

# COLUMBIA RIVER REGIONAL FORUM

## TECHNICAL MANAGEMENT TEAM

August 19, 2009 Meeting

### FACILITATOR'S SUMMARY NOTES ON FUTURE ACTIONS

Facilitator: Erin Halton

Notes: Christa Leonard

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 Meeting Minutes for August 3<sup>rd</sup> and 5<sup>th</sup>, 2009**

No changes were made to the facilitator's summary notes/official meeting minutes and both sets were considered final.

#### **Review Dworshak Operations**

Dan Feil, COE, referred TMT members to a link, posted to the agenda, detailing temperature modeling. He said temperatures at the Lower Granite tailwater have been holding to the 65-66°F range with Dworshak operations at full powerhouse (10 kcfs). Feil reported that the warmer weather temperatures expected this week, coupled with Hells Canyon discharges doubling to 16 kcfs, will bring warmer water temperatures from the Snake River. In anticipation of this shift, the COE coordinated with the Salmon Managers and ramped up Dworshak outflows to 12 kcfs at 1:00 pm on 8/18. Feil said current Dworshak outflow temperatures were 44.4°F, so as cold as possible given current circumstances.

Due to technical difficulties, Steve Hall, COE, was unable to email modeling results prior to the TMT meeting. Russ Kiefer, ID, reported that his modeling showed that outflows of 12 kcfs should keep water temperatures at Lower Granite tailwater below the 68°F criteria through this short hot spell. Feil posed a question to TMT as to how long they would recommend holding Dworshak outflows at 12 kcfs, given the end of August target elevation of 1535'. TMT members discussed issues surrounding this decision; the first Hells Canyon increase was made on 8/17, so the first slug of water is expected to reach Lower Granite on 8/20. Subsequent releases from Hells Canyon on Tuesday and Wednesday were not likely to be reflected in Lower Granite temperatures until Friday morning, 8/21. Hall presented TMT with three scenarios that were to be posted to the agenda later in the day; he described the expected step down in outflows for the rest of the month that would be associated with dropping outflows to full powerhouse on 8/19, 8/21 or 8/23.

Dave Statler, Nez Perce Tribe, expressed concern for the lack of options for water usage later in August. Feil noted that there is only one more week left in August and Kyle Dittmer, CRITFC, noted that the forecast shows that this is most likely the hottest week we'll see before the end of the month and that there is even some precipitation in the

forecast. Dave Wills, USFWS, recommended holding Dworshak outflows at 12 kcfs until Friday morning when TMT could review updated temperature data; TMT members concurred.

**Action/Next Steps:** The COE will maintain Dworshak operations at 12kcfs for the short term. Operations will be reevaluated during a conference call set for Friday 8/21 at 8:00 am where next steps will be discussed.

### **Other/Dworshak**

Steve Hall, COE, and Dave Statler, Nez Perce Tribe, shared information with TMT members detailing the Dworshak Operations Board Committee's draft plan for September operations to provide 200 KAF. The tentative plan is to hold outflows at 8 kcfs for the first 10 days of September, then reduce outflows to 5.9 kcfs for two days, then 4.7 kcfs for three days, then 2.4 kcfs/minimum outflows until the elevation of 1520' is achieved.

### **The Dalles Spillwall Construction Update**

Pat Duyck, COE, presented TMT with an update on this project, which was last discussed at TMT in April 2009. He reviewed the last phase of construction, noting that the contractor fell 80' short of the wall target length at the end of the 2008-09 work season. Work on the project will resume on September 8<sup>th</sup>, about one month earlier than previously planned, in the hopes of gaining ground lost during the last work phase. Duyck reported that a deviation request signed by the COE-RCC and BPA was about to be submitted to the court, to officially authorize the minimum Bonneville pool elevation of 76.5'. Duyck acknowledged the potential impacts to Tribal Fishing season ahead and noted that the Action Agencies are working closely with CRIPFC to minimize impacts to the extent possible. Duyck mentioned that the contractor learned valuable lessons during the last session as to how best approach the project and consequently has performed an equipment and staff re-organization in order to provide the best team possible during this next phase. Duyck clarified that the new spillwall is expected to provide better juvenile egress; modeling helped determine the best placement and showed that egress would be dramatically improved if this construction is completed. Dave Statler, Nez Perce Tribe, asked about the anticipated effects construction will have on Lamprey; Duyck reported that biologists foresee little or no impact to fish ladders and said continual evaluation and monitoring of juveniles will continue through construction. Regarding the exact time the COE expects to fill the Bonneville pool, Greg Bowers, COE, said that it should reach 76.5' between 0000 hours – 0600 hours on September 8<sup>th</sup>.

