

# Technical Management Team Meeting Notes

May 4, 2005  
Corps Reservoir Control Center  
Portland, OR

## 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.

### **Comments on 4/6/05 and 4/13/05 Facilitator Notes**

The following changes were made to the 4/6 notes, and will be posted on the TMT web page:

- Under the discussion of Dworshak, change comment about Oregon and Idaho to “directly challenged the COE on the validity of the flood control requirements at Dworshak”.
- Under the Dworshak discussion, change to the ‘project increased flows to available power house, with 2 units operating.’

Comments on the 4/13 facilitator notes should be sent to the facilitation team no later than 5/11; changes will be made and posted to the TMT web page.

### **Hanford Reach**

Russell Langshaw, Grant County PUD, reported on operations at Hanford Reach during the week of April 25- May 1. The week average flow was 112.3 kcfs. Russell will provide information on why the project did not consistently meet flows at this time. The project reached 800 temperature units on 4/30, and began weekend protection flows. The end of emergence is expected around May 13-15; some protection flows will be provided beyond that date. Russell will send information to Cindy Henriksen to share with TMT, and will give a report at the 5/18 TMT meeting.

### **Q Adjust/ESP**

Julie Ammann, COE, provided an overview of the Q Adjust and ESP models, to highlight the differences between the two models’ objectives, inputs and outputs.

*Q Adjust:* The inflow used in Q Adjust does not make assumptions about the shape of the inflow; the inflow is generated from a regression equation that includes snow pack, observed rain/runoff, and climate indicators. Q Adjust uses current water supply volumes, shaped 69 different ways

according to monthly historical flow shapes from 1929-1997. The inflow each year matches the historical shape of that year and the 2005 expected water supply forecast. Q Adjust tells us how flows could be shaped with the current water supply forecast.

*ESP*: Inputs a flow shape with current basin conditions and weather patterns to generate a response. ESP takes current conditions combined with 44 historical weather patterns to produce 44 sets of inflows. ESP tells us how runoff volumes could change with current basin conditions, and how that will impact the modeled operations.

ESP will be the modeling tool for operations in the future, but the COE has no plans to discontinue use of the Q Adjust model.

*Q Adjust model runs May 3, 2005*: Julie noted that the main drivers for this model run included: Grand Coulee tries to meet 130 kcfs in May while not drafting below 1240'. Refill GCL above 1285' if Priest Rapids flows are above 125 kcfs. Libby operations target full in June and a Tier 2 sturgeon pulse. The model indicated that there may not be as much water supply in June as forecasted, based on the last 10 days of inflow.

### **Dworshak ESP Inflows**

Randy Wortman, COE, provided the new 'whiskers' graph of the April 26-July 31 analysis, which is a day summary of the ESP runs presented earlier. The exceedance graph shows daily flows compared to monthly (historic) flows. TMT commented that these new graphs are helpful.

### **Dworshak Augmentation**

Three graphs of Dworshak augmentation using ESP graphs were presented. They showed 407 kaf available from April 1-June 30 for flow augmentation.

### **SOR 2005-9**

The salmon managers submitted SOR 2005-9, to increase outflows at Dworshak to full powerhouse capacity along with spill to the 110% TDG level in the tailrace for one week, targeting refill of Dworshak by June 30 to push juvenile migrating fish down the river. The SOR notes that further requests will be put forth as new information on fish numbers and water supply are available. In response to a question, the salmon managers said this operation would support wild and hatchery fish.

**ACTION**: NOAA will find out what the percentages of wild and hatchery fish are migrating, and report to TMT at the 5/18 meeting.

Dworshak outflows were currently at 5.3 kcfs. The action agencies agreed to increase outflows on the afternoon of 5/4 to 7.6 kcfs; then further increase the next morning (5/5 AM) to full powerhouse plus spill, roughly 14 kcfs. BPA supported the operation and noted that it is worth ~\$1 million for one week of spill. BPA understands that this operation is necessary for fish.

