

**TECHNICAL MANAGEMENT TEAM
MEETING NOTES
April 14, 2004
CORPS OF ENGINEERS NORTHWESTERN DIVISION OFFICES – CUSTOM HOUSE
PORTLAND, OREGON**

FACILITATOR'S SUMMARY 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.

Status of Hanford Reach:

Chris Carlson, Chelan County PUD, reported that the weekly average flow for 4/5-4/11 was 71.9 kcfs at Hanford Reach. Operators stayed within the flow bands all week. Emergence has not yet ended, and is still targeted for April 20th. Chris will continue to update the TMT at subsequent meetings.

Spring Spill at the Lower Snake:

The salmon managers brought forth SOR 2004-3 for spring spill at the Lower Snake projects during a TMT meeting on Monday, April 12th. The SOR, relying on NOAA's analysis of Snake River transport studies, proposed that spill be implemented at Lower Granite, Little Goose and Lower Monumental through April 30th and then continue spill as necessary to complete ongoing research at the projects (see the SOR for more details found on the TMT webpage linked to the agenda for the 4/12 meeting). A concern was raised that the salmon manager request was a large departure from the recommendation in the 2000 BiOp to use 85 kcfs flow in the Snake River as the threshold below which spill should not begin and transport should be used instead. Projections show that the seasonal average flow is expected to be below 85 kcfs.

There was no consensus at TMT about whether to recommend and implement the SOR on Monday. Instead, they reviewed more data and asked BPA, NOAA and the COE to coordinate, as recommended in RPA 51. During today's meeting (April 14th) TMT members discussed the SOR and other proposals for Spring spill:

1. Implement SOR 2004-3, which would include spill at all three projects through the end of April and then continue where necessary to complete research.
2. Spill at all three projects through April 23rd; continue spill just at Lower Monumental to support research on the spillway and RSW, likely through the end of May. (This was NOAA's alternative proposal to the SOR.)
3. Continue spill at Lower Granite and Little Goose until April 22nd (this date was selected based on the expected start of the juvenile steelhead migration). Do not begin spill at Lower Monumental. (This was BPA's alternative proposal to the SOR.)
4. The COE discussed a number of alternative operations, including a) re-focus research at Lower Monumental so that research could be completed but would not require spill, or b)

complete the research at Lower Granite through May 15. The COE expressed willingness to hear other options such as these. Salmon managers were not supportive of changing the focus of the research at Lower Monumental.

BPA was not able to accept the SOR as written, nor did BPA agree with the other options suggested. Instead, BPA expressed a concern with regards to process of the issue and coordination/consultation requirements and requested that the issue get raised to IT.

TMT developed the following policy questions for an emergency IT meeting on April 15th:

1) Should the region rely on data and analysis from NOAA to make decisions about spring spill in the Lower Snake River to satisfy Action 51, 2000 FCRPS BiOp?

2) Do discussions in the Regional Forum, and TMT specifically, meet the “COE & BPA, in coordination with NMFS through the annual planning process, shall identify and implement appropriate measures” requirements within Action 51?

McNary 1%:

Kim Fodrea, BPA, presented information to support a proposal to remove the 1% efficiency operation constraint at McNary. BPA feels that operating outside 1% does not appear to be more detrimental to the fish than operating within, in fact at times may even provide a benefit to the fish. In addition, this proposal supports BPA’s objective of providing low cost, reliable power. No studies on this were developed by FDDRWG or SRWG, but a monitoring plan was put together. This and BPA’s proposal were presented to TMT today.

Rebecca Kalamasz, Walla Walla COE, provided an overview of the monitoring plan (see handouts linked to today’s TMT agenda). It was noted that, given the low flows this year, there will not be much difference in involuntary spill. Kim Fodrea suggested that removing the 1% constraint would provide a cost savings of \$2.5-6 million. The salmon managers asked whether the savings could be provided through screen research being conducted. While the research could provide some savings, BPA does not feel that the research will resolve the debate and continues to propose removal of the 1% constraint.

Idaho requested information on the ’94-96 poor passage years and NOAA requested temperatures from those years. Oregon would like time to review and discuss the information and proposal. A decision is needed by April 22nd, but if a decision is delayed until then, the monitoring will not include fry.

