

# TECHNICAL MANAGEMENT TEAM

**BOR** : John Roache / Mary Mellema / Pat McGrane      **BPA** : Robyn MacKay / Tony Norris / Scott Bettin  
**NOAA-F**: Paul Wagner / Richard Dominique              **USFWS** : David Wills / Steve Haeseker  
**OR** : Rick Kruger / Ron Boyce                              **ID** : Russ Kiefer  
**WDFW** : Cindy LeFleur                                        **MT** : Jim Litchfield / Brian Marotz  
**COE**: Jim Adams / Cathy Hlebechuk / Bob Buchholz

## TMT MEETING

Wednesday July 2, 2008 09:00 - 12:00

1125 N.W. Couch Street, Suite 4A34  
Portland, Oregon 97209-4142  
Map Quest [\[Directions\]](#)

### CONFERENCE PHONE LINE

Conference call line:203-310-2162; PASS CODE = 4703150

To check into the building, take the elevator to the 5th floor and the guard will issue you an ID badge if you need one and will take you down to the meeting room on the 4th floor. If you have NOT attended a TMT meeting in the past you will need to call ahead and let Jim Adams (503) 808-3938, Cathy Hlebechuk (503) 808-3942, or Bob Buchholz (503) 808-3945 know, so you can be added to the TMT Visitor List and issued an ID badge. This badge may be used indefinitely. If you have attended TMT in the past you may re-use your ID badge indefinitely. If you are a federal employee you will also need to have an ID badge issued to you which can be used indefinitely.

We have had disruptions on the phone because people are not hitting 'mute' after dial in.  
**Please MUTE your Phone**

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*All members are encouraged to call Robin Gumpert with any issues or concerns they would like to see addressed.  
Please e-mail her at [robin76@cnnw.net](mailto:robin76@cnnw.net) or call her at (503) 248-4703.*

## AGENDA

1. Welcome and Introductions
2. Review & Finalize notes/minutes [\[Meeting Minutes\]](#) 
3. 2008 Summer Treaty Fishery - Kyle Dittmer, CRITFC  
[\[SOR 2008-C3\]](#)
4. Dworshak Operations Update - Cathy Hlebechuk, USACE  
[\[Dworshak Thermocline\]](#)
5. Libby/Hungry Horse Operations Update  
[\[SOR 2008-MT-2\]](#)  
[\[Figures 1 - 3\]](#)   
[\[Figures 4 - 5\]](#) 
6. McNary Transport - Dan Feil, USACE
7. Emergency Protocols - Tony Norris, BPA

[\[Emergency Protocols\]](#) 

[\[Generation Action Plan\]](#) 

8. Operations Review

- a. Reservoirs
- b. Fish
- c. Power System
- d. Water Quality

[\[Spill Information 2008\]](#)

[\[TDG Data\]](#)

9. Other

- a. Set agenda for next meeting - **July 16, 2008**

[\[Calendar 2008\]](#) 

*Questions about the meeting may be referred to:*

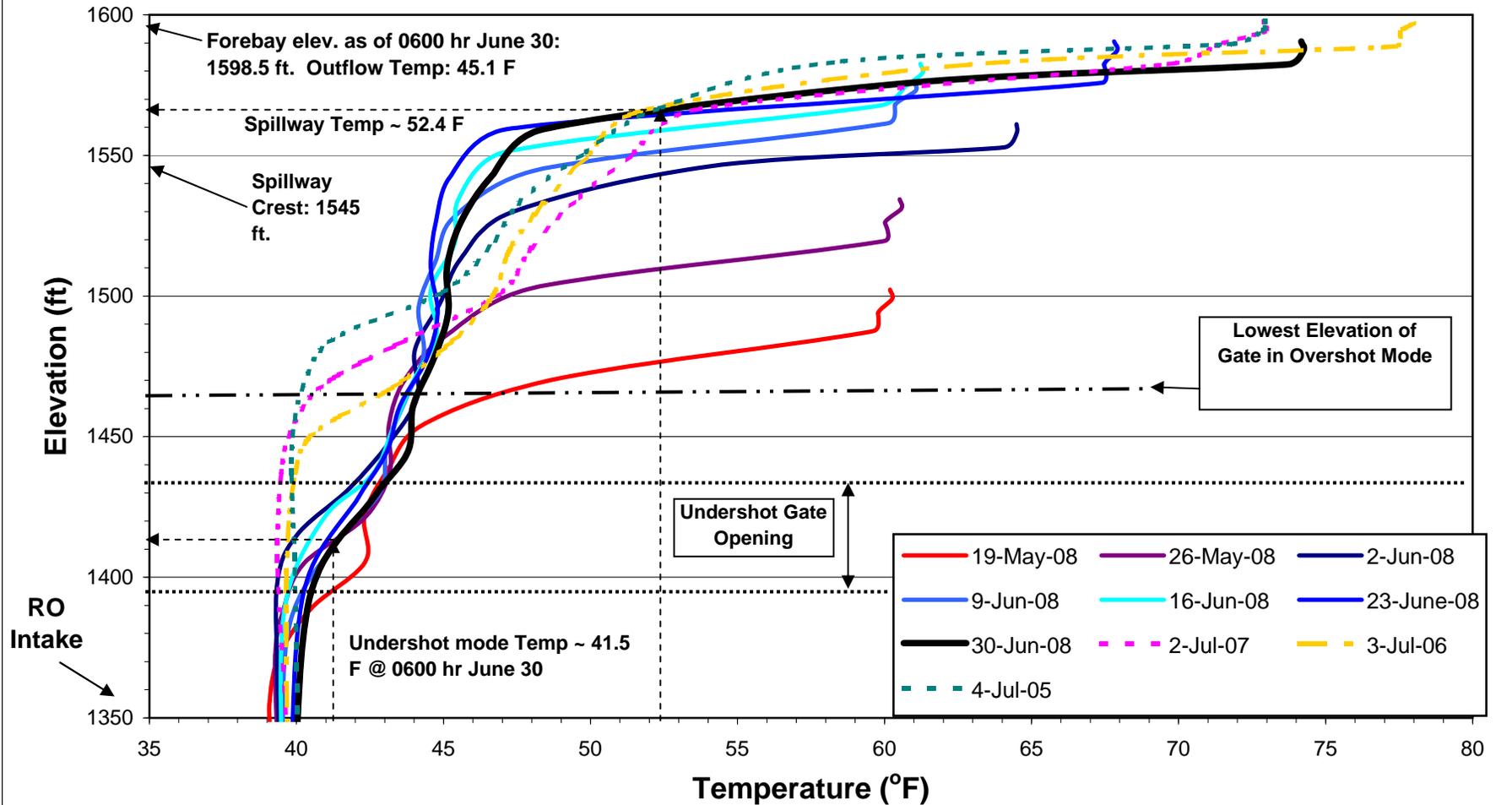
*[Jim Adams](#) at (503) 808-3938, or*

*[Cathy Hlebechuk](#) at (503) 808-3942, or*

*[Bob Buchholz](#) at (503) 808-3945.*

# Dworshak Forebay Thermocline 2008

(Data from Floating Temperature Stringer DWR\_S1 @ 0600 hr)



# **Appendix 1**

## **2008 Water Management Plan Technical Management Team Emergency Protocols**

FEDERAL COLUMBIA RIVER POWER SYSTEM

FOR ATTACHMENT TO THE  
WATER MANAGEMENT PLAN  
AND OTHER APPROPRIATE ACTION PLANS

Updated July 2, 2008

**Appendix I, 2008 Water Management Plan**

## *Appendix I, 2008 Water Management Plan*

### **1. Introduction**

This document establishes responsibilities by the Action Agencies for notification, consultation, and documentation in the event of an emergency concerning the operation of the Federal Columbia River Power System (FCRPS) that impacts fish protection measures contained in the respective Biological Opinions (BiOps). The BiOps call for an annual Water Management Plan (WMP), which provides a more detailed description of operations, based on the current year conditions, to ensure fish protection measures are consistent with Endangered Species Act responsibilities. This Protocol is meant to be general enough to encompass most kinds of emergencies. This Protocol pertains to short duration (approximately 1-7 days) interruptions or adjustments to protection measures for listed species that occur during the operation of the FCRPS.

The primary emergency types these protocols apply to are:

- **Generation Emergency:** the potential for or actual insufficiency of electrical generation to satisfy electrical demand or load.
- **Transmission Emergency:** the potential or actual loss or limitation in the ability to move electricity from the site of generation to the actual consumer or end-user.
- **Fish Emergency:** Unexpected equipment failures or other conditions that result in an interruption of fish protections measures.
- **Other Emergency:** the existence or result of extenuating circumstances which fall outside the range of normal operations, is unanticipated, and may significantly impair the ability to provide for other project uses, such as flood control or navigation, significant human health and safety concerns, or result in catastrophic impact, physical damage or failure to a dam, or other part of the physical power system. Examples include earthquakes, flood control operations, fires, navigation, dam safety, and failure of fish facilities infrastructure.

Specific Action Plans have been developed for Generation, Transmission and Fish Emergencies that identify pre-emptive actions and emergency actions that will be taken consistent with this Protocol. Examples of thresholds for these types of emergencies are shown in the respective Action Plans contained in Attachments 1 and 2 of this Protocol. Action Plans are coordinated in the TMT process.

The degree and/or nature of any emergency ranges from those that require immediate action to those that are amenable to coordination among affected parties prior to action. In some instances it is possible to plan for and develop procedures to respond to an emergency, while in other instances this is not possible. In addition, while many types of emergencies can be described for purposes of this Protocol, not all emergencies can be identified prior to the actual occurrence. Discussion of emergencies with effects of exceptional magnitude or duration will include involvement of regional executives.

## Appendix I, 2008 Water Management Plan

Emergency actions will not be taken in place of long-term investments necessary to allow full uninterrupted implementation of the planned reservoir operations while maintaining other project purposes.

Interruptions to protection measures for non-listed species are inclusive in these Protocols; however, priority will be given to the protection measures for listed species.

### 2. Goals

The primary goal of this Protocol is to have written procedures that describe how the Action Agencies will manage the FCRPS to avoid or minimize emergencies impacting fish protection measures in accordance with ESA biological opinions and other operative documents such as the WMP, and provide timely communication and coordination with the TMT when they occur. When emergencies occur, the Action Agencies will work with TMT to restore the protection measures and provide the planned for life cycle survival rates with priority given to in-time and in-place actions to the extent practicable. *(This does not create legal rights or obligations on the part of any party.)*

### 3. Definitions:

**Emergency** – A sudden, urgent, usually unforeseen occurrence or occasion requiring immediate action. As applied to this Protocol: when necessary interruptions or adjustments occur to fish protection measures identified in the applicable biological opinions, the Annual Water Management Plan, and other operative documents.

**Emergency Actions**- Actions taken by the Action Agencies in response to an emergency that affects fish protection measures.

**Action Agencies** - Bonneville Power Administration (BPA), Corps of Engineers (COE or Corps), and the Bureau of Reclamation (BOR or Reclamation)

**TMT** - Technical Management Team is one of the Regional Forum technical teams. Adaptive management of the FCRPS is coordinated in the Technical Management Team public meeting process.

**Water Management Plan.** - The Water Management Plan (WMP) describes how the Action Agencies plan to operate the FCRPS projects in accordance with the NOAA Fisheries and the U.S. Fish and Wildlife Service FCRPS Biological Opinions addressing the effects of the operation of the 14 FCRPS projects<sup>1</sup> (–this does not include the Willamette Projects or Upper Snake River Projects) during the current water year (October – September). The Fish Passage Plan (FPP) and Fish Operating Plan (FOP) for 2008 are appendices to the WMP.

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<sup>1</sup> For purposes of this Protocol, the FCRPS comprises 14 Federal multipurpose hydropower projects. The 12 projects operated and maintained by the Corps are: Bonneville, The Dalles, John Day, McNary, Chief Joseph, Albeni Falls, Libby, Ice Harbor, Lower Monumental, Little Goose, Lower Granite, and Dworshak dams. Reclamation operates and maintains the following FCRPS projects: Hungry Horse Project and Columbia Basin Project, which includes Grand Coulee Dam

#### **4. Emergency Protocol**

##### **4.1. Advanced Planning – Pre-emptive actions**

When the operation of the FCRPS will potentially require implementing emergency actions and the event can be anticipated approximately 24 hours in advance or earlier, the Action Agencies will convene a meeting of the TMT to discuss actions to undertake with the objective of averting or minimizing impacts to fish protection measures. This Protocol contains an Action Plan (see Attachment 1) that describes pre-emptive actions that will be pursued in an attempt to delay a situation that would result in the interruption of fish protection measures.

When conditions are identified that could potentially escalate to an emergency situation within , approximately 24 hours or earlier, the responsible agency, i.e. the Action Agency which would declare the emergency, shall notify the chair and co-chairs(s) of the TMT as soon as the situation is observed. If there is time, a TMT call or meeting will be arranged by the TMT chair or co-chair(s). If time allows, a discussion will be arranged, however, in some situations, the call may provide notification to TMT members of pre-emptive actions the responsible agency has deemed necessary.

The Action Agencies will implement all available pre-emptive actions prior to implementing emergency actions, and when feasible, the Action Agencies will implement alternate operations recommended by TMT.

##### **4.2. Emergency Response**

Emergency actions may be required as an immediate response if the pre-emptive actions fail to resolve the situation or the situation deteriorates without warning. If emergency actions are implemented as an immediate response an emergency will be declared. The Agency declaring the emergency will consider the prioritized emergency action lists provided in appendices of this Protocol, direction from TMT or other groups, standard operating procedures for specific projects, and/or guidance from appropriate responsible agencies to resolve the condition.

The Action Plans provided in the appendices of this Protocol have been discussed in the TMT forum and will be used as guidance when events unfold too quickly for pre-coordination to occur. For emergencies requiring immediate action by those operating the respective hydropower project(s) or other elements necessary to sustain the function of the hydrosystem, after stabilizing the situation they will contact the chairs of the TMT and IT. The TMT chair or co-chair(s) will disseminate a notification via phone calls and emails to a “first contact list,” which will include designated members from TMT and others that have requested inclusion on the first contact list as soon as practicable, but not later than the next working day. A meeting of the TMT will be convened at the earliest time available after notification of the first contacts.

## **5. Documentation and Follow Up Requirement**

In all cases when emergency actions have been implemented, as soon as practicable, but not later than the next working day, the following information shall be provided by the agency declaring the emergency:

- Description of the emergency, how it occurred, and how long it is anticipated to last
- Description of how the emergency jeopardized system stability, public safety, or otherwise necessitated action that impacted fish protection measures.
- Identification of agencies that declared the emergency and agencies that responded to the emergency
- Identification of who was notified of the emergency
- Description of what actions were taken by each agency
- Identification of alternatives considered to reduce and offset impacts of the emergency.
- Further detailed information will be provided upon request of the TMT.

When requested by a TMT member, the TMT Chairperson will arrange for a follow-up TMT meeting or conference call to:

- Review status of the event,
- Insure that all requirements for the implementation of emergency actions by the Action Agencies have been met and that all alternatives for offsetting adverse fish survival impacts of the implemented emergency actions have been considered, and
- Review the use of emergency action lists and revise the lists based on any lessons learned.

In general, system operations will revert to normal conditions, or as agreed upon in the TMT, when the event has been resolved or emergency actions are no longer required. The agency that declared the emergency will submit a detailed report of the incident and response at the next TMT meeting following the event unless other arrangements are arranged through the TMT process.

The Action Agencies will provide an opportunity for representatives of the region's affected parties to review the course of events and the implemented emergency actions to suggest refinements to the actions. These issues will be discussed at the next TMT meeting following the event.

## **6. Offsetting Adverse Effects of Emergency Response Actions**

**6.1.** When emergency actions are implemented that cause adverse affects to fish protection measures, the TMT will assess the magnitude of the adverse effect and provide information on measures available to offset these effects. Alternative operations to offset adverse effects in-place and in-kind in a timely manner shall

**Appendix I, 2008 Water Management Plan**

receive the highest priority. The members of the Regional Forum agree to cooperate in the development of this information for consideration through the TMT process.

**6.2.** When emergency actions impact a fish protection measure(s) included in a Biological Opinion, the appropriate agency (National Marine Fisheries Service (NMFS) or Fish and Wildlife Service (USFWS)) will consider the available information to assess whether the alternative operation used in response to the emergency situation is inconsistent with the relevant Biological Opinion(s), in that, in its expert opinion, the effects were in excess of what was contemplated in the analyses used in the respective biological opinion. If the alternative operation is determined to provide a reduction in the life cycle survival rate than that recommended in the Biological Opinion(s) analyses, then NMFS or USFWS will recommend to the federal operating agencies offsetting measures to ensure that the action satisfies Endangered Species Act requirements.

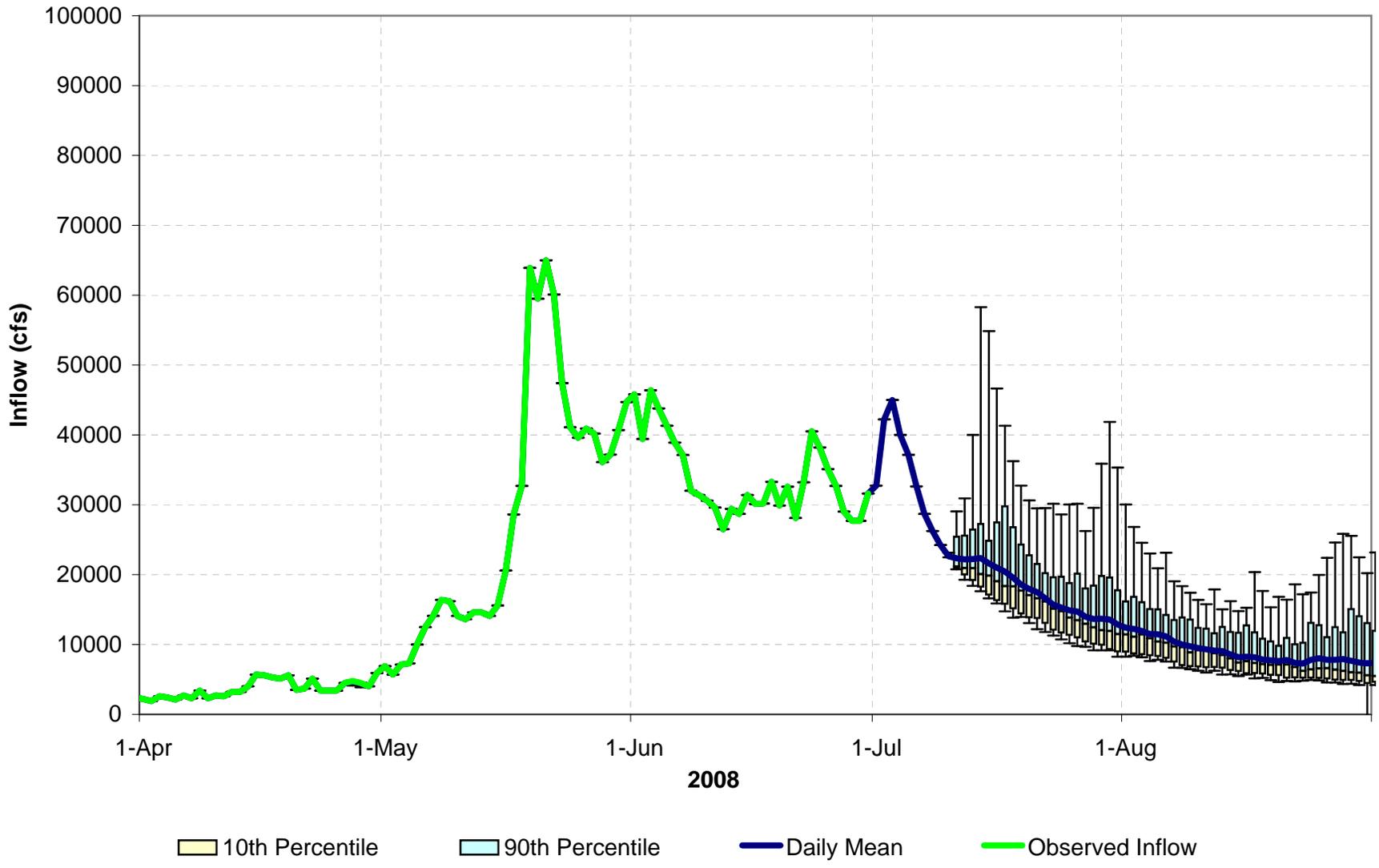
**6.3.** An Action Agency deciding not to provide offsets, or proposing offsetting actions that are different from those recommended through the TMT process, will provide a written explanation for the record stating the decision and the basis for the decision.

## **Emergency Protocols Attachments**

1. Generation Emergency Action Plan
2. Transmission Emergency Action Plan
3. Fish Emergency Action Plan

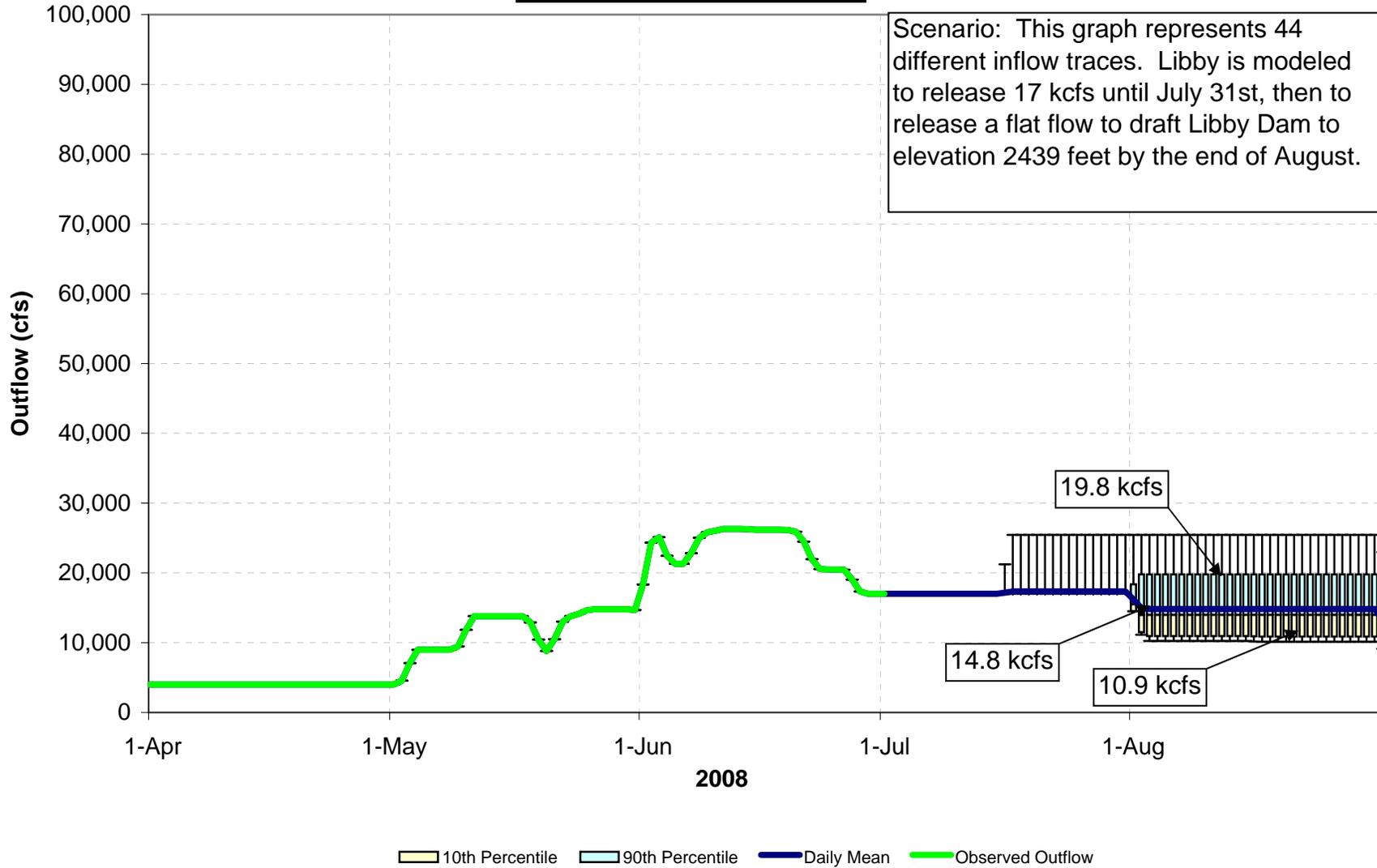
Figure 1: Forecasted Libby Dam Inflow

ESP Traces from 30 June, 2008



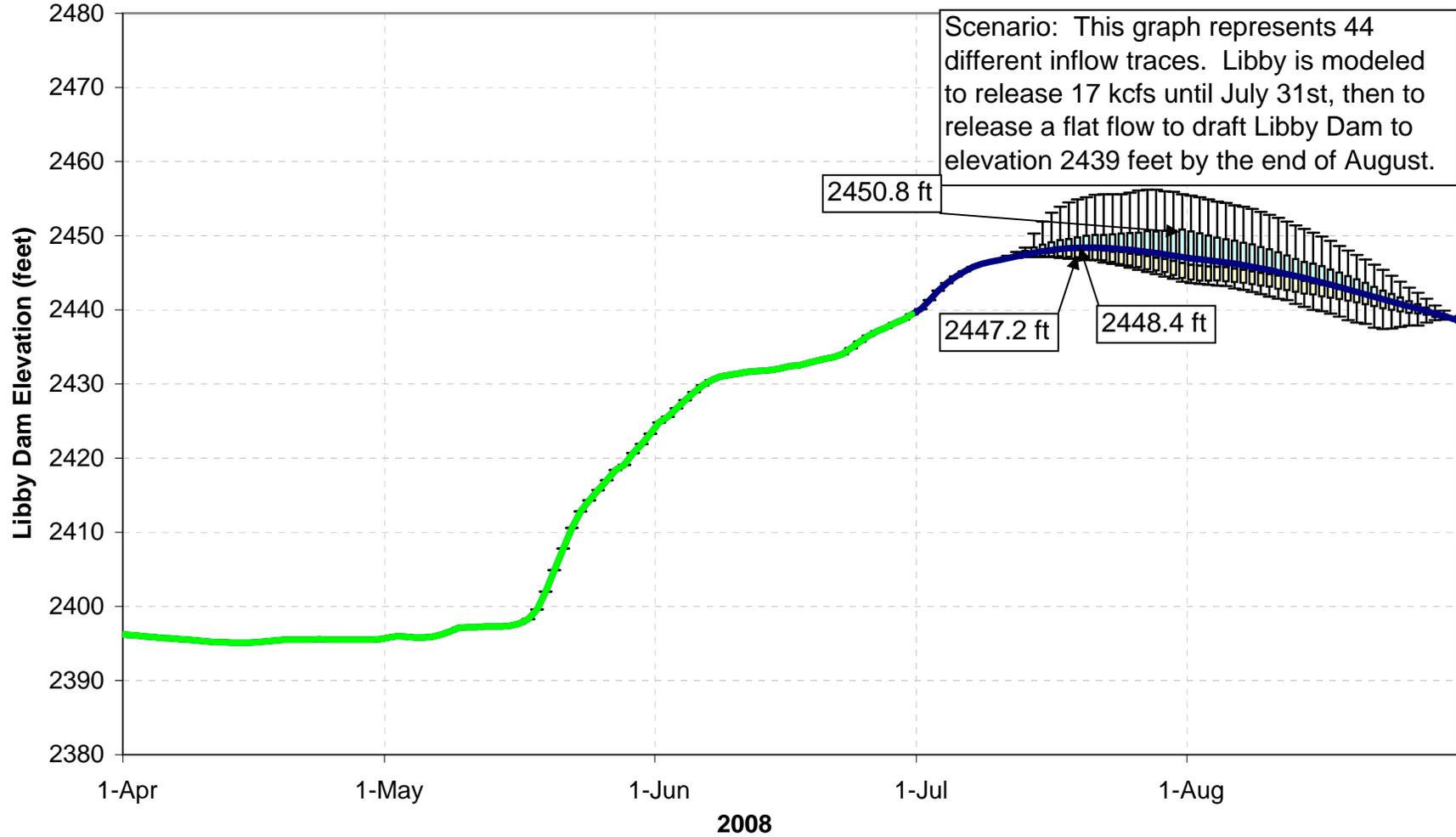
**Figure 2: Modeled Libby Dam Outflows  
Elevation 2439 feet at the end of August**

**ESP Traces from 30 June, 2008**



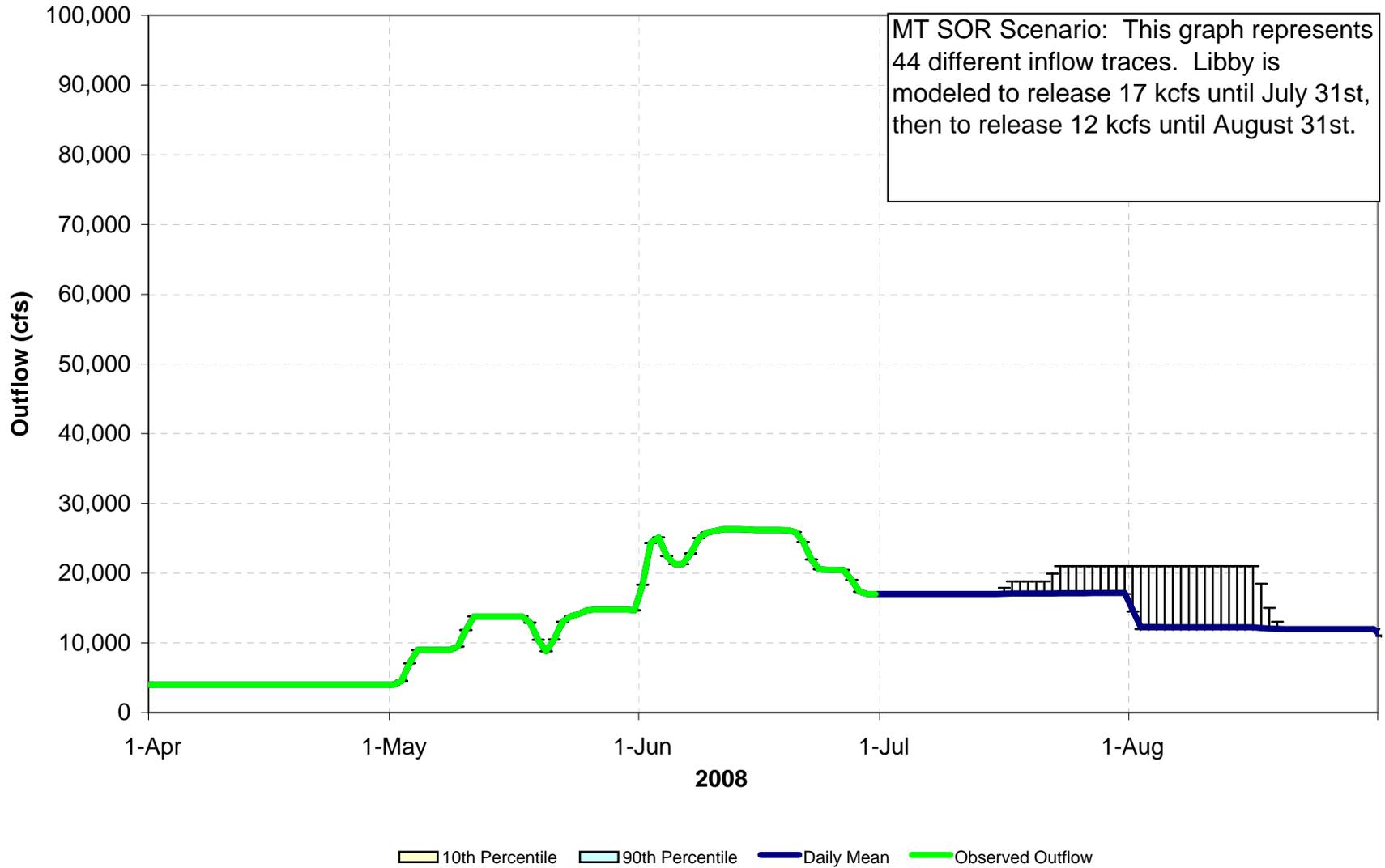
**Figure 3: Modeled Libby Dam Elevation  
Elevation 2439 feet at the end of August**

**ESP Traces from 30 June, 2008**



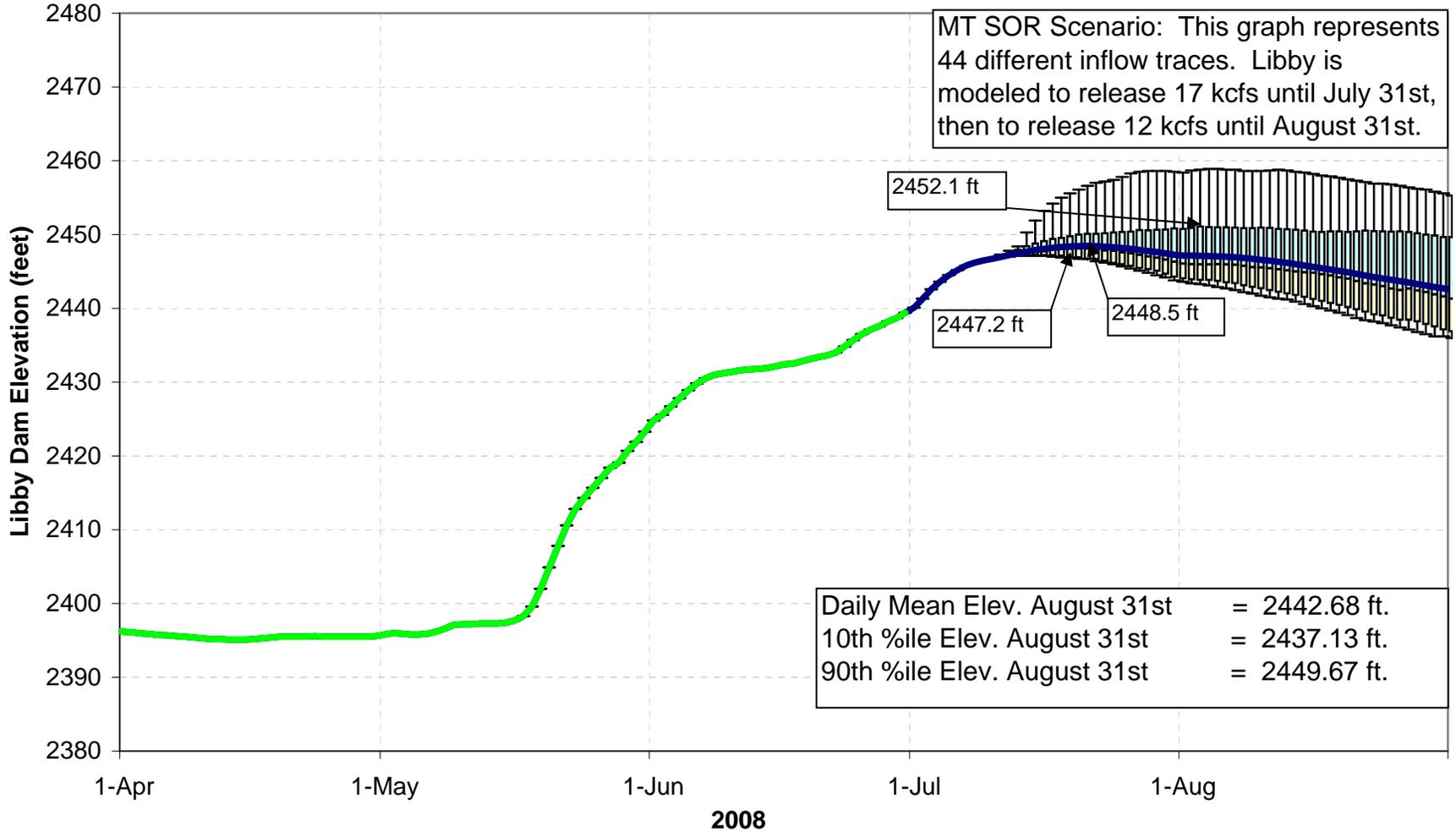
10th Percentile      90th Percentile      Daily Mean      Observed Outflow

**Figure 4: Modeled Libby Dam Outflows  
Montana SOR  
ESP Traces from 30 June, 2008**



**Figure 5: Modeled Libby Dam Elevation  
Montana SOR**

**ESP Traces from 30 June, 2008**



10th Percentile
  90th Percentile
  Daily Mean
  Observed Outflow

## Attachment 1

### Generation Emergency Action Plan (Updated July 2, 2008)

The following is a list of actions that the power system will pursue when attempting to avoid or delay a situation that would result in the interruption or adjustment of protection measures contained in the respective Biological Opinions (BiOps). Should the implementation of available resources on the pre-emptive actions list below fail to resolve a situation, or if the situation arises suddenly without warning, BPA shall initiate the process to declare a power system emergency. A request for the declaration of a power system emergency will initiate implementation of the actions from the Emergency Actions List on the next page.

Notification to the region will be made as soon as practical, and will follow the protocols for notification, reporting, and documentation as specified in the *Technical Management Team Emergency Protocols, Appendix 1 – Emergency Protocols of the TMT Water Management Plan*.

#### **Pre-emptive Actions** (not in priority order)

- Timely energy purchases at prices up to the FERC WECC price cap (currently \$400/mwh).
- Request that Corps and Reclamation return all units to service by canceling or postponing scheduled outages. (Makes all possible units available).
- Stop/delay Transmission O&M actions via AGC dispatcher.
- Put into service (on line) all possible generators (e.g., Grand Coulee pump-generators)
- Reshape flows within objectives at specific projects to meet immediate generation needs (deal with the immediate problem – this may throw the river out of whack – if applicable spill upstream projects to position water downstream).
- Cut prescheduled PNCA storage return to others
- Request Exceedance of draft limits
- Stop/Start pumping at Grand Coulee.
- Request tailwater rate of change exceedance at Bonneville Dam.
- Contact RCC and Tribes to alter Treaty fishing elevations is applicable.
- Reschedule power system maintenance to minimize impact fish protection measures.
- Monitor reserves and request a declaration of a NERC ALERT 1 (via AGC dispatcher) when there is concern about sustaining required operating reserves. Dispatcher will call NWPP Reliability Coordinator.
- Issue “Merchant Alert” through WECC.

### Emergency Actions List

The following is a prioritized list of emergency actions. This list may be updated as necessary through coordination with the TMT. The order of the list will be followed as best as possible. The order and extent of the actual implementation of the actions in this list will be dictated by each specific emergency.

Implementation of actions from the Emergency Actions List will not occur unless a declaration of a NERC Alert 2 or 3 Power System Emergency is requested by BPA.

#### Emergency Actions List (Updated via TMT as of July 2, 2008)

##### April – August period (MW amounts are approximate)

- Increase generation at JDA to operate outside 1% up to full load
- Increase generation at TDA to operate outside 1% up to full load
- Reduce spill at IHR to RSW with limited training spill (19 kcfs) 133MW
- Reduce spill at LWG to RSW only (~9 kcfs) 70MW
- Reduce spill at LWN to RSW only (~9 kcfs) 63 MW
- Reduce spill at LWG to 0 63MW
- Reduce spill at LGS to 0 77MW
- Reduce spill at LMN to 0 119 MW
- Reduce spill at IHR to RSW only (~9 kcfs) 133MW
- Reduce spill at IHR to 0 180MW
- Increase generation at MCN to operate outside 1% up to 16.5 kcfs per unit
- Increase generation at BON PH I to operate outside 1% up to full load
- Reduce spill at MCN to 20% of flow 180MW
- Reduce spill at BON to 50 kcfs while maintain B2CC spill 105/210MW
- Reduce MCN to TSW's only
- Reduce spill at BON to 0 200MW
- Reduce spill at JDA to 0 338MW
- Reduce spill at TDA to 30% 106MW
- Reduce spill at MCN to 0 (to save water for future hours)
- Reduce spill at TDA to 0 324MW
- Increase generation at BON PH II to operate outside 1% up to full load

##### September– March period

- Increase generation at JDA to operate outside 1% up to full load (Sep-Oct)
- Increase generation at TDA to operate outside 1% up to full load (Sep-Oct)
- Increase generation at MCN to operate outside 1% up to 16.5 kcfs per unit (Sep-Oct)
- Increase generation at BON to operate outside 1% up to full load (Sep-Oct)
- Shut off adult fish attraction BON
- Shut off TDA sluiceway
- Violation of BiOp ramp rates at HGH and LIB
- Increase project drafts that might impact spring refill.(HGH/LIB/DWR/ALF)

# COLUMBIA RIVER REGIONAL FORUM

## TECHNICAL MANAGEMENT TEAM

July 2, 2008 Meeting

### FACILITATOR'S SUMMARY NOTES ON FUTURE ACTIONS

Facilitator: Robin Gumpert

Notes: Erin Halton

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**

The 6/6, 6/11 and 6/18 official meeting minutes and facilitator notes had been posted to the web. No further changes were made to the 6/6 or 6/11 notes and minutes during the meeting and they were considered final. Dave Wills, USFWS, and Kyle Dittmer, CRITFC, mentioned minor edits to the 6/18 facilitator notes during the meeting; with those changes, the 6/18 facilitator notes and official minutes were considered final.

#### **2008 Summer Treaty Fishing**

Kyle Dittmer, CRITFC, reported on SOR 2008-C3, posted as a link to the TMT agenda. The request was for stable 1' elevation constraints for The Dalles, John Day, and Bonneville pools from 6 a.m. on July 1<sup>st</sup> - 6 p.m. on July 3<sup>rd</sup> and also 6 a.m. July 8<sup>th</sup> - 6 p.m. July 10<sup>th</sup>. The COE planned to operate the Bonneville pool under a 1.5' hard /1' soft constraint, The Dalles under a 3' hard/1.5' soft constraint and John Day under a 1.5' hard constraint, as was the case for the two previous treaty fishing requests.

**Action/Next Steps:** CRITFC will continue to inform the COE of expected dates/times for the summer treaty fishing season following each Tribal Compact meeting.

#### **Dworshak Operations Update**

Steve Hall, COE, reported that Dworshak was at elevation 1599.2' with inflows of 19 kcfs. Hall said the COE's plan for the near term was to operate Dworshak within .5' from full through 7/6; Kyle Dittmer made a request on behalf of CRITFC and the Nez Perce Tribe that the COE hold Dworshak as close to full pool as possible through the July 4<sup>th</sup> holiday weekend. Hall clarified that any elevation at or above 1599.5' is considered full pool from the COE's perspective. Idaho expressed support for the short-term plan as outlined by the COE. Tina Lundell, COE, referred TMT to a thermocline graph posted as a link to the TMT agenda; she noted the lower than average thermocline and said that current outflow temperatures were near 46°F. The COE said they planned to use an overshot operation if necessary to continue to manage temperatures as the season progresses. Dave Wills, USFWS, clarified that temperatures between 45-48°F (but no lower than 45°F) were acceptable from the Dworshak Hatchery's perspective. Kyle Dittmer, CRITFC, reported that temperature modeling results sent to him by Ben Cope,

EPA, showed conditions would likely be moderate throughout the summer operation timeframe.

**Action/ Next Steps:**

- The COE will operate Dworshak within .5' from full pool through 7/6.
- After 7/6 the project will pass inflows, with adjustments made as needed to achieve temperature targets.
- This item will be on the agenda for the 7/16 TMT meeting.

**Libby & Hungry Horse Summer Operations**

Jim Litchfield, MT, reported on SOR #2008-MT-2, posted as a link to the TMT agenda and addressed to TMT members as well as Sue Ireland, Kootenai Tribe of Idaho (as a shared signatory to the SOR). He briefly reviewed the justification, biological objectives and specific flows that were part of the request: for Libby, 17 kcfs flows through July and 12 kcfs flows through August, with no specific request for September operations. The request at Hungry Horse was to provide stable flows of 4.5 kcfs through September. Litchfield said that the SOR was a good faith effort to show respect for the multiple interests and uses of the system, providing more flows to the lower river in July when most needed for migrating fish, and lower flows in August (fairly steady and avoiding a double peak) to support upriver resident fish. He qualified the flow requests as a compromise between guidance in the 2008 BiOp and that from previous BiOps. He acknowledged that September flow recommendations will need to be informed by existing conditions as the season progresses.

Amy Reese, COE, referred TMT to several graphs posted as links to the TMT agenda; based on June 30 ESP traces, they showed flows associated with achieving an elevation of 2439' by the end of August. The graphs also showed traces for flows associated with the Montana proposal. She noted the range of outflows that would be associated with each, depending on the actual inflows at the projects. Reese clarified that inflow traces used to develop the graph had a median volume of just less than 5.8 MAF and that the Corps June April-August statistical volume forecast was 6.5 MAF.

TMT members discussed the graphs, the Montana proposal and the follow up action item from the 6/18 TMT meeting for agency interpretations of Libby/Hungry Horse operations for 2007 and the guidance behind recommendations for 2008. The following bullets summarize feedback provided by TMT members and other interested parties:

- NOAA: The Montana proposal is very good particularly given this good flow year. That said, 2007 operations chose a flow rate with the intent of drafting Libby to 20' from full pool by the end of August. For 2008 operations, in accordance with the court order to roll over 2007 operations, NOAA supports selecting a flow plan with the intent of drafting Libby 20' from full pool, based on the best available information as the season progresses.
- OR: Agree with NOAA's interpretation of the intent behind 2007 operations; support the same intent for 2008, and Montana's proposal does not appear to do that. Supports setting target flows today for both Libby and Hungry Horse that would achieve 20' drafts by the end of August. Acknowledge the need to set flows to even turbine loadings.

- ID: Support either the proposed operations for Libby in August – look to COE for their input.
- USFWS: No clear agency interpretation of intent behind 2007 operations at this point; no objection to 2007 rollover intent as described by NOAA.
- COE: agree that for 2007 flows were selected based on the elevation target for the end of August. As of today's meeting, the COE plans to operate Libby at 17 kcfs for the next two weeks, with the intent to draft 20' from full pool by the end of August.
- BOR: Appreciate the Montana proposal, and, the BOR is committed to rollover the intent of 2007 operations for Hungry Horse. The BOR will determine summer flows for Hungry Horse needed to achieve the 20' draft following refill (expected late next week); an early estimation is that flows may be set in the 6.3-6.7 kcfs range later in July and the BOR objective will be for as flat of a flow as possible.
- BPA: Agree with setting flow targets to even turbine loadings.
- MT: Given the response from the action agencies, will need to have further internal policy discussions; and there may be a need to elevate the issue to IT. Would be helpful if Hungry Horse flows could be established today, to provide the most flexibility for decision-making on this issue.
- Kootenai Tribe of Idaho: As a signatory to the SOR, supports Montana's proposed operation.
- CRITFC: Supports rollover of 2007 operations, and supports Oregon's interpretation and position.

Following this part of the discussion, the Action Agencies and Salmon Members each held a caucus. Rudd Turner, COE, clarified the COE's policy perspective on summer operations for Libby: while fully supportive of the 2008 BiOp, the COE is committed to a rollover of the intent behind 2007 operations (drafting Libby to 2439' by the end of August). The COE remains open to the region reaching consensus for July and August operations. Turner noted that the COE would need to notify the court of operations decisions as adjustments are made in order to reach the end of August target elevation. He added that the COE would need to operate to meet even turbine loading at Libby; Amy Reese, COE, informed TMT that flows for a three unit operation would be 15 kcfs.

**Action/ Next Steps:**

- Montana agreed to consider the new proposed operation and notify the COE by end of day whether it was acceptable to move to a flat flow (projected at 15 kcfs at Libby and around 6.3-6.7 kcfs at Hungry Horse) as soon as possible and continue to target 20' from full at both projects.
- The COE will review the forecasts and determine a day to reduce to a 3 unit full load operation at Libby dam that targets 2439 feet at the end of August.
- Following refill of Hungry Horse, the BOR will send TMT members an email (expected by the end of next week), communicating the date of refill and the flow rates that will draft the project 20' by the end of August.

- Libby/Hungry Horse summer operations are on the agenda for the July 10<sup>th</sup> IT meeting; operations will be discussed as necessary.
- This item will be on the agenda for the 7/16 TMT meeting.

### **McNary Transport**

Dan Feil, COE, reported that transport at McNary will begin when conditions are no longer “spring-like” (temps of 62°F or higher and flows under 220 kcfs.) Although temperatures have just recently reached 62°, flows at the project were in the range of 320-350 kcfs. He added that the TSW gate hoist work is complete, enabling transport at the project for this year and that the subyearling run is at its peak and expected to taper off in the next couple of weeks.

**Action/Next Steps:** McNary Transportation operations will be discussed at the 7/16 TMT meeting.

### **Emergency Protocols/Generation Action Plan**

Tony Norris, BPA, referred TMT to the Emergency Protocols posted as a link to the TMT agenda. He noted that the new protocols reflect the current context of an “Emergency” that is now defined as an interruption of a fish protection measure. The new protocols are now far less confusing and generically address how the Action Agencies communicate to TMT when an emergency is expected or occurs. Norris also highlighted that the attachments to the Protocols are Action Plans designated to address specific types of emergencies. Norris noted that TMT members have been part of the document’s development and he asked that all other interested parties review the document prior to the next scheduled TMT meeting on July 16, for formal finalization and adoption as Appendix 1 to the Water Management Plan. Regarding the Emergency Actions List, Norris reported that Bonneville Powerhouse 2 had been added to the end of the list per recommendations from the salmon managers as discussed at FPAC. The following TMT members weighed in on the latest draft:

- NOAA: no objection
- USFWS: no objection
- BOR: no objection
- COE: no objection
- MT: no objection
- OR: no objection
- ID: no objection

#### **Action/Next Steps:**

- BPA will adopt the Emergency Generation Action Plan as written into the Emergency Protocols. As this is a living document, edits may be sent in at any time; CRITFC intended to confirm it had been reviewed and share any comments/approval at the next TMT meeting.
- The Emergency Protocols will be on the agenda for finalization at the 7/16 TMT meeting; edits/comments may be emailed to Jim Adams, COE, prior to the meeting.

### **Operations Review**

Reservoirs: Libby was operating at 2440.5', with inflows of 35.3 kcfs and outflows of 17 kcfs. Albeni Falls was at 2061.7', with inflows of 57.7 kcfs and outflows of 56.8 kcfs. Dworshak was at 1599.2' with outflows of 15.8 kcfs. Seven day average flows at McNary were 327 kcfs, Lower Granite flows were 105 kcfs and Bonneville average flows were 314 kcfs. Averages for the spring season well exceeded spring flow objectives. Grand Coulee was operating at 1285.1'; Hungry Horse was at 3557.4' with outflows shifting from 9 kcfs to 11.4 kcfs on 7/2.

Fish: Paul Wagner, NOAA, reported that Jack and Sockeye counts were very strong, summer Chinook were fairly strong and yearling migration counts were winding down. The peak for subyearlings had just passed and the steelhead migration was nearing its end.

Power System: Nothing to report at this time.

Water Quality: Jim Adams, COE, reported that temperatures are much lower than average. He referred TMT to daily TDG data, showing many exceedances across projects for the May-June timeframe. For early July, the COE is observing exceedances mostly in the forebays, and the COE continues to manage TDG as best as they can given the high flows. Adams said he expected exceedances to diminish over the next couple of weeks. Regarding Gas Bubble Trauma (GBT) sampling, there have been a few incidences of GBT at Bonneville, Little Goose and Lower Monumental, but nothing out of the ordinary.

Other:

- Dan Feil, COE, said that repair work on the Bonneville corner collector hydrophone was complete and the operations are set up well for the summer study.
- John Roache, BOR, reported that 487 KAF is expected to be available for Upper Snake flow augmentation this year. More details will be provided at the 7/16 TMT meeting.

**Next TMT Meeting: 7/16 face-to-face**

Agenda Items include:

- Finalize notes/minutes
- Dworshak Operations
- Libby/Hungry Horse Operations
- McNary Transport
- Emergency Protocols
- Upper Snake Flow Augmentation
- Operations Review

**Columbia River Regional Forum  
Technical Management Team Meeting  
July 2, 2008**

**1. Introduction**

Today's TMT meeting was chaired by Jim Adams (COE) and facilitated by Robin Gumpert (DS Consulting) with representatives of BOR, NOAA, COE, USFWS, BPA, CRITFC, Oregon, Montana, Idaho, the Kootenai Tribe, 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**

There were no comments on either the facilitator's notes or official minutes for June 6 and 11, and no comments on the June 18 official minutes.

The June 18 facilitator's notes under "Dworshak Operations" now accurately reflect a statement made by Dave Wills (USFWS) that water temperatures of 46-48 degrees would be acceptable to the hatchery, but certainly nothing colder than that. Kyle Dittmer (CRITFC) suggested a small grammatical change to the June 18 facilitator's notes under "Treaty Fishery."

**3. 2008 Summer Treaty Fishery – SOR 2008-C3**

Kyle Dittmer (CRITFC) presented this SOR which CRITFC submitted to the COE last week. The fishery will run from 6 am on July 1 through 6 pm on July 3, and from 6 am on July 8 through 6 pm on July 10. The SOR asks for a 1-foot hard constraint on fluctuations in Bonneville, John Day and The Dalles pools. Last week CRITFC's net flight suggested there are 450 nets in the zone 6 pools, with 37% of those at Bonneville, 24% at The Dalles, and 39% at John Day pools.

The COE will provide the same conditions for this fishery as it has for the previous two treaty fisheries this season, Adams said. That includes a 1-foot soft constraint and a 1.5-foot hard constraint at Bonneville pool. Normal operating range at The Dalles pool is 3 feet, but the COE will operate The Dalles within a 1.5-foot range as a soft constraint during the fishery, with nighttime hours considered the most important. John Day pool will continue to be operated within its normal 1.5-foot range.

**4. Dworshak Operations**

Currently, the Dworshak pool is at 1,599.2 feet elevation, and the COE plans to keep it above that elevation until July 6, Steve Hall (COE) reported.

Inflows are about 19 kcfs but appear to be falling. As inflows drop, the project will pass inflows until it reaches full powerhouse capacity, currently 9.4 kcfs. Full powerhouse will be sustained until the COE receives a request for either flow or temperature augmentation. At this point, the COE is not certain the reservoir elevation will actually reach 1,600 feet, though inflows are still high. The intention is to reach at least 1,599.5 feet. Within half a foot is considered full.

**CRIFTC** requested that Dworshak be kept as close to the 1600 foot elevation as possible throughout July. **Idaho** expressed approval of the operational flexibility proposed by the COE.

Current outflow temperatures at Dworshak are 45.1 degrees F, Tina Lundell (COE) reported, using a combination of spillway and gates in an undershot mode. When the project isn't spilling, the operator will have to switch to overshot mode to get 44-45 degree F water. Lundell presented a graph linked to today's agenda, which shows that temperatures this year are about what they were last year. However, this year the top layers of the reservoir are cooler than last year. An appropriate target outflow temperature for this year would be 45 degrees F, about the same as this time last year. Dave Wills (USFWS) said temperatures of 46-48 degrees F would be acceptable at this point, while not ideal. If the water gets any colder than 45 degrees F, hatchery fish tend to stop feeding and growing.

Lower Granite tailwater temperatures are now 60 degrees F, when normally they would be pushing 68 degrees F this time of year, Adams said. The COE expressed some concern that releasing 47-48 degree F water now could drain the warmer portion of the reservoir, making it difficult to provide moderate temperatures later in the summer. The COE is watching this carefully. Wills suggested a notation on the graph showing the upper limit of overshot mode; Lundell will add that 35 feet of head is required.

TMT will check in on Dworshak operations at its next meeting July 16.

## ***5. Libby/Hungry Horse Operations – SOR 2008-MT-2***

Jim Litchfield (Montana) presented this SOR, offering a compromise between the historical operation and what's called for in the 2008 BiOp. The SOR calls for outflows to aid anadromous fish in July, balanced against the needs of resident fish in August and hopefully in September. The SOR does not specify September operations because Montana believes those should be discussed later as summer unfolds. In general, Montana wants stable or gradually declining flows into September. Discussion turned to individual projects.

**A. Hungry Horse Dam.** Full implementation of the operation called for in the 2008 BiOp would have been equivalent to an average 2.8 kcfs outflow from Hungry Horse. Implementation of the old operation would draft 20 feet from the

reservoir by end August, which would equal about 6.5 kcfs outflow. So **Montana** proposed 4.5 kcfs outflows, not a strict average but close to what happened last year. Outflows of 4.5 kcfs would provide a good aquatic environment in Montana.

**BOR** supports the Council's mainstem amendments and the 2008 BiOp but is committed to roll over 2007 operations per the court agreement, John Roache said. Last year, a flow for Hungry Horse was picked in late June targeting elevation 3,540 feet at the end of August, or 20 feet from full. That amounted to 4.4 kcfs flat outflows, with an actual elevation of 3,542.5 feet on Aug. 31. Hungry Horse ramped down to minimum flows after hitting that target. Like the COE (see below), BOR was not prepared to set a flow for Hungry Horse until the reservoir refills, due to uncertainty regarding inflows. According to ESP and STP traces that target 20 feet down by end August, Hungry Horse outflows should be 6.3-6.7 kcfs, Roache estimated. The BOR will notify TMT when Hungry Horse is near refill and a flat flow has been calculated, probably sometime late next week. The flat flow will be calculated based on the goal of reaching the end of August target elevation.

**Montana** asked whether it would be possible for TMT to agree today on rolling over last year's Hungry Horse operation of 4.5 kcfs flat outflows; **Oregon** said it would object to that operation.

**B. Libby Dam.** Operations are always more complex and uncertain at Libby than Horse, so Montana recommends that outflows of 17 kcfs continue through July, ramping down to 12 kcfs outflows in August. Last week's model runs indicated 17 kcfs is the predicted outflow needed to draft the full 20 feet out by end August, Litchfield noted. By contrast, if the reservoir were drafted in accordance with the 2008 BiOp and Council's mainstem amendments, the average outflow would have been 10 kcfs, for a difference of 7 kcfs. While the 2004 BiOp does call for 20 feet out by end August in both reservoirs, it also says that goal could be modified based on recommendations by the Council, Litchfield said. Therefore, Montana and the Kootenai Tribe have expected future operations to resemble the Council's mainstem amendments – which haven't happened, although last year was close.

Montana would like to establish a flow plan, rather than being held to a reservoir drafting limit, and expressed willingness to modify the flow plan as conditions change. What Montana wants to avoid is a sudden major increase in flows, creating the damaging double peak. The flow plan in the Montana SOR does present potential refill problems at Libby.

Last year's operation of 17.3 kcfs outflows began July 4 after being set in motion July 2, Adams recalled. Outflows of 17.3 kcfs continued until August 22, when they dropped to 15 kcfs until August 29, then to 13 kcfs and finally to 9 kcfs at the beginning of September. The elevation of Libby reservoir on August 31, 2007, was 2,439.1 feet.

Amy Reese (COE Seattle) showed TMT one scenario for the current Libby operation (figures 1-3 attached to today's agenda) based on NWS-RFC ESP traces from June 30<sup>th</sup>. The daily modeled mean outflow from these inflow traces is 14.8 kcfs, with Libby outflows ranging from 11-20 kcfs now to reach 2,439 feet elevation by end August. This represents a median outflow volume of just under 6 maf. The current Corps volume water supply forecast is 6.535 maf. Modeled elevations in the Libby forebay showed a daily mean peak of 2,448.4 feet.

Reese then presented modeling results of operations according to the Montana SOR (figures 4-5 attached to today's agenda). Figure 4 shows outflow ranges, with the daily mean as the same throughout the model. Figure 5 shows elevations of Libby reservoir, with a daily mean peak elevation of 2,448.5 feet, or a little more than 10 feet from full. With this set of ESP traces, if the COE followed Montana's flow plan, the daily mean elevation at Libby on Aug. 31 would be 2,442.68 feet, or 3.5 feet above the 2,439 foot target elevation. The graphs include 10<sup>th</sup> and 90<sup>th</sup> percentile values that range from 2,437.13 to 2449.67 foot elevations, indicative of wide variations in the inflow forecast. Litchfield asked and Reese confirmed that targeting elevation 2,439 feet at Libby for end August results in outflows of 14.8 kcfs rather than 12 kcfs in July, as in the Montana SOR. The difference is 2.8 kcfs outflows. The median difference in Aug. 31 elevations between the two operations is 3.68 feet. Litchfield emphasized that this year's plentiful flows in the lower river make it a good time to accommodate Montana's request for a compromise operation that benefits resident fish. Discussion then turned to the Action Agencies' views of the Montana SOR.

In response to figure 5, **USFWS** asked whether flat flows would average 14.5 kcfs under the Montana SOR; Reese wasn't sure. Litchfield agreed that's a good point – a flat flow of 14.5 kcfs through July and August would provide the same volume of water over the same period as the Montana operation.

**NOAA** expressed support for the collaborative spirit behind the Montana proposal, but recalled that the foundation of last year's operation was picking a flow that would target elevations 20 feet from full at both projects. Therefore, a similar operation this year would be in accordance with the court order to roll over 2007 operations. The Action Agencies have the flexibility to deviate from last year's operation, but that would require full regional consensus. The Montana SOR involves a different flow pattern this year, while meeting the same objective, Litchfield replied. He asked whether NOAA could support that operation as a rollover. Picking a flat flow rate isn't the issue, it's literally setting the target elevation like we did last year, Wagner replied. There was discussion of whether a literal rollover means raising or lowering outflows to target elevation 2,439 feet at Libby. **Oregon** said that would be a literal rollover of 2007 operations.

**Montana** advocated an operation based on flows, not ending elevation, and recalled that last year, a vibration in the forecast caused the COE to keep outflows at 17 kcfs regardless of whether that would result in hitting elevation

2,439 feet at end August. Oregon recalled the 2007 plan was to maintain outflows if inflows exceeded forecasts, but adjust outflows if inflows were less than forecasted so as not to drain Libby below elevation 2,439 feet or Hungry Horse below elevation 3,540 feet; Montana agreed that's what happened last year. **Oregon** supported that operation, but couldn't support the Montana SOR because it doesn't target an elevation 20 feet from full.

**Idaho** expressed support for either operation. **USFWS** supported the operation as described by NOAA and Oregon because that would replicate the spirit of 2007 rollover. **CRITFC** supported Oregon's position and Judge Redden's order to roll over 2007 operations.

Last year, a flow volume was set and the COE committed to maintain that volume outflow unless there was a risk of drafting below the 2,439 foot elevation target for Libby, Adams recalled. Given the uncertainty regarding inflows and snowmelt this year, the **COE** was not prepared to set a flow rate today for ramping down Libby flows. Therefore, the COE position is to continue 17 kcfs outflows and allow for further discussion of this issue at TMT meetings.

Let's not assume that setting a flow in July to reach 20 feet below full will result in a rampdown, Oregon said, and the COE agreed. Flows of 17 kcfs are too high, Montana said. Oregon agreed that flows should be lower and supported setting a constant flow target now that will achieve the end of August elevation. Last year, the flow rate was set on July 2 using STP information from late June, BOR recalled. Nevertheless, the COE was not prepared to set a flow today. According to the STP traces, that rate would be somewhere around 16 kcfs, or the average of 17 and 14.8 kcfs, Reese said. The STP results called for 15.4 kcfs.

Litchfield asked, if we set a flat flow target that would target 20 feet out at Libby, what would that be? If flows dropped today, the rate would be 16 kcfs based on daily ESP traces, Reese replied. Targeting 2,439 feet by end August was an important framework of last year's decision regarding Libby operations, Rudd Turner recalled. But if there's a desire to shape some of that flow earlier in the summer, the COE could go along with that. The COE fully supports the 2008 BiOp and Council's mainstem amendments. However, under the court order to replicate 2007 operations, the COE will turn to the 2004 BiOp which recognizes that a primary objective of the draft at Libby and Hungry Horse is to help meet flow objectives for salmon and steelhead in the Columbia.

Montana asked whether Oregon could support an operation at Libby that targets flows of 15.0 kcfs. Probably, Oregon said. That would be equivalent to full load on 3 units, BPA said. The COE will look into efficient turbine loading and notify TMT via email of what the target flow will be. Montana agreed to consider that operation and, if possible, withdraw its request to elevate the issue to IT, which meets next on July 10.

In the meantime, pending information on turbine loadings, the operating plan for Libby is to continue passing 17 kcfs until the best forecast shows Libby should ramp down to three units (assumed to be approximately 15.0 kcfs) in order to target elevation 2439 feet at the end of August. Based on flow rates per unit at this elevation, Libby is capable of passing approximately 5 kcfs per unit through 3 units, so 15 kcfs would be the maximum Libby outflow for three units, Reese said. Montana will notify TMT if it intends to elevate either Libby or Hungry Horse operations to IT.

## **6. McNary Transport**

Transport begins at McNary when conditions are no longer springlike, defined as water temperatures of approximately 62 degrees or higher, and flows of 220 kcfs or less, Dan Feil (COE) said. Yesterday was the first day of over 62 degrees at McNary, and flows were in the 320-350 kcfs range last week. The latest STP run indicates flows will drop to 220 kcfs around July 20. This year, unlike last year, the TSWs can be shut off for barge loading operations, thanks to installation of a gate hoist. Meanwhile, the subyearling run is peaking at McNary and will probably taper off in the next few weeks. TMT will revisit this issue at its next meeting July 16.

## **7. Emergency Protocols**

Tony Norris presented the latest iteration of BPA's emergency protocols and generation action plan, both linked to today's agenda. For the past couple of years, the Action Agencies have been revising the emergency protocols so that the document is more concise and meets the goals of fish protection measures. The protocols specify who will do what in the region, and what the follow-up will be in the event of a power emergency. Where previously some actions were embedded into the protocol itself, BPA has separated these into action plans, of which the generation action plan is one. Tony Norris also presented an updated Generation Emergency Action Plan that includes the latest input from the Salmon Managers regarding the list of Emergency Actions.

The Emergency protocols had only been posted for a day or so and therefore will be set to be approved at the next TMT meeting July 16<sup>th</sup>. Since the Salmon Managers had seen the changes to the Generation Action Plan, NOAA, COR, BOR, Montana, Oregon, Idaho and USFWS were all able to give their approval today of the generation action plan which is considered a living document, and the Salmon Managers can revise at any time the order in which emergency actions would be taken, Norris emphasized. CRITFC will review the two documents and respond at the next TMT meeting July 16.

## **8. Operations Review**

**a. Reservoirs.** Grand Coulee is at elevation 1,285.1 feet, targeting a refill elevation of 1,290 feet between July 7-14.

Hungry Horse is at elevation 3,557.4 feet. Outflows of 9 kcfs were increased this morning to 11.4 kcfs, or nearly full powerhouse. Refill will probably occur next week.

Libby is at elevation 2,440.5 feet and filling, with inflows of 35.3 kcfs and outflows of 17 kcfs.

Albeni Falls is at elevation 2,061.7 feet at the Hope gage, with 57.7 kcfs inflows and 57.8 kcfs outflows – in other words, passing inflows.

Dworshak is at elevation 1,599.2 feet, nearly full. Outflows are 15.8 kcfs.

Inflows at Lower Granite are 105 kcfs, up by about 4-5 kcfs in recent days. Inflows at McNary are 327 kcfs. Inflows at Bonneville are 314 kcfs.

**b. Fish.** The sockeye count is at 195,000 and climbing, with 210,000 forecasted and the forecast keeps going up, Wagner said. The summer Chinook count was 59,000, a relatively strong run with a high jack count. Yearlings are nearing the end of their migration, with less than 1,000 fish at most locations. Subyearling migration is currently in progress. Passage efficiency at Lower Granite has been high with the recent spill levels. The passage index at Granite hit 27,000, while further downstream at Little Goose, the count was only 347. The disparity reflects fish passing undetected during periods of high spill. Subyearling passage peaked at McNary at 141,000 fish on June 26. Steelhead passage is nearly done.

**c. Power System.** There was nothing to report at today's meeting.

**d. Water Quality.** Water temperatures are below normal for this time of year, Adams reported. There have been a number of TDG exceedances since May 15, continuing through June. In the Snake River, TDG levels peaked at 132.8% at the Lower Granite tailwater when flows were high and units 1 and 2 were out of service. Currently, Lower Monumental, Ice Harbor, McNary, John Day, The Dalles, and projects throughout the mid Columbia have experienced TDG levels above 115%, at forebay monitors. Now that flows are beginning to recede, TDG levels have been coming down. Wagner checked GBT sampling results on the Fish Passage Center webpage and found they have not been noteworthy during the recent high flows.

## **9. Other**

Replacement of hydrophones in the Bonneville forebay failed recently when the researchers' boat capsized, Dan Feil recalled. The hydrophones were successfully installed last week, making it possible now to gather information on fish behavior at the B2 corner collector.

John Roache gave a quick update on flow augmentation in the upper Snake River. The prospect is 487 kaf, and BOR began releasing flows yesterday to reach that goal. More detail on this will be available at the next TMT meeting.

## **15. Next Meeting**

The next regularly scheduled TMT meeting will be July 16 at the COE's Portland offices, with Dworshak operations, Libby and Hungry Horse operations, McNary transport, BPA's emergency protocols and generation action plan, and the usual operations review on the agenda. The following TMT meeting on July 30 will be held at NOAA's Portland offices. This summary prepared by consultant and writer Pat Vivian.

<b><i>Name</i></b>	<b><i>Affiliation</i></b>
John Roache	BOR
Rick Kruger	Oregon
Jim Litchfield	Montana
Paul Wagner	NOAA
Jim Adams	COE
Dave Wills	USFWS
Tony Norris	BPA
Kyle Dittmer	CRITFC
Scott Boyd	COE
Dan Feil	COE
Scott Bettin	BPA
Tim Heizenrader	Centaurus
Bob Diaz	PPM
Tina Lundell	COE
Bob Buchholz	COE
Cathy Hlebechuk	COE
Rudd Turner	COE
Laura Hamilton	COE
Don Faulkner	COE

### **Phone:**

Brian Marotz	Montana
Jeff Laufle	COE Seattle
Amy Reese	COE Seattle
Steven Hall	COE Walla Walla

Russ Kiefer  
Margaret Filardo  
Barry Espensen  
Richelle Beck  
Shane Scott  
Bruce McKay  
Tom Le  
Sue Ireland  
Alex Barr

Idaho  
FPC  
CBB  
DRA  
PPC  
Consultant  
Puget Sound Energy  
Kootenai Tribe  
Grant PUD

# TECHNICAL MANAGEMENT TEAM

**BOR** : John Roache / Mary Mellema / Pat McGrane      **BPA** : Robyn MacKay / Tony Norris / Scott Bettin  
**NOAA-F**: Paul Wagner / Richard Dominique              **USFWS** : David Wills / Steve Haeseker  
**OR** : Rick Kruger / Ron Boyce                              **ID** : Russ Kiefer  
**WDFW** : Cindy LeFleur                                        **MT** : Jim Litchfield / Brian Marotz  
**COE**: Jim Adams / Cathy Hlebechuk / Bob Buchholz

## TMT MEETING

Wednesday July 16, 2008 09:00 - 12:00

1125 N.W. Couch Street, Suite 4A34  
Portland, Oregon 97209-4142  
Map Quest [\[Directions\]](#)

### CONFERENCE PHONE LINE

Conference call line:203-310-2162; PASS CODE = 4703150

To check into the building, take the elevator to the 5th floor and the guard will issue you an ID badge if you need one and will take you down to the meeting room on the 4th floor. If you have NOT attended a TMT meeting in the past you will need to call ahead and let Jim Adams (503) 808-3938, Cathy Hlebechuk (503) 808-3942, or Bob Buchholz (503) 808-3945 know, so you can be added to the TMT Visitor List and issued an ID badge. This badge may be used indefinitely. If you have attended TMT in the past you may re-use your ID badge indefinitely. If you are a federal employee you will also need to have an ID badge issued to you which can be used indefinitely.

We have had disruptions on the phone because people are not hitting 'mute' after dial in.  
**Please MUTE your Phone**

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*All members are encouraged to call Robin Gumpert with any issues or concerns they would like to see addressed.  
Please e-mail her at [robin76@cnnw.net](mailto:robin76@cnnw.net) or call her at (503) 248-4703.*

## AGENDA

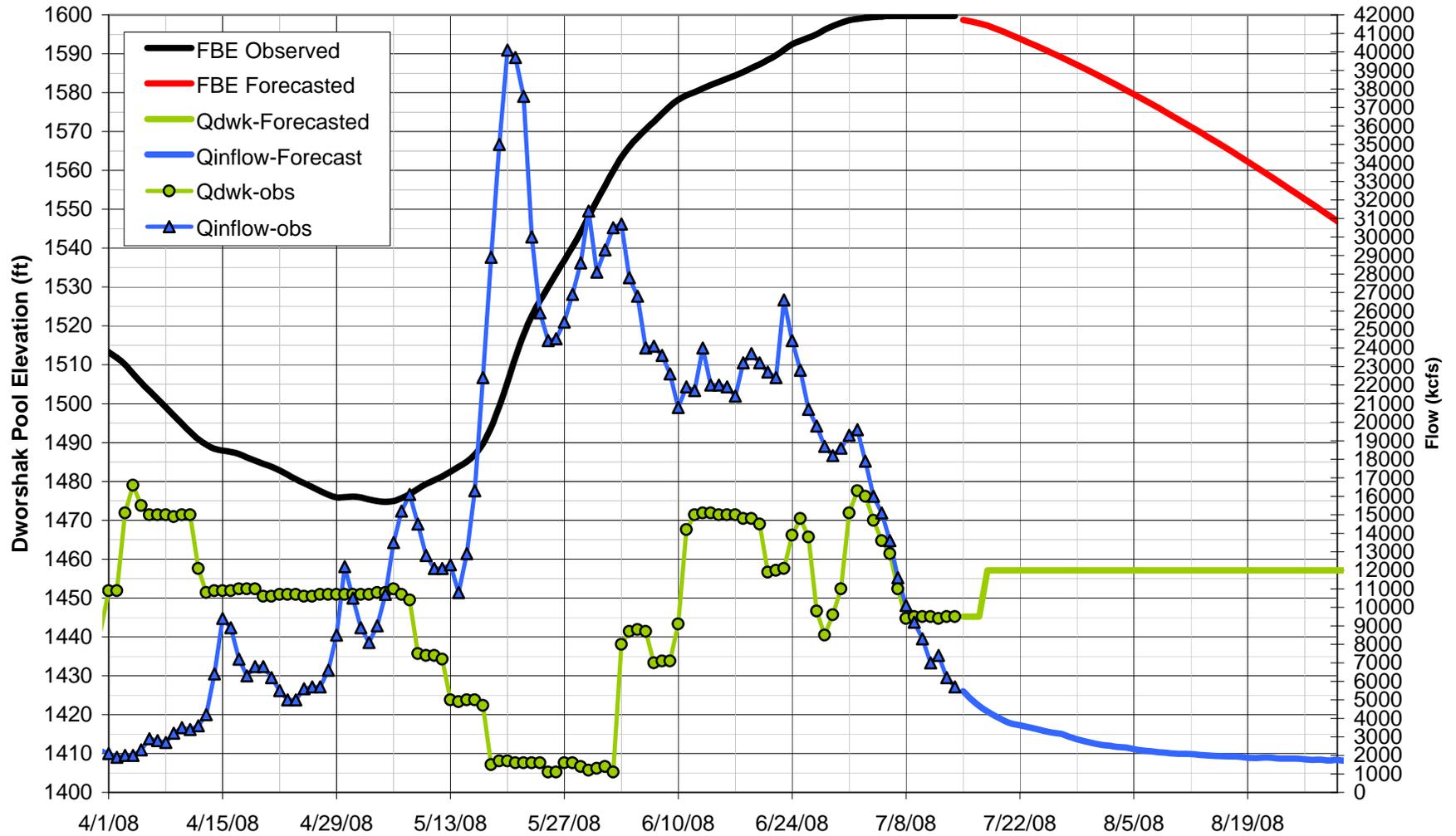
1. Welcome and Introductions
2. Review & Finalize notes/minutes [\[Meeting Minutes\]](#) 
3. 2008 Summer Treaty Fishery - Kyle Dittmer, CRITFC  
[\[SOR 2008-C4\]](#)
4. Dworshak Operations - Steve Hall, USACE  
[\[Water Temperature Comparisons\]](#)   
[\[2008 Flow & Stage Projection\]](#)   
[\[Dworshak Forebay Thermocline\]](#) 
5. Libby/Hungry Horse Operations Update - Jim Adams, USACE; John Roache, BOR  
[\[Figures 1 & 2\]](#)
6. Upper Snake River Flow Augmentation - John Roache, BOR

- [2008 Flow Augmentation Estimates]
7. McNary Transport - *Dan Feil, USACE*  
[[July Discharge & Temperature](#)]
  8. Emergency Protocols - *Tony Norris, BPA*  
[[Emergency Protocols - NOAA comments](#)]   
[[Emergency Protocols - NOAA comments addressed](#)]   
[[Generation Action Plan](#)] 
  9. Operations Review
    - a. Reservoirs
    - b. Fish
    - c. Power System
    - d. Water Quality  
[[Spill Information 2008](#)]  
[[TDG Data](#)]
  10. Other
    - a. Set agenda for next meeting - **July 30, 2008**  
[[Calendar 2008](#)] 

*Questions about the meeting may be referred to:*

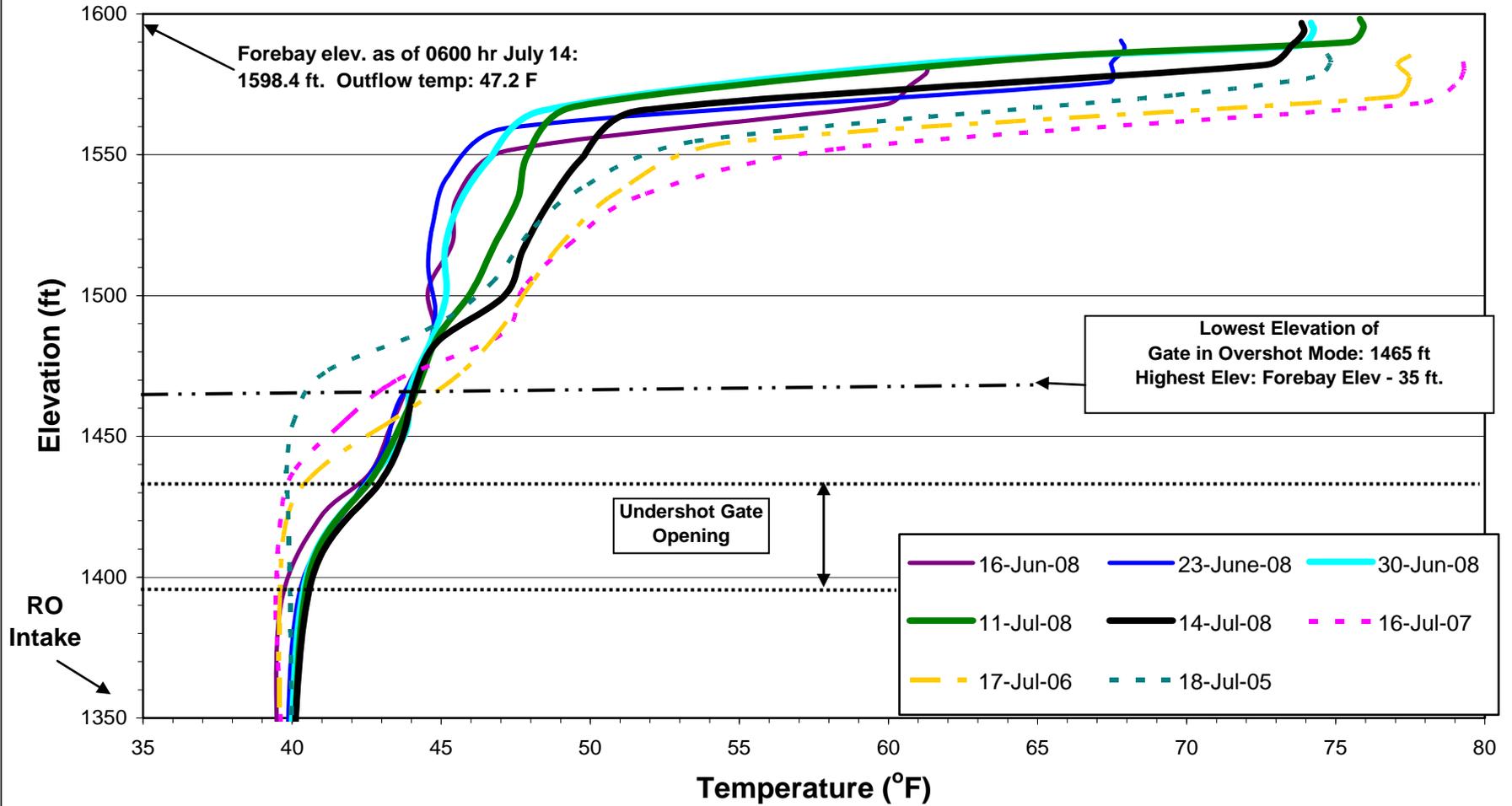
*[Jim Adams](#) at (503) 808-3938, or  
[Cathy Hlebechuk](#) at (503) 808-3942, or  
[Bob Buchholz](#) at (503) 808-3945.*

## Dworshak Reservoir 2008 Flow and Stage Projection

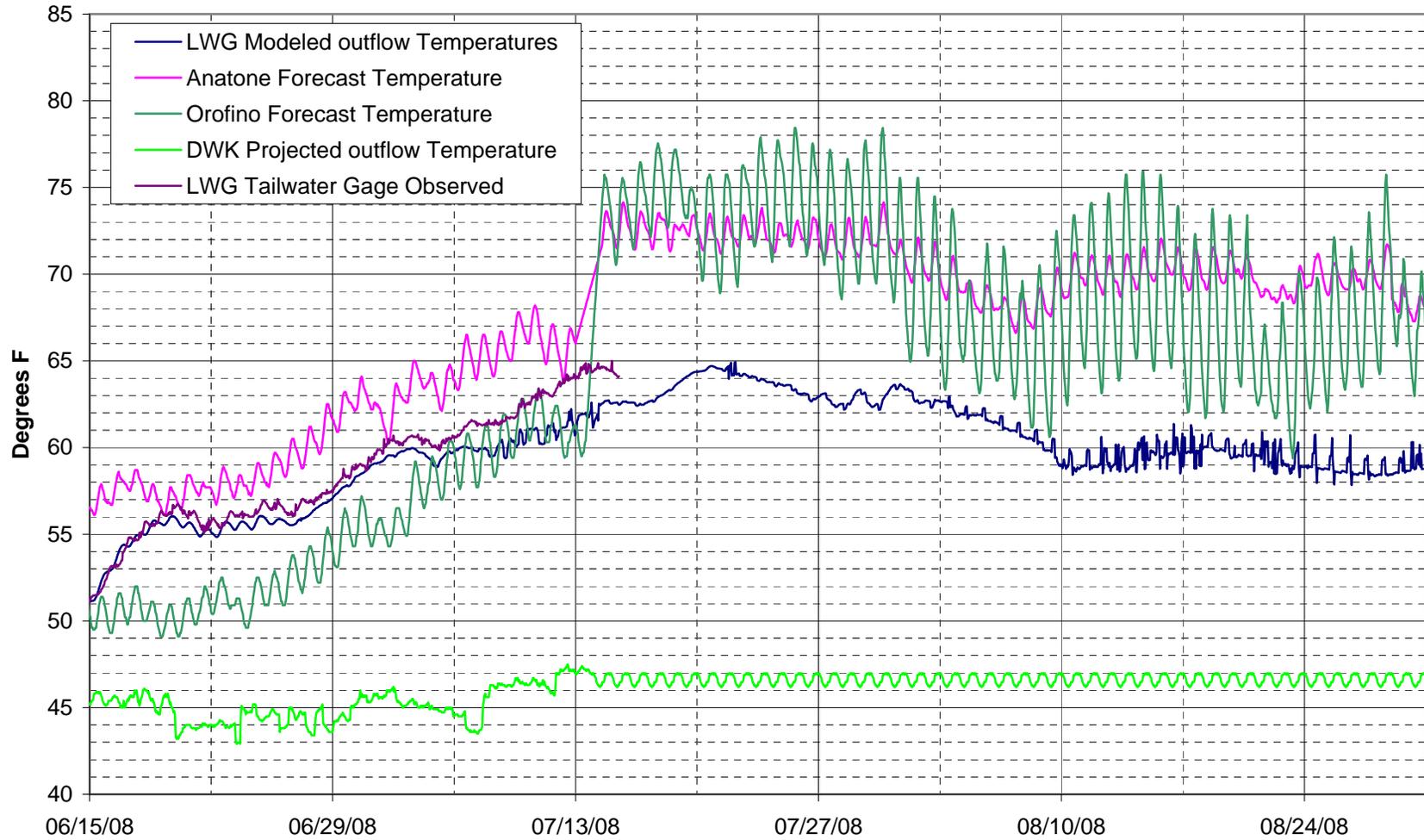


# Dworshak Forebay Thermocline 2008

(Data from Floating Temperature Stringer DWR\_S1 @ 0600 hr)



**Water Temperature Comparisons**  
**Observed data thru 7/13/08**  
**Forecast Temperatures from Year 2002**



## Attachment 1

### Generation Emergency Action Plan (Updated July 2, 2008)

The following is a list of actions that the power system will pursue when attempting to avoid or delay a situation that would result in the interruption or adjustment of protection measures contained in the respective Biological Opinions (BiOps). Should the implementation of available resources on the pre-emptive actions list below fail to resolve a situation, or if the situation arises suddenly without warning, BPA shall initiate the process to declare a power system emergency. A request for the declaration of a power system emergency will initiate implementation of the actions from the Emergency Actions List on the next page.

Notification to the region will be made as soon as practical, and will follow the protocols for notification, reporting, and documentation as specified in the *Technical Management Team Emergency Protocols, Appendix 1 – Emergency Protocols of the TMT Water Management Plan*.

#### **Pre-emptive Actions** (not in priority order)

- Timely energy purchases at prices up to the FERC WECC price cap (currently \$400/mwh).
- Request that Corps and Reclamation return all possible units to service by canceling or postponing scheduled outages. (Makes all units available).
- Stop/delay Transmission O&M actions via AGC dispatcher.
- Put into service (on line) all possible generators (e.g., Grand Coulee pump-generators)
- Reshape flows within objectives at specific projects to meet immediate generation needs (deal with the immediate problem – this may throw the river out of whack – if applicable spill upstream projects to position water downstream).
- Cut prescheduled PNCA storage return to others
- Request Exceedance of draft limits
- Stop/Start pumping at Grand Coulee.
- Request tailwater rate of change exceedance at Bonneville Dam.
- Contact RCC and Tribes to alter Treaty fishing elevations is applicable.
- Reschedule power system maintenance to minimize impact fish protection measures.
- Monitor reserves and request a declaration of a NERC ALERT 1 (via AGC dispatcher) when there is concern about sustaining required operating reserves. Dispatcher will call NWPP Reliability Coordinator.
- Issue “Merchant Alert” through WECC.

**Emergency Actions List**

The following is a prioritized list of emergency actions. This list may be updated as necessary through coordination with the TMT. The order of the list will be followed as best as possible. The order and extent of the actual implementation of the actions in this list will be dictated by each specific emergency.

Implementation of actions from the Emergency Actions List will not occur unless a declaration of a NERC Alert 2 or 3 Power System Emergency is requested by BPA.

**Emergency Actions List (Updated via TMT as of July 2, 2008)**

**April – August period** (MW amounts are approximate)

- Increase generation at JDA to operate outside 1% up to full load
- Increase generation at TDA to operate outside 1% up to full load
- Reduce spill at IHR to RSW with limited training spill (19 kcfs) 133MW
- Reduce spill at LWG to RSW only (~9 kcfs) 70MW
- Reduce spill at LMN to RSW only (~9 kcfs) 63 MW
- Reduce spill at LWG to 0 63MW
- Reduce spill at LGS to 0 77MW
- Reduce spill at LMN to 0 119 MW
- Reduce spill at IHR to RSW only (~9 kcfs) 133MW
- Reduce spill at IHR to 0 180MW
- Increase generation at MCN to operate outside 1% up to 16.5 kcfs per unit
- Increase generation at BON PH I to operate outside 1% up to full load
- Reduce spill at MCN to 20% of flow 180MW
- Reduce spill at BON to 50 kcfs while maintain B2CC spill 105/210MW
- Reduce MCN to TSW's only
- Reduce spill at BON to 0 200MW
- Reduce spill at JDA to 0 338MW
- Reduce spill at TDA to 30% 106MW
- Reduce spill at MCN to 0 (to save water for future hours)
- Reduce spill at TDA to 0 324MW
- Increase generation at BON PH II to operate outside 1% up to full load

**September– March period**

- Increase generation at JDA to operate outside 1% up to full load (Sep-Oct)
- Increase generation at TDA to operate outside 1% up to full load (Sep-Oct)
- Increase generation at MCN to operate outside 1% up to 16.5 kcfs per unit (Sep-Oct)
- Increase generation at BON to operate outside 1% up to full load (Sep-Oct)
- Shut off adult fish attraction BON
- Shut off TDA sluiceway
- Violation of BiOp ramp rates at HGH and LIB
- Increase project drafts that might impact spring refill.(HGH/LIB/DWR/ALF)

# **Appendix 1**

## **2008 Water Management Plan Technical Management Team Emergency Protocols**

FEDERAL COLUMBIA RIVER POWER SYSTEM

FOR ATTACHMENT TO THE  
WATER MANAGEMENT PLAN  
AND OTHER APPROPRIATE ACTION PLANS

Updated July 16, 2008

**Appendix I, 2008 Water Management Plan**

## Appendix I, 2008 Water Management Plan

### **1. Introduction**

This document establishes a protocol that will be used by the Action Agencies for notification, consultation, and documentation in the event of an emergency concerning the operation of the Federal Columbia River Power System (FCRPS) that impacts fish protection measures contained in the respective Biological Opinions (BiOps). The BiOps call for an annual Water Management Plan (WMP), which provides the detailed description of operations, based on the current year conditions, to ensure fish protection measures are consistent with Endangered Species Act responsibilities. This Protocol is meant to be general enough to encompass most kinds of emergencies. This Protocol pertains to short duration (approximately 1-7 days) interruptions or adjustments to protection measures for listed species that occur during the operation of the FCRPS.

The primary emergency types these protocols apply to are:

- Generation Emergency: the potential for or actual insufficiency of electrical generation to satisfy electrical demand or load.
- Transmission Emergency: the potential or actual loss or limitation in the ability to move electricity from the site of generation to the actual consumer or end-user.
- Fish Emergency: Unexpected equipment failures or other conditions that result in an interruption of fish protections measures.
- Other Emergency: the existence or result of extenuating circumstances which fall outside the range of normal operations, is unanticipated, and may significantly impair the ability to provide for other project uses, such as flood control or navigation, significant human health and safety concerns, or result in catastrophic impact, physical damage or failure to a dam, or other part of the physical power system. Examples include earthquakes, flood control operations, fires, navigation, dam safety, and failure of fish facilities infrastructure.

Specific Action Plans will be developed for Generation (*Completed-See Attachment I*), Transmission and Fish Emergencies that identify pre-emptive actions and emergency actions that will be taken consistent with this Protocol. Examples of thresholds for these types of emergencies are shown in the respective Action Plans contained in Attachments 1 and 2 of this Protocol. Action Plans are coordinated in the TMT process.

The degree and/or nature of any emergency ranges from those that require immediate action to those that are amenable to coordination among affected parties prior to action. In some instances it is possible to plan for and develop procedures to respond to an emergency, while in other instances this is not possible. In addition, while many types of emergencies can be described for purposes of this Protocol, not all emergencies can be identified prior to the actual occurrence. Discussion of emergencies with effects of exceptional magnitude or duration will include involvement of regional executives.

## Appendix I, 2008 Water Management Plan

Emergency actions will not be taken in place of long-term investments necessary to allow full uninterrupted implementation of the planned reservoir and dam operations while maintaining other project purposes.

Interruptions to protection measures for non-listed species are inclusive in these Protocols; however, priority will be given to protection measures for listed species.

### 2. Goals

The primary goal of this Protocol is to have written procedures that describe how the Action Agencies will manage the FCRPS to avoid or minimize emergencies impacting fish protection measures in accordance with ESA biological opinions and other operative documents such as the WMP, and provide timely communication and coordination with the TMT when they occur. When emergencies occur, the Action Agencies will work with TMT to restore the protection measures and provide the planned life cycle survival rates with priority given to in-time and in-place actions to the extent practicable. *(This does not create legal rights or obligations on the part of any party.)*

### 3. Definitions:

**Emergency** – A sudden, urgent, usually unforeseen occurrence or occasion requiring immediate action. As applied to this Protocol: when necessary interruptions or adjustments occur to fish protection measures identified in the applicable biological opinions, the Annual Water Management Plan, and other operative documents.

**Emergency Actions**- Actions taken by the Action Agencies in response to an emergency that affects fish protection measures.

**Action Agencies** - Bonneville Power Administration (BPA), Corps of Engineers (COE or Corps), and the Bureau of Reclamation (BOR or Reclamation)

**TMT** - Technical Management Team is one of the Regional Forum technical teams. Adaptive management of the FCRPS is coordinated in the Technical Management Team public meeting process.

**Water Management Plan.** - The Water Management Plan (WMP) describes how the Action Agencies plan to operate the FCRPS projects in accordance with the NOAA Fisheries and the U.S. Fish and Wildlife Service FCRPS Biological Opinions addressing the effects of the operation of the 14 FCRPS projects<sup>1</sup> (–this does not include the Willamette Projects or Upper Snake River Projects) during the current water year (October – September). The Fish Passage Plan (FPP) and Fish Operating Plan (FOP) for 2008 are appendices to the WMP.

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<sup>1</sup> For purposes of this Protocol, the FCRPS comprises 14 Federal multipurpose hydropower projects. The 12 projects operated and maintained by the Corps are: Bonneville, The Dalles, John Day, McNary, Chief Joseph, Albeni Falls, Libby, Ice Harbor, Lower Monumental, Little Goose, Lower Granite, and Dworshak dams. Reclamation operates and maintains the following FCRPS projects: Hungry Horse Project and Columbia Basin Project, which includes Grand Coulee Dam

#### **4. Emergency Protocol**

##### **4.1. Advanced Planning – Pre-emptive actions**

When the operation of the FCRPS is likely to require implementing emergency actions and the event can be anticipated approximately 24 hours in advance or earlier, the Action Agencies will convene a meeting of the TMT to discuss actions to undertake with the objective of averting or minimizing impacts to fish protection measures. This Protocol contains an Action Plan (see Attachment 1) that describes pre-emptive actions that will be pursued to avoid interrupting fish protection measures.

When conditions are identified that could potentially require the use of Emergency Actions within approximately 24 hours, the responsible agency, i.e. the Action Agency which would declare the emergency, shall notify the chair and co-chairs(s) of the TMT as soon as the situation is observed. If there is time, a TMT call or meeting will be arranged by the TMT chair or co-chair(s). If time allows, a discussion will be arranged, however, in some situations, the call may provide notification to TMT members of pre-emptive actions the responsible agency has deemed necessary.

The Action Agencies will implement all available pre-emptive actions prior to implementing emergency actions, and when feasible, the Action Agencies will implement alternate operations recommended by TMT.

##### **4.2. Emergency Response**

Emergency actions may be required as an immediate response if the pre-emptive actions fail to resolve the situation or the situation deteriorates without warning. If emergency actions are implemented as an immediate response an emergency will be declared. The Agency declaring the emergency will consider the prioritized emergency action lists provided in appendices of this Protocol, direction from TMT or other groups, standard operating procedures for specific projects, and/or guidance from appropriate responsible agencies to resolve the condition.

The Action Plans provided in the appendices of this Protocol have been discussed in the TMT forum will be used as guidance when events unfold too quickly for pre-coordination to occur. For emergencies requiring immediate action by those operating the respective hydropower project(s) or other elements necessary to sustain the function of the hydrosystem, after stabilizing the situation they will contact the chairs of the TMT and IT. The TMT chair or co-chair(s) will disseminate a notification via phone calls and emails to a “first contact list,” which will include designated members from TMT and others that have requested inclusion on the first contact list as soon as practicable, but not later than the next working day. A meeting of the TMT will be convened at the earliest time available after notification of the first contacts.

## **5. Documentation and Follow Up Requirement**

In all cases when emergency actions have been implemented, as soon as practicable, but not later than the next working day, the following information shall be provided by the agency declaring the emergency:

- Description of the emergency, how it occurred, and how long it is anticipated to last
- Description of how the emergency jeopardized system stability, public safety, or otherwise necessitated action that impacted fish protection measures.
- Identification of agencies that declared the emergency and agencies that responded to the emergency
- Identification of who was notified of the emergency
- Description of what actions were taken by each agency
- Identification of alternatives considered to reduce and offset impacts of the emergency.
- Further detailed information will be provided upon request of the TMT.

When requested by a TMT member, the TMT Chairperson will arrange for a follow-up TMT meeting or conference call to:

- Review status of the event,
- Insure that all requirements for the implementation of emergency actions by the Action Agencies have been met and that all alternatives for offsetting adverse fish survival impacts of the implemented emergency actions have been considered, and
- Review the use of emergency action lists and revise the lists based on any lessons learned.

In general, system operations will revert to normal conditions, or as agreed upon in the TMT, when the event has been resolved or emergency actions are no longer required. The agency that declared the emergency will submit a detailed report of the incident and response at the next TMT meeting following the event unless other arrangements are arranged through the TMT process.

The Action Agencies will provide an opportunity for representatives of the region's affected parties to review the course of events and the implemented emergency actions to suggest refinements to the actions. These issues will be discussed at the next TMT meeting following the event.

## **6. Offsetting Adverse Effects of Emergency Response Actions**

**6.1.** When emergency actions are implemented that cause adverse affects to fish protection measures, the TMT will assess the magnitude of the adverse effect and provide information on measures available to offset these effects. Alternative operations to offset adverse effects in-place and in-kind in a timely manner shall receive the highest priority. The members of the Regional Forum agree to cooperate in the development of this information for consideration through the TMT process.

**Appendix I, 2008 Water Management Plan**

**6.2.** When emergency actions impact a fish protection measure(s) included in a Biological Opinion, the appropriate agency (National Marine Fisheries Service (NMFS) or Fish and Wildlife Service (USFWS)) will consider the available information to assess whether the alternative operation used in response to the emergency situation is inconsistent with the relevant Biological Opinion(s), in that, in its expert opinion, the effects were in excess of what was contemplated in the analyses used in the respective biological opinion. If the alternative operation is determined to provide a reduction in the life cycle survival rate than that recommended in the Biological Opinion(s) analyses, then NMFS or USFWS will recommend to the federal operating agencies offsetting measures to ensure that the action satisfies Endangered Species Act requirements.

**6.3.** An Action Agency deciding not to provide offsets, or proposing offsetting actions that are different from those recommended through the TMT process, will provide a written explanation for the record stating the decision and the basis for the decision.

## **Emergency Protocols Attachments**

1. Generation Emergency Action Plan
2. Transmission Emergency Action Plan – (To be Developed by BPA)
3. Fish Emergency Action Plan – (To be developed by Corps)

# **Appendix 1**

## **2008 Water Management Plan Technical Management Team Emergency Protocols**

FEDERAL COLUMBIA RIVER POWER SYSTEM

FOR ATTACHMENT TO THE  
WATER MANAGEMENT PLAN  
AND OTHER APPROPRIATE ACTION PLANS

Updated July 2, 2008

**Appendix I, 2008 Water Management Plan**

## Appendix I, 2008 Water Management Plan

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## Appendix I, 2008 Water Management Plan

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**Appendix I, 2008 Water Management Plan**

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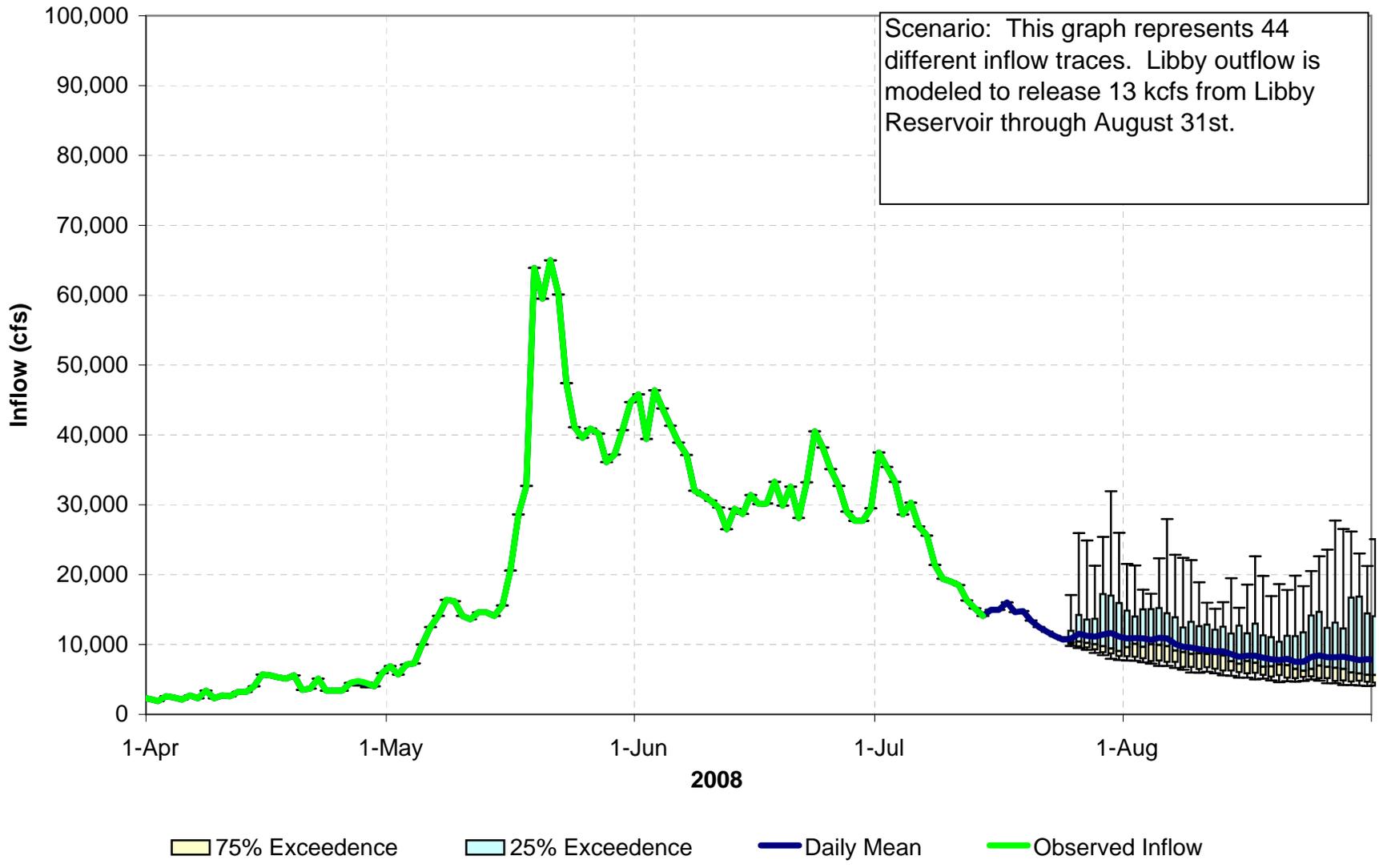
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## **Emergency Protocols Attachments**

1. Generation Emergency Action Plan
2. Transmission Emergency Action Plan – Where is it?
3. Fish Emergency Action Plan – Where is it?

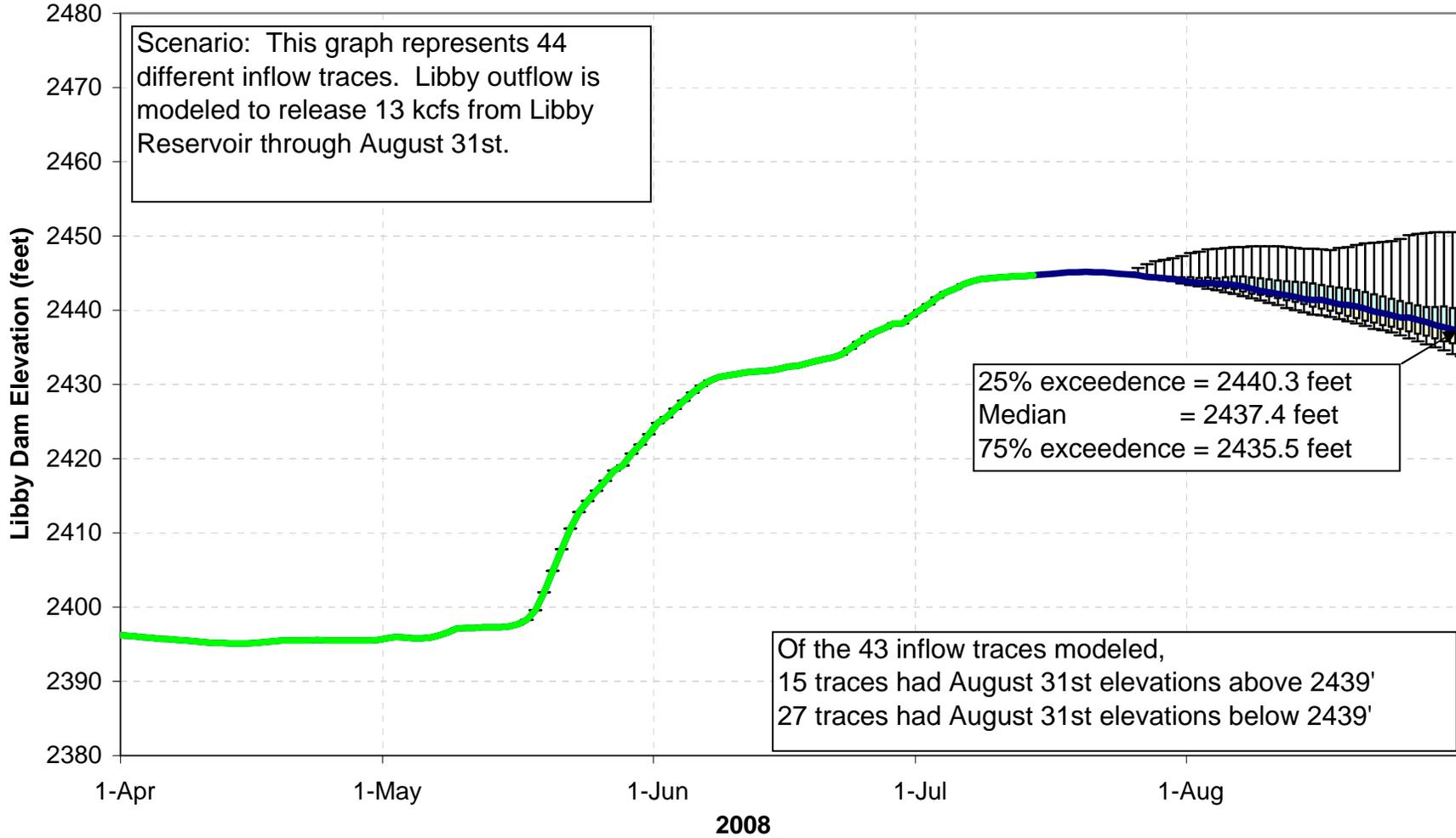
Figure 1: Forecasted Libby Dam Inflow

ESP Traces from 14 July, 2008



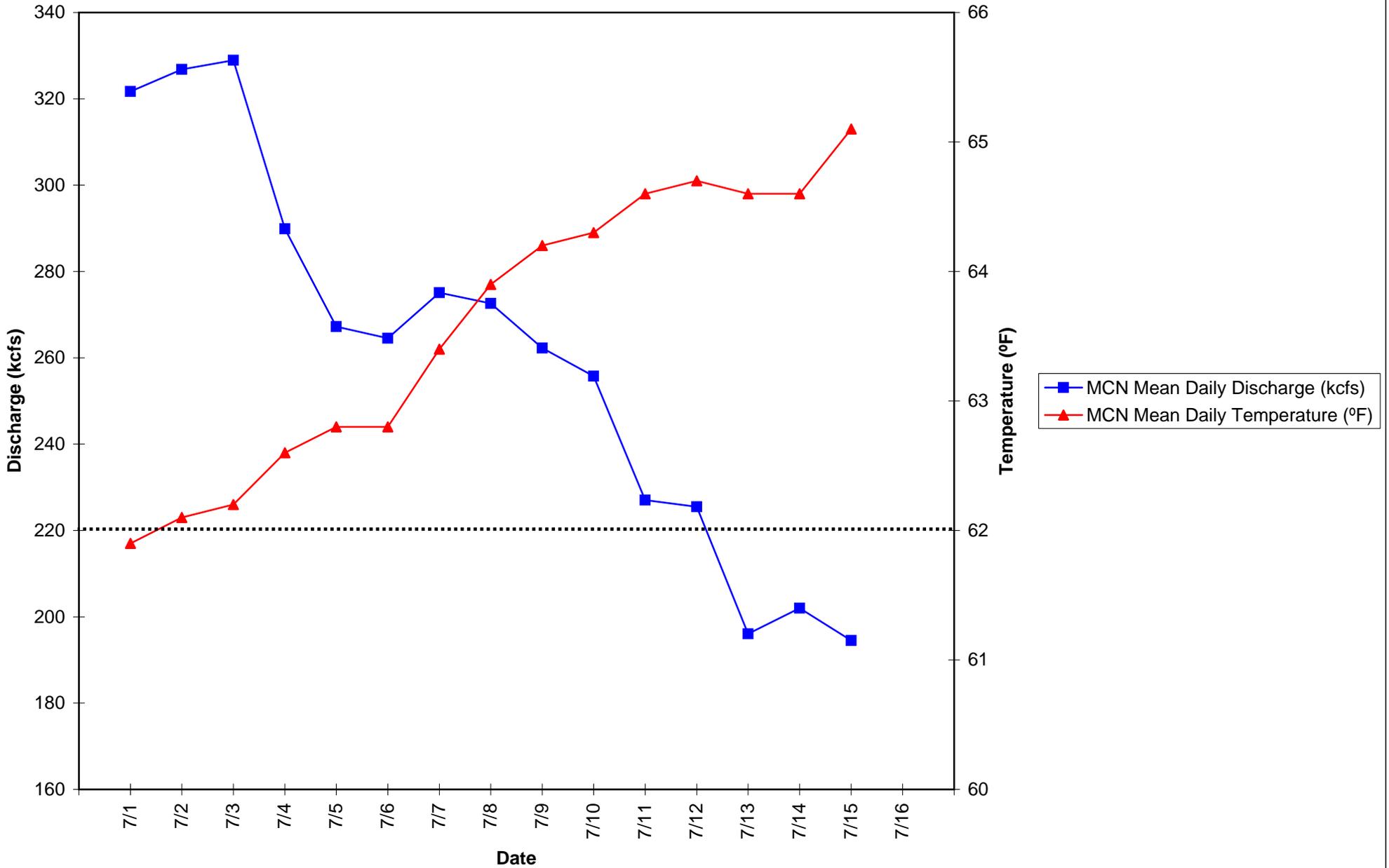
**Figure 2: Modeled Libby Dam Elevation  
Flat Flow to 2439 feet beginning July 12th**

**ESP Traces from 14 July, 2008**



75% Exceedence    
 25% Exceedence    
 Daily Median    
 Observed Outflow

# McNary Dam July 2008 Mean Daily Discharge and Temperature



## 2008 Flow Augmentation Estimates

### System and Source

#### *Upper Snake*

Palisades Powerhead	0
WD01 rentals	165000
Reclamation Space	20670
<hr/>	
Total above Milner	185670

#### *Natural Flows*

Idaho	60000
Skyline	17649

#### *Payette*

Reclamation Space	110000
WD65 rentals	65000

#### *Boise*

Lucky Peak	40932
Anderson Ranch Inactive (powerhead)	7749

**Total** 487000

Flow augmentation began on the Payette (variable rate, ~1000 cfs currently) on June 28, the Boise (~400 cfs) on June 1, and Milner (ramping to ~3100 cfs) on July 5.

Natural flows amount to about 220 cfs daily beginning April 3.

# COLUMBIA RIVER REGIONAL FORUM

## TECHNICAL MANAGEMENT TEAM

July 16, 2008 Meeting

### FACILITATOR'S SUMMARY NOTES ON FUTURE ACTIONS

Facilitator: Robin Gumpert

Notes: Erin Halton

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**

The 7/2 official meeting minutes and facilitator notes had been posted to the web. No further changes were made to the notes during the meeting and they were considered final.

#### **2008 Summer Treaty Fishing**

Kyle Dittmer, CRITFC, reported on SOR 2008-C4, posted as a link to the TMT agenda. The request was for stable 1' elevation constraints for The Dalles, John Day, and Bonneville pools. Dittmer noted the abundant sockeye this year and said the next flight survey results would be available the afternoon of 7/16. Jim Adams, COE, said that the COE planned to operate the Bonneville pool under a 1.5' hard /1' soft constraint, The Dalles under a 3' hard /1' soft constraint (with emphasis on nighttime hours), and John Day under a 1.5' hard constraint, as was the case for the three previous treaty fishing requests.

**Action/Next Steps:** Dittmer said there may be one more week of treaty fishing. CRITFC will continue to inform the COE of expected dates/times for the summer treaty fishing season following each Tribal Compact meeting.

#### **Dworshak Operations Update**

Steve Hall, COE, reported on CEQUAL modeling and referred TMT to temperature graphs linked to the TMT agenda. He noted some disparity between predicted versus observed data and clarified that the COE will likely use an average Lower Granite tailwater target temperature of 67° F for near-term planning. The latest STP projection shows Dworshak outflows in the range of 13.1 kcfs will achieve an end of August 1535' elevation. The COE reported that a two-day gate test at Dworshak Dam is scheduled for next week, either on 7/22-23, or 7/23-24; this will require a need to hold the pool as high as possible, likely in the range of 1585-1588'. The COE apologized for the lateness in announcing the gate test, and clarified that each of the three required cycles for opening and closing each gate should take less than five minutes each. To meet the requirements of the test, the COE planned to operate the project at 12 kcfs. Hall added that as soon as tests were completed, the COE anticipates a shift to full power house plus spill.

Paul Wagner, NOAA, reported that the Salmon Managers discussed potential Dworshak operations of shifting to 14 kcfs or a staggered shift to 12 then 14 kcfs; Wagner said the COE's planned operation is acceptable to the Salmon Managers. Kyle Dittmer, CRITFC, added that the Nez Perce Tribe also supports the operation, so long as it will meet the end of August target elevation of 1535'. Regarding temperature targets, the USFWS recommended 47°F for Dworshak releases to accommodate the fish hatchery, with careful monitoring as the operation moves ahead. Dave Wills, USFWS, suggested referring to temperature formulas applied during 2007 operations of Lower Granite, as they were a successful management tool.

**Action/ Next Steps:**

- Jim Adams, COE, will send all TMT members the STP runs from 7/14.
- The COE will operate Dworshak at 12 kcfs through 7/24 (or whenever the gate test ends) and then shift to full power house plus spill (approximately 14 kcfs) in order to reach elevation 1535' by the end of August.
- TMT will discuss Dworshak operations as necessary and the COE will make adjustments as necessary as actual conditions unfold.
- Salmon Managers will bring information about the management strategy used in 2007 to the 7/30 TMT meeting.
- This item will be on the agenda for the 7/30 TMT meeting.

**Libby & Hungry Horse Summer Operations**

Jim Adams, COE, reported on Libby operations: the project dropped outflows from 17 to 15 kcfs on 7/11, then shifted from 15 to 14 kcfs at 2100 hours and down to 13 kcfs at 2200 hours on 7/12. As of 7/16, outflows at the project were holding at 13 kcfs, with an elevation of 2444.75'; inflows of 14.1 kcfs were filling the pool slightly. Amy Reese, COE, reported on graphs linked to the TMT agenda: she clarified that currently forecasted inflow traces and maintaining outflows of 13 kcfs through the end of August would result in a median elevation of 2437.4', a 25% exceedance elevation of 2440.3', and a 75% exceedance elevation of 2435.5'. Reese said that water supply forecasts have dropped slightly over the last few days.

Jim Litchfield, Montana, queried TMT members as to whether they objected to maintaining planned operations for Libby/Hungry Horse. Rick Kruger, Oregon, said that Oregon does not support the plan because there is no contingency for desired "make up" volumes later in the season but will not object to it. Jim Adams, COE, said operations will continue as described in the COE's July 8 email. The COE clarified that if modeling shows elevation levels will be at or above 2439' by the end of August, no adjustments will be made to the planned operation; should water supply forecasts indicate that outflows of 13 kcfs would result in a drop below the 2439' end of August elevation target, adjustments may be made per further regional discussion.

Rudd Turner, COE, reported that the COE is preparing to notify the court of the operation, as part of their reporting on hourly data for each month. Gayle Lear, COE, clarified that the specifics of Libby/Hungry Horse operations will be communicated to the court via a special July report specific to Libby/Hungry Horse. USFWS added that

they want to avoid a double peak this season; MT supports that position. As such, it was suggested that the COE confirm approval of the operation from the court as soon as possible.

Oregon clarified that they want any flows not released from either project to be made up from other stored water sources. The COE stated that they were not in a position to agree to Oregon's request at this point and said further analysis of this year's requirement to rollover 2007 operations will determine whether it may be possible to meet the request. Oregon also requested that COE modeling show historical comparisons of predicted vs. actual flows.

John Roache, BOR, reported on Hungry Horse operations: as planned, elevation at the project reached the top 1' by 7/14. Roache said that the latest ESP results (50% trace from the July 15 ESP) indicate the current outflows of 6.45 kcfs would have to be decreased to around 6.2 kcfs in order to not draft the project more than 20' from full by the end of August. However, Roache said that the current plan is to maintain discharges between 6.4 and 6.5 kcfs and re-evaluate as we progress through the summer. He reported that inflows were in the range of 4-5 kcfs and the current elevation was 3558.8'.

#### **Action/ Next Steps:**

- The COE will continue to operate Libby as described in the COE's July 8 email.
- The COE said that they would look at ways to add historical forecasts, whisker bars and exceedance frequency ranges to future graphs/models; the COE planned to coordinate with Kruger on how to best meet the request.
- The COE will share procedural court reporting information with TMT at the 7/30 meeting; the COE will also provide feedback to OR as to their ability to pursue "make up" water in the event that a full 20' draft of Libby would not be met.

#### **Upper Snake River Flow Augmentation**

John Roache, BOR, reported on upper Snake River flow augmentation. Roache provided TMT with 2008 flow augmentation estimates, posted as a link to the agenda; he noted that natural flows amount to about 220 cfs daily beginning on April 3<sup>rd</sup>. Augmentation releases began on the Payette on June 28, the Boise on July 1 and above Milner on July 5

#### **McNary Transport**

Dan Feil, COE, reported that conditions were determined to be no longer "spring-like" (temps were 62°F or higher and flows were under 220 kcfs) as of 7/15. Feil clarified that the TSW gate hoists will allow closure of the TSWs for fish barge navigation purposes and not significantly disrupt spill. Spill outages will likely be only a half an hour or so as fish barges arrive and depart McNary. Regarding criteria for shifting from barge to truck transport, the COE was open to discussion around using passage data, but guidance in place at this point (per the Fish Operations Plan) is date specific to 8/16. TMT reviewed 2008 passage index data on the Fish Passage Center (FPC) website and observed that as

of 7/14, passage at McNary was dropping and will likely continue to decline. Feil said the COE proposed commencing transportation at McNary immediately following the TMT meeting and asked TMT members to weigh in on the matter. The following bullets summarize responses given during the meeting:

- NOAA: supports the start of transport on 7/16.
- OR: no objection, but they will closely watch TSW operation.
- ID: no objection; stated that the best scientific information available from NOAA data does not show a benefit to adult returns with the use of transport. However, as FOP takes precedence, there is no objection. Paul Wager, NOAA, clarified that the data Idaho referred to is from years little or no spill that may not be the best to use to compare to current conditions, as this year spill will be provided.
- MT: it is a good plan; NOAA and the COE should get data on truck versus barge survival.
- WA: no objection
- USFWS: no objection; asked whether truck transport had been considered. Dan Feil, COE, said at this point the COE planned to use the barges for transportation through 8/16 and use truck transport after 8/16, per the FOP.
- BOR: no objection
- BPA: no objection
- CRITFC: no objection.

**Action/Next Steps:** McNary Transportation will be discussed at the 7/30 TMT meeting. PIT tag data will help inform the discussion around survival associated with truck versus barge transport and TMT may revisit the date for switching to truck transport.

### **Emergency Protocols**

Tony Norris, BPA, referred TMT to the Emergency Protocols posted as a link to the TMT agenda. Norris reported having received good comments from Paul Wager, NOAA, posted as a link and in redline format. Norris said that along with NOAA's edits, he planned to clarify that the Transmission and Fish Emergency Action Plans are still to be developed (by the BPA and COE respectively.) Norris reminded TMT that emergency action plans are living documents and will make that clear in the language of the Emergency Protocols. The following parties weighed in on the latest draft:

- NOAA: no objection
- USFWS: no objection
- BOR: no objection
- COE: no objection
- MT: no objection
- WA: no objection
- ID: no objection
- OR: abstain from weigh-in, as unable to provide review.
- CRITFC: plans to review and submit any edits directly to BPA.

**Action/Next Steps:** BPA will adopt the Emergency Protocols into the 2008 Water Management Plan. As this is a living document, edits may be sent in at any time. The COE will post the Emergency Protocols as currently written as an appendix to the Water Management Plan and will create sub-links for action plans.

### **Operations Review**

**Reservoirs:** Grand Coulee was at 1289.3' and targeting elevation 1280' by the end of August. Hungry Horse was at 3558.8' with outflows in the range of 6.4-6.5 kcfs. Libby was operating at 2444.8', with inflows of 14 kcfs and outflows of 13 kcfs. Albeni Falls was at 2062.3' and passing inflows. Dworshak was at 1597.6' with inflows at 5.1 kcfs and outflows of 9.5 kcfs. Seven day average flows at McNary were 221 kcfs, Lower Granite flows were 54.1 kcfs and Bonneville average flows were 222.7 kcfs.

**Other:** Dan Feil, COE, said that from 7/9-22, the COE planned a soft constraint on McNary pool elevation range: 337-338.5', which is within the normal pool operating range, to support archeological work being conducted in the pool near Hood Park. Also, summer biological tests are ending: Ice Harbor will shift to 45 kcfs spill during the day and gas cap spill at night for 7/17 through 8/31; McNary will continue at 40% / 60% spill levels, on a two day alternating schedule. John Day is moving to 30% 24hrs/day, with no spill through the TSWs. Bonneville is targeted to be at 75 kcfs during the day on 7/21, down from 85 kcfs. Lower Monumental is targeted to be at 17 kcfs through 3 bays. Little Goose will continue to use three alternate patterns at 30%.

**Fish:** Cindy LeFleur, WA, reported that summer Chinook passage numbers are at stable, low levels and that Steelhead were passing Bonneville at rates of 5-8,000 per day and are expected to continue at that rate through August. Paul Wagner, NOAA, reported that Sockeye numbers are still high; TMT was referred to a memo posted on the FPC website, with some analysis as to the high numbers for this year. Wagner said that ocean conditions have been good and this should be considered in the analysis. Juveniles are done passing, and sub yearlings are winding down, with Lower Granite seeing passage of less than 5,000 per day, and Lower Monumental passage at 500 per day. McNary passage is at 46,000 and is likely seeing the tail end of passage season.

**Action:** A request was made to the FPC to consider ocean conditions in its analysis of the high sockeye numbers, as this is likely a contributing factor.

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

**Water Quality:** Jim Adams, COE, reported that TDG exceedances have diminished over the last couple of weeks. He added that spill over the past weekend at Lower Monumental had dropped well below the targeted 17 kcfs, and TMT requested better management of this in the future. BPA acknowledged that the transition to lessen volumes of water in the system could have been handled better and said that instructional modifications were sent to remind schedulers to make correction, and this will be reported to the court. Idaho expressed a concern for the biological impacts associated with dramatic flow fluctuations.

**Next TMT Meeting: 7/30 face-to-face at NOAA Fisheries**

Agenda Items include:

- Finalize notes/minutes
- 2008 Summer Treaty Fishing
- Dworshak Operations
- Libby/Hungry Horse Follow-up
- McNary Transport, as needed
- Operations Review

**Columbia River Regional Forum  
Technical Management Team Meeting  
July 16, 2008**

***1. Introduction***

Today's TMT meeting was chaired by Jim Adams (COE) and facilitated by Robin Gumpert (DS Consulting) with representatives of NOAA, USFWS, BOR, COE, BPA, CRITFC, Idaho, Montana, Oregon, Washington 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***

There were no comments on either the facilitator's notes or the official minutes for the July 2 TMT meeting. Both were deemed final.

***3. 2008 Summer Treaty Fishery – SOR 2008-C4***

Kyle Dittmer (CRITFC) presented this SOR which CRITFC submitted to the COE late last week. This fishery runs from July 15-17 and from July 22-24. The SOR calls for a 1-foot elevation band as a hard constraint on operation of the pools at Bonneville, John Day and The Dalles dams. Last week's net flight sponsored by CRITFC indicated there are over 300 nets in the river, with 39% of those at Bonneville, 22% at The Dalles and 39% at John Day.

The COE will provide the same conditions for this fishery as it has for the two previous treaty fisheries this year, which includes a 1-foot soft constraint and 1.5-foot hard constraint on Bonneville pool operations. Normal operating range at The Dalles pool is 3 feet, but the COE will operate it within a 1.5-foot range as a soft constraint for the fishery, with emphasis on the evening hours. John Day pool will continue to operate within its normal 1.5-foot range, Adams said.

***4. Dworshak Operations***

Steve Hall (COE) presented the most recent CEQUAL modeling of potential Dworshak operations. There's some disparity between forecasted and observed data, with actual temperatures higher than forecasted. Therefore the COE is forecasting temperatures that are approximately 2 degrees F warmer than modeled data. For example, the graph of model results now suggests temperatures will stay below 65 degrees F, but the COE predicts that range will actually rise to 67 degrees F.

Flows were modeled as increasing to 12 kcfs on July 16 and remaining constant, but the COE is aware flows will need to go higher than that in order to get the reservoir elevation down to 1,535 feet by August 31. The latest STP projection shows flat flows of 13.1 kcfs are needed to reach elevation 1,535 feet by Aug. 31.

The COE has scheduled a dam safety Spillway Gate Trunnion friction test for July 22-24, which will involve opening each of the Spillway gates 2 feet, then immediately closing them again three times for each test. Ensuring that the gates are functioning correctly is a dam safety issue. The COE is attempting to keep the pool elevation above 1,585-1,588 feet in order to obtain valid test results. Outflows of 12 kcfs should maintain the pool at or above that elevation through July 25. The COE apologized for scheduling this test so late in the season, there was a delay caused by the lengthy contracting process required. The COE proposed to operate Dworshak at 12 kcfs outflows until the test is completed, then go immediately to full spill below the TDG cap of 110%, a discharge of approximately 14 kcfs or more.

The Salmon Managers had discussed this operation before today's meeting. Initially they recommended 14 kcfs outflows, with an alternative of 12 kcfs outflows followed immediately by 14 kcfs, Paul Wagner said. The Salmon Managers agreed that either operation would be acceptable. Kyle Dittmer (CRITFC) informed TMT that the Nez Perce Tribe, although not represented in today's meeting, has indicated it would not object to the proposed operation as long as Dworshak reservoir reaches elevation 1,535 feet by end August. With that information, the Salmon Managers were able to reach consensus on the COE's proposed operation for Dworshak today.

Discussion then turned to temperature management. Currently Dworshak is operating now at full powerhouse, with the big unit in undershot mode and two small units in overshot mode. The resulting outflow temperature is 47 degrees F as requested previously by the hatchery. The outflow temperatures have maintained Lower Granite tailwater temperatures below 65 degrees F, well below the 68 degrees F criteria at Lower Granite tailwater.

Jim Adams asked the Salmon Managers what temperature they would like to target. For purposes of the hatchery, 47 degrees F keeps fish growing on schedule, Dave Wills, **USFWS**, said. If the water temperature rises to 67 degrees F at Lower Granite, the operation could be changed to one small unit in overshot mode and one in undershot, Wagner said. The Salmon Managers didn't discuss the impacts of travel time from Dworshak to Lower Granite, Wills said. They want to look at applying last year's formula to this year. The reservoir appears to be considerably warmer at deeper elevations (1,400-1,450 feet) than in previous years, Adams pointed out. Undershot mode is releasing water of 43-44 degrees F, while in previous years Dworshak releases in undershot mode were around 41 degrees F this time of year.

Tony Norris, **BPA**, asked whether 14 kcfs is the highest flow that can be discharged under the gas cap. Using the spillway might allow Dworshak outflows to go as high as 15 kcfs, Adams replied. Overall STP volumes are higher than the water supply forecast for April to September, so this forecast is probably conservative – meaning flows might have to be reduced later to avoid overdrafting the reservoir, Hall said.

If the gages for the trunnion test can be successfully mounted on July 22, the switch to 14 kcfs outflows will happen the night of July 23 or 24. The COE will keep an eye on reservoir elevation and inform TMT of the actual schedule for next week's test. The Salmon Managers will review last year's process for setting temperature triggers at Lower Granite and Dworshak. TMT will revisit this issue at its next meeting.

## ***5. Libby/Hungry Horse Operations Update***

**A. Libby Dam.** After the July 2 TMT meeting, the COE presented its proposed operation to IT on July 10 and, hearing no objections, dropped Libby outflows from 17 to 15 kcfs on July 11 at 2100 hours. Because ramp rates change at 16 kcfs, the COE stepped down from 15 to 14 kcfs outflows on July 12 at 2100 hours, then from 14 to 13 kcfs at 2200 hours, Adams reported. Libby outflows have remained at 13 kcfs, with a current forebay elevation of 2,444.75 feet. Inflows (daily average) are 14.1 kcfs.

Amy Reese, COE Seattle, presented modeling of Libby operations. Modeling of 13 kcfs outflows through August 31 showed a median end of August elevation of 2,437.4 feet, about 1.5 feet below the target elevation of 2,439 feet. The 75% exceedance elevation is 2,435.5 feet and the 25% exceedance elevation is 2,440.3 feet, meaning half the traces modeled were between those two elevations.

Jim Litchfield, **Montana**, asked whether TMT still has consensus on the previously negotiated plan to maintain Libby outflows at 13 kcfs unless it looks like the reservoir will be drafted below elevation 2,439 feet. **Oregon** didn't object to the plan, although it didn't support the operation either. The lack of support was due to a lack of contingencies to make up the 20-foot drafts at Libby and Hungry Horse if inflows don't materialize.

With Oregon's statement on the record, the **COE's** next step to notify the Department of Justice and ultimately the court that regional agreement has been reached on a compromise operation. The COE submits monthly reports to the court consisting of tables showing hourly elevations and spill levels are in accordance with 2007 operations, with a footnoted explanation for each variance.

Because the June report was recently sent, the COE will need to notify the court separately of today's agreement.

If inflows turn out to be greater than forecasted, and water is left in the reservoir, **Oregon** requested that water be made up from some other stored water sources. The **COE** was not in a position to agree to that request today, and will review whether it is in accordance with 2007 operations. Otherwise, the operation discussed today will move forward.

**B. Hungry Horse Dam.** Using last week's proposed operation, **BOR** predicted that Hungry Horse reservoir would be within a foot of full by July 14, and the prediction materialized. Modeling showed that flows of 6.4-6.5 kcfs will be needed to draft the reservoir to elevation 3,540 feet by end August. On July 14, the reservoir began releasing between 6.4 and 6.5 kcfs. The BOR's proposed operation is to continue releasing 6.4-6.5 kcfs. Inflows are currently 4-5 kcfs. The reservoir is close to full and slowly drafting.

Rick Kruger, **Oregon**, requested a graph that superimposes actual flows on projections, for the sake of comparison. Tony Norris, BPA, pulled up ESP volume comparisons from the TMT web page as a possible response to this inquiry. Amy Reese said she would put together a graph. She and Kruger agreed to work together outside of TMT.

## ***6. Upper Snake River Flow Augmentation***

The full 487 kaf of flow augmentation will be available according to the latest BOR estimates. John Roache presented a table showing a break-down of where the expected water volumes are originating from... Augmentation releases began on the Payette on June 28, the Boise on July 1 and above Milner on July 5.

## ***7. McNary Transportation***

The Fish Passage Plan states that transport will begin at McNary when conditions are no longer springlike, defined as water temperatures of approximately 62 degrees or higher and flows of 220 kcfs or less. Dan Feil showed TMT a plot of mean daily discharges from McNary, linked to today's agenda. As of yesterday both conditions were met, so the **COE** proposed that transportation operations begin immediately.