### **SOR 2005-10**

The salmon managers submitted SOR 2005-10, to increase flows at Grand Coulee to provide 135 kcfs at Priest Rapids, from May 4 (or as soon as possible) through May 31. Also, do not draft below 1240' and assure refill of Grand Coulee to 1280-1285' by late June. The action agencies had concerns that 1280' is not consistent with BiOp targets and suggested targeting the higher flows a week later. The BOR preferred to target Grand Coulee closer to 1290'. The salmon managers' intent with the request was to strike a balance between both objectives, to provide flows for spring migrants and store water for summer migrating fish, recognizing that both will be to a lesser degree than desired. The salmon managers were confident after looking at the Q Adjust model to move forward with 135 kcfs as soon as possible.

**ACTION:** TMT members agreed to a compromise given the interests expressed during the discussion. The action agencies will target a week average 125 kcfs for the rest of the week (through May 8); then on Monday operate to reach a weekly average of 135 kcfs, targeting a refill elevation of 1288' at Grand Coulee. TMT will revisit the operation during a conference call on Wednesday, May 11.

### **Operations Review**

*Chum* – Chum numbers are on the decline but newly emerging frye are still being observed. Emergence is very near completion. Ron Boyce, Oregon, will notify the COE as soon as possible when there is no longer a need to put a tailwater constraint at Bonneville to protect chum; currently there is more than adequate tailwater to protect the fish. **Update:** The following email was sent from the COE to TMT on 5/6: “Yesterday, RCC received word from Ron Boyce that no chum were caught at the Ives island site and therefore the tailwater operation for chum incubation flows has ended.”

*Start of Bonneville spill* – The action agencies implemented the salmon managers request to start Bonneville spill on 4/15.

*Ice Harbor spill* – SOR 2005-6 was submitted a request to piggyback the RSW test with the installation of transducers at Ice Harbor on 4/20. The COE will share information on this with TMT as soon as they receive it.

*SOR 2005-7* – The request was completed – the COE increased flows at Grand Coulee to begin providing 95-105 kcfs at Priest Rapids on 4/22.

*SOR 2005-8* – The request to flatten flows on the Lower Columbia was implemented due to an increase in flows. The salmon managers requested that, in the future, if there is not a TMT meeting scheduled, the action agencies provide feedback via email on their intentions for implementing requests put forward. The group was also reminded that every Wednesday is available for ‘emergency’ TMT meetings, even if a regular meeting is not scheduled.

*Reservoirs* – Libby is operating at 4 kcfs out, inflows have increased, and elevation is 2420'. The COE is awaiting final input from USFWS on sturgeon operations. Dworshak outflows have increased; the project is at elevation 1259.3' and will draft over the weekend (5/7-8). Grand Coulee is at 1254.2'; drum gate work will not be completed ahead of schedule. Hungry Horse is at 3546' and drafting 6-7 kcfs.

*Fish*—Lower Granite bypassed fish through the RSW to relieve congestion at the project. Adult return numbers are low; there is still a chance that there will be a late run this year.

*Power system* – CGS is starting to down-power and begin refueling.

*Water quality* – There are TDG exceedance issues at Camas/Washougal due to re-calibration of spill gates at Bonneville. There is a SYSTDG training scheduled for 5/12 at 9:00 AM at the COE; the Camas/Washougal issue will be discussed at that time, as well as at the WQT meeting scheduled from 1-4 pm that afternoon. The COE, given feedback from the WQT, is looking to de-activate the Warrendale gauge when chum emergence is completed.

**ACTION:** Dave Wills, USFWS, will provide chum redd analyses from this year to Jim Adams, COE.

### **Dworshak Local Flood Control Analysis**

Cathy Hlebechuk, COE, provided a handout with information from Walla Walla COE about local flood control at Dworshak. Walla Walla used the 'Remote Sensing SCA' website and 'SNOTEL Update' website, as well as did a helicopter snow flight on 4/22 to verify the snow covered areas percentage at Dworshak. Links to the websites were provided in the handout; it was noted that SNOTEL is updated weekly and provides on the ground data for the area. If there are additional questions/information requests about Dworshak local flood control, contact Cathy Hlebechuk. CRITFC requested information on the probability of a flood event in the area, given the snow cover.

A comment was made that this new information provided a learning experience and supports re-evaluating how we determine flood control. The SCT discussed a system flood control study that the COE is proposing to move forward with, upon approval by the region and Congress.