ACTION: The salmon managers have submitted numerous comments on the proposal, which the COE will respond to prior to a salmon manager discussion at FPAC on Tuesday, April 20th. The salmon managers will review the information and provide comments on the monitoring plan during a follow-up discussion at TMT on Wednesday, April 21st.

Mid-Columbia Flow:

The salmon managers presented SOR 2004-5 on Priest Rapids flows and spill at Bonneville. In light of the recent decrease in the water supply forecast, a lack of fish numbers, and maintenance work by the BOR, the salmon managers requested that water be released from Grand Coulee on April 15th for 7 days a week to provide 110 kcfs flow at Priest Rapids, and continue this

operation until further notice. Once 110 kcfs is reached, do not reduce to 70 kcfs in order to minimize fluctuations. At Bonneville, increase spill to at least 75 kcfs (to the gas cap) until the end of chum emergence or a water event occurs.

BPA supported the SOR with the caveat that the 110 kcfs at Priest Rapids is a weekly average. BPA will ramp up flows over the weekend so the weekly average will stay within the flow band. The salmon managers will look at water and fish conditions to determine when to change from 110 kcfs. The COE agreed to implement the request for operations at Bonneville, with the change from “at least” 75 kcfs to “up to” 75 kcfs (50-75). The action agencies agreed to implement the SOR.

ACTION: BPA will ramp up Grand Coulee/Chief Joseph flow to maintain Priest Rapids outflow up to 90 kcfs over the weekend, and maintain a weekly average of 110 kcfs, keeping in mind the request to minimize fluctuations. The salmon managers will provide the COE with a ratings curve by this afternoon (4/14) relative to TDG and chum compensation coverage at Bonneville.

System Status:

Reservoir operations: Grand Coulee is at elevation 1270.7 and has been filling. Hungry Horse is at 3523’ and filling 1’ per day. There is still some concern about the refill of Snake River projects. Libby is at 2402’ and filling. April 15th flood control is 2443’. It is unclear what will be requested for a sturgeon pulse this year. Dworshak is at 1549’ and filling 1.5’ per day. April 15th flood control is 1548’, so the COE needs to move some water. They will be increasing outflows later this month unless they receive a request for augmentation. The COE might operate Dworshak outflows at full powerhouse for the remainder of the month.

Fish status: Chinook juveniles at Lower Granite have increased since 3/31, and with no spill, indicate that there are more to come. Numbers have increased similarly at McNary, John Day and Bonneville. Steelhead juveniles are at high numbers at Lower Granite, with not as many yet at Little Goose and Lower Monumental. Adult chinook numbers have increased but are lower than previous years.

Spring/Summer Update:

The spring summer update of the Water Management Plan is still being developed. A final DRAFT will be out next week that includes the Hanford Reach agreement (which is also posted on the TMT web page), final water supply forecast, flow objectives, and research papers. TMT will discuss the final draft at the next TMT meeting on April 21st.

Next Meeting, April 21st, 9 am-noon:

Agenda Items:

- McNary 1%
- Dworshak Outflows
- Spring/Summer Update

1. Greeting and Introductions

The April 14 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 Henriksen at 503/808-3945.

2. Status of Hanford Reach.

Henriksen said last week's Hanford Reach report is now available via the TMT homepage, under the "Proposals" forum. For the week of April 5-11, said Chris Carlson, daily average discharge from Priest Rapids was in the 71-73 Kcfs range; the weekly average flow was 71.9 Kcfs. Flows were generally pretty close to that level, he said; the flow bands were 20 Kcfs and 30 Kcfs, and we were within those bands for the entire week. The chum are at 750 temperature units (TUs) since the end of spawning and at 151 TUs since the start of emergence. We have not yet started to see fish emerge, he said. We are expected to hit the threshold of 800 TUs since the end of spawning within five or six days, Carlson said.

