

# **COLUMBIA RIVER REGIONAL FORUM**

## **TECHNICAL MANAGEMENT TEAM**

April 22, 2009 Meeting

### **FACILITATOR'S SUMMARY NOTES ON FUTURE ACTIONS**

Facilitator: Robin Gumpert

The following notes are a summary of issues that are intended to point out future actions or issues that may need further discussion at upcoming meetings. These notes are not intended to be the "record" of the meeting, only a reminder for TMT members.

#### **Review of Minutes/Agenda**

A change was made to the 4/8 Facilitator Notes to clarify the Bonneville April Spring Creek hatchery release operation; under Dworshak Operations, Steve Hall clarified that the COE would pursue a variance from its mid-month flood control target due to the significant change in forecast expected, and that discharges of 5-6 kcfs were expected during refill (May/June timeframe).

With the above changes, the April 1 and 8 Facilitator Notes and Official Meeting Minutes were finalized.

#### **Hanford Reach Update**

Russell Langshaw, Grant County PUD, reported that protection flows began on 4/2 and the past week saw one exceedance on 4/14 due to internal coordination issues and higher than anticipated inflows. He said that the PUD will be working to improve internal coordination, and, in response to a question, suggested that there was no juvenile monitoring happening this year. 680 temperature units from the end of spawning, he expected to get to 800 temperature units and trigger weekend protection flow operations in 3-4 weeks. Russell will continue to share updates with TMT as the season progresses.

#### **Chief Joseph Spill Test**

Lynn Melder, Seattle District COE, reported on a spill test scheduled at Chief Joe to measure total dissolved gas concentrations resulting from spilling over the newly installed flow deflectors to determine the most efficient pattern for minimizing TDG in the Columbia River. as part of a broader gas abatement project. The test is scheduled to begin on 4/28, duration of 4 days with 12 spill events throughout the four days. Lynn shared links with the specifics of the spill test and said that gas levels would likely increase and that coordination with all appropriate regional partners had occurred and was on-going. Partners included NOAA, BPA, BOR, Mid-Columbia PUDs, Colville Tribes, WDOE and USFWS. She noted that water will be provided from Grand Coulee and Chief Joseph to conduct the test (John Roache, BOR, added that Grand Coulee's drawdown target for Coulee April 30 flood control would be delayed by two days to allow for more flexibility for this test). It was also noted that the COE is doing the study at this time to take advantage of the extra water already traveling through the system. Additional monitoring will be done concurrent with the spill test to look at extra debris

and erosion in the stilling basin that may have impacts to dam safety, and impacts to the hatchery entrance. The COE will change the spill cap limits to “0” for Chief Joe and Grand Coulee on the spill priority list, but the projects will not move on the priority list. It was suggested that a footnote be added indicating the reason for the change.

### **Dworshak Operations**

Steve Hall, Walla Walla District COE, shared graphs depicting inflow forecasts and a hydrograph that he said was typical for this time of year at this project. He also included two alternative scenarios for operating Dworshak. The first scenario would reduce outflows to full powerhouse on 4/26 to allow for more water during the refill period, and showed an average discharge of 6 kcfs through the refill period. The second scenario would hold the project at ~15 kcfs through 4/30 and flows would be around 5 kcfs through the refill period. From a refill and flood control perspective, the two scenarios were not substantially different. He asked the salmon managers to consider their preference. After a caucus, the salmon managers recommended that if flows at Lower Granite were above 100 kcfs (as they were forecasted to be), reduce to full powerhouse on 4/26; if not, stay at ~15 kcfs through the end of April. The salmon managers preferred to save any water in excess of 100 kcfs for later in the season.

**Action/Next Steps:** The COE planned to use the 4/23 outflow model to determine Lower Granite flows and set up the operation according to the recommendation, with the caveat that if inflows came in dramatically higher than anticipated (greater than 22 kcfs) causing refill to occur too quickly, the COE would need to maintain maximum discharges at Dworshak. TMT will revisit this issue next week (4/29) to discuss conditions, operations, the latest forecasting model with accurate Brownlee discharges and recommendations for shaping flows in early May.