### **Water Supply Forecast**

The May mid-month January-April water supply forecast is up slightly from the April final. Libby is expecting to do a sturgeon pulse of 8 kcfs according to the forecast. The forecast at Libby has declined since January.

### **Water Management Plan Spring/Summer Update**

The final Spring/Summer update (May 3, 2005) includes the April final water supply forecast and resulting flood control operations; flow targets; and Q Adjust runs, ESP runs and other

graphics. The July final flow objectives may change as the season progresses. A suggestion was made to change Bonneville daytime spill objectives to '75' instead of '50-75' kcfs.

### **Flow Augmentation Volumes**

Flow augmentation volumes at Libby are 419 kaf, and 538 kaf at Hungry Horse.

**Studies:** This will be an on-going agenda item at future TMT meetings.

- Lower Monumental: Spill survival study at bays 7 and 8;
- Ice Harbor: RSW test;
- McNary: Studies on spill and also turbine test;
- John Day: 60% nighttime spill;
- The Dalles: 40% spill; sluiceway study underway at 8' pendant opening;
- Bonneville: Combined agency harassment of sea lions study today (5/4).

### **Next TMT Meeting, May 18, 9am-noon**

The next face-to-face meeting will be held on Wednesday, May 18. There will be a **conference call** on 5/11 to discuss Dworshak and Priest Rapids operations. An agenda for the 5/18 meeting will be posted to the TMT website prior to the meeting.

### **Actions from 5/4 Meeting**

- Correct 4/13 facilitator notes, send out to TMT – Facilitation Team
- Provide information to TMT about percentages of wild and hatchery spring migrating fish – Paul Wagner
- Provide chum analyses from this year to Jim Adams – Dave Wills

#### ***1. Greetings and Introductions.***

The May 4 meeting of the Technical Management Team was chaired by Cindy Henriksen and facilitated by Donna Silverberg. The following is a summary (not a verbatim transcript) of the topics discussed and decisions made at this meeting. Anyone with questions or comments about these notes should contact Henriksen at 503/808-3945.

#### ***2. TMT Minutes.***

No changes were offered to the recent TMT minutes at today's meeting; Silverberg asked that any comments be provided to her or to Robin Harkless by close of business Friday.

#### ***3. Hanford Reach Update.***

Russell Langshaw reported that, for the week ending May 1, the Priest Rapids flow band constraint ranged between 20 and 40 Kcfs; day-average Priest Rapids discharge ranged between 99.5 and 127.1 Kcfs. The flow bands were exceeded on April 25, April 26 and May 1; on the latter date, actual flows were 39.5 Kcfs, compared to the daily flow band of 20 Kcfs. Weekend protection flows started last weekend, with a band constraint of 20 Kcfs, he said.

Why are you having problems staying within the flow bands on a more consistent basis – isn't the turbine testing done? Paul Wagner asked. Yes, it is – I have asked our operations people for a more detailed explanation of the exceedences, Langshaw replied. My guess is that variable discharge coming into the project, potentially not matching the estimated flows, is to blame. In response to a request from Silverberg, Langshaw said he will provide a more detailed explanation to Henriksen once he hears back from Grant County's operations staff.

You're on the weekend operation now, with a weekend minimum flow? Wagner asked. Yes – we reached 800 temperature units last weekend, which bumps us up to a weekend minimum flow – rather than 65 Kcfs, we have to provide the Monday-Friday average flow of about 105 Kcfs, Langshaw said. And when will the Hanford Reach fish protection operation end? Larry Beck asked. It looks as though we will reach 1,000 temperature units some time on May 13, 14 or 15, Langshaw replied, at which point the 65 Kcfs minimum flow will end. But doesn't the operation continue for another 400 temperature units after that, which takes us to mid-June? Wagner asked. Correct, Langshaw replied.

#### **4. QADJUST, ESP Runs.**

Julie Ammann said she had developed a quick presentation on the differences between the QADJ and ESP/HYSSR models. In the simplest terms, ESP and QADJ are outputs from the same model, but start with different assumptions, she explained. Ammann touched on the following major topics:

§ Types of inflow forecasts – inflow hydrographs (have a definite “shape,” generated by a model) and volume forecasts (a single number with no assumptions about the “shape” of the flows, generated from a regression)

§ ESP inflows – current conditions (10-day weather forecast + observed conditions for April 1, 2005) combined with 44 historic weather patterns to produce 44 sets of inflows. Volumes may vary between the 44 years, but are all forecasts for 2005. Inflows only – no operational assumptions. Each hydrograph has a different volume associated with it – wet springs generate a different hydrograph than dry springs. The ESP run is based on current conditions – it assumes no water supply forecast volume as a starting-point. The goal is to generate an estimate of how many times, within the 44-year data set, the spring and summer flow targets will be met at each project.

