TECHNICAL MANAGEMENT TEAM			
BOR:	*John Roache / Mary Mellema / Pat McGrane*	**BPA:**	*Tony Norris / Scott Bettin / Robyn MacKay*
NOAA-F:	*Paul Wagner / Richard Dominigue*	**USFWS:**	*David Wills / Steve Haeseker*
OR:	*Rick Kruger / Ron Boyce*	**ID:**	*Russ Kiefer / Pete Hassemer*
WDFW:	*Cindy LeFleur / Charles Morrill*	**MT:**	*Jim Litchfield / Brian Marotz*
Kootenai:	*Sue Ireland / Billy Barquin*	**Spokane:**	*Deanne Pavlik-Kunkel / Andy Miller*
Colville:	*Sheri Sears / Steve Smith*	**Nez Perce:**	*Dave Statler*
Umatilla:	*Tom Lorz (CRITFC)*		
COE:	*Steve Barton / Karl Kanbergs / Doug Baus*		

TMT CONFERENCE CALL

Wednesday July 6, 2011 11:00am - 12:00pm

CONFERENCE CALL INFORMATION
Phone Number (877) 336-1274
Access Code 3871669
Security Code 6845

We have had disruptions on the phone because people are not hitting 'mute' after dial in.
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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@cnnw.net or call her at (503) 248-4703.

AGENDA

1. Welcome and Introductions
2. Dworshak Operations - *Doug Baus, COE-NWD; Steve Hall, COE-NWW*
3. Other
   a. Set agenda and date for next meeting - **July 13, 2011**
   b. [Calendar 2011]

Questions about the meeting may be referred to:
Steve Barton at (503) 808-3945, or
Doug Baus at (503) 808-3995

COLUMBIA RIVER TECHNICAL MANAGEMENT TEAM

July 6, 2011 Conference Call
FACILITATOR'S SUMMARY NOTES
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.

Dworshak Operations
Steve Hall, Walla Walla District COE, reported on Dworshak operations. The project reached elevation 1598.4' on 7/4, then 1598.8' on 7/5. Inflows were 16.9 kcfs and outflows were increased incrementally from 9.5 kcfs, to 12 kcfs, to 13 kcfs. He reported that current day average outflows were 13.5 kcfs. Steve said the remaining snow pack is just 6% but the high runoff has continued. The COE is managing the project to minimize TDG, which had exceeded 110%. Spill was being shaped at night to help manage TDG. The project was expected to reach full on 7/9, pass inflow through 7/15, then begin to draft. Steve said flow augmentation will likely drive the operation this year more so than temperatures, as the river remained relatively cool and below the 68° threshold at Lower Granite. According to current modeling, temperatures will rise to 62-63° around 7/13.

Paul Wagner, NOAA, said FPAC had discussed the situation at Dworshak and agreed that passing inflows at the project made sense. Russ Kiefer, Idaho, added that the COE was doing a good job managing the project given the conditions they were facing.

Action/Next Steps: Walla Walla District will continue to run weekly or bi-weekly models, and will share the model results at the upcoming TMT meetings while the project is managed for flows, temperature and refill.

Other:

- Grand Coulee Operations: John Roache, Reclamation, reported that Grand Coulee was at elevation 1285' and slowly filling, likely to reach full sometime next week.
- Lower Granite MOP: A question was asked about the schedule for conducting a survey in the Lower Granite area to determine if the approach for managing MOP operations and safe navigation per the COE's disposition on SOR 2011-01 (March 23, 2011/Towboaters' Association) was still needed. Steve Hall will look in to the survey schedule and report back to TMT at the next meeting.
- TMT Chair: Steve Barton shared that he will be leaving his position at the COE at the end of July to take a position at BPA doing modeling work. As such, the new TMT chair will be Doug Baus, beginning next week. TMT members expressed appreciation for Steve's service and leadership on the team, and wished him well.

Next Meeting, 7/13 Conference Call
NOTE NEW TIME: 8:00 am
Agenda items include:

- Upper Snake Flow Augmentation – Reclamation
- Dworshak Operations Update – COE
- Libby Operations – COE
- Lower Granite MOP Operations/Update on Survey Schedule – COE

Columbia River Regional Forum
TECHNICAL MANAGEMENT TEAM OFFICIAL MINUTES

July 6, 2011
Notes: Pat Vivian

1. Introduction

Today's TMT conference call was chaired by Steve Barton, COE, and facilitated by Robin Gumpert, DS Consulting. Representatives of BPA, BOR, the COE, Washington, Oregon, CRITFC/Umatilla Tribe, NOAA, Idaho, Nez Perce Tribe and others attended. This summary is an official record of the proceedings, not a verbatim transcript. Any questions or comments should be directed to the TMT chair. Barton announced today that he will be stepping down as chair, and Doug Baus, COE, will serve beginning next week.

2. Dworshak Operations

Steve Hall, COE Walla Walla, discussed inflows and current operations at Dworshak. On July 4, the reservoir elevation reached 1,589.4 feet; it is now 1,598.4 feet. In response to high inflows, now at 16.9 kcfs, the COE has been raising average daily discharges steadily through the weekend – from 9.5 kcfs to 12 kcfs on July 3-4, and up to 13.5 kcfs at present. Remaining snowpack in the basin is only around 6%, but inflows have been high and the COE is monitoring inflows carefully. The recession limb at Dworshak and in other areas apparently has more "staying power" this year than normal. Based on the latest inflow projections, the reservoir will reach full elevation on July 9. If all goes well, outflows will match inflows by July 10 when the reservoir is full.

The current operation is to pass inflows through July 15, then begin drafting after July 15 toward elevation 1,535 feet by August 31. This year, flow augmentation will drive releases rather than temperatures. High inflows are having a cooling effect; temperatures are not expected to become an issue until mid July. COE water temperature modeling indicates that the Lower Granite tailwater (which is now around 59.6 degrees F) will not approach 62-63 degrees F until July 13. At present, the main focus of Dworshak operations is to manage refill while balancing against the effects of high inflows. The COE has been running the Dworshak temperature model on a daily basis and will continue to run it at least biweekly throughout the summer. Temperature modeling results will be posted to the TMT web page beginning next week.

There were no objections from TMT members to this operation. Passing inflows seems like a reasonable plan, said Paul Wagner, **NOAA**, and Russ Kiefer, **Idaho**, strongly endorsed it. TMT will revisit Dworshak operations next week.

3. Other

Rick Kruger, Oregon, asked whether the COE is planning a survey of river bathymetry in preparation for **Lower Granite MOP operations** this year in light of last year's SOR regarding navigation concerns. Hall said he would check on the availability of crews to perform the survey and report back to TMT next week. If crews are able to perform the survey as planned, the COE will share the resulting data with TMT.

Dave Statler, Nez Perce, asked how strong TMT's commitment is to finding out whether channel elevations have shifted up or down. The intention is to coordinate Lower Granite MOP operations in a system-wide manner, especially when the Lower Granite pool is in the MOP+1.5 or MOP+2 category, Barton replied. Inflows at Lower Granite are currently around 140 kcfs. The COE operates the project for flood control at Lewiston until flows drop to 120 kcfs.

A meeting participant asked about the status of **Grand Coulee** operations. Lake Roosevelt is around 1,285 feet elevation and spilling slowly, John Roache, BOR, replied. Refill is expected to occur late this weekend or early next week, followed by summer flow augmentation.

4. Next TMT Meetings

There will be a conference call on July 13 to discuss Libby operations; refill operations; the shaping of flows into August and September; Lower Granite MOP operations; and a full operations review. The next regular TMT meeting in person will be July 20.

Name	***Affiliation***
Scott Bettin	BPA
Tony Norris	BPA
John Roache	BOR
Richelle Beck	DRA
Steve Hall	COE Walla Walla
Karl Kanbergs	COE
Russ George	WMC
Cindy LeFleur	Washington
Alex Cibarra	Grant PUD
Steve Barton	COE
Rick Kruger	Oregon
Ruth Burris	PGE
Tom Lorz	CRITFC/Umatilla
Paul Wagner	NOAA
Russ Kiefer	Idaho
Donna Silverberg	DS Consulting
Dave Statler	NPT

TECHNICAL MANAGEMENT TEAM			
BOR:	*John Roache / Mary Mellema / Pat McGrane*	**BPA:**	*Tony Norris / Scott Bettin / Robyn MacKay*
NOAA-F:	*Paul Wagner / Richard Dominigue*	**USFWS:**	*David Wills / Steve Haeseker*
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Colville:	*Sheri Sears / Steve Smith*	**Nez Perce:**	*Dave Statler*
Umatilla:	*Tom Lorz (CRITFC)*		
COE:	*Steve Barton / Karl Kanbergs / Doug Baus*		

TMT CONFERENCE CALL

Wednesday July 13, 2011 8:00am - 10:00am

CONFERENCE CALL INFORMATION
Phone Number (877) 336-1274
Access Code 3871669
Security Code 6845

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AGENDA

1. Welcome and Introductions
2. John Day TSWs - *Doug Baus, COE-NWD*
3. Upper Snake Flow Augmentation - *John Roache, BOR*
4. Spill Priority List - *Doug Baus, COE-NWD; Tom Lorz, Umatilla/CRITFC*
    a. Level 2 Spill
5. Dworshak Operations - *Doug Baus, COE-NWD; Steve Hall, COE-NWW*
    a. Water Temperature Comparisons
6. Lower Granite MOP Operations - *Doug Baus, COE-NWD; Steve Hall, COE-NWW*
7. Libby Operations - *Doug Baus, COE-NWD; Joel Fenolio, COE-NWS*
8. Other
    a. Set agenda and date for next meeting - **July 20, 2011**
    b. [Calendar 2011]

Questions about the meeting may be referred to:
Steve Barton at (503) 808-3945, or
Doug Baus at (503) 808-3995

COLUMBIA RIVER TECHNICAL MANAGEMENT TEAM

July 13, 2011 Conference Call

Facilitator's Summary

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.

John Day TSWs

Doug Baus, COE, reported on the COE's plan to operate the TSWs at John Day through the end of the spill season (~end of August). In 2009 shutting off TSWs at JDA was initiated based on an SRWG recommendation to minimize predation in the tailrace. In 2010 shutting off TSWs at JDA appeared to result from rolling over operations from 2009. This issue was also scheduled for discussion at FPOM tomorrow, 7/14, and at the request of a salmon manager, the COE added it to today's TMT agenda for additional regional coordination.

Rick Kruger, Oregon, asked for clarity on the process used for making the decision in 2010 – particularly around how this was coordinated through the region. He asked for further dialogue with TMT about how 'rollover' operations are described in the Fish Operations Plan, and how these operations are also coordinated in-season with the region. His concern stemmed from being unclear about last year's process and also that the issue was pending for this year and had not until now been brought through regional coordinating bodies for discussion.

Actions: Rick and Doug will discuss the regional coordination process used during 2010, and TMT will revisit the broader process issue of how rollover operations are regionally coordinated and described in the Fish Operations Plan – all toward clarifying and, if needed, improving the process for regional coordination on important operational decisions.

The COE polled TMT members for their level of support for continuing to operate the TSWs at John Day through this spill season:

- Idaho – pending more detailed technical discussion at FPOM, no objection.
- Oregon – pending more detailed technical discussion at FPOM, no objection.
- Washington -- pending more detailed technical discussion at FPOM, no objection.
- CTUIR -- pending more detailed technical discussion at FPOM, no objection.
- Salish-Kootenai Tribe – no objection.
- Nez Perce – need more time and data to consider impacts to juvenile lamprey passage.
- USFWS -- pending more detailed technical discussion at FPOM, no objection.
- NOAA – no objection.
- Reclamation – no objection.
- BPA – no objection.

Action/Next Steps: The COE will continue coordinating with the region on the John Day TSW operation via FPOM tomorrow, and, pending no objections, will continue operating the TSWs through the spill season. An update will be emailed to TMT and shared at next week's TMT meeting.

Upper Snake Flow Augmentation

John Roache, Reclamation, reported that there will be a full 487 kaf flow augmentation release from the Upper Snake this year, beginning when flood control operations above Milner are no longer in effect. John suggested this would likely be around mid- to later July, and would likely be a 2.5 kcfs release through the third week of August. More details will be known as the season progresses, and John will continue to update TMT on the augmentation operation.

Spill Priority List

Doug Baus, COE, reminded TMT about the current spill priority list in effect to manage water quality in the system and address over-generation (lack of load) concerns, by placing Chief Joseph Dam at the top of the Level 2 list. Tom Lorz, CRITFC/CTUIR, presented a proposed spill priority list –linked to today's agenda—that he said the salmon managers would like the action agencies to implement as soon as possible, given that flows in the system have receded and based on movement of the fish and other debris issues. Tony Norris, BPA, responded with his agency's commitment to move Chief Joseph Dam back to the position just above Grand Coulee Dam on the Level 2 list as soon as possible, depending on conditions expected over this coming weekend. Doug Baus added that his agency committed to a 2-3 week time period for implementing the current spill priority list and that internal coordination was needed before making any decisions around changing the list.

In response to a question, the COE's Scott English reported that the COE will continue to use the Chief Joseph Dam tailwater gauge to manage for TDG, and that the Wells forebay gauge was showing that TDG was receding toward 115%. He added that Chief Joseph is not a voluntary spill project – it is only used for involuntary spill. Dave Statler, Nez Perce, also emphasized that while some fish are migrating in the lower river, there are still Clearwater Fall Chinook migrating in the Snake.

The salmon managers clarified their request – to use the proposed spill priority list for both Level 1 and Level 2 conditions, as soon as possible. They acknowledged that the list for Level 1 might shift sooner than that for Level 2.

Action/Next Steps: The action agencies committed to switching the spill priority list to that proposed by the salmon managers as soon as possible, and will coordinate their decision based on today's TMT discussion and their own internal coordination. The COE will notify TMT via email of when the lists (Level 1 and Level 2) will be changed, will post the new list, and will add this item to the 7/20 TMT meeting agenda. The spill priority list remains a living document and may be changed again at any time – and changes will be coordinated with the region.

Dworshak Operations

Steve Hall, Walla Walla District COE, reported that Dworshak reached full earlier this week and was currently operating very close to the gas cap, around 13.5 kcfs. TDG is influenced by and fluctuates daily based on air and water temperatures, so the COE will monitor this operation closely. Steve shared the latest temperature model which showed temperatures were slowly rising at the Lower Granite tailrace. The model projected out through 7/17. By that date, Lower Granite tailwater temperatures were expected to reach about 62 degrees, well below the 68 degree threshold. Given this, the COE was operating Dworshak for flow augmentation rather than temperatures at this point, and, Steve said, would likely continue to do so in to August.

Dave Statler, Nez Perce, asked why the COE was not just passing inflows at the project. Steve Hall responded that the BiOp targets elevation 1535' by the end of August and 1520' by the end of September. To achieve those targets, the COE's model shows the need to operate to the gas cap. That said, they will continue to watch temperatures and shape the flows to manage to the water quality criteria when necessary. The COE is open to recommendations for shaping the flows, and would like to see an SOR for any preferred alternatives to the current planned operation. Steve said the COE will continue to run the models weekly and will share these updates with TMT as the season progresses.

Finally, Steve noted that there is a minor leak at Unit 3 that the COE is watching closely. The COE does not plan to make any repairs at the moment since to make a repair requires taking the unit out of service. Hopefully the leak will not become larger during the summer draft season. TMT raised some questions about this and would like to stay apprised of this issue.