### **The Dalles Spillwall Construction Update and Planning**

Pat Duyck, Project Manager for The Dalles spillwall construction, thanked TMT for their continued support of the project, and expressed his hope that the field trip held in February was useful. He reported that construction for season 1 was completed; although the length of wall fell short of its originally scheduled distance by about 80 feet, spill did begin on time. Construction of the remaining distance (plus the 80 feet not completed this year) for last season will need to be folded into plans for the upcoming season. The contractor is in the process of setting plans for next season using lessons learned from season 1, in coordination with the COE. Duyck noted that they are exploring some engineering alternatives to help expedite the process without compromising the integrity of the product. In-water work will likely begin on September 8 (this new, earlier date was coordinated and cleared by NOAA) and will require minimum tailwater elevations of 76.5 feet during work hours and 76.0 feet at night/off hours at The Dalles. In November, additional work will be done that may involve double shifts to address a tight schedule. Pat emphasized to TMT that the contractor and the COE will do their best to provide as much operational flexibility as possible to Bonneville during the chum spawning season. The forebay elevations at Bonneville would likely be around 75.5-77 feet given the predicted elevation at The Dalles tailwater.

TMT began preliminary discussions about how they might best manage chum operations given the information shared today. Some ideas that came forward (but no decisions) included: providing a greater operating range at Bonneville to give more flexibility to meet expectations, and reserving the 18 allowed exceedance days to operate outside the operating range at Bonneville for that time period. The salmon managers said they would discuss ideas to manage chum from a biological perspective given the expected constraints, and asked the action agencies to do the same from an operations perspective.

**Action/Next Steps:** Pat will work with Jim Adams to update TMT once the plans are more finalized and the specific constraints are known (if different than what was presented today); TMT members will discuss options well in advance of the beginning of the chum spawning season to get ahead of and manage expectations around operations for this year. They tentatively planned to revisit in June and again in August. Tony Norris, BPA, reminded everyone that the unique weather conditions and associated river flow into the Bonneville pool and the lower river at that time will be an important unknown factor outside their control, and that those conditions will play a large role in directing management of the operation. Pat will join TMT during an August meeting to provide an update prior to the start of construction work.

### **Spring Creek May Release**

Dave Wills, USFWS, provided a quick update that the next Spring Creek release, of 4.75 million fish, was scheduled for May 4 and that the USFWS would work with BPA and the COE to set up an operation similar to that for the April release.

### **Transportation Operations**

Dan Feil, COE, reported that per the Spring FOP, transportation on the Lower Snake should begin between April 20 and May 1. He shared the steelhead passage index indicating that steelhead numbers were ramping up earlier than in recent past years. Chinook were tracking closely but slightly lower than past years. He noted that the barge and tug operators need three days' notice to begin operations. Paul Wagner, on behalf of FPAC, said that given good flow and temperature conditions, the salmon managers recommended leaving the fish in-river until May 1. This recommendation was consistent with the ISAB's and would provide additional information for future decision-making. In terms of how to stagger the start of transport at each of the projects, the salmon managers needed to have further discussions but said they were leaning toward a more condensed timeframe this year.

**Action/Next Steps:** The COE will notify the tug and barge operators to begin transportation operations at Lower Granite on May 1. TMT will revisit the staggering schedule at the April 29 TMT conference call. It was confirmed that Montana, Idaho, NOAA, CRITFC, BPA and the BOR all concurred with the recommended plan for start of transportation.

### **Operations Review**

Reservoirs: John Roache reported on BOR projects: Grand Coulee was at elevation 1266.3 feet and expecting a maximum flood control elevation of 1257.7 feet on May 2 (two day delay to accommodate the Chief Joe spill test). Hungry Horse was at elevation 3513.49 feet, minimum outflows of 900 cfs and inflows around 8 kcfs. The project would operate to meet VARQ on May 1 with discharges estimated at around 6 kcfs. Jim Adams reported on COE projects: Libby was at elevation 2403.39 feet with 4 kcfs out and 6.9 kcfs in. Albeni Falls was at elevation 2053.83 feet. Dworshak was at elevation 1525 feet with 14.8 kcfs out and 15.9 kcfs in. 7-day average inflows were: 87.8 kcfs at Lower Granite, 241 kcfs at McNary and 245 kcfs at Bonneville. It was noted that the McNary spring objective was 228 kcfs and the Lower Granite objective is 100 kcfs.

