

COLUMBIA RIVER REGIONAL FORUM

**TECHNICAL MANAGEMENT TEAM
MEETING NOTES**

April 2, 2003

**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.

Vernita Bar Update:

Chris Carlson, Grant County PUD, reported that operations are currently under the flow bands. April 25 is the expected date for end of emergence based on expected temperatures in the river (warmer temperatures earlier). Chris will continue to update TMT on Vernita Bar.

ACTION: Chris will provide a spreadsheet of end of emergence dates from past years and other data for TMT, which will be posted on the TMT web site.

Water Management Plan Update:

Scott Boyd reported that the next draft WMP will include the April final forecast. NOAA and the COE will discuss research (what information and how to incorporate it), spill volumes, and transport as they relate to the WMP.

ACTION: Paul Wagner will provide a one-page summary of research that is being conducted at each project that might impact operations this Spring/Summer.

Ron Boyce suggested that the spill table be included in the Spring/Summer update for easy reference.

Spill Start in the Snake River:

As requested, Cindy Henriksen provided a handout of the Q-Adjust results for the March and mid-April water supply forecasts and a sensitivity analysis chart. Concerns were raised about what factors should be considered in making decisions about initiating spill in the Snake River. There are differences in perspectives on regulated vs. unregulated and volume needed to fill reservoirs.

SOR 2003-5:

Dave Wills presented the SOR on behalf of the Salmon Managers. Because there is a very large run expected, especially of wild fish, the request is to begin Snake River spill on April 3 as described in the Biological Opinion and implement MOP operations (MOP +1) at Lower Granite to coincide with the start of spill.

NOTE: CRITFC would like to see a MOP operation. The Salmon Managers requested a MOP +1 operation at Lower Granite to be consistent with last year's RSW test. There will be further discussion of this issue as it relates to the RSW "non-test" days at the next TMT meeting.

Paul Wagner presented data on flows, fish numbers and transport vs. in-river survival numbers for previous years. Based on current information, the Salmon Managers felt that the SOR provides a "spread the risk" operation. Action agencies felt that the data is inconclusive to show that in-river passage would have a greater benefit than transport. The COE is concerned with the low in-river flows and water supply uncertainties. All agreed that this is a unique, "on the cusp" situation. There were also questions raised around financial effects. As a result, the issue was elevated to IT.

Question for IT: Is 85 kcfs a threshold/absolute on-off for spill? If not, what methodology should be used to determine when to begin spill?

Will the RSW test at Lower Granite be conducted if there is no spill, and for how long?

UPDATE: IT discussed the uniqueness of the year and very large out-migration numbers, flows "on the cusp" of the 85 kcfs BiOp. target, and data that may support the importance of in-river migration to boost survival rates early in the season. Given the data and discussions, IT agreed to implement spill according to criteria in the Fish Passage Plan and as specified in the SOR. TMT will revisit the issue on April 9 and consider the discussions from IT, the April final forecast and concerns raised at the last TMT meeting.

The RSW test question was also resolved at the IT meeting – COE and its contractors will conduct a forty day test.

Current System Conditions:

Fish status: Ron Boyce reported to the group that 15,000 Spring Chinook have been observed below Bonneville. High numbers of chum were observed last week – Oregon expressed appreciation for the Action Agencies' operation of the tailwater at Bonneville for chum. Dave Wills reported 35,000 observed chum at Hamilton Creek. An official end of emergence date will be shared with the group at the next TMT meeting.

Reservoir/Power system/Water supply: Libby is at elevation 2404' and continuing to draft. Hungry Horse is at 3509' and Grand Coulee is at 1283.7'. There will be 35 kaf out of Cascade from April 5-27. Dworshak is at 1581' and releasing 9600 kcfs. The Dworshak final shows an increase in inflows, with a potential April 10 elevation of 1535'.

The Dalles April early bird water supply forecast for Jan-Jul is 83.1 MAF (77% average); Grand Coulee Jan-Jul is 52.4 MAF (83%); and Lower Granite Apr-Jul is 16.9 MAF (78%).

Other: Flow for hatchery release was altered slightly due to transformer complications at Spring Creek. The COE communicated with USFWS on this, and met the minimum request.