3. McNary Operation Outside 1%.

Kim Fodrea said that, as the TMT is aware, one of BPA's objectives is to meet its fish and wildlife obligations while providing cost-effective power to the region. Bonneville continues to believe that operating McNary outside 1% peak efficiency provides such an opportunity, she said, noting that BPA has been discussing this concept with the region since the spring of 2003. She described some of the research BPA is citing in support of this position, noting that these studies show no significant statistical difference in turbine survival between operations within or outside of 1%. We attempted to develop a monitoring study design that was acceptable to the region, but failed, Fodrea said. BPA is now proposing to proceed with McNary operations outside of 1%, she said; we have developed a monitoring plan to assess the biological impacts of the proposed operation. When it is operated within 1% peak efficiency, McNary's powerhouse capacity is about 170 Kcfs; operating outside 1% would increase that capacity to about 209 Kcfs

Rebecca Kalamasz described the planned monitoring program to be implemented at McNary this spring. We recognize that when you increase discharge through the turbines, that changes hydraulics upstream and downstream of the projects, she said; in the monitoring plan, we have chosen to focus first on the biological effects of the reduction in involuntary spill that would occur as a result of the proposed operation. Kalamasz described some of the model work that has been done in support of this monitoring plan. She then noted that increased turbulence and debris in the gatewell environment are also a concern during operation outside 1%; the monitoring plan will address these issues. The plan will not address changes in survival through the turbine or tailrace environments. The assessment came down, basically, to the expected change in involuntary spill, Kalamasz said; we anticipate a reduction of 2.5% in daytime spill, which is expected to result in a reduction in yearling chinook and steelhead project survival of 0.18% over the course of the spring outmigration.

The group devoted a few minutes of discussion to the specifics of a Corps/BPA white paper, "Biological Information on Juvenile Salmon Related to Operation of McNary Turbines Outside the 1% Efficiency Limits" (available via hotlink from today's agenda on the TMT homepage). Kalamasz noted that, given the anticipated seasonal average flows at McNary in

2004, there isn't expected to be much involuntary spill this year, and the impacts of the reduction in involuntary spill is not expected to have a significant biological impact.

In response to a question, Fodrea said the financial benefit of operating McNary outside 1% is expected to be about \$12 million annually, on average, in additional generation – even in an 82 MAF year like this one, the financial impact of the additional generation is expected to be \$5 million, about half of that accruing in the spring period. In response to another question, Kalamasz replied that what BPA is recommending is not a research project – it is an operational change. This year's planned research would provide some economic benefit, said Fodrea; however, that is not our proposal. Frankly, I've given up on the idea that research is going to solve this debate, she said.

Boyce thanked the action agencies for assembling this information package; he requested some additional time to digest it. When would this operation start? he asked. Given current river flows, we don't need to make a decision today, so I think you probably have some time to evaluate the information, Kalamasz replied. She said that, according to current ESP runs, the total river flow threshold at which operation outside 1% becomes possible will likely be reached some time in the first week in May, depending on precipitation and the shape of the runoff. The fry needed to do the planned biological studies at McNary will not be available before the end of April, added Mark Smith. So when do we need to make a decision on this proposal? Jim Litchfield asked. In my opinion, by April 16, if you want to use smaller fry in the biological evaluation, Smith replied. Boyce said the salmon managers need at least a week to evaluate the information provided at today's meeting. It was agreed to convene a TMT meeting next Wednesday, April 21, to discuss this issue.

Wills encouraged the action agencies to review the comments the salmon managers have previously submitted on this issue, and to attempt to address those concerns prior to next week's TMT meeting. We do intend to respond to those comments, Kalamasz replied. It would be helpful if we could provide your response to the salmon managers' April 2 memo prior to next week's meeting, said Russ Kiefer. We can do that, Kalamasz agreed.

4. Spring Spill at Lower Snake Collector Projects.

On Monday, said Silverberg, the TMT met and discussed spring spill at the Snake River projects; the salmon managers submitted an SOR requesting that spill start. The action agencies agreed to begin spill at Lower Granite and Little Goose Dams on Monday evening, but asked for a bit more time to look at the biological information before making a decision about spill at Lower Monumental. Paul Wagner said he had asked the NOAA Fisheries Science Center to develop a brief summary of the biological information supporting the need for spring spill at the Snake River projects in 2004. He distributed a series of graphs showing Lower Granite chinook SAR information from the 1995, 1999, and 2000 outmigration years.