Lower Granite MOP Operations

Doug Baus, COE, reminded TMT that an SOR had been submitted earlier this year from the Towboaters' Association to alter MOP operations at Lower Granite to address navigation safety concerns, and the COE was currently implementing the request. The purpose of today's discussion was to update TMT as to the COE's plans to conduct surveys in the area to determine if and how sediment shifts will impact operations moving forward. Steve Hall reported that annual surveys will be conducted in August and the research arm of the COE, ERDC, could add survey work to their settlement sampling already scheduled to occur in the next two weeks. The COE was pushing to get the annual survey done as soon as possible, as this would yield the quickest results. The ERDC work would produce very good images and clear data, but processing time might take longer and so results of the surveys might come in later than the annual survey work. Steve Hall also noted that Lower Granite flows, averaging about 100 kcfs, would need to recede before the surveys could be conducted.

Action/Next Steps: This will remain a standing TMT agenda item so TMT is sure to receive regular updates on survey progress, results and use for informed decision-making.

Libby Operations

Joel Fenolio, Seattle District COE, reported that, having passed a full. 1.2 MAF, the sturgeon operation was completed on 7/11. Outflows at the project ramped down from 15 kcfs to 13 kcfs that day, and the project was scheduled to ramp down to 11 kcfs later today and remain there for a few days. The project was being managed now to balance between refill and targeting 2449' by the end of September. Joel added that the COE is in discussions with the Kootenai Tribe of Idaho, who are interested in shaping flows around habitat construction occurring downstream of the project. The COE will work with the tribe to come up with an operating scenario/recommendation, and share this with TMT in the coming week or two. At this time, no formal operation request had been submitted by the tribe.

Next Meeting, Face to Face, 7/20

Agenda items include:

- John Day TSWs – follow up from FPOM discussion
- Spill Priority List – current list in effect
- Dworshak Operations – temperature modeling scenarios, flow augmentation, unit 3 leak
- Lower Granite MOP Operations – survey schedule
- Libby Operations – recommendation for shaping flows?
- Operations Review – other reservoirs, fish, power system, water quality
- Other?

Columbia River Regional Forum
TECHNICAL MANAGEMENT TEAM OFFICIAL MINUTES

July 13, 2011
Notes: Pat Vivian

1. Introduction

Today's TMT conference call was chaired by Doug Baus, COE, and facilitated by Robin Gumpert, DS Consulting. Representatives of CRITFC/Umatilla Tribe, Oregon, the COE, NOAA, USFWS, Idaho, BOR, BPA, Washington, the Nez Perce Tribe and others attended. This summary is an official record of the proceedings, not a verbatim transcript. Any questions or comments should be directed to the TMT chair.

2. John Day TSWs

The current operation is to keep the TSWs in service at John Day through August, Baus said. Data from 2008 – 2010 suggest that use of the TSWs reduces forebay retention time, which favors keeping the TSWs in service through the remainder of spill season, i.e. the end of August. This topic will be discussed in detail at tomorrow's FPOM meeting.

Prior to a COE poll today of TMT members regarding support for this plan, Rick Kruger, Oregon, raised a process concern. The decision to discontinue the operation of the TSWs in 2009 was based on language in the FOP indicating the decision would be based on a recommendation made by the SRWG. The 2010 FOP did not mention the possibility of making an in-season management decision to remove the TSWs. Kruger said a rollover operation should be explicitly described in the subsequent year's FOP, more than a reference to the previous year's operation. Oregon and the COE will follow up on this concern.

TMT members were polled on their views:

- **Oregon** – Tentatively supports continuing to operate the TSWs, but regional discussion is needed of what constitutes a rollover (see above comments). This is especially important for actions that would have significant effects, such as changes in spill or termination of a passage route. In advising the COE today, the TMT poll should be tentative, subject to FPOM technical review tomorrow.

- **Idaho** – Supports the decision to leave the TSWs in place.

- **Washington** – No objection to the proposed operation.

- **Umatilla** – No objection**.**

- **Salish-Kootenai** – No objection.
- **USFWS** – No objection.
- **NOAA** – No objection.
- **BOR** – No objection.
- **BPA** – No objection.
- **Nez Perce** – Impacts on juvenile lamprey passage should be part of the analysis. Cannot support continued TSW operation for the remainder of spill season based on current knowledge. Will make efforts to participate in FPOM discussion on July 14.

The COE will proceed tentatively on continuing the TSW operation pending the FPOM meeting outcome, Baus said. The current operation calls for continued use of the TSWs through the end of spill season. The COE will follow up with TMT via email on TSW operation before the next TMT meeting July 20.

3. Upper Snake Flow Augmentation

This water year the BOR expects to deliver the full 487 kaf of flow augmentation, John Roache, BOR, reported. The area above Milner is still on flood control operations. Flow augmentation will begin as soon as flood control ends. TMT will revisit flow augmentation at the next several meetings.

4. Spill Priority List

On June 29 the COE implemented a revision to the spill priority list with the intention of re-evaluating the operation after a period of 2-3 weeks. Since the June 29 revised spill priority list has been in affect the COE has received a recommendation from FPAC regarding the order of the next spill priority list once the 2-3 week revised operation is complete. FPAC's recommended spill priority is posted to today's agenda. Baus clarified should the Action Agencies implement FPAC's proposed order Chief Joseph would precede Grand Coulee consistent with previous spill priority lists.

Tony Norris, BPA, recalled the Action Agencies committed to revert to listing Chief Joseph above Grand Coulee in Level 2 once it is no longer needed for lack of market spill. This change may happen soon. First, BPA needs to evaluate what this weekend will look like in terms of demand and resulting TDG levels in the system.

Baus asked Tom Lorz, CRITFC/Umatilla, to clarify the intent of FPAC proposed spill priority list. Lorz said the goal is to implement the recommended

spill priority as quickly as possible, given there will be no performance testing at John Day and The Dalles this year. The goal of the proposed spill priority, with John Day and The Dalles in positions 2 and 3, is to put spill in areas where fish are moving progressively downstream. More spill at John Day would also help project staff deal with debris issues.

Cindy LeFleur, Washington, asked whether the Action Agency commitment to follow a spill priority with Chief Joseph at the top of Level 2 for the next 2-3 weeks is still in effect, regardless of changes in river conditions. Conditions have changed enough that we should be able to use the Level 2 spill priority. It's not just river conditions but lack of market that could persist, Norris replied. BPA will move Chief Joseph back down on the list as soon as market conditions allow.

Margaret Filardo, Fish Passage Center, asked whether this means the attached list will be implemented only when overgeneration ends and spill is no longer needed. The issue is the extent of overgeneration, Steve Barton, COE, replied. When the initial considerations behind the current spill order no longer apply, the Action Agencies will consider revising the spill priority list to include the order proposed by FPAC.

Lorz asked who has management responsibility for Wells forebay. Baus replied the COE operates Chief Joseph Dam to the state TDG waivers for 120% in the tailrace and 115% in the Wells forebay. Scott English, COE, said TDG levels in Wells forebay have been approaching 115%, while TDG levels have been dropping throughout the system, including the Columbia and Lower Snake. There is no voluntary spill at Chief Joseph because it is not a fish passage project; all spill at Chief Joseph Dam is involuntary.

Lorz, Kruger, and Russ Kiefer, Idaho, clarified that the Salmon Managers recommend using the attached list for Level 1 spill. This list would also be the Salmon Managers' recommendation for Level 2, but there was acknowledgement the Action Agencies might not be ready to make that switch until tomorrow or Monday. Kiefer recommended that the attached list be implemented for Level 1 spill now, and the Action Agencies notify TMT when they switch the Level 2 spill priority.

The COE will coordinate internally and consider adopting the recommendation for Level 1 spill priorities, Baus replied. TMT will be apprised via email and will revisit this issue at its next meeting July 20.

5. Dworshak Operations

Steve Hall, COE Walla Walla, gave TMT an update on Dworshak operations. Yesterday 24-hour average discharges were 10.9 kcfs; today discharges are 13 kcfs and pushing the gas cap. Yesterday at 2 pm the reservoir touched full at 1,600 feet and is now drafting down. The current forebay elevation

is 1,599 feet. For the remainder of spill season, the operational goal will be to spill as close to the gas cap as possible without violating state water quality standards. This is the case with the current releases of 13 kcfs.

Temperature modeling shows a slow rise in temperatures at Lower Granite through July 17, the span of the model run. The highest temperature predicted for that period is 62 degrees F, well below the 68-degree criterion. This means no temperature operation is needed. The operation will therefore be driven by flow augmentation, not temperature control.

Dave Statler, Nez Perce Tribe, asked why it would not be prudent to pass inflows. The BiOp requires the reservoir elevation to be 1,520 feet by end September, and 1,535 feet by end August, Hall replied.The release of the 200 kaf SRBA water is targeted to be released in September. The COE predicts that Dworshak discharges need to be 13.5-14 kcfs in order for the reservoir to reach the August 31 elevation target. The COE is open to shaping that water volume and invited the Salmon Managers to present an SOR.

Hall reported that the cover on Dworshak unit 3 has a leak, which is not problematic now but could get worse during the summer. Kruger asked whether the COE is prepared to replace that unit because this problem has occurred before. A permanent repair would require the unit to be unstacked, a costly process with broad impacts, Hall replied. Therefore, the COE is not planning to repair unit 3 unless it fails. The COE will keep TMT posted on this.

6. Lower Granite MOP Operations

The COE has implemented SOR 2011-01, presented this spring by tow boaters requesting MOP+2 for safe navigation conditions at Lower Granite, Baus said. Hall gave TMT an update on the status of channel surveys associated with this SOR. There are two mechanisms in place to assess the extent of shoaling at the confluence. Annual COE surveys are scheduled for August, the preferred method. The COE is also pursuing having ERDC researchers do sediment sampling. A survey boat is already on site, but the major drawback to this method is the data requires sophisticated processing, which takes a couple days to a week from the time samples are taken. This raises concerns about whether the data could be processed quickly enough to meet navigation safety needs.

Flows at Lower Granite are in the 100 kcfs range now and dropping, but still too high for surveying. The COE will report back to TMT when their survey crews can begin. Planned surveys include all pools on the Snake River, beginning at the headwaters and moving downstream. Data from this method can be processed more quickly than sediment sampling. Statler asked when information from the ERDC sediment sampling would be available. The plan is to begin work when pools return to normal low flows, probably not before August.

Rick Kruger, Oregon, asked for close coordination with TMT on this issue because it's time-sensitive. The COE will work closely with TMT on any future decisions regarding Lower Granite MOP operations. This item will be on next week's TMT agenda.

7. Libby Operations

In response to SOR 2011-FWS-1, the COE initiated the sturgeon operation on June 2, Baus reported. By July 11, the full 1.2 MAF associated with the operation had passed the project. Sturgeon releases were 15 kcfs, and the project has since ramped down to 13 kcfs, Joel Fenolio, COE Seattle, reported. Flows will probably ramp down again to 11 kcfs tonight for the next 4-5 days until summer flat flows. The goal of Libby operations is to balance refill with reaching the BiOp target elevation of 2,449 feet by the end of September.

In response to an informal request from Idaho to reshape flows for habitat construction, the COE is planning to ramp down to 9 kcfs in August, then 6 kcfs, the bull trout minimum, in September. TMT will revisit this issue at its next meeting July 20.

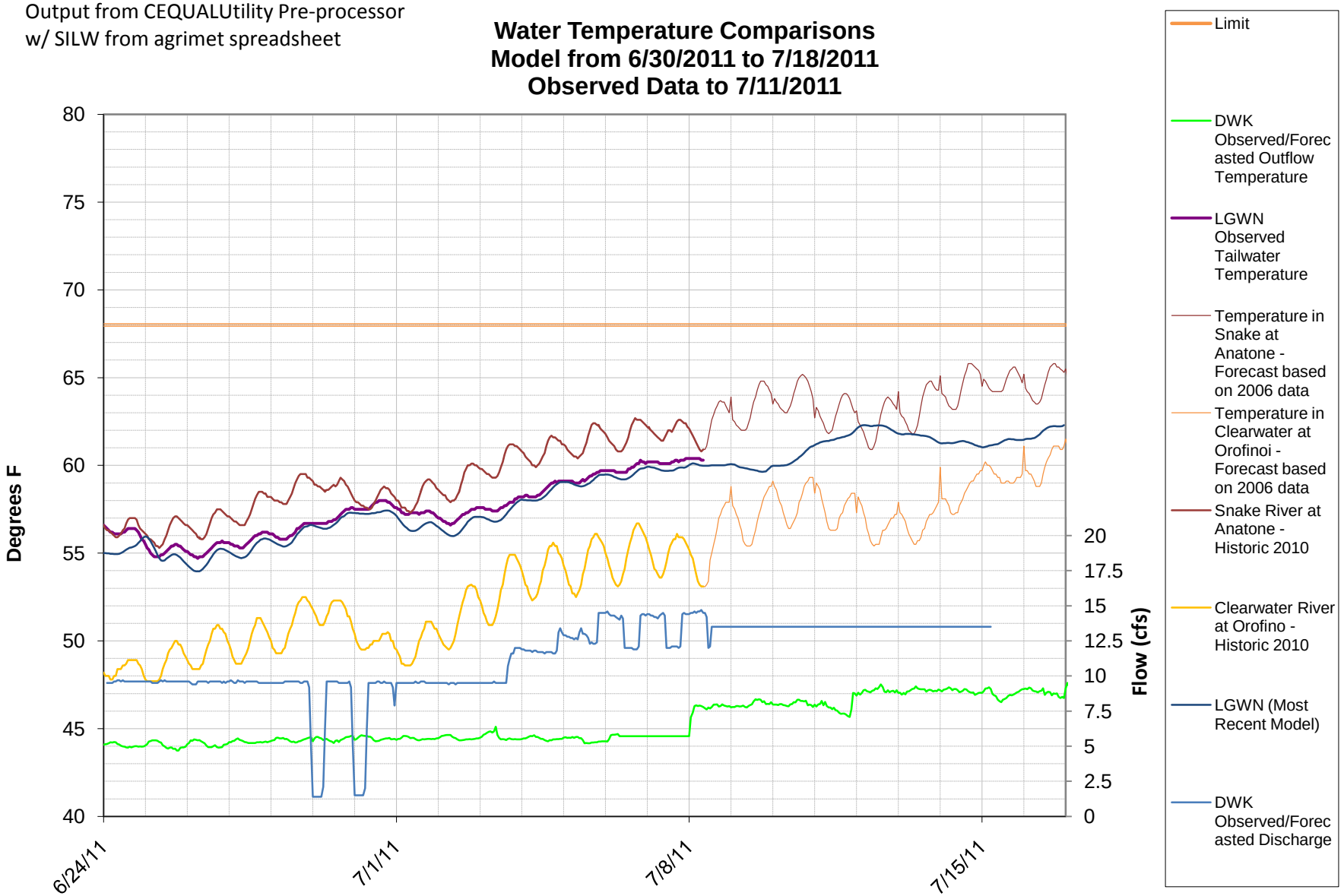
8. Next Meeting

The agenda for the next meeting on July 20 will include updates for all of the items on today's agenda.