Little Goose is planning a full powerhouse outage on April 29-30 to reconnect Unit 6. It will involve increasing spill and possibly exceeding MOP. Powerhouse discharge operations will consist of one unit being operated at 5 kcfs (speed/no load and the remaining flow in the river will be spilled up to a level that would not exceed 125% TDG). Russ Kiefer stated Idaho's preference for exceeding MOP rather than 125% TDG, which the COE agreed was the priority. Research at Lower Monumental on 4/28 will have the project alternating spill patterns; Ice Harbor will go to alternating between 30% and 45 kcfs Day/Spill Cap Night; and John Day will be alternating between 30% and 40%. BPA requested an official end of chum emergence declaration to remove the 11.5 feet tailwater restriction at the project; the salmon managers declared the end of chum emergence.

Fish: Paul Wagner, NOAA, reported that adult counts had reached about 1,000/day at Bonneville. Juveniles were in the 10,000 range at Lower Granite. Steelhead numbers were in the 100,000 range at Lower Granite. Subyearling chinook peaked at 871,000. Russ Kiefer, Idaho, noted that the sockeye counts were not from the Stanley Basin but rather were likely kokanee. His agency has offered to test any of the mortalities that come through to verify this. **Action:** Dan Feil said he would pass this offer on to the Walla Walla District. Adult chinook numbers were well below the 10 year average, according to DART. River flow was at or above the 10 year average for outflows at Lower Granite and temperature was approaching the 10 year average at Bonneville. TDG matched the 10 year average at Lower Granite and was higher at Ice Harbor.

Power System: *Nothing to report at this time.*

Water Quality: Jim Adams reported on TDG exceedances at the Ice Harbor forebay and said it could be due to the increase in temperatures. Russ Kiefer requested that the COE wait to make any spill cap changes until today's TDG results were in, considering travel time to see changes made from an upstream project. Bonneville forebay TDG had increased and to address this, the COE lowered the spill cap at Bonneville.

Other: The Idaho Fish and Game email addresses have changed. Russ Kiefer provided his new contact address: [russ.kiefer@idfg.idaho.gov](mailto:russ.kiefer@idfg.idaho.gov).

**Next TMT Meeting:** April 29 Conference Call

Agenda items include:

- Dworshak Operations
- Transportation Operations: Stagger schedule

**Columbia River Regional Forum  
Technical Management Team Meeting  
April 22, 2009**

**1. Introduction**

Today's TMT meeting was chaired by Jim Adams (COE) and facilitated by Robin Gumpert (DS Consulting), with representatives of COE, NOAA, BPA, USFWS, BOR, CRITFC, Idaho, Montana, and others participating. The following is a summary (not a verbatim transcript) of the topics discussed and decisions made at the meeting. Anyone with questions or comments about these notes should provide them to the TMT chair or bring them to the next meeting.

**2. Review Meeting Minutes for April 1 and 8, 2009**

April 1 – There were no comments on the facilitator's notes or official meeting minutes, so both were deemed final.

April 8 – There were two changes to the facilitator's notes. Under Spring Creek Hatchery Release, Dave Wills (USFWS) clarified the description of the Bonneville operation for the April release to say that the lower end of 1% operation occurred at the B2 powerhouse only. Under Dworshak Operations, Steve Hall (COE) clarified that the COE is filing for a variance from the mid-April, not the end of April, flood control target due to significant changes in the forecast. There were no changes to the April 8 official minutes.

**3. Hanford Reach Update**

Grant County PUD began protection flows on April 2, Russell Langshaw reported. For the first week or so, discharges were on the verge of minimum flows, but inflows have picked up since then. From April 2-19, mean daily discharges ranged from 62-142 kcfs. Minimums ranged from 61-130 kcfs, and maximums, 63-157 kcfs. Daily deltas ranged from 2-83 kcfs. At 680 temperature units from the end of spawning, the 2009 operation is just beginning.