§ QADJ flows – current water supply forecast volumes, shaped 69 different ways according to monthly historical flow shapes from 1929-1997. The inflow for each year matches the historical shape of that year and the 2005 expected WSF volume.

§ What do QADJ and ESP HYSSR tell us? QADJ tells us, with the current WSF, how flows could be shaped and how that shape will affect our modeled operations. ESP/HYSSR tells us, with current basin conditions, how runoff volume could change through the season, based on historical precipitation patterns.

The beauty of ESP is that it shows a range of conditions, said John Wellschlager – it gives you bookends for your current and future operations. Isn't it true that most of the volume gets laid down before April 1? Margaret Filardo asked. There is considerable variability in what happens, in terms of precipitation and temperature, after April 1, Ammann replied. It's true that we see the most variability in the runs in January and February, when most of the snowpack accumulation period is still in the future. However, there could still be a lot of accumulated precipitation after April 1.

The sense I'm getting is that QADJ is old-school, while ESP is new-school, said Wagner – are you transitioning away from QADJ? I think there are benefits to both, Ammann said. The Corps and the River Forecast Center are really pushing ESP now, but I think we'll continue to use both, she said. We have no plans to drop QADJ, added Henriksen – there is value to both approaches.

Ammann moved on to the most recent QADJ model results. According to QADJ, the current model run shows that refill at Libby, Hungry Horse and Dworshak is a virtual certainty; Grand Coulee refill would occur in 44 of the 69 historic water years. However, there is virtually no chance that Lower Granite or McNary flows will reach the spring and summer BiOp flow targets. Priest Rapids, on the other hand, is virtually certain to achieve its May and June flow objectives of 125-130 Kcfs.

The Corps' "Summary of May Early Bird 2005 QADJ Model Runs" memo also includes the following table showing the most recent estimates of period average outflows (in Kcfs) for 10 projects:

	April 16-30 (obs.)	May	June	July	Aug 1-15	Aug 16-31
LIB	4.0	11.2	17.5	21.5	19.6	16.5
HGH	7.2	5.3	5.4	5.8	5.4	4.2
GCL	82	116	108	117	102	98
PRD	95	133	129	126	107	101
DWR	5.4	7.1	5.0	10	10	9
BRN	12	13	11	8	9	9
LWG	45	61	54	31	24	22
MCN	147	191	175	150	128	121
TDA	143	191	168	146	127	121
BON	153	193	169	148	129	121

Moving on to the current ESP results, Ammann said Grand Coulee refill would occur by June 30 in only 15 of the 44 historic water years, so the ESP results are somewhat less optimistic than the QADJ results, at least for that basin.

Like the QADJ model results, the ESP run includes a table of forecast period flows for each project (in Kcfs):

	April 16-30 (obs)	May	June	July	August 1-15	August 16-31
LIB	4.0	10.8	12.9	15.5	17.2	17.2
HGH	7.2	5.0	4.2	5.5	5.6	4.4
GCL	82	116	109	126	115	110

PRD	95	132	121	131	118	112
DWR	5.4	11.3	4.2	10.1	10.1	9.4
BRN	12	12	10	8	10	11
LWG	45	75	54	29	26	25
MCN	147	208	178	163	147	140
TDA	143	207	172	161	146	140
BON	153	209	174	163	147	141

### **5. Dworshak ESP Inflows.**

Randy Wortman said that, according to the box and whiskers plot of ESP-generated Dworshak inflows, the mean of the daily flows for the 43 historic water years would peak at about 11 Kcfs in mid-May, then gradually tail off to about 2 Kcfs through June and July.

