plus operating range by August 31. So we'll get two feet of Grand Coulee storage, plus, possibly, some Canadian storage, in August? Heinith asked. Essentially, yes, was the reply. That means we're looking at minimum flows of 75 Kcfs-80 Kcfs in the lower river through the rest of July and August? Heinith asked. That's probably

correct, Henriksen replied.

It sounds, then, as though we have to have 68 Kcfs in total river flow if we're going to spill at The Dalles, Litchfield observed. That's correct, Henriksen replied. What is the recommended operation if flow at The Dalles is in the 68 Kcfs-70 Kcfs range? Silverberg asked. Peters said that, even at a spill volume of less than 18 Kcfs at The Dalles, because spill at that project clears the basin quickly, at least some spill would still be more beneficial than turbine passage.

Is it fair to say, then, that what we need to do is set a total river flow target for each project, based on the minimum spill volumes and powerhouse minimums at Bonneville, The Dalles and possibly John Day, and spill when total river flow exceeds those targets? Litchfield asked. I think so, Silverberg replied. Peters observed that, while that might apply to Bonneville and John Day, it probably doesn't apply at The Dalles, where at least some spill around the clock would likely be more beneficial than all-turbine passage. Fredricks said he would go out on a limb and say that, based on all of the research he has seen, 15 Kcfs is the minimum acceptable spill volume at The Dalles. I just wouldn't be comfortable spilling less than 15 Kcfs at that project, Fredricks said. That would put the minimum total river flow at The Dalles under which spill could occur at 71 Kcfs, Maslen observed.

So if flows at The Dalles are 71 Kcfs (hourly) or greater, the TMT's recommendation is to spill whatever volume remains above minimum powerhouse discharge at The Dalles? Silverberg asked. That's correct, was the reply.

In response to a question, Turner noted that there appears to be an equipment-related constraint at Bonneville; flows cannot be reduced much below 75 Kcfs if the turbines are to stay within 1% peak efficiency.

Maslen reiterated the suggestion that the group attempt to define the minimum river flow at which some spill could occur at each project. It sounds, from what I've heard, that if we try to maintain 75 Kcfs-80 Kcfs at Bonneville, we should be able to provide at least some spill at The Dalles, he said. It also sounds as though spill would not be an option at Bonneville if flows are in the 75 Kcfs-80 Kcfs range, added Robyn MacKay. That's probably correct, was the reply. Fredricks noted that 15 Kcfs is a bare minimum spill volume at The Dalles; again, NMFS would prefer to spill 40% of total river flow.

What about the possibility of shifting generation from The Dalles to other projects so that you could spill more at The Dalles? Scott Boyd asked. I did check on that, Maslen replied; the answer I got was that the minimum powerhouse flows at each project are in fact the minimums, so such an exchange would not be an option.

Heinith said CRITFC's recommendation is to turn any volume above that needed for minimum powerhouse discharge at Bonneville, The Dalles and John Day into spill. That's what we've been talking about today, Maslen replied – the fact that, particularly at Bonneville and John Day, that type of a spill program would likely produce conditions that are more detrimental

to fish than a zero spill program.

What about the possibility of curtailing spill for several hours at Bonneville to store water in the forebay, so that we could spill at least 45 Kcfs for, say, 16 hours a day rather than 24? Turner asked. After a brief discussion, Turner corrected himself, observing that instantaneous minimum flow and operational requirements would severely limit forebay storage opportunity at low flows, so that such an operation would not have much effect.

A big part of the problem with this issue is the fact that, at these flow levels, we're outside our range of knowledge about whether spill at such low-flow levels, or on an on-again, off-again basis, is beneficial, or detrimental, to fish, Peters observed. The other problem, of course, is that we're on the edge of what is an absolutely worst-case scenario, said Maslen.

Mallette said she is extremely disappointed to learn of the "miscellaneous flow" constraints at such a late hour; this may be attributable to the fact that we've never before been in such a dire flow situation, she said. However, it is disturbing to hear the federal agencies talking about erring on the side of not providing any spill, given the biological uncertainties associated with providing spill under these flow conditions. Oregon's recommendation is that the action agencies do what they can to stabilize lower river flows in the 75 Kcfs-80 Kcfs range, and provide whatever spill they can at each of the three lower-river projects, she said.

The discussion turned to the volume of water currently in federal storage; Heinith observed that BPA reported last week that there is the equivalent of 32,000 MW-months currently in storage. Maslen and MacKay replied that the additional 4,000 MW-months will be drafted between now and September 30 in order to meet minimum flows in the system. Couldn't BPA just purchase a little more? Filardo asked. The problem, as Therese Lamb has been telling us, is that river flows are forecast to be at record low levels between now and September, Litchfield replied. I understand that, Filardo asked; my question is, if there had been no talk about a spill program, would total river flows still be receding at this point in the season? We've been moving in that direction for some weeks, Maslen replied.

In response to another question, Turner said average total discharge for the last 24 hours at The Dalles was actually 73.4 Kcfs, with a miscellaneous flow of 5.9 Kcfs.

It sounds like the only good news is that we have a "maybe" on spill at The Dalles, as long as flows stay above 71 Kcfs at that project, Wagner observed. Bonneville is another question; there is a lot of uncertainty about whether or not there will be any spill at Bonneville, particularly on the weekends, he said.

The discussion returned to the question of whether on-again, off-again spill blocks would be acceptable at Bonneville, and of what frequency and duration. Fredricks said he definitely would not turn spill on and off more than once a day at Bonneville; beyond that, he said, I don't know what would be OK and what would not – it all boils down to how much risk you're willing to tolerate.

Looking at the SSARR, said Henriksen, over the next week, I don't see a single day when Bonneville flows are going to meet the 84 Kcfs minimum required to provide 45 Kcfs spill. Fredricks said that, in that case, turning spill on for a day, then off for a day, would be preferable to no spill at all. No question about it, Heinith agreed. Fredricks said that, in his mind, every time spill is turned on and off, you kill fish – it just boils down to a judgement call about which operation is more detrimental to fish.

In response to another question from Silverberg, Fredricks and Maslen said there is no possibility of doing additional monitoring this summer to investigate the efficacy of the 2001 summer spill operation.

Heinith reiterated CRITFC's recommendation that the action agencies spill whatever water is not required to meet minimum powerhouse discharges at the three lower-river projects.

It sounds as though we have resolution at The Dalles – 15 Kcfs minimum spill, up to 40% of total river flow, and if total river flow falls below 71 Kcfs, spill gets turned off until flows exceed 71 Kcfs again, Henriksen said. We could very easily use all 200 MW-months at The Dalles, she said; the question is, do we want spill at Bonneville as well? The problem is that total river flow is so low that I'm not sure we can predict, 24 hours in advance, that we will exceed 84 Kcfs on a day-average at Bonneville, she said.

What about CRITFC's recommendation that we should spill anything above the powerhouse minimum flow at Bonneville, even if that gives us less than 45 Kcfs? MacKay asked. NMFS' recommendation is not to spill at Bonneville if spill volume falls below 45 Kcfs, Fredricks replied; however, it's a subjective judgement about the point at which the benefits of spill are outweighed by dangerous egress conditions. The SIMPAS model would suggest a 6% survival benefit if you spill 31 Kcfs (at 70 Kcfs total river flow) vs. zero spill; that would be offset, to an extent no one knows for sure, by decreased turbine survival, he said. I wish I had more information, Fredricks said; above all, I wish we had more water, so that we didn't have to have this conversation.

So NMFS' position is that we should not spill at Bonneville if total river flow falls below 84 Kcfs? Silverberg asked. That's what we said, up until CRITFC made its suggestion about spilling anything over powerhouse minimum flow, Fredricks replied. Does that mean we're back to concentrating on spill at The Dalles, given the fact that total flow at Bonneville is unlikely to reach 84 Kcfs over the next week? Henriksen asked. I don't think you can conclude that, said Heinith – that's an ongoing discussion.

Maslen observed that, with 31 Kcfs spill, the physical conditions in the tailrace won't be anything like the conditions assumed in the SIMPAS model – it will produce an eddy back toward the center of the river. No question, Fredricks and Peters agreed.

Are there any TMT members who support going below 45 Kcfs spill at Bonneville, based on what they have heard today? Silverberg asked. Oregon does, Mallette replied. How low do you support going? Silverberg asked. Given all of the uncertainties we've heard expressed today,

I believe we should provide whatever volume of spill is available above minimum powerhouse flow, Mallette replied. I don't have a suggestion about how we could quantify the biological benefits of such a less-than-optimal spill program, she said; on the other hand, I am not aware of any ability to demonstrate the benefits that would be gained by not spilling.

Shane, the Washington representative, said there isn't enough information on which to base a recommendation at this point. Steve Pettit said Idaho would hate to take a spill program off the table at this late date; in his opinion, in this particular water year, there could well be some biological benefit to a spill volume of less than 45 Kcfs at Bonneville – how low, he said, is anyone's guess at this point.

Wagner suggested that it may make sense to spill a minimum of 45 Kcfs during the hours when total river flow at Bonneville exceeds 84 Kcfs, rather than spilling a lesser volume around the clock. During the hours when total river flow is below 84 Kcfs, you would not spill, he said – essentially, the people who are familiar with the Bonneville project, and the applicable modeling tools, feel it is not beneficial to fish if you spill at a volume less than 45 Kcfs at Bonneville. That is NMFS' recommendation, based on the best available information, Wagner said.

In response to another question from Silverberg, Fredricks said that, given typical project operations, it is unlikely that spill would be turned on and off more than once a day, even if such a program was implemented. Pettit said Idaho would be willing to entertain this compromise. David Wills said the Fish and Wildlife Service supports spreading the risk across all routes of passage; it is impossible to guess at what minimum levels of spill the detriments begin to outweigh the benefits. Wills said the Fish and Wildlife Service is willing to support Wagner's suggested compromise. Mallette said Oregon is also willing to support this compromise, as long as Bonneville spill is not turned on and off at random.

It sounds, then, as though we have agreement, Henriksen said; to be clear, however, given the flows we've seen over the past week or so, it is likely that there would be only a few hours of daytime spill at Bonneville – only a few hours during which total river flow would exceed 84 Kcfs. Would it be better to shape the available Bonneville spill into nighttime hours? If possible, yes, Filardo replied – juvenile passage at Bonneville is higher at night.

In response to another question, Maslen said it may be difficult to provide enough water to spill at night, given the fact that actual nighttime flows are lower than flows during the peak daytime hours. Maslen said he will check on the feasibility of the request to provide nighttime spill and report back to the TMT.

Litchfield observed that it makes little or no sense to turn spill on for a few hours at Bonneville, then turn it off again, stranding the fish in the tailrace. That's why we need 24-hour spill at Bonneville, even if you have to go down to 31 Kcfs of spill volume, Heinith said.

NMFS is the agency charged with regulating the spill program, said Silverberg, from a procedural standpoint, I'm not sure how to get around the fact that they have said they are unwilling to support spill of less than 45 Kcfs at Bonneville. Pettit said that, given forecast

record water temperatures, he is uncomfortable with the idea of any ponding to provide the volume necessary for nighttime spill – that could have a serious detrimental impact on adult passage. That would also be a concern to CRITFC, as is the possibility of adult fallback due to lack of spill, said Tom Lorz.

Do others share those concerns? Silverberg asked. I think that, given the limited opportunity to pond, increased forebay temperatures are unlikely to be a major concern, Maslen replied.

I'm not hearing that we have enough water to spill at Bonneville at all, said Henriksen – unless flows exceed 84 Kcfs on a day-average, it doesn't sound as though we have agreement that spill should proceed there.

What about the question of adult fallback due to lack of spill? Heinith asked – there are several thousand adult steelhead making their way upstream right now, and CRITFC thinks that could be a problem. Is that more beneficial than the fish falling back through other routes? Maslen asked. The fallback rate is much lower than normal this year, arguably because we aren't providing any spill, he said. Falling back through spill would likely be better than falling back through other routes, although the narrower the opening, the worse the conditions would be for adult fish, Fredricks said, adding that he agrees that less fallback than normal is being observed this year.

To summarize, I think we have agreement on what is going to happen at The Dalles, said Silverberg – whenever hourly flows are 71 Kcfs or greater, we will spill. Minimum spill at the project is 15 Kcfs, up to 40% of total river flow. At Bonneville, what I'm hearing is that if we have a projection of total river flow, on a day-average, of 84.2 Kcfs or greater, then we will spill 45 Kcfs during the hours when flow will exceed 84.2 Kcfs at that project, she said.

The group devoted a few minutes of discussion to the proposed spill program at Bonneville; there was considerable ambiguity about the details of the proposed spill program at this project. Maslen said he would recommend trying to develop a project instruction as clean as the one TMT has developed for The Dalles; the only thing I've heard for sure, he said, is that Bonneville is the one project at which spill should not be turned on and off. Litchfield suggested that what the instruction to the project should say is that, whenever hourly flows are projected to exceed 84.2 Kcfs at Bonneville for at least four or five consecutive hours, spill will occur. Filardo recommended that the spill blocks be no less than 12 hours, if possible, and should occur, if possible, during nighttime hours. Essentially, the recommendation is to spill at least 45 Kcfs for at least five hours at Bonneville, and to turn spill on and off no more than once per day, Maslen observed.

Ultimately, Henriksen suggested that the Corps be allowed to frame up a project instruction that will capture the suggested Bonneville and The Dalles spill operations, for presentation at tomorrow's IT conference call. The U.S. Fish and Wildlife Service, Washington, Oregon, Idaho and NMFS agreed that it would be appropriate for the Corps and BPA to draft the project instruction for presentation at tomorrow's IT call.

Does anyone disagree with the ad hoc technical group's conclusion that spill is not feasible at John Day this summer, due to poor tailrace egress conditions at these low total river flows? Maslen asked. No disagreements were voiced.

It was further agreed that there will be no TMT meeting this Wednesday, unless necessitated by tomorrow's IT meeting. With that, the conference call was adjourned. Meeting notes prepared by Jeff Kuechle, BPA contractor.

LIST OF MEETING PARTICIPANTS

TMT CONFERENCE CALL JULY 23, 2001

Name	**Affiliation**
Ruth Abney	COE
Scott Boyd	COE
Ruth Burris	
Margaret Filardo	FPC
Gary Fredricks	NMFS
Russ George	Water Management Consultants Inc.
Richelle Harding	D. Rohr & Associates
Robin Harkless	Facilitation Team
Cindy Henriksen	COE
Jim Litchfield	Consultant (Montana)
Tom Lorz	CRITFC
Robyn MacKay	BPA
Christine Mallette	ODFW
Kyle Martin	CRITFC
Bill Maslen	BPA
Tony Norris	Reclamation
Rock Peters	COE

Steve Pettit	IDFG
Chris Ross	NMFS
James Scott	U.S. Department of Fish and Wildlife
Donna Silverberg	Facilitation Team
Rudd Turner	COE
Paul Wagner	NMFS
David Wills	USFWS

TECHNICAL MANAGEMENT TEAM

BOR: Tony Norris\Pat McGrane *BPA: Scott Bettin\Robyn MacKay*

NMFS: Paul Wagner\Chris Ross *USFWS: David Wills\Howard Schaller*

OR: Christine Mallette *WA: Shane Scott* *ID: Steve Pettit* *MT: Jim Litchfield*

COE: Cindy Henriksen\Rudd Turner*Cathy Hlebechuk*

TMT Meeting

1 August 2001 0900 - 1200 hours

Custom House Room 118 Portland, Oregon
Conference call line: 503-808-5190

All members are encouraged to call Donna Silverberg with any issues or concerns they would like to see addressed. Please e-mail her at dsilverberg@cnnw.net or call her at (503) 248-4703.

AGENDA

1. Welcome, introductions.
2. Implementation Team update -- summer spill for fish (COE, NMFS).
3. Status of hydrosystem storage and power system reliability (BPA).
4. Libby operation -- algae flush, August priorities (COE).
5. Review current system conditions.
    - reservoir operation, water supply, water quality (COE, BOR)
    - power system status (BPA)
    - fish migration status (NMFS, USFWS)
6. Review operations requests.
7. Develop recommended operations.
8. Review TMT Emergency Protocols (WMP Appendix 2).
9. Other.
    - set agenda for 15 August TMT meeting

- conduct TMT end-of-year review in September

Questions about the meeting may be referred to Rudd Turner at (503) 808-3935, or Cindy Henriksen at (503) 808-3945.

COLUMBIA RIVER REGIONAL FORUM

TECHNICAL MANAGEMENT TEAM
MEETING NOTES
August 1, 2001
CORPS OF ENGINEERS NORTHWESTERN DIVISION OFFICES – CUSTOM HOUSE
PORTLAND, OREGON

TMT Internet Homepage: http://www.nwd-wc.usace.army.mil/TMT/index.html

FACILITATOR'S NOTES ON FUTURE ACTIONS
Facilitator: Richard Forester

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.

Implementation Team Update:
Summer Spill proceeding as approved after some initial confusion. Started at The Dalles on July 24th at 2pm, and at Bonneville on July 24th from 8 pm to 1am. Spill had used 46 MW-months as of midnight July 31. At the current rate of spill, it will use about 200 MW- months by August 26, 2001.

Status o hydrosystem storage /reliability:
Scott Bettin reported no essential change in status. 32,000 MW-months storage projected to be at 28,000 MW-months by the end of September, with Coulee down to 1278 feet by the end of August. Power Council projects another system reliability report in mid-October, WNP2 scheduled to be back on line this week (1100 MW).

Libby operation – algae flush and august priorities:
Rudd Turner reported on the partial success of the algae flush (higher flow and longer duration more would have removed more algae). See e-mail from Brian Marotz for more details. Libby reservoir elevation is at 2436+ feet (2439 called for in the BiOp) and likely to remain there or lower. The 10 kcfs flush operation has been ramp down back to 6 kcfs minimum and it was the consensus to draft down at 6 kcfs through August. TMT agreed that, under current conditions, holding Libby at 6 kcfs through August was a higher priority than having the reservoir reach 2439 ft.
ACTION: Maintain 6 kcfs at Libby.

Review of Current Conditions:
Reservoir operation, water supply, and fish migration status were summarized. (see relevant web pages for details). Mr. Cassidy discussed water temperatures impacted by

Dworshak operations. Significant impact was noted approximately two weeks after full powerhouse releases started, coinciding with cooler weather and a rain storm even on the 14th of July. (see relevant web pages for details). Dworshak now 1559'. Lower Snake has been recorded at or below 70F for most of July.

No new operations requests.

Develop recommended operations.
Dworshak continues to discharge at 10 kcfs. Ramp down to 1520 elevation to be discussed at the next TMT meeting. Libby continues at 6 kcfs as discussed.

Review of TMT Emergency Protocols (WMP Appendix 2)
Christine Mallette led the discussion which started with the question: Does the current emergency fit the definition(s) used in the protocol. Some felt that "generation emergency" on page 2 came close to defining it, especially in conjunction with definition 3 "other emergency". Christine expressed a concern that long term reliability based emergency might not be covered in this definition, and wondered what TMT's role was in defining such an emergency event. Paul Wagner volunteered to provide language for a new improved definition. It was decided to refer to IT the question of "What is the role of TMT in defining, developing and implementing 2001 emergency mitigation?"
It was also decided to change "as soon as practicable"(second line, page 4) to conform to flow chart language for yellow alert " as soon as reasonably possible". Finally a request was made to cross-reference reminder to the "goals" of the protocols on page 2, in the opening of Appendices, paragraph 2., so as to remind the decision makers in making choices for response actions as to what the goals of the actions are to be.
ACTION: Refer to IT the question of "What is the role of TMT in defining, developing and implementing emergency mitigation?"

Other:

AGENDA FOR AUGUST 15, 2001 (9am to 12 face to face)
- Review the emergency Protocols with revisions
- McNary Mixers Report
- IT follow-up
- Report on benefit of Summer Spill
- Compare the model weather with this Summer's weather.
- Year end review agenda (identify data desired)
- Dworshak ramp-down schedule

(August 8 Conference call only if needed or requested)

- Post TMT meeting with Seattle District COE to discuss TMT process

Meeting Minutes

1. Greeting and Introductions

The August 1 Technical Management Team meeting was chaired by Cindy Henriksen of the Corps and facilitated by Richard Forester. The following is a distillation, not a verbatim transcript, of items discussed at the meeting and actions taken. Anyone with questions or comments about these minutes should call Henriksen at 503/808-3945.

Forester welcomed everyone to the meeting, then led a round of introductions and a review of the agenda.

2. Implementation Team Update – Summer Spill for Fish.

Henriksen reminded the group that there have been a series of TMT and IT conference calls over the past two weeks, convened to discuss the summer spill issue elevated at the TMT's July 18 meeting. On Tuesday, July 24, the TMT and IT reached agreement on a summer spill program at Bonneville and The Dalles Dams. As a result of that agreement, Henriksen said, the Corps began spilling at The Dalles at 2 p.m. Tuesday, July 24, with the understanding that spill at The Dalles would continue around the clock as long as total river flow is at least 71 Kcfs at that project. The minimum spill volume at The Dalles is 15 Kcfs; the maximum is 30% of total river flow. Henriksen noted that, since the spill program started, there have been some light-load hours when total river flow dropped below 71 Kcfs and no spill occurred. There have also been some hours when total river flow at The Dalles dropped as low as 69 Kcfs, but we were still able to provide 15 Kcfs spill at the project, Henriksen added.

At Bonneville Dam, she continued, spill also began, as agreed, on the evening of July 24. The desire was to provide a minimum of 45 Kcfs spill from 8 p.m. to 1 a.m There are some hours when the spill volume at Bonneville has dropped as low as 43 Kcfs, Henriksen said; during other hours, the spill volume is 47 Kcfs. This is due to the spill pattern NMFS has recommended, she said; overall, the average spill volume at Bonneville is very close to 47 Kcfs. In general, the project is doing a pretty good job of keeping spill up to the desired level.

As of midnight last night, according to the Corps' calculations, the summer spill operation has used the equivalent of about 40 MW-months so far, Henriksen added. If spill continues at this rate, the Corps anticipates that the 2001 summer spill program will reach the equivalent of 200 MW-months by about August 26.

Paul Wagner added that the intent is to continue the spill operation through the end of August; that is contingent, however, on the continued availability of reasonably-priced energy for purchase.

3. Status of Hydrosystem Storage and Power System Reliability.

Scott Bettin reported that total federal storage is now just over 32,000 MW-months; the plan is to maintain a volume of at least 28,000 MW-months through September 30, he said. Grand Coulee will draft to elevation 1278 by August 31, so we will get all of the salmon water out prior to that date, Bettin said.

When can we expect to see the new Power Planning Council system reliability re-evaluation requested at one of the recent IT conference calls? Wagner asked. Mid-October, Bettin replied, adding that it may be helpful for the TMT to formally request that the schedule for this analysis be accelerated.

What about the status of WNP-2? asked Christine Mallette. It is scheduled to come back on line tomorrow, Bettin replied; it should be back up to full power by this Saturday.

4. Libby Operation.

Rudd Turner reported that Libby discharge was increased, as requested, to 10 Kcfs on the morning of July 19; discharge was maintained at this volume for 24 hours. Libby discharge was back down to 6 Kcfs on Sunday, July 21. Ramp rates, both up and down, were consistent with the USFWS Biological Opinion. According to Montana Fish, Wildlife and Parks field personnel, the flushing operation was partially successful, removing at least some of the algae that had accumulated below Libby Dam. It is likely that a greater percentage would have been removed if we could have sustained the operation for longer, at a higher rate of flow, but the fact of the matter is that we did what we could do, Turner said. He also stated that the body of the 16-year-old boy who drowned near Kootenai Falls was recovered early the week following the flush operation.

Turner noted that, according to this week's SSARR run, if Libby outflow is held at 6 Kcfs through August 31, the project will miss its end-of-August target elevation of 2439 by about 2 ½ feet. He noted that 6 Kcfs is the BiOp minimum flow for bull trout during the summer period; on the other hand, said Turner, we need to balance that against the desire to fill to elevation 2439 by the end of August. Basically, this is food for thought, Henriksen said; we should probably talk at some point about whether the TMT wants to consider reducing Libby outflow to 5 Kcfs. Wagner said NMFS would prefer to maintain 6 Kcfs outflow from Libby through the end of the summer period, given the fact that Libby will be drafted to elevation 2411 by the end of December anyway. Mallette said Oregon agrees with NMFS that there is no biological justification for reducing Libby outflow at this time. Bettin stated that this operation would be acceptable in terms of power system operation. TMT agreed that, under the current conditions, maintaining the 6 kcfs discharge is a higher priority than having the reservoir reach 2439 ft. by the end of August. Thus, the group agreed to continue with the 6 kcfs discharge at Libby.

5. Current System Conditions.

Tony Norris said Reclamation increased Hungry Horse outflow to 1.5 Kcfs on August 1; on August 16, Hungry Horse discharge will be increased to 1.8 Kcfs in order to meet the project's August 31 elevation target of 3540 feet. Kerr continues to discharge 4 Kcfs, said Norris; the current elevation at Hungry Horse is 3543 feet. Grand Coulee is now at elevation 1282 feet; Reclamation plans to draft that project to 1278 plus the operating range by August 31. Norris added that, due to problems with the pump generator units, Banks Lake has been drafting recently; current Banks Lake elevation is 1566.5 feet. Reclamation plans to draft Banks Lake to elevation 1565 feet by August 6, as specified in the Biological Opinion; once that elevation is achieved, Reclamation plans to hold Banks Lake at 1565 through August.

Henriksen said the current elevation at Libby is 2436 feet, 22 ½ feet from full; the project is essentially passing inflow. Albeni Falls is full and passing inflow of about 8 Kcfs. Dworshak is currently at elevation 1559 feet, 41 feet from full; the project is releasing its full powerhouse capacity of about 10 Kcfs, and should reach its draft limit on about August 31. We should probably start talking at the next TMT meeting about what sort of rampdown operation is needed to achieve elevation 1520 at Dworshak on August 31, Henriksen said.

Snake River flow at Lower Granite is currently about 23 Kcfs, Henriksen said; Columbia River flow at McNary is currently about 70 Kcfs. Dick Cassidy provided recent water temperature information, noting that July weather was, fortunately, cooler than normal. However, water temperatures at Lower Granite and McNary have risen steadily through the month; they are now in the low 70-degree F range at McNary. Cassidy spent a few minutes going through some of the current water temperature data available from the Corps website, including recent tri-level thermograph information. Overall, Cassidy noted that the cold-water releases from Dworshak are having the anticipated cooling effect at Lower Granite, where tailwater temperatures have been below 70 degrees F during the entire month of July and are currently about 66.5 degrees F.

Moving on to the status of the fish migration, Wagner reported that Billy Connor's wild marked Snake River subyearlings continue to arrive at Lower Granite dam in small numbers; the peak of the wild subyearling migration at Lower Granite occurred in early July, however. These fish are now distributed throughout the Snake and Columbia Rivers; to date, however, very few have passed Bonneville Dam. Subyearling chinook indices continue to decline at McNary Dam, but are on the increase at John Day, where the index exceeded 79,000 yesterday, one of the highest daily totals of the year. Wagner said adult steelhead passage also looks good for this time of year, with about 10,000 adult steelhead passing Bonneville Dam daily. Wagner added that sockeye numbers continue to be lower than expected throughout the system.

6. New System Operational Requests.

No new System Operational Requests were submitted prior to today's meeting. In response to a question from Mallette, Henriksen said the maintenance work on the

transmission system at Bonneville Dam, as well as Powerhouses 1 and 2, went forward as scheduled beginning today. However, Vern Parry noted that the maintenance schedule has been modified so that Powerhouse 1 will not need to be operated until the first week in September.

7. Recommended Operations.

Henriksen summarized by saying that Libby will continue to release 6 Kcfs; Dworshak will continue to release full powerhouse capacity, but the TMT will need to discuss the Dworshak ramp-down operation at its next meeting. Norris said Grand Coulee will continue to draft slowly toward elevation 1278 (plus operating range) by August 31; Hungry Horse will release 1.5 Kcfs through August 16, at which point discharge will be increased to 1.8 Kcfs.

8. Review of TMT Emergency Protocols.

Henriksen distributed copies of the most recent draft of the TMT Emergency Protocols; she asked Mallette, who had requested this agenda item, if she had any specific concerns or changes to offer at today's meeting. Mallette said her main question was how the current emergency declaration fits into the TMT emergency protocol matrix.

The group spent a few minutes discussing this question; ultimately, it was agreed that a new paragraph, designed to address operational decision-making under an ongoing power system emergency declaration such as the one the region is currently experiencing, would be a useful addition to the protocols. Wagner offered to draft this new language; he said he will distribute it for TMT consideration and discussion at the August 15 TMT meeting.

Bettin noted that BPA expects the current power system emergency to continue through this fall; then, if precipitation returns to normal this winter, the emergency will end and system operations will return to normal as well.

The group also discussed the way mitigation is addressed in the emergency protocols, offering a variety of suggestions and changes. Ultimately, it was agreed that all of these changes will be incorporated into a new version of the emergency protocols, which will be distributed, reviewed and discussed further at the August 15 TMT meeting.

9. Other.

The group spent a few minutes discussing the TMT's annual post-season review; it was agreed that this process will begin at the TMT's September 26 meeting.

The next meeting of the Technical Management Team was set for Wednesday, August 15.

Meeting notes prepared by Jeff Kuechle, BPA Writer-Editor Pool.

TECHNICAL MANAGEMENT TEAM

BOR: Tony Norris\Pat McGrane *BPA: Scott Bettin\Robyn MacKay*

NMFS: Paul Wagner\Chris Ross *USFWS: David Wills\Howard Schaller*

OR: Christine Mallette *WA: Shane Scott* *ID: Steve Pettit* *MT: Jim Litchfield*

COE: Cindy Henriksen\Rudd Turner*Cathy Hlebechuk*

TMT Conference Call

08 August 2001 0900 - 1200 hours

Portland, Oregon
Conference call line: 503-808-5190

All members are encouraged to call Donna Silverberg with any issues or concerns they would like to see addressed. Please e-mail her at dsilverberg@cnnw.net or call her at (503) 248-4703.

AGENDA

1. Welcome, introductions.

2. Summer spill operation (BPA).

Questions about the meeting may be referred to Rudd Turner at (503) 808-3935, or Cindy Henriksen at (503) 808-3945.

COLUMBIA RIVER REGIONAL FORUM

TECHNICAL MANAGEMENT TEAM
CONFERENCE CALL NOTES
August 8, 2001
CORPS OF ENGINEERS NORTHWESTERN DIVISION OFFICES – CUSTOM HOUSE
PORTLAND, OREGON

TMT Internet Homepage: http://www.nwd-wc.usace.army.mil/TMT/index.html

1. Greeting and Introductions

The August 8 Technical Management Team conference call to discuss a possible increase to the 2001 summer spill program was chaired by Cindy Henriksen of the Corps and facilitated by Donna Silverberg. The following is a distillation, not a verbatim transcript, of items discussed at the meeting and actions taken. Anyone with questions or comments about these minutes should call Henriksen at 503/808-3945.

Silverberg welcomed everyone to the meeting, then led a round of introductions and a review of the agenda.

2. Discussion of Potential Spill Increase at Bonneville and The Dalles.

Henriksen said this was an emergency conference call, convened at the request of BPA, who wanted the TMT to discuss a possible expansion of the current summer spill program. BPA's Therese Lamb said her agency wanted to spend a few minutes reviewing the current status of the spill program, and to offer a proposal about how it might be expanded, in light of BPA's recent review of the 28,000 MW-month system reliability storage target and the agency's cash reserves.

Three weeks ago, said Lamb, BPA brought the TMT up to date about the current status of federal storage, together with an estimate of the impact of with low, medium and high streamflow assumptions from here through October. BPA's concern, at that point, was that if the low streamflow scenario materialized, we would miss the system reliability target by about 1,000 MW-months. Since then, said Lamb, it has become apparent that we're actually on a medium-to-high streamflow scenario; we have also been able to purchase significant amounts of power.

The upshot, said Lamb, is that we now have about 32,500 MW-months in storage, and even if steamflows are low between now and the end of September, we will still meet the storage criteria, which gives us some additional operational flexibility now, Lamb said. She added that the financial picture is less clear; there is the potential for significant cash flow problems in the fall, or we could be fine – it depends on what prices do.

The bottom line, however, is that we have some water that we can spill now, Lamb said;

we can also use some of that water to generate additional power to enhance the revenue situation, or retain it to enhance system reliability.