An exceedance occurred April 14 due to a combination of internal communication problems and much higher inflows than predicted. Grant PUD responded by instituting new internal processes for coordination with operational constraints. The brief dip below daily minimums was followed by increased discharges, so over time the impacts should have been minimal. Russ Kiefer (Idaho) asked whether visual inspections were done for evidence of significant impacts, e.g. stranding of age-0 fall Chinook that were migrating at the time. WDFW does visual inspections; Langshaw will follow up with them and report back to TMT as needed. TMT will revisit this agenda item soon, either the April 29 conference call or the next regular meeting May 6.

#### **4. Chief Joseph Spill Test**

Lynne Melder (COE) reported on the Chief Joseph spill test to evaluate the effectiveness of the newly constructed deflectors. Seattle District is making use of high inflows and the flood control draft underway at Grand Coulee to conduct the test. The test will begin April 28, 2009. Melder showed TMT the projected schedule of spill and powerhouse flows for each day of the test, linked to today's agenda. There were 4 days of spill testing, with 12 spill events each lasting for 4 hours. The tests were designed to evaluate TDG levels at multiple tailwater and powerhouse levels, and with varying spill rates. The maximum spill level was 143 kcfs, using a uniform spill pattern of 7-8 kcfs across each spillway.

The individual tests that will be performed will be 3 hours apiece, and spill could go as high as 250 kcfs. Melder emphasized that the two highest spill events, planned for April 30 and again on May 1, will be several hours apart on both days to allow the resulting gas to dissipate. Grand Coulee will draft about a foot per day to provide water for these tests. The COE will monitor TDG levels closely and is coordinating the tests with BPA, BOR, WDOE, NOAA, USFWS, the mid-Columbia PUDs, and the Colville Tribe, which owns an adjacent hatchery.

Ruth Burris (PGE) asked what tailwater elevation would be required at Wells Dam for the tests. The COE anticipates Wells tailrace would be at 780 feet elevation, but is prepared to work with dam operators on forebay elevations, Melder replied. The main issue will be keeping flow deflectors submerged. One goal of the test is to measure TDG production at a range of tailwater elevations, so varying tailrace levels are planned, Adams said. At an elevation of 780 feet at Wells Dam, any discharges over 180 kcfs from Chief Joseph Dam would have to be spilled at Wells, resulting in TDG exceedances, Burris cautioned. Melder and Adams explained that's why the COE is coordinating with WDOE on these tests.

Grand Coulee will be operated slightly differently to provide water for the tests, John Roache (BOR) said. To allow more flexibility, BOR will delay the 1,257.7-foot flood control elevation target by 2 days (from April 30 to May 2). The purpose of the delay is to ensure that the spill test has sufficient water to complete the test.

Jim Litchfield (Montana) asked about the dam safety issues at Chief Joseph. There have been erosion problems during high flows when turbulence tends to fling debris back into the stilling basin, Melder said. The COE will watch closely for this phenomenon during spillway deflector testing.

Another component of the tests will be ensuring that the effects of spill don't impact the spring Chinook operation at the Colville Hatchery, Bettin said. Hatchery fish enter the Chief Joseph fish ladder directly from the hatchery.

For the testing, the COE will modify the spill priority list, Adams reported. The order of the projects won't change, but all spill caps will be set at zero for the duration of testing, which reduces the risk of having to spill at the projects. The COE will give TMT an update on Chief Joseph in May after the tests are completed.

## **5. Dworshak Operations**

Inflows in early April spiked at 15 kcfs, Steve Hall (COE) said. The forecast this weekend is for inflows to rise to 20 kcfs, then drop down again and continue to rise along with snowmelt in the upper basin. Hall asked the Salmon Managers for feedback on two alternative Dworshak operations. From a flood control and refill perspective, the COE regards the two alternatives as roughly equivalent. Either operation would put the reservoir close to its 1,525.4-foot elevation target at the end of April. The current reservoir elevation is 1,524 feet.

Alternative 1 – Reduce discharges to 10.6 kcfs on April 26 and hold 10.6 kcfs through the end of April, then drop to an average of about 6 kcfs through the remainder of the refill period. Essentially this means filling the reservoir in mid to late June. This option offers a high probability of refill because it allows flexibility. The estimated reservoir elevation under this scenario would be 1,528 feet at the end of April.