SOR 2003-4:

A request was made to operate Dworshak to the highest elevation possible, while not exceeding 110% TDG, and to provide stable flows throughout the Spring. The COE will balance flood

control needs at Grand Coulee with the interests expressed in the SOR. The Action Agency plans to release 15 kcfs starting 4/3. TMT will revisit this issue at the next TMT meeting.

Next Meeting, April 9:

Agenda Items:

- Grand Coulee Shaping
- Update from IT
- Lower Granite RSW Operations
- Beginning of Lower River Spill

Meeting Minutes

1. Greeting and Introductions

The April 2 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. Water Management Plan Update, Finalization of Spring/Summer Update.

Scott Boyd said the spring/summer update will be finalized as soon as the April final forecast is received; he said he has not made any additional changes to the document since the last TMT meeting. Paul Wagner said he is continuing to discuss his research addendum to the WMP with the Corps and other action agencies; we're also discussing some other issues, such as spill volumes at various projects, which NMFS would like to see included, he said. There is a meeting tomorrow with our co-managers to discuss those spill volumes, Wagner said; there is also a transport issue we need to come to closure on before the 2003 WMP is finalized.

The group devoted a few minutes of discussion to what, exactly, Wagner would like to see added to the 2003 WMP; there was some disagreement over what it is appropriate to include in the annual WMP with respect to research. How to incorporate that information, and where, is the crux of the ongoing discussion, Henriksen noted. We think next year's operational plan is the logical home for the research addendum, Scott Bettin said. A few minor comments on the spring/summer update were offered at today's meeting; it was agreed to discuss this issue further at the next TMT meeting.

3. IDFG Transport Data.

It was agreed to address this topic at a future TMT meeting.

4. Start of Spill on the Snake River.

Henriksen reminded the group that, at the last TMT meeting, the Corps had been asked to develop an additional Q-Adjust run, shaping the current water supply forecast volume 59 different ways (based on the 59 runoff shapes in the historic record) to get a sense of what operations could be like in this particular water year. The new Q-Adjust run, dated March 24, was based on the March mid-month water supply forecast, she added. Henriksen noted that, according to the 2000 FCRPS BiOp, spill would be initiated at the Lower Snake projects only if seasonal average flows at Lower Granite are forecast to exceed 85 Kcfs.

She referred the group's attention to a document titled "Q Adjust Results, March Final vs. March Mid-Month" (available via hot-link from the TMT website), then spent a few minutes going through its contents. The bottom line, Henriksen said, is that based on the March final forecast (dated March 18), Q-Adjust tells us that the seasonal average flow at Lower Granite would be 71 Kcfs, approximately 10 Kcfs less than the water supply needed to initiate spill at the Lower Snake projects, based on the sliding scale the Corps uses to calculate the seasonal average flow. In the March 18 Q-Adjust run, the seasonal flow objective was met in none of the 59 water years modeled, Henriksen added. We then ran Q-Adjust using the March mid-month forecast, Henriksen said; this forecast showed an increase in projected runoff volume. In this March 24 run, April-June Lower Granite flows averaged 79 Kcfs, and the seasonal flow objectives were met in 4 out of the 59 years modeled.

Henriksen said the Corps had also run a sensitivity analysis on the Q-Adjust runs for March 18, March 24 and February 28. The group devoted a few minutes of discussion to what, exactly, this shows, as well as the question of whether the BiOp's Lower Snake spill trigger should be based on regulated or unregulated flows at Lower Granite. Bettin noted that the system is operated based on regulated flows; therefore, it makes sense to base the spill trigger decision on regulated flows. Wagner replied that, according to the historic record, an April-July Lower Granite runoff volume of 17 MAF will result in an unregulated seasonal average flow of 85 Kcfs at that project; we're very close to that volume in your current forecast, he said. Henriksen replied that some volume will also be needed to fill Dworshak from its April 30 flood control elevation -- about 400 KAF or 200 Ksf. That's at the heart of the debate over whether to use regulated or unregulated flows, Bettin said.