Wortman moved on to a plot showing Dworshak inflows – ESP daily flows vs. historic monthly flows. This shows the monthly average extreme maximum and minimum inflows, as well as the means of the historic monthly flows (inflow over time), he explained. He then touched on the ESP-generated expected flow augmentation volumes at Dworshak, the volume available over that needed to refill the project to elevation 1600 by June 30. At a 50% probability, that volume is now estimated to be 407 kaf; at a 70% probability, the available volume would be 217 kaf.

Wortman then moved on to a graph titled “Dworshak Augmentation Volumes – ESP Inflows and 1 April Water Supply Forecast.” What this shows is that, again, with the expected water supply forecast volume, the flow augmentation available would be 407 kaf between now and June 30, at a 50% confidence, Wortman said. In response to an earlier question, Wortman noted that this graph illustrates the potential variability in post-April 1 precipitation, based on the 44-year historic record. There was general TMT agreement that this set of graphs is an improvement over the old set of graphs. Again, however, this is only showing the forecast volume, and tells us nothing about the shape of the runoff, Wortman added.

### **6. Dworshak Available Augmentation.**

This topic was covered during the previous agenda item.

### **7. Dworshak Augmentation Request (SOR 2005-9)**

On May 3, the action agencies received SOR 2005-9. This SOR, supported by USFWS, IDFG, ODFW, NOAA Fisheries, CRITFC, the Nez Perce Tribe and the Shoshone-Bannock Tribes, requests the following specific operations:

- § Increase outflows at Dworshak Dam to full powerhouse capacity along with spill to the 110% gas cap in the Dworshak tailrace for a period of one week (approximately 14 Kcfs average flow). We estimate this operation will use 174 kaf of water from Dworshak reservoir, above the 1.5 Kcfs minimum outflow.
- § Assure refill of Dworshak reservoir by June 30
- § This request is for the coming week; anticipate new requests as new information based on fish numbers and water supply forecast becomes available.

The reason for this request is a sharp increase in the wild smolt passage indices we've seen in recent days, said David Wills; we propose doing this operation for one week, at which point we'll take another look at the passage index numbers and re-evaluate it. In response to a question from Wellschlager, Russ Kiefer said the salmon managers' feeling is that the wild fish are more responsive to in-river conditions, and know when to go, essentially. Boyce added that both hatchery and wild fish numbers are peaking right now at Lower Granite; it was necessary to spill last week at Lower Granite, to avoid exceeding the barge loading facility capacity. We have some volume available at Dworshak, and we would like to put that water on the fish now, he said.

After a few minutes of discussion, Henriksen said the Corps agrees that there is some volume available at Dworshak. The Corps intends to increase the flow to comply with this SOR, but we don't have an exact schedule yet as to when, exactly, that will happen, she said.

After a brief caucus break, Henriksen said that, at Dworshak, the current outflow is 5.3 Kcfs; this afternoon, we will increase Dworshak outflow to 7.6 Kcfs. We will then increase Dworshak outflow by 6 or 7 am tomorrow to full powerhouse capacity plus spill – about 14 Kcfs. Bonneville supports this, but in the obligation to our ratepayers, I need to note that a week's spill at Dworshak is worth about \$1 million, said Wellschlager.

#### **8. Flow Objectives at Priest Rapids (SOR 2005-10)**

On May 3, the action agencies received SOR 2005-10. This SOR, supported by USFWS, IDFG, ODFW, NOAA Fisheries, CRITFC, the Nez Perce Tribe and the Shoshone-Bannock Tribes, requests the following specific operations:

§ Increase flows at Grand Coulee Dam to provide 135 Kcfs at Priest Rapids Dam beginning May 4 and continue through the month of May. Do not draft Grand Coulee below elevation 1240, and assure refill to elevation 1280-1285 feet by late June.

Wills explained that, according to the numbers that were available yesterday, this operation appears doable; this is our suggestion for the Mid-Columbia, he said. I'm a bit surprised to see you asking for 135 Kcfs so soon, said Wellschlager, based on the historic steelhead numbers I've seen – it seems like steelhead numbers don't tend to peak until late May. I'm just a little surprised you don't want to wait until next week, he said. We're also concerned that 1280 would be an acceptable refill target at Grand Coulee, he said – that goes against the BiOp, which we're required to implement. Even elevation 1285 would be pushing it, he added.