**NOAA** and **USFWS** had no objection. Rick Kruger questioned whether transport would disrupt operation of the TSWs, which would conflict with FOP instructions that transportation of juvenile fish will begin if it doesn't significantly conflict with operating the TSWs. Installation of a gate hoists earlier this year means the TSWs can be opened and closed in just a few minutes, so extended TSW outages to accommodate fish barge navigation are no longer an issue, Feil

said. **Oregon** didn't object to the proposed operation but will watch TSW operations closely.

**Idaho** didn't object because the operation is in accordance with legal agreements, but believes the operation is not a good idea. Dave Wills asked whether switching to truck transport would avoid interrupting TSW operation. The FOP states that barges will be used until Aug.16 and trucks after Aug.16, Feil replied. There are too many fish in the river now to load them in trucks. The date is currently the only guidance, although a different trigger based on passage counts could be worked out, Feil said. Truck transportation is less of an issue for subyearlings than yearlings because of the way imprinting works, Wagner noted.

**Washington, CRITFC, BOR, BPA** and **Montana** voiced no objections to starting transport operations as soon as possible. Any data on truck vs. barge survival would be helpful in discussing the merits of switching to truck transport, Litchfield said. The COE will begin transport operations tomorrow morning, July 17. TMT will revisit this issue at its next meeting.

## ***8. Emergency Protocols***

Tony Norris presented the latest iteration of BPA's emergency protocols, with comments from **NOAA** recently incorporated. Dave Wills, **USFWS**, said he'd reviewed the comments and the latest iteration, which looked fine. He suggested presenting the protocols in a separate attachment that can be easily updated. **Oregon** had no comment on the protocols and doesn't have time to review the document. **Idaho, Montana** and **Washington** have reviewed it and voiced no objections to the current iteration. **CRITFC** intends to comment but wasn't ready to do so today. The documents will be posted under appendix 1 of the 2008 Water Management Plan as attachments so they can be printed separately. These documents can be revised at any time as needed, Norris emphasized.

## ***9. Operations Review***

**a. Reservoirs.** Grand Coulee is at elevation 1,289.3 feet. The reservoir reached 1,290 feet or full on July 14, and is now slowly drafting toward a 1,280 foot elevation target for end August.

Hungry Horse is at elevation 3,558.8 feet. Outflows are 6.4-6.5 kcfs.

Libby is at elevation 2,444.8 feet with inflows of 14 kcfs and outflows of 13 kcfs, filling slowly. Inflows are dropping and the reservoir will begin drafting soon.

Albeni Falls is at elevation 2,062.3 feet at the Hope gage, passing inflows of 30 kcfs.

Dworshak is at elevation 1,597.6 feet. Inflows dropped to 5.1 kcfs yesterday; outflows are 9.5 kcfs.

Inflows at Lower Granite are 54.1 kcfs (7-day average). Inflows at McNary are a 7-day average of 221 kcfs and dropping, as are inflows at Bonneville, now 222.7 kcfs.

Due to an archaeological investigation in the McNary pool, there will be a soft constraint of 337-338.5 feet on pool elevation from July 9-22, Dan Feil reported. McNary continues to alternate between 40% and 60% spill levels according to a randomized schedule which will become systematic later this week as testing concludes. The new schedule will consist of two days of 40% spill followed by two days of 60% spill, alternating through Aug. 31.

Many summer tests are ending this week, which means there will be spill changes at the projects, Feil said. Beginning the morning of July 17 through the remainder of the spill season, Ice Harbor will spill 45 kcfs during the daytime and to the gas cap at night.

John Day has been alternating between 30% and 40% spill levels for summer testing and will go to 30% spill for the rest of the season without the TSWs operating. The current spill pattern for 30% spill won't reach the TSW bays under current flow conditions, as long as total river flow remains below 180 kcfs.

As of July 21, Bonneville will switch to 75 kcfs spill during the daytime. It has been spilling 85 kcfs during the day for most of the summer, in accordance with the FOP.

Lower Monumental is no longer on the bulk spill/uniform spill test and has begun spilling 17 kcfs in a single pattern through three bays, the TSW bay plus bays 2 and 6.

Little Goose will continue with three alternating spill patterns at 30% for the rest of the spill season.

**b. Fish.** Summer Chinook numbers are stabilizing at around 800 fish per day at Bonneville, while steelhead numbers there increased to 5,000 per day recently. Chinook adult numbers will stay stable for a while, then increase at the end of August. Sockeye numbers remain phenomenal. It's unclear how much of the sockeye boom is due to increased hatchery production vs. natural production. The high sockeye counts (750,000 at Lower Granite, way beyond expectations) have been attributed to better migration conditions, successful hatchery production plans, and good timing this year in terms of ocean productivity.

In terms of juvenile passage, yearling Chinook migrations are nearly finished. Subyearling migration is active at present, with around 5,000 fish

passing Lower Granite per day (according to index counts), 500 at Lower Monumental, and 46,000 at McNary. Subyearling passage is declining at McNary but will probably continue at John Day and Bonneville for the next six weeks.

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

**d. Water Quality.** Previously high TDG levels have declined with flow volumes, Adams said. There were no exceedances in the system for a couple of days, then a few recently at the Camas-Washougal gage below Bonneville Dam.

There was discussion of recent conditions at Lower Monumental Dam, when spill recently dropped from 17 to 7 kcfs due to human error. BPA has issued instructions alerting its duty schedulers to spill constraints, and the system is already being operated differently. Idaho asked whether there would be a report to the court on remedial actions taken at Lower Monumental Dam; the response was yes. While the resulting fluctuations were within legal limits and therefore acceptable, Idaho expressed concern that such a large change in just a few hours might not be the best way to keep fish moving through the system.

## **10. Next Meeting**

The next regularly scheduled TMT meeting will be on July 16 at NOAA's Portland offices. The 2008 summer treaty fishery, McNary transportation, Dworshak operations, follow-up on court notification regarding the Libby and Hungry Horse compromise, and the usual operations review will be on the agenda. This summary prepared by consultant and writer Pat Vivian.

<b>Name</b>	<b>Affiliation</b>
Paul Wagner`	NOAA
Dave Wills	USFWS
John Roache	BOR
Jim Adams	COE
Tony Norris	BPA
Dan Feil	COE
Rudd Turner	COE
Bob Buchholz	COE
Scott Boyd	COE
Kyle Dittmer	CRITFC
Russ George	WMC
Rick Kruger	Oregon

### Phone:

Russ Kiefer	Idaho
Jim Litchfield	Montana
Scott Bettin	BPA
Shane Scott	PPC

Tim Heizenrader	Centaurus
Joe Wallin	PPM Energy
Steven Hall	COE Walla Walla
Steve Juul	COE Walla Walla
Dale Lentz	COE Walla Walla
Dave Benner	FPC
Richelle Beck	DRA
Jennifer Miller	Susquehanna
Tom Le	Puget Sound Energy
Cindy LeFleur	Washington
Amy Reese	COE Seattle
Dave Benner	FPC
Scott Bettin	BPA

# TECHNICAL MANAGEMENT TEAM

**BOR** : John Roache / Mary Mellema / Pat McGrane      **BPA** : Robyn MacKay / Tony Norris / Scott Bettin  
**NOAA-F**: Paul Wagner / Richard Dominique              **USFWS** : David Wills / Steve Haeseker  
**OR** : Rick Kruger / Ron Boyce                              **ID** : Russ Kiefer  
**WDFW** : Cindy LeFleur    **MT** : Jim Litchfield / Brian Marotz  
**COE**: Jim Adams / Cathy Hlebechuk / Bob Buchholz

## TMT MEETING

Wednesday July 30, 2008 09:00 - 12:00

**NOTE: This Week's Meeting Location**

NOAA Fisheries  
1201 N.E. Lloyd Blvd.  
Portland, Oregon

Mt. St. Helens Room, 10th Floor Conference Room

### CONFERENCE PHONE LINE

Conference call line:203-310-2162; PASS CODE = 4703150

We have had disruptions on the phone because people are not hitting 'mute' after dial in.  
**Please MUTE your Phone**

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*All members are encouraged to call Robin Gumpert with any issues or concerns they would like to see addressed.  
Please e-mail her at [robin76@cnnw.net](mailto:robin76@cnnw.net) or call her at (503) 248-4703.*

## AGENDA

1. Welcome and Introductions
2. Review & Finalize notes/minutes [[Meeting Minutes](#)]
3. 2008 Summer Treaty Fishery - Kyle Dittmer, CRITFC  
    [\[SOR 2008-C5\]](#)
4. Libby/Hungry Horse Operations Update - Jim Adams, USACE
5. Dworshak Operations Update - Jim Adams, USACE  
    [\[Water Temperature Comparisons\]](#)  
    [\[Flow & Stage Projection\]](#)
6. McNary Transport Update - Dan Feil, USACE
7. Operations Review
  - a. Reservoirs  
    [\[Lower Snake River Variations Report\]](#)
  - b. Fish
  - c. Power System
  - d. Water Quality

[\[Spill Information 2008\]](#)

[\[TDG Data\]](#)

8. Other

- a. Set agenda for next meeting - **August 13, 2008**

[\[Calendar 2008\]](#)



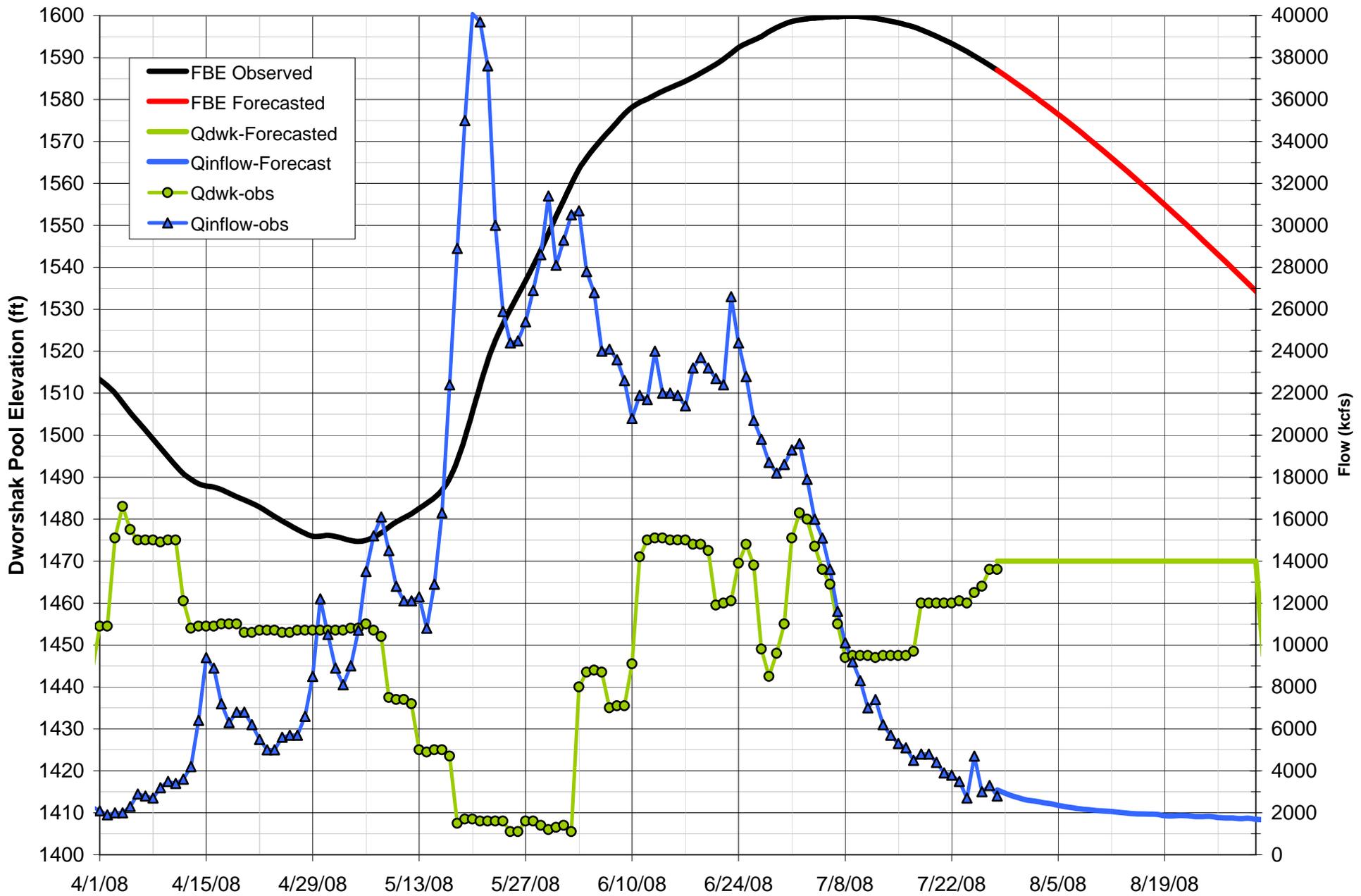
*Questions about the meeting may be referred to:*

*[Jim Adams](#) at (503) 808-3938, or*

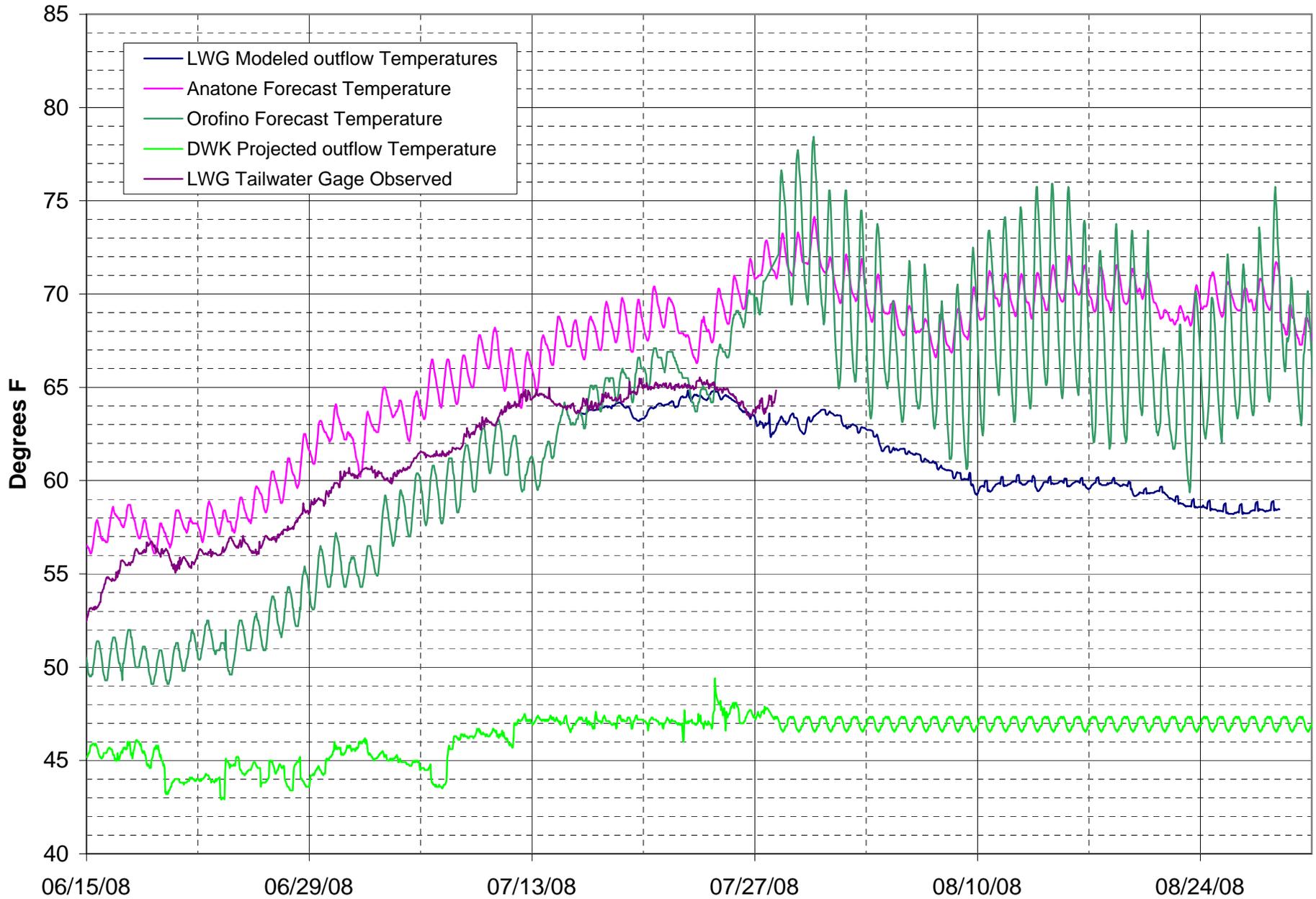
*[Cathy Hlebechuk](#) at (503) 808-3942, or*

*[Bob Buchholz](#) at (503) 808-3945.*

### Dworshak Reservoir 2008 Flow and Stage Projection



**Water Temperature Comparisons**  
**Observed data thru 7/27/08**  
**Forecast Temperatures from Year 2002**





## Department of Energy

Bonneville Power Administration  
P.O. Box 3621  
Portland, Oregon 97208-3621

POWER SERVICES

July 23, 2008

In reply refer to: PGS-5

### Memorandum Concerning Operations in the Lower Snake River

On July 12 through July 15, 2008, there were three instances where spill was curtailed at Lower Monumental (LMN), and one instance where spill was curtailed at Ice Harbor (IHR). These reductions were the result of human error as a result of attempting to meet the dual objectives in the biological opinion of reservoir refill and spill along with variability of flow in the Lower Snake River. Spill was curtailed to maintain Minimum Operating Pool (MOP) and minimum generation at the projects. The following chart provides a detailed accounting and explanation of these variances:

Project	Parameter	Date	Time	Hours	Type	Reason
Lower Monumental	Spill	7/12/08	0100-0200	2	Operational Limitations/ Human error	Hourly spill at 16.3 and 9.5 kcfs instead of 17 kcfs. Maintain MOP and minimum generation
Lower Monumental	Spill	7/13/08	0100-0600	6	Operational Limitations/ Human error	Hourly spill at 14.5, 7.1, 6.6, 6.6, 6.6, and 16.3 instead of 17 kcfs. Maintain MOP and minimum generation
Ice Harbor	Spill	7/13/08	0400-0500	2	Operational Limitations/ Human error	Hourly spill at 3.3 and 0 kcfs instead of 15.2 kcfs. Maintain MOP and minimum generation
Lower Monumental	Spill	7/15/08	0400-0800	5	Operational Limitations	Hourly spill at 15.3, 10, 10, 10 and 15 kcfs instead of 17 kcfs. Maintain MOP and minimum generation

In reviewing the operations that resulted in these spill reductions BPA has determined that the primary causes of the variances were a combination of operational conditions and human error. The Corps has reviewed the information and concurs.

On the weekend of July 12-13, BPA was striving to meet the Biological Opinion objective<sup>1</sup> of achieving full pool (1290') at Grand Coulee. As the project approaches full it limits the flexibility associated with the Columbia River projects. In addition, actual loads varied from forecast, units were forced out unexpectedly, and inflows into the Lower Snake projects were lower than forecasted and dropping. Although BPA Hydro Duty Schedulers were operating with the expectation of meeting Fish Operations Plan (FOP) requirements, they made the planning error of operating too close to the minimum end of MOP, in that they expected flows to allow forebay elevations to recover. Unfortunately, despite some corrective actions, actual flow conditions did not allow for that recovery and created the need to reduce spill. Because these projects must be maintained at MOP or above for navigational safety reasons and operation of fish passage facilities within criteria, and because inflows on the Lower Snake were not sufficient to maintain MOP, spill was curtailed. The Corps became aware of this situation and contacted BPA on July 14th.

On July 15<sup>th</sup> the circumstances were different. The Hydro Duty Scheduler appropriately anticipated the need to reduce generation and dropped generation to minimum generation levels while continuing to spill the required amount four hours in advance of the variances. It appears that the reduction in total discharge resulted in an anomalous wave or "bounce" in the forebay readings that would not normally be anticipated given the extent of the reductions. Four hours after the generation reduction the low side of the wave caused forebay readings below minimum pool. Already at minimum generation, the Hydro Duty Scheduler reduced spill to manage the pool within the MOP operating range.

At the Technical Management Meeting (TMT) on Wednesday, July 16th, the Lower Monumental issue was discussed and the BPA representative acknowledged that the conditions that led to the weekend variances were not acceptable to BPA. He also stated that BPA had already taken steps to decrease the possibility of deviating from MOP and the required FOP spill. On Wednesday, July 16th after TMT, the Corps met with BPA and discussed the operation on the Snake River, its effect on not providing FOP fish spill and Lower Granite navigational concerns. Since barges were having navigational difficulties, BPA agreed to further attempt to smooth flows out between Little Goose and Lower Monumental. In addition, BPA reported that the Little Goose forebay elevation would be operated at the top half foot of MOP as a soft constraint to alleviate navigational issues.

### **Remedial Actions**

In response to these events BPA has reiterated instructions in official operations logs, direct communication and written memo to Hydro Duty Schedulers that if there is any risk of

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<sup>1</sup> Grand Coulee refill is specified in both the 2004 BiOp and the 2008 Water Management Plan Spring/Summer update as finalized and approved by TMT on May 22, 2008. The specific language states: Grand Coulee will operate to refill by about June 30 to provide summer flow augmentation, except as specifically provided by the TMT. The target date was updated to July 14 at TMT on June 18<sup>th</sup>. The purpose of this objective is to maximize available storage of water for the benefit of summer listed species migrants.

impacting mandated spill levels, they should reserve as much as possible of the MOP operating range at the Snake Projects to manage Snake flow uncertainty over time. This includes planning for several hours into the future to minimize the risk that current operating decisions will place a project at MOP in a future hour.

### **Conclusion**

While BPA Hydro Duty Schedulers took appropriate action during the hours in question to maintain MOP, there were instances where prior real time planning was insufficient to minimize the risk to MOP and spill. In this case the variances were related to a combination of operational conditions and human error in within-day planning. Variances of this sort would normally be reported to the court as part of the monthly spill reports. The Federal Agencies are keenly aware, however, of the Court's May 23, 2007, Order regarding Federal Defendant's obligations and the subsequent Court Response to Clarification Request of June 11, 2007 that require reporting of situations where power needs are placed before those of listed species. In this case power needs were not the cause of the variances - BPA purchases and sales activity over the weekend were driven by operational concerns to achieve the Grand Coulee objective, not power marketing activity. However, due to the complexity of the situation Federal Defendants wanted to clarify the situation as soon as practical.

# COLUMBIA RIVER REGIONAL FORUM

## TECHNICAL MANAGEMENT TEAM

July 30, 2008 Meeting

### FACILITATOR'S SUMMARY NOTES ON FUTURE ACTIONS

Facilitator: Robin Gumpert

Notes: Erin Halton

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the range of 6.4-6.5 kcfs. Grand Coulee was at 1286.2' and drafting to a target elevation 1280' by the end of August.

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- Regarding the Libby/Hungry Horse operations report to the court, Jim Adams, COE, reported that the COE plans to submit this as part of their monthly report to the court, for July.
- Dan Feil, COE, reported that test periods ended for McNary and John Day TSW's, and that McNary would continue to operate alternating with TSW's, but that John Day, given that it is a new TSW, will not continue to operate the TSW. As this was a deviation from specific language in the FOP, the COE communicated this change with TMT and acknowledged that it could have been made clearer during the last report out to TMT.
- Ice Harbor sensor monitor installation work was completed on 7/29, and so normal operations were resumed at the project. There had been a two hour outage in bays 1-3 but no change in spill.
- Dave Wills reported a Spring Creek Hatchery request to lower the Bonneville pool for 2-3 hours to support cleaning of the fish ladder early next week, following the summer treaty fishery.
  - **Action:** Jim Adams, COE, said he would check with the regulators and notify Dave Wills and Kyle Dittmer of the approval and planned time for the reduction. The USFWS needed a day's notice to for the hatchery folks, and CRITFC needed to notify platform fishers of the change.

Fish: Paul Wagner, NOAA, reported that sub yearling passage numbers are winding down, with numbers ranging from 2,000-7,000 at Lower Granite, 2,000-9,000 at Little Goose and under 1,000 at Lower Monumental. Adult sockeye numbers totaled 213,000, steelhead totaled 128,000 (50,000 of those were wild) and summer Chinook numbers were winding down.

Power System: Nothing to report at this time.

Water Quality: Jim Adams, COE, reported that spill criteria are being met at all projects and that no TDG levels were down. Temperatures all around have been relatively low this year.

Spring flow objectives had been met and exceeded at Lower Granite, McNary and Priest Rapids this year. The summer result of summer objectives will be reported on at the TMT year end review later this year.

\*\*A correction was made to a statement made earlier re: MOP operations and requirements. The COE clarified that the federal dams do not require FERC licensing.

**Next TMT Meeting: 8/6 Conference Call**

- Dworshak Operations
- McNary Transport Update

**8/13 Face to Face Meeting**

Agenda items will include:

- Finalize notes/minutes
- 2008 Summer Treaty Fishing Report
- Dworshak Operations
- Libby/Hungry Horse Operations Update
- Operations Review

**Columbia River Regional Forum  
Technical Management Team Meeting  
July 30, 2008**

***1. Introduction***

Today's TMT meeting was chaired by Jim Adams (COE) and facilitated by Robin Gumpert (DS Consulting) with representatives of USFWS, BPA, COE, NOAA, 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***

The facilitator's notes and official minutes for the July 16 TMT meeting were finalized today.

***3. 2008 Summer Treaty Fishery – SOR 2008-C5***

Kyle Dittmer (CRITFC) presented this SOR. This fishery runs from July 28-31, 2008, the last of the summer season. The SOR calls for a 1-foot elevation band as a hard constraint on operation of the pools at Bonneville, John Day and The Dalles dams. Last week's net flight sponsored by CRITFC indicated the number of nets in the river is down to 154 as of last week, with 36% of those at Bonneville, 28% at The Dalles and 36% at John Day. The sockeye forecast has been updated to 213,500 sockeye at Bonneville Dam.

The COE will provide the same conditions for this fishery as it has for the previous treaty fisheries this year, Adams said, which includes a 1-foot soft constraint and 1.5-foot hard constraint on Bonneville pool operations. Normal operating range at The Dalles pool is 3 feet as a hard constraint, but the COE will operate it within a 1.5-foot range as a soft constraint for the fishery, with emphasis on evening hours. John Day pool will continue operating within its normal 1.5-foot range.

Dittmer will present a review of the summer fishery and describe how this fall's fishery is shaping up at the next regularly scheduled TMT meeting Aug. 13. Autumn fishing will begin during the third and fourth weeks of August.

***4. Libby and Hungry Horse Operations Update***

**A. Libby Dam.** Outflows of 13 kcfs are being maintained. The current elevation is 2444.2 feet. Inflows have dropped to 10 kcfs and the pool is being drafted slowly, targeting elevation 2,439 feet by end August.

Amy Reese (COE Seattle) presented forecast scenarios. Flows are seasonally low, with a 75% exceedance level which means that 75% of years have had higher flows on the same date. One of the main goals this year is not to allow the elevation to drop below 2,439 feet. Outflows are being ramped down from 13 to 12 kcfs on Friday, Aug. 1. The situation will be reevaluated Monday, Aug. 4. Another goal is to not let flows drop below 8 kcfs for bull trout in August. The ramp down now will help avoid that risk. Jim Litchfield (Montana) expressed appreciation for the slower ramp-down and advocated stabilizing flows at 12 kcfs for as long as possible.

Due to a drowning on July 27, flows dropped to a daily average of 5.9 kcfs and went down to 4 kcfs for a number of hours while officers searched for the body. It was never found, but a request for another ramp down seems unlikely. The brief ramp down will affect Montana's shorelines, but the way it was done probably had the least impact possible in these circumstances, Litchfield said.

**B. Hungry Horse Dam.** The current elevation is 3,555 feet, with releases of 6.4-6.5 kcfs. The latest 50 % ESP trace indicates that those outflows should continue to hit an end of August elevation of 3,540 feet. Inflows are around 2.2 kcfs and slowly coming down.

Adams notified TMT that the latest ESP plots are posted on the TMT page. Randy Wortman (COE) will continue to produce these ESP plots for Libby, Hungry Horse and Dworshak through mid August, per the request of several TMT members who were polled via email.

### ***5. Dworshak Operations Update***

The current elevation of Dworshak reservoir is 1,583.9 feet, with inflows of 2.5-3 kcfs and outflows of approximately 14 kcfs.

Adams and Steve Hall (COE) briefed TMT on a recent problem with RO gate #2 at Dworshak, which was found to be leaking. An inspection revealed that the eccentric arm used to seal off the gate was broken, and the resulting spill of a little more than 1 kcfs flowed into the dam, filling the galley passageways to the ceiling and blowing out the dam's lower doors. As a result, RO gate #2 will be out of service for several months. Only one bulkhead is available to shut off flow to the RO gates, now positioned in front of RO #2. (The COE is checking into whether a bulkhead at Libby Dam would fit the gates at Dworshak.) The remaining gates, RO #1 and #3, could have the same problem RO #2 had when it broke. If either of the remaining RO gates were to fail, the COE would have no way to shut off spill, which could drain Dworshak reservoir to elevation 1,350 feet where the sills of the gates are. That would be unacceptable, so the current plan is to get clearance for inspection of the remaining gates. The inspection will require a high level of security clearance because a loss of power to the gate cylinder would drown the person performing the inspection.

Without inspection, the RO gates will be unavailable for the rest of the summer. That could have two negative consequences. First, the spillway sill is at elevation 1,545 feet, the lowest elevation at which 4 kcfs can be spilled as free flow down the spillway. The spillway crest requires 5 feet of head to release 4 kcfs, or elevation 1,550 feet. The COE is hoping the reservoir will reach that elevation by Aug. 21 or 22. After that, it might become difficult to draw the reservoir down as planned, meaning there's a slight chance it won't make its end of August target of elevation 1,535 feet. TMT was asked today: How important is it to reach elevation 1,535 feet by end August?

The second issue is temperature control. The spillways are now passing very warm water. The Dworshak tailwater temperature is currently 49 degrees F, and that temperature will continue to rise as the reservoir elevation drops and even warmer water passes through the spillway. Hall will prepare and send TMT members a CEQUAL 2 analysis of how quickly temperatures can be expected to rise. The hatchery has requested that temperatures not exceed 52 degrees F due to an outbreak of IHN.

Operating just one of the RO gates isn't an option because the spillway is designed for balanced spill. If the gates are found to be in good condition, the COE will set them for a total outflow of about 3.5-4 kcfs through the end of August or whenever the reservoir reaches 1,535 feet elevation. The COE does not want to move them because it is possible the RO #2 gate failure was caused by frequent opening and closing.

Adams showed TMT a model run for Lower Granite. Temperatures in the Lower Granite tailwaters have been staying low, and predictions have matched observed temperatures well. Hall pointed out that the modeling was done based on Dworshak outflow temperatures of 47 degrees F, when they are really 49 degrees F. Nevertheless, the COE is not expecting any problems with Lower Granite outflow temperatures this year.

There was discussion of how important it is for Dworshak to reach elevation 1,535 feet by end August. Litchfield questioned whether it's worth putting a human life at risk in terms of actual biological impacts, even if the risk is slim. Dropping to full powerhouse around Aug. 20 would put the reservoir elevation at around 1,520 feet by Sept. 15, Hall said. The reservoir wouldn't reach elevation 1,535 feet by end August, but it would still meet its September elevation by shifting the water to a different point in time.

Russ Kiefer (Idaho) requested that the COE prepare temperature options so TMT can model the best possible in-river migration conditions for fish without undue risk to human health and safety, while meeting the hatchery's need for water temperatures no higher than 52 degrees F. The modeling could include alternatives of running 4 kcfs out vs. full powerhouse, Robyn MacKay (BPA) said.

The COE will circulate CEQUAL modeling among TMT members prior to a conference call next Wednesday, Aug. 6. Hall will model two scenarios: (1) the anticipated effects of the falling pool elevation on spillway temperatures, and how that will affect total discharge temperatures, and (2) the end of August elevation if outflows drop to full powerhouse, as well as the effects that operation would have on water temperatures at Lower Granite.

In the meantime, Adams said, if the COE sees Dworshak tailwater temperatures approach 52 degrees F, they will cut back on spill to accommodate the hatchery request. Current operations will continue unless Dworshak tailwater temperatures rise above 52 degrees F.

## **6. McNary Transport Update**

The COE has barged seven loads of fish from McNary since the last TMT meeting. The FOP says trucking begins on Aug. 16 and lasts through the rest of the season. A truck holds approximately 1,750 pounds of fish. At McNary, 630 pounds of fish were recently collected, meaning it would be feasible to switch to truck transport now. However, the release site at Bonneville won't be available until around Aug. 8 due to construction. The Salmon Managers will consider a recommendation to switch to truck transportation before Aug. 16. This question will be on the agenda for next week's conference call.

## **7. Operations Review**

**a. Reservoirs.** Libby is at elevation 2,444.2 feet, with outflows of 13 kcfs and inflows of 10 kcfs. Albeni Falls is at elevation 2,062.25 at the Hope gage and passing inflows of 22.5-23 kcfs.

Dworshak is at elevation 1,583.9 feet, with inflows down to 2.5-3 kcfs and outflows at 14 kcfs or full powerhouse plus spillway flows.

Inflows at Lower Granite are 40-44 kcfs (7-day average) and staying within the MOP elevation, with stable inflow rates. Inflows at McNary went up July 25-26 and came down again, now 150-160 kcfs (7-day average). Inflows at Bonneville are 165-170 kcfs (7-day average).

Grand Coulee is at elevation 1,286.20 feet, slowly drafting toward elevation 1,280 feet by end August. Hungry Horse is at elevation 3,555.0 feet, discharging 6.4-6.5 kcfs.

Flow Shaping in the Snake River: At the last meeting, the COE reported that spill reductions and variances out of MOP occurred over a period of time at Lower Monumental. There was reduced flow at Ice Harbor also, which went down to zero spill for approximately 1.5 hours when the pool was at critical bottom. BPA and the COE have worked together extensively on this problem.

Robyn MacKay (BPA) showed TMT the document BPA submitted to the court. She described the problem and the thorough investigation it is receiving. Over the past weekend when Grand Coulee was filling, schedulers allowed the Lower Monumental pool to get too close to MOP and had to cut spill. Since then, they've been told to cut spill sooner and recover the pool before it hits MOP, which will result in smoother transitions from now on. Spill was cut to zero because of a bounce in the reservoir caused by wave action. When the trough hit the gage, the pool elevation went below MOP. BPA considers this episode to be a variance. MacKay emphasized that it was not intentional. Managing low flows is tricky on the Snake River because the unit loadings don't have the same range other projects have. As a result, spill and generation levels have to be carefully balanced. BPA's schedulers are on point to do that better.

Russ Kiefer (Idaho) asked, what happens if flows go half a foot below MOP in the middle of the night? That's not supposed to happen, and if it does, project operators will respond, Don Faulkner (COE) said. The consequences of going below MOP would include barges scraping bottom, plus the dam operators would be violating a required operating parameter. Later, Faulkner noted that federal dams don't require FERC licensing due to federally authorized usage to maintain a navigation channel.

A requirement to operate above MOP is part of the Fish Passage Plan, Dan Feil (COE) said. All fish facilities were designed to operate above MOP. The wave phenomenon is more pronounced with sudden changes in flow, but it can happen even with a slow change, MacKay said. The phenomenon is still under investigation, Adams said. He showed TMT an addendum to a letter addressed to Judge Redden, signed by the Department of Justice.

Other Operational Issues: The COE hasn't received feedback yet on its submittal to the courts regarding Libby operations, Adams said. He reaffirmed that the TSWs at McNary will continue to be operated following a 40/60% spill regime alternating every 2 days. However, the TSWs at John Day are new this year, and they will be shut down when testing is complete because their effects are still unknown. Furthermore, bays 15 and 16 with the TSWs are normally not used in the existing spill pattern when flows go down at John Day. Russ Kiefer (Idaho) confirmed that, once he received technical information on the TSW shutdown, he was comfortable with it. Earlier, he'd questioned it as a deviation from the FOP. However, it's standard practice when testing new technologies to revert to standard operations until the effects on fish passage and survival are known.

Dan Feil gave an update on work at Ice Harbor, where a recent outage of three spill bays included those holding the TSWs. Installation of sensors to monitor RSW vibrations was completed on July 29, 2008, during a 2 hour outage

of bays 1 and 3. Spill was shifted during the installation such that spill levels didn't change, and the only effect was taking the TSWs offline for 2 hours.

On July 28, Dave Wills (USFWS) received a request from the Spring Creek Hatchery manager to reduce the Bonneville pool elevation by 3 feet for 2-3 hours so they can clean the fish ladder for this year's return season. USFWS contacted CRITFC this week regarding flow needs for the fishery. This week is the last week until around Aug. 18, which coincided with the hatchery's desires to get the cleaning done as soon as possible. The hatchery manager needs 2-3 hours' notice and the pool to be at elevation 72 feet. The work needs to be done by mid to late August when tule returns begin. Adams will look into accommodating this request.

**b. Fish.** Things are winding down even for subyearlings, Paul Wagner said, but not as far down as in previous years. Index counts at Lower Granite were 2-7,000 fish; at Little Goose 2-9,000 fish; less than a thousand fish at Lower Monumental. McNary has passed 15-25,000 fish per day in the past week or so. Counts at Bonneville, John Day and McNary are down to less than 10,000 fish per day.

Adult sockeye counts were ultimately 213,000 at Bonneville; current passage numbers are down to single digits. Steelhead have done quite well this year, with a count of 128,000 total, 51,000 of them wild fish. Summer Chinook are down to several hundred per day, with a seasonal total of 77,000 fish which is well above the 10-year average.

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

**d. Water Quality.** Flows are running low, and spill criteria are being met at all projects, Adams reported. TDG levels are low as are water temperatures, except for the 65.5 degrees F temperature issue at Lower Granite tailwater. Adams explained that the red numbers in TDG documentation attached to today's agenda are bad readings and will be deleted in revised data.

Adams reported on how well the COE met spring flow objectives:

- Lower Granite – The spring objective is 85 kcfs; actual flows in 2008 were 99 kcfs as a seasonal average.
- McNary – The spring objective is 237 kcfs; actual flows in 2008 were 287 kcfs as a seasonal average.
- Priest Rapids – The spring objective is 135 kcfs; actual flows in 2008 were 168 kcfs as a seasonal average.

Adams did not have numbers for summer yet because the analysis is not completed. Based on preliminary objectives, it appears unlikely that summer flow objectives will be met. This can be discussed at the year-end TMT review.

## **10. Next Meeting**

The next regularly scheduled TMT meeting will be on Aug. 13, possibly at NOAA's Portland offices. The agenda will include the 2008 summer treaty fishery review, a Libby and Hungry Horse update, Dworshak operations, and the usual operations review.

A conference call was scheduled for Aug. 6 to check in on Dworshak operations and the transition from barge to truck transportation at McNary. This summary prepared by consultant and writer Pat Vivian.

<b><i>Name</i></b>	<b><i>Affiliation</i></b>
Dave Wills	USFWS
Robyn MacKay	BPA
Jim Adams	COE
Russ Kiefer	Idaho
Dan Feil	COE
John Roache	BOR
Paul Wagner	NOAA
Jim Litchfield	Idaho
Kyle Dittmer	CRITFC
Russ George	WMC

### **Phone:**

Amy Reese	COE Seattle
Shane Scott	PPC
Dave Benner	FPC
Barry Espensen	CBB
Tom Le	Puget Sound Energy
Bob Diaz	PPM
Laura Hamilton	COE
Richelle Beck	DRA
Rudd Turner	COE
Don Faulkner	COE
Steven Hall	COE Walla Walla
Dale Lentz	COE Walla Walla

# COLUMBIA RIVER REGIONAL FORUM

## TECHNICAL MANAGEMENT TEAM

July 30, 2008 Meeting

### FACILITATOR'S SUMMARY NOTES ON FUTURE ACTIONS

Facilitator: Robin Gumpert

Notes: Erin Halton

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- Regarding the Libby/Hungry Horse operations report to the court, Jim Adams, COE, reported that the COE plans to submit this as part of their monthly report to the court, for July.
- Dan Feil, COE, reported that test periods ended for McNary and John Day TSW's, and that McNary would continue to operate alternating with TSW's, but that John Day, given that it is a new TSW, will not continue to operate the TSW. As this was a deviation from specific language in the FOP, the COE communicated this change with TMT and acknowledged that it could have been made clearer during the last report out to TMT.
- Ice Harbor sensor monitor installation work was completed on 7/29, and so normal operations were resumed at the project. There had been a two hour outage in bays 1-3 but no change in spill.
- Dave Wills reported a Spring Creek Hatchery request to lower the Bonneville pool for 2-3 hours to support cleaning of the fish ladder early next week, following the summer treaty fishery.
  - **Action:** Jim Adams, COE, said he would check with the regulators and notify Dave Wills and Kyle Dittmer of the approval and planned time for the reduction. The USFWS needed a day's notice to for the hatchery folks, and CRITFC needed to notify platform fishers of the change.

Fish: Paul Wagner, NOAA, reported that sub yearling passage numbers are winding down, with numbers ranging from 2,000-7,000 at Lower Granite, 2,000-9,000 at Little Goose and under 1,000 at Lower Monumental. Adult sockeye numbers totaled 213,000, steelhead totaled 128,000 (50,000 of those were wild) and summer Chinook numbers were winding down.

Power System: Nothing to report at this time.

Water Quality: Jim Adams, COE, reported that spill criteria are being met at all projects and that no TDG levels were down. Temperatures all around have been relatively low this year.

Spring flow objectives had been met and exceeded at Lower Granite, McNary and Priest Rapids this year. The summer result of summer objectives will be reported on at the TMT year end review later this year.

\*\*A correction was made to a statement made earlier re: MOP operations and requirements. The COE clarified that the federal dams do not require FERC licensing.

**Next TMT Meeting: 8/6 Conference Call**

- Dworshak Operations
- McNary Transport Update

**8/13 Face to Face Meeting**

Agenda items will include:

- Finalize notes/minutes
- 2008 Summer Treaty Fishing Report
- Dworshak Operations
- Libby/Hungry Horse Operations Update
- Operations Review

# TECHNICAL MANAGEMENT TEAM

**BOR** : John Roache / Mary Mellema / Pat McGrane      **BPA** : Robyn MacKay / Tony Norris / Scott Bettin  
**NOAA-F**: Paul Wagner / Richard Dominique              **USFWS** : David Wills / Steve Haeseker  
**OR** : Rick Kruger / Ron Boyce                              **ID** : Russ Kiefer  
**WDFW** : Cindy LeFleur                                        **MT** : Jim Litchfield / Brian Marotz  
**COE**: Jim Adams / Cathy Hlebechuk / Bob Buchholz

## CONFERENCE CALL

Friday August 1, 2008 9:00 - 10:30

### CONFERENCE PHONE LINE

Conference call line:203-310-2162; PASS CODE = 4703150

**We have had disruptions on the phone because people are not hitting 'mute' after dial in.  
Please MUTE your Phone**

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*All members are encouraged to call Robin Gumpert with any issues or concerns they would like to see addressed.  
Please e-mail her at [robin76@cnnw.net](mailto:robin76@cnnw.net) or call her at (503) 248-4703.*

## AGENDA

1. Welcome and Introductions
2. Libby - Arrow Swap - Robyn Mackay, BPA
3. Other

*Questions about the meeting may be referred to:*

*[Jim Adams](#) at (503) 808-3938, or  
[Cathy Hlebechuk](#) at (503) 808-3942, or  
[Dan Feil](#) at (503) 808-3943, or  
[Bob Buchholz](#) at (503) 808-3945.*

# COLUMBIA RIVER REGIONAL FORUM

## TECHNICAL MANAGEMENT TEAM

August 1, 2008 Conference Call

### FACILITATOR'S SUMMARY NOTES ON FUTURE ACTIONS

Facilitator/Notes: 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.

#### **Libby/Arrow Swap**

Robyn Mackay, BPA, referred TMT to a Draft Principles document that had been circulated to TMT prior to this morning's conference call, describing provisions for a potential swap of Canadian storage into Libby reservoir during the month of August. She said the swap request was initiated by Canada and the potential benefits would include keeping Libby fully loaded for a while longer and adding some volume to the reservoir for recreational purposes. The operation could begin as soon as August 2 and she requested guidance from TMT on whether to pursue the swap.

Several questions were asked about the 'flow neutral' quality of the operation and around how this would be accounted for. The COE models a TSR (Treaty Storage Regulation) every week to be able to account for inflows and water volumes so that the swap can be returned at a later date. (It was uncertain when the water would be returned back to Arrow but it was suggested today that that might happen in September). While there are uncertainties around actual volumes (due to uncertainties in inflows), the operation would be flow neutral in that the same amount of water would be sent down the system with or without the swap. The COE would continue to meet its bull trout minimum flow objectives (8 kcfs) in August and September, and did not foresee any conflicts with this agreement to meet that objective or any subsequent BiOp required operations. BPA also reported that they had pursued opportunities for additional water use (beyond the 'flow neutral' opportunity being presented today), and said nothing was available this year.

Montana: Expressed appreciation for the opportunity, noting that the region is in a good position to implement the swap this year, and that Montana is very supportive of it.

Oregon: Interest is in a flow neutral operation and would like to see clear documentation of the operating plan and a detailed accounting of the operation after it is complete. Do not object to moving forward with the swap given that this will be a flow-neutral operation.

Idaho: If there is no decrease in flow in the Columbia system and it provides additional benefits to the Libby reservoir and Kootenai River, Idaho supports the swap.

Washington: Was not on the call today -- the COE reported on a discussion had with IT representative Bill Tweit, that Washington supported the swap so long as it remained flow neutral to the lower river, and added that given this year's favorable conditions, the opportunity to benefit Montana and the up river use should be pursued.

USFWS: As long as the plan holds to the 8 kcfs minimum flows for bull trout, support moving forward with the swap.

NOAA: As a flow neutral operation, supports the swap.

BOR: As a flow neutral operation, supports the swap.

COE: Supports the operation.

CRITFC: Speaking on behalf of CRITFC, agrees with Oregon's interest that the operation needs to be flow-neutral and that documentation of the operation should be provided. If both interests can be met, supports the swap.

**Action:** Kyle Dittmer and Jim Adams agreed to work together to coordinate any follow up with the tribes on this issue.

**Action/Next Steps:** BPA planned to pursue the swap with BC Hydro, and planned to confirm with TMT final approval and implementation of the operation. Per TMT request, BPA will share the final signed agreement (if/when made public) and the early August TSR. Robyn will provide updates to TMT through the month and will report at a September meeting the full accounting of the operation. The COE will include this operation in its monthly reporting to the court.

**Lower Granite:** The COE reported that fire protection work will be done at Lower Granite requiring outages at units 5 and 6. Previously the plan was to start with unit 5 (August 4-29) and then move to unit 6 (September 2-26). To support a safer operation, the work will be reversed so will begin on unit 6. This was vetted through FPOM and was being shared with TMT because it was a deviation from the FOP. The operation would have no impact on fish operations. TMT also approved changing the unit priority to 1-6 from units 4-6, 1-3 as was done last year. This will allow the smaller units to run first allowing more water to be spilled during low flow periods.

**Dworshak RO's:** Jim Adams, COE, provided an update as follow up from the July 30 TMT meeting regarding RO issues at Dworshak. A preliminary investigation found that RO's 1 and 3 might be available for use as early as next week. More information will be provided at the August 6 TMT conference call.

**Columbia River Regional Forum  
Technical Management Team Conference Call  
Aug. 1, 2008**

**1. Introduction**

Today's TMT call was chaired by Jim Adams (COE) and facilitated by Robin Gumpert (DS Consulting) with representatives of BPA, USFWS, COE, BOR, NOAA, CRITFC, Oregon, Montana, Idaho, 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. Libby-Arrow Swap**

Canada has approached BPA about doing a swap, which Robyn MacKay (BPA) described in today's call and in a one-page narrative she sent TMT as background. In a swap, BPA stores water in Libby reservoir while Canada releases the same volume of water from Arrow. The water is returned to Canada sometime between September and December. This year, it would be equivalent to approximately 3 feet of elevation above the 2,439 end of August target at Libby. The exchange is calculated using a TSR (treaty storage regulation) elevation for Arrow. Canada is interested in a swap this year because it would keep Libby reservoir fuller for a while longer and provide extra volume for recreation. The volume left after meeting the 8 kcfs bull trout minimum would become available for the swap. That amount would be stored in Libby beginning as early as tomorrow, if TMT did not object to the operation today.

Oregon requested detailed documentation and comparative accounting of the effects the swap would have on flows and reservoir elevations to demonstrate that the swap would be a flow-neutral operation. BPA explained that such detail is not available now, but would be after the fact. The swap is fairly straightforward – with a shift of approximately 60 ksf, the ending elevation at Libby would be approximately 3 feet higher than the 2,439 target, and the ending elevation at Arrow reservoir would be lower by approximately 60 ksf at the end of August. A detailed accounting will be required because the returns have to be arranged so they're economically advantageous to both Canada and the U.S., Montana noted.

Oregon asked whether the ability to meet flow targets would be enhanced under this agreement. It doesn't allow for additional water out of Arrow, BPA replied. Oregon asked whether BPA or the Action Agencies have looked at opportunities to enhance flows, given that flow objectives are not being met. Yes, 1 maf was stored this spring, BPA said. Other options have been explored and nothing is currently available.

**BPA** – Proposed to move forward with the swap as early as tomorrow, if there were no objections today. BPA still hasn't heard from the Canadians, who requested the extra volume mainly for recreational and power purposes in Canada. Either way (with or without the swap) the volume of water coming down the Columbia River will be the same, a volume of Libby water that will be exchanged for Arrow water. The agreement is patterned after one signed in 2002, the most recent swap. This year's swap is pretty straightforward – the Arrow reservoir elevation will be lowered by an amount equivalent to the amount by which Libby reservoir is above elevation 2,439 feet at the end of August. In response to a request from Oregon for documentation of what elevations and flows would be with and without the swap, BPA stated that there was no modeling available today to show the swap, but the method and accounting will be as explained above. BPA will provide after-the-fact accounting of the swap and explained how the Canadian system is operated: Twice monthly, the TSR (treaty storage regulation) elevation at Arrow Dam is computed. The TSR elevation computed on Aug. 21 will be the one closest in time to the end of August (and what Arrow would otherwise be targeting without a swap). With the swap, Arrow will target to be below the TSR by the same volume that Libby will be above 2439 feet. BPA reiterated that the Aug. 21 TSR elevation for Arrow would be used to account for the volumes of water being exchanged.

**Oregon** – Given that flow objectives are not being met, Oregon wanted to be sure this operation won't degrade flows. It's important that the operation be flow neutral, and Oregon expressed a strong desire to see accounting after the fact, if not today, that demonstrates the operation was indeed flow-neutral. Stated that the situation is "not as simple as it seems on this call." Expressed willingness to accept the TSR elevation on Aug. 21 as a viable method of computing an appropriate end of August elevation for Arrow reservoir. See discussion below of Oregon's request for documentation.

**Montana** – Didn't share Oregon's concern with flow neutrality. Believes this is a good time for a swap, and if Canada wants one, the U.S. should accept. Montana believes the 2-3 kcfs of extra volume provided by the swap will benefit Libby reservoir by keeping the reservoir approximately 3 feet above elevation 2,439 at the end of August. Reminded everyone that this flow option wasn't available last year, so the flows it produces will be layered on top of the rollover of 2007 spill operations. The offer is advantageous, and Montana didn't see any reason not to accept it. Asked when the September operation would be better understood. BC Hydro is expected to return some of their portion of water in September.

**USFWS** – Supports the swap as long as bull trout minimum flows of 8 kcfs are maintained on the Kootenai River. It appears that water volumes would be the same under the swap as they would without it, and whatever the swap provides is what we would have had anyway; BPA confirmed this is correct.

Recalled possible wording in the FOP regarding swaps if they're available; Montana stated that language is in the WMP.

**NOAA** – Supports the swap and sees it as a flow-neutral operation.

**Idaho** – Supports the swap under current river conditions.

**BOR** – Stated that the operation is flow neutral, is neutral to anadromous fisheries of the U.S., and is of benefit to Montana. Therefore supports the swap.

**COE** – Supports this operation. Will report it to the court in some manner, at the very least in the monthly reports submitted to the Court. Noted that September is outside the flow objective period, when the only ESA-related constraint would be bull trout minimum flows (8 kcfs in July and August and 6 kcfs in September), which would be maintained under the swap. In past years, September was excluded from the swap; this year it was not.

**CRITFC** – Does not object to this operation, but shares Oregon's concerns about the lack of documentation and calculations presented today. Agreed to contact each of the four member tribes after this call. Recalled earlier Libby swaps and stated that this one sounds like "nothing out of the ordinary."

**Washington** – The only Regional Forum sovereign not represented on the call today. The COE reported a recent conversation between Rudd Turner of the Corps and Bill Tweit of Washington Department of Fish and Wildlife in which Washington expressed support for the swap, although the COE was not speaking on behalf of Washington today. Believes the swap should be flow-neutral. This is a good year for a swap, with plentiful flows and cooler temperatures than usual.

Today TMT reached consensus to move forward with the swap, with no objections expressed. BPA will bring after-the-fact accounting of the Libby-Arrow swap to a September TMT meeting.

There was an extended conversation, mostly between BPA and Oregon, regarding accounting for the swap in terms of flow neutrality. Montana seconded BPA's assertion that the TSR method described above provides the best estimate of what elevation Arrow reservoir would reach by end August without the swap. Oregon expressed discomfort with looking three weeks into the future for documentation. BPA explained this is how the Canadian side is operated every year: Once every two weeks, an end point is established based on stream flows and the system is operated to that point. Every week, BPA will calculate what flows were needed for bull trout minimums and how much is left to swap. The operation will be flexible throughout the month, with a true-up in the last week so that whatever amount Libby is above its target elevation, Arrow is below its target elevation by the same amount. Oregon requested that BPA provide a

copy of the signed agreement to TMT if it is not confidential; BPA said that would probably be acceptable. BPA will give an update on the Libby-Arrow swap at the next TMT meeting.

### **3. Lower Granite Operations Update**

The FOP specifies a maintenance operations schedule for units 5 and 6 at Lower Granite, which are fire protection units and power system stabilizers, Adams said. The FOP says work on Unit 5 will occur from Aug. 4-29, and work on Unit 6 will occur from Sept. 2-26. The COE is proposing that the two schedules be switched to accommodate other work. Last year, a change in unit priorities means that units 5 and 6 probably won't come back on line until September, Scott Bettin (BPA) said. In practice it's moot, but the COE wanted to notify TMT because this operation is spelled out in the FOP. TMT members then stated their views for the record.

**Oregon** – This has no effect on operations; doesn't have a problem with it.

**COE** – Believes this has no effects, and the units aren't usually reported because they come on line so late in the season.

**USFWS** – Their FPOM representative thinks it's okay.

**NOAA, BOR, BPA, CRITFC, Idaho and Montana** voiced no objections to this operation. TMT will revisit this issue in its next conference call Aug. 6.

### **4. Dworshak Operations Update**

Recent information on the condition of the RO gates indicates that the problem might be solved, using on-site fabrication, by the end of next week, Adams said. The report is tentative but sounds promising. Inspectors were able to photograph the gates and develop a plan to get them running without putting anyone at significant risk. TMT will revisit this issue on its conference call next Wednesday, Aug. 6.

<b>Name</b>	<b>Affiliation</b>
Cathy Hlebechuk	COE
Rudd Turner	COE
Robyn MacKay`	BPA
Tom Le	Puget Sound Energy
Kyle Dittmer	CRITFC
Dave Wills	USFWS
Jim Adams	COE
Amy Reese	COE
John Roache	BOR
Jim Litchfield	Montana

Paul Wagner`  
Ron Boyce  
Russ Kiefer  
Russ George  
Scott Bettin

NOAA  
Oregon  
Idaho  
WMC  
BPA

# TECHNICAL MANAGEMENT TEAM

**BOR** : John Roache / Mary Mellema / Pat McGrane      **BPA** : Robyn MacKay / Tony Norris / Scott Bettin  
**NOAA-F**: Paul Wagner / Richard Dominique              **USFWS** : David Wills / Steve Haeseker  
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**COE**: Jim Adams / Cathy Hlebechuk / Bob Buchholz

## CONFERENCE CALL

Wednesday August 6, 2008 09:00 - 10:30

### CONFERENCE PHONE LINE

Conference call line:203-310-2162; PASS CODE = 4703150

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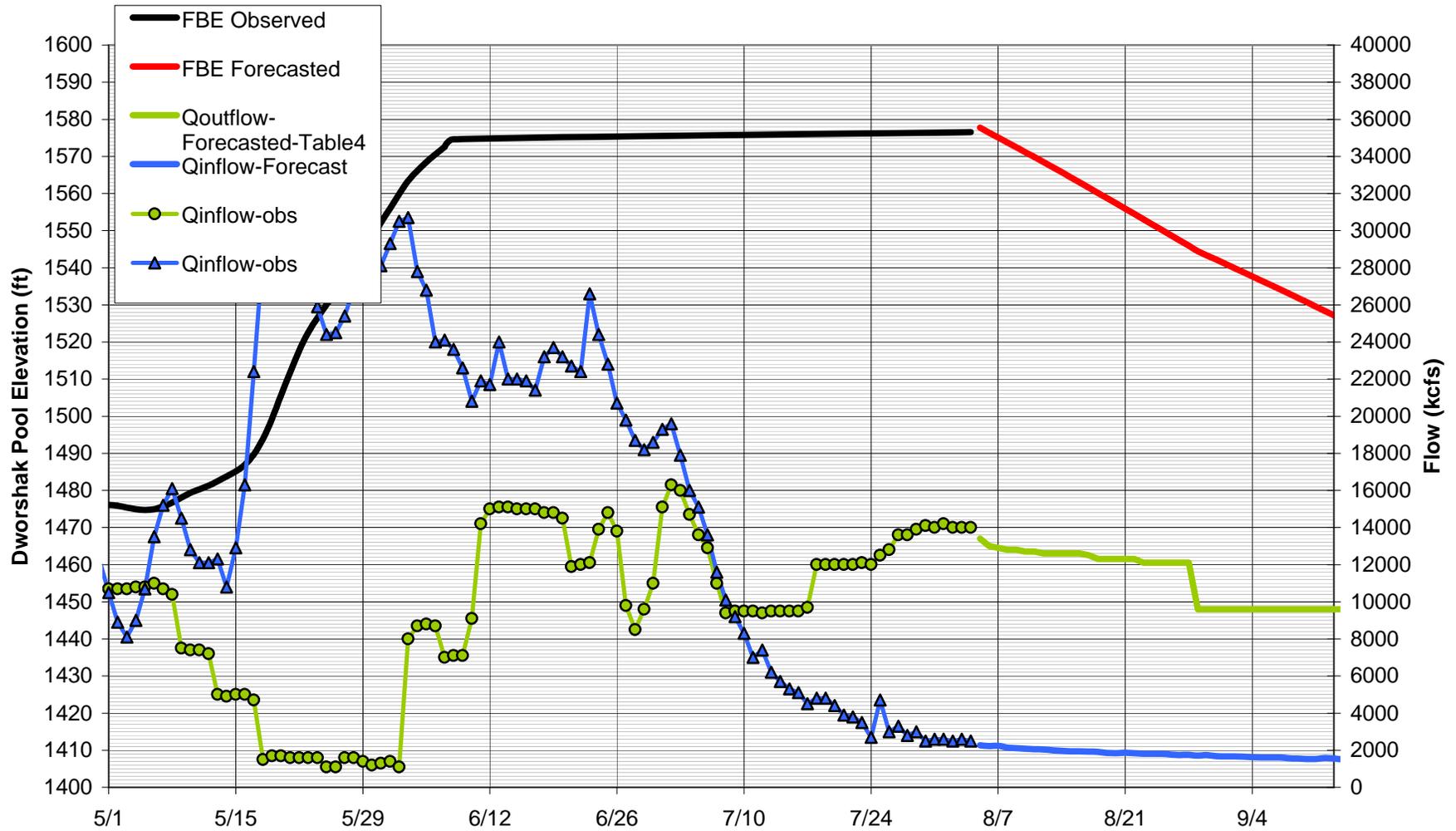
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Please e-mail her at [robin76@cnnw.net](mailto:robin76@cnnw.net) or call her at (503) 248-4703.*

## AGENDA

1. Welcome and Introductions
2. Dworshak Operations - Steve Hall, USACE
  - [\[Presentation\]](#) 
  - [\[2008 Dworshak releases\]](#) 
  - [\[SOR 2008-05\]](#) 
3. Libby-Arrow Swap Update - Robyn Mackay, BPA
  - [\[Libby Treaty Swap\]](#) 
  - [\[Libby-Arrow Swap Explained\]](#) 
4. McNary Transport Update - Dan Feil, USACE
5. Other
  - a. Set agenda for next meeting - **August 13, 2008**
    - [\[Calendar 2008\]](#) 

*Questions about the meeting may be referred to:  
[Jim Adams](#) at (503) 808-3938, or  
[Cathy Hlebechuk](#) at (503) 808-3942, or  
[Bob Buchholz](#) at (503) 808-3945.*

### Dworshak Reservoir August 4, 2008 Flow and Stage Projection



**August 15 2008**

Calculation of Treaty operation based on Official TSR dated 7/28//2008 Rev 7/29

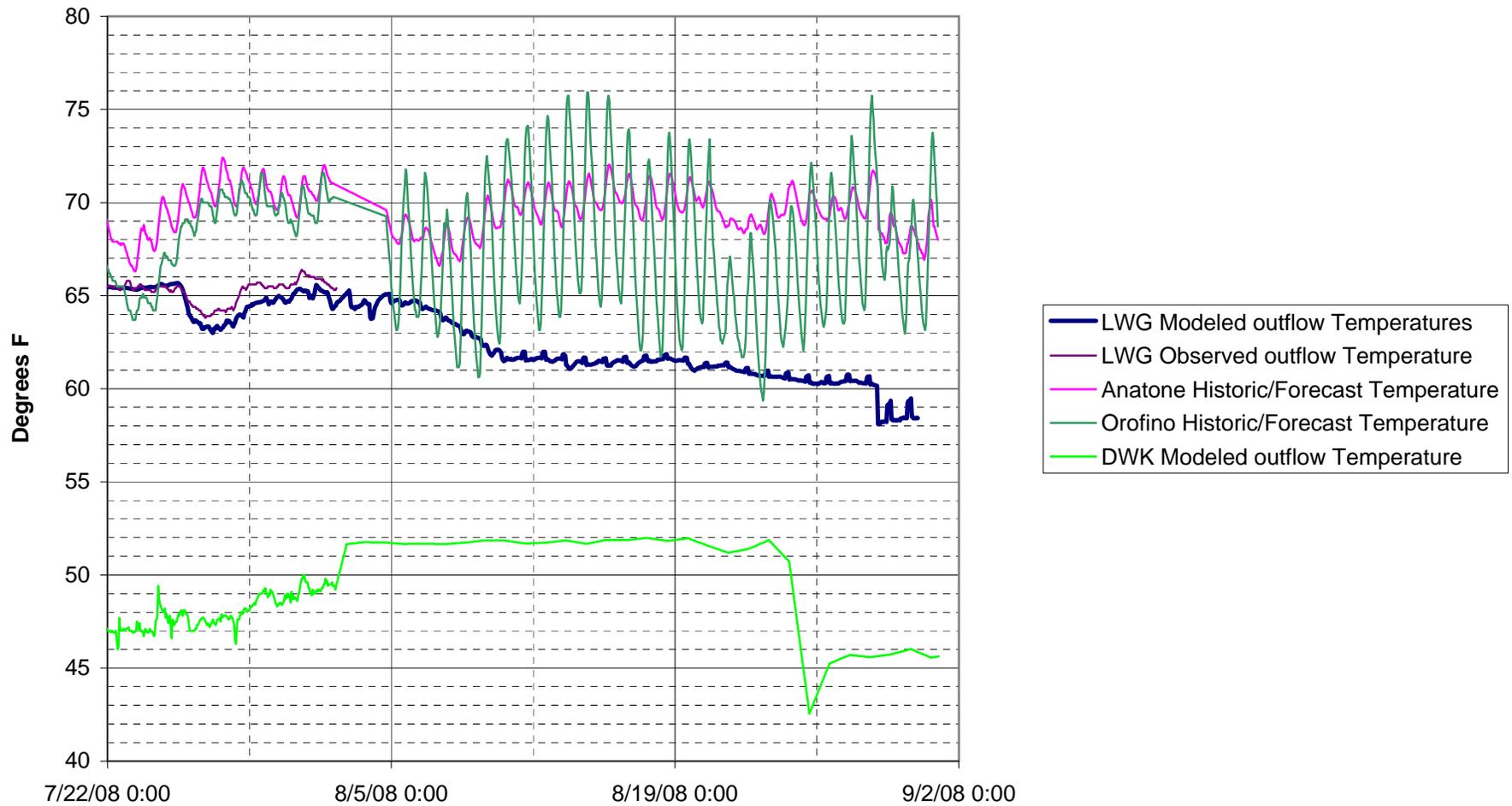
	#Days: 15		Target above/below TSR (ksfd)	Qi (average kcfs)	Qo Required to reach Target (kcfs)	Calculated Content (ksfd)	Calculated Elevation (ft)
	Start (ksfd)	TSR (ksfd)					
	7/31/2008	8/15/2008					
Arrow	3535.1	3579.6		38.8	38.8	3535.05	1443.32
Duncan	696.9	705.8		5.5	5.3	699.35	1891.28
<b>TOTAL</b>	<b>4232.0</b>	<b>4285.4</b>	<b>-51.0</b>	<b>44.24</b>	<b>44.08</b>	<b>4234.40</b>	
Mica	2894.1	3294.8	<b>0.0</b>	41.7	15.00	3294.8	2465.60
<b>COMPOSITE</b>	<b>7126.1</b>	<b>7580.2</b>				<b>Target Content = 3454.2</b>	
						<b>Target Flow = Run to Target Content</b>	
<b>Assumed Account Balances (ksfd)</b>				<b>TSR Balance (ksfd)</b>			
LCA		0.0				Arrow +Duncan	-51.0
Flow Augmentation		0.0				Mica	0.0
Libby/Treaty Swap		-51.0				<b>TOTAL</b>	<b>-51.0</b>
<b>TOTAL</b>		<b>0.0</b>					

**August 31 2008**

Calculation of Treaty operation based on Official TSR dated 7/28//2008 Rev 7/29

	#Days: 16		Target above/below TSR (ksfd)	Qi (average kcfs)	Qo Required to reach Target (kcfs)	Calculated Content (ksfd)	Calculated Elevation (ft)
	Start (ksfd)	TSR (ksfd)					
	8/15/2008	8/31/2008					
Arrow	3535.1	3557.6		36.2	38.2	3502.14	1442.82
Duncan	699.4	694.2		4.3	4.9	689.66	1890.19
<b>TOTAL</b>	<b>4234.4</b>	<b>4251.8</b>	<b>-60.0</b>	<b>40.42</b>	<b>43.09</b>	<b>4191.80</b>	
Mica	3294.8	3529.2	<b>0.0</b>	32.7	18.05	3529.2	2470.07
<b>COMPOSITE</b>	<b>7529.2</b>	<b>7781.0</b>				<b>Target Content = 3529.2</b>	
						<b>Target Flow = Run to Target Content</b>	
<b>Assumed Account Balances (ksfd)</b>				<b>TSR Balance (ksfd)</b>			
LCA		0.0				Arrow +Duncan	-60.0
Flow Aug		0.0				Mica	0.0
Libby/Arrow Swap		-60.0				<b>TOTAL</b>	<b>-60.0</b>
<b>TOTAL</b>		<b>-60.0</b>					

**Water Temperature Comparisons**  
**Observed data thru 8/02/08**  
**Forecast Temperatures from Year 2002 (Anatone and Orofino)**  
**Maximum Dworshak release while maintaining Dworshak outflow Temperature below 52 F**



Libby-Arrow Swap explained:

The “TSR” is the Treaty Storage Regulation which is the process used to set and account for Treaty operations. The TSR is computed twice a month. The current TSR was done on July 28<sup>th</sup> and the next two will occur on August 7<sup>th</sup> and 21<sup>st</sup>.

The volume of the Libby-Arrow swap this year will be up to 60 ksf. Libby will target 60 ksf above the August 31 draft limit of 2439.0 (2441.8’). The Canadian operation will be implemented by targeting the August 31<sup>st</sup> content based on the August 21<sup>st</sup> TSR minus 60 ksf at Arrow/Duncan.

The TSR contents for the end of August will change for each TSR with the August 21<sup>st</sup> TSR setting the final objective.

The operation to provide the water from Canada will begin with a flow across the border that targets 60 ksf below the July 28<sup>th</sup> TSR content. The flow across the border will be adjusted again after the August 7<sup>th</sup> TSR to target 60 ksf below the revised August 31<sup>st</sup> content. The flow will be revised again after the August 21<sup>st</sup> TSR. There is a process through the weekly Treaty Coordination calls in which Canadian flows are revised. The last 10 days of the month are used to “true-up” the final content with the expected content at Libby.

The operation at Libby will begin in a similar manner as the Canadian operation except that we have fixed end of August elevation and the flow changes will be made as necessary to achieve storage of 60 ksf above 2439.0’ (2441.8’).

# COLUMBIA RIVER REGIONAL FORUM

## TECHNICAL MANAGEMENT TEAM

August 6<sup>th</sup>, 2008 Conference Call

### FACILITATOR'S SUMMARY NOTES ON FUTURE ACTIONS

Facilitator/Notes: Erin Halton

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.

#### **Dworshak Operations Update**

Jim Adams, COE, provided updated information on Dworshak: outflows were at 14kcfs, the project elevation was 1573.3' and the tailwater temperatures were at 49.8°. Steve Hall, COE, provided an update as follow up from the July 30 TMT meeting regarding the Regulating Outlet (RO) issues at Dworshak: keeper plate pins were successfully installed 8/5 and the manhole tie down repair is expected to be completed by the end of today, enabling operations by 8/7. Hall added that the repairs that are needed for RO#2 are significant enough to take several months and said that the COE was unable to fully repair the seal on RO#1. He noted that the wear and tear on the RO's and bulkheads is due to years of operating outside of their intended design, which is why there is only one emergency bulkhead.

Temperature graphs were posted as link to the TMT agenda; the COE reported an average Lower Granite discharge temperature of 66.5° and said there were no temperature concerns at this point but they will continue to be closely monitored. Adams said the latest STP runs indicate that the COE will achieve the end of September elevation target of 1520', but clarified that actual conditions and operational recommendations will be factors in whether the project achieves an elevation of 1535' by the end of August. Hall added that STP runs indicated that holding outflows at 14 kcfs for another week, then shifting down later in the month might achieve an elevation within 2-3' of the elevation target.

Tom Lorz, Vice-Chair of the Salmon Managers, referred TMT to SOR #2008-5, posted as a link to the TMT agenda. The SOR was supported by ID, OR, CRITFC, the Shoshone-Bannock Tribes, CRITFC and the Nez Perce Tribe (*note: the State of Washington signed onto the SOR following the conclusion of the meeting*); it specified a request of the Action Agencies to analyze reservoir operations and system flexibility to provide migration conditions and benefits for juvenile migrants as specified in the 2004 BiOP and 2008 Water Management Plan. Lengthy discussion followed from TMT members about the uncertainties around the project's operational status currently and for the near-term, and the need to control flow temperatures Dworshak/Lower Granite to support hatchery fish. TMT members considered how to meet the need to provide flows that will support multiple species of fish migrating through the projects and the challenge in trying to prioritize temperature/flow benefits for fish.

The Nez Perce Tribe acknowledged the COE management efforts underway and stated that they recommend an operation that provides tailwater temperatures of no higher than 52° at Dworshak and 68° at Lower Granite and targets the end of August elevation of 1535' with as little negative impact to fish as possible. Several TMT members requested that the Action Agencies provide a list of all reasonable alternatives for providing desirable flows/temperatures for TMT members to consider at the 8/13 meeting. The COE indicated that policy makers would need to consider that request and clarified that senior level managers at Walla Walla District will weigh the risks of operating without full use of the emergency bulkhead and considering the potential failure of the seal on RO#1 via continued discussion over the next few days.

**Action/Next Steps:**

- The COE planned to continue operating Dworshak with outflows at 14 kcfs; should tailwater temperatures approach 52°, spill would be reduced through the spillway to manage temperatures as best can.
- The COE will follow up with TMT regarding policy-level COE consideration of the request to provide a list of all reasonable alternatives for providing desirable flows/temperatures for TMT members to consider at the 8/13 meeting.
- TMT representatives for USFWS and the Nez Perce Tribe will check in with the hatcheries to confirm the temperature criteria at Dworshak and Lower Granite.
- Flow and temperature benefit analysis will be a part of the continued Dworshak discussion at the upcoming TMT meeting on 8/13.

**Libby/Arrow Swap**

Tony Norris, BPA, referred TMT to two documents linked to the agenda, providing detail on the Treaty Storage Regulation (TSR) process. The 7/28 TSR indicated a 60 ksfd swap. The TSR will be revised each week, on 8/7 and 8/24, with adjustments made as necessary as the month progresses. Outflows at Libby were at 11 kcfs, with a shift down to approximately 9.5 kcfs planned for 1100 hours on 8/8. Cathy Hlebechuk added that it is possible that the project would ramp down earlier than Friday August 8<sup>th</sup>.

**Action/Next Steps:** BPA will stay mindful of the bull trout minimum. The swap agreement had been agreed to verbally at the time of the meeting and was expected to be signed by all parties involved within the next day. BPA will provide a final copy of the agreement to TMT members.

**McNary Transport**

Dan Feil, COE, reported that truck transport will begin on 8/16. They will notify TMT of any changes to this proposed operation.

**Other:**

- Dan Feil, COE, reported that fish pump 3 at McNary is leaking oil. He clarified that the leak is controlled and not going into the water and proposed using a 40%

spill on Thursday, 6/7 instead of Friday, 6/8. This 24-hour swap would entail four main units out for approximately four hours, from 12-4 pm. TMT members present on the call (NOAA, USFWS, BPA, BOR, MT, ID, OR) were polled and had no objections.

**8/13 Face to Face Meeting**

Agenda items will include:

- Finalize notes/minutes
- Dworshak Operations
- 2008 Summer Treaty Fishing Report
- Libby/Hungry Horse Operations Update
- Timing for end of MOP
- Operations Review

**Columbia River Regional Forum  
Technical Management Team Conference Call  
Aug. 6, 2008**

**1. Introduction**

Today's TMT call was chaired by Jim Adams (COE) and facilitated by Erin Halton (DS Consulting) with representatives of USFWS, COE, BOR, BPA, NOAA, CRITFC, the Nez Perce Tribe, Oregon, Montana, Idaho 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. Dworshak Operations**

Current Situation: Outflows are still 14 kcfs, with a forebay elevation of 1,574.3 feet and a tailwater temperature of 49.8 degrees F.

Steve Hall (COE) gave an update on RO gate repair at Dworshak. That work will be completed by the end of today, meaning the RO gates could be operable by the end of today or early tomorrow. However, issues remain that make using the RO gates risky. There's no emergency bulkhead available, so if something goes wrong with the operation of the RO gates, the COE wouldn't have a way of stopping the flow and about 500 cfs would be released. That could put minimum flows below generation during the last half of September.

Now that the RO gates can be operated, a risk based analysis is needed of (1) potential impacts to the system if the RO gates fail without a bulkhead available, vs. (2) potential impacts to the environment if the reservoir doesn't meet elevation 1,535 feet by end August. The decision regarding use of the gates will be made by the District commander himself. Ron Boyce (Oregon) asked when a decision will be made regarding putting the RO's back into service. That will happen before spill either needs to be curtailed, or it's apparent the reservoir won't reach elevation 1,535 feet by the end of August, Hall replied.

Hall's presentation, attached to today's TMT agenda, shows modeled temperatures at Dworshak. With continued outflows of 14 kcfs through the end of next week and into the following week, spill will probably need to drop to 12.8 kcfs on Aug. 19 for elevation reasons, based on the current forecast. That would bring the reservoir to 1,535 feet at end August. However, as the pool elevation drops, the amount of water going over the spillway has to decrease due to lack of head. When the reservoir reaches 1,545 feet, the COE will cut outflows to full powerhouse. There isn't a model run available at this time that shows the elevation of the reservoir at end August if the RO gates remain unavailable. The

reservoir would still be able to meet the 1,520 foot elevation target around the middle of September without the RO gates.

Dworshak was designed for the pool to remain full through summer and be drafted for power, Hall said. The equipment wasn't designed to be operated on a daily basis, which is why there have been difficulties with opening and closing the gates frequently. This is also the reason only one bulkhead was built. Fabricating a new bulkhead would be a complicated and costly process taking at least 6 months. The Dworshak spillway stilling basin design requires that the spillway be operated with balanced flows. This means RO gates #1 and 3 have to be used in tandem; operating one or the other would create problems in the stilling basin.

The scenario presented to TMT today is a conservative assumption of water temperatures coming out of Dworshak. The modeling was based on 2002 water temperatures, and this year's temperatures have been consistently 2 degrees F colder than what was forecasted from 2002 data. Even with a conservative estimate, the modeling still shows Lower Granite tailwater below 68 degrees F. The current daily average for Lower Granite tailwater is 66.5 degrees F. Current release temperatures from Dworshak are about 49+ degrees F. Dworshak tailwater temperatures aren't expected to reach 52 degrees F until next week, when reservoir pool drop to within 10 feet deep of the spillway crest.

The COE's worst-case scenario puts the reservoir between 2 to 5 feet above elevation 1,535 feet by end August. The COE could bring the reservoir down to elevation 1,535 feet by end August without the 52 degrees F tailwater restriction. The COE is able to increase outflows now if the Salmon Managers choose, but pushing the temperature limit also increases the likelihood of TDG exceedances.

Based on modeling, the COE doesn't foresee a problem with temperatures; however, they can't predict beyond this weekend. Using only the powerhouse at Dworshak would provide a better chance of keeping Lower Granite tailwater temperatures below 68 degrees F than using the spillway and exceeding 52 degrees F tailwater temperatures.

Discussion focused on SOR 2008-5 submitted by the Salmon Managers this morning. The SOR asks the Action Agencies to provide a list of alternatives for implementing the intent of the BiOp if operations as planned in the BiOp can't be carried out. TMT members exchanged their views of the SOR.

**USFWS** – Temperatures above 52 degrees F would raise potential disease concerns for the hatchery. Also, it could be difficult to maintain tailwater temperatures at Lower Granite if warm water gets added to Dworshak outflows. Willing to inquire whether brief exposures of a specified length of time to temperatures above 52 degrees would be a problem for the hatchery, but doubts

that would be acceptable. Releasing Dworshak water of below 43 degrees F now would be the lesser of two evils because that would result in smaller hatchery fish, whereas temperatures above 52 degrees F would result in mortalities. The Nez Perce Tribe concurred with this analysis.

**NOAA** – The ability of Dworshak to control temperatures in the Snake River is a top priority. The volume of water spilled is of secondary concern. Two considerations – survival of summer migrants in the Snake River and survival of fish wintering over in Lower Granite reservoir – make temperatures more critical than flows.

The ability to operate Dworshak in the manner of the past 10 years is an important aspect of fish protection in the river. NOAA urged the COE to do an engineering review of the project and to consider substantial modifications so the project could operate safely for another 50 years in the manner currently envisioned. That would require congressional authorization and funding, the COE said. NOAA and the COE will discuss this further outside of TMT.

**Oregon** – Urged the Action Agencies to provide the Salmon Managers with a full suite of alternatives to consider at the next TMT meeting so the intent of the 2008 BiOp regarding conditions for Snake River fall Chinook in August can be implemented via other means than Dworshak.

Oregon suggested considering flow augmentation from Brownlee Dam or along the Columbia River as options. The flow requirements outlined in the 2004 BiOp are important to fish, so if they can't be provided, similar benefits should be provided. If the Action Agencies don't provide a list of alternatives as requested in SOR 2008-5, NOAA should take that into consideration in section 7 permits regarding this issue.

**COE** – Stated that it was impossible today to quantify the negative impacts of reduced flows at Dworshak, or of shifting those flows into September. The COE asked for more information from the Salmon Managers regarding relative biological impacts. The COE considered today's discussion to be the beginning of a review of alternatives for Dworshak water, and did not propose any specific operations at this time. Pointed out that if the reservoir doesn't meet elevation 1,535 by end August, that would not impact the Nez Perce Tribe's 200 kaf for flow augmentation in September. The volume of water to be shifted into September is 21 kcfs, or approximately 2.7 kcfs a day during the last 10 days of August. That water would be in addition to what the COE normally provides for the Nez Perce Tribe. Holding full powerhouse longer than the first 10 days of September is an option for getting more water out of Dworshak by end September.

If TMT's highest priority is to hit elevation 1,535 by end August, the COE can do so, but doesn't advocate that option because of hatchery effects. The

COE asked the Salmon Managers to consider the relative biological value of 2.7 kcfs flows a day out of Dworshak during the last 10 days of August versus the first 10 days of September.

**Nez Perce Tribe** – Stated that there are wild fish in the lower river now and will continue to be throughout September. The hatchery is an important mitigation tool for the tribe and provides a valuable fishery in the region, so temperatures over 52 degrees F at Dworshak tailwater would be highly undesirable. Keeping temperatures below 68 degrees F at Lower Granite tailwater is the tribe's top priority. The Nez Perce would like Dworshak reservoir as close to elevation 1,535 feet by end August as possible without risking life and limb or impacts to fish. If the reservoir is 1-2 feet off, the tribe can live with that, but 10 feet would be a problem.

Shifting the tribe's 200 kaf into mid-September won't work because the cooling influence is needed in the river beginning Sept. 1. In the past, BPA has paid for Idaho Power water for this purpose, although that might not be a good option now because it's warmer water. Development of a list of options beyond Dworshak is a good idea now in case something catastrophic happens and Dworshak is falling short of all its BiOp goals.

**Idaho** – Expressed concern about pushing temperatures up to the limit because impacts are incremental, beginning at lower temperatures than 68 degrees F. Recommended keeping Dworshak temperatures below 52 degrees F for at least another week. There may be opportunities to adjust operations to help out-migrating Snake River fall Chinook and not create problems for other fish in the basin. Pointed out that adult return rates are generally much higher for the few fish seen this time of year than the larger numbers seen earlier. The COE's worst case scenario isn't terrible but is still less spill than planned, and this is a good year, which should mean good conditions for fish.

The State of Idaho wants to see the options in written form. Russ Keifer the Action Agencies to consider increasing spill on the Snake River projects as one of these actions. **Oregon** and the **Nez Perce Tribe** seconded this request.

**CRITFC** – The next few days will be warm, but after that the weather should cool off for several days. Historically, the hottest time in the basin is mid July to mid August. Based on modeling a composite of 1970-76 and 1985-89 temperatures, CRITFC predicts that temperatures will rise in mid to late August. CRITFC does not have temperature concerns at this time.

**BPA** – Suggested that one option is to discharge more water from the spillway now while it is available. Tony Norris (BPA) asked for the status of run timing. Substantial numbers of migrants are still in the river, more than 2,000 fish per day according to Nez Perce Tribe counts. Norris noted that under the COE's

worst case scenario, approximately 35 ksf would come out of Dworshak reservoir in September instead of August.

**Montana** – Expressed doubt that a clear tradeoff can be made between volumes of spill and flow temperatures.

Next Steps: Until the risk analysis is done and the COE gets clearance to use the RO gates, the current Dworshak operation of 14 kcfs spill will continue until tailwater temperatures reach 52 degrees F, probably around Aug. 19. At that time, the COE will reduce spill to 12.8 kcfs and try to keep tailwater temperatures below 52 degrees F for as long as possible. The goal is to get as much water as possible out of Dworshak now without temperature exceedances. The COE will consult internally with policy makers and the COE office of counsel regarding possible development of a list of flow alternatives.

### ***3. Libby-Arrow Swap Update***

Tony Norris (BPA) presented two documents attached to today's agenda. The first gives an example of accounting for such a swap, while the second explains the swap. BPA is still on track for a 60 kcfs exchange, which equates to approximately 2.8 feet above elevation 2,439 at Libby by end August.

Norris reiterated Robyn MacKay's explanation at the last TMT of the method BPA and Canada use for computing treaty storage regulation elevations twice monthly. Currently, BPA is targeting 60 ksf below the Aug. 31 TSR level, based on the August 21 TSR. That elevation will be recomputed Aug. 7 and again on Aug. 21. The last 10 days of the month are used for truing up the operation. The trajectory is revised with each new TSR reading. At the end, 60 ksf will be delivered to Canada, and flows at McNary will be as they would have been otherwise. The final agreement was waiting to be signed, probably today.

Joel Fenolio (COE Seattle) discussed the COE's modeling of the swap. Libby has been releasing 11 kcfs, and flows will drop to 9500 cfs at 9 pm Friday, Aug. 8. At that point, the COE will evaluate flows, managing them to remain above the bull trout minimum through Aug. 31. The COE could begin outflow reductions at Libby tonight, based on the latest forecast.

**Oregon** expressed appreciation for the documentation BPA presented today, and did not object to the operation. The COE has received statements of support for the swap from the **Colville, Nez Perce, Warm Springs, Umatilla, Kootenai** and **Yakima** tribes.

### ***4. McNary Transport Update***

At the last TMT meeting, Dan Feil (COE) reported on modifications being done at the Bonneville truck release site in preparation for changing from barge

to truck transport, raising the possibility that trucking operations could begin early this year. The site modifications are complete, but the truck has not been tested yet, and additional work needs to be done before the site can be used. Therefore, the COE does not propose to begin trucking operations any sooner than Aug. 16, the date originally specified in the FOP. There were no objections to this operation.

## **5. Other**

**McNary Fish Pump 3 Update:** Oil has been leaking from the unit 3 fish pump at McNary, and although the oil is being contained inside the unit, the COE is concerned the unit might fail, Feil reported. Dewatering the unit for inspection is planned for tomorrow, Aug. 7. That will require the tailwater elevations at McNary and John Day pool to be lowered, and will put first four main units at McNary out of service from noon to 4 pm. If the pump fails, Feil added, it would have a bigger impact on fish passage than taking the units out of service for 4 hours. McNary is currently on an alternating 40/60% spill regime, with today and tomorrow scheduled for 60% spill. The COE asked for TMT's concurrence to swap the 60% spill day for a 40% spill day tomorrow – a full 24 hour swap – and for the unit outage.

**NOAA, Montana, Idaho, Oregon, USFWS, BPA and BOR** had no objections to this operation. USFWS asked whether researchers had been contacted. The COE responded that the juvenile passage research study is complete, and no other research appears to be impacted by this operation.

**MOP Operations:** Tony Norris reminded the Salmon Managers that the WMP says TMT will consider ending MOP operations on the Snake in August when the numbers of juvenile salmon become small. The Salmon Managers will discuss this at the next FPAC meeting Aug. 12 in preparation for TMT to consider this issue at its next meeting Aug. 13.

## **6. Next Meeting**

The next regular face-to-face meeting will be Aug. 13 at the COE's Portland offices. Review of facilitator notes and minutes, Dworshak operations, the 2008 summer treaty fishery report, the end of MOP operations, a Libby/Hungry Horse operations update, and the standard operations review will be on the agenda. A conference call is scheduled for Aug. 27 with the end of spill on the agenda. This summary prepared by consultant and writer Pat Vivian.

<b>Name</b>	<b>Affiliation</b>
Tina Lundell	COE
Dave Wills	USFWS
Jim Adams	COE
Russ Kiefer	Idaho

Tracy Schwartz	COE Walla Walla
Mary Mellema	BOR
Scott Bettin	BPA
Jim Litchfield	Montana
Ron Boyce	Oregon
Tony Norris	BPA
Steve Hall	COE
Richelle Beck	DRA
Greg Haller	Nez Perce
Rich Domingue	NOAA
Tom Lorz	CRITFC
Cathy Hlebechuk	COE
Robyn MacKay`	BPA
Kyle Dittmer	CRITFC
Laura Hamilton	COE
Joel Fenolio	COE

# TECHNICAL MANAGEMENT TEAM

**BOR** : John Roache / Mary Mellema / Pat McGrane      **BPA** : Robyn MacKay / Tony Norris / Scott Bettin  
**NOAA-F**: Paul Wagner / Richard Dominique              **USFWS** : David Wills / Steve Haeseker  
**OR** : Rick Kruger / Ron Boyce                              **ID** : Russ Kiefer  
**WDFW** : Cindy LeFleur                                        **MT** : Jim Litchfield / Brian Marotz  
**COE**: Jim Adams / Cathy Hlebechuk / Bob Buchholz

## TMT MEETING

Wednesday August 13, 2008 09:00 - 12:00

1125 N.W. Couch Street, Suite 4A34  
Portland, Oregon 97209-4142  
Map Quest [\[Directions\]](#)

### CONFERENCE PHONE LINE

Conference call line:203-310-2162; PASS CODE = 4703150

To check into the building, take the elevator to the 5th floor and the guard will issue you an ID badge if you need one and will take you down to the meeting room on the 4th floor. If you have NOT attended a TMT meeting in the past you will need to call ahead and let Jim Adams (503) 808-3938, Cathy Hlebechuk (503) 808-3942, or Bob Buchholz (503) 808-3945 know, so you can be added to the TMT Visitor List and issued an ID badge. This badge may be used indefinitely. If you have attended TMT in the past you may re-use your ID badge indefinitely. If you are a federal employee you will also need to have an ID badge issued to you which can be used indefinitely.

We have had disruptions on the phone because people are not hitting 'mute' after dial in.  
**Please MUTE your Phone**

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*All members are encouraged to call Robin Gumpert with any issues or concerns they would like to see addressed.  
Please e-mail her at [robin76@cnnw.net](mailto:robin76@cnnw.net) or call her at (503) 248-4703.*

## AGENDA

1. Welcome and Introductions
2. Review and Finalize Notes / Minutes [\[Meeting Minutes\]](#)
3. 2008 Summer Treaty Fishing Report - Kyle Dittmer, CRITFC  
[\[Summer Treaty Fishery\]](#)
4. Dworshak Operations - Steve Hall, USACE  
[\[Dworshak Water Temperature Data\]](#)  
[\[DWR Release2008\]](#)   
[\[Water Temperature Comparison\]](#) 
5. Libby / Hungry Horse Operations Update - Joe Fenolio, USACE, John Roache, BoR
6. McNary Transport Update - Dan Feil, USACE
7. Timing for End of MOP
8. Operations Review

- a. Reservoirs
- b. Fish
- c. Power System
- d. Water Quality

[\[Spill Information 2008\]](#)

[\[TDG Data\]](#)

9. Other

- a. Set agenda for next meeting - **August 27, 2008**

[\[Calendar 2008\]](#)



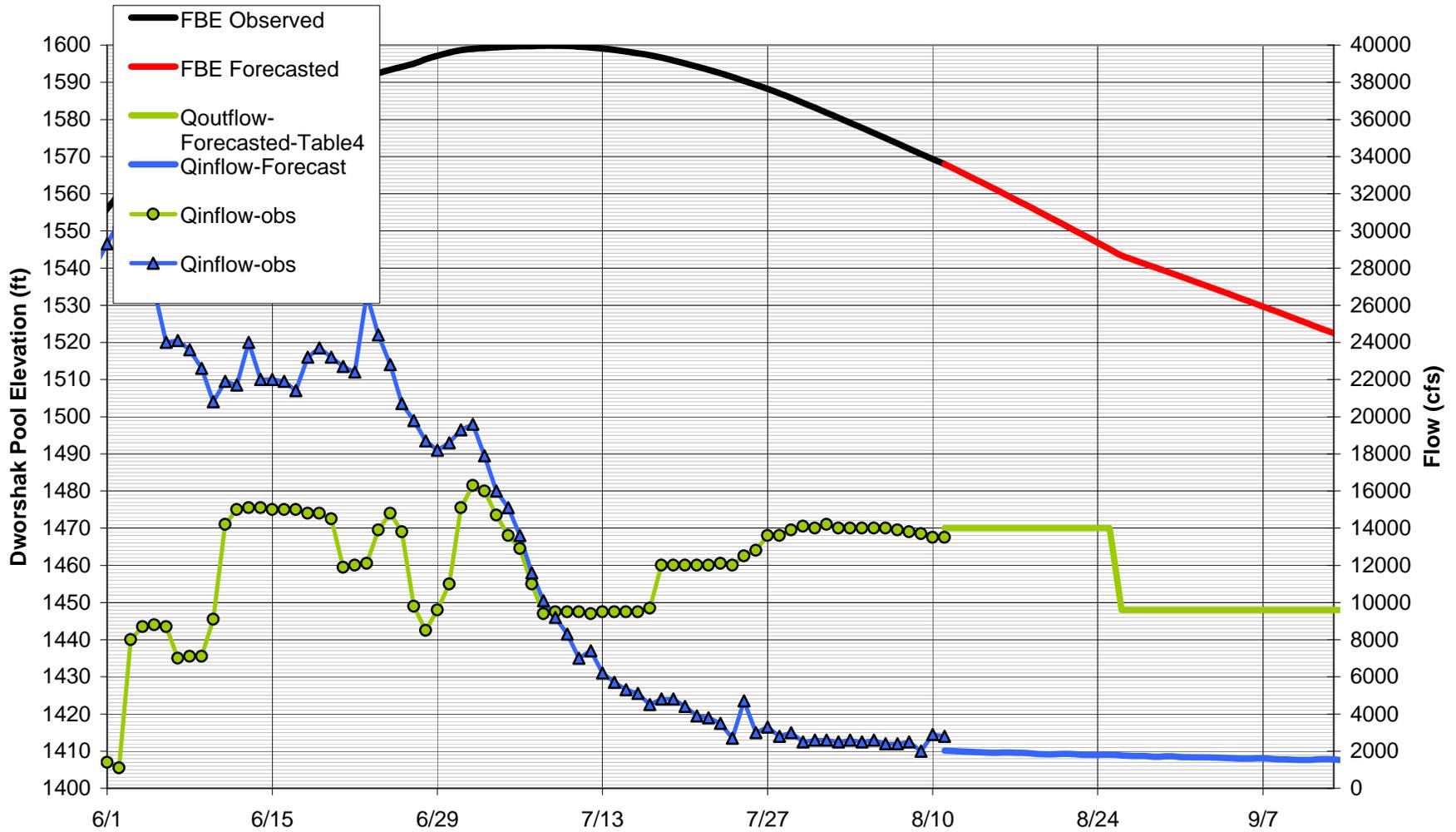
*Questions about the meeting may be referred to:*

*[Jim Adams](#) at (503) 808-3938, or*

*[Cathy Hlebechuk](#) at (503) 808-3942, or*

*[Bob Buchholz](#) at (503) 808-3945.*

## Dworshak Reservoir August 11, 2008 Flow and Stage Projection





## COLUMBIA RIVER INTER-TRIBAL FISH COMMISSION

729 N.E. Oregon, Suite 200, Portland, Oregon 97232

Telephone (503) 238-0667

Fax (503) 235-4228

www.critfc.org

TO: Technical Management Team (TMT)  
 FROM: Kyle Dittmer, *Hydrologist - Meteorologist*, CRITFC Hydro Program  
 DATE: August 13, 2008  
 SUBJECT: Summary of Pool Operations – 2008 Summer Treaty Fishery

CRITFC submitted four System Operation Requests (2008-C2 to C5) via the NMFS' TMT forum to support 2008 summer treaty fishing. CRITFC requested two criteria: (1) one-foot elevation bands and (2) stable pool elevations during each week of treaty fishing. Criterion #1 asked to operate the pools as a hard constraint within a one-foot elevation range for all of the Zone 6 pools (i.e., Bonneville, The Dalles, and John Day). The Corps committed to a 1.5-foot range hard constraint and 1-foot soft constraint. The table summarizes the hourly compliance of CRITFC's 1-foot elevation band criteria and the Corps' 1.5-foot criteria during the 2008 and 2007 treaty fisheries. Even though compliance levels were slightly less than achieved in 2007, we appreciate the Corps' efforts in coming close to meeting their stated criteria.

<b>2008</b>	Bonneville Pool	The Dalles Pool	John Day pool
1 foot range (CRITFC):			
JUNE 23 - 25	77%	92%	100%
JULY 1 - 3	92%	67%	100%
JULY 8 - 10	84%	74%	100%
JULY 15 - 17	85%	66%	100%
JULY 22 - 24	80%	80%	95%
JULY 28 - 31	80%	82%	100%
average:	<b>83%</b>	<b>77%</b>	<b>99%</b>
2007 average:	90%	84%	100%
1.5 foot range (COE):			
JUNE 23 - 25	100%	100%	100%
JULY 1 - 3	100%	90%	100%
JULY 8 - 10	98%	92%	100%
JULY 15 - 17	100%	90%	100%
JULY 22 - 24	100%	93%	100%
JULY 28 - 31	100%	82%	100%
average:	<b>100%</b>	<b>91%</b>	<b>100%</b>
2007 average:	100%	95%	100%

Pool elevation data is a good objective measure as to the absolute pool fluctuations (Criterion #2) as shown in Figures 1 through 18. The Bonneville pool saw 0.2 – 1.5 foot swings (compared to 0.5 – 1.1 foot swings in summer 2007). The Dalles pool saw 0.2 – 2.0 foot swings (compared to 0.5 – 2.0 foot swings in summer 2007). John Day pool saw 0.1 – 0.9 foot swings (compared to 0.4 – 0.8 foot swings in summer 2007). The fishing effort was focused in the Bonneville and John Day pools. Tribal fishers harvested (preliminary) 9000 summer chinook and 9000 sockeye.

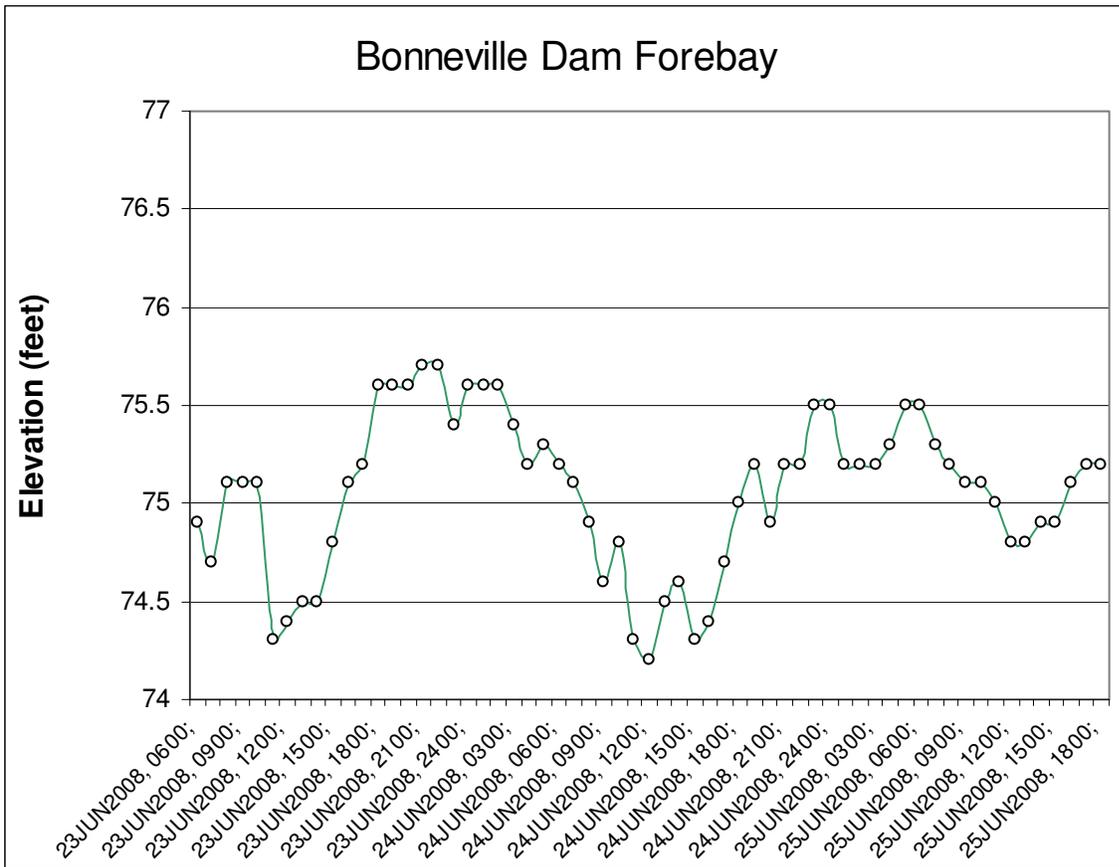


Figure 1. Observed BON pool elevations during June 23-25, 2008 summer treaty fishing.

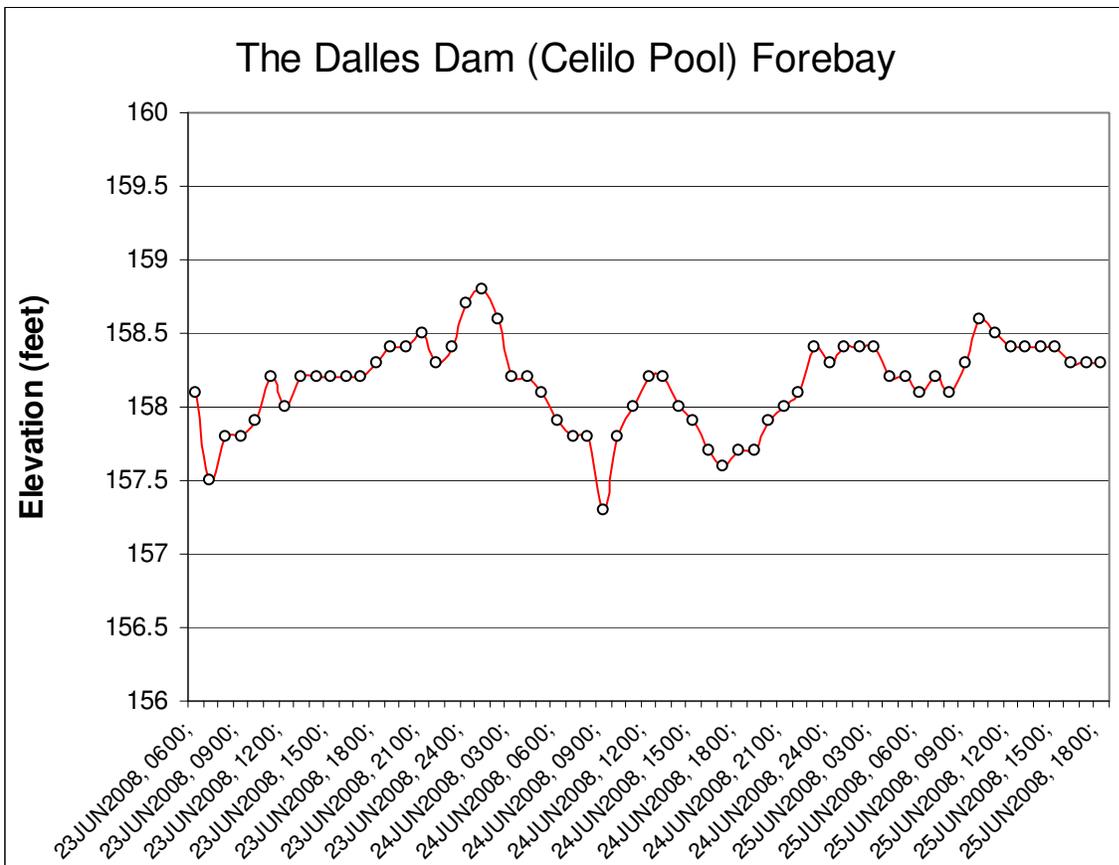


Figure 2. Observed TDA pool elevations during June 23-25, 2008 summer treaty fishing.

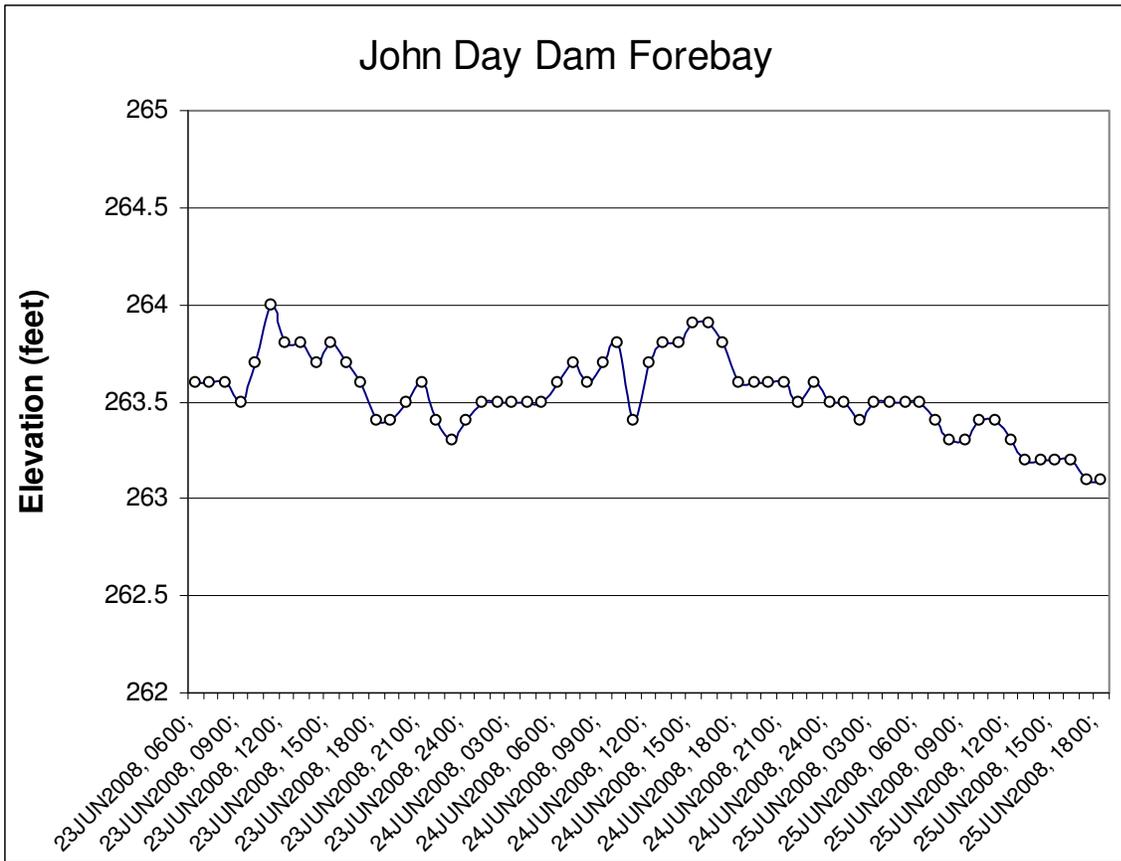


Figure 3. Observed JDA pool elevations during June 23-25, 2008 summer treaty fishing.

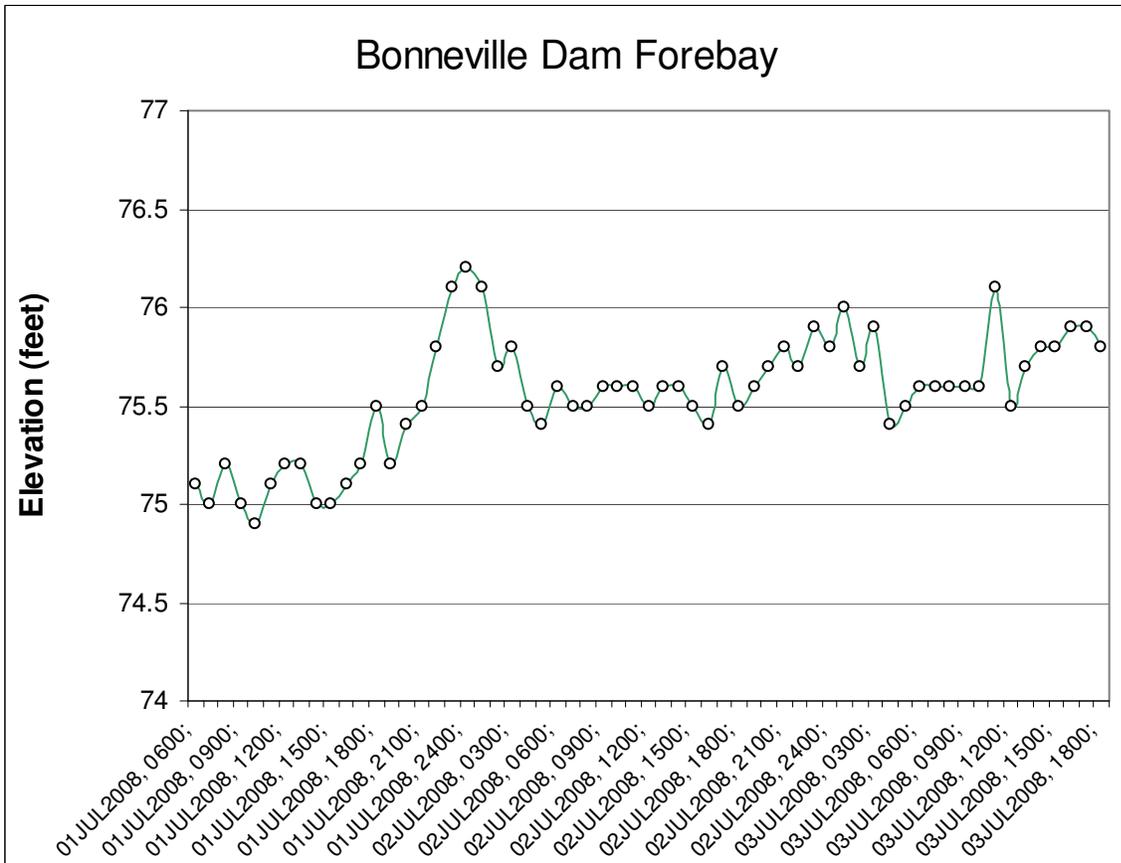


Figure 4. Observed BON pool elevations during July 1-3, 2008 summer treaty fishing.

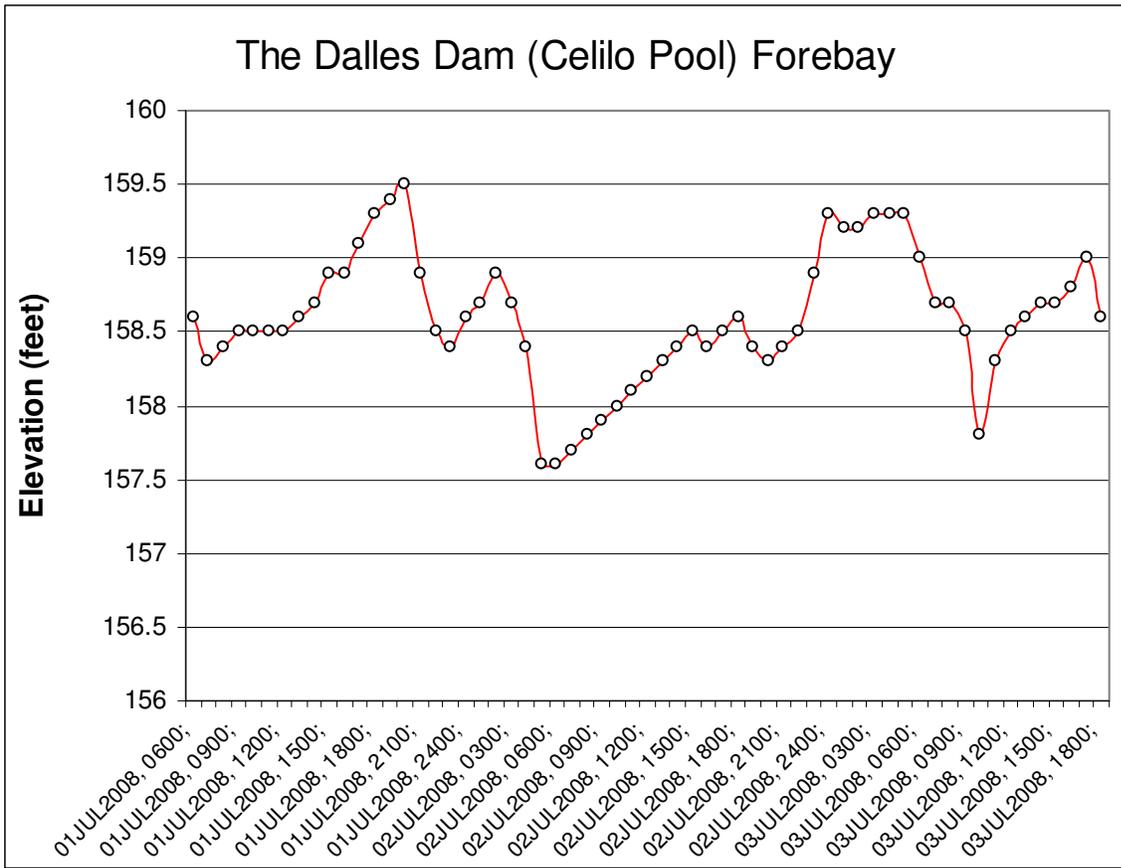


Figure 5. Observed TDA pool elevations during July 1-3, 2008 summer treaty fishing.

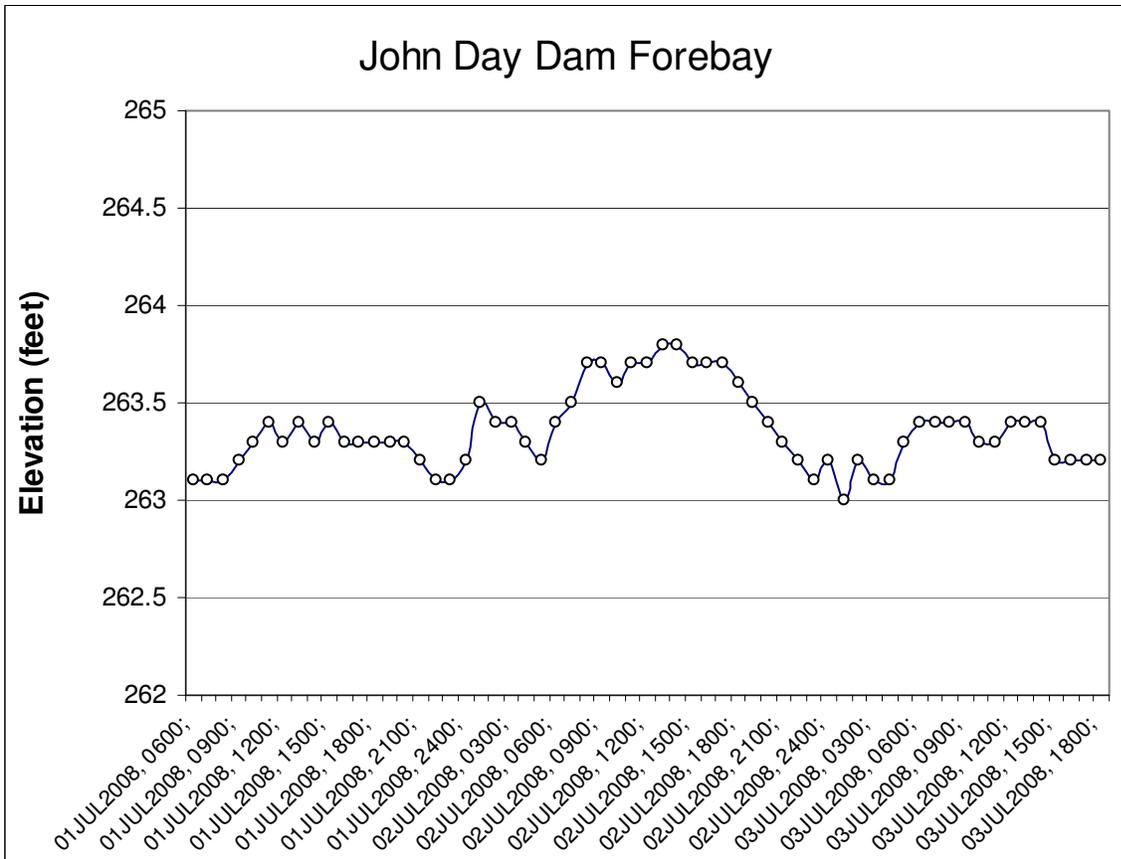


Figure 6. Observed JDA pool elevations during July 1-3, 2008 summer treaty fishing.

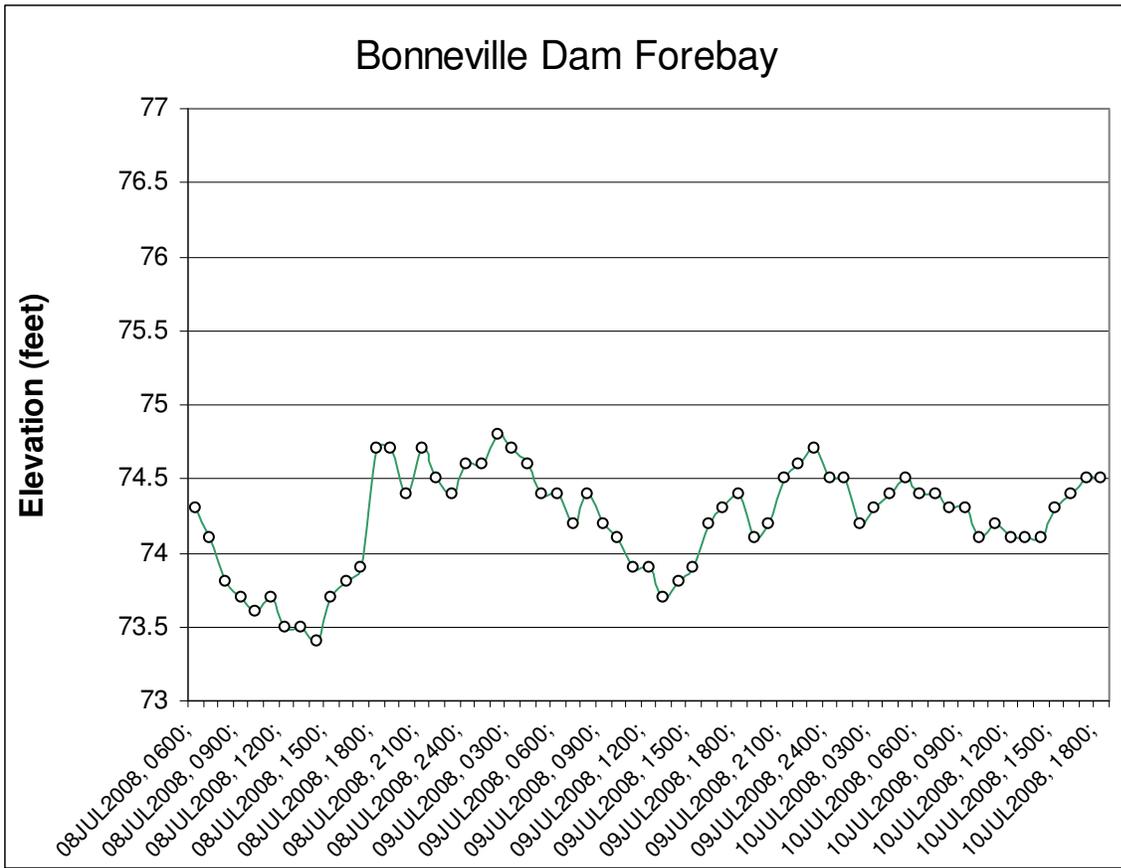


Figure 7. Observed BON pool elevations during July 8-10, 2008 summer treaty fishing.

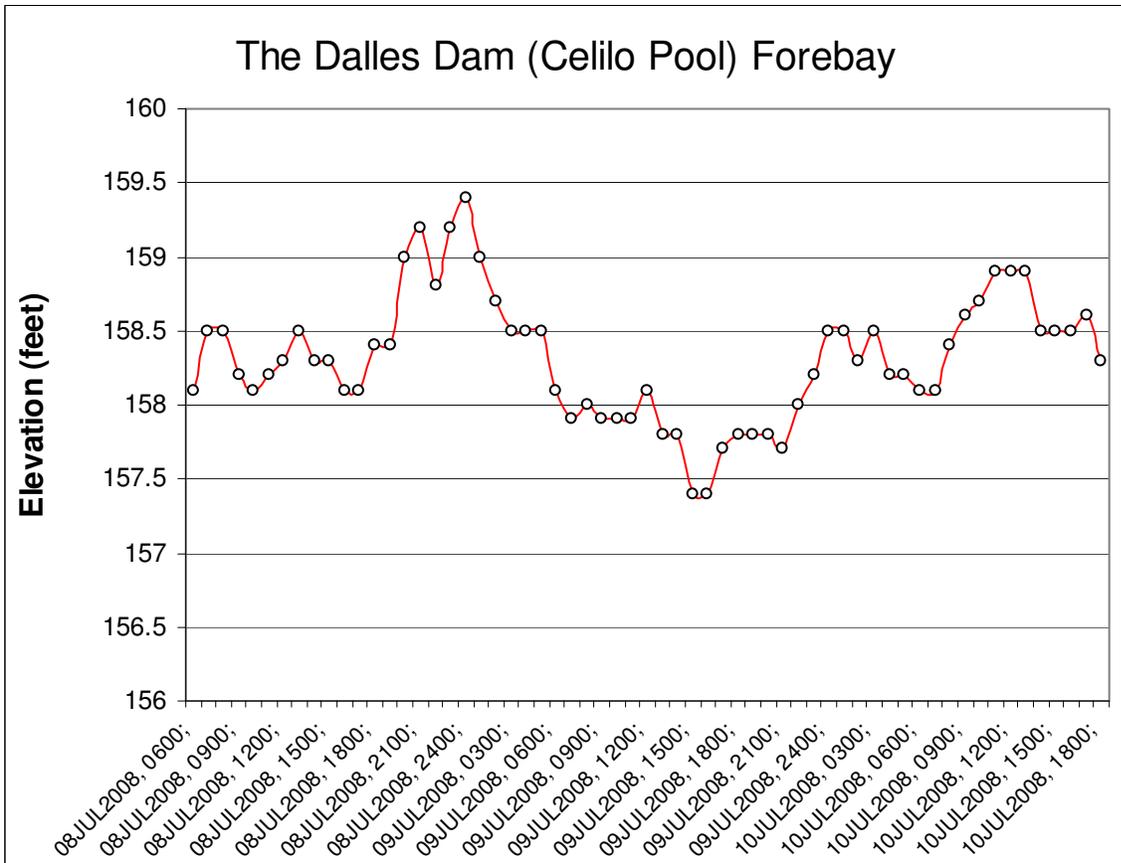


Figure 8. Observed TDA pool elevations during July 8-10, 2008 summer treaty fishing.

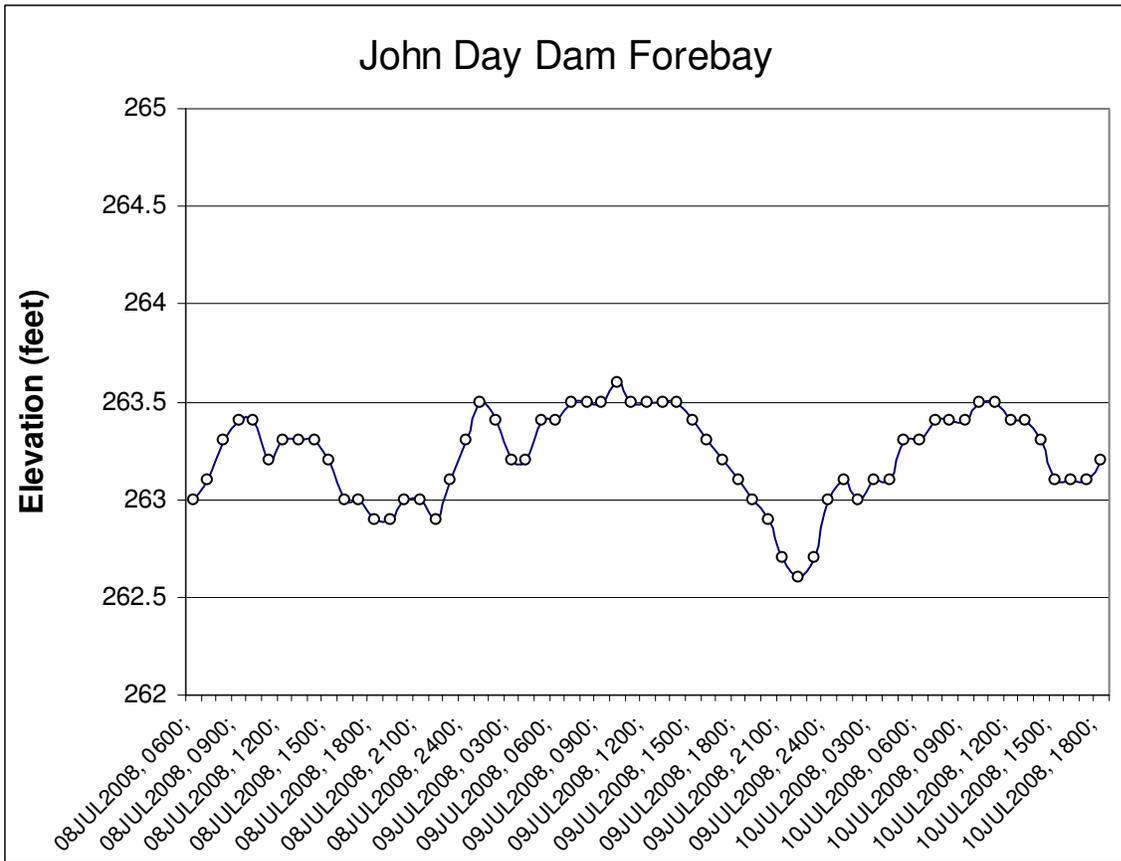


Figure 9. Observed JDA pool elevations during July 8-10, 2008 summer treaty fishing.

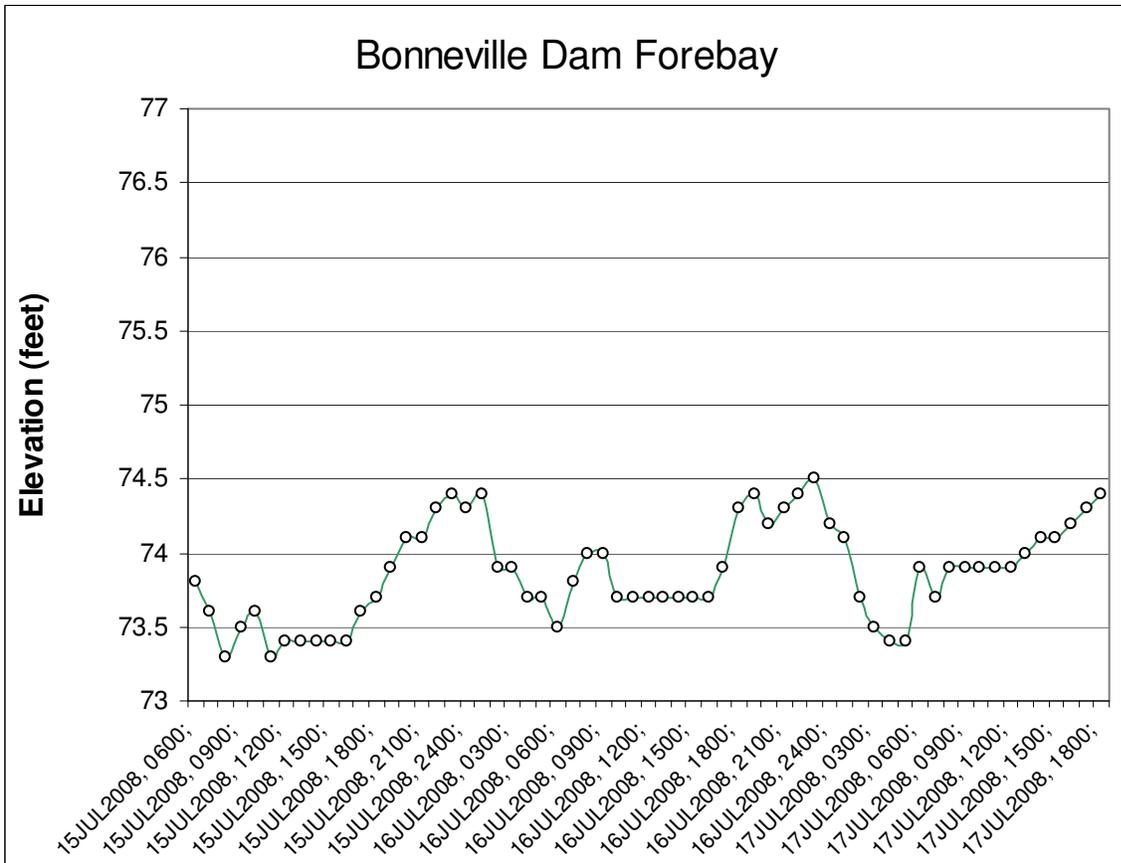


Figure 10. Observed BON pool elevations during July 15-17, 2008 summer treaty fishing.

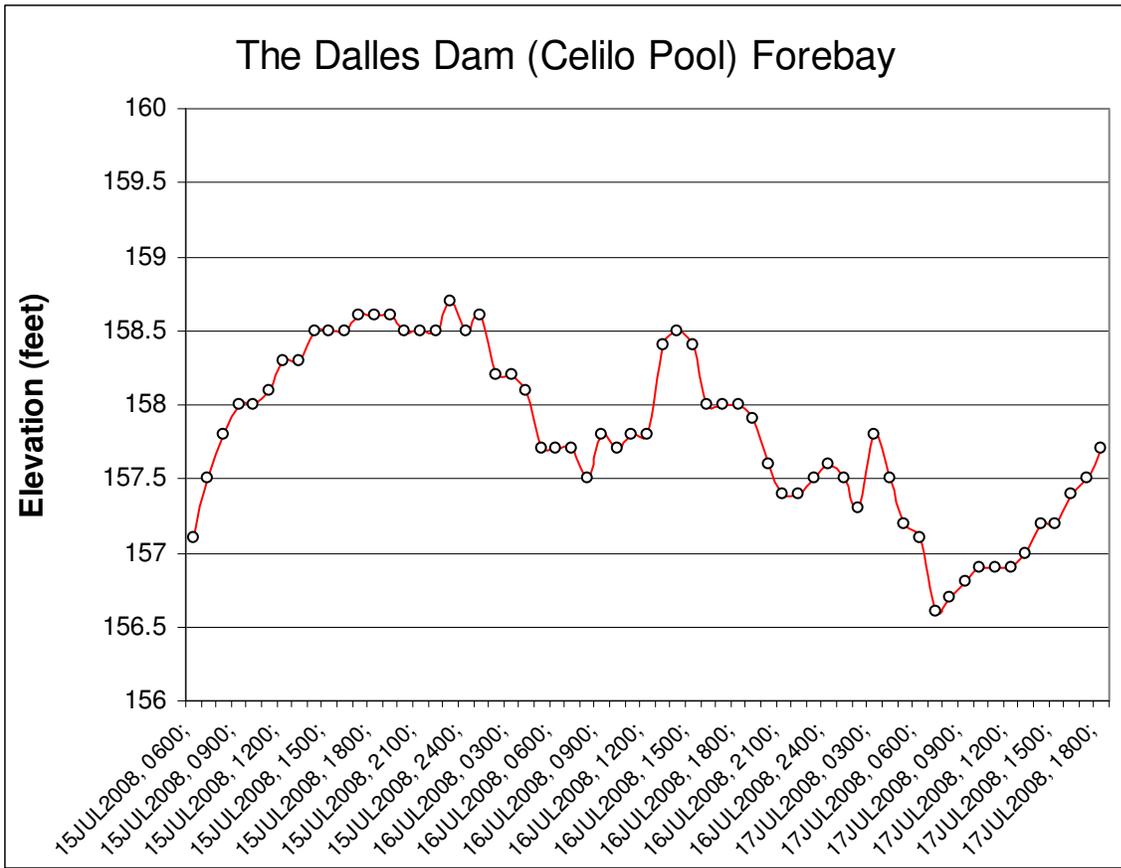


Figure 11. Observed TDA pool elevations during July 15-17, 2008 summer treaty fishing.