Wagner noted that the BiOp also provides for in-season adaptive management as new information comes to light; at our last meeting, he said, we heard from John Williams about the relative survival benefits of in-river migration vs. transportation. What I heard was that those relative benefits were a push, Bettin said. For some species, and at some periods during the migration season, Wagner replied -- for wild Snake River spring chinook, early in the season, in-river migration appears to provide a greater benefit than transportation.

The discussion returned to the Corps' sensitivity analysis; Henriksen noted that the River Forecast Center's March 24 STP run, initialized on current reservoir elevations and the most recent 10-day forecast, resulted in a 19.1 MAF April-July runoff volume and a seasonal average flow of 88.8 Kcfs at Lower Granite. However, the April early-bird water supply forecast at Lower Granite is 16.9 MAF, she said; the bottom line is that we are very close to the volume needed to trigger spill at the Lower Snake projects -- about 80 Kcfs as a seasonal average regulated flow at Lower Granite. Again, if we use the monthly time step computer models to

calculate projected regulated flow, the threshold we need to achieve to trigger spill is 81.2 Kcfs at Lower Granite, based on the Corps' sliding scale, she added.

Any sense of how the April final forecast will shake out, given the fact that it is snowing like crazy here in Lewiston at the moment? IDFG's Steve Pettit asked. I expect the April final to be at or above the April early-bird levels, Kyle Martin replied; CRITFC's longer-term forecast is for slightly above-average precipitation east of the Cascades during the month of April.

It all comes down to how literally you interpret the forecast data, said Wagner. The language in the BiOp is extremely literal, said Bettin – a seasonal average flow of 85 Kcfs at Lower Granite is an on-off switch. Here we are, right on the cusp, and the question is, what do we do? Silverberg said. I suggest we take it up during the discussion of the SORs (Agenda Item 6, below), Henriksen replied.

Henriksen also went briefly through the outputs from the April 1 STP model run, which shows expected regulated flow at Lower Granite, Priest Rapids, Bonneville and McNary. Based on this most recent run, the forecast unregulated volume at Lower Granite during the April-July period was 17.2 MAF, yielding an average regulated flow for the April 3-June 20 period of 82.6 Kcfs.

5. Current System Conditions.

Grant County PUD's Chris Carlson said he had developed an end-of-emergence estimate for this year's Hanford Reach fall chinook; based on the most recent water temperature data and projections, which include warmer-than-usual water temperatures for this time of year, the projected end of Hanford Reach fall chinook emergence is April 25. Carlson said the Hanford Reach fish protection operation started on February 28 this year; the Priest Rapids flow fluctuations bands are the same as they were in 2002: 20 Kcfs when Priest Rapids flows are in the 36 Kcfs-80 Kcfs range; 30 Kcfs when they are in the 81 Kcfs-100 Kcfs range, 40 Kcfs when they are in the 101 Kcfs-130 Kcfs range, 50 Kcfs when they are in the 131 Kcfs-170 Kcfs range and a 150 Kcfs hourly minimum when Priest Rapids flows exceed 170 Kcfs.

What does end of emergence mean operationally? Henriksen asked. At the end of emergence, Grant County PUD can go down to 36 Kcfs at Priest Rapids, our license minimum, Carlson replied. Will you re-evaluate the projected end-of-emergence date as more temperature unit data come in through the season? Henriksen asked. I'll provide an update at the next TMT meeting, Carlson replied, adding that he will email a summary of this year's Hanford Reach fish protection operation to Henriksen for posting to the TMT website.

The flow bands are absolute, or, say, 20 Kcfs +/-? Ron Boyce asked. We're trying to operate within the absolute 20 Kcfs/30 Kcfs/40 Kcfs/50 Kcfs flow band, Carlson replied. And how does the projected end of emergence date of April 25 compare to previous years? Boyce asked. Last year it was also April 25, Carlson replied; in 2001 it was May 10, in 2000, May 2. However, it has been as late as June 22 in recent years, he added. In response to another question, Carlson said his end of emergence calculation is based on the current and projected temperature regime in the river, as well as the end of fall chinook spawning, which occurred around Thanksgiving this year.