Specifically, BPA is proposing that spill at The Dalles go to 40% of total river flow around the clock beginning this morning, and that spill at Bonneville be increased to 50 Kcfs around the clock beginning tomorrow evening. Rudd Turner said that, after internal discussions at The Corps, Bonneville project personnel have asked that the in-water work window continue until as late as 8 p.m. tomorrow, although there would be a spill window from 6 p.m. tonight to 6 a.m. tomorrow. After tomorrow, the work will be finished, Turner said. In response to a question, Turner explained that divers are in the water below the spillway to begin measuring and installing brackets on the pier noses, in preparation for the flip-lip installation at that project. Turner added that the spill program will have to end on August 31, if the flow deflector installation is to proceed on schedule.

Bob Heinith said CRITFC believes it is important to get the Bonneville flow deflectors installed; he said it sounds as though, if the system had gone to a 24-hour spill program two weeks ago, the flip-lips would not have been installed until 2003. We're stuck with a Sophie's Choice, he said; we aren't happy about the fact that we can't go to 24-hour spill at Bonneville until those guys get out of the water. I'm not sure there is any value in rehashing what might have been, Henriksen said; the fact of the matter is, we will have 50 Kcfs spill beginning tonight at Bonneville, and will go to 50 Kcfs spill 24 hours a day starting tomorrow evening.

Henriksen said current Bonneville flow is 80 Kcfs, and noted that total river flow will have to increase somewhat in order to maintain 50 Kcfs spill. The question, she said, is what are we going to do in September? The minimum flow at Bonneville is 70 Kcfs; we're using some of our reliability reserves in August. Is that going to be a problem? Henriksen asked. BPA has some of the same concerns, Lamb said; however, our most recent analysis shows that, even with low streamflows, we should be able to meet the Bonneville minimum flow, refill Grand Coulee to elevation 1283 ft. by September 30 and keep somewhat more than 28,000 MW-months in storage by October 1. We need to continue to monitor that situation, she said, but that is our conclusion, based on our most recent analysis.

Henriksen asked which project or projects will need to be drafted to maintain the Bonneville minimum of 70 Kcfs during the month of September. Where does BPA expect Dworshak elevation, for example, to be on September 30? She asked. At either 1520 feet or 1500 feet, depending on what the TMT recommends, Lamb replied. Where do we get water to compensate for a cold snap if Dworshak is at 1500 feet? Henriksen asked. From all four headwater storage projects, Lamb replied. If we have a poor water year next year, yet again, and Dworshak is at 1500, and we use the water in storage during a cold snap, it is unlikely that we could refill that project to its flood control elevation next spring, Henriksen observed – is that a concern to NMFS? Yes, it is, Chris Ross replied; the Nez Perce Tribe and the State of Idaho, in particular, do not support drafting Dworshak to elevation 1500 this year. Those are important issues, but I'm not sure they're affected by our decision today, Lamb said.

I disagree, said Henriksen; my concern is that if we use our system reliability storage in

August, we may not be able to meet the 70 Kcfs Bonneville minimum during September, when Grand Coulee is refilling and Dworshak is passing inflow, she said. We may have different assumptions about Canadian operations, Lamb said; unless this is a show-stopping issue, I might suggest that we implement this proposed spill operation now, and revisit it at next week's TMT meeting.

What is your suggestion, Cindy, about how to move forward with this today? Silverberg asked. We need more information about the reliability issue, Henriksen replied; in particular, we need to be able to compare the Corps SSARR run and other studies with BPA's studies, before we feel comfortable implementing BPA's proposed spill operation. Once we start this operation, it will be difficult to stop, she said; purchasing does not put water back into Dworshak. It does, however, put water back into Canadian storage, which is almost as good, BPA's Steve Kearns observed.

Ross asked which is most important, in the Corps' opinion – the 70 Kcfs Bonneville minimum or the 1283 refill elevation at Grand Coulee? The 70 Kcfs Bonneville minimum, from the Corps' standpoint, Henriksen replied. Reclamation would want to have some serious discussions on that point, because the 1283-foot Grand Coulee elevation is very important to us, said Tony Norris.

Shane Scott said Washington supports the increased spill program at Bonneville and The Dalles, and is appreciative of BPA's willingness to initiate both this conference call and the spill increase. Ross said NMFS also supports the increase in spill; there are still plenty of subyearling chinook coming down the system, he said. Dave Wills said the U.S. Fish and Wildlife Service supports the spill increase as well. Norris said Reclamation also supports the increase, with the caveat that the storage situation be monitored carefully. Heinith said CRITFC is absolutely in support of the increased flows and spill Bonneville is proposing.

We can begin spill on 15 minutes notice at The Dalles, said Turner; we can start at 10 or 11 this morning. At Bonneville, we will plan to start spill at about 6 p.m. tonight, stop at 6 a.m. tomorrow and go to 24-hour spill starting no later than 8 p.m. tomorrow, he said. The spill volume will be 40% of total river flow at The Dalles and 50 Kcfs at Bonneville. In response to a question from Heinith, Lamb said she anticipates that total river flow at Bonneville will be in the 90 Kcfs-100 Kcfs range for the rest of this week, because of increased loads due to warmer temperatures up and down the West Coast. So as long as the weather stays warm, flows will continue to be in the 90-100 Kcfs range? Heinith asked. Yes, Lamb replied. However, this is not a sustainable operation, Henriksen said – flows in September will likely be in the mid-70 Kcfs range. Heinith noted that CRITFC will be submitting an SOR very soon covering Lower Columbia pool elevations during the fall fishery. Thanks for the heads-up, Henriksen said.

It sounds, then, as though we have agreement that the spill increase at Bonneville and The Dalles go forward as proposed, with the caveat that we will be continually monitoring the system reliability and storage situation, Silverberg said. Cathy Hlebechuk noted that it may also be necessary to curtail spill for a few hours at Bonneville if TDG levels at Camas/Washougal exceed 115%. Heinith asked why the Corps wouldn't just reduce the spill volume, rather than

curtailing spill altogether; Turner observed that this discussion has already taken place at TMT, and the Corps is uncomfortable reducing the spill volume much below 45 Kcfs due to the detrimental effects of the lower spill volume on fish egress conditions in the Bonneville tailrace.

Turner said the Corps will implement the increased spill program as recommended by the TMT; however, the Corps has serious concerns about the sustainability of this operation in light of the need to meet the 70 Kcfs minimum flow at Bonneville, the 1283-foot elevation target at Grand Coulee and the 28,000 MW-month system reliability storage target during the month of September. Given the fact that we're currently running water out of storage at a rate of 90 Kcfs-100 Kcfs, Turner said, the Corps is concerned that, in spite of BPA's analysis, current flows vs. needed storage levels just don't fit here. We will continue to monitor the system reliability situation closely, and will discuss it again at the August 15 TMT meeting, Silverberg said. In response to a question, Lamb said the spill program will continue through August 31, unless compelling financial or system reliability concerns arise in the interim.

Hlebechuk informed the TMT that the Corps needs to switch the large unit at Dworshak to undershot mode, in order to draw colder water from deeper in the reservoir. Making the switch will require a short-duration shut-down of the large unit, during which period total Dworshak discharge will be decreased to about 4.5 Kcfs for a few hours. No TMT objections were raised to this change.

With that, the conference call was adjourned. The next TMT meeting was scheduled for 9 a.m.-noon on Wednesday, August 15. Meeting notes prepared by Jeff Kuechle, BPA Writer-Editor pool.

TMT PARTICIPANT LIST

AUGUST 8, 2001

Name	Affiliation
Mike Butchko	PowerX
Dick Cassidy	COE
Richelle Harding	D. Rohr & Associates
Bob Heinith	CRITFC
Cindy Henriksen	COE
Cathy Hlebechuk	COE
Steve Kearns	BPA
Therese Lamb	BPA
Ningjen Liu	IdaCorp Energy

Doug Marx	Attorney, Lake Pend Oreille Idaho Club
Bill Maslen	BPA
Tony Norris	Reclamation
Mike O'Bryant	Columbia Basin Bulletin
Chris Ross	NMFS
Dennis Schwartz	COE
Shane Scott	Washington
Donna Silverberg	Facilitation Team
Sandra Takabyashi	COE
Rudd Turner	COE
David Wills	USFWS

TECHNICAL MANAGEMENT TEAM

BOR: Tony Norris\Pat McGrane *BPA: Scott Bettin\Robyn MacKay*

NMFS: Paul Wagner\Chris Ross *USFWS: David Wills\Howard Schaller*

OR: Christine Mallette *WA: Shane Scott* *ID: Steve Pettit* *MT: Jim Litchfield*

COE: Cindy Henriksen\Rudd Turner*Cathy Hlebechuk*

TMT Meeting

15 August 2001 0900 - 1200 hours

Custom House Room 118 Portland, Oregon
Conference call line: 503-808-5190

All members are encouraged to call Donna Silverberg with any issues or concerns they would like to see addressed. Please e-mail her at dsilverberg@cnnw.net or call her at (503) 248-4703.

AGENDA

1. Welcome, introductions.

2. McNary mixers status (Mark Smith, COE - NWW). McNary Temperature Concerns (Powerpoint file)

3. Summer water temperature conditions -- compare Mass 1 model vs. 2001 actual (COE). MASS1 Plot - 2001_Scenario4_daily (Excel file - 13MB)
All Water Temperatures (Excel file - 2MB)

4. Summer water temperature conditions -- compare RBM10 model vs. 2001 actual (EPA) EPA Model Results (Excel file - 148KB)

5. Incident report on 8/9/01 load rejection at The Dalles (COE)

6. IT report (NMFS).

7. Biological benefits of summer spill (NMFS).

8. Dworshak -- rampdown schedule, September operation.

9. Review current system conditions.

- reservoir operation, water supply, water quality (COE, BOR)
- hydrosystem storage, power system status, winter reliability (BPA)
- fish migration status (NMFS, USFWS)

10. Review operations requests.

11. Develop recommended operations.

12. Review revised TMT Emergency Protocols (WMP Appendix 2 - Word file).

13. TMT end-of-year review agenda -- identify data desired.

14. Other.

    - set agenda for 29 August TMT meeting
    - Invite members to stay after TMT adjournment to discuss TMT process with Corps Management Internship Program

Questions about the meeting may be referred to Rudd Turner at (503) 808-3935, or Cindy Henriksen at (503) 808-3945.

Technical Management Team Meeting Notes

August 15, 2001

1. Greetings and Introductions.

The August 15 Technical Management Team meeting, held August 15 at the Corps' Northwestern Division headquarters in Portland, Oregon, was chaired by Cathy Hlebechuk of the Corps. Please note that this is a summary, not a verbatim transcript, of items discussed, recommendations made and work products assigned at this meeting. Anyone with questions about these minutes should contact Hlebechuk at 503/808-3942.

2. McNary Mixers Status.

The Corps' Mark Smith, working from a series of overheads, briefed the TMT on the status of the forebay mixer experiment at McNary Dam. As the TMT is aware, said Smith, every summer, water temperatures become a concern at McNary. The problem seems to be that, at the south end of the forebay, there is a shallow cul-de-sac where the water is heated by the sun. That water is drawn across the front of the powerhouse into the gatewells, increasing water temperatures in the gatewells, sometimes to lethal levels, Smith said. The other concern is that, as that water moves from the gatewell to the collection channel, it creates a temperature gradient from one end of the collection channel to the other. When fish hit that gradient, it can adversely impact both fish health and migratory progress.

So what we're trying to do this year is mix the water in the cul-de-sac with cooler water from elsewhere in the forebay, Smith said. We have been operating McNary's north powerhouse, which reduced the problem somewhat; we have also installed two screened, 20 hp, 36" flow mixers, essentially big fans, 10-15 feet deep in the water column at the south end of the powerhouse. Their purpose is to draw cooler water from the forebay and mix it with the warmer water at the south end of the powerhouse, Smith explained.

We've been operating the mixers on a three-day-on, three-day-off schedule for the past week or so, Smith said; they are operating now. Essentially, this is a test of the flow mixer concept, to try to discover whether this might be a permanent fix to the temperature problem at McNary. Smith spent a few minutes describing the monitoring system that has been installed to collect data. He said there is no data to report yet, but some information from the test should be available in a week or so.

Next year, the Corps will take the lessons learned from this year's study and use it to fine-tune the deployment of the same mixers, Smith said. We are also going to begin to study a permanent solution, and will be developing a numerical model of the McNary forebay to get a better handle on what and where our problems are, Smith said. That will likely also require some physical modeling next year, he added.

The bottom line is that the Corps recognizes that the water temperature situation at McNary is a major issue, Smith said; even when summer water temperatures aren't at lethal levels, they still cause stress and delay. To that end, he said, the Corps is also attempting to gather data on fish physiology this year. The study is ongoing, he said; I am confident that we will be able to make a difference in water temperatures in the McNary forebay.

The results will be written up in some sort of report? Paul Wagner asked. Correct, Smith replied – we will have a final report by late November or so, and will be distributing draft data in the coming weeks, as it becomes available. In response to a question from Cathy Hlebechuk, Smith said the flow mixer study will likely run through September 15.

3. Summer Water Temperature Conditions – Comparison of MASS 1 Model with 2001 Actual.

Dick Cassidy spent a few minutes going through a series of graphs comparing actual water temperatures so far in 2001 with the water temperature outputs from the Corps' MASS 1 model for this period. The bottom line, said Cassidy, is that we feel the model has done pretty well, in terms of being right in the ballpark of the actual temperatures recorded at various points in the system.

4. Incident Report on August 9 Load Rejection at The Dalles.

Hlebechuk said that, last Thursday, August 9, power generation at The Dalles tripped off for about five hours, beginning at about 3:50 p.m. The project lost all four of their lines, she said; partial station service was restored by 4:30 p.m., and full station service was back by 5:30 p.m. Spill was increased to up to 105 Kcfs during the outage, she said; we were then able to return to normal operations and 40% spill at about 9 p.m. r that evening. In terms of the effects of the outage on fish passage facilities, said Hlebechuk, orifice flow was maintained through the entire outage, but the two fish units which provide the attraction water were out of service until 1:55 p.m. and 4:47 p.m. the next day. . The ice and trash sluiceway attraction water was not affected by the outage as it is drawn straight from the forebay.

Hlebechuk added that there was also a 30-35 gallon oil spill during the outage; project personnel used suction and oil enclosing devises to limit the spill. Project personnel did notice a sheen in the tailrace, and deployed sausages to clean that up, Hlebechuk said, adding that all of the appropriate environmental agencies were notified of the spill.

5. IT Report.

Wagner said that, this spring, NMFS' Donna Darm sent a letter to the action agencies,

spelling out the policy to be followed during the power system emergency, and how the situation would be evaluated and dealt with, in terms of the identification of offsetting actions, after the fact. My understanding of the discussion at last week's IT meeting is that they have instructed the TMT to begin that assessment, and to attempt to identify any appropriate offsetting actions, during their 2001 post-season review, Wagner said; the TMT will then forward any recommendations they develop to the IT.

In response to a question from Hlebechuk, Wagner said the Darm letter says that NMFS will take the lead in determining what offsetting actions may be possible, working closely with TMT. However, said Wagner, it is clear that this is the main forum in which those mitigation discussions should take place. Scott Bettin observed that there have already been a variety of offsetting measures funded, included the expanded northern pikeminnow bounty program. He distributed a summary of the offsetting actions taken by the action agencies to date. The intent is not, however, to attempt to mitigate for the drought year? Cindy Henriksen asked. Correct, Wagner replied.

Will NMFS make any conclusions it reaches available to the other TMT members prior to the year-end review? Christine Mallette asked. Yes, Wagner replied.

6. Biological Benefits of Summer Spill.

Wagner distributed a memo from Gary Fredricks outlining NMFS' analysis of the biological benefits of summer spill. He said a modified version of the SYMPAS model was used to evaluate the effects of this year's operation; Wagner briefly described the assumptions underlying those modifications, then went on to say that the bottom line is that, at The Dalles, NMFS predicts a 4% increase in survival based on current spill levels; at Bonneville, NMFS would expect to see just over 6% increased survival if 50 Kcfs spill was provided around the clock. Please refer to Fredricks' memo for full details of the assumptions used and results produced by this analysis.

7. Dworshak Rampdown Schedule and September Operations.

Hlebechuk said Dworshak is drafting rapidly; it was at elevation 1541 as of midnight last night.. We need to figure out how we're going to ramp that project down, Hlebechuk said; we can ramp down in one day, or we can ramp down more gradually. We also need to discuss if there is a desire to save some water for September.

Paul Wagner said the Lower Granite subyearling indices had been as low as 1,000 fish/day and had increased to 8,000 cfs this week. He recommended maintaining the full load discharge at Dworshak for as long as possible and utilize the water now rather than in September. All TMT members were in concurrence with this.

Steve Pettit recommended that Dworshak rampdown be accomplished over several days, as it has been done in years past -- drop the big unit the first day, drop one of the smaller units the second day, then go to minimum outflow the third day. After a brief discussion, the TMT recommended that Dworshak maintain full powerhouse discharge as long as possible, likely

through midnight on August , after which rampdown will begin as suggested by Pettit. Dworshak will then be at about elevation 1520 on August 31.

It was further agreed that, after August 31, Dworshak will maintain minimum outflow, with the goal of trying to reach the upper rule curve elevation of 1555 at that project by December 31. Dworshak will maintain minimum outflow through at least December unless a power system emergency occurs. In response to a question from Mallette, Hlebechuk said current inflows to Dworshak are about 1.2 Kcfs; September inflows are likely to be even lower – 700-800 cfs. With minimum outflow of 1.4 Kcfs-1.7 Kcfs, the Corps would expect Dworshak to draft to elevation 1516 feet by September 30.

8. Current System Conditions.

Hlebechuk said Libby continues to release 6 Kcfs; the project is essentially passing inflow. Current Libby elevation is now 2436.3 feet. The current elevation at Dworshak, again, is 1541 feet and drafting. Week-average flow last week at Lower Granite was 25.6 Kcfs; at McNary, 103.3 Kcfs; at Bonneville, 112.2 Kcfs. We are pulling water out of storage to maintain the spill program, Hlebechuk said, which, for the Corps at least, raises system reliability concerns.

Hlebechuk said the increase to the spill program was implemented as planned last week; Bonneville is now spilling 50 Kcfs around the clock, and The Dalles is spilling 40% of total river flow around the clock as long as flow is above 71 Kcfs. The summer spill program has used about 162.7 MW-months to date; if the spill program continues through August 31, the Corps estimates the program will use an energy equivalent of 425 MW-months.

Tony Norris said Hungry Horse has increased discharge to 1.8 Kcfs to maintain the Columbia Falls minimum; the current Hungry Horse elevation is 3541.9 feet. Grand Coulee elevation is now 1280.1 feet; the project is releasing about 80 Kcfs and targeting elevation 1278 (plus operating range) by August 31. Banks Lake elevation is now 1565 feet; pumping is occurring only at night.

Hlebechuk distributed a written summary of the 2001 January-July actual water supply figures. She noted that the final 2001 water supply at The Dalles was 58.2 MAF, 55% of normal, the second-lowest water year since 1929. In 2000, we had 93% of normal, she said. However, the 2001 July final forecast was 54.7 MAF at The Dalles, Wagner observed. Correct, Hlebechuk replied – the reason was that unregulated inflows went up in July , rather than down, as predicted in the July final forecast.

Bettin said there is no change to the status of power system reliability or the storage operation – we're still above the 28,000 MW-month federal storage target, he said. In response to a question from Henriksen, Bettin said BPA's analysis shows that system storage will still be above the 28,000 MW-month storage target at the end of September, even if the current spill program is maintained through August 31. We're continuing to analyze the storage situation, he said; we will provide a further update at the August 29 TMT meeting.

The group discussed the priority of B1 vs. B2 operations at Bonneville with respect to

adult attraction flows this fall; there was general agreement that some additional discussion of this topic is needed at a future TMT meeting.

Wagner spent a few minutes going through the status of the fish migration, noting first that subyearlings are the main area of activity at the present time. At Lower Granite, subyearling indices are picking up again after a long period of downward trend; the index was up to 8,000 yesterday. Indices have begun to pick up at Little Goose as well, he said. Subyearling numbers are on a downward trend at McNary, which is good, given the high water temperatures at that project, currently. Subyearling indices are on the increase at John Day; average travel time for Snake River subyearlings through the John Day pool (from McNary Dam to John Day Dam) is currently about 10 days, Wagner said. . In general, he said, subyearling migrants are still present in the lower river, in somewhat larger numbers and later in the season than is usually the case.

As for where we are in the migration, said Wagner, for subyearling chinook, the current prediction is that we're at the 92% passage point at Lower Granite. At McNary, the estimate is that we are at the 98% passage point in the combined subyearling chinook migration. At John Day, the estimate is that we are now at the 86% passage point in the subyearling chinook migration. Steelhead are still passing McNary at a rate of about 10,000 per day, Wagner added.

With respect to the juvenile migration, it looks as though we might be nearing the point where we should consider ending the spill program, Bettin observed. Wagner replied that, according to the DART passage estimates, there is still a ways to go in the juvenile migration; I would recommend that we continue to revisit the spill program on a week-to-week basis, he said.

In response to a question from Pettit, Rudd Turner said he will check to see whether the chilled water requirements at the Bonneville Powerhouse 2 sampling facility are being implemented.

9. New System Operational Requests.

On August 14, the Columbia River Inter-Tribal Fish Commission submitted SOR 2001 C-7. This SOR, supported by the CRITFC Tribes, requests the following specific operation at McNary Dam:

- **Spill 30 kcfs for 12 nighttime hours every other day during non-transport days.**
- **On days when not transporting return migrants directly to the river and do not route through the facility unless for sampling**.

Kyle Martin spent a few minutes going through the justification for this SOR, the full text of which is available via the TMT and/or Fish Passage Center homepages.

Wagner said NMFS' view is that full transport at McNary is the most prudent course of action as in-river conditions continue to deteriorate. That being said, said Wagner, we also understand CRITFC's point of view that conditions in the holding facility at McNary are also deteriorating. NMFS proposal is to go to daily transport at McNary to avoid holding the fish, said Wagner. Our understanding is that project personnel can begin trucking daily starting tomorrow,

Turner said.

Shane Scott said Washington's policy is to spread the risk; he recommended that daily transport from McNary in chiller-equipped trucks begin as soon as possible. In response to a question from Mallette, Turner said the barging contract has now ended at McNary; he is not sure where the funds would come from to reinstate it. Bettin observed that there appears to be little advantage to barging from McNary at this point in the season; temperatures in the river are warm, and barging takes at least a day longer than trucking for the fish to reach the release site below Bonneville Dam.

In response to a question from Mallette, Bettin said the energy cost of implementing the CRITFC SOR would be approximately 35 MW-months through the end of August. He added that BPA sees little biological benefit to implementing this SOR. In our view, there would be biological benefit to the late-migrating component of the run, Mallette replied. Steve Pettit said Idaho's position is that they would rather see daily trucking from McNary, with no holding whatsoever, given the extremely poor in-river conditions. He noted that only 50% of the fish are being transported from McNary; the remainder are being bypassed into some pretty hazardous migratory conditions. If you can't truck daily, he said, we may need to revisit this question.

It sounds, then, as though Washington and Idaho support daily trucking at McNary, said Hlebechuk. Mallette said Oregon's position is that a greater-than-optimal number of fish are transported; Oregon would prefer to see some spill provided at McNary, particularly for the late component of the chinook run. However, if daily trucking with no holding is what most of the other TMT members support, that is at least the second-best option, Mallette said. CRITFC disagrees, said Martin. Turner noted that this is actually a normal operating scenario at McNary, for this point in the season – full transport and no spill.

Does the same temperature concern extend to the Snake River projects as well? Margaret Filardo asked. Temperature conditions at Lower Granite are actually better than they are at McNary, Wagner replied – there is some stratification in that reservoir, and typically, raceway temperatures are similar to those in the river – about 66 degrees F. If the temperatures are that much lower at Lower Granite, he said, the degree of concern is lower as well.

Filardo said her understanding is that there is a problem with the number of trucks available to service Lower Granite; the options under consideration are to delay the transport from Lower Granite or to go to bypass mode at Lower Monumental. Turner replied that he was unaware of this situation, but if it becomes reality, there will be an emergency call to work out a solution.

10. Recommended Operations.

Hlebechuk said that, over the next two weeks, Libby will continue to release 6 Kcfs; Dworshak will continue at full powerhouse discharge until approximately August 27, at which point rampdown will begin as outlined in a previous agenda item. Grand Coulee will continue to draft toward elevation 1278 plus operating range. Norris said Hungry Horse will continue to draft toward its August 31 elevation of 3540 feet, operating as needed to meet the Columbia

Falls minimum. With respect to the duration of the spill program, Bettin said spill at Bonneville and The Dalles will continue through August 31, unless fish numbers are determined by NMFS to be low enough to justify discontinuation of spill, or if significant system reliability or financial concerns arise. It was agreed that NMFS or BPA will convene an emergency call if these conditions arise.

11. Review of Revised TMT Emergency Protocols.

Hlebechuk said Wagner has drafted an additional paragraph to reflect 2001 emergency conditions, as agreed at the last TMT meeting; she said she still has a bit of work to do to make the flow chart compatible with the write-up. She said there are one or two additional minor changes to be made; she asked that anyone with additional changes to the emergency protocols to contact her as soon as possible. Hlebechuk said she will post the updated version of the emergency protocols to the TMT homepage and will send out an email notifying the TMT when the revised protocols are available for review. It was agreed that the group will attempt to finalize the emergency protocols at its August 29 meeting.

12. Identification of Data for TMT Year-End Review.

The group spent a few minutes discussing data needs for the year-end review; it was agreed that further discussion of this topic will occur at the group's August 29 meeting.

13. End of MOP Operation.

Bettin noted that this is traditionally the point in the season when the TMT discusses the end of the MOP operation. After a brief discussion, it was agreed to discuss the end of Lower Snake MOP operations at the next TMT meeting.

14. Next TMT Meeting Date.

The next face-to-face meeting of the Technical Management Team was set for Wednesday. August 29. Meeting notes prepared by Jeff Kuechle, BPA Writer-Editor Pool.

TMT PARTICIPANT LIST
August 15, 2001

Name	**Affiliation**
Larry Beck	COE
Scott Bettin	BPA
Scott Boyd	COE
Mike Butchko	PowerEx
Margaret Filardo	Fish Passage Center

Russ George	Water Management Consultants Inc.
Richelle Harding	D. Rohr & Associates
Tim Heizenrater	Enron
Cindy Henriksen	COE
Cathy Hlebechuk	COE
Ningjen Liu	IPC
Christine Mallette	ODFW
Kyle Martin	CRITFC
Richelle Mills	IPC
Tony Norris	Reclamation
Steve Pettit	IDFG
Chris Ross	NMFS
Shane Scott	WDFW
Mark Smith	COE
Glen Traeger	Avista Energy
Rudd Turner	COE
Maria Van Houten	Enron
Paul Wagner	NMFS
Steven Wallace	PacifiCorp
Darren Wilkens	Puget Power

TECHNICAL MANAGEMENT TEAM

BOR: Tony Norris\Pat McGrane *BPA: Scott Bettin\Robyn MacKay*

NMFS: Paul Wagner\Chris Ross *USFWS: David Wills\Howard Schaller*

OR: Christine Mallette *WA: Shane Scott* *ID: Steve Pettit* *MT: Jim Litchfield*

COE: Cindy Henriksen\Larry Beck\Cathy Hlebechuk

TMT Meeting

29 August 2001 0900 - 1200 hours

Custom House Room 118 Portland, Oregon
Conference call line: 503-808-5190

All members are encouraged to call Donna Silverberg with any issues or concerns they would like to see addressed. Please e-mail her at dsilverberg@cnnw.net or call her at (503) 248-4703.

AGENDA

1. Welcome, introductions.
2. McNary transport update (COE).
3. Libby fall operations (COE).
4. When to fill above MOP at Lower Snake projects.
5. Biological benefits of summer spill (NMFS).
6. Hungry Horse fall operation (USBR).
7. Status of SOR 2001 C-8, Autumn Treaty Fishing (COE).
8. Review current system conditions.
    - reservoir operation, water supply, water quality (COE, BOR)
    - hydrosystem storage, power system status, winter reliability (BPA)
    - fish migration status (NMFS, USFWS)
9. Review operations requests.
10. Develop recommended operations.
11. Finalized TMT Emergency Protocols (WMP Appendix 2 - Word file).

12. TMT end-of-year review agenda -- identify data desired.

13. Other.

- set agenda for 12 September TMT meeting
-

Questions about the meeting may be referred to Larry Beck at (503) 808-3935, or Cindy Henriksen at (503) 808-3945.

TECHNICAL MANAGEMENT TEAM
MEETING NOTES
August 29, 2001
CORPS OF ENGINEERS NORTHWESTERN DIVISION OFFICES – CUSTOM HOUSE
PORTLAND, OREGON

TMT Internet Homepage: http://www.nwd-wc.usace.army.mil/TMT/index.html

FACILITATOR'S NOTES ON FUTURE ACTIONS
Facilitator: Donna Silverberg

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.

McNary Transport Update:
Larry Beck of the COE updated TMT members of the status of the operation with a report that will be posted on the website.

Libby Fall Operations:
Montana requested that Libby flows remain at 6 kcfs until mid-September instead of the alternative option of ramping down to 4 kcfs. This, Montana feels, would allow bull trout and other resident fish to move up into the tributaries. The COE will carry out the request as no objections were voiced.

MOP at the Lower Snake Projects:
FPAC met yesterday and concluded that they do not have enough information to decide whether or not to lift the MOP constraint. Christine Mallette made a suggestion to maintain MOP this week and to further the discussion during next week's conference call with new information (e.g. migration status, flow, temperature). Robyn McKay would like to see a decision made next week so as not to delay future operations.

Biological Benefits of Summer Spill:
Paul Wagner had no new analysis to share, but will in the future as appropriate. As of yesterday, 389.2 mw/mos have been spilled through the summer spill program, with an expected 411 mw/mos by this Friday. Spill will end at midnight, August 31st.
Regarding spill at Bonneville, work is scheduled to begin on flip lips some time in September. Spill will be interrupted at adult attraction areas as a result. The COE will send out information as soon as it is available and salmon managers will give advice regarding time of day and which areas to interrupt first, given record numbers of adult passage.

Hungry Horse Fall Operations:

Tony Norris reported that the BOR will continue to track minimum outflows at Columbia Falls. Pat McGrane said that these minimum flows are a result of integrated rule curves set by a lawsuit against the COE and BOR brought on by Montana. It requires Hungry Horse to operate around ten feet from full. Hungry Horse is currently twenty feet from full so the BOR is attempting to increase the level.

SOR 2001 C-8: Autumn Treaty Fishing:

CRITFC requested that pools at Bonneville, The Dalles and John Day be operated within a one foot-from-full range from Aug. 28 – Sept. 1 and Sept. 4-8 to allow for the fall tribal fishery. The justification follows an unprecedented amount of returning adults. Kyle Martin specifically requested a hard rather than soft constraint as well as documentation by Friday of any decision that doesn't meet the SOR. The COE has sent out instructions to operate Bonneville at a 1.5-ft range, The Dalles to meet power system needs, and John Day at around a 1.5 range. The COE will make every effort to keep fluctuations at a minimum.

Review Current System Conditions:

The COE and BOR reported on operations, notably that there was a reduction in flow at Dworshak which will put it at an expected 1520' on Friday. Dick Cassidy handed out average daily temperatures for Lower Granite and McNary. Regarding system reliability status, Robyn McKay reported that the NWPPC plans to do another reliability analysis for this year.
The COE reported that a blue green algae bloom in the Lower Granite pool has caused high saturation levels of dissolved oxygen. The COE will provide more information to TMT at next week's meeting.

Finalize TMT Emergency Protocols:

The group discussed details of suggested changes to the protocols made by Gayle Lear. Three items need further discussion:

- Offset vs. mitigation: TMT members will explore the word choice issue with lawyers and bring their perspectives back to the September 19th meeting.
- Spill priority list: Action agencies will review this list in light of emergency protocols and bring a revision back to TMT upon availability (prior to January).
- Senior management: Members need to clarify whether an emergency response should occur before senior management makes an "emergency" declaration. Cindy Henriksen said that the COE will take action in the absence of this if the situation warrants.