Dan Feil, COE, reported that the COE would like use a John Day pool operating range of 262.5' - 265' for September only, as a last resort that would help provide flexibility at Bonneville. He asked TMT members for their initial feedback: Dave Wills, USFWS, said he was amenable to the COE using this as their last option and expressed his concern about fish passing John Day during September. Russ Kiefer, ID, said that he needed more time to consider the COE's potential use of this option but that it seemed reasonable to have as a last resort. Ron Boyce, OR, asked how often this operation will be performed; Feil said that the need was unclear at this time but that it will be evaluated on a week-to-week basis.

**Action/Next Steps:** The COE will notify TMT regularly as operations and construction progress. Duyck invited TMT members to listen in on planning meetings that will take place throughout the season. An update on this item may be on the agenda for the 9/2 TMT meeting.

### **2009 Autumn Treaty Fishing – SOR 2009-C5**

Kyle Dittmer, CRITFC, referred TMT to SOR 2009-C5, posted as a link to the agenda. Dittmer said the Autumn Treaty Fishing season is expected to span a three or four week period. Dittmer reviewed the dates/times and pool elevations for John Day, Bonneville and The Dalles as specified in the SOR and clarified that a follow-up SOR is expected to be issued after 9/7. Dittmer relayed a message from Paul Lumley, the new Executive Director of CRITFC: CRITFC will hold the COE personally responsible for any damage to net or platform gear. Dan Feil, COE, reminded TMT that the Summer Treaty Fishing Season was without incident and that the COE met all obligations as requested. Doug Baus, COE, said that the COE planned to operate the pools as they have in previous years and Greg Bowers, COE, said that the COE would be coordinating closely with CRITFC as the season progresses.

**Action/Next Steps:** COE teletypes will be shared with CRITFC and updates on the Autumn Treaty Fishing season may be on the agenda for the 9/2 TMT meeting.

### **Libby Operations Update**

Dan Feil, COE, reported that operations are currently at the Bull Trout minimums and said the current elevation was 2443' (86% full.) Operations will move to outflows of 7 kcfs for the remainder of August, then shift to 6kcfs outflows to move toward the end of September target elevation of 2441.3'. Feil added that average inflows were 9.8 kcfs as of 8/18.

### **Operations Review**

**Reservoirs:** Libby was at elevation 2443', with inflows of 9.8 kcfs and outflows of 7.0 kcfs. Albeni Falls was at elevation 2062.3', with inflows of 12.2 kcfs and outflows of 13.2 kcfs. Dworshak was at 1549.2' with inflows of 1.5 kcfs and outflows of 12.1 kcfs. Lower Granite outflows were 34.5 kcfs, McNary had flows of 107.9 kcfs, and Bonneville flows were 93.9 kcfs.

**Other / Little Goose Low Flow spill operations update:** Feil reported that the COE moved from 30% spill to an 11.6 kcfs flat spill level and the COE planned to continue this pattern through August. Also, the COE said they would like to shut off the spillway weir during the daytime shift on 8/31, while work crews are on shift. He clarified that the net spill volume of 11.6 kcfs will be maintained on the 31<sup>st</sup> with the use of other bays. It was noted that fish passage is likely to be very low at the project. The COE asked for TMT feedback on the proposed daytime closure of the spillway weir:

- ID: no objection
- USFWS: no objection
- OR: no objection

- NOAA: no objection
- Nez Perce: no objection
- Also: CRITFC: no objection

Other / Ice Harbor Update: Sacagawea is back online; however, there is a need for unit 1 to run for four days next week.

Reservoirs continued: Hungry Horse was at 3556.82' with outflows of 2.5 kcfs, reaching 3550' end of September. Grand Coulee was at elevation 1282.6'.