The status of the 2003 juvenile outmigration was covered under Agenda Item 6, below. Boyce added that more than 15,000 adult spring chinook passed Bonneville yesterday, which compares to a 10-year average of about 2,000 adults for this date. Overall, the run has been excellent so far this year.

With respect to chum, Boyce drew the group's attention to the Ives Island index seining information from the Fish Passage Center homepage; chum seining numbers are on the rise, and things are looking good, he said – emergence is right on track for this time of year. Wills said that large numbers of chum are also emerging from the Hamilton Springs/Hardy Creek spawning areas; emergence has likely just peaked from those systems. In response to a request from Bettin, Boyce said he will provide an updated end-of-emergence estimate at the April 16 TMT meeting.

Moving on to current system conditions, Henriksen said Libby is releasing 4 Kcfs today and is drafting slightly. Libby's current elevation of 2404 feet is well below its March 31 flood control elevation. Reclamation's Tony Norris said the current elevation at Hungry Horse is 3509.8 feet; the project has filled a foot in the past five days.

Henriksen reported that the April early-bird water supply forecast at Lower Granite is 16.9 MAF, 78% of average. At Dworshak, project elevation was 1581.2 this morning, 19 feet from full. Inflows to the project are about 15 Kcfs; Dworshak is releasing 9.6 Kcfs, which is full powerhouse capacity. Henriksen noted that the Corps has completed its April final water supply forecast for Dworshak; it shows an increase from 1.8 MAF to 2.4 MAF. When we re-calculate the April 30 flood control elevation at Dworshak, it is expected to be about 1535 feet, she added. Henriksen added that the April early-bird forecast at The Dalles is 83.1 MAF, 77% of average; at Grand Coulee, it is 52.4 MAF, 83% of average.

Norris said Grand Coulee was at elevation 1283.7 as of this morning. He added that 35 KAF of Cascade Reservoir storage, agreed to in last year's NMFS/Idaho deal, will begin heading down the Snake River at a rate of 1,000 cfs per day on April 5. The Cascade release will continue through April 27.

Bettin said the power system continues to operate smoothly. Henriksen added that there had been a power rejection due to a transformer problem at Dworshak on March 19, which meant it was only possible to release 4 Kcfs from Dworshak on the first night of the operation requested in SOR 2003-3; the problem was fixed in time to release the requested volume in support of the hatchery release on March 20.

6. New System Operational Requests.

On March 26, the action agencies received SOR 2003-4. This SOR, supported by USFWS, NMFS, IDFG, ODFW, the Nez Perce Tribe, the Shoshone-Bannock Tribe, WDFW and CRITFC, requests the following specific operations:

- Operate Dworshak Reservoir to the highest elevation possible. Given the below-average runoff volume, to the maximum extent possible, fill above local flood control elevation to save water for the spring juvenile salmonid outmigration. Utilize available space in other reservoirs to meet system flood control requirements.

Wills spent a few minutes going through the justification of this SOR, the full text of which is available via the TMT's Internet homepage. Please refer to this document for the full details of this SOR.

Henriksen noted that, given the revised water supply forecast at Dworshak, the Corps plans to increase project outflow to 15 Kcfs tomorrow, with the goal of running right up to the 110% Idaho TDG standard. That will give us more flow in April, consistent with the salmon managers' desire to shift as much Dworshak outflow into the early April period as possible, she said. We plan to continue to release 15 Kcfs from Dworshak through at least the end of April, she said; however, it will not be possible to draft the project to elevation 1535 feet by April 30. We may have to increase Dworshak outflow further later in April to avoid filling too much, even if that means exceeding the 110% TDG level, she said; that is at least a possibility. We will continue to revisit this operation as we go through the month, Henriksen added. Obviously the shape of the runoff in the Dworshak Basin will be very important this year, Wills said; any guesses as to whether or not the runoff will be early this year? Right now there's no way to know, Henriksen replied.