Alternative 2 – Hold outflows at 15 kcfs through April 30 and drop to an average of about 5 kcfs outflows through the remainder of the refill period. This operation would drop the pool elevation slightly before going into refill mode. The estimated elevation under this scenario would be 1,524.8 feet at the end of April.

The Salmon Managers caucused and advised the COE. If inflows are above 100 kcfs, reduce outflows to 10.6 kcfs (full powerhouse). However, if inflows are expected to drop below 100 kcfs, raise outflows to 14.6 kcfs, or 110% TDG, until the end of April. The COE will coordinate on the hatchery effects of this recommendation with Dave Statler (Nez Perce Tribe) who did not attend today's TMT meeting.

There was discussion of updated STP runs. The current STP assumes 6.8 kcfs discharge from Dworshak through May, Hall said. However, a dry spring could damage prospects of refill.

The COE's interim plan until April 24, or later if needed, is to hold outflows at 15 kcfs, then potentially drop over the weekend. Dropping outflows on April 24 or later would be acceptable to the Salmon Managers, Wagner said. Kiefer asked whether the COE would be willing to go to full powerhouse now; the answer was not until this weekend because of high inflows (above 20 kcfs).

The current prediction is for Lower Granite inflows to be 104 kcfs later this month, Wagner and Kiefer noted. If inflows drop below 100 kcfs, they advised keeping outflows at 14.6 kcfs until the end of April. This is because there isn't much biological benefit associated with flows above 100 kcfs at Lower Granite, so the Salmon Managers want to save any water in excess of 100 kcfs for later, Litchfield explained. The goal now is to maintain 100 kcfs total flow at Lower Granite.

For the sake of flood control, if Dworshak inflows rise above 22 kcfs, the COE will have to maintain maximum discharge to avoid filling the pool too quickly, Hall said. Otherwise, outflows will remain at 15 kcfs until April 24, when they will go to full powerhouse if Lower Granite flows are above 100 kcfs. Throughout the operation, if Lower Granite flows drop below 100 kcfs, Dworshak outflows will increase up to 14.6 kcfs. Adjusting Dworshak outflows as needed to provide 100 kcfs at Lower Granite was discouraged because it would jeopardize operation of the RO gates, which were not designed to be opened and closed repeatedly. TMT scheduled a conference call in a week to revisit refill operations.

## ***6. The Dalles Construction Status and Planning Update***

In order to finish work by the April 10, 2009, spill date, the contractor stopped 80 feet short of the anticipated construction this year, Pat Duyck (COE) reported. The delays were due to bad weather, a crane failure and other issues. The plan for next year is to start the in-water work season Sept. 8, 2009, and finish construction of the spill wall by April 10, 2010.

The contractor has been looking at ways to minimize impacts on next year's chum operation, when elevation constraints will be even tighter than they were this year. One possibility is to reduce the size of the pre-cast construction units, which reduces the depth needed for the barge (another is using sponsons, or floats, to keep the barge from rolling, as discussed at a previous TMT meeting). The contractor has reduced depth requirements from 13 feet to 6 feet over the rock shelf, nearly halving the water depth requirement.

Nevertheless, this year's construction will require a minimum tailwater elevation of 76.5 feet during working hours. The corresponding tailwater elevation requirements at Bonneville (75.5 feet under certain flow regimes) mean all the flexibility is gone from the 2009 chum operation, with the exception of half a foot (a 76 foot tailwater elevation at The Dalles) during weekend and evening hours. Even this bit of flexibility could vanish when the contractor schedules 24-hour shifts starting in November. And raising the Bonneville forebay elevation requirements above 76.5 feet (normal operating range is 71.5' – 76.5') – which might allow chum redds to be kept inundated at higher elevations – would require a revision to the project water control manual and possibly an EIS and public review due to flooding concerns.

Tony Norris (BPA) emphasized that the chum operation is very difficult to maintain when we have the normal amount of operational flexibility. There are so many variables that influence the chum operation that an added half a foot or a foot of operational flexibility won't be enough to guarantee a successful chum spawning operation in 2009. A larger range for a tailwater operation downstream gives a bigger target but it does not guarantee success. The operation can still be overtaken by west side rain events. Things happened to turn out well in 2008 but it was largely due to the relatively dry fall.