Tom Lorz, speaking on behalf of FPAC, said that FPAC members were curious about operations at Grand Coulee during the last week. Tony Norris, BPA, explained that Canadian dams ramped up discharge to aid Columbia River barge navigation, which affected inflow to McNary. Dave Wills, USFWS, said he appreciated the explanation but expressed concern that there was no coordination between the Action Agencies and the Salmon Managers. Wills added that the Salmon Managers found it remarkable that there appeared to be a refill pattern at Grand Coulee at the same time flows at McNary were decreasing. He said that given the low water year and the challenge in meeting flow/elevation targets, it seemed like the Action Agencies had missed an opportunity to have good regional coordination with their partners. Looking ahead, Wills made a request that the Action Agencies use a gradually decreasing, uniform flow pattern in the near term and asked if the Action Agencies would consider meeting the end of August elevation target two days earlier than planned, on August 29<sup>th</sup>. Gary Fredericks, NOAA, and Tom Lorz, CRITFC, supported Wills' request for better regional coordination and Russ Kiefer, ID, clarified that he did not see that fish protection measures were being met during the timeframe of August 13-18<sup>th</sup>.

Norris responded that the Action Agencies planned to meet the end of August elevation target on August 31. He acknowledged that the Action Agencies could have done a better job in communicating with the Salmon Managers on this issue. Ron Boyce, OR, said that he shared the concerns expressed by CRITFC, NOAA, and USFWS regarding the lack of communication. John Roache, BOR, said that he did want to implement the best possible operation for fish protection. Boyce said that he planned to submit a formal letter regarding this issue. Norris and Roache committed to better communicate with their regional partners when there are similar issues that arise in the future.

Fish: Gary Fredericks, NOAA (on behalf of Paul Wagner), reported to TMT that there were 205,000 Steelhead per day at Bonneville. Dave Wills, USFWS, referred TMT to the Fish Passage Center website data; Fall Chinook are getting started and shads are at a 10 year low. Subyearling Chinook 100-200 at Lower Granite, the numbers at McNary are fluctuating to 6000, 1000 at John Day, 1200-1500 at Bonneville.

Power System: Nothing to report.

Water Quality: Laura Hamilton, COE, reported that malfunction at Bonneville and McNary now fixed. She noted no exceedances except at Camas/ Washougal where TDG levels are fluctuating oddly despite low spill and only a slight temperature change. She is

investigating the potential that algae oxygen production could be affecting TDG readings at that guage.

**TMT Schedule:**

- Conference call scheduled for 8:00 am Friday 8/21

9/2: face-to-face TMT meeting 9:00 am

Agenda items will include:

- Notes Review
- AutumTreaty Fishing Update
- Libby operations update
- End of MOP

**Columbia River Regional Forum  
Technical Management Team Meeting  
August 19, 2009**

***1. Introduction***

Today's TMT meeting was chaired by Dan Feil (COE) and facilitated by Erin Halton (DS Consulting), with representatives of COE, BOR, USFWS, BPA, CRITFC, the Nez Perce Tribe, NOAA, Idaho, Oregon, 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 August 5, 2009***

There were no comments on the facilitator's notes or official minutes.

***3. Dworshak Operations***

With full-powerhouse discharges out of Dworshak reservoir, Lower Granite tailrace temperatures have held steady at 65-66 degrees F, well below the 68-degree criterion, Feil reported. Earlier this week Hells Canyon Dam discharges doubled from 8 kcfs to 16 kcfs of warmer flows coming into the Columbia from the upper Snake basin. Concerned about meeting the Lower Granite tailwater criterion of 68 degrees F later this week, the COE conferred with FPAC regarding Dworshak discharges prior to today's meeting.

To counteract the potential for increasing water temperatures in the Lower Granite tailwater from increased Hells Canyon outflows and head off problems during the coming heat wave, the COE recommended and FPAC agreed to bump outflows up to 12 kcfs for a few days. Consequently, at 1 pm August 18, Dworshak outflows increased to 12 kcfs. Hells Canyon flows hit 14 kcfs on August 17 and continued to rise, hitting 18 kcfs on August 18, a major reason for increasing Dworshak outflows that day. Dworshak releases are currently around 44 degrees F using the RO gates, which produce the coldest water available.

Feil asked TMT to consider how much longer Dworshak outflows should continue at 12 kcfs. How should the available water volume be shaped for the rest of August in light of higher temperatures predicted this week? FPAC's recommendation to the COE was to check in on the operation via conference call on Friday, August 21, in light of actual Lower Granite tailwater temperatures. This time of year it typically takes 2-3 days for flows from Hells Canyon to reach Lower Granite, Steve Hall (COE Walla Walla) said. The warmer water released from Hells Canyon on August 17 can be expected to hit Lower Granite today or tomorrow. The higher releases of cool water from Dworshak beginning yesterday, August 18, should reach Lower Granite by Friday morning, August 21.