How, then, does this impact SOR 2003-4? Silverberg asked. Obviously we're hearing some new flow and water supply forecast numbers for Dworshak at today's meeting, Wills said; I'm not sure how much flexibility we have, operationally, at this point, but our overall goal is a smooth Dworshak operation headed toward June 30 refill at that project, rather than an operation that results in a severe pinch on Dworshak outflow in June while the project is refilling. So while the SOR's requested operation may not be explicitly met, its overall intent will be met? Silverberg asked. Sounds as though it will, Wills replied.

Henriksen added that Grand Coulee operations are being managed to produce a smoothly increasing flow at Priest Rapids through April. As we approach April 10, we'll need to have some conversations about what the salmon managers want to do, with respect to the Grand Coulee/Priest Rapids operation, Norris said -- for example, if you ask us to go to the 135 Kcfs BiOp flow right away on April 10, that's going to impact the volume of water available from Grand Coulee later in the season. We'll talk about that at FPAC and come prepared to discuss it at the next TMT meeting, said Wills.

On April 1, the action agencies received SOR 2003-5. This SOR, supported by USFWS, NMFS, IDFG, ODFW, WDFW the Nez Perce Tribe and CRITFC, requests the following specific operations:

- Implement spill at Lower Granite Dam as described in the 2000 Biological Opinion. Begin spill at Lower Granite Dam at 6 p.m. on April 3, 2003. Spill will then be phased in at the downriver projects at two-day intervals, initiating spill at

- Little Goose on April 5, at Lower Monumental on April 7 and at Ice Harbor Dam on April 9. This two-day implementation interval may be modified pending collection of juvenile passage information at these downriver passage sites.
- Implement MOP operations beginning at Lower Granite pool at MOP+1 on April 3 to coincide with the initiation of spill. MOP operations are then to be implemented sequentially at Little Goose on April 4, at Lower Monumental on April 5 and at Ice Harbor on April 6.

Wills went through the justification for this SOR, the full text of which, again, is hot-linked to the TMT website. Please refer to this document for full details of this SOR.

With respect to the current status of the smolt outmigration, Wills said the cumulative passage index for yearling chinook at Lower Granite is now 12,000 fish, more than double the average index numbers for the past five years. We've got steady, large numbers passing Lower Granite, indicating that we have large numbers of fish moving down through the system at this time, Wills said. In response to a question from Bettin, Pettit said IDFG expects more than twice as many wild spring chinook outmigrants in 2003 compared to 2002. These fish are the progeny of the huge 2001 Snake River chinook spawning year, expected to produce as many as 800,000 wild spring/summer chinook outmigrants.

Trap catches of wild fish have also been very high for this time of year, Boyce noted. The bottom line is that we think this is going to be a huge outmigration, and we're already seeing large numbers of outmigrating juveniles throughout the Snake River basin, he said. At this point in the season at Lower Granite in 2002, we had collected just over 3,000 yearling chinook, added Dave Hurson; this year, to date, we have collected more than 16,000, despite the fact that Lower Granite flows are lower than they were last year. Kyle Martin said for the record that CRITFC would prefer to see the Lower Snake projects operated at MOP, rather than MOP+1, in order to move the Snake River outmigrants down to the estuary as soon as possible.

Henriksen noted that the current flow at Lower Granite is in the 60 Kcfs-65 Kcfs range, and is expected to be about that level for the foreseeable future. Given that fact, and the fact that the BiOp specifies 85 Kcfs as the flow target that provides optimal in-river migratory conditions, she said, it's hard to see the logic of putting fish in the river at this point.

As we heard at the last TMT meeting, said Wagner, there does appear to be more benefit to leaving early-season migrants in the river than there is from transporting those fish. I'll admit that the differential SARs were not dramatic, Wagner said, but the data does show some benefit to in-river migration early in the season. Hurson replied that not everyone in the reason agrees with NOAA Fisheries' analysis of the in-river vs. transport survival data; much of that data shows that early-season transport is more beneficial than in-river migration for wild steelhead, for example. There is a wealth of other transport and adult recruitment data dating back 30 years that shows no demonstrable benefit from transportation, Boyce observed – that's why ODFW advocates spreading the risk. Our interpretation of all of this data is that it is better to leave as many fish as possible in the river while temperatures are cool and migratory conditions are good, he said. And it

should be pointed out that not everyone in the region shares the salmon managers' interpretation of those data, Henriksen said – we would really like to see a clear correlation between in-river flow and survival.