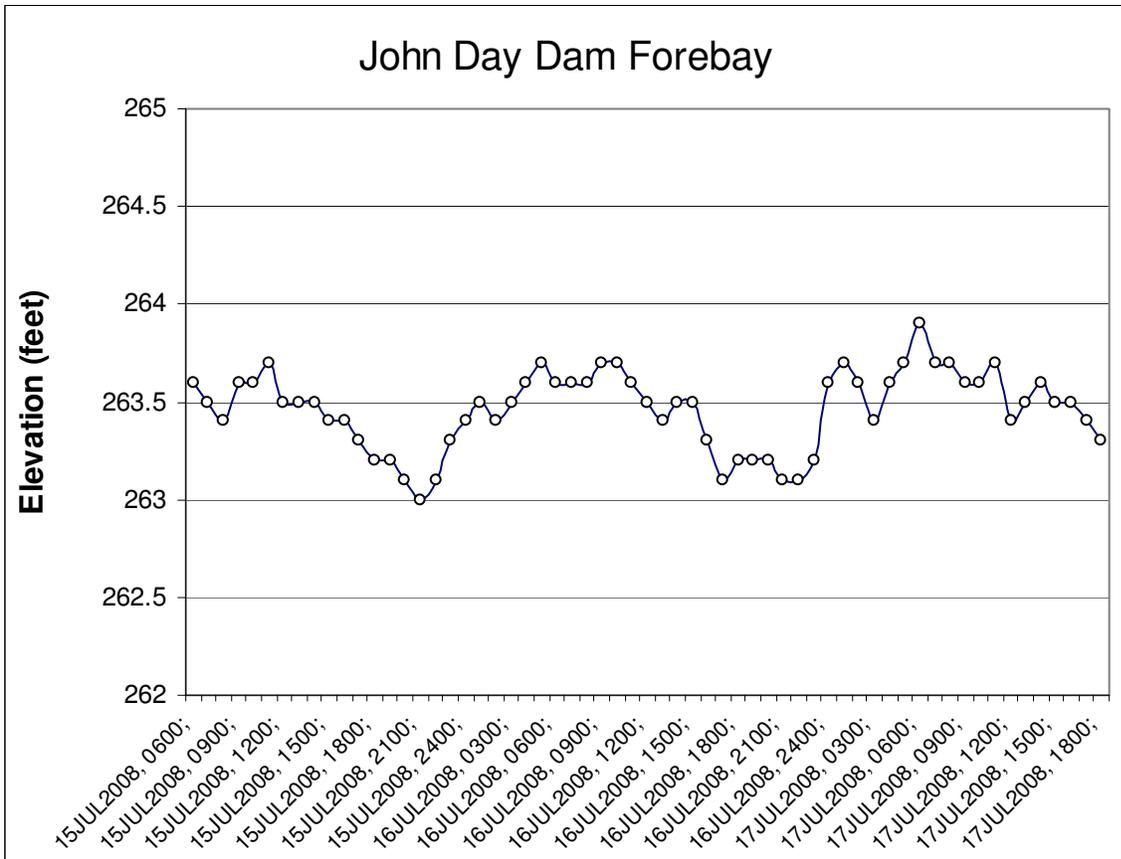


Figure 12. Observed JDA pool elevations during July 15-17, 2008 summer treaty fishing.

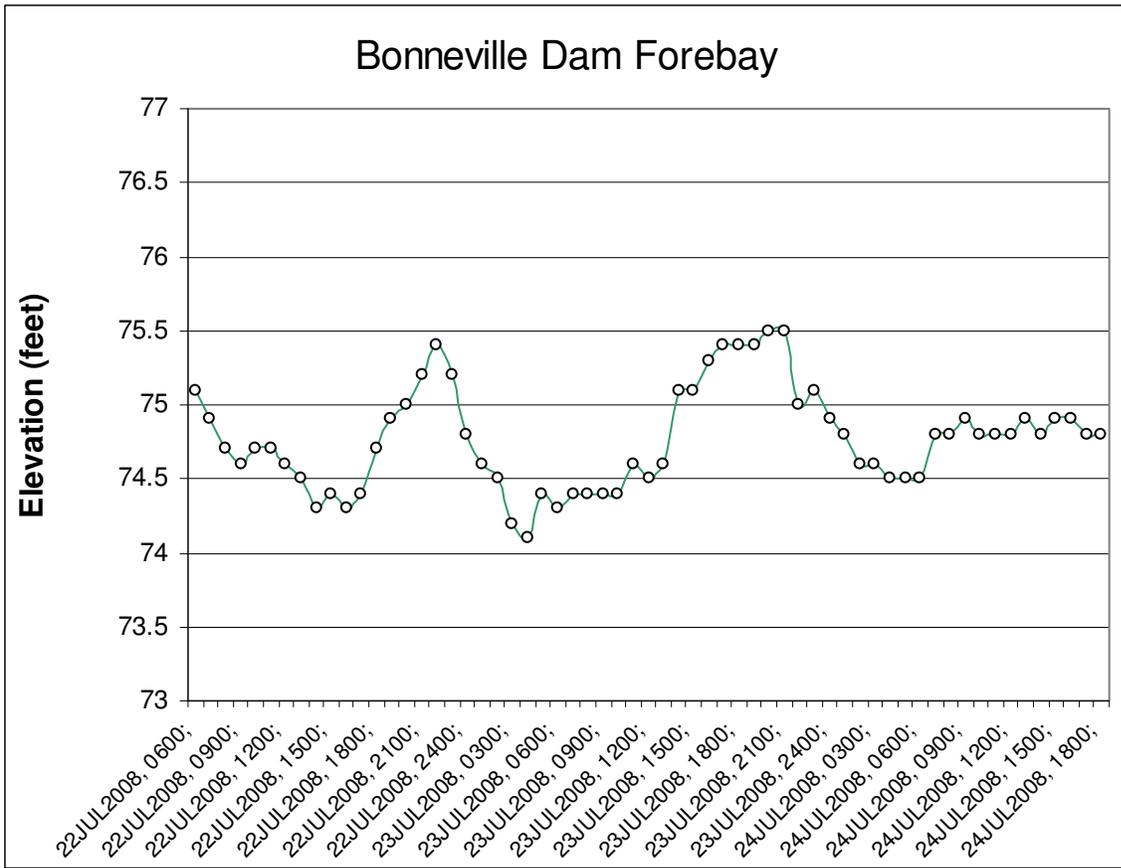


Figure 13. Observed BON pool elevations during July 22-24, 2008 summer treaty fishing.

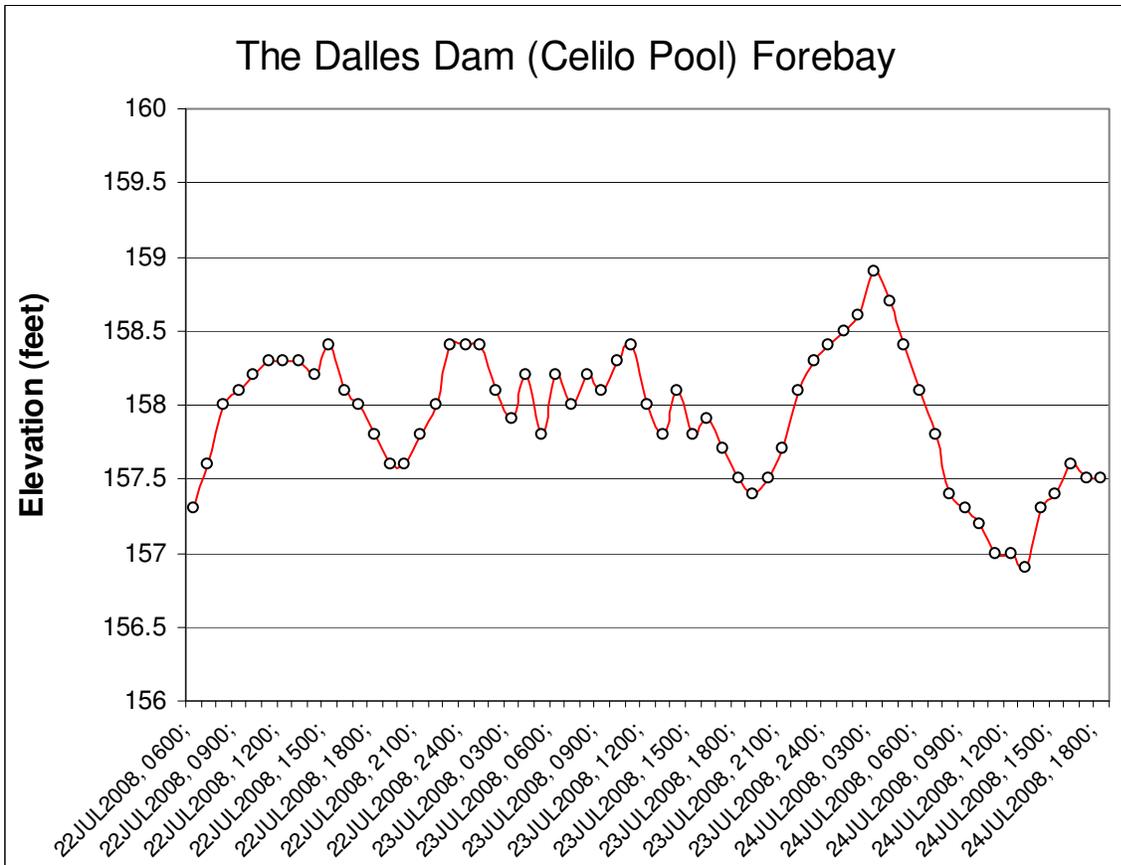


Figure 14. Observed TDA pool elevations during July 22-24, 2008 summer treaty fishing.

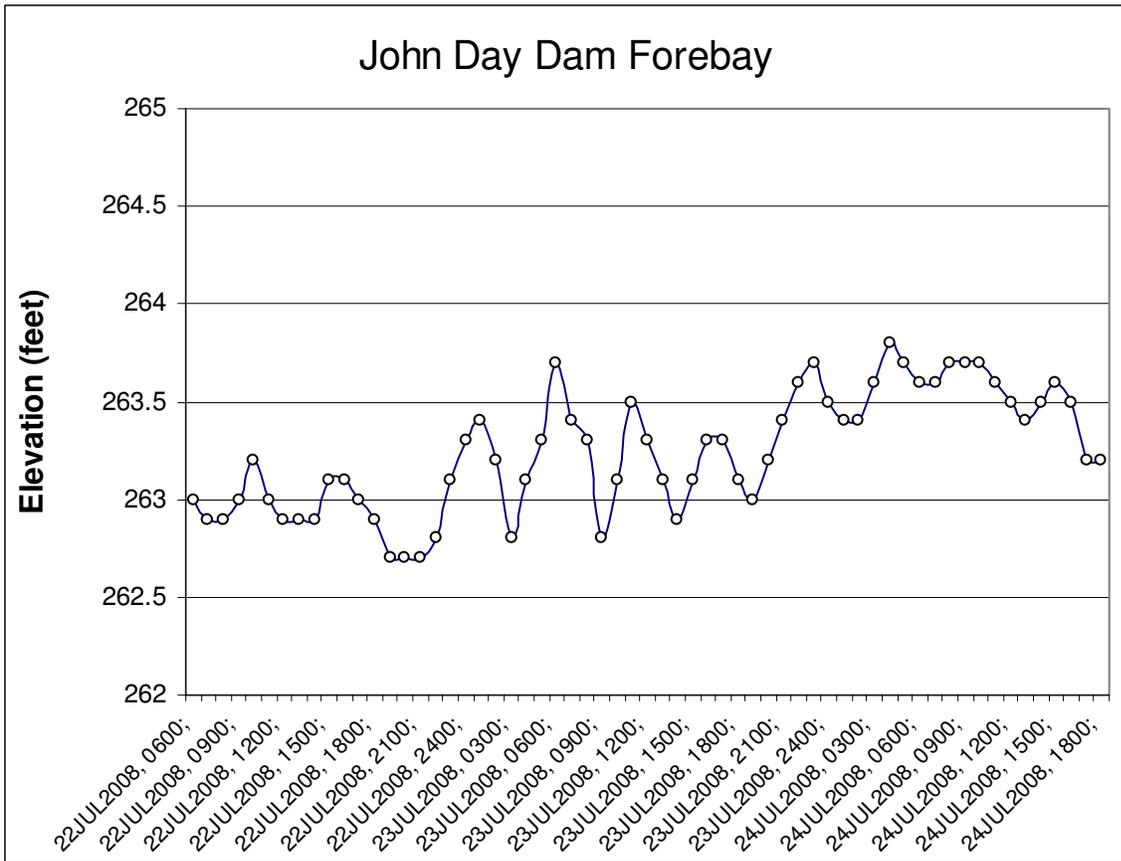


Figure 15. Observed JDA pool elevations during July 22-24, 2008 summer treaty fishing.

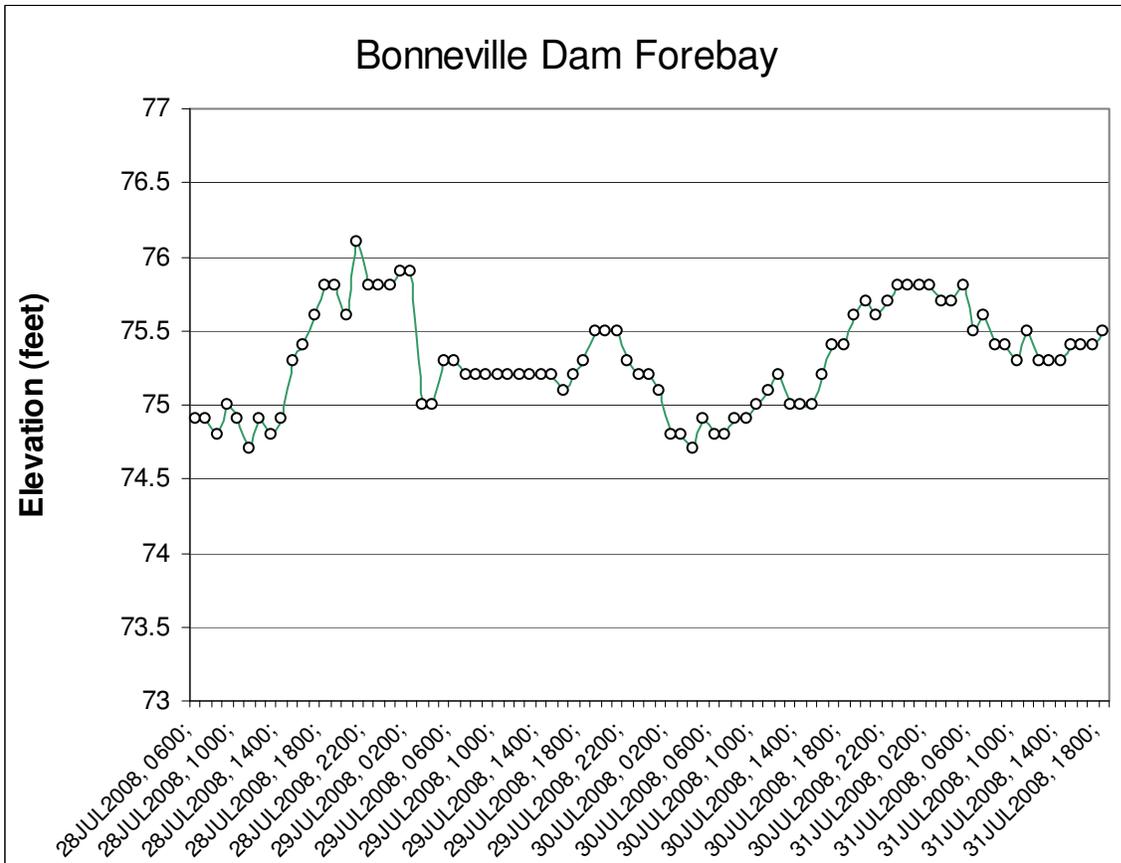


Figure 16. Observed BON pool elevations during July 28-31, 2008 summer treaty fishing.

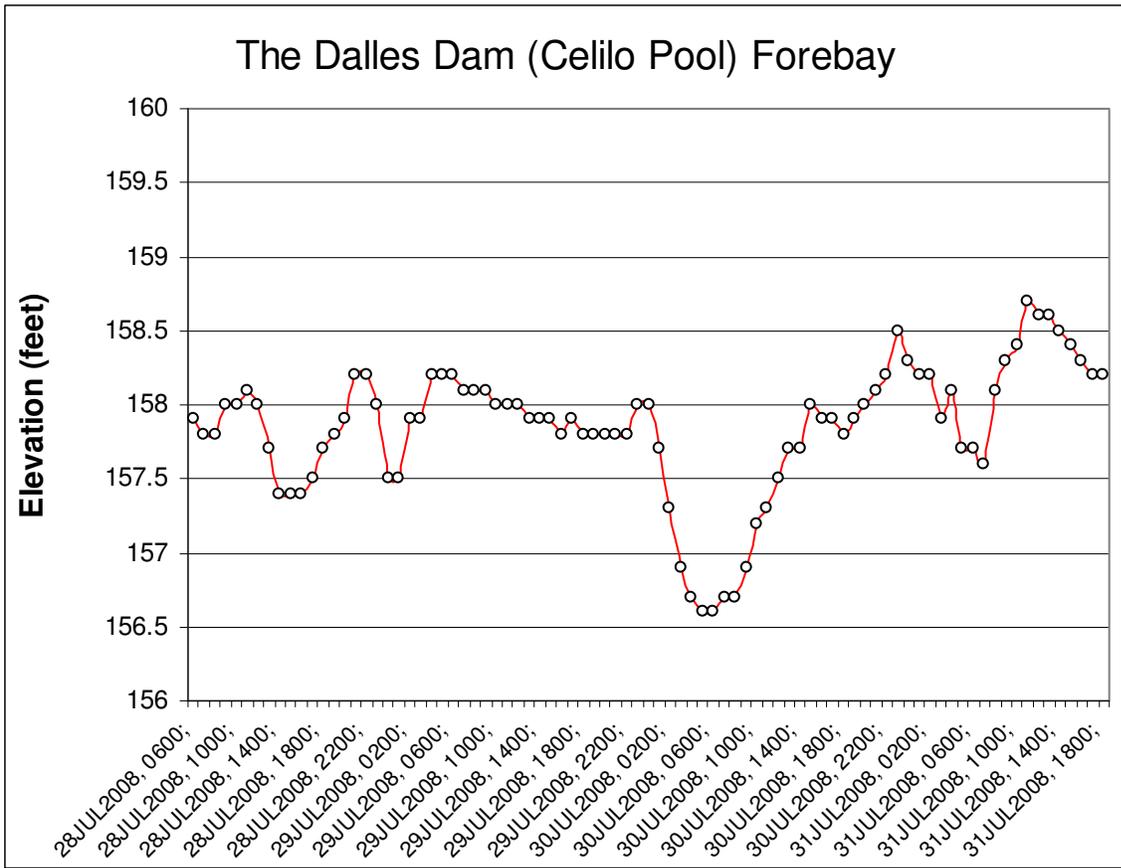


Figure 17. Observed TDA pool elevations during July 28-31, 2008 summer treaty fishing.

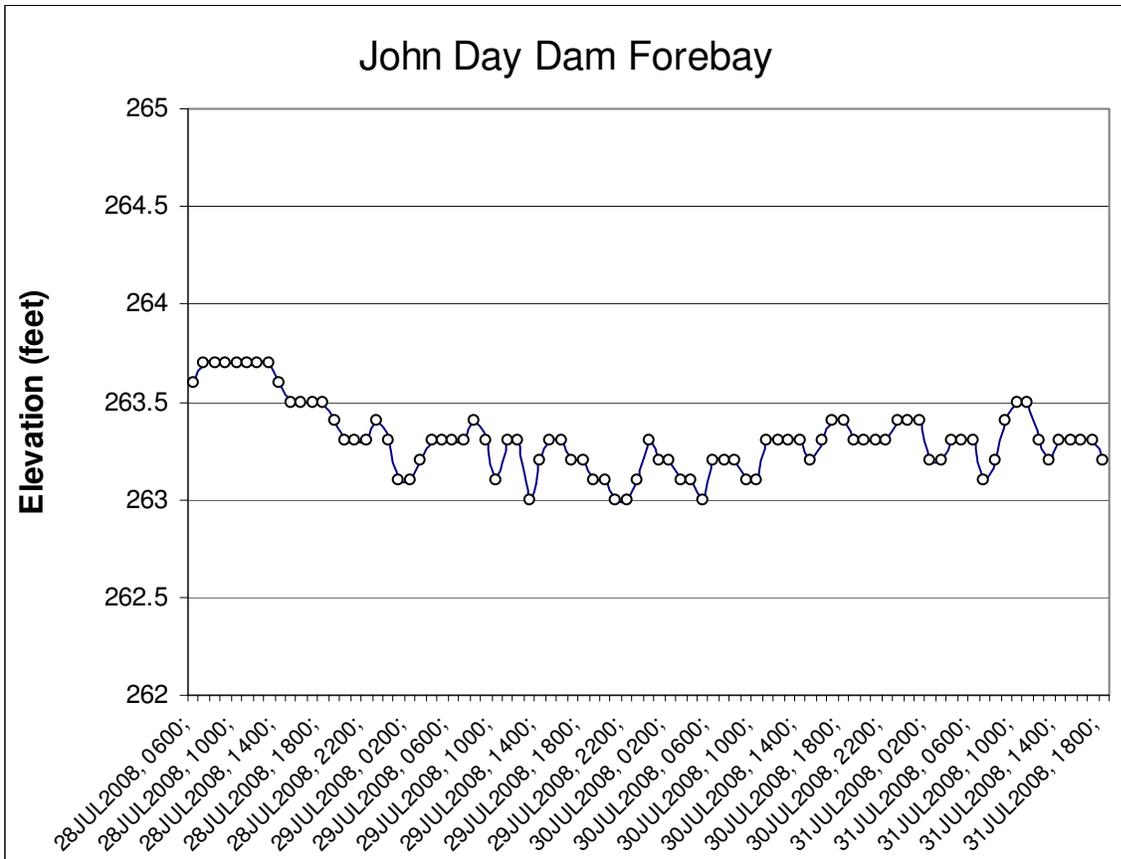
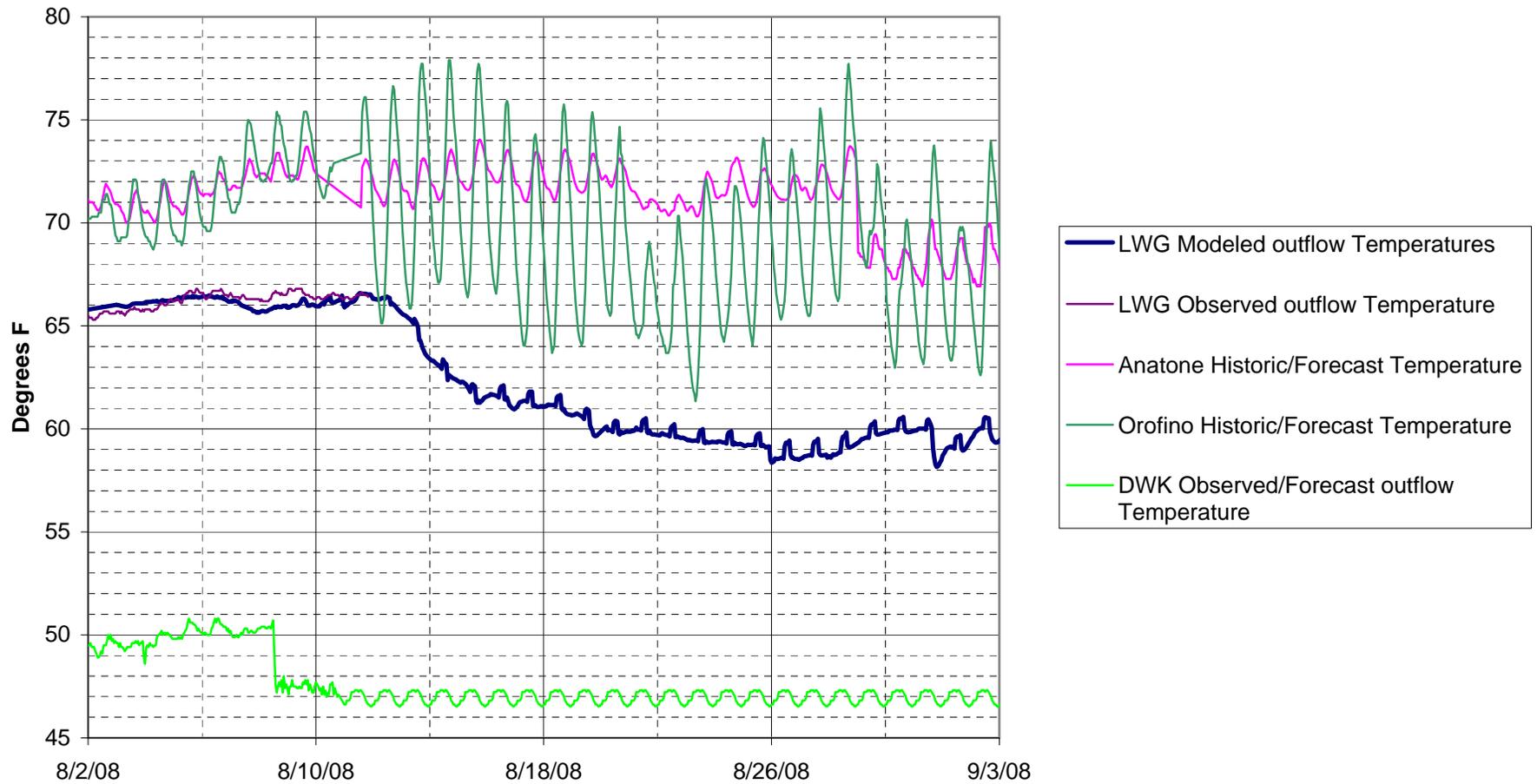


Figure 18. Observed JDA pool elevations during July 28-31, 2008 summer treaty fishing.

**Water Temperature Comparisons**  
**Observed data thru 8/10/08**  
**Forecast Temperatures from Year 2002 (Anatone and Orofino)**  
**August 11-30 Anatone and Orofino forecast temperatures increased 2 Deg F**



# COLUMBIA RIVER REGIONAL FORUM

## TECHNICAL MANAGEMENT TEAM

August 13, 2008 Meeting

### FACILITATOR'S SUMMARY NOTES ON FUTURE ACTIONS

Facilitator: Robin Gumpert

Notes: Erin Halton

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**

The 7/30 official meeting minutes/facilitator notes had been posted to the web. No further changes were made to the notes during the meeting and they were considered final. The 6/1 official meeting minutes/facilitator notes and 6/6 facilitator notes had been posted to the web and TMT will look to finalize them at the 8/27 TMT meeting.

#### **2008 Summer Treaty Fishing Review**

Kyle Dittmer, CRITFC, referred TMT to a 2008 Summer Treaty Fishing review document posted as a link to the TMT agenda. Dittmer noted that the elevation requests for the season were met 83% of the time at Bonneville, 77% of the time at The Dalles and 99% of the time at John Day. Fluctuations were kept to a minimum and preliminary catch estimates were 9,000 summer Chinook and 9,000 sockeye. CRITFC commended and thanked the COE and others for their efforts to hold the pools as steady as possible and provide good fishing conditions.

**Action/Next Steps:** Dittmer said the COMPACT meeting was scheduled for the afternoon of 8/13 and that he would communicate any Autumn Treaty Fishing SOR's to TMT as they are developed. Autumn Treaty Fishing will be on the agenda for the 8/27 TMT meeting; Dittmer said he would confirm catch numbers for the summer season at that meeting.

#### **Dworshak Operations Update**

Steve Hall, Walla Walla District COE, reported that Dworshak was currently at elevation 1563.9', with outflows in the range of 14.5-14.6 kcfs. The project was passing inflows of 1.8 kcfs through the Regulating Outlets and 9.8 kcfs through the spillway. Dworshak release temperatures were in the range of 48.5-49°, and Hall reported that the project was tracking well toward achieving the 1535 foot end of August target elevation. TDG levels were in the range of 107-109% and being closely monitored in order to stay below the 110% Idaho TDG criteria. Tracey Schwartz, COE, referred TMT to current and historical temperature data graphs posted as links to the agenda, noting that there would be a drop in temperatures observed at Lower Granite within the next day or two, as a result of the slight drop in Dworshak outflow temperatures on 8/8. (*Note: later during the meeting, Lower Granite temperatures were noted as dropping slightly, to 66.8°.*) Schwartz clarified that the forecasted higher temperatures for the next few days were not

fully accounted for in the modeling, but added that a few days of high temperatures were not expected to impact modeling results. Jim Adams, COE, noted the Dworshak forebay thermocline data showed slightly warmer water being drawn from units than in the three previous years. Adams said that the COE expects the flows over the spillway will end sometime around August 22-24<sup>th</sup>, resulting in cooler temperatures, and that the RO gates will be positioned as necessary to manage outflow temperatures per Dworshak hatchery targets.

**Action/ Next Steps:**

- As long as temperatures remain fairly steady, the COE will hold outflows in the range of 14.5 kcfs, targeting 1535 feet end of August while closely monitor temperature and TDG levels.
- The COE planned to correct a typo on the “DWR Release 2008” graph and repost it to the agenda.
- Dworshak Operations Update will be to the agenda for the 8/27 TMT meeting; if any issues arise in the interim, TMT could convene a conference call on 8/20.

***NOTE:** Jim Adams, COE, said that Cathy Hlebechuk and Dan Feil will serve as the COE’s TMT contacts during the next two week, until September 2.*

**Libby/Hungry Horse Operations**

Joel Finolio, Seattle District COE, reported that Libby outflows were at 8 kcfs (the bull trout flow minimum) and targeting an end of August elevation of 2441.8'. Tony Norris, BPA, reported that the Libby/Arrow Swap agreement had been signed by all parties. John Roache, BOR, reported that Hungry Horse was at an elevation of 3549.43', with outflows of 6.4-6.5 kcfs; he added that the BOR did not expect any decrease in outflows as the project continues to draft through the end of August. Hungry Horse is forecast to draft to around elevation 3540.3 feet by August 31 with the current discharge and using this week’s 50% ESP inflow trace

**Action/Next Steps:** The COE planned to post the final, signed Arrow/Libby swap agreement, per TMT request, as a link to today’s agenda.

**McNary Transport**

Dan Feil, COE, reported that per the Fish Operations Plan, there will be a shift to truck transportation on 8/17, as 8/16 is an “off” day for transportation.

**Timing for End of MOP:** Discussion of end of MOP operations on the Lower Snake was deferred to the 8/27 TMT meeting.

**Next Steps:** Timing for end of MOP will be determined by adult and juvenile passage data; this item will be discussed at the 8/19 FPAC meeting and the 8/27 TMT meeting.

**Operations Review**

**Reservoirs:** Grand Coulee was at elevation 1283.9' and drafting to a target elevation 1280' by the end of August. Hungry Horse was at elevation 3549.43' with outflows in the range

of 6.4-6.5 kcfs. Libby was at elevation 2442.8', with inflows of 8.7 kcfs and outflows of 8.1 kcfs. Lake Pend Oreille was at elevation 2062.3'. Seven day average in-flows at Lower Granite were 40 kcfs, McNary flows were 134-135 kcfs, and Bonneville flows were 135 kcfs.

Fish: Paul Wagner, NOAA, reported that subyearling numbers were in the couple hundred per day range at Lower Granite, Lower Monumental and Little Goose. Adult passage numbers were picking up at Bonneville and Fall Chinook were tracking close to the 10 year average. Sockeye counts continued to be strong; Russ Kiefer, ID, noted optimism for higher sockeye numbers in the Idaho basin than seen in previous years and added that genetic sampling and adult releases are underway to support natural spawning / sockeye production.

Power System: Nothing to report at this time.

Water Quality: Jim Adams, COE, reported a few exceedances at the Camas/Washougal gauge but noted TDG was at 112.2% as of 8/13. He also clarified the "dead zone" effect sometimes observed as projects transition between one and two unit operations and gave TMT a heads up that this could result in slight fluctuations in flows.

Other: Dan Feil, COE, gave TMT members a head's up that the B2 corner collector is scheduled to be closed on the 9/2. (The outage could occur anytime after midnight August 31, per the FOP.)

### **8/27 Face to Face Meeting**

Agenda items will include:

- Finalize notes/minutes
- Autumn Treaty Fishing
- Dworshak Operations
- Libby/Hungry Horse Operations Update
- Timing for End of MOP on the Lower Snake
- Lower Granite MOP Operations
- Operations Review

**Columbia River Regional Forum  
Technical Management Team Meeting  
Aug. 13, 2008**

**1. Introduction**

Today's TMT meeting was chaired by Jim Adams (COE) and facilitated by Robin Gumpert (DS Consulting) with representatives of COE, USFWS, NOAA, BOR, BPA, CRITFC, Idaho, the Nez Perce Tribe 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 of Meeting Minutes**

Facilitator's notes and official minutes for the Aug. 1 and Aug. 6 TMT meetings will be finalized at the next TMT meeting on Aug. 27.

**3. 2008 Summer Treaty Fishing Report**

Kyle Dittmer (CRITFC) gave a review of the 2008 summer treaty fishery. The tribes fished for 6 weeks and submitted 4 SORs to the Action Agencies. Each SOR requested two basic conditions – stable elevations and stable fluctuation bands during each week of the fishery. The COE responded with a commitment to a 1.5-foot hard constraint and a 1-foot soft constraint. In terms of hourly compliance with the 1-foot band soft constraint:

- Bonneville pool had an 83% rate of compliance, 7% less than the same time last year.
- The Dalles pool had 77% compliance, 7% less than last year.
- John Day pool had 99% compliance, 1% less than last year.

In terms of hourly compliance with the 1.5-foot band hard constraint:

- Bonneville pool had 100% compliance, the same as last year.
- The Dalles pool had 91% compliance, 4% less than last year
- The John Day pool had 100% compliance, the same as last year.

Approximately 80% of the nets this year were split between Bonneville and John Day pools, Dittmer pointed out. In terms of pool elevation changes:

- The Bonneville pool fluctuated 0.2-2.0 feet, about the same as last year.
- The Dalles pool fluctuated 0.2-2.0 feet, about the same as last year.
- John Day pool fluctuated 0.1-0.9 feet, about the same as last year.

Preliminary counts show the tribal fishers caught 9,000 summer Chinook and 9,000 sockeye, with platform fishery data still coming in. CRITFC has found no direct correlation between pool elevations and loss of nets. The losses are probably due to vandalism and theft.

In response to questioning, Dittmer said he would look into why tribal fishers didn't catch more sockeye, given this year's unusually plentiful runs. Rapid drops in elevation within 2-3 hours cause the most problems for fishers, while those spread out over 10 hours or so are easier for the tribal fishers to deal with. CRITFC thanked the COE for its role a successful fishery this year.

The fall fishery will begin soon, with a potential SOR on the Aug. 27 TMT agenda.

#### **4. Dworshak Operations**

The Dworshak pool is at elevation 1,563.9 feet, with outflows of 14.5-14.6 kcfs, Steve Hall (COE) reported. About 1.8 kcfs is passing through the RO units and 9.8 kcfs through the powerhouse; the rest is going over the spillway. Current water temperature releases are 48.5-49 degrees F. The COE believes the reservoir will reach 1,535 feet elevation by the end of August, and is trying to get as much water out of the reservoir as possible now without violating the gas cap.

Tracy Schwartz (COE) discussed temperature modeling. The model assumed that every attempt would be made to get Dworshak reservoir to elevation 1,520 feet by the end of September. The model assumed outflows would remain 14 kcfs until Aug. 25, and then drop to full powerhouse until Sept. 15. Outflow temperatures would be around 47 degrees F at that time. The model also assumed that the 2002 Anatone and Orofino flow temperatures were lower than this year's, so 2008 temperatures have been shifted 2 degrees F higher from Aug. 11-30. This is considered a conservative estimate.

Dworshak outflow temperatures dropped from 50 to 47 degrees F on Aug. 8. The COE models predict that Lower Granite outflow temperatures will begin to fall off any day now, from Aug. 12-16. Wagner asked whether this model run included the predictions of high temperatures over the next few days. No, the COE has adjusted the 2002 historical data 2 degrees F upward for Anatone and Orofino inflows, Schwartz replied. A few days of high temperatures are not likely to affect the model, which is more indicative of long-term trends.

Adams directed TMT to Aug. 11 thermocline data for Dworshak forebay, which shows that water temperatures this year, especially in the lower parts of the reservoir, are significantly warmer than in previous years. Current releases are 48-49.5 degrees F with units operating in undershot mode. As time goes on and surface flows drop, cooler outflow temperatures can be expected. The pool elevation is expected to drop below the spillway elevation sometime around

Aug.22-24, meaning 12 kcfs will be lost over the spillway during that period. It is likely that 1-2 gates will have to be operated in overshot mode in order to release the outflows of 46-48 degrees F that are needed by the hatchery.

For the next week, the COE expects to keep Dworshak outflows in the 14-14.5 kcfs range, with outflow temperatures of around 50 degrees F. The COE will continue to release as close to 14.5 kcfs as it can, assuming that outflow temperatures aren't expected to vary from 48.5-49.5 degrees F.

Russ Kiefer (Idaho) pointed out that one of the lines in today's graph was mislabeled. It will be revised and reposted to the TMT page. TMT will revisit Dworshak operations on Aug. 27, with a tentative conference call scheduled for Aug. 20 if needed.

### ***5. Libby/Hungry Horse Operations Update***

**a. Libby.** The COE wasn't able to present graphics today because of a problem with the first 10 days of the forecast, Joel Fenolio (COE-NWS) reported. The COE is in the process of remodeling the forecasts.

Last night, Libby outflows dropped to the bull trout minimum of 8 kcfs. Inflows at the 50% exceedance level show the reservoir will reach the target elevation of 2,441.8 feet by end August. The 75% exceedance level, the most conservative estimate, shows an end of August elevation of 2,441 feet.

The Libby-Arrow swap agreement with Canada has been signed, Tony Norris (BPA) reported. Flows are on track to swap 60 ksf, or 2.8 ft at Libby Reservoir, with a true-up during the last 10 days of August. The storage of 60 ksf equates to an elevation of about 2.8 feet above the target 2,439 feet elevation in Libby pool. The swap will allow the Action Agencies to store at Libby what is expected and to readjust outflows at both U.S. and Canadian projects.

BPA will post the signed agreement as soon as it becomes available.

**b. Hungry Horse.** The current reservoir elevation is 3,549.43 feet, with 6.4-6.5 kcfs outflows. Current ESP forecasts indicate the reservoir will reach 3,540.3 feet by the end of August, and 3,540.0 feet by Sept. 1.

### ***6. McNary Transportation Update***

Trucking operations will begin Aug. 17 instead of Aug. 16 because the latter is an off-day, according to the COE's schedule of transporting every other day, Dan Feil (COE) reported.

## **7. Timing the End of MOP**

Changing the end of MOP from end August to the beginning of September would depend on the number of adults and juveniles in the river, Paul Wagner said. FPAC has been discussing MOP operations and will continue to do so. In the past, the threshold for ending MOP has been an index count of less than 300 juveniles in the river, Norris pointed out. Last year, the end of MOP occurred around the end of August when the juvenile index count was around 100 fish. FPAC will continue to discuss this issue, including Lower Granite operations, and report back to TMT.

Scott Bettin (BPA) noted that the collection facility for adults needs a certain amount of water, so moving the MOP elevation up a foot or so might be a consideration in September. TMT will revisit MOP operations Aug. 27.

## **8. Operations Review**

**a. Reservoirs.** Grand Coulee is at elevation 1,283.9 feet, headed towards 1,280 feet by the end of August. Hungry Horse is at elevation 3,549.43 feet, with outflows of 6.4-6.5 kcfs. Libby is at elevation 2,442.8 feet, or a full foot above the target elevation for end August. Inflows are 8.7 kcfs and outflows are 8.1 kcfs, so the reservoir is slowly drafting.

The Pend Oreille Hope gage is at elevation 2,062.3 feet, still passing inflows. TMT will discuss Pend Oreille operations around the middle of September at the earliest.

Dworshak is at elevation 1,564.35 feet with inflows of 2.5-3 kcfs and outflows of 14-14.5 kcfs. Seven day average inflows at Lower Granite have been 40 kcfs; at McNary, 134-135 kcfs; at Bonneville, 135 kcfs.

**b. Fish.** Smolt passage is currently limited to subyearlings, Wagner reported. Until recently, several thousand fish per day were passing Lower Granite, and 700 fish per day were passing Little Goose. Lower Monumental has passed less than 1,000 fish per day for most of August. This information will play into scheduling the end of MOP operations. McNary has been passing 2-8,000 fish per day, with similar counts at John Day. Bonneville has been passing 2,000 fish per day, trending down for fall Chinook season.

Fall Chinook adult passage has begun, with 5,500 fish passing Bonneville so far. This count is in line with the 10-year average. So far this year, approximately 183,000 steelhead have passed Bonneville, with a 10 year average of 160,000, or about 5-800 steelhead per day passing the lower river projects. Sockeye counts have been higher this year than in decades.

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

**d. Water Quality.** The only point of concern lately has been Bonneville spill, Adams reported. There have been exceedances at the Camas Washougal gage, so the COE has been slowly lowering the spill cap. Last night, outflows were dropped to 85 kcfs in anticipation of hot weather during the next few days.

Flows in the Snake River are approaching an operational “dead zone” where flow are such that the project must alternate between running one unit and two units in order to maintain forebay elevations in the MOP range. This means that forebay elevations may fluctuate between the MOP and MOP+1. Wagner asked, is the 40%/60% alternating spill regime at McNary following a fixed schedule, or does it depend on water availability? It’s on a fixed schedule, Adams replied.

**9. Bonneville 2<sup>nd</sup> Powerhouse Corner Collector Closure**

This closure is scheduled to occur on the morning of Sept. 2, Adams reported. The FOP says the corner collector can be closed anytime after midnight on Aug. 31. If the contractor is able to schedule work on Labor Day, it may do so. Richelle Beck (DRA) asked what current temperatures are at Lower Granite. The temperature dropped from 67 to 66.8 degrees F as of today, Adams replied. Temperatures are expected to fall further because of temperature changes at Dworshak that began on Aug. 8.

**9. Next Meeting**

The next regularly scheduled TMT meeting will be Aug. 27 at the COE Portland office. Review of facilitator notes and minutes; fall treaty fishing; Dworshak, Libby/Hungry Horse, and Lower Granite operations; the end of MOP; and the standard operations review will be on the agenda. A conference call was tentatively scheduled for Aug. 20 if needed to discuss changes in Dworshak operations. This summary prepared by consultant and writer Pat Vivian.

<b>Name</b>	<b>Affiliation</b>
Jim Adams	COE
Dave Wills	USFWS
Paul Wagner	NOAA
Laura Hamilton	COE
John Roache	BOR
Tony Norris	BPA
Kyle Dittmer	CRITFC
Scott Boyd	COE
Tim Heizenrader	Cascade
Bob Diaz	PPM
Joel Fenolio	COE
Dan Feil	COE

Phone:

Russ Kiefer	Idaho
Scott Bettin	BPA
Bill Crampton	CBB
Russ George	WMC
Steve Hall	COE
Tracy Schwartz	COE Walla Walla
Tom Le	Puget Sound Energy
Richelle Beck	DRA
Greg Haller	NPT

# TECHNICAL MANAGEMENT TEAM

**BOR** : John Roache / Mary Mellema / Pat McGrane      **BPA** : Robyn MacKay / Tony Norris / Scott Bettin  
**NOAA-F**: Paul Wagner / Richard Dominique              **USFWS** : David Wills / Steve Haeseker  
**OR** : Rick Kruger / Ron Boyce                              **ID** : Russ Kiefer  
**WDFW** : Cindy LeFleur                                        **MT** : Jim Litchfield / Brian Marotz  
**COE**: Jim Adams / Cathy Hlebechuk / Bob Buchholz

## UNSCHEDULED TMT CONFERENCE CALL

Friday August 22, 2008 13:00 - 14:00

1125 N.W. Couch Street, Suite 4A34  
Portland, Oregon 97209-4142  
Map Quest [\[Directions\]](#)

### CONFERENCE PHONE LINE

Conference call line:203-310-2162; PASS CODE = 4703150

To check into the building, take the elevator to the 5th floor and the guard will issue you an ID badge if you need one and will take you down to the meeting room on the 4th floor. If you have NOT attended a TMT meeting in the past you will need to call ahead and let Jim Adams (503) 808-3938, Cathy Hlebechuk (503) 808-3942, or Bob Buchholz (503) 808-3945 know, so you can be added to the TMT Visitor List and issued an ID badge. This badge may be used indefinitely. If you have attended TMT in the past you may re-use your ID badge indefinitely. If you are a federal employee you will also need to have an ID badge issued to you which can be used indefinitely.

We have had disruptions on the phone because people are not hitting 'mute' after dial in.  
**Please MUTE your Phone**

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*All members are encouraged to call Robin Gumpert with any issues or concerns they would like to see addressed.  
Please e-mail her at [robin76@cnnw.net](mailto:robin76@cnnw.net) or call her at (503) 248-4703.*

## AGENDA

1. Libby operation - increased inflows
2. Lower Snake navigation problems

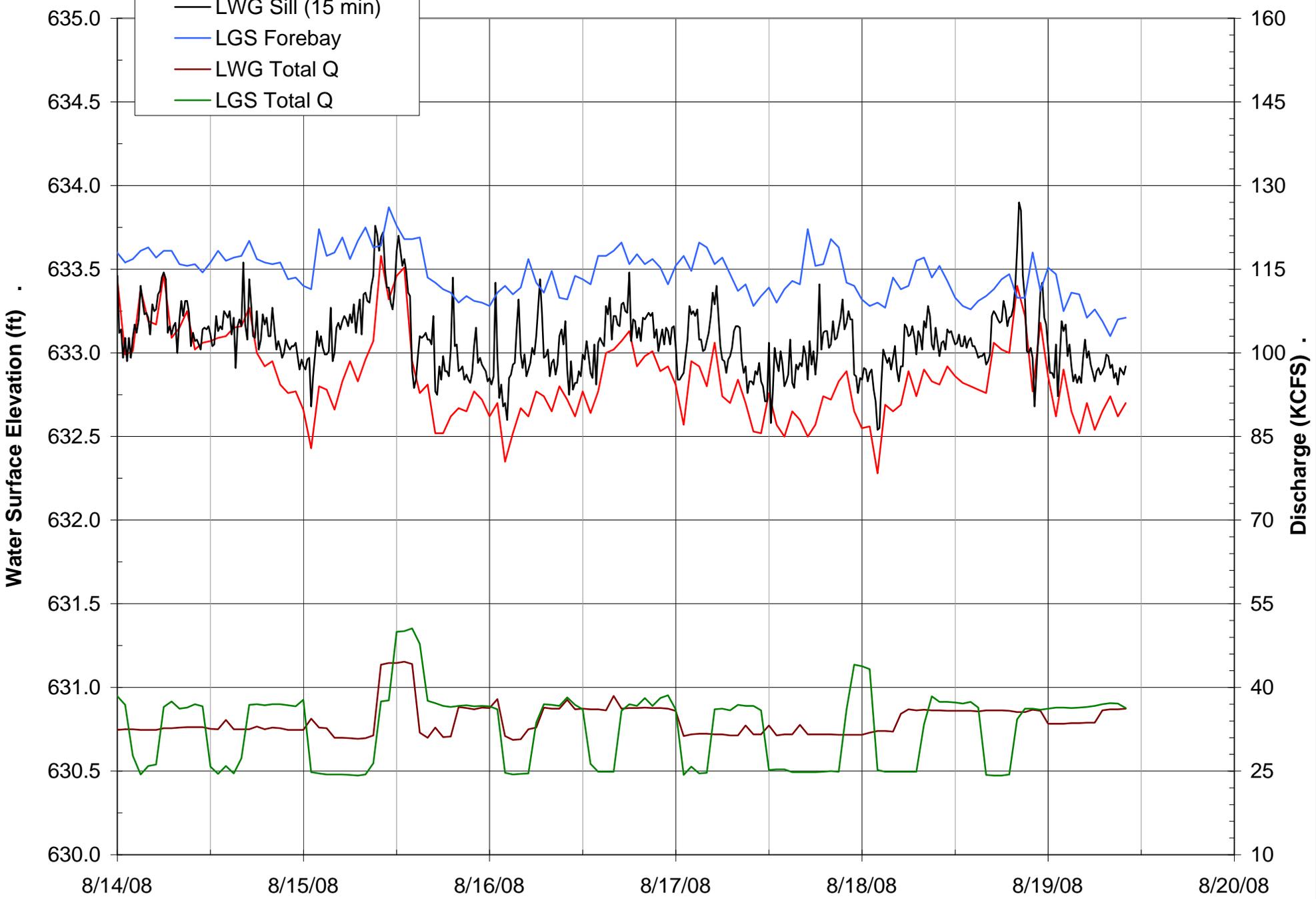
[\[LWG / LGS Project Conditions\]](#) 

*Questions about the meeting may be referred to:*

*[Jim Adams](#) at (503) 808-3938, or  
[Cathy Hlebechuk](#) at (503) 808-3942, or  
[Bob Buchholz](#) at (503) 808-3945.*

### Granite-Goose Project Data (hourly)

- LWG Tailwater
- LWG Sill (15 min)
- LGS Forebay
- LWG Total Q
- LGS Total Q



# COLUMBIA RIVER REGIONAL FORUM

## TECHNICAL MANAGEMENT TEAM

August 22<sup>nd</sup>, 2008 Conference Call

### FACILITATOR'S SUMMARY NOTES ON FUTURE ACTIONS

Facilitator: Robin Gumpert

Notes: Erin Halton

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.

#### **Libby Operations Update**

Cathy Hlebechuk, COE, provided updated information on Libby: outflows were at 8 kcfs and the project elevation was close to 2443'. Due to greater than forecasted precipitation, continued outflows of 8 kcfs would likely result in an end of August elevation of 2442.8', one foot higher than previously estimated. TMT members recalled the series of meetings that resulted in the operational decisions made for both Libby summer operations and the Libby/Arrow swap agreement. Questions were raised regarding the interpretation of flow/volume neutrality and whether biological benefits were factoring into TMT feedback on whether to maintain the 8 kcfs outflows at the project. Tony Norris, BPA, clarified that the Swap Agreement's 60 kfsd will be represented in the Lower Columbia regardless of whether the project was at, above or below the 2441.8' end of August target elevation. Norris reframed the question to TMT members as follows: should the 8 kcfs outflows be maintained even if the end of August elevation will be above 2441.8'? The COE clarified that they planned to meet the targeted 2441.8' elevation per the Libby/Arrow Swap Agreement and the need to remain flow neutral – unless there was regional consensus to operate differently. The following parties provided input:

- NOAA: neutral on this issue; alternate TMT representative Rich Domingue, on the call for NOAA, was not part of previous TMT discussions.
- BPA: Support holding Libby outflows at 8 kcfs; believe this will honor the Libby/Hungry Horse summer operations plan set forth from previous TMT discussions and achieve the 60 kfsd in the Libby/Arrow swap agreement.
- USFWS: Support holding Libby outflows at 8 kcfs; recall Swap Agreement portrayed as a volume neutral operation that would equate to a flow neutral operation. To honor TMT agreements around Libby/Hungry Horse summer operations agreement, hold the 8 kcfs outflows at Libby.
- BOR: Support holding Libby outflows at 8 kcfs.
- MT: Support holding Libby outflows at 8 kcfs; desire for as little “double peak” in flows as possible. Recall that TMT agreed to flat outflows at Libby with storage of any additional water. Added that MT did not understand the Libby/Arrow swap agreement as superseding the previously set summer operations plan and that today's deliberation on whether to adjust Libby outflows was not technically/biologically based.

- OR: Support an operation that is “flow neutral” for the Lower Columbia River; if there is any deviation from downstream flow targets, OR requests that the Action Agencies pursue water from other sources. Noted that OR neither supported nor objected to agreement reached in July regarding Libby/Hungry Horse summer operations.
- Nez Perce Tribe: Support a flow-neutral operation. The amount of flow increase needed to reach the target elevation might not be considered a “double peak” in terms of a biological impact.

After TMT members provided input, the Action Agencies held a caucus. Rudd Turner, COE, read from the COE’s July 2008 court report, by which the COE is held responsible for a “flow neutral” Libby operation that meets the end of August elevation target of 2441.8’.

**Action/Next Steps:**

- The COE planned to coordinate with BPA to compare forecasts and set flow targets to meet the end of August elevation target of 2441.8’ and the 60 kfsd in the Libby/Arrow Swap Agreement.
- The COE will send out an email to TMT regarding Libby operations; ramp rates will follow those set in the Biological Opinion
- Libby Operations will be on the agenda for the TMT meeting on 8/27.

**Lower Snake River Navigation**

Ann Glasley and John Heitstuman, COE Walla Walla District, reported that low and fluctuating flows in the Lower Snake River were causing some concern around the ability to meet MOP elevation in the Little Goose pool and provide adequate clearance in the navigation locks at Lower Granite. As with other deviations from the FOP, the COE polled TMT members for their input on whether the COE should increase the elevation range at Little Goose pool to MOP +.5’ – MOP +1.5’ (3633.5’-3634.5’) as a safety measure for navigation. The following parties weighed in:

- USFWS: As this is a safety issue, no position and defer to COE to make appropriate adjustments.
- NOAA: no major concerns, defer to COE.
- OR: defer to COE. Request that the COE capture and further evaluate the options for dealing with wave action and staying within MOP.
- Nez Perce Tribe: defer to COE, but noted this is not a preferred long-term solution. Request further analysis to find a long term solution.
- BPA: no objection to the COE’s suggested elevation range. Offered to share information with TMT members regarding the “dead band” and wave action.
- *Note: the BOR and MT representatives were no longer on the call and did not weigh in on the above proposal. ID and WA were not present on the call for any time.*

**Action/Next Steps:**

- The COE planned to coordinate with all TMT members and additional Columbia River tribes that were not on the conference call and will send TMT members an email if/when the proposed operation is implemented.
- Lower Snake River Operations will be on the agenda for the 8/27 TMT meeting.

**Other:**

Cathy Hlebechuk, COE, reported that Dworshak was shifting to all Regulating Outlet (RO) spill at 1600 hrs on 8/22. Outflows were expected to be 12 kcfs and the project is expected to reach elevation 1536' – 1537' at the end of August.

**8/27/08 TMT Face to Face Meeting**

Agenda items will include:

- Finalize notes/minutes
- Libby Operations
- Lower Snake River Navigation
- Timing for end of MOP
- Operations Review

**Columbia River Regional Forum  
Technical Management Team Conference Call  
Aug. 22, 2008**

**1. Introduction**

Today's conference call was chaired by Cathy Hlebechuk (COE) and facilitated by Robin Gumpert (DS Consulting), with representatives from USFWS, COE, NOAA, FPC, the Nez Perce Tribe, BPA, Montana, Oregon, NOAA, BOR, and others attending. 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. Libby Operations – Increased Inflows**

One of the main goals of today's unscheduled call was to discuss the effect of unusual precipitation on Libby operations. Libby is currently releasing 8 kcfs, Hlebechuk reported. The latest forecast shows the reservoir at elevation 2,442.8 feet at end August if this outflow continues, overshooting the target reservoir elevation of 2,441 feet by about a foot.

At this point, B.C. Hydro doesn't want to swap more than 60 ksfd because they don't want to spill any more than they are at present. In order to maintain flow neutrality, the COE estimates that an additional 1-2 kcfs will need to be released from Libby reservoir. Hlebechuk indicated that outflows would need to increase from 8 to approximately 10 kcfs for the reservoir to reach elevation 2,441.8 feet by end August, which is exactly 60 ksfd above the original target elevation of 2,439 feet. Of course, inflows would need further adjustment between now and the end of August.

Jim Litchfield (Montana) asked how many days in September it would take for the reservoir to reach its target elevation with and without the swap. The COE doesn't have that information now, Hlebechuk replied. The COE's understanding was that flow neutrality was the basis on which most TMT members agreed to the swap. Montana's understanding was that maintaining flat flows out of Libby is part of the original swap agreement. There was discussion of flow neutrality in relation to the summer operation alone vs. with the swap. If Arrow reservoir is below its TSR elevation and Libby reservoir is at a higher elevation than 2,439 feet by end August, we have not delivered the water we should have, and the operation isn't flow neutral, Hlebechuk said.

In order to release 60 ksfd and honor the agreement with Canada, Tony Norris (BPA) asked TMT members to consider today whether they could agree that the reservoir target elevation for end August should be 2441.8 feet instead of

2,439 feet. The actual magnitude and duration of the change would be reevaluated and adjustments made as the end of the month approaches.

TMT members responded to the question: Does TMT agree that Libby operations should be maintained with flat flows of 8 kcfs, allowing the reservoir elevation to end at whatever that operation yields by Aug. 31?

**Montana** – Questioned the biological benefits of maintaining flow neutrality. Expressed concern that fluctuating flows would result in a double peak which, although small this time, is generally bad for fish in Montana. The original agreement specified that flat flows would be maintained, and if it appeared the reservoir would be drafted below elevation 2,439 feet, outflows would be reduced. Otherwise, flows were to be held level and extra water stored in Libby reservoir if there was additional precipitation in August. Stated that this would be a rollover of 2007 Libby operations. Given the extra foot of rainfall this month, it appears the reservoir would have ended at 2,440 feet by Aug. 31 under the original agreement without the swap. Therefore the end of August elevation with the swap should be 2,441.8 feet plus 1 foot, or 2,442.8 feet.

**Oregon** – If the base operation of 8 kcfs outflows is to continue, Oregon requested that the Action Agencies identify alternative water sources to maintain flow neutrality and provide the water that would otherwise come from Libby. Drafting Libby to its target elevation was part of the original agreement. The benefits of providing water to migrating fish have been well documented. Asked whether the COE would have dropped outflows to 8 kcfs without the swap; the answer was that outflows wouldn't have dropped as quickly.

**Nez Perce** – Stated that flow neutrality needs to be honored as one of the conditions of the original agreement. Questioned the description of the proposed operation as a double peak, given that the range of variations in the month of August would be only 1-2 kcfs, which is within the range of natural variations.

**NOAA** – Is neutral on this issue.

**USFWS** – Agreed with Montana's view that honoring the original agreement means maintaining outflows of 8 kcfs from Libby. That would be equivalent to receiving the agreed-upon 60 ksfd from Canada; the swap appears to have worked well. The COE noted that their calculations show the water volume stored with flat flows of 8 kcfs would be 100 ksfd, not 60.

**BPA** – It's possible to maintain flat flows of 8 kcfs from Libby and meet the swap agreement as long as the reservoir is not drafted below elevation 2,441.8 feet – which amounts to 60 ksfd above elevation 2,439. Tony Norris emphasized that the Libby-Arrow swap and the flat flow discussion are really two separate issues. BPA advocated honoring the agreement made at TMT in July by holding

flat flows and allowing the reservoir to come in above elevation 2,441.8 feet if that's where it ends up.

**COE** – The agreement to operate Libby reservoir to elevation 2,439 feet by end August included an understanding that the elevation could be above elevation 2,439 feet if there was additional inflow. Determined that maintaining 8 kcfs outflows would result in storing more than the 60 agreed to for the swap.

**BOR** – Did not object to maintaining a flat flow operation of 8 kcfs. Agreed with BPA's position that if the Libby reservoir elevation ends up above 2,441.8 feet by end August, that would be acceptable.

After hearing these views, the COE caucused briefly, and then announced that it would keep operations consistent with the July court report, which states in relation to the swap agreement, "The COE will provide accounting of the operation plan to demonstrate that it was flow neutral." Given that elevation 2,441.8 feet has been reported to the court as a goal, the COE will make an effort to achieve that elevation by the end of August. In order to keep the operation flow-neutral, the COE will need to increase discharges. Next steps include meeting with BPA to discuss forecasts, then determining how to manage discharges. The COE will email specifics of the operation to TMT members. TMT will revisit this issue at its next meeting Aug. 27.

### ***3. Lower Snake Navigation Issues***

Low flows and wave action have raised concerns regarding the elevation of Little Goose forebay for navigation. Ann Glassley and John Heitstuman (COE Walla Walla) presented data showing pool fluctuations from Aug. 14-19 and described the current situation. A recently installed gage at the Lower Granite navigation lock revealed that the elevation of Little Goose forebay has dropped as low as 632.6 feet. The forebay elevation should be no lower than 633 feet for safety reasons.

Varying turbine discharges combined with very low flows tend to cause wave action that travels the pool at approximately 11 mph and causes the elevation to dip below the required 15 feet of clearance over the navigation sill. While there have been low flows such as these in the past, the presence of the recording gage now makes the situation apparent. Little can be done to control wave action once flows drop below 32 kcfs, except to raise the pool elevation. These fluctuations are occurring in addition to the complexities BPA faces in trying to keep the project at MOP and maintain minimum generation requirements under such low flows.

In an effort to maintain a minimum elevation of 633 feet throughout the entire pool, the COE proposed to operate the Little Goose forebay to MOP+0.5 to MOP+1.5 feet, which would maintain an elevation of 633.5-634.5 feet in Little

Goose forebay. Because this operation isn't included in either the court report or the 2007 rollover operation, the COE requested TMT's participation and consensus.

**USFWS** –The proposed operation is apparently necessary for safety reasons. Deferred to the COE's expertise and took no position.

**Oregon** – Wanted a clearer understanding of the causes of wave action. Ron Boyce agreed with USFWS that the operation this year is a safety issue, and is the COE's call. Nevertheless, this operation will impact juvenile fall Chinook migrating in the Snake. Requested that the Action Agencies identify ways to reduce wave action in future so it won't be necessary to operate outside of MOP.

**BPA** – Did not object to the operation proposed by the COE today. Noted that the Snake project units are currently on local control and are not load-following. When flows are low, it can be very difficult to meet spill percentages, stay within 1% efficiency and make adjustments using the available spill stops. Some inflows mean project staff have to alternate between using 2 units at the low end of 1% efficiency and one unit at the high end of 1% efficiency in order to achieve required flows. This "dead band" phenomenon is unique to Little Goose.

**NOAA** – Had no objections to the proposed operation.

**Nez Perce** – Understands the safety concern and did not object to the proposed operation this year. Does not see it as a long term solution, however. Dworshak continues to contribute a considerable amount of water for flow augmentation, which depends on the operation of Little Goose. There is a need to review alternative operational scenarios in order to deal with this problem.

The COE will do further coordination on this operation with the Nez Perce, Umatilla, Yakima, Colville, Spokane, Warm Springs and Kootenai tribes, as well as the states of Montana and Idaho. TMT will revisit this issue at its Aug. 27 meeting.

#### ***4. Dworshak Operations***

Hlebechuk reminded TMT that the Dworshak spill gates are being closed this afternoon at 4 pm. Based on current forecasts, Dworshak will reach elevation 1,537 feet by end August. Total outflows are expected to be around 12 kcfs.

#### ***7. Next Meeting***

The next meeting will be in person on Aug. 27, with an update on Libby operations and Lower Snake navigation on the agenda. This summary prepared by consultant and writer Pat Vivian.

<b>Name</b>	<b>Affiliation</b>
Dave Wills	USFWS
Mark Bagdovitz	USFWS
Ann Glassley	COE Walla Walla
Bob Walls	COE Walla Walla
Andrea Valentine	COE Walla Walla
Howard Burge	USFWS
Margaret Filardo	FPC
XX Matthews	Hira Energy
Dave Statler	Nez Perce
Daniel Spear	BPA
Cathy Hlebechuk	COE
Jim Litchfield	Montana
Tony Norris	BPA
Ron Boyce	Oregon
Rich Domingue	NOAA
Mary Mellema	BOR
John Piggott	Tow Boaters Association
Dan Feil	COE
Rudd Turner	COE
John Heitstuman	COE
Joel Fenolio	COE Seattle

# TECHNICAL MANAGEMENT TEAM

**BOR** : John Roache / Mary Mellema / Pat McGrane      **BPA** : Robyn MacKay / Tony Norris / Scott Bettin  
**NOAA-F**: Paul Wagner / Richard Dominique              **USFWS** : David Wills / Steve Haeseker  
**OR** : Rick Kruger / Ron Boyce                              **ID** : Russ Kiefer  
**WDFW** : Cindy LeFleur                                        **MT** : Jim Litchfield / Brian Marotz  
**COE**: Jim Adams / Cathy Hlebechuk / Bob Buchholz

## UNSCHEDULED TMT CONFERENCE CALL

Monday August 25, 2008 09:30 - 10:00

1125 N.W. Couch Street, Suite 4A34  
Portland, Oregon 97209-4142  
Map Quest [\[Directions\]](#)

### CONFERENCE PHONE LINE

Conference call line:203-310-2162; PASS CODE = 4703150

To check into the building, take the elevator to the 5th floor and the guard will issue you an ID badge if you need one and will take you down to the meeting room on the 4th floor. If you have NOT attended a TMT meeting in the past you will need to call ahead and let Jim Adams (503) 808-3938, Cathy Hlebechuk (503) 808-3942, or Bob Buchholz (503) 808-3945 know, so you can be added to the TMT Visitor List and issued an ID badge. This badge may be used indefinitely. If you have attended TMT in the past you may re-use your ID badge indefinitely. If you are a federal employee you will also need to have an ID badge issued to you which can be used indefinitely.

We have had disruptions on the phone because people are not hitting 'mute' after dial in.  
**Please MUTE your Phone**

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*All members are encouraged to call Robin Gumpert with any issues or concerns they would like to see addressed.  
Please e-mail her at [robin76@cnnw.net](mailto:robin76@cnnw.net) or call her at (503) 248-4703.*

## AGENDA

1. Lower Snake projects-low flows and meeting min generation, min spill and MOP

*Questions about the meeting may be referred to:  
[Jim Adams](#) at (503) 808-3938, or  
[Cathy Hlebechuk](#) at (503) 808-3942, or  
[Bob Buchholz](#) at (503) 808-3945.*

# COLUMBIA RIVER REGIONAL FORUM

## TECHNICAL MANAGEMENT TEAM

August 25<sup>th</sup>, 2008 Conference Call

### FACILITATOR'S SUMMARY NOTES ON FUTURE ACTIONS

Facilitator: Robin Gumpert

Notes: Erin Halton

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.

#### **Lower Snake Low Flow Operations**

Cathy Hlebechuk, COE, referred TMT to language on pages 8 and 14 of the Fish Operations Plan (FOP), directing the Action Agencies, during low flow operations in the Lower Snake, to operate one unit at minimum generation and spill the remainder of flow coming into the project and to coordinate with TMT if there are alternative low flow operations for the Lower Snake River that require a change from planned spill and/or minimum generation. Bill Berry, BPA, reported that Lower Monumental was operating in the bottom .1' of MOP, Little Goose was in the bottom .5' of MOP elevation and Lower Granite tailwater was also very low. Given the current low flow levels and “dead band” effects the projects experience, the Action Agencies are having trouble operating Ice Harbor, Lower Monumental, Little Goose and Lower Granite to meet MOP, minimum generation and spill levels. Berry clarified that this low flow condition was expected to continue through at least 8/31. The COE reviewed the current spill levels for each of the four projects and reiterated the FOP requirements; Ice Harbor and Lower Monumental had dropped below the FOP required minimums. Ron Boyce, OR, requested that the COE distribute a written assessment of the actual spill levels, the requirements per the FOP and rationale for the inability to meet the spill program.

TMT members discussed options for addressing the issues, including “no unit” operations at Lower Monumental and/or Little Goose; staying with the current course of meeting spill criteria at Little Goose by cutting spill downstream; adjusting or setting a fixed flow (e.g. 11 kcfs) out of Little Goose to minimize the effects and stabilize MOP pools. TMT members acknowledged that there are uncertainties around impacts to adult fish passage with this last option. Mike Viles, BPA, shared information regarding grid stability concerns associated with the “no unit” operation and said it would take two days to run an analysis for this option. Cathy Hlebechuk, COE, added that coordination with all the Columbia River tribes regarding MOP operations at Little Goose was still underway; Kyle Dittmer, CRITFC said that he would assist with the communication process.

As an FPAC call was scheduled for later in the day and TMT members needed more time to consider the options, TMT members scheduled a call for 9 a.m. on 8/26 to revisit this issue.

**Action/Next Steps:**

- TMT discussion on Lower Snake River Operations will continue during an 8/26 TMT conference call at 9 am.
- In the interim, the COE planned to continue to operate the Snake River projects as follows:
  - Ice Harbor and Lower Monumental at minimum generation/spill until forebays reach upper .5' of MOP.
  - Little Goose at 30% spill, toggling between a 1 and 2 unit operation.
  - Lower Granite in compliance with the spill program, at 18.4 kcfs plus spill.

**Other:**

- John Roache, BOR, reported on a drowning in the South Fork below Hungry Horse; flows out of Hungry Horse were temporarily reduced for retrieval of the body. Roache said that flows were back in the range of 6.4-6.5 kcfs as of 8/25, and the project would likely be just above the 20' draft end of August elevation target.
- Cathy Hlebechuk, COE, reported that Dworshak Regulating Outlets 1 and 3 were functioning, with openings of 2.5 and 1.5 feet, respectively; total outflows were 12.5 kcfs.

**Next TMT: Conference Call at 9 a.m. on 8/26.**

**8/27/08 TMT Face to Face Meeting**

Agenda items will include:

- Finalize notes/minutes
- Autumn Treaty Fishing SOR
- Dworshak Update
- Libby Operations Update
- Lower Snake River Operations
- Timing for end of MOP
- Operations Review

**Columbia River Regional Forum  
Technical Management Team Conference Call  
Aug. 25, 2008**

***1. Introduction***

Today's conference call was chaired by Cathy Hlebechuk (COE) and facilitated by Robin Gumpert (DS Consulting), with representatives from BOR, BPA, COE, NOAA, FPC, CRITFC, Idaho, USFWS, Montana, the Nez Perce and Colville tribes, and others attending. 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. Managing Low Flows at Lower Snake River Projects***

Today's unscheduled call was a discussion of how to meet minimum generation, minimum spill and MOP requirements at Lower Snake projects while inflows are down as they are now. The COE is currently operating the projects in accordance with the Fish Operations Plan. The FOP also says the possibility of alternative operations needs to be coordinated through TMT. Therefore, the COE asked TMT to consider alternative operations to those that are already being conducted in accordance with the FOP.

Inflows at Little Goose are currently 30-32 kcfs which falls in the "dead band" area, meaning that it's difficult to meet minimum generation requirements at Lower Granite and Ice Harbor dams while also remaining within MOP, Bill Berry (BPA) reported. The dead band at Little Goose has been either above or below inflows recently, meaning the project has to toggle between spill stops which impacts projects downstream. At 30% spill and 1% generation at Little Goose and current flows, it's possible to spill 7 kcfs with one unit at the upper end of 1% loading, or 11 kcfs with two units at the next spill stop up. Low flow conditions are expected to last through August. If meeting the other FOP requirements means that Little Goose has to cycle between one and two units, there could be more days when flows at Lower Monumental have to be reduced. Cycling between 7 and 11 kcfs outflows at Little Goose tends to create spill variances because of physical limitations in the system, Laura Hamilton (COE) explained.

Ron Boyce (Oregon) asked about minimum spill requirements, which are currently 8.5 kcfs at Ice Harbor, 6.6 kcfs at Lower Monumental, and 18 kcfs at Lower Granite. Whenever flows drop below 30 kcfs, and especially to 25 kcfs, physical limitations affect operation of the hydrosystem, Hamilton said. Two of the Lower Snake dams have dropped to minimum spill, Lower Monumental and Ice Harbor, Berry said. Current spill amounts are in accordance with the FOP, Hlebechuk noted. Little Goose is the only project with two units operating.

Boyce requested a written explanation of spill levels and other requirements under current conditions. BPA and COE representatives explained this problem happens every year whenever low flows occur. Berry asked the Salmon Managers to think about whether they would prefer to maintain 30% spill at Little Goose for as long as possible and risk cutting spill at Lower Monumental, or would the preference be for a flatter spill at Little Goose that doesn't impact Lower Monumental operations?

Russ Kiefer (Idaho) recommended spilling a daily average of 30% at Little Goose, rather than an hourly percentage of 30%, and using a flat spill pattern. There's a spill operation at Little Goose that can allow spill of 30% down to low amounts effectively, Hamilton noted. Going to fixed spill at Little Goose would probably mean having to exceed minimum generation there. Berry asked whether the Salmon Managers would prefer that Little Goose go to minimum generation and spill the rest, or spill at 9 or 11 kcfs and generate that amount? Spilling more than 30% at Little Goose can impact adult passage, Rudd Turner said. Boyce asked for data to support this finding; Berry asked the Salmon Managers to provide BPA with more information.

Rudd Turner (COE) suggested a couple of options: **(1)** going to zero powerhouse at Lower Monumental and 100% spill at Little Goose; or **(2)** stopping spill at Little Goose for a few hours to address egress conditions, then starting up again at minimum spill. Paul Wagner (NOAA) didn't favor a zero spill option. There was discussion of whether MOP operations are still needed at all the projects. The COE has been trying to contact the Colville, Salish, Kootenai, Spokane, Kalispell and Shoshone tribes for their positions on MOP; Kyle Dittmer (CRITFC) offered to expedite that process. Ron Boyce (Oregon) said MOP operations are definitely needed for fish. He asked how turning a unit on and off at Lower Monumental would impact grid stability.

Transmission engineer Mike Viles (BPA) joined the call to address the grid stability question. Because voltage stability problems can appear anywhere on the grid at any time, BPA studies assume that all projects have at least one unit operating. Viles will ask researchers how long they need to study a no-spill scenario at any of the four Lower Snake projects. In general there isn't a better or worse time for turning off spill in terms of voltage stability, he said. Turning off spill at Lower Monumental would have the most impact on voltage stability of all the lower Snake projects. It also could do the most to solve the current operational dilemma.

Another option **(3)** would be changing Little Goose to a flat spill operation, which would create better conditions at Lower Monumental, Berry said. That would also deal with the unresolved question of whether to operate Little Goose within the top half foot of MOP.

The Salmon Managers planned to caucus at a Fish Passage Advisory Committee meeting later this morning and report back to the Action Agencies.

Until FPAC makes a recommendation, the Action Agencies will continue to operate lower Granite and Lower Monumental at minimum generation and spill the remaining volume until forebay elevations are high enough to spill within the upper half foot of MOP. Little Goose will continue to operate at 30% spill, toggling between one and two units. Lower Granite operations are in compliance with the FOP, releasing 18.4 kcfs for generation. TMT scheduled another conference call for 9 am tomorrow, Aug. 26, at which the Salmon Managers will present their recommendations.

### ***3. Hungry Horse and Dworshak Updates***

**Hungry Horse.** On Saturday, Aug. 23, there was a drowning below Hungry Horse Dam. Flows were reduced for searchers to retrieve the body, John Roache (BOR) reported. Outflows then returned to 5.6 kcfs. A problem with one of the units was repaired this morning, so three units are running now, and outflows are back up to 6.4-6.5 kcfs. The current forecast shows the reservoir ending at about 0.8 ft above elevation 3,540 feet on Aug. 31.

**Dworshak.** The two spill gates were closed Friday, Aug. 20; RO 1 and 3 are still operating, Hlebechuk reported. Walla Wall chiefs of Engineering and Operations agreed to open RO 3 an additional foot. At present, RO 1 is open 1.5 feet and RO 3 is open 2.5 feet, with a total of 12.5 kcfs outflows, which exceeds expectations.

### ***4. Next Meeting***

The next meeting will be tomorrow morning, Aug. 26, at 9 am. This summary prepared by consultant and writer Pat Vivian.

<b><i>Name</i></b>	<b><i>Affiliation</i></b>
John Roache	BOR
Dave Statler	Nez Perce
Dave Benner	FPC
Paul Wagner	NOAA
Russ Kiefer	Idaho
Kyle Dittmer	CRITFC
Dave Wills	USFWS
Margaret Filardo	FPC
Tony Norris	BPA
Daniel Spear	BPA
Steve Smith	Colville Tribe
Jim Litchfield	Montana
Steve Kerns	BPA

Rudd Turner	COE
Laura Hamilton	COE
Scott Boyd	COE
Cathy Hlebechuk	COE
Ron Boyce	Oregon
Bill Berry	BPA
Mike Viles	BPA

# TECHNICAL MANAGEMENT TEAM

**BOR** : John Roache / Mary Mellema / Pat McGrane      **BPA** : Robyn MacKay / Tony Norris / Scott Bettin  
**NOAA-F**: Paul Wagner / Richard Dominique              **USFWS** : David Wills / Steve Haeseker  
**OR** : Rick Kruger / Ron Boyce                              **ID** : Russ Kiefer  
**WDFW** : Cindy LeFleur                                         **MT** : Jim Litchfield / Brian Marotz  
**COE**: Jim Adams / Cathy Hlebechuk / Bob Buchholz

## UNSCHEDULED TMT CONFERENCE CALL

Tuesday August 26, 2008 09:00 - 10:00

1125 N.W. Couch Street, Suite 4A34  
Portland, Oregon 97209-4142  
Map Quest [\[Directions\]](#)

### CONFERENCE PHONE LINE

Conference call line:203-310-2162; PASS CODE = 4703150

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Please e-mail her at [robin76@cnnw.net](mailto:robin76@cnnw.net) or call her at (503) 248-4703.*

## AGENDA

1. Lower Snake projects-low flows and meeting min generation, min spill and MOP  
[\[SOR 2008-06\]](#)

*Questions about the meeting may be referred to:  
[Jim Adams](#) at (503) 808-3938, or  
[Cathy Hlebechuk](#) at (503) 808-3942, or  
[Bob Buchholz](#) at (503) 808-3945.*

# **COLUMBIA RIVER REGIONAL FORUM**

## **TECHNICAL MANAGEMENT TEAM**

August 26<sup>th</sup>, 2008 Conference Call

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

Facilitator: Robin Gumpert

Notes: Erin Halton

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.

#### **Lower Snake Low Flow Operations / SOR #2008-6**

Paul Wagner, Chair of the Salmon Managers, referred TMT to SOR #2008-6, posted as a link to the TMT agenda; the SOR signatories were NOAA, ID, OR, WA, the Shoshone-Bannock Tribes, CRITFC and the Nez Perce Tribe. Wagner reported that a fixed rate of 11 kcfs at Little Goose for as long as needed to resolve the instability between pools on the Lower Snake River was considered and agreed to during the FPAC conference call on 8/26. He noted the SOR's request for close monitoring for any impacts on adult passage associated with exceeding 30% spill. Cathy Hlebechuk, COE, said the Action Agencies had reviewed the SOR and would pursue the operation if there was regional consensus.

The following parties provided input during the call:

- MT: support the SOR
- BPA: support the SOR
- BOR: support the SOR
- USFWS: support the SOR, could be added to the list of signatories.

#### **Action/Next Steps:**

- The COE and CRITFC planned to coordinate with all other Columbia River tribes via email and phone.
- The COE agreed to send out an email to TMT once regional coordination is complete; if there is consensus, the email will inform TMT of the timing for implementation of the SOR.
- An update on Lower Snake River Operations will be on the agenda for the 8/27 TMT meeting.

#### **8/27/08 TMT Face to Face Meeting**

Agenda items will include:

- Finalize notes/minutes
- Autumn Treaty Fishing SOR
- Dworshak Update
- Libby Operations Update
- Lower Snake River Operations
- Timing for end of MOP
- Operations Review

**Columbia River Regional Forum  
Technical Management Team Conference Call  
Aug. 26, 2008**

**1. Introduction**

Today's conference call was chaired by Cathy Hlebechuk (COE) and facilitated by Robin Gumpert (DS Consulting), with representatives from BPA, NOAA, COE, Montana, CRITFC, Oregon, FPC, BOR, USFWS, Idaho and others attending. 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. Spill at Little Goose Dam – SOR-2008-6**

The purpose of today's unscheduled call was to address issues raised by the COE yesterday regarding the stability of pool elevations on the Snake River. Paul Wagner (NOAA) introduced SOR 2008-6, the Salmon Managers' response to the COE's request for recommendations to alleviate issues with meeting the planned operations for fish at Lower Monumental and Ice Harbor dams [*editor's note: also to alleviate issues with meeting MOP at Lower Granite tailwater*]. The SOR was signed by NOAA, NMFS, Idaho, Oregon, Washington, CRITFC, and the Nez Perce Tribe. USFWS also supports the SOR and signed it at this morning's meeting.

The SOR requests a continuous spill of 11 kcfs from Little Goose for as long as needed to stabilize spill, minimum powerhouse operations at Lower Monumental and Ice Harbor, and MOP operations at Lower Granite dam. The impacts of this operation on adult passage at Little Goose will be monitored. At present, spilling 11 kcfs may yield slightly above the 30% spill level. The SOR recommends keeping an eye on that. Wagner said.

The Action Agencies would like to pursue this SOR if consensus exists in the region, Hlebechuk said. The hope is that this action will also take care of the Lower Granite navigation issue that was also discussed on yesterday's TMT call. One caveat is that there might be incidences of having to spill more than 11 kcfs in order to stay within MOP operations. The Salmon Managers expressed a preference for that to happen, if necessary, during nighttime hours. Inflows are not expected to drop further, but if they do, it might be necessary to spill below 11 kcfs, Bill Barry (BPA) said. The Salmon Managers expressed a preference for that to happen, if necessary, during daytime hours.

The COE and CRITFC will work together on contacting the tribes to get their concurrence on SOR 2008-6. None of the TMT members present on today's call objected to this operation. That included concurrence from **Montana**,

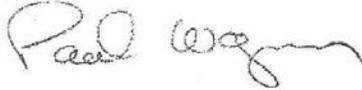
**CRITFC, BPA, BOR and USFWS;** Dave Wills asked that it be added to the list of support names on the SOR. The operation will be revisited at tomorrow's regularly scheduled TMT meeting. This summary prepared by consultant and writer Pat Vivian.

<b><i>Name</i></b>	<b><i>Affiliation</i></b>
Tony Norris	BPA
Bill Berry	BPA
Paul Wagner	NOAA
Cathy Hlebechuk	COE
Jim Litchfield	Montana
Kyle Dittmer	CRITFC
Barry Espensen	CBB
Richelle Beck	DRA
Ron Boyce	Oregon
Tim Dykstra	COE Walla Walla
Dave Benner	FPC
John Roache	BOR
Dave Wills	USFWS
Russ Kiefer	Idaho

## **SYSTEM OPERATIONAL REQUEST: #2008-6**

*The following State, Federal, and Tribal Salmon Managers have participated in the preparation and support this SOR: NOAA National Marine Fisheries Service, Idaho Department of Fish and Game, Oregon Department of Fish and Wildlife, Washington Department of Fish and Wildlife, the Shoshone-Bannock Tribes, the Columbia River Inter-Tribal Fish Commission, and the Nez Perce Tribe.*

<b>TO:</b>	<b>Brig. General William E. Rapp</b>	<b>COE-NWD</b>
	<b>James D. Barton</b>	<b>COE-Water Management</b>
	<b>Cathy Hlebechuk</b>	<b>COE-RCC</b>
	<b>Witt Anderson</b>	<b>COE-P</b>
	<b>Colonel Steven R. Miles</b>	<b>COE-Portland District</b>
	<b>LTC Anthony Hofmann</b>	<b>COE-Walla Walla District</b>
	<b>J. William McDonald</b>	<b>USBR-Boise Regional Director</b>
	<b>Stephen J. Wright</b>	<b>BPA-Administrator</b>
	<b>Greg Delwiche</b>	<b>BPA-PG-5</b>



**FROM:** Paul Wagner Chairperson, Salmon Managers

**DATE:** August 25<sup>th</sup>, 2008

**SUBJECT:** Spill Operations at Little Goose Dam

**SPECIFICATIONS:** Spill a continuous 11 Kcfs from Little Goose Dam as long as needed to stabilize spill, minimum powerhouse operations, and Minimum Operating Pool operations at Lower Monumental and Ice Harbor Dams. The Fisheries Agencies and Tribes will monitor adult passage at Little Goose Dam to ensure this operation does not negatively impact migrating adult salmonids.

**JUSTIFICATION:** At the 8-25-08 TMT call, the COE and BPA advised of current issues relating to meeting spill, minimum powerhouse operations, and Minimum Operating Pool operations at Lower Monumental and Ice Harbor Dams. Based upon the discussions of potential options to alleviate this issue during this call, the salmon managers request a continuous spill of 11 Kcfs at Little Goose Dam. It is our understanding and intent that this spill operation will allow the Action Agencies the flexibility to alleviate the current issues with meeting the planned operations at Lower Monumental Dam and Ice Harbor Dam.

# TECHNICAL MANAGEMENT TEAM

**BOR :** John Roache / Mary Mellema / Pat McGrane      **BPA :** Robyn MacKay / Tony Norris / Scott Bettin  
**NOAA-F:** Paul Wagner / Richard Dominique      **USFWS :** David Wills / Steve Haeseker  
**OR :** Rick Kruger / Ron Boyce      **ID :** Russ Kiefer / Pete Hassemer  
**WDFW :** Cindy LeFleur      **MT :** Jim Litchfield / Brian Marotz  
**COE:** Jim Adams / Cathy Hlebechuk / Bob Buchholz

## TMT MEETING

Wednesday August 27, 2008 09:00 - 12:00

1125 N.W. Couch Street, Suite 4A34  
Portland, Oregon 97209-4142  
Map Quest [\[Directions\]](#)

### CONFERENCE PHONE LINE

Conference call line:203-310-2162; PASS CODE = 4703150

To check into the building, take the elevator to the 5th floor and the guard will issue you an ID badge if you need one and will take you down to the meeting room on the 4th floor. If you have NOT attended a TMT meeting in the past you will need to call ahead and let Jim Adams (503) 808-3938, Cathy Hlebechuk (503) 808-3942, or Bob Buchholz (503) 808-3945 know, so you can be added to the TMT Visitor List and issued an ID badge. This badge may be used indefinitely. If you have attended TMT in the past you may re-use your ID badge indefinitely. If you are a federal employee you will also need to have an ID badge issued to you which can be used indefinitely.

We have had disruptions on the phone because people are not hitting 'mute' after dial in.  
**Please MUTE your Phone**

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*All members are encouraged to call Robin Gumpert with any issues or concerns they would like to see addressed.  
Please e-mail her at [robin76@cnnw.net](mailto:robin76@cnnw.net) or call her at (503) 248-4703.*

## AGENDA

1. Welcome and Introductions
2. Review and Finalize Notes / Minutes [\[Meeting Minutes\]](#)
3. Autumn Treaty Fishing - Kyle Dittmer, CRITFC  
[\[SOR 2008-C6\]](#)
4. Dworshak Operations - Steve Hall, USACE  
[\[Dworshak Temperature Data\]](#)
5. Libby / Hungry Horse Operations Update - Joe Fenolio, USACE, John Roache, BoR
6. Timing for end of MOP at Ice Harbor, Lower Monumental and Little Goose - ALL
7. Timing for end of MOP at Lower Granite - ALL
8. Little Goose Spill - ALL  
[\[SOR 2008-06\]](#)
9. Operations Review

- a. Reservoirs
- b. Fish
- c. Power System
- d. Water Quality - *Laura Hamilton, USACE*

[\[Spill Information 2008\]](#)

10. Other

- a. Set agenda for next meeting - **September 10, 2008**

[\[Calendar 2008\]](#)



*Questions about the meeting may be referred to:*

[Jim Adams](#) at (503) 808-3938, or

[Cathy Hlebechuk](#) at (503) 808-3942, or

[Bob Buchholz](#) at (503) 808-3945.

# COLUMBIA RIVER REGIONAL FORUM

## TECHNICAL MANAGEMENT TEAM

August 27, 2008 Meeting

### FACILITATOR'S SUMMARY NOTES ON FUTURE ACTIONS

Facilitator: Robin Gumpert

Notes: Erin Halton

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**

The 8/1 and 8/6 official meeting minutes/facilitator notes and 8/13 facilitator notes had been posted to the web. No further changes were made to the notes during the meeting and they were considered final. The 8/13 official minutes and 8/22, 25<sup>th</sup> and 26<sup>th</sup> official meeting minutes/facilitator notes had not yet been posted to the web; TMT will look to finalize them at the 9/10 TMT meeting.

#### **Autumn Treaty Fishing SOR #2008-C6**

Kyle Dittmer, CRITFC, referred TMT to SOR 2008-C6 posted as a link to the TMT agenda. Dittmer reviewed the dates and elevation requests for Bonneville, The Dalles and John Day pools. Cathy Hlebechuk, COE, said that as in the past, the COE would operate Bonneville under a 1.5' hard constraint, The Dalles under a 1.5' soft constraint and John Day under a 1.5' hard constraint. As a follow up to the 8/13 TMT meeting, Dittmer confirmed that the total sockeye catch for the summer treaty fishing season was low compared to the high total numbers; this was likely due to the fishing season start after the peak of the migration.

**Action/Next Steps:** Dittmer said the COMPACT meeting was scheduled for next week and that there would likely be another SOR on the agenda for the 9/10 TMT meeting.

#### **Dworshak Operations Update**

Cathy Hlebechuk, COE, reported that Dworshak outflows were 12.5 kcfs, with Regulating Outlets (RO) 1 and 3 at 1.5' and 2.5' openings, respectively. She added that current forecasts show the project reaching an end of August elevation of 1-1.5' above the 1535' target. Tina Lundell, COE, referred TMT to a thermocline graph posted as a link to the TMT agenda; she noted the current Dworshak tailwater temperature was at 45.9° and the Lower Granite tailwater was at 63.9°, well within desired temperatures.

Dave Statler, Nez Perce Tribe, reported on a draft operational strategy developed by the Dworshak Board for Nez Perce use of the 200 kaf for flow augmentation, per an MOA between The COE/BPA/ID/NOAA and the Nez Perce Tribe are represented on the Dworshak Board. Statler said the strategy was based on the 8/18 STP modeling results and that it may be revised as actual conditions unfold. He noted that this year's strategy

accounts for the higher than average discharge and elevation levels and is more attentive to a gradual step down process. Statler clarified that temperature targets will need to be determined by mid-September, to inform whether the project operates in undershot or overshot mode when the shift is made to a one unit operation. The draft strategy is as follows:

- Draft to 1535', with outflows of ~12.5 kcfs and maintaining the temperature target of 46-48°;
- Then operate at full powerhouse for no less than four days, maintaining the same temperature target;
- Then step down to 7.7 kcfs for no less than four days, maintaining the same temperature target;
- Then step down to 5.4-5.5 kcfs for no less than four days;
- Then step down to 2.5 kcfs, until the elevation 1520' is reached.
- Finally, once the project reaches its 1520' elevation, shift to base flows of approximately 1.5 kcfs.

**Action/ Next Steps:** Dworshak Operations will be on the agenda for the 9/10 TMT meeting.

### **Libby/Hungry Horse Operations**

John Roache, BOR, reported that Hungry Horse was at an elevation of 3543.35', with outflows of 6.4-6.5 kcfs. He added that the River Forecast Center's 10 day inflow forecast show the project reaching an end of August elevation of around 3541'. The current plan for September is to ramp down to minimum flows, following BiOP ramp rates. Roache noted the Columbia Falls minimum is 3.5 kcfs. Joe Fenolio, COE, reported that Libby was at elevation 2442.3', with inflows of 6 kcfs and outflows of 9 kcfs. Fenolio said the project is in a good position to meet the end of August elevation target of 2441.8', per the Libby/Arrow Swap Agreement. Cathy Hlebechuk, COE, noted that slight adjustments may need to be made to the expected 9 kcfs outflows, per the River Forecast Center's short-term model (RFS), to meet the target elevation.

**Action/Next Steps:** An update on Libby/Hungry Horse operations will be on the agenda for the 9/10 TMT meeting.

### **Timing for End of MOP at Ice Harbor, Lower Monumental and Little Goose**

Paul Wagner, speaking on behalf of the Salmon Managers, said that guidance for end of MOP will be determined by adult/juvenile presence; given the numbers of juveniles, FPAC consensus was that MOP operations should continue for the near term, with close monitoring of trends. BPA expressed an interest in lifting the MOP restrictions as soon as possible.

**Action/Next Steps:** TMT members agreed that any recommendation to lift MOP restrictions that arise prior to the next scheduled TMT meeting on 9/10 may be coordinated via email.

### **Timing for end of MOP at Lower Granite**

Paul Wagner, speaking on behalf of the Salmon Managers, reported that the current MOP elevation would support 2 of the collection holding tanks at Lower Granite, but that MOP +1-2' would be needed to support the five additional tanks. He said that when the need for use of the additional tanks arises (when the run picks up), the Salmon Managers would request the operational change through TMT.

**Action/Next Steps:** TMT members agreed that any developments that arise prior to the next scheduled TMT meeting on 9/10 may be coordinated via email.

### **Little Goose Spill**

Tony Norris, BPA, reported that SOR 2008-6 had been implemented at 1300 hours on 8/26 and was helping with MOP and fluctuation issues experienced during the past week. The project will continue to hold outflows at 11 kcfs until 2400 hours on 8/31. The COE planned to include Little Goose spill as part of their August report to the court. Laura Hamilton, COE, said that there were no TDG issues with this new operation.

**Action/Next Steps:** TMT will continue to keep a close eye on adult passage at Little Goose through 8/31.

### **Operations Review**

**Reservoirs:** Dworshak was at elevation 1543.1', with inflows of 2.2 kcfs and outflows of 12.5 kcfs. Libby was at elevation 2442.3', with inflows of 6 kcfs and outflows of 9 kcfs. Seven day average flows at McNary were 127 kcfs (objective was 200 kcfs) and Lower Granite average flows were 26 kcfs (36 kcfs objective.) Grand Coulee was at elevation 1281' and drafting to a target elevation 1280' by the end of August. Hungry Horse was at elevation 3543.35' with outflows in the range of 6.4-6.5 kcfs; the project will likely be at elevation 3541' on 8/31. Banks Lake was at an elevation range of 1565-66' and on track to achieve the end of August elevation target of 1565 feet.

**Fish:** Cindy LeFleur, WA, reported on adults: counts at Bonneville for Fall Chinook were very strong for this point in the season, as high as 15,000 in a single day. Steelhead were tracking a bit ahead of 10 year averages, with 36,000 Brights and 15,000 Tules counted through 8/25. Paul Wagner, NOAA, reported that subyearling numbers were in the 600-1,000 per day range at Lower Granite, Little Goose and Lower Monumental for the past week. McNary passage was in the 8-10,000 range and Bonneville passage was in the couple thousand per day range.

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

**Water Quality:** Laura Hamilton, COE, reported a few exceedances at the Camas/Washougal gauge over the past two weeks and noted that a TDG gauge at John Day is being repaired. Monthly exceedances reports were available othe TMT web page.

**Other:** Scott Boyd, COE, reported that spill will end at midnight on 8/31 and that the B2 corner collector is scheduled to be closed on 9/1 at 0630 hours.

### **9/10 Face to Face Meeting**

Agenda items will include:

- Finalize notes/minutes
- Autumn Treaty Fishing
- Dworshak September Operations Update
- Libby/Arrow Swap Accounting
- Timing for End of MOP on the Lower Snake
- Lower Granite MOP Operations
- Scheduling for TMT dates in October, November Year End Review
- Operations Review

**Columbia River Regional Forum  
Technical Management Team Meeting  
Aug. 27, 2008**

***1. Introduction***

Today's TMT meeting was chaired by Cathy Hlebechuk (COE) and facilitated by Robin Gumpert (DS Consulting) with representatives of BOR, BPA, COE, NOAA, CRITFC, the Nez Perce Tribe, the state of Washington 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 of Meeting Minutes***

Minutes for Aug. 13, 22, 25 and 26 will be finalized at the next TMT meeting on Sept. 10.

***3. Autumn Treaty Fishing***

Kyle Dittmer (CRITFC) reported on SOR 2008-C6 which CRITFC submitted to the Action Agencies a week ago. For Aug. 19-22 and Aug. 26-29, the SOR requested a hard constraint of 1 foot on elevation changes at Bonneville, The Dalles and John Day pools. For Sept. 2-6, the SOR requested the same 1-foot band as a hard constraint with specific elevation criteria:

- Bonneville – 76.5-75.5 feet
- The Dalles – 159.5-158.5 feet
- John Day – 264.5-263.5 feet (The COE has been operating the pool at 262.5-264 feet elevation.)

The latest fish forecast is 210,000 adult Chinook and 315,000 adult steelhead at Bonneville. Both predictions are near normal. Tribal harvest for the entire season is expected to be 90,000 fall Chinook and 21,000 steelhead. CRITFC's net flights of the area found 297 nets in the lower pools for this fishery. Of those, 46% were at Bonneville, 14% at The Dalles, and 40% at John Day. These findings adhere to a pattern in recent years of the most nets found in Bonneville pool. As it has for past fisheries, the COE will provide a 1.5 foot hard constraint at Bonneville, a 1.5 foot soft constraint at The Dalles, and a 1.5 foot hard constraint at John Day.

In response to a question from a previous meeting regarding the summer treaty fishery, Dittmer confirmed that the 9,000 count for sockeye is correct. The tribes chose to fish a week after the peak had gone by. Had they fished a week earlier, the catch would probably have doubled.

TMT will revisit treaty fishing on Sept. 10. There could be another SOR and another fishery scheduled by then; CRITFC will let the Action Agencies know as soon as a decision is made.

#### **4. Dworshak Operations**

Dworshak is currently releasing 12.5 kcfs with inflows of 2.2 kcfs, Hlebechuk reported. As mentioned during the Aug. 25 TMT call, the COE had stopped spill over the spillways because the water level was below the spillway crest. Since then, the engineering and operations sections of the COE Walla Walla District has approved opening Regulating Outlet #3 by another foot (RO #1 is still at the 1.5-foot setting). The goal is to get Dworshak reservoir down to elevation 1,535 feet by the end of the month. At present, it appears the final elevation will be approximately 0.5-1.5 feet over the mark.

The current temperature is 45.9 degrees F at Dworshak tailwater; 63.9 degrees F at Lower Granite tailwater, Tina Lundell reported. She presented thermocline graphs showing that, as of Monday's predictions, Dworshak tail water temperatures would be between 2006 and 2007 temperatures, if operating in undershot mode. In overshot mode, the temperature range would be 46-48 degrees F, which is cooler than in the past 3 years. The lowest predicted forebay elevation for Sept. 15 is 1,465 feet; the highest is 1,485 feet.

The Dworshak board met yesterday to come up with a strategy for September operations, specifically managing the 200 kaf for the Nez Perce Tribe, Dave Statler (NPT) reported. The board's preference is for gradually decreasing outflows, with incremental steps of no less than 4 days' duration, and the reservoir reaches elevation 1,520 feet by Sept. 30. The strategy to accomplish that involves drafting the reservoir to no lower than elevation 1,535 feet by Aug. 31. When the reservoir reaches elevation 1,535 feet, flows should be reduced, and then reduced again to full powerhouse for approximately 4 days at each step. The next step down should be 7.7 kcfs; then 4 days later, 5.4 kcfs; and finally 2.5 kcfs until elevation 1,520 feet is reached. At that time, the operation goes to base flows of about 1.5 kcfs. At no time would outflows change sooner than every 4 days. The desired outflow temperature range is 46-48 degrees F throughout the operation.

NOAA and COE, speaking as members of the Dworshak board, approved this strategy, which is not complete at this point. If forecasted amounts vary significantly from what is anticipated based on the current water supply, the board will reconvene to adjust its approach.

Under the current strategy, the reservoir could reach elevation 1,535 feet a bit later than the start of operations to manage the 200 kaf for the Nez Perce Tribe. This is the main difference between this year's Dworshak strategy and last

year's. Another important difference: this year the board is more attentive to creating a gradual step-down scenario to avoid the potential for stranding juvenile pacific lamprey.

Asked about preferred water temperatures throughout the operation, Statler said the strategy didn't specify a temperature when operations change to one unit in either undershot or overshot mode. At that time, the Dworshak board will evaluate what is best for the river and the hatchery. Undershot mode would continue to provide 46-48 degrees F water through mid-September according to current projections, Lundell said. Overshot mode would provide temperatures of about 65 degrees. Dworshak operations will be on the Sept. 10 agenda.

### **5. Libby/Hungry Horse Operations Update**

**a. Hungry Horse.** The current elevation is 3,543.35 feet, with project discharges of 6.4-6.5 kcfs, John Roache (BOR) reported. The current forecasted end-of-August elevation is 3,541 feet based on the River Forecast Center's 10-day inflow forecast. The current plan is to start ramping down towards minimum flows beginning on Sept. 1. It would probably take about a week to get down to minimum flows following the ramping rates. The Columbia Falls minimum flow is currently 3.5 kcfs.

**b. Libby.** Now at elevation 2,442.3 feet, the project is starting to draft again. Inflows are 6 kcfs, down from 12 kcfs on Aug. 22 and 10 kcfs on Aug. 23. Current outflows are 9 kcfs, projected to last through Aug. 31. The reservoir is in a good position to reach the target elevation of 2,441.8 feet by end August. Joel Fenolio (COE) reminded TMT that the Libby-Arrow swap raised the end of August elevation at Libby by an equivalent of 60 ksfd *above* the normal 2,439 foot target, which is equivalent to elevation 2,441.8 feet. To complete its portion of the swap, Arrow reservoir will release water so as to reach the equivalent of 60 ksfd *below* its normal end of August elevation.

### **6. Timing for End of MOP Operations at Ice Harbor, Lower Monumental and Little Goose**

The Salmon Managers have discussed the usual schedule for this time of year. When juvenile numbers fall and adult numbers rise, typically the lower three Snake River projects – Ice Harbor, Lower Monumental and Little Goose – come off MOP operations. This year, the numbers of juveniles are still quite high, so FPAC agreed to continue current operations. FPAC will monitor the ratio of juveniles to adults. Tony Norris (BPA) requested that MOP restrictions end as soon as they are no longer needed for fish passage because it is less stressful for operators to manage the projects outside of MOP. Ending MOP doesn't necessarily mean refilling the reservoirs, he added.

NOAA, BPA, Washington and the Nez Perce Tribe agreed to communicate via email with regard to monitoring the ratio of juveniles to adults and ending MOP operations. The Salmon Managers will revisit this at their next FPAC meeting.

### **7. Timing for End of MOP Operations at Lower Granite**

In response to a request to look into ending MOP at Lower Granite Dam, Paul Wagner (NOAA) found that there are a total of 7 holding tanks for adult migrants at Lower Granite. The pool needs to be at MOP+1.5 feet in order to provide sufficient water volume to operate all 7 tanks. There are only 2 tanks operating at the current elevation, and the number of fish expected to arrive in the near term is low enough for that to be sufficient. When the run picks up, more tanks will be needed, which will call for a change in pool operations. FPAC will monitor the situation and communicate by email with the Action Agencies if a change is needed before the next TMT meeting Sept. 10.

### **8. Little Goose Spill**

SOR 2008-6 has been implemented, meaning that Little Goose is spilling 11 kcfs continuously to stabilize operations downstream, Norris reported. The steady 11 kcfs flows out of Goose are allowing Lower Monumental to spill 17 kcfs and making it easier to operate the system within the top half foot of MOP at the downstream dams. The spill also solved the navigation problem at Little Goose.

Because this operation deviates from the FOP, it will be included in the report to the court, Lundell said. In response to a question about total dissolved gas, levels are low everywhere on the system except at Camas Washougal gage, Hamilton said. During main passage hours, spill has remained in the 30% range, Wagner noted. FPAC is monitoring the situation to ensure that the spill doesn't negatively impact adult passage.

### **9. Operations Review**

**a. Reservoirs.** Dworshak is at elevation 1,543.1 feet with inflows of 2.2 kcfs and outflows of 12.5 kcfs. Libby is at elevation 2,442.3 feet, with inflows of 6 kcfs and outflows of 9 kcfs.

Seven day average inflows at Lower Granite are 36 kcfs; the objective is 52.5 kcfs. McNary average flows are 127 kcfs; the objective is 200 kcfs. Grand Coulee is at elevation 1,281 feet, headed towards 1,280 feet by the end of August. Hungry Horse is at elevation 3,543.35 feet, discharging 6.4-6.5 kcfs, with inflows of 1.2-1.6 kcfs. Hungry Horse reservoir is expected to be about a foot above elevation 3540 feet by end August.

**b. Fish.** The fall Chinook adult count of almost 15,000 fish on Aug. 24 was the highest count for that date back to 1938, Cindy LeFleur (Washington) reported. Yesterday's fall Chinook count was 5,500 fish. Steelhead adult returns are tracking ahead of the 10-year average. Through Aug. 25, that included approximately 36,000 brights and 15,000 tules, which is higher than predicted. Downstream, about 100 adult fall Chinook per day have been passing Ice Harbor dam and about 100 per day at Lower Granite. Steelhead passage is 400 adults per day at Lower Granite. The COE is prepared to raise the forebay level at Lower Granite when needed for trap operations, Rudd Turner said. The Salmon Managers will monitor the situation.

Juvenile passage is happening largely at Lower Granite, where index counts have been 600-1,000 fish per day for the past week. The same has been true at Little Goose and Lower Monumental. When adjusted for passage efficiency, juvenile numbers are still high – 5,000 for Lower Granite; 8-10,000 for McNary; and a few thousand fish per day at Bonneville. Counts were lower at John Day for unknown reasons.

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

**d. Water Quality.** There have been TDG exceedances at Camas-Washougal gage during the last two weeks of August, Hamilton reported. There was also a gage out at John Day tailrace which has been repaired.

The COE is planning to stop spill at midnight, Aug. 31, Scott Boyd reported. The Bonneville 2<sup>nd</sup> powerhouse corner collector will be turned off at 6:30 am on Labor Day.

## **9. Next Meeting**

The next regularly scheduled TMT meeting will be Sept. 10, 2008. Dworshak operations, the autumn treaty fishery, accounting for the Libby/Arrow swap, the end of MOP operations at Ice Harbor, Lower Monumental and Little Goose, a discussion of needs at Lower Granite, scheduling TMT's year-end review, and the standard operations review will be on the agenda. This summary prepared by consultant and writer Pat Vivian.

<b>Name</b>	<b>Affiliation</b>
John Roache	BOR
Tony Norris	BPA
Tina Lundell	COE
Paul Wagner	NOAA
Cathy Hlebechuk	COE
Kevin Grode	COE
Russ George	WMC
Don Faulkner	COE

Bob Diaz	PPM
Laura Hamilton	COE
Scott Boyd	COE
Daniel Spear	BPA
Kyle Dittmer	CRITFC
Rudd Turner	COE

Phone:

Joel Fenolio	COE Seattle
Dave Statler	NPT
Cindy LeFleur	Washington
Barry Espensen	CBB
Shane Scott	PPC
Ruth Burris	PGE
Richelle Beck	DRA
Tom Le	Puget Sound Energy

# TECHNICAL MANAGEMENT TEAM

**BOR** : John Roache / Mary Mellema / Pat McGrane      **BPA** : Robyn MacKay / Tony Norris / Scott Bettin  
**NOAA-F**: Paul Wagner / Richard Dominique              **USFWS** : David Wills / Steve Haeseker  
**OR** : Rick Kruger / Ron Boyce                              **ID** : Russ Kiefer / Pete Hassemer  
**WDFW** : Cindy LeFleur                                        **MT** : Jim Litchfield / Brian Marotz  
**COE**: Jim Adams / Cathy Hlebechuk / Kevin Grode

## TMT MEETING

Wednesday September 10, 2008 09:00 - 12:00

1125 N.W. Couch Street, Suite 4A34  
Portland, Oregon 97209-4142  
Map Quest [\[Directions\]](#)

### CONFERENCE PHONE LINE

Conference call line:203-310-2162; PASS CODE = 4703150

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**Please MUTE your Phone**

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Please e-mail her at [rgumpert@cunnv.net](mailto:rgumpert@cunnv.net) or call her at (503) 248-4703.*

## AGENDA

1. Welcome and Introductions
2. Review [\[Meeting Minutes\]](#)
3. Autumn Treaty Fishing - Kyle Dittmer, CRITFC  
[\[SOR 2008-C7\]](#)
4. Dworshak Operations - Steve Hall, USACE
5. Timing for end of MOP at Ice Harbor, Lower Monumental and Little Goose - ALL
6. Timing for end of MOP at Lower Granite - ALL
7. Libby / Canadian Storage Swap Follow-up - Robyn Mackay, BPA  
[\[Accounting Details of the Swap\]](#)  
[\[Graphs\]](#)  
[\[Follow Up Document\]](#)
8. Operations Review

- a. Reservoirs
- b. Fish
- c. Power System
- d. Water Quality

[\[Spill Information 2008\]](#)

9. Other

- a. Set agenda for next meeting - **October 1, 2008**

[\[Calendar 2008\]](#)



*Questions about the meeting may be referred to:*

*[Jim Adams](#) at (503) 808-3938, or*

*[Cathy Hlebechuk](#) at (503) 808-3942, or*

*[Kevin Grode](#) at (503) 808-3945.*

**August 31 2008**  
August 29 Treaty Request

	#Days: 0		Target above/below TSR (ksfd)	Qi (average kcfs)	Qo Required to reach Target (kcfs)	Calculated Content (ksfd)	Calculated Elevation (ft)
	Start (ksfd)	TSR (ksfd)					
	8/31/2008	8/31/2008					
Arrow	3522.7	3562.1		40.8	39.0	3522.73	1443.13
Duncan	674.2	694.8		6.4	7.9	674.24	1888.44
<b>TOTAL</b>	<b>4197.0</b>	<b>4256.9</b>	<b>-60.2</b>	<b>47.28</b>	<b>46.94</b>	<b>4196.97</b>	
Mica	3525.0	3529.2	<b>0.0</b>	37.6	15.88	3525.0	2469.99
COMPOSITE	7722.0	7786.1			Target Content =	<b>3529.2</b>	
					Target Flow =	<b>Run to Target Content</b>	
<b>Assumed Account Balances (ksfd)</b>				<b>TSR Balance (ksfd)</b>			
LCA		<b>0.0</b>			Arrow +Duncan		<b>-59.9</b>
Flow Augmentation		<b>0.0</b>			Mica		<b>-4.2</b>
Libby Swap		<b>-60.2</b>			TOTAL		<b>-64.1</b>
TOTAL		<b>-60.2</b>					

**August 31 2008**  
After-the-Fact

	#Days: 0		Target above/below TSR (ksfd)	Qi (average kcfs)	Qo Required to reach Target (kcfs)	Calculated Content (ksfd)	Calculated Elevation (ft)
	Start (ksfd)	TSR (ksfd)					
	8/31/2008	8/31/2008					
Arrow	3544.0	3562.1		41.7	39.0	3543.96	1443.46
Duncan	686.9	694.8		6.8	7.5	686.86	1889.87
<b>TOTAL</b>	<b>4230.8</b>	<b>4256.9</b>	<b>-103.0</b>	<b>48.53</b>	<b>46.51</b>	<b>4230.82</b>	
Mica	3529.6	3529.2	<b>0.0</b>	<b>37.8</b>	<b>15.79</b>	<b>3529.6</b>	<b>2470.07</b>
COMPOSITE	7760.4	7786.1			Target Content =	<b>3529.2</b>	
					Target Flow =	<b>Run to Target Content</b>	
<b>Assumed Account Balances (ksfd)</b>					<b>TSR Balance (ksfd)</b>		
LCA		<b>0.0</b>			Arrow +Duncan		<b>-26.1</b>
Flow Augmentation		<b>0.0</b>			Mica		<b>0.4</b>
Libby Swap		<b>-60.0</b>			TOTAL		<b>-25.7</b>
TOTAL		<b>-60.0</b>					

## Libby/Canadian Storage Swap Follow-up & Accounting September 2008

B.C. Hydro and BPA, on behalf of the Entities under the Columbia River Treaty, recently completed storage activities under an agreement that allowed for a “swap” of water between Libby storage in the United States and Arrow and other Treaty storage in Canada. As promised, these activities were carried out in a manner that was flow neutral – i.e., there was no effect from these activities on downstream flows – and the full amount of the swap was exchanged. In addition, Libby was operated in accordance with expectations, ending August 31 at elevation 2441.7 ft (58.6 ksf). There was, however, an end-of-the-month variation from the targeted operation of Canadian storage that was revealed in after-the-fact accounting. The following provides an explanation of this variation.

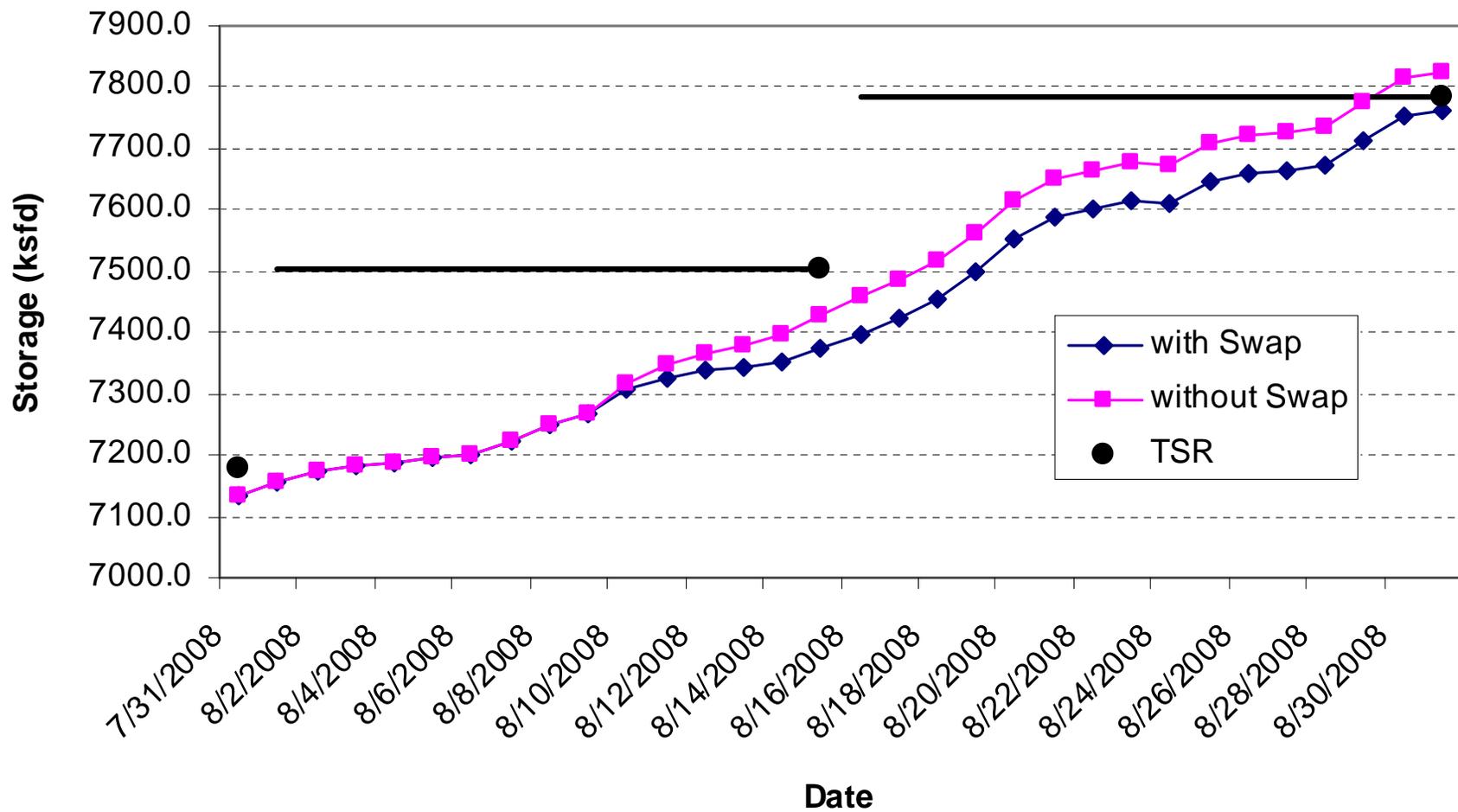
As described previously at TMT, the swap operation targeted 60 ksf below TSR for Canadian storage during the period Aug 8-31, with Libby targeted for an equivalent amount higher. In carrying out the Treaty, Treaty Flow Requests by the U.S. to Canada are finalized weekly on Fridays for average flows at the US/Canadian border. In order to achieve the 60 ksf objective throughout August, the weekly flows requested were higher than if we had been targeting the TSR alone (0 ksf). Given the Aug 29 inflow forecast, the Treaty Flow Request made on Friday, Aug 29 was expected to yield the full amount of the swap at 59.9 ksf below TSR.

The attached spreadsheets show the after-the-fact final Treaty accounting along with the final Treaty Request and forecasts from which the request was made. The accounting shows that Treaty storage ended at 26.1 ksf below TSR instead of 60 ksf. This variation was due to:

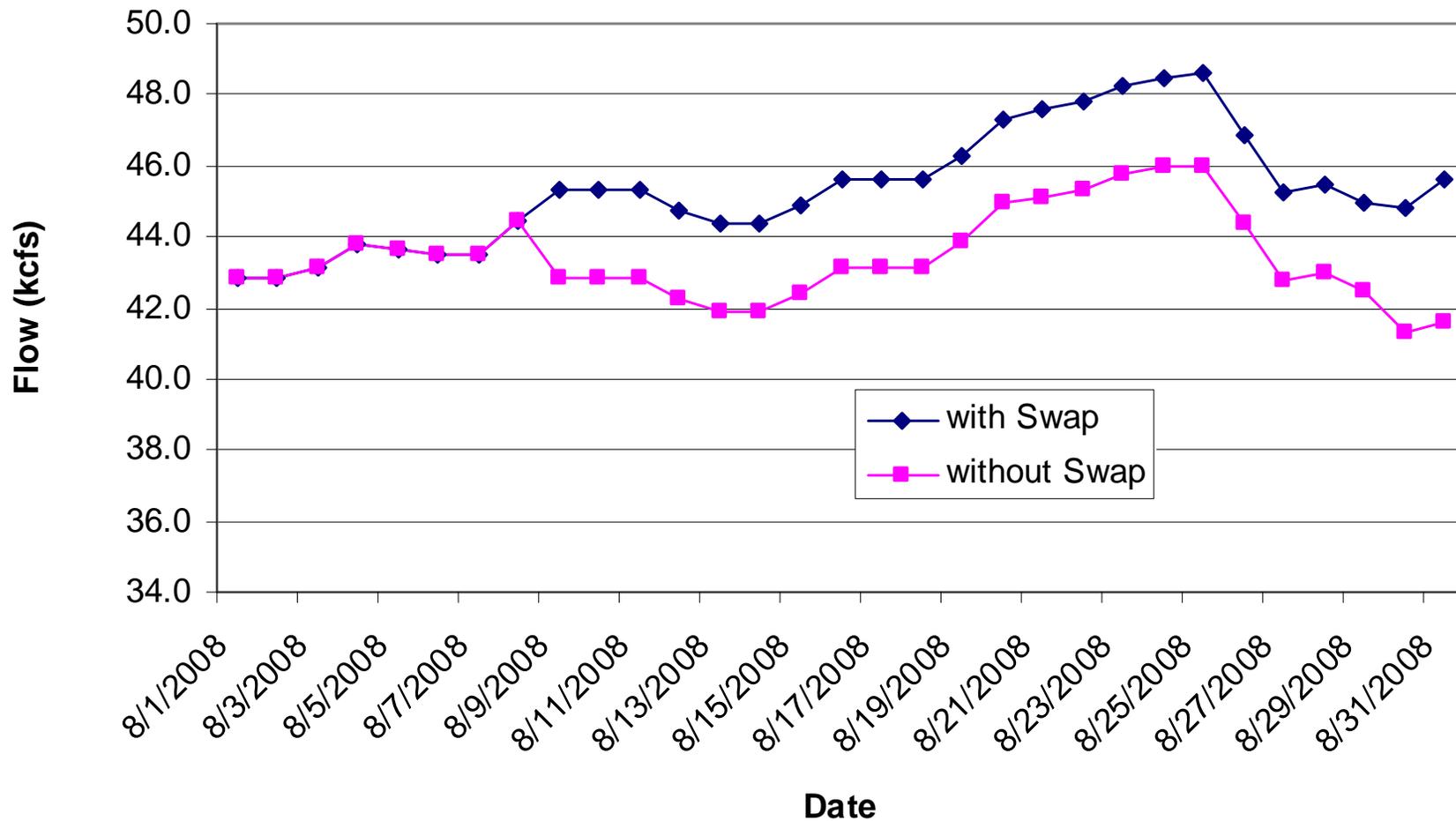
- Higher than forecast basin inflows in the Columbia and Kootenay basins that resulted in 19.7 more ksf of storage than was expected.
- A faulty reservoir elevation gage at Duncan (since corrected) and unanticipated reduction of Duncan releases on Aug 29-31 related to not exceeding required maximum flows of 8.8 kcf on the Duncan River below the Lardeau River, which combined to result in 6.2 more ksf of storage than was expected.
- A reservoir elevation conversion difference, resulting from reading a reservoir gage in feet and converting to storage content. This resulted in Arrow being 7.8 ksf higher than expected (this difference is well within the normal bounds of measurement deviation and represents less than an inch in Arrow reservoir elevation).

It is important to note that this accounting variation would have occurred even if there had been no swap and the parties been targeting the TSR alone. Had there been no swap, the Treaty storage would have been 33.7 ksf above TSR. TSR (i.e., the sum of the variances above – 19.7 forecast deviation plus 6.2 ksf Duncan underrun plus 7.8 ksf storage difference). The difference between positive 33.7 ksf and negative 26.1 ksf is 59.8 ksf, the net effect is that the full swap amount was delivered.

## Composite Treaty Contents with and without Libby-Treaty Swap



### Arrow + Duncan Outflows with and without Libby-Treaty Swap



# COLUMBIA RIVER REGIONAL FORUM

## TECHNICAL MANAGEMENT TEAM

September 10th, 2008 Meeting

### FACILITATOR'S SUMMARY NOTES ON FUTURE ACTIONS

Facilitator: Robin Gumpert

Notes: Erin Halton

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**

The 8/22, 25<sup>th</sup>, 26<sup>th</sup> and 27<sup>th</sup> official meeting minutes/facilitator notes had been posted to the web.

**Action/Next Steps:** TMT requested one more week to review the minutes/notes and will send edits to the COE/facilitation team by 9/17. If no comments are received, they will be considered final. Any changes made will be tracked and shared with all via email.

#### **Autumn Treaty Fishing SOR #2008-C8**

Kyle Dittmer, CRITFC, referred TMT to SOR 2008-C8 posted as a link to the TMT agenda. Dittmer reviewed the dates and elevation requests for Bonneville, The Dalles and John Day pools. The request was for 1' elevation constraints for all three pools from 9/9-12. Dittmer noted the exceptional job the COE has done in holding the pools fairly steady last week, with 602 total nets amongst the three pools. The COE inquired if the 1' constraint request for Bonneville pool was for the top 1' of the pool, or within a 1' near the top of the pool; CRITFC responded that they generally prefer the top, but if the operation is coordinated ahead of time the 1' constraint does not have to be at the top of the pool.

**Action/Next Steps:** The COE planned to operate Bonneville pool under a 1' soft / 1.5' foot hard constraint. The Dalles pool will operate under a 1.5' soft constraint (158-159.5') and a 3' hard constraint (157.0-160.0 feet); special emphasis will be placed on meeting the soft constraint at The Dalles during the evening hours. The John Day pool will be operated under a 1.5' hard constraint (262.5-264'). Dittmer will share any requests for additional treaty fishing operations as soon as possible.

#### **Dworshak Operations Update**

Steve Hall, COE, reported that Dworshak hit its end of August elevation target of 1535' at 0400 hours on 9/1. The COE implemented the Nez Perce /Dworshak Board plan for providing 200 kaf flow augmentation as discussed during the 8/27 TMT meeting. Outflows were currently at 5 kcfs, with two small units in undershot mode; temperatures were in the range of 47-48°, meeting the Dworshak Hatchery recommendation. On 9/13

or 9/14 the COE planned to step outflows down to 2.4 kcfs and hold until the pool's elevation reaches 1520', likely on 9/20.

### **Timing for End of MOP at Ice Harbor, Lower Monumental, Little Goose, and Lower Granite**

The Salmon Managers acknowledged that the criteria had been met for lifting MOP at all of the Lower Snake River projects. Tom Lorz, speaking on behalf of the Salmon Managers, provided the Action Agencies with preferences for lifting of MOP operations: wait to lift MOP until the end of the Dworshak flow augmentation operation, around 9/20. When MOP is lifted, stagger refill starting with Lower Granite, then Little Goose, Lower Monumental and Ice Harbor.

**Action/Next Steps:** The Action Agencies said they will consider the Salmon Managers' preference as they move into end of MOP/project refill operations.

### **Libby/Arrow Swap Accounting**

Robyn MacKay, BPA, referred TMT members to documents regarding accounting of the Libby/Arrow swap posted as links to the agenda. She provided an explanation of how the 60 kfsd was delivered, given the shifts in forecasted/actual precipitation and flows. Libby met its end of August elevation target of 2441.7' and the swap was flow neutral. MacKay clarified that the storage is expected to be returned to Canada by December, once Libby reaches its flood control elevation.

### **Operations Review**

**Reservoirs:** Libby was at elevation 2441.3', with inflows of 6.4 kcfs and outflows of 6 kcfs. According to the latest STP, Libby will likely maintain outflows of 6 kcfs until 9/30, then drop to 4.5 kcfs. Albeni Falls was at 2062.2' and was passing inflows; the project will draft to an elevation of 2061.5-2062' by 9/30 [Hlebechuk clarified after the TMT meeting that the project will be drafted to about 2061']. Dworshak was at elevation 1524', with inflows of 1 kcfs and outflows of 5 kcfs. Regarding summer flow objectives, McNary's objective was 200 kcfs and actual flows were 173 kcfs. Lower Granite's objective was 52.5 kcfs and actual flows were 32.5 kcfs. {*Supplemental Note: The summer seasonal average flow at Lower Granite was miscalculated and reported at the meeting as 32.5 kcfs. The actual seasonal average flow was 57 kcfs*} Grand Coulee was at elevation 1281.1', targeting a minimum elevation of 1283' by the end of September. Hungry Horse was at elevation 3538.3' with 4kcfs discharge.

**Fish:** Dave Wills, USFWS, reported that juvenile passage numbers at McNary, John Day, and Bonneville were declining to 400-800 per day. Cindy LeFleur, WA, said that adult Chinook at Bonneville are stronger than pre season forecast average, with 50,000 added to the forecast total. Upriver brights and Coho are also tracking above predicted levels. Rich Domingue, NMFS, reminded TMT that the NMFS Science Center website provides data on fish survival relative to ocean conditions.

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

Water Quality: Nothing to report at this time; Jim Adams, COE, reported that an Adaptive Management Team meeting was held on September 9<sup>th</sup> and that there is a draft technical document posted on the WADOE webpage. Interested parties may review the document and provide comments to the States by 10/6. The report can be found here: <http://www.ecy.wa.gov/programs/wq/tmdl/ColumbiaRvr/ColumbiaTDG.html>.

**10/1 Face to Face Meeting**

Agenda items will include:

- Finalize notes/minutes
- Scheduling Year End Review
- Operations Review

**Columbia River Regional Forum  
Technical Management Team Meeting  
Sept. 10, 2008**

***1. Introduction***

Today's TMT meeting was chaired by Jim Adams (COE) and facilitated by Robin Gumpert (DS Consulting) with representatives of BOR, Washington, Idaho, CRITFC, COE, BPA, USFWS, NOAA 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 of Meeting Minutes***

The deadline for comments on facilitator's notes and minutes for all meetings through Aug. 27 is Sept. 17, after which they will be considered final. Send any comments to the facilitation team.

***3. Autumn Treaty Fishing***

Kyle Dittmer (CRITFC) reported on SOR 2008-C7 which CRITFC submitted to the Action Agencies a week ago. The SOR requested 1-foot maximum elevation bands from 76.5-75.5 feet at the Bonneville pool; 159.5-58.5 feet at The Dalles pool; and 264.5-263.5 feet at the John Day pool.

CRITFC's run forecast has recently been updated to more than 210,000 fall Chinook and 316,000 steelhead at Bonneville Dam. Last week's net flight found over 602 nets, of which 32% were in Bonneville pool, 25% in The Dalles pool, and 43% in John Day pool.

Dittmer thanked the COE for keeping elevations within 1 foot at Bonneville and only 0.7 feet at The Dalles and John Day. That degree of elevation stability makes for good fishing. Hlebechuk asked whether future operations should be within the top foot; Dittmer said that's a general preference. The pool can be at a lower elevation as long as fluctuations remain within a 1-foot band.

The COE has a spill gate maintenance operation scheduled for Sept. 22-25, which will require the pool to be near the bottom elevation during daytime hours, Adams said. BPA needs an elevation band; it can be a bottom elevation band, Robyn MacKay said. This year, the fisheries are lasting only a week at a time, as opposed to last year's 2-3 week fisheries, Dittmer said. Therefore the maintenance operation might not have a major impact on tribal fishing. Catch efficiency tends to go down at the end of the season, with fewer fish in the river.

In response to SOR 2008-C7, the COE will operate Bonneville Dam within a soft constraint of elevation 75.5-76.5 feet and a hard constraint of 75-76.5 feet. The Dalles Dam will operate within a soft constraint of 158-159.5 feet and a hard constraint of 157-160 feet, its normal operating elevation. There will be special emphasis on meeting the soft constraint during evening and nighttime hours. John Day Dam will operate within its usual hard constraint at this time of year, elevation 262.5-264 feet. Adams wondered whether the SOR was requesting an elevation of 264.5-263.5 was correct since the normal operating range at John Day at this time of year was 262.5 ft to 264.0 ft. Dittmer said he would double-check on that.

A dam on the Big White Salmon River (Condit Dam) is scheduled for removal in 2009, Dave Wills (USFWS) reported. Part of the determination by FERC and NOAA was a recommendation that listed fish be intercepted and transported so dam removal doesn't silt over their spawning grounds. This year workers will practice transportation techniques on hatchery fish, an operation that might benefit from having a steady pool elevation, Wills pointed out.

#### ***4. Dworshak Operations***

Dworshak pool reached its target end of August elevation at 4 am on Sept. 1, Steve Hall (COE) reported. The current operation is to step down flows per the Dworshak board, which manages the 200 kaf on behalf of the Nez Perce Tribe. Dworshak operations stepped down from full powerhouse to 8.2 kcfs on Sept. 5; then again to 5 kcfs on Sept. 9. One more reduction is planned to 2.4 kcfs on the evening of Sept. 13. That release rate will continue until the reservoir reaches elevation 1,520 feet, currently forecasted to occur on Sept. 20. The reservoir elevation is 1,523.8 feet, with two small units operating in undershot mode. The plan is to drop down to one small unit on Sept. 13. Dworshak outflow temperatures are 46.5-48 degrees F, which is within the range needed for Spring Creek Hatchery. TMT will revisit Dworshak operations at its next meeting on Oct. 1.

#### ***5. Timing for End of MOP at Ice Harbor, Lower Monumental, Little Goose and Lower Granite***

The Salmon Managers discussed ending MOP operations at yesterday's FPAC meeting and recommended moving Lower Granite from MOP to MOP+1 at the adult collection facility, Tom Lorz (CRITFC) said. The biological recommendation (not elevated to a system operational request) is to continue MOP operations at least until the end of Dworshak flow augmentation on Sept. 20. If feasible, the Salmon Managers prefer that upstream reservoirs go off MOP first, starting with Little Goose, Lower Monumental and Ice Harbor, while flow augmentation continues at Lower Granite.

All fish counts are presently declining, Dave Wills reported. The criteria for ending MOP say the operation should continue until natural cooling occurs and low numbers of juvenile migrants are present at Little Goose, Lower Monumental and Ice Harbor dams. Current passage numbers at Lower Granite are around 200-400 fish per day, and in the double digits at Little Goose and Lower Monumental dams. The temperature of Lower Granite tailwater is 62.5 degrees F, which is fairly cool. Due to an agreement that conditions for ending MOP have already been satisfied, the Salmon Managers presented their input as a biological recommendation, not a request.

There was general agreement that if MOP operations end before the Dworshak flow augmentation does, the Salmon Managers prefer that the process be staggered starting with Little Goose Dam. There was also general agreement that MOP operations can be removed from further 2008 TMT agendas.

### **6. Libby/Arrow Storage Swap Follow-up**

Robyn MacKay (BPA) presented an after-the-fact accounting of the Libby/Arrow swap. She showed TMT three documents linked to today's agenda, including data and a detailed written account. The swap was completed and 60 ksf was stored in Libby and released from Arrow. However, the releases occurred from a different place than expected. Canadian storage was expected to end the month 59.9 ksf below the TSR, but after-the-fact, ended only 26.1 ksf below the TSR. Without the swap, the Canadian reservoir elevations would have ended August 34 ksf above the TSR, which amounts to the 60 ksf that was delivered. Reasons for the difference were higher inflows than forecast over the week end, a reduction at Duncan due to downstream issues and a content difference due to conversion factors. These differences would have occurred without a swap and resulted in Canadian storage ending higher than expected. Therefore, full amount of the swap was delivered.

Libby elevation ended on target at 2,441.7 feet. The water will be returned between now and the end of December.

### **7. Operations Review**

**a. Reservoirs.** Dworshak is at elevation 1,524 feet with inflows of 1.0 kcfs and outflows of 5 kcfs. Libby is at elevation 2,441.3 feet, with inflows of 6.4 kcfs. Outflows are down to 6 kcfs, which will continue through the rest of September, when outflows will drop to 4.5 kcfs.