Hall described to TMT three scenarios he modeled, with graphs to be posted to the TMT web page later today:

1. Drop Dworshak outflows from 12 kcfs to average flows of 9 kcfs through the end of August. This would achieve the end of month elevation target of 1,535 feet at Dworshak reservoir.
2. Hold 12 kcfs outflows through August 21, drop to full powerhouse by August 23, and reset flows to 8 kcfs from August 24 through the end of August.
3. Drop outflows today, August 19, from 12 kcfs to full powerhouse or 10 kcfs through August 23 or 24, then reset the operation to 8 kcfs on August 25 through the end of the month.

Dave Statler (NPT) expressed concern that running 12 kcfs out of Dworshak for the rest of this week (scenario 2) would leave flows of only 8 kcfs or so for the rest of August, which doesn't leave much operating flexibility. Setting Dworshak flows back to full powerhouse now would leave more options for the Dworshak operation through the rest of August. Statler advocated keeping Dworshak outflows at 8 kcfs or more through the end of August, while also meeting the 1,535 foot end-of-month elevation target.

Dave Wills (USFWS) shared Statler's concern about potential problems with temperature management in the latter part of August if water isn't conserved now. Wills was reluctant to recommend dropping Dworshak flows below 12 kcfs before Friday. He and Russ Kiefer (Idaho) agreed that the Salmon Managers' recommendation should still hold: Keep Dworshak outflows at 12 kcfs until Friday morning, August 21.

Cutting flows back to full powerhouse earlier than August 21 might extend full powerhouse flows longer, Kyle Dittmer (CRITFC) said. The heat wave later this week is expected to be the last of the season. Idaho's main concern was temperature management during the heat wave. The Nez Perce Tribe's main concern was keeping water volume in mind as decisions are made on how much water to release from Dworshak. There were no comments from Oregon.

The Salmon Managers considered a COE proposal to establish criteria for changing Dworshak outflows on August 21 and scheduled an 8 am conference call August 21 instead. Until then, Dworshak outflows will remain at 12 kcfs.

The Dworshak operations board has a draft plan for managing the Nez Perce 200 kaf operation in September, Hall announced. The plan at present is to run Dworshak outflows at 8 kcfs for the first 10 days of September, then drop outflows to 5.9 kcfs outflows for 2 days; to 4.7 kcfs for 3 days; to 2.4 kcfs for another 2-3 days; and finally to 2.4 kcfs until elevation 1,520 feet is attained. At that point, the project would go to minimum flows.

#### ***4. The Dalles Spill Wall Construction***

Pat Duyck (COE) gave an update on The Dalles spill wall construction schedule. Last year the contractor finished work on the spill wall 80 feet short of initially planned. That led to an extension of the in-water work period to September 8 this year, about a month early. The contractor has modified equipment being used to work on the shallow rock shelf so that the depth requirement is only 6.5 feet instead of 13 feet. With a 2-foot buffer, that equates to a required forebay elevation at Bonneville of 78 feet throughout the construction period.

The Action Agencies made a deviation request to raise the Bonneville pool maximum elevation from 76.5 feet to 78 feet. That will give BPA and the RCC more flexibility to manage power generation and the chum operation. The main concern with the deviation request is potential impacts to tribal fisheries. The COE and tribal public affairs officers are working on this.

Duyck expressed confidence that the contractor will finish on schedule despite setbacks last year, as long as the COE provides adequate water depth. The consequence of not providing enough water and pushing construction into a third year would be devastating financial impacts to the CRFM program.

The spill wall between bays 7 and 8 is needed to improve juvenile salmon egress downstream, moving them into swift currents faster and away from predators, Duyck explained. Statler noted that Pacific lamprey passage is good at The Dalles and wondered how modifications might impact it. Initial testing shows little if any impact to lamprey passage at either ladder entrance, Duyck said. The COE will continue to evaluate lamprey passage as construction progresses.

The COE will maintain a 76.5' tailwater elevation at The Dalles by 6 am on September 8<sup>th</sup>. Between midnight and 6 am, BPA will make the transition in power operations. Tribal fisheries would prefer that the pool not be filled while nets are out, Tom Lorz (CRITFC) said. There was further discussion of this under agenda item 5 below.

The current operation at John Day pool is for a minimum elevation of 262.5 to 264 feet, or a 1.5 foot operating range. To provide extra operational flexibility if needed in September, the COE might briefly increase the John Day operation range to 2.5 feet, or from 262.5 to 265 feet elevation. Feil asked whether any TMT members would object to this.