Name	***Affiliation***
Tom Lorz	CRITFC/Umatilla
Rick Kruger	Oregon
Doug Baus	COE
Bruce McKay	consultant
Laura Hamilton	COE
Russ George	WMC
Bill Hevlin	NOAA
David Wills	USFWS
Russ Kiefer	Idaho
John Roache	BOR
Richelle Beck	DRA
Scott English	COE
Tony Norris	BPA
John Heitstuman	COE
Steve Barton	COE
Joel Fenolio	COE
Steve Hall	COE
Shane Scott	PPC
Cindy LeFleur	Washington
Rob Allerman	Deutsch Bank

Billy Barquin	Salish/Kootenai
Kim Johnson	COE
Margaret Filardo	FPC
Dave Statler	Nez Perce
John Westman	ERDC

Output from CEQUALUtility Pre-processor
w/ SILW from agrimet spreadsheet



2011 Days 7Q10 Daily Average Flows Were Exceeded

Date	LWG (kcfs)	LGS (kcfs)	LMN (kcfs)	IHR (kcfs)	MCN (kcfs)	JDA (kcfs)	TDA (kcfs)	BON (kcfs)	CHJ (kcfs)
7Q10 Flow Criteria	**214**	**214**	**214**	**214**	**447**	**454**	**461**	**467**	**222**
5/15/2011	140.2	134.2	139.0	143.2	347.3	351.8	338.0	358.8	170.3
5/16/2011	175.3	167.7	173.5	175.2	385.8	383.6	366.7	377.0	173.3
5/17/2011	203.4	195.4	209.7	213.8	422.9	438.6	423.5	430.3	143.0
5/18/2011	188.7	183.4	198.7	202.1	437.8	454.9	442.3	447.5	159.7
5/19/2011	173.0	164.3	173.2	178.7	422.0	457.9	445.0	454.3	195.3
5/20/2011	158.6	152.6	160.6	166.9	421.5	463.9	450.0	458.6	204.5
5/21/2011	158.7	147.0	155.4	160.9	416.4	467.3	451.2	462.1	218.1
5/22/2011	163.2	155.9	162.2	168.6	443.0	474.3	461.1	468.9	237.5
5/23/2011	171.0	163.0	169.9	174.3	452.2	476.7	457.1	470.7	241.1
5/24/2011	182.6	173.2	180.8	186.9	480.2	493.6	471.7	483.0	215.6
5/25/2011	187.6	174.1	189.2	191.9	473.1	495.3	477.8	484.7	206.8
5/26/2011	196.1	178.4	193.5	198.4	470.1	490.8	476.6	492.3	202.1
5/27/2011	200.0	182.7	200.2	204.2	461.7	483.0	462.1	482.7	211.9
5/28/2011	201.7	186.8	206.8	209.2	481.9	501.7	486.5	498.1	241.8
5/29/2011	182.3	167.3	184.4	190.9	495.5	507.7	491.9	496.2	273.0
5/30/2011	171.7	158.7	171.1	178.3	499.4	518.3	497.3	501.5	274.2
5/31/2011	162.1	148.2	158.4	163.8	480.6	509.1	494.5	506.5	270.0
6/1/2011	157.2	142.5	151.7	156.4	473.5	512.0	491.7	504.0	276.8
6/2/2011	154.5	142.9	154.1	160.4	476.1	495.7	486.5	501.5	258.7
6/3/2011	154.3	146.2	152.0	157.3	468.4	488.5	480.9	492.8	262.1
6/4/2011	169.6	161.6	168.7	175.2	476.7	498.0	481.1	493.8	267.7
6/5/2011	160.4	152.8	158.2	164.7	486.1	513.8	498.4	502.6	273.1
6/6/2011	158.2	149.0	155.0	159.3	477.6	502.5	493.3	502.7	269.6
6/7/2011	161.8	151.7	156.0	162.1	485.8	505.4	491.8	502.7	260.8
6/8/2011	188.1	177.1	185.2	189.3	493.6	496.5	482.4	499.9	233.4
6/9/2011	211.2	200.8	215.2	214.6	510.3	505.6	492.3	500.4	222.9
6/10/2011	206.5	195.0	211.2	215.7	500.9	506.1	494.5	500.5	201.2
6/11/2011	197.0	188.6	199.5	202.9	486.5	500.3	494.8	502.0	223.1
6/12/2011	182.6	173.1	180.5	186.7	484.3	498.6	491.1	500.2	239.4
6/13/2011	178.8	169.0	177.2	181.6	481.6	489.2	478.2	498.8	236.9
6/14/2011	183.2	172.9	178.3	184.7	484.3	492.3	482.1	498.4	219.8
6/15/2011	188.9	180.0	188.7	191.6	494.8	500.6	490.0	499.2	248.5
6/16/2011	189.4	180.6	190.2	196.6	501.5	507.0	489.8	500.8	242.7
6/17/2011	184.5	174.0	180.9	187.6	495.7	505.4	492.8	501.3	242.4
6/18/2011	173.4	166.2	172.6	178.9	478.5	500.1	488.4	500.3	237.8
6/19/2011	158.7	149.2	154.4	161.0	455.9	477.0	463.0	480.9	242.4
6/20/2011	154.2	144.7	150.2	155.5	442.0	452.0	440.4	461.5	233.9
6/21/2011	161.8	153.7	159.2	165.1	437.2	443.2	426.9	441.5	223.5
6/22/2011	158.6	152.3	155.9	162.8	431.4	441.9	428.5	440.6	221.8
6/23/2011	167.4	154.7	162.5	168.5	445.7	454.8	440.7	449.2	221.0
6/24/2011	181.6	170.5	178.2	183.0	453.2	448.1	432.9	447.6	232.2
6/25/2011	191.6	179.5	189.9	195.0	493.6	497.0	480.6	483.0	206.0
6/26/2011	182.8	173.3	182.7	191.1	425.3	463.0	451.8	480.6	206.6
6/27/2011	172.6	159.4	167.5	173.4	434.4	439.7	423.1	428.6	207.3
6/28/2011	163.6	154.4	161.7	168.4	413.0	416.5	396.5	420.3	209.1
6/29/2011	159.1	148.2	157.1	163.3	401.9	408.9	394.5	409.6	204.9
6/30/2011	162.1	152.2	158.1	162.6	401.0	394.6	381.4	401.9	200.2
7/1/2011	171.8	160.4	168.0	171.9	404.8	405.0	388.9	396.4	207.0
7/2/2011	168.1	161.1	171.7	179.6	430.4	436.3	418.3	426.2	213.1
7/3/2011	151.4	143.4	147.6	153.9	433.5	442.4	428.2	439.9	222.4
7/4/2011	145.5	136.8	141.9	149.3	422.1	420.8	405.7	432.7	206.8
7/5/2011	142.0	134.5	137.6	143.8	407.2	419.9	409.4	433.2	197.4
7/6/2011	141.7	133.5	136.8	142.5	381.5	376.0	359.3	377.7	219.5
7/7/2011	138.6	132.1	135.9	141.0	386.9	384.2	370.3	388.6	226.0
7/8/2011	131.7	123.9	126.4	131.6	400.0	398.0	386.0	399.5	224.4
7/9/2011	122.8	118.0	120.1	125.6	395.2	397.2	376.3	398.1	218.8
Total # days over	**0**	**0**	**1**	**2**	**30**	**36**	**29**	**31**	**29**

The gray highlighted days represent when the 7Q10 flow criteria were exceeded.
7Q10 is the average peak annual flow for seven consecutive days that has a recurrence interval of ten years and they are established in the TMDLs

TECHNICAL MANAGEMENT TEAM			
BOR:	*John Roache / Mary Mellema / Pat McGrane*	**BPA:**	*Tony Norris / Scott Bettin / Robyn MacKay*
NOAA-F:	*Paul Wagner / Richard Dominigue*	**USFWS:**	*David Wills / Steve Haeseker*
OR:	*Rick Kruger / Ron Boyce*	**ID:**	*Russ Kiefer / Pete Hassemer*
WDFW:	*Cindy LeFleur / Charles Morrill*	**MT:**	*Jim Litchfield / Brian Marotz*
Kootenai:	*Sue Ireland / Billy Barquin*	**Spokane:**	*Deanne Pavlik-Kunkel / Andy Miller*
Colville:	*Sheri Sears / Steve Smith*	**Nez Perce:**	*Dave Statler*
Umatilla:	*Tom Lorz (CRITFC)*		
COE:	*Steve Barton / Karl Kanbergs / Doug Baus*		

TMT MEETING

Wednesday July 20, 2011 9:00am - 12:00pm

1125 N.W. Couch Street, Suite 500, Columbia Room
Portland, Oregon 97209-4142
Map Quest [Directions]

TMT MEETING
Phone Number (877) 336-1274
Access Code 3871669
Security Code 6845

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

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@cnnw.net or call her at (503) 248-4703.

AGENDA

1. Welcome and Introductions
2. Review June 29 and July 6 and 13 Meeting Minutes [Meeting Minutes]
3. McNary Transport - *Paul Wagner, NOAA Fisheries*
4. Spill Priority List - *Doug Baus, COE-NWD*
    a. Spill Priority List
    a. LMN Hourly Spill Data
5. Dworshak Operations - *Doug Baus, COE-NWD; Steve Hall, COE-NWW*
    a. Water Temperature Comparisons
6. Lower Granite MOP Operations - *Doug Baus, COE-NWD; Steve Hall, COE-NWW*
7. SOR SOR 2011-3 Nighttime Spill to the gas cap at Little Goose Dam - *Tom Lorz, CRITFC/Umatilla*
    a. SOR 2011-03
8. John Day TSW Operation - *Rick Kruger, ODFW*
9. Operations Review
    a. Reservoirs

b. Fish
c. Water Quality
    i. June TDG Instances Report
    ii. Days 7Q10 Daily Average Flows Were Exceeded
d. Power System

10. Other
    a. Set agenda and date for next meeting - **July 27, 2011**
    b. [Calendar 2011]

Questions about the meeting may be referred to:
Steve Barton at (503) 808-3945, or
Doug Baus at (503) 808-3995

TDG INSTANCE TYPES
June 1 – June 31, 2011

Instances of when TDG levels exceed state water quality standards are classified into "types" which are shown on Table 1. These types are regionally approved and have been used since 2003. The states have requested information on TDG instances which include:

1. Date and times of exceedance
2. Amount of exceedance in percent saturation
3. Explain reason for exceedance
4. Discuss steps taken to fix the problem.

Because TDG instances are events when state TDG standards are exceeded, it is necessary to describe the current legal arrangement of how the state water quality standards are being implemented by the USACE. The March 24, 2011 Spring Operations Court Order requires the Corps to operate according to the 2006 fixed monitoring station (FMS) system, and the 2006 state water quality standards which is referred to as "Roll-Over". Therefore, the Camas/Washougal FMS, and the Oregon high 12-hour average calculation method are used to manage spill.

During the spill for fish passage season from April through August the Washington Department of Ecology (WDOE) has issued a temporary %TDG Rule Adjustment to their current water quality standards and Oregon Department of Environmental Quality (ODEQ) issued a 5-year %TDG Waiver. The state water quality standards are calculated differently from one another, and also from the 2006 Roll-Over.

USACE is currently tracking and recording the current state water quality standards as follows.
Oregon: http://www.nwd-wc.usace.army.mil/ftppub/water_quality/12hr/or/201104.html
Washington: http://www.nwd-wc.usace.army.mil/ftppub/water_quality/12hr/wa/201104.html
Comparison of OR & WA: http://www.nwd-wc.usace.army.mil/ftppub/water_quality/12hr/201104.html

Table 2 provides the TDG instances according to the Oregon high 12-hour average calculation method that occurred in the June 2011 spill for fish passage season.

Table 3 lists the project 7Q10 flows criteria which define when water quality standards no longer apply. Table 3 also shows when the 7Q10 flow criteria were exceeded during June 2011, which are the highlighted areas and provides the average daily flows for the lower Columbia and Snake River projects.

Table 1

Types of Instance	
Type 1 Condition	**TDG levels exceed the TDG standard due to exceeding powerhouse capacity at run-of-river projects resulting in spill above the BiOp fish spill levels. This condition type includes:**
• High runoff flows and flood control efforts.	
• BPA load requirements are lower than actual powerhouse capacity.	
• Involuntary spill at Mid Columbia River dams resulting in high TDG levels entering the lower Columbia River.	
• Involuntary spill at Snake River dams resulting in high TDG levels entering the lower Columbia River.	
Type 1a Condition	**Planned and unplanned outages of hydro power equipment including generation unit, intertie line, or powerhouse outages.**
Type 2 Exceedance	**TDG exceedances due to the operation or mechanical failure of non-generating equipment. This exceedance type includes:**
• Flow deflectors unable to function for TDG abatement with tailwater elevations above 19 - 26 feet at Bonneville Dam.	
• Spill gates stuck in open position or inadvertently left open.	
• Increased spill in a bulk spill operation to pass debris.	
• Communication errors, such as teletype were transmitted but change was not timely made or misinterpretation of intent of teletype by Project operator.	
Type 2a Exceedance	**Malfunctioning FMS gauge, resulting in fewer TDG or temperature measurements when setting TDG spill caps.**
Type 3 Exceedance	**TDG exceedances due to uncertainties when using best professional judgment, SYSTDG model and forecasts. This exceedance type includes:**
• Uncertainties when using best professional judgment to apply the spill guidance criteria, e.g., travel time, degassing, and spill patterns.	
• Uncertainties when using the SYSTDG model to predict the effects of various hydro system operations, temperature, degassing, and travel time.	
• Uncertainties when using forecasts for flows, temperature and wind.	
• Unanticipated sharp rise in water temperature (a 1.5 degree F. or greater change in a day).	
• Bulk spill pattern being used which generated more TDG than expected.	

Table 2
June 2011 Types of TDG Instances

DATE	Chief Joseph		Chief Joseph		Lower Granite		Lower Granite		Little Goose		Little Goose		Lower Monum.		Lower Monum.		Ice Harbor		Ice Harbor		McNary		McNary		John Day		John Day		The Dalles		The Dalles		Bon		Bon		Camas
	FB		TW		FB		TW		FB		TW		FB		TW		FB		TW		FB		TW		FB		TW		FB		TW		FB		FB
6/1/2011	N/A		N/A		---		---		1		1		1		1		1		1		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A
6/2/2011	N/A		N/A		---		---		---		1		1		1		1		1		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A
6/3/2011	N/A		N/A		---		1		---		1		1		1		1		1		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A
6/4/2011	N/A		N/A		---		1		---		1		1		1		1		1		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A
6/5/2011	N/A		N/A		---		1		1		1		1		1		1		1		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A
6/6/2011	N/A		N/A		---		1		1		1		1		1		1		1		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A
6/7/2011	N/A		N/A		---		1		---		1		1		1		1		1		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A
6/8/2011	N/A		N/A		---		1		---		1		1		1		1		1		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A
6/9/2011	N/A		N/A		---		1		1		1		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A
6/10/2011	1		1		---		1		1		1		1		1		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		1
6/11/2011	N/A		N/A		---		1		1		1		1		1		1		1		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A
6/12/2011	N/A		N/A		---		1		1		1		1		1		1		1		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A
6/13/2011	N/A		N/A		---		1		1		1		1		1		1		1		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A
6/14/2011	1		1		---		1		1		1		1		1		1		1		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		1
6/15/2011	N/A		N/A		---		1		1		1		1		1		1		1		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A
6/16/2011	N/A		N/A		---		1		1		1		1		1		1		1		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A
6/17/2011	N/A		N/A		---		1		1		1		1		1		1		1		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A
6/18/2011	N/A		N/A		---		1		1		1		1		1		1		1		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A
6/19/2011	N/A		N/A		---		---		1		1		1		---		1		1		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A
6/20/2011	N/A		N/A		---		1		---		1		1		1		1		1		1		1		1		1		1		1		1		2a		N/A
6/21/2011	N/A		N/A		---		1		1		1		1		1		1		1		1		1		1		1		1		1		1		2a		1
6/22/2011	1		1		---		1		1		1		1		1		1		1		1		1		1		1		1		1		1		2a		1
6/23/2011	1		1		---		1		1		1		1		1		1		1		1		1		N/A		N/A		1		1		1		2a		1
6/24/2011	N/A		N/A		---		1		1		1		1		1		1		1		N/A		N/A		1		1		1		1		1		2a		1
6/25/2011	1		1		---		1		1		1		1		1		1		1		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		1
6/26/2011	1		1		---		1		1		1		1		1		1		1		1		1		N/A		N/A		1		1		N/A		N/A		1
6/27/2011	1		1		---		1		1		1		1		1		1		1		1		1		1		1		1		1		1		2a		1
6/28/2011	1		1		---		1		1		---		1		1		1		1		1		1		1		1		1		1		1		2a		1
6/29/2011	1		1		---		1		1		---		1		1		1		1		1		1		1		---		1		1		1		2a		1
6/30/2011	1		1		---		1		---		1		1		1		1		1		---		1		1		---		---		---		1		2a		1
Total	**10**		**10**		**0**		**27**		**23**		**28**		**29**		**28**		**28**		**28**		**8**		**9**		**8**		**6**		**9**		**9**		**9**		**12**
Monthly Grand Total									**290**																											

N/A means that the TDG instances in the project forebay and tailwater are not counted since the project flow exceeded the 7Q10 flows.