Tony Norris noted that, while flows are coming up at Grand Coulee, Reclamation would prefer to target an average flow of 130 Kcfs at Priest Rapids this week, while keeping Grand Coulee elevation closer to 1255. I think we'll have a lot better chance of refilling Grand Coulee by late June if we keep the flow target at Priest Rapids a bit lower, at least for the immediate period, he said. I also thought I had heard that the salmon managers would prefer to avoid a sharp drop-off in Grand Coulee/Priest Rapids outflow in late June, added Wellschlager – that will be more difficult to provide if we bump up Priest Rapids to 135 Kcfs starting tomorrow.

Wagner said that, from the salmon managers' perspective, historic steelhead passage indices, combined with 2005 year-to-date indices, show that passage is now entering "prime time" at Rock Island. The comfort zone increased for me when I saw the most recent QADJ and ESP runs, which showed a May average flow of 132 and 133 Kcfs, respectively, at Priest Rapids, he said. In response to a comment from Boyce, Wellschlager said that, as requested by the salmon managers last week, the action agencies have picked up flows throughout the system. Historically, the peak of the Mid-Columbia steelhead run occurs in May, said Boyce – we're looking forward to when those fish are going to be migrating in significant numbers. We're also concerned with getting the Grand Coulee elevation as high as possible for summer flow augmentation, he said, but based on the most recent forecast numbers, it appears to be

possible to do what we're requesting, and still achieve the 1285 refill target at Grand Coulee we've been targeting all along.

It doesn't appear that we can achieve the 220 Kcfs spring flow target at McNary, while still achieving Grand Coulee refill to 1290 this year, said Russ Kiefer – which objective does NMFS feel is more important? The 2004 BiOp says that a small reduction in spring flows is acceptable as long as refill is achieved, Wagner replied – there is a slight preference for Grand Coulee's importance for summer flow augmentation. That's why we're proposing a week-average target closer to 130 Kcfs for the next week, while keeping Grand Coulee around 1255, said Norris – we think our chances of refill will be significantly higher if we have that flexibility.

After a brief caucus break, Wills said the salmon managers had re-examined the model and fish passage information, and are still comfortable with increasing Priest Rapids outflow to 135 Kcfs at this time, even if it isn't quite possible to refill Grand Coulee to 1290 this year. We feel that's a good compromise, given the water year and the operations to date, he said. In response to a question from Wellschlager, Wills said the salmon managers do not expect the action agencies to increase Grand Coulee outflow to achieve a week-average flow of 135 Kcfs this week – they simply want to increase Priest Rapids outflow to 135 Kcfs as soon as possible.

Kiefer added that the critical period, in terms of providing flow to benefit fish, is the point at which the passage index curve begins to increase steeply – not when peak numbers begin arriving at Rock Island. This is our opportunity to provide maximum biological benefit, in other words, he said. Wellschlager reiterated that the action agencies have increased flows in the past week.

Do you still want to see a week-average flow of 135 Kcfs for this week? Wellschlager asked. We would like to see you get to a day-average flow of 135 Kcfs as soon as possible, and hold it at that level, Boyce replied. Henriksen noted that the Hanford Reach Agreement also comes into play in this equation; the weekend minimum flow is set by the previous weekly flows, she said. As water managers, she said, we're looking at the next Monday-Sunday period. You're saying the most reasonable time to begin this operation, in order to achieve the 135 Kcfs average, is this Monday? Wills asked. Correct, Henriksen replied. And again, said Norris, if we can target 130 Kcfs minimum outflow at Priest Rapids next week, we think that will make a significant difference in Grand Coulee refill – the small reduction we're requesting, compared to the flow requested in your SOR, is going to help us get closer to 1288 by June 30.

The problem is that, as a seasonal average, we're going to be 20-30 Kcfs below the spring seasonal target of 135 Kcfs at Priest Rapids, even if our requested operation is implemented, said Boyce. We understand that, but flow targets aren't always achievable, said Norris – everything that comes into Lake Roosevelt will eventually come out this summer. We would like your support for keeping Lake Roosevelt at 1255 through next week, with a minimum Priest Rapids outflow of 130 Kcfs. That extra 3-4 feet in Lake Roosevelt could make a big difference in summer flows, while the operation we're requesting will produce a relatively small difference in seasonal-average flows at Priest Rapids. We could also implement the salmon managers' requested operation, as requested, for a week, and check in next week to see whether that is causing Grand Coulee to draft, said Wagner.