TMT End-of-Year Review Agenda:

The following items were listed as review topics (and who will take the lead coordinating the topics) to be discussed October 31st at TMT and possibly at the November IT meeting. This session will be an all day review of the year and "Lessons Learned" discussion:

- System Survival Data (NMFS Science Center)
- Important SOR's and their disposition (COE, BOR – Tony Norris)
- Weather Patterns (Kyle Martin)
- Power Emergency (Robyn McKay)
- Vernita Bar Operations and Survival Data (Shane Scott)
- System Operations and Effects on Fish (Tony Norris)

- What Were TMT's Goals for the Year? Was there Consistency? (Shane Scott, Robin Harkless)

OTHER DATA:
- Mixers at McNary – Mark Smith (Larry Beck)
- McNary Survival Rates – Brad Eby (Paul Wagner)
- Anomaly Analysis and Outcome (All)
- Lower Granite Study – Billy Connor (Dave Wills)
- Comparison analysis 2001/other years – FPC (Paul Wagner)

Next Conference Call September 5th:
Agenda items:
- Flip lip update
- Blue green algae update

Next Face-to-Face Meeting September 19th:
There will be no meeting September 12th due to a number of conflicting meetings that TMT members need to attend.
Agenda items:
- Emergency Protocols
- Chum
- Other items raised at the 9/5 meeting

1. Greeting and Introductions

The August 29 Technical Management Team meeting was chaired by Cindy Henriksen of the Corps and facilitated by Donna Silverberg. The following is a distillation, not a verbatim transcript, of items discussed at the meeting and actions taken. Anyone with questions or comments about these minutes should call Rudd Turner at 503/808-3935.

Silverberg welcomed everyone to the meeting, then led a round of introductions and a review of the agenda, noting that this will be the final TMT meeting of the in-season management period.

2. McNary Transport Update.

COE's Larry Beck reported that, on August 15, the McNary fish transport system went into primary bypass mode during evening hours (6 p.m. to 6 a.m.) Through August 24, the Corps had trucked a total of 150,000 fish from McNary, from a high of 45,000 juveniles on August 16 to a low of 4,800 on August 22. We're now trucking every other day because numbers and water temperatures have fallen, Beck said, adding that fish were trucked daily from McNary while fish numbers were higher. Beck added that the current water temperature in the McNary collection facility is just over 68 degrees F.

3. Libby Fall Operations.

Henriksen said that, as August 31 nears, it is time to begin thinking about the changeover from summer to fall operations. The Fish and Wildlife Serviced Biological Opinion does not specify a recommended flow for bull trout in September, she said; however, Montana Fish, Wildlife and Parks has requested that we maintain the current outflow of 6 Kcfs through September 15, then start a gradual rampdown. The Corps is considering maintaining 6 Kcfs for bull trout and power needs, at this time, Henriksen.

Does anyone have a problem with that proposal? Silverberg asked. No objections being heard, it was agreed that the 6 Kcfs outflow from Libby will be maintained through September 15.

4. When to Fill Above MOP at Lower Snake Projects.

Henriksen said this is also traditionally the time when the TMT discusses filling the Lower Snake projects above MOP, and issuing new instructions for Ice Harbor, Lower Monumental and Little Goose to allow some additional operational flexibility at those projects.

Christine Mallette said the salmon managers discussed this topic at yesterday's FPAC meeting, but did not arrive at a recommendation as to when fill above MOP should occur. We discussed migration status, flow and water temperatures, she said; basically, the consensus was that we would like to discuss refill of the Lower Snake pools again next week. Robyn MacKay noted that until a rain event occurs, it will not be possible to fill the Lower Snake pools anyway, because river flows are so low. However, she said, it would be helpful if we had that flexibility so that we can begin refill of the Lower Snake pools as soon as flows allow. In response to a question from Silverberg, no TMT objections were raised to maintaining the status quo for another week and revisiting this topic at a TMT conference call next week.

MacKay said she is somewhat concerned about the precedent that is being set here; this is typically the meeting at which we lay out a schedule for the refill of the Lower Snake pools, she said, and I would be hesitant to say it's OK to simply put off that decision and revisit it week by week into September. Although we can't fill the projects right away, MacKay said, it would be helpful to have that additional operational flexibility. Silverberg observed that refill of the Lower Snake pools is always a topic of debate and negotiation. This is an extraordinary water year, she said, and it is unlikely that any decisions or recommendations made this year will be precedent-setting.

I won't object to a week's delay, said MacKay, but again, the action agencies aren't interested in a process that postpones this decision from week to week while the salmon managers look at the data. Mallette said the salmon managers will revisit the most recent migration status, flow and water temperature information at next week's FPAC meeting; while I can't promise that we'll have a recommendation for you at next week's conference call, we will at least make progress toward that decision, she said.

5. Biological Benefits of Summer Spill.

Paul Wagner said there is nothing new to report on this topic at today's meeting. He reminded the TMT that he has already shared NMFS' analysis of the benefits of the summer spill program; when and if we do any additional analysis, I will share that information as well, Wagner said. In response to a question, MacKay said the 2001 summer spill program had used the equivalent of 389.2 MW-months through August 28; the spill program will end, as previously noted, at midnight on August 31.

Beck noted that the Corps is planning to do some work on the Bonneville flip-lips in September; while that work is going on, end-bay spill for attraction flow will need to be curtailed at one end of the spillway. It was agreed that the salmon managers will discuss this topic at next week's FPAC meeting in an effort to develop a recommendation as to when and how this work should optimally proceed, from a biological standpoint. In response to a request from Mallette, Beck said he will provide a written summary of the planned maintenance operation to inform the salmon managers' discussion.

6. Hungry Horse Fall Operation.

Tony Norris said Hungry Horse dipped slightly below elevation 3540 yesterday; Reclamation is continuing to maintain the Columbia Falls minimum flow. He reminded the group that Reclamation, as the result of a court settlement, is required to consider Montana's IRC elevations in its operational decision-making; in general, he said, those IRCs ask us to be within 10 feet of full at Hungry Horse going into the fall, and we're 20 feet from full right now. In other words, he said, this is the point in the year when IRCs begin to potentially impact Hungry Horse operations. If we operate according to the IRCs, he said, we would need to maintain minimum outflow at Hungry Horse through the fall period. We are required to maintain the Columbia Falls minimum, Norris said; currently, that minimum is 3.26 Kcfs. Norris added that the Columbia Falls minimum will be revisited on January 1, as soon as the first water supply forecast of the new year becomes available.

7. Status of SOR 2001 C-8 – Autumn Treaty Fishery.

On August 17, the action agencies received SOR 2001 C-8 from CRITFC. This SOR, covering pool elevations during the fall treaty fishery, requests the following specific operations:

- Implement the following operation during the ceremonial and subsistence fishery: August 28th, 2001, 6 AM, through 6 PM September 1st, 2001. September 4th, 2001 6 AM, through 6 PM September 8th, 2001

- Bonneville Pool. Operate the pool within 1.0 foot from full pool (msl elevation 77 _ 76)

- The Dalles Pool. Operate the pool within 1.0 foot (from msl elevation 159.5 _ 158.5)

- John Day Reservoir. Operate the pool within 1.0 foot (from msl elevation 264.5 _ 263.5)

- At this time we anticipate a Treaty fishery each week through most of September. CRITFC will notify the Corps with specific times for the tribal fishing season after each Columbia River Compact hearing, in the form of additional SORs.

Kyle Martin went briefly through the contents of this SOR, the full text of which is available via the TMT and Fish Passage Center homepages. Please refer to this document for full details and justification. He noted that the fall fishery started on August 28; given the record numbers of returning adults this year and the extraordinary importance and magnitude of the 2001 fall treaty fishing opportunity, the tribes are also requesting that these pool elevations be made hard constraints, rather than soft constraints.

The group spent a few minutes discussing SOR 2001 C-8, asking a number of clarifying questions and debating the degree to which similar requests have been implemented in the past. Ultimately, Henriksen said the Corps has agreed to maintain Bonneville pool within a range of 75 feet to 76.5 feet during the fall treaty fishery; the project has been instructed to maintain that 1.5-foot operating range. The Dalles does not receive special instruction; it fluctuates as needed to meet other system needs. There is also no special instruction issued at John Day pool, but that pool is routinely operated in a 1.5-foot range. This is what the Corps has agreed to and implemented every year since 1996, she said, and that is what we are implementing this year. Martin said that Bonneville pool is particularly critical because two-thirds of the tribal fishing effort is concentrated on that pool; anything the Corps and BPA can do to hold that pool as steady as possible would be helpful, he said. Understood, said Henriksen.

8. Current System Conditions.

Henriksen reported that Libby continues to release 6 Kcfs; it is drafting, given the fact that August inflows to that project were a record low. Current elevation is just over 2435 feet; elevation 2411 is the December 31 target at that project. Norris said Grand Coulee is still heading toward elevation 1278 plus operating range on August 31; this morning, the project was at elevation 1278.5 feet. Average Grand Coulee outflow last

week was about 75 Kcfs, he said, adding that Reclamation plans to start refilling Banks Lake on September 1, Norris added.

Dworshak was at elevation 1521 feet as of midnight last night, Henriksen said; the rampdown has already begun. Dworshak will reach elevation 1520 feet, and will go to minimum outflow, this Friday, August 31. The average flow at Lower Granite last week was about 23 Kcfs; McNary flows averaged just under 100 Kcfs. Where do you see flows going over the next few weeks? Wagner asked. The Bonneville minimum is just over 70 Kcfs, Henriksen replied, so lower river flows won't drop below that amount. And we might see flows on the order of 15 Kcfs-17 Kcfs at Lower Granite, with Dworshak going to minimum flow? Mallette asked. That is probably correct, Henriksen replied. How does that compare to a normal year? Silverberg asked. We were at about 27 Kcfs at this point last year, Wagner replied; however, 20 Kcfs is not unusual at this point in the season.

Albeni Falls continues to operate in the top half-foot of its operating range, about 2062 feet, Henriksen said; it will be at elevation 2061 on September 30, at 2051 by mid-November.

Dick Cassidy said water temperatures at the Lower Columbia projects are currently running in the low 70s, forebay, and the high 60s, tailwater. At Dworshak, water temperatures dropped from 47 degrees to 43 degrees when we switched to undershot mode; we started to notice the difference in water temperatures at Lower Granite yesterday, he said. Cassidy added that a Walla Walla District limnologist has noted a blue-green algae bloom in the Lower Granite pool this week; the likely cause is elevated dissolved oxygen levels. Cassidy said this bloom has been noted in previous low water years, such as 1994. He said he will gather some additional information and will provide an update at next week's TMT conference call. In response to a question from Wagner, Cassidy said Lower Snake water temperatures peaked on either August 14 or August 16 this year, depending on whether the criteria is highest daily average or highest hourly water temperature.

MacKay said that, with respect to system reliability, the system will continue to draft as we move through the fall; BPA is monitoring the reliability storage situation closely, and will provide further updates if anything dramatic changes. In response to a question from Wagner, MacKay said the Power Planning Council staff is working on an updated system reliability analysis, but she does not know exactly when that analysis will be completed.

Wagner then provided a report on the status of the fish migration, starting with subyearling chinook. The passage index at Lower Granite was declining, but has increased again in recent days, to about 1,000 fish per day, currently. At McNary, the same pattern was seen last week, Wagner said. Index numbers have been slowly decreasing at John Day in recent days; numbers at Bonneville continue to be pretty high for this time of year, the protracted migration typical of a low-water year.

Wagner added that the current estimate is that 95% of the Snake River wild subyearling chinook run has now passed Lower Granite; 85% of the run has now passed McNary. In terms of cumulative subyearling chinook passage, said Wagner, the estimate is that the run was slightly later than average this year. In terms of relative survival for 2001 vs. previous years, for the 1,300+ wild Snake River subyearlings tagged in 2001, it's 13.8 percent, much lower than the 40+ percent survival to Lower Granite observed in 1999 and 2000. Wagner added that 13.8% is still significantly better than the 8% survival seen most years in the mid-'90s. In response to another question, Wagner said 99% of the cumulative juvenile chinook run is now estimated to have passed McNary; at John Day, 95% of the run has now passed.

On the good news front, said Wagner, the seasonal total for adult chinook passage at Bonneville is in excess of 550,000. Fall chinook are arriving at a rate of 13,000 fish per day; plus another 5,000-6,000 coho. Over 450,000 adult steelhead have also passed Bonneville to date, said Wagner, giving us a total adult salmon and steelhead passage of more than 1.3 million this year, by far the highest total since Bonneville Dam was completed. He added that, at Ice Harbor, 47,000 steelhead have passed to date; temperature is always an issue at that project, with the fish hanging up in the pools until Snake River water temperatures cool. In general, adult chinook and steelhead continue to work their way up through the Snake River projects; temperature is playing a role in their progress, and we'll just have to see what happens when all is said and done, Wagner said.

In response to a question, Wagner said the 2001 spring chinook jack count at Bonneville was about 14,000, compared to 21,000 in 2000. The 10-year average is closer to 4,000, Wagner said, so it is likely that 2002 will also be an above-average year for adult chinook returns – it probably just won't be quite as good as this year.

9. New System Operational Requests.

No new SORs were submitted prior to today's meeting.

10. Recommended Operations.

Recommended operations were summarized during previous agenda items.

11. Finalize TMT Emergency Protocols.

Silverberg noted that, at a previous TMT meeting, Mallette had requested a review of the TMT emergency protocols; that review has led to several revisions to the emergency protocols appendix to the 2001 Water Management Plan, some made as recently as yesterday. The group spent a few minutes reviewing these changes in detail, offering a variety of comments and suggestions. Ultimately, Mallette and others requested another opportunity to review the protocols, particularly the language regarding "offset" vs. "mitigation," with their agencies' legal staffs. There was also considerable discussion of the language regarding emergency actions and the need for

notification prior to taking action in response to various levels of emergency. It was agreed that the action agencies will review the spill priority list to ensure its consistency with the TMT emergency protocols. It was further agreed to revisit the emergency protocols appendix at the next face-to-face TMT meeting.

12. TMT Year-End Review Agenda.

This discussion focused primarily on information needs for the year-end review; Silverberg noted that, in January, Bob Lohn said the Council would be requiring each of the Regional Forum teams to provide a year-end report to the Council. She added that, at its most recent meeting, the Implementation Team also asked that the TMT provide a year-in-review presentation at one of their upcoming meetings.

After some minutes of discussion, the TMT identified a variety of topics and information needs for the year-end review, including:

- Physical data (flow, temperature, TDG)
- Fish migration and biological information
- Weather patterns
- Vernita Bar and chum operations
- Success of the McNary mixers experiment
- McNary survival rates
- Lower Granite survival
- Power system emergency operations
- System operations and their effects on fish
- 2001 SORs and their disposition
- Lessons learned in 2001
- 2001 water year anomalies

It was agreed that the TMT participants tasked with these various components will attempt to have their end-of-year presentation ready in time for an all-day TMT meeting on October 31; this meeting will be held somewhere other than the Custom House, if possible. A condensed version of the TMT's year-end presentation will then be provided at the IT's November meeting.

13. Other.

A. Duncan Creek Chum. Given the lateness of the hour, it was agreed to discuss chum operations at an upcoming TMT meeting.

13. Next TMT Meeting Date.

The next meeting of the Technical Management Team was set for Wednesday, September 5. Meeting notes prepared by Jeff Kuechle, BPA writer-editor pool.

TMT ATTENDANCE LIST

AUGUST 29, 2001

NAME	AFFILIATION
Scott Boyd	COE
Dick Cassidy	COE
Margaret Filardo	FPC
Russ George	Water Management Consultants Inc.
Richelle Harding	D. Rohr & Associates
Robin Harkless	Facilitation Team
Tim Heizenrater	Enron
Cindy Henriksen	COE
Jim Litchfield	Consultant (Montana)
Ningjen Liu	IdaCorp Power Co.
Robyn MacKay	BPA
Christine Mallette	ODFW
Kyle Martin	CRITFC
Doug Marks	Attorney, Lake Pend Oreille Idaho Club
Pat McGrane	Reclamation
Tony Norris	Reclamation
Chris Ross	NMFS
Shane Scott	WDFW
Donna Silverberg	Facilitation Team
Glen Traeger	Avista Energy
Maria Van Houten	Enron
Paul Wagner	NMFS
Steve Wallace	PacifiCorp

TECHNICAL MANAGEMENT TEAM

BOR: Tony Norris\Pat McGrane *BPA: Scott Bettin\Robyn MacKay*

NMFS: Paul Wagner\Chris Ross *USFWS: David Wills\Howard Schaller*

OR: Christine Mallette *WA: Shane Scott* *ID: Steve Pettit* *MT: Jim Litchfield*

COE: Cindy Henriksen*Cathy Hlebechuk*

TMT Conference Call

5 September 2001 0900 - 1200 hours

Custom House Room 118 Portland, Oregon
Conference call line: 503-808-5190

All members are encouraged to call Donna Silverberg with any issues or concerns they would like to see addressed. Please e-mail her at dsilverberg@cnnw.net or call her at (503) 248-4703.

AGENDA

1. Welcome, introductions.
2. MOP Operation in the Lower Snake River (All).
3. Algae Bloom in the Lower Snake River (COE).
4. Other.
    - Finalize agenda for 19 September TMT meeting

Questions about the meeting may be referred to Cindy Henriksen, (503)808-3945, or Cathy Hlebechuk, (503)808-3942.

COLUMBIA RIVER REGIONAL FORUM

TECHNICAL MANAGEMENT TEAM
MEETING NOTES
September 5, 2001
CORPS OF ENGINEERS NORTHWESTERN DIVISION OFFICES – CUSTOM HOUSE
PORTLAND, OREGON

TMT Internet Homepage: http://www.nwd-wc.usace.army.mil/TMT/index.html

FACILITATOR'S NOTES ON FUTURE ACTIONS
Facilitator: Donna Silverberg

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.

MOP at the Lower Snake Projects:
The current operation is at MOP+1 at all the projects. Operations are moving in to adult protection so FPAC requested that the projects begin filling as soon as possible at an hourly rate of 2 kcfs. The action agencies said there is very little water to do this, so they suggested to remove the 1% efficiency constraint and attempt to refill Ice Harbor first.

ACTION: Operations will occur outside of 1% efficiency at Lower Granite, Little Goose and Lower Monumental for 0600-1800 hours if necessary to maintain a minimum discharge of 11.5 kcfs. The MOP restriction will be removed at Little Goose, LoMo and Ice Harbor. An attempt will be made to refill Ice Harbor first at no more than 2 kcfs per hour. When Ice Harbor reaches full, action agencies will consider the Salmon Managers minimum fluctuations request. Operations will then attempt to fill LoMo.

Algae Bloom in the Lower Snake River:
The Walla Walla District is in the process of collecting and sharing information with the COE. Steve Pettit asked whether the algae has affected fish screens and as of yet, no problem like this has occurred. Cindy Henriksen said it is mostly a problem of aesthetics, as it has taken over many recreational areas. More information will be emailed out to TMT members upon availability.

Other:
Power outage at Lower Granite: Cathy reported that a 1.5-hour outage occurred last Thursday during the completion of Dopple testing that was being done at Lower Granite.

Summer spill: Spill ended August 31 with a total of 433.5 mw/mos for the summer program. Fish attraction flows remain at Bonneville bays one and eighteen. Flip lip work began yesterday.

ACTION: The COE will convert summer spill to water volumes.

Emergency protocols:
ACTION: Oregon, Washington, COE and NMFS attorneys will review offset vs. mitigation language and have recommendations at the next face-to-face meeting.

Chum scenarios: Cathy asked if the Salmon Managers would like the COE to run some scenarios. This item will be discussed in more depth at the face-to-face meeting.
ACTION: Any requests for chum modeling should be referred to Cathy Hlebechuk at the COE.

Dworshak: Temperatures have been and remain at the undershot of 43-45 degrees, although some at the hatchery have expressed concerns. Monitoring will continue.

Power emergency: The power emergency has been extended until the end of the month. Shane Scott (Washington) questioned the rationale behind this, expressing that it interferes with the Biological Opinion. Scott Bettin said that this matter should be raised at IT.
ACTION: Scott and Shane will speak to their respective IT representatives regarding this matter so that it may be raised at tomorrow's IT meeting.

Grand Coulee: NMFS asked whether there will be a problem maintaining and filling Grand Coulee with the 70 kcfs minimum at Bonneville? BPA responded that they foresee no problems with this operation.

Finalize Agenda for September 19 Face-to-Face Meeting:
Agenda items:
- Emergency Protocols – Offset vs. Mitigation language
- Chum
- Update on Snake MOP Operations
- Review Tribal Fishery
- River Operations Update
- Year-end Review Check-in

Note: At the IT meeting today a request was made to step up the timing on the year end review. IT will forward a list of priority items to be reviewed at our Sept. 19 meeting. For the high priority items, IT would like TMT to present information at the Oct. 4 IT meeting. The remainder of items will be reviewed at the Oct. 31 meeting as scheduled. Thanks, Donna.

Meeting Minutes

1. Greeting and Introductions

The September 5 Technical Management Team conference call, held at the Customs House in Portland, Oregon, was chaired by Cindy Henriksen of the Corps and facilitated by Donna Silverberg. The following is a distillation, not a verbatim transcript, of items discussed at the meeting and actions taken. Anyone with questions or comments about these minutes should call Henriksen at 503/808-3945.

Silverberg welcomed everyone to the meeting, then led a round of introductions and a review of the agenda.

2. MOP Operation in the Lower Snake River.

Cathy Hlebechuk said all four Lower Snake projects are still at MOP+1. There is so little flow in the river right now that the Corps has instructed project personnel at Lower Granite, Little Goose and Lower Monumental to operate outside of 1% peak efficiency between the hours of 6 a.m. and 6 p.m. in order to maintain a little higher flow in the river, she said. Paul Wagner noted that the day-average flow in the Lower Snake was 12.6 Kcfs yesterday; if we operate within 1% peak efficiency, he said, flows would be less than 12 Kcfs. It was noted that the projects are running outside of 1% peak efficiency during daytime hours because smolt passage is lower at that time.

Christine Mallette said the salmon managers discussed the MOP refill operation at yesterday's FPAC meeting, and did develop a recommendation. Paul Wagner said juveniles are the major beneficiary of MOP operations; given the downward trend of juvenile numbers and the increasing adult passage, the salmon managers recommend that the Corps begin filling the Lower Snake pools, beginning with Ice Harbor, to improve adult passage conditions. Obviously we don't want to reduce flows any more than we have to, given the current flow situation, Wagner said; we request that refill take place at a rate no greater than 2 Kcfs. We recognize, however, that refill is going to be a very slow process this year, he said. The salmon managers would also like to avoid zero flow during nighttime hours, Mallette added.

Is this requested operation doable at projects that need station service? Steve Pettit asked. Actually, said Hlebechuk, we can't go below 11.5 Kcfs minimum flow in the Lower Snake until November. Once MOP ends, there is no operating range restriction, added Scott Bettin. We would prefer to see pool fluctuations minimized, Mallette said. Our thinking is that we don't want to exceed a 2 Kcfs fill rate, said Chris Ross – we don't want to fill faster than 2 Kcfs. The other issue is the operating range; in the past, we have recommended that the pools stay within a 1-foot operating range of whatever elevation they're at to keep the fishways within criteria, Ross said. However, I believe the last two years we have not implemented an operating range restriction, Bettin said.

Bettin noted that the decision is essentially moot, at this point; there simply isn't enough water in the Lower Snake to refill the pools and maintain project minimum flows. We will, however, try to fill as much as possible, as flows allow, starting at Ice Harbor,

Hlebechuk said; we need to rescind the MOP operation and instruct the projects to begin refill, she said.

What about Hells Canyon discharge? Hlebechuk asked. We plan to release about 9.8 Kcfs for the foreseeable future, John Boling replied. Lower Granite inflows have been averaging between 12.3 Kcfs and 15 Kcfs over the past six days, Hlebechuk said – do the salmon managers want to go to the minimum flow of 11.5 Kcfs? I don't think refill from MOP is that important, said Wagner – it probably makes more sense to make this a soft constraint, to fill as opportunity arises in the form of rain events. I agree, said Mallette – I would not want to go to minimum flow in order to refill. I feel the same way, said Pettit; however, how long do you estimate it would take to refill Ice Harbor if we go to minimum flow at that project? Ice Harbor's minimum is 7.5 Kcfs, Bettin said. It might be possible to go to 11.5 Kcfs at that project and still stay within 1%, Wagner said. Do we want to rescind the MOP operation at that project, and instruct them to refill while staying within 1% peak efficiency? Hlebechuk asked – just tell them, "attempt to refill?" Yes, Ross replied.

In summary, Hlebechuk said the instruction will be to operate outside 1% peak efficiency to maintain the minimum flow of 11.5 Kcfs during daytime hours at Lower Granite, Lower Monumental and Little Goose, then attempt to refill Ice Harbor pool first while staying within 1% at that project. We'll revisit this operation at our next meeting, Bettin said.

If we do have a rain event and Lower Snake flows increase, can the Corps incorporate some of the salmon managers' recommendations – the 2 Kcfs refill rate and the 1-foot operating range? Mallette asked. Once you get into the top foot, you want to stay there? Bettin asked. Yes, Mallette replied. We should be able to do that over the next two weeks, Bettin said – we will fluctuate up, but not down. It's highly unlikely that we'll be able to fill much over the next two weeks, however, he said, unless we get a really good thunderstorm.

So once we reach full at Ice Harbor, we will need to issue another teletype instructing the project to maintain the 1-foot operating range at that project? Henriksen asked. Correct, Bettin replied.

So what I think I heard is that the teletype should say operate outside 1% peak efficiency if needed to maintain the 11.5 Kcfs minimum during daytime hours; rescind the MOP operation, attempt to refill Ice Harbor at a rate of no more than 2 Kcfs, and once Ice Harbor reaches full, send out a new teletype instructing Ice Harbor to maintain a 1-foot operating range, Hlebechuk said. Once Ice Harbor is full, do we want to start refilling Lower Monumental next? Correct, Ross replied – fill them in sequence.

3. Algae Bloom in the Lower Snake River.

Walla Walla District is gathering information on the algae blooming in the boat basins in the Lower Snake River, similar to what happened below Libby Dam, Hlebechuk

said. We expect that algae to die off, she said; essentially, I just wanted to give you a heads-up, and as more information becomes available, I will send out an email to the TMT membership. It's mostly an aesthetic problem with the swimming and boating areas, Henriksen said; we have requested more information from Walla Walla District, but have not yet received it. Again, once we get that additional information, we'll pass it along, Hlebechuk said. In response to a question from Pettit, Henriksen said her understanding is that the algae is not causing problems with the Lower Snake fish facilities.

4. Other.

Hlebechuk reported that, last Thursday, August 30, there was a 1.5-hour outage at Lower Granite. They were completing their Doble testing, a breaker was open, and station service was lost. Lower Granite went to about 300 cfs outflow for an hour and a half, and service to the fish facilities was lost for that period. After about two hours, the whole plant was back in service. Do you know why it happened? Pettit asked. The station service was configured out of normal sequence, Hlebechuk replied, due to the Doble testing; the operator, who was new, opened a breaker, and service was lost. In other words, she said, it was an accident. There were no mortality problems that we've been notified of.

The summer spill program ended August 31, Hlebechuk said; the total energy equivalent was 433.5 MW-months. End-bay attraction spill at Bonneville is continuing around the clock, at a rate of 2.5 Kcfs total for both bays, she added. Larry Beck added that the end-bay spill will continue through December 1; there is no safety issue for the contractor.

Hlebechuk noted that the most recent version of the TMT emergency protocols is now available on the TMT homepage; she asked that any attorneys who need to look at that language do so as soon as possible, so the protocols can be finalized. Mallette said Oregon will provide its feedback at the next face-to-face TMT meeting on September 19.

With respect to chum, said Hlebechuk, do the salmon managers want the Corps to run any chum scenarios? Also, she said, when do you anticipate those chum flows will need to start, and at what volume? That's another item on the September 19 TMT agenda, Silverberg said; meanwhile, if the salmon managers want to run any scenarios to help with that decision, they should contact you.

Finally, said Hlebechuk, Dworshak is releasing minimum flow while trying to avoid any exceedance of the 110% TDG standard; the water temperature is 43-45 degrees F. The project is continuing to operate in undershot mode. Temperatures are expected to continue in that range for at least the next two weeks, until the thermocline moves deeper, Dick Cassidy said.

Is it still the goal to fill Grand Coulee to elevation 1283 by September 30? Shane Scott asked. That's still the goal, Bettin replied. Also, said Scott, why is the power

emergency still in effect? Because we're still storing for winter power system reliability, Bettin replied – the emergency is expected to be lifted by the end of the month. In response to another question from Scott, Bettin said the 28,000 MW-months storage target has been met; that volume is currently in federal storage. Scott said WDFW executives are questioning the need to continue the power system emergency; Bettin suggested that WDFW's representative bring that issue up at tomorrow's IT meeting.

5. Next TMT Meeting Date.

The next meeting of the Technical Management Team was set for Wednesday, September 19. Meeting notes prepared by Jeff Kuechle, BPA writer-editor pool.

Attendance List

Name	**Affiliation**
Larry Beck	COE
Scott Bettin	BPA
John Boling	IPC
Scott Boyd	COE
Ruth Burris	PGE
Margaret Filardo	FPC
Russ George	Water Management Consultants Inc.
Cindy Henriksen	COE
Cathy Hlebechuk	COE
Ningjen Liu	IPC
Christine Mallette	ODFW
Mike O'Bryant	Columbia Basin Bulletin
Steve Pettit	IDFG
Chris Ross	NMFS
Shane Scott	WDFW
Donna Silverberg	Facilitation Team
Paul Wagner	NMFS
Nancy Yun	COE

TECHNICAL MANAGEMENT TEAM

BOR: Tony Norris\Pat McGrane *BPA: Scott Bettin\Robyn MacKay*

NMFS: Paul Wagner\Chris Ross *USFWS: David Wills\Howard Schaller*

OR: Christine Mallette *WA: Shane Scott* *ID: Steve Pettit* *MT: Jim Litchfield*

COE: Cindy Henriksen*Cathy Hlebechuk*

TMT Meeting

19 September 2001 0900 - 1200 hours

Custom House Room 118 Portland, Oregon
Conference call line: 503-808-5190

All members are encouraged to call Donna Silverberg with any issues or concerns they would like to see addressed. Please e-mail her at dsilverberg@cnnw.net or call her at (503) 248-4703.

AGENDA

1. Welcome, introductions.
2. TMT Emergency Protocol (WMP Appendix 2) – attorney review comments re: mitigation/offset
3. Status of Lower Snake operations (fill above MOP, etc) (COE).
4. Status of Autumn Treaty Fishing (COE/CRITFIC).
5. End of year review agenda/check on (ALL).
6. Review current system conditions.
    - reservoir operation, water supply, water quality (COE, BOR)
    - hydrosystem storage, power system status, winter reliability (BPA)
    - fish migration status (NMFS, USFWS)
7. Review operations requests.
8. Develop recommended operations.
9. Other.
    - set agenda for 26 September TMT meeting

Questions about the meeting may be referred to Cindy Henriksen at (503) 808-3945, or Cathy Hlebechuk at (503) 808-3942.

TECHNICAL MANAGEMENT TEAM
MEETING NOTES
September 19, 2001
CORPS OF ENGINEERS NORTHWESTERN DIVISION OFFICES – CUSTOM HOUSE
PORTLAND, OREGON

TMT Internet Homepage: http://www.nwd-wc.usace.army.mil/TMT/index.html

FACILITATOR'S NOTES ON FUTURE ACTIONS
Facilitator: Donna Silverberg

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.

TMT Emergency Protocol: Offset vs. Mitigation:
Regarding the language used in the Emergency Protocol, Oregon prefers "mitigate" over "offset". They requested a written explanation from the COE regarding the need to change the language. Paul reported that he found no offset language in the Biological Opinion; NMFS suggested the use of "offset for mitigation". Because of the legal nature of this issue, BPA, COE, Idaho, Oregon and Washington attorneys will meet to discuss and finalize this matter.

ACTION: TMT representatives will contact Cindy Henriksen with a name and number of each respective attorney so she can coordinate a meeting. An update on the group's progress will be on the agenda of the next meeting.

ACTION: Paul Wagner will circulate his proposed changes to Emergency Protocols for review.