Table 3
June 2011 Days 7Q10 Daily Average Flows Were Exceeded

Date	CHJ (kcfs)	LWG (kcfs)	LGS (kcfs)	LMN (kcfs)	IHR (kcfs)	MCN (kcfs)	JDA (kcfs)	TDA (kcfs)	BON (kcfs)
7Q10 Flow Criteria	**222**	**214**	**214**	**214**	**214**	**447**	**454**	**461**	**467**
6/1/2011	276.8	157.2	142.5	151.7	156.4	473.5	512.0	491.7	504.0
6/2/2011	258.7	154.5	142.9	154.1	160.4	476.1	495.7	486.5	501.5
6/3/2011	262.1	154.3	146.2	152.0	157.3	468.4	488.5	480.9	492.8
6/4/2011	267.7	169.6	161.6	168.7	175.2	476.7	498.0	481.1	493.8
6/5/2011	273.1	160.4	152.8	158.2	164.7	486.1	513.8	498.4	502.6
6/6/2011	269.6	158.2	149.0	155.0	159.3	477.6	502.5	493.3	502.7
6/7/2011	260.8	161.8	151.7	156.0	162.1	485.8	505.4	491.8	502.7
6/8/2011	233.4	188.1	177.1	185.2	189.3	493.6	496.5	482.4	499.9
6/9/2011	222.9	211.2	200.8	215.2	214.6	510.3	505.6	492.3	500.4
6/10/2011	201.2	206.5	195.0	211.2	215.7	500.9	506.1	494.5	500.5
6/11/2011	223.1	197.0	188.6	199.5	202.9	486.5	500.3	494.8	502.0
6/12/2011	239.4	182.6	173.1	180.5	186.7	484.3	498.6	491.1	500.2
6/13/2011	236.9	178.8	169.0	177.2	181.6	481.6	489.2	478.2	498.8
6/14/2011	219.8	183.2	172.9	178.3	184.7	484.3	492.3	482.1	498.4
6/15/2011	248.5	188.9	180.0	188.7	191.6	494.8	500.6	490.0	499.2
6/16/2011	242.7	189.4	180.6	190.2	196.6	501.5	507.0	489.8	500.8
6/17/2011	242.4	184.5	174.0	180.9	187.6	495.7	505.4	492.8	501.3
6/18/2011	237.8	173.4	166.2	172.6	178.9	478.5	500.1	488.4	500.3
6/19/2011	242.4	158.7	149.2	154.4	161.0	455.9	477.0	463.0	480.9
6/20/2011	233.9	154.2	144.7	150.2	155.5	442.0	452.0	440.4	461.5
6/21/2011	223.5	161.8	153.7	159.2	165.1	437.2	443.2	426.9	441.5
6/22/2011	221.8	158.6	152.3	155.9	162.8	431.4	441.9	428.5	440.6
6/23/2011	221.0	167.4	154.7	162.5	168.5	445.7	454.8	440.7	449.2
6/24/2011	232.2	181.6	170.5	178.2	183.0	453.2	448.1	432.9	447.6
6/25/2011	206.0	191.6	179.5	189.9	195.0	493.6	497.0	480.6	483.0
6/26/2011	206.6	182.8	173.3	182.7	191.1	425.3	463.0	451.8	480.6
6/27/2011	207.3	172.6	159.4	167.5	173.4	434.4	439.7	423.1	428.6
6/28/2011	209.1	163.6	154.4	161.7	168.4	413.0	416.5	396.5	420.3
6/29/2011	204.9	159.1	148.2	157.1	163.3	401.9	408.9	394.5	409.6
6/30/2011	200.2	162.1	152.2	158.1	162.6	401.0	394.6	381.4	401.9
Total # days over	**20**	**0**	**0**	**1**	**2**	**21**	**22**	**20**	**21**

The gray highlighted days represent when the 7Q10 flow criteria were exceeded.
7Q10 is the average peak annual flow for seven consecutive days that has a recurrence interval of ten years and they are established in the TMDLs

1 NPD RESERVOIR CONTROL CENTER PROJECT- LMN LOWER MONUMENTAL DAM & LAKE
HOURLY OPERATION DATA REPORT SATURDAY JULY 16, 2011

	GROSS GEN MW	STA USE MW	OUTFLOW IN KCFS TOTAL	OUTFLOW IN KCFS POWER	OUTFLOW IN KCFS SPILL	EL AT POWERHOUSE IN FEET + MSL FOREBAY	EL AT POWERHOUSE IN FEET + MSL TAILWATR	AVG HEAD FT	SUPR CAP MW	UNIT STATUS ON RMT	UNIT STATUS ON LINE AVL	HOUR
1		1	86.60	68.90	17.00	537.26	439.72	97.54				1
2		1	86.70	69.10	17.00	537.28	439.79	97.49				2
3		1	86.60	69.00	17.00	537.27	439.74	97.53				3
4		1	86.30	68.90	16.80	537.25	439.72	97.53				4
5		1	86.60	69.20	16.80	537.25	439.82	97.43				5
6		1	87.70	68.50	18.60	537.22	439.95	97.27				6
7		1	87.10	58.50	28.00	537.18	439.52	97.66				7
8		1	86.30	65.70	20.00	537.22	439.70	97.52				8
9		1	87.80	68.80	16.90	537.18	439.79	97.39				9
10		1	84.60	67.20	16.80	537.22	439.71	97.51				10
11		1	83.20	65.70	16.90	537.22	439.69	97.53				11
12		1	83.60	66.20	16.80	537.31	439.71	97.60				12
13		1	83.40	65.90	16.80	537.32	439.61	97.71				13
14		1	84.00	66.60	16.90	537.36	439.81	97.55				14
15		1	97.80	80.30	16.90	537.27	440.57	96.70				15
16		1	98.30	80.60	17.00	537.17	440.63	96.54				16
17		1	91.50	75.60	13.90	537.19	439.53	97.66				17
18		1	83.10	66.20	16.30	537.09	439.58	97.51				18
19		1	80.20	62.70	16.90	537.23	439.62	97.61				19
20		1	78.30	60.70	16.90	537.21	439.46	97.75				20
21		1	78.20	60.60	16.90	537.21	439.48	97.73				21
22		1	75.80	58.30	16.90	537.28	439.24	98.04				22
23		1	75.80	58.00	17.20	537.32	439.22	98.10				23
24		1	75.90	58.20	17.10	537.36	439.20	98.16				24
TOT 24		15										
AVG		1	84.81	66.64	17.43	537.24	439.70	97.54				
MAX			98.30	80.60	28.00	537.36	440.63	98.16				
MIN			75.80	58.00	13.90	537.09	439.20	96.54				

1 NPD RESERVOIR CONTROL CENTER PROJECT- JDA JOHN DAY DAM & LAKE UMATILLA
HOURLY OPERATION DATA REPORT SATURDAY JULY 16, 2011

	GROSS GEN MW	STA USE MW	OUTFLOW IN KCFS TOTAL	OUTFLOW IN KCFS POWER	OUTFLOW IN KCFS SPILL	EL AT POWERHOUSE IN FEET + MSL FOREBAY	EL AT POWERHOUSE IN FEET + MSL TAILWATR	AVG HEAD FT	SUPR CAP MW	UNIT STATUS ON RMT	UNIT STATUS ON LINE AVL	HOUR
1		2	340.40	199.50	138.10	263.11	163.75	99.36				1
2		2	267.70	157.50	109.20	263.31	162.82	100.49				2
3		2	268.80	161.10	106.80	263.41	162.82	100.59				3
4		2	268.60	160.90	106.80	263.41	161.99	101.42				4
5		2	262.10	155.10	106.10	263.41	161.68	101.73				5
6		2	233.90	136.00	95.10	263.61	160.86	102.75				6
7		2	233.30	93.30	139.10	263.81	161.37	102.44				7
8		2	289.50	173.50	115.10	263.61	162.41	101.20				8
9		2	303.00	180.00	120.30	263.51	162.81	100.70				9
10		2	302.30	181.50	120.00	263.31	163.03	100.28				10
11		2	317.70	190.70	126.10	263.41	163.34	100.07				11
12		2	323.10	193.70	128.50	263.51	163.23	100.28				12
13		2	297.30	175.50	119.00	263.61	162.72	100.89				13
14		2	291.30	174.30	116.10	263.51	162.82	100.69				14
15		2	291.10	174.10	116.10	263.61	162.61	101.00				15
16		2	290.60	173.60	116.10	263.51	162.41	101.10				16
17		2	289.90	172.90	116.10	263.51	162.82	100.69				17
18		2	297.10	180.20	116.10	263.56	162.82	100.74				18
19		2	307.10	182.40	121.90	263.41	163.44	99.97				19
20		2	343.00	205.50	136.60	263.21	164.37	98.84				20
21		2	345.80	240.70	104.20	263.21	164.47	98.74				21
22		2	342.40	238.50	103.00	263.01	164.47	98.54				22
23		2	349.90	246.10	102.90	263.01	164.47	98.54				23
24		2	321.30	225.80	94.60	263.11	163.44	99.67				24
TOT 24		47										
AVG		2	299.05	182.18	115.58	263.40	162.96	100.45				
MAX			349.90	246.10	139.10	263.81	164.47	102.75				
MIN			233.30	93.30	94.60	263.01	160.86	98.54				

1 NPD RESERVOIR CONTROL CENTER PROJECT- TDA THE DALLES DAM & LAKE
HOURLY OPERATION DATA REPORT SATURDAY JULY 16, 2011

	GROSS GEN MW	STA USE MW	OUTFLOW IN KCFS TOTAL	OUTFLOW IN KCFS POWER	OUTFLOW IN KCFS SPILL	EL AT POWERHOUSE IN FEET + MSL FOREBAY	EL AT POWERHOUSE IN FEET + MSL TAILWATR	AVG HEAD FT	SUPR CAP MW	UNIT STATUS ON RMT	UNIT STATUS ON LINE AVL	HOUR
1		1	322.70	186.60	129.90	159.73	82.40	77.33				1
2		1	306.30	176.30	123.80	159.43	82.00	77.43				2
3		1	304.10	178.60	119.40	158.85	82.11	76.74				3
4		1	279.80	162.10	111.60	158.85	81.06	77.79				4
5		1	260.70	149.90	104.70	158.62	80.83	77.79				5
6		1	235.00	130.60	98.30	158.85	80.07	78.78				6
7		1	245.20	112.50	126.60	158.51	80.19	78.32				7
8		1	274.80	159.30	109.40	157.84	80.86	76.98				8
9		1	274.40	158.70	109.50	158.21	80.83	77.38				9
10		1	287.00	167.00	113.90	158.11	81.06	77.05				10
11		1	299.60	174.50	119.00	158.11	81.35	76.76				11
12		1	301.50	174.60	120.80	158.42	81.46	76.96				12
13		1	276.30	159.70	110.50	158.85	80.83	78.02				13
14		1	276.20	159.60	110.50	158.73	80.86	77.87				14
15		1	275.90	159.20	110.50	158.85	80.83	78.02				15
16		1	277.10	160.40	110.60	158.73	80.83	77.90				16
17		1	276.60	159.90	110.70	158.62	80.86	77.76				17
18		1	276.50	159.90	110.60	158.85	80.82	78.03				18
19		1	283.20	164.80	112.20	158.62	81.22	77.40				19
20		1	330.80	194.70	130.00	158.21	82.40	75.81				20
21		1	334.10	198.00	130.00	158.31	82.50	75.81				21
22		1	329.70	193.60	130.00	158.31	82.61	75.70				22
23		1	332.80	197.40	129.30	158.51	82.61	75.90				23
24		1	292.20	170.20	115.80	159.32	81.68	77.64				24
TOT	24	24										
AVG		1	289.69	167.00	116.57	158.64	81.34	77.30				
MAX			334.10	198.00	130.00	159.73	82.61	78.78				
MIN			235.00	112.50	98.30	157.84	80.07	75.70				

1 NPD RESERVOIR CONTROL CENTER PROJECT- LGS LITTLE GOOSE DAM & LAKE BRYANT
HOURLY OPERATION DATA REPORT SATURDAY JULY 16, 2011

	GROSS GEN MW	STA USE MW	OUTFLOW IN KCFS TOTAL	OUTFLOW IN KCFS POWER	OUTFLOW IN KCFS SPILL	EL AT POWERHOUSE IN FEET + MSL FOREBAY	EL AT POWERHOUSE IN FEET + MSL TAILWATR	AVG HEAD FT	SUPR CAP MW	UNIT STATUS ON RMT	UNIT STATUS ON LINE AVL	HOUR
1		1	87.00	60.50	26.10	633.48	537.44	96.04				1
2		1	87.10	60.60	26.10	633.55	537.55	96.00				2
3		1	87.00	60.50	26.10	633.54	537.46	96.08				3
4		1	86.90	60.40	26.10	633.53	537.47	96.06				4
5		1	88.30	60.40	26.10	633.47	537.49	95.98				5
6		1	86.20	59.70	26.10	633.55	537.52	96.03				6
7		1	86.80	47.60	38.90	633.46	537.51	95.95				7
8		1	86.00	56.30	29.20	633.55	537.49	96.06				8
9		1	87.50	61.20	25.90	633.44	537.47	95.97				9
10		1	87.20	60.70	26.10	633.45	537.48	95.97				10
11		1	87.00	60.50	26.10	633.48	537.53	95.95				11
12		1	87.60	61.10	26.10	633.56	537.43	96.13				12
13		1	89.00	61.00	26.10	633.70	537.53	96.17				13
14		1	87.60	61.10	26.10	633.58	537.49	96.09				14
15		1	87.60	61.10	26.10	633.57	537.53	96.04				15
16		1	87.60	61.10	26.10	633.60	537.55	96.05				16
17		1	88.00	61.40	26.10	633.46	537.50	95.96				17
18		1	88.20	60.40	26.00	633.50	537.51	95.99				18
19		1	81.80	55.70	24.20	633.51	537.49	96.02				19
20		1	80.40	55.70	24.20	633.62	537.55	96.07				20
21		1	80.40	55.80	24.20	633.51	537.50	96.01				21
22		1	80.50	55.80	24.20	633.51	537.45	96.06				22
23		1	80.30	55.70	24.30	633.51	537.41	96.10				23
24		1	82.10	56.10	24.20	633.52	537.54	95.98				24
TOT 24		16										
AVG		1	85.75	58.77	26.28	633.53	537.50	96.03				
MAX			89.00	61.40	38.90	633.70	537.55	96.17				
MIN			80.30	47.60	24.20	633.44	537.41	95.95				