Idaho said it was probably a reasonable action, but more thought was needed. CRITFC expressed concern about elevation changes during tribal fishing season. Oregon asked for more clarity on how often the greater operating range might be invoked, and requested notification a week in advance of any changes in pool elevation. Duyck will continue to give TMT regular updates as the construction season progresses.

## **5. 2009 Autumn Treaty Fishery – SOR 2009-C5**

Kyle Dittmer (CRITFC) presented this SOR for tribal fishing during the first 3 weeks of fall season. The SOR covers August 24-27; August 31-Sept 4; and Sept 8-12. During those times, the tribes are requesting a 1 foot band as a hard elevation constraint on operations Bonneville, The Dalles and John Day pools, within specified elevations.

- Bonneville pool – 76.5 to 75.5 feet
- The Dalles pool – 159.5 to 158.5 feet
- John Day pool – 264.5 to 263.5 feet

SOR 2009-C5 covers the first 3 weeks of fall fishing, with further fisheries likely after this one. This SOR includes specifics for dealing with the elevation constraints for construction at The Dalles, which Dittmer quoted verbatim, “At the tribes’ request, any changes to the Bonneville pool will be made between September 5 and 7. Any changes need to be completed by the start of the September 8 fishery. This action will help to minimize the loss of tribal fishing gear.” Dittmer emphasized that the tribes will hold the COE responsible for any damages and loss due to changes in pool elevation. This time of year is the main fishing season, and the tribes want good flow conditions for treaty fishing. Run sizes are anticipated to be 322,000 to 500,000 fall Chinook and 335,800 steelhead at Bonneville.

The COE has provided a 1.5 foot operating range for previous fisheries at Bonneville and there have been no complaints of damaged equipment, Feil said. After more internal coordination, the COE will most likely provide a 1.5 foot operating constraint at Bonneville, 3 feet at The Dalles, and 1.5 feet at John Day, as it has for past fisheries, Doug Baus said. TMT will revisit treaty fishing at its next regularly scheduled meeting September 2.

## ***6. Libby Operations Update***

The current elevation at Libby reservoir is 2,443 feet, which is also the maximum elevation, Feil reported. That elevation will most likely hold until sometime next week. The end of September estimated elevation is 2,441.3 feet, putting outflows at 7 kcfs for the rest of August and 6 kcfs through September. Libby inflows are currently averaging 9.8 kcfs per day. There were no questions regarding this operation.

## ***7. Operations Review***

**a. Reservoirs.** Libby is at elevation 2,443 feet, with inflows of 9.8 kcfs and outflows of 7 kcfs, as noted above. Albeni Falls is at elevation 2,062.3 feet, with inflows of 12.2 kcfs and outflows of 12.1 kcfs. Dworshak is at elevation 5,049.2 feet, with inflows of 1.5 kcfs and outflows of 12.1 kcfs.

Mean daily discharges are 34.5 kcfs at Lower Granite, 107.9 kcfs at McNary, and 93.3 kcfs at Bonneville.

At 8 am yesterday, August 18, spill at Little Goose went from 30% of flows to 11.6 kcfs for a constant spill level for the rest of the season as long as 11.6 kcfs remains close to 30%, Feil reported. The COE made this change to help smooth out the system because it can be difficult to maintain both the MOP operation and the BiOp spill percentage during low flow times when the units at Little Goose are being switched on and off. Flattening out the operation to a constant spill of 11.6 kcfs eases operations not only the Little Goose but downstream at Lower Monumental and Ice Harbor. The 11.6 kcfs spill rate is expected to continue through the end of spill season unless flows go higher or lower than they are now.

Because a crane and crew are required to shut off spill at the Little Goose spillway weir, the COE plans to end spill during working hours rather than at midnight on August 31. The same amount of water will be spilled through the regular bays while the spillway weir is closed. Idaho, USFWS, NOAA, CRITFC, Oregon, and the Nez Perce Tribe agreed to this operation.

Hungry Horse is at elevation 3,556.82 feet, with 2.5 kcfs outflows, headed for a target elevation of 3,550 feet at the end of September, John Roache (BOR) reported.