The implication is that for the 1999 and 2000 outmigration years, chinook that migrated in-river did better during the month of April? Wellschlagler asked. In 1995 and 1999, the results for early-season in-river vs. transported chinook were pretty much a wash, said Wagner; in 2000, the early-season in-river chinook did better, in terms of adult returns.

We understand that you would like to keep a portion of the run in-river, to spread the risk, said Wellschlager. BPA is not proposing that barging replace outmigration forever; our quandary is, is it a better tool to use in 2004, given the conditions? We looked this morning at average tailwater temperature and outflow at Lower Granite in 1999, 2000, and 2004, he said; if you look at average tailwater temperature in 2004, it is significantly higher than in 1999 and 2000, and flow is significantly lower in 2004 compared to 1999 and 2000. Although flows could pick up and water temperatures could go down, during the important period – April – it appears to Bonneville that in-river conditions are significantly worse in 2004 than they were in 1999 and 2000. We are significantly above the 9.6-degree C temperature threshold we have been discussing, Wellschlager said.

This is not the only data we should be looking at, said Boyce – there is a lot of other data indicating no clear-cut survival benefit for transported vs. in-river fish. He noted that the greater proportion of fish are being transported this year. To me, he said, we should be moving toward something closer to a 50-50 split. I don't pretend for a moment that we will change your opinion, said Wellschlaer; I'm simply sharing Bonneville's perspective. Russ Kiefer said the 9.5-degree C threshold applies to collected fish – they do better if bypassed when temperatures are below 9.5 degrees C and do better when transported when temperatures are above that threshold. However, overall in the season, there is no clear-cut survival benefit for transported fish vs. uncollected in-river fish – the two groups do about the same. Our conclusion, though, is that over the season, in-river fish do better than transported fish from Lower Granite, hence this request, Kiefer said. And I'm saying Bonneville hasn't reached that conclusion yet, Wellschlager said.

Bonneville cannot accept the SOR as written, said Wellschlager. I think we have compromised quite a bit already by going along with spill at the two projects up to this point. I don't think we can go along with initiating spill at the third project, he said. Will spill continue at Lower Granite and Little Goose? Silverberg asked. I believe that, based on the data, steelhead passage will start picking up at Lower Granite by the April 21 or 22? Wellschlager asked. You can anticipate that happening around the third or fourth week in April, yes, Wagner replied. Based on the last five years of juvenile steelhead passage data, that happens around April 22, said Wellschlager; Bonneville is willing to agree to continue to spill at Lower Granite and Little Goose until April 22, but after that, spill will stop.

Henriksen said that the TMT had talked about the ongoing research at Lower Granite and Lower Monumental; the Corps had planned to test the BGS at Lower Granite this spring, through the end of May. We talked about shortening the test so spill could stop earlier, she said; we also talked about the value and priority of the spill test at Lower Monumental. From the Corps' perspective, we could decide not to do some of that research that year, or at least refocus the Lower Monumental research so that it is done without spill. We talked about alternatives including no spill at Lower Monumental, and the possibility of completing that research with some spill this year if there is agreement that that is a high priority – it would be conducted from April 15-June 15, Henriksen said. That bulk spill study at Lower Monumental would be meaningless without spill, Boyce observed. So spill is scheduled to start tomorrow at Lower Monumental? Litchfield asked. Actually, according to the researchers, the research would begin May 1 and end on May 26, Henriksen said. In response to a question from Boyce, Henriksen said

that, in the Corps' view, all of the research at Lower Granite and Lower Monumental could be postponed to next year.

The group briefly discussed the sunk costs of the planned research at Lower Granite and Lower Monumental (on the order of \$2.2 million at Lower Granite, and \$1.6 million at Lower Monumental). Henriksen reiterated that research could continue at Lower Monumental, even without spill – it would focus instead on survival through the powerhouse, for which little or no data is currently available.