Albeni Falls will start drafting in the middle of September. Current elevation is 2,062.2 feet. The winter elevation target will be set in September.

Seven day average inflows at Lower Granite are 31.8 kcfs. The summer objective was 52.5 kcfs, with a seasonal average of 32.5 kcfs. {*Supplemental*

*Note: The summer seasonal average flow at Lower Granite was miscalculated and reported at the meeting as 32.5 kcfs. The actual seasonal average flow was 57 kcfs} Seven day average inflows at McNary are 95.8 kcfs. The summer objective was 200 kcfs and the seasonal average was 173 kcfs. Seven day average inflows at Bonneville are 105 kcfs.*

Grand Coulee is at elevation 1,281.1 feet, with an end-of-September minimum elevation target of 1,283 feet. Hungry Horse is at elevation 3,538.3 feet, discharging 4 kcfs.

**b. Fish.** Subyearling counts at Lower Granite, Little Goose and Lower Monumental are declining, Dave Wills said. Passage counts at McNary, John Day and Bonneville are around 4-800 daily, also trending downward.

Adult fall Chinook passage at Bonneville is stronger than Washington's preseason forecast and greater than average, Cindy LeFleur (Washington) said. Spring Creek Hatchery and upriver bright forecasts have both been increased by 25,000 fish. Summer steelhead passage is also above average. Coho passage is way above average at Snake River dams. Fall Chinook season is scheduled to continue until Sept. 16.

Outmigrating juveniles stand to benefit the most from good ocean conditions this year, Dave Wills reported. Positive effects start at the bottom of the food chain and work their way upward. NMFS is producing a series of indices for correlating ocean conditions at the time of outmigration and fish survival, Rich Dominique (NOAA) reported. NMFS has growing confidence in its ability to predict fish survival based on ocean conditions. All runs will probably reap the rewards of good conditions over the next few years. While it's risky to predict how long these conditions will last, current indications are that the La Nina weather trend will continue for another year, a positive sign.

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

**d. Water Quality.** There was nothing to report today; water temperatures and TDG levels are all low. A draft technical document prepared by the Adaptive Management Team is available for comments via the Washington State website. Comments are due Oct. 6, 2008. The AMT formed in response to a request by Oregon to investigate the possibility of discontinuing the use of forebay gages to set spill caps. The Implementation Team has been receiving quarterly updates on the AMT's work as it develops. When things are more definite, TMT will receive a briefing as well.

## **9. Next Meeting**

The next regularly scheduled TMT meetings will be Oct. 1 and Oct. 22, continuing every 2 weeks after that. The TMT year-end review was tentatively set for Dec. 4, 2008. This summary prepared by consultant and writer Pat Vivian.

<b><i>Name</i></b>	<b><i>Affiliation</i></b>
Jim Adams	COE
Robyn MacKay	BPA
Kyle Dittmer	CRITFC
Scott Boyd	COE
Kevin Grode	COE
Bob Diaz	PPM
Laura Hamilton	COE
Tina Lundell	COE
Don Faulkner	COE
Ruth Burris	PGE
Dave Wills	USFWS
Cathy Hlebechuk	COE

***Phone:***

John Roache	BOR
Cindy LeFleur	Washington
Russ Kiefer	Idaho
Tom Lorz	CRITFC
Barry Espensen	CBB
Tim Heizenrader	Centaurus
Russ George	WMC
Richelle Beck	DRA
Steve Hall	COE Walla Walla
Scott Bettin	BPA
Rich Domingue	NOAA

# TECHNICAL MANAGEMENT TEAM

**BOR** : John Roache / Mary Mellema / Pat McGrane      **BPA** : Robyn MacKay / Tony Norris / Scott Bettin  
**NOAA-F**: Paul Wagner / Richard Dominique              **USFWS** : David Wills / Steve Haeseker  
**OR** : Rick Kruger / Ron Boyce                              **ID** : Russ Kiefer / Pete Hassemer  
**WDFW** : Cindy LeFleur    **MT** : Jim Litchfield / Brian Marotz  
**COE**: Jim Adams / Cathy Hlebechuk / Kevin Grode

## TMT MEETING

Wednesday October 01, 2008 09:00 - 12:00

1125 N.W. Couch Street, Suite 4A34  
Portland, Oregon 97209-4142  
Map Quest [\[Directions\]](#)

### CONFERENCE PHONE LINE

**NOTE NEW CONFERENCE LINE NUMBER**  
Conference call line:888-285-4585; PASS CODE = 601714

To check into the building, take the elevator to the 5th floor and the guard will issue you an ID badge if you need one and will take you down to the meeting room on the 4th floor. If you have NOT attended a TMT meeting in the past you will need to call ahead and let Jim Adams (503) 808-3938, Cathy Hlebechuk (503) 808-3942, or Kevin Grode (503) 808-3945 know, so you can be added to the TMT Visitor List and issued an ID badge. This badge may be used indefinitely. If you have attended TMT in the past you may re-use your ID badge indefinitely. If you are a federal employee you will also need to have an ID badge issued to you which can be used indefinitely.

We have had disruptions on the phone because people are not hitting 'mute' after dial in.  
**Please MUTE your Phone**

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*All members are encouraged to call Robin Gumpert with any issues or concerns they would like to see addressed.  
Please e-mail her at [rgumpert@cnnv.net](mailto:rgumpert@cnnv.net) or call her at (503) 248-4703.*

## AGENDA

1. Welcome and Introductions
2. Review and Finalize Notes / Minutes [\[Meeting Minutes\]](#)
3. Autumn Treaty Fishing - Kyle Dittmer, CRITFC  
[\[SOR 2008-C8\]](#) [\[SOR 2008-C9\]](#) [\[SOR 2008-C10\]](#)
4. Albeni Falls Operations
5. The Dalles Spillwall Update - Cathy Hlebechuk, USACE  
[\[Fact Sheet\]](#)
6. Draft Water Management Plan - Dan Feil, USACE  
[\[2009 WMP\]](#)
7. Scheduling TMT Year-End Review - All
8. Operations Review

- a. Reservoirs
- b. Fish
- c. Power System
- d. Water Quality

[\[Spill Information 2008\]](#)

9. Other

- a. Set agenda for next meeting - **October 22, 2008**

[\[Calendar 2008\]](#)



*Questions about the meeting may be referred to:*

*[Jim Adams](#) at (503) 808-3938, or*

*[Cathy Hlebechuk](#) at (503) 808-3942, or*

*[Kevin Grode](#) at (503) 808-3945.*

# The Dalles Dam – Bay 8-9 Spillwall

## Fact Sheet September 2008

**Background:** The Dalles Dam spillway is the primary downstream passage route for migrating juvenile salmon with about 80% of fish passing over the spillway when spilling 40% of river flow. The survival rates of fish after the 2004 construction of a spillwall between bays 6 and 7 was still considered low due primarily to predation from predator fish and birds in low flow and shallow areas on the spillway shelf and the downstream bridge islands.

**Project purpose and need:** The Corps is mandated to improve survival of out-migrating salmonids through the dams on the Columbia River. Fish survival data from studies at The Dalles Dam indicate that more direct conveyance from the spillway to the river's thalweg (deepest part of the channel) would likely improve dam passage survival rates for juvenile salmonids. Based on current fish passage distribution it is estimated that with the proposed bay 8-9 spillwall (*Figure 1*), overall dam-passage survival would increase by as much as 4% for both yearling Chinook and steelhead (spring migrants), and 3% for subyearling Chinook (summer migrants). The downstream end of the spillwall was designed to have a slight curve to ensure the conveyance of the water flow to the river's thalweg.



Figure 1. The Dalles Dam: Bay 8-9 spillwall and construction staging areas.

**Construction.** The construction of the Bay 8-9 Spillwall utilizes precast concrete cells which will be positioned to extend from the river bottom to above the normal tailwater elevation (Figure 2). These concrete cells will be filled with tremie concrete (concrete for underwater placement). The wall will also be post-tensioned utilizing rock anchors that are drilled through ducts cast into the top of the precast concrete cells, into the rock below the wall. The post-tensioning will, in effect, clamp the wall to the rock to provide stability and structural strength to the wall.

The wall will be 10 feet wide, approximately 850 feet long, with the first 200 feet being 43 feet high and the remainder being between 25 and 30 feet high. Up to 230 rock anchors will be required for the construction of this wall, with each rock anchor penetrating up to 120 feet into the rock below the wall.

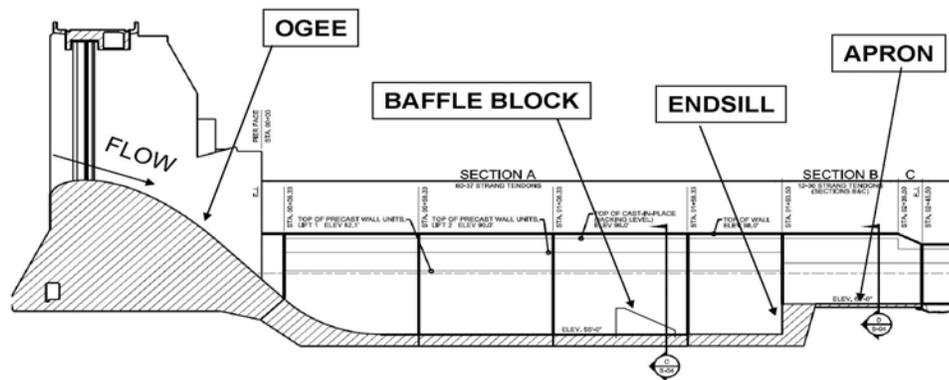


Figure 2. The Dalles Dam Spillway with Bay 8-9 Spillwall in elevation.

The contractor on-water operations intends to use several derrick barges, including the DBB Los Angeles w/ 300-ton capacity & DBB Alameda w/ 100-ton capacity, and several support tugs, flexi-floats and barges. The on-land operations includes an on-site precast yard for the concrete cells that is located on the north shore of the downstream lock approach channel just upstream of the Hwy 197 bridge.

**Funding and Schedule.** The contract was awarded in July 2008 for \$45,000,000 and includes a continuing contract clause with an initial award amount of \$5,000,000 in FY08. Contractor earnings in FY09 are expected to be about \$27,000,000 with the balance of the contract in FY10. The wall construction runs over two in-water work seasons (1 Oct 08 – 1 Apr 09 and 1 Oct 09 – 1 Apr 10) and is scheduled to be completed in April 2010 in time for the spill season.

**Issues.** The contractor's derrick barge operation may be restricted due to their draft requirements and the shallow water over the stilling basin rock shelf. The Corps and Contractor have been meeting with Reservoir Control Center and Bonneville Power Administration to discuss potential special river operations that could improve the situation for the Contractor.



Photos from 1:80 physical model at ERDC (Vicksburgh, MS) of The Dalles Dam spillwall that was used for final siting and length determination. Note that stilling basin rock floor in blue is contoured to actual bathymetry of the site. Also note DEEP dropoff into thalweg (over 200' deep) in upper photo to ensure juvenile egress into deep, fast-moving flow to avoid predator habitat.

# COLUMBIA RIVER REGIONAL FORUM

## TECHNICAL MANAGEMENT TEAM

October 1<sup>st</sup>, 2008 Meeting

### FACILITATOR'S SUMMARY NOTES ON FUTURE ACTIONS

Facilitator: Robin Gumpert

Notes: Erin Halton

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**

The September 10<sup>th</sup> official meeting minutes and facilitator notes had been posted to the web. No further changes were made and they were considered final.

#### **Autumn Treaty Fishing SORs**

Kyle Dittmer, CRITFC, referred TMT to three Autumn Treaty Fishing SORs posted as a link to the TMT agenda. Dittmer reviewed the data for the autumn season, noting catch is still below allowance numbers. The SORs covered the periods 9/16-9/18, 9/22-26, and 9/30-10/03, requesting a 1' band constraint at Bonneville, The Dalles and John Day.

The COE responded that as in the past they will provide a 1' hard/ 1.5' soft constraint at the Bonneville pool and a 1.5' soft constraint at The Dalles, with emphasis on daytime hours. At John Day the COE will provide an elevation range from 262.5-264'.

Dittmer thanked the COE for their work in maintaining steady pools for treaty fishing. The COE reported that they rescheduled gate work at Bonneville, to be completed later in the season, so there would be no impact to treaty fishing.

**Action/Next Steps:** Dittmer will prepare a summary of 2008 Autumn Treaty fishing for the 10/22 TMT meeting.

#### **Albeni Falls Operations**

The COE reported they had not yet received an SOR regarding Albeni Falls operation for this year, as proposed operations were still being coordinated with USFWS, IDFG and BPA. The COE planned to target 2054' by the end of October, per their Water Control Plan. They also anticipated targeting 2051' sometime in November, perhaps as early as November 8, as opposed to the usual November 15, to support earlier than normal Kokane spawning. This shortened time frame for drafting down to 2051' could potentially pose a TDG issue at projects downstream of Albeni Falls; the COE is investigating the rationale for the 2054' target and whether they might deviate from that target.

**Action/Next Steps:** An SOR is expected by Friday 10/03, and the COE requested a TMT conference call next week, 10/08 at 9am, to follow up on this issue. In the

short term, the COE will target elevation 2054' by the end of October. Albeni Falls will be on the agenda for a TMT conference call on 10/8 at 9:00 a.m.

### **The Dalles Spillwall Update**

Lance Helwig, COE, offered an update on The Dalles spill wall construction, a two year, regionally supported project that will improve egress conditions out of the dam to address predation issues. Construction is expected to be completed by April 2010, and in order to complete the project by the goal date, construction will be ongoing from Oct. 1<sup>st</sup>-April 1<sup>st</sup>, the 'in water work season', in 2008-'09 and likely for 2009-'10. To accommodate the construction, the contractors need sufficient depth of water for equipment safety, and as such, requested that Bonneville forebay elevation be held to 75-76.5' 24-hours a day during the in water work season. This may impact regular chum operations at Bonneville in November and December, when characteristically there is a greater operating range at Bonneville to allow more flexibility in system operations and provide an increased ability to support chum spawning at or below an 11.5' tailwater elevation.

The COE acknowledged that the impacts of the spill wall project on the chum spawning season had not been considered until recently; however, they wanted to work with the region to step through operations as best as possible to meet the needs of in-season management of the chum while staying on track to complete the work by April 2010. The chum operations/construction work interface will be a factor for next year as well, and all agreed it will be critical to have on-going discussion between TMT, the contractor and the COE project manager.

**Action/Next Steps:** Given the lack of flexibility this year, the salmon managers acknowledged the need to manage chum operations around the 75-76.5' operating range of the Bonneville pool. They asked the COE to approach the contractor to determine what flexibility they may have with respect to water levels to facilitate optimal conditions for the chum. BPA also noted that any change in operations, as always, requires a three day notice. During the TMT conference call on 10/08, BPA will provide information on chum monitoring plans for this year. TMT will discuss whether there is a need for more monitoring to inform next year's adaptive management decisions given the constraints from the construction. The COE will also report back any new information from the contractor that will inform TMT's decisions around chum operations (e.g. any new opportunities for flexibility). Discussions at TMT with the contractor and Lance Helwig, Project Manager, will be ongoing throughout the chum spawning season.

### **Draft Water Management Plan**

Dan Feil, COE, referenced a link on the TMT website for the 2009 draft Water Management Plan. The Action Agencies prepared the draft WMP to reflect operations contained in the 2008 BiOp and Fish Accords. Dan emphasized that this first draft needs to be carefully reviewed to ensure it is consistent with the 2008 BiOp and Fish Accords. Dan also noted that transportation and spill operations were removed from this draft but will be included in the 2009 Fish Passage Plan.

**Action/Next Steps:** The COE requested comments on the draft by COB Nov. 7<sup>th</sup>. A word document version was posted to the TMT web page, and parties are asked to offer comments in “track changes” and send them to Dan Feil. All comments will be posted as they are received.

### **Year End Review**

The TMT year end review is scheduled for Friday, Nov. 21<sup>st</sup> at the Portland Services Building (1120 SW Fifth Ave, 2<sup>nd</sup> Floor Conference Room C.) A TMT planning session will take place on 10/22 and an agenda will follow.

### **Operations Review**

**Reservoirs:** Grand Coulee was at elevation 1284.1', which is above the 1283' end of September minimum elevation objective. Hungry Horse was at elevation 3533.06' with outflows in the range of 2.4-2.5 kcfs. Libby was at elevation 2440.8', with outflows of 6 kcfs up until 10/1, shifting later in the day to 4.7 kcfs. Albeni Falls was at 2060.9' with outflows of 16 kcfs up until 10/1, shifting later in the day to 24 kcfs. Dworshak was at elevation 1519.9', with minimum outflows and temperatures near 47° with gates in undershot mode. Seven day average flows were 21 kcfs at Lower Granite, 82 kcfs at McNary and 76 kcfs at Bonneville.

**Fish:** Paul Wagner, NOAA, reported that juvenile passage was nearing the end of its season numbers, with sub yearlings in the 1,000 per day range at Lower granite, less than 100 per day at Little Goose and 170 per day at Lower Monumental. Cindy LeFleur, WA, said that adult Chinook numbers are forecasting stronger than the 10 year average, Coho and Steelhead are tracking close to the 10 year averages and Chinook numbers at Lower Granite are tracking at two times the 10 year average.

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

**Water Quality:** Nothing to report at this time.

### **10/8 Conference Call**

Agenda items will include:

- Albeni Falls Operations
- Chum monitoring
- The Dalles Spill Wall Update

### **10/22 Face to Face Meeting**

Agenda items include:

- 2008 Autumn Treaty Fishing Review
- Albeni Falls Operations
- The Dalles Spill Wall Update
- TMT Year End Review Agenda
- Operations Review

**Columbia River Regional Forum  
Technical Management Team Meeting  
October 1, 2008**

**1. Introduction**

Today's TMT meeting was chaired by Jim Adams (COE) and facilitated by Robin Gumpert (DS Consulting) with representatives of BPA, COE, NOAA, USFWS, BOR, CRITFC, Idaho, Washington, 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 and Finalize Notes and Minutes**

All facilitator's notes and official minutes for meetings and conference calls in August 2008 were finalized today. There were no comments on either the facilitator notes or official minutes for the Sept. 10 meeting today, so those were finalized also.

Dave Wills (USFWS) suggested that future TMT agendas specify which meeting dates will be up for review in the coming meeting; Paul Wagner (NOAA) seconded that idea.

**3. Autumn Treaty Fishing**

Kyle Dittmer gave an update. CRITFC has submitted three SOR's to the Action Agencies for autumn treaty fishing on the following dates:

- Sept. 16-18, later changed to Sept. 19
- Sept. 22-26
- Sept. 30-Oct. 3

The current SOR requests the usual 1-foot elevation bands, with specific elevations for each project:

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

CRITFC has upgraded its passage forecasts to 314,000 adult fall Chinook and 338,500 steelhead at Bonneville Dam. The updated tribal season catch is 150,000 fall Chinook and 24,550 steelhead.

CRITFC's net flights found 443 nets in zone 6 pools, with 159 of those at Bonneville, 99 at The Dalles, and 185 at John Day. The tribes are still beneath

their catch limit for the season and will probably continue to fish from platforms in November, which doesn't require special river operations.

This season, hourly compliance with CRITFC's elevation requests has been within half a foot to a foot; Dittmer thanked the COE for that achievement. A gate repair about to be performed at Bonneville was rescheduled for later this year in order to accommodate the fishery, Adams reported.

Dittmer announced two upcoming public meetings on weather forecasting: the Climate Impacts Group's annual fall meeting Oct. 2 in Vancouver, Washington; and the annual winter meeting of the American Meteorological Society's local chapter Oct. 24 at the OMSI auditorium in Portland. For more information, go to <http://www.ametsoc.org/chapters/oregon/index.html> and click on "Meetings."

#### **4. Albeni Falls Operations**

It appears that kokanee spawning could happen earlier this year than the traditional Nov. 20 draft date, which indicates that drafting should begin earlier, Ken Brettmann (COE Seattle) reported. The COE has provided results from preliminary model runs examining the possibility of drafting to 2051 feet by an earlier date. It was reported that the Lake Commission did not object to the 2051 elevation target at its Sept. 20 meeting, but that needs to be confirmed. {Supplemental Note: the Lakes Commission was not present at the interagency meeting of September 26<sup>th</sup> where drawdown and the decision tree was discussed, but Jeff Laufle [COE Seattle] got confirmation after the meeting that they had no objection to a draft to 2051} Meanwhile, IDFG, USFWS and the COE are working together on an SOR to be presented to TMT soon.

A new constraint has arisen, Adams said. The COE's water control manual specifies that the Albeni Falls pool elevation should be no lower than 2054 feet on Oct. 31. In order to reach elevation 2051 feet by Nov. 8 – a tentative date for completion of the draft to 2051 for kokanee spawning – the pool elevation would need to drop 3 feet within a week, which could cause TDG exceedances downstream on the Pend Oreille River. The water control manual also specifies that the Albeni Falls pool elevation should not reach 2051 feet before Nov. 15, and the kokanee operation under consideration would exceed that limit as well. The purpose of these limits in the water control manual is not known, and the COE is investigating the possibility of deviating from them, which is why the SOR is not final yet. While this is being resolved, the COE began in mid September to draft Albeni Falls toward a target end-of-September elevation of 2061 feet. The elevation is slightly below 2061 feet now, with an end-of-October target of 2054 feet.

BPA would like to use the operating range in the pool to some extent above the spawning elevation, once spawning is over, Tony Norris said. Andy Dux (Idaho) asked what the fluctuation range would be. For example, if spawning is completed at elevation 2051, BPA would fill and draft within the 2051-2055 foot

range, Norris replied. This would probably occur sometime after Jan. 1, 2009. Drawdowns are advantageous for gravel cleaning and improve kokanee spawning habitat, Dux said, so there is a benefit to keeping the pool at that elevation every few years. BPA and Idaho will continue to work together on this issue, with a goal of presenting the SOR to the COE by the end of this week.

TMT scheduled a conference call for Oct. 8 to discuss the SOR for the kokanee spawning operation. In the meantime, the COE will plan on Albeni Falls reaching an elevation target of 2054 feet by Oct. 31 and 2051 feet by sometime in November, after confirming that the Lakes Commission approves.

### ***5. The Dalles Spill Wall Update***

Lance Helwig, the COE's project manager of The Dalles spill wall construction, gave a presentation (see link to today's agenda). The COE stated that chum operations at Bonneville will likely be impacted by the spill wall construction at The Dalles. The wall is expected to yield an approximately 4% increase in yearling Chinook and steelhead survival, as well as a 3% increase in subyearling Chinook survival, which should allow The Dalles to reach its survival targets of 96% in spring and 93% in summer. The spill wall has received broad regional support as an integral part of meeting survival targets at The Dalles. The \$45 million, two-year contract for construction of the wall, to be made of concrete units weighing 170 tons apiece, was awarded in July 2008. In-water work on the spillwall began today. The contractor has mobilized two derrick barges (300 tons and 100 tons crane capacity) into the stilling basin.

The issue is shallow water on the rock shelf, and possible grounding of the contractor's barges due to varying tailwater elevation at The Dalles Dam. Work on the rock shelf is scheduled to begin in November during chum spawning season and continue through the end of March 2009. The nominal top of the rock shelf is at elevation 68 feet; however there are several locations that extend up to El. 70 feet. If the tailrace at Bonneville is at El. 72 feet for chum, the corresponding tailwater elevation at TDA is about El. 73, leaving only 3 to 5 feet of water for the enormous barges. Fluctuations for chum would make this situation even worse with a higher potential for impact/grounding. The normal operation range at Bonneville for chum is elevation 71.5-76.5 feet, , but the COE specified today that the Bonneville forebay will need to be held to 75-76.5 feet as a hard constraint during chum spawning season in November and December because of the construction activities occurring in The Dalles tailwater. Helwig emphasized that the construction schedule is tight for construction of the wall to be completed for the 2010 fish passage season. Stabilizing the water elevation and securing the additional depth at The Dalles will assist the contractor's operations and improve the likelihood that the work will be completed on schedule. Helwig emphasized that both the contractor and the COE are committed to get the wall built.

Tony Norris (BPA) asked whether the contractor would be removing the barges at night. Helwig said that's unlikely because mooring and unmooring them

would consume a couple of hours each day. The contractor plans to work at night, but maneuvering the 170-ton concrete units into place should be done in daylight. Stable tailwater elevations and increased depth assist with 2008/2009 construction, including installation of the leveling slab, to ensure the 2009/2010 wall construction can commence at the start of the in-water work period next year (1 October 2009). The in-water work season has been extended on the front end to Oct. 1 and on the back end to 1 April for the two construction seasons in order to get the wall completed by 2010. The Dalles has the shallowest stilling basin on the river, with the shallow end at a nominal 68 feet elevation. Even with the requested changes, the contractor will likely have to use smaller equipment than the barges he originally planned.

This isn't a request, it's a necessity, Norris observed and other TMT members agreed. Norris explained why a 1.5-foot constraint during chum season would limit BPA's ability to operate the river for chum effectively. The restriction reduces BPA's flexibility to store water and reverse load at the project once inflows exceed the amount of flow required to maintain an 11.5 foot tailwater below Bonneville Dam for spawning. Because Bonneville is at the tail end of the hydrosystem, it's difficult to maintain the chum operation once inflows pick up. As a result, BPA has to use all the storage in the lower river, including releases from Grand Coulee several days in advance, in order to plan for the operation at Bonneville. If inflows rise this season, the primary result under the restriction will be that the 11.5 foot tailwater will rise, and BPA won't have enough flexibility to maintain 11.5 feet for as many hours of chum spawning. The limitation could result in more daylight hours when the tailwater elevation rises above 11.5 feet, and the ultimate result could be spawning at a higher level, which would be harder to maintain in spring. Whether or not the spring operation will become a problem depends on inflows. Norris emphasized that flexibility anywhere on the system particularly at John Day Dam, as well as notification of needs 2-3 days in advance, will make a big difference in BPA's ability to maintain the chum elevation boundary.

Cathy Hlebechuk (COE) asked whether the contractor needed 75-76.6 foot elevation at Bonneville forebay 24 hours a day throughout chum season, or just during a short work period? A stable elevation will be needed 24/7, Helwig said. There may be isolated operations that require a higher elevation than 75 feet. BPA asked for 3 days' notice of that in order to be sure the needed water arrives on schedule.

Dave Wills (USFWS) asked whether this request will carry over into next year. Next year will probably be more difficult because 500 feet of wall will need to be built on the shallow rock shelf, Helwig said. He will ask the contractor about construction plans and needs for next year. If the contractor has to use smaller equipment, and more flexibility is allowed, that would be good to know as soon as possible, Wagner said.

Continued monitoring of chum redds would be valuable information if we have to make a decision that might impact the contractor, Wills said. He

suggested that BPA renew its funding for chum spawning surveys this season. Norris said he will bring a description of the chum redd monitoring program to the next regularly scheduled TMT meeting on Oct. 22.

Rick Kruger (Oregon) asked, is there any value in a retrospective examination of what might have happened operating with these constraints under last year's conditions? It wouldn't make much difference from an operations standpoint because every day is vastly different during chum season, Norris said, mainly because Bonneville is at the tail end of the system which makes it hard to control. There are many variables in operating the system for chum. BPA can meet the requirement for a 75-76.6 foot elevation at Bonneville tailwater, but it could mean that at some point it will be impossible to maintain the 11.5 foot elevation for chum spawning below Bonneville.

Helwig asked what the contractor can expect as a result of today's discussion. The limitation is not a request, it's a necessity, Norris said and other TMT members agreed. Wills asked whether a definitive response to the contractor could wait until next week; Helwig said that would be fine. It would help to hear next week whether the contractor can do anything, such as using a smaller barge, to allow more flexibility for chum operations, Wagner said. NOAA would prefer to keep chum operations normal, but if this is what it takes to get the wall built at The Dalles, NOAA supported it. If an opportunity for more flexibility develops, Helwig will notify TMT. There will be regular check-ins on this issue at TMT meetings starting in November.

## ***6. Draft Water Management Plan***

Dan Feil (COE) introduced the draft 2008 Water Management Plan, available on the water management page at the COE's website. The COE has done its best to incorporate all aspects of the 2008 BiOp into the draft document, and is still working on that. Comments on the draft are due by close of business Nov. 7. Feil asked people to comment in the Word document if possible. Norris asked people to request any additional information they would like to see presented. Specific topics such as spill and transport operations aren't covered in this plan, Feil said, because they will be in the Fish Passage Plan for 2009, as specified in section 5 on page 22 of this draft.

## ***7. Scheduling TMT Year End Review***

The TMT year-end review for 2008 was scheduled for Friday, Nov. 21, at the Portland Services Building. A regular TMT meeting is scheduled for Nov. 19, and TMT did not decide today whether to cancel that meeting because, as Wills noted, that will be in the middle of chum season.

## **8. Operations Review**

**a. Reservoirs.** Grand Coulee is at elevation 1,284.1 feet, which is above its minimum elevation objective of 1,283 for the end of September. The reservoir can be expected to fill through October if water conditions allow.

Hungry Horse is at elevation 3,533.06 feet, with discharges of 2.4-2.5 kcfs. Libby is at elevation 2,440.8 feet, with outflows of 6 kcfs, beginning to ramp down to 4.7 kcfs over the next two days. Outflows of 4.7 kcfs will continue through end October.

Albeni Falls is at elevation 2060.9 feet at the Hope gage, with releases of 16-18 kcfs, increasing to 24 kcfs outflows later today. Dworshak is at elevation 1,519.9 feet with minimum outflows, still operating in undershot mode. Seven-day average flows are 21 kcfs at Lower Granite, 82.3 kcfs at McNary, and 76 kcfs at Bonneville.

**b. Fish.** This is the end of juvenile migration season, Wagner said. The only species showing any movement in the past two weeks is subyearling Chinook. Smolt passage at Lower Granite is up to 1,000 fish per day; at Little Goose, 100 per day. At Lower Monumental, the passage index increased from 10 to 171 fish recently. John Roache (BOR) asked whether these fish would make it all the way to the ocean or hold over for the winter. That is an active area of research worth an update at the TMT year end review, Wagner said. Passage indices at the other projects are 320 at McNary and 150 at Bonneville.

Adult Chinook counts are close to the 10-year average, Cindy LeFleur (Washington) said, while jack, coho and steelhead counts are above the 10-year average. The good news is that B-run steelhead numbers are 90,000, which is much higher than average. Adult Chinook passage at Lower Granite is about twice the 10-year average. Steelhead passage at Lower Granite is 109,000, well above the 10-year average of 76,000 fish.

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

**d. Water Quality.** There was nothing to report today.

## **9. Next Meeting**

The next regularly scheduled TMT meeting will be a conference call on Oct. 8, with Albeni Falls operations and chum redd monitoring on the agenda. There will be a meeting in person Oct. 22, 2008; that agenda will include a review of the 2008 treaty fishing season, Albeni Falls operations, Dworshak operations, construction of The Dalles spill wall, and planning the agenda for the year-end review. This summary prepared by consultant and writer Pat Vivian.

<b>Name</b>	<b>Affiliation</b>
Jim Adams	COE
Tony Norris	BPA
Paul Wagner	NOAA
Dave Wills	USFW
Laura Hamilton	COE
John Roache	BOR
Kyle Dittmer	CRITFC
Allen Donner	COE
Jim Barton	COE
Dan Feil	COE
Bob Diaz	Renewables
Cathy Hlebechuk	COE
Mike Langeslay	COE
Rick Kruger	Oregon
Lance Helwig	COE
Dan Feil	COE
Lori Ebner	COE

Phone:

Tom Rogers	Idaho
Cindy LeFleur	Washington
Tim Heizenrader	Cascade
Jeff Laufle	COE Seattle
Ken Brettmann	COE Seattle
Mark Miller	USFWS
Russ Halder	USFWS
Andy Dux	IDFG
Margaret Filardo	FPC
Russ George	WMC
Barry Espenson	CBB
Richelle Beck	DRA
Tom Le	Puget Sound Energy
Ruth Burris	PGE
Jennifer Miller	Susquehanna

# TECHNICAL MANAGEMENT TEAM

**BOR** : John Roache / Mary Mellema / Pat McGrane      **BPA** : Robyn MacKay / Tony Norris / Scott Bettin  
**NOAA-F**: Paul Wagner / Richard Dominique              **USFWS** : David Wills / Steve Haeseker  
**OR** : Rick Kruger / Ron Boyce                              **ID** : Russ Kiefer / Pete Hassemer  
**WDFW** : Cindy LeFleur    **MT** : Jim Litchfield / Brian Marotz  
**COE**: Jim Adams / Cathy Hlebechuk / Kevin Grode

## TMT CONFERENCE CALL

Wednesday October 08, 2008 09:00 - 10:30

1125 N.W. Couch Street, Suite 4A34  
Portland, Oregon 97209-4142  
Map Quest [\[Directions\]](#)

### CONFERENCE PHONE LINE

**NOTE NEW CONFERENCE LINE NUMBER**  
Conference call line:888-285-4585; PASS CODE = 601714

To check into the building, take the elevator to the 5th floor and the guard will issue you an ID badge if you need one and will take you down to the meeting room on the 4th floor. If you have NOT attended a TMT meeting in the past you will need to call ahead and let Jim Adams (503) 808-3938, Cathy Hlebechuk (503) 808-3942, or Kevin Grode (503) 808-3945 know, so you can be added to the TMT Visitor List and issued an ID badge. This badge may be used indefinitely. If you have attended TMT in the past you may re-use your ID badge indefinitely. If you are a federal employee you will also need to have an ID badge issued to you which can be used indefinitely.

We have had disruptions on the phone because people are not hitting 'mute' after dial in.  
**Please MUTE your Phone**

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*All members are encouraged to call Robin Gumpert with any issues or concerns they would like to see addressed.  
Please e-mail her at [rgumpert@cnnv.net](mailto:rgumpert@cnnv.net) or call her at (503) 248-4703.*

## AGENDA

1. Welcome and Introductions
2. Autumn Treaty Fishing - Kyle Dittmer, CRITC  
[\[SOR 2008-C11\]](#)
3. Albeni Falls Operations  
[\[SOR USFW/IDFG 2008-1\]](#)
4. TDA Spillwall Construction Update - Jim Adams, USCE

*Questions about the meeting may be referred to:  
[Jim Adams](#) at (503) 808-3938, or  
[Cathy Hlebechuk](#) at (503) 808-3942, or*

## **COLUMBIA RIVER REGIONAL FORUM**

### **TECHNICAL MANAGEMENT TEAM**

October 8<sup>th</sup>, 2008 Conference Call

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

Facilitator: Robin Gumpert

Notes: Erin Halton

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.

#### **Autumn Treaty Fishing SOR**

Kyle Dittmer, CRITFC, referred TMT to an Autumn Treaty Fishing SOR posted as a link to the TMT agenda. The SOR covered the period 10/7 to 10/10, requesting a 1' band constraint at Bonneville, The Dalles and John Day. Dittmer reported 466 nets in the 6 pools of the zone, and anticipates this being the final week of fishing planned for this year. The COE responded that as in the past they will provide a 1.5' hard (75' – 76.5')/ 1.0' (75.5-76.5') soft constraint at the Bonneville pool and a 1.5' soft (158.5-160') constraint at The Dalles, with emphasis on daytime hours. At John Day the COE will provide an elevation range from 262.5-265'.

**Action/Next Steps:** Dittmer will prepare a summary of 2008 Autumn Treaty fishing for the 10/22 TMT meeting.

#### **Albeni Falls Operations – USFWS/IDFG SOR #2008-1**

Russ Kiefer, ID, presented on USFWS/IDFG SOR 2008-1, posted as a link to the TMT agenda. The request to the Action Agencies is for a Lake Pend Oreille draw down to elevation 2051' by no later than 11/15, without exceeding TDG standards at Albeni Falls or any downstream projects. The SOR specifies that most of the drawdown to elevation 2051' be achieved by 11/8 if possible, as kokanee spawning has commenced earlier the last two years than in previous years. Kiefer noted that there are a few unique conditions that shaped the request for this year, including adult kokanee abundance and timing, and the constraints associated with the spill wall construction at The Dalles. The SOR also specified if kokanee spawning is in progress prior to November 15th and occurs in locations and depths that are deemed vulnerable to continued drawdown, then the Corps of Engineers shall, within 5 days of notification, complete drawdown activities even if 2051' has not been reached. The COE suggested that this year's request will require an aggressive draw down earlier than previously planned for in the Water Management Plan, to allow flexibility for water conditions to unfold over the season and still meet the 2051' elevation target. They also noted some of the specifics around the operation had been left open-ended. Kiefer acknowledged this, highlighting the challenge in anticipating precipitation and flow conditions that are yet to come. He suggested that with IDFG performing daily spawning surveys, coordination with the Action Agencies would occur as soon as spawning is observed. This would support the best possible planning for meeting the multiple needs of the system. Kiefer thanked all who were involved with the development of the SOR. The following parties weighed in on the request:

- NOAA: no objection
- BPA: no objection
- COE: no objection
- BOR: no objection
- WA: no objection
- MT: no objection
- CRITFC: no objection

**Action/Next Steps:** The COE will operate to achieve elevation 2051' by no later than 11/15. In order to do this, the Seattle District COE will request a deviation from Water Control Manual (WCM) guidance that says the lake shall be no lower than an elevation of 2054' by the end of October as well as a deviation from WCM guidance that says the lake shall not reach elevation 2051' until 11/15. The COE will coordinate with IDFG and USFWS on spawning and operational updates as we move ahead, and TMT will discuss this item at their next meeting, scheduled for 10/22.

### **The Dalles Spillwall Update**

The COE provided a brief update to TMT regarding construction work on The Dalles spillwall. The barges had been mobilized to the area, and after checking again with the contractor, it was determined that there will be no operational flexibility at this point around the Bonneville forebay range of 75' – 76.5 feet that had been discussed at the last TMT meeting. Tony Norris, BPA, also reported that the chum monitoring plan would be similar to the previous year, about three days a week, and would include counts and redd GPS tracking.

**Action/Next Steps:** BPA will provide more details on the chum monitoring plan for this year at the 10/22 meeting. Discussions at TMT will be ongoing throughout the chum spawning season.

### **10/22 Face to Face Meeting**

Agenda items include:

- 2008 Autumn Treaty Fishing Review
- Albeni Falls Operations
- The Dalles Spill Wall Update
- Operations Review

**Columbia River Regional Forum  
Technical Management Team Conference Call  
Oct. 8, 2008**

***1. Introduction***

Today's TMT call was chaired by Cathy Hlebechuk (COE) and facilitated by Robin Gumpert (DS Consulting) with representatives of COE, NOAA, BPA, BOR, FPC, Washington, Idaho 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. Autumn Treaty Fishing – SOR 2008-C11***

Kyle Dittmer (CRITFC) presented SOR 2008-C11 which requests the standard 1-foot elevation bands for Bonneville, The Dalles and John Day pools. CRITFC's net flights of the area found 466 nets, 157 of those in the Bonneville pool, 105 at The Dalles, and 204 at John Day.

For the fishery, the COE will operate Bonneville pool at 75-76.5 feet elevation as a hard constraint and 75-.5-76.5 as a soft constraint. The Dalles pool will be held at 158.5-160 feet as a soft constraint, and John Day from 262.5-265 feet. The latest tribal fish forecast is the same as last week, 210,000 adult Chinook and 315,000 adult steelhead at Bonneville. The tribal catch turned out to be undervalued, so the tribes can catch more fish. They plan to do so Oct. 7-10.

***3. Albeni Falls Operations – SOR USFWS/IDFG 2008-1***

Russ Kiefer (Idaho) presented this SOR to TMT which includes a Lake Pend Oreille lake level decision tree. The purpose of the decision tree is to balance power production needs with the needs of fish in Lake Pend Oreille.

The decision tree results in a recommendation based on the following considerations. First is the weather. NOAA and the Weather Service's forecasts of precipitation in the Columbia basin predict an equal chance of precipitation being either above or below normal. The second consideration is that adult kokanee abundance is low, and research indicates that the available gravel will be adequate this year for adult female spawning. The outlook is good for a strong adult kokanee population next year. A third consideration is that the lake level was at 2055 feet last winter, and wave action associated with dropping the lake level to 2051 will help to clean the gravel beds to keep them optimal for spawning. These are the conditions that provide good egg-to-fry survival, studies show. Fourth, chum spawning success in the lower Columbia last year was considered adequate. In addition to these four factors that are evaluated in the decision tree, an important consideration is that kokanee appear to be spawning

early this year, due to large body size (research indicates that larger fish spawn earlier) and spawning timing over the past two years.

The SOR requests a drawdown of Lake Pend Oreille to elevation 2,051 feet by Nov. 15. It aims to minimize or eliminate the need for spill at Albeni Falls and Box Canyon which tends to create TDG problems downstream. IDFG and USFWS will monitor Lake Pend Oreille for kokanee spawning activity and notify the Action Agencies if spawning appears to be occurring early. At that point, the Action Agencies would have up to five days to complete the pool drawdown, even if the lake level doesn't reach elevation 2,051 feet.

The SOR is intentionally nebulous, Kiefer explained, because rather than try to anticipate every possible scenario that could develop, USFWS and IDFG agreed to wait and see how much system flexibility BPA actually needs in light of the spill wall construction that is now happening at The Dalles Dam. There is concern about dropping Lake Pend Oreille to a level that would spread gravel out and negatively impact egg-to-fry survival. If fish are spawning deep, the Action Agencies would be encouraged to speed up the draft. In the case of an emergency, they could be requested to make changes within 24 hours.

Hlebechuk asked whether it would be a problem if the lake reaches elevation 2,051 feet by Nov. 1. Earlier than Nov. 15 would be fine, Kiefer said. The COE is currently drafting Albeni Falls and will make a deviation request from a restriction in the water control manual that the pool elevation must be no lower than 2,054 feet on Oct. 31, and 2,051 feet on Nov. 15.

The kokanee population in Lake Pend Oreille is currently threatened by lake trout and rainbow trout. Research shows that when kokanee populations decline, lake trout tend to predominate over listed bull trout, an undesirable result. Construction of The Dalles spill wall will constrain the Action Agencies' ability to change the elevation of Bonneville pool. The result will be less flexibility to meet both regional power needs and the needs of chum spawning below Bonneville Dam.

NOAA, Washington, CRITFC, BPA, Montana, COE and BOR raised no objections to implementing this SOR as written. TMT will check in on kokanee spawning at its next meeting Oct. 22 during the operations review. A second SOR for kokanee spawning will be presented to TMT in early December regarding the incubation level.

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

Both of the contractor's barges have been mobilized, but they haven't started moving the pre-cast units yet, Hlebechuk reported. The Bonneville forebay is operating at elevation 75-76.5 feet. The contractor won't know how much operating flexibility he has until additional equipment is brought onsite.

The Dalles tailwater was kept at elevation 77 feet while the largest barge (300 tons) was being moved into place, Hlebechuk said. The contractor will also need that elevation while the pre-cast units are being moved across the rock shelf into the stilling basin.

### **5. Chum Monitoring**

BPA is checking into the salvage operation, an issue TMT hasn't dealt with in a while, Norris said. Salvage means getting adults back to the hatchery. BPA will provide more detail on the chum redd monitoring plan at the next TMT meeting Oct. 22. Cindy LeFleur (Washington) provided some detail: Surveyors will comb the area around Ives Island 1-2 days a week for live and dead fish, as well as redds. Other chum spawning areas will be monitored throughout the rest of the week. The big unknown this year, Norris said, will be the impact of spill wall construction on the ability to do surveys.

### **5. Next Meeting**

The next regularly scheduled TMT meeting will be Oct. 22, 2008. A review of autumn treaty fishing, updates on the Albeni Falls operation and The Dalles spill wall construction, follow-up details on the chum monitoring plan, and initiation of spawning at Vernita Bar will be on the agenda. This summary prepared by consultant and writer Pat Vivian.

<b>Name</b>	<b>Affiliation</b>
Cathy Hlebechuk	COE
Paul Wagner	NOAA
Tony Norris	BPA
John Roache	BOR
Cindy LeFleur	Washington
Margaret Filardo	FPC
Russ George	WMC
Ruth Burris	PGE
Ken Brettmann	COE Seattle
Jim Litchfield	Montana
Dave Benner	FPC
Richelle Beck	DRA
Shane Scott	PPC
Russ Holder	USFWS Spokane
Mark Miller	USFWS Spokane
Kevin Grode	COE
Kyle Dittmer	CRITFC
Russ Kiefer	Idaho
Barry Espensen	CBB

# TECHNICAL MANAGEMENT TEAM

**BOR** : John Roache / Mary Mellema / Pat McGrane      **BPA** : Robyn MacKay / Tony Norris / Scott Bettin  
**NOAA-F**: Paul Wagner / Richard Dominique              **USFWS** : David Wills / Steve Haeseker  
**OR** : Rick Kruger / Ron Boyce                              **ID** : Russ Kiefer / Pete Hassemer  
**WDFW** : Cindy LeFleur                                        **MT** : Jim Litchfield / Brian Marotz  
**COE**: Jim Adams / Cathy Hlebechuk / Kevin Grode

## TMT MEETING

Wednesday October 22, 2008 09:00 - 12:00

1125 N.W. Couch Street, Suite 4A34  
Portland, Oregon 97209-4142  
Map Quest [\[Directions\]](#)

### CONFERENCE PHONE LINE

**NOTE NEW CONFERENCE LINE NUMBER**  
Conference call line:888-285-4585; PASS CODE = 601714

To check into the building, take the elevator to the 5th floor and the guard will issue you an ID badge if you need one and will take you down to the meeting room on the 4th floor. If you have NOT attended a TMT meeting in the past you will need to call ahead and let Jim Adams (503) 808-3938, Cathy Hlebechuk (503) 808-3942, or Kevin Grode (503) 808-3945 know, so you can be added to the TMT Visitor List and issued an ID badge. This badge may be used indefinitely. If you have attended TMT in the past you may re-use your ID badge indefinitely. If you are a federal employee you will also need to have an ID badge issued to you which can be used indefinitely.

We have had disruptions on the phone because people are not hitting 'mute' after dial in.  
**Please MUTE your Phone**

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*All members are encouraged to call Robin Gumpert with any issues or concerns they would like to see addressed.  
Please e-mail her at [rgumpert@cnnv.net](mailto:rgumpert@cnnv.net) or call her at (503) 248-4703.*

## AGENDA

1. Welcome and Introductions
2. Review and Finalize Notes / Minutes [\[Meeting Minutes\]](#)
3. Autumn Treaty Fishing - Kyle Dittmer, CRITFC  
[\[SOR 2008-C12\]](#)  
[\[Summary of Pool Operations\]](#)
4. Albeni Falls Operations Update - Lynn Melder, USACE  
[\[Fall Drawdown Plan for Albeni Falls\]](#)
5. The Dalles Spillwall Update - Cathy Hlebechuk, USACE  
[\[Fact Sheet\]](#)  
[\[The Dalles Spillwall Construction JTSM, October 21, 2008\]](#)
6. Draft Water Management Plan - Dan Feil, USACE

[\[2009 WMP\]](#)

7. Operations Review

- a. Reservoirs
- b. Fish
- c. Power System
- d. Water Quality

[\[Spill Information 2008\]](#)

8. Other

- a. Set agenda for next meeting - **November 5, 2008**

[\[Calendar 2008\]](#)



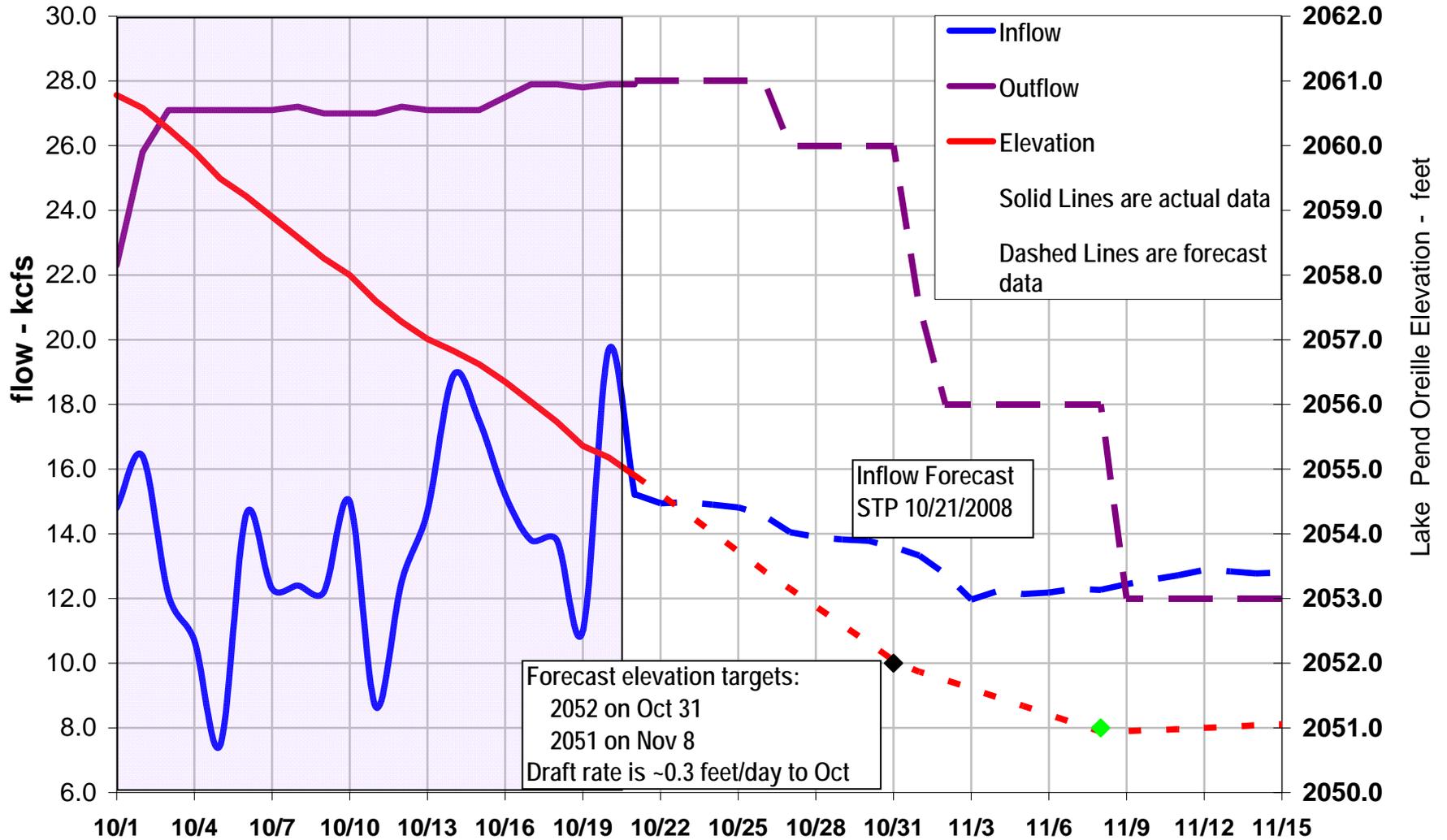
*Questions about the meeting may be referred to:*

*[Jim Adams](#) at (503) 808-3938, or*

*[Cathy Hlebechuk](#) at (503) 808-3942, or*

*[Kevin Grode](#) at (503) 808-3945.*

# 2009 FALL Drawdown Plan for Albeni Falls and Lake Pend Oreille





## COLUMBIA RIVER INTER-TRIBAL FISH COMMISSION

729 N.E. Oregon, Suite 200, Portland, Oregon 97232

Telephone (503) 238-0667

Fax (503) 235-4228

www.critfc.org

TO: Technical Management Team (TMT)  
 FROM: Kyle Dittmer, *Hydrologist - Meteorologist*, CRITFC Hydro Program  
 DATE: October 22, 2008  
 SUBJECT: Summary of Pool Operations – 2008 Autumn Treaty Fishery

CRITFC submitted six System Operation Requests (2008-C6 to C11) via the NMFS' TMT forum to support 2008 autumn treaty fishing. CRITFC requested two criteria: (1) one-foot elevation bands, and, (2) stable pool elevations during each week of treaty fishing. Criterion #1 asked to operate the pools as a hard constraint within a one-foot elevation range for all of the Zone 6 pools (i.e., Bonneville, The Dalles, and John Day). The Corps committed to a 1.5-foot range hard constraint and 1-foot soft constraint. The table summarizes the hourly compliance of CRITFC's 1-foot elevation band criteria and the Corps' 1.5-foot criteria during the 2008 and 2007 treaty fisheries. We appreciate the Corps' efforts in coming close to meeting the criteria.

<b>2008</b>	<b>Bonneville Pool</b>	<b>The Dalles Pool</b>	<b>John Day pool</b>
1 foot range (CRITFC):			
AUG 19 - 22	89%	82%	100%
AUG 26 - 29	93%	71%	100%
SEP 2 - 6	100%	96%	100%
SEP 9 - 12	100%	71%	81%
SEP 16 - 19	100%	79%	100%
SEP 22 - 26	99%	100%	100%
SEP 30 - OCT 3	100%	100%	71%
OCT 7 - 10	100%	92%	100%
average:	<b>98%</b>	<b>86%</b>	<b>94%</b>
2007 average:	97%	83%	67%
1.5 foot range (COE):			
AUG 19 - 22	100%	100%	100%
AUG 26 - 29	100%	89%	100%
SEP 2 - 6	100%	100%	100%
SEP 9 - 12	100%	94%	100%
SEP 16 - 19	100%	100%	100%
SEP 22 - 26	100%	100%	100%
SEP 30 - OCT 3	100%	100%	88%
OCT 7 - 10	100%	100%	100%
average:	<b>100%</b>	<b>98%</b>	<b>99%</b>
2007 average:	100%	90%	100%

Pool elevation data is a good objective measure as to the absolute pool fluctuations (Criterion #2) as shown in Figures 1 through 24. The Bonneville pool had 0.1 – 1.4 foot swings (compared to 0.2 – 1.2 foot swings in autumn 2007). The Dalles pool had 0.1 – 1.5/2.0 foot swings (versus 0.3 – 2.7 foot swings in autumn 2007). John Day pool had 0.1 – 0.8 foot swings (versus 0.2 – 0.7 foot swings in autumn 2007). The fishing effort was focused in the Bonneville and John Day pools. Tribal fishers caught (preliminary) 106,370 fall Chinook, 24,900 steelhead, 15,000 Coho.

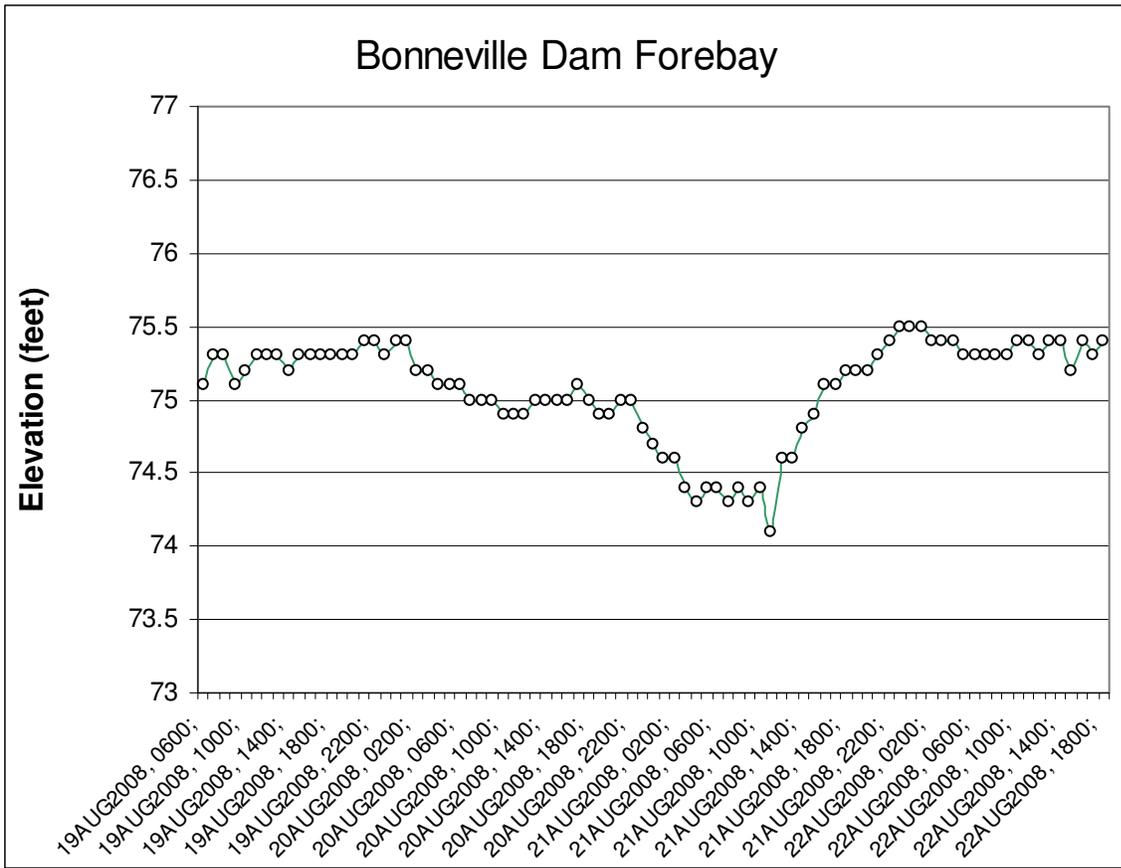


Figure 1. Observed BON pool elevations during August 19-22, 2008 autumn treaty fishing.

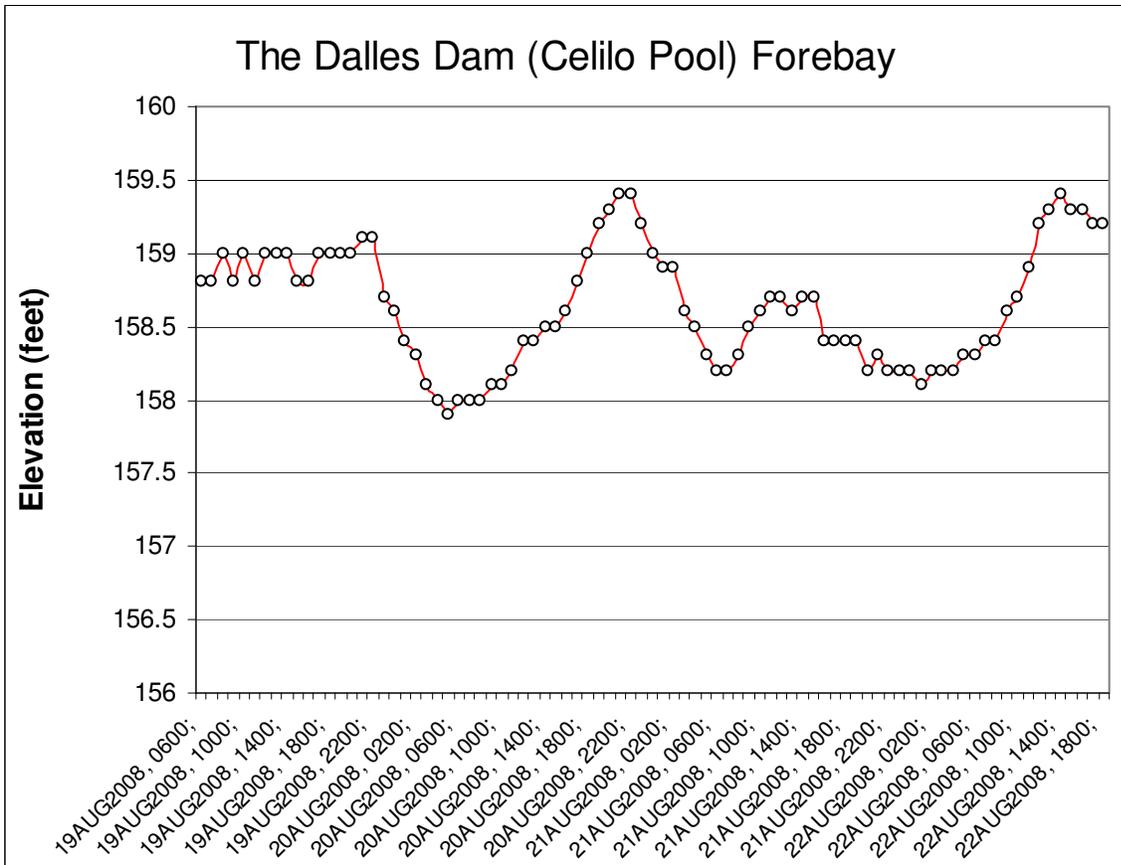


Figure 2. Observed TDA pool elevations during August 19-22, 2008 autumn treaty fishing.

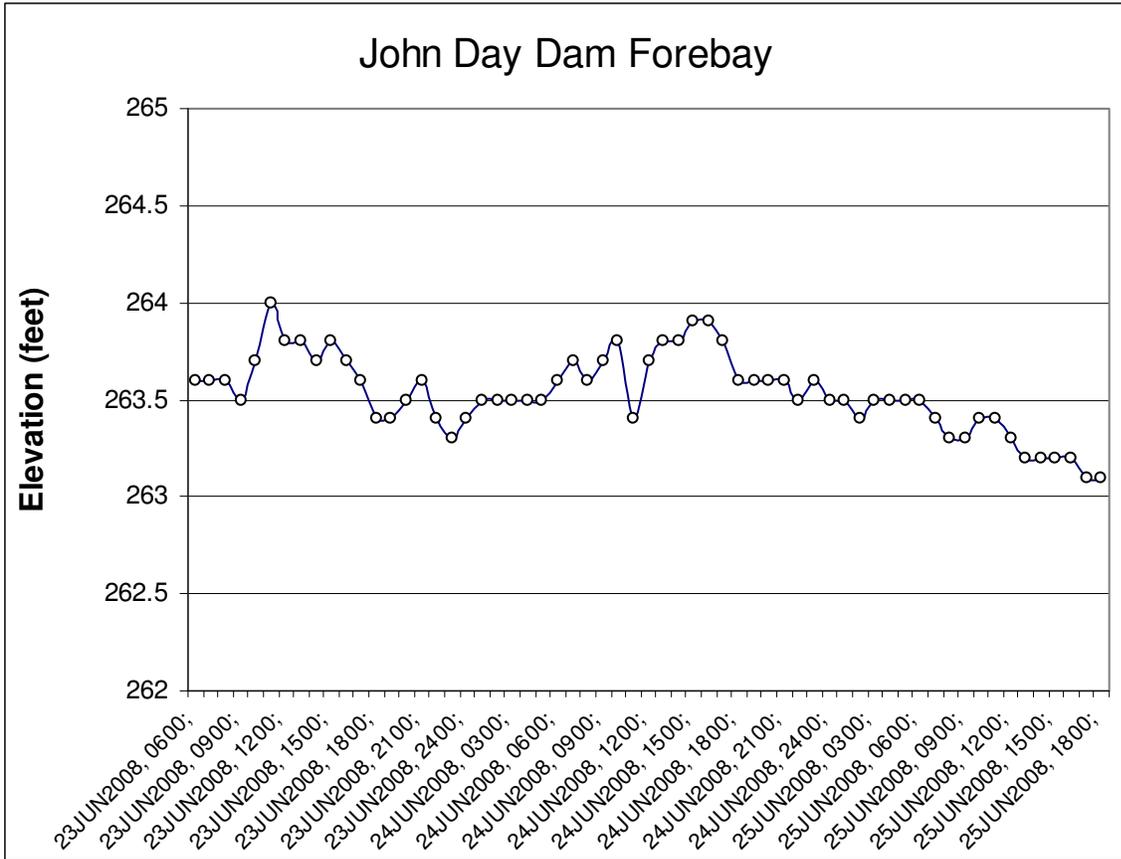


Figure 3. Observed JDA pool elevations during August 19-22, 2008 autumn treaty fishing.

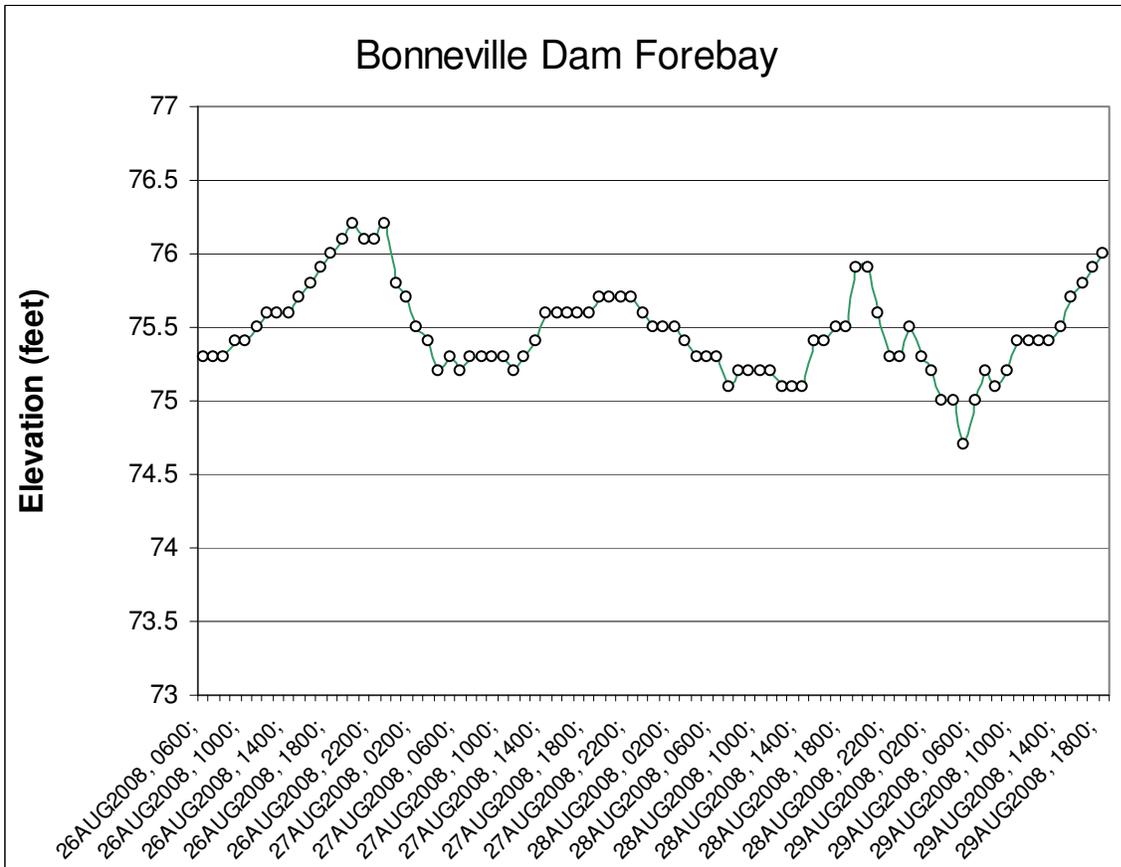


Figure 4. Observed BON pool elevations during August 26-29, 2008 autumn treaty fishing.

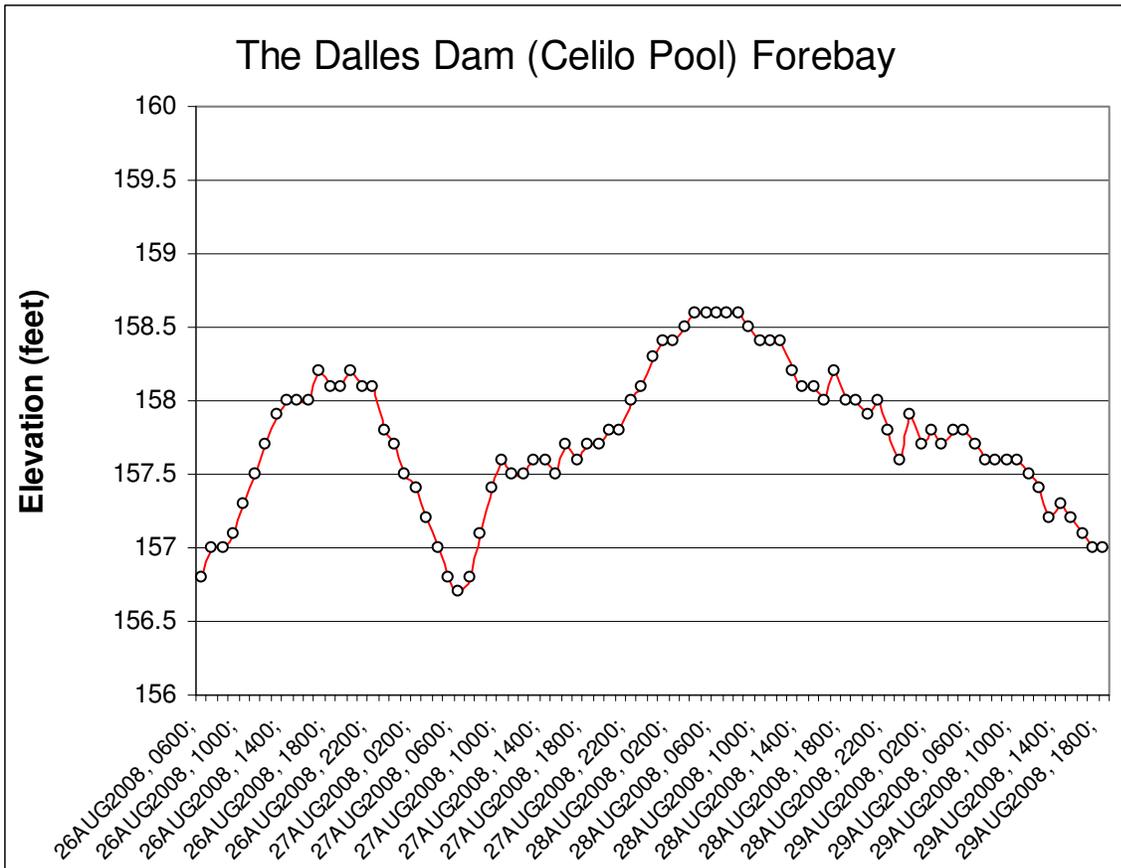


Figure 5. Observed TDA pool elevations during August 26-29, 2008 autumn treaty fishing.

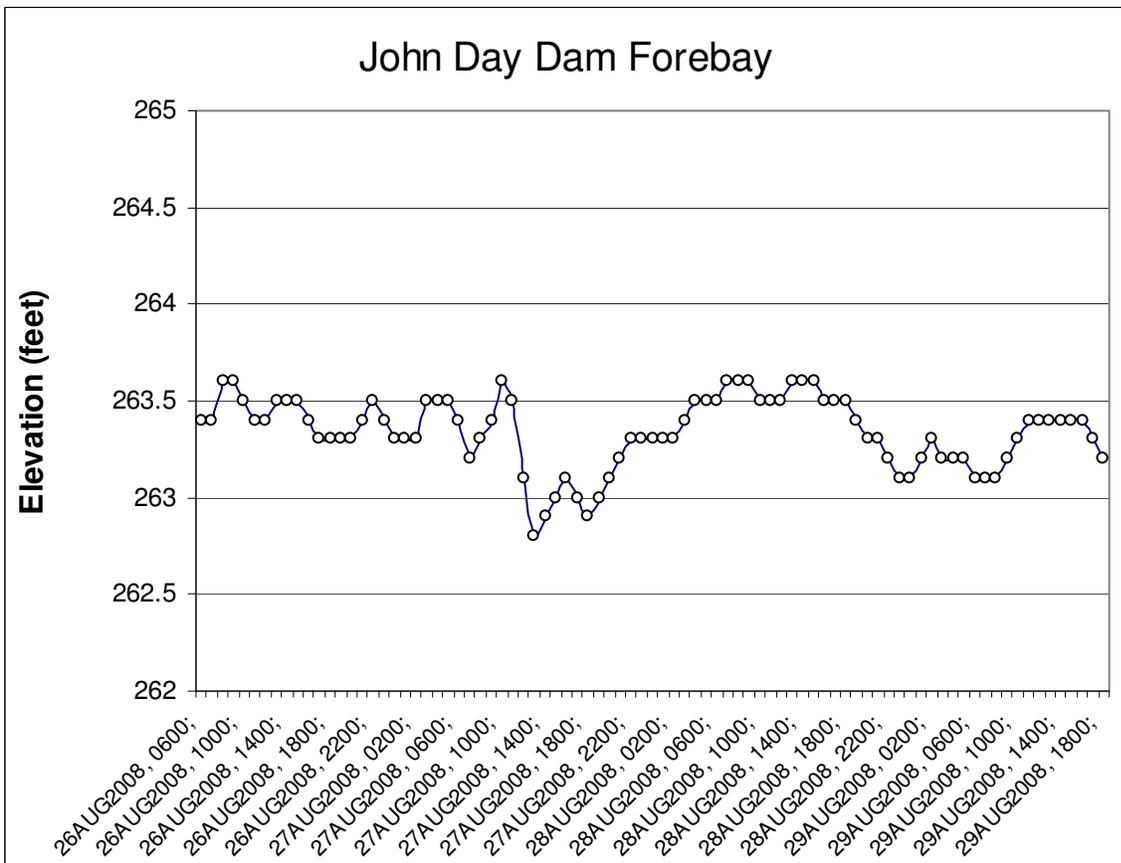


Figure 6. Observed JDA pool elevations during August 26-29, 2008 autumn treaty fishing.

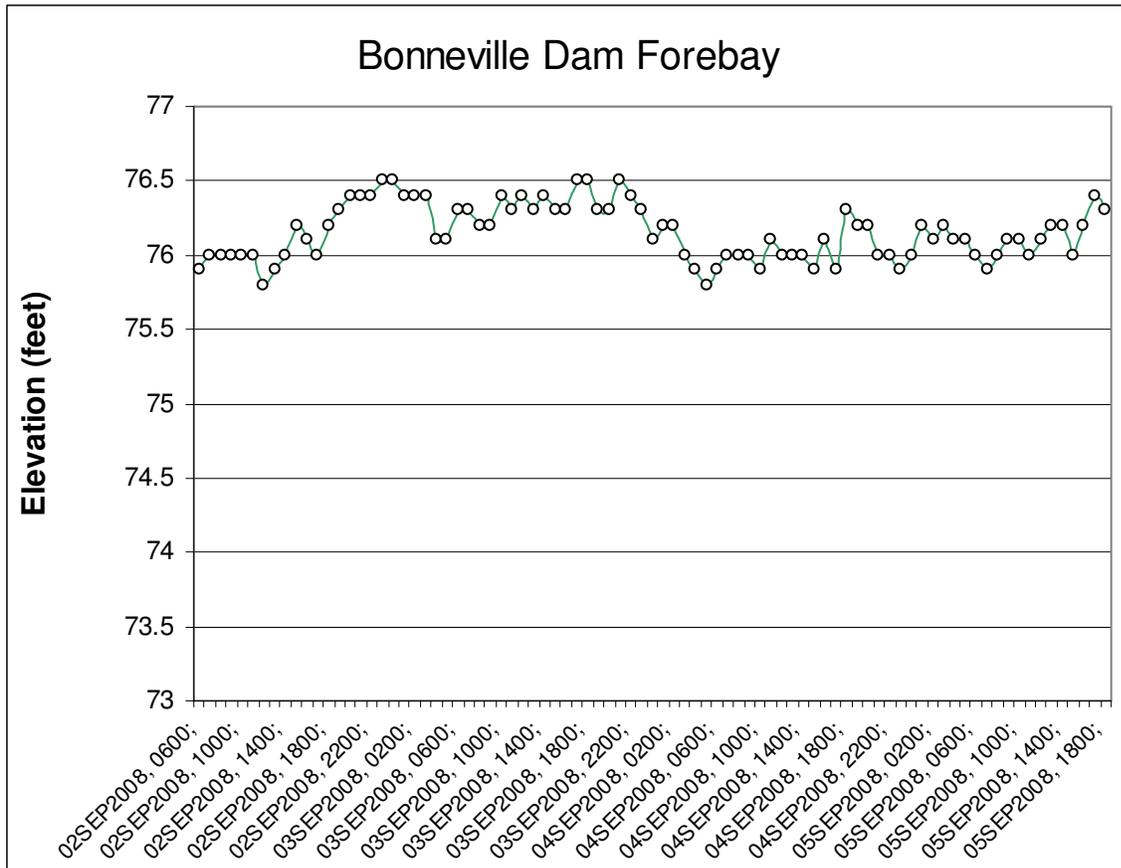


Figure 7. Observed BON pool elevations during September 2-6, 2008 autumn treaty fishing.

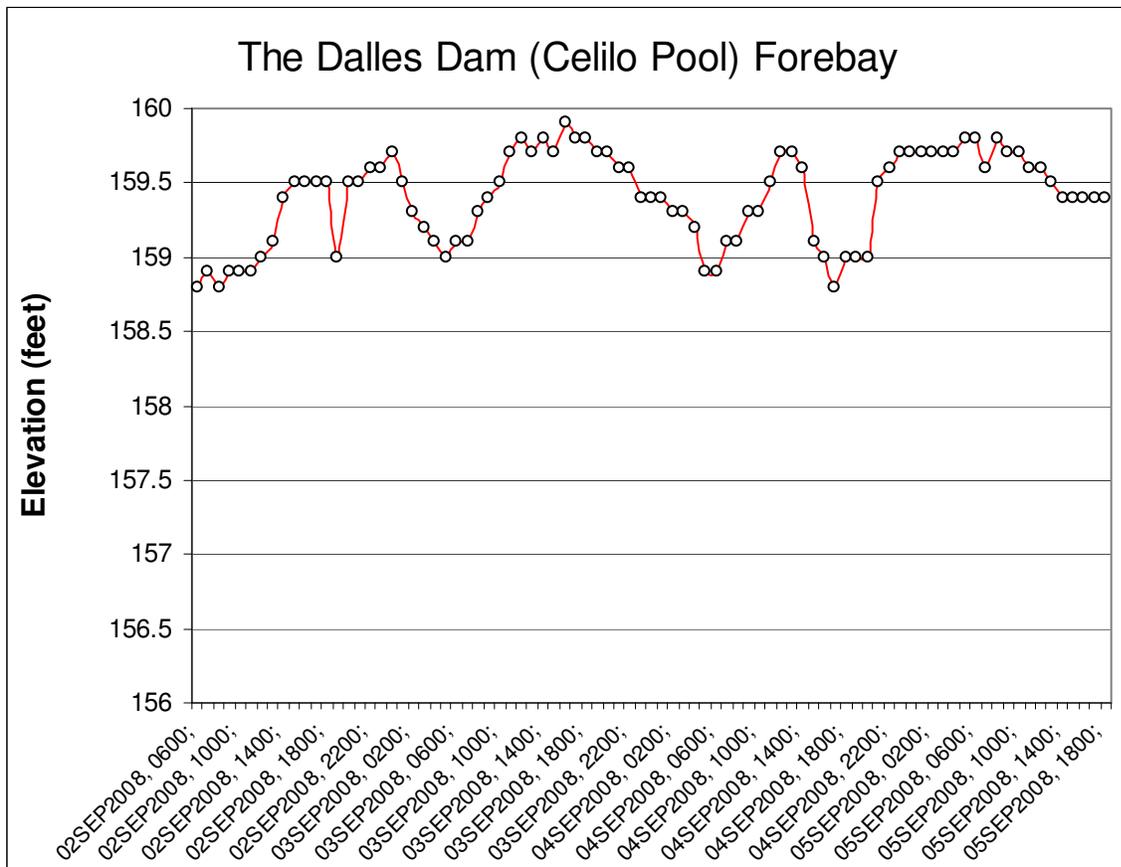


Figure 8. Observed TDA pool elevations during September 2-6, 2008 autumn treaty fishing.

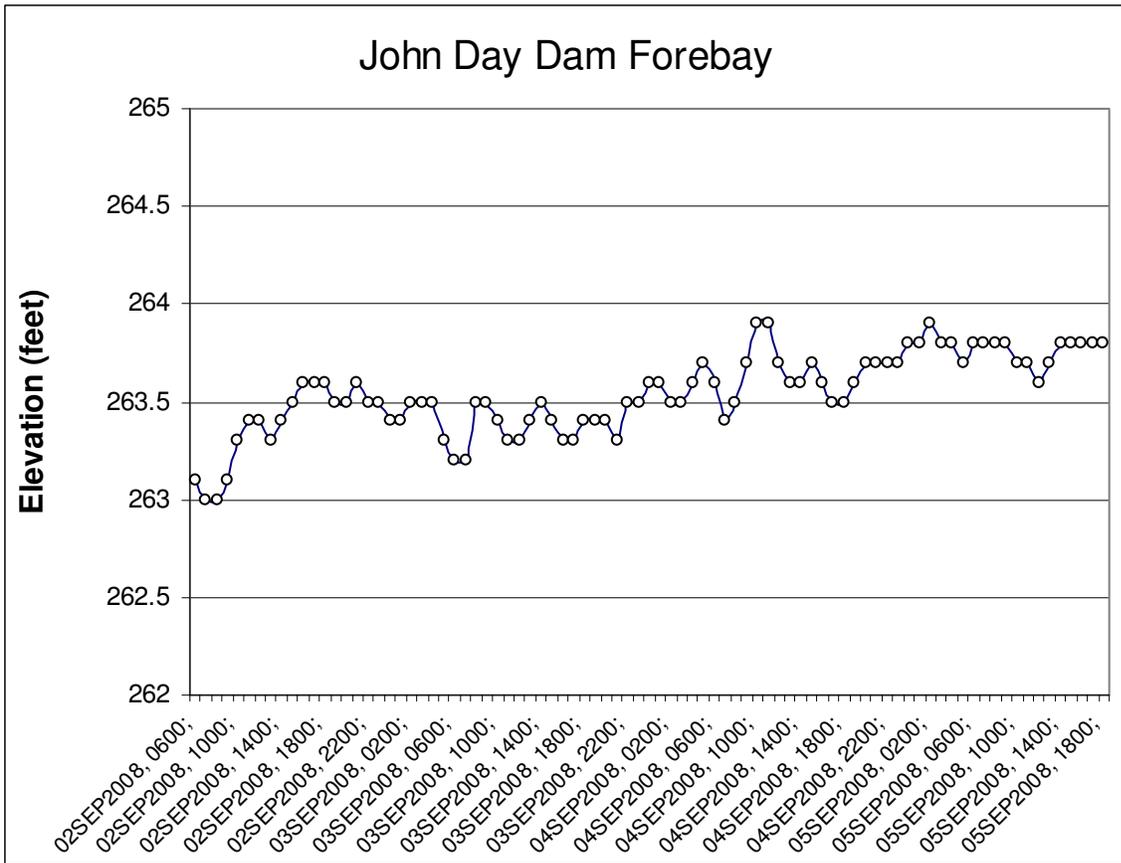


Figure 9. Observed JDA pool elevations during September 2-6, 2008 autumn treaty fishing.

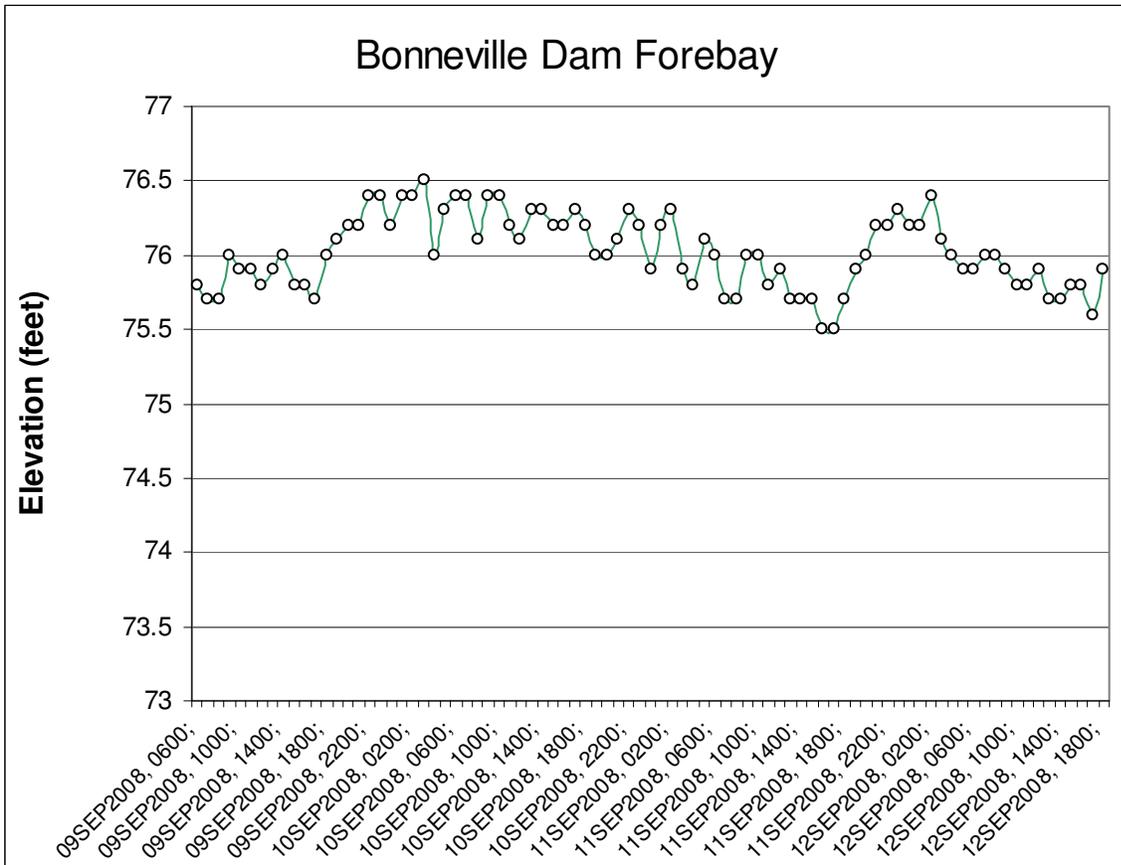


Figure 10. Observed BON pool elevations during September 9-12, 2008 autumn treaty fishing.

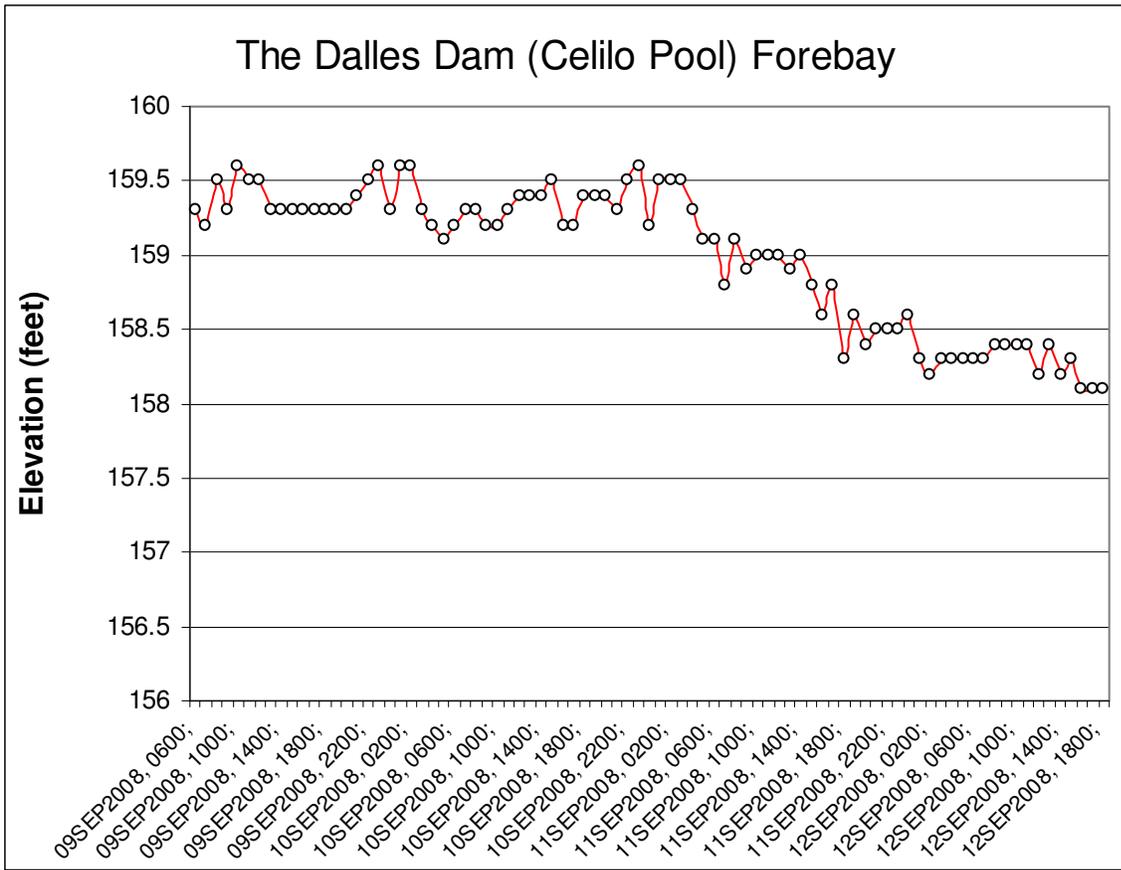


Figure 11. Observed TDA pool elevations during September 9-12, 2008 autumn treaty fishing.

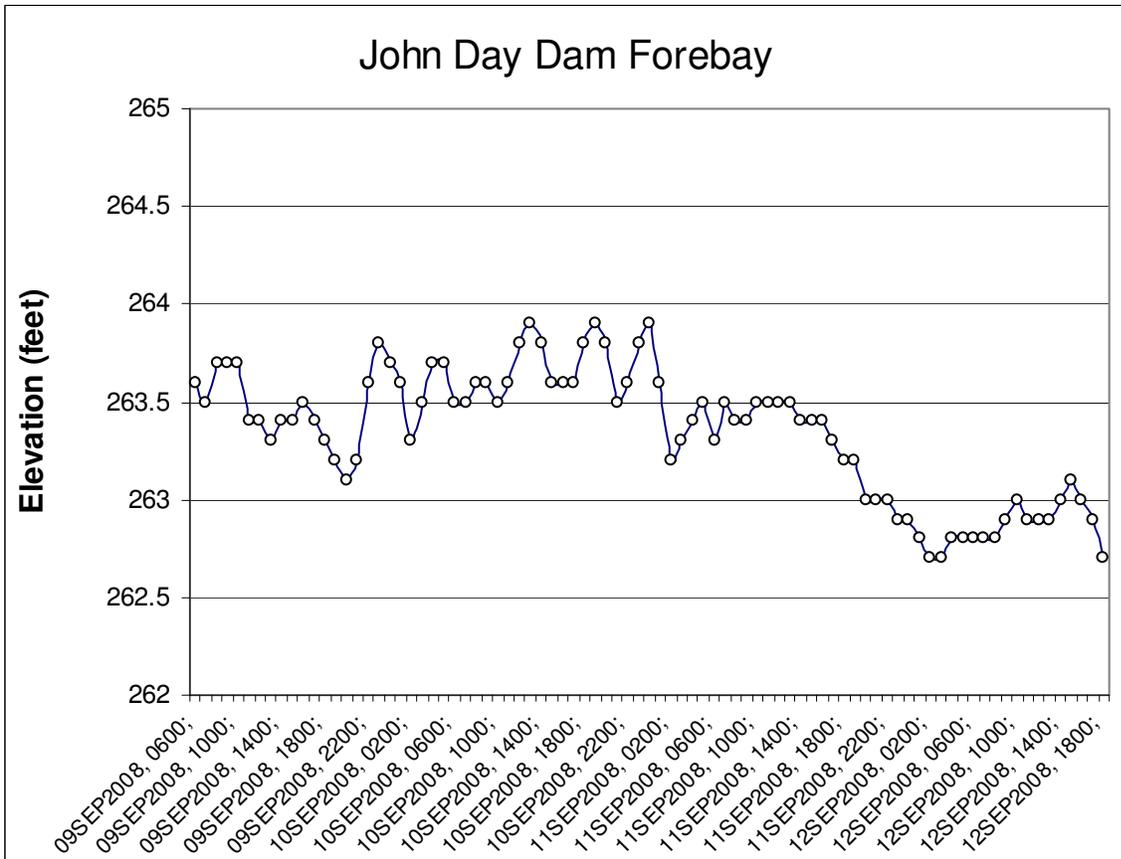


Figure 12. Observed JDA pool elevations during September 9-12, 2008 autumn treaty fishing.

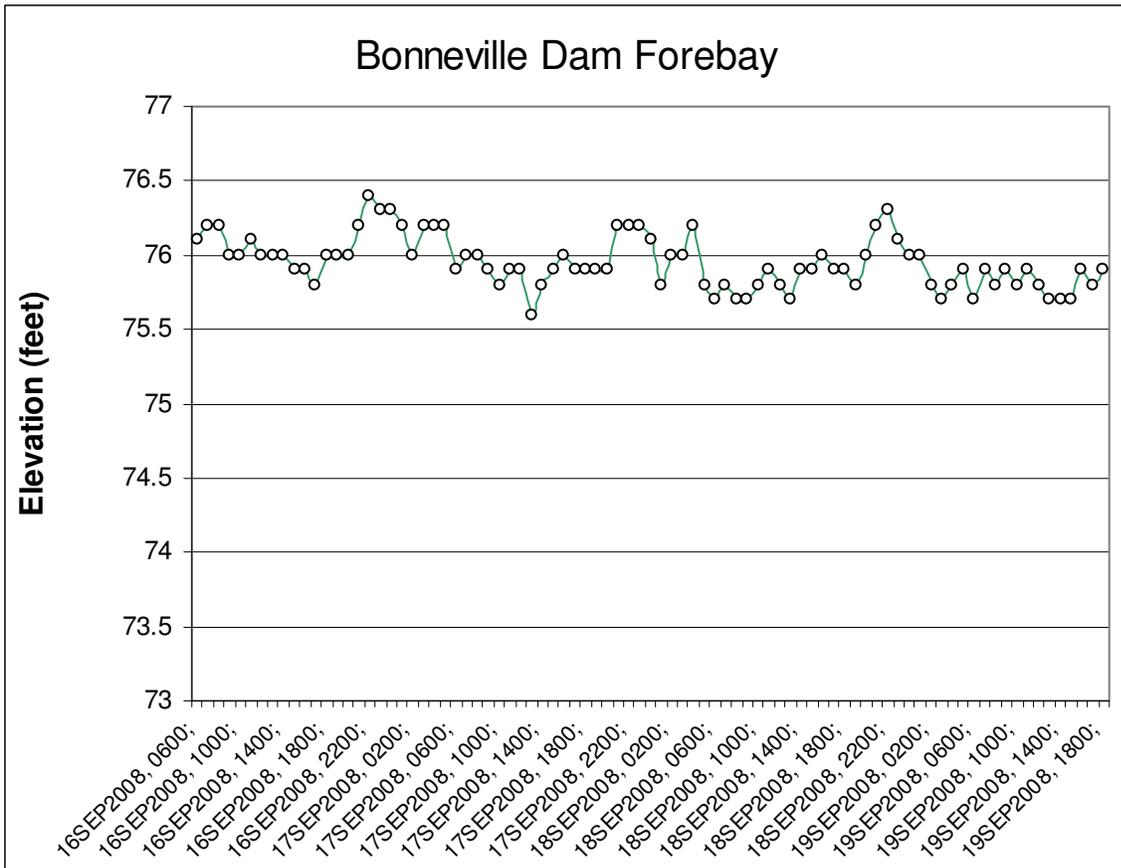


Figure 13. Observed BON pool elevations during September 16-19, 2008 autumn treaty fishing.

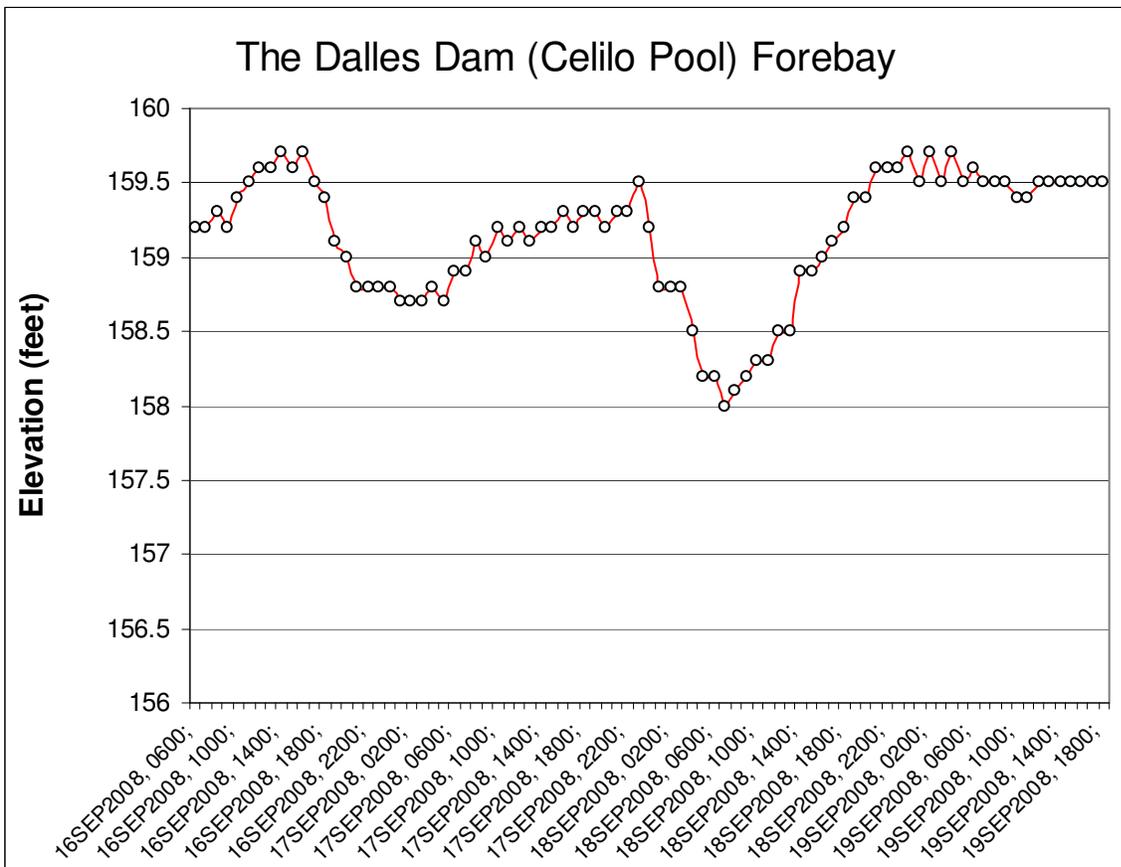


Figure 14. Observed TDA pool elevations during September 16-19, 2008 autumn treaty fishing.

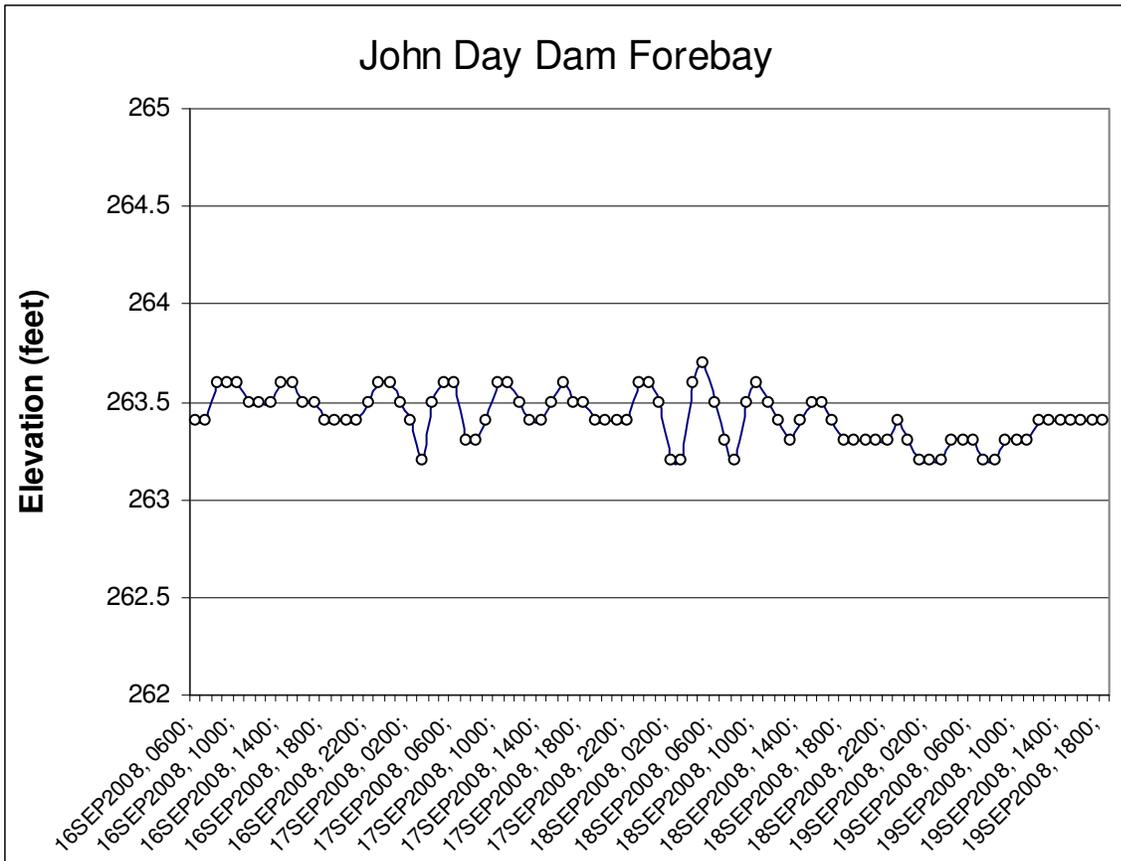


Figure 15. Observed JDA pool elevations during September 16-19, 2008 autumn treaty fishing.

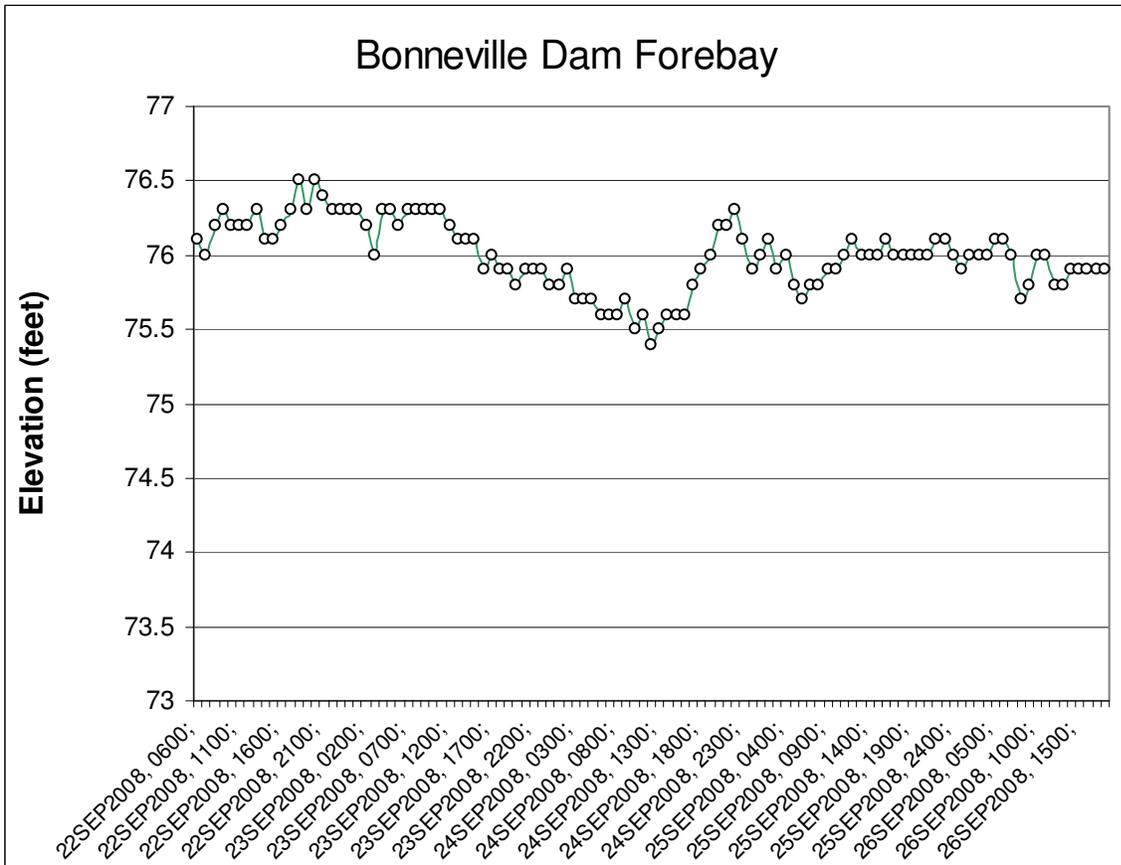


Figure 16. Observed BON pool elevations during September 22-26, 2008 autumn treaty fishing.

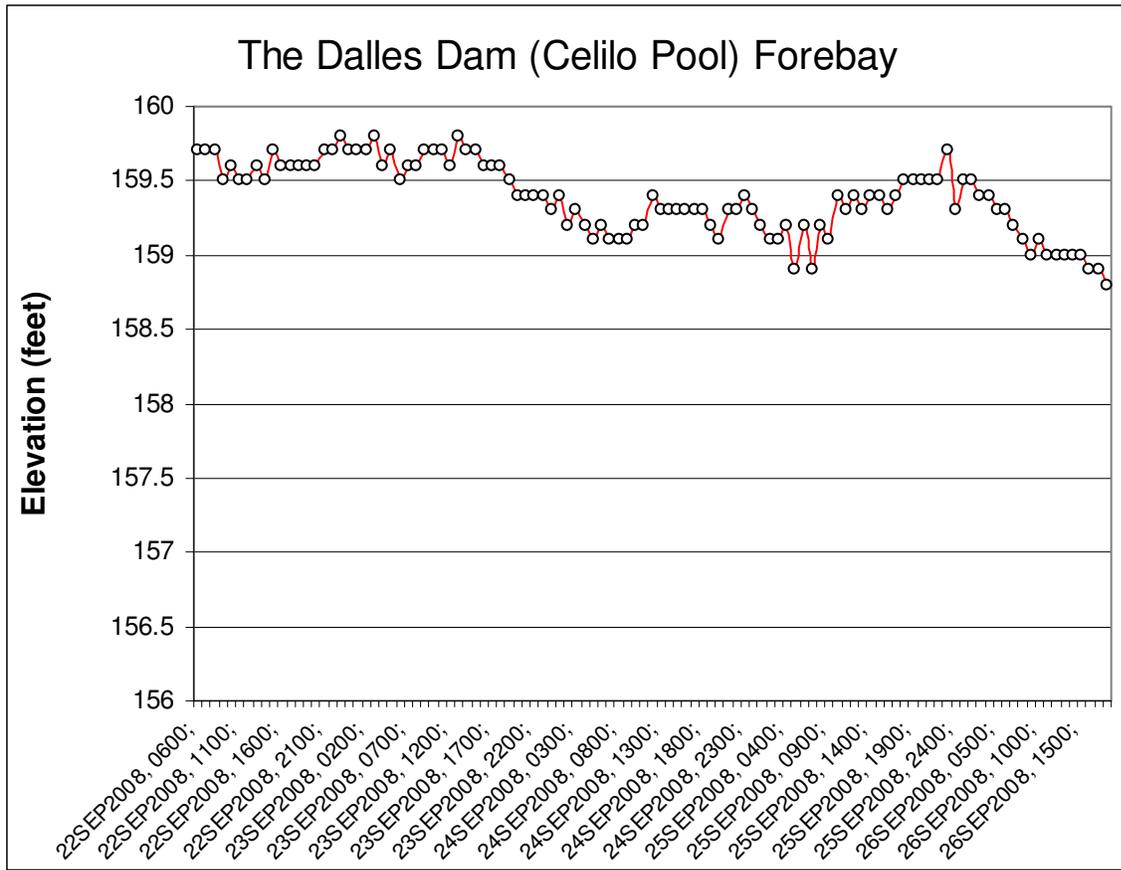


Figure 17. Observed TDA pool elevations during September 22-26, 2008 autumn treaty fishing.

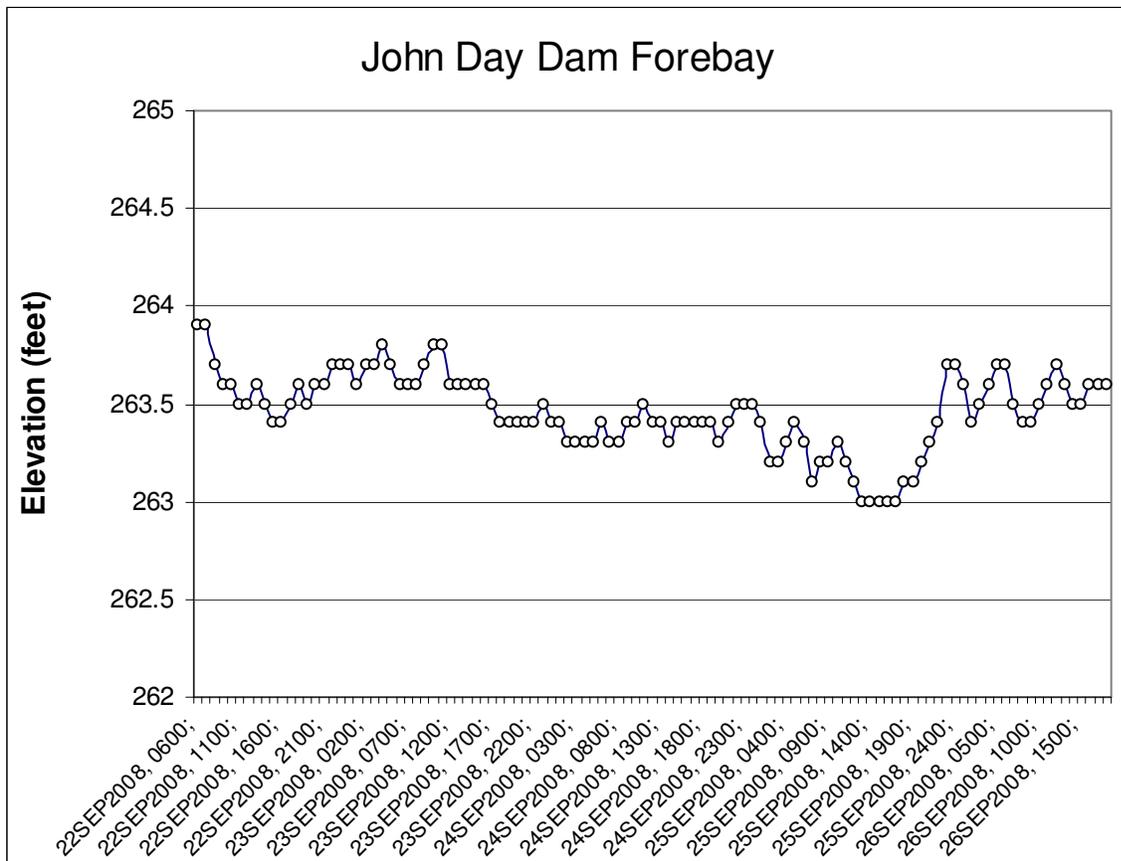


Figure 18. Observed JDA pool elevations during September 2-6, 2008 autumn treaty fishing.

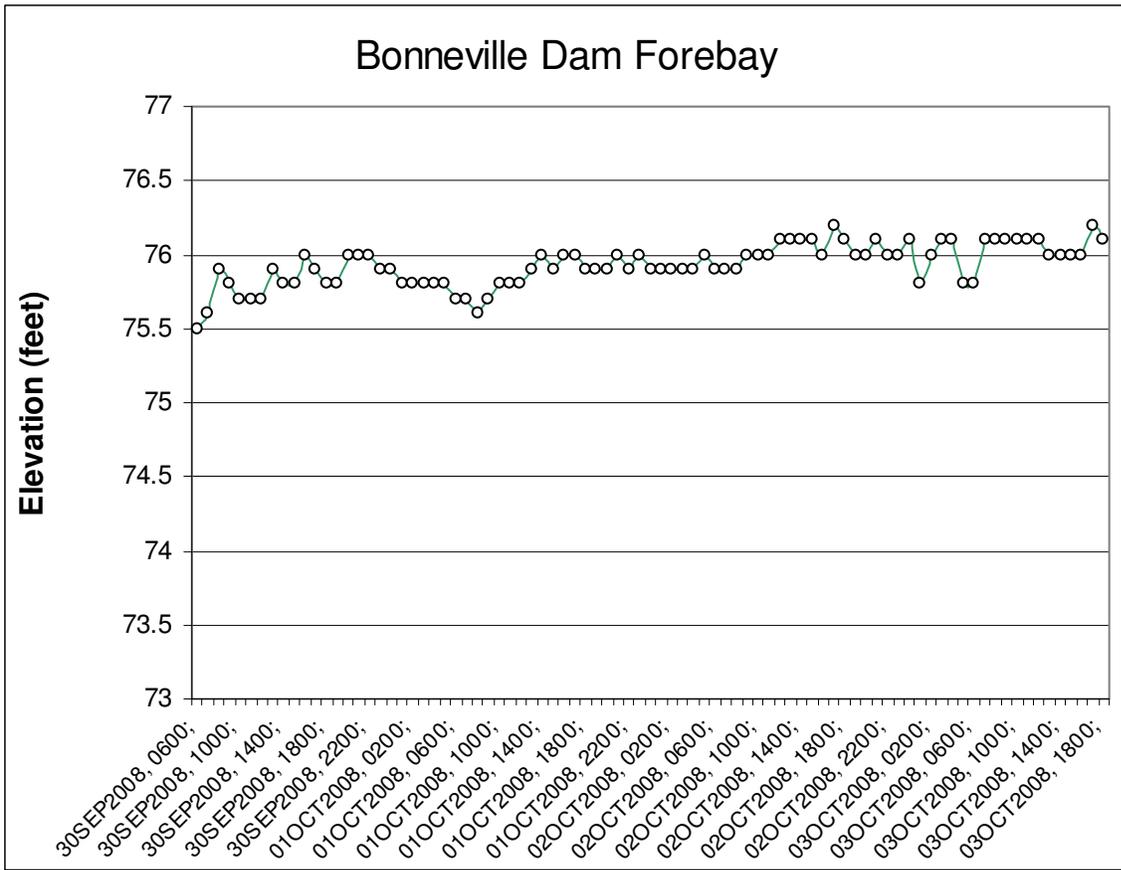


Figure 19. Observed BON pool elevations during Sept. 30-Oct. 3, 2008 autumn treaty fishing.

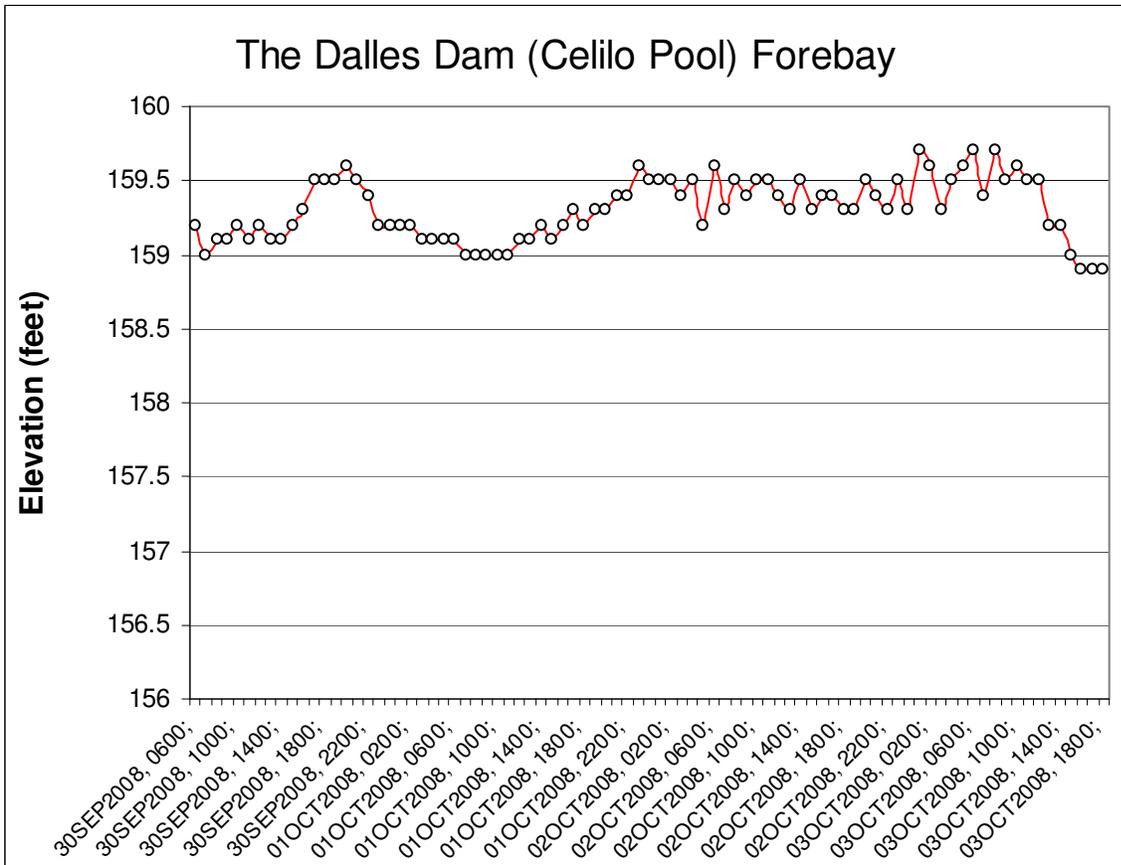


Figure 20. Observed TDA pool elevations during Sept. 30-Oct. 3, 2008 autumn treaty fishing.

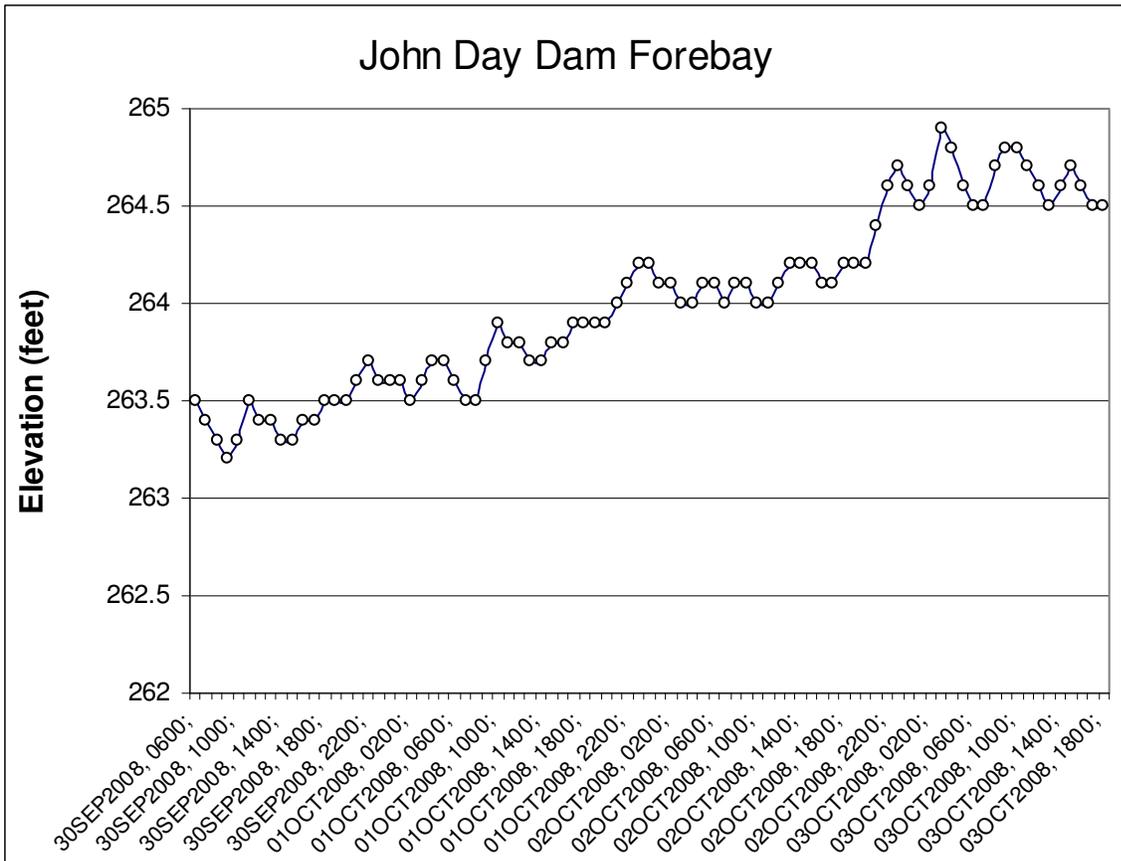


Figure 21. Observed JDA pool elevations during Sept. 30-Oct. 3, 2008 autumn treaty fishing.

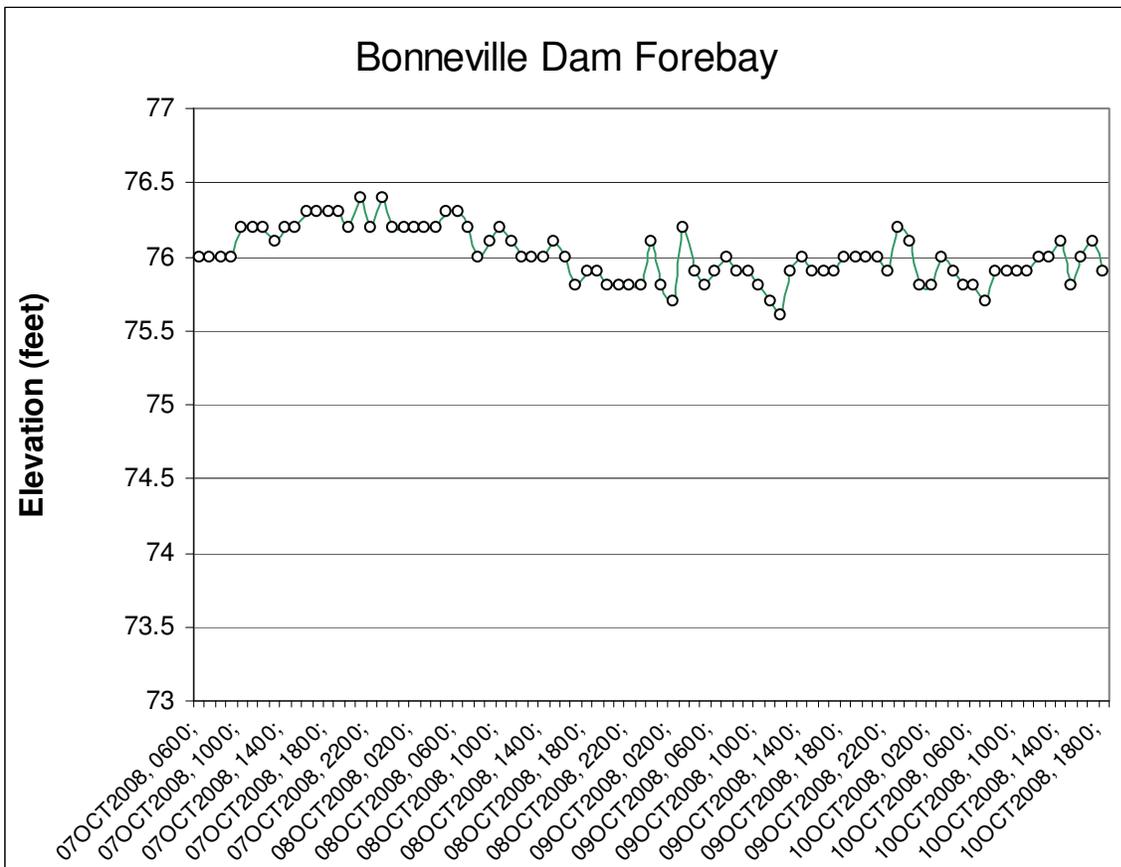


Figure 22. Observed BON pool elevations during October 7-10, 2008 autumn treaty fishing.

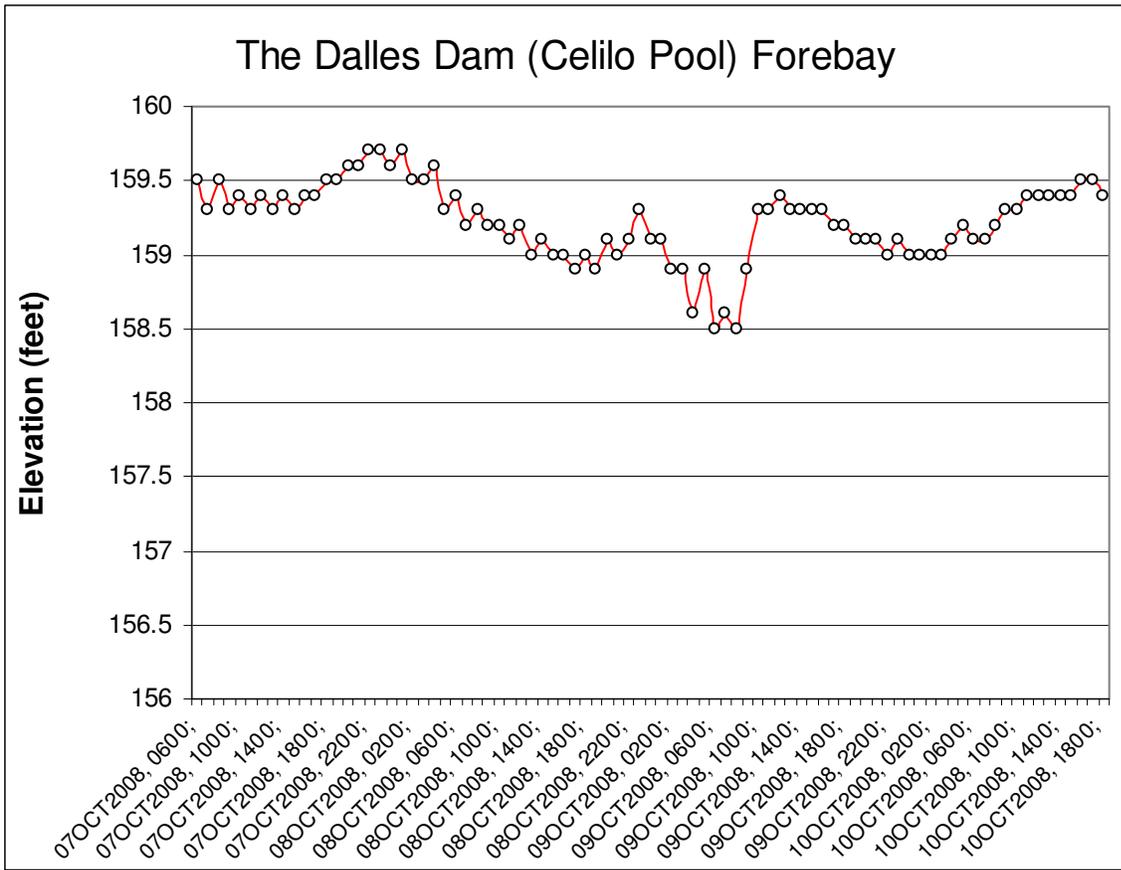


Figure 23. Observed TDA pool elevations during October 7-10, 2008 autumn treaty fishing.

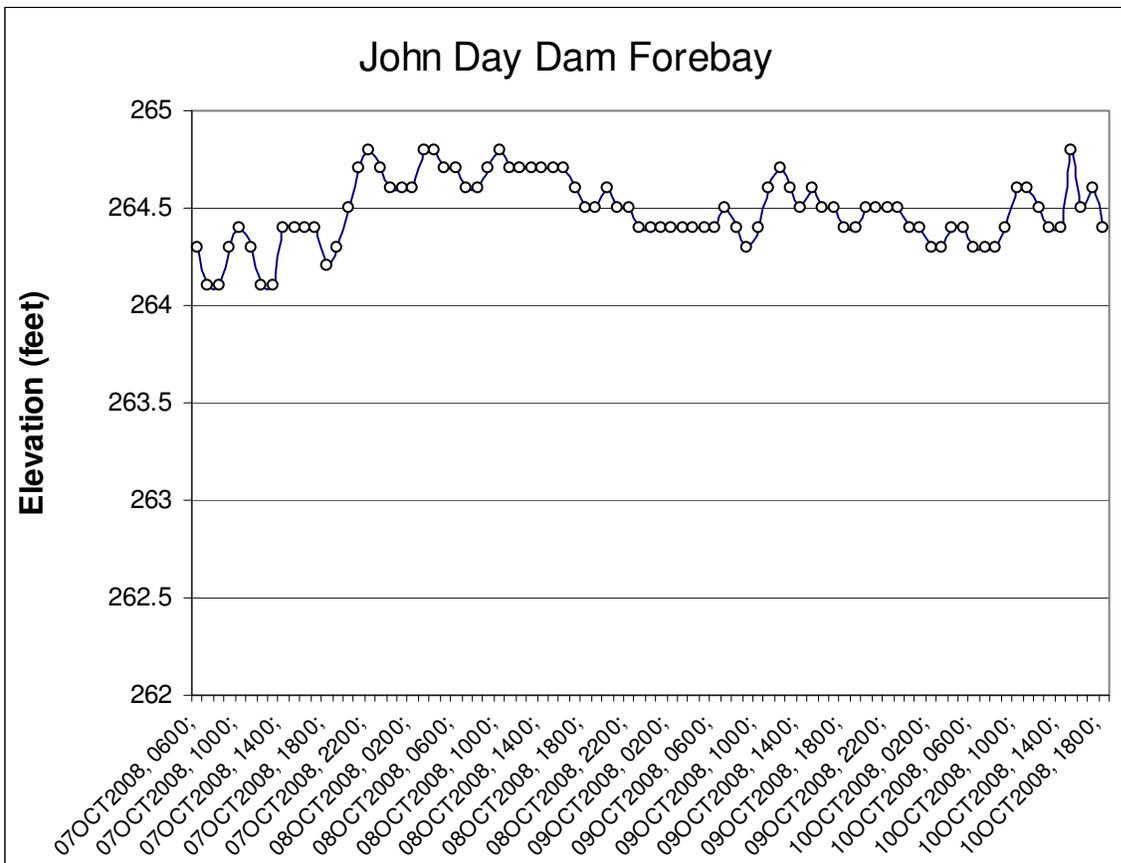


Figure 24. Observed JDA pool elevations during October 7-10, 2008 autumn treaty fishing

## **COLUMBIA RIVER REGIONAL FORUM**

### **TECHNICAL MANAGEMENT TEAM**

October 22<sup>nd</sup>, 2008 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**

The October 1<sup>st</sup> and 8<sup>th</sup> Facilitator Notes and Official Meeting Minutes had been posted, and with no further comments, were considered final. Jim Adams, COE, shared that a supplemental note had been added to the September 10<sup>th</sup> official meeting minutes and facilitator notes, to reflect the correct number for seasonal average flows at Lower Granite, which had been reported incorrectly at the meeting.

**Action:** The COE was reminded to include on the agenda item the specific notes that will be reviewed during that day's TMT meeting.

#### **Autumn Treaty Fishing**

**SOR 2008-C12:** Kyle Dittmer, CRITFC, referred TMT to the SOR posted as a link to the TMT agenda, for operations at Bonneville, The Dalles and John Day to support treaty fishing during the period 10/20-10/23. The COE responded that, as with past requests, the pools will be operated to the following: 1.5' hard/ 1.0' soft constraint at Bonneville; 1.5' soft constraint at The Dalles, with emphasis on nighttime hours; and elevation range 262.5-265 feet at John Day. This was the final treaty fishing SOR of the season.

**2008 Autumn Treaty Fishing Summary:** Dittmer provided a recap of operations for treaty fishing to date, and thanked the COE for their work in maintaining steady pools throughout the season. His data showed that the requests for steady pools had been met at all three projects at a greater percentage than in 2007, and noted that during the week of September 2 - 6, while the most number of nets were out, Bonneville was held within a half foot stability. Kyle also offered that the period August 19-22 saw the biggest fluctuations and that one net was lost at that time – likely due to debris. He added that most fishing occurred in Bonneville and John Day this season, and that catch counts to date were as follows: Fall chinook, 106,000; Steelhead, 24,900; and Coho, 15,000.

#### **Albeni Falls Operations Update**

Lynne Melder, COE, reported that a drawdown plan had been developed in response to SOR USFWS/IDFG 2008-1, for Albeni Falls operations to provide favorable kokanee spawning conditions in Lake Pend Oreille. The current elevation was 2054.9 feet, with 16 kcfs in and about 28 kcfs out. The COE was targeting a drawdown to 2052 feet on 10/31 and 2051 feet on 11/8, with a plan to draw down more aggressively up front and flatten

out later to provide flexibility later in case of a rain event. Once there, the COE planned to hold the pool at 2051-2051.5 feet through the end of spawning. The COE inquired as to when the spawning season would be declared 'over', and by whom.