1 NPD RESERVOIR CONTROL CENTER PROJECT- IHR ICE HARBOR DAM
HOURLY OPERATION DATA REPORT SATURDAY JULY 16, 2011

	GROSS GEN MW	STA USE MW	OUTFLOW IN KCFS TOTAL	OUTFLOW IN KCFS POWER	OUTFLOW IN KCFS SPILL	EL AT POWERHOUSE IN FEET + MSL FOREBAY	EL AT POWERHOUSE IN FEET + MSL TAILWATR	AVG HEAD FT	SUPR CAP MW	UNIT STATUS ON RMT	UNIT STATUS ON LINE AVL	HOUR
1		2	91.20	9.60	81.00	437.60	344.41	93.19				1
2		2	91.20	9.70	81.00	437.58	344.42	93.16				2
3		2	91.10	9.60	81.10	437.63	344.36	93.27				3
4		2	91.10	9.50	81.10	437.58	344.33	93.25				4
5		2	90.90	11.60	78.80	437.59	344.32	93.27				5
6		2	89.40	40.60	48.30	437.54	344.67	92.87				6
7		2	91.30	10.20	80.60	437.56	344.28	93.28				7
8		2	90.30	32.70	57.10	437.56	344.64	92.92				8
9		2	88.50	42.90	45.10	437.57	344.61	92.96				9
10		2	89.30	43.60	45.10	437.69	344.70	92.99				10
11		2	90.70	45.10	45.10	437.58	344.85	92.73				11
12		2	91.50	45.90	45.10	437.56	344.84	92.72				12
13		2	92.90	45.80	45.10	437.53	344.82	92.71				13
14		3	93.00	45.90	45.10	437.42	344.92	92.50				14
15		3	91.40	45.90	45.00	437.44	344.84	92.60				15
16		2	91.30	45.80	45.10	437.70	344.87	92.83				16
17		2	90.40	44.70	45.20	437.80	344.68	93.12				17
18		3	88.30	42.50	45.30	437.90	344.32	93.58				18
19		3	90.80	12.00	78.20	437.75	344.07	93.68				19
20		2	84.30	9.90	73.90	437.77	343.90	93.87				20
21		2	85.70	9.90	73.80	437.64	343.89	93.75				21
22		2	85.70	9.90	73.80	437.63	343.87	93.76				22
23		2	84.30	10.00	73.90	437.56	343.90	93.66				23
24		2	84.20	9.90	73.80	437.54	343.87	93.67				24
TOT 24		59										
AVG		2	89.53	26.80	61.98	437.61	344.43	93.18				
MAX			93.00	45.90	81.10	437.90	344.92	93.87				
MIN			84.20	9.50	45.00	437.42	343.87	92.50				

1 NPD RESERVOIR CONTROL CENTER PROJECT- LWG LOWER GRANITE DAM & LAKE
HOURLY OPERATION DATA REPORT SATURDAY JULY 16, 2011

	GROSS GEN MW	STA USE MW	OUTFLOW IN KCFS TOTAL	OUTFLOW IN KCFS POWER	OUTFLOW IN KCFS SPILL	EL AT POWERHOUSE IN FEET + MSL FOREBAY	EL AT POWERHOUSE IN FEET + MSL TAILWATR	AVG HEAD FT	SUPR CAP MW	UNIT STATUS ON RMT	UNIT STATUS ON LINE AVL	LWS GAGE ELEV	HOUR
1		2	86.50	67.70	18.50	734.54	635.30	99.24				735.16	1
2		2	86.60	67.70	18.60	734.59	635.37	99.22				735.14	2
3		2	86.20	67.30	18.60	734.61	635.27	99.34				735.13	3
4		2	85.90	67.10	18.60	734.64	635.24	99.40				735.12	4
5		2	86.40	67.60	18.50	734.67	635.34	99.33				735.16	5
6		2	87.10	66.20	20.60	734.60	635.34	99.26				735.18	6
7		2	88.60	47.40	40.90	734.68	635.16	99.52				735.19	7
8		2	87.90	60.60	27.10	734.64	635.24	99.40				735.18	8
9		2	89.30	70.50	18.50	734.62	635.37	99.25				735.19	9
10		2	89.70	70.80	18.50	734.67	635.34	99.33				735.20	10
11		2	92.20	73.40	18.50	734.61	635.42	99.19				735.19	11
12		2	96.00	77.30	18.50	734.54	635.45	99.09				735.19	12
13		2	90.00	71.20	18.40	734.50	635.35	99.15				735.20	13
14		2	89.70	71.00	18.40	734.49	635.37	99.12				735.20	14
15		2	89.70	71.00	18.40	734.43	635.40	99.03				735.20	15
16		2	86.00	67.30	18.40	734.46	635.16	99.30				735.20	16
17		2	82.80	64.10	18.40	734.45	635.22	99.23				735.20	17
18		2	82.70	64.00	18.40	734.46	635.20	99.26				735.20	18
19		2	84.30	64.00	18.40	734.48	635.13	99.35				735.20	19
20		2	82.90	64.20	18.40	734.46	635.14	99.32				735.20	20
21		2	84.20	63.80	18.40	734.41	635.44	98.97				735.20	21
22		2	82.90	64.30	18.30	734.45	635.16	99.29				735.21	22
23		2	82.50	63.90	18.30	734.42	635.18	99.24				735.21	23
24		2	83.00	64.30	18.40	734.46	635.31	99.15				735.21	24
TOT 24		47											
AVG		2	86.80	66.53	19.83	734.54	635.29	99.25				735.19	
MAX			96.00	77.30	40.90	734.68	635.45	99.52				735.21	
MIN			82.50	47.40	18.30	734.41	635.13	98.97				735.12	

1 NPD RESERVOIR CONTROL CENTER PROJECT- MCN MCNARY DAM & LAKE WALLULA
HOURLY OPERATION DATA REPORT SATURDAY JULY 16, 2011

	GROSS GEN MW	STA USE MW	OUTFLOW IN KCFS TOTAL	OUTFLOW IN KCFS POWER	OUTFLOW IN KCFS SPILL	EL AT POWERHOUSE IN FEET + MSL FOREBAY	EL AT POWERHOUSE IN FEET + MSL TAILWATR	AVG HEAD FT	SUPR CAP MW	UNIT STATUS ON RMT	UNIT STATUS ON LINE AVL	HOUR
1		4	327.90	122.90	200.20	338.49	268.10	70.39				1
2		4	328.40	123.50	200.20	338.51	268.14	70.37				2
3		4	326.90	121.90	200.20	338.56	268.03	70.53				3
4		4	326.20	121.20	200.20	338.49	268.07	70.42				4
5		4	326.20	122.50	199.00	338.56	267.83	70.73				5
6		4	296.70	121.70	170.40	338.60	267.63	70.97				6
7		4	285.40	110.40	170.40	338.58	267.19	71.39				7
8		4	292.50	117.40	170.30	338.60	267.46	71.14				8
9		4	294.10	119.10	170.40	338.60	267.65	70.95				9
10		4	294.50	119.40	170.40	338.58	267.84	70.74				10
11		4	293.80	118.70	170.40	338.50	267.81	70.69				11
12		4	294.80	119.70	170.40	338.51	267.65	70.86				12
13		4	294.40	119.30	170.40	338.42	267.51	70.91				13
14		4	294.70	119.60	170.40	338.40	267.44	70.96				14
15		4	294.80	119.80	170.30	338.40	267.41	70.99				15
16		4	294.50	119.40	170.40	338.39	267.42	70.97				16
17		4	295.20	120.20	170.30	338.43	267.48	70.95				17
18		4	294.70	119.60	170.40	338.43	267.45	70.98				18
19		4	281.40	118.90	157.80	338.56	266.98	71.58				19
20		4	273.70	118.90	150.10	338.59	266.94	71.65				20
21		4	272.50	117.70	150.10	338.64	266.93	71.71				21
22		4	272.90	118.10	150.10	338.72	266.90	71.82				22
23		4	272.80	117.90	150.10	338.78	266.76	72.02				23
24		4	273.80	119.00	150.20	338.86	266.74	72.12				24
TOT 24		96										
AVG		4	295.95	119.45	171.80	338.55	267.47	71.08				
MAX			328.40	123.50	200.20	338.86	268.14	72.12				
MIN			272.50	110.40	150.10	338.39	266.74	70.37				

1 NPD RESERVOIR CONTROL CENTER PROJECT- BON BONNEVILLE DAM & LAKE
HOURLY OPERATION DATA REPORT SATURDAY JULY 16, 2011

	GROSS GEN MW	STA USE MW	OUTFLOW IN KCFS TOTAL	OUTFLOW IN KCFS POWER	OUTFLOW IN KCFS SPILL	EL AT POWERHOUSE IN FEET + MSL FOREBAY	EL AT POWERHOUSE IN FEET + MSL TAILWATR	AVG HEAD FT	SUPR CAP MW	UNIT STATUS ON ON RMT LINE AVL	PROJECT FOREBAY ELEV	STEVENSON GAGE ELEV	PROJECT TAILWATER ELEV	HOUR
1		2	340.90	186.10	142.40	74.90	25.00	49.90			74.70	76.50	24.40	1
2		2	327.60	183.80	131.40	74.90	24.70	50.20			74.90	76.70	24.30	2
3		3	325.40	181.60	131.40	74.80	24.60	50.20			74.70	76.70	24.10	3
4		3	327.00	183.30	131.30	74.70	24.50	50.20			74.60	76.50	24.10	4
5		3	320.20	183.20	124.60	74.80	24.20	50.60			74.80	76.50	23.80	5
6		3	316.50	181.10	123.00	74.50	24.20	50.30			74.40	76.30	23.80	6
7		3	320.00	185.00	122.60	74.20	24.20	50.00			74.20	76.00	23.80	7
8		3	316.50	184.80	119.30	74.50	24.10	50.40			74.40	75.80	23.30	8
9		3	292.40	181.40	98.60	74.60	23.10	51.50			74.50	75.90	22.80	9
10		3	294.40	186.60	95.40	74.50	23.30	51.20			74.40	75.90	23.00	10
11		3	292.80	185.00	95.40	74.40	23.20	51.20			74.40	75.90	22.90	11
12		3	294.50	186.80	95.30	74.60	23.10	51.50			74.50	76.00	22.80	12
13		3	292.90	185.10	95.40	74.80	23.00	51.80			74.60	76.10	22.70	13
14		3	294.30	186.40	95.50	74.50	23.10	51.40			74.50	76.10	22.80	14
15		3	296.80	189.10	95.30	74.40	23.10	51.30			74.40	76.00	22.70	15
16		3	295.90	188.20	95.30	74.60	22.90	51.70			74.50	76.10	22.60	16
17		3	296.50	188.80	95.30	74.40	23.00	51.40			74.50	76.10	22.70	17
18		3	295.30	187.50	95.40	74.60	22.90	51.70			74.50	76.10	22.60	18
19		3	293.50	185.70	95.40	74.60	22.80	51.80			74.60	76.10	22.50	19
20		3	293.90	186.10	95.40	74.60	22.80	51.80			74.60	76.10	22.50	20
21		3	293.70	185.80	95.50	75.00	22.70	52.30			75.00	76.40	22.40	21
22		3	292.00	183.50	96.10	75.30	22.70	52.60			75.30	76.70	22.30	22
23		3	291.00	182.20	96.40	75.60	22.60	53.00			75.60	77.00	22.30	23
24		3	290.80	181.80	96.60	75.90	22.60	53.30			75.80	77.20	22.40	24
TOT	24	70												
AVG		3	303.95	184.95	106.60	74.74	23.43	51.30			74.68	76.28	23.07	
MAX			340.90	189.10	142.40	75.90	25.00	53.30			75.80	77.20	24.40	
MIN			290.80	181.10	95.30	74.20	22.60	49.90			74.20	75.80	22.30	

1 NPD RESERVOIR CONTROL CENTER PROJECT- BON BONNEVILLE DAM & LAKE
HOURLY OPERATION DATA REPORT SATURDAY JULY 16, 2011

	BONNEVILLE PH 1 GROSS GEN MW	BONNEVILLE PH 1 POWER FLOW KCFS	BONNEVILLE PH 1 UNIT STATUS ON RMT LINE	BONNEVILLE PH 1 UNIT STATUS ON AVL	PH 1 FOREBAY EL FT	PROJECT FOREBAY EL FT	BONNEVILLE PH 2 GROSS GEN MW	BONNEVILLE PH 2 POWER FLOW KCFS	BONNEVILLE PH 2 UNIT STATUS ON RMT LINE	BONNEVILLE PH 2 UNIT STATUS ON AVL	PROJECT SPWY GATES IN USE	PROJECT MISC FLOW KCFS	HOUR
1		75.70			74.9	74.7		110.40			18	12.4	1
2		75.20			74.9	74.9		108.60			18	12.4	2
3		75.30			74.8	74.7		106.30			18	12.4	3
4		75.60			74.7	74.6		107.70			18	12.4	4
5		76.20			74.8	74.8		107.00			18	12.4	5
6		75.50			74.5	74.4		105.60			18	12.4	6
7		76.50			74.2	74.2		108.50			18	12.4	7
8		76.10			74.5	74.4		108.70			18	12.4	8
9		75.60			74.6	74.5		105.80			18	12.4	9
10		76.40			74.5	74.4		110.20			18	12.4	10
11		75.60			74.4	74.4		109.40			18	12.4	11
12		76.50			74.6	74.5		110.30			18	12.4	12
13		75.80			74.8	74.6		109.30			18	12.4	13
14		75.90			74.5	74.5		110.50			18	12.4	14

15	76.60	74.4	74.4	112.50	18	12.4	15
16	76.10	74.6	74.5	112.10	18	12.4	16
17	76.50	74.4	74.5	112.30	18	12.4	17
18	75.90	74.6	74.5	111.60	18	12.4	18
19	75.50	74.6	74.6	110.20	18	12.4	19
20	75.60	74.6	74.6	110.50	18	12.4	20
21	75.50	75.0	75.0	110.30	18	12.4	21
22	75.20	75.3	75.3	108.30	18	12.4	22
23	75.20	75.6	75.6	107.00	18	12.4	23
24	75.40	75.9	75.8	106.40	18	12.4	24
TOT							
AVE	75.81	74.7	74.7	109.15	18	12.4	
MAX	76.60	75.9	75.8	112.50	18	12.4	
MIN	75.20	74.2	74.2	105.60	18	12.4	

1 NPD RESERVOIR CONTROL CENTER PROJECT- CHJ CHIEF JOSEPH DAM & RUFUS WOOD LAKE
HOURLY OPERATION DATA REPORT SATURDAY JULY 16, 2011

	GROSS GEN MW	STA USE MW	OUTFLOW IN KCFS TOTAL	OUTFLOW IN KCFS POWER	OUTFLOW IN KCFS SPILL	EL AT POWERHOUSE IN FEET + MSL FOREBAY	EL AT POWERHOUSE IN FEET + MSL TAILWATR	AVG HEAD FT	SUPR CAP MW	UNIT STATUS ON RMT	UNIT STATUS ON LINE AVL	AVERAGE FOREBAY ELEV	AVERAGE TAILWATER ELEV	UNITS AVAIL	HOUR
1		1	214.10	158.90	55.20	952.70	787.50	165.20				952.70	788.10	11.00	1
2		1	160.10	105.00	55.10	953.40	785.30	168.10				953.00	786.40	11.00	2
3		1	151.40	95.90	55.50	953.70	785.20	168.50				953.60	785.20	11.00	3
4		2	158.80	103.20	55.60	953.90	785.40	168.50				953.80	785.30	11.00	4
5		0	162.10	106.30	55.40	954.50	784.80	169.70				954.20	785.10	11.00	5
6		1	146.60	90.90	55.70	954.80	784.40	170.40				954.60	784.60	11.00	6
7		1	145.10	89.90	55.20	955.00	785.80	169.20				954.90	785.00	11.00	7
8		1	168.70	113.50	55.20	954.60	787.70	166.90				954.80	786.80	11.00	8
9		1	200.40	145.20	55.20	954.70	787.10	167.60				954.70	787.30	11.00	9
10		0	187.40	132.20	55.20	954.60	788.10	166.50				954.60	787.60	11.00	10
11		1	209.40	154.20	55.20	954.20	788.40	165.80				954.40	788.20	11.00	11
12		1	201.00	145.90	55.10	954.20	788.00	166.20				954.20	788.20	11.00	12
13		1	190.50	135.50	55.00	954.10	787.70	166.40				954.10	787.90	11.00	13
14		1	189.70	134.70	55.00	954.30	787.20	167.10				954.20	787.40	11.00	14
15		1	192.20	137.20	55.00	954.00	787.40	166.60				954.20	787.30	11.00	15
16		2	173.00	118.10	54.90	954.50	786.00	168.50				954.30	786.70	11.00	16
17		1	156.70	94.10	62.60	954.50	786.20	168.30				954.50	786.10	11.00	17
18		0	194.90	125.00	69.90	954.00	788.30	165.70				954.30	787.30	11.00	18
19		1	204.00	134.10	69.90	954.10	787.10	167.00				954.10	787.70	11.00	19
20		1	177.60	108.00	69.60	954.20	786.70	167.50				954.20	786.90	11.00	20
21		1	173.30	103.80	69.50	954.30	785.70	168.60				954.30	786.20	11.00	21
22		1	163.00	93.50	69.50	954.00	785.90	168.10				954.20	785.80	11.00	22
23		1	203.60	137.60	66.00	953.70	787.10	166.60				953.90	786.50	11.00	23
24		2	171.10	116.40	54.70	953.90	786.20	167.70				953.80	786.60	11.00	24
TOT	24	24												264.00	
AVG		1	178.95	119.96	58.97	954.16	786.63	167.53				954.15	786.68	11.00	
MAX			214.10	158.90	69.90	955.00	788.40	170.40				954.90	788.20	11.00	
MIN			145.10	89.90	54.70	952.70	784.40	165.20				952.70	784.60	11.00	

COLUMBIA RIVER TECHNICAL MANAGEMENT TEAM

July 20, 2011

Facilitator's Summary

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.