Status of Lower Snake Operations:
Cindy reported that the COE is unable to maintain normal flow and operate within a 1.5 foot range at Lower Granite and Little Goose. One big problem with this is the danger created for fish passage. The Action Agencies' suggested solution was to stop flow for a few hours at night in order to fill Lower Granite for storage. Idaho Fish and Game said they are opposed to a continuous regime of zero nighttime flow. However, they would support a one-time only no-flow operation. Steve Pettit reminded the group that adult issues are now a priority so thermal impacts and adult flows are a concern. Idaho Power was asked if they could increase weekend flows. John Bowling replied that they are operating for navigation flows and preparing for fall chinook operations so may not be able to provide any more flow.

The Action Agencies developed a proposal of no spill for six hours per night for up to seven days to fill Lower Granite. The Salmon Managers requested Idaho Power to maintain 9 kcfs out of Hell's Canyon through the weekend instead of reducing to 7 kcfs,

until Lower Granite is full. Idaho Power asked for a written request and promised a response as soon as possible.

ACTION: Paul Wagner and Cindy Henriksen will write the requested operation on behalf of TMT and email it to Idaho Power and TMT members. An emergency conference call will be organized if an alternative operation is necessary. Salmon Managers will consider other options to meet the goal of minimizing impacts to fish.

Status of Autumn Treaty Fishing:
Kyle Martin provided a handout of the fishing status, commenting that no problems with nets had occurred. This, he said, has been an excellent fishing season due to minimal fluctuations. Cindy said that the main objective each year is to minimize fluctuations regardless of water levels. The operation may continue through one more weekend – Kyle will notify the COE as soon as the Tribal Compact decides.

Year End Review:
IT requested initial information from TMT for the IT's October 4th meeting. Jim Ruff, IT chair, developed a list of questions for TMT to discuss and bring answers to the IT meeting. Christine Mallette requested that the list of questions be sent to IT representatives as well. In the meantime, TMT will move forward and expect to finalize the answers at the next face-to-face meeting, October 3rd.

ACTION: Donna Silverberg will contact Jim Ruff to send the questions to IT representatives and ask for immediate responses regarding approval or changes to the list. Changes will be forwarded to Cindy Henriksen, who will then forward them to TMT members.

ACTION: Work product for IT questions should be circulated prior to the next TMT meeting.

Review Current System Conditions:
The target at Grand Coulee is still 1283' for the end of September; it is currently at 1282'. Libby is operating at 6 kcfs outflow. Regarding winter reliability, the target of 28.5k mw/mos by October 1st remains and looks as though it will be met.
BPA and the COE are running studies regarding chum operations given the current power and water situation. Paul Wagner gave a heads-up that NMFS and Washington have a chum operation contingency plan that will be introduced for discussion at the next meeting.

ACTION: Paul and Shane Scott will set up a TMT field trip to Duncan Creek to coincide with discussion of the contingency plan.

Regarding fish status, adults are at record breaking numbers. Some think the migration peaked two weeks ago. Migrating juveniles are still in the river, but numbers are down.

Develop Recommended Operations:

An emergency TMT conference call was scheduled for 3:30 September 20th to discuss Lower Granite operations.

Next Face-to-Face Meeting, October 3rd, 9-12:
Agenda items:

- IT preparation discussion
- Chum studies
- Attorneys meeting update
- Lower Granite spill weir test – Tim Wick (if possible)

1. Greeting and Introductions

The September 19 Technical Management Team meeting, held at the Customs House in Portland, Oregon, was chaired by Cindy Henriksen of the Corps and facilitated by Donna Silverberg. The following is a distillation, not a verbatim transcript, of items discussed at the meeting and actions taken. Anyone with questions or comments about these minutes should call Henriksen at 503/808-3945.

Silverberg welcomed everyone to the meeting, then led a round of introductions and a review of the agenda.

2. TMT Emergency Protocols.

Christine Mallette said she had forwarded the most recent draft of the TMT's emergency protocols to the Oregon Governor's office and to ODFW legal staff; the upshot is that Oregon would prefer the word "mitigation" rather than "offset." If the Corps is going to insist on that wording, she said, ODFW would like a written explanation of why. Henriksen suggested that a meeting between COE and Oregon attorneys would probably be the most efficient way to resolve this issue.

Paul Wagner said the explanation he has heard is that "offset" is needed to be consistent with the language in the BiOp; however, after reviewing the Biological Opinion, he noted that the BiOp doesn't say anything about "offset," beyond the fact that offset actions may be proposed. However, said Wagner, the purpose of those offset actions is to mitigate for the effects of emergency operations.

Wagner noted that NMFS has several other comments on the emergency protocols; it was agreed that he will distribute them for TMT review, pending the resolution of the "offset" vs. "mitigate" question. Henriksen said she will organize the attorney's meeting to address this question.

3. Status of Lower Snake Operations.

Henriksen said Ice Harbor and Lower Monumental have now filled to the top foot of their operating range. The Corps is having problems at Lower Granite and Little Goose, however; there simply isn't enough water in the Snake to maintain minimum pool, provide attraction flows and operate within 1% peak efficiency. Usually, she said, it's the weekend when we have problems; we need a longer-term solution which will allow us to refill the Little Goose pool while staying within the various criteria. One possibility is zero nighttime flow at Lower Granite, Little Goose, and Lower Monumental for at least a few hours, she said.

Steve Pettit noted that there is a removable spillway weir test coming up at Lower Granite, which will involve filling the pool daily so that spill can occur at night. Will that be possible? Pettit asked. We'll have to see, Henriksen replied – it will depend on the weather. Right now, the reality is that we need to get through the next few weeks operating Little Goose and Lower Granite within the various criteria we want to maintain.

We need to get some water stored at Lower Granite, Henriksen said; however, Little Goose has a higher minimum project flow than Lower Granite, and is currently lagging below MOP. We need to store some water at Lower Granite so that, when Hells Canyon outflow is reduced over the weekend, we have enough water to maintain operations at Little Goose. However, if we're going to store some water into Lower Granite pool, she said, we're going to need to make some operational changes.

The group weighed various options for solving this dilemma, the main one being a limited zero nighttime flow regime, for a few hours each night for a limited period, to allow some refill of Lower Granite pool. Steve Pettit made the point that the system is now transitioning from a juvenile-driven to an adult-driven mode; he suggested that another option would be to operate Little Goose below its minimum outflow for a few hours each day. Vern Parry replied that Little Goose is already operating at the minimum possible flow needed to avoid cavitation of the generating units. You could also go to zero generation at Little Goose for a few hours, and spill a lesser amount, Pettit suggested. The Corps would not recommend that solution, Henriksen replied; it would only shift the problem to Lower Monumental.

Ultimately, Pettit observed that it would be helpful to have a strawman proposal to discuss. It was agreed that the action agencies will attempt to develop such a proposal before the end of today's meeting.

Is there anything Idaho Power can do to avoid the sharp drop in weekend outflow from Hells Canyon? Mallette asked. Right now we're operating on the weekends according to minimum navigation flows, John Bowling replied; we're gearing up for the fall chinook program. We plan to continue to operate Hells Canyon to the navigation minimum, unless loads pick up, he said. Once we see the first fall chinook redd, we'll go to the fall chinook operation; the first redd detection flyover is scheduled for October 9. The spawning flow will be about 9 Kcfs, once it begins, Bowling said.

At this point, the operating agencies requested a caucus break. When the meeting resumed, Henriksen said flows are expected to be in the 12 Kcfs range at Lower Granite over the next few weeks, barring rain events; based on this, what the action agencies are proposing is to go to zero nighttime flow at Lower Granite, Little Goose and Lower Monumental in order to store water at Lower Granite – six hours per night, for as long as seven days. Lower Granite will then use its full operating range to augment flows downstream over the next week or so, said Robyn MacKay. In response to a question from Pettit, Henriksen said the elevation goal at Lower Granite would be 738 feet. The duration of the zero nighttime flow operation will depend on inflow, MacKay added; if flows are higher than 12 Kcfs, it will take less time to fill the pool.

In response to another question from Pettit, Henriksen said the Corps has no authority to order Idaho Power to maintain 9 Kcfs Hells Canyon outflow during weekend hours. Mallette said that, given the fact that there are still numerous juvenile and adult migrants in the system, and the fact that extended periods of zero nighttime flow will increase water temperature, the salmon managers would request that IPC provide more than the navigation minimum flow from Hells Canyon during the next two to three weekends; 9 Kcfs would be very helpful. In response to a question from Bowling, Mallette said the salmon managers would request that this operation continue until the fall rains begin – perhaps as long as three weeks from now, based on the most recent forecast information.

Basically, we need to ensure that we have at least 11.5 Kcfs outflow at Lower Granite, Henriksen said. Pettit noted that as soon as the irrigation season ends, probably around the end of September, there should be about a 500 cfs improvement in Salmon River flows.

Bowling said he will need a written or email summary of what is being requested of Idaho Power, so that he can provide that information to others in his office. Wagner and Henriksen said they will draft this memo and send it to Bowling. We need a quick turnaround, said Henriksen, because if IPC says no to this request, we're back to square one.

Henriksen suggested that the TMT develop an alternate operation, in the event that IPC refuses to implement the requested operation. The group discussed the following possibility: if IPC is unwilling to maintain 9 Kcfs from Hells Canyon over the next several weekends, the action agencies' proposed operation – fill Lower Granite pool with six hours of zero nighttime flow, probably from 10 p.m. to 4 a.m., over (at most) the next seven days – be implemented. It was agreed that, if IPC is unwilling to exceed minimum navigation flow from Hells Canyon over the weekend, a TMT conference call will be convened tomorrow, September 20.

4. Status of Autumn Treaty Fishery.

Kyle Martin reported that the third week of the Treaty fishery is now complete; there may be one more fishery before the season is over. He distributed a graph showing

the frequency of compliance with the tribes' requested pool elevations and with the 1.5-foot operating range the Corps has agreed to maintain. He noted that compliance at The Dalles has been much better this year, in the 90% range; particularly during weeks 2 and 3, fluctuations were very minimal in the Bonneville pool as well. We haven't heard of any nets being lost this year, which is very good news, Martin said; that is primarily because river flows are so extremely low. The Treaty fishery will likely be completed by Saturday of this week, Martin added.

5. Year-End Review Agenda.

Silverberg noted that, at the last IT meeting, the IT requested that a portion of the TMT's year-end review be completed in time for the TMT to provide a report at the October IT meeting. She noted that the Federal Caucus' hydro work group has developed a list of questions they would like the TMT to answer in time for a presentation at the IT's October 4 meeting.

Mallette said she is concerned that this list of questions has not yet been reviewed and approved by the IT. The main thing IT is interested in is the effects of the 2001 operation and flow year on fish, Silverberg said. It was agreed that the TMT will start to develop that information, even as they await a final list of the questions the IT would like answered at its October 4 meeting. It was agreed that the Corps, BPA, NMFS and the Fish Passage Center will take the lead in assembling the requested flow, temperature, fish passage, survival and operational data. Martin said he will also develop a report on 2001 weather conditions. Silverberg said she will check with NMFS' Jim Ruff about IT buy-in on the hydro work group's list of questions later today, and will distribute his response via email.

6. Current System Conditions.

Tony Norris reported that current Grand Coulee elevation is 1282.1 feet; the project is releasing 80 Kcfs, and filled about a quarter-foot over the past week. The goal is still to achieve elevation 1283 at Grand Coulee by September 30. MacKay said Albeni Falls is starting to draft; Canadian storage water is also being delivered from Arrow. In response to a question from Wagner, Henriksen said Libby continues to release 6 Kcfs; the project is on track to draft to elevation 2411 by December 31.

In response to a question from Mallette, MacKay said the federal system reliability storage target is still 28,500 MW-months by October 1. We actually stored above that target, and given the expected low flows in the system, are now starting back down, she said. However, the federal operators are confident that we will meet the 28,500 MW-months target on October 1, said MacKay. In response to a question from Wagner, MacKay said both BPA and the Corps are running studies to show the probability of meeting both the chum flow and winter refill targets this year.

The group discussed a potential TMT field trip to the Duncan Creek chum spawning area; Wagner and Shane Scott said they will take the lead in coordinating this

field trip. The group also discussed chum spawning salvage contingency plans if low flows in the Columbia continue; Wagner said this is a heads-up that the TMT may well be asked to make a decision about when to implement the chum salvage contingency plan.

Moving on to the status of 2001 fish passage, Wagner focused primarily on adult returns, noting first that the 2001 fall chinook run is now the largest on record, although the peak of the run has now passed. He also touched on the most recent wild and hatchery steelhead numbers. With respect to juveniles, Wagner said chinook numbers at Lower Granite, Little Goose, Lower Monumental and Ice Harbor are now averaging a few hundred per day; the emphasis has definitely shifted to adults at this point in the season, he said.

7. New System Operational Requests.

No new SORs were submitted prior to today's meeting.

8. Recommended Operations.

Henriksen noted that the key here is the Lower Granite operation; that will be decided later today, once Idaho Power Makes a decision about the request to maintain 9 Kcfs weekend outflow from Hells Canyon.

9. Next TMT Meeting Date.

The next meeting of the Technical Management team (a conference call) was set for Wednesday, September 26. The next face-to-face meeting of the TMT was set for October 3. Meeting notes prepared by Jeff Kuechle, BPA writer-editor pool.

TMT MEETING PARTICIPANTS
September 19, 2001

Name	**Affiliation**
John Bowling	IPC
Scott Boyd	COE
Mike Butchko	PowerX
Margaret Filardo	FPC
Russ George	Water Management Consultants Inc.
Robin Harkless	Facilitation Team
Tim Heizenrater	Enron
Cindy Henriksen	COE

Robyn MacKay	BPA
Christine Mallette	ODFW
Kyle Martin	CRITFC
Doug Marx	Attorney, Lake Pend Oreille Idaho Club
Pat McGrane	Reclamation
Tony Norris	Reclamation
Mike O'Bryant	Columbia Basin Bulletin
Steve Pettit	IDFG
Chris Ross	NMFS
Bill Rudolph	NW Fish Letter
Shane Scott	WDFW
Donna Silverberg	Facilitation Team
Maria Van Houten	Enron
Paul Wagner	NMFS
Victoria Watkins	Pyra Energy Group
Darren Wilkens	Puget Sound Energy

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OR: Christine Mallette *WA: Shane Scott* *ID: Steve Pettit* *MT: Jim Litchfield*

COE: Cindy Henriksen*Cathy Hlebechuk*

TMT Conference Call

20 September 2001 1530 - 1630 hours

Portland, Oregon
Conference call line: 503-808-5190

All members are encouraged to call Donna Silverberg with any issues or concerns they would like to see addressed. Please e-mail her at dsilverberg@cnnw.net or call her at (503) 248-4703.

AGENDA

1. Welcome, introductions.
2. Discussions of Lower Snake River Operations.

Questions about the meeting may be referred to Cindy Henriksen at (503) 808-3945, or Cathy Hlebechuk at (503) 808-3942.

TECHNICAL MANAGEMENT TEAM
MEETING NOTES
September 20, 2001
CORPS OF ENGINEERS NORTHWESTERN DIVISION OFFICES – CUSTOM HOUSE
PORTLAND, OREGON

TMT Internet Homepage: http://www.nwd-wc.usace.army.mil/TMT/index.html

FACILITATOR'S NOTES
Facilitator: Donna Silverberg

Idaho Power responded to TMT's 9/19/01 request to keep flows at 9 kcfs over the weekend to help with the low flows at LGR and LGS. Because of its interest in assisting returning adult salmon to the Snake River, IPC expressed willingness to work with BPA to provide a water neutral/energy returned operation. Roger Fuhrman, on behalf of IPC, expressed the company's willingness to look for a short term agreement and resolution to the low flow problem regardless of agreement on a long term agreement.

BPA's Robyn MacKay responded that they had reviewed the current water situation and, in light of last evening's zero flow for 4 hours, believe they will be okay this weekend without assistance from IPC. BPA noted appreciation for IPC's offer and expressed some willingness to work with IPC in the event that such a swap is necessary in the weeks to come.

TMT members urged that the discussions between IPC and BPA for a short term fix take a high priority. Especially in light of the contingency plan suggested by BPA. This contingency is: if there are unforeseen circumstances that lead to lower flows, BPA will ask the COE to go to another 4-hour zero-flow operation on Sunday. CRITFC, on behalf of its member tribes, expressed opposition to any zero flow operations at LGR and LGS projects. Christine Mallette, on behalf of Oregon and the other salmon managers, suggested that the larger picture of operations in the Lower Snake will require a more comprehensive review over time. In the meantime, a short term agreement to help with this immediate situation should be pursued. She urged BPA and IPC to initiate a dialogue immediately to be ready for any "unforeseen circumstances". IPC responded that they are willing to do this and they need BPA to initiate the discussions.

ACTION: Action Agencies will continue to operate the projects at minimums flows to keep generators spinning and minimum operating pools to allow for navigation. In the event of unforeseen circumstances they may need to go to a 4-hour zero-flow operation. To avoid this, BPA and IPC will pursue further discussion of a short term agreement that would utilize Hells Canyon water to assist with storage and flow needs at LGR.

Next TMT meeting: October 3

I. Greeting and Introductions

The September 20 Technical Management Team conference call, held at the Customs House in Portland, Oregon, was chaired by Cindy Henriksen of the Corps and facilitated by Donna Silverberg. The following is a distillation, not a verbatim transcript, of items discussed at the meeting and actions taken. Anyone with questions or comments about these minutes should call Henriksen at 503/808-3945.

Silverberg welcomed everyone to the meeting, then led a round of introductions and a review of the agenda.

2. Lower Snake Operations.

The purpose of this call is to follow up on the discussion of Lower Snake operations at yesterday's TMT meeting, Silverberg said. Specifically, we were waiting for a response from Idaho Power to the TMT's request that IPC maintain 9 Kcfs outflow from Hells Canyon over the next several weekends, she said.

Roger Fuhrman said he has sent out an email to the TMT membership laying out IPC's response to this request; the gist is that IPC is willing to provide 9 Kcfs average outflow from Hells Canyon over the next two or three weekends as long as IPC can maintain the financial and operational flexibility it would enjoy if this request was not implemented. In other words, said Fuhrman, if BPA is willing to make us whole for the energy loss associated with this request, IPC is willing to implement the requested action.

Fuhrman read through his email (please refer to this document for the full text of Fuhrman's remarks). The bottom line is that IPC is willing to help, he said, but we need a storage agreement with BPA so that the energy block can be called upon during the following week, making us essentially water-neutral.

Robyn MacKay said she and Scott Bettin have been evaluating the hydrological outlook for this weekend; while we appreciate IPC's willingness to work with us, it doesn't look like we'll need their help at least over the coming weekend, she said. We should be able to maintain the necessary minimum flow level at Lower Granite (11.5 Kcfs) over the coming weekend without additional flow from Hells Canyon, she said.

It may be necessary to go to zero nighttime flow for a few hours Sunday night, MacKay said; if we can get agreement on that contingency plan, that would allow us to take action without coordinating with everyone first. In response to a request, Henriksen said she will contact Kyle Martin at home if the zero nighttime flow operation becomes necessary. Again, said Henriksen, we don't think we'll need that contingency operation, although flows are going to be tight, if we are to maintain minimum project flow and stay above MOP for navigation purposes. .

Why is a zero nighttime flow operation preferable to coordinating with IPC for an energy exchange? Christine Mallette asked. Because there is no way to get a contract in place in time, and no guarantee that we will even be able to reach agreement on such a

contract, MacKay replied. In response to another question from Mallette, MacKay said BPA can certainly pursue such an agreement with Idaho Power for next weekend.

There was general agreement that a long-term agreement between BPA and IPC covering these kinds of contingencies in the Lower Snake is needed; MacKay noted that such an agreement is already being explored. We are trying, she said, but I wouldn't hold out a lot of hope that those discussions will bear fruit. Fuhrman said IPC is very interested in any short-term or long-term agreements that can be worked out.

It sounds, then, as though BPA and the Corps feel they can maintain the project minimums and stay above MOP this weekend without assistance from Idaho Power, said Silverberg; if there is a problem, the default is to go to zero nighttime flow at the Lower Snake projects for a few hours Sunday night. I'm also hearing that a long-term agreement is a priority for the TMT, and that Idaho Power is very interested in pursuing a short-term agreement as well, she said. Mallette encouraged BPA to initiate this dialogue immediately, with the goal of reaching a short-term agreement prior to next weekend. CRITFC would like the record to reflect that they oppose zero nighttime flow at Lower Granite, Martin said.

To be clear, said Henriksen, this flow problem could surface at any time, even during the week, when flows are this tight – while it is most likely to occur on weekends, as Idaho Power's Hells Canyon complex follows load, it could occur at any time as long as Lower Snake flows are this low.

The call adjourned with the understanding that there is no plan to initiate a zero nighttime flow operation on Thursday or Friday, but that while flow remains this low, there may be a need to initiate the zero nighttime operation at any time until fall natural flow begin to increase.

TMT MEETING PARTICIPANTS
September 20, 2001

Name	**Affiliation**
John Bowling	IPC
Rick Eichstaedt	Nez Perce
Margaret Filardo	FPC

Roger Fuhrman	IPC
Greg Haller	Nez Perce
Cindy Henriksen	COE
Robyn MacKay	BPA
Christine Mallette	ODFW
Kyle Martin	CRITFC
Tony Norris	USBR
Chris Ross	NMFS
Shane Scott	WDFW
Donna Silverberg	Facilitation Team
Dave Statler	Nez Perce
Paul Wagner	NMFS
Dave Wills	USFWS

TECHNICAL MANAGEMENT TEAM

BOR: Tony Norris\Pat McGrane *BPA: Scott Bettin\Robyn MacKay*

NMFS: Paul Wagner\Chris Ross *USFWS: David Wills\Howard Schaller*

OR: Christine Mallette *WA: Shane Scott* *ID: Steve Pettit* *MT: Jim Litchfield*

COE: Cindy Henriksen*Cathy Hlebechuk*

TMT Meeting

3 October 2001 0900 - 1200 hours

Custom House Room 118

Portland, Oregon
Conference call line: 503-808-5190

All members are encouraged to call Donna Silverberg with any issues or concerns they would like to see addressed. Please e-mail her at dsilverberg@cnnw.net or call her at (503) 248-4703.

AGENDA

1. Welcome, introductions.
2. IT Preparation Discussion
3. Water Year 2001 Weather Review (Kyle Martin)
4. Chum Studies
5. Attorneys Meeting Update (TMT Emergency Protocols)
6. CRITFC SOR #10
7. Lower Granite Spillway Weir Test (Tim Wik, if available)
8. Other.
    - Set agenda for next TMT meeting

Questions about the meeting may be referred to Cindy Henriksen at (503) 808-3945, or Cathy Hlebechuk at (503) 808-3942.

TECHNICAL MANAGEMENT TEAM
MEETING NOTES
October 3, 2001
CORPS OF ENGINEERS NORTHWESTERN DIVISION OFFICES – CUSTOM HOUSE
PORTLAND, OREGON

TMT Internet Homepage: http://www.nwd-wc.usace.army.mil/TMT/index.html

FACILITATOR'S NOTES ON FUTURE ACTIONS
Facilitator: Richard Forester

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.

IT Preparation Discussion:
Cindy Henriksen led the discussion and presented information regarding operation questions sent to TMT to present at tomorrow's IT meeting. The presentation can be found on the TMT web page. Chris Ross also reported on fish status from last year, concluding that survival was low and runs were late. Cindy also presented actual temperatures and those modeled in the Mass 1 runs throughout the year. She pointed out that the models were not meant to be predictors.

Water Year 2001 Weather Review:
Kyle Martin circulated his power point presentation to the group. He reported on the low precipitation year, the sunspot cycle, run-off at Lower Granite, Priest Rapids, and the Dalles, and his prediction of next year's water year. All information from this presentation can be found on the TMT web page.

Chum Studies:
Cindy handed out four chum scenarios, as requested by TMT members. She said that, while there may be glitches in the scenarios, the COE is looking at Alternative 3 for this year. This operation would involve 125 kcfs out of Bonneville from November through April 1st. CRITFC also agreed with Alternative 3. Cindy again noted that these scenarios are not predictive, but theoretical in their objective. [Editor's note: The following was sent from Cindy Henriksen to TMT members on October 4, 2001:

In the notes regarding the chum studies it says that the Corps was looking at alternative 3 for this year. I'd like to clarify that the Corps was looking at alternative 3 for the *base case modeling scenario* for this year. The Corps is not suggesting that this is a recommended operation for this year, or a minimum operation for this year. We at the Corps had considered beginning to explore modeling chum operations, alternative 3 was the first scenario that came to mind and we had been looking at modeling that scenario before we had received other alternatives from the salmon managers.

So when I said we were looking at Alternative 3, this was in the context of a potential scenario to be modeled, not an operation.]

Action: TMT members were asked to look at the scenarios presented, provide feedback to Cindy and, by next Wednesday, offer any other scenarios they would like the COE to run.

Attorneys Meeting Update:
The attorneys have not yet met to discuss language from the TMT emergency protocols. Legislative comments from Paul Wagner were forwarded to the attorneys and will be posted on the web page later today.

CRITFC SOR 2001-10:
Kyle Martin reported that this is the last week of the tribal fishery, with fewer fishers than the previous weeks and by permit only. On behalf of the COE, Cindy thanked CRITFC for notifying the COE of their fishery plans in advance.

Lower Granite Spillway Weir Test:
Tim Wik joined TMT and explained a request for spill this Friday for the weir test, which could mean zero nighttime flows some time next week. Also, November 5-9 testing at the Lower Granite spillway may require spill through bay 1 or bay 2, depending on in-flows for that week.

Action: Cindy will ask FPOM to review potential operations and make recommendations to TMT. Members will discuss this further at the next TMT face-to-face meeting.

End of Power Emergency:
Robyn McKay read a memo explaining the end of BPA's power emergency, which went in to effect today. All reliability criteria have been met and the power system is currently stable. A copy of the memo will be sent out to TMT members later today.

Next Face-to-Face Meeting, October 17th 9-12:
Agenda items:

- Chum Studies
- Update on Lower Granite Spillway Weir Test
- Attorneys Meeting Update (TMT Emergency Protocols)
- Year-end Review

1. Greeting and Introductions

The October 3 Technical Management Team meeting, held at the Customs House in Portland, Oregon, was chaired by Cindy Henriksen of the Corps and facilitated by Richard Forester. The following is a distillation, not a verbatim transcript, of items discussed at the meeting and actions taken. Anyone with questions or comments about these minutes should call Henriksen at 503/808-3945.

Forester welcomed everyone to the meeting, then led a round of introductions and a review of the agenda.

2. IT Preparation Discussions.

Henriksen reminded the group that the IT had provided a list of five questions they wanted the TMT to answer in its year-end review, to be presented to the IT at tomorrow's meeting. Henriksen distributed a handout showing the five questions and their answers:

1. How much water was provided over 125 Kcfs? How much additional reservoir storage did we release for the chum/power operation?

Total volume released above 125 Kcfs at Bonneville Dam from November 1, 2000 through March 15, 2001 was more than 1,205 ksfd. At individual headwater projects, the total flow released above minimum outflow prior to April 10 was 17.1 feet at Libby, 4.7 feet at Hungry Horse and 12.8 feet at Dworshak.

2. Without chum/power system flow constraints, could we have achieved upper rule curve elevations on April 10?

Yes, Grand Coulee could have achieved upper rule curve; however, the other headwater storage projects would not have reached upper rule curve. The table below summarizes the results of project operations at Libby, Hungry Horse, Grand Coulee and Dworshak with no increases made for power needs or chum flows:

Project	10 April refill target	Forecast 10 April Elev without chum or power operations (ft)	Difference below 10 April refill target w/o chum or power ops (ft)	Actual April 10 elevation (ft)	June 30 elevation with only minimum flow
Grand Coulee	1283.3	1283.3	0	1220.2	1290.0 Act: 1280.9
Libby	2448.0	2403.8	44.2	2386.7	2443.7 Act: 2431.1
Hungry Horse	3556.7	3494.4	62.3	3489.7	3544.6 Act: 3541.3
Dworshak	1592.2	1529.5	62.7	1516.7	1597.0 Act: 1587.4

The decrease in outflow from upstream storage projects would have resulted in flows at Bonneville that were generally lower than what actually occurred. The following chart graphs the actual 2001 Bonneville flow versus the adjusted flow assuming no power or chum operation at Grand Coulee, Libby, Hungry Horse or Dworshak for the period October 2000-April 2001:

[graph included here]

3. How far below flood control were the projects on April 10? How far from full on June 30? What were the average seasonal flows at Priest Rapids, Lower Granite and McNary?

See graphs on the TMT web page at http://www.nwd-wc.usace.army.mil/TMT/index.html under the 2001 Year-End Review Plots.

4. What was the timing of the fish runs in 2001? How did this compare to other years?

See graphs on the DART web page at http://www.cqs.washington.edu/dart/esa.html

In 2001, system survival for in-river yearling chinook migrants from Lower Granite to the Bonneville tailrace is estimated at 23%, about half the average system survival since 1995. For juvenile steelhead migrating in-river, an estimated 2.4% survived from Lower Granite to the Bonneville tailrace. PIT-tag detections were generally lower than normal in 2001.
Passage timing of wild Snake River spring yearling chinook and steelhead at McNary Dam was later in 2001 than in 2000 (two to three weeks); few upper Columbia steelhead were detected in 2001 compared to 2000.

5. Water temperatures at Lower Granite and McNary.

See graphs on the TMT web page at http://www.nwd-wc.usace.army.mil/TMT/index.html under the 2001 Year-End Review Plots.

Henriksen said she will be making the presentation at tomorrow's IT meeting; she added that the TMT will have an opportunity for a more in-depth year-end review and lessons learned discussion at its all-day meeting on October 31. She then spent a few minutes going through the flow, elevation and water temperature information she will be presenting to IT. Henriksen said that as everyone is painfully aware, flows were very low in 2001; the average flow during the flow augmentation period at Priest Rapids Dam was 76.7 Kcfs, far below the objective of 135 Kcfs. At Lower Granite, spring seasonal average flow was 47.5 Kcfs, compared to a flow objective of 85 Kcfs; the summer average flow was 25.4 Kcfs, compared to the BiOp target of 50 Kcfs. Snake River flows peaked at 91 Kcfs on June 16. At McNary, the spring seasonal average flow was 123.1 Kcfs, compared to a BiOp flow objective of 220 Kcfs; the summer average flow was 90 Kcfs, less than half of the 200 Kcfs flow target. Lower Columbia flows peaked at 166.3 Kcfs on June 12.

Chris Ross then went through some of the 2001 biological data he will be presenting to the IT, noting that, in 2001, system survival for in-river yearling chinook migrants from Lower Granite to the Bonneville tailrace was 23%, about half the average system survival since 1995. For juvenile steelhead migrating in-river, the survival story is even grimmer; based on preliminary estimates, only about 4% of the 2001 juvenile steelhead migrants survived from the tailrace of Lower Granite to Bonneville. Ross noted that PIT-tag detections for all species at

most dams were much lower in 2001 than in recent years; he also touched on run timing information, by species.

3. Water Year 2001 Weather Review.

Kyle Martin provided a briefing on Water Year 2001 Weather, as well as recommendations for the 2002 water year. Martin noted that his report is based on data provided by the National Weather Service and the Northwest River Forecast Center. He said precipitation was near-normal to well above-normal at the start of the weather year in October 2000; the conventional long-range forecasting tools suggested a near-normal autumn and early winter.

However, precipitation in the Columbia Basin (as measured at The Dalles) was only 49% of normal in November and 57% of normal during December, Martin said. Mean basinwide temperatures were also colder than normal, with departures of -4.3 and -1.3 degrees F. This was particularly important because November and December are normally the two wettest months of the year, said Martin, and precipitation decreases dramatically after January.

He noted that CRITFC first alerted the region to the probability of a serious drought at the January 10, 2001 TMT meeting. Based on an analysis which correlates peak sunspot activity with the onset of El Niño events, CRITFC recommended that project outflows be immediately reduced to the greatest extent possible, and that water in the upper basin storage reservoirs be conserved for spring and summer migrants. The TMT, said Martin, chose not to act on CRITFC's recommendation, instead releasing upper basin storage for power and chum flows.

Dry conditions persisted through March 2001, Martin continued. There was also record-breaking warm weather in early January, with some west side locales experiencing temperatures in excess of 70 degrees F. This was offset by cold snaps in late January and mid-February. The region finally began receiving some precipitation in March, said Martin; precipitation totals in January, February and March 2001 were 40%, 51% and 82% of normal, respectively. The wether continued quite wet through the first ten days of April, Martin said; there was also heavy precipitation during the last 10 days of the month. Temperatures were extremely unsettled, with many record-breaking high and low daily temperatures recorded. For the month, precipitation for the Columbia Basin at The Dalles was 117% of normal.