Henriksen said the research data presented so far do not necessarily lead the Corps to the same conclusions as NOAA Fisheries; we have discussed research just at Lower Granite with no spill at Little Goose or Lower Monumental; we also talked about research with spill at Lower Monumental in May, but with no spill at Lower Granite or Little Goose. Another alternative, from the Corps' perspective, is no spill at any of those projects, Henriksen said. Boyce noted that assessing turbine survival at Lower Monumental was never a component of the research proposal for that project in 2004. Part of Ron's concern is that we spent a lot of time discussing which research to fund at SCT this year, and agreed that the research at Lower Monumental was a higher priority than other worthy research projects, Kiefer noted. And it sounds as though, from the Corps' perspective, the Lower Monumental spill research could go forward, Silverberg said.

Wellschlager said it would appear that the TMT is at an impasse, because BPA is unwilling to agree to consider anything beyond what he has already proposed – no spill at any of the Lower Snake projects past April 22. And you're basing that on the historical steelhead passage information? Boyce asked. Yes, and on current conditions in the river, Wellschlager replied. You have noted that this is an abnormal year, said Tom Lorz – if the steelhead are delayed in arriving at Lower Granite, and don't arrive on April 22, would you continue spill until they do arrive? I think from BPA's perspective, we need to lock into a firm date, Wellschlager replied.

The group devoted a few minutes of discussion to the current juvenile steelhead passage indices at Lower Granite.

Boyce reiterated that this is not the only information regarding steelhead outmigration and survival. My interpretation is that it is not a slam-dunk to say that there is a biological benefit to transporting steelhead after they begin to arrive in numbers, said Boyce. Wagner said that, in NOAA Fisheries' opinion, spill should continue through April 23 at Lower Granite, Little Goose and Lower Monumental; also, the Lower Monumental research should go forward for three weeks this spring. We have seen spillway survival problems at that project and we need to get to the bottom of them, he said. Also, the RSW is scheduled to be installed there; if the RSW causes mortality, it would preclude its use, and we need to know that. Another consideration is the energy issue, Wagner said; we could increase Dworshak discharge during the period we are spilling at Lower Monumental, Little Goose and Lower Granite to offset the energy loss, without impacting refill at Dworshak.

Wellschlager reiterated that, unless BPA's proposal is acceptable, in BPA's view, this issue needs to be elevated to the IT. However, it sounds as though we may be relatively close,

said Boyce – NOAA Fisheries is advocating one more day of spill at Lower Granite and Little Goose, plus spill at Lower Monumental beginning tonight and continuing as needed to accomplish the bulk spill test at that project, with additional outflow from Dworshak to offset the generation losses. Could we collect and tag fish at Little Goose rather than Lower Monumental, so that we could begin the Lower Monumental evaluation sooner? Wagner asked. Logistically, that is not feasible, replied Mark Smith. After a few minutes of further discussion, Rebecca Kalamasz said that, after talking directly to the researchers, the duration of the test is 25 days plus 10 days of radio-tracking time. The soonest they could begin tagging fish is April 26, Kalamasz said, but logistically, there is no advantage to collecting and tagging the fish at Little Goose. The bottom line is that, even if the tagging is moved up, spill would have to be maintained for at least 30 days following April 26, Kalamasz said. So the fish releases would continue until about May 20? Henriksen asked. Correct, Kalamasz replied. In response to a question from Kiefer, Tim Wick said it should be possible to get meaningful information from the Lower Granite BGS/RSW test if spill continues at that project through about May 15.

Salmon manager reaction? Silverberg asked. Excluding the NMFS perspective, I think most of us were convinced by the NOAA Fisheries information indicating the importance of spill early in the season – through April 30 – to benefit in-river migration, David Wills replied. I think we also need to have some further discussion about the supposedly negligible impacts of deferring the planned research, he said. If BPA is adamant about no spill at Lower Monumental and stopping spill at Lower Granite and Little Goose on April 22, then we are at an impasse, Wills added.