Meeting Minutes

TMT members had an opportunity to comment on the Official Minutes and Facilitator's Summary from the 6/24, 7/6 and 7/13 TMT meetings. No comments were made on these notes, but Doug Baus, COE, said edits had been made to the 6/22 and 6/24 Official Minutes that were not reported on yet, so he walked TMT through the changes.

Action: The Official Minutes from today will capture the 6/22 and 6/24 Minutes revisions noted by Doug.

McNary Transportation

Paul Wagner, NOAA, reminded everyone that the start of transportation operations at McNary between July 15 and 30 described in the BiOp is based on in season adaptive management. He reported that FPAC had discussed this issue and while current flow conditions would not drive the recommendation, the outfall conditions (and predation concerns) were the basis for NOAA recommending the COE initiate collection and transportation as soon as possible. Paul noted that the outfall issue is expected to be fixed by next year.

TMT members weighed in and were polled on the recommendation to begin collection and transportation at McNary:

- Idaho – Do not oppose the recommendation. This will allow a few additional Fall Chinook to be included in the current transportation study transport group, but this will also impact the in-river fish for this study that will be more vulnerable to predation at the bypass because they will be the only fish being bypassed.
- Washington – No objection.
- Oregon – No objection.
- Montana – No objection.
- USFWS – No objection.
- CTUIR – Not the best operation, but no objection.
- Salish-Kootenai Tribe – No objection.
- Reclamation -- No objection
- BPA – Support the operation.
- Nez Perce – No objection (not in attendance during the meeting but contacted via phone after the meeting).

Action/Operation: The COE planned to initiate collection of fish at McNary today, and transportation will begin tomorrow.

Spill Priority List

Doug Baus, COE, reminded TMT that per the 7/13 TMT meeting, the action agencies committed to switching the spill priority list to that proposed by the salmon managers as soon as possible. The COE posted the current spill priority list in effect, reflecting that the change had been made for both Levels 1 and 2. The spill priority list remains a living document and proposed changes will be coordinated with the region. Tony Norris, BPA, shared a link and reported on the action agencies' use of the prior list (with Chief Joseph at the top for Level 2 to manage lack of market spill), noting that there was a total of one hour of lack of market spill, on 7/16, but no additional spill was implemented at Chief Joseph at that time.

Dworshak Operations

Steve Hall, Walla Walla District COE, shared a water temperature comparison chart for the period 7/4-29. This chart projected Lower Granite would not reach 65 degrees through July 30. He said the COE has determined there is no need to change the current operation of 14 kcfs outflows at the project, which was currently at elevation 1596.7' and ranging 108-109% TDG. Flows remained high in the Snake Basin. In response to a question, Steve said the August 31 elevation projection would depend on inflows, and that with 14 kcfs outflows, Dworshak was projected to reach 1545' by the end of August. It was noted that the temperature model is tracking very close to actuals. Steve said the COE has been working to improve and sharpen the model over the last year, and it tracks well especially when temperatures exceed 60 degrees. Russ Kiefer, Idaho, commented that he supported the current operation. The COE and TMT will continue to track this operation as the summer progresses.

Finally, Steve reported on the minor leak at Unit 3 and said it had stabilized since he last reported, and the COE was watching it closely. The COE will take the unit out as soon as possible in September and have designed a temporary fix so it can get back up quickly. Longer term, the unit will need to be overhauled and out of service for much longer – the earliest this will happen is 2012-2013.

TMT will revisit Dworshak operations at the next face to face TMT meeting, 8/3, unless conditions change such that the COE needs to rethink current operations.

Lower Granite MOP Operations

As follow up from the last TMT meeting, Steve Hall reported that the annual surveys contract will be let very soon and crews will start working on a survey early in August, starting at the confluence and moving downstream. Results will likely be available during the second week of August and the COE will present those to TMT. The survey intent is to determine if the distribution of sediment in and around the Federal navigation near the Port of Lewiston has shifted with this year's high flows, and whether there continues to be a need to operate outside MOP for navigation safety. Longer term, after a Programmatic EIS is completed (expected around December 2012) and the Sediment Management Plan is finalized, the COE will look to begin dredging (approximately 2013). Steve said this issue is primarily only seen in the Lower Granite pool because it is

the only pool with significant unregulated tributaries which bring in sediment. Lower Granite was currently operating under MOP +1.5 per the COE decision reached in the spring in response to the Towboaters' request and TMT input.

SOR 2011-03

Tom Lorz, CRITFC/CTUIR, presented this request on behalf of the signatories (USFWS, WDFW, ODFW, Nez Perce Tribe, Shoshone-Bannock Tribe) and said CRITFC was unable to sign on due to on-going court and other procedures. The request asks for implementing spill at Little Goose up to the gas cap while the Lower Granite pool is operating above MOP for navigation safety, as a way to make the river 'whole' and allow for the best passage conditions for fish. Tom added that the concern is with water particle travel time, and 2009 data shows the highest survival at Little Goose.

The following is a summary of comments and poll results from TMT members on their level of support for the requested operation:

- Idaho – During early spring discussions of the towboaters' request for operating Lower Granite outside MOP, the COE invited the salmon managers to consider and bring forth options for making the river 'whole' during various points of operating that project outside MOP. The salmon managers saw the most impact would happen when flows recede to a level prompting MOP+2, and this SOR was offered as a preferred option for offsetting that impact. Idaho did not sign on to the SOR given the biological 'gray areas' around this issue, but does feel strongly that the issue needs to be resolved by next spring and would like the COE to work with the region to get a plan in place by then. No objection to the SOR.
- NOAA – Given that Fall Chinook's propensity to migrate goes down this late in the migration season, NOAA does not feel a need for an adjustment operation at this time. That said, a solution and plan for next spring is needed. The COE should present TMT options for addressing the Lower Granite pool issue, including emergency dredging. No objection to the SOR.
- USFWS – Signed on and supports the SOR as a reasonable request to help balance the intent of the BiOp.
- Oregon – This is a reasonable operation and we would like to see it implemented.
- Washington – Signed on and supports the SOR.
- Montana – Questions about next year, but does not see a compelling biological reason to implement the request at this time. No objection to the SOR.
- Salish-Kootenai Tribe – No objection.
- CRITFC – Unable to comment due to other procedural obligations.
- BPA – Unable to comment; need to discuss internally.
- Reclamation – No objection.

Action: The COE will discuss the proposed operation internally and make a decision on this as soon as possible. An email will be sent out to TMT members with the decision, and this will be an agenda item at the next TMT meeting.

John Day TSW Operation

Rick Kruger, Oregon, brought the John Day TSW operation back to TMT to request that in the future, this and other issues that are important to the region be brought forth in the FOP or another appropriate planning document, and also discussed at a regional forum meeting with enough time for input to the decision. Other TMT members commented that with multiple plans in place (Fish Operations Plan, Fish Passage Plan, Water Management Plan), it is difficult to track all operations and might be one reason this issue was missed. Suggestions for correcting this included consolidating the plans in to one document, documenting fish passage structure operations somewhere in one of the plans, and making all plans consistent with one another. Doug Baus, COE, added that the FOP is an appendix to the FPP. It was also noted that the TSW issue was discussed at FPOM and this year, the TSWs will remain on.

Operations Review

Reservoirs – Ted Day reported on Reclamation projects. Hungry Horse was at elevation 3557.17', with 11 kcfs in and 7 kcfs out. Outflows will steadily decrease to allow the project to reach full by the end of the month. Grand Coulee was near full, at 1289.2'. Doug Baus reported on COE projects. Libby was at elevation 2447.55', with 26.6 kcfs in and 11 kcfs out. Albeni Falls was at elevation 2062.35' with 61.2 kcfs in and 63.1 kcfs out. Dworshak was at elevation 1596.8' with 8.5 kcfs in and 14 kcfs out. Lower Granite was releasing 80 kcfs; Priest Rapids was releasing 207.4 kcfs; McNary was releasing 298 kcfs; and Bonneville was releasing 301.1 kcfs.

With regards to Libby operations, questions were asked about the COE's intended plan moving forward. An SOR is currently being developed by the Kootenai Tribe for shaping in September to support a habitat project – this will be presented at a TMT meeting soon. Jim Litchfield offered Montana's preference for maintaining steady summer flows and/or gradual ramp downs, and suggested bull trout minimums should also be factored in to the COE's considerations. Kristian Mickelson, Seattle District COE, confirmed that the COE did have those goals in mind. It was pointed out that the STP run shows flows increasing at Libby, to which the COE responded they were not relying on that model to make projections because it only showed flows outside the normal range. It was uncertain at this time whether Libby would meet its draft target or be adjusted for the multiple needs and conditions this year. Libby operations will be discussed in more detail on 8/3.

Fish – Cindy LeFleur, Washington, reported that adult summer Chinook and sockeye passage was winding down with about 500-800 observed per day. Steelhead numbers were picking up but still only about half the 10-year average. Fall Chinook counts will begin August 1 and the preliminary forecast is 760,000. Paul Wagner, NOAA, reported that the subyearling Chinook passage is past its peak, with about 4,000/day at Lower Granite, 200,000/day at McNary and 55,000/day at Bonneville –all screens were back in place at Bonneville as of this morning. Lamprey passage numbers at Lower Granite were 200, and 500 at McNary.

Water quality – Laura Hamilton, COE, shared the July TDG report, 7Q10 average day flow exceedances and the June TDG summary. Generally, the system had calmed down with flows receding and less involuntary spill. She also reported that the Cascade Island

gauge was completely destroyed and would need to be replaced. Portland District planned to install a temporary fixed monitoring station by mid-August and a permanent by September or October. TMT members questioned the need for the temporary station, to which Laura said that decision was under the discretion of Portland District.

Next Meeting, TENTATIVE Conference Call, 7/27

Notice will be sent out and posted on the TMT web page by 2:00 pm on Tuesday, 7/26 as to whether this meeting has been cancelled.

Next Face to Face Meeting, 8/3

Agenda items include:

- Dworshak Operations
- Lower Granite MOP Operations/Survey Update
- Libby Operations/SOR
- SOR 2011-03 Decision Update
- Operations Review
- Other?

Columbia River Regional Forum
TECHNICAL MANAGEMENT TEAM OFFICIAL MINUTES

July 20, 2011
Notes: Pat Vivian

1. Introduction

Today's TMT meeting was chaired by Doug Baus, COE, and facilitated by Robin Gumpert, DS Consulting. Representatives of Montana, BOR, Idaho, the COE, BPA, Oregon, USFWS, NOAA, Washington, Salish-Kootenai Tribe, CRITFC/Umatilla Tribe and others attended. This summary is an official record of the proceedings, not a verbatim transcript. Any questions or comments should be directed to the TMT chair.

2. Review Meeting Minutes

Baus read TMT changes he posted to the official notes for June 22 and 24 after they were finalized. These edits are in the official notes posted online, based on comments Baus received from TMT members.

June 24 official minutes:

- In the third paragraph under Spill Priority List Update, delete "…with spill evenly distributed among…" and replace with "at." In the second sentence of this paragraph, add "this addresses" and replace "about" with "at." Replace "BiOp" with "FOP" minimum spill.

- In the last sentence of the fifth paragraph under Spill Priority List Update, add, "it measures TDG in the spillway."

- In the last two sentences of the seventh paragraph under Spill Priority List Update, add "Filardo suggested…" and "Filardo further contended…"

June 22 official minutes:

- At the end of the first paragraph under Spill Priority List Update, delete "All turbines at Grand Coulee and throughout the system are generating to maximum capacity, which leaves spill or environmental redispatch as the only recourse to lack of generation." Tony Norris and Scott Bettin, BPA, explained the redaction is appropriate because inaccuracies can occur in paraphrasing and the deleted sentence doesn't account for reserves.

- At the end of the second paragraph under Spill Priority List Update, add, "Scott Bettin, BPA, pointed out that spill at CHJ is reducing TDG by 8% when you compare the forebay gage of CHJ to the forebay gage at Wells."

- At the end of the second to last paragraph under Spill Priority List Update, add, “Tony Norris stated that this would not likely change the level of TDG at MCN because the project is turbine limited.”

- In the last paragraph under Spill Priority List Update, replace “consensus” with “feedback” and “data are” with “information is” needed.

There were no other changes to meeting notes today.

3. McNary Transport

The BiOp says transportation will begin at McNary between July 15-July 30 and NOAA recommends initiating transport now, Paul Wagner said. The reason is the McNary outfall location exposes fish to eddies and predators in the tailrace. Yesterday FPAC members had no objections to NOAA’s recommendation to begin collection today and transportation tomorrow.

TMT members were polled on their views of the proposal:

- **Idaho** – Starting transport now would negatively impact the fall Chinook transport evaluation study now underway. Transporting all migrants except the few bypassed fish for the study would put them in the McNary tailrace without other fish to swamp predators. That said, Idaho does not oppose the recommendation.

- **Oregon** – Does not oppose the recommendation.

- **Washington** – Does not oppose the recommendation.

- **Montana** – Does not oppose the recommendation.

- **USFWS** – No objection.

- **Umatilla** – This is not the best strategy, but no objection.

- **Salish-Kootenai** – No objection.

- **BOR** – No objection.

- **BPA** – Supports the proposal.

- Nez Perce – Did not attend meeting but contacted after the TMT meeting and did not object to the operation.

Hearing no objections, the COE will initiate collection today and transportation tomorrow at McNary.