**Action:** Russ Kiefer, Idaho, agreed to check with the North Idaho research team in charge of conducting daily redd counts, to find out what criteria was used in the past. He will also share with the research team the action agencies' interest in moving to more operational flexibility as soon as possible. He will share feedback at the November 5 TMT meeting.

### **The Dalles Spillwall Update**

Jim Adams, COE, reported, as had been shared at previous TMT meetings, that the Bonneville forebay pool will need to be held at 75-76.5 feet to allow contractors to move barges in and do construction work on The Dalles spillwall. No further update had been reported from the contractor at this time.

In an effort to recognize the importance of both the construction of The Dalles spillway and chum operations this year, a Joint Technical Staff Memo was submitted from the salmon managers (CRITFC, Oregon, Idaho, Washington, NOAA and USFWS) to the action agencies requesting them to provide a plan for operations to meet both needs. The salmon managers suggested that looking at operational options ahead of time will ensure the best decisions are made to support the fish while meeting all other needs of the system and staying within the range of flexibility that will be available this year. They also noted the importance of communication between everyone involved in the various efforts.

The action agencies responded that they will put into writing operational options for managing flows, and will send it out to TMT prior to the November 5 TMT meeting, for discussion at the meeting. The COE noted that additional information needs to be gathered from the contractors to inform the plan, and as information is made available, it will be shared with TMT. The COE is in daily contact with the project manager for The Dalles spillwall construction.

**Action/Next Steps:** TMT will discuss the action agencies' operations plan at the November 5 TMT meeting.

### **2009 Draft Water Management Plan**

Dan Feil, COE, referenced a link on the TMT website for the 2009 draft Water Management Plan and reminded TMT that comments are due by November 7. Several TMT members said they planned to review and submit comments in writing. One suggestion made during today's meeting was to include a Table of Contents and perhaps revise the formatting to make the document more user-friendly – as it is written, several pages of background are provided before getting into the substance of the plan.

**Action/Next Steps:** The action agencies will take this comment into consideration and look for additional comments in writing. TMT will check in on the status of comments and the draft plan at the November 5 TMT meeting.

## **Operations Review**

**Reservoirs:** Grand Coulee was at elevation 1288.1 feet, about 2 feet from full. Hungry Horse was at elevation 3530.51 feet with outflows around 2.2 kcfs. Libby was at elevation 2441.1 feet, with outflows at 4.7 kcfs and slightly filling. A draft SOR for Libby operations in November and December to support burbot was expected from the USFWS in the near future. Albeni Falls was at 2054.9 feet with outflows of 28 kcfs and inflows ranging from 11-19 kcfs. Seven day average inflows were 18.2 kcfs at Lower Granite, 94 kcfs at McNary and 107 kcfs at Bonneville. An outage at Lower Monumental was scheduled for 10/25-11/11 that will take the project to a speed/no load and spill operation. TDG is expected to increase but not to a level beyond 120%. FPOM is vetting the issue and the COE will keep the TMT informed on the issue as necessary.

**Fish:** Paul Wagner, NOAA, reported that juvenile passage was nearing the end of its season numbers, with sub yearlings in the 100-200 per day range at Lower Granite and Little Goose. Monitoring at all projects will end on 10/31. Cindy LeFleur, Washington, reported that adult numbers are decreasing, and that some chum had been observed at Grays Island (which is not directly correlated to the start of chum spawning season).

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

**Water Quality:** Nothing to report at this time.

## **Next Meeting: November 5 Face to Face**

Agenda items include:

- Albeni Falls Operations Update
- Burbot SOR
- The Dalles Spill Wall Update and Chum Operations Options Discussion
- WMP Check In
- Operations Review

**Columbia River Regional Forum  
Technical Management Team Meeting  
Oct. 22, 2008**

***1. Introduction***

Today's TMT meeting was chaired by Jim Adams (COE) and facilitated by Robin Gumpert (DS Consulting) with representatives of the COE, BPA, USFWS, NOAA, BOR, CRITFC, Montana, Idaho, Washington, 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 of Meeting Minutes***

Paul Wagner (NOAA) requested that future TMT agendas list the dates of meeting notes to be reviewed at that meeting. The facilitator's notes and official minutes for Oct. 1 and Oct 8 were up for review today. There were no comments on these, so they were deemed final.

Jim Adams pointed out a supplemental note in italics that was added to the facilitator's notes for the Sept. 10 TMT meeting to correct the report on summer flows for the lower Snake. The original report was 37.5 kcfs as a seasonal average, later amended to 57 kcfs as the actual seasonal flow average.

***3. Autumn Treaty Fishing (SOR 2008-C12 and Summary of Pool Operations)***

Kyle Dittmer (CRITFC) reported on SOR 2008-C12 for the tribes' final fishery this season, from Oct. 20-23. CRITFC's most recent net flight reported 63 nets in the lower pools, with 37 of those (59%) at Bonneville, 7 (11%) at The Dalles, and 19 (30%) at John Day. This is consistent with the prevailing pattern. As usual, in this SOR the tribes request steady pool elevations within 1-foot bands for the fishery. The COE will operate the pools as it has in the past, with a soft constraint of 1.5 feet (with emphasis on nighttime hours) and a normal operating range of 3 feet at The Dalles; and from elevation 262.5-265 feet at John Day Dam. The elevation of Bonneville pool is being held to 75.0-76.5 feet as a hard constraint and 75.5-76.5 feet as a soft constraint to accommodate construction at The Dalles.

Dittmer presented a summary of pool elevations for this year's fishery (see chart linked to today's agenda). CRITFC submitted 7 SORs for 9 weeks of autumn treaty fishing, requesting specific elevation bands within 1 foot for the three lower Columbia pools. The COE has responded with a 1-foot soft constraint and a 1.5-foot hard constraint. Hourly compliance with these criteria was very high – 98% of the time at Bonneville (a 1% increase over last year); 86% of the

time at The Dalles (3% more than last year); and 94% at John Day (27% more than last year). There were some fluctuations in pool elevations during the first week of fishing on Aug. 19-22, but the rest of the season went quite well. During the week of Sept. 2-6, elevations remained steady within half a foot – an important time for tribal fishers who had a record-setting 663 nets in the pools. Fishers really benefit from such stability. Dittmer thanked the Action Agencies for providing good conditions, which helped to make this year one of the best fisheries the tribes have ever had.

As of last week, tribal fish counts for the season were 106,000 fall Chinook, 24,900 steelhead and 50,000 coho salmon. Final counts will be available after this last week of fishing.

#### ***4. Albeni Falls Operations Update***

Lynne Melder (COE) presented a fall drawdown plan for Albeni Falls (see graph linked to today's agenda). The plan was prepared in response to a system operational request for the COE to draft Lake Pend Oreille to elevation 2,051 feet on or before Nov. 15 and to complete as much of the drawdown as possible by Nov. 8 for kokanee spawning. The COE is limiting discharges to 28 kcfs in order to avoid exceeding TDG limits downstream. The current elevation of Albeni Falls is 2,054.9 feet at the Hope gage, with inflows of 15 kcfs.

Under the drawdown plan, elevation targets are 2,052 feet on Oct. 31 and 2,051 feet on Nov. 8. The graph shows inflows as being relatively flat in the near future, with drawdown over the next week averaging 0.3 foot per day. If inflows go up, the COE will be able to increase discharges in late October and early November relative to the current plan. Once elevation 2051 is reached, the lake will be held at elevation 2051-2051.5 feet through the end of kokanee spawning.

Idaho research staff will be doing intensive redd counts at this time of year, Russ Kiefer (Idaho) said. He will consult with them and present at the next TMT meeting Idaho's proposal for determining that spawning has ended.

#### ***5. The Dalles Spillwall Update***

The elevation of Bonneville pool is being held to 75-76.5 feet as a hard constraint in order to keep contractor equipment afloat upstream for construction of the spill wall at The Dalles, Jim Adams reported. These constraints will affect chum spawning operations and will be in effect at least through March 31, 2009, until the contractor is fully demobilized from the site. The COE will keep TMT notified of any changes in operations that are required by the construction.

Paul Wagner presented a Joint Technical Staff Memo submitted to the COE by the Salmon Managers yesterday afternoon (see link on today's agenda). The JTSM asks the COE to provide details of how it plans to meet the needs of

both operations, the spill wall construction at The Dalles and chum spawning below Bonneville. Both operations are essential. What potential steps are the Action Agencies taking to provide assurance that the chum operation goes as smoothly as possible? Is there any additional flexibility in reservoir operations to provide greater assurance that chum operational needs will be met? The Salmon Managers want to take a proactive approach to any potential problems with the operation this year. These should be discussed well in advance to avoid last-minute decision making.

Tony Norris (BPA) wondered whether it's possible that considerations for a different specification than the usual 11.5-foot tailwater elevation might arise. The COE received the JTSM yesterday afternoon and was not yet in a position to comment on it today, Adams said. TMT will revisit this issue at its next meeting. Meanwhile, the Action Agencies will put together a plan for hydrosystem operations to provide for chum spawning conditions below Bonneville Dam for discussion at the November 5<sup>th</sup> TMT meeting.

## **6. Draft Water Management Plan**

Comments on the draft 2009 WMP, linked to today's agenda, are due by Nov. 7. The COE is looking for comments on whether the water management plan has been fully updated in accordance with the 2008 BiOp and the Columbia fish accords, Dan Feil said. CRITFC, USFWS, Washington and NOAA indicated they will be submitting comments. There was discussion of the document's purpose. It needs a table of contents and more concise focus on operations, Wagner said. Feil and Norris characterized the WMP as a quick reference to operations contained in the new BiOp. The WMP needs to be organized and accessible while containing enough detail to describe operations comprehensively. This year the WMP is organized by project instead of by subject, but more organization remains to be done. TMT will revisit the WMP review at its next meeting.

## **7. Operations Review**

**a. Reservoirs.** Grand Coulee is at elevation 1,288 feet, 2 feet from full. Hungry Horse is at elevation 3,530.51 feet, discharging 2.2 kcfs for the Columbia Falls minimum.

Libby is at elevation 2,441.1 feet, with fluctuating inflows and outflows of 4.7 kcfs. This operation will continue at least through end October. The COE anticipates a system operational request that outflow temperatures be kept as low as possible through November and December for burbot.

Albeni Falls is at elevation 2,054.9 at the Hope gage, drafting slowly, with inflows of around 11-19 kcfs. Dworshak is at elevation 1,519.2, maintaining outflows of 1.6 kcfs. Inflows are ranging from 1.0-1.8 kcfs.

Seven-day average inflows at Lower Granite are 18.2 kcfs; at McNary, 94 kcfs; at Bonneville, 107 kcfs.

An outage at Lower Monumental is scheduled for Oct. 25-Nov. 11, Adams reported. The operation, which has already been vetted by FPOM, will require speed-no-load using unit 5 and spilling the remainder of the flow. It will probably produce elevated TDG levels downstream, but not expected to be greater than 115%.

**b. Fish.** This will probably be the last report for the year on juvenile migration, Wagner said. Collection and monitoring stops on Oct. 31 at Bonneville, Lower Granite and Little Goose. Fall Chinook are the only fish migrating now, averaging a couple hundred a day at Lower Granite and Bonneville, and around 100 a day at Little Goose. Adult migration is the same as reported at the last TMT meeting, Cindy LeFleur (Washington) reported. There was discussion of when the chum operation will start at Bonneville. A total of 7 chum have passed Bonneville this week, and surveying below Ives Island for chum redds has already begun, LeFleur said. Chum have also been observed in the Grays River, which indicates that spawning operations will probably begin the first or second week of November.

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

**d. Water Quality.** There was nothing to report today.

## **9. Next Meeting**

The next regularly scheduled TMT meeting will be Nov. 5, 2008. Options for meeting the operational needs of both chum spawning and spill wall construction, an Albeni Falls update, the WMP, and the standard operations review will be on the agenda. This summary prepared by consultant and writer Pat Vivian.

<b>Name</b>	<b>Affiliation</b>
Jim Adams	COE RCC
Tony Norris	BPA
Dave Wills	USFWS
Paul Wagner	NOAA
Dennis Schwartz	COE RCC
John Roache	BOR
Kyle Dittmer	CRITFC
Kevin Grode	COE RCC
Dan Feil	COE RCC
Scott Bettin	BPA
Tim Heizenrader	Cascade

Bob Diaz  
Cindy LeFleur  
Ruth Burris  
Don Faulkner  
Shane Scott  
Daniel Spear  
Russ Kiefer

Renewables  
Washington  
PGE  
COE RCC  
PPC  
BPA  
Idaho

Phone:

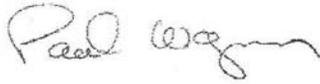
Jim Litchfield  
Steve Hall  
Lynne Melder  
Ken Brettmann  
Margaret Filardo  
Richelle Beck  
Barry Espensen  
Russ George  
Tom Le  
Karl Kanbergs  
Todd Cook  
Mike Butchko

Montana  
COE Walla Walla  
COE Seattle  
COE Seattle  
FPC  
DRA  
CBB  
WMC  
Puget Sound Energy  
COE  
Pacifcorp  
Powerex

# State, Federal and Tribal Fishery Agencies Joint Technical Staff Memo

*Columbia River Inter-Tribal Fish Commission  
Idaho Department of Fish and Game  
Oregon Department of Fish and Wildlife  
Washington Department of Fish and Wildlife  
NOAA National Marine Fisheries Service  
U.S. Fish and Wildlife Service*

TO: James Adams, US Army Corps of Engineers  
Tony Norris, Bonneville Power Administration  
John Roache, Bureau of Reclamation



FROM: Paul Wagner, Chairperson  
Fish Passage Advisory Committee

SUBJECT: The Dalles Dam Spill Wall Construction

DATE: October 21, 2008

At the October 1, 2008 Technical Management Team meeting the US Army Corps of Engineers (COE) provided an update on The Dalles Dam spill wall construction. We recognize that this is a regionally supported construction project intended to improve survival of migrating juvenile salmonids at this project. The COE advised the TMT that in order to accommodate the construction and the equipment being used by their contractor, the COE needs to maintain the Bonneville forebay elevation between 75-76.5' 24-hours a day during the in-water work season.

The Bonneville Dam forebay would normally be operated with an elevation range allowing more flexibility to achieve the identified tailwater elevation during the chum spawning season. We are concerned, as are the Action Agencies, that the limitation on the Bonneville Dam forebay elevation could impact the ability to provide appropriately protective chum spawning conditions below Bonneville Dam in November and December. We believe the loss of the Bonneville forebay flexibility necessitates greater reliance on the flexibility of upstream projects to successfully manage the flow to provide tailwater elevations at Bonneville Dam.

We appreciate the Action Agencies alerting TMT in a timely fashion. We are committed to working with the Action Agencies to identify the best possible alternatives for meeting the multiple uses of the hydrosystem given the limited flexibility at Bonneville Dam. To move this effort forward, we request that the COE and BPA provide us with their plan for hydrosystem operation to provide chum spawning conditions below Bonneville Dam. We will review it for any potential biological concerns and, if appropriate, provide alternatives for your consideration to help insure that construction of the spillway wall at The Dalles Dam and ESA obligations for chum salmon spawning conditions are met. We look forward to working with the Action Agencies on addressing this situation.

# TECHNICAL MANAGEMENT TEAM

**BOR** : John Roache / Mary Mellema / Pat McGrane      **BPA** : Robyn MacKay / Tony Norris / Scott Bettin  
**NOAA-F**: Paul Wagner / Richard Dominique              **USFWS** : David Wills / Steve Haeseker  
**OR** : Rick Kruger / Ron Boyce                              **ID** : Russ Kiefer / Pete Hassemer  
**WDFW** : Cindy LeFleur                                         **MT** : Jim Litchfield / Brian Marotz  
**COE**: Jim Adams / Cathy Hlebechuk / Kevin Grode

## TMT MEETING

Wednesday November 5, 2008 09:00 - 12:00

1125 N.W. Couch Street, Suite 4A34  
Portland, Oregon 97209-4142  
Map Quest [\[Directions\]](#)

### CONFERENCE PHONE LINE

**NOTE NEW CONFERENCE LINE NUMBER**  
Conference call line:888-285-4585; PASS CODE = 601714

To check into the building, take the elevator to the 5th floor and the guard will issue you an ID badge if you need one and will take you down to the meeting room on the 4th floor. If you have NOT attended a TMT meeting in the past you will need to call ahead and let Jim Adams (503) 808-3938, Cathy Hlebechuk (503) 808-3942, or Kevin Grode (503) 808-3945 know, so you can be added to the TMT Visitor List and issued an ID badge. This badge may be used indefinitely. If you have attended TMT in the past you may re-use your ID badge indefinitely. If you are a federal employee you will also need to have an ID badge issued to you which can be used indefinitely.

We have had disruptions on the phone because people are not hitting 'mute' after dial in.  
**Please MUTE your Phone**

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*All members are encouraged to call Robin Gumpert with any issues or concerns they would like to see addressed.  
Please e-mail her at [rgumpert@cnmv.net](mailto:rgumpert@cnmv.net) or call her at (503) 248-4703.*

## AGENDA

1. Welcome and Introductions
2. Review October 1, 8 and 22, 2008 [\[Meeting Minutes\]](#)
3. Vernita Bar - Russell Langshaw, Grant PUD  
[\[Vernita Bar Redd Survey\]](#)
4. The Dalles Spillwall Update and Chum Operations Options Discussion  
[\[Draft Chum Operations Plan\]](#)
5. Burbot SOR  
[\[SOR 2008-FWS3\]](#)
6. Albeni Falls Operations Update  
[\[Albeni Falls Drawdown Plan\]](#)
7. WMP Check In

8. Operations Review

- a. Reservoirs
- b. Fish
- c. Power System
- d. Water Quality

9. Other

- a. Set agenda for next meeting - **November 19, 2008**

[\[Calendar 2008\]](#)



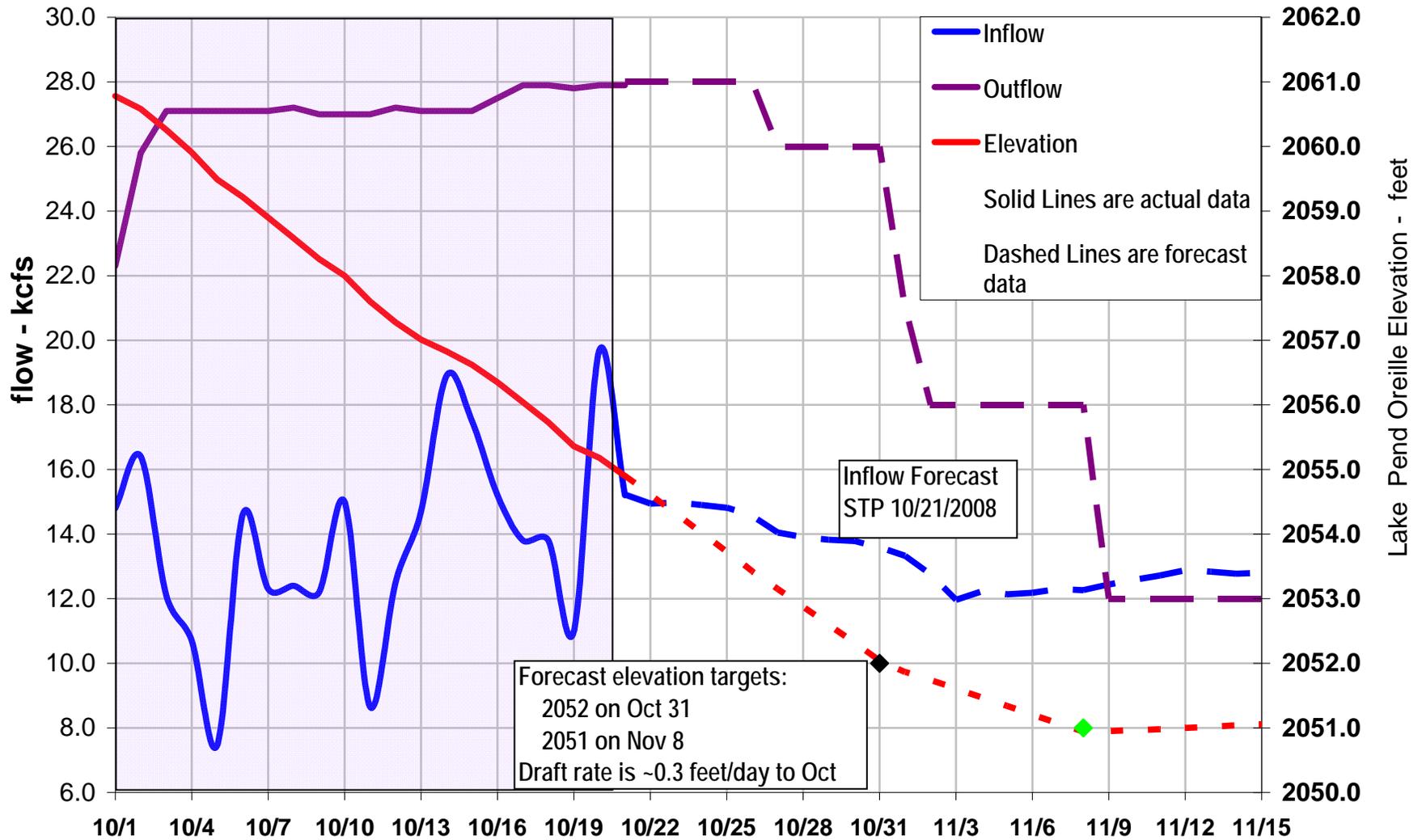
*Questions about the meeting may be referred to:*

*[Jim Adams](#) at (503) 808-3938, or*

*[Cathy Hlebechuk](#) at (503) 808-3942, or*

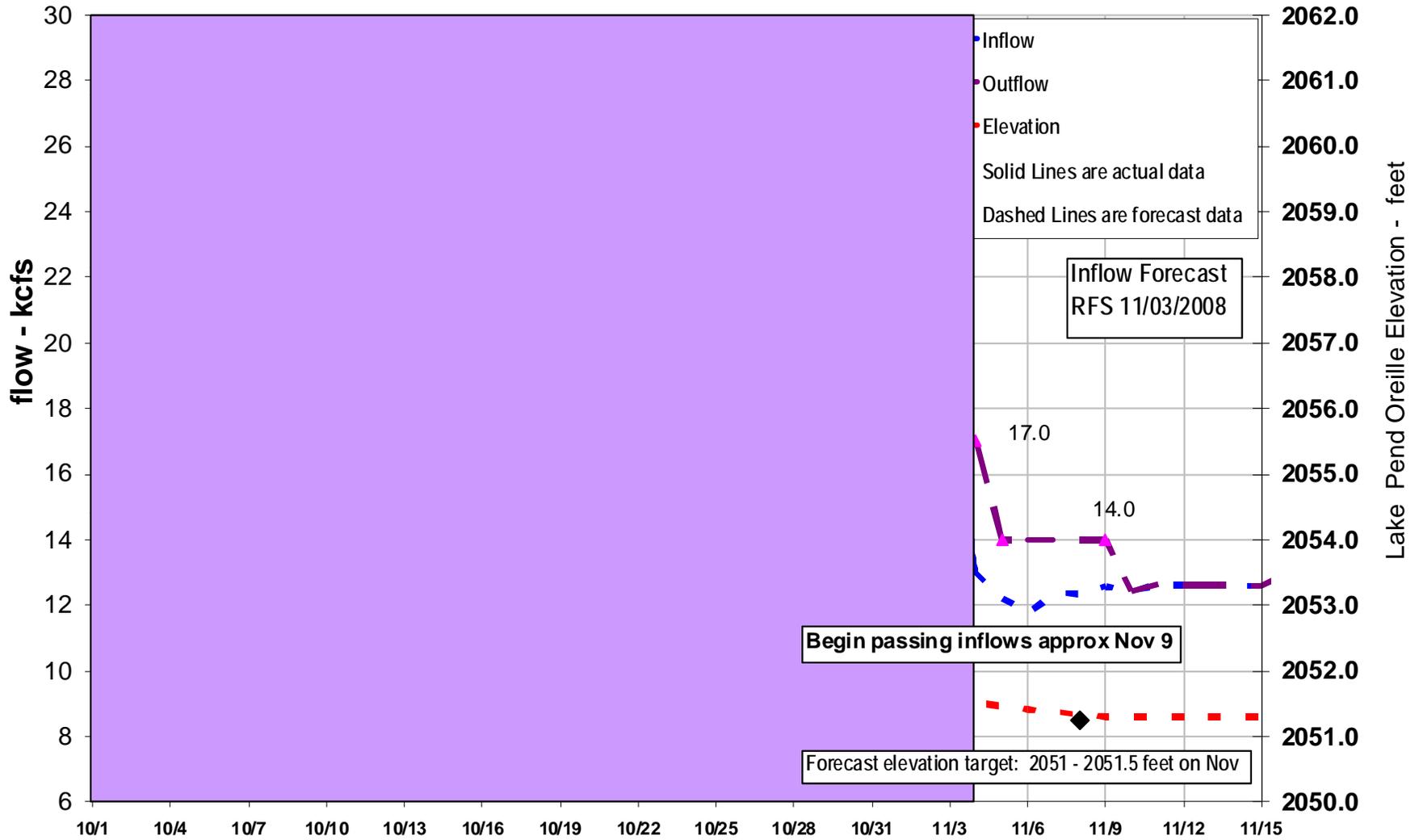
*[Kevin Grode](#) at (503) 808-3945.*

## 2009 FALL Drawdown Plan for Albeni Falls and Lake Pend Oreille



11-4-2008

### 2009 FALL Drawdown Plan for Albeni Falls and Lake Pend Oreille



TO: Paul Wagner, Chairperson  
Fish Passage Advisory Committee

FROM: James Adams, US Army Corps of Engineers  
Tony Norris, Bonneville Power Administration  
John Roache', Bureau of Reclamation

SUBJECT: The Dalles Dam Spillwall Construction and Bonneville Dam downstream  
Chum Spawning

DATE: November 3, 2008

1. On October 21, 2008, the Fish Managers submitted a Joint Technical Staff Memo (JTSM) to the Action Agencies regarding the construction of the spillwall at The Dalles Dam. In this JTSM, the Fish Managers requested that the Corps and BPA provide them with a plan for hydrosystem operation during this construction to provide chum spawning conditions below Bonneville Dam.
2. Corps projects are operated to meet a variety of Congressionally authorized project purposes such as flood control, power generation, irrigation, recreation, navigation, water supply (municipal, industrial, and agricultural), and fish and wildlife. As such, the Corps must consider all of these authorized purposes when making operational decisions.
3. The spillwall at The Dalles Dam is being constructed by the Corps in accordance with the 2008 BiOp regarding structural improvements to help achieve juvenile survival performance standards. Fish survival studies at The Dalles indicate that more direct conveyance from the spillway to the river's thalweg (deepest part of the channel) would likely improve dam passage survival rates for juvenile salmonids. The construction is being completed in two 6-month phases: Oct 2008 – March 2009 and October 2009 – March 2010, and is expected to be fully operational for the 2010 fish passage season.
4. To complete construction of the spillwall, sufficiently high water surface elevations are necessary to meet the draft requirements of the contractor's derrick barges in order for them to operate over the shallow rock shelf that exists in the construction area. To meet this requirement during the month of October, the Corps committed to operating the Bonneville forebay between 75.0 and 76.5 feet as a hard constraint. These Bonneville forebay elevations resulted in tailwater elevations at The Dalles of 76.0 feet or higher. After further examination of the river conditions and grounding clearances for the actual equipment the contractor has on-site, and the implementation of shallower draft barges by the contractor it has been determined that the minimum tailwater elevation requirement in the construction area is 75.5 feet for normal day-to-day construction activities. Therefore, provided that there are sufficient outflows can be achieved from The Dalles Dam, the Bonneville forebay may be operated at lower elevations while providing sufficient depth for construction activities in The Dalles

tailwater. In addition, there will be special operations necessary to transit a deep-draft derrick barge to and from the stilling basin over the shallower areas of the rock shelf. These special operations will require tailwater elevations at The Dalles of 77.0 feet for 4 to 6 hours at a time. This operation is expected to occur twice a week from October through March. During heavy “picks” (when lifting large pre-cast concrete cells) a 78 foot tailwater elevation below The Dalles Dam may be required. A total of about 7 of these heavy picks will be required during this years’ construction with the first likely to occur in mid-December depending on the contractors’ progress. These higher tailwater elevations at the construction area can be accomplished through a combination of Bonneville forebay elevations and outflows at The Dalles.

5. Fall operations for chum under normal circumstances are challenging due to a variety of factors, including tidal fluctuations and local precipitation, which necessitate widely varying discharges to maintain the desired daytime elevation below Bonneville for chum spawning during November and December. During fall chum spawning, the Bonneville tailwater elevation is typically managed to a target elevation of 11.5 feet, with a range of 11.3 to 11.7 feet, in order to provide access to adequate spawning habitat. Typically during winter, the Bonneville forebay elevations have been operated within a 5-foot range (71.5 to 76.5 feet) that allows for a daily 4.0-foot operational limit at the Stevenson gaging station. This 5.0-foot operating range/4.0-foot daily change limit has historically allowed for power flexibility as well as optimization of spawning conditions below Bonneville Dam. Last fall for instance, the range of flows at Bonneville to provide an 11.5 foot tailwater elevation ranged from 80-130 kcfs. Further complicating the management of this varying requirement are uncertainties in local and upstream incremental inflows and nonfederal project operation, which can cause large amounts of variability in the daily volume of water passing through Lower Columbia projects.
6. Once spawning is complete, Bonneville tailwater elevation is managed to maintain an agreed upon minimum elevation where redds were formed in order to provide proper incubation conditions through emergence while considering the probability of achieving the spring refill objectives upstream. Also, if higher flows are required to maintain the agreed minimum elevation throughout incubation and emergence, it may be necessary to draft Grand Coulee, which could jeopardize the ability to achieve the spring refill objective at Grand Coulee.
7. In anticipation of the construction of The Dalles Dam spillwall, the Action Agencies have considered a wide variety of factors that may influence reservoir operations during construction activities. Chum operations are a primary consideration as is operating in accordance with the other provisions of the 2008 BiOp specifications (including the spillwall construction). In order to provide chum with adequate access to spawning habitat and the conditions necessary to complete the spillwall construction as scheduled, the Corps has examined the maximum flexibility in reservoir operations to meet all responsibilities. Paragraph 4 above describes the maximum flexibility for the Bonneville pool. Normal operating ranges of projects upstream of Bonneville are: (1) The Dalles, 3 feet (157-160 feet); and (2) John Day,

normal operating range of 2.5 feet (262.5 to 265 feet). Additional flexibility in the John Day pool may be available depending on prevailing river conditions, navigation requirements, water supply needs, and flood control requirements. In addition, the spillwall contractor is examining all possible strategies to minimize the restrictions placed on the Bonneville pool elevation.

8. The Action Agencies are committed to operating the system to the specified chum spawning tailwater elevations, recognizing there are additional constraints needed to continue safe conditions for the spillwall construction, while also providing for other project purposes. Consequently, operations for The Dalles tailrace construction work will likely contribute to less stable daylight Bonneville tailwater elevations. Based on the aforementioned system considerations, and in close coordination with TMT, the Action Agencies propose the following plan:
  - a. Begin operating for chum below Bonneville Dam on 7 November 2008 at 0600 hours for a Bonneville tailwater range of 11.3 to 11.7 feet.
  - b. Spillwall contractor will modify operations to include the following:
    - Mobilize a shallow draft 125-ton service crane to the site to service all work on the shallow rock shelf.
    - Mobilize a shallow draft tug, and possibly a second, to the site.
    - Mobilize a shallow draft barge to the site for transporting the heavy pre-cast concrete units that make up the spillwall.
    - Limit the use of the two large derrick barges (DB LA, 300 tons; DB Alameda, 100 tons) to the deeper stilling basin except when sections are being placed.
    - Re-ballast and reconfigure the DB LA to draw a more shallow draft during the rock shelf transit operations.
  - c. Real-time data from a tailwater gage installed in the work area at The Dalles Dam (Bay 23) will be transmitted to the Corps and shared with the BPA to give more accurate data for the spillwall construction area. This gage will provide more accurate depth information regarding the actual surface water elevations at the construction site. The tailwater gage data currently being transmitted to the Corps and BPA is downstream of the powerhouse.
  - d. For the October 2008 – March 2009 construction phase, the Action Agencies will operate the system to provide the necessary minimum tailwater elevation at The Dalles to accommodate spillwall construction 24 hours per day, 7 days per week (75.5 feet). This operation could result in the Bonneville Dam forebay operating within a larger operating range than specified in Paragraph 4, but no higher than 76.5 feet (see section 9(j) for exception). Work plans for the October 2009 – March 2010 spillwall construction phase are currently being developed.

- e. If river flows allow, meet both the Bonneville tailwater elevation target and The Dalles tailwater elevation target for construction work. River flows from Bonneville in excess of those required to maintain the specified tailwater elevation below Bonneville will be shaped into the nighttime hours whenever possible to minimize any disruption of chum spawning activity.
- f. If river flows are high such that Bonneville and The Dalles tailwater elevations cannot be met, maintain an 11.3- to 11.7-foot Bonneville tailwater until the forebay approaches full (76.5 feet); then, depending on conditions, fill to 76.5 feet or increase outflows. Pulsing operations or establishing a higher protection elevation will be coordinated at TMT as needed.
- g. During November and December the hydrosystem will be managed as close as possible to provide the expected flows required to meet the 11.5 tailwater at Bonneville Dam. The lack of lower Columbia storage to absorb the uncertainties noted above may result in more daylight tailwater fluctuations below Bonneville. Lake Roosevelt will likely draft in November, then begin filling sometime in December, which may result in further operational challenges if December flows at Bonneville are higher than November.
- h. After November 9<sup>th</sup>, if necessary to maintain Bonneville tailrace conditions for chum spawning, the Corps will consider operating John Day Dam forebay between 261.0 feet to 265 feet. This will assist in managing daily fluctuations in lower Columbia inflow. It may be necessary to raise the minimum elevation in the event that the Irrigon/Umatilla hatcheries notice problems regarding their water supply. It may also be necessary to operate below 261.0 feet temporarily if needed during major flood events to meet flood control requirements. On March 1<sup>st</sup> the minimum elevation will be 262.5 feet to meet irrigation needs, unless the pool needs to be drafted temporarily for a flood event. The pool will be operated at this elevation until November 9<sup>th</sup>, 2009.
- i. If necessary, the Corps will consider requesting a flood control variance to fill John Day pool to 266 feet for short durations during the time when chum are spawning (November/December).
- j. Operate Bonneville Dam forebay to as high as 77.0 feet up to 18 times per year, as allowed per the approved Water Control Manual, to provide for additional lower river flexibility to achieve the Bonneville tailwater elevation specified in the 2008 BiOp for chum spawning.

**MEMORANDUM**

November 2, 2008

**TO:** Interested Parties  
**FROM:** Chris Carlson, Biologist III  
**SUBJECT:** Vernita Bar Redd Survey, November 2, 2008

**Discussion:** On Sunday, November 2, 2008 the third Vernita Bar ground redd count was conducted to determine the Initiation of Spawning for the zones below and above the 50 kcfs elevation. The Monitoring Team consisted of Mark Southern (WDFW) and Chris Carlson (GCPUD). Flows from Priest Rapids Dam at Vernita Bar were about 38 kcfs. Results of this survey are provided in the table below.

<u>Transect</u>	----- Redd Count by Flow Level (kcfs) -----						Total Number Of Redds
	<u>(36 – 50)</u>	<u>(50 – 55)</u>	<u>(55 – 60)</u>	<u>(60 – 65)</u>	<u>(65 – 70)</u>	<u>(Above 70)</u>	
Above A	5	0	0	0	0	0	5
A – AB	10	2	0	0	0	0	12
AB – B	24	2	0	0	0	0	26
Below B	8	2	0	0	0	0	10
C	5	0	0	0	0	0	5
Totals	52	6	0	0	0	0	58

Based on the above survey count and the Hanford Reach Fall Chinook Protection Program Agreement, the Initiation of Spawning for both the 36-50 kcfs and above the 50 kcfs zones have been established to be October 29 (the Wednesday before the weekend on which the Monitoring Team identifies five or more redds within the zone).

During last year’s November 4 redd count, 29 redds were counted within the 36-50 kcfs zone, 0 redds between 50-55 kcfs elevations, 1 between 55-60 and none above the 60 kcfs elevation setting that year’s Initiation of Spawning to be October 31 for the zone between 36-50 kcfs. The November 11 redd count set the Initiation of Spawning to be November 7 for the zone above 50 kcfs.

Since today’s redd count set the Initiation of Spawning for both zones below and above the 50 kcfs elevation, no additional ground redd counts are required until November 23, 2008 at which time the 2008-09 Critical Elevation will be determined. Expected USGS flows during this time will be 50 kcfs.

Please contact me if you have any questions.

(VBReddCountM.doc)

- |                |                    |                 |
|----------------|--------------------|-----------------|
| c: Don Anglin  | Jeff Atkinson      | Bill Berry      |
| Scott Bettin   | Shane Bickford     | Gerry O’Keefe   |
| Bob Clubb      | Dennis Dauble      | Gary Donabauer  |
| Sarah Morford  | Russ George        | NR Records      |
| Kelly Harlan   | Bob Heinith        | Cathy Hlebechuk |
| Joe Taylor     | Paul Hoffarth      | Rick Klinge     |
| Joe Lukas      | Geoffrey McMichael | Robert Mueller  |
| Greg Patton    | Shane Scott        | Rudd Turner     |
| Bill Tweit     | Paul Wagner        | Dawn Woodward   |
| Power Dispatch | FWWQ Team          | PRD Operators   |
| WAN Operators  | James Adams        | Scott Boyd      |
| Joe Skalicky   |                    |                 |

# COLUMBIA RIVER REGIONAL FORUM

## TECHNICAL MANAGEMENT TEAM

November 5, 2008 Meeting

### FACILITATOR'S SUMMARY NOTES ON FUTURE ACTIONS

Facilitator: Robin Gumpert

Notes: Erin Halton

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**

The October 1<sup>st</sup>, 8<sup>th</sup>, and 22<sup>nd</sup> facilitator notes and official meeting minutes had been posted, and with no further comments, were considered final.

#### **The Dalles Spillwall Update/Chum Operations Options**

As follow up to the joint technical memo submitted by the Salmon Managers at the 10/22 TMT meeting, Jim Adams, COE, reported on the Action Agencies' draft plan for operations during chum spawning season while The Dalles' spillway construction is underway. The draft was sent to TMT members via email and was also posted as a link to the TMT agenda. Adams requested comments and feedback from the salmon managers.

Adams reviewed many of the specifics of the draft plan, including conditions needed to meet draft requirements per the spillwall construction, factors the Action Agencies considered as they drafted the plan, and potential modifications to accommodate this year's chum operations. In summary, he shared that:

- This plan provides slightly more operating flexibility than had been discussed at the October 22<sup>nd</sup> TMT meeting (75.5 minimum at The Dalles and 76.5 maximum at Bonneville forebay – the Action Agencies planned to add a new paragraph to the document that will speak to added operating flexibility at The Dalles project.).
- A new gauge installed near The Dalles' spillbay 23 is expected to help with real time surface elevation monitoring throughout the season.
- There may be more flexibility at John Day, and item 8(i) specifically addresses the COE's need to request a deviation to operate John Day pool to 266 feet for short durations.
- The spillwall contractor has modified operations to support more flexibility with chum operations and will continue to look for additional ways to provide more flexibility.
- The action agencies would like specific guidance from the salmon managers on real time management (timing, patterns) of excess water that might enter the system.
- The Dalles Spillwall Construction Project Manager Lance Helwig added that the COE is already considering the adjustments and options available for the 2009-10 construction timeframe.

The Salmon Managers expressed appreciation for the Action Agencies' response to their request for information about parameters and options for this year. They said they would review and provide feedback on the document as soon as possible.

**Action/Next Steps:**

- The Salmon Managers planned to review and discuss the document during their next FPAC meeting (either 11/10 or 11/12). Paul Wagner, FPAC Chairman, will email comments and edits to the Action Agencies following the meeting.
- The action agencies proposed that this draft document be incorporated into this year's Water Management Plan, and TMT agreed it should be included under 'Special Operations'.
- TMT will discuss Chum Operations at the 11/19 TMT meeting; if the need arises, there could be a conference call between now and then.

**Vernita Bar**

Russell Langshaw, Grant County PUD, reported that the official initiation of spawning was 10/29 and referred TMT to a document posted as a link to the agenda that summarized the data from the 11/2 spawning survey. He reported 52 redds in the 36-50 kcfs range and 6 redds in the 50-55 kcfs range. He added the few redds are expected to be above the 50-55 kcfs range due to fairly low flows and added that there will be ongoing feasibility studies through mid December, to explore and evaluate methods for eggs per redd counts.

**Action/Next Steps:** Langshaw said that spawning operations will continue (reverse load, 50-70 kcfs daytime) between now and the next ground count on 11/23, when the critical elevation will be determined and "normal operations" will resume. This item will be on the agenda for the 12/3 TMT meeting.

**Burbot SOR #2008-FWS-3**

Jason Flory, USFWS, referred TMT to an SOR posted as a link to the TMT website regarding temperature operations of Libby Dam for Kootenai River burbot. Greg Hoffman, COE, noted that this was a well-coordinated request and that the requested operations were already underway at the project. TMT had no further comments on this operation.

**Albeni Falls Operations Update**

Lynn Melder, COE, reported that the current elevation at Albeni Falls was 2051.48', that the project was expected to stay within a .5' operating range for the next few weeks and that the COE would likely begin passing inflows this coming weekend. Russ Kiefer, ID, expressed thanks to the Action Agencies for meeting the operational request and offered to provide historical information regarding criteria for determining the "end of spawning" at the next TMT meeting. Generally, it has been when no kokanee are observed at any of the three observation sites for a week.

**Action/Next Steps:** Russ Kiefer, Idaho, will provide data as to specific criteria used in previous years and what the timing has historically been. TMT will discuss the feedback and “post-spawning” operations at the 11/19 meeting.

### **2009 Draft Water Management Plan**

Dan Feil, COE, reminded TMT that comments are due this Friday, 11/7. Several TMT members said they planned to review and submit comments in writing.

**Action/Next Steps:** TMT will review an edited version of the plan at the 11/19 TMT meeting.

### **Operations Review**

**Reservoirs:** Libby was at elevation 2440.9', with inflows in the range of 4-5 kcfs and outflows of 4.5 kcfs. Albeni Falls was at 2051.48', with inflows 13.5 kcfs and outflows of 17 kcfs. Seven day average inflows were 17 kcfs at Lower Granite, 80-90 kcfs at McNary and 90-100 kcfs at Bonneville. Grand Coulee was at elevation 1288.8' and Hungry Horse was at elevation 3528.4', with outflows of 2.5 kcfs.

### **Other:**

- The Lower Monumental maintenance operation (10/25-11/11) continues with a speed/no load and spill operation. TDG has been as high as 113.5%. While this is above the 110% State TDG criteria, it is still below the 115% that was discussed at the last TMT meeting as an estimated maximum.
- To minimize the risk of spill at The Dalles, the project has been placed at the bottom of the spill priority list.
- On 11/3, Hungry Horse experienced an outage and the project had no generation for about two hours. A hollow jet valve was used for discharges and during that time, TDG levels rose to as high as 109.91%, (but returned to the 98-99% range soon after). Hungry Horse discharges and Columbia Falls flows dropped below minimums but returned soon after. During the meeting, Scott Bettin, BPA, reported that coordination efforts were underway regarding a planned outage to investigate the cause of the outage, which will be coordinated ahead of time, and the action agencies will report back to TMT if there are any TDG issues.

**Fish:** Paul Wagner, NOAA, reported that juvenile passage was at the end of its season numbers. Counts were in the couple hundred per day range at Little Goose. Video monitoring at mainstem projects ended on 10/31, but PIT tag monitoring continues; video monitoring is occurring at Snake River projects. Adult passage numbers were also decreasing; Wagner noted that higher peak counts for Fall Chinook may be due to cooler than average water temperatures. Steelhead counts were tracking close to ten year averages.

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

**Water Quality:** Nothing to report at this time.

**Next face-to-face Meeting: 11/19 \*\*Please note that the meeting will be held from 1-4 p.m. at the COE**

Agenda items include:

- Albeni Falls – Historical Data / Post-spawning Operations
- Chum Operations
- WMP – Edits Review
- Operations Review

**Columbia River Regional Forum  
Technical Management Team Meeting  
Nov. 5, 2008**

***1. Introduction***

Today's TMT meeting was chaired by Jim Adams (COE) and facilitated by Robin Gumpert (DS Consulting) with representatives of USFWS, NOAA, BPA, BOR, Idaho, Washington, CRITFC, FPC 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 of Meeting Minutes for Oct. 1, 8 and 22***

There were no comments on these today, so they were deemed final.

***3. The Dalles Spill Wall Update and Discussion of Chum Operations***

Jim Adams presented the COE's plan for managing flows to meet the needs of both chum spawning at Bonneville Dam and construction activities for the spill wall at The Dalles. Recently the COE received a joint technical staff memo (JTSM) from the Salmon Managers, signed by CRITFC, IDFWG, ODFW, WDFW, NOAA and USFWS, that expressed concerns about lower Columbia River management and asked the COE to provide its plans for accommodating both operations. The plan presented today is the COE's response to that request.

Prior to today's meeting, the COE emailed TMT members the draft plan, linked to today's agenda. The COE is looking for ways to provide adequate spawning conditions for chum throughout The Dalles spill wall construction season (October through March, 2008-09 and 2009-10). Already the contractor has altered his operation to allow for construction in shallower water than originally planned. As a result, the required elevation in The Dalles tailwater has changed to 75.5 feet which will allow the Bonneville forebay to drop to a minimum elevation of approximately 74.5 feet instead of 75 feet, depending on outflows at The Dalles. Previously the COE had committed to 75.0-76.5 feet as a hard constraint for the Bonneville forebay. The ½-foot change means an increased operating range from 1.5 feet to 2 feet to use for chum spawning.

Paragraph 8(d) of the COE's plan anticipates that, for the October 2008-March 2009 construction phase, Bonneville forebay elevations will go no higher than 76.5 feet as a result of tailwater elevation restrictions at The Dalles (except for 18 instances per year when the elevation may exceed 76.5 feet). For the October 2009-March 2010 phase, this could change because the COE is considering structural alternatives, such as making the precast units lighter so they can be moved with smaller equipment than originally planned.

The COE's plan spells out the proposed chum operations beginning Friday, Nov. 7, 2008. The Action Agencies will manage outflows to keep Bonneville tailwater elevations within 11.3-11.7 feet to the greatest extent possible. If flows are too high, the Bonneville pool will be used up to elevation 76.5 feet to store the excess water. Beyond that, BPA will need guidance to give its teletype operators on what to do with excess water during the day, Tony Norris said.

At TMT's direction, the COE will consider options including pulses or a higher chum protection elevation if necessary. There will be ad hoc TMT meetings throughout spawning season as needed so the Action Agencies and the Salmon Managers can work together on chum issues.

Adams pointed out a change in the plan that isn't reflected in today's draft. The Fish Passage Plan calls for a minimum tailwater elevation of 158 feet at John Day in order to get full use of fish passage facilities. In order to maintain that elevation, normally the COE would operate The Dalles forebay at no lower than 157 feet elevation. It might be possible to go down to 155 feet at The Dalles, although at that point fish ladders might not be fully functional. Adding an extra 2 feet of flexibility at The Dalles would require FPOM coordination. Language to this effect will be added to the plan between paragraphs 8(g) and (h).

John Day operation is complex because the full pool elevation is 268 feet, but the upper 3 feet of storage is reserved for flood control, making the normal upper limit 265 feet. Tapping into any of that extra 3 feet would require a formal deviation request – a lengthy process – which might result in only an extra foot of storage. If the deviation request is approved, as described in paragraph 8(i), it would be a short-term solution dependent on river conditions. At BPA's suggestion the COE is considering making a deviation request with a right of refusal so this option is available if needed. After Nov. 9, the John Day pool elevation can go as low as 261 feet because irrigators won't need water. The rock-bottom elevation at John Day for navigation purposes is unknown, which further complicates the picture. The COE estimates a 4-foot elevation range from 261-265 feet at John Day that could be used for the chum operation. In addition, the COE can bring the Bonneville forebay elevation up to 77 feet 18 times a year as needed for high flows, per the COE's Water Control Manual.

USFWS, NOAA and Idaho representatives agreed this plan was what the Salmon Managers had in mind when they made their request. Paul Wagner (NOAA) will take the lead in presenting their consolidated comments to the COE after the next FPOM meeting. The chum flow plan will then be incorporated into the Water Management Plan for operating the system this year.

Raising the chum operation to a higher tailwater appears to be an easier path at this time rather than trying to pulse water out during the day, Wagner

said. BPA will look at how that might work on a real-time basis, Norris replied. TMT conference calls to discuss Bonneville operations will be scheduled as needed before the next regular TMT meeting on Nov. 19.

#### ***4. Priest Rapids Update***

Russell Langshaw (Grant Co. PUD) gave the first report on protection flows at Priest Rapids Dam for the 2008 chinook spawning season. On Nov. 2, a total of 58 redds were counted on Vernita Bar, 52 of those in zone 3 below the 50 kcfs elevation and 6 above the 50 kcfs elevation. Initiation of spawning was declared on Oct. 29 in both areas. The next redd count will be on Nov. 23 to determine the critical spawning elevation. Meanwhile, Grant Co. PUD is reverse load factoring until the critical elevation is met.

On the weekend of Nov. 23, Grant Co. PUD will begin trying different methods, including excavation and hydraulic pumping, to count the number of eggs per redd. The purpose of this study is to challenge an assumption that each redd contains the full number of eggs to be expected from each female. Low flows on the order of 40 kcfs can be expected for 10 hours some days through mid December while the study is in progress. Langshaw will call in next month to update TMT on this operation.

#### ***5. Burbot SOR 2008-FWS3***

Jason Flory (USFWS) presented this SOR, which outlines temperature operations at Libby to provide cooler water in the Kootenai River for burbot spawning. This year's request, submitted to the COE last week and linked to today's agenda, is focused mainly on temperature control through use of selective withdrawal from Libby reservoir. Temperature manipulations began 3 weeks ago. Since 2003 the COE has used this standard operation, which has been closely coordinated with Montana, to manage the temperature of flows for burbot, Greg Hoffman (COE) added. There were no questions from TMT members regarding this operation.

#### ***6. Albeni Falls Operations Update***

Lynne Melder (COE Seattle) led TMT's discussion of the drawdown at Albeni Falls. Current elevation is 2,051.48 feet at the Hope gage, within the ½ foot desired operating range through the end of spawning. The project will pass inflows this weekend to maintain elevation 2051-2051.5 feet. Russ Kiefer (Idaho) proposed that the end of kokanee spawning be declared when there has been no spawning activity observed in any of three identified spawning sites for a week. Dan Feil (COE) expressed interest in seeing historical data regarding the end of kokanee spawning when TMT revisits this issue at its Nov. 19 meeting.

## **7. Water Management Plan**

Dan Feil requested comments on the draft Water Management Plan by Friday, Nov. 7. Washington, CRITFC, Idaho, and USFWS plan to comment.

## **8. Operations Review**

### **a. Reservoirs.**

Libby is at elevation 2,440.9 feet, with inflows around 4-5 kcfs and outflows of 5.0 kcfs. The current plan is to continue these outflows through mid-November, then start ramping up as needed.

Albeni Falls is at elevation 2,051.48 feet at the Hope gage. Inflows are 1.5 kcfs and outflows are 17 kcfs.

Dworshak is at elevation 1,518 feet, with inflows up to 2 kcfs over the past few days. Outflows are still at minimum of 1.6 kcfs.

Inflows at Lower Granite are around 17 kcfs; at McNary, 80-90 kcfs; at Bonneville, 90-100 kcfs. Wagner asked why spill kicked up to 23 kcfs at Lower Monumental if it's 17 kcfs at Lower Granite.

A maintenance operation at Lower Monumental from Oct. 25-Nov. 11 in which 5.5 kcfs has been passing through generator unit 5 (speed-no-load) and spilling the rest. For most of this time, the spill has been around 6.2 kcfs, but spill peaked at 23 kcfs yesterday evening, Nov. 4. At 6.2 kcfs spill, TDG levels were 109-11 %, but at 23 kcfs spill, TDG levels rose to 113.5%.

In order to minimize the risk of spill while construction barges are in The Dalles spillway, the COE recently issued a spill priority list with The Dalles at the very bottom. The COE will modify spill amounts for 110% and 115% TDG to zeros, which will give the contractor the biggest possible margin of safety in terms of having to spill at The Dalles.

Grand Coulee is at elevation 1,288.8 feet, John Roache (BOR) reported. Hungry Horse is at 3,528.4 feet, discharging 2.5 kcfs. On Nov. 3 at 2:57 pm during maintenance testing, the generating plant went down for around 2 hours. Flow was maintained in the river by releasing 2,300-2,400 cfs through the hollow jet valve which increased TDG in the river. For about an hour TDG levels reached 109.91% but dropped back to 98-99% as soon as the generating units came back on. Minimum discharge from the project dropped to as low as 550 cfs on Nov. 3. As a result, Columbia Falls flow dropped below the 3,500 cfs minimum for about 4 hours to a low flow of 3140 cfs. When the plant went down BOR contacted Brian Marotz of Montana Fish Wildlife & Parks. Brian was more concerned about maintaining flow in the river than brief periods of increased

TDG. The BOR is still investigating the causes of the forced outage. Another outage is being planned by Grand Coulee now, Scott Bettin (BPA) said. He and Roache will coordinate on that.

**b. Fish.** This is the last report of the year on juvenile passage, Paul Wagner said. Monitoring ended at Lower Granite and Little Goose on Oct. 23, when a few hundred fish were passing per day. What happens after this point its unknown. Full flow PIT tag data are being collected at John Day, Dennis Schwartz (COE) said. Fish passing at this time of year have adult return rates of 50-100% which is incredibly high. Adult passage is tapering off as well. Snake River projects have gone to video monitoring. This year's passage count of 16,443 adult fall Chinook at Lower Granite set a record, while counts of 166,000 hatchery steelhead and 41,000 wild steelhead also indicate this is a good year. Passage numbers for hatchery steelhead were high and early this year in comparison to 10-year averages, but no comparable 10-year average has been calculated for wild steelhead. The TMT year-end review will include an overview of fish runs at all projects.

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

**d. Water Quality.** There was nothing to report with the exception of Lower Monumental operations (see above under "Reservoirs"). A TDG and temperature modeling annual conference is scheduled for 1-5 pm, Nov. 20 at the Portland USGS office.

## **9. Next Meeting**

The next regularly scheduled TMT meeting will be at 1 pm, Nov. 19, 2008. Options for meeting the chum spawning and spill wall construction operational needs, an Albeni Falls update including definition of the end of kokanee spawning, the draft Water Management Plan, and the standard operations review will be on that agenda. The agenda for the TMT annual review will be finalized and sent to TMT early next week. This summary prepared by consultant and writer Pat Vivian.

<b>Name</b>	<b>Affiliation</b>
Jim Adams	COE
Dave Wills	USFWS
Dan Feil	COE
Paul Wagner	NOAA
Tony Norris	BPA
John Roache	BOR
Kevin Grode	COE
Dennis Schwartz	COE
Tim Heizenrader	Cascade
Bob Diaz	Renewables

Laura Hamilton

COE

Phone:

Russ Kiefer

Idaho

Cindy LeFleur

Washington

Kyle Dittmer

CRITFC

Jason Flory

USFWS

Shane Scott

PPC

Margaret Filardo

FPC

Barry Espensen

CBB

Ken Redman

COE Seattle

Ruth Burris

PGE

Tom Le

Puget Sound Energy

Lance Helwig

COE

Scott Bettin

BPA

Russell Langshaw

Grant Co. PUD

Greg Hoffman

COE

Lynne Melder

COE Seattle

# TECHNICAL MANAGEMENT TEAM

**BOR** : John Roache / Mary Mellema / Pat McGrane      **BPA** : Robyn MacKay / Tony Norris / Scott Bettin  
**NOAA-F**: Paul Wagner / Richard Dominique              **USFWS** : David Wills / Steve Haeseker  
**OR** : Rick Kruger / Ron Boyce                              **ID** : Russ Kiefer / Pete Hassemer  
**WDFW** : Cindy LeFleur    **MT** : Jim Litchfield / Brian Marotz  
**COE**: Jim Adams / Cathy Hlebechuk / Kevin Grode

## TMT CONFERENCE CALL

Friday, November 7, 2008 1:00 - 3:00 PST

### CONFERENCE PHONE LINE

#### **NOTE NEW CONFERENCE LINE NUMBER**

Conference call line:877-322-9648; PASS CODE = 700661

We have had disruptions on the phone because people are not hitting 'mute' after dial in.  
**Please MUTE your Phone**

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*All members are encouraged to call Robin Gumpert with any issues or concerns they would like to see addressed.  
Please e-mail her at [rgumpert@cnnv.net](mailto:rgumpert@cnnv.net) or call her at (503) 248-4703.*

## AGENDA

1. Welcome and Introductions
2. Chum Flow Management - Tony Norris, BPA

*Questions about the meeting may be referred to:  
[Jim Adams](#) at (503) 808-3938, or  
[Cathy Hlebechuk](#) at (503) 808-3942, or  
[Kevin Grode](#) at (503) 808-3945.*

## COLUMBIA RIVER REGIONAL FORUM

### TECHNICAL MANAGEMENT TEAM

November 7, 2008 Conference Call

#### 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.

#### **Chum Operations**

An unscheduled TMT conference call was convened to discuss short term chum operations, given the recent increase in precipitation into the system and potential for more water entering the system over the weekend. Tony Norris, BPA, led the discussion on behalf of the Action Agencies. He referred first to the Action Agencies' draft plan for operations that was shared at the last TMT meeting, November 5, and then requested input from the salmon managers on how to manage excess water in the system when all flexibility during nighttime hours has been exhausted.

The salmon managers had discussed this issue at FPAC and made a recommendation to the action agencies to target a Bonneville tailwater elevation of 12 feet, with an operating range of 11.5-12.5 feet if necessary to manage the excess water. After further discussion, TMT agreed on a revision to that proposal, which included interim steps before actually moving the tailwater elevation target up (e.g. utilizing nighttime hours, expanding the operating range, and late afternoon pulses.)

**Action:** The COE planned to draft a teletype for review by the salmon managers before finalizing and sending out to project operators. TMT agreed to coordinate this through Paul Wagner, NOAA, who would respond on behalf of the salmon managers to get the teletype finalized by the afternoon of 11/7. **Update:** Dan Feil, COE, emailed a draft teletype to TMT on 11/7 following today's call. It included details of the operation as were discussed during the conference call. The final was shared with TMT on 11/10, as an FYI.]

#### **Next Steps: Conference Call 11/12 @ 1:00 pm**

TMT will revisit chum operations during a conference call on Wednesday, November 12 at 1:00 pm.

#### **Next Meeting: 11/19 \*\*Please note that the meeting will be held from 1-4 p.m.**

Action items include:

- Albeni Falls – Historical Data / Post-spawning Operations
- Chum Operations
- WMP – Edits Review
- Operations Review

**Columbia River Regional Forum  
Technical Management Team Conference Call  
November 7, 2008**

***1. Introduction***

Today's TMT call was chaired by Jim Adams (COE) and facilitated by Robin Gumpert (DS Consulting) with representatives of NOAA, BOR, BPA, COE, Washington, Idaho, CRITFC 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. Chum Flow Management***

Tony Norris (BPA) led today's discussion of how to manage flows for chum spawning at Bonneville in light of tailwater restrictions imposed by spill wall construction at John Day. Today's call focused on a short-term operating plan through the middle of next week. Before the call, BPA sent the Salmon Managers options to consider as springboards for today's discussion. The options address how BPA would manage excess water during chum spawning season.

- Daytime pulses of limited duration in the late afternoon. These effectively prevent spawning at high elevations, but are generally regarded as fish harassment.
- Pulses at lower levels that don't preclude spawning.
- Extension of the tailwater operating range. This would provide BPA with more flexibility and a more achievable operation.
- Gradual increases in the tailwater elevation below Bonneville. These would have negative consequences later in terms of water needed to support higher spawning elevations.

The Salmon Managers discussed the options this morning in preparation for this call, Paul Wagner (NOAA) reported. They wanted to clarify that any nighttime flow increases at a high level would be for a short time only. Norris said yes, outflow volumes would first be increased at night, as they have in the past. Of course, this assumes BPA has already done as much as possible to keep operations within the normal 11.3-11.7 foot tailwater range. The Salmon Managers favored increasing the tailwater elevation to 12 feet which is not much higher than the 11.5-foot norm, Wagner said. They are aware that raising the elevation would add risk later in the season when flows are needed to maintain chum redds. The Salmon Managers also proposed expanding the operating range to 11.5-12.5 feet if needed.

The added range is extremely helpful to BPA, Norris said, because increasing the range around a given elevation increases flexibility, while adhering to a particular elevation adds no flexibility and can make operation more difficult if the elevation is raised. Increasing the target elevation below Bonneville to 12 feet would require moving more water, which means less time for BPA to react. It's the range around the target elevation that provides operational flexibility.

There was agreement that BPA would only increase the range to 11.5-12.5 feet if conditions make it impossible to maintain flows within the normal range of 11.3-11.7 feet during daytime hours, and that the first step would be to change the range only, not the target elevation. The possibility of using a stepped process to handle excess flows was discussed. Increasing the elevation range below Bonneville Dam would be acceptable if all possibilities of moving the water at night have been exhausted, NOAA and the COE agreed.

When elevations below Bonneville fall below 11.2 feet during chum spawning season, breaks can occur in the water supply needed to keep chum redds inundated, Wagner warned. Dan Feil (COE) proposed an increased range of 11.3-12.3 feet. Further discussion led to a list of priorities:

1. Maintain the normal tailwater elevation range of 11.3-11.7 feet below Bonneville Dam, with excess flows to be released at night.
2. If conditions in #1 can't be maintained, increase the operating range to a 1-foot band, or 11.3-12.3 feet elevation.
3. If conditions in #2 can't be maintained, raise the elevation target to 12 feet and maintain the 1-foot band, for an operating range of 11.5-12.5 feet.
4. If conditions in #3 can't be maintained, move as much water as possible into late afternoon pulses starting after 3 pm, and if that also fails, raise the target elevation to 13 feet.

NOAA, Idaho, Washington and CRITFC agreed to these operations. The COE will draft a teletype based on them and send it out for Salmon Manager review, with the aim of instructing project operators by close of business today on how to handle excess flows over the holiday weekend. Idaho, Washington and CRITFC delegated NOAA as the lead authority on this issue, so Paul Wagner will review the teletype on the Salmon Managers' behalf.

## ***5. Next Meeting***

The above list will guide Bonneville Dam operations until TMT revisits the chum issue in a conference call next Wednesday, Nov. 12, at 1 pm. The next

regularly scheduled TMT meeting will be Nov. 19, 2008, also at 1 pm. This summary prepared by consultant and writer Pat Vivian.

<b><i>Name</i></b>	<b><i>Affiliation</i></b>
Jim Adams	COE
Paul Wagner	NOAA
Tony Norris	BPA
Robyn MacKay	BPA
Scott Bettin	BPA
John Roache	BOR
Cindy LeFleur	Washington
Russ Kiefer	Idaho
Kyle Dittmer	CRITFC
Dan Feil	COE
Ken Tiffin	XX

# TECHNICAL MANAGEMENT TEAM

**BOR** : John Roache / Mary Mellema / Pat McGrane      **BPA** : Robyn MacKay / Tony Norris / Scott Bettin  
**NOAA-F**: Paul Wagner / Richard Dominique              **USFWS** : David Wills / Steve Haeseker  
**OR** : Rick Kruger / Ron Boyce                              **ID** : Russ Kiefer / Pete Hassemer  
**WDFW** : Cindy LeFleur                                         **MT** : Jim Litchfield / Brian Marotz  
**COE**: Jim Adams / Cathy Hlebechuk / Kevin Grode

## TMT CONFERENCE CALL

Wednesday, November 12, 2008 1:00 - 3:00 PST

### CONFERENCE PHONE LINE

#### **NOTE NEW CONFERENCE LINE NUMBER**

Conference call line: (888) 622-5357; PASS CODE = 970336

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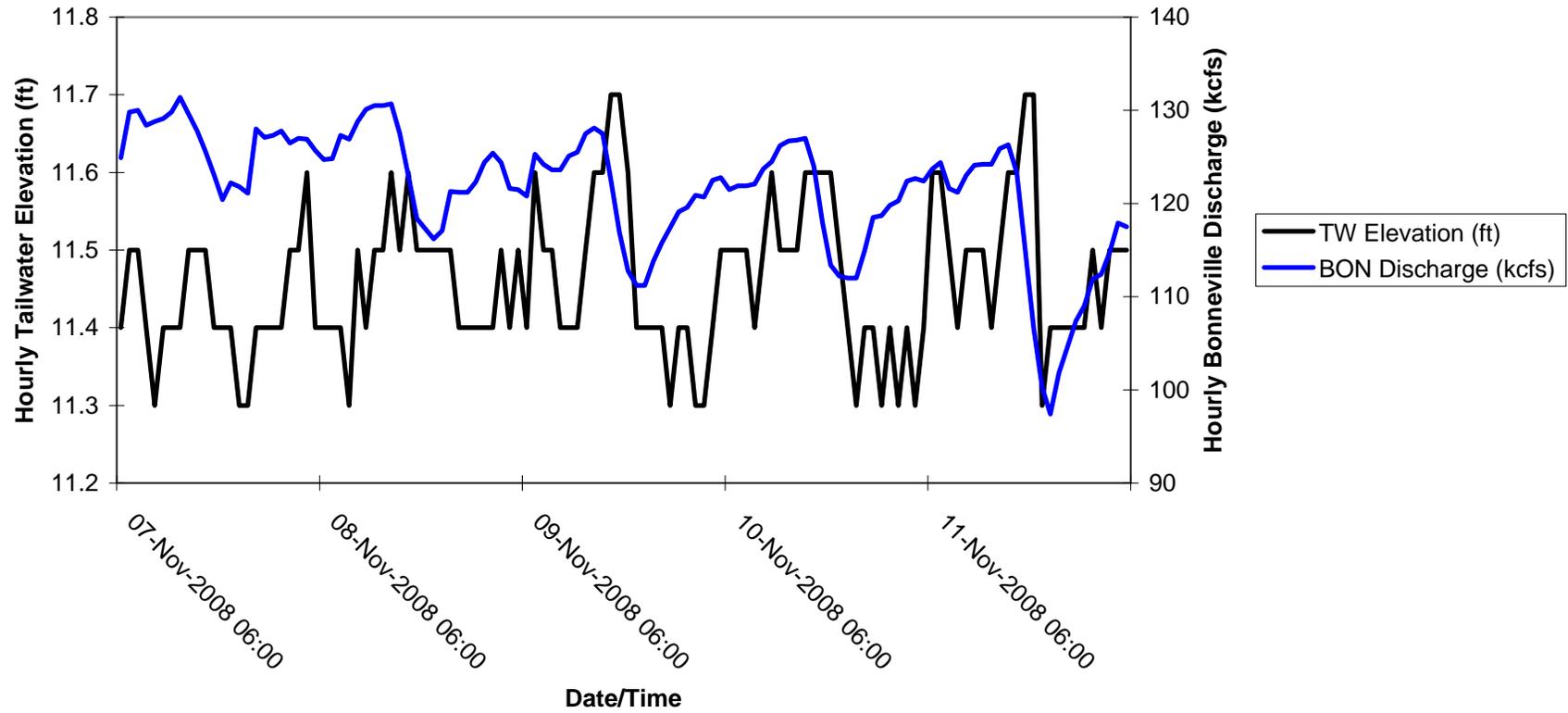
## AGENDA

1. Welcome and Introductions
2. Chum Flow Management - Tony Norris, BPA  
[\[2008-2009 Chum Operations\]](#)

*Questions about the meeting may be referred to:*

*[Jim Adams](#) at (503) 808-3938, or  
[Cathy Hlebechuk](#) at (503) 808-3942, or  
[Kevin Grode](#) at (503) 808-3945.*

### 2008-09 Chum Operations (as of 11/12 @ 0500 hours)



## COLUMBIA RIVER REGIONAL FORUM

### TECHNICAL MANAGEMENT TEAM

November 12, 2008 Conference Call

#### 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.

#### **Chum Operations Plan**

An unscheduled TMT conference call was convened to discuss short term chum operations as follow up from the November 7 call. Tony Norris, BPA, reported that while there was a contingency plan in place to manage excess water into the system, the Action Agencies were able to maintain the target operation of 11.3-11.7 tailwater elevation at Bonneville through today. That said, there was still a need to keep a contingency plan in place for the short term.

Paul Wagner, NOAA, suggested that increasing chum populations would increase impact risks from any deviation in target operations, and as such, proposed the contingency plan be refined. He recommended removing the steps that described increasing the tailwater elevation target during daytime hours as needed and then returning to the 11.5 foot target elevation when the increase was no longer necessary, as this could negatively impact chum redds. Given that the Action Agencies needed to have 'cover' for daytime hours as needed to manage the excess water, a suggestion was made to change language so that *if* the target elevation were to go up for longer than a couple hours, it would remain there for the rest of the spawning and incubation period. Longer term operations would need to be discussed if the latter were implemented, as it would impact refill and other system needs later in the spring. In addition, the steps would be re-ordered so that short term (two to three hour) pulses at a higher elevation late in the afternoon/early evening would be implemented before moving to a higher target elevation.

TMT members that participated on the call agreed to the short term contingency plan as was discussed, and wanted to review the language in writing before finalizing in the teletype.

**Action:** Dan Feil, COE, was tasked to revise the teletype with language discussed today for short term contingency operations. He emailed it to TMT members following today's conference call, and comments were to be shared through Paul Wagner and back to Dan for finalizing later today. The teletype was to go out at the end of today, November 12, or tomorrow morning, November 13. TMT will revisit chum operations during their face to face meeting on November 19.

**Next Meeting: 11/19 \*\*Please note that the meeting will be held from 1-4 p.m.**

Action items include:

- Albeni Falls – Historical Data / Post-spawning Operations
- Chum Operations
- WMP – Edits Review
- Operations Review

**Columbia River Regional Forum  
Technical Management Team Conference Call  
November 12, 2008**

***1. Introduction***

Today's TMT call was chaired by Jim Adams (COE) and facilitated by Robin Gumpert (DS Consulting) with representatives of BPA, COE, NOAA, USFWS, BOR, CRITFC, Oregon, Washington, Idaho 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. Chum Flow Management***

Tony Norris (BPA) led today's discussion in the ongoing process of managing Bonneville tailwater elevations for chum spawning while operating within constraints posed by spill wall construction upstream at The Dalles Dam. Last Friday, Nov. 7, TMT held an unscheduled call to discuss short term contingency plans for Bonneville operations in light of possible increased flows. That discussion led to a tiered approach in which various steps would be taken to manage any excess flows before moving to the next level. On Monday, Nov. 10, a teletype was sent out to project operators based on Friday's discussion.

Today's meeting was focused on contingency plans for managing chum operations over the next week until TMT's next regular meeting on Nov. 19. Operations so far have gone very well, Wagner observed; the original hard elevation constraint of 11.3-11.7 feet in the Bonneville tailwater has been consistently maintained day and night. This has been due mainly to good luck in terms of precipitation moving north, Tony Norris (BPA) cautioned. The next few days could still bring problems. A graphic posted to today's agenda shows Bonneville tailwater elevations and discharges from the beginning of chum operations on Nov. 7 until early this morning.

In reviewing the teletype that went out Nov. 10, Paul Wagner (NOAA) expressed discomfort with moving forward under the range of options it allowed for reasons that made sense at the time. It was the first week of chum spawning season and not many chum were expected in the Bonneville area, so the risk to the run was relatively low. Chum status changes daily, and potentially more fish could be impacted at present. On Nov 10, 30 chum and 9 redds were counted at Ives Island, Cindy LeFleur (Washington) reported. Wagner expressed discomfort moving forward with the flexibility provided in sections 5, 6 and 7, which could increase the tailwater elevation to a broader range, then allow the elevation to return to the low end of that range during the height of spawning.

The Action Agencies need guidance for managing any excess flows that arise during the day, so deleting sections 5, 6 or 7 wasn't an option. As a short term contingency plan, Norris suggested the language of the teletype be modified to say that increased ranges of 11.3-12.3 feet or 11.5-12.5 feet elevation would become the new hard constraint if they are invoked. Wagner agreed that would be his preference.

There was discussion of whether a short-term increase in the tailwater elevation range of, say, 2 hours would make it the new hard constraint. Two hours could be acceptable or undesirable depending on conditions at the time, particularly if it happens in the afternoon, Wagner said. There was discussion of section 7, which allows the tailwater elevation to rise to 15 feet for 3 hours in the afternoon from 3-6 pm. Section 7 will be revised to say that tailwater elevations will return to 11.3-11.7 feet if river conditions allow. Factor in the current rate of tailwater elevation change per hour to determine whether that's possible in the allotted time, Scott Bettin (BPA) said. The expectation is that the tailwater elevation would return to the specified range by next morning.

The teletype will be revised so that what is now section 7 precedes sections 5 and 6, which then become the new sections 6 and 7, incorporating modifications discussed today. The new sections 6 and 7 will say the elevation range could increase without specifying a particular target, and the new section 5 will be modified so that the target elevation is 15 feet, not 12.

Feil summed up the new priorities as follows: If excess flows can't be released at night, the next step would be a spike in the late afternoon, followed by a return to existing elevation criteria. If that doesn't work, the next step would be to raise the tailwater elevation as a hard constraint for the entire daytime period. At that point TMT would reconvene to decide whether spawning should be allowed to occur at the higher elevation, given the operational difficulties that could pose later on.

USFWS, Idaho and Washington did not object to this operation and expressed willingness to defer to NOAA on this issue. The COE will send the revised teletype this afternoon to NOAA and copy all TMT members, with the goal of sending the teletype out to project operators by tonight or early tomorrow. Washington and BPA will confer regarding current chum population and redd counts. And the COE will incorporate the latest chum flow management strategy (as stated in the new teletype) into the draft Water Management Plan fall/winter update for review at the next TMT meeting.

## ***5. Next Meeting***

The next regularly scheduled TMT meeting will be at 1 pm, Nov. 19, 2008, location to be advised. This summary prepared by consultant and writer Pat Vivian.

<b>Name</b>	<b>Affiliation</b>
Jim Adams	COE
Tony Norris	BPA
Paul Wagner	NOAA
Dave Wills	USFWS
John Roache	BOR
Kyle Dittmer	CRITFC
XX	Seattle City Light
Cathy Hlebechuk	COE
Scott Bettin	BPA
Kevin Grode	COE
Rick Kruger	Oregon
Cindy LeFleur	Washington
Russ Kiefer	Idaho
Dan Feil	COE

# TECHNICAL MANAGEMENT TEAM

**BOR** : John Roache / Mary Mellema / Pat McGrane      **BPA** : Robyn MacKay / Tony Norris / Scott Bettin  
**NOAA-F**: Paul Wagner / Richard Dominique              **USFWS** : David Wills / Steve Haeseker  
**OR** : Rick Kruger / Ron Boyce                              **ID** : Russ Kiefer / Pete Hassemer  
**WDFW** : Cindy LeFleur                                        **MT** : Jim Litchfield / Brian Marotz  
**COE**: Jim Adams / Cathy Hlebechuk / Kevin Grode

## TMT MEETING

Wednesday November 19, 2008 1:00 - 4:00pm PST

1125 N.W. Couch Street, Suite 4A34  
Portland, Oregon 97209-4142  
Map Quest [\[Directions\]](#)

### CONFERENCE PHONE LINE

#### **NOTE NEW CONFERENCE LINE NUMBER**

Conference call line:(304) 345-7354; PASS CODE = 281692

To check into the building, take the elevator to the 5th floor and the guard will issue you an ID badge if you need one and will take you down to the meeting room on the 4th floor. If you have NOT attended a TMT meeting in the past you will need to call ahead and let Jim Adams (503) 808-3938, Cathy Hlebechuk (503) 808-3942, or Kevin Grode (503) 808-3945 know, so you can be added to the TMT Visitor List and issued an ID badge. This badge may be used indefinitely. If you have attended TMT in the past you may re-use your ID badge indefinitely. If you are a federal employee you will also need to have an ID badge issued to you which can be used indefinitely.

We have had disruptions on the phone because people are not hitting 'mute' after dial in.  
**Please MUTE your Phone**

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*All members are encouraged to call Robin Gumpert with any issues or concerns they would like to see addressed.  
Please e-mail her at [rgumpert@cnmv.net](mailto:rgumpert@cnmv.net) or call her at (503) 248-4703.*

## AGENDA

1. Welcome and Introductions
2. Vernita Bar - *Russell Langshaw, Grant PUD*
3. Chum Operations Update - *Dan Feil, USACE*
  - a. [\[Current Operating Teletype\]](#) 
  - b. [\[November 12-19 Chum Operations Summary\]](#) 
4. Albeni Falls Operations
  - a. Operations Update - *Lynn Melder, USACE*
  - b. Kokanee Spawning Update - *Russ Keifer, IDFG*
5. Snake River Zero Nighttime Flow - *Tony Norris, BPA*
  - [\[Summary Report for TMT\]](#) 
  - Adult Fish Counts at Lower Granite

[\[Nov-2007\]](#) [\[Dec-2007\]](#) [\[Nov-2008\]](#) 

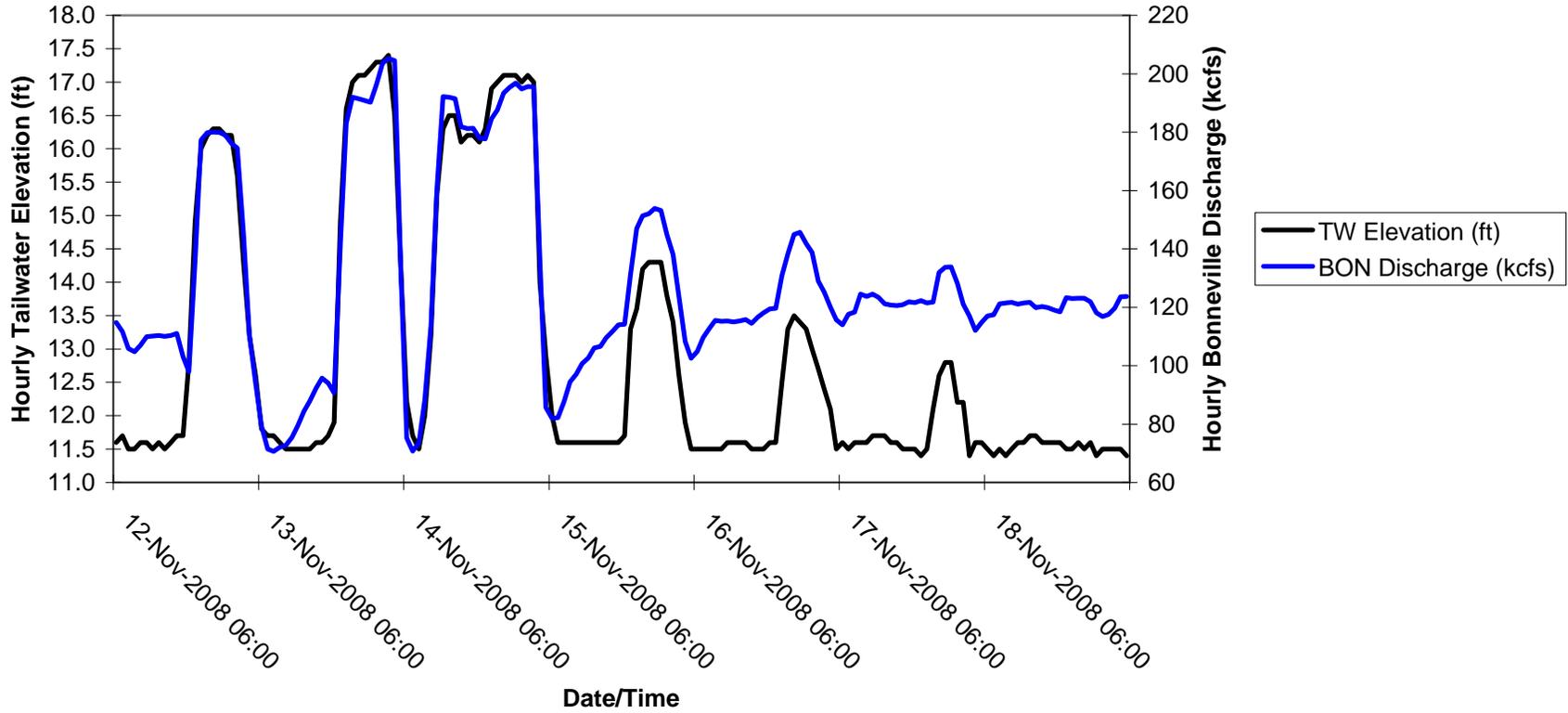
6. WMP Update - *Dan Feil, USACE*
7. Operations Review
  - a. Reservoirs
  - b. Fish
  - c. Power System
  - d. Water Quality
8. Other
  - a. Set agenda for next meeting - **December 3, 2008**  
[\[Calendar 2008\]](#) 

*Questions about the meeting may be referred to:*

*[Jim Adams](#) at (503) 808-3938, or  
[Cathy Hlebechuk](#) at (503) 808-3942, or  
[Kevin Grode](#) at (503) 808-3945.*

### 2008-09 Chum Operations

(week 2 - 11/12, 0600 hours to 11/19, 0500 hours)



## Feil, Dan H NWD

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**From:** Feil-Dan@npr70.nwd-wc.usace.army.mil  
**Sent:** Wednesday, November 12, 2008 4:10 PM  
**Subject:** CBT Msg: Bonneville chum operations #3 sent on 11/12/2008 at 16:09

Sent to: CO  
XX  
BON R 111208 1609 CO BON TDA JDA MCN BPA BPC NPD NPC NPP

ATTENTION: BONNEVILLE AND BPA

SUBJECT: BONNEVILLE TAILWATER OPERATION FOR CHUM SPAWNING

\*\*\*\*\*REPLACES TTY: BON R 110708 1450  
\*\*\*\*\*REFERENCE TTY: BON R 110608 1750

1. EFFECTIVE IMMEDIATELY UNTIL FURTHER NOTICE:

HARD CONSTRAINT 1 - OPERATE BONNEVILLE PROJECT TAILWATER ELEVATION TO NO LOWER THAN 11.3 FT DURING ALL HOURS. MAINTAIN THE CONSTRAINTS OF REFERENCE TTY.

HARD CONSTRAINT 2 - MAINTAIN 11.3 TO 11.7 FT BONNEVILLE PROJECT TAILWATER ELEVATION BETWEEN 0600-1800 HOURS DAILY. TARGET ELEVATION IS 11.5 FT. MAINTAIN THE CONSTRAINTS OF REFERENCE TTY. SEE PARAGRAPHS 5-7.

SOFT CONSTRAINT 1 - MAINTAIN 11.3 TO 11.7 FT BONNEVILLE PROJECT TAILWATER ELEVATION BETWEEN 1800-0600 HOURS DAILY. TARGET ELEVATION IS 11.5 FT. MAINTAIN THE CONSTRAINTS OF REFERENCE TTY.

2. AS NEEDED, TO PASS WATER IN EXCESS OF WHAT IS NECESSARY TO MEET HARD CONSTRAINT 2, THE PROJECT IS AUTHORIZED TO RAISE THE TAILWATER ELEVATION UP TO 13.0 FT FOR UP TO 8 HOURS ANYTIME BETWEEN 1800-0600 HOURS, MAINTAIN THE CONSTRAINTS OF REFERENCE TTY.

3. IF 8 HOURS ANYTIME BETWEEN 1800-0600 HOURS SPECIFIED IN PARAGRAPH 2 IS NOT ENOUGH TIME TO PASS EXCESS WATER TO MAINTAIN HARD CONSTRAINT 2, THEN RAISE TAILWATER ELEVATION UP TO 15.0 FT FOR A 4 HOUR PERIOD BETWEEN 2200-0400 HOURS (WITHIN NORMAL RAMP RATE). MAINTAIN THE CONSTRAINTS OF REFERENCE TTY.

4. IF ACTIONS IN PARAGRAPHS 2 AND 3 ARE NOT SUFFICIENT TO PASS WATER IN EXCESS OF WHAT IS NECESSARY TO MEET HARD CONSTRAINT 2, THEN RAISE TAILWATER ELEVATION AS HIGH AS NECESSARY BETWEEN 1800-0600 HOURS (AS NORMAL RAMP RATE ALLOWS). MAINTAIN THE CONSTRAINTS OF REFERENCE TTY.

5. IF PARAGRAPH 4 IS NOT SUFFICIENT TO PASS EXCESS FLOW AND MAINTAIN HARD CONSTRAINT 2 BETWEEN 0600-1800 HOURS, THEN INCREASE TAILWATER ELEVATION UP TO 15.0 FT BETWEEN 1500-1800 HOURS (AS NORMAL RAMP RATE ALLOWS). RETURN TO HARD CONSTRAINT 2 AS SOON AS RIVER FLOW ALLOWS. MAINTAIN THE CONSTRAINTS OF REFERENCE TTY.

6. IF ACTIONS IN PARAGRAPHS 2-5 ARE NOT SUFFICIENT TO MAINTAIN HARD CONSTRAINT 2, THEN INCREASE TAILWATER ELEVATION AS NECESSARY UP TO 12.3 FT BETWEEN 0600-1800 HOURS. THIS ACTION ESTABLISHES A NEW HARD CONSTRAINT (HARD CONSTRAINT 3) WITH A TAILWATER ELEVATION RANGE THAT EXTENDS FROM THE HIGHEST TAILWATER ELEVATION ACHIEVED (UP TO 12.3 FT) DOWN TO THE UPPER TAILWATER ELEVATION ACHIEVED MINUS 0.4 FT BETWEEN 0600-1800 HOURS. MAINTAIN THE CONSTRAINTS OF REFERENCE TTY.

7. IF HARD CONSTRAINT 3 IDENTIFIED IN PARAGRAPH 6 CANNOT BE MAINTAINED, THEN AMEND HARD CONSTRAINT 3 TO INCLUDE AN UPPER TAILWATER ELEVATION LIMIT OF 12.5 FT BETWEEN 0600-1800 HOURS. THIS ACTION ESTABLISHES A NEW HARD CONSTRAINT (HARD CONSTRAINT 4) WITH A TAILWATER ELEVATION RANGE THAT EXTENDS FROM THE HIGHEST TAILWATER ELEVATION ACHIEVED (UP TO 12.5 FT) DOWN TO THE UPPER TAILWATER ELEVATION ACHIEVED MINUS 0.4 FT BETWEEN 0600-1800 HOURS.

MAINTAIN THE CONSTRAINTS OF REFERENCE TTY.

8. THE OFFICIAL PROJECT TAILWATER ELEVATION GAGE IS LOCATED ON THE OREGON SIDE 0.9 MILES DOWNSTREAM FROM BONNEVILLE DAM FIRST POWERHOUSE, 50 FEET UPSTREAM FROM TANNER CREEK AND AT RIVER MILE 144.5.

9. REQUEST BPA AND BONNEVILLE PROJECT COORDINATE TO ACHIEVE THE REQUESTED TAILWATER OPERATION. IT IS RECOGNIZED THAT TIDAL EFFECTS, WIND, AND WAVES MAY IMPACT THE ABILITY TO MAINTAIN THE OPERATION.

10. THIS OPERATION WAS DISCUSSED AND COORDINATED ON THE NOVEMBER 12 TMT CONFERENCE CALL. TMT MEMBERS PRESENT ON THE CALL WERE PAUL WAGNER (NOAA), JOHN ROACHE (BOR), TONY NORRIS (BPA), RICK KRUGER (OR), RUSS KEIFER (ID), AND CINDY LEFLEUR (WA). THE OPERATION WAS ALSO COORDINATED WITH STEVE SASS (BON). RCC POINTS OF CONTACT ARE DAN FEIL AND JIM ADAMS.

DAN FEIL

CENWD/RCC08

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# Monthly Adult Fish Counts

## Lower Granite - November 2007

**U.S. Army Corps of Engineers**  
Portland District

Date	Chinook Adults	Chinook Jacks	Steelhead (total)	Steelhead (wild)	Shad	Sockeye	Lamprey	Coho Adults	Coho Jacks	Chum	Pink
11/1/2007	8	16	875	160	0	0	0	14	5	0	0
11/2/2007	20	5	884	164	0	0	0	13	1	0	0
11/3/2007	15	7	609	103	0	0	0	4	0	0	0
11/4/2007	27	12	957	136	0	0	0	10	1	0	0
11/5/2007	5	2	282	56	0	0	0	3	0	0	0
11/6/2007	4	2	204	41	0	0	0	5	0	0	0
11/7/2007	11	3	270	67	0	0	0	5	0	0	0
11/8/2007	8	3	301	49	0	0	0	3	0	0	0
11/9/2007	8	5	306	51	0	0	0	3	0	0	0
11/10/2007	4	5	358	72	0	0	0	0	0	0	0
11/11/2007	5	4	276	60	0	0	0	2	1	0	0
11/12/2007	2	0	239	50	0	0	0	2	0	0	0
11/13/2007	3	0	141	25	0	0	0	0	1	0	0
11/14/2007	0	2	103	24	0	0	0	1	0	0	0
11/15/2007	7	1	189	39	0	0	0	2	0	0	0
11/16/2007	2	1	196	55	0	0	0	1	0	0	0
11/17/2007	2	1	262	64	0	0	0	0	0	0	0
11/18/2007	2	1	252	62	0	0	0	1	0	0	0
11/19/2007	1	1	132	37	0	0	0	0	0	0	0
11/20/2007	0	0	98	27	0	0	0	0	0	0	0
11/21/2007	1	0	141	32	0	0	0	0	0	0	0
11/22/2007	4	0	127	39	0	0	0	3	0	0	0
11/23/2007	2	0	170	41	0	0	0	0	0	0	0
11/24/2007	3	1	156	30	0	0	0	0	0	0	0
11/25/2007	-1	0	133	23	0	0	0	2	0	0	0
11/26/2007	0	0	82	11	0	0	0	0	0	0	0
11/27/2007	0	1	108	31	0	0	0	0	0	0	0
11/28/2007	0	0	119	26	0	0	0	0	0	0	0
11/29/2007	0	0	191	45	0	0	0	0	0	0	0
11/30/2007	1	0	108	24	0	0	0	0	0	0	0
<b>Total</b>	<b>144</b>	<b>73</b>	<b>8269</b>	<b>1644</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>74</b>	<b>9</b>	<b>0</b>	<b>0</b>
Date	Chinook Adults	Chinook Jacks	Steelhead (total)	Steelhead (wild)	Shad	Sockeye	Lamprey	Coho Adults	Coho Jacks	Chum	Pink

Report Run: 11/19/2008 11:35:27 AM

# Monthly Adult Fish Counts

## Lower Granite - December 2007

**U.S. Army Corps of Engineers**  
Portland District

Date	Chinook Adults	Chinook Jacks	Steelhead (total)	Steelhead (wild)	Shad	Sockeye	Lamprey	Coho Adults	Coho Jacks	Chum	Pink
12/1/2007	-1	0	151	30	0	0	0	0	0	0	0
12/2/2007	2	0	143	26	0	0	0	0	0	0	0
12/3/2007	2	2	103	25	0	0	0	0	0	0	0
12/4/2007	0	-2	232	61	0	0	0	0	0	0	0
12/5/2007	0	0	101	18	0	0	0	0	0	0	0
12/6/2007	0	0	110	27	0	0	0	0	0	0	0
12/7/2007	0	0	155	31	0	0	0	0	0	0	0
12/8/2007	0	0	305	76	0	0	0	0	0	0	0
12/9/2007	0	0	179	38	0	0	0	0	0	0	0
12/10/2007	0	0	117	34	0	0	0	0	0	0	0
12/11/2007	0	0	107	19	0	0	0	0	0	0	0
12/12/2007	0	-1	116	23	0	0	0	0	0	0	0
12/13/2007	0	0	204	55	0	0	0	0	0	0	0
12/14/2007	0	0	109	24	0	0	0	0	0	0	0
12/15/2007	0	0	146	43	0	0	0	0	0	0	0
12/16/2007	0	0	131	35	0	0	0	0	0	0	0
12/17/2007	0	0	49	8	0	0	0	0	0	0	0
12/18/2007	0	0	31	8	0	0	0	0	0	0	0
12/19/2007	0	0	64	16	0	0	0	0	0	0	0
12/20/2007	0	0	50	12	0	0	0	0	0	0	0
12/21/2007	0	0	66	14	0	0	0	0	0	0	0
12/22/2007	0	0	40	10	0	0	0	0	0	0	0
12/23/2007	0	0	54	7	0	0	0	0	0	0	0
12/24/2007	0	0	109	23	0	0	0	0	0	0	0
12/25/2007	0	0	66	11	0	0	0	0	0	0	0
12/26/2007	0	0	42	6	0	0	0	0	0	0	0
12/27/2007	0	0	38	8	0	0	0	0	0	0	0
12/28/2007	0	0	46	8	0	0	0	0	0	0	0
12/29/2007	0	0	63	8	0	0	0	0	0	0	0
12/30/2007	0	0	29	6	0	0	0	0	0	0	0
12/31/2007	0	0	25	5	0	0	0	0	0	0	0
<b>Total</b>	<b>3</b>	<b>-1</b>	<b>3181</b>	<b>715</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
Date	Chinook Adults	Chinook Jacks	Steelhead (total)	Steelhead (wild)	Shad	Sockeye	Lamprey	Coho Adults	Coho Jacks	Chum	Pink

Report Run: 11/19/2008 11:36:11 AM

# Monthly Adult Fish Counts

## Lower Granite - November 2008

**U.S. Army Corps of Engineers**  
Portland District

Date	Chinook Adults	Chinook Jacks	Steelhead (total)	Steelhead (wild)	Shad	Sockeye	Lamprey	Coho Adults	Coho Jacks	Chum	Pink
11/1/2008	18	22	398	99	0	0	0	5	2	0	0
11/2/2008	16	21	535	131	0	0	0	5	0	0	0
11/3/2008	8	14	262	89	0	0	0	4	2	0	0
11/4/2008	6	20	336	92	0	0	0	1	1	0	0
11/5/2008	9	10	385	86	0	0	0	7	1	0	0
11/6/2008	10	14	305	72	0	0	0	6	1	0	0
11/7/2008	16	8	350	90	0	0	0	2	1	0	0
11/8/2008	23	9	197	67	0	0	0	3	0	0	0
11/9/2008	13	7	234	53	0	0	0	1	0	0	0
11/10/2008	7	5	234	44	0	0	0	1	0	0	0
11/11/2008	12	3	337	71	0	0	0	1	0	0	0
11/12/2008	10	1	294	63	0	0	0	1	0	0	0
11/13/2008	11	3	273	52	0	0	0	1	0	0	0
<b>Total</b>	<b>159</b>	<b>137</b>	<b>4140</b>	<b>1009</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>38</b>	<b>8</b>	<b>0</b>	<b>0</b>
Date	Chinook Adults	Chinook Jacks	Steelhead (total)	Steelhead (wild)	Shad	Sockeye	Lamprey	Coho Adults	Coho Jacks	Chum	Pink

Report Run: 11/19/2008 11:33:24 AM

### Number of Hours at Zero Generation on the Lower Snake River January through February 2008

	Lower Granite	Little Goose	Ice Harbor	Lower Monumental	Total hours
January=	12	0	13	8	33
February=	28	83	88	87	286
Total=	40	83	101	95	319

# occurrences duration longer that 6 hours= 0

# instances outside of 2200 hrs to 0600 hours= 0

### Number of occurrences of Zero Generation on the Lower Snake River January through February 2008

	Lower Granite	Little Goose	Ice Harbor	Lower Monumental	Totals
January=	5	0	5	2	12
February=	10	23	27	27	87
Total=	15	23	32	29	99

Histogram of Zero Generation Hours					
	Lower Granite	Little Goose	Ice Harbor	Lower Monumental	
<i>Hours</i>	<i>Frequency</i>	<i>Frequency</i>	<i>Frequency</i>	<i>Frequency</i>	
1	4	14	3	6	
2	12	19	15	22	
3	15	22	23	28	
4	8	18	28	23	
5	0	6	21	13	
6	0	0	10	2	
7	0	0	0	0	
8	0	0	0	0	
9	0	0	0	0	
10	0	0	0	0	
11	0	0	0	0	
12	0	0	0	0	
13	0	0	0	0	
14	0	0	0	0	
15	0	0	0	0	
16	0	0	0	0	
17	0	0	0	0	
18	0	0	0	0	
19	0	0	0	0	
20	0	0	0	0	
21	0	0	0	0	
22	0	0	0	0	
23	0	0	0	0	
24	1	4	1	1	

Note: This year's zero gen was used more frequently than 2007 (69) but generally for shorter duration (339) in each case.

# COLUMBIA RIVER REGIONAL FORUM

## TECHNICAL MANAGEMENT TEAM

November 19, 2008 Meeting

### FACILITATOR'S SUMMARY NOTES ON FUTURE ACTIONS

Facilitator: Robin Gumpert

Notes: Erin Halton

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**

The November 5<sup>th</sup>, 7<sup>th</sup>, and 12<sup>th</sup> facilitator notes and official meeting minutes were expected to be posted during the afternoon of 11/19; TMT will look to finalize these sets and the notes from today's meeting at the 12/3 TMT meeting.

#### **Vernita Bar**

Russell Langshaw, Grant County PUD, reported that an aerial survey had been conducted on 11/15, the first in a few years. Also, feasibility study preparation work was conducted on 11/16 and will continue on Sundays for the next 4-5 weeks. Langshaw said that a final redd count will be conducted on 11/23 and noted that he expected the minimum elevation target to be set in the 55-60 kcfs range. He added that based on counts thus far, the spawning numbers for this year will exceed pre-season estimates.

**Action/Next Steps:** Langshaw will provide a review/update at the 12/3 TMT meeting. Additionally, Paul Wagner, NOAA, planned to include a piece on Vernita Bar operations at the 2008 TMT year-end-review meeting on 11/21.

#### **Chum Operations**

Dan Feil, COE, referred TMT to the 11/12 COE teletype posted as a link to the TMT agenda. Also posted was a chum operations summary and graph for the dates 11/12-19. Feil clarified how the previous week's precipitation was reflected in the graph and noted that additional coordination with NOAA had been done during that time to make operational decisions. The graph indicated flow increases during nighttime hours followed by a return to daytime elevation targets. Paul Wagner, NOAA, and Dave Benner, Fish Passage Center (FPC), referred TMT to the FPC website, which showed 28 live, 4 redds and 2 dead chum were counted on 11/18. Most of the observed females were green, which indicates that the season is in an early stage.

**Action/Next Steps:** TMT will discuss Chum Operations and updated data from counts conducted during the week of 11/24 at their meeting on 12/3. If the need arises, there could be a conference call between now and then.

### **Albeni Falls Operations Update**

Lynn Melder, COE, reported that Albeni Falls achieved its elevation target of 2051' and that the project will stay within a .5' operating range and pass inflows for the near term. Russ Kiefer, ID, reported that 959 Kokanee redds had been counted thus far – a dramatic increase compared to last year's count of 325. Kiefer added that he was encouraged by the large size of the fish.

**Action/Next Steps:** Russ Kiefer, Idaho, will provide a spawning update at the 12/3 TMT meeting; TMT will discuss the feedback and “post-spawning” operations during the 12/3 meeting.

### **Snake River Zero Nighttime Flow**

Tony Norris, BPA, referred TMT to graphs posted as a link to the TMT agenda. The graphs included January-February 2008 data regarding total hours at zero generation for each of the four lower Snake River projects, as well as the number of instances of exceedances and a histogram of all zero generation hours. As current passage counts show steelhead are still close to 300/day at Lower Granite, there was no recommendation at this time to implement zero nighttime flow flexibility; TMT will revisit this agenda item in December. Paul Wagner, speaking on behalf of the Salmon Managers, said that criteria developed by FPAC in 2005 will help guide discussions for this year. Scott Bettin, BPA, reminded TMT that video counts will continue through December this year, and asked whether this could provide an opportunity to test the effects of a shift to zero nighttime flow. Wagner said that as the effects would likely not be dramatic, the Salmon Managers would likely not propose this test.

**Action/Next Steps:** In reviewing the graph, Norris noticed an error in his selected range and said he would send a revised graph to the COE, for re-posting following the meeting. The COE planned to post the most recent passage data to the agenda later in the day on 11/19. TMT will discuss this agenda item at the 12/3 meeting.

### **2009 Draft Water Management Plan**

Dan Feil, COE, reported that comments had been submitted by NOAA, WA, and USFWS; Russ Kiefer, ID, indicated that comments were en route to Feil.

**Action/Next Steps:** The COE will post all comments and a revised version of the Water Management Plan (WMP) to the TMT website. TMT will review the revised version at the 12/3 meeting and the document will need to be finalized by the end of the year. The COE planned to post the Fall/Winter Update to the WMP and the Fish Passage Plan as soon as they are made available for regional review.

### **Operations Review**

**Reservoirs:** Grand Coulee was at elevation 1286.9' and Hungry Horse was at elevation 3528.98', with outflows of 1.3 kcfs. John Roache, BOR, followed up on the planned 11/12-13<sup>th</sup> outages at Hungry Horse to investigate the cause of the outage experienced back on 11/3 and to test plant protection circuits (Montana DEQ and Montana Fish Wildlife & Parks were notified): there was a slight TDG exceedance during the outage on

11/12, but none to report during the outage on 11/13. No further outages were planned. Libby was at elevation 2438.6', with inflows of 5 kcfs and outflows of 16 kcfs. Albeni Falls was at 2051.3' and continued to operate within a .5' range, as it has since 11/7. Dworshak was at 1524.9', with inflows of 3.2 kcfs and outflows of 1.6 kcfs. Seven day average inflows were 29.8 kcfs at Lower Granite, 112.2 kcfs at McNary and 128.2 kcfs at Bonneville. (Jim Adams, COE noted that on 11/14, flows at McNary were 152.6 kcfs and 165 kcfs at Bonneville.)

Fish: Paul Wagner, NOAA, referred to the FPC website and noted that the next few weeks look to be “prime time” for chum spawning. The COE noted that there will be a chum workshop hosted by Pacific Northwest Laboratories at the Skamania Lodge on 12/2. Wagner and other TMT members said they planned to attend and would bring any items of interest back to TMT for the 12/3 meeting.

Power System: Nothing to report at this time.

Water Quality: Nothing to report at this time.

### **Next Meeting: 12/3**

Agenda items include:

- Vernita Bar Operations Review
- Chum Operations
- Albeni Falls Update/Post-spawning Operations
- Snake River Zero Nighttime Flow
- WMP – Edits Review
- Operations Review

## **Columbia River Regional Forum Technical Management Team Meeting Nov. 19, 2008**

### ***1. Introduction***

Today's TMT meeting was chaired by Jim Adams (COE) and facilitated by Robin Gumpert (DS Consulting) with representatives of USFWS, COE, NOAA, BPA, BOR, Idaho, Washington, 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. Meeting notes for Nov. 5, 7, and 12 will be reviewed at the next TMT meeting Dec. 3.

### ***2. Vernita Bar***

Aerial photos of redds taken Nov. 15 were unusually good, and the pilot saw as many redds this year as he's ever seen, Russell Langshaw (Grant PUD) reported. The final count was around 5,000 redds. Two types of surveys are

conducted, visual counts and rectified aerial photos. The photo technology gives a clearer view from 5,000 feet than the naked eye, allowing exact redd locations to be pinpointed. Langshaw will work with Paul Wagner (NOAA) to provide a summary report of this operation for TMT, and will give another update at the next TMT meeting on Dec. 3rd.

### **3. Chum Operations Update**

Last week TMT revised the teletype instructions for this operation; the current teletype is posted to today's agenda, Dan Feil (COE) said. The second link to this item on today's agenda is a summary of the past week's operation, including tailwater levels and Bonneville discharges since Nov. 12. On Nov. 14, the situation came to a head, with target elevations about to be exceeded. The COE conferred with NOAA on the best plan of action to release flows in order to keep the tailwater elevation within the 11.3-11.7 foot target. The Bonneville tailwater elevation spiked to 16.5 feet that day, but the following day, flows were back under control.

Since Friday the situation has improved, with drier weather and stable elevations during daytime. The only spikes are at night, which means the COE still has to move water at night in order to maintain the target elevation during the daytime. Maintaining the forebay elevation was a challenge even when the COE had 4 feet of flexibility to work with, Tony Norris emphasized. Precipitation has been a classic problem for the chum operation, when heavy flows into Bonneville pool have nowhere to go and must be released. Earlier this season, the chum operation dodged a potential bullet when a weather front moved north.

Through Nov. 18, the Fish Passage Center counted 28 live chum and 2 dead ones. Dave Benner (FPC) guided TMT to chum counts on the FPC website, found under the chum tab at the bottom of the page. On Nov. 14, surveyors reported 28 fish, which is no increase from Nov. 10, Wagner noted. In addition, surveyors found that most of the females were green. This means it's still early in the season, a good thing, and the fish probably aren't late, compared to previous years' runs. Nevertheless this doesn't portend to be a great year, based on counts to date, unless the chum arrive all at once. The Hanford count, done the last week before Thanksgiving, is often the peak. Benner will add chum data for Nov. 14 to the FPC website. TMT will revisit this issue at its next meeting Dec. 3.

### **4. Albeni Falls**

**a. Operations.** The target elevation of 2,051 feet was met Dec. 8 and the project has operated within a ½-foot range since then, Lynne Melder (COE Seattle) reported. The project is currently at 2,051.3 feet and passing inflows.

**b. Kokanee Spawning.** Idaho researchers have counted 959 adult spawners to date, a huge rebound compared to last year's count of 325 redds,

Russ Kiefer (Idaho) reported. Furthermore, the fish were relatively large, indicating more eggs per female than usual. The COE has held the lake at the requested elevation, and now all that's needed are storms to clean gravel for next year's spawning. Kokanee spawning, monitored every few days, is still in progress. Kiefer will notify TMT when spawning is to be declared complete. TMT will revisit this topic at its next meeting, unless the end of spawning occurs before Dec. 3.

### **5. Snake River Zero Nighttime Flow**

Tony Norris (BPA) led a discussion of zero generation during nighttime hours on the lower Snake River. This operation is traditionally included in the fall/winter update to the WMP. Norris explained three graphs linked to this topic on today's agenda: The first graph breaks down the total number of hours of zero generation last season (319), broken out by month starting January 1, 2008. The second graph shows the number of times (99) the operation went to zero generation. The third graph, a histogram showing usage per hour, is incorrect and will be updated and reposted.

Last year's discussion of zero generation focused on the number of fish passing ladders. Fish counts this year are twice what they were last year, with steelhead passage nearing 300 per day. Last year, the zero generation operation didn't start until fish ladders went out of service on Jan. 1, 2008. Norris proposed checking in on fish counts in mid-December, possibly starting the operation then.

Although zero generation occurs at night when typically migration ceases, much remains unknown about the characteristics of juvenile downstream passage at this time of year, Wagner (NOAA) said. It has been difficult to get precise information on how nighttime zero generation affects passage in cold weather when fish are less active anyway. In 2005, FPAC developed criteria for initiating zero generation based on a percentage of fish passing through Bonneville Dam, and passage counts have exceeded the criteria in previous Decembers. In recent years this issue has been settled by waiting for the fish ladders at Lower Granite Dam to go out of service.

Scott Bettin (BPA) suggested going to zero generation in December this year to see if any change can be detected in fish counts while the video cameras are still operating. Past studies have already looked at December passage, and any effects of zero generation would be too subtle to result in dramatic fluctuations, Wagner said. There was discussion of how to measure the impact of zero flow at nighttime when video counts occur only in the daytime. The issue is more one of how fish approach the project, so it might not show up in a fish count, Dennis Schwartz (COE) and Wagner agreed. Last year, video counts at Lower Granite were extended through December. TMT will revisit this issue at its next meeting Dec. 3.

## **6. Water Management Plan Update**

The COE has received comments from NOAA and Washington. Dan Feil (COE) didn't update the plan for today because comments are still coming from Idaho, USFWS, and possibly others. The BiOp specifies that the WMP draft be finalized by Jan. 1, and the fall/winter update be released Nov. 1. There won't be significant differences in this year's fall/winter update from previous years, Feil said. TMT agreed this year's chum operation should be incorporated in the fall/winter update of the WMP. The final Fish Passage Plan, now being worked on, will be distributed in March as it has in past years. By Dec. 3, a draft of the WMP fall/winter update will most likely be available for another round of comments. TMT will review it then and possibly set a date for making it final.

## **7. Operations Review**

**a. Reservoirs.** Grand Coulee is at elevation 1,286.9 feet, John Roache (BOR) reported. The primary driver of Grand Coulee operation is supporting chum spawning at this time of year.

Hungry Horse is at 3,528.98 feet with discharges of 1.3 kcfs. There was a lot of rain last week, and the reservoir is still filling as inflows come down. There were two 2-hour planned outages on Dec. 12 and 13, during which the hollow jet valves were used to maintain flow. Montana DEQ and Montana Fish, Wildlife, and Parks were notified of the planned outage. Use of the hollow jet valves increased gas levels on Dec. 12, when outflows were 2400-2500 cfs for a 2-hour period. Gas levels peaked at 110.3% and exceeded 110% for 1.5 hours. The downstream TDG monitor was still in place so that gas levels could be monitored during the outages. There are no other planned outages at this time.

Libby is at elevation 2,438.6 feet, with inflows around 5 kcfs and outflows of 16 kcfs.

Albeni Falls is at elevation 2,051.3 feet at the Hope gage. It has been operating between 2,051 and 2,051.5 feet since Nov. 7.

Dworshak is at elevation 1,524.9 feet, with inflows of 3.2 kcfs and outflows at a minimum flow of 1.6 kcfs.

The 7-day average at Lower Granite is 29.8 kcfs; at McNary, 112.2 kcfs; at Bonneville, 128.2 kcfs.

**b. Fish.** There was nothing to report today beyond the chum data discussed earlier. Live chum counts at Ives Island from 1998-2005 indicate that prime chum spawning time is typically from Nov. 16 to Dec. 4, so next week will probably bring the height of spawning activity. Dennis Schwartz (COE) will let TMT know if there are any in-season management implications that come out of

an annual anadromous fish conference the COE is funding in Portland Dec. 8-12. Schwartz will also keep TMT informed of SRWG research funding decisions that are now in progress.

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

**d. Water Quality.** There was nothing to report today.

### ***9. Next Meeting***

The annual TMT review of lessons learned will be Nov. 21, 2008. The next regularly scheduled TMT meeting will be Dec. 3, with a rerun of today's agenda: Vernita Bar operations; chum operations; Albeni Falls operations; Snake River zero nighttime flow; a WMP update; review of meeting notes for November 5, 7, and 12; and the standard operations review. This summary prepared by consultant and writer Pat Vivian.

<b><i>Name</i></b>	<b><i>Affiliation</i></b>
Jim Adams	COE
Dave Wills	USFWS
Dennis Schwartz	COE
Paul Wagner	NOAA
Tony Norris	BPA
John Roache	BOR
Laura Hamilton	COE
Kevin Grode	COE
Dan Feil	COE

#### ***Phone:***

Lynne Melder	COE Seattle
Ken Brettmann	COE Seattle
Russ Kiefer	Idaho
Tim Heizenrader	Centaurus
Cindy LeFleur	Washington
Steve Hall	COE Walla Walla
Barry Espensen	CBB
Russ George	WMC
Dave Benner	FPC
Ruth Burris	PGE
Richelle Beck	DRA
Shane Scott	PPC
Russell Langshaw	Grant Co. PUD
Bob Diaz	Renewables
Tom Le	Puget Sound Energy

# TECHNICAL MANAGEMENT TEAM

**BOR :** John Roache / Mary Mellema

**BPA :** Robyn MacKay / Tony Norris

**NMFS:** Paul Wagner / Rich Dominigue

**USFWS**  
: David Wills / Steve Haeseker

**OR :** Rick Kruger / Ron  
Boyce

**WA** Cindy  
: LeFleur

**ID :** Russ  
Kiefer

**MT** Jim Litchfield / Brian  
: Marotz

**COE:** Jim Adams / Cathy Hlebechuk

## COLUMBIA RIVER REGIONAL FORUM

### Technical Management Team

### AGENDA Annual Review of Lessons Learned: 2008

Friday, November 21, 2008

9:00 am - 3:30 pm PST

**Portland Services Building**

1120 SW Fifth ave, 2nd Floor

Conference Room C

Portland, Oregon 97205

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## DRAFT AGENDA

*Questions about the meeting may be referred to Robin Gumpert at (503) 248-4703.*

**Purpose:** To provide an opportunity for TMT members and other interested parties to step out of the regular meeting format and review the management decisions and operations of the 2007 season in order to learn lessons that can enhance choices and decision making for 2009.

The timing of agenda items are offered as a guide for the day. Depending on information presented and group dynamics it may compress or expand. Presenters are reminded that their presentations are meant to provide visual cues that spark reflection and discussion, as opposed to a full blown analysis of the issue.

1. **9:00 Welcome, get settled and introductions** - Donna Silverberg, Facilitator
2. **9:15 Conditions Review: What were the water, weather and fish conditions that existed throughout the year? How did this year compare to others? Is there something we can learn from this? Is there anything unique that bears sharing?**
  - Weather - Kyle Dittmer, CRITFC  
[\[TMT Wx2008\]](#) 
  - Water - Cathy Hlebechuk, COE and Jim Adams, COE  
[\[2008 Runoff YE Review\]](#)   
[\[2008 WQ YE Review\]](#) 
  - Fish - Paul Wagner, NOAA and Cindy LeFleur, WA  
[\[2008 Adult Returns\]](#)
  - Lessons Learned from the 2008 Conditions Review?
- 10:15 Break
3. **10:30 Review of Specific Operations: What was learned about specific operations that were requested by TMT members or other regional entities? How effective were these operations in achieving the intended goal? Should they be continued or modified in future years? Why or why not?**

- 6-Year Review of Juvenile spring fish survival, transport percentages, travel time and delay observed under various spill conditions - *Jerry McCann, Fish Passage Center*  
[\[Fish Passage Center 6-year Review\]](#) 
- 2008 Juvenile Spring survival - *Bill Muir, NMFS Science Center*  
[\[Direct Survival of Migrating Salmonid Smolts in the Snake and Lower Columbia Rivers: Update with 2008 Results\]](#) 
- 2008 Juvenile Summer survival - *Jerry McCann, Fish Passage Center*
- Influence of In-River Population on Juvenile Survival Estimates - *Bill Muir, NMFS Science Center*
- Bonneville Screens/Debris - *Dan Feil, COE*  
[\[Bonneville Dam Debris and Guidance Screen Removal\]](#) 
- Little Goose MOP/Lower Granite Tailwater Navigation Issues - *Paul Wagner, NOAA*
- Lower Granite Adult Trap MOP Elevation - *Dan Feil, COE*  
[\[Lower Granite Dam MOP and Adult Trap Operations\]](#) 
- McNary Summer Transportation Operations/ Effects on Spill Operation - *Paul Wagner, NOAA*  
[\[McNary Transport 2008\]](#) 
- Lessons Learned from these specific operations?

**Noon: Break for Lunch**

4. **1:00 Continue Specific Operations Review, as needed**
5. **Reservoir Operations Review: How effective were the proposed actions (SORs) at achieving desired results? What changes might be necessary to enhance results in the future? How did this year compare to others?**
  - Libby Summer Operations - *Cathy Hlebechuk/Joel Fenolio, COE*  
[\[2008 Libby YE Review\]](#) 
  - Hungry Horse Operations - *John Roache, BOR*  
[\[Hungry Horse Operations 2008\]](#) 
  - Dworshak Spring/Summer Operations - *Steve Hall, Walla Walla District COE*  
[\[2008 Dworshak YE Review\]](#) 
  - Grand Coulee Operations - *John Roache, BOR*  
[\[Grand Coulee Operations 2008\]](#) 
  - 1. 2008 SOR
    - Lessons Learned from the 2008 Reservoir Operations Review? Is there more flexibility that TMT could utilize to improve in-season operations?
6. **3:00 Other Lessons Learned?** Given the review of conditions, decisions and actions throughout the day, what are the overarching lessons that could impact future work of the TMT? Are there themes that might need further discussion at a future TMT meeting or other regional work group?
7. **3:30 Adjourn**

NOTE: Lunch will be brought in for all participating in or attending the meeting. An \$8 contribution is required.

**RSVP date is November 14. Your RSVP is required to guarantee enough food for everyone! To RSVP and to make special food requests (e.g. vegetarian) please call 503-248-4703 and speak with Erin Halton.**

**Thank you in advance for your thoughtful participation.**

# 2008 Columbia River Salmon and Steelhead Returns



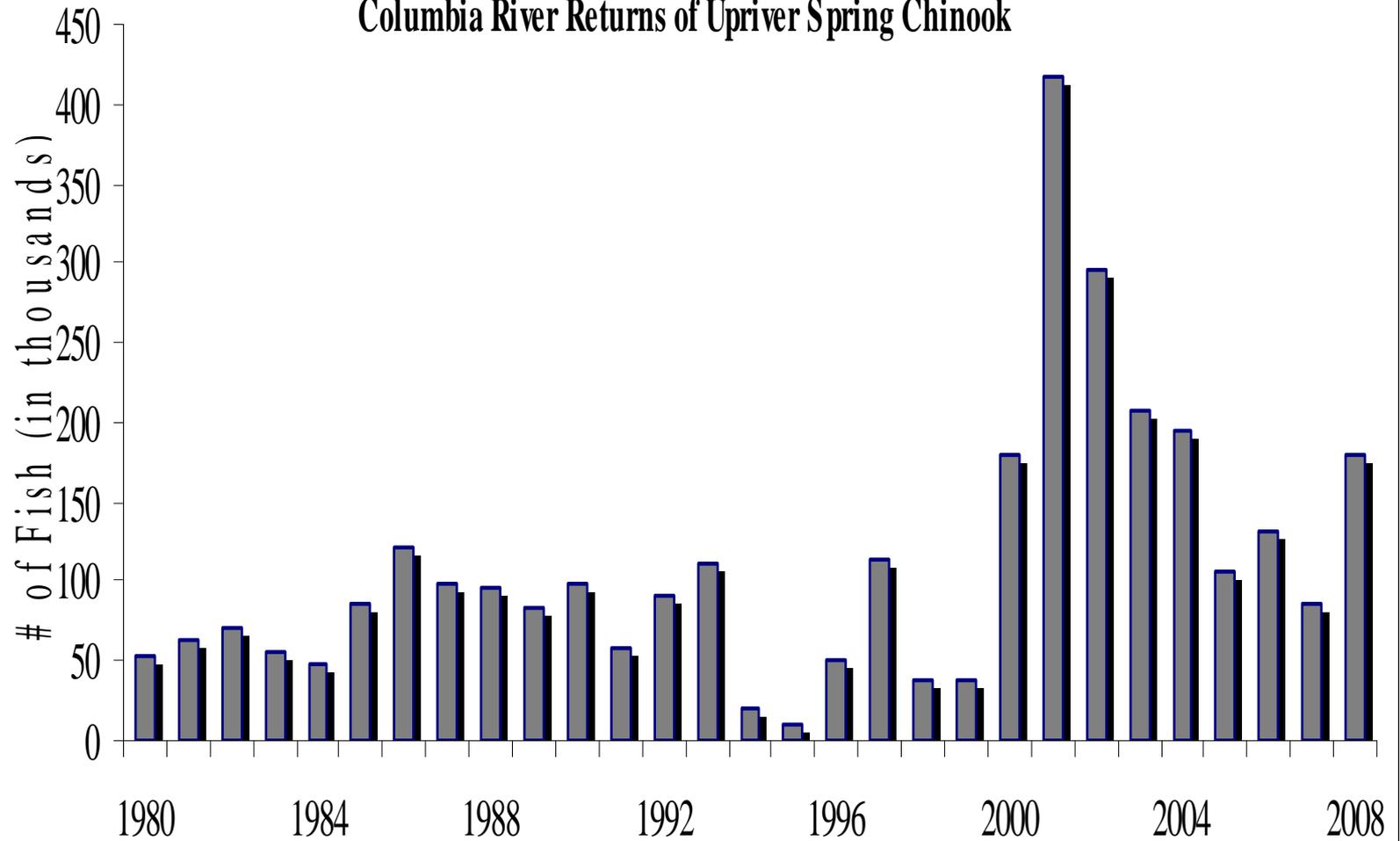
TMT – November 21, 2008

Cindy LeFleur

Washington Department of Fish and  
Wildlife

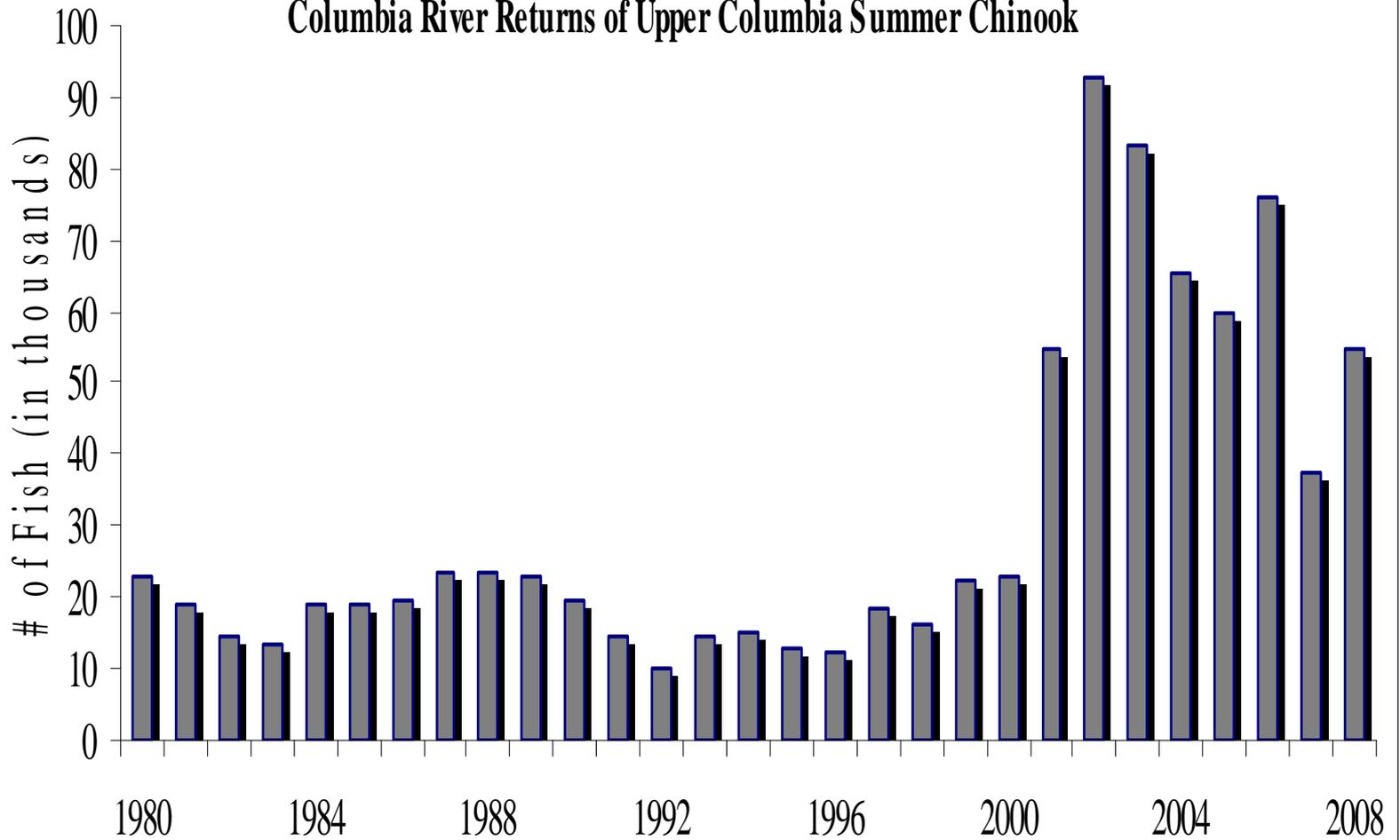


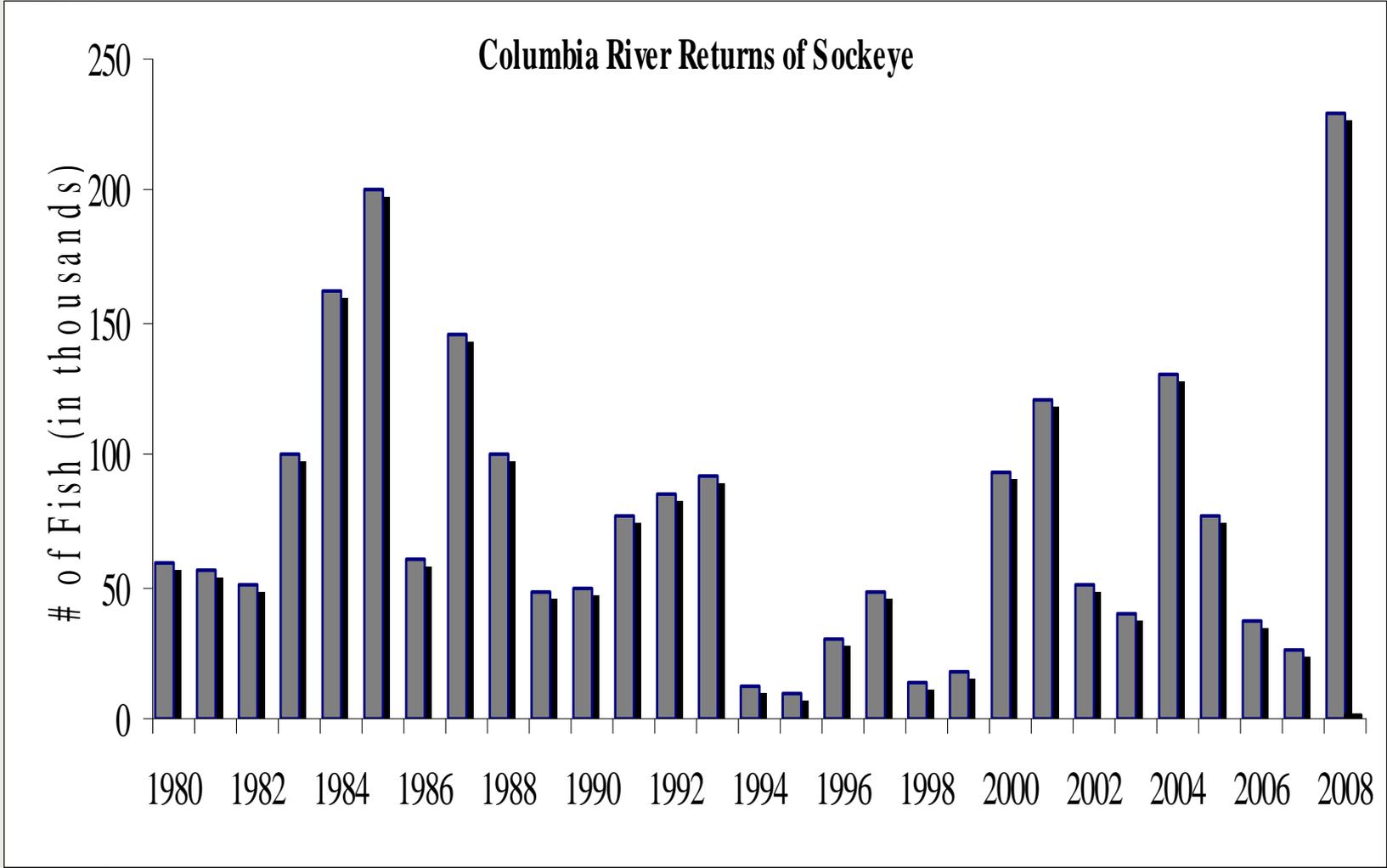
### Columbia River Returns of Upriver Spring Chinook





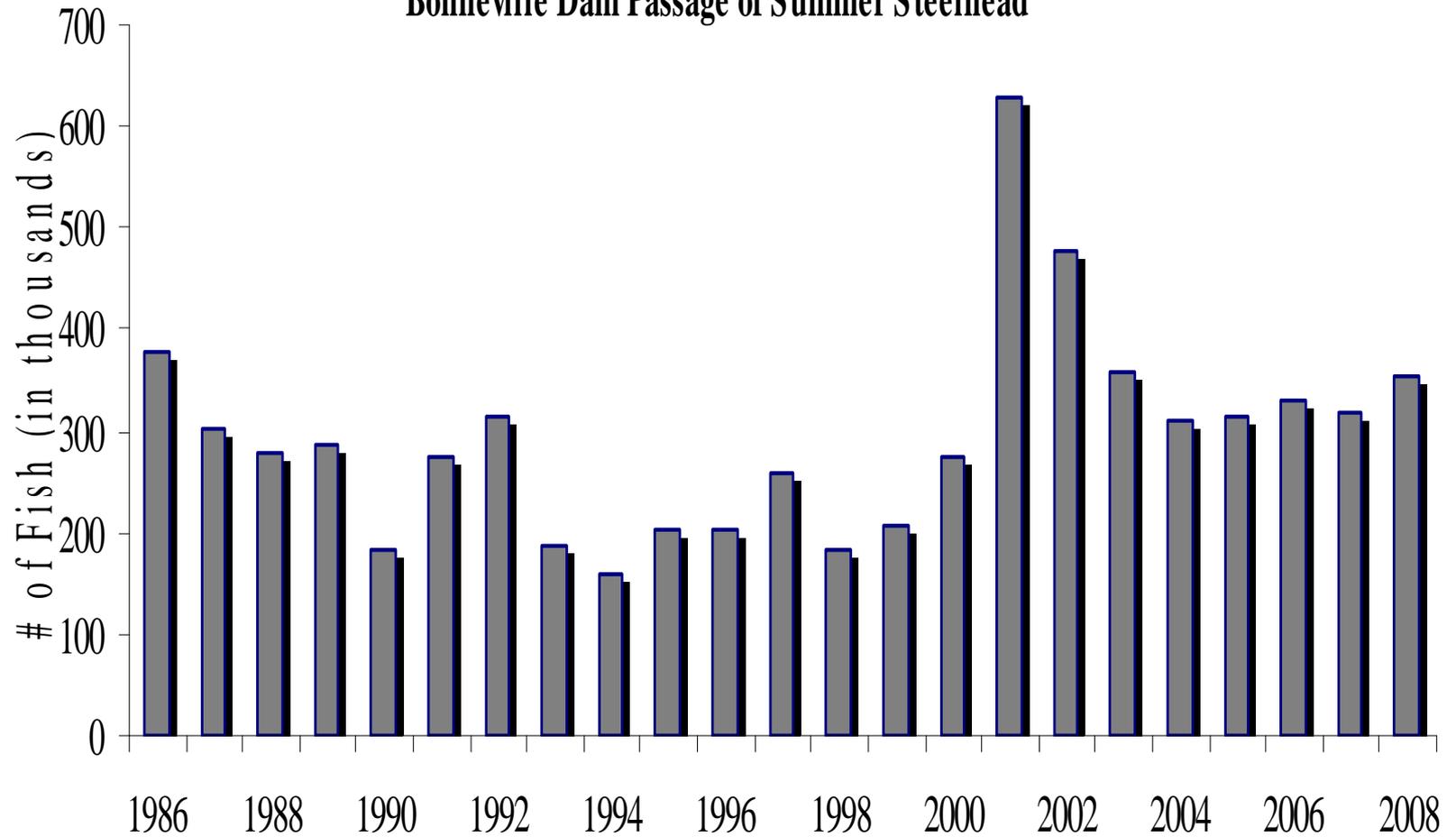
**Columbia River Returns of Upper Columbia Summer Chinook**





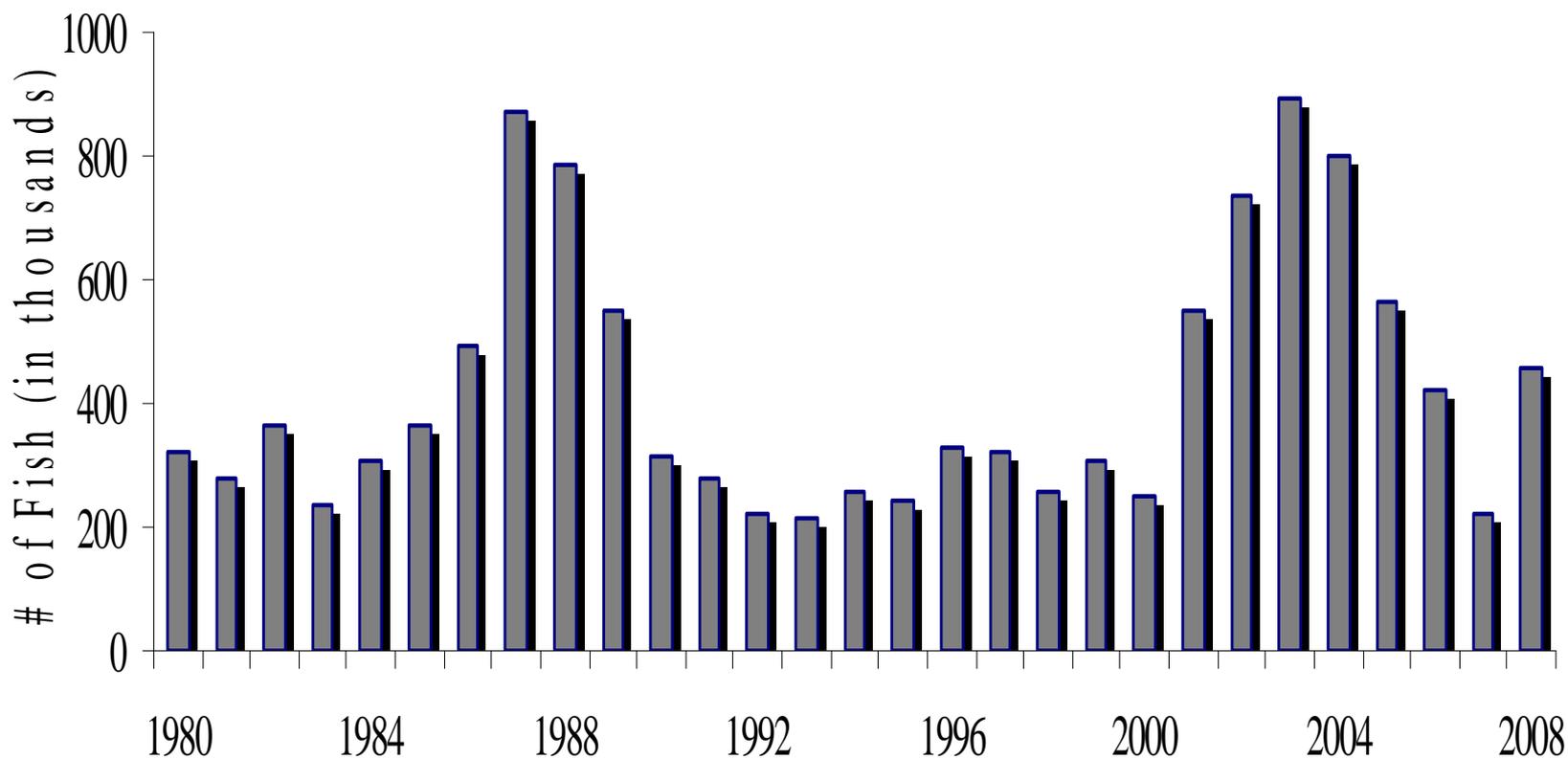


### Bonneville Dam Passage of Summer Steelhead



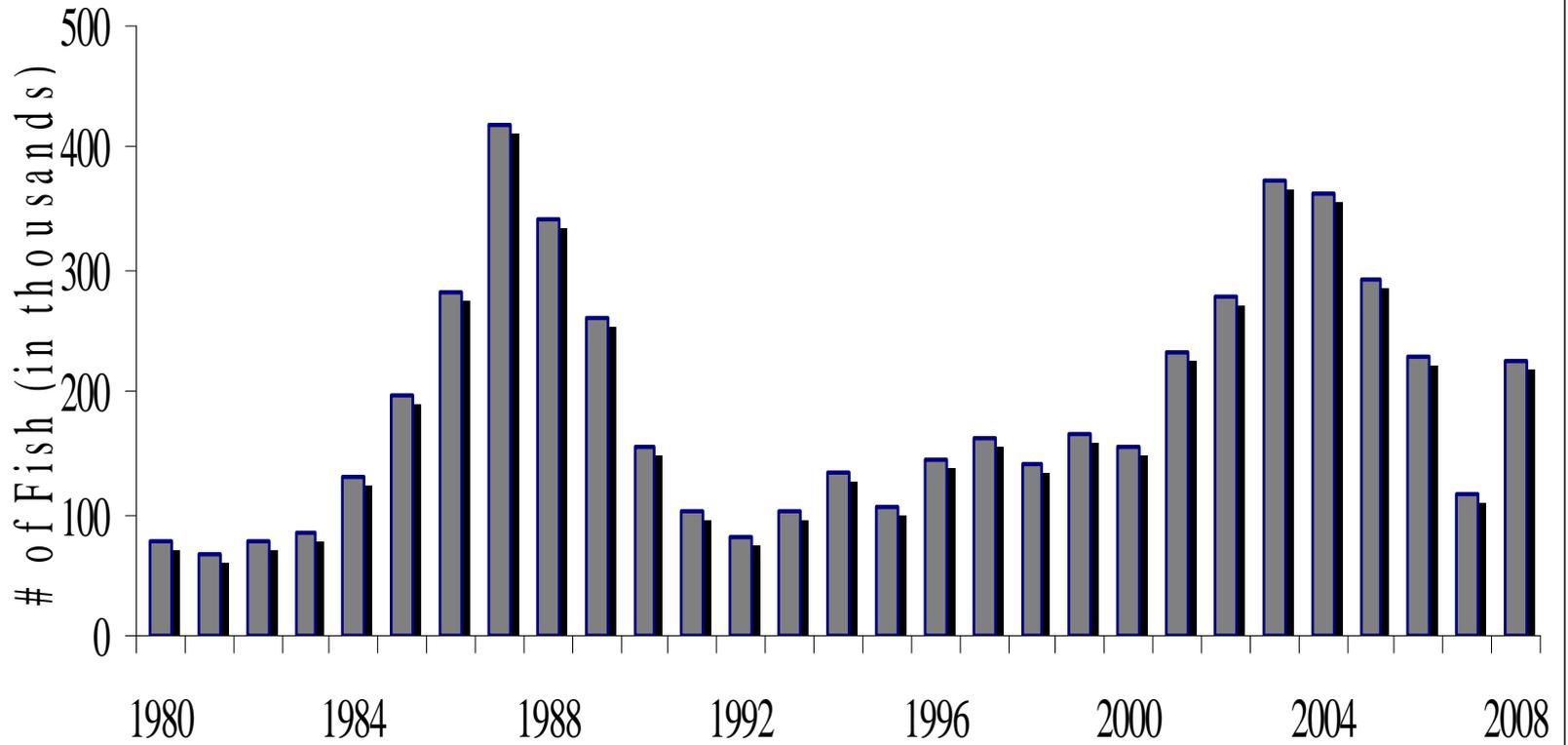


## Columbia River Returns of Fall Chinook





### Columbia River Returns of URB Fall Chinook



# Bonneville Dam

## Debris and Guidance Screen Removal

Technical Management Team  
2008 Annual Review



US Army Corps  
of Engineers

# Discussion Points

- Issue Description
- Contributing Factors
- Action Taken
- Outcome
- Lessons Learned
- Questions and Discussion



# Issue Description

- Heavy debris load at Bonneville Dam during the spring outmigration caused juvenile bypass system screens to plug
- Plugged screens resulted in increased descaling and mortality of juvenile salmonids passing through the BII juvenile bypass system



# Contributing Factors

- Volume and timing of runoff resulted in a higher debris load in 2008
- TIE crane used to clean the VBSs was out of service due to boom structural failure
  - Gantry crane was used to clean VBSs (more time consuming and less efficient cleaning method)



# Contributing Factors

- First year of operation of completed FGE improvements made at BII
  - Larger, heavier VBSs (designed to be cleaned using TIE crane, could not be fully removed from gatewells with the gantry crane)
  - Flow vanes increased gatewell discharge (nearly doubled flow and increased velocities)
  - Narrower “fry” criteria bar spacing on the VBSs collected more fine debris than previous design without fry criteria



# Action Taken

- As debris load increased, project staff were unable to keep BII VBSs clean
- The Corps determined it was necessary to remove the guidance screens to reduce excessive mortality of fish passing through the bypass system and to avoid potential screen failure
- TMT agreed that removing the screens until debris levels subsided was advisable
- Screens were removed May 21-23
- Screens were re-installed June 16-18



# Outcome

- Following screen removal, some fish continued to pass via the bypass system even with the guidance screens removed
- Descaling and mortality of juvenile salmonids passing through the juvenile bypass system returned to expected levels
- Portland District staff estimated that the difference in the overall survival of fish passing Bonneville Dam was likely negligible
  - Chinook: screens in 96.45%, screens out 96.54%
  - Steelhead: screens in 96.52%, screens out 96.45%



# Lessons Learned

- The TIE crane is essential for cleaning new VBSs when debris load becomes excessive
  - TIE crane repair to be completed prior to the 2009 fish passage season
  - Provide a more expedient and efficient means of cleaning the VBSs during high debris events
- With the new screen system in place, the project needs updated guidance protocols for handling high debris events as they occur during the fish passage season
  - The Corps and FPOM are currently tasked with developing guidance protocols for inclusion in the 2009 Fish Passage Plan



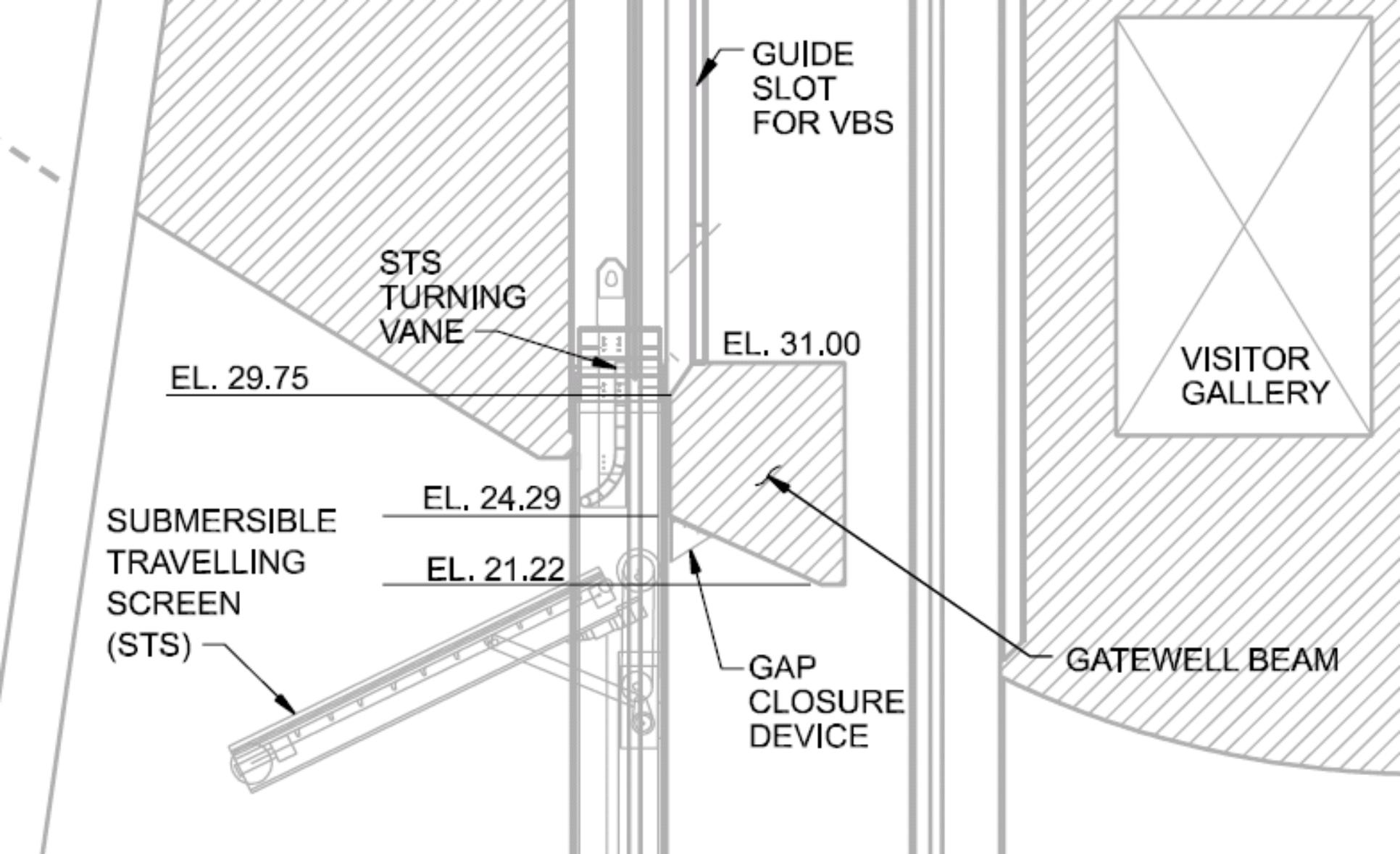
# Questions and Discussion



US Army Corps  
of Engineers



3.7.2000





# TECHNICAL MANAGEMENT TEAM 2008 Year End Review

Runoff and Spring/Summer Flows for Dworshak

Stephen Hall P.E.