Martin noted that the heavy rains of late April and early May triggered the juvenile migration, with the first pulse of chinook and steelhead smolts reaching Lower Granite in late April. By May, however, warm, dry conditions returned to the Northwest; Columbia Basin precipitation at The Dalles was 62% of normal in May, while mean basinwide temperature departures were +2.0 degrees F.

Cool weather and near-normal precipitation returned in June and July, with precipitation totals for those two months of 99% and 103%, respectively. Mean basinwide temperature departures were -2.2 and -0.6 degrees F, respectively. During August and September, however, the weather was once again warm, sunny and dry; precipitation totaled 32% of normal in August and 50% of normal in September. Mean basinwide temperature departures were +2.5 degrees F

in August and +2.6 degrees F in September. The cumulative precipitation total for Water Year 2001 for Columbia at The Dalles was only 68% of normal, Martin said.

In summary, he continued, Water Year 2001 started out near normal, then quickly deteriorated to persistent drought, producing the lowest flow volume water year in recorded history. He added that the federal action agencies operated the river primarily for power over fish in 2001.

Martin noted that the preliminary cumulative seasonal precipitation total of 15.8 inches for the Columbia at The Dalles was a new record low. Of greater significance was something that was largely ignored by the media, Martin said – the extreme number of daily high and low temperatures recorded in 2001. This is more evidence of global warming and a shifting climate, he said.

Martin said CRITFC is now forecasting 80%-90% of normal precipitation in Water Year 2002. He added, however, that the sunspot cycle model predicts that El Niño will peak in September 2002. The NOAA-NCEP sea-surface temperature departure forecast maps suggest that the tropical ocean will shift to El Niño by July 2002. In CRITFC's view, said Martin, Northwest water managers need to avoid the problems of Water Year 2001 and store as much water as possible during the winter of 2001/2001 to help 2002 salmon migrants and to provide a buffer against a 2002 El Niño event. In particular, he said, we would recommend that flood control operations be modified to allow for additional upper basin storage.

Henriksen took issue with Martin's suggestion that CRITFC's water conservation recommendations were ignored in 2001; she noted that the Corps began modeling a 1977-type water year as early as January 2001, and initiated a discussion of what might happen in such a low water year at a joint TMT/IT meeting on February 8, 2001. Henriksen noted the Corps took this direction after coordination with the River Forecast Center. The RFC has specific procedures to follow in development of their forecasts, but they were very responsive to the regional requests for contingency forecasts, Henriksen said.

4. Chum Studies.

Henriksen distributed a series of handouts showing the four chum operation modeling scenarios run to date, as well as the results of those runs. The four scenarios include the following:

- **Scenario 1**: Instantaneous flow of 130 Kcfs at Bonneville Dam from October 1-15, 140 Kcfs from October 16-31, 145 Kcfs from November 1-14, 150 Kcfs from November 15-30, 160 Kcfs during December and 150 Kcfs incubation flow from January 1 through April 10.
- **Scenario 2**: Instantaneous flow of 145 Kcfs at Bonneville Dam from November 1-14, 150 Kcfs from November 15-30, 160 Kcfs during December, 150 Kcfs incubation flow

from January 1-April 10.

- **Scenario 3**: Instantaneous flow of 125 Kcfs at Bonneville Dam from November 1, 2001 through April 10, 2002.
- **Scenario 4**: Determine the instantaneous flow level at Bonneville Dam for the time period from November 1, 2001 through April 10, 2002, that will result in meeting the upper rule curve flood control elevations for all FCRPS storage reservoirs on April 10.

Henriksen then provided a one-page summary of the results of each of these model runs, in terms of the number of years in the 50-year historic record the target flows could be met, monthly average Grand Coulee elevations and the number of water years in which the Grand Coulee flood control elevation targets would be met. She also provided a sheaf of more detailed model results for each of these parameters. Henriksen noted that all of this information is available via the TMT's Internet homepage.

Initially, Henriksen said, the Corps was thinking in terms of Scenario 3 as the starting-point for this year's chum scenario modeling; basically, what these runs tell us is that the flat 125 Kcfs flow at Bonneville would likely be an achievable objective in November and December. However, there could be a potential decision-point come January or February, Henriksen said – by that time, the model runs begin to show a decreased number of water years in which that target could be met. To me, she said, the message is that, once you start the chum flow this year, you need to keep in mind the strong potential for a decision-point in January or February. Martin said CRITFC would support Alternative 3.

The group devoted a few minutes of discussion to the assumptions (starting elevation, annual precipitation etc.) driving these model runs; Henriksen explained that the starting elevations used are the current project elevations, and that the model runs are based on the 60-year record. Given what we heard from Kyle today, she said, it may make sense to choose some normal and near-normal water years on which to base some additional model runs. Basically, this is food for thought, Henriksen said; the Corps, for one, is still thinking about what it means.

5. Attorneys Meeting (Regarding TMT Emergency Protocols) Update.

Henriksen said the attorneys for the action agencies and the states have not yet met to resolve the disagreement over the wording (offset v. mitigation) in the TMT Emergency Procedures appendix; the date of that meeting is still up in the air. Once it occurs, she said, we will inform the TMT of the outcome.

6. CRITFC SOR 2001 C-10.

On September 25, the action agencies received SOR 2001 C-10. This CRITFC SOR, which concerned Week 4 of the fall treaty fishery, requested the following specific operations:

For the period 6 a.m. September 27 through 6 p.m. September 29:

- Bonneville Pool: Operate pool within one foot from full pool (msl elevation 77-76)
- The Dalles Pool: Operate the pool within one foot (from msl elevation 159.5-158.5)
- John Day Pool: Operate the pool within one foot (from msl elevation 264.5-263.5)

Martin went briefly through the specifics of this SOR, which has already been implemented. Henriksen said that, in response to this SOR, the Corps maintained Bonneville within a 1.5-foot operating range at elevation 75.0 to 76.5 feet.

7. Lower Granite Spillway Weir Test.

Tim Wick said the Corps is requesting two to three hours of Spill Bay 1 operation this Friday at Lower Granite, to give project personnel an opportunity to check some of the RSW operations that were not checked during the September 11 test. That would be two hours of approximately 9 Kcfs-10 Kcfs spill at Lower Granite, said Wick.

Henriksen noted that Lower Granite is currently operating Unit 5, due to transformer work on Units 1 and 2; the minimum flow through Unit 5 is 13.5 Kcfs. With Snake River flows receding, Henriksen said, maintaining that minimum powerhouse flow plus 9 Kcfs-10 Kcfs of spill will mean that we have to draft Lower Granite pool, probably by about two to three tenths of a foot. This is a concern, Henriksen said, because the pool elevation at Lower Granite is continuing to erode; the more it recedes, the closer we come to the possibility of zero nighttime flow at Lower Granite, Little Goose and Lower Monumental.

Wick noted that a balloon-tag test of the Lower Granite RSW is currently scheduled for November 5-9, starting on Monday, November 5, about noon. What we need to do for that test is periodically open Spill Bays 1 and 2 to release the balloon-tag fish, Wick said. We need to open Bay 1 nine times daily, for about half an hour each time, on Tuesday through Friday; we need to open Bay 2 three times per day, for about 20-30 minutes each time. In other words, he said, for those four days, we would need to spill for a total of 4.5-5 hours each day through either Bay 1 or Bay 2. On Monday, we would probably only need to spill for about two hours in the afternoon, said Wick.

The key question is inflow during that week, Henriksen said – if inflows are in the 16 Kcfs range, we'll be OK; if they're only 13 Kcfs, that's going to be a challenge. At that point, she said, we would need to talk about shortening or delaying the test, going to a period of zero flow in order to recharge the pool or some other option. It may make sense to ask FPOM discuss this topic, Henriksen suggested; there was general TMT agreement that this would be a good idea.

8. End of Power System Emergency.

Robyn MacKay said the ongoing power system emergency has now officially ended, with the achievement of the September 30 financial and system storage criteria laid out last March.

9. Next TMT Meeting Date.

The next meeting of the Technical Management Team was set for Wednesday, October 17 from 9 a.m. to noon. Meeting notes prepared by Jeff Kuechle, BPA writer-editor pool.

TMT PARTICIPANT LIST

OCTOBER 3, 2001

Name	**Affiliation**
Greg Bowers	COE
Ron Boyce	ODFW
Ruth Burris	PGE
Suzanne Cooper	BPA
Margaret Filardo	FPC
Russ George	Water Management Consultants Inc.
Richelle Harding	D. Rohr & Associates
Robin Harkless	Facilitation Team
Cindy Henriksen	COE
Karl Kanbergs	COE
Robyn MacKay	BPA
Kyle Martin	CRITFC
Tony Norris	USBR
Mike O'Bryant	Columbia Basin Bulletin
John Oh	Enron
Chris Ross	NMFS
Shane Scott	WDFW
Maria Van Houten	Enron
Paul Wagner	NMFS

Steve Wallace	PacifiCorp
David Wills	USFWS

.

TECHNICAL MANAGEMENT TEAM

BOR: Tony Norris\Pat McGrane *BPA: Scott Bettin\Robyn MacKay*

NMFS: Paul Wagner\Chris Ross *USFWS: David Wills\Howard Schaller*

OR: Christine Mallette *WA: Shane Scott* *ID: Steve Pettit* *MT: Jim Litchfield*

COE: Cindy Henriksen*Cathy Hlebechuk*

TMT Meeting

17 October 2001 0900 - 1200 hours

Custom House Room 118

Portland, Oregon
Conference call line: 503-808-5190

All members are encouraged to call Donna Silverberg with any issues or concerns they would like to see addressed. Please e-mail her at dsilverberg@cnnw.net or call her at (503) 248-4703.

AGENDA

1. Welcome, introductions.
2. Update on Lower Granite Spillway Weir Test (Tim Wik, Walla Walla Corps)
3. FYI – SLICE presentation (Terrin Pearson, BPA)
4. Chum Studies/Chum discussion
5. Attorneys Meeting Update (TMT Emergency Protocals)
6. Year-end Review (additional information desired?)
7. Other.
    - Set agenda for next TMT meeting

Questions about the meeting may be referred to Cindy Henriksen at (503) 808-3945, or Cathy Hlebechuk at (503) 808-3942.

COLUMBIA RIVER REGIONAL FORUM

TECHNICAL MANAGEMENT TEAM

October 17th, 2001

FACILITATOR'S NOTES ON FUTURE ACTIONS

Facilitator: Richard Forester

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.

Update on Lower Granite Spillway Weir Test:

Tim Wik, Walla Walla District COE, reported on the test. He said that the test schedule is still set for November 5-9. It appears inflows should be high enough so the test can proceed as planned. The Salmon Managers were asked whether or not they endorsed the test. In the event they endorsed the test, they were also asked to provide a contingency plan in the event inflows are not high enough to complete the test as planned and still stay within MOP+1. They were asked to recommend either going outside 1% unit operation or going to 0 flow to stay within MOP + 1. t.

Action: The Salmon Managers endorsed the test as proposed. TMT will continue to monitor inflows and ascertain if the test can proceed without going below MOP + 1. If needed, Salmon Managers will be asked to recommend a contingency plan as stated above. . Cathy Hlebechuk will also check with navigation folks if the Lower Granite forebay can be operated below 734' during this test.

SLICE Presentation:

Terrin Pearson, BPA, reported on the new SLICE program that nearly a dozen PUDs are participating in this BPA which allocates 22% of system capability, on a daily adjusted basis (more frequent if necessary) to them. The utilities are subject to all of the system constraints, such as BiOp and spill. The program runs on a ten-year contract. BPA administers the overall system under the contract, and the utilities get the benefits and the limitations of that management. The benefit to the PUDs is the ability to manage its share directly, including storing surplus or selling its surplus when the market is favorable. However, the utilities participating in SLICE also assume risks similar to BPA, including overforecasted water supply. Because the participants will feel a more immediate monetary impact, there was a concern whether the arrangement will create pressure from them on BPA on such issues as spill. The answer was to the effect that there was already a great deal back and forth communication under the previous arrangement and that the contract gives BPA control over operating issues. The hope of the program is that over the 10-year contract, given good water years, everyone will benefit.

Chum Studies/Discussion:

See handouts on the TMT web page at http://www.nwd-wc.usace.army.mil/TMT/index.html under the 2001 Supporting Documents.

Cathy Hlebechuk handed out the chum flow study comparison. One alternative (3a on the handout) was added from last week's handout. One conclusion gathered from the study is that increasing out-flow for chum would require augmentation from Grand Coulee. Any requests for more studies should be sent to Cathy at the COE. Salmon Managers are still analyzing salvage operations. Ron Boyce, Oregon, gave TMT a heads-up to a possible SOR from the Salmon Managers. A conference call will be initiated next week if necessary to discuss the request.
Action: Another model run was requested with 3a assumptions and 130,000 chum targets, as being more realistic.

Attorneys Meeting Update (TMT Emergency Protocols):
Paul Wagner sent a legislative change to the TMT Emergency Protocols, which the COE posted on the web page. See handouts on the TMT web page at http://www.nwd-wc.usace.army.mil/TMT/2001/documents/EmerProtocl/emerprotocl1024.pdf
TMT will finalize the Protocols at the next meeting.

Year-end Review:
The group was reminded of possible topics for the year-end review that they had come up with at the August 29 meeting. A handout listed the topics, which the group narrowed down as agenda items for the next meeting. The following topics will be discussed:

- Vernita Bar
- Mixers at McNary
- Lower Granite Study
- Comparison Analysis 2001/ other years
- Operation Analysis (FPC)

*__NOTE__: As requested, the meeting date has been changed to **Tuesday, October 30, 10-3**. The location will be announced by the end of this week.

Next Meeting: Year-end Review – Tuesday, October 30, 10-3:
Agenda Items:
Finalize TMT Emergency Protocals
Vernita Bar Operations – Shane Scott
Mixers at McNary – Larry Beck, Mark Smith
Lower Granite Study – Billy Connor, Dave Wills
Comparison Analysis 2001/other years – Paul Wagner
Fish Passage Center Operation Analysis – Margaret Filardo

TECHNICAL MANAGEMENT TEAM
MEETING NOTES
October 17, 2001
CORPS OF ENGINEERS NORTHWESTERN DIVISION OFFICES – CUSTOM HOUSE
PORTLAND, OREGON

TMT Internet Homepage: http://www.nwd-wc.usace.army.mil/TMT/index.html

DRAFT

1. Greeting and Introductions

The October 17 Technical Management Team meeting, held at the Customs House in Portland, Oregon, was chaired by Cathy Hlebechuk of the Corps and facilitated by Richard Forester. The following is a distillation, not a verbatim transcript, of items discussed at the meeting and actions taken. Anyone with questions or comments about these minutes should call Cindy Henriksen at 503/808-3945.

Forester welcomed everyone to the meeting, then led a round of introductions and a review of the agenda.

2. Update on Lower Granite Spillway Weir Test.

Hlebechuk reminded the group that the Lower Granite spillway weir test occurred several weeks ago; biological testing of the RSW is scheduled to begin November 5. There was a second hydraulic test on October 5, from about 11 to 12, Tim Wik said. We had about 10 Kcfs going through the bay, Wik said; everything went well, and there were no surprises. The Corps is still planning to conduct balloon-tag testing on November 5-9. Wik said he had sent out a memo, dated September 25, providing the details of the planned biological test.

The concern is that inflows are so low in the Lower Snake that it would be necessary to go below MOP in order to conduct the test, Hlebechuk said – 13.5 Kcfs inflow to the project is the make-or-break point. If flows are below that level, she said, it will be necessary to shorten the test, or go to zero nighttime flow or zero generation at the project or operate outside 1% on the turbine. Currently, however, Lower Granite inflows are in the 16 Kcfs-17 Kcfs range, although they did fall as low as 13.5 Kcfs one day last week. In other words, we don't think we'll have a problem doing the test, Hlebechuk said, but we need to have a contingency plan in place in case flows are lower than expected.

After a few minutes of discussion, it was agreed that the TMT will work on a contingency plan to cover what will happen if Lower Granite inflows fall below 13.5 Kcfs. In the meantime, the November 5-9 biological test will proceed as planned. In response to a request from Ron Boyce, Wik said he will send out a brief written description of the October 5 hydraulic test.

3. FYI-SLICE Presentation.

Terrin Pearson provided a description of BPA's SLICE program, under which public utility districts around the Northwest can "own" a percentage of the federal system capability. The program gives the utility districts some limited ability to shape generation to meet its load and sales needs; in exchange, the PUDs also assume their share of BPA's risks (poor water year, equipment failure etc.). Pearson emphasized that any non-power constraints (spill for fish passage or chum salmon incubation flows, for example) apply to SLICE customers as well as to the federal operators. Pearson worked from a series of overheads, copies of which are available from him at 503/230-5000. Please refer to this document for details of Pearson's presentation.

4. Chum Studies Discussion.
See handouts on the TMT web page at http://www.nwd-wc.usace.army.mil/TMT/index.html under the 2001 Supporting Documents.

Hlebechuk distributed a handout summarizing the results from the various alternative chum operations the Corps has modeled to date; it included a new alternative, 3-A, which factors in a more realistic Canadian operation. Under this scenario, the target flows are not met as often as they are under Alternative 3, Hlebechuk said. She spent a few minutes going through the comparison sheet, which is available via the TMT homepage. Hlebechuk noted that current outflow from Bonneville is about 85 Kcfs; if the chum operation was implemented today, she said, we would need to augment Bonneville flows by 40 Kcfs using Grand Coulee storage. Increasing flows by 40 Kcfs would cost just over a foot per day in Grand Coulee storage, she said. The longer we can wait before the chum operation begins, the greater our chances of achieving both the target flows and the upper rule curve elevation at Grand Coulee, said Hlebechuk.

The TMT devoted a few minutes of discussion to the model outputs; ultimately, Hlebechuk asked that any additional scenarios for modeling be provided to her as soon as possible. Paul Wagner asked that the Corps run a scenario showing the likelihood of being able to meet a chum flow of 130 Kcfs, using the Canadian operation assumed in Scenario 3-A.

Boyce noted that the salmon managers are still discussing a potential chum salvage plan; an SOR on this subject could be forthcoming in the next week or two. He said chum redd surveys have already begun; no redds have been identified to date. Hlebechuk added that some climatologists have warned that soil moisture contents around the Northwest are so low that 130% of normal precipitation would be needed to produce a near-normal runoff volume in 2002.

5. Attorneys Meeting Update.
See handouts on the TMT web page at http://www.nwd-wc.usace.army.mil/TMT/2001/documents/EmerProtocl/emerprotocl1015.pdf

Hlebechuk said Paul Wagner had provided another draft of the emergency protocols appendix; everything looks good, she said, except for one small change which has subsequently been taken care of. The most recent Emergency Protocols is on the web. TMT will finalize them at the next TMT meeting.

6. Discussion of Additional Information Needed for the Year-End Review.

The group devoted a few minutes of discussion to the list of year-end review agenda items developed at previous TMT meetings, ultimately agreeing to add a summary of last year's flow operation/fish by Fish Passage Center. Margaret Filardo had made this same presentation at IT already.

7. Next TMT Meeting Date.

The next meeting of the Technical Management Team (the year-end review) was changed to Tuesday, October 30 from 10 a.m. to 4 p.m. Meeting notes prepared by Jeff Kuechle, BPA writer-editor pool.

TMT PARTICIPANT LIST

OCTOBER 17, 2001

Name	**Affiliation**
Larry Beck	COE
Scott Bettin	BPA
Jon Boling	IPC
Ron Boyce	ODFW
Mike Butchko	PowerX
Dick Cassidy	COE
Margaret Filardo	FPC
Richard Forester	Facilitation Team
Jim Gaspard	B.C. Hydro
Russ George	Water Management Consultants Inc.

Richelle Harding	D. Rohr & Associates
Robin Harkless	Facilitation Team
Cathy Hlebechuk	COE
Doug Marx	Attorney, Lake Pend Oreille Idaho Club
Tony Norris	USBR
Terrin Pearson	BPA
Shane Scott	WDFW
Glen Traeger	Avista Energy
Paul Wagner	NMFS
Tim Wik	COE
David Wills	USFWS
Nancy Yun	COE

TECHNICAL MANAGEMENT TEAM

BOR: Tony Norris\Pat McGrane *BPA: Scott Bettin\Robyn MacKay*

NMFS: Paul Wagner\Chris Ross *USFWS: David Wills\Howard Schaller*

OR: Christine Mallette *WA: Shane Scott* *ID: Steve Pettit* *MT: Jim Litchfield*

***COE: Cindy Henriksen**\Cathy Hlebechuk*

TMT Meeting – Year End Review

30 October 2001, Tuesday 1000 - 1500 hours

Custom House Room 210
Portland, Oregon

Conference call line: 503-808-5191 (NOTE CHANGE)

All members are encouraged to call Donna Silverberg with any issues or concerns they would like to see addressed. Please e-mail her at dsilverberg@cnnw.net or call her at (503) 248-4703.

AGENDA

1. Welcome, introductions.
2. Review current system conditions.
   - reservoir operations (COE, BOR)
   - hydrosystem storage, power system status, winter reliability (BPA)
   - fish migration status (NMFS, USFWS)
3. Finalize TMT Emergency Protocals
4. Lower Granite Balloon Tag Test – contingency measures
5. Chum Studies / Chum Operations discussion

   Chum SOR
6. Year-End Review
   - WY 2001 Water Supply Forecast – Harold Opitz
   - Vernita Bar Operations – Shane Scott
   - Mixers at McNary – Larry Beck
   - Lower Granite Study – Billy Connor, Dave Wills

- Comparison Analysis 2001/other years – Paul Wagner
- Fish Passage Center Operation Analysis – Margaret Filardo
- Others

7. Other.
    - Set agenda for next TMT meeting

Questions about the meeting may be referred to Cindy Henriksen at (503) 808-3945, or Cathy Hlebechuk at (503) 808-3942.

COLUMBIA RIVER REGIONAL FORUM

TECHNICAL MANAGEMENT TEAM

October 30th, 2001

FACILITATOR'S NOTES ON FUTURE ACTIONS

Facilitator: Donna Silverberg

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.

Update, Idaho Power Company:

Raquel Mills reported that Idaho Power is currently releasing 9000 cfs out of Hell's Canyon, while monitoring inflow, targeting 2072' by December 3rd at Brownlee. Idaho Power continues to track redds in the Snake River and will continue to inform TMT of its operations.

SOR 2001-10:

Ron Boyce, on behalf of the State of Oregon and the U.S. Fish and Wildlife Service, summarized their request to increase tailwater elevations at Bonneville Dam to a minimum of 12' beginning November 5th for chum operations. He said that it appears the chum will begin spawning this week and next, and if operations are delayed until November 19th as suggested by the Action Agencies, up to 60% of fish could be lost.

Ron also noted that, under specified conditions, dewatering redds could be an alternative.

In a memo to NMFS and presented at TMT, the Action Agencies outlined certain contingencies they are keeping in mind when considering chum operations. Vernita Bar, power reliability, dewatering, upriver spring chinook and steelhead stocks were listed as factors to be considered. They do not support drafting Grand Coulee before an 85% confidence rate of refill has been met. Rather than raise the issue to IT, Paul Wagner suggested the group continue to closely monitor the situation and check in every week to avoid missed opportunities. Monitoring would include weekly forecasts, inflow levels, population status, Vernita Bar and storage in the Snake River. One suggestion for framing the issue was: under what conditions can this request be implemented without violating the Biological Opinion, Vernita Bar, and System Reliability?

Action: The AA's will put together information to help determine these conditions. A meeting will be held next Wednesday November 7th to discuss the findings.

Action: As requested, Robyn McKay will provide extended information regarding 60 kcfs at Vernita Bar to Ron Boyce.

Action: Oregon and U.S. Fish and Wildlife Service will provide information on what specific conditions dewatering redds would be considered.

Fish Passage Center: Operation Analysis and Effects on Fish:

Margaret Filardo gave a presentation, which summarized the FPC's findings. A question regarding chum came out of the discussion: which is more harmful, beginning flow too late or ending too early? There is no clear answer to this question as yet, but the challenge of striking the necessary balance became evident to all.

Lower Granite Survival Study:
Billy Connor reported with a handout on fall chinook in the Snake River. In summary, he said, fish released sooner saw a higher survival rate than those released later. His handout will be available on the TMT web site.

Mixers at McNary:
Larry Beck reported that two mixers located at the south end of the powerhouse were analyzed for their affects on temperatures. He concluded that more research is necessary to determine effects; research will continue in 2002.

Vernita Bar:
Shane Scott distributed two papers on Vernita Bar Operations from 2001 by Chris Murray, Kenneth Tiffan and Matthew Mesa. These papers described water temperature effects on juvenile fall chinook salmon in the Snake and Columbia Rivers, and will be posted on TMT's web site.

Comparison Analysis, 2001 Vs. Other Years:
Paul Wagner gave a presentation that focused on the record number of adult returns. It was noted that this may well have been due to compliance with the BiOp. and good ocean conditions. A question was raised: was this return enough to bring numbers back up in the coming years? Again, only time will tell.

Current System Conditions:
Cathy Hlebechuk noted that at Bonneville, a flow detector operation has required a small spill operation to move to a different bay. Although BPA voiced an objection, FPALM agreed and will move forward with the operation.

Emergency Protocols:
The group is still awaiting final discussion of the protocols. Oregon's attorney will be contacted for input on the final draft. An update will be given next week.

Lower Granite Balloon Tag Test:
As discussed last week, this operation should not require breaking the MOP+1 range, but FPAC was asked to discuss a contingency plan. If necessary, an emergency TMT call will be organized.

Next Meeting, November 7th, 9-12:
Agenda items:

- Chum operations, continued discussion of SOR
- Water Year 2001 – Harold Opitz
- Emergency Protocols – Oregon

- Lower Granite Balloon Tag Test
- Summarize "Lessons Learned" – Group discussion

TECHNICAL MANAGEMENT TEAM
MEETING NOTES
October 30, 2001
CORPS OF ENGINEERS NORTHWESTERN DIVISION OFFICES – CUSTOM HOUSE
PORTLAND, OREGON

TMT Internet Homepage: http://www.nwd-wc.usace.army.mil/TMT/index.html

DRAFT

1. Greeting and Introductions

The October 30 Technical Management Team meeting, held at the Customs House in Portland, Oregon, was chaired by Cathy Hlebechuk of the Corps and facilitated by Donna Silverberg. The following is a distillation, not a verbatim transcript, of items discussed at the meeting and actions taken. Anyone with questions or comments about these minutes should call Cindy Henriksen at 503/808-3945.

Silverberg welcomed everyone to the meeting, then led a round of introductions and a review of the agenda.

2. Current System Conditions.

Raquel Mills of Idaho Power Corporation reported that Hells Canyon outflow was increased from 8.5 Kcfs to 9 Kcfs yesterday; she said this should be the Hells Canyon discharge for the foreseeable future, barring any major precipitation events in which outflows would be increased. The current Brownlee elevation is 2058.5 feet; the plan is to fill the project to elevation 2072 by December 3.

Field crews completed their fourth redd-counting flyover yesterday, Mills continued; they found 70 new fall chinook redds on the Snake, most above the confluence with the Salmon, bringing the total redds counted to date up to 83. That compares to 103 redds counted in the Snake system last year, Mills noted. Field crews have also found four fall chinook redds in the Imnaha system and 30 in the Grande Ronde. Visibility was poor, Mills added, and the researchers feel there are probably more redds out there than have been counted.

With that, it was agreed to move on to today's SOR discussion. On October 29, the Corps received SOR 2001-10. This SOR, supported by the Fish and Wildlife Service and ODFW, requests the following specific operations:

- Beginning November 5 and continuing until further notice, provide a minimum instantaneous tailrace elevation of 12 feet at Bonneville Dam under conditions where FCRPS operation is consistent with conditions of the Vernita Bar Agreement and NMFS' 2000 FCRPS Biological Opinion RPA.

Ron Boyce spent a few minutes going through the details of this SOR and its justification, noting that the intent of the SOR is to provide stable spawning flows for chum and chinook salmon in the Lower Columbia. The full text of SOR 2001-10 is available via the TMT's Internet homepage; please refer to this document for details.

How many chum spawners do we expect to see this year? Scott Bettin asked. I have heard is estimates in the range of 500-600 chum to the Ives/Pierce Island area, plus 100-200 spawners each to Hamilton Springs and Hardy Creek, Boyce replied. How many have arrived to date? Bettin asked. Very few redds have been counted to date, Boyce replied; the run has not arrived yet. Based on historical information, however, we expect spawning to begin in earnest this week, he added. In 1997, your historic information shows that 5,000 chum were actively spawning below Bonneville by October 15, Bettin observed – either this year's fish are extremely late, or they're not coming at all.

Boyce said the salmon managers are aware that reservoir storage is still very low. I want to be clear, he said, that if all other options have been exhausted, the salmon managers would be willing to consider dewatering the chum redds if the requested tailwater elevation can no longer be sustained without, for example, creating a conflict between the needs of listed and non-listed species. We're not interested in trading off one stock for another, Boyce said – we want to make this operation work for all species.

So you would consider drafting Dworshak, for example, in order to maintain the chum flows? Robyn MacKay asked. That is one option we could discuss, Boyce replied. Any draft of the storage projects at this point in the season would have other consequences and tradeoffs, MacKay said – we would need to have a serious discussion about how the operation requested in the SOR could affect our ability to implement other BiOp operations later this spring.

Paul Wagner then distributed a memo, dated October 30, from the action agencies to NMFS on the subject of "Initiation of Chum Spawning." He spent a few minutes going through this document, which focuses on two main issues:

- The potential impacts of the chum operation on Vernita Bar protection flows
- The sustainability of the chum flows without detrimental impacts to reservoir storage targets

Essentially, said Wagner, I don't hear anyone disagreeing with the fact that we need to provide some level of chum protection flows this fall and winter; the question is mainly when the chum flows should begin this year. In response to a question, Boyce that, according to his analysis, said maintaining a 12-foot tailwater depth at Bonneville would require an average flow of about 130 Kcfs at that project.

The action agencies recognize that the desired start date is November 1, said MacKay; however, there are other factors we need to consider, under the BiOp: reservoir elevations for spring migrants and Vernita Bar flow maintenance, for example. We went through this section of the BiOp to see how often we've been able to achieve a 125 Kcfs chum flow in the November-February period in years following a drought year, MacKay said; generally, it has not been possible to start chum flows of 125 Kcfs on November 1 and maintain them at that level through spring, except in the few years, such as 1978, when fall precipitation is exceptionally highs.

Natural streamflow at The Dalles during the fall is usually about 90 Kcfs, MacKay continued; this fall, the River Forecast Center is estimating natural flows of only 56 Kcfs at The Dalles. There is a possibility that we could increase flows out of the Snake this fall, or out of Grand Coulee, MacKay said; however, both operations have tradeoffs. In particular, she said, we would prefer not to exceed the target protection flow of 55 Kcfs through Vernita Bar, which is problematic if the additional water is to come out of Grand Coulee, MacKay said.

We are coming out of a record low year, MacKay said; basically, the only water we have to augment lower river flows for chum is water that is already in storage, unless a massive rain event occurs, which is certainly possible. The group devoted a few minutes of discussion to the action agencies' model analysis of the likelihood of being able to meet the requested chum and Vernita Bar chinook flows, given current storage levels; MacKay described the assumptions used in each of these model runs.

The action agencies' memo offers the following recommendations:

- The provision of flow for the spawning of chum below Bonneville will begin following the last scheduled Vernita Bar redd count (currently scheduled for November 18), if providing these flows would drive the Vernita Bar protection flow above this year's planned 55 Kcfs target flow. Conversely, chum spawning flows may begin sooner if they can be provided without driving up the Vernita Bar protection level. The scenarios that would provide for an earlier provision of chum spawning flows include a substantial increase in Lower Columbia River tributary inflow or Snake River flow.
- The Bonneville flow will be regulated to a tailwater elevation rather than a steady flow. The tailwater gauge reflects the influence of tides, the Willamette River flow and the effect of local tributary flow on the elevations at which redds are established in the mainstem Columbia. The initial tailwater elevation target may be 11.2 feet, but may change based on results of field operations and available water.
- In evaluating the chum operation, the action agencies will also consider the sufficiency of flows in the Hamilton and Hardy Creeks and side channels to enable access of the creeks

for spawning, the presence of chum in the mainstem, and any change (increase or decrease) in natural flows.