After a few minutes of further discussion, the salmon managers reiterated that, in their view, the operation proposed in SOR 2005-10 is a reasonable compromise, given the water year, Mid-Columbia flows to date and the impact of the drum gate maintenance operations at Grand Coulee. Ultimately, Norris suggested a compromise: finish the week by targeting a week-average flow of 125 Kcfs at Priest Rapids, and begin targeting 135 Kcfs as a weekly average beginning Monday, May 9. He added that the action agencies would prefer to target refill to elevation 1288, rather than elevation 1285, at Grand Coulee in 2005. After a brief discussion, no salmon manager objections were raised to Norris' proposed operation.

## **9. Operations Review.**

Boyce said that the chum seine catch to date is 1,895; catches have tailed off substantially in the past week. We're still seeing newly-emerging fry, he said, but chum emergence is near completion. We're pleased that tailwater elevations have increased substantially, so TDG from the Bonneville spill is not a concern, he added. Henriksen noted that, based on historic data, the 98% emergence point generally occurs in late April. Historically, we're close to that point, but you always see stragglers well into May, said Boyce. The bottom line is that chum emergence is now near its end-point, he said.

Henriksen noted that, sooner or later, the action agencies would like to lift the 11.5-foot minimum tailwater restriction at Bonneville. If maintaining the tailwater elevation is not a problem, as it doesn't appear to be at this time, I would prefer to extend that protection as long as we're still seeing newly-emerging chum, Boyce replied. Wellschlagler said he is concerned about setting a precedent; it doesn't seem reasonable to keep that restriction in place for just a few stragglers. Still, if flows at Bonneville are 190 Kcfs, what's the problem? Boyce asked. It's a specific constraint at Bonneville, one among a large stack, said Wellschlagler – we'd like to take this one out of the pile. After a few minutes of further discussion, it was agreed that the salmon managers will let the Corps know as soon as possible – perhaps as soon as the end of today's meeting -- when the 11.5-foot tailwater restriction can be removed.

Moving on to the start of spill at Bonneville Dam, Henriksen noted that spill started as per the request from the salmon managers on April 15. Spill was increased to UPA levels – 75 Kcfs during the day, up to the gas cap at night – on April 19. Next, Wills touched on SOR 2005-6, which covered spill operations at Ice Harbor Dam. Henriksen noted that this request primarily covers coordination issues, and a request for timely information by the salmon managers; we're trying to get that information out to the salmon managers as soon as we receive it, she said, so this SOR, too, has been implemented. With respect to SOR 2005-7, said Wills, that is already done.

Moving on to SOR 2005-8, covering flow shaping in the Lower Columbia, Wills said this SOR requests the flattest possible flows in the Lower Columbia to facilitate fish passage. Wellschlagler noted that Mother Nature provided some help, and this SOR has been implemented, or even exceeded. Kiefer said that, in the future, it would be helpful if, when SORs are submitted during the weeks between TMT meetings, the action agencies can keep the salmon managers in the loop, perhaps via email, about the action agencies' response.

With respect to current reservoir operations, Henriksen said Libby is releasing 4 Kcfs; inflows are increasing, and the current elevation is 2420 and increasing. At Dworshak, the current elevation is so high – 1593 feet -- that outflow is being increased. With the increased outflow, the project will not be drafting, but the refill will be slowed. Grand Coulee is at 1254.2 feet and filling very slightly, currently, said Norris; Hungry Horse is releasing about 6 Kcfs and is at 3546 feet, currently. The drum gate work at Grand Coulee is still scheduled for completion by May 14 or 15.

Moving on to fish, Wagner said the smolt outmigration is beginning to peak. Things are picking up at the Columbia River projects as well. Adult passage is still below expectations; we're still hoping for a late run. Counts are running just under 2,000 fish per day at Bonneville, down from 4,000 last week, he said; however, there is often a double peak. That's what we're hoping for this year, he said, although the seasonal projection has been ratcheted downward significantly. Kyle Martin said the tribes' spring ceremonial and subsistence fishery will not meet its targets this year. The total count to date is about 38,000 fish, added Wagner; the optimistic seasonal projection is now 80-100,000 fish, down from a pre-season prediction of 250,000+.