November 21, 2008

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***Building Strong***

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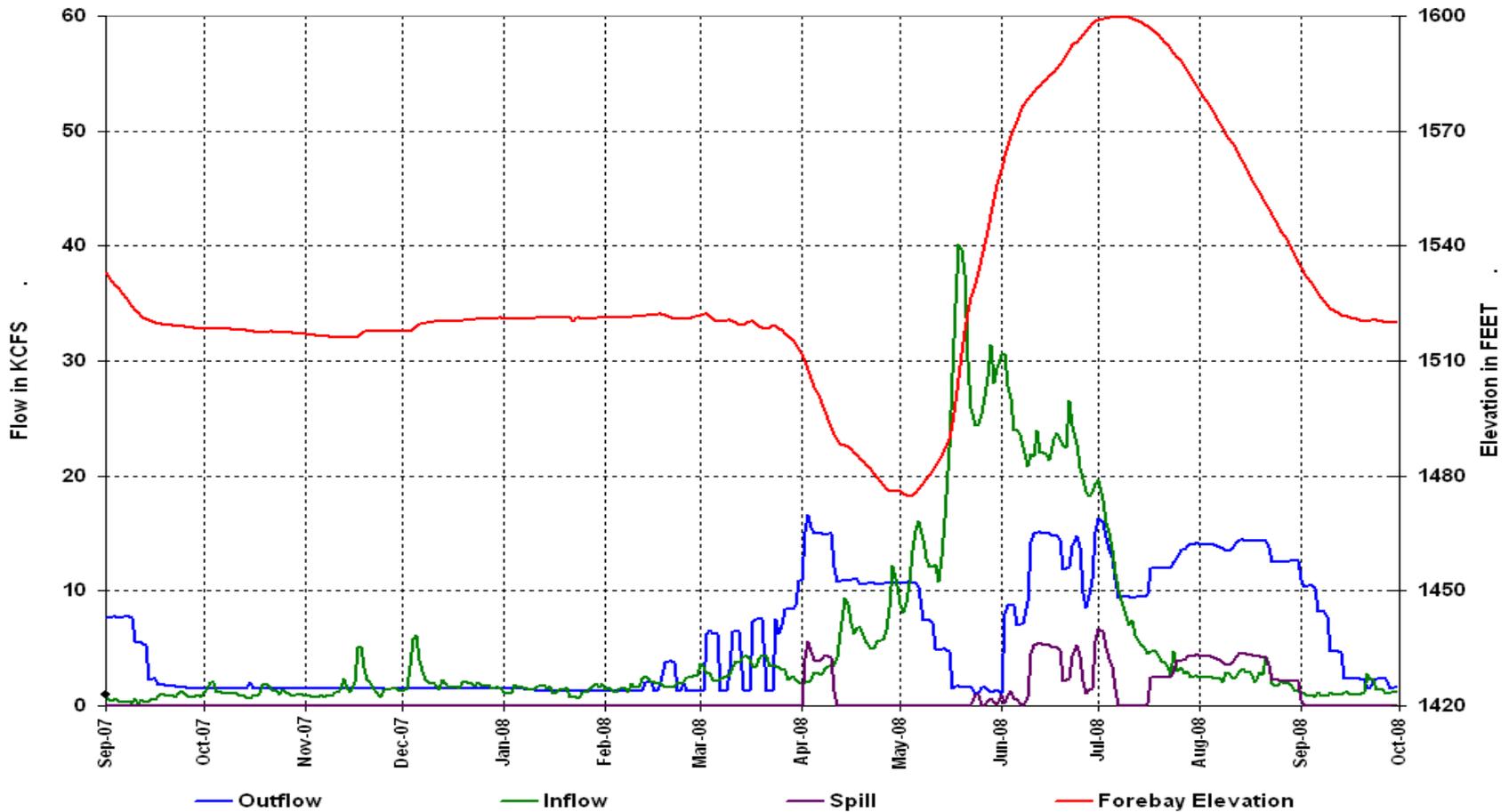


# US Army Corps of Engineers



## Dworshak

September 01, 2007 to October 01, 2008

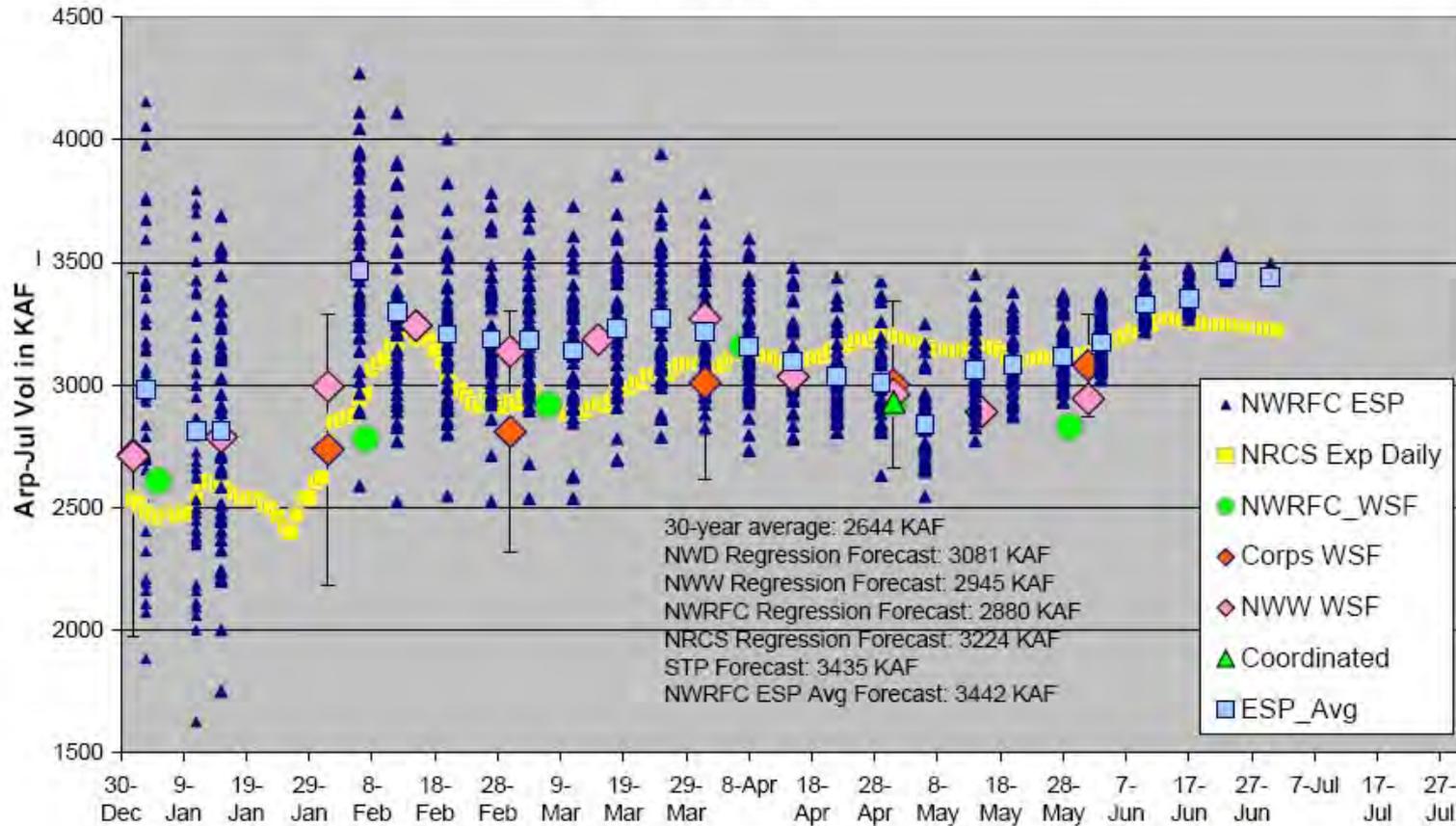


***Building Strong***



## Dworshak, ID April-July Inflow Volume Forecast Comparison

updated 01-Jul-2008



***Building Strong***

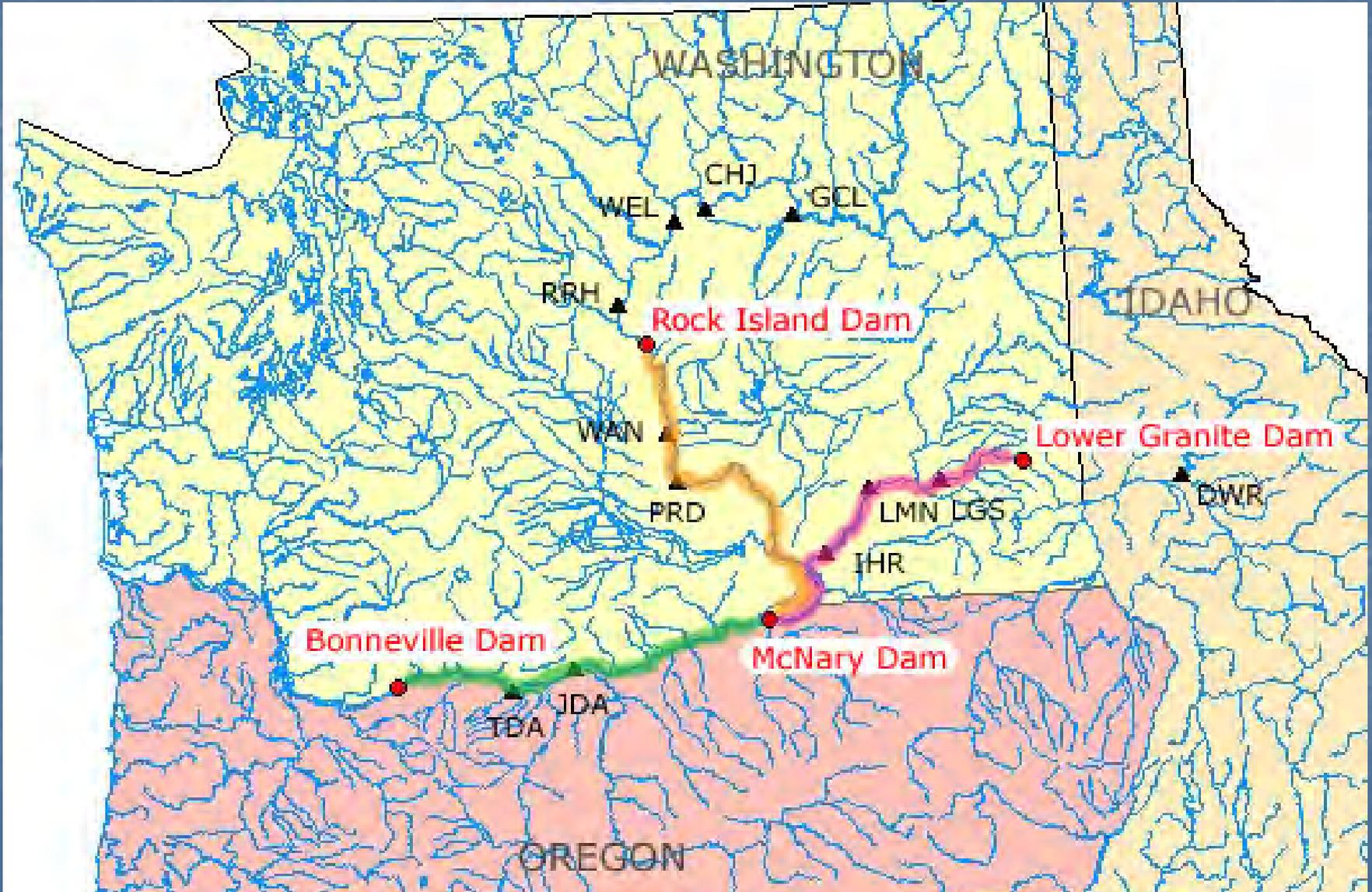
Yearling Chinook and Steelhead  
Survival Lower Granite to McNary  
Dam 1998 to 2008  
(preliminary results)

Fish Passage Center

# Overview

- PIT-tagged steelhead and wild yearling Chinook passing LGR dam during one-week cohorts from April to June each year (6 sthd 8 ch1 cohorts per year)
- Estimate Survival and Travel Time for cohorts
- Assign average environmental variables during passage such as Flow, Spill, Temperature and Water Transit Time
- Show bivariate plots of Reach Survival and environmental variables.
- Show results of multi-model regression
- Estimates of transport proportions

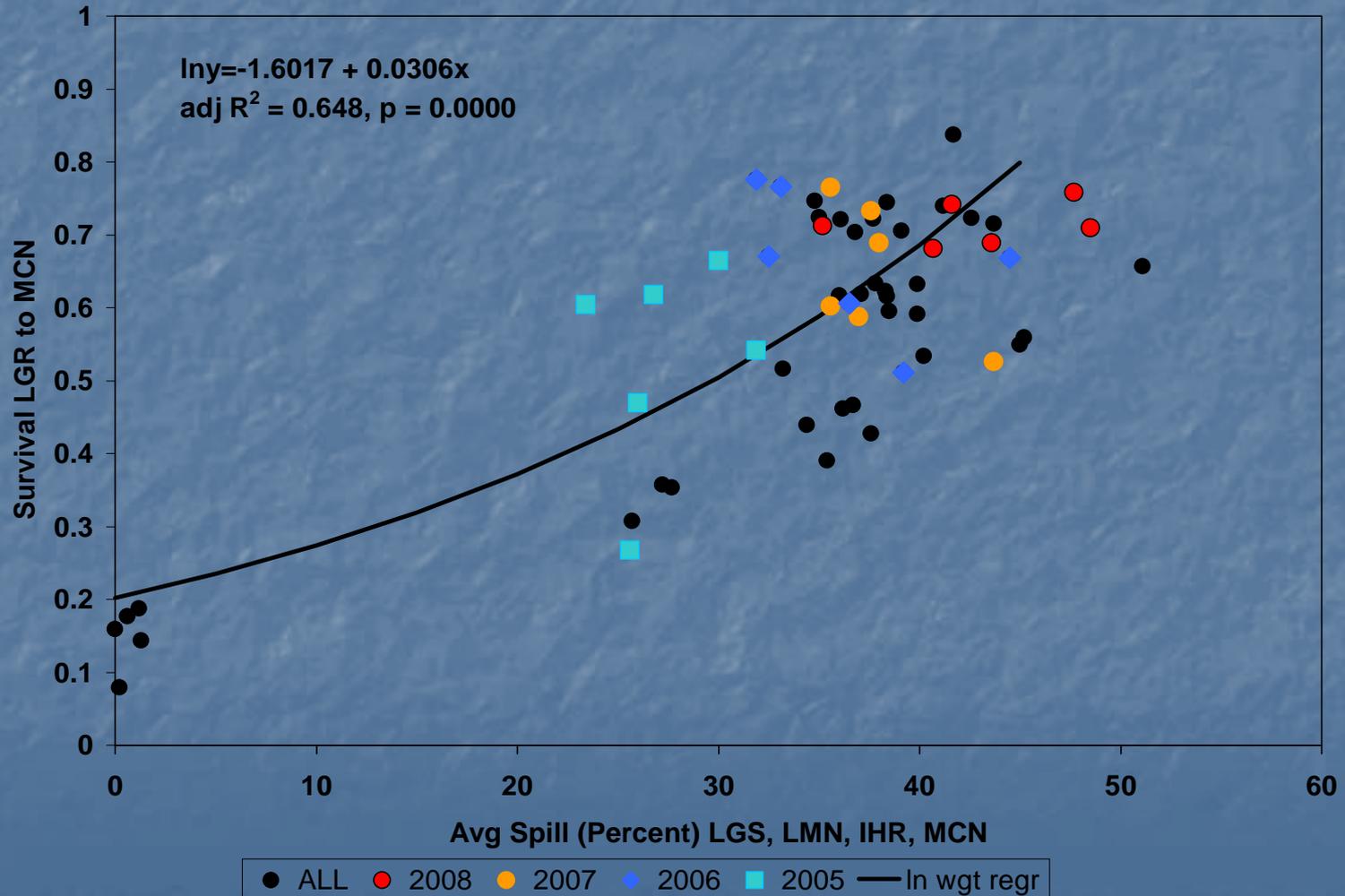
# Lower Granite to McNary Dam Reach





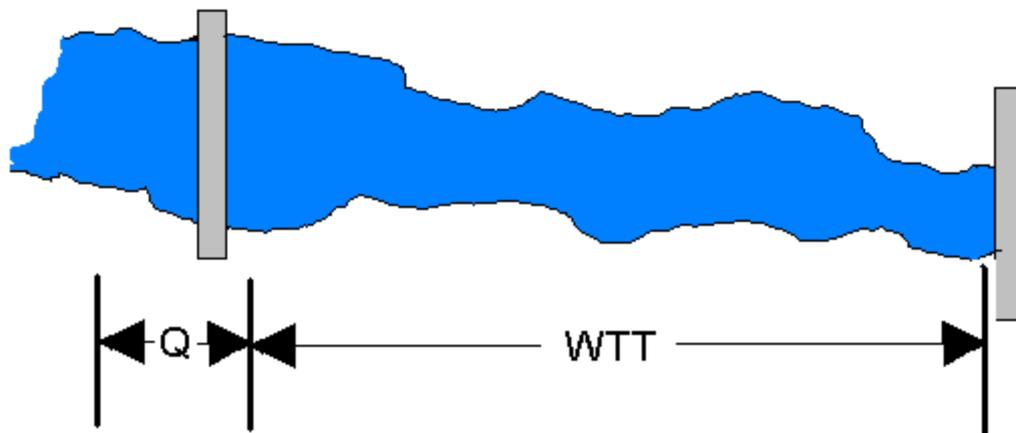
# Steelhead Survival vs Avg Spill Pct

## LGS, LMN, IHR, McN

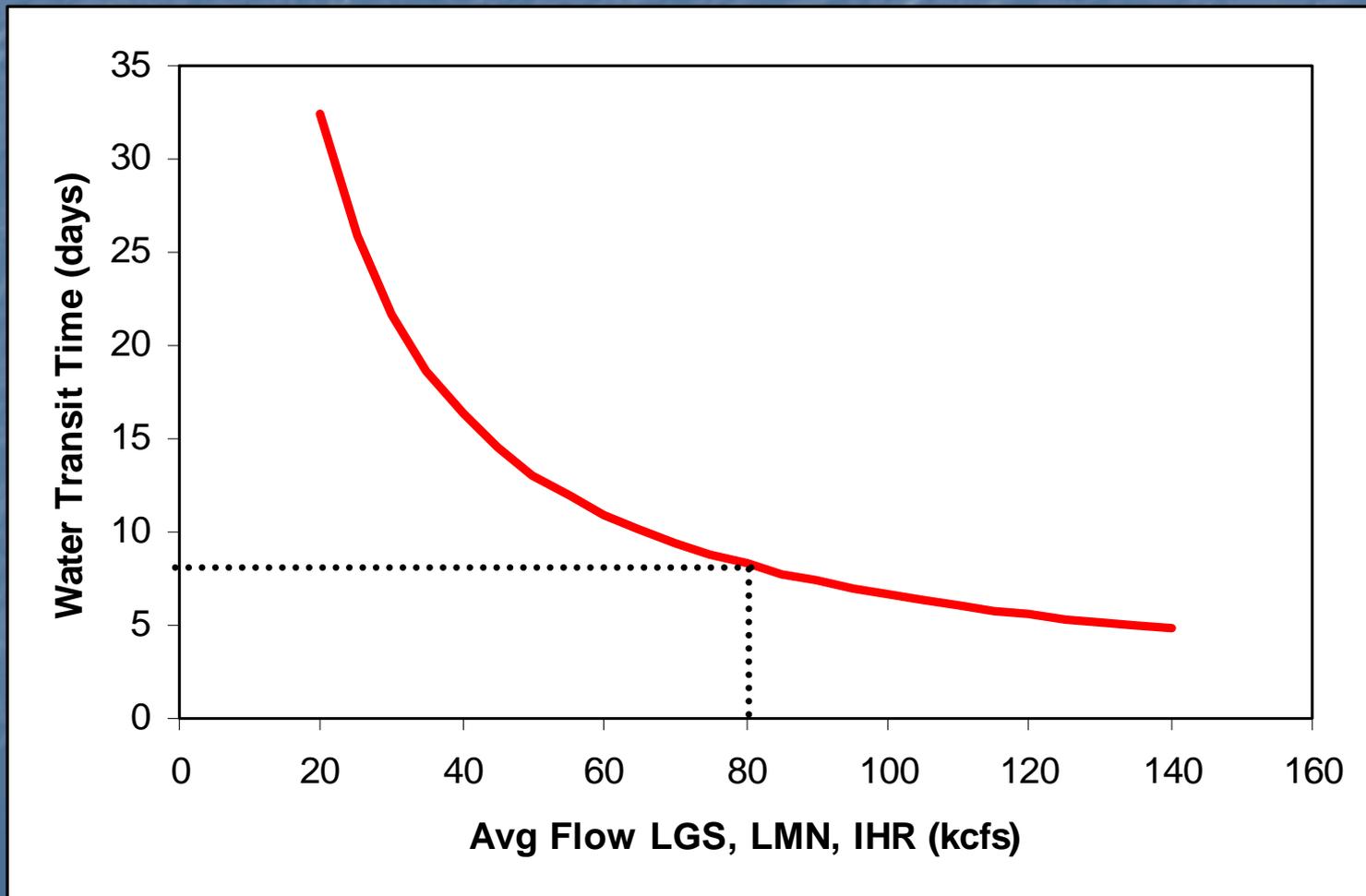


# Water Transit Time

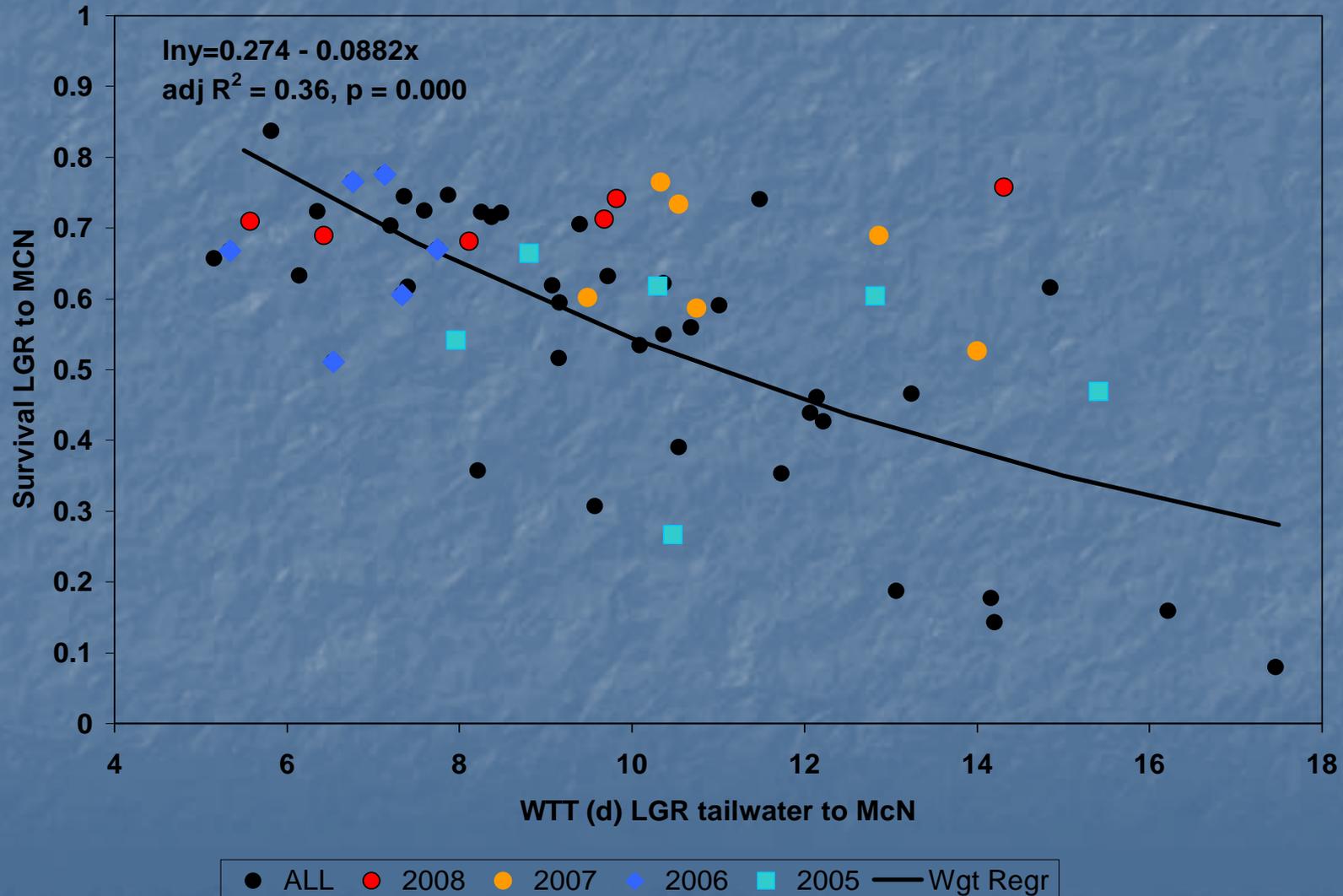
- WTT--Avg Time for Water Particle to Transit Reservoir
- $Q$  -- discharge at dam



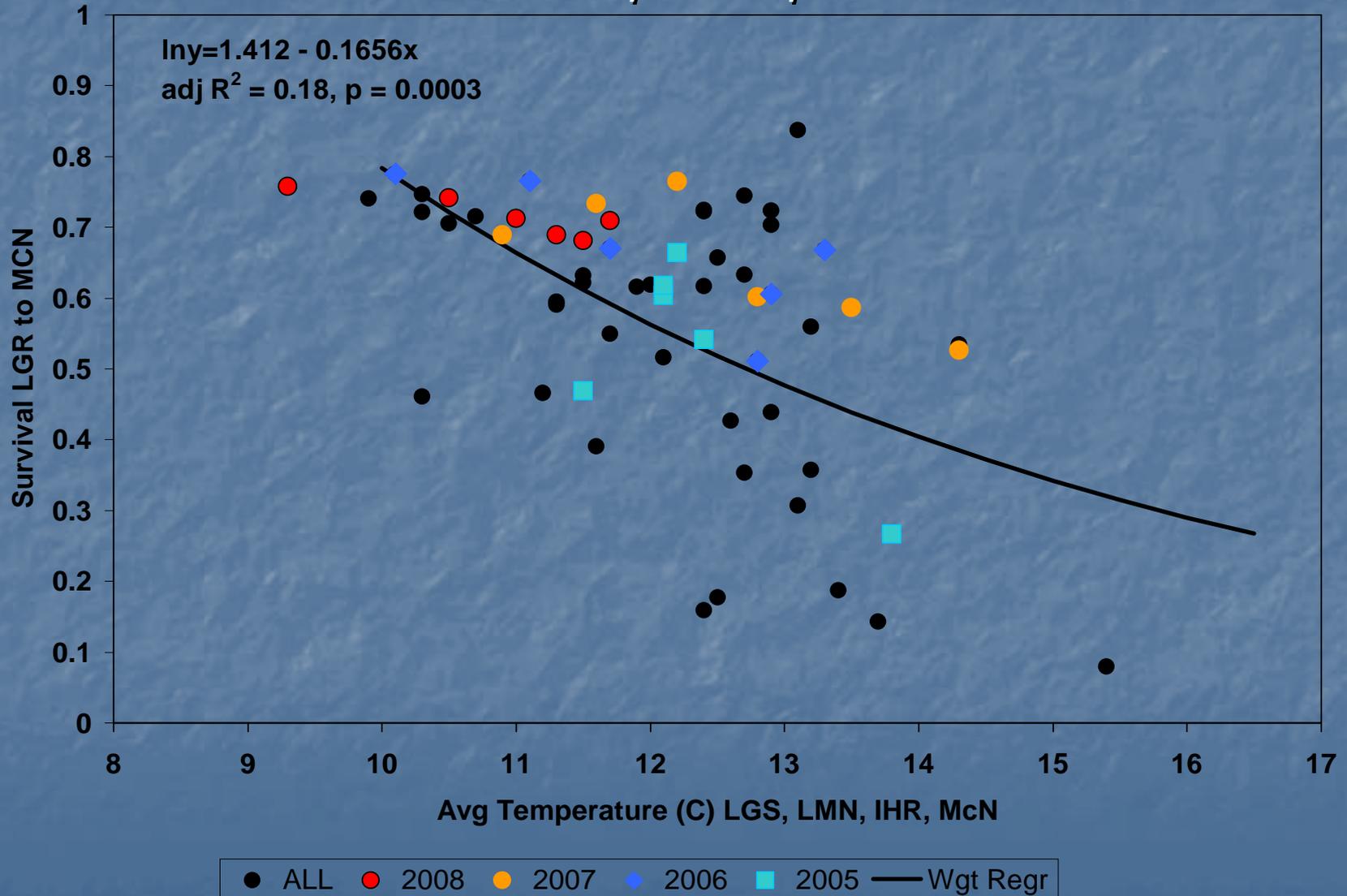
# Converting Flows to Water Transit Time



# Steelhead Survival vs sum WTT LGS, LMN, IHR, McN



# Steelhead Survival vs Avg Temp LGS, LMN, IHR, McN



# Results of multi-model analysis for Steelhead

adj R <sup>2</sup>	Model	Variables	AICc	delta AICc	Weight
0.80	AV_SPIL_PROP,WTT,REL_GRP	3	74.8	0.0	0.730
0.80	WTT,REL_GRP,AV_TEMPC,AV_SPIL_PROP	4	76.8	2.0	0.268
0.76	AV_SPIL_PROP,WTT,AV_TEMPC	3	86.2	11.4	0.002
0.70	AV_TEMPC,AV_SPIL_PROP	2	97.6	22.7	0.000
0.70	AV_SPIL_PROP,REL_GRP	2	98.1	23.2	0.000
0.70	REL_GRP,AV_TEMPC,AV_SPIL_PROP	3	98.4	23.6	0.000
0.68	AV_SPIL_PROP,WTT	2	102.2	27.3	0.000
0.65	AV_SPIL_PROP	1	106.5	31.7	0.000
0.57	WTT,REL_GRP,AV_TEMPC	3	121.2	46.4	0.000
0.56	WTT,AV_TEMPC	2	121.4	46.6	0.000
0.54	WTT,REL_GRP	2	124.6	49.8	0.000
0.36	WTT	1	143.1	68.3	0.000
0.22	REL_GRP,AV_TEMPC	2	156.0	81.2	0.000
0.18	AV_TEMPC	1	157.8	82.9	0.000
0.00	REL_GRP	1	170.0	95.2	0.000

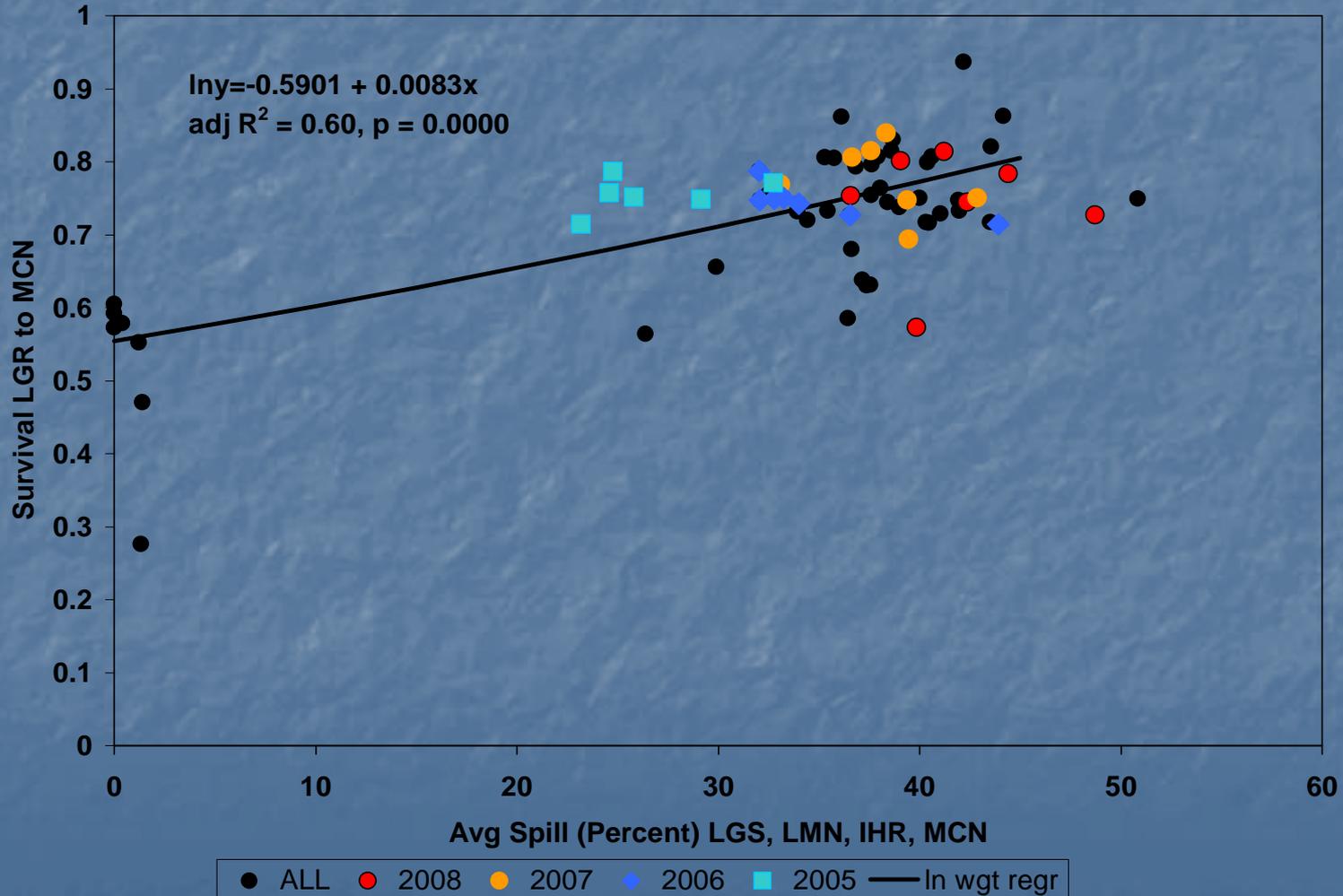
# Relative Variable Importance (weight of evidence) HWST

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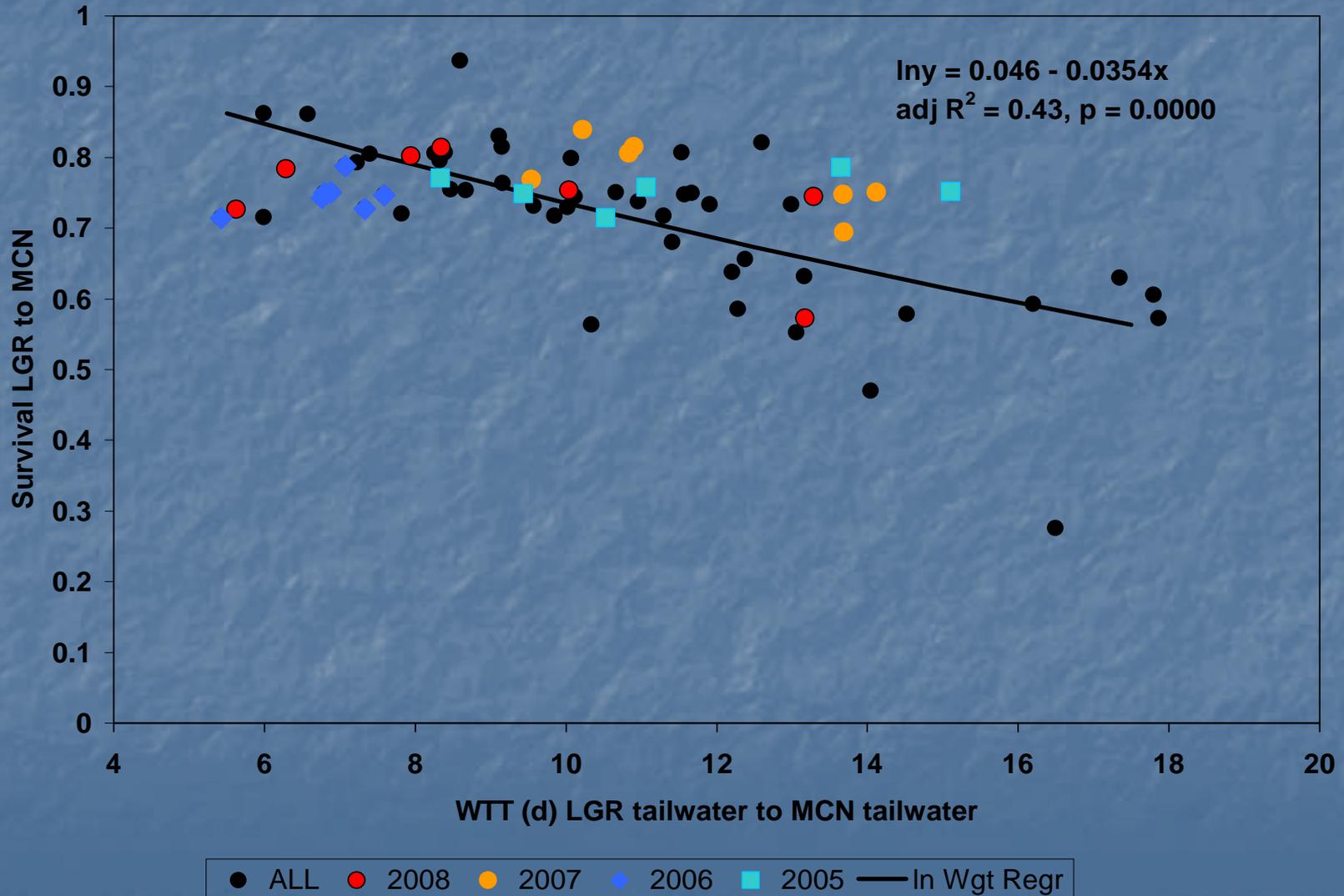
Variable	RVI
AV_SPIL_PROP	1.00
WTT	1.00
AV_TEMPC	0.27
REL_GRP	1.00

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# Wild Yearling Chinook Survival vs Avg Spill Pct LGS, LMN, IHR, McN



# Wild Yearling Chinook Survival vs sum WTT LGS, LMN, IHR, McN





# Results of multi-model analysis for yearling Chinook

adj R <sup>2</sup>	Model	Variables	AICc	Delta AICc	Weight
0.66	AV_SPIL_PROP,WTT,AV_TEMPC	3	55.4	0	0.384
0.66	REL_GRP,AV_SPIL_PROP,WTT	3	55.6	0.2	0.350
0.66	REL_GRP,AV_SPIL_PROP,WTT,AV_TEMP	4	56.8	1.4	0.190
0.64	AV_SPIL_PROP,WTT	2	59.0	3.6	0.063
0.61	AV_TEMPC,AV_SPIL_PROP	2	63.7	8.3	0.006
0.60	AV_SPIL_PROP	1	64.2	8.9	0.005
0.61	AV_TEMPC,REL_GRP,AV_SPIL_PROP	3	66.0	10.7	0.002
0.55	WTT,AV_TEMPC,REL_GRP,	3	75.3	19.9	0.000
0.50	REL_GRP,WTT	3	80.9	25.5	0.000
0.43	WTT	1	88.5	33.1	0.000
0.26	REL_GRP,AV_TEMPC	2	109.2	53.8	0.000
0.21	AV_TEMPC	1	111.7	56.4	0.000
0.00	REL_GRP	2	128.6	73.2	0.000

# Relative Variable Importance (weight of evidence) CH1W

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Variable	RVI
AV_SPIL_PROP	1.00
WTT	0.99
AV_TEMPC	0.58
REL_GRP	0.54

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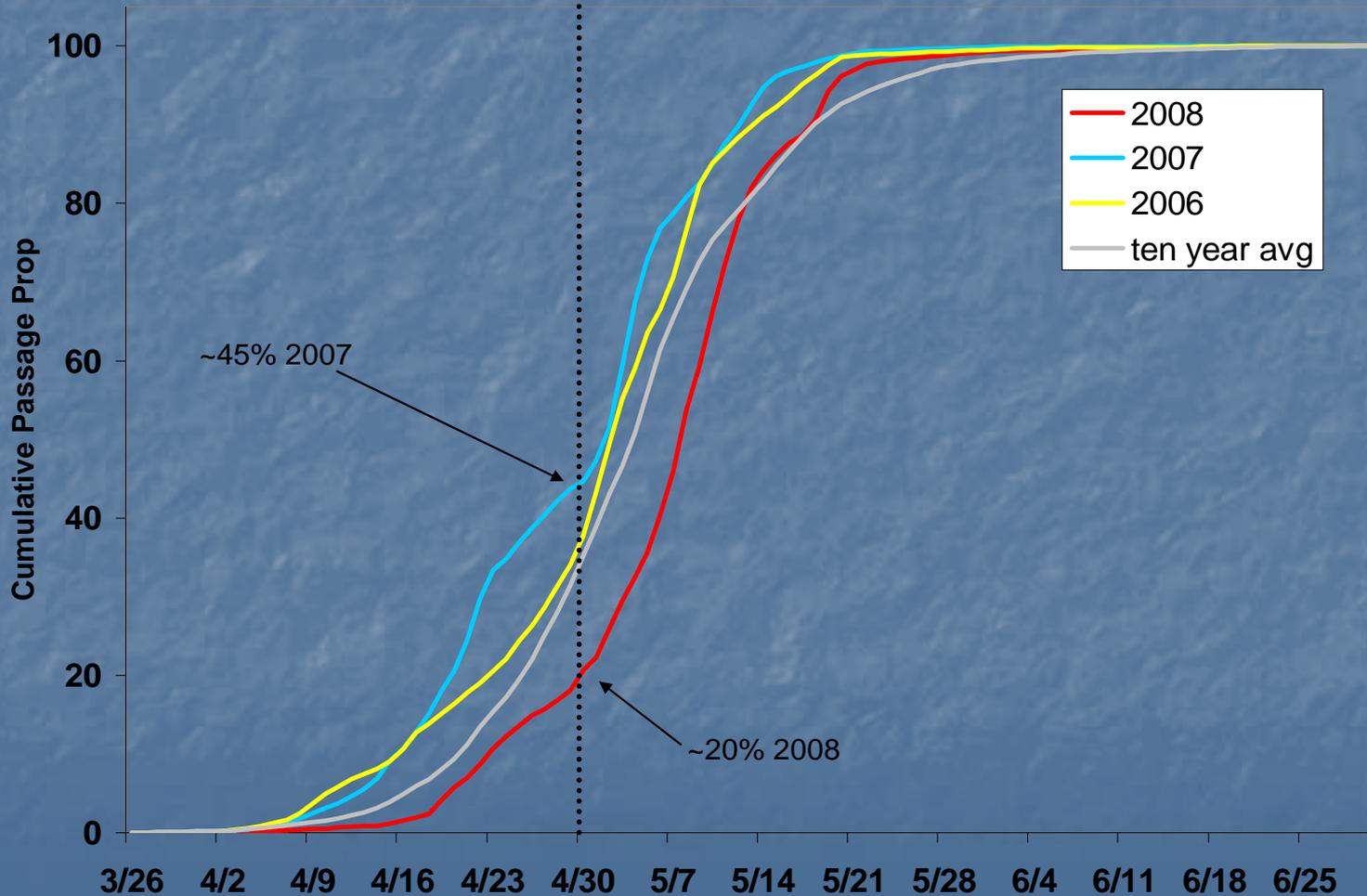
# Probability of being transported

---

Salmonid Group	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Chinook Yearlings	0.79	0.71	0.99	0.68	0.63	0.87	0.92	0.61 (H) 0.58 (W)	0.26 (H) 0.29 (W)	0.49 (H) 0.49 (W)
Steelhead	0.83	0.81	0.99	0.68	0.67	0.96	0.94	0.76 (H) 0.79(W)	0.47(H) 0.43(W)	0.41(H) 0.45(W)

---

# Combined Yearling Chinook Timing at LGR



# Conclusions

- For yearling Chinook and Steelhead, increased spill and decreased water transit time (higher flows) appear to improve survival, while higher temperatures decrease survival
- Survivals were relatively high in 2008 because of high flows, spill and cool temperatures
- Higher transport proportion CH1 in 2008 compared to 2007 was due in part to later timing in 08

# Hatchery Subyearling Survival Lower Granite to McNary Dam 1998 to 2008

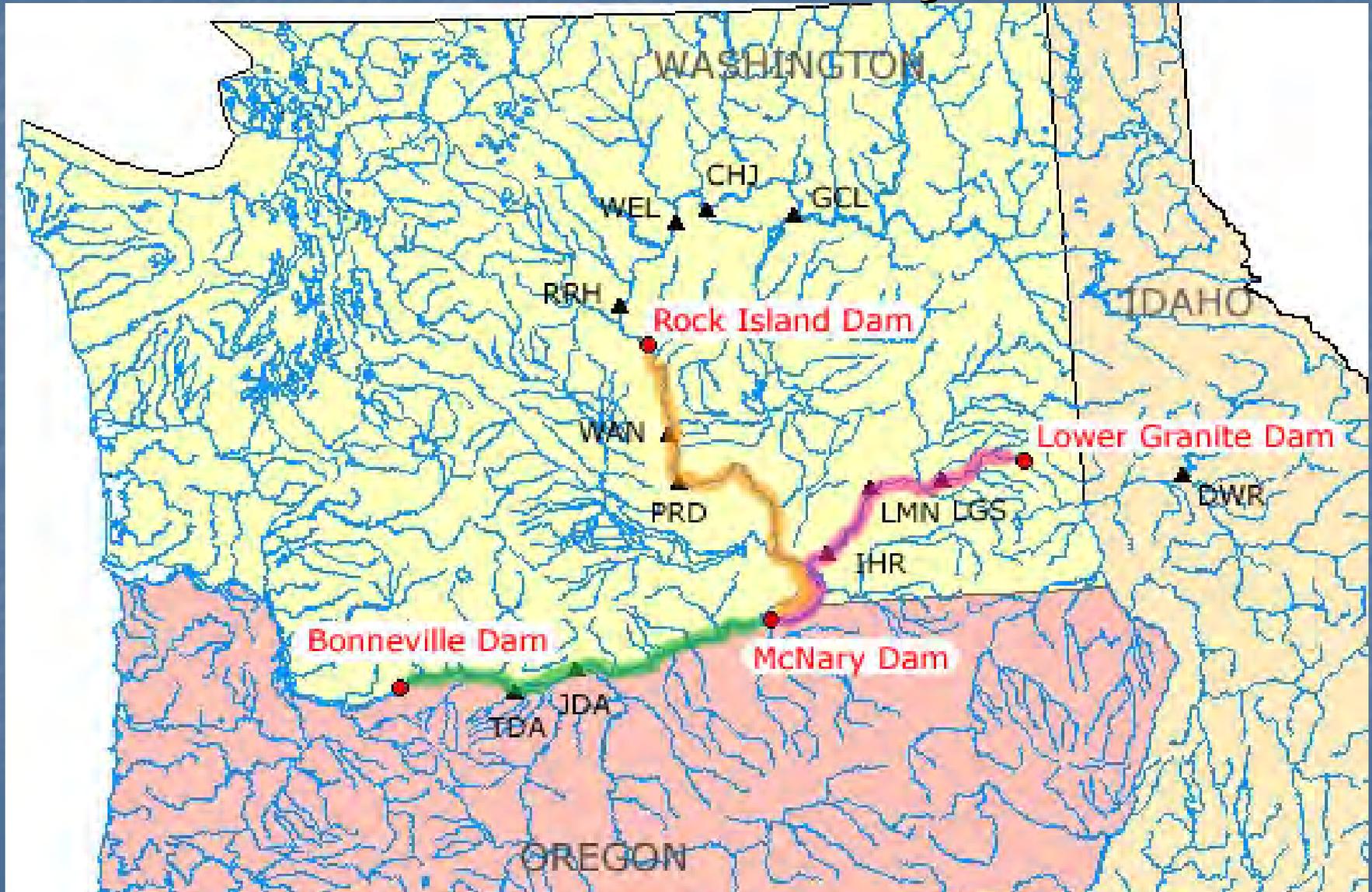
(preliminary results)

Fish Passage Center

# Overview

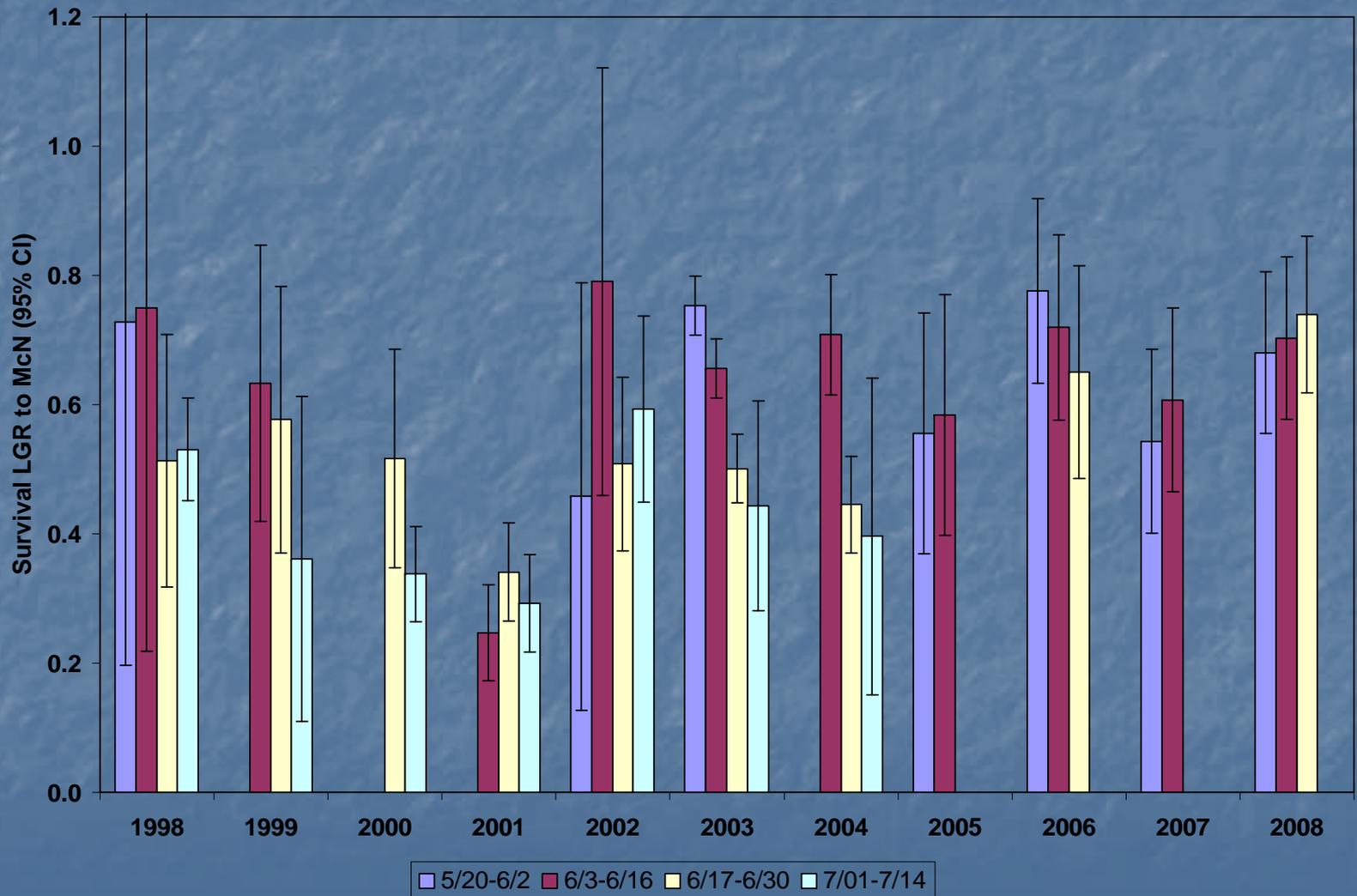
- PIT-tagged Hatchery Subyearling Chinook passing LGR dam during two-week blocks from May 20 to July 15 each year
- Estimate Survival and Travel Time for blocks
- Assign average environmental variables during passage such as Flow, Spill, Temperature and Water Transit Time
- Show bivariate plots of Reach Survival and environmental variables.

# Lower Granite to McNary Dam Reach

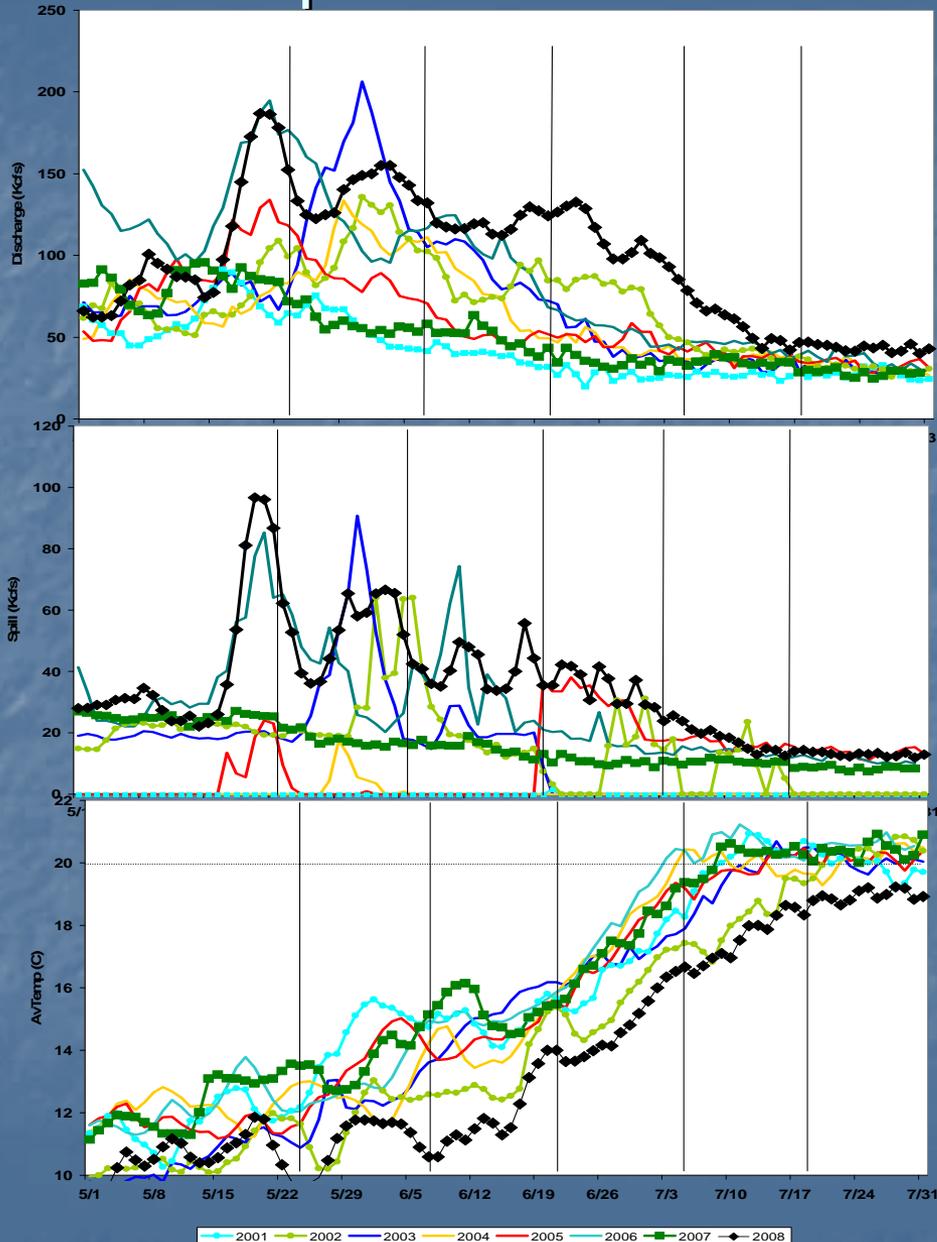




# Survival for Hatchery Subyearling Chinook LGR to McN 1998 to 2008 with 95% CI's



# Comparison of Environmental conditions at LGS

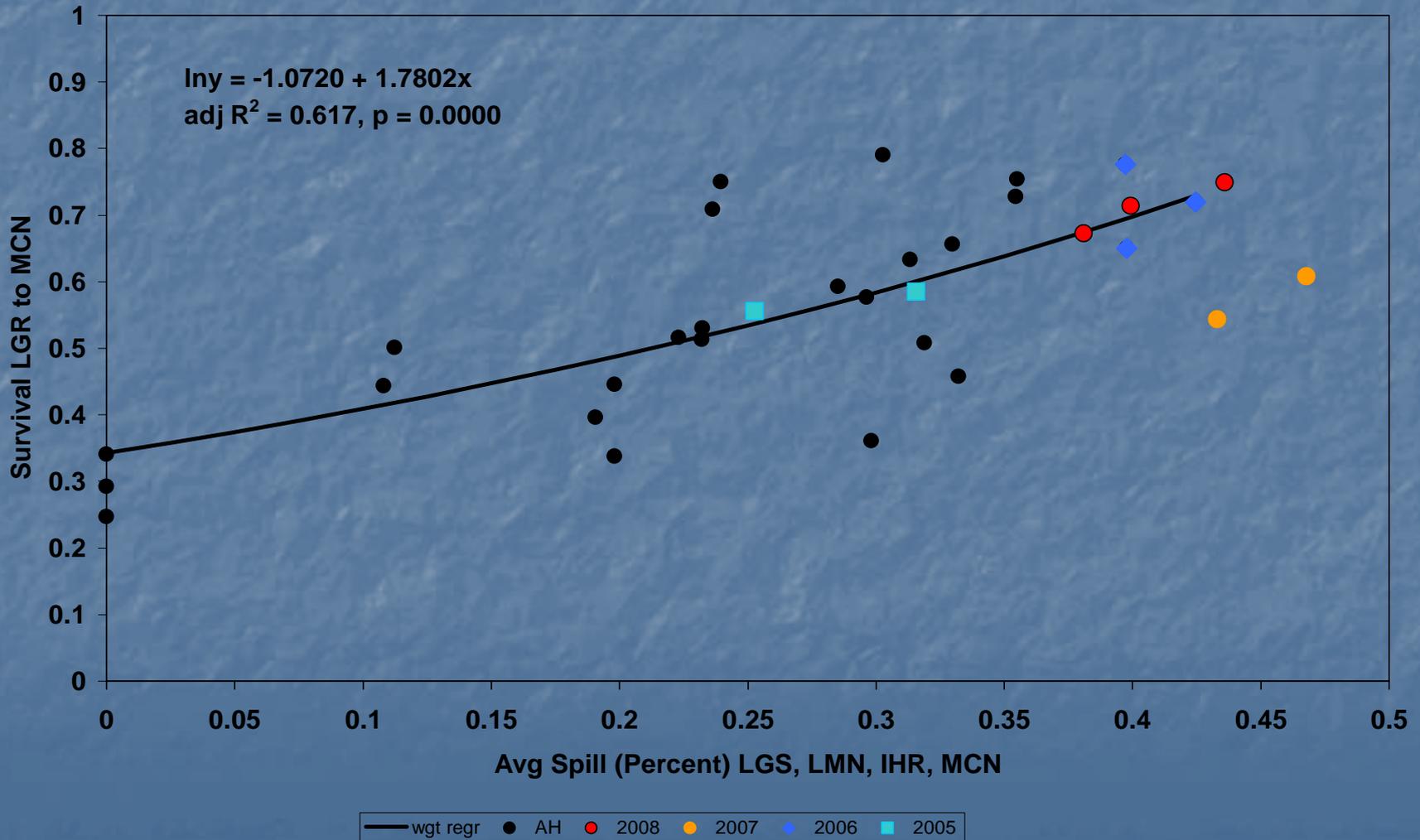


Flows in 2008 were relatively high especially in June and early July

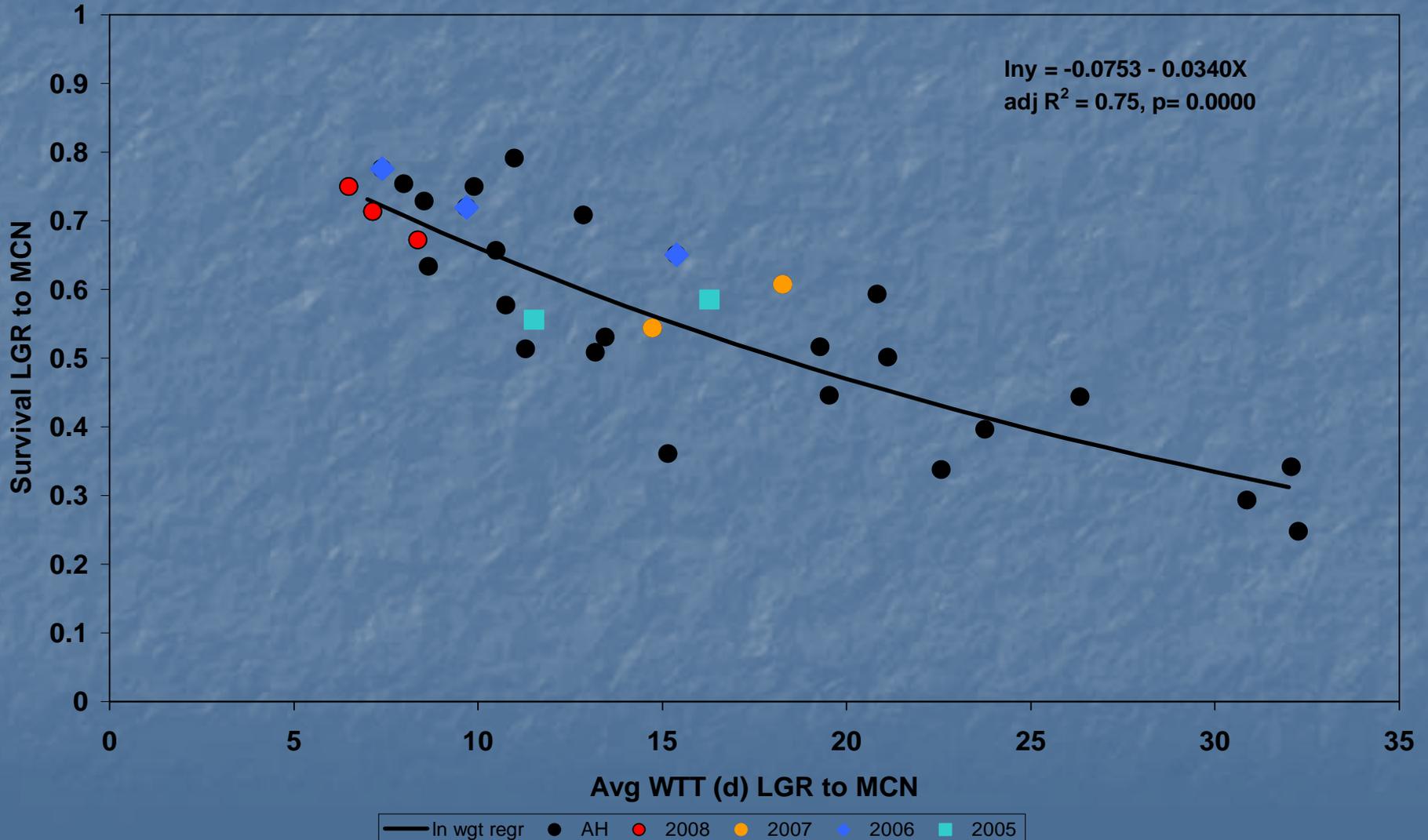
Spill volumes were high in May and average in summer (since 2005)

Temperatures were cool in 2008

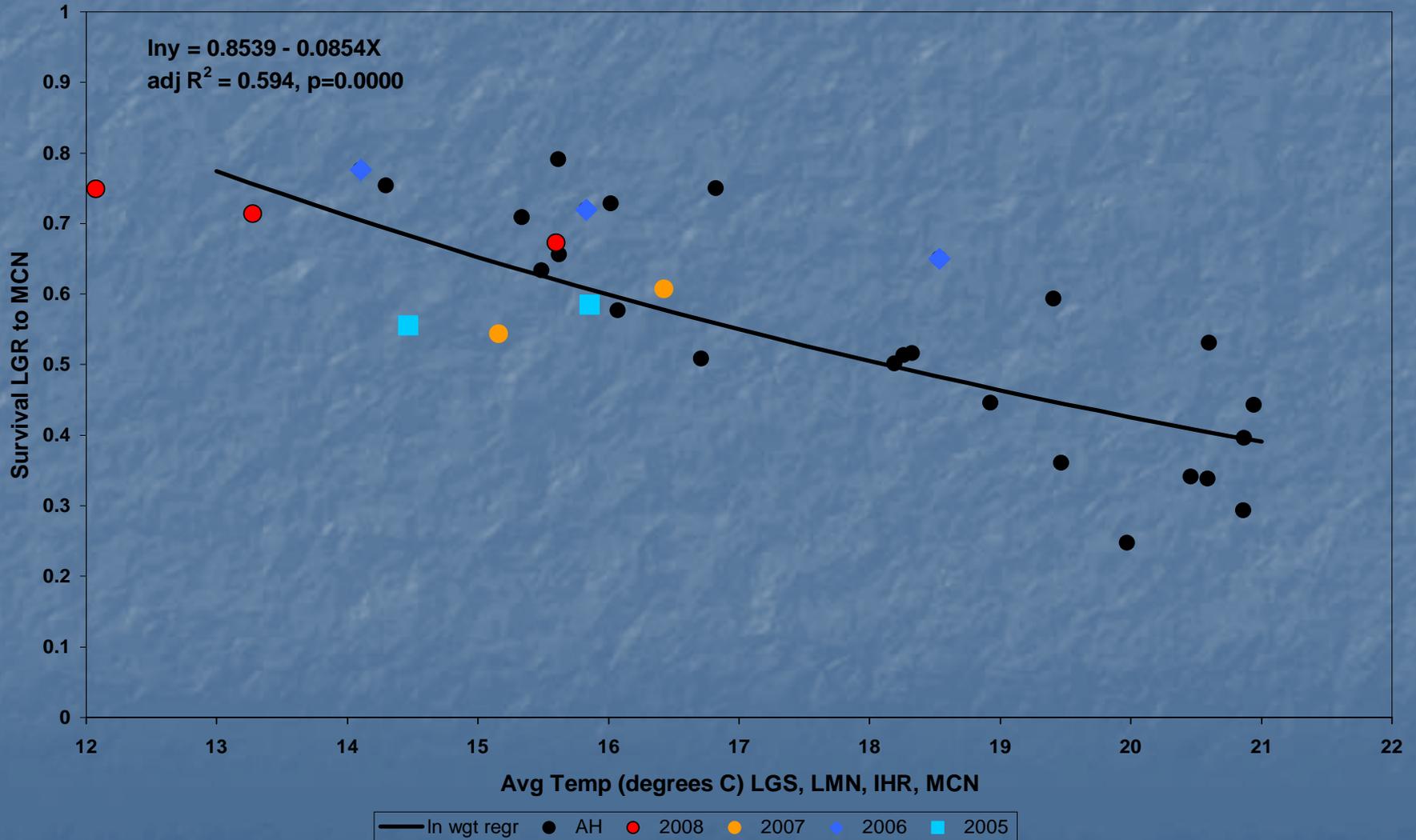
# Hatchery Subyearling Chinook Survival vs Avg Spill Pct LGS, LMN, IHR, McN



# Hatchery Subyearling Chinook Survival vs sum WTT LGS, LMN, IHR, McN



# Hatchery Subyearling Chinook Survival vs Avg Temp LGS, LMN, IHR, McN



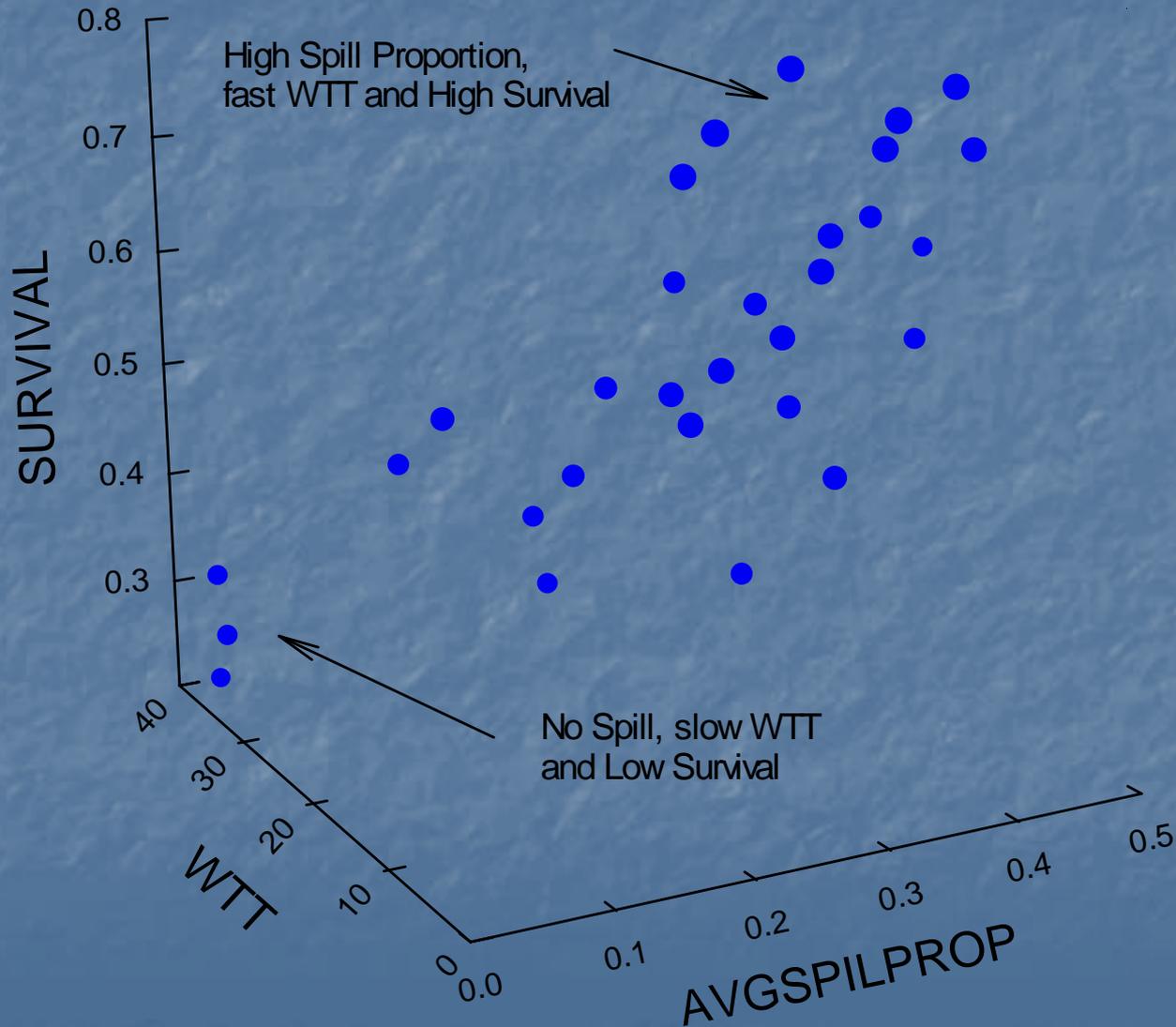
## Pearson Correlation Matrix

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	REL_GRP	AV_SPIL_PROP	AV_TEMPC	WTT	FISH TRAVTIME	SURVIVAL
REL_GRP	1.0000					
AVSPILPROP	-0.2291	1.0000				
AV_TEMPC	0.7222	-0.6701	1.0000			
WTT	0.3634	<b>-0.8692</b>	0.7657	1.000		
FISH TRAVTIME	0.3154	-0.8224	0.5680	0.814	1.0000	
SURVIVAL	-0.4653	<b>0.7553</b>	<b>-0.7010</b>	<b>-0.723</b>	-0.8356	1.0000

---

# Hatchery Subyearling Chinook Survival vs WTT and Spill Proportion



# Probability of being transported

---

Salmonid Group	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Chinook								0.52 (H)		0.52 (H)
Sub Yearlings	0.87	0.93	0.96	0.93	0.90	0.97	0.81	0.56(W)	0.42 (H)	0.43 (W)

---

# Conclusions

- For actively migrating subyearling Chinook, increased spill and decreased water transit time (higher flows) appear to improve survival, while higher temperatures decrease survival
- Survivals were relatively high in 2008 because of high flows through June, spill and cool temperatures

# RECLAMATION

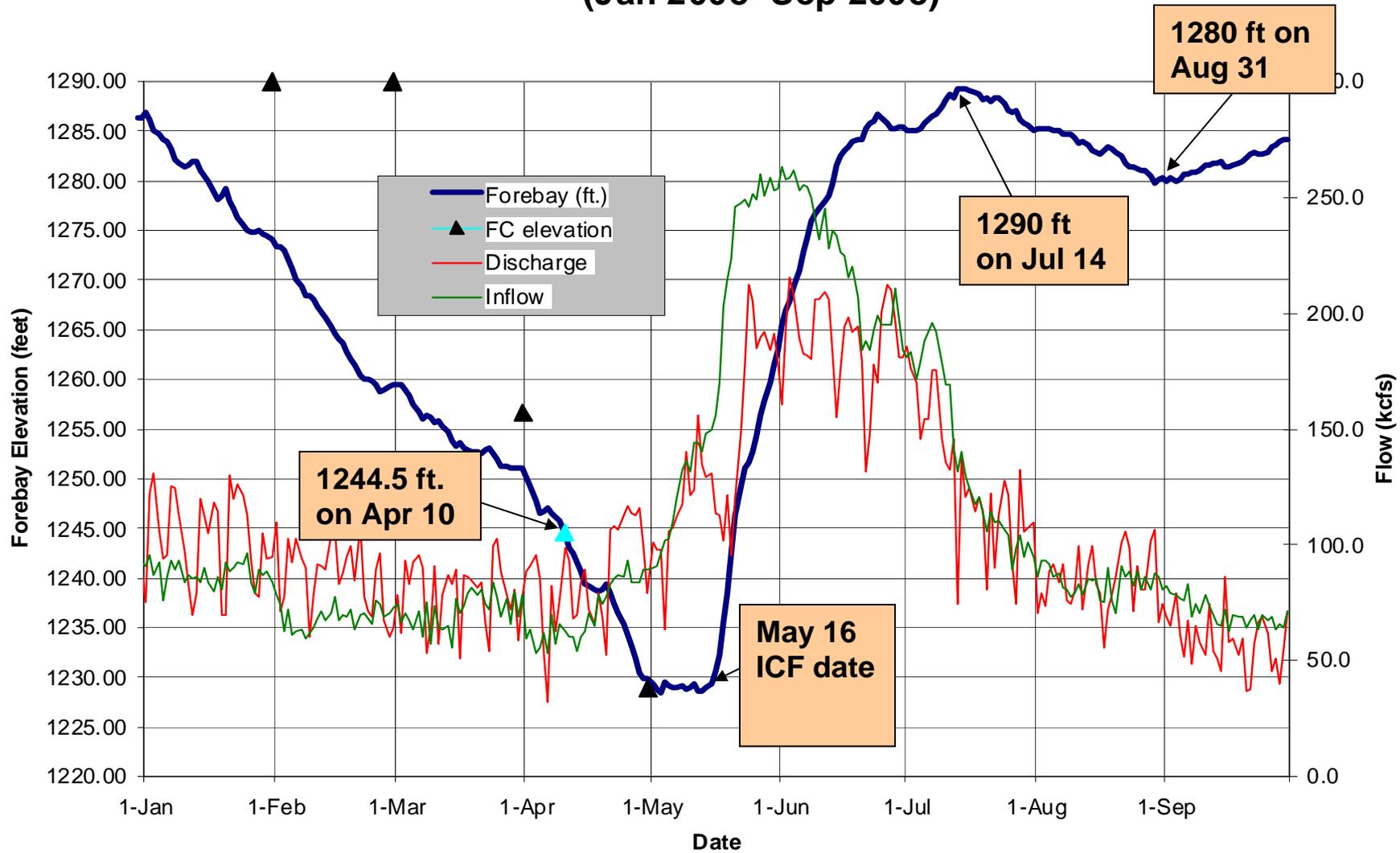
*Managing Water in the West*

## **Grand Coulee Operations 2008**

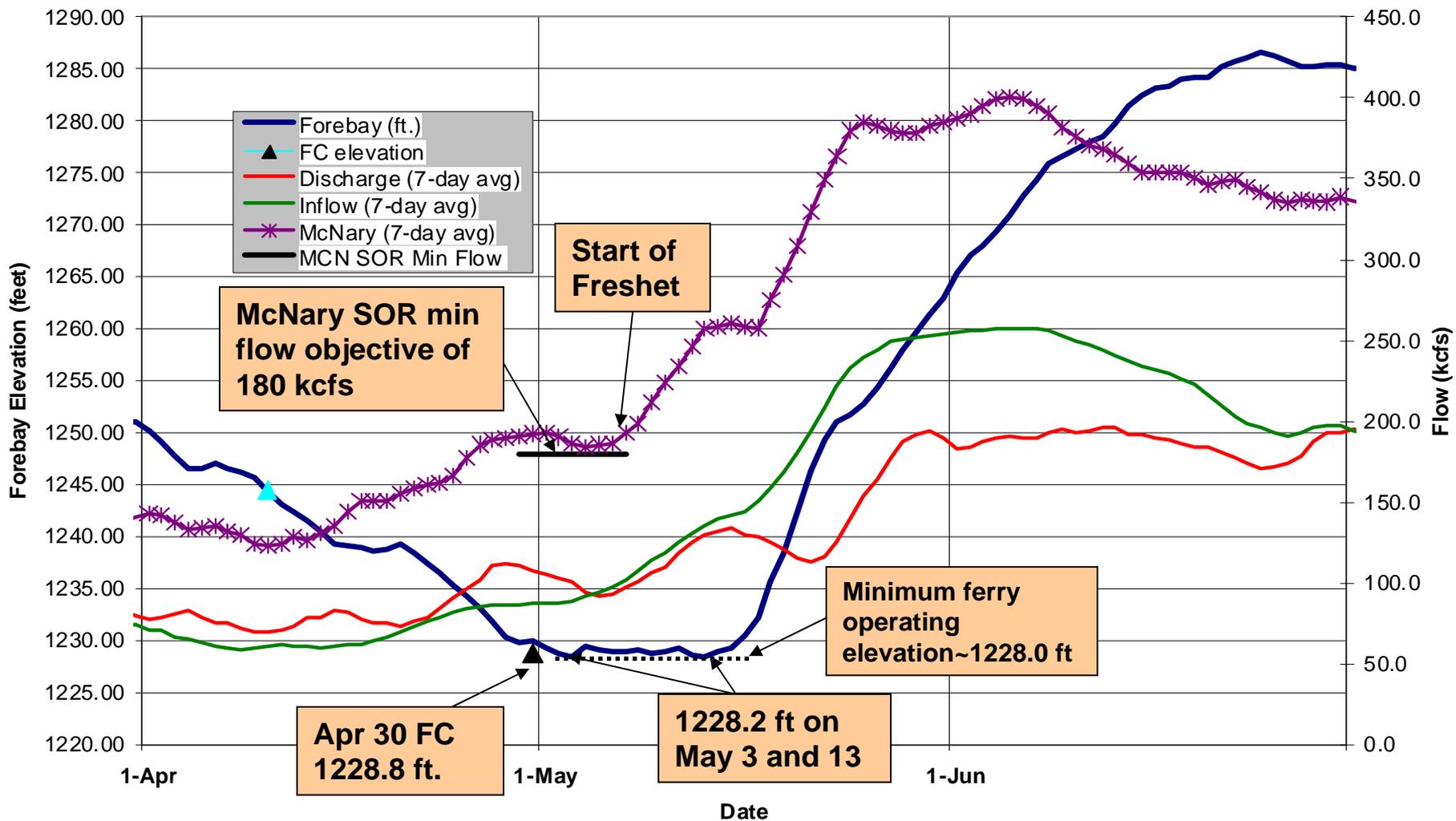


U.S. Department of the Interior  
Bureau of Reclamation

# Grand Coulee Operations (Jan 2008- Sep 2008)



# Grand Coulee Operations (Apr 2008 - Jun 2008)



# RECLAMATION

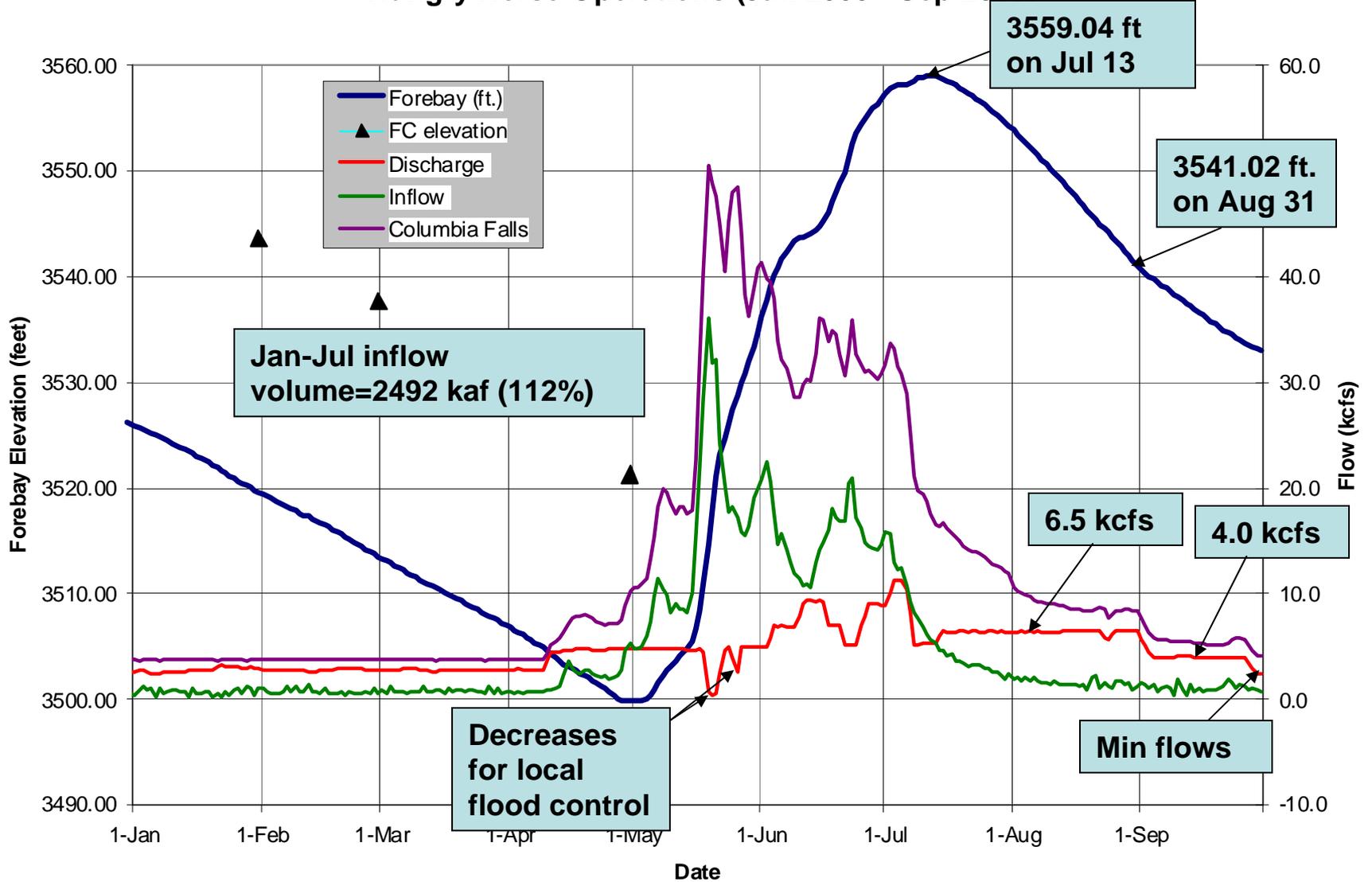
*Managing Water in the West*

## Hungry Horse Operations 2008



U.S. Department of the Interior  
Bureau of Reclamation

# Hungry Horse Operations (Jan 2008 - Sep 2008)



# Lower Granite Dam MOP and Adult Trap Operations

Technical Management Team  
2008 Annual Review



US Army Corps  
of Engineers

# Discussion Points

- Issue Description
- Uncertainties
- Contributing Factors
- Action Taken
- Next Steps
- Questions and Discussion



# Issue Description

- As adult passage and broodstock collection efforts at Lower Granite increase, more water (higher forebay elevation) is needed to maintain hourly refilling of adult fish holding tanks used for broodstock collection
- Assumption 1: Under MOP operations, hourly refilling of two tanks is possible
- Assumption 2: In order to refill all six tanks on an hourly basis, a MOP + 1.3 ft forebay is needed (according to model studies)
- When juvenile passage declines and adult migration ramps up, fish managers must make the trade off between MOP operations to facilitate juvenile passage and MOP + 1.3 ft to accommodate adult broodstock collection and tank refill



# Uncertainties

- Is a MOP + 1.3 ft operation necessary to utilize all six holding tanks?
  - NOAA trap operators report little noticeable difference in holding tank hourly refill rate between MOP and MOP + 1.3 ft operations
- Are there remedies available to provide hourly refill of all six holding tanks without impacting MOP operations?



# Contributing Factors

- Water delivery system – 30 year old valves and fittings are leaking
- Inadequate design?
- Needs further investigation



# Action Taken

- Nez Perce tribal staff contacted NWW Operations Fish Bio. On Sept. 8 requesting higher forebay elevation to accommodate six tank refill capability
- SR MOP operations ended on Sept. 10 @ 1500 hours



# Next Steps

- Required forebay elevation necessary to provide refill capabilities of all six holding tanks needs further investigation
- Short-term remedy – Project will replace leaking valves/fittings in water delivery system
- Long-term remedy – Fish facility redesign



# Questions and Discussion



US Army Corps  
of Engineers



# TECHNICAL MANAGEMENT TEAM 2008 Year End Review

Libby Operations

Joel Fenolio and Cathy Hlebechuk

November 21, 2008

***Building Strong***

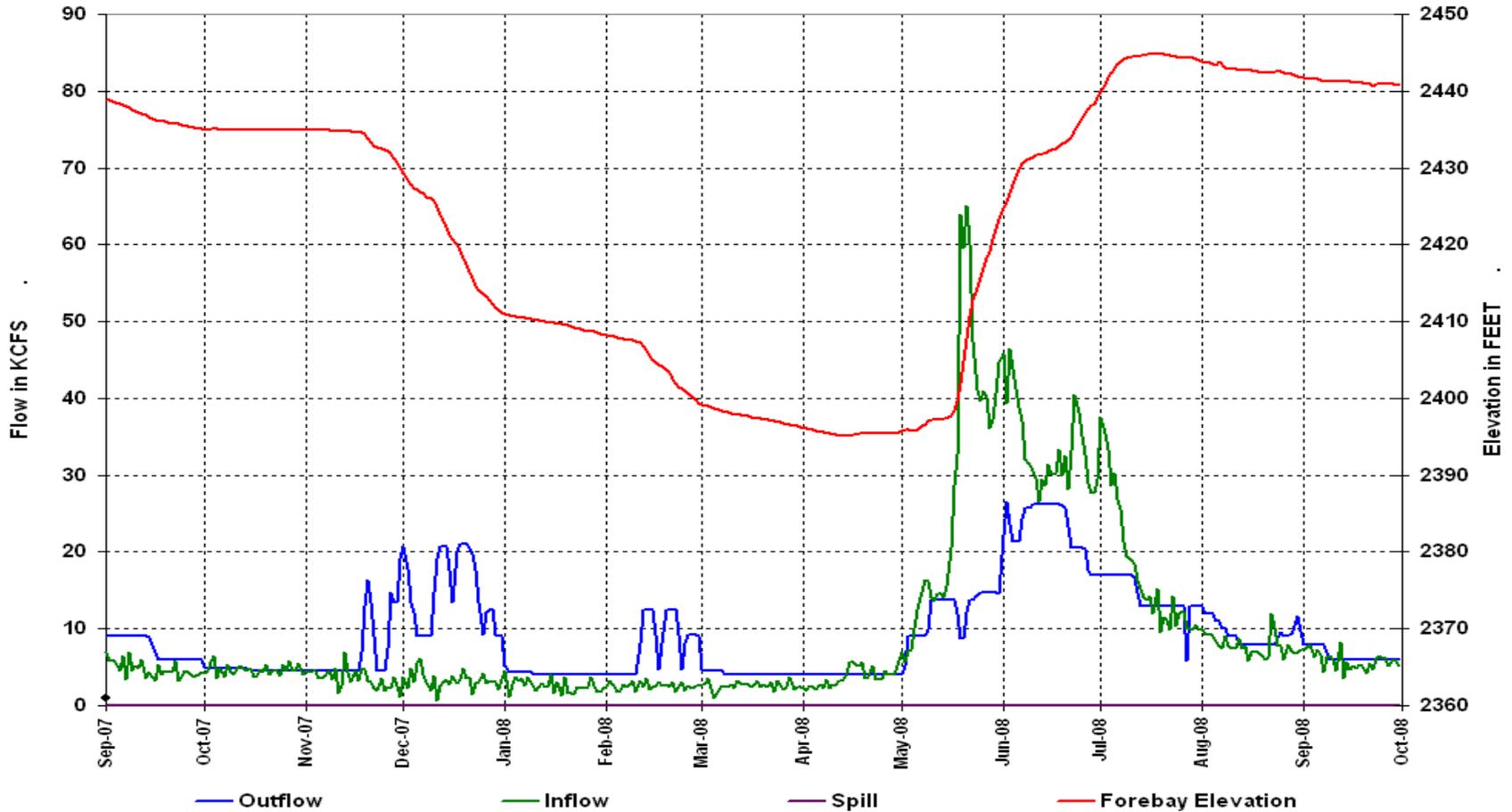


# US Army Corps of Engineers



## Libby Reservoir

September 01, 2007 to October 01, 2008



***Building Strong***



# Major Events and Operations at Libby for 2008

- Sturgeon Pulse.
- Libby peak elevation 2445 feet.
- Operation of Canadian Treaty and Libby Storage Reservoirs (Libby-Canadian Storage Swap)



# Sturgeon Pulse

- Based on May final water supply forecast, sturgeon volume was 1.04 maf
- Received System Operational Request from USFWS on May 30
  - June 1 went to full powerhouse (about 26 kcfs)
  - June 3 decreased to 4 units (about 21 kcfs).  
Decreased due to damaged temp control structure
  - June 7 went back to full powerhouse
  - June 27 exhausted 1.04 maf volume

***Building Strong***



# Libby Refill

- May final Apr-Aug Forecast 97% of normal
  - Sets Sturgeon Volume
  - Sets VarQ flows
- June final Apr-Aug forecast 103% of normal
  - Based on this forecast the project was projected to fill above 2454 feet.
- Actual Apr-Aug Inflows were 89% of normal
  - Mainly due to unpredictable cold weather in June and sublimation of the snow pack.
  - July inflows dropped off faster than expected
  - Avoidance of “double peak” resulted in lower maximum elevation
- Libby’s actual maximum pool ended up at 2445 ft

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# Canadian Storage Libby Agreement

- 2008 Agreement was finalized August 12<sup>th</sup> authorizing an exchange of 60 ksfd, between Libby and Canadian Treaty storage projects.
- The agreement allowed Libby to be 60 ksfd (2.8') higher on Aug 31 while targeting an equivalent volume below Canadian Treaty storage regulation by Aug 31.



# Canadian Storage Libby Agreement (cont'd)

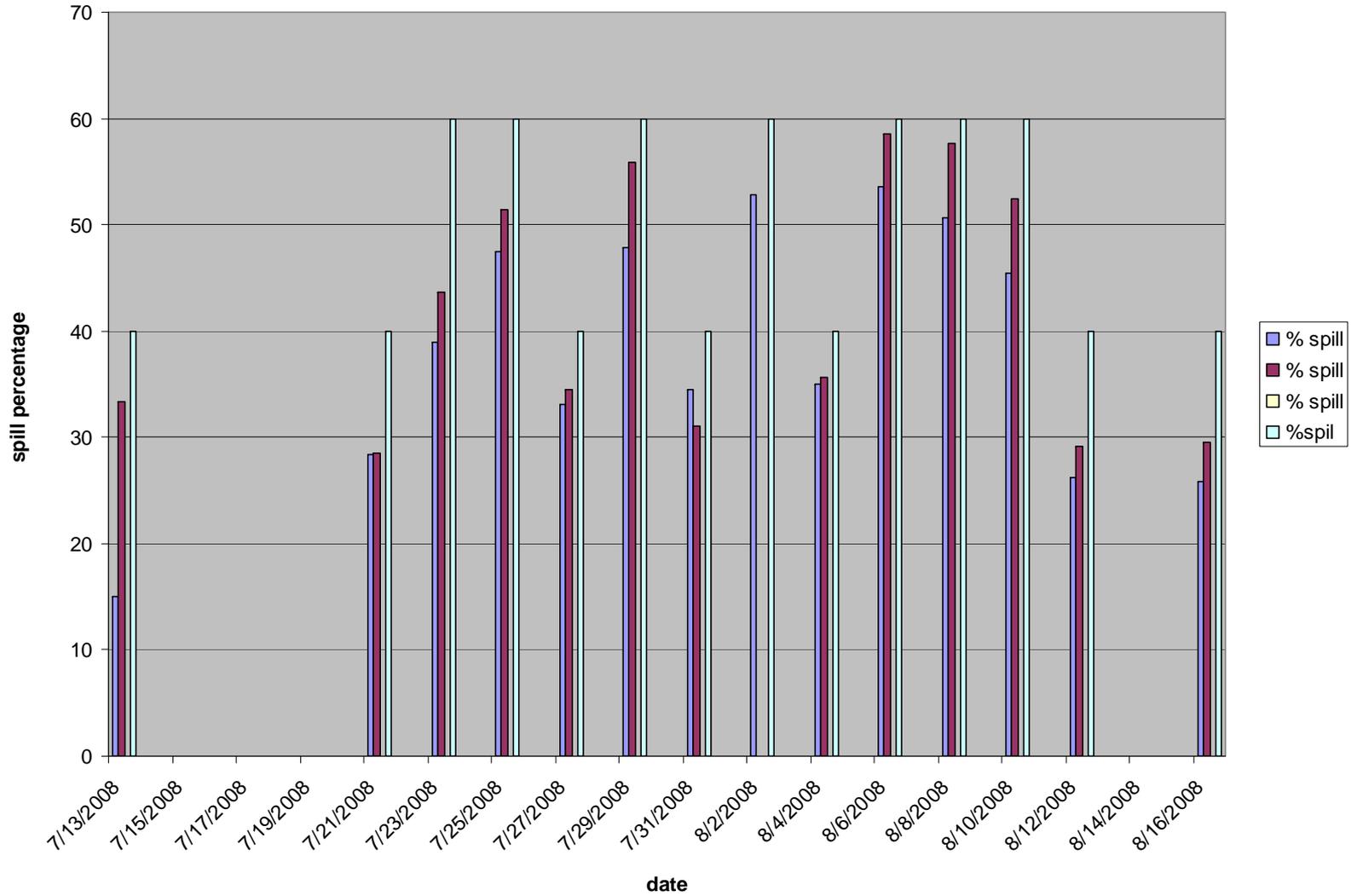
- If future agreements are desired consider using ESP forecasting tool for setting the operation at Libby.
  - Use ESP forecasting to choose outflows to achieve an the target elevation.
  - Maintain the stable outflows at Libby as a priority over a precise elevation objective.



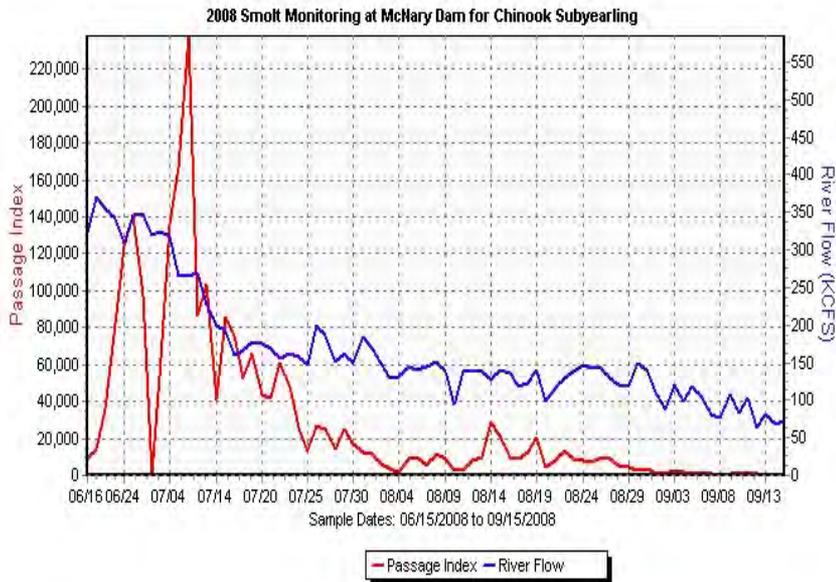
## Outlook for Current Year

- Currently targeting 2435 ft end of November
- November Apr-Aug Forecast was 104% of Normal which indicates Dec target 2411 ft.
- Potential new requirement of drafting to 10 ft or 20 ft from full end of Sep could limit flexibility of summer operations.
- New draft requirement could limit the ability to implement future

### McNary hourly spill variances for transport



# Subyearling passage during the period of barge transport at McNary



- Estimate of the number of juvenile fish transported from July 16 to August 15: 350,000



# TECHNICAL MANAGEMENT TEAM 2008 Year End Review

Runoff and Spring/Summer Flows

Cathy Hlebechuk

November 21, 2008

***Building Strong***



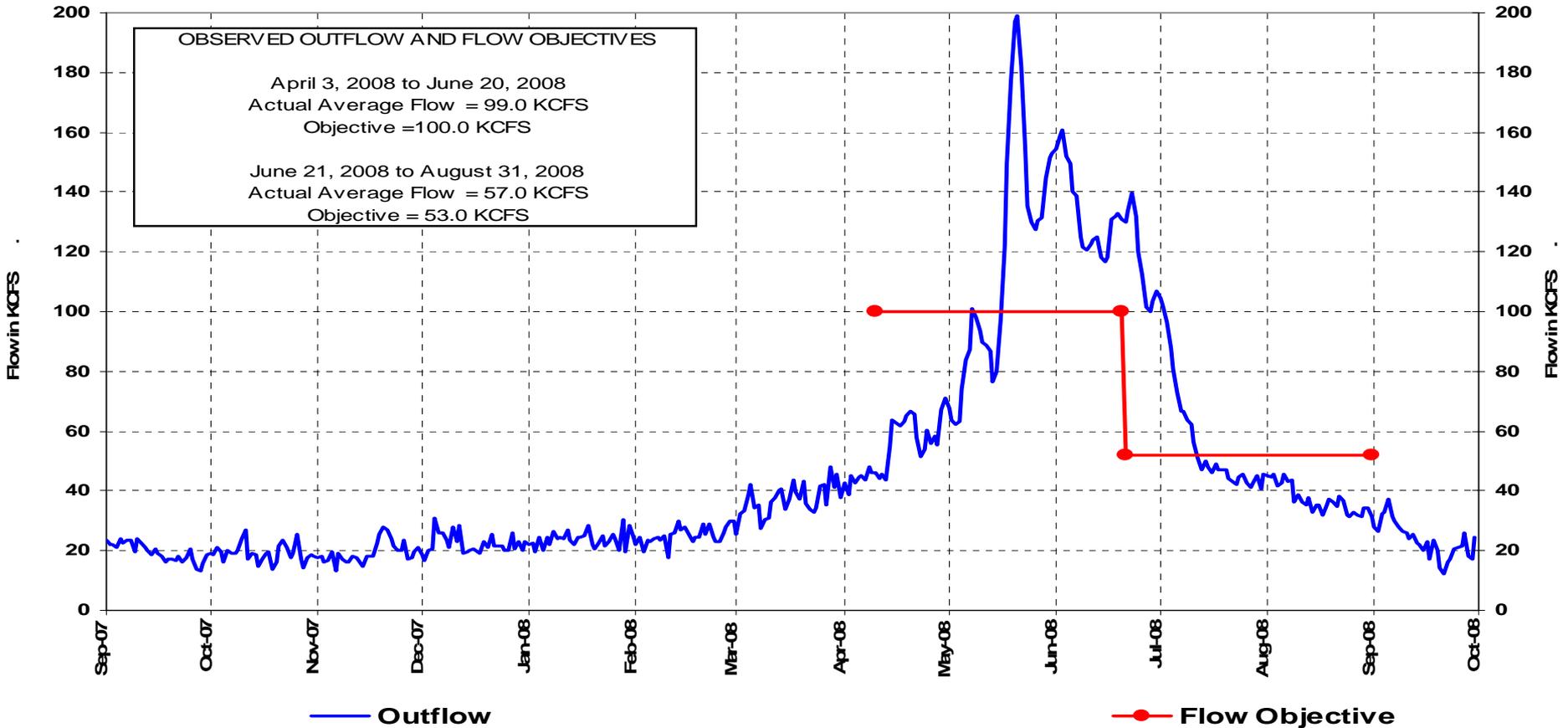
## OBSERVED 2005 – 2008 RUNOFF IN MILLIONS OF ACRE FEET

PROJECT	JAN-JUL 05		JAN-JUL 06		JAN-JUL 07		JAN-JUL08	
	OBS	%	OBS	%	OBS	%	OBS	%
HUNGRY HORSE	1.8	80	2.4	106	1.9	86	2.5	113
LIBBY	5.9	94	6.9	110	7.3	115	5.5	87
ALBENI FALLS	11.9	78	16.2	106	13.1	86	16.1	106
GRAND COULEE	54.4	86	66.9	106	63.9	102	59.6	95
DWORSHAK	2.5	69	3.5	99	2.7	77	3.8	108
LOWER GRANITE	18.1	60	32.2	107	18.9	63	27.5	92
THE DALLES	81.3	77	114.7	107	95.7	89	99.2	92

PROJECT	APR-AUG 05		APR-AUG 06		APR-AUG 07		APR-AUG08	
	OBS	%	OBS	%	OBS	%	OBS	%
HUNGRY HORSE	1.5	71	2.1	104	1.6	77	2.5	119
LIBBY	5.6	89	6.6	106	6.8	109	5.5	89
ALBENI FALLS	9.6	71	13.9	104	10.1	76	15.3	114
GRAND COULEE	48.8	81	61.2	101	57.4	95	59.7	99
DWORSHAK	1.7	62	2.7	100	1.8	67	3.6	131
LOWER GRANITE	14.4	63	25.6	112	13.5	59	22.8	106
THE DALLES	68.5	74	97.5	105	78.9	85	93.2	100



## Lower Granite September 01, 2007 to October 01, 2008

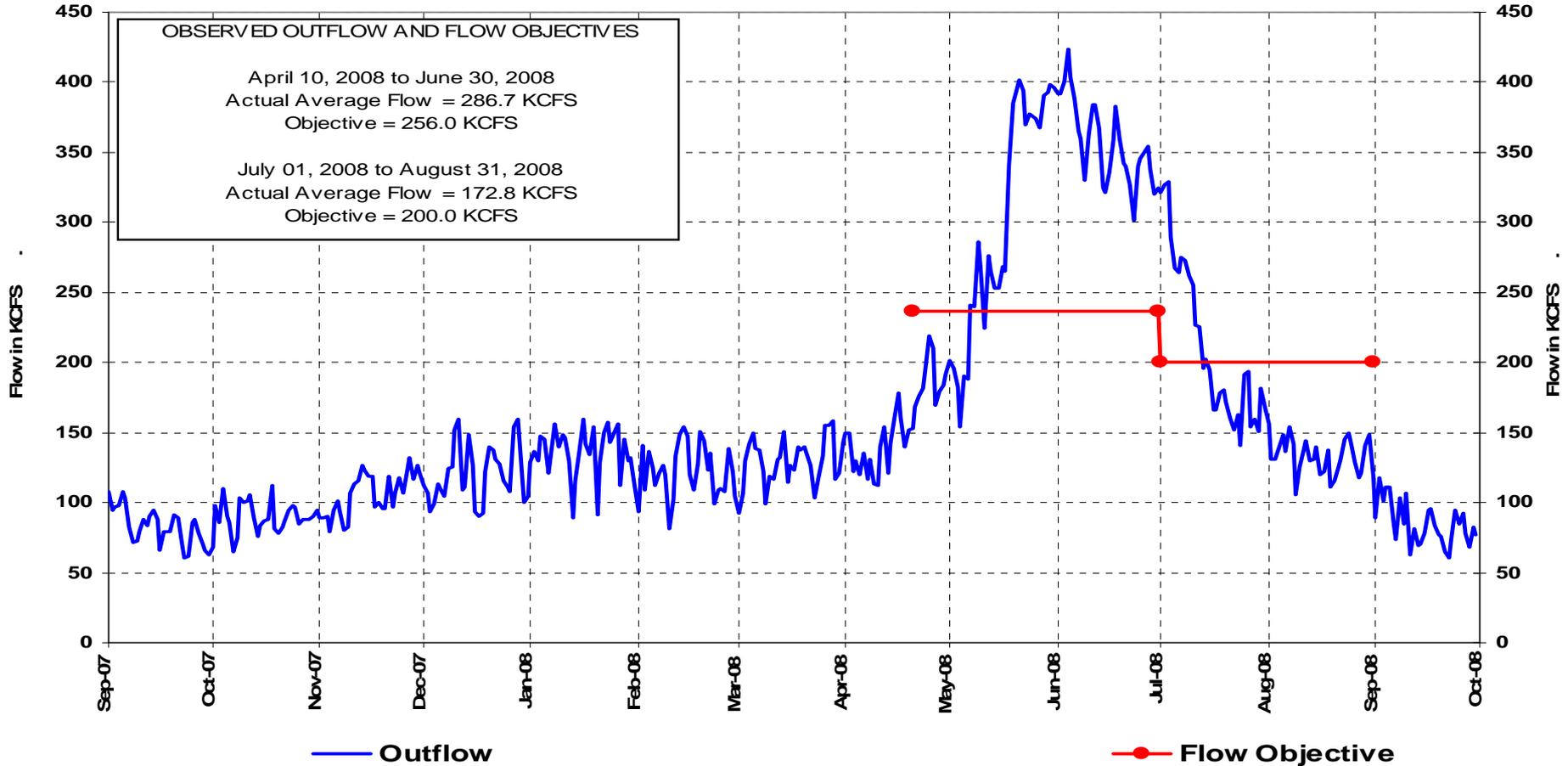


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## McNary

September 01, 2007 to October 01, 2008

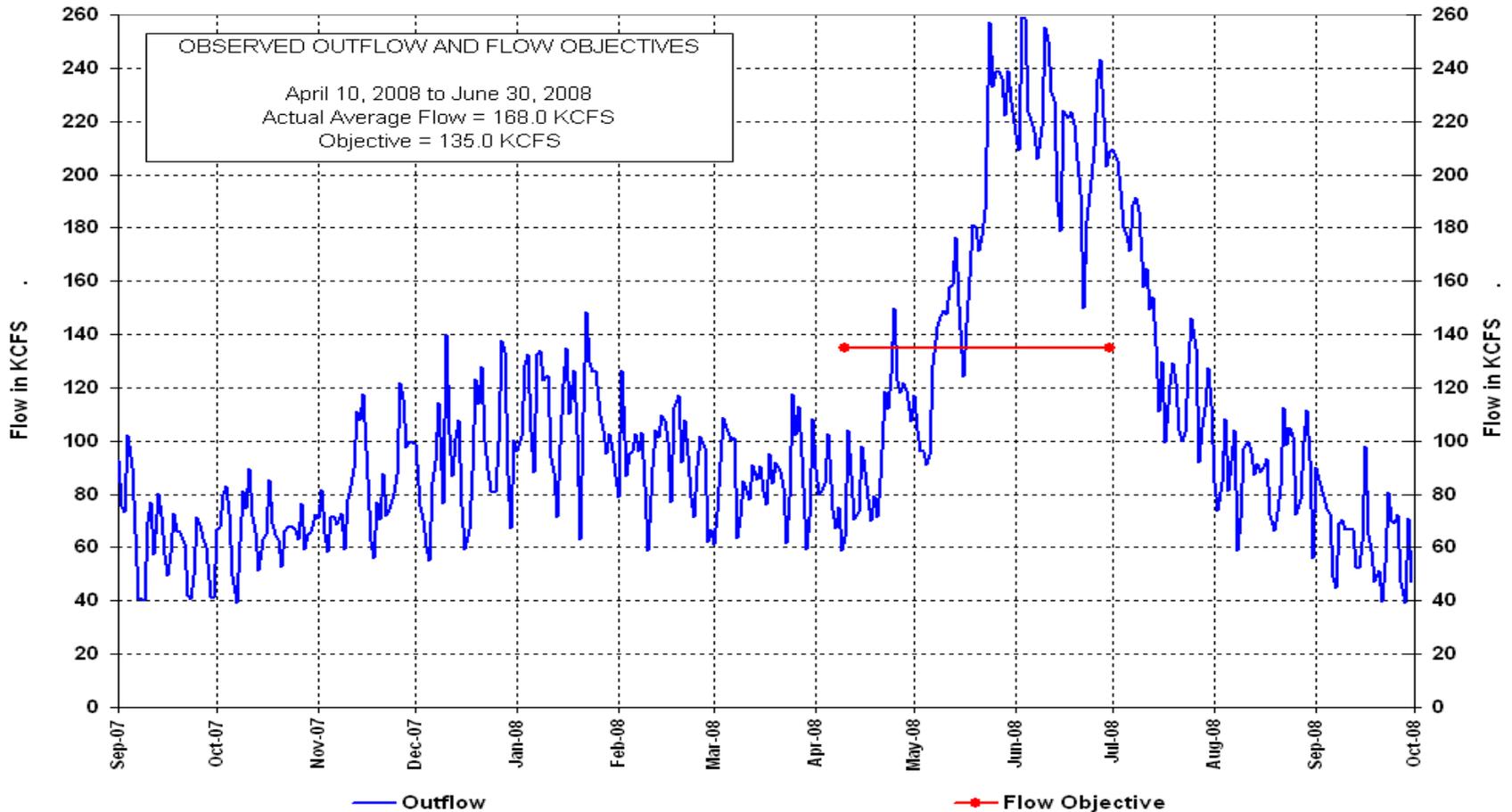


***Building Strong***



## Priest Rapids

September 01, 2007 to October 01, 2008



***Building Strong***

# Direct Survival of Migrating Salmonid Smolts in the Snake and Lower Columbia Rivers: Update with 2008 Results

**Technical Management Team**  
**Lessons Learned 2008**

**November 21, 2008**

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# Outline

- Juvenile survival and travel time through the hydropower system
- Percentage transported
  - Update with 2008 results
    - Annual summer “survival memo” released 8 September 2008
    - Draft Final Report in prep



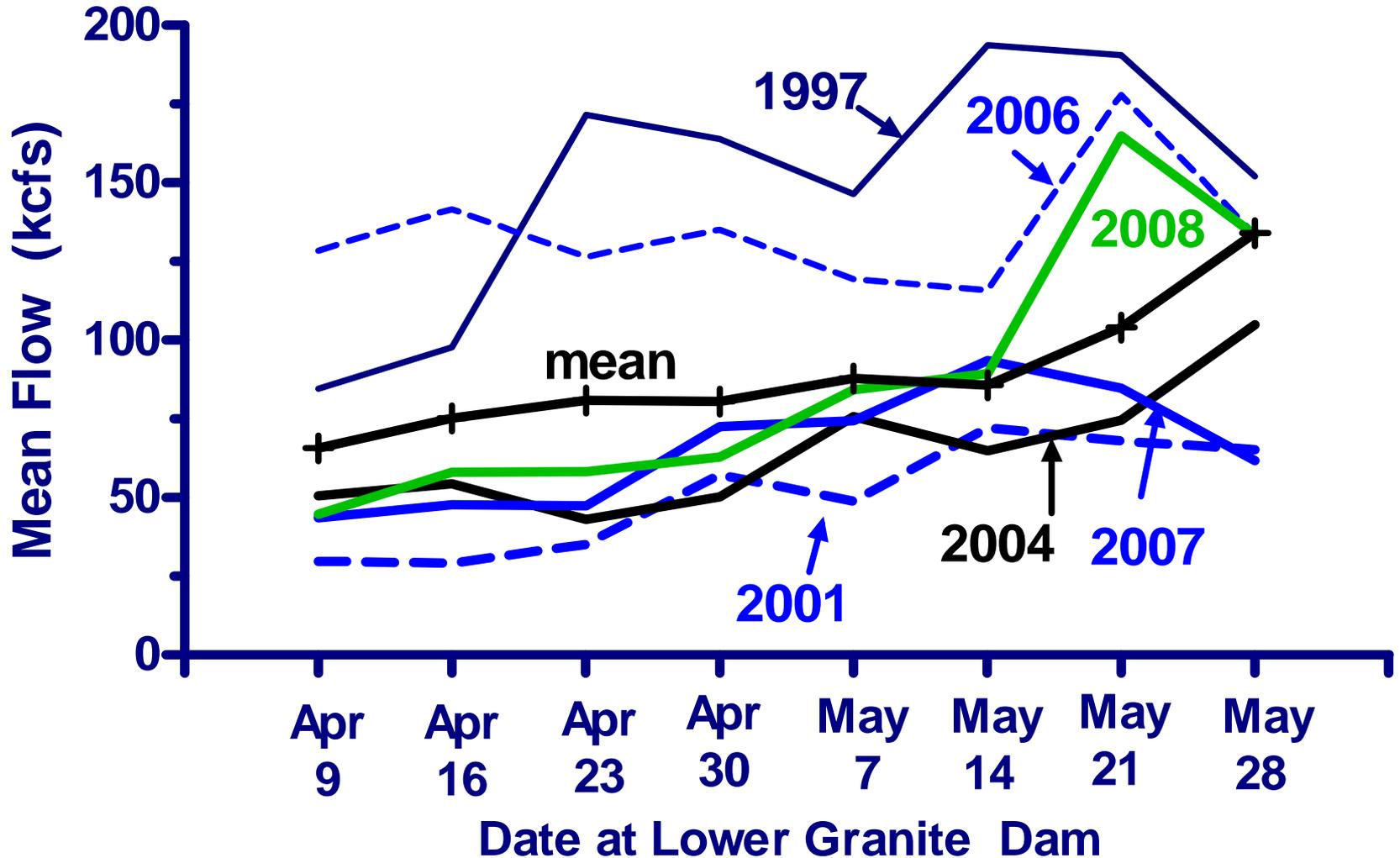
# Outline

- **Data problem in lower river in 2008?**
- **Spill, Size of In-River Population, and Survival**

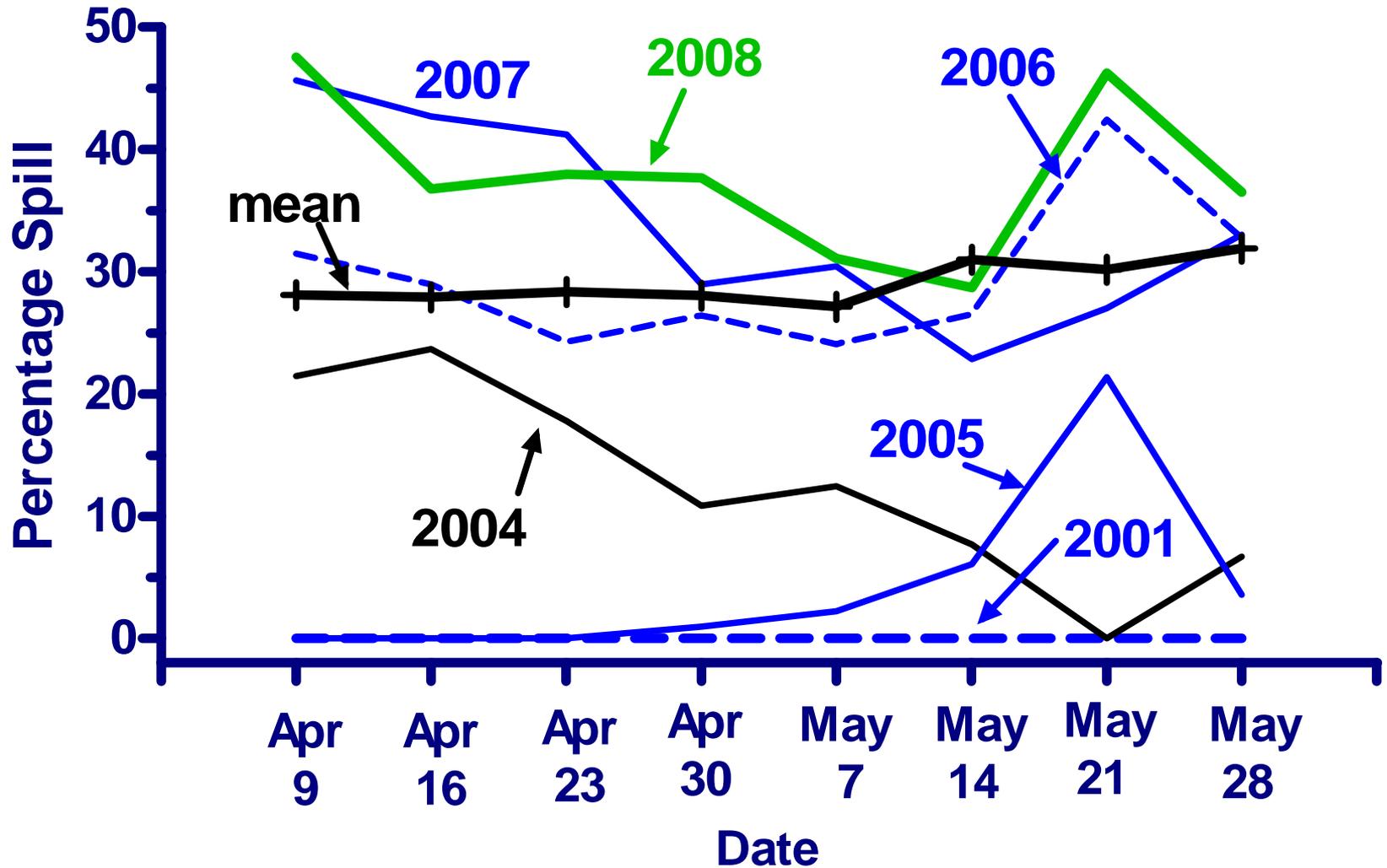
# Survival and Travel Time for PIT-tagged Spring Migrants