MacKay and Hlebechuk went briefly through the series of model runs developed by the action agencies in support of their analysis. The bottom line, said MacKay, is that in order to achieve 125 Kcfs at Bonneville on November 1 we would need to draft Grand Coulee about a foot per day, an operation that is essentially going to force us into a dewatering decision once refill begins in January. Base flows continue to be critically low; if we're going to bump them upward, that additional water – up to 40 Kcfs -- is going to have to come from storage.

So what can we do to protect chum spawners below Bonneville, given these facts? Boyce asked. We could start the protection flows before November 19, if we get a very significant rain event, Bettin replied -- otherwise, we will start on November 19. Boyce said that, in his opinion, that will be too late to provide any biological benefit to the chum spawners; David Wills said that, based on historical spawning data, the chum spawning could be 60%-70% complete by that date.

The group debated the relative merits of SOR 2001-10 vs. the operations recommended in the action agencies; October 30 memo. Boyce noted that it would be physically possible to get the required flow augmentation volume from the Canadian projects through Grand Coulee while still respecting the 55 Kcfs constraint at Vernita Bar if spill was allowed at Priest Rapids Dam. That's true, but we don't believe we would be in compliance with the BiOp if we do that, MacKay replied.

MacKay observed that ODFW and USFWS are asking the action agencies to violate the Biological Opinion as they read it. According to our analysis, MacKay said, we would have to stop the chum operation after less than 20 days in order to achieve an 85% refill confidence at Grand Coulee.

Wagner said one potential approach to this issue would be for the TMT to meet weekly over the next few weeks to discuss the status of the 2001 chum spawning, inflow levels, snow pack levels, weather forecasts, Vernita Bar operations, Snake River storage and water supply, and any updated analytical results.

In response to a question from David Wills, Bettin said the reason BPA does not want to exceed the 55 Kcfs Vernita Bar protection flow is the fact that, if flows are increased above 55 Kcfs, redds could be established at elevations BPA cannot guarantee will be protected. We are comfortable saying that we can maintain 55 Kcfs through Vernita Bar for the duration of the incubation period, Bettin said; we are not comfortable saying we can maintain 65 Kcfs or 70 Kcfs for the duration.

Would it be possible for BPA to give the TMT an analysis of the magnitude by which the operation requested in the SOR would violate the BiOp criteria? Boyce asked. Shane Scott said Washington is not willing to jeopardize the 2002 spill program in order to provide water for chum spawning this fall and winter. Obviously, Scott said, this is not a black and white situation;

it's a balancing act between the needs of all of the species of concern. Even if these flows aren't provided starting November 5, said Scott, Hamilton and Hardy Creeks are flowing, and the chum are going to find their way up to that spawning habitat. Right now, given current weather and flow forecasts, Washington's position is that we need to store as much water as possible, Scott said.

Ultimately, Boyce said Oregon would like to elevate this issue to the Implementation Team, for discussion at the IT's November 1 meeting. Essentially, he said, I don't understand why there is a risk; we will be evaluating the future risk to water supply through our regular discussions. It is physically possible to route the water down from Canada through Grand Coulee and Vernita Bar, Boyce said; it is simply a question of money, and our ability to provide reimbursement for spill at Priest Rapids. If Oregon is willing to provide those funds, we might be able to discuss that option, Bettin replied – given the fact that Oregon is basically the only entity supporting the SOR, BPA is not willing to fund that spill.

After a break, Boyce said better information is needed about the conditions under which the SOR could be implemented, without detrimental impacts to system reliability and refill or to Vernita Bar and BiOp operations. We're operating in a vacuum here, he said – the action agencies need to give us a better understanding of when the requested operation can be implemented. We need quick resolution on this issue, he said; given the fact that we would like the operation to begin on November 5, we can either attempt to resolve this at Thursday's IT meeting, or convene a special TMT meeting one week from now.

It may not be possible to provide the information you're after, Cindy Henriksen replied – there are so many variables that it would take weeks of analysis to exhaust them all. What makes more sense, to me, is to plan on weekly discussion of the factors Paul Wagner suggested earlier, she said. But what will be the trigger? Boyce asked – how will you make the decision as to when the chum operation begins? We'll evaluate natural flow, reservoir elevations, weather etc., and when it is possible to implement the chum flow without exceeding the Vernita Bar protection flow, we will do so, Henriksen replied. I can't give you an iron-clad set of criteria which, when met, will trigger the chum operation, she said – we won't know all of those factors until we get there.

Ultimately, Boyce reiterated his request that the action agencies put together a package of information about how the chum flow decision will be made for discussion at a TMT meeting next Wednesday, November 7. We can bring any updated information we have to a meeting next week, Bettin replied. Hlebechuk asked Boyce to bring information to the next meeting regarding criteria which Oregon and USFWS would consider dewatering rredds. .It sounds like we have a plan, said Silverberg – we will meet next Wednesday to determine how we'll make the decision about when to implement this SOR.

Moving on to current system conditions, Hlebechuk reported that Libby continues to release 6 Kcfs; project elevation was 2426 feet as of midnight last night. The December 31 Upper Rule Curve target is 2411 feet at Libby; the project has drafted about a foot over the past week. Albeni Falls is currently releasing 17 Kcfs. The current Dworshak elevation is 1516.3 feet;

the project filled about 7/10 of a foot over the past week, but will likely not achieve the 1558-foot December 31 Upper Rule Curve elevation at that project. Last week's average flow was about 17 Kcfs at Lower Granite and 93 Kcfs at Bonneville, Hlebechuk added.

Tony Norris reported that Grand Coulee is releasing 86 Kcfs; he added that Hungry Horse elevation is currently 3528 and falling. The project is being operated to maintain the 3.26 Kcfs Columbia Falls minimum

On the power front, life is good, said Bettin. With respect to fish migration, Wagner reiterated that few or no chum spawners have yet been observed at Ives/Pierce Island.

3. Finalization of TMT Emergency Protocols.

Boyce said the revised protocols are still being reviewed by Oregon legal staff; beyond that, he said, I have nothing to report. I would like to try to finalize the protocols at the next TMT meeting, if possible, Hlebechuk said. I will find out what I can, Boyce said. Wagner said NMFS is OK with the revised protocols; Scott said Washington is also willing to approve them.

4. Lower Granite Balloon Tag Test.

Hlebechuk noted that there appears to be enough water to run the Lower Granite removable spillway weir (RSW) balloon tag test beginning November 5; if a problem does occur, would the salmon managers prefer to go to zero flow, or operate outside 1% peak efficiency? she asked. We don't anticipate a problem, she stressed, but if a problem does appear, we should have a contingency plan in place. Wagner said FPAC did not discuss the test at its meeting this week. In that case, given the fact that we are unlikely to need the contingency operation, we'll just move ahead with the test and will communicate with the TMT if any problems arise, said Bettin.

5. 2002 Chum Studies/Chum Operations.

This topic was covered during a previous agenda item.

6. Year-End Review.

A. WY2001 Water Supply Forecast. In the absence of Harold Opitz, this agenda item was postponed.

B. Vernita Bar Operations. Shane Scott led this presentation, distributing a pair of reports summarizing the effects of 2001 Mid-Columbia operations on Hanford Reach chinook stranding and mortality. Scott explained the methodology underlying WDFW's ongoing stranding survival study, then noted that, according to WDFW's estimates, more than 1.6 million Hanford reach juvenile chinook died in stranding events in 2001, as much as 14% of the total run. This compares to stranding mortalities of only about 72,000 fish in 2000. Bettin noted that

the Mid-Columbia Coordinating Committee will be meeting in November to determine the Hanford Reach stranding protection operation for 2002.

C. Mixers at McNary. Larry Beck provided this report, noting that two mixers were installed at the south end of the powerhouse this summer. Both were directed at a 45-degree angle at an earthen bank. Temperatures were measured at two sets of buoys, one along the boating restricted zone, the other closer to the mixers. Temperatures were also measured in the gatewell. They used the average temperature from each of the buoys to develop a multiple regression analysis, Beck explained.

The regression was able to explain 45-53% of the variation in temperature between forebay and gatewell, Beck explained; they operated the mixers on a 6-hour-on, 6-hour-off basis. When the mixers were on, they saw a 0.2 degree F difference between forebay and gatewell temperatures. Basically, the researchers couldn't tell whether the mixers influenced temperatures inside the gatewell; by the same token, they could not say for sure that mixer operation did not influence gatewell temperature.

Beck said that, in 2002, the Corps plans to operate McNary Units 1-3 during the mixer test, something they did not do in 2001. The bottom line, said Bettin, is that the mixer concept shows some promise; however, mainly because it was such a unique water year, further testing is needed to validate the concept.

D. Lower Granite Study. David Wills distributed copies of the year-end summary of passage forecasting and observed survival for wild fall chinook in the Snake River. Billy Connor spent a few minutes going through this document, touching on how well Connor's 2001 run forecast tallied with actual survival through the system.

Overall, said Connor, the performance of the 2001 forecast was relatively poor; however, the models were not developed to accurately predict run timing under the environmental conditions observed in 2000 and 2001. He noted that refitting the forecast models using the 2000 and 2001 data would improve model performance. In general, Connor's predictions of various points of passage lagged 10-18 days behind the actual run timing.

Connor noted that survival to the tailrace of Lower Granite Dam in 2001 was the lowest since he began estimating survival for fall chinook; survival of fish from Cohort 1 (the first fall chinook past Lower Granite) was estimated to be just over 39%, compared to a 1998-2001 average of 63.7%; the survival of fish from Cohort 4 (the last fall chinook juveniles past Lower Granite) was only 3.2% in 2001, compared to a 1998-2001 average of 27.7%.

Is it fair to say that passage timing was earlier than expected, and survival was higher earlier in the run? Wagner asked. It would be more accurate to say that the 2001 run was truncated, Connor replied – the later migrants were basically cut off.

Were you able to separate out the relative influence of flow and temperature in 2001, as you did in 2000? Wagner asked. No, but that would be an interesting question to ask this data set, Connor replied. One thing's for sure – if we would have had a hot summer, with

correspondingly warmer water temperatures, survival would have been even worse than we actually saw.

E. Comparison Analysis of 2001/Other Years. Wagner began this portion of the agenda by putting up an overhead showing adult fall chinook returns to Bonneville Dam for the years 1964-2001 – 400,000 in 2001, the highest count since the completion of Bonneville Dam in 1938. He put up the same data set for summer chinook; while the 2001 count of just under 80,000 was the highest in many years, there were some higher totals recorded in the late 1950s and early 1960s. For spring chinook, said Wagner, as you're all aware, 2001 was also a record adult return year. On the steelhead front, more than 600,000 wild and hatchery adults returned in 2001, almost double the next-highest total since 1960.

Boyce offered one clarification: that in the early days of the FCRPS, there was still a commercial fishery which harvested millions of pounds of returning chinook and steelhead. It may be somewhat misleading, in other words, to say that the 2001 adult return was the highest since Bonneville Dam was completed, Boyce said, because we don't know how many adults were harvested before they could reach the spawning grounds in the 1930s and '40s. Excellent point, said Wagner. The real question is whether the 2001 adult returns will be enough to meet the survival objectives, Margaret Filardo observed.

F. Fish Passage Center Operation Analysis. Margaret Filardo led this presentation, a preliminary analysis of the 2001 juvenile salmon migration.

Filardo touched on the physical characteristics of the 2001 migration season, spring and summer flow and spill at Lower Granite and McNary Dams, historic (1995-2001) spring and summer flows in the Snake and Lower Columbia Rivers, spill and water temperature information for various sites in the basin, migration characteristics, 2001 passage indices vs. flow at various dams, spring and summer migration timing data, chinook and steelhead travel time information, spill timing data, the estimated effects of the 2001 spill program on survival, 2001 juvenile survival estimates for the Snake, Mid- and Lower Columbia Rivers, historic (1995-2001) survival estimates (very poor in 2001 compared to the previous five years, particularly for steelhead), Priest Rapids flow and stranding information, and chum redd data for the Ives/Pierce Island area.

Filardo finished her presentation with the following summary:

- Near-record low runoff volume, energy regulation, volatile wholesale power markets and BPA energy and financial emergencies combined to produce poor migration conditions in 2001.
- Biological Opinion flow targets were never met.
- Spill was eliminated from Snake projects and implemented too late in the spring and summer migration in the Lower Columbia.
- Most Snake River migrants were transported.
- Run timing was affected with the runs beginning later and with a shorter duration of passage
- Power peaking in the Mid-Columbia likely exacerbated the effects of the low flow year.
- Travel times in 2001 were some of the slowest observed in the historic record.
- River management in the fall of 2000 limited access to chum spawning areas and the cessation of protection flows occurred too early during emergence in the spring. Chum likely suffered losses.
- River conditions produced the poorest survival estimates since survival has been estimated using PIT tags.

G. Other. At Henriksen's suggestion, it was agreed that the agenda for next Wednesday's meeting will include a discussion of the lessons learned in 2001.

7. Next TMT Meeting Date.

The next meeting of the Technical Management Team was set for Wednesday, November 7 from 9 a.m. to noon. Meeting notes prepared by Jeff Kuechle, BPA contractor.

TMT PARTICIPANT LIST

OCTOBER 30, 2001

NAME	**AFFILIATION**
Larry Beck	COE
Scott Bettin	BPA
Ron Boyce	ODFW
Scott Boyd	COE
Mike Buchko	PowerEx
Ruth Burris	PGE

Scott Corwin	PNGC
J. Richard Forester	Facilitation Team
Richelle Harding	D. Rohr & Associates
Robin Harkless	Facilitation Team
Cindy Henriksen	COE
Cathy Hlebechuk	COE
Karl Kanbergs	COE
Robyn MacKay	BPA
Tony Norris	Reclamation
Mike O'Bryant	Columbia Basin Bulletin
Chris Ross	NMFS
Shane Scott	WDFW
Donna Silverberg	Facilitation Team
Maria Van Houten	Enron
Paul Wagner	NMFS
David Wills	USFWS

TECHNICAL MANAGEMENT TEAM

BOR: Tony Norris\Pat McGrane *BPA: Scott Bettin\Robyn MacKay*

NMFS: Paul Wagner\Chris Ross *USFWS: David Wills\Howard Schaller*

OR: Christine Mallette *WA: Shane Scott* *ID: Steve Pettit* *MT: Jim Litchfield*

COE: Cindy Henriksen*Cathy Hlebechuk*

TMT Meeting

07 November 2001, Wednesday 0900 - 1200 hours

Custom House Room 118
Portland, Oregon

Conference call line: 503-808-5190

All members are encouraged to call Donna Silverberg with any issues or concerns they would like to see addressed. Please e-mail her at dsilverberg@cnnw.net or call her at (503) 248-4703.

AGENDA

1. Welcome, introductions.
2. Year-End Review
   - WY 2001 Water Supply Forecast – Harold Opitz
3. Chum Studies/Chum Operations discussion
   - SOR (if any)
   - Information/modeling from Action Agencies
   - Salvage operations – Shane Scott
4. Summarize Lessons Learned from WY 2001
5. Review current system conditions.
   - reservoir operations (COE, BOR)
   - hydrosystem storage, power system status, winter reliability (BPA)
   - fish migration status (NMFS, USFWS)
6. Finalize TMT Emergency Protocals

7. Other.

- Set agenda for next TMT meeting

Questions about the meeting may be referred to Cindy Henriksen at (503) 808-3945, or Cathy Hlebechuk at (503) 808-3942.

COLUMBIA RIVER REGIONAL FORUM

TECHNICAL MANAGEMENT TEAM

November 7th, 2001

FACILITATOR'S NOTES ON FUTURE ACTIONS

Facilitator: Donna Silverberg

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.

Year-end Review, 2001 Water Supply Forecast:

Harold Opitz of the National Weather Service showed graphs of the very low water year west of the continental divide for 2001. The Weather Service is working to improve forecast tools to reduce the standard of error, although their forecasts this year proved to be quite good. Harold said there is still much uncertainty in the precipitation forecasts for 2002. Right now it looks like there is an equal chance of 2002 being a dry, normal or above normal year! TMT expressed their interest in revisiting this in a few months when there is more data to provide a better degree of certainty. Harold agreed to return when this data exists.

Chum Studies/Operations:

Cathy Hlebechuk presented the COE's model runs for proposed chum operations. She will distribute them to TMT members via email. The Action Agencies feel, as they did last week, that the constraints of the Vernita Bar agreement remain the main hurdle to meeting the requested 125 kcfs below BON before November 19th. The Action Agencies were asked under what conditions could last week's chum SOR be implemented? They responded that a sudden increase in Snake River flows and/or meeting Vernita Bar criteria could enable implementation of the SOR for chum below BON. They expressed doubt that either of these conditions would present themselves prior to Nov. 19th.

Grant PUD updated TMT on the status of conditions at Vernita Bar. Significant spawning has occurred in the mainstem and 5 redds have been found below 40kcfs. In their opinion, keeping a 55 kcfs flow during the day would allow shaping of 85-90 kcfs daily average flow and be the best operation for VB fish.

Kyle Martin expressed CRITFC's desire to avoid pitting chum against other species.
WFWD's Shane Scott reported that his agency had seen very few chum in the Ives Island area. Those that were seen appeared to be quite "green" and not yet ready for spawning. He asked if anyone knew what time the chum go up the nearby creeks. This led to a suggestion that maybe a pulse could be provided to help fish while awaiting an increase in flows for a steady 125 –130 kcfs.

The Action Agencies asked Oregon's Ron Boyce if any progress had been made related to establishing criteria that could assist in a decision to de-water chum redds if conditions get bad again this year. Ron expressed interest in having discussions with other members of the Regional Forum to jointly determine criteria regarding this issue.

Action: TMT agreed to raise the chum redds de-watering issue at the December IT meeting, asking IT to direct the development of criteria for de-watering redds. Specifically, TMT members want to know if and how big a role they should play in developing criteria that would be used if conditions were to deteriorate and a determination of de-watering existing redds were necessary. IT should be involved because such a determination is both technical and policy related.

Action: Chum discussions will continue at the next TMT meeting/call, Friday November 16th at 1 p.m., to decide which operation to implement on November 19th. The group will review current status of the fish and water levels.

Lessons Learned from WY 2001:

TMT members were asked to reflect on the year-end review presentations and discuss "lessons learned" from the past water year. The following list summarizes their thoughts as expressed in a brainstorming session:

- Operating Bonneville to a tailwater level proved more important than operating to a specific kcfs for chum last fall;
- There is a need to establish drought criteria and triggers. For example, if "wet" months are dry, then there needs to be a change in operations at that time, not when it is too late to have any effect on the overall system;
- Criteria for de-watering redds need to be established to help make tough decisions in the future;
- There are more factors to consider regarding chum near Hamilton Creek such as tides, location of fish in the surrounding springs, etc. More information about this habitat area could help in-season decision making;
- There is a need to establish a better working relationship with Idaho Power Company to coordinate in-season needs;
- Low flows were harder on in-river steelhead than anticipated;
- A lack of clarity regarding the power emergency (criteria used to establish it, calling it, process for decision-making, etc.) had negative effects on operations, especially spill. It also had a stressful effect on relationships;
- Understanding effects of temperature on survival has become either more precise or lucky—Billy Connor's work was very useful to TMT;
- Tools for predicting adult returns need sharpening;
- A precise understanding of redd elevations below Bonneville and at Hanford Reach would be useful (**ACTION**: Scott Bettin will check with Batell to obtain data regarding redd locations and share with TMT members at their upcoming field trip);
- Better use of weather and climate information can enhance the TMT process (**ACTION**: Kyle Martin will begin giving a regular report on weather and climate conditions);

- A higher level of involvement by the executives this year lead to confusion – this could have been managed differently, and should be clarified if such an event were to occur in the future;
- Energy conservation can have a profound effect on load reduction.

ACTION: Donna Silverberg asked the group to consider the 'TMT process' as they continue to reflect on the lessons learned in the 2001 season. She will add a discussion on this to the agenda of a future meeting.

Review Current System Conditions:
Operations: Cathy Hlebechuk and Ted David (filling in for Tony Norris) reported on the current system and operations (see website for details). The balloon tag test is underway at Lower Granite and zero flow is scheduled at John Day and The Dalles on December 9th for three hours to look for leakage problems. TMT members will be updated on the testing at the December TMT meeting.

Action: As requested, TMT members will receive (via email) specific operations at John Day and The Dalles that require zero flow.

Power System Status: BPA is running to meet loads. Scott Bettin said everything looks normal at this time.

Emergency Protocols:
It was clarified that the latest E.P. draft is dated October 24th, . Ron Boyce reported that Oregon's attorney Steve Sanders would like to talk to Gail Lear (COE) and Bill Kinsey (BPA) before finalizing the protocols.

Next Meeting, November 16th, 1 pm (*note new date and time):
Agenda items:
- Chum operations for November 19th
- Emergency Protocol check-in
- Vernita Bar update

**There will be no TMT meeting November 21st. TMT will gather for a field trip to look at the chum spawning areas around Ive's Island on November 28th. Information (time, place, maps, etc.) will be provided via email and/or at the November 16th meeting.

TECHNICAL MANAGEMENT TEAM
MEETING NOTES
November 7, 2001
CORPS OF ENGINEERS NORTHWESTERN DIVISION OFFICES – CUSTOM HOUSE
PORTLAND, OREGON

TMT Internet Homepage: http://www.nwd-wc.usace.army.mil/TMT/index.html

DRAFT

1. Greeting and Introductions

The November 7 Technical Management Team meeting, held at the Customs House in Portland, Oregon, was chaired by Cathy Hlebechuk of the Corps and facilitated by Donna Silverberg. The following is a distillation, not a verbatim transcript, of items discussed at the meeting and actions taken. Anyone with questions or comments about these minutes should call Cindy Henriksen at 503/808-3945.

Silverberg welcomed everyone to the meeting, then led a round of introductions and a review of the agenda.

2. Year-End Review.

Harold Opitz of the River Forecast Center led this presentation; he began by observing that, unless anyone failed to notice, 2001 was a pretty dismal water year, with precipitation totals of anywhere between 50% and 70% of normal throughout the Columbia Basin. Moving on to streamflows, Opitz noted that 28 of the stations the RFC uses in its forecasts recorded low record streamflows in 2001.

Opitz touched on the actual runoff volumes at various points in the system, then moved on to forecast performance vs. actual runoff; he noted that, overall, the forecast performed acceptably; the actual runoff volumes fell within the confidence intervals of the forecasts. Opitz said that, overall, the 58.2 MAF runoff volume at The Dalles in 2001 was the second-lowest in the last 72 years. He noted that precipitation totals for October 2001 were normal or near-normal throughout the basin, which provides at least some basis for hope; however, Opitz added, there is a lot of storage project and groundwater recharge that needs to occur before streamflows approach normal levels.

With respect to the forecast for the next several months – the November through January period – Opitz said there are equal chances that temperature and precipitation could be above or below normal. Kyle Martin noted that, according to the forecasts of George Taylor at Oregon State University, it appears likely that January precipitation will be above-normal.

The discussion then moved on to the chum operation requested in SOR 2001-10, supported by the Fish and Wildlife Service and ODFW:

- Beginning November 5 and continuing until further notice, provide a minimum instantaneous tailrace elevation of 12 feet at Bonneville Dam under conditions where FCRPS operation is consistent with conditions of the Vernita Bar Agreement and NMFS' 2000 FCRPS Biological Opinion RPA.

Hlebechuk noted that the action agencies submitted a memo to NMFS on October 30, laying out the criteria under which they will be able to initiate this year's chum operation. This memo included some model analysis, Hlebechuk said, including BPA model analysis using the 50 year historic water record for inflows for the period through April 15 and the Corps/River Forecast Center's October 22 SSARR model analysis using this year's forecasted flows for the period ending December 31. She also said the Corps is just about done with their January – April 10 analsys. She said she would send the results out later this week. In this analysis, Hlebechuk said, the Corps used inflows of 80% of normal and 100% of normal and modeled these inflows using historic shapes for a 58 year period. Hlebechuk also said that the most recent (November 5) SSARR shows that, if the action agencies begin chum flows at 125 Kcfs on November 19 (the day after the last scheduled Vernita Bar survey), Grand Coulee will reach elevation 1276.7 by December 31. That is above the 85% confidence of refill elevation for that date, she explained.

With respect to the Corps January-April analysis, Hlebechuk said, when we assume a normal water supply for modeling purposes, we could meet 125 Kcfs almost all of the time for the January-March period, as well as the first half of April. However, said Hlebechuk, when we look at actual unregulated flows in the river, they're only 70% of normal at The Dalles, currently. That means that, in order to provide 125 Kcfs at Bonneville, we would need to augment flows by as much as 55 Kcfs using storage water. Therefore, the action agencies position is that we need to wait until after the Vernita Bar operation ends so that we can start getting water out of Grand Coulee to meet the Bonneville chum flow target, Hlebechuk said.

Yesterday's average flow at Bonneville was 115 Kcfs, noted Ron Boyce – my understanding was that the flow situation in the lower river was improving, and that the action agencies would be doing some additional analysis to see what effect an earlier start date would have on the probability of the storage projects reaching their rule curve elevations. The problem continue to be that, in order to meet the 125 Kcfs flow request at Bonneville, we would have to increase Grand Coulee outflow, Hlebechuk replied – that will cause a problem with the Vernita Bar operation, because it would mean redds would be deposited at an elevation that cannot be sustained. The analysis did look at refill probability, she said, but the primary focus was on the impacts to the Vernita Bar operation.

The group devoted an extensive discussion to the question of when this year's chum operation should begin, with Boyce arguing that it should begin sooner than November 19, and the action agencies arguing that, given the current low groundwater and reservoir storage levels, as well as the uncertainty about the water supply forecast for the coming year, the chum operation should not begin before November 19. Ultimately, Boyce said ODFW understands that the Vernita Bar agreement is the main hurdle in the way of beginning the chum operation prior to November 19; he said Oregon does not advocate violating that agreement. If we get a slug of water in the Snake due to a sudden precipitation event, Hlebechuk said, it may be possible to begin the chum operation sooner, using Snake River water. Shane Scott observed that the chum have just begun to arrive at the spawning grounds, and do not yet appear ripe for spawning. Boyce said that, at this point, he would advocate monitoring flow and spawning conditions, and keeping this discussion open on future TMT agendas. It was so agreed.

Hlebechuk then revisited the question of the criteria the salmon managers would consider for dewatering the chum redds. Boyce replied that, from his perspective, this is a regional discussion, rather than an ODFW/USFWS discussion. Those fish are listed under the ESA, he said; we need to develop a more formal management plan laying out how to operate the system to protect them. We also need to identify some contingencies for changing operations if conditions change, Boyce said, including a section that describes how a broodstock collection salvage operation would fit into the overall management plans to protect those fish. In other words, he said, it would not be appropriate for ODFW and the Fish and Wildlife Service to make that decision in isolation.

Does the BiOp specify that meeting upper rule curve elevations should take precedence over providing flows for chum? Hlebechuk asked. That's the BiOp's priority, yes, Wagner replied. It is not explicitly stated in the BiOp that listed Upper Columbia stocks take priority over chum, however, Boyce observed – that's a policy call by NMFS outside the BiOp, so I'm not sure we have any clear direction on this issue. As I recall, the language in the BiOp states that, in general, achieving upper rule curve elevations will have priority over maintaining chum flows, Wagner replied; however, the year-to-year decision depends on a variety of other factors relevant to the situation, such as: are there chum spawning in the springs and in the creeks, is there a contingency broodstock collection program? In general, how large a component of the overall chum population is the portion spawning below Bonneville? Those are just some of the factors that need to be taken into account, along with the question of how far we are below rule curve elevations, Wagner said. However, that doesn't mean we shouldn't do everything we can to provide the conditions the chum need to spawn and rear successfully, Boyce said.

David Wills agreed that there is a complex web of factors and conditions that could lead to a decision to dewater or not dewater the chum redds. Certainly the need to achieve upper rule curve elevations is compelling, he said; we could also find ourselves in another power system emergency, in which case all bets are off. In between the extremes of an abundant water year and another year like 2001 lies the grey area, Wills said, including such questions as, do you have "backup" fish that can provide eggs for a captive brood program; if so, should we consider dewatering the redds? Those are the kinds of details that would benefit from additional discussion, Wills said.

Is that something that needs to occur at the TMT level, in order to avoid last-minute decision-making/ Silverberg asked. It seems more like a policy decision to me, Wills replied, which suggests that perhaps the Implementation Team would be a more appropriate forum. I would like to see the issue raised to the IT, so that they could provide some direction to subsequent TMT discussion, said Boyce.

What specific question, then, would be elevated to the IT? Silverberg asked. What I heard was, is it appropriate for TMT or IT to develop the criteria that would be used to make a dewatering decision, Wagner said; also, does the IT feel it would be appropriate for either group to develop those criteria at this point? The other issue that might benefit from IT discussion is the question of how the BiOp can accommodate the needs of all of the fish in the basin, said Boyce – as we've just discussed, the Vernita Bar agreement is precluding us from providing chum flows at this point in the season. Is Oregon asking to re-open discussions on the Vernita Bar agreement? Bettin asked. I don't know whether this is a Vernita Bar agreement discussion or an ESA discussion, Boyce replied – there is overlap between FERC and ESA on this issue. It sounds as though we may want to start with IT, Silverberg observed.

After a few minutes of further discussion, it was agreed to convene a TMT conference call on Friday, November 16 to explore the chum issue – specifically, what tailwater elevation is needed at Bonneville -- in more detail. It was further agreed to schedule a TMT field trip)to be followed by a TMT meeting) to the Ives/Pierce Island chum spawning areas on Wednesday, November 28. In the interim, said Silverberg, at least until we have an opportunity to discuss this issue further at the November 16 meeting, it sounds as though until weather and natural flow conditions change, there will be no operational change.

Moving on, Silverberg reminded the group that, at the end of last week's year-end review, the discussion had turned briefly to the lessons learned in 2001. There was some desire to revisit that question at today's meeting, she said, in order to give you a chance to think about those lessons after you had heard a recap of the data from the 2001 in-season management and monitoring period.

A few minutes of discussion yielded the following additional lessons learned in 2001:

- Low flow is bad
- Operating Bonneville Dam to a tailwater elevation, rather than a specific average flow, makes more sense during the chum operation
- There is a need to establish drought trigger criteria in November, to be in place if the wetter months turn dry and there is a need to change the operational trajectory to protect available storage water

- Dewatering decisions are extremely difficult, and would benefit from some established criteria to guide future decision-making
- There is a complex array of factors that need to be considered in decisions about the Ives/Pierce Island chum spawning – tidal effects, the location of springs etc. More detailed information about this habitat could make for more effective decisions.
- There is a need to establish better working relationships with Idaho Power to coordinate seasonal flow needs; this may include a need for pre-season power/water exchange agreements
- The low flows in 2001 were harder on steelhead than anticipated
- Lack of clarity re: power emergency criteria (how and when it can be declared, the process for such a declaration) had a negative effect on 2001 BiOp operations (spill)
- Understanding the effects of temperature on survival has become either more precise or more lucky
- The tools for predicting adult returns could stand some additional refinement
- More information about the precise elevation of redds below Bonneville Dam would be useful to the in-season decision-making process, as would more precise information about redd elevations in the Hanford Reach
- Better use of weather and climate information could enhance the in-season management process
- The higher level of involvement by the federal and regional executives in 2001 led to confusion, and could have been handled better
- Energy conservation can have a profound effect on system operations.

Silverberg thanked everyone for their contributions, and asked that they come to the next TMT meeting prepared to discuss any changes they feel are needed to the TMT process iteself.

3. Current System Conditions.

Hlebechuk said the current Libby elevation is 2425 feet; the project drafted 1.2 feet over the past week. Albeni Falls was at elevation 2053 feet as of midnight last night; the project drafted 1.4 feet over the past week, heading toward elevation 2051 on November 20. The current elevation at Dworshak is 1518.7 feet, up 2.2 feet over the past week. The daily average flow at Ice Harbor over the past week was 23 Kcfs, an increase over last week's outflow from that project.

At Lower Granite, said Hlebechuk, project personnel are currently conducting the balloon tag test of the removable spillway weir; there is no preliminary information about how that test is going. The other issue we need to discuss is zero flow at John Day and The Dalles, scheduled for a three-hour period on the morning of December 9, she said – we're trying to figure out where a leakage is occurring. Flow will be reduced to zero from 4 a.m. to 7 a.m.; the idea is to keep The Dalles pool as low and stable as possible. Project personnel believe it will be possible to maintain the minimum tailwater elevation at Bonneville Dam by keeping that project's forebay elevation somewhat higher, added Larry Beck; the fishways will remain operational.