Wellschlagler said there are no power system problems to report at this time; CGS is starting to downpower later this week, for its biennial refueling. With respect to water quality, Jim Adams reported that TDG readings at the Camas/Washougal station have been exceeding the state standard for the past few days; they reached 117% yesterday. In response to a comment from Margaret Filardo, Adams said

the Camas/Washougal gauge is representative of TDG levels in the Bonneville tailrace. Adams added that part of the problem is high TDG levels coming down through the Bonneville forebay from The Dalles. The Warrendale gauge will be pulled as soon as the chum emergence is complete, he added.

#### **10. Dworshak Local Flood Control Analysis.**

Cathy Hlebechuk drew the TMT's attention to a handout (available via hot-link from today's agenda on the TMT homepage) describing the Corps' snow-covered area analysis. She noted that, normally, Dworshak's system, local or calculated flood control refill curves guide operations at that project. However, this year, because the pre-season water supply forecast was so low, the Corps went to its snow-covered area/probable maximum flood control constraint to dictate operations during the refill period only. Under this analysis, if 100% of the area around the reservoir is covered by snow, based on satellite data, the Corps is required to reserve 700 kaf of space in Dworshak by April 15 (elevation 1558.2); if 60% of the area is snow-covered, 385 kaf of space is required (elevation 1578.4).

She noted that the Corps did a recent helicopter overflight to verify the satellite imaging data; Sno-Tel sites also provide data on the snow-water equivalent in the area. That was the basis of our concern, said Boyce – that you were relying only on the satellite imaging, without verifying the on-the-ground snow-water equivalent data. Kiefer said that, in Idaho's view, the Corps may need to update the way it calculates flood control at Dworshak, based on snow-covered area, given the fact that the methodology has not been updated since the 1960s. This seems to be awfully dated, Bob Heinith agreed. If the Corps does move out on a system flood control study, that will certainly be a part of that, said Henriksen. Any chance the Corps could do some work on this issue, without waiting for the full system study? Heinith asked. We have been using our ESP model with the National Weather Service data to avoid fill and spill at Dworshak, noted Ammann.

#### **11. Water Supply Forecast.**

Henriksen said that, according to the May early-bird forecast, the water supply increased slightly compared to the April final. The main issue of interest is that, at Libby, we're still expecting an 800 kaf sturgeon operation, but the seasonal flow objectives remain at the low end of the scale at Lower Granite and McNary.

Moving on to the deterioration of Libby's April-August water supply forecast, Henriksen noted that the forecast is now 5.4 MAF.

#### **12. Final Spring/Summer Update.**

Henriksen said the final spring/summer update has now been posted to the TMT website; it has been updated to reflect the April final water supply forecast, and also includes all of the appendices. The only thing that may change is that we'll be looking at the July final water supply forecast to update our summer flow projections, she said. One comment has been received from Oregon, Henriksen added; this minor change will be added to future editions of the spring/summer update.

#### **13. Flow Augmentation Volumes at Headwater Reservoirs.**

Henriksen said that, at Libby, based on the most recent forecast data, a total of 419 kaf of flow augmentation water over and above the volume needed for refill and the sturgeon pulse will be available between now and June 30, assuming a 50% probability of refill (246 kaf assuming a 70% probability). At Hungry Horse, the volume available for flow augmentation is projected to be 538 kaf, assuming 50% probability of refill (441 kaf assuming a 70% probability).

#### **14. Other.**

Beck noted that the Lower Monumental balloon-tag survival study through bays 7 and 8 is now underway. Other tests are underway at Ice Harbor, McNary, John Day, The Dalles and Bonneville (combined agency harassment of the sea lions). Henriksen noted that the spill opening at bays 3-6 at The Dalles has now been changed from 6 feet to 8 feet.

**15. Next TMT Meeting Date.**

The next meeting of the Technical management Team was set for Wednesday, May 18. There will be a TMT conference call at 9 am on May 11. Meeting summary prepared by Jeff Kuechle.

**TMT Participant List  
May 4, 2005**

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Russ Kiefer	IDFG
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Tony Norris	USBR
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Larry Beck	COE
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