Wagner observed that the current dilemma essentially moves the system control point from Bonneville to The Dalles. The Bonneville operation will be limited to passing inflows. The Salmon Managers asked the Action Agencies to work toward setting parameters on their expectations for this fall – i.e. how much flexibility would it take from the typical 11.5-foot Bonneville tailwater requirement to make a successful 2009 chum operation possible? The Action Agencies noted how difficult that will be, given all the variables involved. There was general acknowledgment that this could end up being a Grand Coulee storage problem if drafting is required to keep chum redds inundated at elevations above 11.5 feet. TMT will revisit this issue before in-water construction begins next September.

### ***7. May Spring Creek Hatchery Release***

On May 4, Spring Creek Hatchery will release 4.75 million fish, Dave Wills (USFWS) reported. USFWS, the COE and BPA will work together to craft an operation resembling the one that took place in April. The May operation will start on May 5 when fish arrive at Bonneville Dam and continue for the next 4 days.

### ***8. Start of Fish Transport***

As stated in the spring 2009 Fish Operations Plan, transport will start sometime between April 20 and May 1, 2009, at Lower Granite Dam, Dan Feil (COE) reported. He showed TMT data linked to today's agenda showing steelhead and Chinook passage index numbers for previous years. Steelhead passage index numbers are definitely picking up at Lower Granite compared to recent years – 80% of the fish passing now are steelhead. Tug and barge operators will need 3 days' notice to begin transporting fish. Feil asked TMT for recommendations on how transportation should proceed.

While the BiOp says transportation could have begun two days ago on April 20, this is another rollover year, Wagner said. The Salmon Managers, however, believe its okay to leave fish in the river past April 20 this year, given the plentiful flows and low temperatures. This management strategy is consistent with ISAB's finding that more clarity is needed on details of the tradeoff in benefits for steelhead and wild spring Chinook before a definitive transport start date can be established.

A visit to the FPC web page showed that some 95% of steelhead passing Lower Granite on April 19 were hatchery fish. These fish have management value although they aren't ESU-listed, Wagner and Litchfield agreed. While steelhead numbers are plentiful this year, the migration isn't earlier than expected based on the 10-year average for steelhead, Wagner said. Because the migration appears to be delayed this year, the Salmon Managers had discussed a start date of May 1 at Granite, but hadn't yet considered subsequent start dates downstream. The Salmon Managers advocated a more condensed timeframe than 8 days between Lower Granite and Little Goose – 3 days was deemed more appropriate for conditions this year.

Idaho suggested the Salmon Managers provide a more definitive recommendation next week, meanwhile leaving fish in the river; NOAA did not object to that. The April 20 date was originally chosen to balance the needs of steelhead and wild Chinook, which don't benefit from transport in late April, Wagner said. TMT came to consensus on May 1 as a start date for transport at Lower Granite. Further discussion of staggered start dates downstream will happen in next week's conference call.

## **9. Operations Review**

**a. Reservoirs.** Grand Coulee is at elevation 1,266.3 feet, drafting about a foot a day to meet the maximum elevation of 1,257.7 feet on May 2, Roache reported. Hungry Horse is at elevation 3,513.49 feet, discharging 900 cfs, with inflows of 8 kcfs yesterday and rising. It is expected to discharge about 6 kcfs during controlled refill.

Libby is at elevation 2,403.4 feet, with outflows of 4.0 kcfs. Inflows have picked up over the past few days to 6.9 kcfs yesterday.

Albeni Falls is at elevation 2,053.83 feet at the Hope gage, with inflows of 29.8 kcfs and outflows of 31.1 kcfs. The end of May elevation target is 2,056 feet.

Dworshak is at elevation 1,525 feet, with outflows of 14.8 kcfs. Inflows have risen to 15.9 kcfs.