Basically what I'm hearing is that the survival data is a push, said Bettin – there may be a slight survival benefit to spilling and leaving the fish in the river, and there may be a slight benefit to transportation, depending on date, species and river conditions. Wills replied that the 85 Kcfs flow target is a seasonal average; the BiOp did not anticipate that flows at Lower Granite would be 85 Kcfs through the entire spring period. The group also discussed the cost differential between spill and transportation, with Boyce observing that the cost of spill is a policy, rather than a technical, issue, more appropriately addressed by the Implementation Team.

Silverberg suggested a short caucus break to allow the TMT participants to discuss ways to resolve this issue. When the discussion resumed, the group reviewed historic flow data showing average flows in the Lower Snake during the early April period. In 2000, flows at Lower Granite were right where we are now, about 60 Kcfs, on this date; in 2000, flows were in the 80 Kcfs range on this date. In both years, Lower Snake flows quickly increased through the first week of April until they exceeded 80 Kcfs. Henriksen noted that, in 2000, spill did not begin at the Lower Snake projects until April 10, when total flow at Lower Granite was 80 Kcfs. It's the fact that conditions are so different, between the 60 Kcfs we're seeing currently and the 80 Kcfs we saw in 2000, that gives us some concern, Henriksen said. However, the trigger for starting spill, in those previous years, was the status of the juvenile outmigration, said Margaret Filardo; as we've heard, we do have substantial numbers of juvenile migrants moving down through the Snake River system. The group also revisited the transport vs. in-river SAR data for the 2000 wild spring/summer chinook.

Ultimately, it was agreed to elevate this issue for resolution at tomorrow's IT meeting. The issue was framed as follows:

Is a seasonal average flow of 85 Kcfs at Lower Granite a threshold/absolute on-off switch for initiating spill at the Lower Snake projects? If not, what methodology should be used to determine when to begin spill? Also, at what river flow level should transportation be turned on? Also, given current water supply forecast information, should the spring 2003 RSW evaluation at Lower Granite be a 20-day or a 40-day test?

It was agreed to ask the IT to resolve this issue at its April 3 meeting. Bettin said he will draft a paragraph laying out the action agencies' concerns about SOR 2003-5.

With respect to the MOP operations included in SOR 2003-5, the action agencies agreed to implement the requested operation as written. And is the MOP+1 operation at Lower Granite only during the RSW test period, or the full season? Rudd Turner asked. We'll have to get back to you on that, Wagner replied. Also, do you want to operate the RSW on non-test days while spill is occurring at Lower Granite? Bettin asked. We'll talk about that at FPAC and have an answer for you next Wednesday, Boyce replied.

7. Recommended Operations.

Henriksen said Dworshak outflow will increase to 15 Kcfs tomorrow, up to the 110% TDG cap downstream. Libby will remain at minimum outflow for the foreseeable future; Ice Harbor will start spilling at 6 p.m. on April 9, with the exact spill volume to be determined in the next few days. At its meeting tomorrow, the IT will decide whether spill will begin at the other Lower Snake projects. If they decide in the affirmative, spill will begin tomorrow night at Lower Granite. Hungry Horse is releasing powerhouse minimum flow, Norris added.

8. Other.

There is an issue with the floating bulkhead at Little Goose Dam, said Don Faulkner of the Corps; it cannot be removed at the current pool elevation, and is currently tied up to the navigation guide wall. Project personnel would like to fill Little Goose pool for one day, starting tomorrow, in order to get that bulkhead removed, he said. It will likely take two days to empty the pool once it's full, Bettin said, noting that increased outflow from Dworshak beginning tomorrow should mean no net impact to Lower Snake flows.

9. Next TMT Meeting Date.

The next meeting of the Technical Management Team was set for 9 a.m. Wednesday, April 9; the purpose of this meeting will be to discuss Grand Coulee/Priest Rapids operations after April 10, as well as the IT's response to the Lower Snake spill operation. The next face-to-face TMT meeting was set for April 16. Meeting summary prepared by Jeff Kuechle.