Grand Coulee is at elevation 1,282.6 feet, drafting to a BiOp target of 1,278 feet by August 31 based on forecasts at The Dalles. This year, BOR is releasing about an additional 14 kaf by August 31 in accordance with Washington's Columbia River Water Management Program (CRWMP). That equates to about 0.2 foot in Lake Roosevelt. As a result the revised target elevation for Grand Coulee is 1277.8 feet on August 31.

The Salmon Managers (USFWS, NOAA, CRITFC, Idaho, and Oregon) expressed concern that Grand Coulee appeared to be refilling during a week when flows were needed downstream for migration especially at McNary and Bonneville. Over the past 7 days the average discharge at Grand Coulee was 63.2 kcfs, while for the previous 7 days it was 78.6 kcfs, and 92.3 kcfs for July. The Action Agencies (BOR and BPA) said it's typical for inflows to decline at that rate at this time of year. During the week in question, there was a 15% decrease in inflows at McNary from the previous 7-day average. There was some refill at the rate of 1.2 feet for 5 days, but such variations are common at this time of the year and are covered in the FOP.

At the time of the refill, the Canadians were moving a very large turbine runner for Revelstoke Dam upstream through the Columbia system, Norris noted. To provide adequate depth for navigation, they ramped up discharges from Canadian reservoirs by 15 kcfs. This was water that we did not expect to be released that week and contributed to water stored at Grand Coulee and would have come out more evenly through the month.

Flows at Grand Coulee dropped to 50 kcfs during the week in question. Because Grand Coulee is not a headwater project, variations in flows are to be expected. The drop in weekly average flows at McNary (15% compared to the previous week's average) was consistent with the continuous decline in inflows expected through the end of spill season. The flows on the weekend at McNary were also within the 80% of the weekday flows.

The Salmon Managers noted that coordination was lacking for this operation. When spill dropped to below 50% at McNary because water was being stored upstream at Grand Coulee, survival rates at Bonneville were impacted. BOR was unaware at the time that spill downriver was affected. Oregon is in the process of preparing a letter to be sent to the Action Agencies on this situation. BPA and BOR acknowledged that the Action Agencies could have done a better job in communicating with the Salmon Managers on this issue. BPA and BOR also committed to provide more coordination in the future during summer low flow conditions.

Going forward, the Salmon Managers requested a gradual ramp down of Grand Coulee pool to elevation 1,278 feet by August 29 instead of August 31, the typical target date. This would allow an extra 2 days for flows to reach Bonneville. The Action Agencies committed to a continuous draft of Grand Coulee reservoir toward an elevation target of 1,277.8 feet by August 31, not August 29.

**b. Fish. Adults** – Steelhead passage is strong, with over 12,000 fish passing Bonneville yesterday, Wills reported. As of yesterday, 205,000 steelhead had passed Bonneville in August. Fall Chinook passage is just getting started. So far, 16,000 fall Chinook have passed Bonneville this year compared to 11,500 last year.

**Juveniles** – Subyearling Chinook are passing Lower Granite at a rate of 100-200 fish per day; earlier numbers this week were over 200 fish per day. Passage counts at Bonneville hovered in the range of 2,000 fish per day for 3 days, then bounced back to 6,000 yesterday. Juvenile passage counts at Bonneville are in the range of 1,500 fish per day.

**c. Power System.** There was nothing to report today.

**d. Water Quality.** Laura Hamilton (COE) presented information on TDG exceedances in August. The McNary gage malfunctioned and has been repaired. She is investigating an anomaly at Camas Washougal gage. Apparently changes of 1 degree F in water temperatures are causing a 3% increase in TDG readings. This could be related to algae growth, which plays a role in oxygen production. A more typical ratio is 1% increase in TDG levels for every 1 degree of increased water temperature. The current ratio of approximately 1:3 is very unusual.

## **8. Next Meeting**

The next scheduled TMT meeting will be a conference call at 8 am Friday, August 21 to discuss Dworshak operations. The next regularly scheduled meeting will be in person on September 2, with a possible conference call August 28 if needed. The September 2 agenda will include updates on autumn treaty fishing, Libby operations, the WMP and the end of MOP. This summary prepared by consultant and writer Pat Vivian.

<b><i>Name</i></b>	<b><i>Affiliation</i></b>
Dan Feil	COE
John Roache	BOR
Dave Wills	USFWS
Doug Baus	COE
Tony Norris	BPA
Kyle Dittmer	CRITFC
Steve Barton	COE
Steve Hall	COE Walla Walla
Dave Statler	Nez Perce Tribe
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Barry Espenson	CBB
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Tom Lorz	CRITFC