It was further reported that Hungry Horse continues to operate to maintain the Columbia Falls minimum flow; last week's rain event allowed Reclamation to drop Hungry Horse outflow from 2.4 Kcfs to 1.7 Kcfs. Hungry Horse outflow has now crept back up to about 2 Kcfs. Current elevation at the project is 3527.6 feet and drafting slightly. The current Grand Coulee elevation is 1287 feet, and holding steady.

Moving on to power system reliability, Bettin said there continues to be adequate flow and storage to meet load in the FCRPS. Do you anticipate, based on current forecasts, that this situation will continue? Boyce asked. We don't see anything to indicate otherwise at this time, Bettin replied.

4. Finalization of TMT Emergency Protocols.

Boyce said the Oregon attorney, Steve Sanders, would still like to talk to the Corps and BPA attorneys regarding the "mitigation" vs. "offset" language in the protocols. It was agreed to revisit this topic once the attorneys have met.

5. Next TMT Meeting Date.

A TMT conference call to discuss the chum operation was set for 1 p.m. Friday, December 16. The next regularly-scheduled TMT meeting was set for Wednesday, November 28 at Bonneville Dam; the meeting will be followed by a field trip to the Ives/Pierce Island chum spawning sites (rubber boots are recommended). Meeting notes prepared by Jeff Kuechle, BPA contractor.

TMT PARTICIPANT LIST

NOVEMBER 7, 2001

Name	**Affiliation**
Julie Ammann	COE
Larry Beck	COE
Scott Bettin	BPA
Ron Boyce	ODFW
Scott Boyd	COE
Ruth Buris	PGE
Scott Corwin	PNGC Power
Pete Dickerson	COE
Patti Etzel	COE
Russ George	Water Management Consultants Inc.
Richelle Harding	D. Rohr & Associates
Robin Harkless	Facilitation Team
Tim Heizenrader	Enron
Cathy Hlebechuk	COE
Kyle Martin	CRITFC
Mike O'Bryant	Columbia Basin Bulletin
Harold Opitz	River Forecast Center
Dennis Rohr	D. Rohr & Associates
Chris Ross	NMFS
Shane Scott	WDFW
Donna Silverberg	Facilitation Team
Ken Soderlind	COE
Maria Van Houten	Enron
Paul Wagner	NMFS

David Wills	USFWS
Romeo Wisco	Reclamation
Nancy Yun	COE

TECHNICAL MANAGEMENT TEAM

BOR: Tony Norris\Pat McGrane *BPA: Scott Bettin\Robyn MacKay*

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OR: Christine Mallette *WA: Shane Scott* *ID: Steve Pettit* *MT: Jim Litchfield*

COE: Cindy Henriksen*Cathy Hlebechuk*

TMT Emergency Conference Call

15 November 2001 1400 - 1500 hours

Portland, Oregon
Conference call line: 503-808-5190

All members are encouraged to call Donna Silverberg with any issues or concerns they would like to see addressed. Please e-mail her at dsilverberg@cnnw.net or call her at (503) 248-4703.

AGENDA

1. Chum SOR (Ron Boyce, ODFW)

Questions about the meeting may be referred to Cindy Henriksen at (503) 808-3945, or Cathy Hlebechuk at (503) 808-3942.

TECHNICAL MANAGEMENT TEAM
MEETING NOTES
November 15, 2001
CORPS OF ENGINEERS NORTHWESTERN DIVISION OFFICES – CUSTOM HOUSE
PORTLAND, OREGON

COLUMBIA RIVER REGIONAL FORUM

TECHNICAL MANAGEMENT TEAM

November 15th, 2001

These notes were taken by Cathy Hlebechuk, Corps of Engineers, in advance of receipt of the official notes.

The Bonneville flow operation for chum that started 0600 hours Tuesday, November 20 will continue. Some fisheries managers remain concerned about the effects of the lower elevation levels on chum spawning, but expressed a desire to wait for a full face-to-face review of the data on Tuesday, November 27 before formally objecting or raising the issue to IT.

The current Bonneville flow operation for chum is to make best efforts to stay within the 11' -11.2' tailwater range from 0600-1700. If higher discharges are needed, those will occur between 1700 - 0600 hours. Best efforts will be made to concentrate the higher discharges in the 1700-2400 time frame.

1. Greeting and Introductions

The November 15 Technical Management Team conference call, held at the Customs House in Portland, Oregon, was convened to discuss the current chum operation. The call chaired by Cathy Hlebechuk of the Corps and facilitated by Donna Silverberg. The following is a distillation, not a verbatim transcript, of items discussed at the meeting and actions taken. Anyone with questions or comments about these minutes should call Cindy Henriksen at 503/808-3945.

2. Discussion of System Operational Request 2001-11.

Earlier today, the Corps received SOR 2001-11, covering tailwater elevations at Bonneville Dam to protect chum and chinook spawning at the Ives/Pierce Island complex. This SOR, supported by ODFW and the U.S. Fish and Wildlife Service, requests the following specific operations:

- Beginning immediately and continuing until further notice, provide a minimum instantaneous tailrace elevation of 12 feet at Bonneville Dam as specified in SOR 2001-10.

Ron Boyce went through the background and justification for this SOR, the full text of which is available via the TMT's Internet homepage. Please refer to this document for details of Boyce's presentation.

In general, Boyce noted that there are now significant numbers of adult chum on the Ives/Pierce Island spawning grounds; chum have also been observed at the spawning habitat in Hamilton Springs and Hardy Creek. The heavy precipitation of the past several weeks has resulted in rising tributary and mainstem flows, said Boyce; field personnel have also counted 31 fall chinook redds, as well as numerous live coho adults in the area.

The concern is this, said Boyce: with the heavy precipitation of the past few weeks, tributary discharge has brought Hamilton Creek flows up, which initiated spawning in that system. We're concerned that, as tributary flows subside, if we don't maintain mainstem streamflows during the weekend, we will be leaving fish high and dry and limiting the spawning habitat available to chum, which should be showing up in peak numbers any time. Basically, said Boyce, in ODFW's view, all of the triggers specifically identified in the 2000 BiOp have been met; these fish would benefit if we were to maintain a 12-foot minimum tailwater elevation at Bonneville.

Hlebechuk said she had spoken to the National Weather Service about current local flows between Grand Coulee and Bonneville; they told her they were only 13 Kcfs, which Hlebechuk characterized as surprisingly low. The Snake River is contributing an additional 17 Kcfs-18 Kcfs, Hlebechuk said; the NWS also said there are virtually no local flows between Priest Rapids and Grand Coulee.

Shane Scott said he had visited the Ives/Pierce Island spawning grounds with both ODFW and WDFW field personnel on Tuesday; on that day, they counted 12 green chum near Duncan Creek, another 12 chum west of Pierce Island and an estimated 26 in the lower part of Hamilton Creek. These fish were just starting to dig redds, Scott added. Your feeling, based on Tuesday's survey, is that a 10-foot tailwater elevation at Bonneville is adequate, at least for the time being? Hlebechuk asked. Correct, Scott replied – frankly, I'm a little surprised we're even having this conversation.

Boyce replied that Scott's conversation with ODFW and WDFW field personnel is being taken out of context. In what way? Scott asked. Because there are likely to be a lot more fish showing up on the spawning grounds every minute, even as we speak, Boyce replied. Boyce and Scott debated the relevance and validity of Scott's observations and discussions with ODFW and WDFW field personnel, with Boyce expressing his concern that tailwater elevations need to be maintained at a higher level until the chum spawning flows operation officially begins on November 19. Don Englund of the Fish and Wildlife Service added that the concern isn't so much with the small number of chum adults that are currently on the spawning grounds, but with the large numbers of

spawners that, according to historical run timing information, should be arriving at the Ives/Pierce Island spawning complex within a matter of day. We want to ensure that, as the very high flows we're currently seeing from Hamilton Creek begin to subside, that there is adequate spawning habitat available to support the bulk of the spawning, Englund said.

Englund noted that, on Wednesday, Hamilton Creek discharge was measured at 500 cfs, which equates to a four-foot stage change in that system. Boyce said the whole impetus behind this SOR is to obtain some surety that the current water level over the spawning grounds will be maintained as the peak spawner numbers begin to arrive. Our concern is the level of mainstem flow that would be required to keep the Hamilton Creek spawning grounds watered up at this level through emergence, Hlebechuk replied – what do you estimate that flow would need to be?

We're not talking about maintaining these flows through emergence, Dave Wills replied – we know conditions can change a month or two months down the road. The flows we need for incubation are much less than the flows we need for spawning, he said – right now, we're just talking about providing enough flow so that we can get eggs into the gravel over a broad range of habitat, so that we have some spawning in the mainstem and some in the tributaries. We want to spread the risk, in other words, Wills said.

The problem, said Robyn MacKay, is that we can't increase the flows at Ives Island without substantially increasing Vernita Bar flows. As the action agencies have said previously, we're not interested in doing that, and with the end of the Vernita Bar operation so close, we're not sure why we would need to. I thought we could increase Grand Coulee outflow to 80 Kcfs-90 Kcfs without exceeding the Vernita Bar target flow, said Boyce. I don't believe so, MacKay replied – I'm not sure why that number keeps creeping up.

Oregon doesn't want to violate the Vernita Bar agreement, said Boyce. However, if it is possible to achieve a 12-foot tailwater elevation at Bonneville without violating that agreement, would the action agencies have a problem with doing so? How much additional water would be required from Grand Coulee if the action agencies implement this SOR? asked Scott. I believe it would be an additional 20 Kcfs, Boyce replied. My understanding from Grant PUD is that the most they could do is a day-average of 85 Kcfs-90 Kcfs so that they would not be putting out more than 55 Kcfs during the day, said Hlebechuk. In response to another question from Scott, MacKay noted that the current day-average flow at Priest Rapids is about 70 Kcfs, down to 45 Kcfs over the weekend to allow for redd counting at Vernita Bar.

It sounds, then, as though we could bump Priest Rapids discharge up to 90 Kcfs and still stay within the 55 Kcfs Vernita Bar flow constraint, said Boyce. However, that still wouldn't get you to a 12-foot tailwater elevation at Bonneville, Scott Bettin observed. Obviously tides and tributary flows have an influence, said Hlebechuk, but if you look at the graph of Bonneville tailwater elevations vs. flows over the past couple of

years, a 12-foot tailwater elevation at Bonneville equates to a flow of 131 Kcfs, on average. At 125 Kcfs, the average tailwater depth is about 11.5 feet.

The group devoted several minutes of intense discussion to the question of whether or not to implement SOR 2001-11; in particular, to the issue of whether or not BPA is willing to increase Grand Coulee discharge in an effort to increase the tailwater elevation at Bonneville sooner than November 19. MacKay observed that, although there has been a substantial amount of rain on the west side of the Cascades, precipitation totals east of the Cascades, particularly in the Snake Basin, remain well below normal for this time of year.

Greg Lange from Grant PUD said his utility is willing to release up to 90 Kcfs from Priest Rapids, except for the 10-hour redd counting period on Sunday, November 18, during which Priest Rapids outflow cannot exceed 37 Kcfs. Are we sure the Vernita Bar operation is going to end on Sunday? Hlebechuk asked. I haven't heard anything to the contrary, Lange replied; every indication is that the redd counts have gone as expected. In response to a question from Boyce, Lang said the maximum average flow on Sunday will likely be about 60 Kcfs. Couldn't you pond a higher volume on Sunday while the redd-counting operation is going on, then release that water Sunday night? one participant asked. We could, but given current mild temperatures, we won't have the load, Lang replied, and Grant is unwilling to spill that additional water.

Boyce noted that another reason for the timing of this SOR is the fact that chinook spawners have also been arriving in large numbers below Bonneville Dam – the most recent count was 31 redds and 99 live adult chinook. The chinook don't spawn in the creeks, he said; their preferred spawning grounds are in the island area. That habitat is only accessible under the higher flows we're advocating in this SOR, Boyce said.

What I'm hearing is that it should be possible to increase Priest Rapids outflow by approximately 20 Kcfs except on Sunday, when flows will have to be lower unless we can figure out a marketing strategy that will allow us to pond, then release a higher volume of water on Sunday night, said Boyce. You would need to pick up and additional 2,000 MW of load to make that work, Bettin replied – that simply isn't feasible on a Sunday night.

After a few minutes of discussion, Bettin asked Wagner whether NMFS would be opposed to the action agencies' implementing the chum operation, in the form of an 11.2-foot minimum tailwater elevation at Bonnevillle, on November 20. NMFS is comfortable with starting with an 11.2-foot tailwater elevation at Bonneville, monitoring the situation and making adjustments as necessary, Wagner replied. As the BiOp states, the chum spawning operation will begin upon the completion of the Vernita Bar operation, he said; the goal is to provide a level tailwater elevation that approximates the elevation that would be provided under a Bonneville flow of 125 Kcfs.

David Wills said he is very uncomfortable with an 11.2-foot minimum tailwater elevation at Bonneville; to me, he said, 11.5 to 12 feet was minimal for chum spawning,

and 11.2 feet is too low. I would ask that the 11.2-foot elevation be elevated to the IT before it is implemented, Wills said. What if the 11.2-foot tailwater minimum turns out to be equivalent to a flow of 125 Kcfs at Bonneville, said Wagner – would that be acceptable, in your view? I would like to meet at least the BiOp minimum, Wills replied – 11.2 feet is simply too low. Oregon will not accept anything less than the 125 Kcfs specified in the BiOp, said Boyce.

It sounds to me as if what has been agreed to is, upon completion of the Vernita Bar operation, the action agencies are willing to provide a flow of 125 Kcfs at Bonneville, which is expected to result in a tailwater elevation of between 11.2 and 11.5 feet, Silverberg said. Haven't I just heard both ODFW and USFWS say they are willing to live with the BiOp minimum of 125 Kcfs at Bonneville, although both would clearly prefer a higher tailwater elevation? The Fish and Wildlife Service would prefer to manage to a stable 11.5-foot tailwater elevation below Bonneville, rather than to a specific flow level, Englund said.

After a few minutes of additional discussion, Bettin said the action agencies are willing to implement an 11.5-foot minimum tailwater elevation at Bonneville beginning at 6 a.m. on November 20; the actual elevation will vary somewhat. Bettin explained that, from the standpoint of operational reality, it is virtually impossible to hit an exact tailwater elevation of 11.5 feet hour after hour, hence the need for an operating range.

Given the lateness of the hour, it was agreed to end the discussion here and take this topic up again at the next TMT meeting on November 28. If any major changes in system conditions impact this operation in the interim, it was agreed to re-convene via conference call. Meeting notes prepared by Jeff Kuechle, BPA contractor.

TECHNICAL MANAGEMENT TEAM

BOR: Tony Norris\Pat McGrane *BPA: Scott Bettin\Robyn MacKay*

NMFS: Paul Wagner\Chris Ross *USFWS: David Wills\Howard Schaller*

OR: Christine Mallette *WA: Shane Scott* *ID: Steve Pettit* *MT: Jim Litchfield*

COE: Cindy Henriksen*Cathy Hlebechuk*

TMT Conference Call

16 November 2001 1300 - 1500 hours

Portland, Oregon
Conference call line: 503-808-5190

All members are encouraged to call Donna Silverberg with any issues or concerns they would like to see addressed. Please e-mail her at dsilverberg@cnnw.net or call her at (503) 248-4703.

AGENDA

1. Welcome, introductions.
2. Chum Studies/Chum Operations discussion
3. Finalize TMT Emergency Protocols
4. Review current system conditions.
   - reservoir operations (COE, BOR)
   - hydrosystem storage, power system status, winter reliability (BPA)
   - fish migration status (NMFS, USFWS)
5. Other.
   - Set agenda for next TMT meeting

Questions about the meeting may be referred to Cindy Henriksen at (503) 808-3945, or Cathy Hlebechuk at (503) 808-3942.

TECHNICAL MANAGEMENT TEAM

BOR: Tony Norris\Pat McGrane *BPA: Scott Bettin\Robyn MacKay*

NMFS: Paul Wagner\Chris Ross *USFWS: David Wills\Howard Schaller*

OR: Christine Mallette *WA: Shane Scott* *ID: Steve Pettit* *MT: Jim Litchfield*

COE: Cindy Henriksen*Cathy Hlebechuk*

TMT Emergency Conference Call

19 November 2001 1615 - 1715 hours

Portland, Oregon
Conference call line: 503-808-5190

All members are encouraged to call Donna Silverberg with any issues or concerns they would like to see addressed. Please e-mail her at dsilverberg@cnnw.net or call her at (503) 248-4703.

AGENDA

1. Current Chum Spawning Conditions near Hamilton Island

Questions about the meeting may be referred to Cindy Henriksen at (503) 808-3945, or Cathy Hlebechuk at (503) 808-3942.

COLUMBIA RIVER REGIONAL FORUM

TECHNICAL MANAGEMENT TEAM

November 19th, 2001

FACILITATOR'S NOTES ON FUTURE ACTIONS

Facilitator: Donna Silverberg

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.

An **emergency TMT conference call was held Monday, November 19th**, to revisit the decision made November 15th regarding chum operations. Some TMT members felt that given new information, the decision to operate at a tailwater of 11.5' at Hamilton Creek needed more thorough discussion. Paul Wagner of NMFS felt that newly observed and gathered data prompted a new recommendation. He was concerned that if the tailwater increased to 11.5', redds would be placed in elevations that could not be sustained through the season.

Shane Scott reported that he had spoken with the Washington field crew, who observed 80 chum and 35 redds in the Hamilton Creek area. Fish were spawning at the edge of the water. WFWD and NMFS were concerned that redds might be attracted to water levels that may not be sustainable through development, which could result in dewatering. A recommendation was made to decrease the tailwater level to 11', continue to observe data and, if warranted, increase flows to cover Hamilton Creek redds. The operating range would be 11 – 11.2' from 6 am to 5 pm, with any necessary increase occurring from 5 pm to midnight. The recommendation was also to maintain a consistent level as much as possible.

Donna Silverberg asked the representatives on the phone (Washington, NMFS, USFWS, BOR, BPA and COE) if anyone opposed the new recommendation. USFWS opposed any deviation from the previously agreed-upon SOR due to insufficient data. They do not believe the change is in the best interest of the chum. They are concerned that going below 11.5' will decrease the amount of habitat and therefore lead to too many fish spawning in a small, concentrated area. They wanted to see comparative data and specific spawning locations before any change is acceptable. Dave Wills proposed that, since the new recommendation was a deviation from last week's SOR, it was the responsibility of the rest of the group to raise the issue to IT. The policy issue could be whether to begin the operation at higher levels and drop down or start at lower levels and increase as necessary. Some TMT members opposed raising the issue to IT, noting the time frame in which the decision needed to be made. If the water level is raised to 11.5 before the decision is made, then the risk of dewatering redds becomes a reality sooner than later. Dave Wills then offered to pose the question to IT, which he would write up and send to TMT members before sending it out to IT. Donna suggested that the rest of TMT draft

their new recommendation and present it to IT as well so they have a complete understanding of the issues.

Further discussion led the group to a new interim agreement. They agreed to implement the new "SOR" and revisit the issue at a face-to-face meeting Wednesday morning, November 21st at 9:00 am. In the meantime, they will gather more data (including photos, maps and information from the Washington field crew) and draft a written document of the new request with justifications to be presented at the TMT meeting.

ACTION: Paul Wagner will write the new SOR and justifications and send it out to TMT members before the next meeting.
ACTION: Shane Scott will gather updated data from the Washington field crew at Hamilton Creek.
ACTION: Dave Wills will bring a large map of the area for TMT members to use in their discussion of data.
ACTION: All TMT members will brief their IT representatives on the issue at hand and alert them to the possibility of an IT meeting.
ACTION: Donna Silverberg will notify IT chair Jim Ruff of the possible meeting.

If the group is unable to reach consensus on the issue, it will be raised to IT at 1:00 on November 20th. Until then, the new recommendation (operating the tailwater at 11 – 11.2') will be initiated, beginning Tuesday, November 20th, at 6:00 am.

USFWS reluctantly and in good faith agreed to the process that was decided on during this meeting. While they have significant concerns with the proposal, they agreed to work with the group to try to reach a mutually acceptable resolution.

TECHNICAL MANAGEMENT TEAM

BOR: Tony Norris\Pat McGrane *BPA: Scott Bettin\Robyn MacKay*

NMFS: Paul Wagner\Chris Ross *USFWS: David Wills\Howard Schaller*

OR: Christine Mallette *WA: Shane Scott* *ID: Steve Pettit* *MT: Jim Litchfield*

COE: Cindy Henriksen*Cathy Hlebechuk*

TMT Emergency Meeting

21 November 2001 0900 - 1200 hours

Custom House Room 118

Portland, Oregon
Conference call line: 503-808-5190

All members are encouraged to call Donna Silverberg with any issues or concerns they would like to see addressed. Please e-mail her at dsilverberg@cnnw.net or call her at (503) 248-4703.

AGENDA

1. Welcome, introductions.
2. Chum maps, surveys, information/Chum Operations discussion
3. Other.
    - Set agenda for next TMT meeting

Questions about the meeting may be referred to Cindy Henriksen at (503) 808-3945, or Cathy Hlebechuk at (503) 808-3942.

COLUMBIA RIVER REGIONAL FORUM

TECHNICAL MANAGEMENT TEAM

November 21st, 2001

TECHNICAL MANAGEMENT TEAM
MEETING NOTES
November 21, 2001
CORPS OF ENGINEERS NORTHWESTERN DIVISION OFFICES – CUSTOM HOUSE
PORTLAND, OREGON

TMT Internet Homepage: http://www.nwd-wc.usace.army.mil/TMT/index.html

1. Greeting and Introductions

The November 21 Technical Management Team conference call, held at the Customs House in Portland, Oregon, was chaired by Cathy Hlebechuk of the Corps and facilitated by Donna Silverberg. The following is a distillation, not a verbatim transcript, of items discussed at the meeting and actions taken. Anyone with questions or comments about these minutes should call Cindy Henriksen at 503/808-3945.

2. Resolution of Flows for Chum Spawning.

Paul Wagner said Monday's conference call ended with the expectation that a face-to-face TMT meeting would be scheduled to look at data and information related to changing the chum operation, or, failing agreement on such a change, elevating the chum flow issue to IT.

Since then, Wagner said, a tentative agreement, with disagreement voiced by the Fish and Wildlife Service, was reached to operate to a minimum Bonneville tailwater elevation of 11.2 feet. Since Monday's call, he said, it was my understanding we had agreement to continue to operate to an 11.2-foot minimum until next Tuesday's FPAC meeting, at which point additional information will be made available. We will then have the field trip on Wednesday, November 28, followed by a TMT meeting at the Cascade Locks Charburger, Wagner said.

Ron Boyce said that, like the Fish and Wildlife Service, ODFW has concerns about the adequacy of these reduced flows to protect chum spawning. However, said Boyce, ODFW does not wish to elevate this issue to the Implementation Team at this time.

I also have a question, Boyce said – what operations are actually being implemented? Project personnel are making best efforts to maintain a tailwater elevation of 11 feet and 11.2 feet between 7 a.m. and 5 p.m., Hlebechuk replied; if higher discharges are required, we're trying to put them into the 5 p.m.-midnight period. We're making best efforts to maintain a tailwater elevation of 11-11.2 feet, but it is very difficult operationally – tidal effects, even a boat passing, can alter the reading at the gauge, which is half a mile downstream from the project. Hlebechuk added that 11 feet is a hard constraint as a minimum tailwater elevation, within the parameters of the above caveats.

Boyce noted that the tailwater elevation at Bonneville dipped slightly below 11 feet at 9 a.m. this morning. Again, said Scott Bettin, it is extremely difficult to maintain 11 feet precisely, for the reasons Cathy just mentioned. In response to another question from Boyce, Wagner noted that day-average discharge from Grand Coulee was 93 Kcfs, up from 63 Kcfs last week. We are going to make best efforts to maintain the 11-foot tailwater minimum, Bettin said.

Editor's note: The 7 a.m. reading on November 21 of 10.9' was for the powerhouse tailwater reading . The powerhouse tailwater gage is between Units 1 and 2 and is not the official tailwater gage. The official tailwater gage is the project tailwater gage which is located about 1 mile downstream of the dam. This gage had a reading of 11.0' at 7 a.m.

Next TMT Meeting Date.

It was noted that van transportation to the November 28 TMT field trip to the Ives/Pierce Island spawning sites will be available from NMFS' Portland offices (downstairs lobby or in front of the building) at 8 a.m. November 28. Those who do not wish to ride in the vans can meet the other field trip participants at the Chevron station at North Bonneville at 9 a.m. November 28. Paul Wagner asked that anyone planning to take the van call him to provide a head count.

TMT PARTICIPANT LIST

NOVEMBER 21, 2001

Name	**Affiliation**
Scott Bettin	BPA
Ron Boyce	ODFW
Robin Harkless	Facilitation Team
Cathy Hlebechuk	COE
Dean MacAfee	Transalta Energy
Robyn MacKay	BPA
Lori Postlethwaite	Reclamation
Shane Scott	WDFW
Donna Silverberg	Facilitation Team
Paul Wagner	NMFS
David Wills	USFWS

TECHNICAL MANAGEMENT TEAM

BOR: Tony Norris\Lori Postlethwait *BPA: Scott Bettin\Robyn MacKay*

NMFS: Paul Wagner\Chris Ross *USFWS: David Wills\Howard Schaller*

OR: Christine Mallette *WA: Shane Scott* *ID: Steve Pettit* *MT: Jim Litchfield*

COE: Cindy Henriksen*Cathy Hlebechuk*

TMT Meeting

28 November 2001 0900 - 1200 hours

Custom House Room 118

Portland, Oregon
Conference call line: 503-808-5190

All members are encouraged to call Donna Silverberg with any issues or concerns they would like to see addressed. Please e-mail her at dsilverberg@cnnw.net or call her at (503) 248-4703.

AGENDA

The field trip originally scheduled for November 28 has been postponed due to forecasted rain/wind/fog/unsafe conditions. It will be rescheduled for next Wednesday or Friday.

1. Welcome, introductions.
2. Weather
3. Chum SOR presentation
4. Chum dewatering criteria
5. Chum maps, surveys, information/Chum Operations discussion
6. Re-scheduling of field trip
7. Other.

- Results of Lower Granite Balloon Tag Test Nov 5 – 9
- Status of Water Management Plan
- Finalize Emergency Protocols
- Set agenda for next TMT

Questions about the meeting may be referred to Cindy Henriksen at (503) 808-3945, or Cathy Hlebechuk at (503) 808-3942.

TECHNICAL MANAGEMENT TEAM
MEETING NOTES
November 28, 2001
CORPS OF ENGINEERS NORTHWESTERN DIVISION OFFICES – CUSTOM HOUSE
PORTLAND, OREGON

COLUMBIA RIVER REGIONAL FORUM

TECHNICAL MANAGEMENT TEAM

November 28th, 2001

FACILITATOR'S NOTES ON FUTURE ACTIONS
Facilitator: Donna Silverberg

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.

Weather:
Cathy Hlebechuk distributed a few handouts regarding precipitation forecasts and noted that she invited the National Weather Service to give monthly presentations. Kyle Martin also gave a presentation from the NWS' NW regional information site. The website is: www.wrh.noaa.gov/Portland He forecasted a good deal of rain to come in the next week with the possibility of snow.

SOR 2001-12:
Ron Boyce introduced the SOR, which calls for the maintenance of a tailwater elevation of 11.5 feet at Bonneville. Updated observations show a substantial increase in the number of chum salmon in the Ive's Island area and Hamilton and Hardy Creeks. This SOR was discussed at FPAC the previous day. Boyce noted a caveat that no request will be made to alter tailwater elevations if redds are found at higher elevations.

The group decided to look at all the data that members brought to the meeting before continuing discussion of the SOR.

Chum Data:
Howard Schaller, USFWS, showed a number of maps of the Hardy and Hamilton Creek area, which graphed chum spawning locations from 2000 and 2001. He said that chum are now spawning in areas that have never been seen before.

ACTION: The USFWS will work with ODFW and WDFW to graph the location and elevation of redds, as TMT members considered this information important to the decision-making process regarding chum operations. The data will be presented to TMT on a regular basis.

TMT agreed to implement the SOR, keeping in mind the caveat mentioned. The request will be implemented as soon as possible, with a range of 11.4' – 11.6'.

Chum Dewatering Criteria:
The COE urged a discussion on the development of dewatering criteria as a precaution in the event that elevation levels cannot be maintained. As discussed, TMT will ask IT to direct them on who should begin developing dewatering criteria at the next IT meeting, December 5th. Howard requested that they move the IT meeting due to a conflicting CBFWA meeting, or hold the chum discussion later in the afternoon. (Note: The chum discussion will be at the beginning of the 12/5 meeting so Howard may attend.)

Field Trip:
The postponed field trip to Ive's Island has been rescheduled for next Thursday, December 6th. Kyle Martin will keep the group informed if there is a forecast of bad weather for that day. The meeting times, place and itinerary will be the same as before. Anyone interested can meet in front of NMFS at 8 am for a ride, or at the Chevron in North Bonneville, WA, at 9 am to begin the tour.

Other:
Lower Granite Balloon Tag Testing: Larry Beck gave a summary. Preliminary results showed little difference between fish released through the RSW and those released through the spillway, although some injuries were observed through the RSW. Any next steps will go through FFDRWG or SRWG.

Water Management Plan: The Federal agencies have been working on a replacement for the usual TMT WMP, through the 1-Year Implementation Plan. A presentation and text will be available at the next TMT face-to-face meeting to allow for comment.

Emergency Protocols: The Washington Attorney General has reviewed and approved the new language. Oregon still needs to respond.

Bonneville Spillway: A request was made to close Spillway 1 eight hours earlier than normal to construct flow deflectors. This would also mean closing a side entrance until construction is complete. TMT raised no objections to this request.

Project Updates: Cathy Hlebechuk and Tony Norris updated the group on operations.

Next Face-to-Face Meeting, December 19th, 9 am:
Agenda:
- Weather and Project Updates
- Chum Status
- Water Management Plan
- Emergency Protocols
- Discussion about Emergency TMT Notification
- Dewatering Criteria
- Other

These notes were taken by Cathy Hlebechuk, Corps of Engineers, in advance of receipt of the official notes.

The Bonneville flow operation for chum was changed as follows:

make best efforts to stay within the 11.4’ -11.6’ tailwater range from 0600-1700. If higher discharges are needed, those will occur between 1700 - 0600 hours. Best efforts will be made to concentrate the higher discharges in the 1700-2400 time frame.

1. Greeting and Introductions

The November 28 Technical Management Team meeting, held at the Customs House in Portland, Oregon, was chaired by Cathy Hlebechuk of the Corps and facilitated by Donna Silverberg. The following is a distillation, not a verbatim transcript, of items discussed at the meeting and actions taken. Anyone with questions or comments about these minutes should call Cindy Henriksen at 503/808-3945.

2. Weather.

Hlebechuk suggested that a report from the National Weather Service’s River Forecast Center become a regular part of the IT agenda, given the crucial importance of the latest short- and long-term forecast information to the TMT’s decision-making process. It was so agreed.

Hlebechuk distributed several handouts, showing the most recent automatic snow pillow (ASP) and snow-water equivalent information from British Columbia, a weekly precipitation summary showing the percent of normal seasonal precipitation, by basin, across the Northwest, as of November 27 (ranging between 70% of normal in the Columbia Basin above Castlegar and 130% of normal in the Clearwater Basin), and the weekly “Precipitation Analysis and Outlook” summary from the NRCS, dated November 26.

Hlebechuk added that unregulated flows at The Dalles were 61 Kcfs in September, 62% of normal; they were 58 Kcfs in October, 66% of normal. As of Monday, for the month of November to date, unregulated flows at the Dalles averaged 80 Kcfs, 89% of normal, according to the 60-year historical record. Hlebechuk noted that the official drought designation still has not been lifted; overall, according to Oregon state climatologist George Taylor, the models are likely underpredicting precipitation this year, as opposed to the last couple of years when the models have overpredicted precipitation.