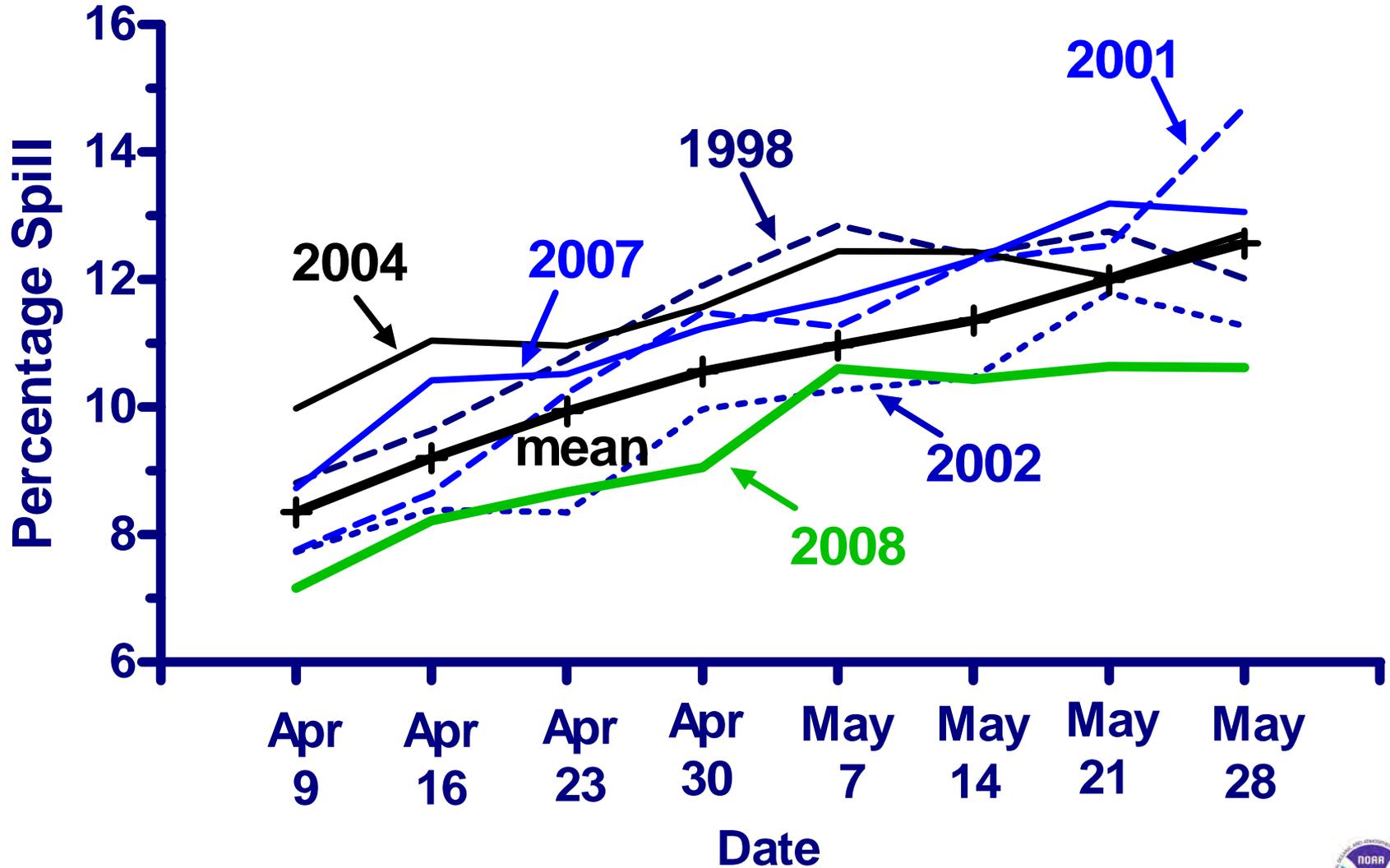
# Weekly Mean Flow (kcfs) Lower Granite Dam 1997-2008



# Weekly Mean % Spilled LGR, LGS, LMN 1997-2008

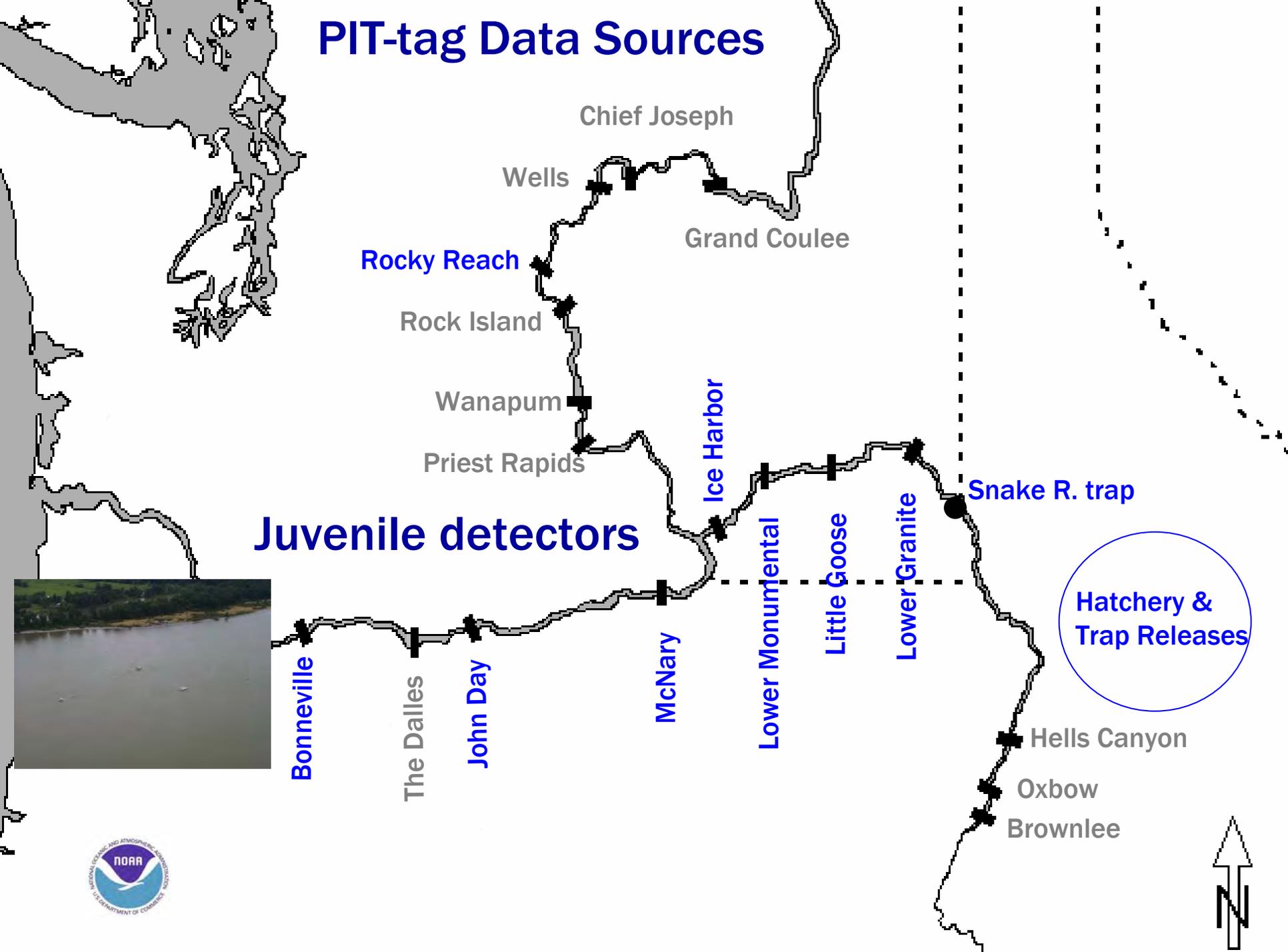


# Weekly Mean Temperature Little Goose Dam 1997-2008

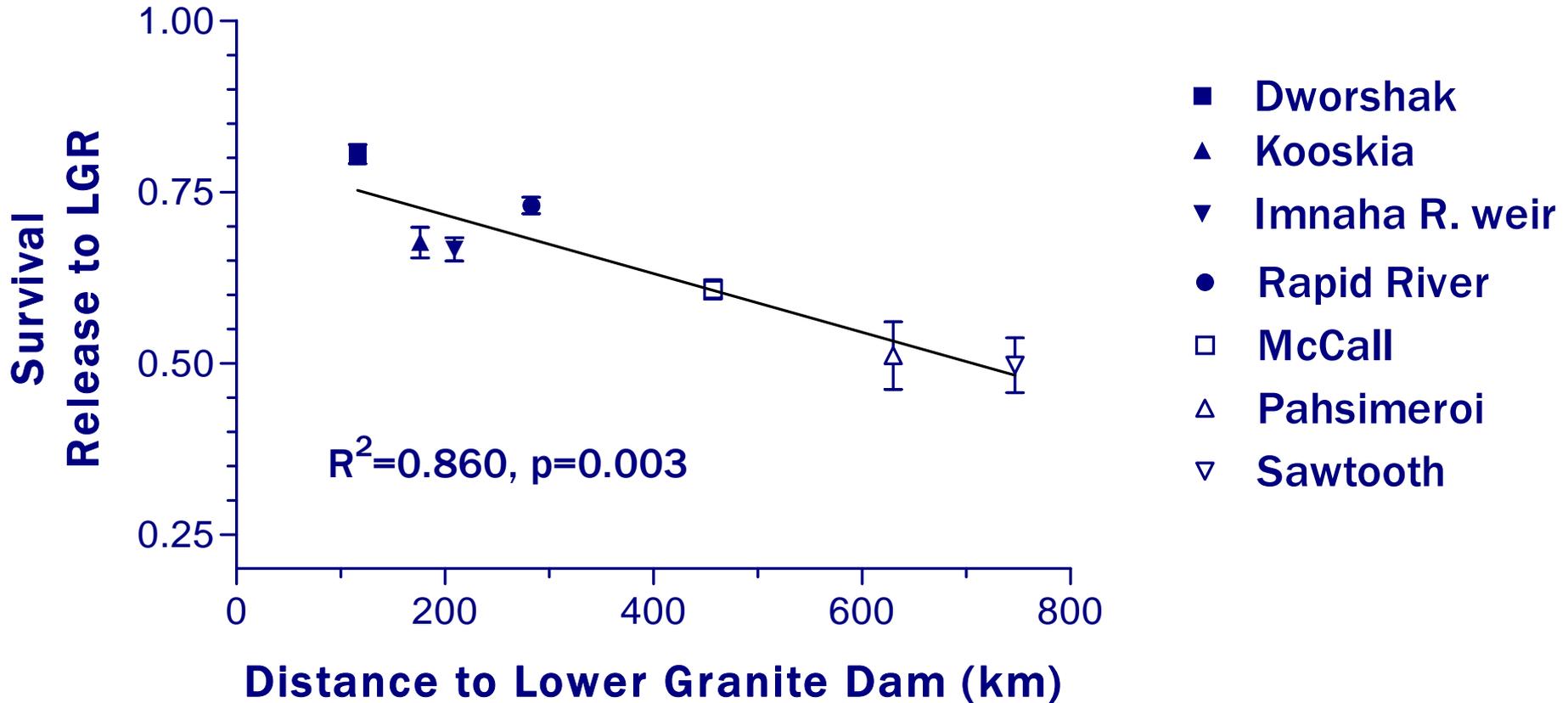


# PIT-tag Data Sources

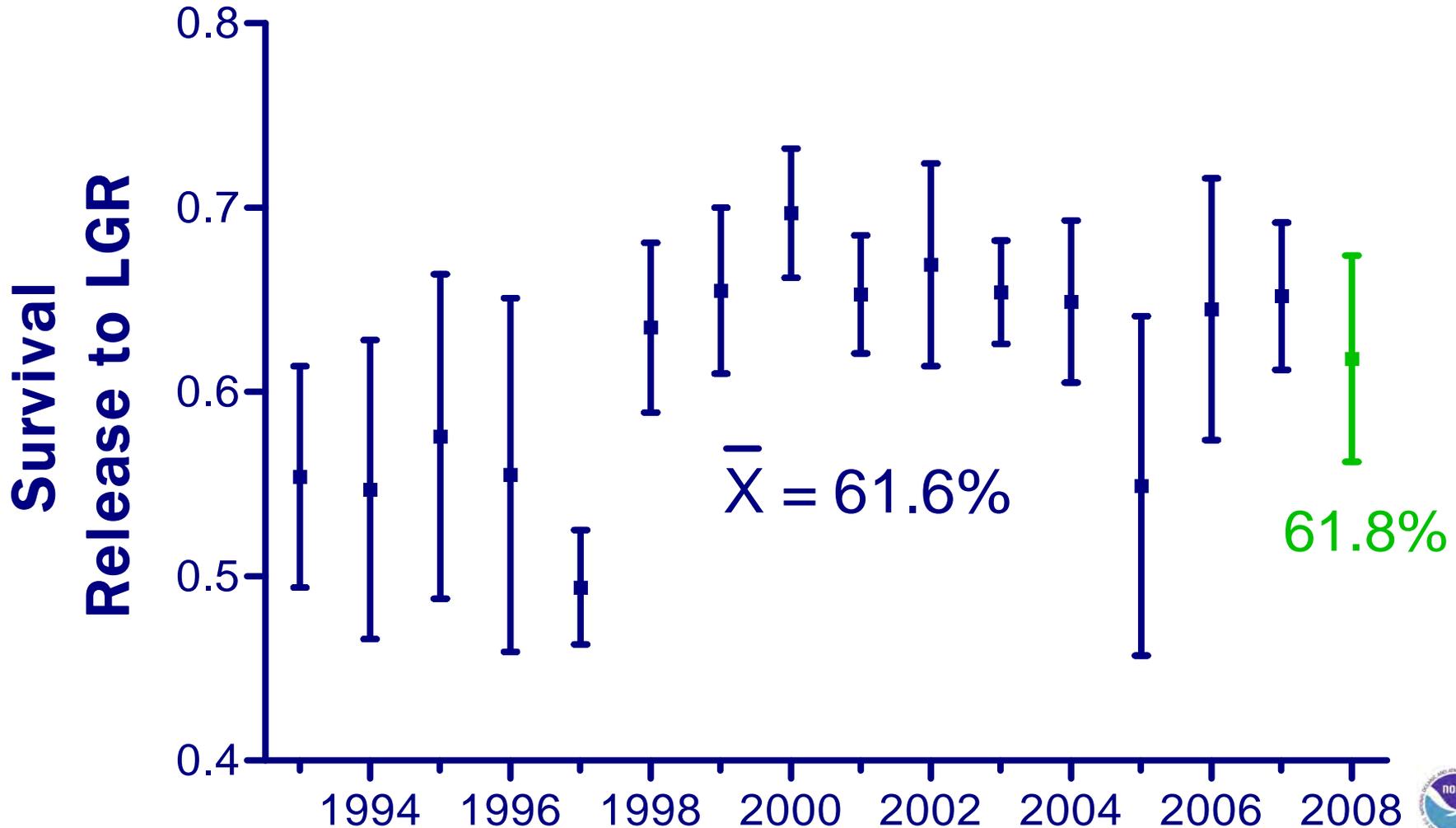
## Juvenile detectors



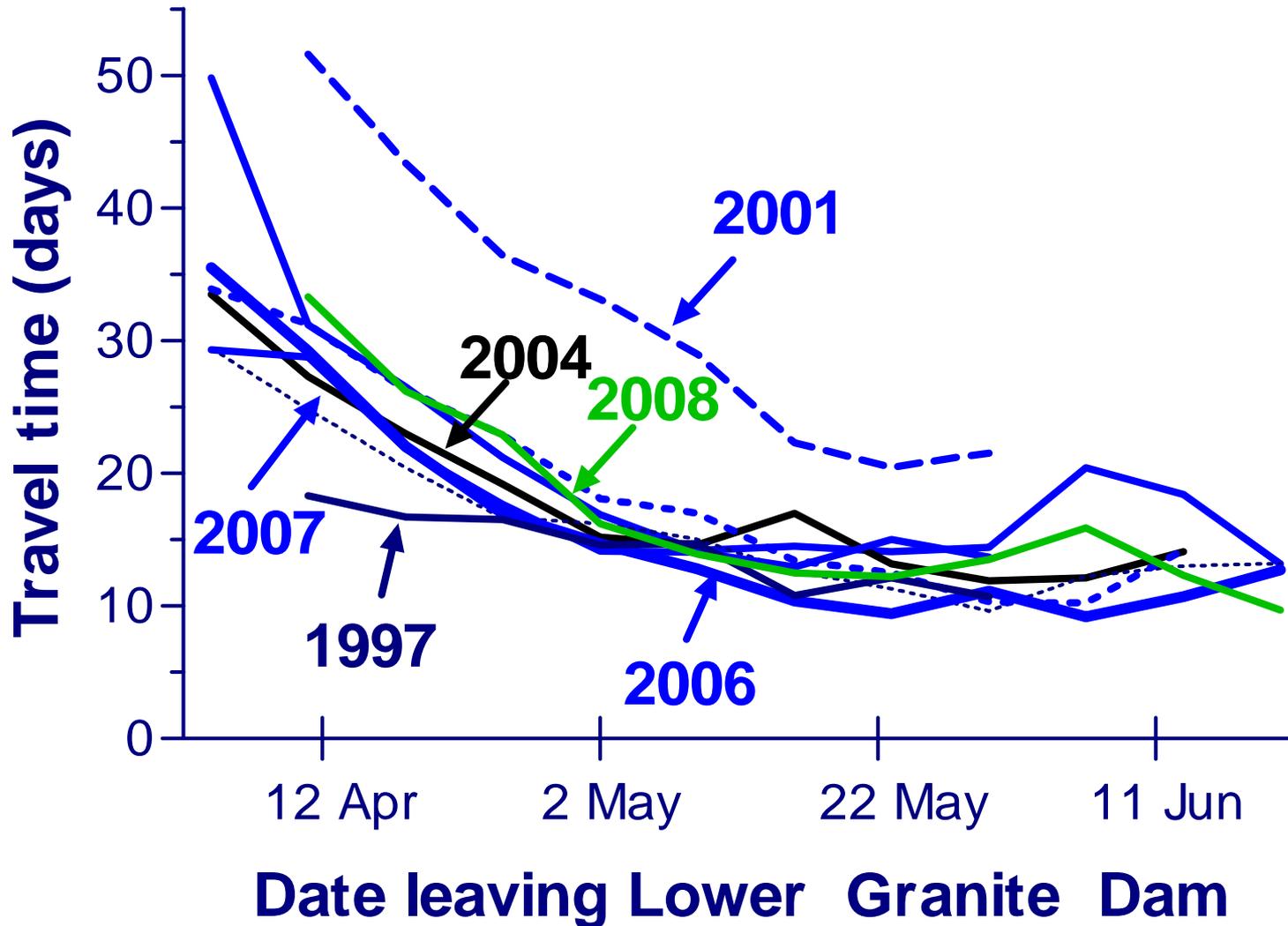
# Hatchery stream type Chinook (1998-2008)



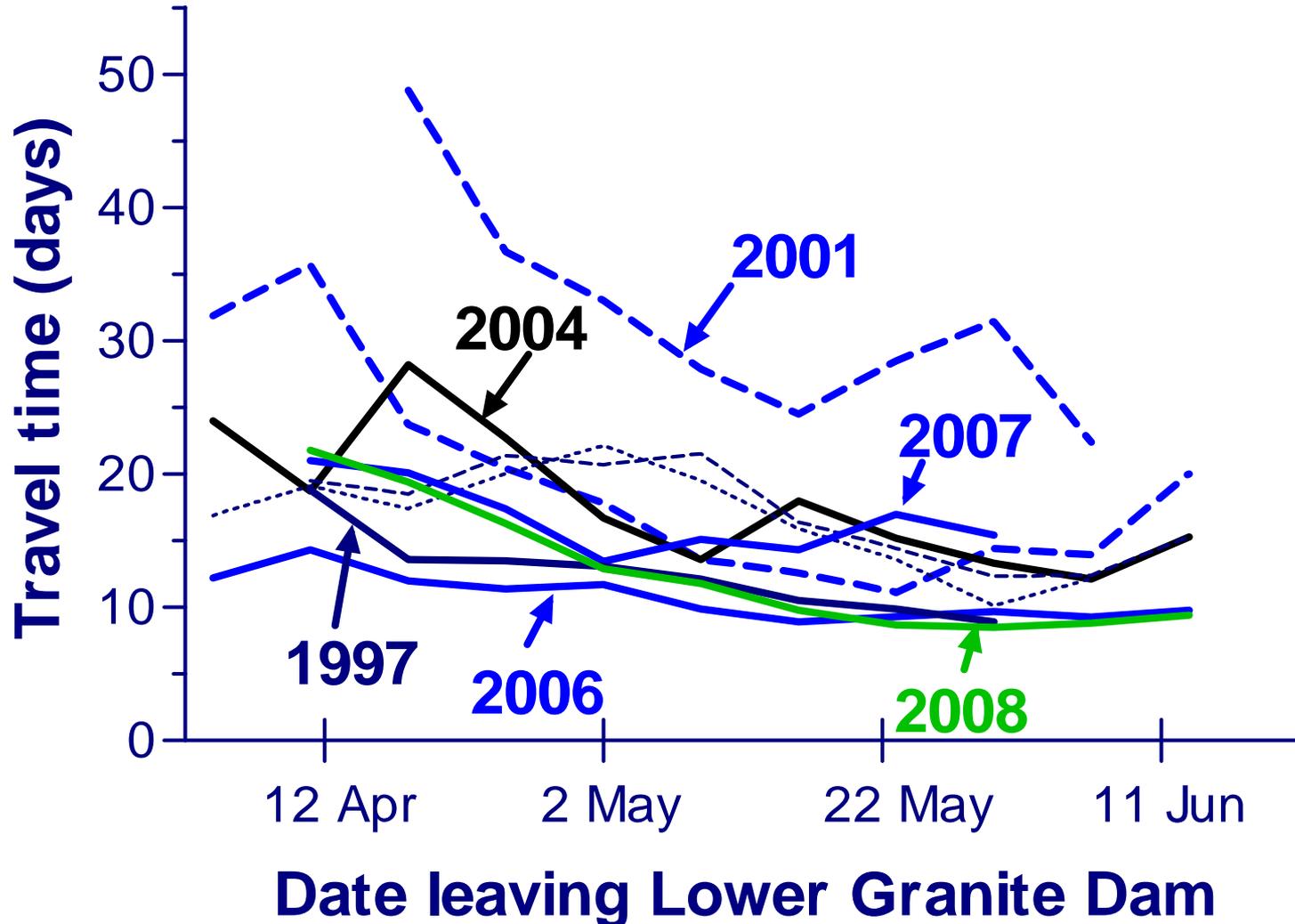
# Stream type Chinook Snake River Basin Hatcheries Mean of index groups



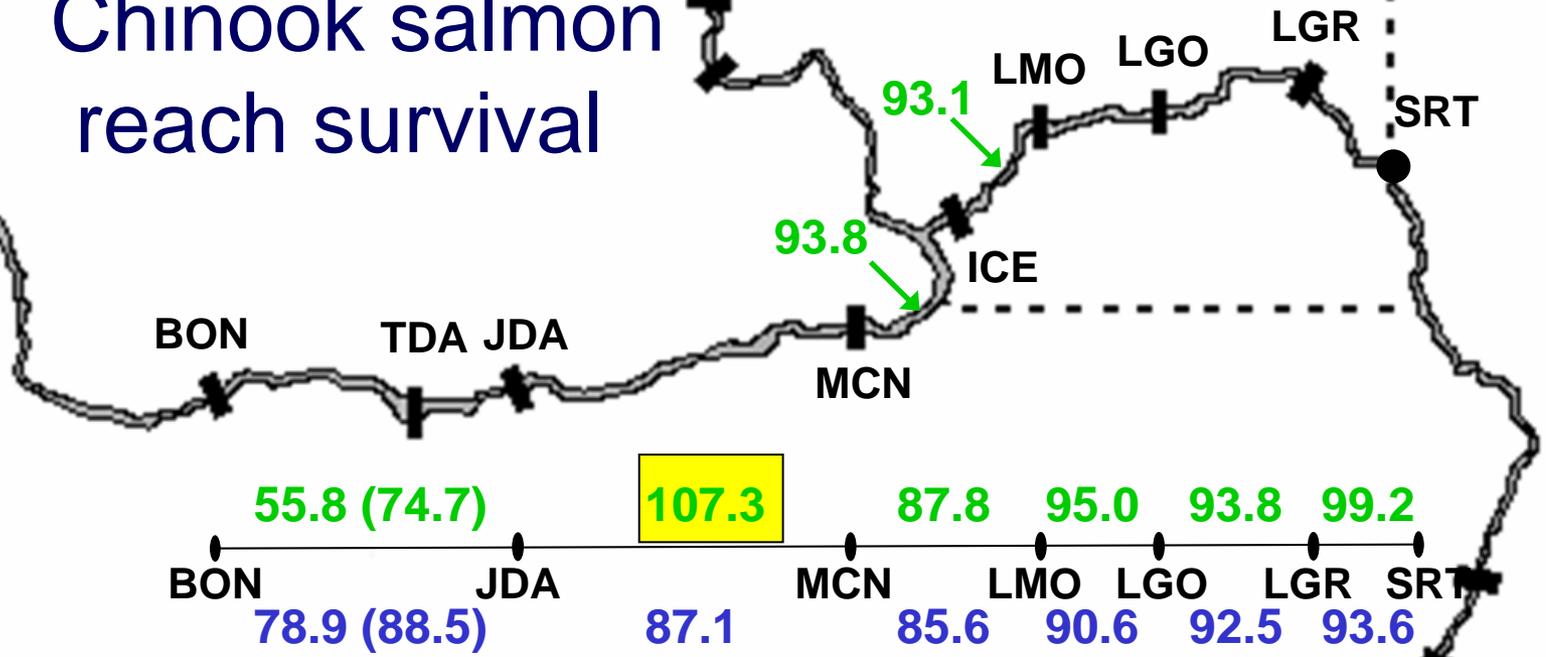
# Stream-type Chinook median travel time Lower Granite to Bonneville (461 km)



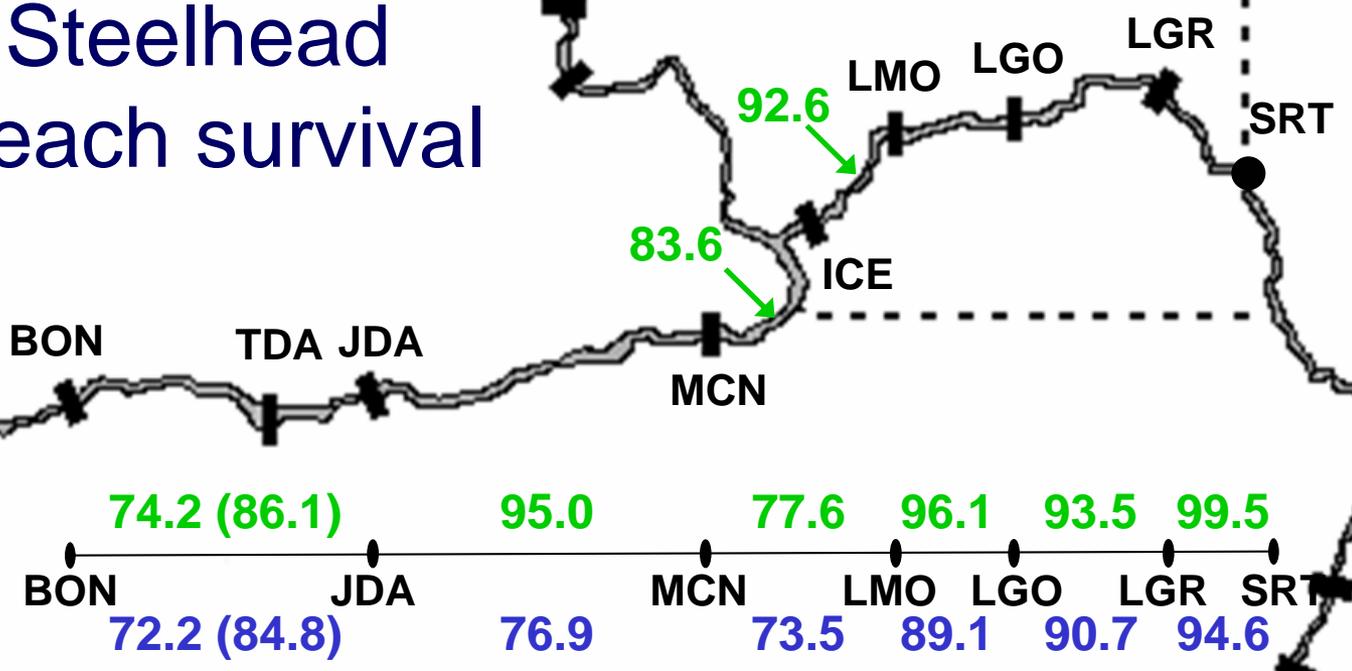
# Steelhead median travel time Lower Granite to Bonneville (461 km)

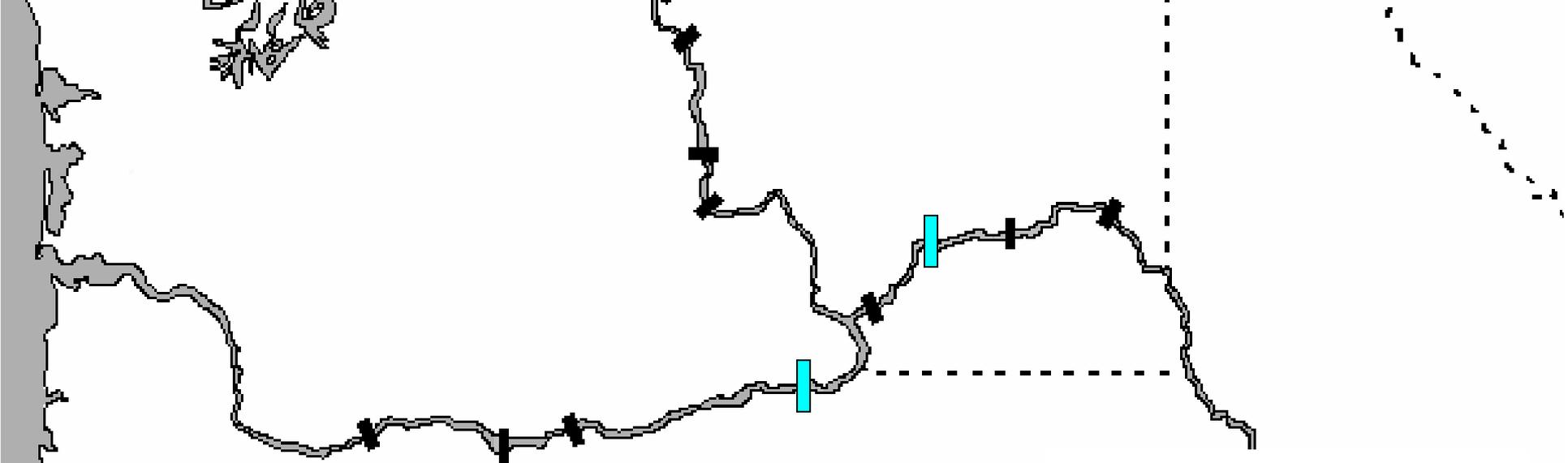


# Stream-type Chinook salmon reach survival



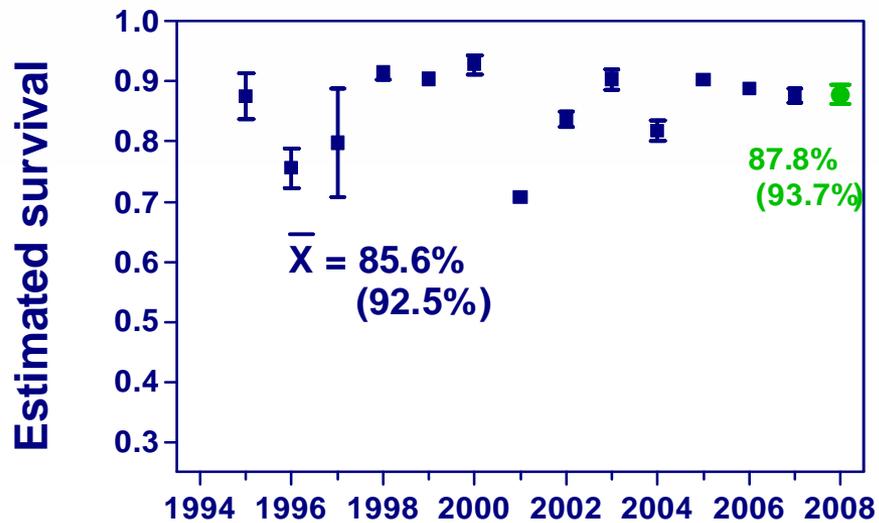
# Steelhead reach survival



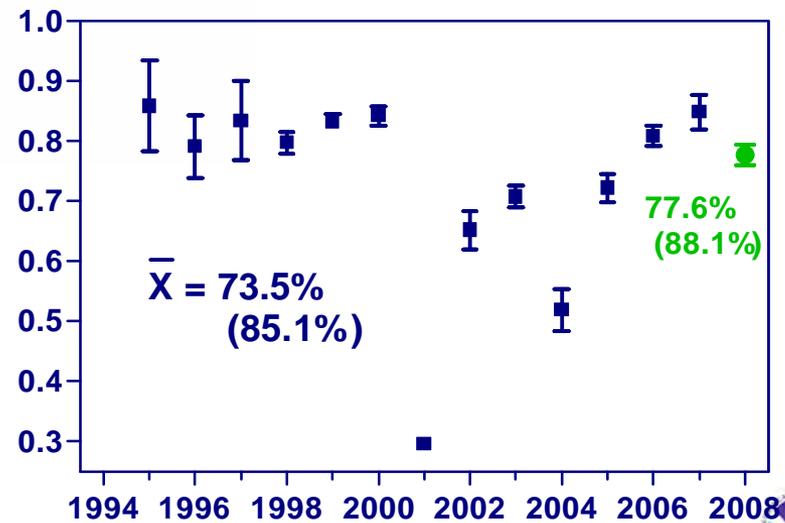


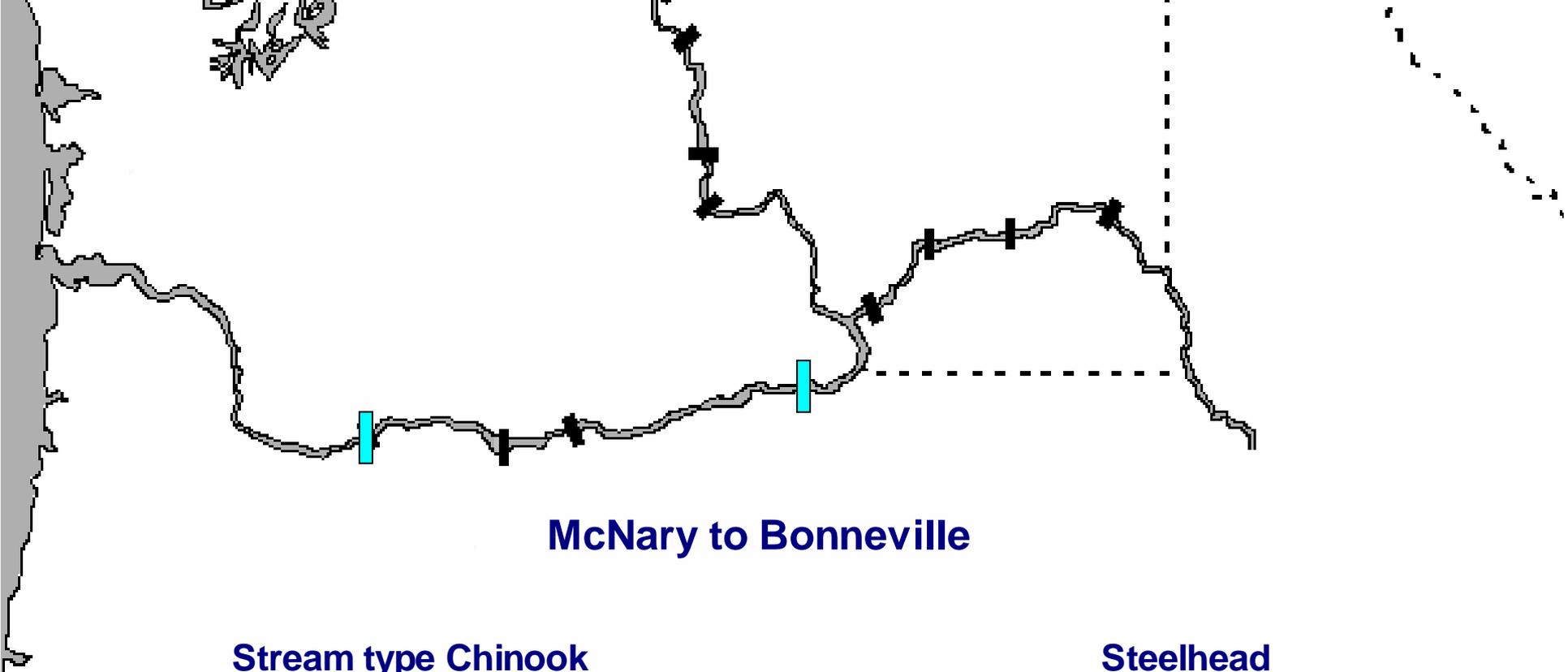
## Lower Monumental to McNary

### Stream type Chinook

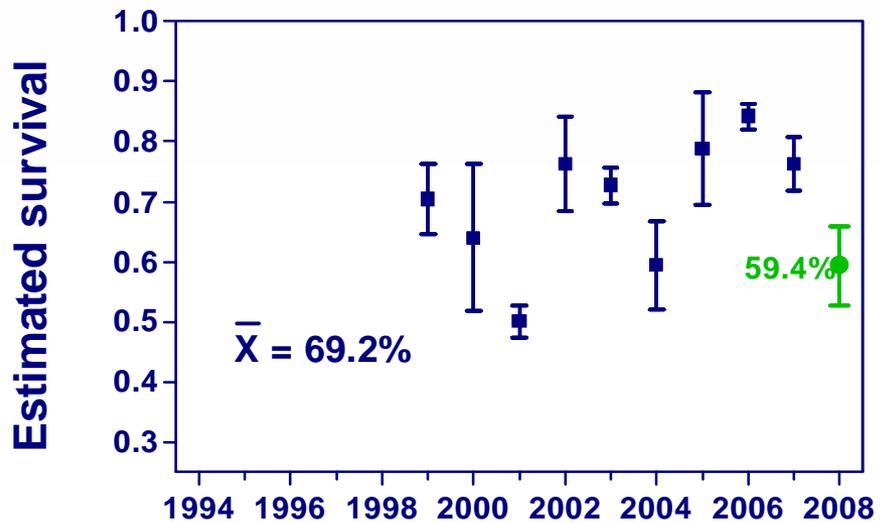


### Steelhead

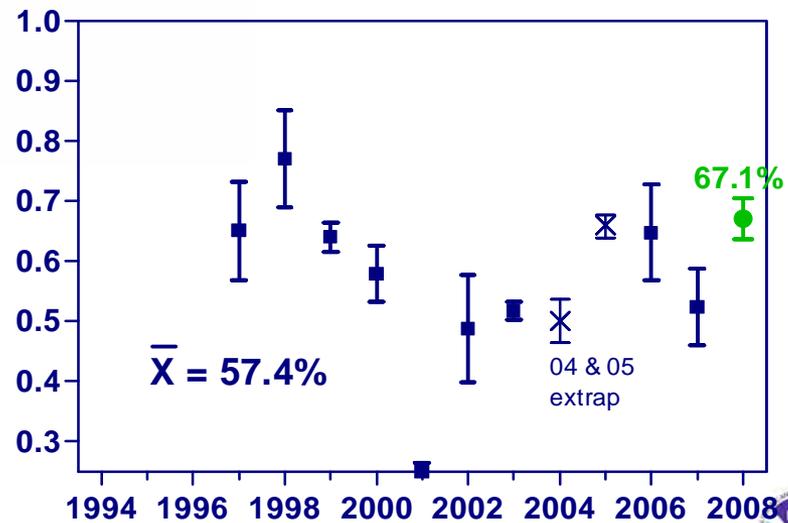


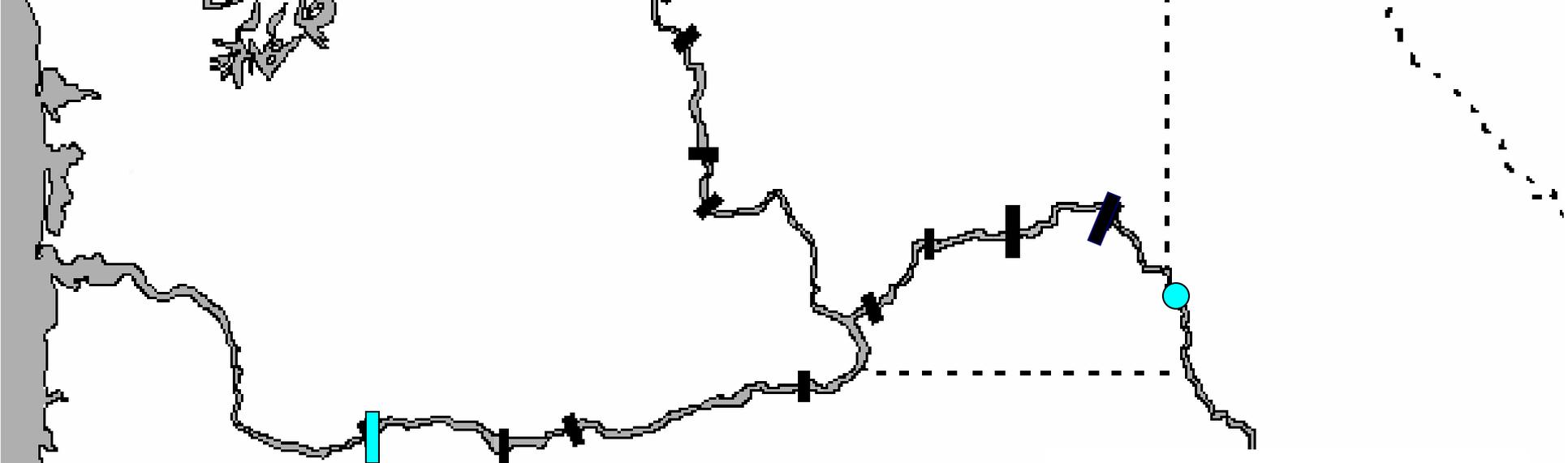


**Stream type Chinook**



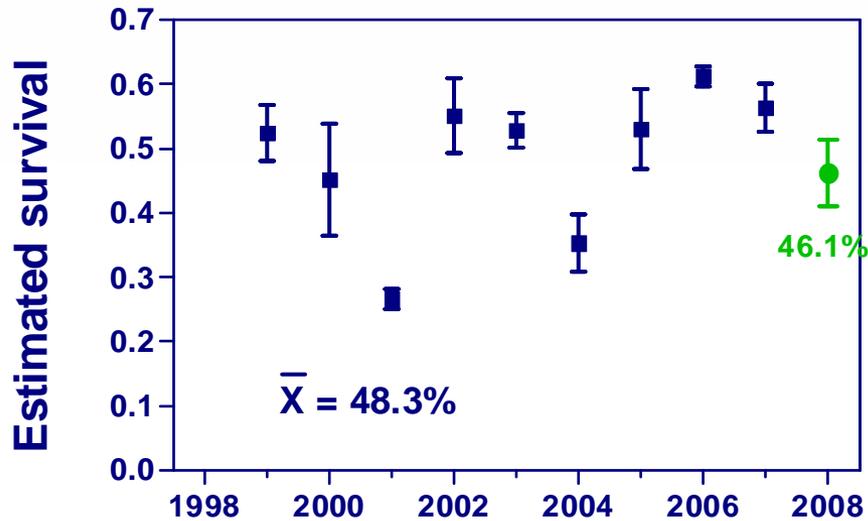
**Steelhead**



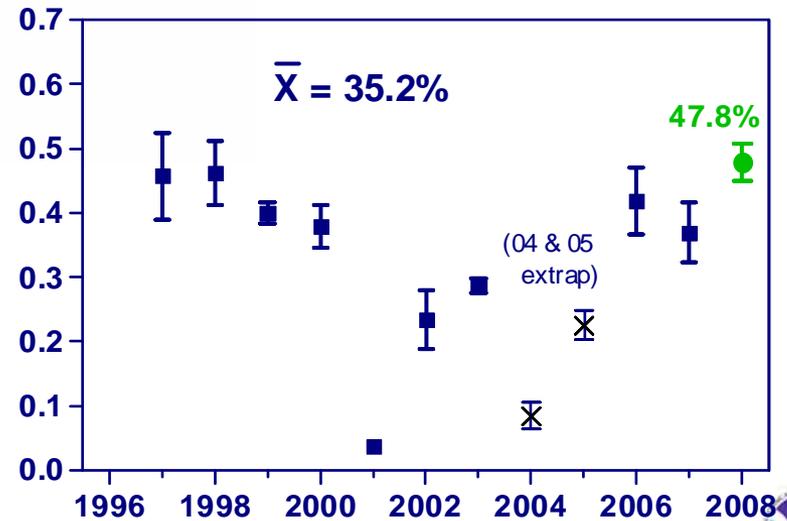


## Snake River Trap to Bonneville

### Stream type Chinook



### Steelhead



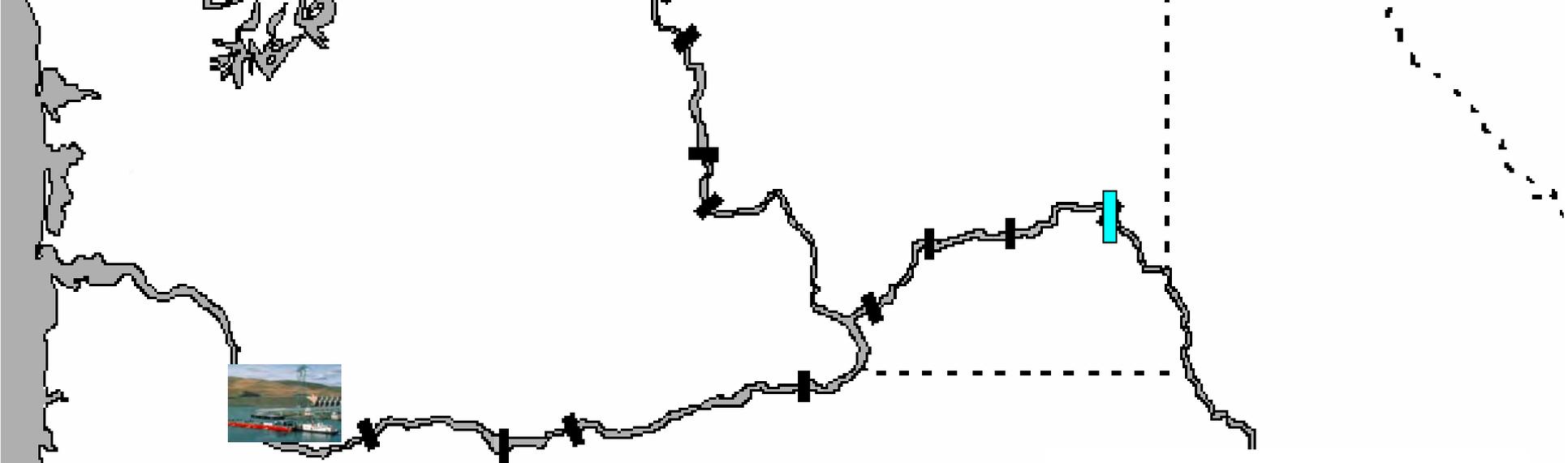
# Percentage of fish transported



# Percentage of non-tagged fish transported

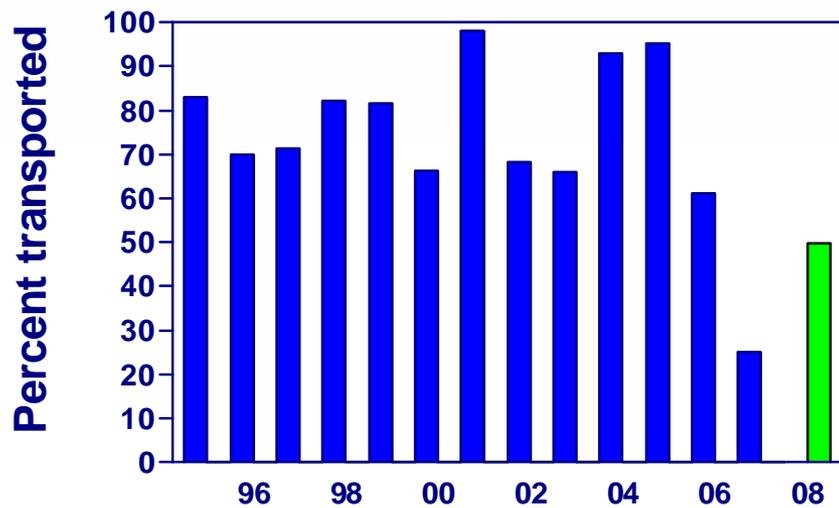
Preliminary estimates for 2008 based on  
PIT-tag data:

- 54.3% wild Chinook
- 45.3% hatchery Chinook
- 50.5% wild steelhead
- 46.6% hatchery steelhead

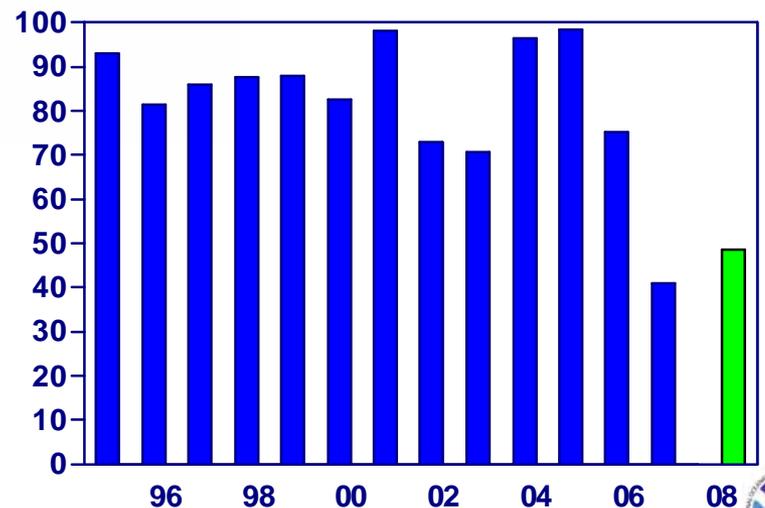


## Percent Transported to Below Bonneville

### Stream type Chinook



### Steelhead

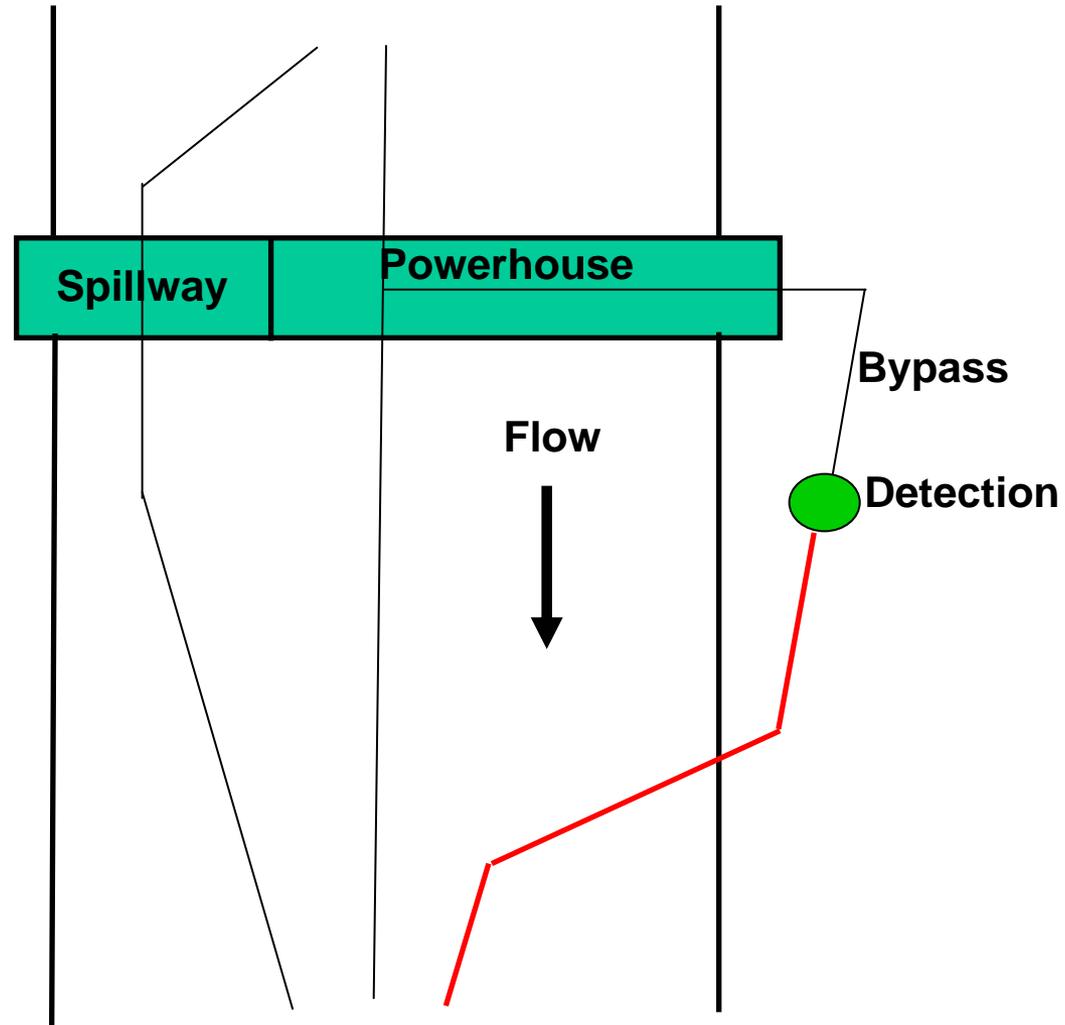


# Data problem in lower river in 2008?

Table 2. Estimated survival probabilities for Snake River yearling Chinook salmon (hatchery and wild combined) detected and released to the tailrace at McNary Dam in 2008. Daily groups pooled weekly. Estimates based on the single-release model. Standard errors in parentheses. .

Date at McNary	Number released	McNary to John Day Dam	John Day to Bonneville Dam	McNary to Bonneville Dam
27 Apr–03 May	588	1.103 (0.190)	0.507 (0.167)	0.559 (0.156)
04 May–10 May	7,576	0.983 (0.054)	0.761 (0.080)	0.748 (0.067)
11 May–17 May	24,299	1.195 (0.060)	0.379 (0.036)	0.453 (0.036)
18 May–24 May	13,541	1.175 (0.099)	0.682 (0.189)	0.802 (0.212)
25 May–31 May	3,244	0.731 (0.084)	NA	NA
01 Jun–07 Jun	1,239	0.962 (0.164)	0.795 (0.544)	0.764 (0.507)
08 Jun–14 Jun	716	0.747 (0.202)	0.640 (0.606)	0.478 (0.434)
<b>Weighted mean*</b>		<b>1.073 (0.058)</b>	<b>0.558 (0.082)</b>	<b>0.594 (0.066)</b>

# Post-detection bypass (PDB) mortality



# Data Effects of PDB Mortality

- Detected at dam 1 = Counted alive in tailrace, but actually dead
- Too few detected fish show up at dam 2
- Dam 1 detection probability underestimated
- Reach 1 Survival probability overestimated

# Data Effects of PDB Mortality

- Effect on Reach 2 survival estimate depends on Dam 2:
  - If no PDB mortality at Dam 2, Reach 2 survival is underestimated, *but combined Reach 1 & 2 survival is unbiased*
  - If PDB mortality at Dam 2, effect is uncertain

# Lower River Conditions

- MCN-JDA and JDA-BON estimates affected by PDB mortality, but MCN-BON ok?
  - MCN-BON estimate lower than average for Chinook

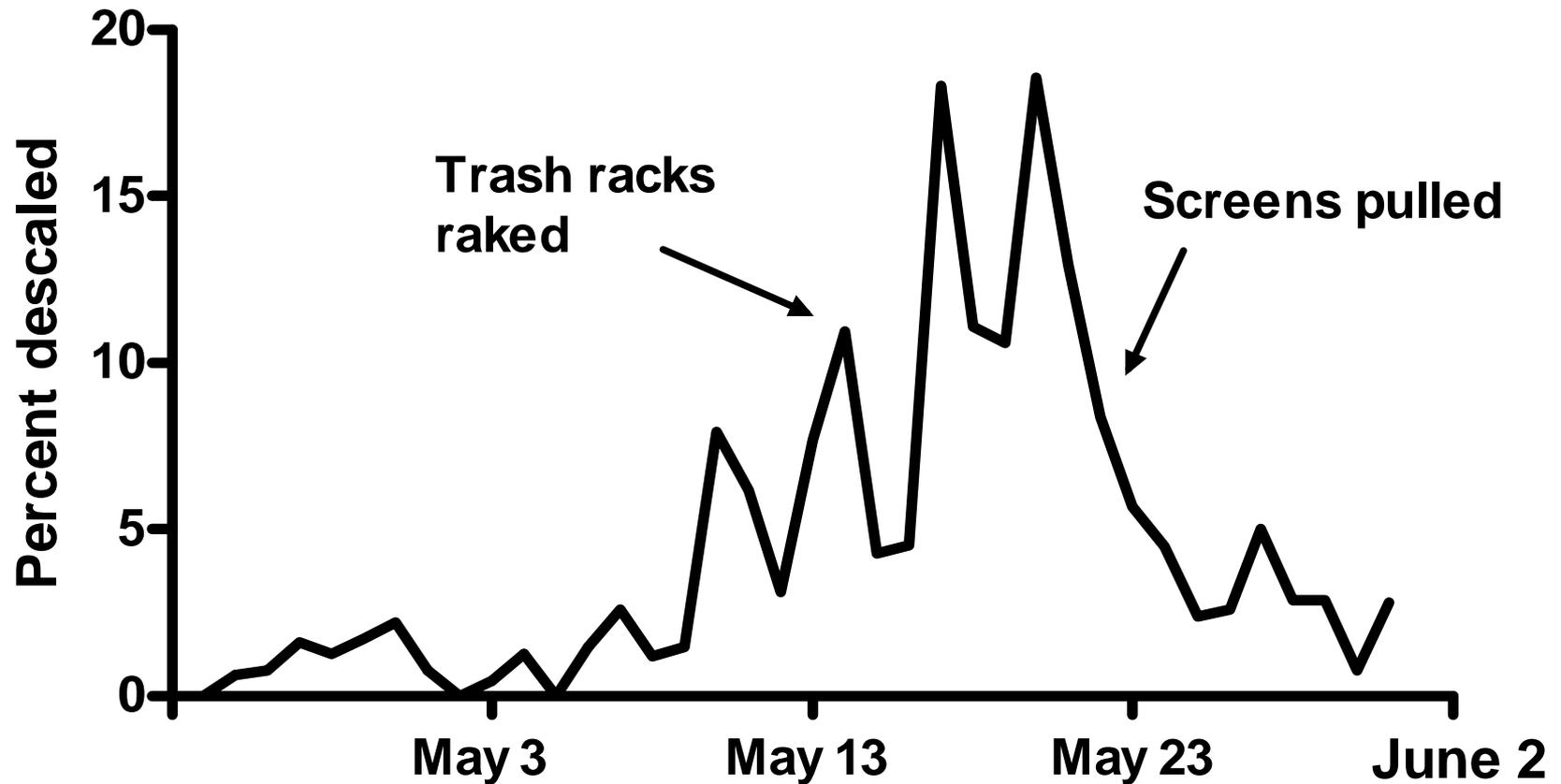
# Increased Avian Predation?



# Debris on Screens at Bonneville Dam?



# Bonneville Dam Yearling Chinook salmon



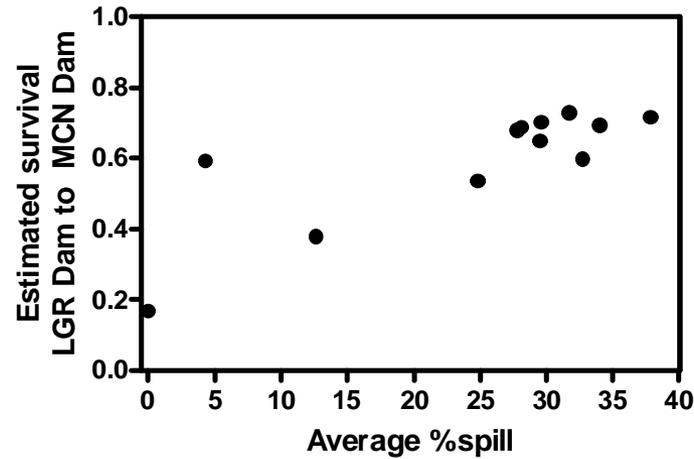


# Spill, Transport, In-River Population Size, and Survival

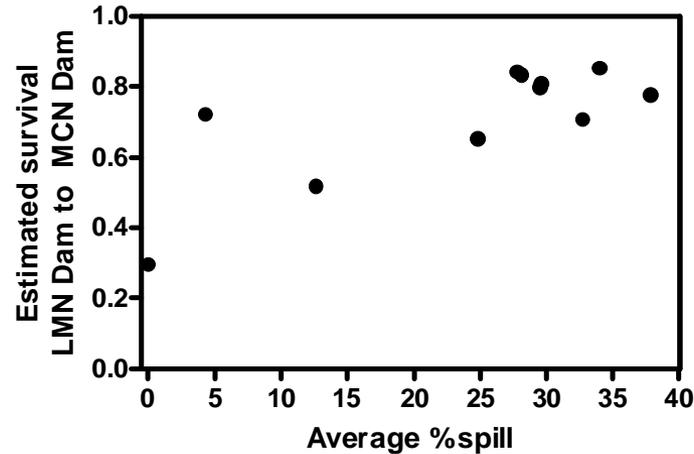


# Steelhead Survival & Spill%

Survival LGR-MCN

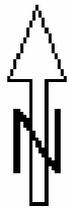
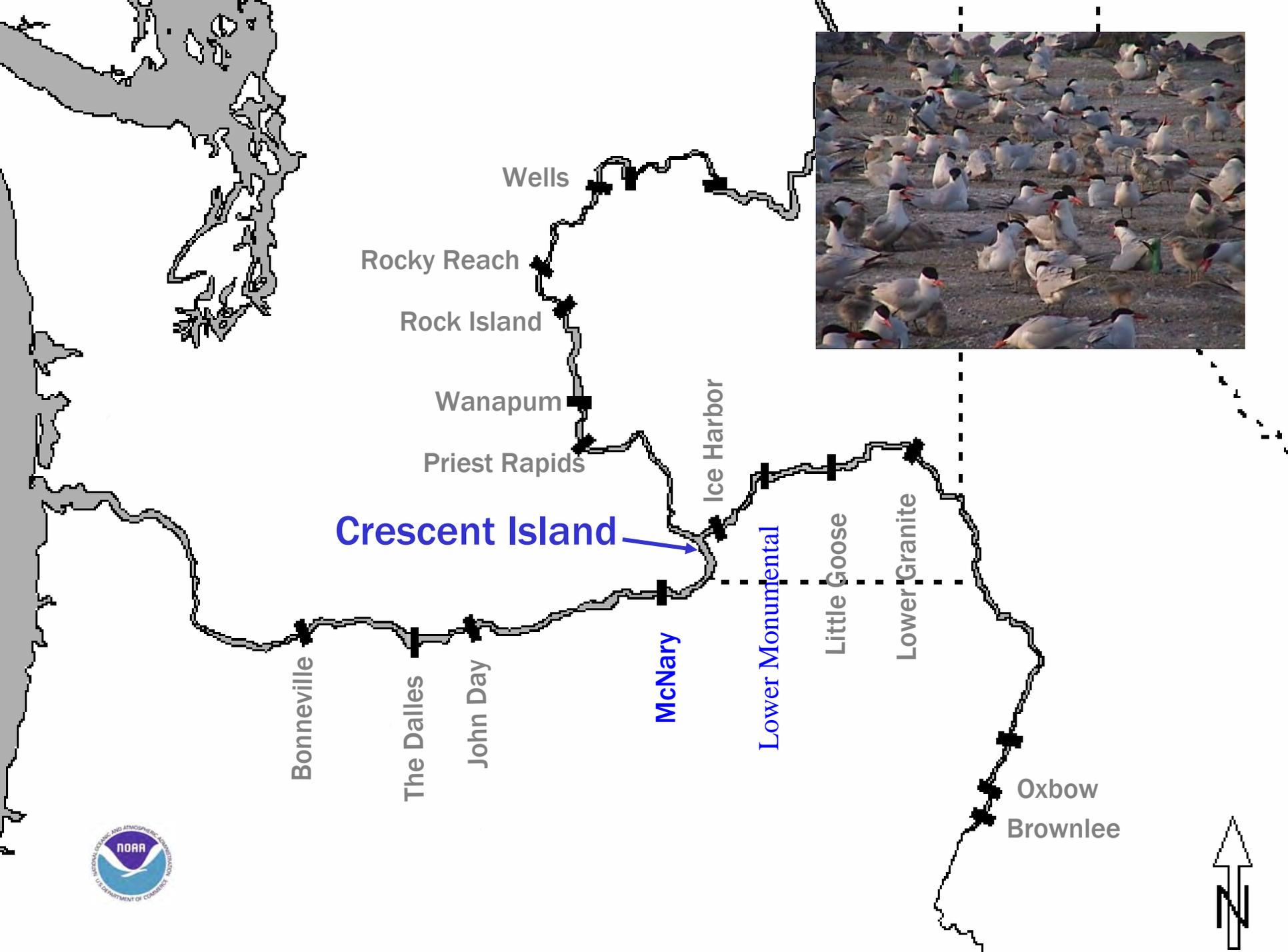


Survival LMN-MCN



# Passage-Route Survival Spill vs. Bypass

- Recent radiotelemetry studies
  - Little Goose 2005-2007
    - spill & bypass both > 95-96%
  - Lower Monumental 2007
    - spill 93.9%, bypass 98.6%
  - Ice Harbor
    - spill 96-97%, bypass 97-98%

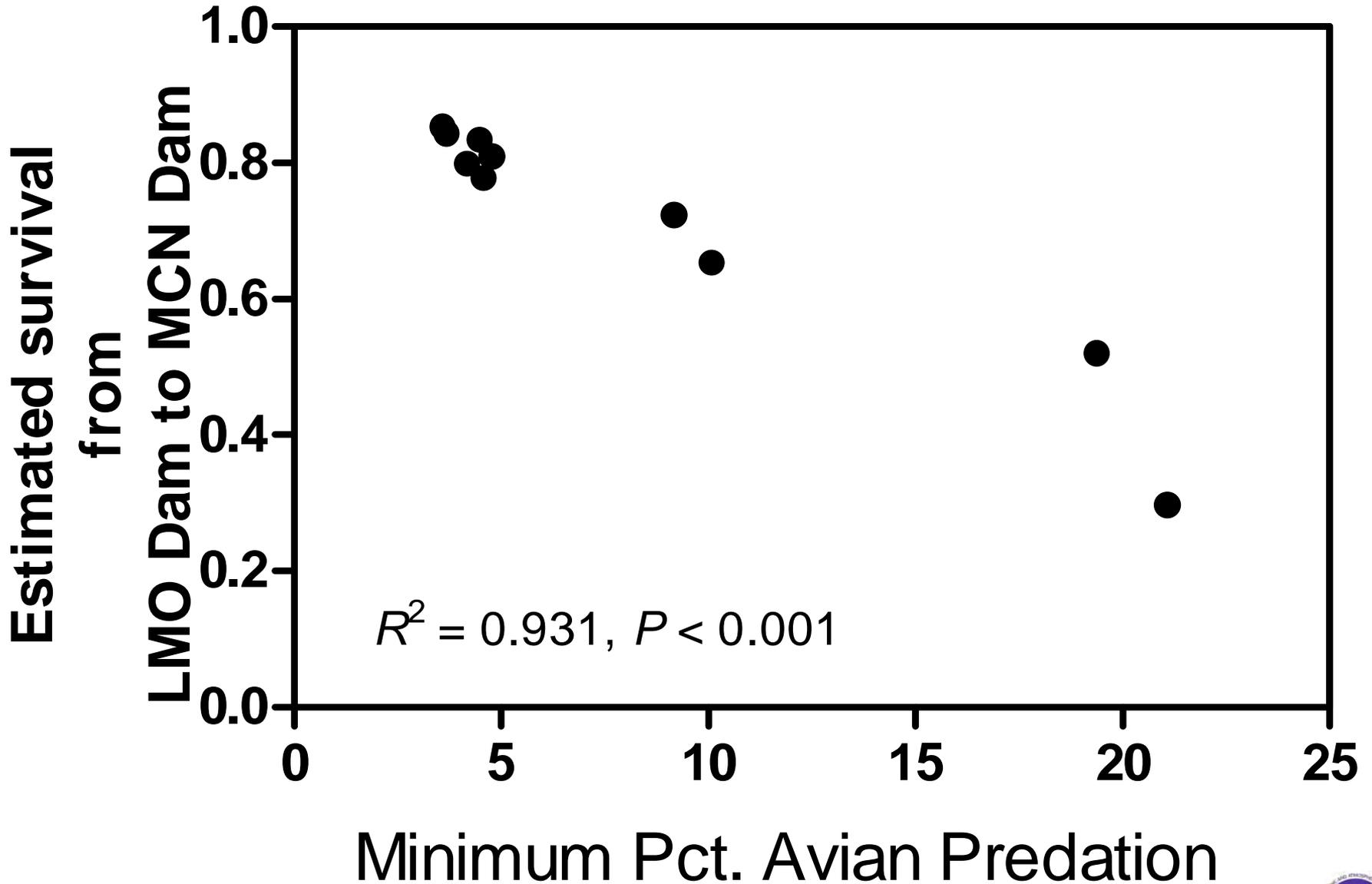


# Minimum Estimate of Steelhead Mortality from Avian Predation

- Percentage of PIT-tagged steelhead detected at LMN eventually recovered on nesting colonies

1998	4%	2004	19%
1999	5%	2005	9%
2000	4%	2006	5%
2001	21%	2007	4%
2002	10%	2008	5%
2003	4%		

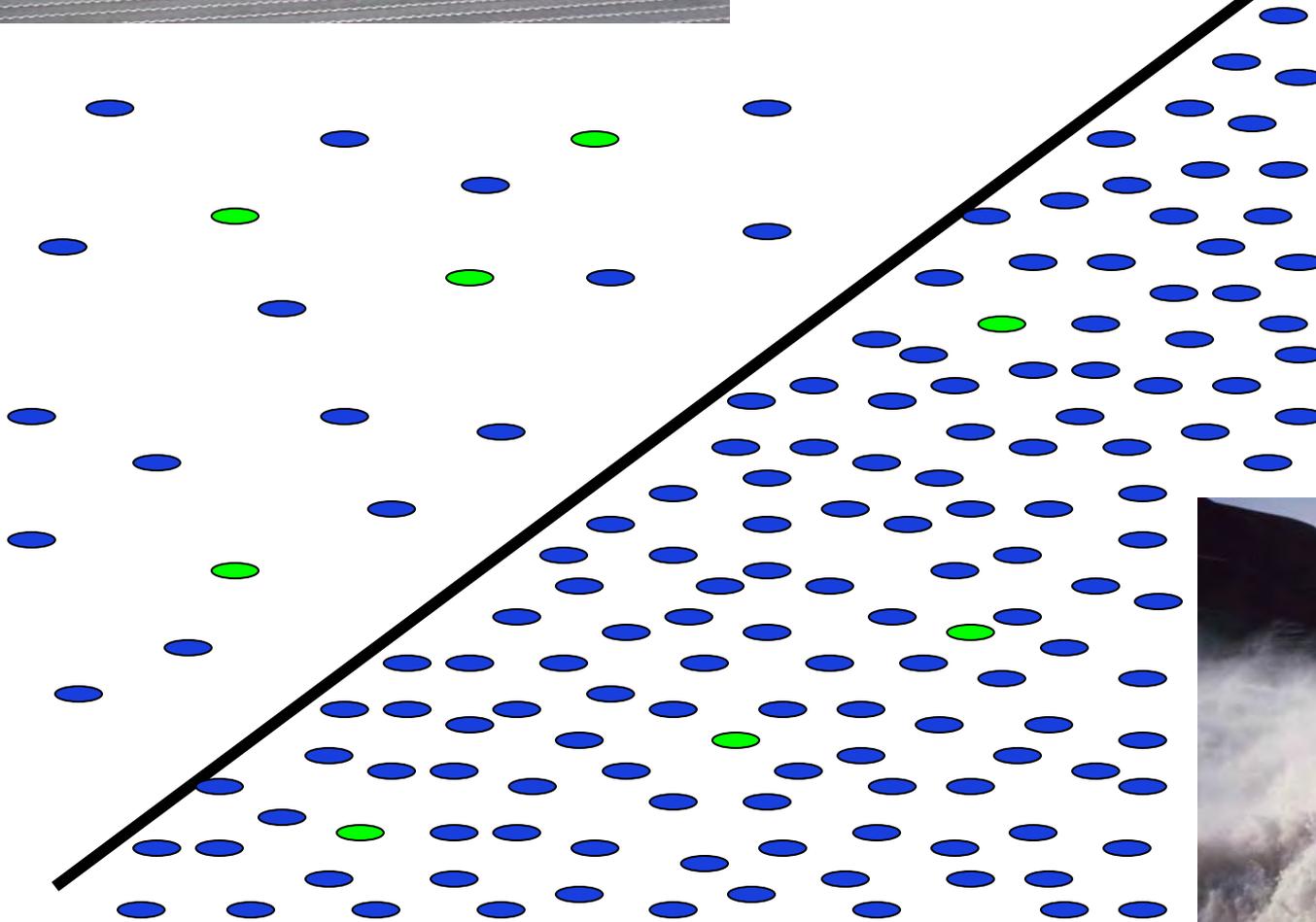
# Steelhead



- Total take by birds depends more on number of birds than on number of smolts
  - Size of nesting colonies relatively stable year-to-year compared to number of in-river smolts



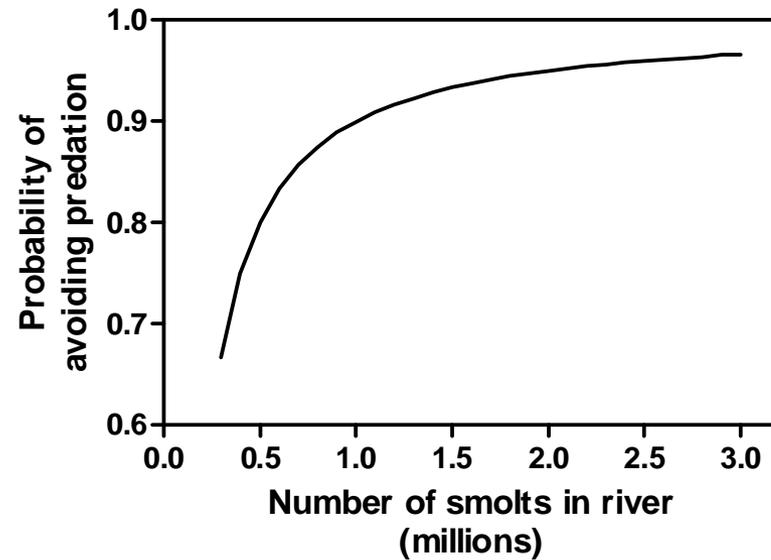
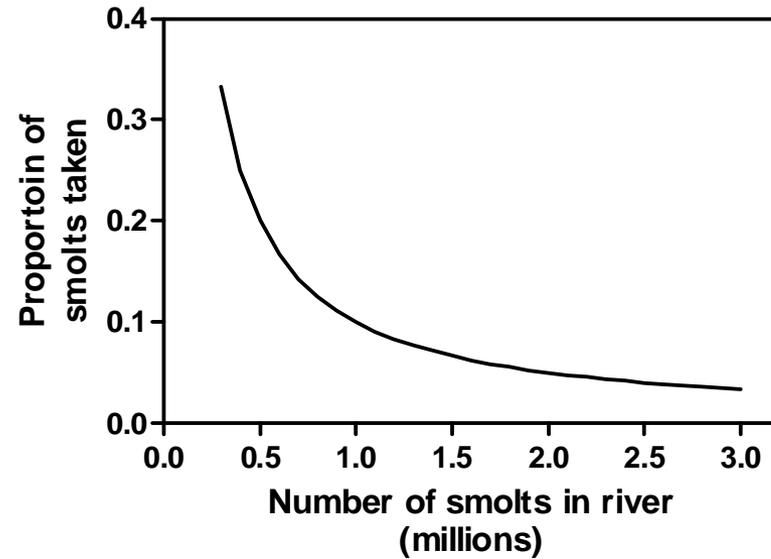
**Maximum  
transport**



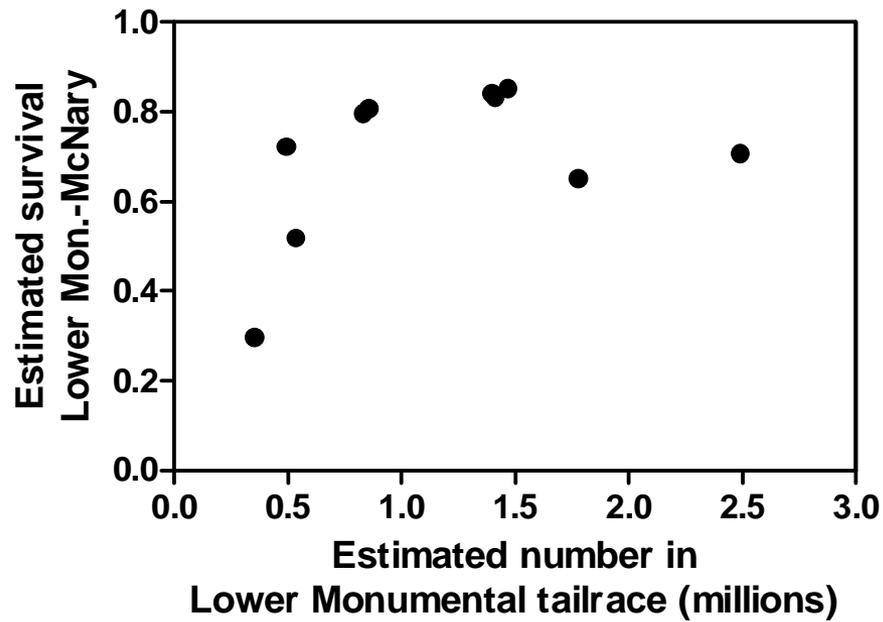
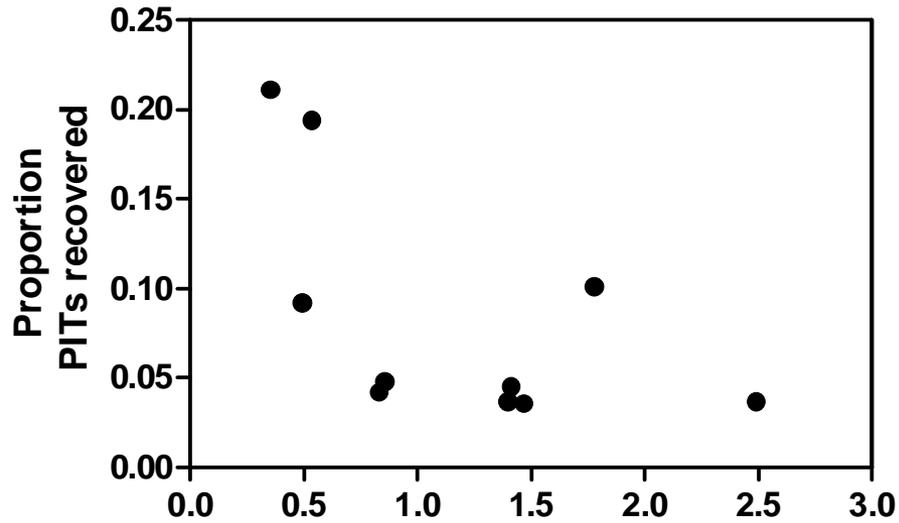
**Transport  
with spill**



# Idealized Relationships



# Steelhead Data



# Conclusions

- In low-spill (high transport) years, lower survival results, in part, simply from fewer fish in the river

# Conclusions

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  - In-river survival would have been higher if bypassed fish had been returned to the river

# Conclusions

- In low-spill (high transport) years, lower survival results, in part, simply from fewer fish in the river
  - In-river survival would have been higher if bypassed fish had been returned to the river
- Converse is also true: in-river survival increases with increasing spill through indirect effect of reducing individual vulnerability to predation

# Conclusions

- Direct or indirect effects of increased spill may not improve smolt-to-adult survival for the population

# Conclusions

- Direct or indirect effects of increased spill may not improve smolt-to-adult survival for the population
  - Cumulative effect must offset effect of transporting fewer steelhead



**Questions**



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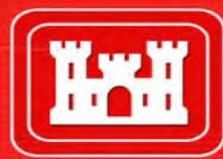


# Technical Management Team 2008 Year End Review

## Water Quality



# US Army Corps of Engineers



## AVERAGE HIGH 12 HR %TDG EXCEEDANCES AT FMS FROM 1999 - 2008

	2008	2007	2006	2005	2004	2003	2002	2001	2000	1999	10 year Avg
Water Quality Gages	Qty.	Qty.	Qty.	Qty.	Qty.	Qty.	Qty.	Qty.	Qty.	Qty.	Qty.
Lower Granite Forebay	0	0	0	0	0	0	0	5	2	0	0.7
Lower Granite Tailwater	35	0	28	0	0	15	17	0	4	15	11.4
Little Goose Forebay	34	0	24	0	3	10	17	0	2	39	12.9
Little Goose Tailwater	23	0	19	0	0	6	6	0	9	6	6.9
Lower Monumental Forebay	54	11	56	6	1	19	49	0	28	44	26.8
Lower Monumental Tailwater	32	7	29	7	1	10	6	0	12	26	13
Ice Harbor Forebay	55	31	51	3	4	35	24	0	34	44	28.1
Ice Harbor Tailwater	31	0	22	3	2	4	6	0	4	12	8.4
McNary Forebay - Wa.	21	6	31	8	10	24	43	1	14	22	18
McNary Forebay - Or.	--	--	--	11	23	32	45	5	22	19	15.7
McNary Tailwater	28	1	32	1	7	12	31	0	17	50	17.9
John Day Forebay	14	0	20	2	0	10	11	0	1	8	6.6
John Day Tailwater	17	3	38	3	0	0	29	0	12	43	14.5
The Dalles Forebay	17	8	40	6	5	11	18	0	5	1	11.1
The Dalles Tailwater	2	0	10	0	0	4	11	0	5	5	3.7
Bonneville Forebay	27	3	51	3	1	17	30	0	14	19	16.5
Cascade Island *	57	0	61	0	---	---	---	---	---	---	29.5
Warrendale	--	--	--	---	0	1	19	0	6	2	2.8
Camas/Washougal	68	29	63	16	14	33	65	2	58	51	39.9
<b>Total Number of Exceedances</b>	<b>515</b>	<b>99</b>	<b>575</b>	<b>69</b>	<b>71</b>	<b>243</b>	<b>427</b>	<b>13</b>	<b>249</b>	<b>406</b>	<b>266.7</b>



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6 Year Totals	2008	2007	2006	2005	2004	2003	TYPE #	DEFINITION
3021	514	99	2006	69	71	262	Totals	
389	400	0	306	11	4	68	1	Exceedance due to high runoff flows and flood control efforts.
316	64	93	69	32	16	106	6	Exceedance due to uncertainties when using best professional judgment to apply the spill guidance criteria (travel time; degassing; water temperature effects; spill patterns).
67	21	5	29	15	0	18	7	Exceedance due to high TDG levels coming from the Mid Columbia River Dam (see Pasco FMS readings).
55	12	0	3	7	25	20	12	Exceedance due to sharp rise in water temperature (a 1.5 degree F. or greater change in a day).
15	10	0	1	1	6	7	10	Exceedance due the FMS gage malfunctioning and registering very high TDG levels
43	5	0	3	0	7	33	13	Exceedance due to bulk spill pattern being used which generated more TDG than expected.
46	1	1	45	0	0	0	3	Exceedance due to unit outages during repair or maintenance.
9	1	0	0	0	0	9	11	Exceedance due to mechanical problems (gate was stuck open, passing debris etc.).
0	0	0	0	0	0	0	2	Exceedance due to Intertie line outages.
109	0	0	106	3	0	0	4	Exceedance due to BPA inability to handle load so water was spilled.
1	0	0	0	0	0	1	5	Exceedance due to a break down in communication. Teletype went out but no change occurred or Project operator interpreted teletype differently than what was intended.
3	0	0	0	0	3	0	8	Exceedance due to high TDG levels coming from the Snake River projects (see Ice Harbor Dam FMS readings).
0	0	0	0	0	0	0	9	Exceedance due to a load rejection. The powerhouse was not working and the river was spilled.
13	0	0	13	0	0	0	14	Exceedance due to non-functioning of flow deflectors during tailwater elevation above 19 ft and especially above 26 ft.



# US Army Corps of Engineers



## Comparison of Oregon and Washington Calculation Methods For High 12 hour Average TDG

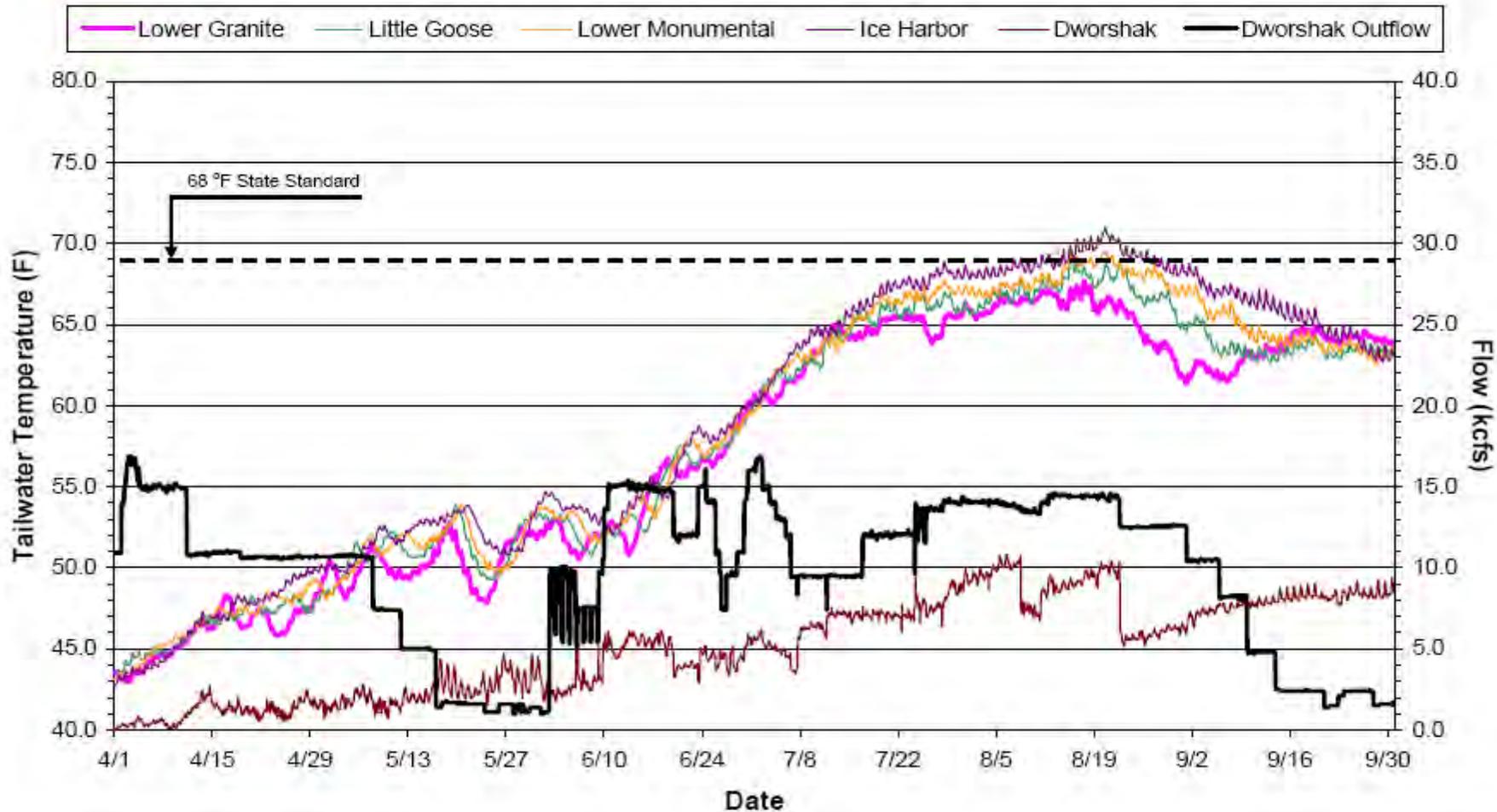
Water Quality Gages	Wa - 2008 Qty.	Or - 2008 Qty.	Difference Qty.
Lower Granite Forebay	0	0	0
Lower Granite Tailwater	37	35	2
Little Goose Forebay	36	34	2
Little Goose Tailwater	22	23	-1
Lower Monumental Forebay	57	54	3
Lower Monumental Tailwater	29	32	-3
Ice Harbor Forebay	57	55	2
Ice Harbor Tailwater	31	31	0
McNary Forebay	25	21	4
McNary Tailwater	28	28	0
John Day Forebay	17	14	3
John Day Tailwater	15	17	-2
The Dalles Forebay	18	17	1
The Dalles Tailwater	3	2	1
Bonneville Forebay	34	27	7
Cascade Island	57	57	0
Warrendale	--	--	--
Camas/Washougal	84	68	16
<b>Total Number of Exceedances</b>	<b>550</b>	<b>515</b>	<b>35</b>
<b>Tailwater Exceedances</b>	<b>222</b>	<b>225</b>	<b>-3</b>
<b>Forebay Exceedances</b>	<b>328</b>	<b>290</b>	<b>38</b>



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## Lower Snake River Tailwater Temperatures and Dworshak Outflows April 1 - September 30, 2008

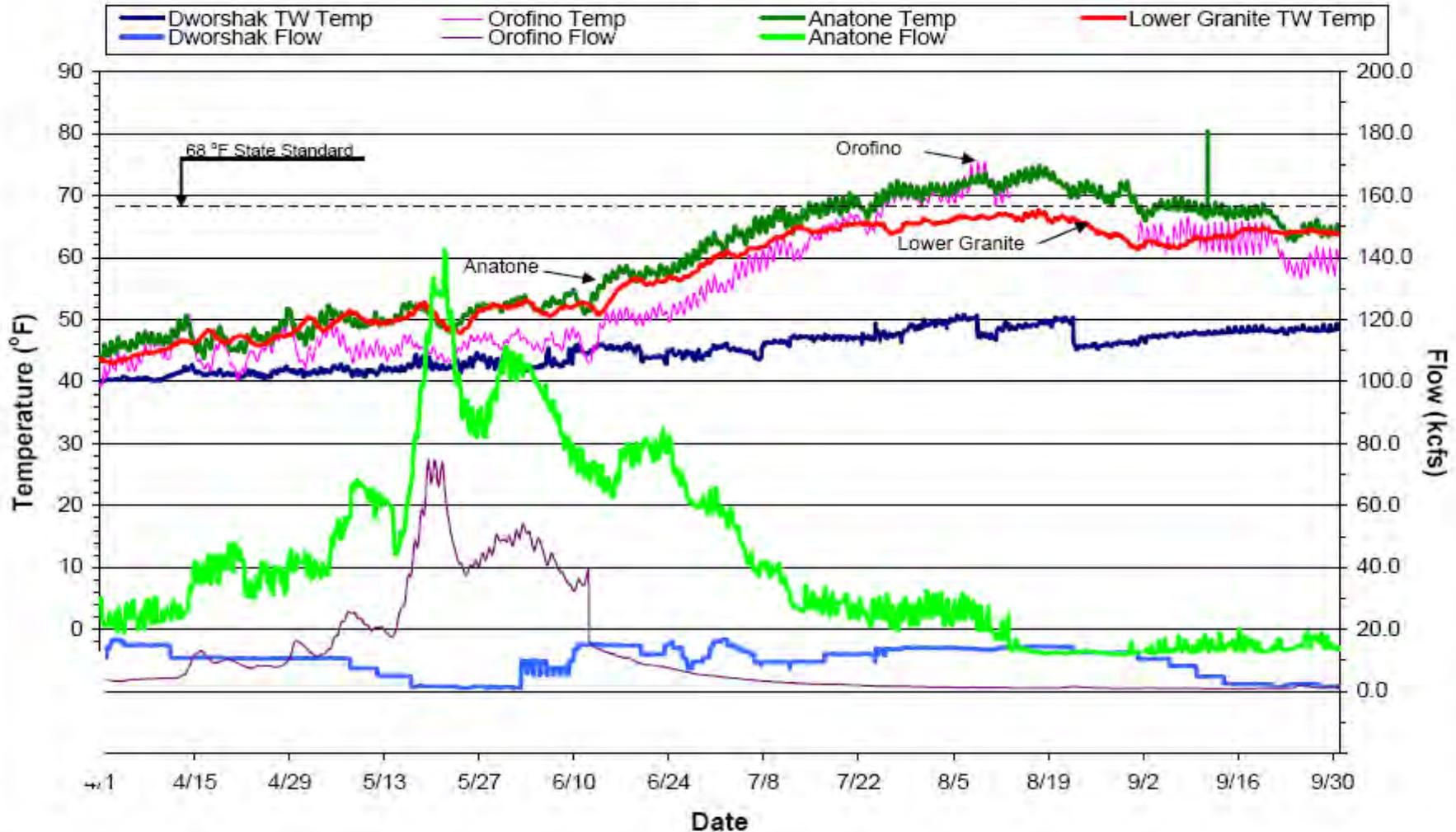




# US Army Corps of Engineers



## Contributing Flows and Temperatures into Lower Granite April 1 - September 30, 2008





## COLUMBIA RIVER INTER-TRIBAL FISH COMMISSION

729 N.E. Oregon, Suite 200, Portland, Oregon 97232

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www.critfc.org

TO: Technical Management Team (TMT)  
FROM: Kyle Dittmer, *Hydrologist-Meteorologist*, CRITFC's Hydro Program  
DATE: November 21, 2008

SUBJECT: **Summary of Water Year 2008 Weather**

At the request of the TMT, this memo summarizes monthly weather events that impacted basin flows and fish migrations in Water Year 2008 (October 2007 - September 2008). WY 2008 had much variability in precipitation and temperature patterns but more moderate (Figures 1 and 2).

Autumn started with a wet blast then cut back in November. A major triple storm punched the Pacific Northwest on December 2<sup>nd</sup> - 4<sup>th</sup>, with 39 station records being broken. Western Oregon and Washington received as much precipitation as the February 1996 floods. The Oregon Coast Range had up to 10-inches in 12-hours on Dec. 3<sup>rd</sup>. Widespread major flooding and mudslides followed. Temperatures were near normal (-0.6 to +1) with basin departures of -4.6 to +6.2 °F.

Winter started warm but an Arctic blast and snow hit in mid-January. "La Nina" re-emerged. Mountain snow-pack accumulations were very strong, even though valley weather was near normal. Temperatures were near normal (-2.2 to +1.2) with basin departures of -10 to +7.9 °F.

Spring dried out in the valley but the mountain snow continued into June. Snowfall in the Oregon Coast Range on April 20 set a new record for late season snow. Spring stayed cool, especially in April. A heat spike occurred on May 16-17 with temperatures in the mid 90s. Temperatures stayed above normal (-4.1 to +0.8) with basin departures of -10.8 to +4.1 °F.

Summer was very moderate. Record-breaking daily high temperatures hit August 14<sup>th</sup>-19<sup>th</sup> (101 to 109 °F) and mid-September (85 to 91 °F). Temperatures stayed slightly above normal (+0.5 to +1.6) with basin departures of -3.8 to +7.5 °F. The rain returned by September 20<sup>th</sup>.

Cumulative precipitation totals for Water Year 2008 for Columbia at The Dalles ended at 95%. The driest basins of the Columbia (Figure 3) were Central Washington (69%), Snake River Plain (74%), & Owyhee/Malheur (80%). The wettest basins were Hood / Lower Deschutes, Umatilla / John Day (109%), Clark Fork (107%), and Upper Snake (103%).

For the 2008-2009 climate forecasts, go to the Oregon-AMS website (under "Meetings"):

<http://www.ametsoc.org/chapters/oregon/index.html>

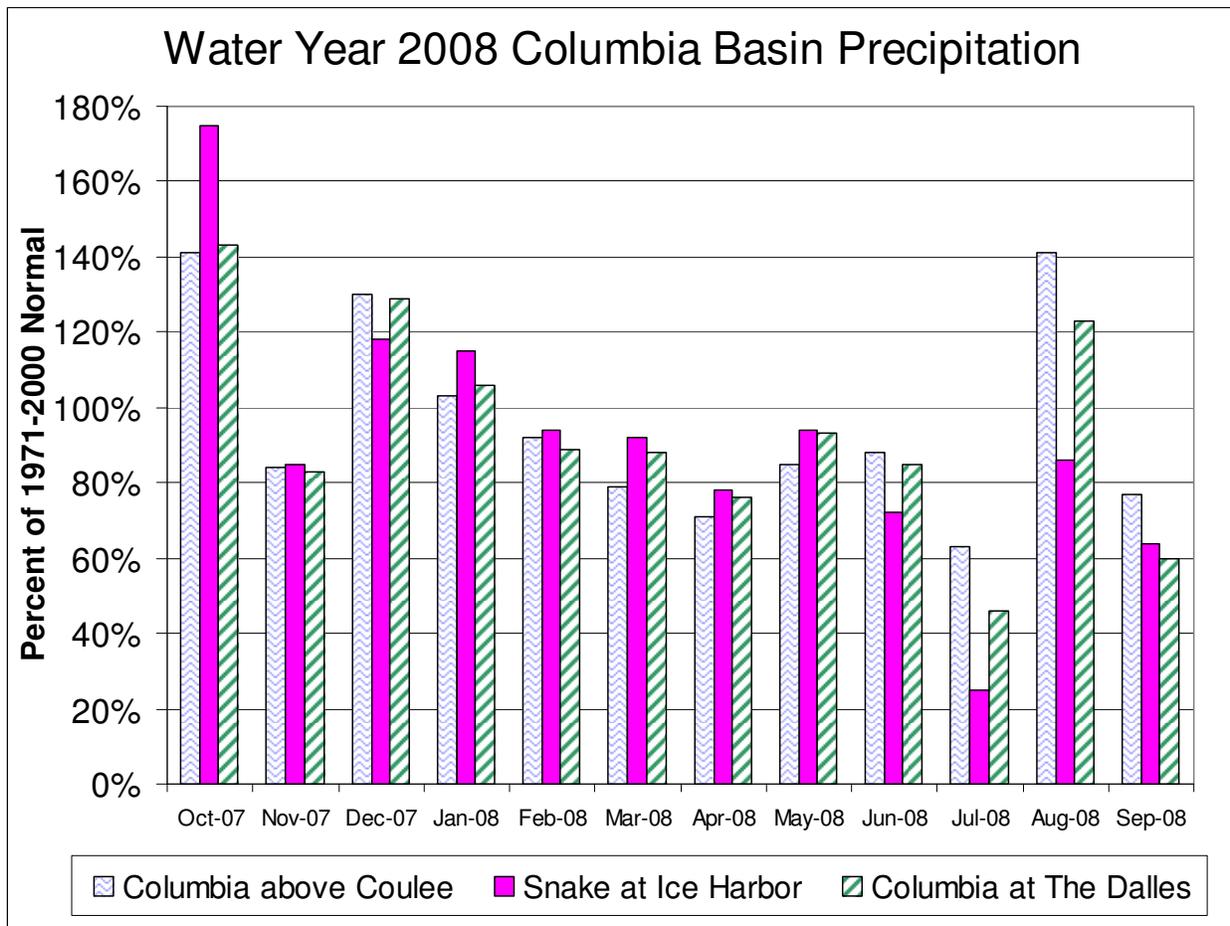


Figure 1. Water Year 2008 Division Precipitation Summary (NOAA-NWS data).

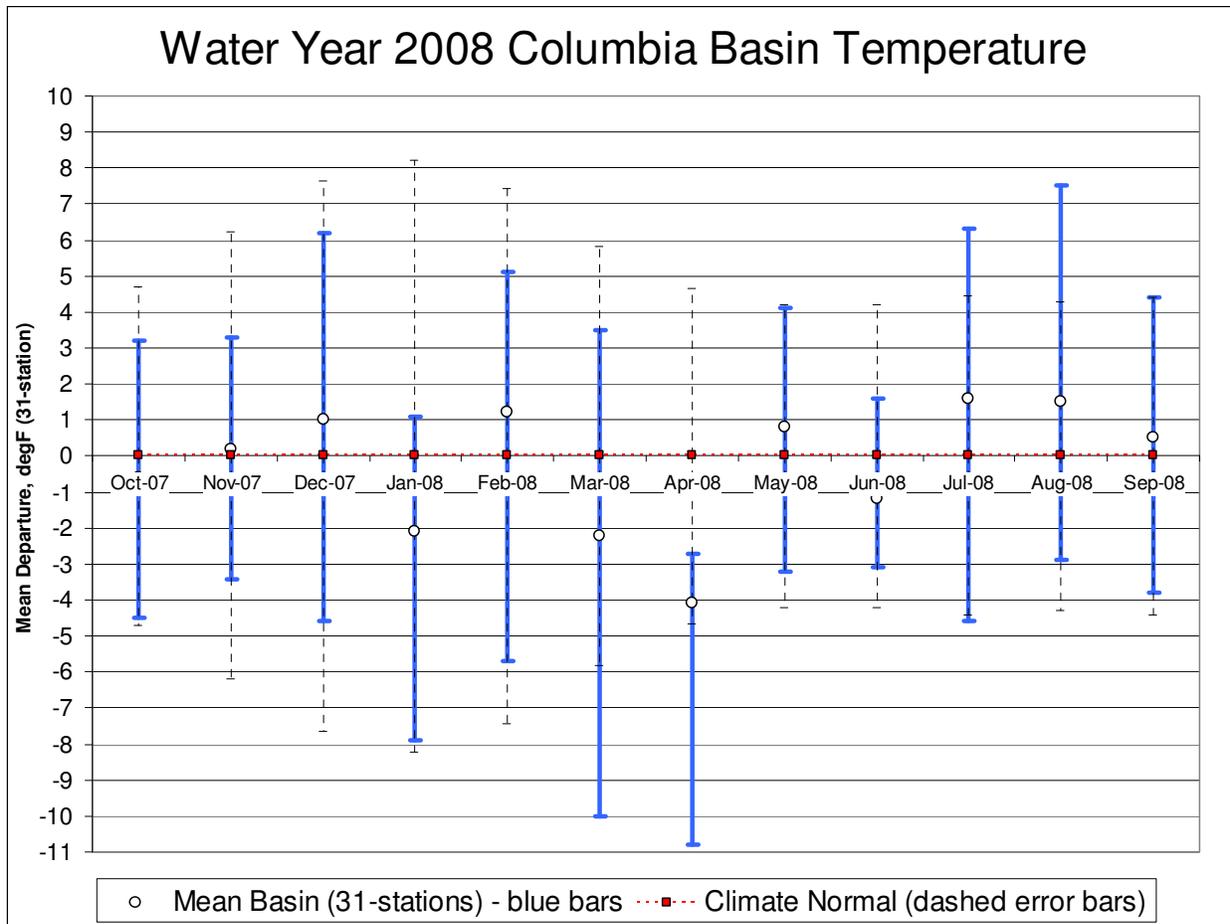


Figure 2. Water Year 2008 Temperature Departure Summary (NOAA-NWS data).

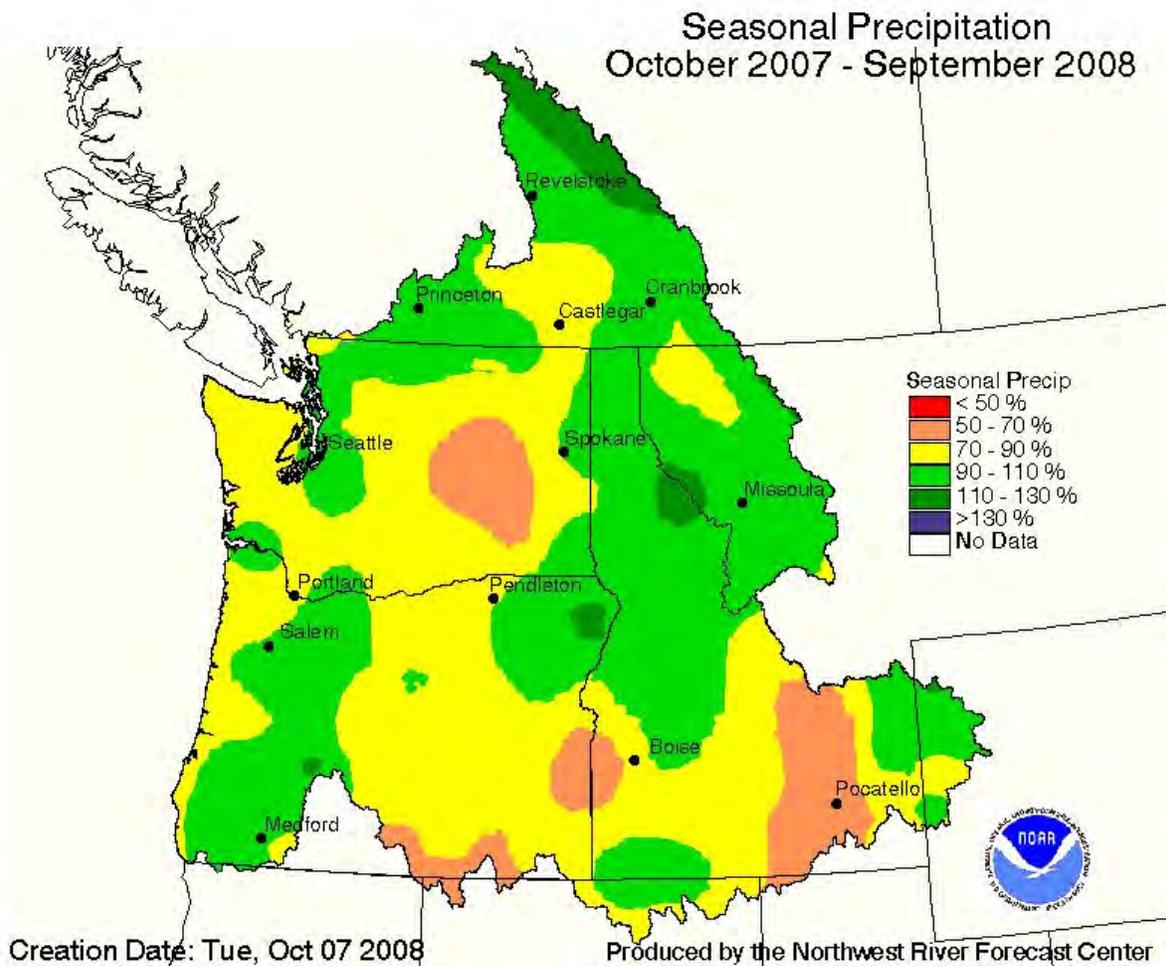


Figure 3. Water Year 2008 Columbia Basin Cumulative Seasonal Precipitation.

**COLUMBIA RIVER REGIONAL FORUM**  
**TECHNICAL MANAGEMENT TEAM**  
**2008 Year End Review**  
November 21, 2008

FACILITATOR'S SUMMARY NOTES ON FUTURE ACTIONS

Facilitator: Donna Silverberg

Notes: 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. Most presentations were accompanied by Power Point or other electronic information. Please go to the agenda on the TMT web page to see more detailed information.

**2008 TMT YEAR END REVIEW**

*Please note that all power point presentations shared during the Year End Review can be found attached as links to the agenda on the COE's TMT web page:*

*<http://www.nwd-wc.usace.army.mil/tmt/agendas/2008.html>*

**Conditions Review**

*Weather:* Kyle Dittmer, CRITFC, provided a memo and presented an overview of 2008 weather. He reported that the past year experienced La Nina conditions, that there was a long storm in December with rain and flooding and a mid-January arctic blast. Spring was dry but with a lot of accumulated snow pack. Conditions were moderate through the summer and into fall. Overall, temperatures were moderate. Likewise, overall precipitation was near normal, with 95% of “normal” precipitation overall at The Dalles. Looking ahead, Kyle reported that the oscillation index indicated the region will experience another La Nina winter which suggests cooler conditions and near normal precipitation. Kyle noted that additional 2009 climate forecasts can be found on the Oregon Chapter of the American Meteorological Society's website:

*[www.ametsoc.org/chapters/oregon/index.html](http://www.ametsoc.org/chapters/oregon/index.html).*

- *Comment:* The Boise area has experienced a unique pattern of high precipitation in the surrounding mountains but very dry conditions in the lower areas – should this pattern be expected in the future? Kyle responded that the entire Northwest has experienced ‘zig zag’ snow trends, indicating a similar pattern to that in the Boise basin. This could be an effect of overall climate changes, and may continue as a trend.

*Water Conditions:* Cathy Hlebechuk, COE, and Jim Adams, COE, provided an overview of water runoff and water quality conditions from 2008, as compared to previous years. Cathy noted that The Dalles January to July runoff was 92% of normal and April-August was 100% of normal. Lower Granite Jan-July runoff was 92% of normal, and Apr-Aug was 106% of normal. Lower Granite spring-summer flows exceeded the objectives; neither objective had been met in 2007. The McNary spring flow objective was 237 kcfs and actual flows were 287 kcfs; the summer objective was 200 kcfs and actual flows were

173 kcfs. The Priest Rapids spring flow objective was 135 kcfs and actual flows were 168 kcfs. Jim Adams reported on water quality conditions, noting that because of the high flows in the Snake River this year, the system experienced 515 TDG exceedances, the second highest in 10 years. The degree of each exceedance was not reported on today, but that information can be found through the TMT web pages. Finally, Jim reported that for 2009, since the COE does not anticipate to be operating under a 'rollover' requirement from the court, the COE plans to manage water quality at each project per its respective state requirement(s).

- *Question:* Gas bubble trauma had been detected this year in fish in the Clearwater: Is this due to higher TDG levels at Dworshak? While the COE did not have direct information to respond to the question during the meeting, the Fish Passage Center offered that signs of gas bubble trauma had increased subsequent to sustained elevated levels of TDG, but not beyond NOAA's and the State of Idaho's criteria for acceptable limits. **ACTION:** It was suggested that data on gas bubble trauma detections be added to future TMT Year End Reviews.
- *Comment:* Dworshak operations were successful this year due to cooler water temperatures in the Snake; the relative proportion of flow from the Clearwater and Salmon that was greater than from Hells Canyon; and expert in-season management by the COE in coordination with TMT. All TMT members were congratulated for their efforts in successfully managing temperatures in the system again this year.

*Fish Conditions:*

Paul Wagner, NOAA, reported on juvenile fish conditions for 2008. He presented a comparison of 2002 and 2008 data at Lower Granite to show how the shape of runoff volume can affect fish runs by comparing two years with similar runoff volumes but different shapes. The runoff shape for 2008 was rather unique, with a later runoff timing than usual. Yearling chinook and steelhead showed a later peak this year than 2002, while sockeye run timing was similar for both years. Paul also showed data for Bonneville, showing that runs for both steelhead and yearling chinook peaked later in 2008 than 2002. Paul said the information might suggest that steelhead and yearling chinook may have been impacted by the pulling of the fish screens in the late spring due to high debris. Finally, subyearling passage run timing at McNary looked very similar in 2008 as in 2002.

- Paul suggested that good outmigration and ocean conditions in 2008 indicate good runs for 2009 and 2010 for coho and chinook – based on a tool NOAA has developed that interfaces ocean conditions with salmon run predictions.

Cindy LeFleur, Washington, reported on 2008 adult fish conditions. All adult runs were moderate to strong this year – particularly strong were sockeye (including a high Snake River component of the sockeye run), while summer steelhead were moderate (however, the summer steelhead "B" group run was high and contained a good wild component). Preliminary counts for fall chinook show a lower actual than predicted run. Cindy provided additional information in a handout, which is linked to today's agenda on the TMT web page.

- *Comment:* This report depicts strong runs that indicate hope and positive reinforcement of the work we have done to improve the health of these populations. The same cannot be said for lamprey. The numbers in the Snake basin are very dismal this year, with counts of about 35 fish at Lower Granite.

TMT should be mindful of the lamprey as we manage for all resources. (The COE responded that they have been studying and discussing lamprey with the Tribes and are committed to future work on the lamprey program – and like the Tribes, want to see improvements in lamprey.)

- *Question:* NOAA's tool showed 2005 ocean conditions in the 'red'. How well do adult returns respond to that? NOAA uses coho and spring chinook as indicators of the strength of all anadromous runs, but it is not as clear how the survival of other salmon stocks correlates with these ocean conditions. Also, the analysis is not as simple for all fish as it is for coho.

### **Specific Operations Review**

*1998-2008 Juvenile Spring-Summer Fish Review:* Jerry McCann, Fish Passage Center, reported on juvenile steelhead, wild yearling chinook and subyearling chinook spring runs. He noted that more juveniles were transported in 2008 given the late runs (although fewer subyearlings were transported this year than in 2005). He also showed that late May to mid-July survival estimates were relatively high compared to the 10-year average, including the latest run in mid-July, which showed 75% survival. High flows and spill volumes combined with cooler temperatures provided good conditions for in-river migrants. Steve Smith, NOAA, also showed survival data, and discussed a data anomaly that showed up at the McNary-John Day reach, depicting 107% survival followed by the John Day-Bonneville reach, depicting 74.7% survival. Steve described how this could happen, and suggested that the statistical errors at both projects, overall, became a 'wash' in terms of total survival percentages for the Snake River trap to Bonneville reach. The combined survival estimate was 46% for chinook and 48% for steelhead. The estimated percentage of juvenile spring Chinook transported this year was 54% of the wild and 45% of the hatchery spring Chinook and 50.5% of the wild and 46% of hatchery steelhead. It was also reported that spill and bypass passage showed similar survival percentages and in some cases, bypass survival was higher. This result was not seen 10 years ago.

- *Question:* What about holdover fish? In this analysis, they were counted as mortalities.
- *Question:* Were there impacts to survival from cormorants at the Ice Harbor-McNary reach? Yes. Mortality from avian predation was 5% at a minimum, and has ranged from 4-21% over the last 10 years. The percentage of take goes up when more fish are transported. *Comment:* It is important to note that the condition of the smolts plays a factor in tern predation – injured fish are more likely to be preyed on. Also, terns usually prefer steelhead for their size and spawning location, but prey switching could influence the mortality figures.
- **CONCLUSIONS:**
  - Low spill (high transport) years result in lower survival results, in part, simply from fewer fish in the river.
  - The estimate of in-river survival would have been higher if bypassed fish had been returned to the river.
  - The converse is also true: the estimate of in-river survival increases with increasing spill through indirect effect of reducing individual vulnerability to predation. Direct or indirect effects of increased spill may not improve smolt to adult survival for the population.

*Bonneville Debris and Guidance Screen Removal:* Dan Feil, COE, reported that the timing and volume of runoff in 2008 led to high debris build up at Bonneville, which caused descaling in juvenile fish. Due to the TIE crane being out of service, the gantry crane was used to remove and clean the screens. Using the gantry crane for this purpose was a much more time consuming and less efficient method than had the TIE crane been functional and available for use. Once debris load increased to the point of being unmanageable, the COE and TMT made an adaptive management decision to remove the fish guidance screens on May 21-23. Screen re-installation began on June 16 and was completed on June 18. Once the guidance screens were removed, some fish continued to enter the juvenile fish bypass system. However, de-scaling was much reduced.

- **LESSONS LEARNED:** The TIE crane is an essential component necessary for cleaning the vertical barrier screens. Updated guidance protocols are needed for future high debris events – these are being developed through FPOM and will be included in the 2009 Fish Passage Plan. Actual survival impacts on juvenile salmonids passing the dam is unknown at this time, however survival estimates with screens in vs. screens out may be available from the acoustic telemetry survival study conducted at the project during the season.
- *Question:* How effective was your ability to guide the fish with flow vanes? *Response:* The acoustic telemetry study conducted this year should provide fish guidance efficiency information during the time the screens were in place.
- *Question:* Have coordination issues around the project operators' work schedule, which played a factor this year, been resolved? *Response:* The holiday schedule issue (the incident occurred over Memorial Day weekend) has been resolved; the 4-day work week issue (also a factor this year), will require longer term resolution.
- *Question:* What were the impacts to lamprey? *Response:* The COE did not enumerate the type or number of fish mortalities that occurred. In addition, there are currently no tags of appropriate size that can be used on juvenile lamprey, so estimating the survival of juvenile lamprey as they pass COE dams in the context of operational impacts is not feasible at this time.

*Lower Granite MOP and Adult Trap Operations:* Dan Feil, COE, also reported on a specific operation at Lower Granite. As adult passage and brood stock collection efforts at Lower Granite increase, additional water is needed to maintain hourly refilling of six adult holding tanks, which requires the project to operate outside MOP. While MOP + 1.3 was granted this year, trap operators have reported that this is still not enough water to fill all six tanks. Are there remedies available to provide hourly refill of all six tanks without impacting MOP? Were all six tanks needed or used this year? What are the impacts of more frequent fish transport? While several questions could not be answered today, the group discussed next steps and possible solutions:

- Next step: More investigation of what would be needed to fill all six tanks.
- Next step: More investigation of fish facility redesign – this will happen through FPOM and FFDRWG.
- Possible solution: Pump water in to fill the tanks.
- Short-term solution being investigated by the COE: Fix the leaks in the system.
- Long-term solution: Complete re-design of the fish facility.

- **ACTION:** Dan Feil will gather more details about what happened this year, and provide that information for discussion with TMT at a January or February meeting.

*Little Goose MOP/Lower Granite Tailwater Navigation Issues:* Paul Wagner, NOAA, reported on an issue that came up in late August in the Snake River, requiring an in-season management decision to balance needs at multiple projects for adult passage and safe navigation. The salmon managers recommended a constant spill at Little Goose as opposed to a percentage of spill, which was implemented and resulted in less wave action and safer navigation. No negative impacts to adult passage were observed.

- **LESSON LEARNED:** This operation provides an example of a successful, adaptive management decision that was made through consensus at TMT.
- **Next Steps:** Paul Wagner will do a more in-depth inquiry into any impacts to adult passage from the operation that was implemented. The COE will check with Bernard Klatt to determine support, from a navigation perspective, of including this operation into written guidance for future years. TMT will use this information to discuss the issue in early 2009, well in advance of the need to make an in-season decision.

*McNary Summer Transportation:* Paul Wagner, NOAA, reported that barge transportation navigation requiring McNary to shut off spill at intermittent intervals had very little effect on overall spill volume at the project. Also, 350,000 fish were transported from July 16-August 15 via barge, and at this time Paul did not have information on how transporting these fish as juveniles affects the rate at which they return as adults.

- **Action:** Paul will look further into this issue and report back to TMT in early January.

### **Reservoir Operations Review**

*Libby Summer Operations:* Joel Fenolio, Seattle District COE, shared an overview of summer operations at Libby. He highlighted the sturgeon pulse that was implemented per an SOR from the multi-stakeholder Kootenai Valley Resource Initiative; the peak 2445 feet summer elevation that was reached rather than refill – due to an unpredictably cold June, dropping July flows and the desire to avoid a ‘double peak; and the Libby/Arrow storage swap that exchanged 60 ksf to Libby on August 12 and was returned to Arrow later in the year.

- **For Future Consideration:** For any future Libby/Arrow swap, the COE would likely use forecasting tools to target flows rather than target a strict elevation.
- **2009 Operations:** The project’s current target is elevation 2435 feet by the end of November, and based on a 104% of average forecast, the project will target 2411 feet by the end of December. Summer operations will likely see a new draft target of 10 feet from full by the end of September, which could impact flexibility of summer operations and the potential for a swap.
- **Comment:** Regarding pre-season forecasts: It is important to the salmon managers to understand how the COE sets its December targets using pre-season forecasts. How does the COE’s forecast compare to other forecasts? *Response:* Pre-season forecasts are developed and used because, while there will be no

impact on fish, there is value to move water into November and December for other resource (power) uses.

*Albeni Falls:* Joel Fenolio read a statement on behalf of Lynn Melder, Seattle District COE, who has been the lead on the Albeni Falls project for the COE. She noted that this year's operation met a successful refill and drawdown, that great working relationships and smooth coordination occurred in and outside the COE and because of this, good process was brought to the TMT.

*Dworshak Operations:* Steve Hall, Walla Walla District COE, summarized three operations at Dworshak this year – high runoff volumes that changed during spring refill, the Grand Coulee/Dworshak shift, and a regulating outlet (RO) outage that challenged summer operations. While primary operational goals were successfully met, they offer lessons learned for future consideration.

- **Lesson Learned:** Forecasts can change abruptly, and if the change is extreme enough to warrant a change in operations that will impact fish manager requests, the COE and TMT should look more closely at the forecasts and determine the best decision for moving forward. **Needs/Next Steps:** Additional funding for additional snow stations could assist in getting a more complete picture of conditions for making critical operating decisions at Dworshak. **Next Steps:** The COE will take steps to better coordinate RFC ESP forecasts before presenting them to TMT in the future.
- **For Future Consideration:** The COE would like to develop additional guidance for decisions around if and to what extent a Grand Coulee flood control shift can be achieved that would still allow the COE to reach its April 15 flood control target elevation, given the amount of water in the system and the Dworshak release capacities. High flow years such as 2008 would likely be excluded from shifts.
- **Comment:** Walla Walla COE was acknowledged for their hard work coordinating Dworshak operations this year, given the RO outage. A request was made for the COE to have a contingency plan in place in the event that this issue arises again, so all can be prepared.

*Hungry Horse Operations:* John Roache reviewed the 2008 Hungry Horse operations, noting that the inflow volume was 112% of normal for the January to July period, and of that, most of the volume was pushed into May-July. Refill came late, on July 13.

- **Question:** Why is the minimum so much higher than the natural flow?  
**Response:** This is a requirement for Columbia Falls minimum for bull trout, and to maximize the habitat requirement. A more detailed response would come from Brian Marotz, Montana, who was not available today.

*Grand Coulee Operations:* John Roache continued with a review of Grand Coulee operations: The project hit its April 10 target elevation of 1244.5 feet, and refill began on May 16, reaching 1290 feet on July 14. Lake Roosevelt drafted to elevation 1280 feet on August 31. An SOR was presented last spring to provide additional storage from Grand Coulee, if necessary, in order to maintain a minimum flow at McNary of 180 kcfs until the freshet arrived. There was some concern that when Grand Coulee

reached its flood control elevation on April 30 then started passing inflow that there would be a sudden decrease in lower river flows. This interfaced with the need to maintain a minimum elevation for a ferry crossing the reservoir. The conditions were such that meeting both operations was a challenge – and both needs were met successfully.

- **Next Steps:** John Roache and Tony Norris, BPA, plan to investigate the ferry concern further and explore alternative options for future events. One possible solution is to use an alternative ferry landing at a lower elevation, if needed. The Action Agencies have also been exploring options to extend Grand Coulee's flood control draft into May by a week or so based on forecasts of unregulated flow at The Dalles and timing of the Initial Control Flow (ICF) Date. It was noted that an abrupt velocity change is the biggest concern for the migration. All agreed that working through these issues well in advance of the need to make operational decisions will support success.

### **Concluding Observations:**

Weather conditions being cool and wet, for the most part, were favorable for FCRPS operations and good survival this year. A late runoff and structural issues posed in-season management challenges. Overall, the following conclusions and future considerations were offered throughout today's Year End Review:

- With more extreme weather patterns, consider looking at mid-month flood control forecasts (RFC or NRCS), at least for TMT discussion. Perhaps look at patterns within forecasts?
- Congratulations to TMT for handling the Bonneville screen and debris issue so well – a unique constraint was presented, and TMT responded quickly and with innovation, resulting in improvements to the situation. Putting in screens that can handle frye would also address lamprey. A solution is being planned for 2009.
- Investigation is underway on MOP at Lower Granite and impacts to adult holding facilities – an answer will be presented in early 2009 about whether this year's operation should be included as guidance in the 2009 Fish Passage Plan.
- NOAA is still considering transportation operations at McNary during the period mid-July to August, and whether transportation is of value to the smolt-to-adult returns (SARs).
- ESP forecasts at Libby may help in future summer operations. A new draft level may impact a future Libby/Arrow swap.
- High water years create constraints on Dworshak in releasing water, due to TDG concerns. The issue of how much Dworshak/Grand Coulee flood control shift should be provided in a high water year needs to be addressed. These issues warrant further review and perhaps more written guidance.
- Be cautious with use of early forecasts.
- Continue discussions to ease flood control/refill issues. Possible data needed – SNOTEL.
- RO issues are being resolved for 2009.

- Chum should be a year end review topic, set up as a special meeting. TMT would discuss chum criteria, system capabilities, management options, study needs and support needs.
  - **ACTION**: DS Consulting will help coordinate a chum meeting between TMT and FPAC and perhaps others, sometime before the end of January.
- **ACTION**: TMT will look at the list of ‘needs more improvement’ from this year’s review at a meeting in the New Year and set a course for making those improvements.

Thank you to all the presenters who took the time to put together very good presentations from which everyone could learn and benefit.

*NOTE: All power point presentations from the TMT Year End Review can be found linked to the agenda on the TMT web page. Thank you all for your participation!*

**Columbia River Regional Forum  
Technical Management Team 2008 Annual Review  
November 21, 2008**

**1. Introduction**

Today's meeting was facilitated by Donna Silverberg (DS Consulting) with representatives from COE, NOAA, USFWS, BPA, BOR, NPCC, FPC, CRITFC, the Nez Perce Tribe, Idaho, Washington, Montana and others participating. The focus was on lessons learned in 2008, which were addressed in the context of each presentation, not as a separate agenda item. What follows is a summary (not a verbatim transcript) of the discussion and issues raised during the review. Anyone with questions or comments about these notes should provide them to the TMT chair or bring them to the next regular TMT meeting.

**2. Conditions Review.** *What were the water, weather and fish conditions that existed throughout the year? How did this year compare to others? Is there something we can learn from this? Anything unique that bears sharing?*

**A. Weather.** Kyle Dittmer (CRITFC) gave a retrospective of weather conditions in 2008 and predictions for 2009. He distributed handouts and showed TMT statistics that are linked to this item on today's agenda.

This has been a highly unusual year in terms of wet and dry weather. Autumn started out wet, with a record-setting 36-hour storm on Dec. 3, then an arctic blast in mid-January. Mountain snowpack accumulation continued heavily throughout March, while weather in the valleys was more typical. Then the weather turned drier than normal in summer. September was very dry, and The Dalles had only about 90% of normal precipitation with the dry spell included, although 2008 is a La Nina year.

Conditions for 2009 look good, and sunspot activity suggests continuation of the La Nina trend – a good sign for ocean conditions that are beneficial to fish. Sea surface temperature forecasts by NOAA suggest cool conditions in 2009. Using 20 analog years, Dittmer did a regression forecast which he then compared with other forecasts from the National Weather Service. CRITFC's latest forecast for 2009 is 109 maf, 102% of normal, while the River Forecast Center's latest forecast is 102 maf, 95% of normal. Dittmer predicted winter will get off to a cold, early start. At the recent annual weather forecasters' conference in Portland, a wet spring was predicted, unlike the drying trend of 2008. We could see an extended cold snow season in 2009, following the La Nina trend for temperatures to be colder than usual. The last la Nina year, 1999, was a very good one for fish. Dittmer noted a general trend for snowpack accumulation to follow a stairstep pattern where it used to be smoother; perhaps this is an effect of climate change. In general, we can expect to see more wet and dry extremes. A long-term dry trend in a La Nina year like 2008 is highly unusual.

**B. Water.** Cathy Hlebechuk (COE) reviewed flow objectives vs. actual runoff volumes for spring and summer 2008, and then Jim Adams (COE) reviewed water quality in 2008 as measured by total dissolved gas levels and water temperatures. Hlebechuk presented graphs, linked to today's agenda, depicting objectives and actual flow volumes for McNary, Lower Granite and Priest Rapids. She also presented a chart comparing annual observed runoff volumes for 2006-2008, as compared with flow objectives for dams on the Columbia and Snake.

Lower Granite outflows peaked in May. {Editor's correction: The spring objective was 100 kcfs and actual flows were 99 kcfs.} The summer objective was 52 kcfs and the actual flows were 57 kcfs. The flow objectives were met, unlike 2007 when neither the spring or summer objectives were met. Editor's correction: For McNary the 2008 spring objective was 260 kcfs and actual flows were 287 kcfs; the summer objective was 200 kcfs and the actuals were 173 kcfs, so the spring objective was met but not the summer objective. Last year, the McNary spring objective was met but not the summer. For Priest Rapids the 135 maf objective was met in both 2007 and 2008. The spring and summer objectives were both met at Lower Granite this year, with 99 maf actual for spring (the objective was 85 maf) and 57 maf for summer (the objective was 52.5 maf). Last year, neither of the objectives for Lower Granite were met.

Jim Adams discussed total dissolved gas levels and water temperatures throughout the 2008 spill season. He presented a series of tables and graphs, linked to today's agenda, that show temperature and TDG comparisons. The total number of exceedances in 2008 was 515, the second highest in the past 10 years. This was the result of high flows for a month and a half that caused exceedances all along the Snake River. Over the same 10-year period, most of the exceedances occurred at the Camas Washougal gage. In 2008, there were 55 exceedances at the Ice Harbor forebay and 54 at Lower Monumental gage. During a two-day spill episode in early May 2008, TDG levels on the Snake went as high as 132% as a daily average. By contrast, there were no involuntary spills in 2007, and the COE was able to manage flows to the spill caps for the entire season. In 2008, 400 of the 515 TDG exceedances were due to spilling past the spill caps during high flows; in 2007 that number was zero. Of the exceedances in 2008, 64 were due to professional uncertainty, as compared to 93 in 2007. When the river is running high, it's possible to record 15 exceedances at one gage in a single day, Rudd Turner (COE) pointed out.

Jim Ruff (NPCC) asked about symptoms of gas bubble trauma in fish during periods of high flows and high gas. When TDG levels were 130% at Lower Monumental Dam, about 12% of the fish sampled showed increased symptoms, but these did not exceed NOAA criteria, Margaret Filardo (FPC) reported.

A change in water quality regulations will affect 2009 operations but didn't affect 2008 operations, Adams explained. In 2006 the state of Washington issued new regulations calling for an average of readings from 12 consecutive hours.

The previous TDG calculation method, still used by Oregon, takes the average of the 12 highest values from 24 instantaneous readings from midnight to midnight for each hour that day. The Washington method can result in a higher number of exceedances when flows are high. When managing flows close to the spill cap, a small difference in TDG calculations will increase the number of exceedances. Adams presented a statistical example in which using the Oregon method resulted in 513 exceedances, while using the Washington method for the same flows at the same location resulted in 550 exceedances. The COE intends to analyze more thoroughly why this is occurring.

Because 2008 was a rollover operation, the COE continued to use the old methodology this year. Beginning in 2009, the COE will manage spill according to the requirements of each state. Gages that are strictly in Washington will be managed using the new methodology. For gages on the Columbia that border Oregon and Washington, the COE will apply both methods and set spill caps based on the method that shows the higher TDG level. There was discussion of whether the number of exceedances could actually decrease in 2009 because it is not a rollover operation, meaning that readings from the Camas Washougal gage, where most of the exceedances occur, will not be included.

In terms of water temperatures, 2008 was a cool year. Outflows at both Lower Granite and Little Goose remained below 68 degrees F, which is unusual. In previous years, Dworshak outflows of 43-45 degrees F were needed to cool the river. However, releases from Dworshak have been around 48-50 degrees F throughout most of 2008.

**C. Fish.** Paul Wagner (NOAA) and Cindy LeFleur (Washington) gave presentations on juveniles and adults, respectively. Wagner presented a statistical comparison of 2008 to 2002, a year with equivalent runoff volumes at the Snake and Columbia projects. Runoff in 2008 at Lower Granite was 24 maf, or 106% of average; in 2002, it was 20 maf. 2007 was unique in terms of runoff, with a bump in late March, and again in late May-early June. In 2008, the April-August runoff volume at The Dalles was 93 maf, 100% of average. In 2002, it was 93.8 maf, 95% of average.

There were big peaks in yearling Chinook passage at Lower Granite on May 7 and May 20. In 2002, yearling Chinook passage peaked on March 16 and May 3. In general, when the flows came, the fish came. Yearling Chinook results this year were confounded by the effect of pulling the Bonneville fish screens in May when they became clogged with debris. Steelhead passage season in 2008 was very short and almost two months later than in 2002, when steelhead passage was more protracted. There was a big steelhead peak on May 7, 2008, but the numbers fell off quickly after May 18, while in 2002 the steelhead migration continued in large numbers until June 2. Apparently, steelhead were more affected by the pulling of the Bonneville fish screens this year than were yearling Chinook. Sockeye did very well in 2008, with the last outmigration at Lower Granite occurring from May 7-28. The sockeye passage timeframe was similar in 2002, occurring from May 5-23.