After a few minutes of additional discussion, Silverberg asked who wants to elevate this issue to the IT. Wellschlager said that, in his opinion, elevating this issue immediately to IT would be in the best interest of everyone involved. Silverberg said IT is on alert that this issue was likely to be elevated, and will be available for a conference call tomorrow. If we take this to IT, what is the question we need to ask them? she asked. It sounds as though the action agencies object to the original SOR as written, Wills replied – perhaps that would be the simplest way to frame the question, making clear the alternative positions and proposals put forward by NOAA Fisheries and the Corps. However, the policy issue is the rejection of the SOR, said Norris. Actually, the policy question is whether the SOR takes us outside the operation mandated by the Biological Opinion, Silverberg observed. I guess the question really is whether the information presented by NOAA satisfies the requirements of BiOp Action 51, and whether the Regional Forum/TMT process meets the annual planning process requirement in Action 51, she added.

It was agreed to elevate this issue to IT for discussion tomorrow. In the interim, it was agreed that spill will continue at Lower Granite and Little Goose. In all likelihood, the IT call will convene at 1 p.m.

5. Mid-Columbia Flow.

On April 13, the action agencies received SOR 2004-5. This SOR, supported by USFWS, IDFG, ODFW, WDFW, NOAA Fisheries and CRITFC, requests the following specific operations:

- Starting April 15, and continuing until further notice, release water at Grand Coulee Reservoir to begin providing flows of 110 Kcfs at Priest Rapids dam seven days per week with minimum hourly flow fluctuations.
- Increase spill at Bonneville Dam to at least 75 Kcfs until either water conditions or the end of chum emergence; allow for spill to the total dissolved gas cap.

The full text of this SOR is available via hotlink from today's agenda on the TMT homepage; please refer to this document for further details and justification.

Wills went briefly through the justification for this SOR. Margaret Filardo noted that WDFW had contacted the Fish Passage Center to say that, once Priest Rapids flows achieve 110 Kcfs, they do not want to see them go back down to the Vernita Bar minimum of 70 Kcfs. Wellschlager said BPA's only comment is that the 110 Kcfs needs to be a weekly, rather than a daily, average, with the understanding that Priest Rapids will operate within the agreed-upon flow bands.

Tom Lorz said CRITFC did not sign onto this SOR because they would prefer to see the project operated within a more stringent flow band. Wagner requested that the action agencies not drop Priest Rapids flow to the Vernita Bar minimum over the weekend. Wellschlager replied that this should not be an issue in the short term.

In response to a question from Tony Norris, Wagner said the next incremental increase in flow at Priest Rapids -- to 135 Kcfs -- will be requested once fish passage numbers warrant such a step. Is there a bottom elevation at Grand Coulee you would like to impose, if tributary flows don't pick up? Norris asked. Because the Bureau is unwilling to go below 1240 at Grand Coulee at this point in the season, he added. We'll monitor that, said Boyce. Norris and Wellschlager said Reclamation and Bonneville have no objection to implementing Part A of SOR 2004-5 as written. In response to a question, Wellschlager said there will be a ramp-up involved in achieving the requested flow level, so 110 Kcfs will be achieved on a week-average basis next week, but not this week.

With respect to Part B of the SOR (Bonneville spill), Henriksen said that according to the Fish Passage Plan, daytime spill at Bonneville is up to 75 Kcfs, and up to the gas cap at night. She noted that depth compensation over the chum redds remains a concern, so the Corps will be monitoring TDG levels at Warrendale. We will implement spill up to the gas cap (120% at Warrendale, 115% at Camas/Washougal) at night, she said, and will provide spill up to 75 Kcfs during the day. Given a 15-foot tailwater depth at Bonneville, is there a particular TDG level we should be targeting at Warrendale at which concerns about the effects on the chum redds would trigger a curtailment of spill? Jim Adams asked. Is the 115% TDG level we might expect to see at Warrendale at 75 Kcfs spill acceptable to the salmon managers? We will discuss that and provide a ratings curve by this afternoon, Boyce replied.

6. Status of Operations.

Norris said Grand Coulee is currently at elevation 1270.7; it has been filling, but as soon

as we go to 90 Kcfs, it will start drafting. Hungry Horse is currently at elevation 3523 and filling a foot per day, inflows are still climbing. We should not have any problems filling Hungry Horse by June 30, but we're still worried about a couple of our Upper Snake projects, he said. Wellschlager noted that, according to BPA water supply staff, the region is in the second-lowest four-year period on record.