Kyle Martin then spent a few minutes going through his most recent assessment of the current and near-term weather situation, noting that there are a series of storm systems hitting the state which will deliver very heavy rain to the Northwest over the next 72 hours, as well as heavy snow in the Cascades and the Rockies. These storms are also expected to swell many of the tributaries in the basin, producing flooding along the coast, the Tualatin River and Johnson Creek. Hamilton and Hardy Creeks, the two main chum spawning tributaries, are expected to swell significantly in response to these storms. There will also be wind gusts up to 40 m.p.h. in

the Willamette Valley and up to 80 m.p.h. along the coast, Martin noted. In general, he said, the percent of normal totals shown in this week's weekly precipitation summary are going to change dramatically once this series of storms is finished.

3. SOR 2001-12.

On November 27, the action agencies received System Operational Request 2001-12. This SOR, supported by USFWS, NMFS, ODFW, IDFG and CRITFC, requests the following specific operations:

- Beginning immediately and continuing until further notice, maintain a tailwater elevation of 11.5 feet at Bonneville Dam. On average, it is anticipated that daily average flows will not exceed 125 Kcfs.

Boyce spent a few minutes going through the specifics of this SOR, the full text of which is available via the TMT's Internet homepage. Boyce noted that, in the last few days, hundreds of new chum and chinook spawners have appeared on the spawning grounds at Ives/Pierce Island, Hamilton Creek and Hardy Springs; these tributaries are notoriously prone to "flashing" as rain events occur, hence the request for the higher tailwater elevation in this SOR.

Boyce noted that, according to the salmon managers' analysis, it should be possible to provide the requested operation simply by minimizing load factoring at Bonneville, and evening out hourly flows. He added that the salmon managers will not be requesting higher Bonneville tailwater elevations to protect redds deposited at higher elevations once the currently-high tributary flows begin to recede.

In response to a question from Martin, Howard Schaller said approximately 300 redds have been mapped to date below Bonneville. My main concern about implementing this SOR is that, if we raise the tailwater elevation, is that going to cause problems if we're forced to dewater the redds deposited at higher elevations in February or March, Hlebechuk said. For that reason, she said, we need to plan ahead and develop dewatering criteria. Again, said Schaller, these are the minimum protection levels called for in the BiOp; under the model runs that have been done to date, this protection level of 125 Kcfs at Bonneville is sustainable under virtually all of the water years in the historic record. Actually, what the model runs showed is that, if we have an 80% of normal water year, only rarely would we be able to sustain a flow of 125 Kcfs through January, February and March, Hlebechuk said – that's a concern for the Corps. Martin observed that it would be more accurate to assume a 90%-of-normal water year, based on his meteorological projections.

With respect to dewatering criteria, Schaller suggested that it makes more sense to wait until all of the redds are mapped this year before attempting to develop criteria. I agree that we should think ahead, Schaller said, but until we know where the redds are, we can't really know what flows are necessary to protect them. You will be providing us with elevation-driven GPS maps of the spawning areas? Bettin asked. That is our intent, Schaller replied – we'll work with ODFW and WDFW to develop the most accurate map possible.

The point of this SOR is that we would like to see stable tailwater elevations at Bonneville, Schaller said; our goal is to provide the best spawning opportunities we can now, while conditions are such that it costs us little or nothing, in terms of upriver storage, to provide those conditions. Later, if we have to dewater redds, we'll have a better idea of how many we have in Hamilton Creek, how many in Hardy Springs, and will be able to make a more informed decision about how dewatering should occur, Schaller said.

After a few minutes of additional discussion, Bettin said the action agencies are willing to implement the operation requested in SOR 2001-12. At this point, given the flows and spawning conditions we're seeing, we agree, Bettin said. If we get a request for much higher tailwater elevations at Bonneville, however, that will put us into a whole new ball game, Bettin added. In response to a question from Boyce, Bettin said the new chum operation can be implemented immediately; he said he will instruct project personnel to target a Bonneville tailwater elevation of between 11.4 and 11.6 feet. In the meantime, said Silverberg, I assume that field personnel will continue to monitor the situation, and we will discuss it as needed.

4. Chum Dewatering Criteria.

Schaller said he agrees that it would be appropriate for the TMT to discuss chum dewatering criteria; he reiterated, however, that he believes such an effort would bear more fruit if the TMT waits until this year's chum spawning is over, and the distribution of the redds has been mapped as accurately as possible. Hlebechuk replied that the default would be for the TMT to simply let Bonneville flows and tailwater elevations fall where they may while targeting an 80% confidence of storage project refill at the end of January, February and March.

Perhaps it would make sense for us to ask the IT at its December 5 meeting which group, or combination of groups, should be tasked with developing chum dewatering criteria, Silverberg suggested. We also need to stress that all other operational alternatives should be exhausted before this becomes a fish vs. fish decision, Boyce observed.

Silverberg noted that, at a previous meeting, the TMT had already made the decision to elevate this issue to the IT; she read the following excerpt from the TMT meeting minutes:

> "The TMT agreed to raise the chum redds dewatering issue at the December IT meeting, asking the IT to direct the development of criteria for dewatering redds. Specifically, TMT members want to know if and how big a role they should play in developing criteria that would be used if conditions were to deteriorate, and the dewatering of existing redds should become necessary. The IT should be involved in these discussions because such a determination is both technical and policy-related."

Silverberg said she will develop a brief memo describing the chum dewatering issue and will send it to Jim Ruff for discussion at the December 5 IT meeting. It was so agreed.

5. Chum Maps/Surveys/Operations.

This topic was addressed during a previous agenda item, with Schaller agreeing to work with WDFW and ODFW field staff to produce an elevation-driven GPS map of the chum redd distrinution.

6. Rescheduling of Field Trip.

The TMT field trip to the Ives/Pierce Island spawning areas was rescheduled for Thursday, December 6, due to extremely inclement weather.

7. Other.

A. Results from November 5-9 Lower Granite RSW Balloon Tag Test. The Corps' Larry Beck briefed the TMT on results from the November 5-9 balloon-tag survival test at the Lower Granite removable spillway weir (RSW). He noted that, during the test, tagged fish were released at several locations: the south edge of the RSW, the middle of the RSW, at spill bay 2 and a control release in the tailrace below bay 1. A total of 130 fish were released at each of these four locations, then recovered in the tailrace by three recovery boats.

In terms of results, said Beck, all of the fish released from spill bay 2, the RSW south edge and the tailrace control group were recovered. Two of the RSW middle release fish were not recovered. Visible injuries were recorded upon recovery for two of the RSW middle fish, two of the RSW south edge fish and three of the spill bay 2 fish. Loss of equilibrium was noted in one of the RSW middle fish, three of the RSW south edge fish and two of the spill bay 2 fish. No fish from the control group exhibited either injuries or loss of equilibrium. Visible injury rates were 1.6% for the combined RSW fish and 2.3% for the spill bay 2 fish.

One fish was recovered dead from both the RSW middle and RSW south edge groups, Beck reported. Three additional fish from the RSW south edge group died within 48 hours of recovery. Estimated 48-hour survival was 97% for the RSW south edge group, 99% for the RSW middle, 98% for the combined RSW groups and 100% for the fish released to spill bay 2. Thus, while the injury rate among the spill bay 2 fish was slightly higher than it was for the RSW fish, the lethality of the injuries was slightly higher among the RSW release groups.

Overall, Bettin noted that the injury and mortaility rates were very similar between the RSW and spill bay releases. He added that the biological testing protocols to be used next year will be discussed through FFDRWG.

B. Status of Water Management Plan. Scott Boyd said the action agencies, NMFS and the Fish and Wildlife Service have been working on the federal water management plan for the past several months; the original plan was to release the WMP as an appendix to the annual implementation plan. However, said Boyd, the one-year implementation plan is now out for review, and the water management plan is not included at this point. He said the Corps would like to distribute the WMP for TMT

review and comment next week. In future years, added Boyd, under the schedule laid out in the BiOp, the action agencies would like to be able to finalize the water management plan by early September. It was agreed to schedule a presentation on the water management plan at the next face-to-face TMT meeting.

C. Finalization of Emergency Protocols. Boyce said the Oregon attorney general's office is still in discussions with the COE and NMFS legal staffs; Oregon still has some questions about what the language in the emergency protocols is specifically attempting to do. We'll provide an update as more information becomes available, Boyce said. Shane Scott added that the Washington attorney general's office has now reviewed and approved the language in the emergency protocols.

D. Bonneville Spillway. Beck said the Corps has received a request to shut down Bonneville spill bay 1 about eight hours earlier than the midnight, December 1 date specified in the Fish Passage Plan. The reason for the request is that it would facilitate flow deflector construction at spill bay 1, Beck explained. We would also need to close off the Cascade Island side fishway entrance, he said; this closure would remain in force until construction is complete. Beck added that the main fishway entrance would remain in operation. No TMT objecvtions were raised to this proposed operation.

E. Project Update. Hlebechuk said that, due to recent rain events, the RFC is predicting a three- to four-foot rise in the Willamette River stage at Portland harbor; that will impact Bonneville tailwater elevations, she said. Willamette River flow is expected to reach 90 Kcfs in the next week, she added, up from a current volume of 30 Kcfs.

Libby discharge was increased from 6 Kcfs to 9.4 Kcfs this morning, Hlebechuk continued. IDFG has requested that we increase Libby discharge to 10 Kcfs from December 1 through December 23 to accommodate their burbet studies, Hlebechuk said; the Corps plans to honor that request. Hlebechuk added that Libby project elevation was 2422 feet at midnight last night; it drafted one foot last week. Albeni Falls is in its winter operating range of elevation 2051-2051.5 feet, and is releasing about 11 Kcfs. Dworshak remains on minimum outflow; the current elevation at that project is 1521, up 1.6 feet over the past week. Over the past seven days, Bonneville discharge has averaged 123 Kcfs, Hlebechuk said.

Tony Martin noted that the current elevation at Grand Coulee is 1284.5 feet, releasing about 60 Kcfs. Hungry Horse continues to draft to meet the Columbia Falls minimum flow, he added.

8. Next TMT Meeting.

The next face-to-face meeting of the Technical Management Team was set for Wednesday, December 19. Meeting notes prepared by Jeff Kuechle, BPA contractor.

TMT ATTENDANCE LIST
NOVEMBER 28, 2001

Name	Affiliation
Larry Beck	COE
Scott Bettin	BPA
Ron Boyce	ODFW
Scott Boyd	COE
Ruth Burris	PGE
Margaret Filardo	FPC
Russ George	Water Management Consultants Inc.
Richelle Harding	D. Rohr & Associates
Robin Harkless	Facilitation Team
Cathy Hlebechuk	COE
Ningjen Liu	IPC
Kyle Martin	CRITFC
Tony Norris	USBR
Howard Schaller	USFWS
Shane Scott	WDFW
Donna Silverberg	Facilitation Team
Paul Wagner	NMFS
Steve Wallace	PacifiCorp
David Wills	USFWS
Nancy Yun	COE

TECHNICAL MANAGEMENT TEAM

BOR: Tony Norris\Lori Postlethwait *BPA: Scott Bettin\Robyn MacKay*

NMFS: Paul Wagner\Chris Ross *USFWS: David Wills\Howard Schaller*

OR: Ron Boyce *WA: Shane Scott* *ID: Steve Pettit* *MT: Jim Litchfield*

COE: Cindy Henriksen*Cathy Hlebechuk*

TMT Field Trip

06 December 2001 0800 - 1700 hours

This is a field trip to the Ives Island area where chum are spawning. Folks will meet in front of National Marine Fisheries Service at 525 N.E. Oregon Street (near Lloyd Center) at 8 a.m. or at the Chevron Gas Station at North Bonneville at 9 a.m. After the field trip, there will be a discussion about the on-going chum operations the Char Burger in Cascade Locks.

TECHNICAL MANAGEMENT TEAM

BOR: Tony Norris\Lori Postlethwait *BPA: Scott Bettin\Robyn MacKay*

NMFS: Paul Wagner\Chris Ross *USFWS: David Wills\Howard Schaller*

OR: Ron Boyce *WA: Shane Scott* *ID: Steve Pettit* *MT: Jim Litchfield*

***COE: Cindy Henriksen**\Cathy Hlebechuk*

TMT Meeting

19 December 2001 0900 - 1200 hours

Custom House Room 118

Portland, Oregon
Conference call line: 503-808-5190

All members are encouraged to call Donna Silverberg with any issues or concerns they would like to see addressed. Please e-mail her at dsilverberg@cnnw.net or call her at (503) 248-4703.

AGENDA

1. Welcome, introductions.
2. Weather (Harold Opitz, RFC)
3. Project, fish updates
4. TMT Water Management Plan WY 02
5. Other.
   - Finalize Emergency Protocol
   - Set agenda for next TMT

Questions about the meeting may be referred to Cindy Henriksen at (503) 808-3945, or Cathy Hlebechuk at (503) 808-3942.

TECHNICAL MANAGEMENT TEAM
MEETING NOTES
December 19, 2001
CORPS OF ENGINEERS NORTHWESTERN DIVISION OFFICES – CUSTOM HOUSE
PORTLAND, OREGON

TMT Internet Homepage: http://www.nwd-wc.usace.army.mil/TMT/index.welcome.html

FACILITATOR'S NOTES ON FUTURE ACTIONS
Facilitator: Donna Silverberg

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.

Weather Service/ NRCS:
Steve Todd and Harold Opitz of the NWRFC, and Phil Pastens from the NW Water Supply Forecast Center presented information to TMT about weather patterns and precipitation forecasts. They expressed uncertainty from the models, which show that temperatures and precipitation could be above or below normal in the coming months. Currently, precipitation is at normal levels, although supplies are still recharging from the drought. Additional information can be found at: www.nwrfc.noaa.gov/forecast/qpf.htm or www.wcc.nrcs.asda.gov
It was emphasized that there is a need for the group to continually track the water and snow supply to assist with in-river management.

Action: The COE, NRCS and NWRFC will put together a list of websites that track weather and snow information for use by TMT members. The COE will also give a briefing on the model they used that overlaps projects onto other data.
Question to TMT: Is there any weather or forecast information TMT is missing or needs that will help them do the job better? TMT expressed that if any variances are anticipated, a presentation should be added to the next agenda. Otherwise, the group will be presented with information once a month.

Project/Fish Updates:
BPA had to release water at Bonneville because the lower Columbia River was full. Discharge and tailwater elevations at Bonneville Dam were increased to 18' over a brief period of time. The question was raised whether to keep levels at 14 – 15' as an "exclusionary strategy" in order to keep the spawning areas lower.

WDFW reported that chum are finding new sites for spawning this year that haven't been seen in past years, although this could be due to better visibility this year. Spawning is expected to continue for the next two weeks. By raising the tailwater elevations, it is anticipated that the fish will be unable to spawn in areas that would raise the risk of being dewatered when the water levels lower. Given this information, a suggestion was made to go above 13' below Bonneville as a potential exclusionary strategy for spawning.

Action: NMFS didn't oppose the suggestion, as the Biological Opinion allows for such an action. Washington and Oregon will ask field staff to monitor this and notify them of any concerns with the operation. If so, an emergency call will be held Friday 12/21 at 3 p.m. Ron Boyce or Shane Scott will contact Cindy Henriksen about the need for a call, and she will inform the rest of TMT. The operation will drop back to 11.5' as soon as it can be maintained.

Project Updates:
Cindy Henriksen and Tony Norris gave updates on projects. During the discussion, the COE was asked to describe the criteria for flood control operations. This issue will be added to a future agenda. (January 9, 2002)

2002 Water Management Plan:
The new WMP is no longer a "TMT" plan, but an Action Agency plan that corresponds with the Biological Opinion and is part of the Implementation Plan. Scott Boyd, Suzanne Cooper, and Tony Norris presented the group with an overview of the plan. They hope to have a more detailed discussion at the next TMT meeting, at which members will have reviewed the plan and can ask clarifying questions. Following the next meeting, members are asked to provide written comments that the Action Agencies will respond to. Comments will be published either individually or as a summation. Comments can be emailed to Scott Boyd at scott.w.boyd@usace.army.mil

Action: TMT members will review the plan and bring questions or suggestions for discussion at the 1/9 TMT meeting.

Chum Dewatering Criteria Issue:
Paul Wagner drafted a memo that states NMFS' thinking in terms of dewatering criteria.

Action: TMT members will review the memo and add any factors that they see missing. NMFS will take a further step at laying out criteria, which Paul will email or fax to members.

Notification of Emergency Meetings:
Some non-TMT members (e.g. tribes and Mid-Columbia PUD's) expressed that they would like to be notified of emergency meetings.

The group agreed to add those who wish to be included on the calls to the email list. The COE will continue to phone and email TMT members with notification of an emergency call.

Next Face-to-Face Meeting, January 9th, 9 am:
Agenda:
- Weather and Project Updates
- Chum Status
- Water Management Plan
- Emergency Protocols
- Dewatering Criteria
- Other

1. Greeting and Introductions

The December 19 Technical Management Team meeting, held at the Customs House in Portland, Oregon, was chaired by Cindy Henriksen of the Corps and facilitated by Donna Silverberg. The following is a distillation, not a verbatim transcript, of items discussed at the meeting and actions taken. Anyone with questions or comments about these minutes should call Henriksen at 503/808-3945.

Silverberg welcomed everyone to the meeting, then led a round of introductions and a review of the agenda.

2. Weather.

Steve Todd of the River Forecast Center briefed the TMT on the short- and long-term weather outlook in the Northwest. He noted that short-term, it is going to continue to rain; longer-term, there is some indication that things may begin to dry out. Todd said the equatorial Pacific sea-surface temperature (Southern Oscillation) index is currently at near-normal levels, although the indications are that water temperatures will begin to warm over the next several months, which may result in warmer-than-average weather in the Northwest in January, February and March.

Todd added, however, that there are no strong indicators that precipitation will be either heavier or lighter than normal in January, February or March, although the indications are that it is more likely to be wetter than normal than dryer than normal. He spent a few minutes describing how the NWS makes its long-term forecasts (which are generally couched in percentage chance of wet, normal or dry weather), then noted that last year, the NWS forecast a 43% chance of a wetter-than-normal year and only 23% chance of a dryer-than-normal year. This year, again, we don't have a strong indicator that it will be a wetter-than-normal or a dryer-than-normal year, or a warmer-than-normal or a cooler-than-normal year, Todd said, although my feeling is that we're starting to hedge toward a slightly warmer- and wetter-than-normal year.

Todd spent a few minutes describing the existing Pacific monitoring network, as well as how the Service's long-term forecasts are generated. He then yielded the floor to Harold Opitz, who went through current snow pack levels in the Northwest. In general, Opitz said snow packs are higher than average in most basins, up to 215% of normal in northeastern Washington. Don't interpret that to mean that normal precipitation is going to equate to normal runoff in 2002, Opitz cautioned – after the dry period we've just been through, we're going to go through some pretty heavy aquifer recharge before runoff normalizes. Overall, if I had to guess, we're looking at a near-normal to slightly below-normal runoff year, Opitz said.

He spent a few minutes taking the TMT through the River Forecast Center's various Internet resources, noting that his office has put together a 10-day temperature and precipitation page on its website, summarizing the best available information on current and short-term weather conditions; the email address is www.nwrfc.noaa.gov.

Phil Pasteris of NRCS National Water and Climate Center, which does water supply forecasting for the entire West Coast, jointly with NWS, then briefed the group on current snow survey and Sno-Tel information. He noted that all of this data is available via the www.wcc.nrcs.usda.gov homepage.

Every month during the water supply season, Pasteris said, I create a written document and post it on the homepage, summarizing all of the relevant snow pack information in easily downloadable, grab-and-go form. I encourage you all to browse through our site and, if you have any questions, to contact me directly, he said.

So where are we? said Pasteris. According to the Sno-Tel network of 760 sites throughout the Northwest, we're doing pretty well, currently. One thing I've noticed is that, up to Thanksgiving, due to warm weather, we had virtually no snow pack, said Pasteris. That wasn't all bad, though, he said – what it did was recharge the groundwater before the snow arrived to seal in what would have been considerable dryness. In other words, he said, once the snow begins to melt, more of it will run off, rather than sink into the ground. Snowpacks are generally well above normal for this time of year, especially in the Cascades, central and northern Idaho and eastern Washington. The Klamath Basin is also looking very good, he said. The only area that is significantly below normal is western Montana/Hungry Horse. Snow-water equivalents also generally look good.

However, said Pasteris, it ain't over until it's over – last year, we had what we called the "Freddy Kruger Ridge" – you couldn't kill it, and it just hung in there diverting storms to the north and to the south of the Northwest. It could still materialize this year; things can turn on a dime in the climate business. However, according to the "drought meter" my office uses, we're slowly emerging from the drought conditions that have prevailed over the last two years, Pasteris said.

After a brief discussion, it was agreed to schedule a TMT field trip to the River Forecast Center to see how the forecasts are developed. In terms of our future interactions, said Henriksen, what are the TMT's expectations of the RFC and NRCS, both in terms of briefings and website content? Warning of any significant changes in the weather pattern would be crucially important to this group, said Jim Litchfield. It was agreed that an RFC representative will also provide a monthly briefing at upcoming TMT meetings. I think the take-home message today is that we're not out of the drought yet, Bettin said.

3. Project, Fish Updates.

Bettin said that, as we've just heard, we're not out of the drought yet; however, because of the heavy precipitation we've been experiencing, particularly on the west side of the Cascades, Bonneville discharge is on the rise – it averaged 153 Kcfs yesterday, but exceeded 200 Kcfs at night. The question is, do we want to try to continue to try to stick as closely as possible to the 11.5-foot Bonneville tailwater elevation target the day (when most spawning occurs), and purging the excess water at night, or do we want to shoot for a much higher tailwater elevation, even during daylight hours, and trust the streamside foliage band to discourage spawning above a certain elevation? Bettin asked. One complicating factor is the fact that flip-lip construction will

continue at Bonneville until February 28, which means no spill can occur at that project until then.

The group discussed potential strategies to deal with the increasing water volume at Bonneville. Ron Boyce said he will need to talk to others at ODFW before he can endorse any potential spawning exclusion strategy. Paul Wagner said the 2000 BiOp would not preclude the strategy suggested by BPA.

After a few minutes of discussion, it was agreed to pick up the daily discharge to achieve a higher Bonneville tailwater elevation during the day – 14.5 to 15 feet -- in order to discourage spawning at the 13- to-14-foot level (because of intervening bushes), and to drop the Bonneville tailwater elevation back to 11.5 feet as soon as weather, tidal and tributary conditions allow. Field crews will monitor the situation closely; if they see any major red flags, in terms of significant spawning at higher elevations, it was agreed that the TMT will reconvene on Thursday at 3 p.m. via conference call to discuss them.

Moving on to project information, Henriksen said Dworshak is filling slowly; it was at elevation 1523.4 feet as of midnight last night. The December 31 flood control elevation at that project is 1558 feet; I wouldn't expect that it will be achieved, Henriksen said. In response to a question from Steve Pettit, Henriksen said Brownlee is near full and will probably continue to be near full until December 31, after which it will be drafted as needed for power. She added that day-average flow at Lower Granite increased to 28 Kcfs yesterday. In response to another question, Henriksen said the current Libby elevation is 2415 feet; the project is releasing 9.6 Kcfs, and the December 31 flood control elevation at that project is 2411 feet. Tony Norris added that Grand Coulee is currently at elevation 1287.3 feet and passing inflow; Hungry Horse continues to draft to meet the Columbia Falls minimum.

4. TMT Water Management Plan.

Scott Boyd noted that, for the first time this year, this is the action agency's Water Management Plan, rather than the TMT's Water Management Plan, because the action agencies are responsible, under the 2000 BiOp, for its production. We are also responsible for taking into account any comments on the plan, he said. We are unfortunately behind schedule; the draft plan is now available on the Corps website, and I will be available to answer any questions on the draft Water Management Plan at the TMT's January 9 meeting. We would like to receive any written comments on the plan by the meeting after that, some time in late January, said Boyd.

Boyce commented that, given the lateness of the draft WMP's delivery (according to the BiOp, it was to be made available to the region by September, but was delayed due to the delay in the completion of the one- and five-year implementation plans also called for in the BiOp), early February may be an ambitious schedule for the submission of comments.

Boyd observed that, given the fact that little can be known for sure about the water supply for the upcoming year in September, the action agencies are proposing to update the annual Water Management Plan in late winter and early summer. In other words, he said, we're not throwing out the concept of adaptive management, but this is the timing imposed on us by

the BiOp.

After a few minutes of discussion, the action agencies agreed to include an appendix to the Water Management Plan listing all of the comments received, and their response to those comments.

Boyd then spent a few minutes going through the highlights of and changes to the draft 2002 Water Management Plan. He asked that any comments on the plan be submitted directly to him; his email address is scott.w.boyd@usace.army.mil. Henriksen reiterated that there will be further opportunity for comment during the development of the winter/spring WMP update in February.

5. Other.

A. Finalize Emergency Protocols. There is one more meeting that needs to happen here, but we're very close; we'll finalize at the January meeting, said Silverberg.

B. Chum Dewatering Criteria. Paul Wagner summarized the outcome of this agenda item at the December IT meeting; there was a lengthy discussion at that meeting, he said, and essentially, the IT's feeling was that this is an executive-level decision. The task that came out of this was for NMFS to develop a list of the factors they considered in developing this year's chum decision/operation, Wagner said.

Actually, my expectation from the same meeting was that the TMT should start considering chum dewatering criteria, but that NMFS would bring the first draft, said Henriksen.

Obviously, there is some confusion here, said Silverberg. After a few minutes of additional discussion, Henriksen reiterated her suggestion that, while dewatering chum redds will ultimately be an executive-level decision, some guidance from the TMT would be helpful. Ultimately, given the lateness of the hour, it was agreed that this topic should be placed on the agenda for the next TMT meeting. Wagner agreed to update and reformat a memo laying out the criteria NMFS has used in making its chum operational decisions and email it to the TMT membership prior to the next meeting of the group.

C. TMT Emergency Meeting Participation. There has been some concern expressed about the fact that various people who wanted to participate in the TMT process, particularly during our round of emergency calls (the tribes) are not receiving adequate notice of those meetings, Silverberg said. Basically, we need to find a better way to notify entities which may or may not be actual TMT members of our meetings, she said. After a brief discussion, it was agreed to place this item, too, on the agenda for next meeting.

D. TMT Web Page. Henriksen asked that any comments on the TMT homepage be submitted to her or to COE webmaster Mike Stanfill (email: michael.d.stanfill@usace.army.mil. We're getting ready for the 2002 in-season management period, she said, and it would be helpful to get any changes or additional links that people need as soon as possible.

6. Next TMT Meeting Date.

The next meeting of the Technical Management Team was set for Wednesday, January 9. Meeting notes prepared by Jeff Kuechle, BPA writer-editor pool.

TMT ATTENDANCE LIST

DECEMBER 19, 2001

Name	**Affiliation**
Larry Beck	COE
Scott Bettin	BPA
Ron Boyce	ODFW
Scott Boyd	COE
Ruth Burris	COE
Dick Cassidy	COE
Russ George	Water Management Consultants Inc.
Robin Harkless	Facilitation Team
Tim Heizenrater	Enron
Cindy Henriksen	COE
Jim Litchfield	Montana
Tony Norris	Reclamation
Harold Opitz	RFC
Steve Pettit	IDFG
Chris Ross	NMFS
Shane Scott	WDFW
Donna Silverberg	Facilitation Team
Steve Todd	NWS
Glen Traeger	Avista Energy
Maria Van Houten	Enron
Paul Wagner	NMFS
David Wills	USFWS

TECHNICAL MANAGEMENT TEAM

BOR: Tony Norris\Lori Postlethwait *BPA: Scott Bettin\Robyn MacKay*

NMFS: Paul Wagner\Chris Ross *USFWS: David Wills\Howard Schaller*

OR: Ron Boyce *WA: Shane Scott* *ID: Steve Pettit* *MT: Jim Litchfield*

COE: Cindy Henriksen*Cathy Hlebechuk*

TMT Emergency Conference Call

20 December 2001 1500 - 1600 hours

Portland, Oregon
Conference call line: 503-808-5190

All members are encouraged to call Donna Silverberg with any issues or concerns they would like to see addressed. Please e-mail her at dsilverberg@cnnw.net or call her at (503) 248-4703.

AGENDA

1. Field observation report from Ives Island.

Questions about the meeting may be referred to Cindy Henriksen at (503) 808-3945, or Cathy Hlebechuk at (503) 808-3942.

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MEETING NOTES
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1. Greeting and Introductions

The December 20 Technical Management Team conference call, held at the Customs House in Portland, Oregon, was chaired by Cindy Henriksen of the Corps. The following is a distillation, not a verbatim transcript, of items discussed at the meeting and actions taken. Anyone with questions or comments about these minutes should call Henriksen at 503/808-3945.

2. Chum Operations.

Henriksen said this call had been convened at the request of Ron Boyce. Boyce reminded the group that, at yesterday's meeting, the TMT had discussed the BPA proposal about potential higher tailwater elevations at Bonneville. He added that, because Bonneville tailwater has been lower today, this is no longer an issue. Scott Bettin agreed, noting that, thanks to lower tides and lower flows from the Willamette system, BPA has been able to maintain tailwater elevations of about 12 feet today. Boyce asked that if flows or weather force any major changes to Bonneville operations between now and the next TMT meeting, a conference call be convened. It was so agreed.

What do you expect in terms of operations this weekend? Boyce asked. We expect to be able to meet the 11.5-foot tailwater target at Bonneville, Henriksen replied; the current tailwater elevation is 11.8 feet. Henriksen asked ODFW and WDFW to update the TMT on their spawning survey work as soon as possible. Shane Scott replied that the most recent update will be available tomorrow morning, and that he will distribute it via email.

When would you expect the spawning to be complete below Bonneville, so that we can end the chum spawning operation and move to the winter/spring protection flow operation at that project? Bettin asked. The salmon managers will discuss that, and will provide a response back to the action agencies, Boyce replied. Did you have a specific operation in mind? Boyce asked. We plan to maintain the 11.5-foot tailwater minimum, Bettin replied – the normal protection flow -- but do away with reverse load factoring.

Michelle DeHart asked whether the TMT has agreed not to try to protect redds that may have been established at higher elevations. Boyce replied that there is some provision in the BiOp for the protection of higher-elevation redds. Only if those redds were established because of hydrosystem operations, said Bettin – that's not the case this year. My understanding is that the agreement is that the action agencies will provide an 11.5-foot minimum tailwater depth through emergence, Chris Ross replied.

Is there a date in the BiOp at which we would switch to a maintenance flow, rather than the current operation? DeHart asked. January 1, Boyce replied.

It sounds, then, as though Willamette flows and tidal influences are receding; we should be back in the 11.5-foot tailwater range at Bonneville by tomorrow, Henriksen said; Shane Scott has agreed to email the results from today's redd survey work to me tomorrow, after which I will send it out to the rest of the TMT. Boyce reiterated that the salmon managers will develop an estimate of the end of chum spawning and will provide that to the TMT as soon as it is available. In the interim, said Henriksen, if we don't hear back from the salmon managers, the default will be that the chum maintenance flow operation will begin on January 1, as specified in the BiOp. That means we will continue to maintain an 11.5-foot tailwater elevation at Bonneville, she said, but will stop reverse load factoring.

Don Englund offered one final thought: because of the high flows from the Willamette so far in the spawning period, water depths at the Ives Island complex have been equivalent to what you would see from a 13-foot Bonneville tailwater elevation. Once flows from the Willamette recede, he said, it is possible that some of the redds established while tributary flows and tides were higher could be dewatered. In other words, he said, we may want to consider a higher tailwater elevation at Bonneville through emergence. Henriksen took issue with this statement, noting that the Bonneville tailwater gauge is located just across the river from the Ives Island complex. Englund disagreed, saying that the gauge is closer to Tanner Creek. We don't need to make a decision today, Englund said, but I just wanted people to start thinking about that phenomenon. Boyce said he will attempt to convene a salmon managers' conference call tomorrow morning.

TMT ATTENDANCE LIST
DECEMBER 20, 2001

NAME	**AFFILIATION**
Julie Ammon	COE
Larry Beck	COE
Scott Bettin	BPA
Ron Boyce	ODFW
Scott Boyd	COE
Michele DeHart	FPC
Don Englund	USFWS
Margaret Filardo	FPC
Russ George	Water Management Consultants Inc.
Richelle Harding	D. Rohr & Associates

Cindy Henriksen	COE
Kyle Martin	CRITFC
Chris Ross	NMFS
Shane Scott	WDFW
David Wills	USFWS