Although runoff patterns were similar in 2002 and 2008, there was a significant difference in when peak passage time for subyearlings occurred. This year the peak was June 5, but subyearling passage was over by July. In 2002, there were peaks on July 1 and July 21, almost a month later than this year. Subyearling passage at McNary was almost identical in 2002 and 2008, peaking from June 25 through July 8-9 in both years, which is remarkable given that the two years had different flow shapes. Apparently, subyearling passage at McNary is quite consistent. This year offered them good ocean conditions, and overall outmigration was good, which bodes well for runs in 2010, Wagner predicted.

In 2008, WDFW predicted 270,000 adults upriver spring Chinook destined for locations upstream of Bonneville Dam, but the actual count was a little less than 180,000 adults, Cindy LeFleur reported. However, a strong jack return this year indicates that 2009 could be a good year for these fish. Summer Chinook also did well in 2008, with 55,000 compared to a prediction of 52,000. Sockeye returns were way under-predicted – 75,000 compared to an actual count of 230,000, the largest sockeye return since 1959. Summer steelhead have been migrating in about the same numbers for several years, but this year the big news is that Group B steelhead, destined for the Snake River, came in at 97,000, a very strong return with a wild component of 13,000, the largest since 1984. Preliminary fall Chinook counts are around 460,000, a strong return compared to WDFW's prediction of 377,000.

Dave Statler (Nez Perce Tribe) commented that, while upriver spring Chinook jacks, sockeye, and Snake River fish have enjoyed strong returns lately, the outlook for lamprey in the Columbia basin isn't so positive. Adult returns to the Snake River have been grim recently – around 35 adults at Lower Granite before 2008, and 51 adults in 2008. The COE has been working on this problem and hopes to see the situation change soon, Rudd Turner said. Coho have been a really troubled species, and they will need more attention as well, Bill Tweit (Washington) noted. Coho and lower river fall Chinook are some of the best indicators of conditions for all fish. Things look good for coho in 2009 because there was a strong jack return this year, Cindy LeFleur (Washington) said. However, some upriver stocks, such as fall Chinook, are not doing so well. Ocean conditions for far north migrants were poor in 2008, and the lateness of flows this year was not good for coho.

**3. Review of Specific Operations.** *What was learned about specific operations that were requested by TMT members or other regional entities? How effective were these operations in achieving the intended goal? Should they be continued or modified in future years? Why or why not?*

**A. 6-year Review of Juvenile Spring Survival Transport Percentages, Travel Time and Delay Observed under Various Spill Conditions:** For this presentation, Jerry McCann (FPC) combined data on reach survival estimates for spring and summer migrants at McNary with in-river conditions to get an idea of what the 2008 passage year was like in the context of previous years. For the Lower Granite to McNary reach, there were survival estimates at four dam locations, beginning at Lower Granite tailwater and ending at McNary tailwater.

McCann presented data on water transit time and survival for steelhead, wild yearling Chinook and other species. Survival rates were generally high throughout – 2008 was generally a good year for fish. Steelhead survival rates were particularly high compared to the previous 10 years.

Transit times in 2008 varied widely depending on the season. For example, early migrants tended to experience low flow conditions and longer migration times. Yearling Chinook (both hatchery and wild) had almost a 50% probability of being transported in 2008, which was quite a bit higher than in 2007, mostly due to the late flows this year. By the end of April 2008, only 20% of the yearling Chinook population had passed Lower Granite Dam, as compared to almost half the population in April 2007. Apparently, many more fish used bypass systems in 2007. Steelhead had a 40-45% probability of being transported in 2008, a rate similar to 2007 but lower than 2006. In general, 2008 provided good in-river conditions for spring migrants, with high flows and cool temperatures. Survivals in 2008 were relatively high compared to 10 years ago. Temperatures at Lower Granite were some of the lowest in recent years which, combined with high spill and high flows, led to good survival rates. Spill proportions were high and transit times short, making this a very good year for active outmigrants.

**B. Juvenile Spring Survival:** Steve Smith (NOAA) discussed conditions for spring migrants in the Snake. He noted that his findings regarding travel times and the likelihood of being transported are not qualitatively different from the Fish Passage Center's information. In 2008 NOAA encountered a data problem regarding the relationship between spill, smolt populations, and avian predation. Russ Kiefer (Idaho) requested that a graph showing average survival estimates for stream-type Chinook from various hatcheries to Lower Granite Dam be recalculated to determine whether problems with upstream hatcheries in the 1990s skewed the results.

Over the past 10 years, the average survival rate has been 61.6%, Smith reported. The overall 2008 survival estimate for passage from the Snake River trap to Bonneville Dam is 46% for Chinook and 48% for steelhead. The data problem caused survival estimates for some of the reaches to exceed 100%. NOAA's estimate of non-tagged fish that were transported is around 50%. The

higher estimates of wild fish than their hatchery counterparts are due partly to timing and partly to wild fish being valued more.

The data problem has to do with how and where fish are detected, Smith said. Fish are especially vulnerable to mortality when they are exiting the bypass system. Also, some of the mortalities that probably should have been assigned to the McNary-John Day reach were assigned to the McNary-Bonneville reach instead. NOAA has determined for sure that the John Day-Bonneville reach estimates were affected by the data problem. Nevertheless, it's possible that lower survival estimates for the Bonneville-McNary reach are real, despite post-detection problems at John Day. It's also possible that two studies proceeding in 2009, an acoustic survival study of the John Day RSW and the spillway study at Bonneville, will shed light on the data problems.

There was discussion of predation problems in the Ice Harbor-McNary reach. On Crescent Island below McNary Dam is the second largest tern and cormorant colony in North America. PIT tag scans indicate that smolt predation is high at this location, which means it's probably high for non PIT-tagged fish as well. What this means for survival in relation to spill at McNary pool is that the total take of smolts at this location will depend more on the number of birds present than on the number of smolts passing by. Terns tend to select the more injured or de-scaled steelhead, Kiefer noted, so the estimates of take might include some fish that would have died anyway. The estimated rate of predation for Chinook at this location is lower than that for steelhead – from 4-20%.

While studies 10 years ago indicated that spillways generally had higher direct survival rates than the bypass systems, current studies are showing similar survival rates, and a recent Lower Monumental study showed that direct survival via the bypass system was actually higher than the spillway. The low survival rates associated with low-spill, high-transport years stemmed in part from having fewer fish in the river. This also suggests that, in those same years, survival rates would have been higher without transport. However the converse is also true: increasing spill can increase in-river survival rates indirectly by putting more fish through the McNary reach. Statistically, this reduces the vulnerability of each individual. NOAA has found that survival increases when spill does, through direct and indirect effects. However, almost all the transport data for steelhead indicate that transported fish return at higher rates than in-river fish. Thus the cumulative effect of spill has to offset the effect of having fewer fish in the barges in order to positively affect life cycle survival.

**C. Bonneville Screens and Debris:** The annual review moved to specific operations, beginning with a presentation by Dan Feil (COE) on the removal of screens at the Bonneville 2<sup>nd</sup> powerhouse when they became clogged with debris in late May 2008. When elevated levels of descaling and mortality were observed at the Bonneville fish facility, TMT made a difficult decision to remove the screens in order to prevent further injuries. Natural contributing factors were the volume and timing of runoff this year. A technological contributing factor was structural boom failure of the TIE crane that is normally used to move the giant

vertical barrier screens. The back-up crane couldn't lift the screens completely, so debris simply washed back into the gatewells each time the screens were cleaned, causing the workload to overwhelm project staff. It took 3 days (May 21-24) to remove the screens and 3 days (June 16-18) to reinstall them.

The findings from this situation were surprising. Without the guidance screens, which were designed to shunt fish up the gatewell, many fish somehow still found their way into the bypass system, although their numbers did drop. Descaling and mortality rates decreased once the screens were removed. Modeling of times when the screens were present or absent showed a negligible difference in survival rates for fish passing the project.

The biggest lesson learned here was that keeping the TIE crane functional is an absolute necessity. It will be repaired in time for the 2009 fish passage season and available to clean the screens efficiently. The screen-clogging incident brought to light the issue that project staff needs guidance on what to do in this kind of situation. Russ Kiefer (Idaho) asked whether the difference in ability to guide fish through the flow vanes is worth the risk of debris accumulation. Are the flow vanes cost effective? Two studies planned for 2009, the gatewell study and the acoustic tag study, will both aid in the evaluation of these screens arrayed across the powerhouse. Removing the flow vanes could cause problems with the screens, Tony Norris (BPA) cautioned. Given that the screens can clog in 24 hours, Margaret Filardo (FPC) asked whether anything had been done to address the 4-day work week issue which is part of a union contract. It will take at least a year to resolve the union contract issue, Feil said. In 2009 the 4-day workweek won't occur over Memorial Day weekend, which is what made it such a problem in 2008. Filardo expressed hope that future studies will shed light on survival estimates at Bonneville if they are less than anticipated. About 5% of all fish passing the project go through the bypass system so the proportion of fish affected is small, Feil noted.

There was discussion of whether trash buildup on the Bonneville fish screens affects lamprey. None were observed on the guidance screens this spring, Feil said and Tweit agreed that lamprey would not be able to pass through the fine mesh. Dave Statler asked whether actual data were collected on lamprey mortalities in the screens. Lamprey are difficult to track because even a PIT tag is too large for their bodies, Feil said. The COE is working on finding a tagging method that works for lamprey.

Rudd Turner (COE) expressed gratitude for the way TMT rose to the occasion and decided quickly that the screens needed to be pulled. This prompt action helped to prevent more fish losses.

**D. Lower Granite Adult Trap MOP Operation:** Dan Feil addressed problems that have occurred in operating the 6 fish tanks at Lower Granite pool for the collection of fall adult broodstock. There is confusion regarding the water elevation needed to fill the tanks when the forebay elevation is at MOP. It appeared that MOP+1.3 feet is needed to refill all 6 tanks, which involves a

tradeoff for juvenile passage. There has been a lot of technical uncertainty surrounding this tradeoff, and NOAA believes there's no difference between MOP and MOP+1.3 in terms of sufficient water supply to fill the tanks. It has been difficult for TMT to get clarity on this issue. Apparently MOP+1.3 feet provides only enough water to fill 3 of the 6 tanks. Norris asked about the possibility of transporting more often. That was the solution this year, and it involved more frequent truck trips, Wagner said. Norris suggested investigating whether pumping water into the tanks would fill them all.

In future, the COE will have solutions for using all 6 tanks without impacting MOP, Feil assured TMT. First there's repair of 30-year-old leaky valves – that might solve the problem. Next steps would involve further investigation and possibly a redesign of the entire fish facility at Lower Granite. That work is scheduled to start in 2012, according to the BiOp. In a month or two TMT will revisit this issue at one of its regular meetings.

#### **E. Little Goose MOP and Lower Granite Tailwater Navigation Issues.**

In late August 2008, flows on the Snake dropped dramatically, Wagner recalled. The Little Goose operational plan called for running one turbine unit and spilling the rest while maintaining MOP. However, the dual requirements to maintain MOP and spill 30% conflicted with each other. Wagner explained why the 30% spill requirement is a key to Little Goose operations. The difference between running 1 and 2 units is substantial in terms of providing steady outflows. In late August 2008, the second unit came online, and the Little Goose pool was drafted too low, creating a wave effect that caused navigation problems. The water elevation in Lower Granite navigation lock dropped too low for the transportation barge to cross the tailwater. The issue came to TMT for resolution, Russ Kiefer suggested spilling a constant amount at Little Goose around the clock, e.g. 11 kcfs instead of 30% spill, and it worked. This solution eliminated the need to alternate between a 1 and 2 unit operation, as well as wave effects in the pool, and allowed navigation at Lower Granite to return to normal. There was no effect on adult passage because the 30% criterion was designed to address adult passage issues, Wagner said in response to questioning. Feil reminded everyone that 30% spill might not be the future operation at Little Goose once the TSW is in place. Next steps include follow-up with FPOM, and possibly adding a blurb about Little Goose operations to the Water Management Plan or the Fish Passage Plan.

**F. McNary Summer Transport Operation:** Last year McNary was modified so the TSWs could be turned on and off while the barge crossed the forebay to load and unload fish, Paul Wagner recalled. There's a debate over whether doing this has any value, as well as the effects it has on spill duration and volume. In 2008 the BiOp called for adaptive management from July 15 to Aug. 1, with transportation from Aug. 1-15 because the data suggest that fish most likely benefit from transportation at McNary toward the end of August. The juvenile bypass below the project is in a bad location, with low survival rates. NOAA believes this problem has become worse since spill was added to the McNary operation because spill forces the fish into an area with heavy predation.

Survival estimates before and after spill need to be verified to see if there's actually been a difference. Wagner presented a chart showing times of reduced spill. Less than a 1% reduction in spill occurred over a 24-hour period, when hourly reductions were taken into account. An estimated 350,000 fish were transported at McNary in 2008, a relatively small number when compared to the millions of fish passing the project. Until 2005, all fish arriving at McNary were transported and there was no spill.

Wagner asked TMT to consider whether to continue transporting fish at Mc Nary. Should all fish be bypassed when bypass survival has been poor? At this point, there appears to be a benefit in transporting fish. TMT will be asked to make this decision in 2009.

**4. Reservoir Operations Review.** *How effective were the proposed actions or SORs at achieving the desired results? What changes might be necessary to enhance results in the future?*

**A. Libby Summer Operations:** Steve Hall (COE) recalled the two major operational events at Libby in 2008: the sturgeon pulse SOR and the Libby-Arrow treaty storage swap. Joel Fenolio (COE Seattle) discussed the SOR, which was submitted to the COE on May 30 by USFWS on behalf of the Kootenai Valley resource initiative, a collaboration of agencies and tribes. Per the BiOp, the sturgeon pulse SOR is based on the May final volume forecast, which in 2008 was 1.04 maf. Two days after the SOR was received, the project went to full powerhouse, and 2 days after that, project operation dropped to 4 units in order to accommodate repairs of water temperature control equipment. The project returned to full powerhouse on June 7 and remained there until June 27 when the full 1.04 maf was exhausted.

Libby reservoir did not achieve its target elevation at the end of August 2008, and Fenolio explained why not. The June forecast was slightly higher than 103% of normal, but actual flows in late June and July were only 89% of normal. If the sturgeon pulse of 1.04 maf had been based on actual volume, it would have been 0.8 maf, which would have raised the end of August reservoir elevation by another 5 feet. The reduction in Libby inflows were the result of a phenomenon called snowpack sublimation, in which snowpack is lost but streamflows doesn't rise.

The other major Libby operation in 2008 was the Libby-Arrow swap, finalized on Aug. 12. The agreement with Canada authorized the exchange of 60 ksfd and allowed Libby to be at elevation 2,439 feet by August 31. The outlook for 2009 is for the forecast to be 104% of normal. Next year is the beginning of a new requirement to draft the reservoir to 10-20 feet from full pool elevation by the end of September. That requirement could make it more difficult to do Libby-Arrow swaps in future.

**B. Dworshak Spring/Summer Operations:** One of the lessons learned in operating Dworshak Dam this year was that analysis is needed of how to

manage the Dworshak/Grand Coulee shift differently in high and low water years, Steve Hall (COE Walla Walla) reported. One of the rules of the shift is that projects must return to their normal flood control elevation by April 15. Criteria are needed to guide a decision either to adjust the shift or not do it in high water years, as 2008 looked to be in the spring. One limitation associated with the shift is that the current configuration of Dworshak tends to cause TDG exceedances when spill goes above 15 kcfs. Over the past few years, typically temperature augmentation starts around the first week of July with spill of 12-14 kcfs. The 2008 runoff was both late and high, and the lack of temperature control issues at Lower Granite meant Dworshak was operated at full powerhouse. That helped Lower Granite meet its flow targets later in the year.

Another challenge occurred this summer when the COE relied on RO outlets to move water out of Dworshak above the powerhouse limits, after drafting below the spillway crest. During the operation RO#2 failed, almost causing Dworshak to miss its end of August elevation at 1,535 feet. The COE is working to repair the RO gates as soon as possible. Building a second bulkhead is an option, but an expensive one that would take 1-1/2 to 2 years to complete. The COE will consider another bulkhead if necessary. Issues with the trunnion design are also being addressed. Dave Wills (USFWS) thanked the COE for its response to the RO gate problem this year and expressed hope that the COE would have a plan ahead of time in case this problem arises in 2009.

The Dworshak/Grand Coulee shift works by moving system flood control space to Grand Coulee, which allows the flood control elevation at Dworshak to go higher, Hall explained. When the shift expires and Dworshak must get to its normal flood control elevation, it becomes necessary to release water. If the flood control elevation requirement at Dworshak drops after April 15, it might be impossible, at the rate of 15 kcfs per day, to release enough water in time for the Dworshak reservoir to reach its April 30 flood control elevation. Hall showed TMT graphics depicting flood control rule curves and a composite April-July inflow volume forecast for Dworshak, linked to today's agenda.

On May 6, 2008, TMT discussed the declining ESP forecast. On May 8, using 44 years of record, the COE calculated that observed inflows of 3.4 maf would have led to 6 years in which the reservoir didn't refill in time, even if Dworshak operated at minimum flows. In hindsight, the predictions were wrong, and actual outflows were significantly higher than forecasted. The forecasting error impacted both Dworshak and Libby operations in 2008. There was discussion of how to do a better job of forecasting in the future, as well as a request for the COE to be more cautious with early forecasts which are often wrong. The COE has no funding to acquire additional snowtel stations beyond the existing 8 stations it has had for years, and it will be difficult to improve forecasting accuracy without more data, Hall replied. Nor is it advisable to move existing stations because that would confound historical records. Normally, runoff occurs earlier than it did in 2008. TMT will keep this issue on its radar in the coming year.

**C. Hungry Horse and Grand Coulee Operations:** The January-July outflow volume from Hungry Horse Dam was 112% of normal, while January outflows were 100% of normal, John Roache (BOR) reported. The May-July outflow volume at Hungry Horse was 130% of normal. During summer flow augmentation, Hungry Horse released flat flows of about 6.5 kcfs, with a brief drop for body recovery following a drowning on the South Fork. Hungry Horse will probably continue to operate at minimum flows for the rest of the year, until the January forecast is made and releases might be needed for flood control. There was discussion of the fact that minimum flows were higher this year than natural flows would have been, in order to meet the Columbia Falls minimum and provide augmentation for bull trout in Montana. Wagner asked what outflows would be if the target reservoir elevation is 3,540 feet; Roache estimated 7 kcfs.

Grand Coulee reservoir hit elevation 1,244.5 feet on April 10, 2008, and refilled to 1,290 feet by July 14; that elevation was maintained through the end of August. On April 27, Grand Coulee flows were reduced in an effort to reach the April 30 elevation target without any significant drops in outflows. Then the low flows began impacting ferry operation at Grand Coulee. TMT will continue to work on defining the exact minimum elevation required for the ferry to operate safely, which is somewhere in the range of 1,225-1,228 feet. A second Grand Coulee issue this year, described above, was managing the Dworshak/Grand Coulee flood control shift. Dave Wills asked whether the ferry landing could be moved to a lower elevation. BPA and BOR are working on that, Norris replied.

## ***5. Summary of Today's Meeting***

Good weather and unusually late runoff led to favorable conditions for fish in 2008. Survival rates were high, but late runoff created some problems. Juvenile passage numbers indicate that adult returns from this year will be good.

The solution to the screen debris issue at Bonneville in 2009 is to keep a large crane operational at the site. Several TMT members expressed interest in having a special TMT meeting possibly before the end of January to discuss how the system might be operated better to meet current chum criteria.

An investigation of MOP issues and the fish tanks at Lower Granite is underway, and TMT can expect new information in January 2009.

Is continued transportation at McNary worth the negative impacts it has on adult passage? NOAA will make a recommendation on this sometime in 2009.

Information regarding the effects of Little Goose MOP operations on adults might be added to the Fish Operations Plan after NOAA has reviewed it.

There was discussion of how to predict Libby inflows more accurately and reliably. More ESP analysis could help solve this problem, and additional snowtail sites would provide the COE with better hydrologic data. New drafting

requirements could impact the Libby/Arrow swap in 2009 and beyond, so TMT will keep this issue on its radar.

Review is needed of how difficult it is to release sufficient flows at Dworshak in a high water year like 2008 without exceeding TDG regulations when the Libby/Dworshak flood control shift ends. Flood control issues are currently being addressed. There was discussion of ways to improve modeling and forecasting efforts regarding Dworshak, and a request was made for additional snowtel sites which would provide the COE with more complete hydrologic data. Appreciation was voiced for the COE's careful management of the RO gate problem at Dworshak this year.

BPA and BOR will continue to seek the "magic ferry" minimum elevation at Grand Coulee.

There was extended discussion of how to handle the forecasting process better next year. The Nez Perce Tribe advocated more caution in the use of early forecasts of Dworshak inflows. Given increased variability in forecasts and a tendency toward extreme weather patterns, CRITFC urged TMT to begin considering mid-month water supply forecasts although they're not official. WDFW expressed interest in following forecasting trends more closely.

## **6. Next TMT Meeting**

The next regular TMT meeting is Dec. 3, 2008. This meeting summary prepared by consultant and writer Pat Vivian.

<b>Name</b>	<b>Affiliation</b>
Dave Statler	Nez Perce Tribe
Rudd Turner	COE
Bill Muir	NOAA Science Center
Laura Hamilton	COE
Dan Feil	COE
Cathy Hlebechuk	COE
David Wills	USFWS
Russ Kiefer	Idaho
Ruth Burris	PGE
Tony Norris	BPA
Lori Postlethwait	BOR
Gerald Ross	BPA
Paul Wagner	NOAA
John Roache	BOR
Mark Bagdovitz	USFWS
Cindy LeFleur	Washington
Bill Tweit	Washington
Jim Ruff	NPCC
Richelle Beck	DRA
Mary Mellema	BOR

Todd Maguire	BOR
Dave Benner	FPC
Margaret Filardo	FPC
Kyle Dittmer	CRITFC
Karl Kanbergs	COE
Jim Adams	COE
Steve Hall	COE Walla Walla
Jim Litchfield	Montana
Tim Heizenrader	Centaurus
Steve Smith	NOAA Science Center
Dan Spear	BPA
Dennis Schwartz	COE
Joel Fenolio	COE

# TECHNICAL MANAGEMENT TEAM

**BOR** : John Roache / Mary Mellema / Pat McGrane      **BPA** : Robyn MacKay / Tony Norris / Scott Bettin  
**NOAA-F**: Paul Wagner / Richard Dominique              **USFWS** : David Wills / Steve Haeseker  
**OR** : Rick Kruger / Ron Boyce                              **ID** : Russ Kiefer / Pete Hassemer  
**WDFW** : Cindy LeFleur                                        **MT** : Jim Litchfield / Brian Marotz  
**COE**: Jim Adams / Cathy Hlebechuk / Kevin Grode

## TMT MEETING

Wednesday December 3, 2008 09:00 - 12:00

1125 N.W. Couch Street, Suite 4A34  
Portland, Oregon 97209-4142  
Map Quest [\[Directions\]](#)

### CONFERENCE PHONE LINE

**NOTE NEW CONFERENCE LINE NUMBER**  
Conference call line:888-285-4585; PASS CODE = 601714

To check into the building, take the elevator to the 5th floor and the guard will issue you an ID badge if you need one and will take you down to the meeting room on the 4th floor. If you have NOT attended a TMT meeting in the past you will need to call ahead and let Jim Adams (503) 808-3938, Cathy Hlebechuk (503) 808-3942, or Kevin Grode (503) 808-3945 know, so you can be added to the TMT Visitor List and issued an ID badge. This badge may be used indefinitely. If you have attended TMT in the past you may re-use your ID badge indefinitely. If you are a federal employee you will also need to have an ID badge issued to you which can be used indefinitely.

We have had disruptions on the phone because people are not hitting 'mute' after dial in.  
**Please MUTE your Phone**

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*All members are encouraged to call Robin Gumpert with any issues or concerns they would like to see addressed.  
Please e-mail her at [rgumpert@cnmv.net](mailto:rgumpert@cnmv.net) or call her at (503) 248-4703.*

## AGENDA

1. Welcome and Introductions
2. Review Meeting Minutes for Nov 5, 7, and 12, 2008 [\[Meeting Minutes\]](#)
3. Vernita Bar - Russell Langshaw, Grant PUD
4. Chum Operations Update - Dan Feil, USACE
  - a. [\[Nov 19-26 Summary Report\]](#) 
  - b. [\[Nov 26-Dec 3 Summary Report\]](#) 
  - c. [\[Chum Counts\]](#)
5. Albeni Falls Operations Update
  - a. Operations Update - Lynn Melder, USACE
  - b. Kokanee Spawning Update - Russ Keifer, IDFG
6. Snake River Zero Nighttime Flow - Tony Norris, BPA

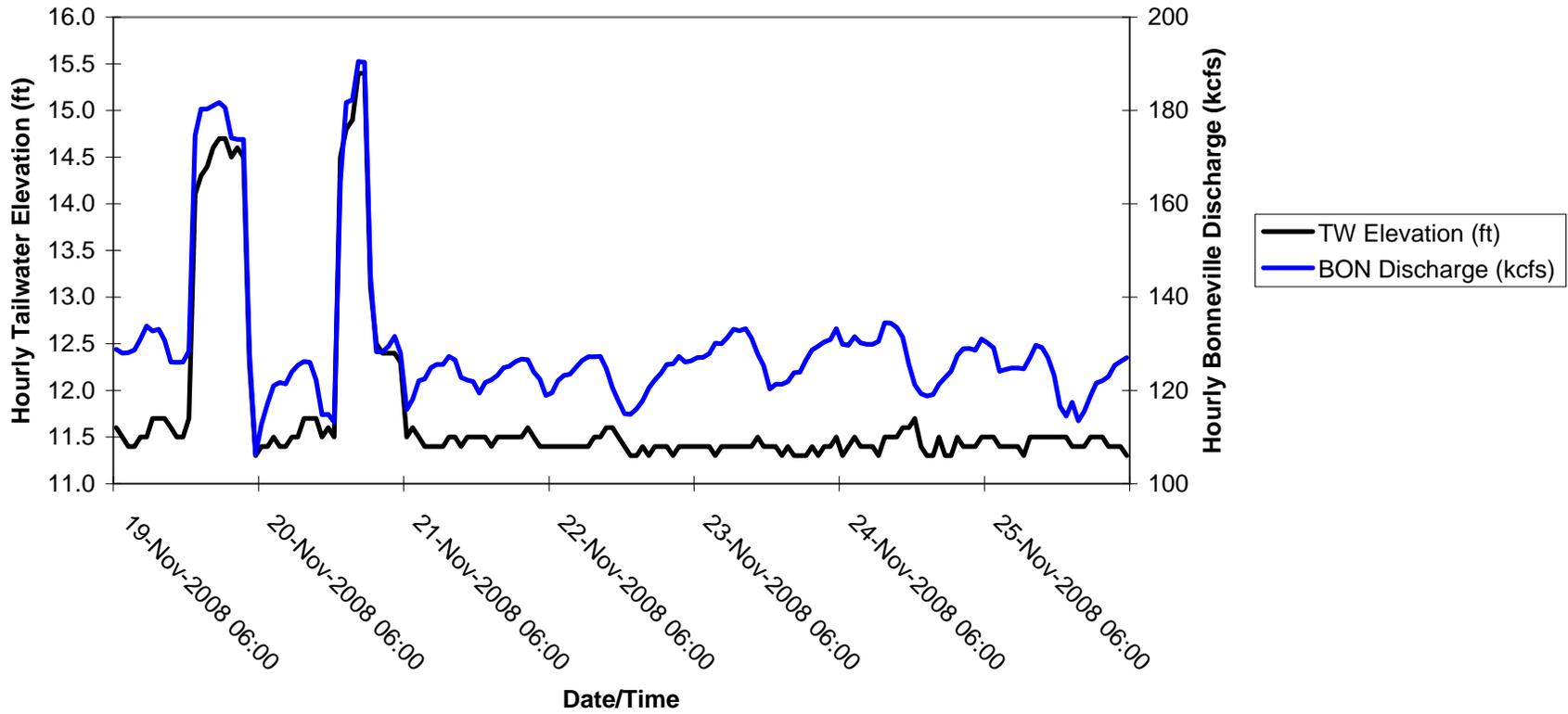
- a. [\[November LGR Adult Counts\]](#) 
- b. [\[Salmon Managers Recommendations on Zero Flow\]](#) 
- 7. WMP Update - *Dan Feil, USACE*
  - a. [\[Comments and Updated Draft WMP\]](#)
- 8. Operations Review
  - a. Reservoirs
  - b. Fish
  - c. Power System
  - d. Water Quality
- 9. Other
  - a. Set agenda for next meeting - **December 17, 2008**  
[\[Calendar 2008\]](#) 

*Questions about the meeting may be referred to:*

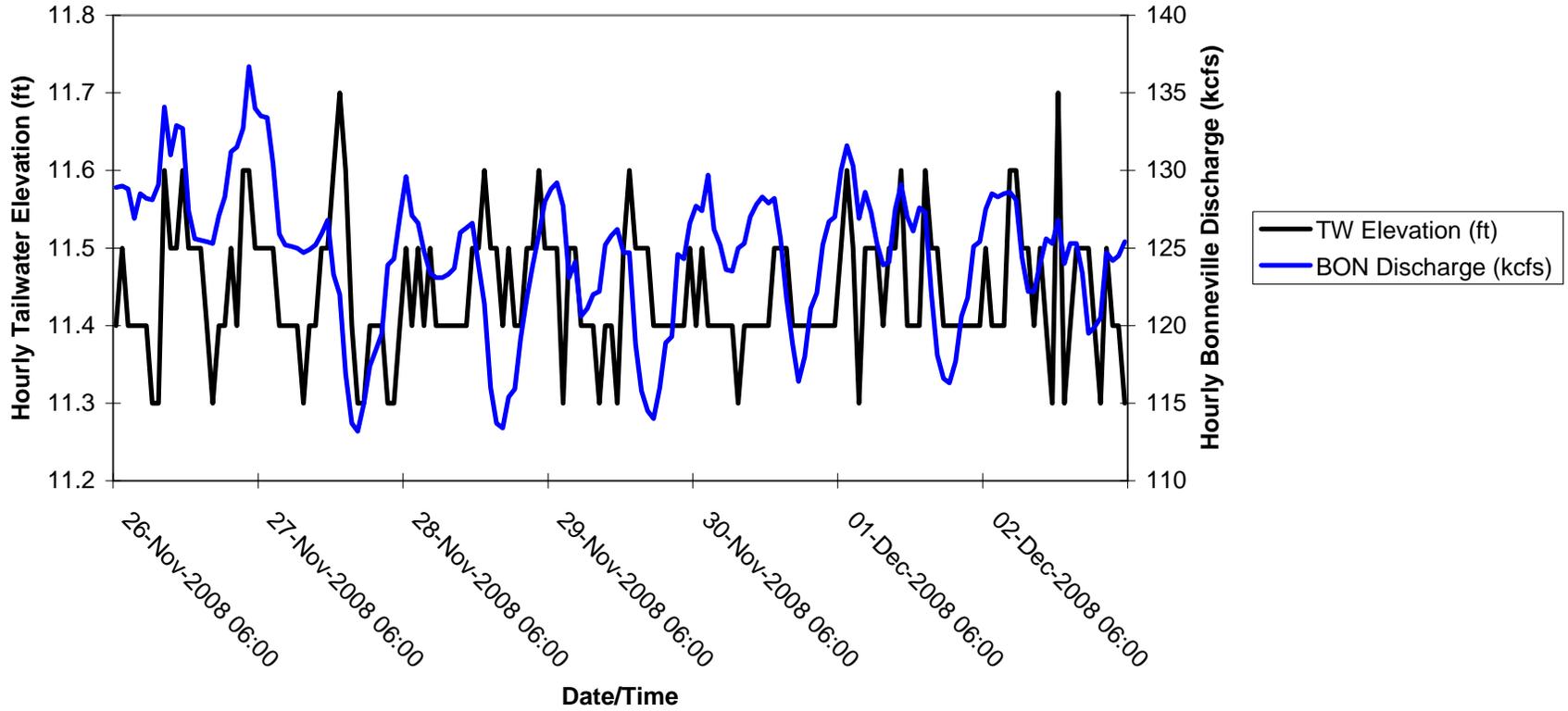
*[Jim Adams](#) at (503) 808-3938, or  
[Cathy Hlebechuk](#) at (503) 808-3942, or  
[Kevin Grode](#) at (503) 808-3945.*

### 2008-09 Chum Operations

(week 3 - 11/19, 0600 hours to 11/26, 0500 hours)



### 2008-09 Chum Operations (week 4 - 11/26, 0600 hours to 12/3, 0500 hours)



**Monthly Adult Fish Counts**  
**Lower Granite - November 2008**

**U.S. Army Corps of Engineers**  
 Portland District

Date	Chinook Adults	Chinook Jacks	Steelhead (total)	Steelhead (wild)	Shad	Sockeye	Lamprey	Coho Adults	Coho Jacks	Chum	Pink
11/1/2008	18	22	398	99	0	0	0	5	2	0	0
11/2/2008	16	21	535	131	0	0	0	5	0	0	0
11/3/2008	8	14	262	89	0	0	0	4	2	0	0
11/4/2008	6	20	336	92	0	0	0	1	1	0	0
11/5/2008	9	10	385	86	0	0	0	7	1	0	0
11/6/2008	10	14	305	72	0	0	0	6	1	0	0
11/7/2008	16	8	350	90	0	0	0	2	1	0	0
11/8/2008	23	9	197	67	0	0	0	3	0	0	0
11/9/2008	13	7	234	53	0	0	0	1	0	0	0
11/10/2008	7	5	234	44	0	0	0	1	0	0	0
11/11/2008	12	3	337	71	0	0	0	1	0	0	0
11/12/2008	10	1	294	63	0	0	0	1	0	0	0
11/13/2008	11	3	273	52	0	0	0	1	0	0	0
11/14/2008	8	6	266	46	0	0	0	1	0	0	0
11/15/2008	8	2	470	81	0	0	0	0	0	0	0
11/16/2008	3	4	475	103	0	0	0	0	0	0	0
11/17/2008	2	1	54	20	0	0	0	0	0	0	0
11/18/2008	1	2	309	69	0	0	0	0	0	0	0
11/19/2008	2	-1	349	82	0	0	0	0	0	0	0
11/20/2008	0	-1	230	74	0	0	0	1	0	0	0
11/21/2008	1	0	268	62	0	0	0	0	0	0	0
11/22/2008	0	1	194	60	0	0	0	0	0	0	0
11/23/2008	0	1	323	75	0	0	0	0	0	0	0
11/24/2008	0	0	220	47	0	0	0	0	0	0	0
11/25/2008	-1	0	122	43	0	0	0	0	0	0	0
<b>Total</b>	<b>183</b>	<b>152</b>	<b>7420</b>	<b>1771</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>40</b>	<b>8</b>	<b>0</b>	<b>0</b>
Date	Chinook Adults	Chinook Jacks	Steelhead (total)	Steelhead (wild)	Shad	Sockeye	Lamprey	Coho Adults	Coho Jacks	Chum	Pink

Report Run: 12/3/2008 7:24:36 AM

## **Zero Generation in the Snake River**

The COE LWG water Control Manual states on page 8-2, “From December to February, “zero” minimum project discharge is permitted on a limited basis. Under an agreement between the Corps of Engineers and the fishery agencies, zero river flow is allowed for water storage during low power demand periods (at night and on weekends) when there are few, if any, actively migrating anadromous fish present in the Snake River... Water stored under zero river flow conditions may maximize power production from the Columbia River basin system, but zero river flow operations are not recommended at Lower Granite when fish are actively migrating in the Snake River.”

In Winter 2003/2004, and again in 2005 (SOR 2005-22), the Salmon Managers recommended the following criteria to define what is meant by “few” migrating adults.

### **Salmon Managers Recommended Criteria for Zero Generation in the Snake River**

1. The number of adults migrating per day is defined as the number of upstream counts minus the number of downstream counts.
2. A three-day moving average will be used to determine if the few migrating adult criterion has been met.
3. “Wild” and “total” returns will be calculated separately. Only one of the categories is necessary to show that more than a few adults are migrating.
4. The run to date is defined as the cumulative number of adult steelhead in the “wild and “total” categories passing Lower Granite Dam since June 1st of the return year.

The few migrating adult criterion trigger will be defined on a sliding scale outlined in the following table. The table applies to both “wild” and “total” categories of returning adult steelhead.

<b>Run to date&gt;#</b>	<b>Run to date≤ #</b>	<b>Few criteria&lt; #</b>
0	30,000	10
30,000	60,000	20
60,000	100,000	35
100,000	150,000	50
150,000	200,000	65
200,000	250,000	80
250,000		100

# COLUMBIA RIVER REGIONAL FORUM

## TECHNICAL MANAGEMENT TEAM

December 3, 2008 Meeting

### FACILITATOR'S SUMMARY NOTES ON FUTURE ACTIONS

Facilitator: Robin Gumpert

Notes: Erin Halton

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**

The November 5<sup>th</sup>, 7<sup>th</sup>, and 12<sup>th</sup> facilitator notes and official meeting minutes were posted to the TMT webpage. No changes were made during the meeting, and the notes are considered final unless otherwise notified by a TMT member. The 11/19 facilitator notes were posted to the web and TMT will look to finalize them, as well as the 12/3 notes at the 12/17 meeting.

#### **Vernita Bar**

Paul Wagner, NOAA, and Scott Bettin, BPA, reported that the minimum elevation protection level had been set at 60 kcfs and that the total count of fish in the reach was around 20,000, which is higher than in previous years. Russell Langshaw, Grant County PUD, added that there will be efficiency estimate work via hand excavation over the coming weeks and noted that flows would likely be in the 65 kcfs range this coming weekend. TMT members thanked Langshaw for providing data to the team this season.

**Action/Next Steps:** Langshaw will provide an update to TMT during a February meeting, prior to the 2009 spill season.

#### **Chum Operations**

Dan Feil, COE, reported that chum operations remain as they have for the past weeks, with an 11.3-11.7 foot tailwater elevation range. He referred TMT to summary and graph links for weeks 3 and 4, posted as links to the agenda; operations during week 3 stayed within the range during daytime hours with some increases at night, while week 4 operations have been within the tailwater criteria throughout 24 hour time period. Tony Norris, BPA, added that flows have been augmented from Grand Coulee to achieve the tailwater target elevation. Feil also referred TMT to a link to data from the Fish Passage Center (FPC) website, which showed live, redd and dead chum counts. TMT reviewed 2007 data on the FPC as well and observed that there were fewer redds last year.

**Action/Next Steps:** TMT will discuss chum operations at their meeting on 12/17.

Dennis Schwartz, COE, reported that the chum workshop hosted by Pacific Northwest Laboratories at the Skamania Lodge on 12/2 was the culmination of three years of research on river conditions, TDG and their effect on chum. The workshop asked

participants to consider current/future tools and management strategies as they relate to TDG and whether there is support for continued/new chum research projects in 2010. Schwartz said that an emergence model would be a very useful tool. Paul Wagner, NOAA, added that attendees discussed 2007 springtime groundwater conditions.

### **Albeni Falls Operations Update**

Jim Adams, COE, reported that Albeni Falls continues to operate within its elevation target range of 2051-2051.5'. Russ Kiefer, ID, provided TMT with a recap of live kokanee spawning counts thus far: on 11/10, 412; on 11/17, 1245; on 11/24, 912; and on 12/1, 796. This indicates that the peak has passed, but that spawning will continue for the next 2-3 weeks. TMT members recalled that the criterion for determining the end of spawning in previous years has been when there are no fish observed for a period of one week.

**Action/Next Steps:** There will be a joint IDFG/USFWS/COE/BPA conference call on 12/5, to discuss a draft operational request for elevation flexibility at Lake Pend Oreille this winter; TMT may discuss any subsequent SOR at the 12/17 meeting. Kiefer said he would provide a historical graph, with year-to-year spawning comparisons for the 12/17 meeting.

### **Snake River Zero Nighttime Generation**

Tony Norris, BPA, referred TMT to revised graphs on zero generation data from early 2008 posted as a link to the TMT agenda. TMT members referenced the end of passage criteria recommended by the Salmon Managers in 2005, which was in SOR #2005-22.

**Action/Next Steps:** The criteria from the 2005 SOR will be posted as a link to the agenda for the 12/17 meeting to help guide TMT discussion.

### **2009 Draft Water Management Plan**

Dan Feil, COE, reported that all comments the Water Management Plan (WMP) that had been received by the COE had been posted to the TMT webpage; the revised version with all edits incorporated was yet to be posted. A word version of the Fall/Winter Update to the WMP was also posted to the webpage. TMT members discussed a shared interest in seeing an earlier release of the Fall/Winter Update of the WMP (such as 9/1/2009) in the future, so that the updates might serve as a plan as well as a reflection of operations underway.

**Action/Next Steps:** TMT will review the revised version of the WMP at the 12/17 meeting and the document will be finalized by the end of the year. TMT members may send their comments on the Fall/Winter Update directly to Feil for posting. Feil noted that the COE will also post the Chum Operations Plan once language is added to reflect current operations.

### **Operations Review**

**Reservoirs:** Grand Coulee was at elevation 1281.6', slowly drafting to meet the tailwater elevation criteria at Bonneville. Hungry Horse was at elevation 3528.5', with outflows of 2 kcfs. Libby was at elevation 2433.6', with inflows ranging from 4-5 kcfs and outflows of 18.8 kcfs; the project shifted to a 3-unit operation on 12/1 and will likely

continue through December. Bob Heinith, CRITFC, asked when the project was likely to achieve an elevation of 2411', and the COE clarified that it will likely be on 12/31, noting that the water supply forecast/flood control target for Libby will be posted in the next couple of days. **Action:** Dave Wills, USFWS, offered to talk with Heinith after the meeting as to where this type of data can be found online. Albeni Falls was at 2051.2' and continued to operate within a .5' range, as it has since 11/7. Dworshak was at 1527.3', with inflows mainly in the range of 2-3 kcfs (but were 4.5 kcfs on 12/2) and outflows of 1.6 kcfs. Seven day average inflows were 20.3 kcfs at Lower Granite, 110.8 kcfs at McNary and 125 kcfs at Bonneville.

Fish: Nothing other than chum to report at this time.

Power System: Nothing to report at this time.

Water Quality: Nothing to report at this time.

**Next Meeting: 12/17**

Agenda items will include:

- Chum Operations
- Albeni Falls Update/Post-spawning Operations
- Snake River Zero Nighttime Generation
- WMP/Fall-Winter Update – Edits Review
- AFEP Highlights
- Operations Review

**Columbia River Regional Forum  
Technical Management Team Meeting  
Dec. 3, 2008**

**1. Introduction**

Today's TMT meeting was chaired by Jim Adams (COE) and facilitated by Robin Gumpert (DS Consulting) with representatives of BPA, COE, NOAA, USFWS, FPC, CRITFC, Idaho 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**

Any revisions to the meeting minutes for Nov. 5, 7 and 12 will be emailed to the COE and subsequently distributed to all TMT members. These notes will otherwise be considered final.

**3. Vernita Bar**

The final redd count was done at Vernita Bar, and the protection level was set at the 60 kcfs elevation, Paul Wagner (NOAA) reported. Approximately 20,000 spawners have been counted in the region so far this year, Scott Bettin (BPA) reported.

Grant PUD plans to build some redds this coming Sunday, Dec. 6, then dig them up to evaluate the accuracy of sampling estimates, Russell Langshaw (Grant PUD) reported. Researchers have abandoned the hydraulic sampling method, which was variable and time-consuming, in favor of doing excavation counts by hand. The redd experiment will require a temporary drop in flows of about 30 kcfs below the elevation at which the redds are built. The current inflow forecast for Saturday is about 95 kcfs, so if flows remain at that level, that means a drop to about 65 kcfs on Sunday, Dec. 7, which is still above the critical elevation. Langshaw will continue to provide updates to TMT via phone in January and February as the protection program progresses.

**4. Chum Operations Update**

The COE is still operating under teletype number 3, which is posted to the last TMT meeting agenda, Dan Feil (COE) reported. The teletype specifies an 11.3-11.7-foot tailwater criterion. The first two links on today's agenda are data from weeks 3 and 4 of the operation. During the first few days of week 3, flows and tailwater elevations went up at night, but generally the tailwater elevation has been held between 11.3-11.7 feet. During week 4 which was last wk, the 11.3-11.7-foot range was maintained on a 24-hour basis. Flows have been

manageable, and there has been no significant precipitation, so the operation is proceeding well. Tony Norris (BPA) noted that these flows are being augmented with storage from Grand Coulee, which helps to keep flows manageable.

The third link to this item on today's agenda is to the FPC web page, which has data surveys through Nov. 24, 2008, and a comparison to the 2007 run which is a bit late this year, Dennis Schwartz (COE) reported. There was discussion of the fact that fewer redds appear to be in the water than last year, despite good visibility. This doesn't look like a good year for chum according to field observations.

There was discussion of a chum workshop held yesterday which several TMT members attended. The meeting was a culmination of 3 years of research regarding the Ives Island and Multnomah Falls spawning sites below Bonneville Dam. The workshop reviewed river conditions, total dissolved gas levels, and studies of the riverbed at both sites. The findings include field and lab reports regarding lethal levels of TDG exposure to sac fry in redds due to gas bubble trauma. The work included river sampling of fry in 2007. A follow-on experiment in 2008 involves monitoring of artificial redds for TDG exposure every 2 weeks throughout emergence.

The main questions being addressed were: Is TDG exposure of chum redds a problem? Is a better operational strategy needed? Does sufficient information exist to make management decisions on river operations for chum? Ongoing research appears to be needed, and development of a model for chum emergence would be valuable. The workshop provided a focus for limited research dollars in 2010 when spill wall construction at The Dalles will consume much of the CRFM budget.

The workshop looked mainly at spring conditions and the effects of spill, not effects of tailwater elevations, Paul Wagner noted. Questions about chum spawning in groundwater areas initiated the research: Are redds affected by surface TDG levels if they have their own sphere of groundwater protection? That appears to be case at the Multnomah Fall site, where groundwater influence is strong enough to provide a buffer. The movement of ground and surface water at the Ives Island location makes high TDG levels there less safe for chum. However, even at Ives Island TDG is not a big issue due to depth compensation. At both redd spawning sites, TDG saturation levels remained below 105% throughout the study, regardless of readings on the water surface.

## **5. Albeni Falls**

**a. Operations Update.** The COE has had no problems operating the Albeni Falls pool between 2051 and 2051.5 feet at the Hope gage as requested. This operation will continue until completion of kokanee spawning.

**b. Kokanee Spawning Update.** Russ Kiefer (Idaho) gave an update on kokanee redd counts and criteria for declaring the end of spawning season. The numbers of live spawners observed at the spawning grounds were: 412 adults the week of Nov. 10; 1,245 adults the week of Nov. 17; 912 adults the week of Nov. 24; and 796 adults the week of Dec. 1. Spawning has peaked and is beginning to decline, but is expected to last for another 2-3 weeks. . Last year's redd count was 397, compared to 900 redds this year at the last count which was 2 weeks ago.

This Friday, Dec. 5, USFWS, the COE, BPA, and IDFG will confer to discuss the second SOR regarding flexibility of winter elevations at Lake Pend Oreille. The plan is to present the SOR at the next TMT meeting Dec. 17. Kiefer will present recommended criteria for declaring the end of spawning at that meeting. He will present a graph depicting kokanee spawning and returns over the past several years.

## ***6. Snake River Zero Nighttime Flow***

There was discussion of the point at which adult runs could be considered sparse enough to initiate zero flow this year, given that this operation didn't start last year until the fish ladder at Lower Granite closed the end of December.

Adult counts posted through Nov. 25, 2008, show that passage is still occurring in significant numbers, so it's still too early to begin zero nighttime flows, Tony Norris (BPA) reported. The wild steelhead population count since June 1, 2008, is around 41,000 fish and the total adult steelhead population count for that time period is approximately 164,000 fish, Wills reported. TMT discussed total steelhead returns vs. wild returns and the criteria for initiating zero nighttime flow when "few if any fish" are passing. Criteria that were used in the past can be found in SOR 2005-22 on the TMT website. These criteria were recommended by the Salmon Managers and were not necessarily agreed to by all TMT members, Kiefer noted. This issue will be revisited at the next TMT meeting.

## ***7. Water Management Plan Update***

The fall/winter update is ready for review, Dennis Schwartz reported. The chum operations plan will soon be posted as well, Feil said. The Salmon Managers are still reviewing a draft of their basic chum strategy.

There was discussion of a general schedule for reviewing the WMP and its associated updates. Reports on the status of operations are being rolled into the WMP as they are completed, so the document is in a continual state of development. The original objective was to have a draft by Nov. 1 that described the agreed-upon operation, with changes made as needed, Wagner recalled. Typically the WMP has been revised during December to reflect current

conditions, ideally functioning as both a plan and a report. Wagner suggested starting work in August on the fall/winter update; Norris suggested starting work on both the draft plan and fall/winter update Sept. 1. Work on the spring/summer update could begin around Feb. 1 when water supply forecasts are available. The BiOp has a schedule for the draft and final WMP iterations, Wagner said. TMT will revisit this issue on Dec. 17.

## **7. Operations Review**

**a. Reservoirs.** Grand Coulee is at elevation 1,281.6 feet and slowly drafting over the past 10 days to support the chum operation at Bonneville.

Hungry Horse is at 3,528.75 feet elevation, discharging 2.0 kcfs.

Libby is at elevation 2,433.6 feet, with inflows of 4-5 kcfs and outflows of 18.8 kcfs. On Dec. 1, the operation ramped up to 3 units, which will continue for the rest of the month. An early forecast shows Libby inflows at 108% of average for April-August 2009. Based on the most recent forecast, the COE expects Libby to reach its 2,411-foot target elevation around Dec. 31, with slow steady drafting of the reservoir at variable rates until then. The COE calculates end of month flood control elevations based on each monthly forecast. The December forecast for Libby, available a few days from now, will include its end of month flood control elevation. This information is available on the TMT website under flood control.

Albeni Falls continues to operate at 2,050-2,050.5 feet elevation through the end of kokanee spawning season. Current elevation is 2,051.25 feet. The project is essentially passing inflows.

Dworshak is at elevation 1,527.3 feet, still passing minimum outflows of 1.6 kcfs. Inflows have been about 2-3 kcfs but increased yesterday to 4.5 kcfs. A very early inflow forecast shows inflows at 128% of average for April-July, 2009.

The 7-day average at Lower Granite is 20.3 kcfs; at McNary, 110.8 kcfs; at Bonneville, 125 kcfs.

**b. Fish.** There was nothing to report today beyond chum activity discussed earlier.

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

**d. Water Quality.** There was nothing to report today.

## **9. Next Meeting**

The next regular TMT meeting will be Dec. 17, with chum operations; Albeni Falls operations; Snake River zero nighttime flow; a WMP update; any relevant information from the AFEP review; and the standard operations review on the agenda. Subsequent TMT meeting dates were set as follows: Jan. 7, a tentative conference call; Jan. 14 and 28, meet in person. This summary prepared by consultant and writer Pat Vivian.

<b><i>Name</i></b>	<b><i>Affiliation</i></b>
Tony Norris	BPA
Dennis Schwartz	COE
Paul Wagner	NOAA
David Wills	USFWS
Jim Adams	COE
Tim Heizenrader	Centaurus
Bob Diaz	Renewables
Dan Feil	COE

### ***Phone:***

John Roache	BOR
Dave Benner	FPC
Holli Krebs	J.P. Morgan
Russ George	WMC
Richelle Beck	DRA
Barry Espensen	CBB
Tom Le	Puget Sound Energy
Scott Bettin	BPA
Russ Kiefer	Idaho
Russell Langshaw	Grant PUD
Bob Heinith	CRITFC

# TECHNICAL MANAGEMENT TEAM

**BOR** : John Roache / Mary Mellema / Pat McGrane      **BPA** : Robyn MacKay / Tony Norris / Scott Bettin  
**NOAA-F**: Paul Wagner / Richard Dominique            **USFWS** : David Wills / Steve Haeseker  
**OR** : Rick Kruger / Ron Boyce                            **ID** : Russ Kiefer / Pete Hassemer  
**WDFW** : Cindy LeFleur                                      **MT** : Jim Litchfield / Brian Marotz  
**COE**: Jim Adams / Cathy Hlebechuk / Kevin Grode

## TMT CONFERENCE CALL

Monday, December 15, 2008 2:00 - 3:00 PST

### CONFERENCE PHONE LINE

#### **NOTE NEW CONFERENCE LINE NUMBER**

Conference call line: (877)322-9648; PASS CODE = 289621

We have had disruptions on the phone because people are not hitting 'mute' after dial in.  
**Please MUTE your Phone**

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*All members are encouraged to call Robin Gumpert with any issues or concerns they would like to see addressed.  
Please e-mail her at [rgumpert@cnnv.net](mailto:rgumpert@cnnv.net) or call her at (503) 248-4703.*

## AGENDA

1. Welcome and Introductions
2. Chum Flow Management - Tony Norris, BPA

*Questions about the meeting may be referred to:  
[Jim Adams](#) at (503) 808-3938, or  
[Cathy Hlebechuk](#) at (503) 808-3942, or  
[Kevin Grode](#) at (503) 808-3945.*

## COLUMBIA RIVER REGIONAL FORUM

### TECHNICAL MANAGEMENT TEAM

December 15, 2008 Conference Call

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

Facilitator: Robin Gumpert

Notes: Erin Halton

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.

#### Chum Operations

An unscheduled TMT conference call was convened to discuss chum operations as follow up to an email sent out on 12/12. Tony Norris, BPA, reported that as weather conditions will likely stay very cold through 12/21, BPA will need to move a lot of water in order to meet power demands. As such, BPA was seeking regional input on adjustments to operations as described in the current chum operations teletype. Norris added that in order to maintain the daytime tailwater target elevation, Bonneville may need to go to full powerhouse plus spill at night. Norris offered the following three options for regional consideration: start nighttime elevation earlier (suggest 1500 hours), set a higher daytime tailwater elevation range, or operate to maximum tailwater elevation at night.

Paul Wagner, speaking on behalf of the Salmon Managers, said that the preference would be to start the nighttime elevation range at 1500 hours and make as little increase to the target daytime elevation range as possible. Norris suggested the following revisions to the current chum operations teletype's paragraph 6: "if actions in paragraphs 2-5 are not sufficient, move daytime elevation target up to 12.3" and in paragraph 7, change the language for daytime hours to "0600-1500".

TMT members that participated on the call had no objections to the short term contingency plan as discussed. BPA added that a survey would be conducted on 12/16 (either by foot or boat, depending on weather conditions) and that updated data would be available for the scheduled 12/17 TMT meeting.

**Action:** Dan Feil, COE, was tasked to revise the teletype with language discussed today for short term contingency operations. He emailed it to TMT members following today's conference call, and comments were to be shared through Paul Wagner and back to Dan for finalizing as soon as possible. TMT will revisit chum operations during their meeting on 12/17 and will review the most recent data available and discuss future survey needs.

#### Next Meeting: 12/17

Agenda items will include:

- Chum Operations
- Albeni Falls Update/Post-spawning Operations
- Snake River Zero Nighttime Generation
- WMP/Fall-Winter Update – Edits Review
- Operations Review

**Columbia River Regional Forum  
Technical Management Team Conference Call  
December 15, 2008**

**1. Introduction**

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

**2. Chum Flow Management**

Tony Norris (BPA) gave an update on the chum operation at Bonneville Dam. Last Friday, Dec. 12, BPA sent TMT an e-mail explaining that cold weather was coming and the chum operation would follow specifications of the latest chum operation teletype that had been sent out. Today's meeting was called to reevaluate the chum operation in response to a cold snap that is turning out to be worse than expected. Low temperatures are predicted now through Sunday, Dec. 21, so BPA will probably need to move a lot of water through the system to meet load, Tony Norris said. BPA has been doing maximum reverse load factoring until now, but that probably won't be enough to meet the coming demand for electricity. In order to continue maximum load factoring – which would allow BPA to maintain the current tailwater operation – extreme measures might be needed at night, such as going to full powerhouse plus spill which could produce a 7-foot tailwater change if nighttime tailwater levels reach 18 feet or higher. Large tailwater changes at night are generally not productive for chum, Paul Wagner (NOAA) confirmed.

BPA asked TMT for feedback on 3 basic options: maximizing the tailwater elevation at night beginning at 1500 hours, as described in paragraphs 5 and 6 of the existing teletype; providing a higher daytime tailwater elevation; or a combination of these two, targeting an elevation less 13 feet during the day. NOAA preferred raising the tailwater elevation in the afternoon, followed by raising the overall daytime tailwater elevation. There was discussion of the full powerhouse operation at night (from 1500 hours to 0600 hours). Item 5 of the existing teletype deals with higher tailwater elevations from 1500-1800 hours. USFWS preferred raising the tailwater to a slightly higher elevation in the afternoon beginning at 1500 hours, then adding water to daytime flows if further generation is needed. This operation would start at 1500 hours (3 pm) and ramp up, increasing the tailwater elevation from 11.5 feet. The next step would be adding flows to the daytime tailwater elevation, rather than increasing the elevation during the afternoon, if more water is needed to be passed. NOAA

agreed to this operation and suggested up to a foot of tailwater elevation increase during the day if needed, to which USFWS agreed.

To summarize the chum operation that came out of today's call: BPA will maintain an 11.5-foot tailwater operation for the rest of today, then (as a worst case scenario) begin raising the tailwater elevation at 1500 hours toward full powerhouse capacity sometime tomorrow evening as needed to pass the additional water. BPA will minimize effects of this operation on chum tailwater elevations to the extent possible, at least until the end of chum spawning. If the above operational changes don't pass enough water, the next step will be to increase the daytime tailwater elevation by up to 1 foot, which probably wouldn't happen until Wednesday morning, Dec. 17.

Dan Feil (COE) will draft a teletype for the revised chum operation and circulate it for review; TMT members will provide any comments to Paul Wagner. There was general agreement that paragraphs 5 and 6 of the existing teletype deal with the operational changes discussed today, with the addition to paragraph 6 of a step up from the 12.3-foot tailwater elevation to 12.5 feet. The current tailwater range of 11.3-11.7 feet elevation will increase to 12.3-12.7 feet, targeting 12.5 feet. USFWS and NOAA agreed to this operation; CRITFC and Oregon had no objections.

TMT will check in on chum spawning survey information at its next regularly scheduled meeting Dec. 17. BPA's most recent survey of chum spawning on Dec. 12 found 35 chum actively spawning below Bonneville Dam.

<b><i>Name</i></b>	<b><i>Affiliation</i></b>
Tony Norris	BPA
Dave Wills	USFWS
Jim Adams	COE
Kevin Grode	COE
Cathy Hlebechuk	COE
Paul Wagner	NOAA
Lori Postlethwait	BOR
Rick Kruger	Oregon
Scott Bettin	BPA
Kyle Dittmer	CRITFC
Dan Feil	COE

# TECHNICAL MANAGEMENT TEAM

**BOR** : John Roache / Mary Mellema / Pat McGrane      **BPA** : Robyn MacKay / Tony Norris / Scott Bettin  
**NOAA-F**: Paul Wagner / Richard Dominique              **USFWS** : David Wills / Steve Haeseker  
**OR** : Rick Kruger / Ron Boyce                              **ID** : Russ Kiefer / Pete Hassemer  
**WDFW** : Cindy LeFleur                                        **MT** : Jim Litchfield / Brian Marotz  
**COE**: Jim Adams / Cathy Hlebechuk / Kevin Grode

## TMT MEETING

Wednesday December 17, 2008 09:00 - 12:00

1125 N.W. Couch Street, Suite 4A34  
Portland, Oregon 97209-4142  
Map Quest [\[Directions\]](#)

### CONFERENCE PHONE LINE

**NOTE NEW CONFERENCE LINE NUMBER**  
Conference call line:888-285-4585; PASS CODE = 601714

To check into the building, take the elevator to the 5th floor and the guard will issue you an ID badge if you need one and will take you down to the meeting room on the 4th floor. If you have NOT attended a TMT meeting in the past you will need to call ahead and let Jim Adams (503) 808-3938, Cathy Hlebechuk (503) 808-3942, or Kevin Grode (503) 808-3945 know, so you can be added to the TMT Visitor List and issued an ID badge. This badge may be used indefinitely. If you have attended TMT in the past you may re-use your ID badge indefinitely. If you are a federal employee you will also need to have an ID badge issued to you which can be used indefinitely.

We have had disruptions on the phone because people are not hitting 'mute' after dial in.  
**Please MUTE your Phone**

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Please e-mail her at [rgumpert@cnmv.net](mailto:rgumpert@cnmv.net) or call her at (503) 248-4703.*

## AGENDA

1. Welcome and Introductions
2. Review Meeting Minutes for Nov 19, and Dec 3, 2008 [\[Meeting Minutes\]](#)
3. Chum Operations Update - Dan Feil, USACE
  1. [December 3-10 Summary](#) 
  2. [December 10-17 Summary](#) 
  3. [Current Operating Teletype](#) 
  4. [Chum Counts](#)
4. Albeni Falls Operations
  - a. Operations Update - Seattle District, USACE
  - b. Kokanee Spawning Update - Russ Keifer, IDFG  
[\[LPO Kokanee Age Specific Abundance\]](#)

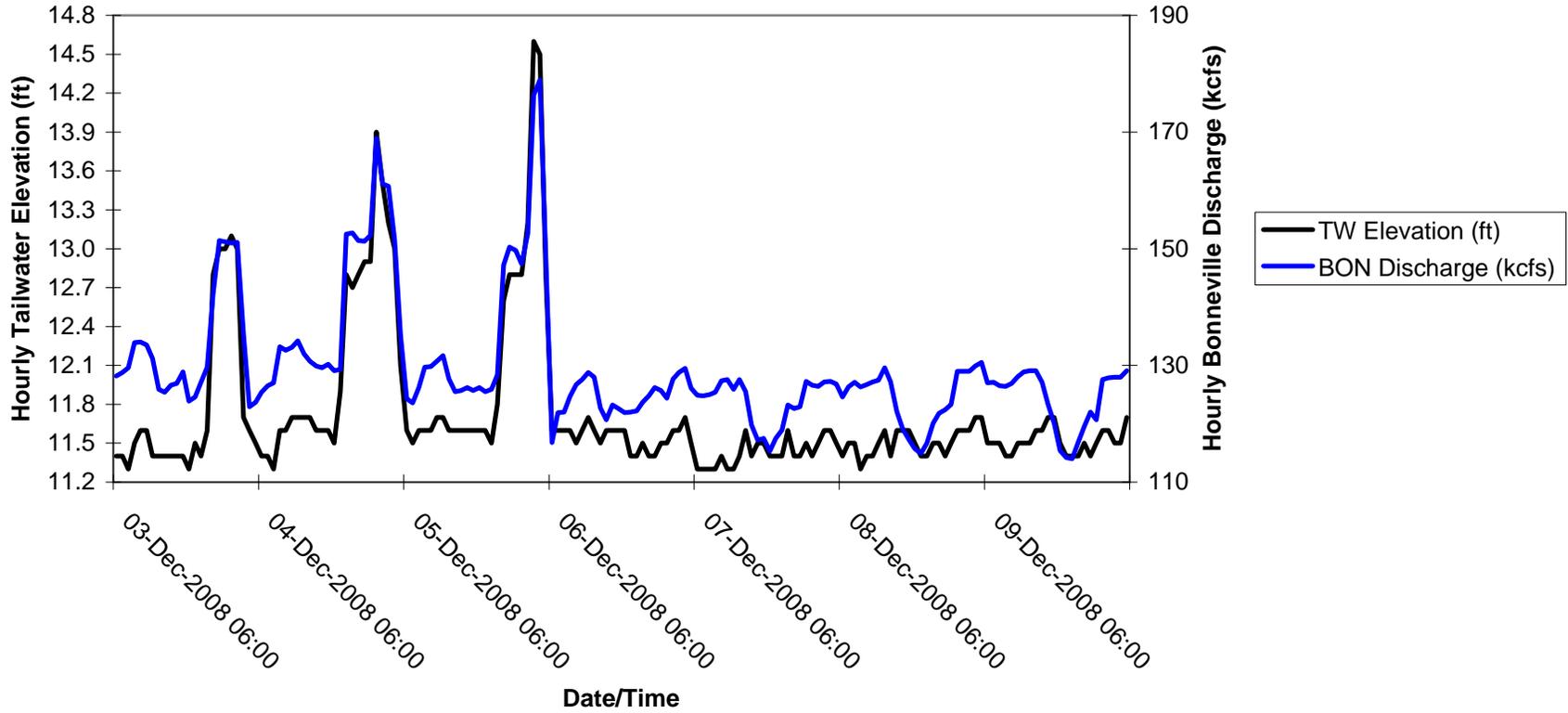


- c. Post-Spawning Operations- *Jim Adams, USACE*
- 5. Snake River Zero Nighttime Flow - *Tony Norris, BPA*
  - 1. [December LGR Adult Counts](#)
- 6. WMP Update - *Dan Feil, USACE*
  - a. [\[Comments and Updated Draft WMP\]](#)
- 7. Operations Review
  - a. Reservoirs
    - [\[Libby Variable December\]](#) 
  - b. Fish
  - c. Power System
  - d. Water Quality
- 8. Other
  - a. Set agenda for next meeting - **Tentative Phone Conference, January 7, 2009**  
[\[Calendar 2009\]](#)

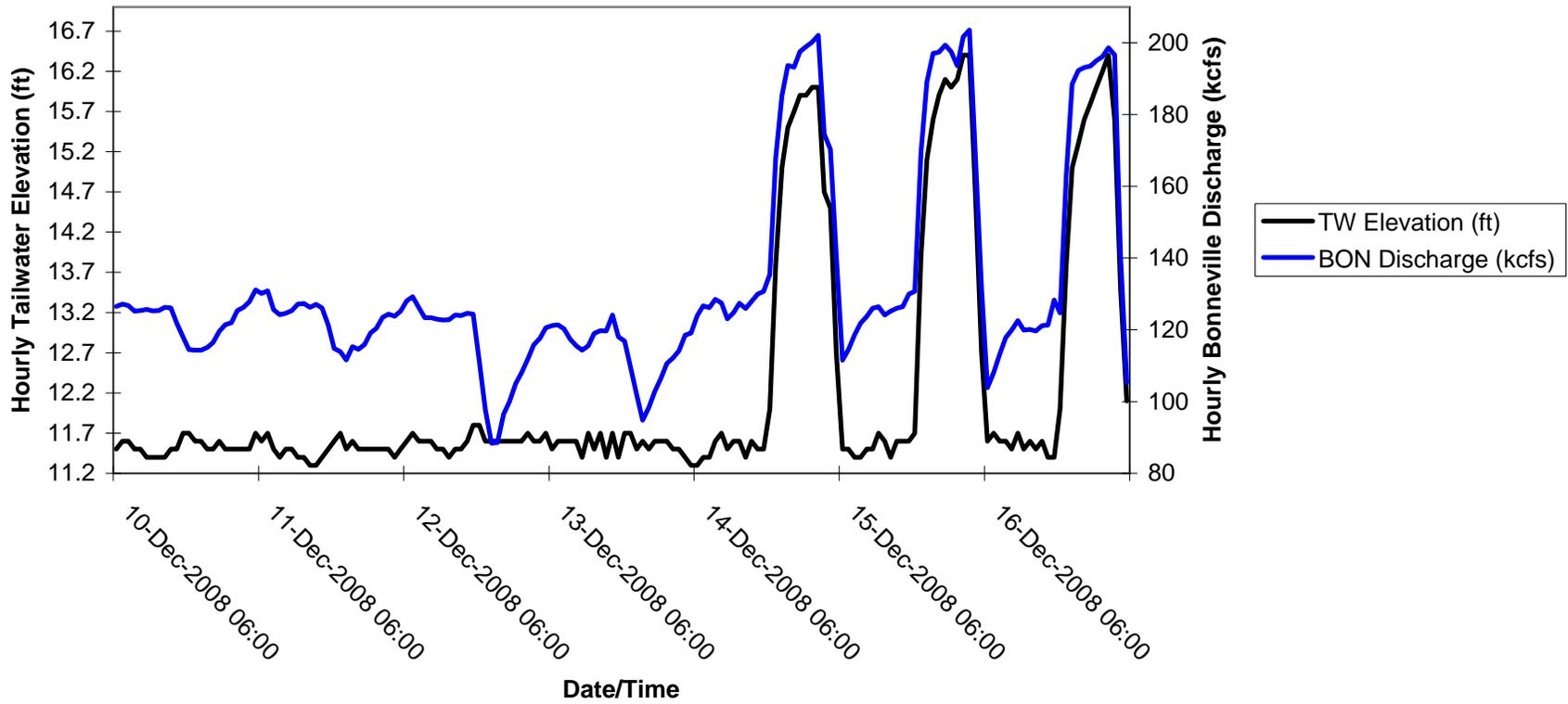
*Questions about the meeting may be referred to:*

*[Jim Adams](#) at (503) 808-3938, or  
[Cathy Hlebechuk](#) at (503) 808-3942, or  
[Kevin Grode](#) at (503) 808-3945.*

### 2008-09 Chum Operations (week 5 - 12/3, 0600 hours to 12/10, 0500 hours)



### 2008-09 Chum Operations (week 6 - 12/10, 0600 hours to 12/17, 0500 hours)



**Feil, Dan H NWD**

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**From:** Feil-Dan@npr70.nwd-wc.usace.army.mil  
**Sent:** Tuesday, December 16, 2008 10:18 AM  
**Subject:** CBT Msg: Bonneville chum operations #4 sent on 12/16/2008 at 10:18

Sent to: CO  
XX  
BON R 121608 1018 CO BON TDA JDA MCN BPA BPC NPD NPC NPP

ATTENTION: BONNEVILLE AND BPA

SUBJECT: BONNEVILLE TAILWATER OPERATION FOR CHUM SPAWNING

\*\*\*\*\*REPLACES TTY: BON R 111208 1609  
\*\*\*\*\*REFERENCE TTY: BON R 110608 1750

1. EFFECTIVE IMMEDIATELY UNTIL FURTHER NOTICE:

HARD CONSTRAINT 1 - OPERATE BONNEVILLE PROJECT TAILWATER ELEVATION TO NO LOWER THAN 11.3 FT DURING ALL HOURS.  
MAINTAIN THE CONSTRAINTS OF REFERENCE TTY.

HARD CONSTRAINT 2 - MAINTAIN 11.3 TO 11.7 FT BONNEVILLE PROJECT TAILWATER ELEVATION BETWEEN 0600-1500 HOURS DAILY.  
TARGET ELEVATION IS 11.5 FT. MAINTAIN THE CONSTRAINTS OF REFERENCE TTY. SEE PARAGRAPH 3.

SOFT CONSTRAINT 1 - MAINTAIN 11.3 TO 11.7 FT BONNEVILLE PROJECT TAILWATER ELEVATION BETWEEN 1500-0600 HOURS DAILY.  
TARGET ELEVATION IS 11.5 FT. MAINTAIN THE CONSTRAINTS OF REFERENCE TTY.

2. AS NEEDED, TO PASS WATER IN EXCESS OF WHAT IS NECESSARY TO MEET HARD CONSTRAINT 2, THE PROJECT IS AUTHORIZED TO RAISE THE TAILWATER ELEVATION UP TO 18.5 FT (AS NORMAL RAMP RATE ALLOWS) ANYTIME BETWEEN 1500-0600 HOURS. MAINTAIN THE CONSTRAINTS OF REFERENCE TTY.

3. IF PARAGRAPH 2 IS NOT SUFFICIENT TO PASS WATER IN EXCESS OF WHAT IS NECESSARY TO MEET HARD CONSTRAINT 2, THEN INCREASE TAILWATER ELEVATION AS NECESSARY UP TO 12.5 FT BETWEEN 0600-1500 HOURS. THIS ACTION ESTABLISHES A NEW HARD CONSTRAINT (HARD CONSTRAINT 3) WITH A TAILWATER ELEVATION RANGE THAT EXTENDS FROM THE HIGHEST TAILWATER ELEVATION ACHIEVED MINUS 0.4 FT.

4. THE OFFICIAL PROJECT TAILWATER ELEVATION GAGE IS LOCATED ON THE OREGON SIDE 0.9 MILES DOWNSTREAM FROM BONNEVILLE DAM FIRST POWERHOUSE, 50 FEET UPSTREAM FROM TANNER CREEK AND AT RIVER MILE 144.5.

5. REQUEST BPA AND BONNEVILLE PROJECT COORDINATE TO ACHIEVE THE REQUESTED TAILWATER OPERATION. IT IS RECOGNIZED THAT TIDAL EFFECTS, WIND, LOWER RIVER FLOWS AND WAVES MAY IMPACT THE ABILITY TO MAINTAIN THE OPERATION.

6. THIS OPERATION WAS DISCUSSED AND COORDINATED ON THE DECEMBER 15 TMT CONFERENCE CALL. TMT MEMBERS PRESENT ON THE CALL WERE PAUL WAGNER (NOAA), LORI POSTLETHWAIT (BOR), SCOTT BETTIN AND TONY NORRIS (BPA), RICK KRUGER (OR), AND DAVID WILLS (USFWS). THE OPERATION WAS ALSO COORDINATED WITH BRENDA MCCLARY (BON). RCC POINTS OF CONTACT ARE DAN FEIL AND JIM ADAMS.

DAN FEIL  
CENWD/RCC08  
XX

**Monthly Adult Fish Counts**  
**Lower Granite - December 2008**

**U.S. Army Corps of Engineers**  
 Portland District

Date	Chinook Adults	Chinook Jacks	Steelhead (total)	Steelhead (wild)	Shad	Sockeye	Lamprey	Coho Adults	Coho Jacks	Chum	Pink
12/1/2008	0	0	72	22	0	0	0	0	0	0	0
12/2/2008	0	0	70	24	0	0	0	0	0	0	0
12/3/2008	0	0	72	24	0	0	0	0	0	0	0
12/4/2008	2	0	44	15	0	0	0	0	0	0	0
12/5/2008	0	0	83	28	0	0	0	0	0	0	0
12/6/2008	0	0	115	33	0	0	0	0	0	0	0
12/7/2008	0	0	94	28	0	0	0	0	0	0	0
12/8/2008	0	0	117	33	0	0	0	0	0	0	0
12/9/2008	0	0	28	7	0	0	0	0	0	0	0
12/10/2008	0	0	37	8	0	0	0	0	0	0	0
12/11/2008	0	0	63	22	0	0	0	0	0	0	0
12/12/2008	0	0	73	17	0	0	0	0	0	0	0
12/13/2008	0	0	64	21	0	0	0	0	0	0	0
12/14/2008	0	0	54	19	0	0	0	0	0	0	0
<b>Total</b>	<b>2</b>	<b>0</b>	<b>986</b>	<b>301</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
Date	Chinook Adults	Chinook Jacks	Steelhead (total)	Steelhead (wild)	Shad	Sockeye	Lamprey	Coho Adults	Coho Jacks	Chum	Pink

Report Run: 12/17/2008 7:36:06 AM

# SUMMARY REPORT 31 DECEMBER VARIABLE FLOOD CONTROL DRAFT FOR LIBBY RESERVOIR

Prepared by

United States Army Corps of Engineers  
Northwestern Division  
Columbia Basin Water Management Division

for

The United States and Canadian Entities  
Columbia River Treaty

January 2004

## **EXECUTIVE SUMMARY**

This study evaluates the feasibility of relaxing the end-of-December flood control draft requirement at Libby Dam. The study was conducted in response to requirements set forth in the December 2000 Biological Opinions (BiOps) of the National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS). Both BiOps require the Corps to develop and, if feasible, implement a revised storage reservation diagram (SRD) for Libby Reservoir that replaces the existing fixed draft of 2.0 million acre-feet (maf) with a variable draft for the 31 December target. This measure, recommended by both NMFS and USFWS, is intended to improve the likelihood of refill at Lake Koocanusa during low flow or drought years.

Based on the analyses performed for this study, relaxation of the 31 December draft requirement at Libby should not be permitted for Standard flood control. A 2.0 maf draft should still be required at the end of December, corresponding to a reservoir elevation of 2411.0 ft. However, relaxation of the 31 December draft requirement at Libby is permissible for VARQ flood control. The maximum permissible relaxation is 600 kaf, reducing the end-of-December draft requirement to 1.4 maf, which corresponds to a reservoir elevation of 2426.7 ft. The VARQ flood control procedure is currently used at Libby Dam, and will continue to be implemented on an interim basis until the Upper Columbia Alternative Flood Control and Fish Operations Environmental Impact Statement (EIS) is completed in 2005, at which point a decision will be made regarding long-term implementation of VARQ flood control.

Daily hydro-regulations with a relaxed end-of-December draft requirement were performed using the Corps SSARR and AUTOREG programs. These hydro-regulations were used to evaluate flood control impacts in the Kootenai basin during the 31

December -31 March time period. The simulations led to the following guidelines for relaxing the 31 December draft at Libby Dam under VARQ flood control:

- If 1 Dec forecast  $\geq$  5900 kaf (94% of normal), no relaxation
- If 1 Dec forecast  $\leq$  5500 kaf (88% of normal), relax draft by 600 kaf
- For 5500 kaf  $<$  1 Dec forecast  $<$  5900 kaf, relax draft by interpolating between 600 and 0 kaf.

These guidelines are depicted on the revised VARQ SRD (Figure 1) at the end of this report. Using these guidelines, years with a 1 December forecast that is 94% of normal or less would have a relaxed flood control draft requirement. For this study, 14 of the 54 years considered (1949-2002) would have a relaxed end-of-December draft requirement.

The recommended new SRD for VARQ flood control may improve refill reliability at Lake Koocanusa during years of low flow or drought years, and thereby facilitate flow augmentations requested by USFWS and NMFS for listed fish species downstream.

## II. HISTORICAL PERSPECTIVE

As a necessary supplement for evaluation of variable drafts, both NMFS (RPA Number 36) and USFWS (RPA 8.1.i) recommend development of a revised methodology to forecast runoff volume for Libby Project based in part on climatic variables such as El Nino Southern Oscillation Index (SOI). Whereas the existing procedure (Morrow-Wortman, 1986) forecasts the April-August seasonal volume runoff once each month for the six-month period extending from 1 January to 1 June, the revised forecast methodology based on principal components regression would also include early-season forecast equations for 1 November and 1 December. The 1 December forecast is especially important because it would be used to calculate variable draft for the 31 December target. The Corps of Engineers recently completed a new forecasting methodology for Libby Reservoir (Wortman, 2003) that meets this requirement as outlined in RPA Number 36. The new forecasting methodology includes use of an SOI variable as a climatic component, which provides a marginal benefit to the early season equations before the first snow measurements are available on 1 January. The newly developed 1 December forecasts based on principal components regression (PCREG) are directly incorporated into the calculations for this report.

This study is one of several that the Corps of Engineers has conducted to review relaxation of flood control requirements in the Columbia River basin. In 1991, the Columbia River and Tributaries Study, CRT-63, examined relaxation of flood control throughout the Columbia basin. During the 1995 System Operation Review, VARQ was identified as a potential flood control procedure that could reduce flood control draft requirements at Libby and Hungry Horse Dams in many years. In 1999, a status report documenting the work to date in developing VARQ flood control was released. Subsequently, an Environmental Assessment with a Finding of No Significance was

prepared in 2002, leading to implementation of VARQ flood control at Libby Dam on an interim basis. At the present time, additional studies relating to VARQ are being conducted for inclusion in an Environmental Impact Statement that is scheduled for completion in early 2005. The Environmental Impact Statement will be used to make a decision regarding long-term implementation of VARQ flood control.

RPA #22 recommended that both the Corps and Bureau of Reclamation (USBR) should implement VARQ flood control operations for Libby and Hungry Horse Projects. By the end of 2002, the Corps and USBR had implemented VARQ flood control operations on an interim basis for their respective projects. For this report, relaxation of the 31 December draft requirement at Libby was considered for both Standard FC and VARQ FC. For VARQ FC, relaxation of the 31 December draft was found to be permissible in many years without compromising the ability to meet flood control targets in subsequent months. However, For Standard FC, any relaxation of the 31 December draft requirement was found to compromise the ability to meet draft requirements in subsequent months. Thus, the Libby SRD for VARQ FC has been modified to show a variable end-of-December draft requirement based on the new PCREG forecasting equation for 1 December. No modifications have been made to the SRD for Standard FC.

Figure 1 denotes the proposed new SRD for VARQ FC with variable draft for the 31 December target. The proposed new SRD would replace the current SRD for VARQ FC that is based on fixed draft for the end-of-December target.

The study procedure is a two-step process used to evaluate each type of flood control (Standard FC, VARQ FC). First, the maximum draft relaxation allowed for the 31 December target was determined such that the authorized purpose of flood control for Libby Project is fully maintained. The second step involved an analysis of forecasted runoff volumes and modeling to determine the threshold PCREG forecasted 1 December runoff volume that would trigger this relaxation of draft for the 31 December target.

### III. ANALYSIS PROCEDURE

#### a. Determination of Maximum Permissible Relaxation for the 31 December Flood Control Draft Target

If the 31 December draft requirement is relaxed, the revised target elevation for 31 December must continue to meet downstream flood control requirements for both local and system flood control. For local flood control requirements, the proposed relaxation must not violate the International Joint Commission (IJC) Order of Approval of 11 November 1938 for operation of Kootenay<sup>1</sup> Lake. That order includes maximum specified elevations for Kootenay Lake as measured at Queens Bay, British Columbia, for four winter and spring dates including 07 January, 31 January, 28 February, and 31 March. After 31 March, the lake is held below El. 1739.32 ft until it is forced above by

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<sup>1</sup> Canadian spelling

rising inflows that signal the start of the spring freshet. Due to changing hydro-meteorological conditions from year to year, the official date for spring rise may vary from late March to early May. Therefore, the relaxation in the 31 December flood control requirement must be designed so that Libby is still capable of drafting all the way to its flood control target by the end of March. For this analysis, it was assumed that the ability to draft is constrained by the turbine capacity at Libby Project. It is currently set at five (5) units with a total hydraulic capacity of about 25,000 cfs.

The period of record from 1949-2002 was examined to determine the maximum allowable relaxation of the 31 December flood control target. Based on the requirement to be fully drafted by the end of March, each year's permissible relaxation amount was calculated. This was done in three steps.

- First, each year's January-March inflow volume was added to the volume of water in the reservoir contained between El. 2411 ft (the current 31 December target) and El. 2287 ft (the maximum draft requirement on 31 March). This represents the total amount of water that must come out of Libby Dam during this time period.
- Next, Libby Dam was assumed to operate with all five units running (assumed hydraulic capacity of 25,000 cfs). This was converted to a volume, which represents the most water that could possibly be released from Libby Dam during this time period.
- Finally, the first number (representing the existing required outflow volume from the project) was subtracted from the second number (representing the maximum possible outflow volume) to determine a potential relaxation volume for each year.

Based on these calculations, the average permissible relaxation volume is about 500 kaf if all years are considered. If one is restricted to considering only below-average water years, the average permissible relaxation increases. It was found that for years with PCREG 1 December forecasts less than 6000 kaf, the permissible relaxation is 600 kaf. A 600 kaf relaxation makes the end-of-December draft requirement 1400 kaf, which corresponds to a flood control target of El. 2426.7 ft. The current fixed draft requirement for Libby at the end of December is 2000 kaf, which corresponds to a flood control target of El. 2411.0 ft.

There are several significant assumptions in this process that should be considered. First, it is assumed that all five units are fully operational during the period when Libby is drafting. In reality, it is possible that one or more units may be out of service when drafting is necessary. Furthermore, the hydraulic capacity at Libby Dam is not always 25,000 cfs. The hydraulic capacity typically varies between 27,600 cfs and 19,000 cfs, depending on the reservoir elevation behind Libby Dam. Second, no consideration is given to drastic forecast changes that may occur in January, February, or March, which could result in an inability to reach the end of March flood control target. Finally, the ability to draft Libby is sometimes restricted in order to comply with the 1938 IJC Order on Kootenay Lake.

The outflows from both Libby Project and Duncan Project affect the level of Kootenay Lake. The maximum allowable lake level is dictated by the 1938 IJC Order on Kootenay Lake, as discussed in Section III.a. The evacuation of storage as required by each project's SRD could result in a violation of the Order on allowable lake levels. If this occurs, the outflows at either Libby or Duncan, or both, must be reduced to preclude such a violation.<sup>2</sup> At times, this may require Libby or Duncan, or both, to reduce outflows to match reservoir inflow and can result in not reaching the flood control draft requirement by the end of the evacuation period, thus trapping storage above the flood control rule curve. (When a project stores water above its targeted flood control elevation, it is said to have "trapped storage", meaning that water is trapped in the space that should be empty to provide flood protection.)

Given these considerations, the second step in this analysis was to test the 600 kaf relaxation in the end-of-December draft requirement for both Standard FC and VARQ FC. To do this, simulated daily hydro-regulations were performed using the Corps SSARR and AUTOREG programs. These hydro-regulations were limited to the Kootenai Basin, and only evaluated flood control impacts occurring between 31 December and 31 March. These simulations were deemed necessary in order to evaluate the significance of varying hydraulic capacity, intra-seasonal forecast variability, and possible draft restrictions due to the 1938 IJC order on Kootenay Lake. Results of these simulations are discussed in Section III.c.

#### b. Description of Forecasted Seasonal Volumes used to Trigger Relaxation

A compilation and sorting of the PCREG 1 December forecast runoff volumes for April-August was completed to help determine the threshold 1 December forecast that would trigger relaxation of the 31 December draft requirement. Table 1 compiles both the observed runoff volume and PCREG 1 December forecast volume for water years 1949 through 2002. For years prior to 1949, no data were available to compute the PCREG 1 December forecasts. The data are sorted in ascending order by each year's PCREG 1 December forecast. An average runoff volume of 6248 kaf for the April-August period (POR: 1971 - 2000)<sup>3</sup> was used to compute the percent of normal for both the observed and forecasted runoff volumes, as shown in the fourth and fifth columns. The percent error for each year's 1 December forecast is given in the last column of the table, and demonstrates that both over-forecasted and under-forecasted years will be considered as candidates for relaxation. Negative percent error values indicate that the runoff was under-predicted and positive values indicate that the runoff was over-predicted.

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<sup>2</sup> The Columbia River Treaty does not elaborate on how to prioritize the draft of Libby and Duncan during trapped storage conditions. When flood control evacuation requirements are not met and trapped storage conditions exist at either Libby or Duncan, outflows higher than those originally anticipated for the ensuing flood season may need to be released during the Flood Control Refill Period to avoid filling the reservoirs too early. The Flood Control Refill Period pertains to that portion of the flood control season following project evacuation when the projects are refilled to prevent downstream local and system flooding.

<sup>3</sup> This is the period of record used by the Northwest River Forecast Center to calculate average basin runoff volumes

### c. Modeling Procedure to Test Relaxation

This section describes the rationale for selecting the forecast volume that would trigger relaxation of draft requirements for the 31 December target. For both Standard FC and VARQ FC, simulations for the 31 December – 31 March time period were performed. The years were simulated in the order shown in Table 1, beginning with the lowest PCREG 1 December forecast. Each year was tested with a 31 December target elevation of 2426.7 ft. (a 600 kaf relaxation) until a flood control violation occurred. The simulation results were then examined to determine the threshold at which flood control relaxation can occur, and years in excess of this threshold were not modeled. The simulations were performed for the local Kootenai basin, extending from Libby Dam to Kootenay Lake.

**Table 1. Analysis of PCREG 1 Dec Fcsts WY 1949 - 2002**  
**Sorted by Forecasted Apr-Aug Runoff Volume**

<b>Water Year</b>	<b>Observed (OBS) Apr-Aug (kaf)</b>	<b>PCREG 1-Dec Forecast (FCST) Apr-Aug (kaf)</b>	<b>Observed % of Normal</b>	<b>PCREG Forecast % of Normal</b>	<b>Percent Error (FCST - OBS) X 100 OBS</b>
1953	6590	4410	105.5	70.6	-33
1988	4628	4786	74.1	76.6	3
2001	3175	5022	50.8	80.4	58
1977	3493	5026	55.9	80.4	44
1994	5213	5289	83.4	84.6	1
1980	5979	5323	95.7	85.2	-11
1973	5027	5327	80.5	85.3	6
1970	4654	5526	74.5	88.4	19
1979	4210	5676	67.4	90.8	35
1955	6612	5676	105.8	90.9	-14
1993	5474	5717	87.6	91.5	4
1992	4463	5869	71.4	93.9	32
1983	5925	5877	94.8	94.1	-1
1957	6027	5882	96.5	94.1	-2
1966	7183	5931	115.0	94.9	-17
1954	9143	5952	146.3	95.3	-35
1998	5819	5961	93.1	95.4	2
1949	5059	5979	81.0	95.7	18
1958	5731	6031	91.7	96.5	5
1981	7457	6086	119.4	97.4	-18
1978	6288	6128	100.6	98.1	-3
1971	7982	6163	127.8	98.6	-23
1982	6484	6227	103.8	99.7	-4
1987	4996	6289	80.0	100.7	26
2002	7098	6296	113.6	100.8	-11
1950	7396	6413	118.4	102.6	-13
1975	5980	6455	95.7	103.3	8
1995	6313	6464	101.0	103.5	2
1972	8869	6589	141.9	105.5	-26
1989	5558	6619	89.0	105.9	19
1962	5965	6619	95.5	105.9	11
1965	6964	6671	111.5	106.8	-4
1999	7149	6701	114.4	107.3	-6
1964	6938	6775	111.0	108.4	-2
1984	5073	6851	81.2	109.6	35
1969	8248	6882	132.0	110.2	-17
1986	6075	6883	97.2	110.2	13
1968	6240	6929	99.9	110.9	11
1952	6336	7024	101.4	112.4	11
2000	5296	7042	84.8	112.7	33
1985	4776	7079	76.4	113.3	48
1990	7558	7143	121.0	114.3	-5
1963	6440	7173	103.1	114.8	11
1976	7411	7304	118.6	116.9	-1
1961	7821	7508	125.2	120.2	-4
1959	8125	7526	130.0	120.5	-7
1967	8161	7675	130.6	122.8	-6
1997	7816	7698	125.1	123.2	-2
1956	8729	7716	139.7	123.5	-12
1960	6463	7754	103.4	124.1	20
1974	9215	7969	147.5	127.5	-14
1996	8350	8231	133.6	131.7	-1
1991	8466	8348	135.5	133.6	-1
1951	8529	8489	136.5	135.9	0

## 1. Standard Flood Control Simulations

Relaxation of the 31 December draft for Standard FC was tested first. The first year tested was 1953, which has a 1 December PCREG forecast of 4410 kaf (70.6% of normal). Due to a dramatic forecast increase between January and February and the need to reduce outflow to avoid an IJC violation on Kootenai Lake, the simulation shows that Libby is unable to meet its end-of-February and end-of-March flood control targets. Duncan, too, is unable to meet its end-of-February and end-of-March targets. Thus, both Libby and Duncan have trapped storage at the end of March. When 1953 is simulated without any relaxation of the 31 December draft target for Libby, there is still trapped storage at Libby and Duncan, but both projects have less than the previous scenario. The results for the 1953 Standard FC simulations are summarized in Table 2.

<b>Table 2. 1953 Simulation Results – Standard FC</b>		
	<b>LIBBY</b>	<b>DUNCAN</b>
31 March FC target elev	2343.1 ft.	1817.4 ft
31 March simulated elev (600 kaf relaxation at Libby)	2354.58 ft	1847.91 ft
31 March simulated elev (no FC relaxation at Libby)	2349.63 ft	1845.51 ft
Trapped storage (600 kaf relaxation at Libby)	270 kaf	426 kaf
Trapped storage (no FC relaxation at Libby)	151 kaf	390 kaf

Because 1953 has the smallest 1 December PCREG forecast, it would be the first candidate year for a relaxed 31 December flood control target. However, simulation results reveal that when the 31 December flood control draft is reduced by 600 kaf, there is an increase in trapped storage at both Libby and Duncan. In fact, due to the nature of changing forecasts during this year and the IJC requirement to keep Kootenay Lake from exceeding its permissible elevation, *any* relaxation in the 31 December flood control draft at Libby would cause an increase in trapped storage at both Libby and Duncan. Thus, any relaxation of the 31 December flood control target at Libby would violate the flood control draft requirements under Standard FC. For this reason, no relaxation under Standard FC can be permitted, and the SRD for Standard FC should not be changed.

## 2. VARQ Flood Control Simulations

Relaxation of the 31 December draft for VARQ FC was tested next. The first year tested was 1953, with subsequent years tested in the order shown in Table 1. Because Libby's VARQ end-of-February and end-of-March target elevations in 1953 are higher than those for Standard FC, trapped storage was avoided at both Libby and Duncan for that year. The 600 kaf relaxation continued to be tested for the years in Table

1<sup>4</sup>, with the first flood control violation occurring in 1954, which has a 1 December PCREG forecast of 5952 kaf (95.3% of normal). A flood control violation occurs for reasons similar to what was seen in 1953 with Standard FC. Dramatic forecast increases in January, February, and March, along with the need to reduce outflow to avoid an IJC violation on Kootenay Lake, result in trapped storage at both Libby and Duncan. When 1954 is simulated without any relaxation of the 31 December draft target for Libby, there is still trapped storage at Libby and Duncan, but both projects have less than the previous scenario. The results for the 1954 VARQ FC simulations are summarized in Table 3.

	<b>LIBBY</b>	<b>DUNCAN</b>
31 March FC target elev	2287.00 ft.	1807.7 ft
31 March simulated elev (600 kaf relaxation at Libby)	2329.97 ft	1834.61 ft
31 March simulated elev (no FC relaxation at Libby)	2322.76 ft	1831.74 ft
Trapped storage (600 kaf relaxation at Libby)	772 kaf	345 kaf
Trapped storage (no FC relaxation at Libby)	624 kaf	304 kaf

Water year 1954 deserves examination, as it demonstrates how a relaxed December flood control target combined with increasing within-season forecast changes can compromise flood control. The water year begins with a below-normal 1 December forecast of 5952 kaf. However, the 1 January, 1 February, and 1 March forecasts rise sharply to 7099 kaf, 7924 kaf, and 8655 kaf, respectively. Moreover, these still under-predict the observed April-August runoff volume, which is 9138 kaf. The forecast error for 1954 is within the realm of what can be expected in the future, and clearly shows the impact that hydrologic uncertainty can have on flood control operations. Thus, 1954 was chosen as the threshold year where no relaxation in the 31 December draft requirement should be allowed for the VARQ SRD.

The previously tested years with 1 December PCREG forecasts less than that for 1954 (5952 kaf) were then examined to see if the full 600 kaf relaxation was actually contributing to increased likelihood of refill. In many years, the full 600 kaf relaxation was not needed, as the reservoir would still have to be drafted to meet flood control requirements in January, February, or March. The effectiveness of improving refill likelihood by relaxing the 31 December flood control is shown in Table 4.<sup>5</sup>

<sup>4</sup> Water year 2001 was not simulated due to unavailability of required data. The volume forecast from January onward was consistently less than 4000 kaf (64% of normal), and the observed April-August volume was just 3175 kaf (51% of normal). This was an extraordinarily low water year, and no flood control violation would be expected as a result of relaxing the 31 December draft requirement.

<sup>5</sup> Water year 2001 is not included in Table 4 because it was not simulated. It is expected that the full 600 kaf relaxation in water year 2001 would beneficially contribute to improving the likelihood of refill.

	<b>1 Dec PCREG forecast (kaf)</b>	<b>1 Dec PCREG forecast (% of normal)</b>	<b>Effectiveness</b>
1953	4410	70.6	No benefit from relaxation, the 28 Feb FC target governs
1988	4786	76.6	Full 600 kaf relaxation is beneficial
1977	5026	80.4	Full 600 kaf relaxation is beneficial
1994	5289	84.6	Full 600 kaf relaxation is beneficial
1980	5323	85.2	Partial relaxation beneficial, then 31 Jan FC target governs
1973	5327	85.3	No benefit from relaxation, the 31 Jan FC target governs
1970	5526	88.4	Full 600 kaf relaxation is beneficial
1979	5676	90.8	Partial relaxation beneficial, then 31 Jan FC target governs
1955	5676	90.9	Partial relaxation beneficial, then 31 Jan FC target governs
1993	5717	91.5	Partial relaxation beneficial, then 31 Jan FC target governs
1992	5869	93.9	Partial relaxation beneficial, then 31 Jan FC target governs
1983	5877	94.1	No benefit from relaxation, the 28 Feb FC target governs
1957	5882	94.1	No benefit from relaxation, the 15 March FC target governs
1966	5931	94.9	No benefit from relaxation, the 28 Feb FC target governs
1954	5952	95.3	Increased trapped storage from relaxation

Based on these results, the following guidelines for relaxation were developed:

- If 1 Dec forecast  $\geq$  5900 kaf (94% of normal), no relaxation
- If 1 Dec forecast  $\leq$  5500 kaf (88% of normal), relax draft by 600 kaf
- For 5500 kaf < 1 Dec forecast < 5900 kaf, relax draft by interpolating between 600 and 0 kaf.

Daily flood control simulations with these guidelines were performed. For the years where relaxation would be allowed, simulations demonstrated that the VARQ flood control draft requirements could still be achieved. The simulations provided a means for testing the relaxed December draft in conjunction with the 1938 IJC order on Kootenay Lake. For the simulated years where relaxation would be allowed, the simulations demonstrate that there are no years when trapped storage in the flood control space of Libby or Duncan would occur. Additionally, the stage at Bonners Ferry during the 31 December – 31 March time period remained well below the flood stage of El. 1764 ft for all simulated years where relaxation would be allowed.

#### IV. RESULTS AND RECOMMENDATIONS

Based on the analyses performed for this study, relaxation of the 31 December draft requirement at Libby should not be permitted for Standard FC. However, relaxation of the 31 December draft requirement at Libby is permissible for VARQ FC. Under VARQ FC, the threshold for requiring full draft of 2000 kaf for the 31 December target should be when the PCREG 1 December forecast volume equals or exceeds 5900 kaf

(94% of normal). For PCREG 1 December forecast volumes equal to or less than 5500 kaf (88% of normal), COE recommends a 600 kaf reduction to 1400 kaf for the end-of-December draft target. (See Paragraph III.a for explanation of 600-kaf reduction in draft). For intermediate PCREG 1 December forecast volumes between 5500 kaf and 5900 kaf, the total reduction in draft should be based on a simple linear interpolation between the two points. For example, a PCREG 1 December forecast volume of 5700 kaf for April-August would result in a draft reduction of 300 kaf for a total draft of 1700 kaf for the 31 December target.

These guidelines were used to develop the proposed new SRD for VARQ FC at Libby that is depicted in Figure 1. Using this proposed new SRD for the period of record 1949 to 2002, the variable draft for 31 December would have been implemented in the following 14 years: 1953, 1955, 1957, 1970, 1973, 1977, 1979, 1980, 1983, 1988, 1992, 1993, 1994, and 2001. Using the reduced 31 December draft requirement, simulations show that additional water would be stored behind Libby Dam at the end of the flood control draft period for many of the years listed above. The amount of additional water stored during each of these years is shown in Figure 2.<sup>6</sup>

## V. SUMMARY

- The recommended new SRD for VARQ FC with variable draft for the 31 December target (Figure 1) maintains full downstream local and system flood control. As discussed in Section III.c.2, no trapped storage conditions should be caused by this procedure. The PCREG 1 December forecast volume must be used to determine the variable draft requirements for Libby Project for the 31 December target.

- The recommended new SRD for VARQ FC may improve refill reliability at Lake Koocanusa during years of low flow or drought years, and thereby facilitate flow augmentations requested by USFWS and NMFS for listed fish species downstream.

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<sup>6</sup> Water year 2001 is not included in Figure 2 because it was not simulated. It is expected that an additional 600 kaf of water would have been stored in the reservoir on 31 March 2001 as a result of relaxing the 31 December draft requirement.

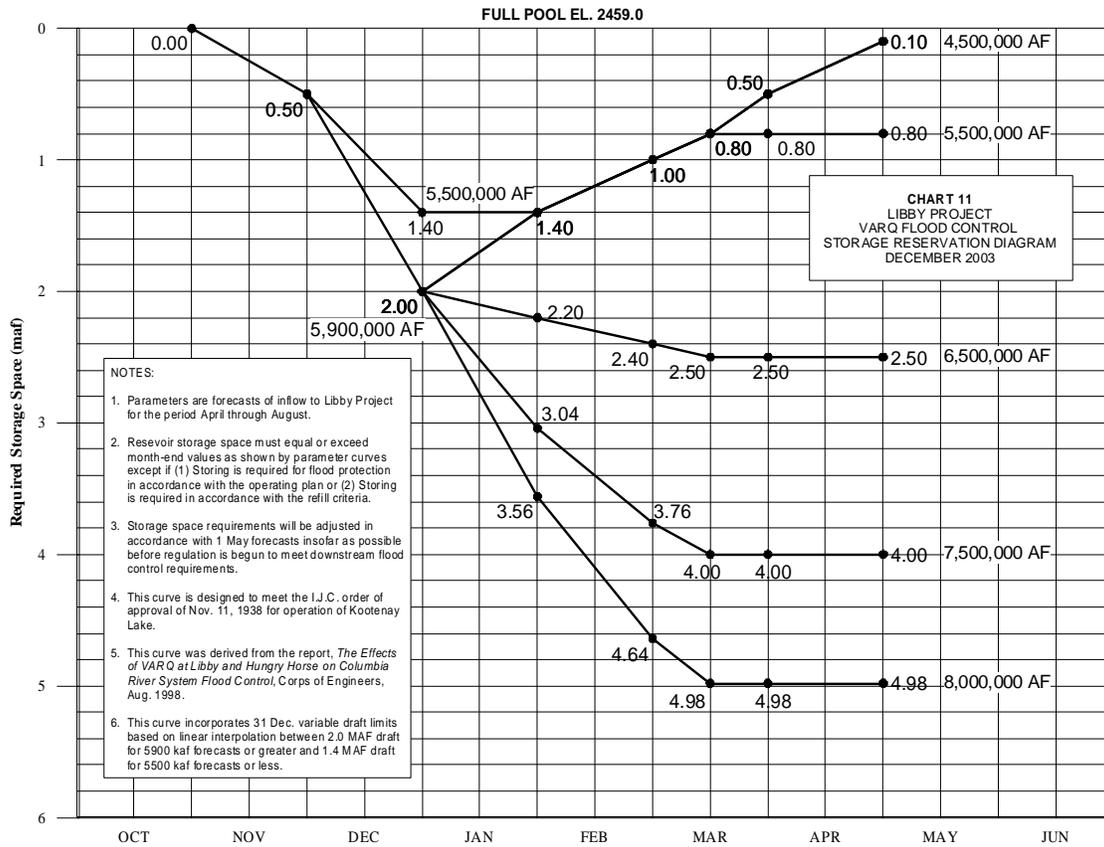
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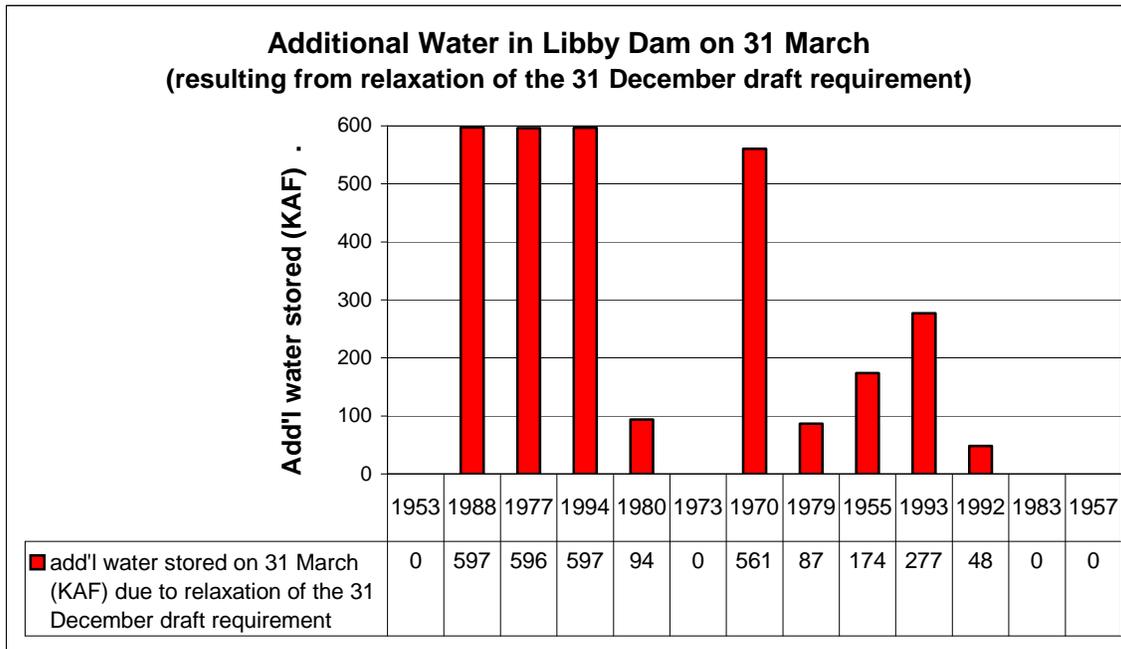
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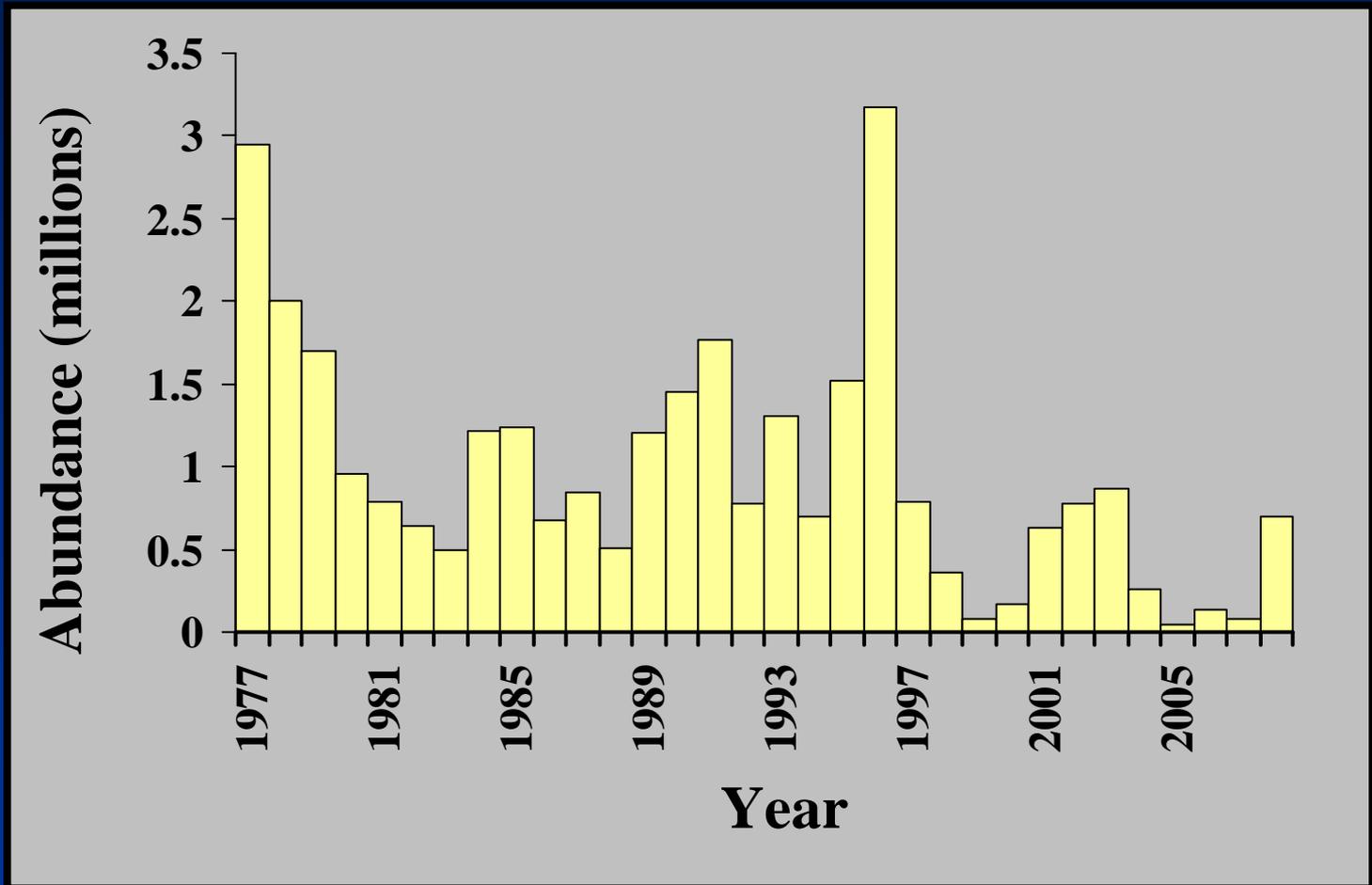


**Figure 1** – Storage Reservation Diagram for VARQ Flood Control with variable draft for the 31 December target.

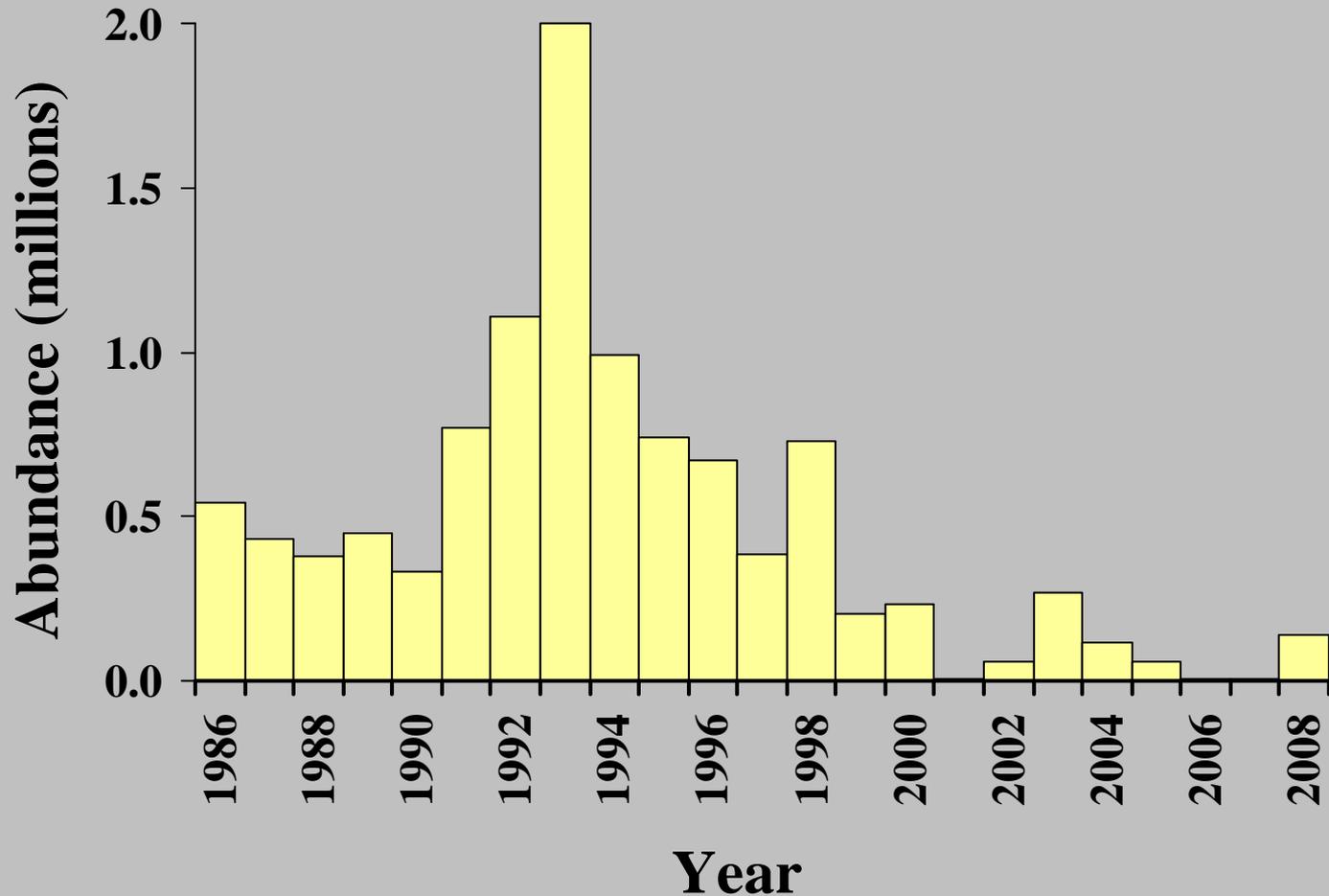


**Figure 2** – Additional water stored at Libby Dam on 31 March due to relaxation of the 31 December draft requirement.

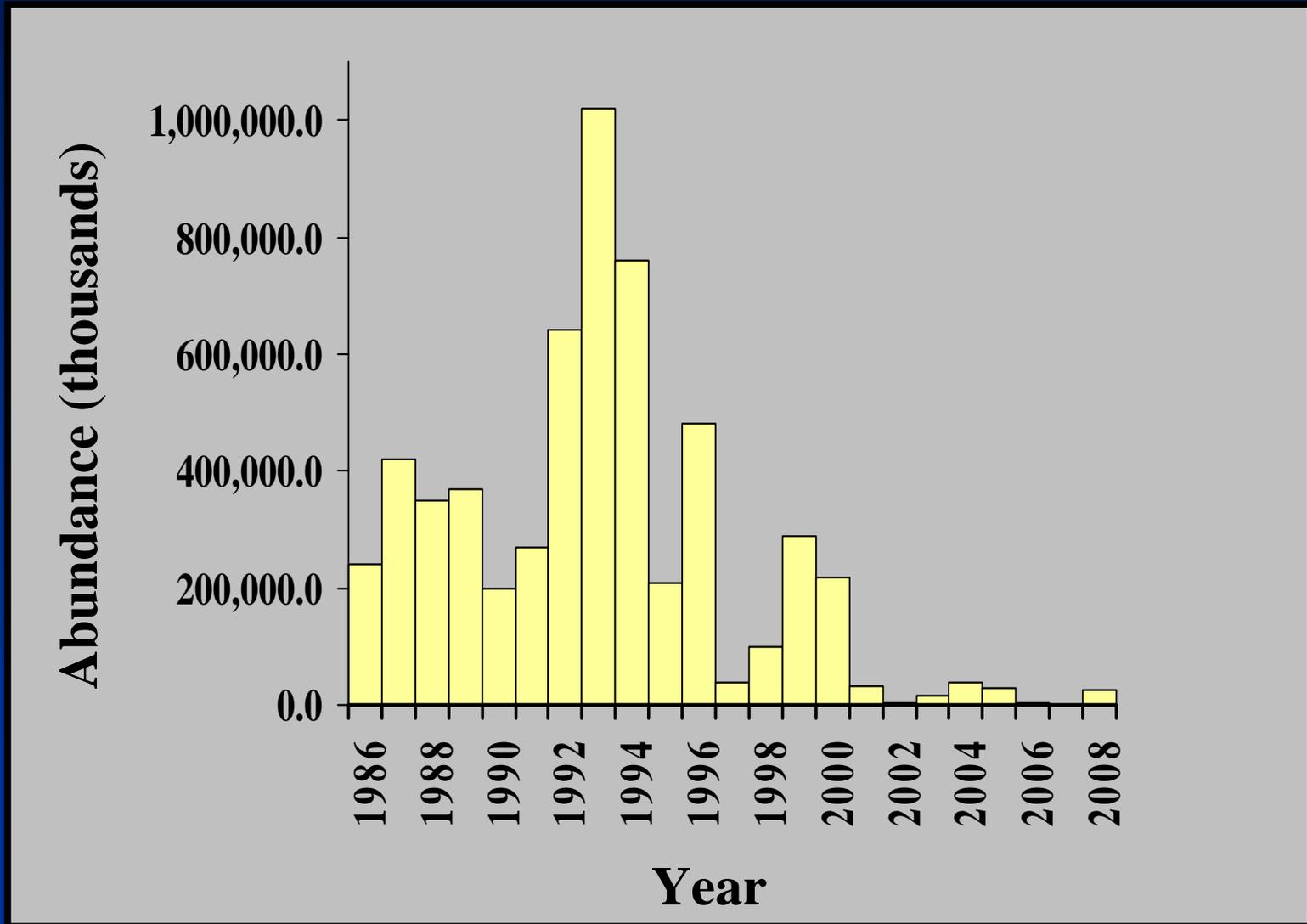
# Age 2 Kokanee Abundance From Trawling



# Age 3 Kokanee Abundance From Trawling



# Age 4 Kokanee Abundance From Trawling



# COLUMBIA RIVER REGIONAL FORUM

## TECHNICAL MANAGEMENT TEAM

December 17, 2008 Meeting

### FACILITATOR'S SUMMARY NOTES ON FUTURE ACTIONS

Facilitator: Robin Gumpert

Notes: Erin Halton

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**

The 11/19 and 12/3 facilitator notes and official meeting minutes were posted to the TMT webpage. TMT members discussed minor edits and both sets of notes were considered final. The 11/21 Year End Review facilitator notes and Official Minutes were posted to the web and TMT will look to finalize them at the 1/14/09 meeting.

#### **Chum Operations**

Dan Feil, COE, referred TMT to chum operations summary and graph links posted to the agenda; he noted that operations stayed within the targeted 11.3-11.7' tailwater range during daytime hours this week, with some increases at night as specified in the COE's current (12/16) teletype. Feil said that BPA and NOAA provided edits to the teletype and that the current version has condensed language (fewer steps) than in previous versions, with no overall substantive changes per discussion on the 12/15 TMT conference call.

Tony Norris, BPA, reported that surveyors counted 7 “carry over” (not new) fish on 12/16 and asked the Salmon Managers for guidance on declaring the end of spawning. TMT members referred to historical data from the Fish Passage Center (FPC) website, which showed that over the last few years, the end of spawning has typically been declared around the 21<sup>st</sup> of December. This prompted TMT members to suggest chum operations consideration via email early next week 12/22, when new survey data may be available.

**Action/Next Steps:** Chum Operations will continue as specified in the current teletype for the short term and TMT will review data and consider the end of chum spawning operations via email next week. FPAC plans to discuss chum operations and the unique actual conditions of this year at an upcoming meeting.

#### **Albeni Falls Operations Update**

Ken Brettmann, COE, reported that Albeni Falls continues to operate within its elevation target range of 2051-2051.5' and will continue to do so until the end of Kokanee spawning is declared or 12/31, whichever is sooner. Russ Kiefer, ID, reported that a survey was planned for 12/19 and there will be a joint IDFG/USFWS/COE/BPA conference call on 12/22. Kiefer referred TMT to graphs linked to the agenda that showed IDFG trawling data from 1986-2008. Kiefer noted that the data show some

evidence of abundance improvements for the efforts made toward providing good spawning conditions and suppressing non-native predators. He added thanks to the Action Agencies for their coordination and response efforts. Kiefer acknowledged the regional desire for elevation flexibility at Lake Pend Oreille this winter and as such, said IDFG would likely not require a full week with no observed spawning to pass before declaring the end of spawning and allowing for flexibility. Regarding post-spawning operations, Kiefer reported that IDFG has studies planned for the post-spawning season and informally requested a 1' (2051-2052') operating range through March. Brettmann agreed to the informal request and to continue to coordinate operations informally through TMT meetings/calls through the early spring season.

**Action/Next Steps:** The project will continue to operate within a .5' range until IDFG, per the latest surveys and in consultation with other regional partners, declares the end of spawning. IDFG will notify the Action Agencies immediately when they observe evidence of the end of spawning. Jim Adams, COE, planned to send Kiefer a comprehensive email contact list to support regional coordination.

### **Snake River Zero Nighttime Generation**

Tony Norris, BPA, referred TMT to updated graphs on zero generation data posted as a link to today's agenda. Also posted to the 12/3 TMT meeting agenda was the end of passage criteria language used by the Salmon Managers in SOR #2005-22. The Salmon Managers reviewed the best available data at the 12/16 FPAC meeting and had no objection to granting the Action Agencies zero generation flexibility.

### **2009 Draft Water Management Plan**

Dan Feil, COE, reported he would email TMT members when the revised version of the 2009 Water Management Plan was posted. A word version of the Fall/Winter Update to the WMP was also posted to the webpage. Feil added that the COE is looking to make the TMT website more user friendly and welcomed suggestions from TMT members. The COE will let TMT know when they are actively revising the website, to help focus the timing of suggestions/comments.

**Action/Next Steps:** TMT will review the revised version of the WMP when it becomes available and the document will be finalized by the end of the year. TMT members may send their comments on the Fall/Winter Update directly to Feil for posting. Feil noted that he will also email TMT members when the 2009 Fish Passage (FPP) and Fish Operations Plans (FOP) are posted; an FPOM meeting to discuss the FPP is scheduled for 1/8/2009 at NOAA.

### **Operations Review**

**Reservoirs:** Grand Coulee was at elevation 1283', and Hungry Horse was at elevation 3526.94', with outflows of 3 kcfs. Albeni Falls was at 2051.08', with inflows of 10 kcfs (down from the 15-18 kcfs range in previous days.) Dworshak was at 1529.5', with outflows of 1.6 kcfs. Seven day average inflows were 20 kcfs at Lower Granite, 121 kcfs at McNary and 129 kcfs at Bonneville.

Libby was at elevation 2421.7', with inflows ranging from 1-2 kcfs and outflows in the range of 22-24 kcfs; the end of December elevation target for the project is 2411'. The

COE clarified for the Salmon Managers that they used volume of water criteria, rather than water supply forecast percentages, to determine the end of the month target. This language was taken from policy guidance included in the 2004 Variable Control document attached to today's agenda. Language to this effect had not yet been included in the 2009 WMP, but the action agencies intended to make the change. Ken Brettmann, COE, also said that there would not likely be any flexibility around the flood control target. Kyle Dittmer, CRITFC, noted that this month's precipitation is about 65% of normal and CRITFC would support flexibility around the target.

**Action:** In the future, the Action Agencies will be clear with the Salmon Managers and others about guidance being used to determine flood control elevation targets – and document it in the appropriate guidance documents.

**Fish:** Nothing other than chum to report at this time; Russ Kiefer noted that he saw aerial photos of Fall Chinook redds in the Clearwater that looked to bring good news ahead.

**Power System:** December 15 and 16 set new records for peak loads in the northwest.

**Water Quality:** Nothing to report at this time.

**Other:** Jim Adams reported that Kevin Grode's last day at the NW Division office will be Friday, December 19; the position of RCC Chief will be filled by a 120-day interim followed by a permanent position. Cathy Hlebechuk may serve as the interim chief. The COE will update TMT as the position gets filled. Also, Lance Helwig will be leaving his post as Project Manager for The Dalles spillwall installation and serve as the new chief of design at the COE Portland District office.

**Next face-to-face TMT Meeting: 1/14** (Note: a TMT conference call may be convened between now and then)

Agenda items will include:

- Chum Operations
- AFEP Highlights
- The Dalles Spillwall Update
- Water Supply Forecasts/Flood Control
- Fish Operations Plan
- WMP Final – Highlights
- Operations Review

**Columbia River Regional Forum  
Technical Management Team Meeting  
Dec. 17, 2008**

***1. Introduction***

Today's TMT meeting was chaired by Jim Adams (COE) and facilitated by Robin Gumpert (DS Consulting) with representatives of COE, Idaho, USFWS, NOAA, BPA, CRITFC, 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***

All of the facilitators' and official notes for recent TMT meetings have been posted on the website except those for the TMT year end review on Nov. 21 and the Dec. 15 conference call.

Russ Kiefer (Idaho) noted that IDFG fishery technicians count adult kokanee spawners, not redds, as reported in the Nov. 19 notes under Albeni Falls operations. The count was 959 so far this year, as compared to 325 last year. This comment was already been submitted to the COE and the notes revised accordingly, Adams replied. In the Nov. 19 official minutes on page 4 under chum operations, Paul Wagner (NOAA) said the FPC reported chum, it didn't count them.

***3. Chum Operations Update***

The first two links to this item on today's agenda show Bonneville discharges vs. tailwater elevations for the weeks of Dec. 3-10 and Dec. 10-17, respectively. The effort to move excess water out at night in order to maintain tailwater elevations within the chum operation constraints has been largely successful, with a slight peak in discharges on Dec. 14 in response to the recent cold weather load demands, Dan Feil (COE) said. So far, BPA has not had to tap into the flexibility provided in the Dec. 15 TMT call, Tony Norris said. In the near future, discharges might increase as early as 1500 hours, but that will be delayed as long as possible.

The third link to this item on today's agenda is the current operations teletype, discussed during the Dec. 15 call. It's essentially the same as the previous teletype emailed to TMT except the directions are more succinct, and the time for beginning higher night flows has been moved back from 1800 hours to 1500 hours (from 3 to 2 pm).

The chum operation will proceed as follows. First, flows will ramp up at night from 1500 to 0600 hours up to an 18.5-foot tailwater elevation below Bonneville Dam. If that's not sufficient to pass excess water, outflows will be ramped up during the day to a maximum of 12.5 feet. So far, the nighttime flows have accomplished the balance between chum protection and power demands, and daytime flows have remained within the 11.3-11.7-foot tailwater elevation range. Conditions are uniquely dry this year, creating relatively flat flows for chum, Norris added. At its year end review, FPAC will examine the generally held assumption that flat flows benefit chum, Wagner said.

Meanwhile, survey crews reported 7 live chum spawners in the area, suggesting that the end of spawning could be declared soon, possibly via a stakeholder call on Monday, Dec. 22. Wagner consulted FPC online data, which showed chum spawning tends to end sometime next week, possibly later. TMT agreed to communicate via email if the end of chum spawning is declared early next week. When spawning ends, there will be a minimum tailwater elevation but no maximum. NOAA and CRITFC agreed to this operation.

#### ***4. Albeni Falls Operations***

Ken Brettmann (COE Seattle) gave an update. The COE has been operating Lake Pend Oreille for kokanee spawning under the October 7 SOR jointly signed by USFWS and IDFG. The COE plans to keep the lake elevation within a half foot band, between 2051-2051.5 feet elevation, until the end of kokanee spawning or Dec. 31, whichever comes first. Russ Kiefer (Idaho) presented data, linked to this item on today's agenda, showing numbers of age-2, 3 and 4 kokanee spawners from 1977 to now. A bump in age-2 spawners in 2008 suggests a possible resurgence in the kokanee population.

There was discussion of how to handle the end of kokanee spawning, particularly if it is declared on Christmas Day. Last week, IDFG researchers counted over 100 live adults in spawning areas, Kiefer reported. There will be another count Friday, Dec. 19. Kiefer suggested coordinating offline on Monday, Dec. 22, to coordinate the potential end of spawning. Idaho will not wait for a week of no fish before notifying the COE that spawning is over, Kiefer said.

Discussion moved to post-spawning operations. Kiefer asked whether an SOR would be needed to declare the end of spawning; Brettmann said no. While there has been talk of adding flexibility to the typical 1-foot operating band at Lake Pend Oreille, this year the COE intends to maintain the elevation of the lake between 2051-2052 feet from the end of spawning until the end of March. This is consistent with operations in recent years, with the exception of heavy rain events that cause the lake elevation to rise above typical levels. At present, there are too many unanswered questions to introduce flexibility into this year's winter operation, Brettmann said. Stakeholder discussions will continue with regard to operations in future years.

## **5. Snake River Zero-Generation Nighttime Flow**

In a previous discussion, the Salmon Managers noted a running 3-day average of 65 total steelhead and 20 wild steelhead as the criteria for implementing the water control manual, Norris reported. This information is posted on the TMT agenda for Nov. 19, 2008. These criteria have been met (actual counts are 64 and 19, respectively), so BPA suggested the COE modify its teletypes accordingly, noting that BPA will not need the flexibility any time soon in light of current power demands round the clock. Yesterday's FPAC discussion reached the same conclusion: the criteria for "few adults migrating" as stated in the BiOp have been satisfied, Kiefer said. The COE will revise its teletype instructions to project operators accordingly.

## **6. WMP and FPP Updates**

The updated WMP draft with comments to date is very close to being published on the TMT website, but still needs minor edits and legal review, Feil said. Most of the comments have been incorporated, with the intent to finalize the 2009 WMP core document (not a seasonal update) by Jan. 1. A draft fall/winter update is available on the TMT website.

The Fish Passage Plan will be available via the TMT website later this week, Feil said. A special FPOM meeting is scheduled for Jan. 8, 2009, to review FPP provisions in detail. The FPP now resides on its own website (linked to the TMT page) which is being revamped to make it more user-friendly. Comments on the webpage from TMT members would be welcome, Feil said.

## **7. Operations Review**

**a. Reservoirs.** Grand Coulee is at elevation 1,283 feet, operating to support chum spawning below Bonneville and winter power generation. Hungry Horse is at 3,526.94 feet elevation, discharging 3 kcfs.

Albeni Falls is at elevation 2,051.08 feet; inflows dropped to 20 kcfs on Dec. 16. It will continue to be operated within the half-foot elevation range until kokanee spawning ends; then operations will shift to a 1-foot elevation range of 2,051-2,052 feet.

Dworshak is at elevation 1,529.5 feet, passing minimum discharges of 1.6 kcfs until the end of January. Inflows have fluctuated between 0.8 and 3.1 kcfs over the past 5 days.

The 7-day average at Lower Granite is 20 kcfs; at McNary, 121 kcfs; at Bonneville, 129 kcfs.

Libby is at elevation 2,421.7 feet. Inflows, now 1-2 kcfs, have dropped considerably and outflows are ranging from 22-24 kcfs using 5 units through tomorrow. There was extended discussion of the COE's methodology for calculating the end of December Libby flood control elevation of 2,411 feet, which surprised both NOAA and USFWS because it conflicted with provisions of the WMP. The COE posted on today's agenda a report examining the Dec. 31 variable flood control draft for Libby reservoir, Adams pointed out. The WMP had stated that there's a variable draft methodology in place for operating Libby reservoir, which says that if the November/December SOI forecast is less than 95% of normal, a sliding scale methodology would be used to calculate the flood control elevation between 95% and 88 % of normal the reservoir would be drafted to elevation 2,413.2 feet by the end of December given this year's 94% of normal precipitation forecast, Wagner said. The WMP for the past 3 years has suggested that a less than 95% of normal precipitation would invoke this sliding scale methodology for flood control. NOAA and USFWS asked the COE to explain the discrepancy between the Corps planned operation and the WMP.

Joel Fenolio (COE Seattle) directed TMT to the 2009 WMP, page 42, and section 4.4.3 on flood control, which addresses Libby flood control operations in terms of the actual inflow volumes needed to determine draft volumes, not as a percentage of average. In section 4.4.3, all volumes of 95% of average or more have been changed to 5,900 kaf, and all volumes of 88% or less have been changed to 5,500 kaf or less. The confusion of volumes and percentages can be traced to a recently discovered error in the WMP, which for several years cited 95% of average as a criterion for altering Libby flood control operations. In general, flood control curves and computations are based on volumes, not percentages of normal. Kiefer suggested a heads-up to TMT members whenever a discrepancy like this is discovered, so nobody wastes time scratching their heads over it. Wills asked whether the WMP specifies an average storage volume. It's 6,248 kaf, Norris replied, noting that flood control is based on operation of the whole system, not the history of a particular gage.

Wills asked whether there's any flexibility to allow flood control draft requirements to be relaxed, given that the forecasted volume of 5,937 kaf is close to the breakpoint of 5,900 kaf; Kyle Dittmer (CRITFC) seconded this request for flexibility because once the water's gone, it's gone. Flexibility isn't an option now because it's too early in the season to relax VARQ flood control curves, with possible winter storms coming, Fenolio replied. There was agreement that the WMP should have specified the percentage of normal for the April-August volume forecast as 94% not 95%, although it should not have been expressed as a percentage. The WMP will be revised to include the April-August inflow volumes that determine the flood control draft targets rather than the percent of average currently<sup>7</sup> in the WMP.

**b. Fish.** There was nothing to report today.

**c. Power System.** There were no problems to report today. Monday, Dec. 15, brought a record peak load of over 61,000 MW in the Northwest, and this record was broken the very next day, Norris reported.

**d. Water Quality.** There was nothing to report today.

### **9. Next Meeting**

TMT scheduled a tentative conference call for Jan. 7, 2009. The next regular TMT meeting will be Jan. 14, with highlights from the recent AFEP review, water supply forecast information, a review of flood control operations, an update on construction of The Dalles spill wall, a FOP discussion, finalizing the WMP, and the standard operations review on the agenda. This summary prepared by consultant and writer Pat Vivian.

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