Libby is currently at elevation 2402, 41 feet below its flood control elevation, said Henriksen. Outflow continues on minimum, and inflows are picking up due to snowmelt – the project is filling 4/10 of a foot per day. And is there a sturgeon pulse planned this year? Wagner asked. My understanding is that they are planning a different operation this year – a fry release, Wills replied. I'm not sure about the sturgeon pulse in 2004, and will have to get back to you, he said. Based on a 5.3 MAF water year, added Henriksen, we would be at the first tier – 800 kaf – of Libby flow augmentation in 2004. Libby is right on the cusp of refilling by June 30, she added.

At Dworshak, the current elevation is 1549 feet; the project is filling 1.5 feet per day, and, given the fact that the April 30 flood control elevation at that project is 1548 feet, we need to move some water, said Henriksen. Can we shift flood control to Grand Coulee? Wagner asked. That would not affect the April 30 flood control point, Henriksen replied – we were anticipating some flow augmentation from Dworshak during the month of April. Absent any further discussion, she said, we plan to increase Dworshak outflow some time later this month, although we have no specific plan or proposal at this time.

In response to a question from Litchfield, Henriksen said Dworshak might need to increase outflow to up to 12 Kcfs in order to maintain its current elevation through the end of the month. We plan to go to 9.5 Kcfs outflow – full powerhouse capacity – on Friday and continue that through the end of the month, Henriksen said; we would prefer to avoid spill at Dworshak if possible. The total April 12-June 30 flow augmentation volume (the volume above that needed to refill the project to elevation 1600) at Dworshak is currently estimated at 531 kaf (70% confidence of June 30 refill) to 877 kaf (30% confidence of refill). Wagner observed that this translates into about 350 Ksfd, or 35 days at 10 Kcfs – perhaps we can discuss that further at the April 21 TMT meeting. The April final water supply forecast at Dworshak, April-July, is 2.2 MAF, Henriksen added.

The group looked briefly at the most recent chinook and steelhead passage indices. At Lower Granite, said Wagner, yearling chinook indices have increased steadily to the 35,000 range; indices have been slower, but showing a similar trend, at Little Goose and Lower Monumental. There are good numbers at John Day and Bonneville as well. Steelhead indices at Lower Granite are on the order of 7,000 fish per day, he added, about one-fifth of the chinook passage, currently. With respect to adult passage, Wagner said passage has picked up considerably in recent days, but passage is still below the 10-year average for this date. The difference is that we're not seeing a strong five-year-old component in this year's run, Boyce observed.

7. Spring/Summer Update.

Henriksen said the final draft of the spring/summer update to the 2004 WMP should be available by next week. She briefly described some of the items that have been updated within the update, including water supply forecast data and planned research. Boyce said that, in his opinion, until the discussions on the Snake River spring spill and McNary 1% issues are completed, the spring/summer update cannot be finalized.

8. Next TMT Meeting date.

The next meeting of the Technical Management Team was set for Wednesday, April 21. Meeting summary prepared by Jeff Kuechle.

TMT Participant List

April 14, 2004

Name	Affiliation
Donna Silverberg	Facilitation Team
Tony Norris	USBR
Jim Litchfield	Montana
David Wills	USFWS
Russ Kiefer	IDFG
John Wellschlager	BPA
Cindy Henriksen	COE
Ron Boyce	ODFW
Mike O'Bryant	CBB
David Benner	FPC
Russ George	WMCI
Tim Heizenrater	PPM
Rudd Turner	COE
Laura Hamilton	COE
Jim Adams	COE
Robin Harkless	Facilitation Team
Nic Lane	BPA
Bruce MacKay	Consultant
Kevin Nordt	PGE
Paul Ocker	COE

Tina Lundell	COE
Steve Haeseker	USFWS
Dave Ryan	PPM
Tom Haymaker	PNGC
Lee Corum	PNUCC
Paul Wagner	NOAAF
Dan Bedbury	EWEB
Glenn Traeger	Avista
Chris Carlson	Grant County PUD
Mike Buchko	Powerex
Tom Le	PSE