4. Spill Priority List Update

TMT followed up today on the Salmon Managers' proposed change in spill priorities when conditions are such that Chief Joseph is no longer needed for overgeneration spill. The proposal, presented at TMT on July 13, called for moving John Day and The Dalles higher on the Level 1 and 2 of the spill priority list. The COE is operating to the amended list, which is linked to item 4a on today's agenda.

Tony Norris, BPA, gave an example of how the list works. At hour 7 on July 16, lack of market spill drove Lower Monumental flows to 28 kcfs. John Day turbine discharges decreased and spill increased, while spill at The Dalles also increased. Spill at Little Goose and Lower Granite went up to the 40 kcfs range, and to 80 kcfs at Ice Harbor. McNary powerhouse discharges decreased, while Bonneville was already spilling at the gas cap and couldn't spill more. There were no questions or comments on spill priorities today.

5. Dworshak Operations

The latest model results show Lower Granite tailwater temperatures hovering in the 62-64 degrees F range through July 30, Steve Hall, COE, reported. Therefore the COE sees no need to change the operation for temperatures at Lower Granite during that time. This trend is expected to continue. The model, which the COE has spent the last few years improving, appears to be working very well.

Dworshak reservoir is currently at elevation 1,596.7 feet, with 14 kcfs discharges and tailrace TDG readings of 108-109%. Tom Lorz, CRITFC, asked about projections for the August 31 elevation. That largely depends on inflows, Hall replied. Discharges of 14 kcfs will probably raise the elevation to 1,540-1,545 feet, around 5-10 feet above the target elevation of 1,535 feet. Idaho supports the current operation because it is probably the best option available.

Hall gave TMT some good news: The leak in the head seal on Dworshak unit 3 appears to have stabilized or decreased. The COE plans to take the unit out of service in September for a short-term repair by filling the leak with copper and welding the joint shut. A longer term overhaul will require the unit to be unstacked; the earliest that could happen is 2012-13. TMT will revisit Dworshak operations at its August 3 meeting.

6. Lower Granite MOP Operations

The COE has instructed the contractor to begin surveying the federal shipping channel at the confluence of the Lewiston and Clarkston rivers and work downstream, Hall reported. Data showing where the federal channel is not in

compliance with navigation standards should be available by the second week of August. As flows decrease, the COE intends to provide more than MOP depth to avoid shoaling hazards. TMT will revisit this issue in mid August.

7. SOR 2011-3 Nighttime Spill to Gas Cap at Little Goose

This SOR was signed by USFWS, Washington, Oregon, and the Nez Perce and Shoshone-Bannock tribes. Tom Lorz presented it as vice chair of the Salmon Managers. The SOR requests an increase in nighttime spill at Little Goose to the 115%/120% gas cap whenever navigation safety requires going outside MOP at Lower Granite. The goal of the SOR is to operate as closely as possible to the intent of the BiOp in light of navigation safety requirements.

Baus asked for an explanation of the biology behind the request to implement this operation. Going outside of MOP increases pool depth, which increases particle travel time, an indicator of fish travel time, Lorz replied. The Salmon Managers determined that it made more sense to change operations at Little Goose because survival through the spillway is highest at Goose compared with bypass and turbine passage. Excess spill at Goose would therefore support the route with highest survival.

TMT members were polled on their views of this SOR:

- **Idaho** – Didn't sign the SOR but does not oppose it. Gray areas regarding declining numbers of subyearlings made it a close call this time. Idaho's main concern will be in springtime. If next year is a low flow year, impacts of this operation on spring migrants could be significant.

- **NOAA** – Wasn't close to signing, but agrees with Idaho on spring migration concerns. A change in MOP operations will affect travel time. NOAA would like to see this dredging issue resolved sooner than 2014. This will become more of an issue next spring.

- **Montana –** Has some of the same concerns as Idaho and NOAA. No objection, but doesn't see a compelling biological reason to move forward with this SOR.

- **USFWS –** Signed the SOR. This is a reasonable operation to request.

- **Oregon –** Agrees with USFWS position.

- **CRITFC/CTUIR –** Supports the SOR.

- **BPA –** Deferred because of insufficient time to review the SOR.

- **BOR –** No objection and no comment pending further discussion.

- **Salish-Kootenai –** No objection.

Hall said the COE will give TMT a presentation on emergency dredging vs. following the EIS schedule, which calls for dredging in the winter of 2013-14. The COE will review relevant data and give TMT more information on this operation as soon as possible.

8. JDA TSW Operation

This issue was added to today's agenda in response to concerns voiced by Rick Kruger, Oregon, regarding the rollover operation of the TSWs at John Day. The option of turning off the TSWs at John Day was not specified in the 2010 FOP operation for summer, and Kruger said all future intended operations including rollovers should be clearly specified in the FOP.

Scott Bettin agreed that fish passage structure plans need to be specified in writing, but more thought is needed on whether the details should be spelled out in the FOP or the FPP. Russ Kiefer, Idaho, suggested having a single fish operations plan to cut down on procedural confusion. Bettin said the John Day TSW operation is a good example of an issue that was successfully addressed at FPOM; he encouraged TMT members to continue participating in that forum.

9. Operations Review

Reservoirs. Hungry Horse is at 3,557.17 feet elevation, a little under 3 feet from full. Inflows are around 11 kcfs and outflows are 7 kcfs, about to drop to 6 kcfs tomorrow. Grand Coulee is at 1,289 feet elevation, hovering around full. Drafting will probably begin in a few weeks.

Libby is at elevation 2,447.55 feet, with inflows of 26.6 kcfs and outflows of 11 kcfs. The COE anticipates an SOR on Libby operations later this season. The Kootenai Tribe is hoping for lower flows in September to accommodate a habitat project, Kristian Mickelson, COE Seattle, reported. The COE estimates a flat flow of 8-13 kcfs will be needed from now through the end of September to meet the target of 2449 feet. The tribe will probably want bull trout minimum flows in September, Jim Litchfield, Montana, added. Montana would prefer 11 kcfs out.

Dave Wills, USFWS, said the recent STP forecast showed steadily increasing flows through the next 3 months. The anticipated end of September elevation at Libby is 2,049 feet. Kiefer asked whether decreasing flows in September for habitat work means that TMT will change flow discharges to meet the BiOp draft target. The COE is currently considering this information and will provide TMT with an update on Libby operations soon. .

Albeni Falls is at elevation 2,062.35 feet, with inflows of 61.2 kcfs and outflows of 6.1 kcfs. Dworshak is at elevation 1,596.8 feet, with inflows of 8.5 feet and outflows of 14 kcfs.

Lower Granite inflows are 79.9 kcfs with outflows of 80 kcfs. Priest Rapids outflows are 207.4 kcfs. McNary average outflows are 298 kcfs. Bonneville outflows are 301.1 kcfs.

Fish. Adults: Summer Chinook passage is winding down, Cindy LeFleur, Washington, reported. Sockeye passage is down to 500 fish per day at Bonneville. Steelhead passage is picking up, but is still half the 10-year average so far. Fall Chinook passage which starts August 1 is expected to be substantial this year. Snake River sockeye passage is above the 10-year average while upper Columbia sockeye passage is about average, Paul Wagner reported.

Juveniles: The two-week passage index for fall Chinook is 4,000 per day at Lower Granite, Wagner reported. At Little Goose, 5,000 per day; Lower Monumental, a few hundred thousand per day and trending down; John Day, 100,000 per day; Bonneville, 55,000 per day. Lamprey passage is down to a few hundred per day at Lower Granite and 500 per day at McNary. Lamprey passage comparisons from year to year are difficult to make because lamprey are counted more intensively now, Kiefer commented. The forecast for fall Chinook is 760,000 fish this year at the mouth of the Columbia, including jacks, LeFleur said. Upriver bright passage is forecasted at 400,000 fish.

Water quality. Laura Hamilton, COE, reported that involuntary spill has ended everywhere except McNary and Bonneville. She showed TMT a chart of how many days 7Q10 flows were exceeded from May 18-July 8 (7Q10 means water quality standards no longer apply). Chief Joseph, John Day and the dams on the lower Columbia had the highest number of days with 7Q10 flows. The highest was 36 days at John Day.

On May 18 the Cascade Island gage below Bonneville Dam was destroyed. Replacement will include buying extensive parts, so the COE plans to put in a fixed monitoring station in the meantime. Cascade Island gage should be back on line by mid August.

Power. There was nothing to report today.

6. Next Meeting

A conference call was tentatively scheduled for July 27. The next regular TMT meeting will be on August 3.

Name	***Affiliation***
Jim Litchfield	Montana

Ted Day	BOR
Russ Kiefer	Idaho
Lisa Wright	COE
Scott Bettin	BPA
Rick Kruger	Oregon
David Wills	USFWS
Paul Wagner	NOAA
Doug Baus	COE
Tony Norris	BPA
Steve Hall	COE
Laura Hamilton	COE
Kevin Shaffer	COE
Steve Burrill	COE
Cindy LeFleur	Washington

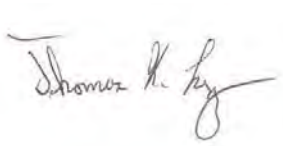
Phone:

Kristian Mickelson	COE
Joe Hovenkotter	Salish Kootenai
Margaret Filardo	FPC
Bruce McKay	consultant
Rob Allerman	Deutsch Bank
Richelle Beck	DRA
Doug Vine	Thompson Reutters
Bill Crampton	CBB
Tom Lorz	CRITFC/Umatilla

SYSTEM OPERATIONAL REQUEST: #2011- 3

The following State, Federal, and Tribal Salmon Managers have participated in the preparation and support this SOR: US Fish and Wildlife Service, Washington Department of Fish and Wildlife, Oregon Department of Fish and Wildlife, the Nez Perce Tribe and the Shoshone-Bannock Tribes.

TO:	**Brigadier General McMahon**	**COE-NWD**
	James D. Barton	**COE-Water Management**
	Steven Barton	**COE-RCC**
	David Poganis	**COE-P**
	Col. John W. Eisenhauer	**COE-Portland District**
	LTC David Caldwell	**COE-Walla Walla District**
	Karl Wirkus	**USBR-Boise Regional Director**
	Stephen J. Wright	**BPA-Administrator**
	Lori Bodi	**BPA-PG-5**



FROM: Tom Lorz*, Vice-Chair, Salmon Managers

DATE: July 19, 2011

SUBJECT: Nighttime Spill to the gas cap at Little Goose Dam

SPECIFICATIONS:

During periods of Lower Granite pool operation above MOP for navigation safety issues according to SOR 2011-1; spill to the 115/120% gas cap at Little Goose Dam during nighttime hours beginning immediately, and continuing through the remainder of the 2011 juvenile fish passage season.

JUSTIFICATION:

Reasonable and prudent alternative # 5 of the 2008 Biological Opinion specifies that the Lower Snake River reservoirs be operated at minimum operating pool during the juvenile fish spill passage season to minimize water travel time through the reservoir to improve juvenile survival. In early April, the Columbia River Towboat Association submitted SOR 2011-1 to TMT to allow the Lower Granite reservoir to operate at an elevation above MOP+1 to address navigation safety concerns. The concerns were raised relative to the lack of federal maintenance of the navigation channel, with no dredging occurring since 2006. This lack of maintenance has lead to shoaling in the federal navigation channel and navigation concerns.

Since the proposed operation of Lower Granite reservoir above the MOP elevation

*In his capacity as vice-chair of FPAC.

identified in the 2008 Biological Opinion will result in a reduction in planned fish protection, we request that the Action Agencies adjust the operation of the FCRPS to provide similar protection levels as planned for in the 2008 Biological Opinion. Therefore, we are requesting that spill at Little Goose Dam be increased to gas cap levels during nighttime hours for the remainder of the summer spill season. This nighttime operation will help maintain juvenile survival at the level that would occur if Lower Granite was operated as planned in the 2008 Biological Opinion, by decreasing the migration rate in the lower Snake River that was increased by operating the Lower Granite Reservoir above MOP.

Spill Priority List Modification

Revised on July 13 at 4:30pm with updated values for TDG production estimates and revisions (denoted with *) to all levels based on FPAC recommendations

2011 FOP Spill: Continue spill in accordance with the 2011 Spring and 2011 Summer FOPs at all fish passage projects: LWG, LGS, LMN, IHR, MCN, JDA, TDA, & BON.

Spill Priority List to Best Manage TDG[1]

LEVEL 1 SPILL (120%/115% TDG SPILL CAP[2]) IS AS FOLLOWS:
1) LMN UP TO 28 kcfs
2) JDA UP TO 140 kcfs *
3) TDA UP TO 130 kcfs *
4) LGS UP TO 40 kcfs *
5) IHR UP TO 85 kcfs *
6) LWG UP TO 41 kcfs *
7) MCN UP TO 190 kcfs *
8) BON[3] UP TO 121 kcfs
9) CHJ UP TO 150 kcfs

LEVEL 2 SPILL (120% TDG SPILL CAP) IS AS FOLLOWS:
1) LMN UP TO 44 kcfs*
2) JDA UP TO 144 kcfs*
3) TDA UP TO 135 kcfs *
4) LGS UP TO 52 kcfs *
5) IHR UP TO 75 kcfs
6) LWG UP TO 45 kcfs
7) MCN UP TO 160 kcfs*
8) BON UP TO 107 kcfs*
9) DWR UP TO – (110% TDG) *
10) CHJ UP TO 189 kcfs*
11) GCL UP TO -- (110% TDG SPILL CAP)

LEVEL 3 SPILL (122% TDG SPILL CAP) IS AS FOLLOWS:
1) LMN UP TO 60 kcfs
2) JDA UP TO 177 kcfs*
3) TDA UP TO 160 kcfs*
4) LGS UP TO 59 kcfs*
5) IHR UP TO 85 kcfs*
6) LWG UP TO 52 kcfs*
7) MCN UP TO 170 kcfs*
8) BON UP TO 120 kcfs
9) CHJ UP TO 200 kcfs
10) GCL UP TO 15 kcfs (115% TDG SPILL CAP)

[1] TDG spill cap levels are reviewed daily and are subject to change
[2] As measured in the tailwater and forebay of the next project downstream respectively
[3] Bonneville Dam TDG levels will be managed to 120% in the tailrace until July 21 – the Cascades Island gauge is out of service and the Corps will continue to use the analog from the Warrendale gauge