Seven-day average inflows are 87.8 kcfs at Lower Granite, 241 kcfs at McNary, and 245 kcfs at Bonneville. Spring flow objectives are 228 kcfs at McNary and 100 kcfs at Lower Granite. Scott Bettin proposed that the 11.5-foot tailwater restriction be officially lifted at Bonneville. It has been functionally irrelevant since the end of chum spawning, and the Salmon Managers had no objection to lifting the restriction.

TMT then discussed two additional topics, a planned full-powerhouse outage at Little Goose, and the beginning of research operations at the lower Columbia River projects.

The Little Goose outage in late April will involve putting 5 kcfs through the powerhouse at speed/no load, hopefully for no longer than an hour, Feil reported. This is expected to increase spill, but not above 125%, an hourly cap set by the COE in order to remain within Oregon's water quality standards for TDG values expressed as a daily average. If the outage is designed and implemented correctly, gas levels should remain within the 125% hourly and 120% daily average criteria. The schedule isn't firm yet, but the outage will occur sometime between April 28 and 30. It is being coordinated with the scheduling of spill for TSW testing at Little Goose.

Research at all three lower Columbia River projects will begin on April 28. Lower Monumental will maintain the same operation, but will alternate between two spill patterns. Ice Harbor, currently spilling 45 kcfs during daytime and to the gas cap at night, will alternate that operation with a 30% spill regime. John Day, currently spilling 30% round the clock, will go to a 30%/40% operation for the duration of the research.

**b. Fish.** Nearly 40,000 spring Chinook smolts passed Lower Granite, 20,000 at Little Goose, and 20,000 at Bonneville, Wagner reported.

Over a thousand adults (1,164 exactly) are passing Lower Granite now, and temperatures have been slowly rising. More than 100,000 steelhead passed Lower Granite, and 50,000 at Little Goose. A peak of 171,000 spring Chinook from the April Spring Creek release passed Bonneville on April 14; the current index count is 10,000 spring Chinook a day.

The size of sockeye in the Stanley basin indicates they are kokanee, Kiefer said. Idaho is willing to provide any samples of mortalities found to the COE for genetic analysis. The distinguishing factor between sockeye and kokanee, which are genetically the same species, is anadromous behavior. Idaho is looking for ways to study the conversion from sockeye to kokanee without impacting critically listed sockeye.

In general, passage numbers at Bonneville, McNary and Ice Harbor are way below the 10-year average, but similar to the past 3 years' returns, Wagner said. Outflow temperatures have been at or above the 10-year average at Lower Granite and Bonneville, contradicting an earlier theory that fish counts were low because of cooler temperatures and late migration.

**c. Power System.** BPA has a lot of water to move out of Coulee, but otherwise no problems Norris reported.

**d. Water Quality.** There were 3 TDG exceedances today, Adams reported. The first was at Lower Monumental, where the gas cap was lowered to 24 kcfs from 29 kcfs. The gas cap at Little Goose is 32 kcfs and at Lower

Granite, 41 kcfs. So far, there have been no TDG problems with spilling 20 kcfs at Lower Granite and meeting the 30% BiOp spill requirement at Little Goose. Lower Monumental flows have been steadily rising over the past few days, putting increasing gas pressures on the river. Travel time from Lower Monumental tailwater to Ice Harbor is approximately 2 days or more at 100 kcfs average flow. The Lower Monumental gas cap was lowered from 29 to 24 kcfs on April 20, and the impact of that change has appeared in Ice Harbor forebay.

On the lower Columbia, McNary is spilling 40% steadily without any gas issues. TDG levels in the John Day forebay have remained under 115% with a 30% spill requirement. TDG levels in The Dalles forebay have risen from 110% to 113% recently.

There have been exceedances in the Bonneville forebay, 115.4 % yesterday, so the spill cap was lowered from 100 to 95 kcfs on April 20 and still exceedances are occurring at Camas Washougal gage. The COE is therefore considering lowering spill caps at John Day and The Dalles in order to minimize reductions in the Bonneville spill cap. Wagner observed that the actions taken to date seem to be working.

### **9. Next Meeting**

TMT will follow up on Dworshak operations and scheduling the staggered start dates for transportation in a conference call on April 29. The next regular TMT meeting will be May 6, 2009. This summary prepared by consultant and writer Pat Vivian.

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