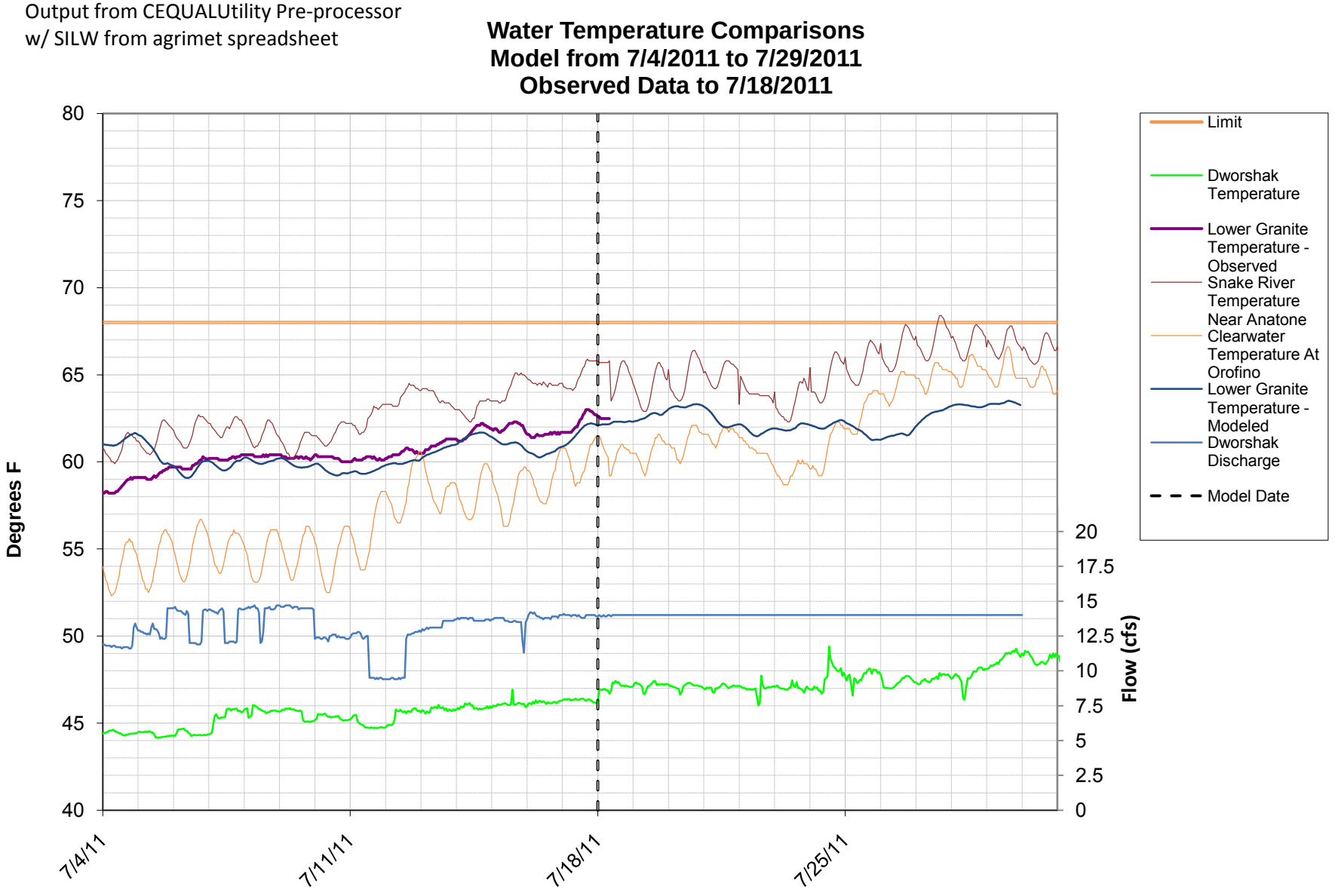
LEVEL 4 SPILL (125% TDG SPILL CAP) IS AS FOLLOWS:
1) LMN UP TO 80 kcfs
2) JDA UP TO 190 kcfs*
3) TDA UP TO 269 kcfs*
4) LGS UP TO 70 kcfs*
5) IHR UP TO 110 kcfs*
6) LWG UP TO 63 kcfs*
7) MCN UP TO 230 kcfs*
8) BON UP TO 183 kcfs
9) CHJ UP TO 210 kcfs
10) GCL UP TO 30 kcfs (120% TDG SPILL CAP)

LEVEL 5 SPILL (127% TDG SPILL CAP) IS AS FOLLOWS:
1) LMN UP TO 120 kcfs
2) JDA UP TO 206 kcfs*
3) TDA UP TO 294 kcfs*
4) LGS UP TO 95 kcfs*
5) IHR UP TO 124 kcfs*
6) LWG UP TO 85 kcfs*
7) MCN UP TO 280 kcfs*
8) BON UP TO 205 kcfs
9) CHJ UP TO 250 kcfs
10) GCL UP TO 50 kcfs (122% TDG SPILL CAP)

LEVEL 6 SPILL (130% TDG SPILL CAP) IS AS FOLLOWS:
1) LMN UP TO 180 kcfs
2) JDA UP TO 250 kcfs*
3) TDA UP TO 360 kcfs*
4) LGS UP TO 125 kcfs*
5) IHR UP TO 145 kcfs*
6) LWG UP TO 90 kcfs*
7) MCN UP TO 321 kcfs*
8) BON UP TO 215 kcfs
9) CHJ UP TO 275 kcfs
10) GCL UP TO 75 kcfs (125% TDG SPILL CAP)

LEVEL 7 SPILL (135% TDG SPILL CAP) IS AS FOLLOWS:
1) LMN UP TO 250 kcfs
2) JDA UP TO 300 kcfs*
3) TDA UP TO 400 kcfs*
4) LGS UP TO 177 kcfs*
5) IHR UP TO 240 kcfs*
6) LWG UP TO 200 kcfs*
7) MCN UP TO 375 kcfs*
8) BON UP TO 240 kcfs
9) CHJ UP TO 300 kcfs
10) GCL UP TO 120 kcfs (130% TDG SPILL CAP)

Output from CEQUALUtility Pre-processor
w/ SILW from agrimet spreadsheet



TECHNICAL MANAGEMENT TEAM			
BOR:	*John Roache / Mary Mellema / Pat McGrane*	**BPA:**	*Tony Norris / Scott Bettin / Robyn MacKay*
NOAA-F:	*Paul Wagner / Richard Dominigue*	**USFWS:**	*David Wills / Steve Haeseker*
OR:	*Rick Kruger / Ron Boyce*	**ID:**	*Russ Kiefer / Pete Hassemer*
WDFW:	*Cindy LeFleur / Charles Morrill*	**MT:**	*Jim Litchfield / Brian Marotz*
Kootenai:	*Sue Ireland / Billy Barquin*	**Spokane:**	*Deanne Pavlik-Kunkel / Andy Miller*
Colville:	*Sheri Sears / Steve Smith*	**Nez Perce:**	*Dave Statler*
Umatilla:	*Tom Lorz (CRITFC)*		
COE:	*Doug Baus / Karl Kanbergs*		

TMT CONFERENCE CALL

Wednesday July 27, 2011 9:00am - 12:00pm

CONFERENCE CALL INFORMATION
Phone Number (877) 336-1274
Access Code 3871669
Security Code 6845

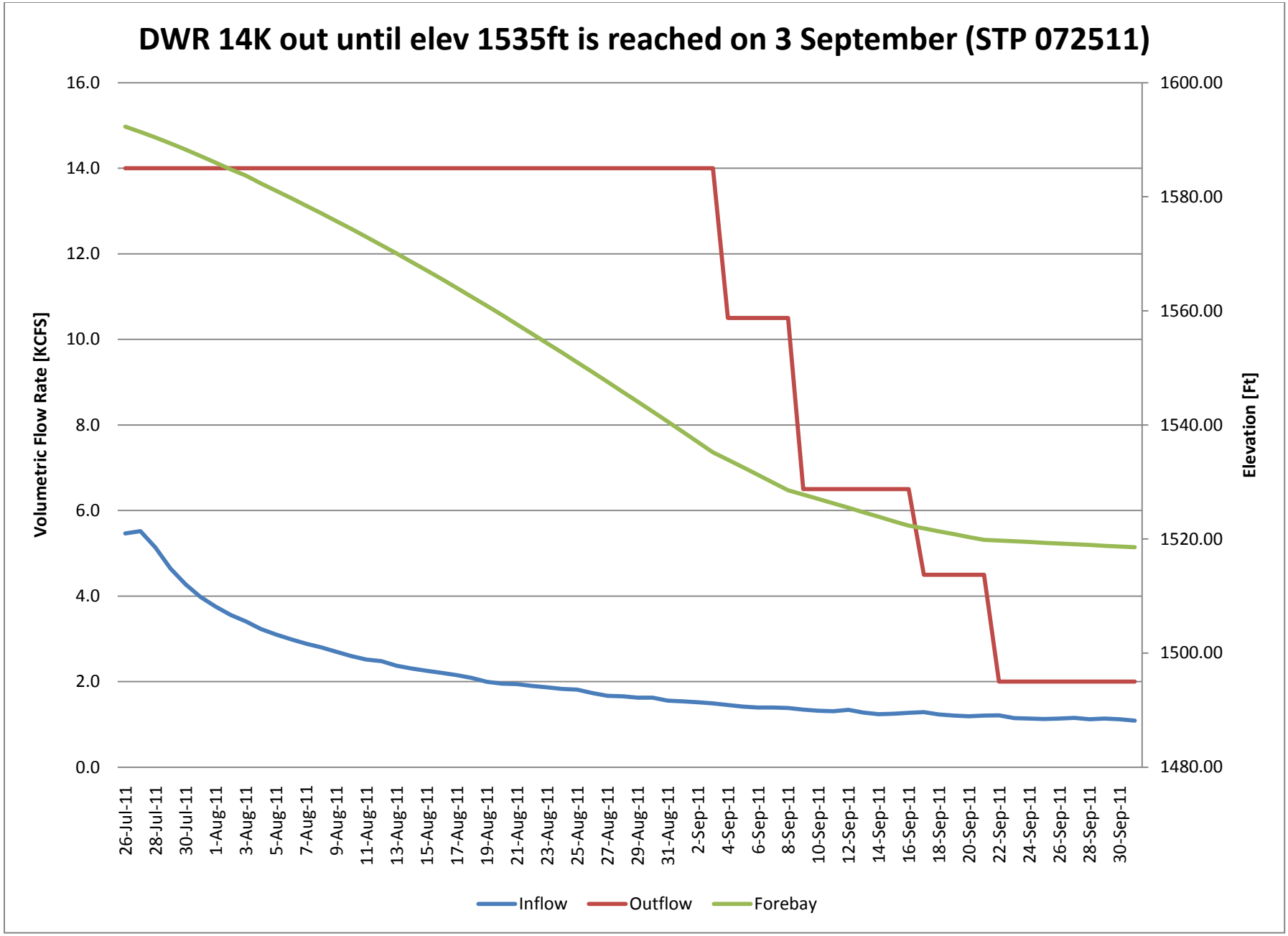
We have had disruptions on the phone because people are not hitting 'mute' after dial in.
Please MUTE your Phone

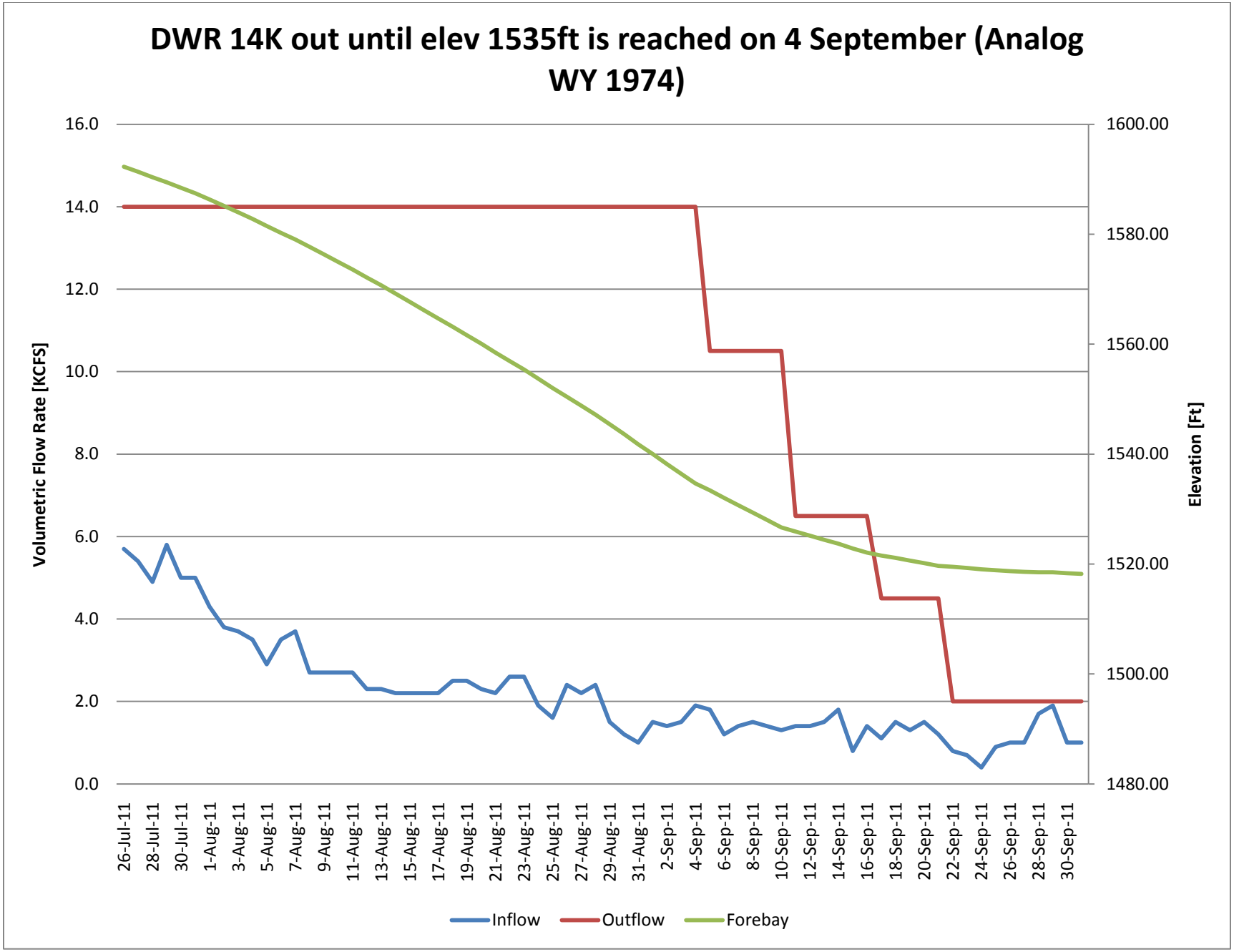
All members are encouraged to call Robin Gumpert with any issues or concerns they would like to see addressed. Please e-mail her at rgumpert@cnnw.net or call her at (503) 248-4703.

AGENDA

1. Welcome and Introductions
2. Dworshak Operations - *Doug Baus, COE-NWD; Steve Hall, COE-NWW*
   a. 14 K Out
3. Libby Operations - *Doug Baus, COE-NWD; Kristian Mickelson, COE-NWS*
   a. Libby July to Sept
4. SOR 2011-03 - LGS Nightime Spill to Gas Cap - *Doug Baus, COE-NWD*
5. Other
   a. Set agenda and date for next meeting - **August 3, 2011**
   b. [Calendar 2011]

Questions about the meeting may be referred to:
Doug Baus at (503) 808-3995


DWR 14K out until elev 1535ft is reached on 3 September (STP 072511)
Volumetric Flow Rate [KCFS]
Elevation [Ft]
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
1600.00
1580.00
1560.00
1540.00
1520.00
1500.00
1480.00
26-Jul-11
28-Jul-11
30-Jul-11
1-Aug-11
3-Aug-11
5-Aug-11
7-Aug-11
9-Aug-11
11-Aug-11
13-Aug-11
15-Aug-11
17-Aug-11
19-Aug-11
21-Aug-11
23-Aug-11
25-Aug-11
27-Aug-11
29-Aug-11
31-Aug-11
2-Sep-11
4-Sep-11
6-Sep-11
8-Sep-11
10-Sep-11
12-Sep-11
14-Sep-11
16-Sep-11
18-Sep-11
20-Sep-11
22-Sep-11
24-Sep-11
26-Sep-11
28-Sep-11
30-Sep-11
Inflow
Outflow
Forebay


DWR 14K out until elev 1535ft is reached on 4 September (Analog WY 1974)
Volumetric Flow Rate [KCFS]
Elevation [Ft]
16.0
14.0
12.0
10.0
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1600.00
1580.00
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1540.00
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26-Jul-11
28-Jul-11
30-Jul-11
1-Aug-11
3-Aug-11
5-Aug-11
7-Aug-11
9-Aug-11
11-Aug-11
13-Aug-11
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16-Sep-11
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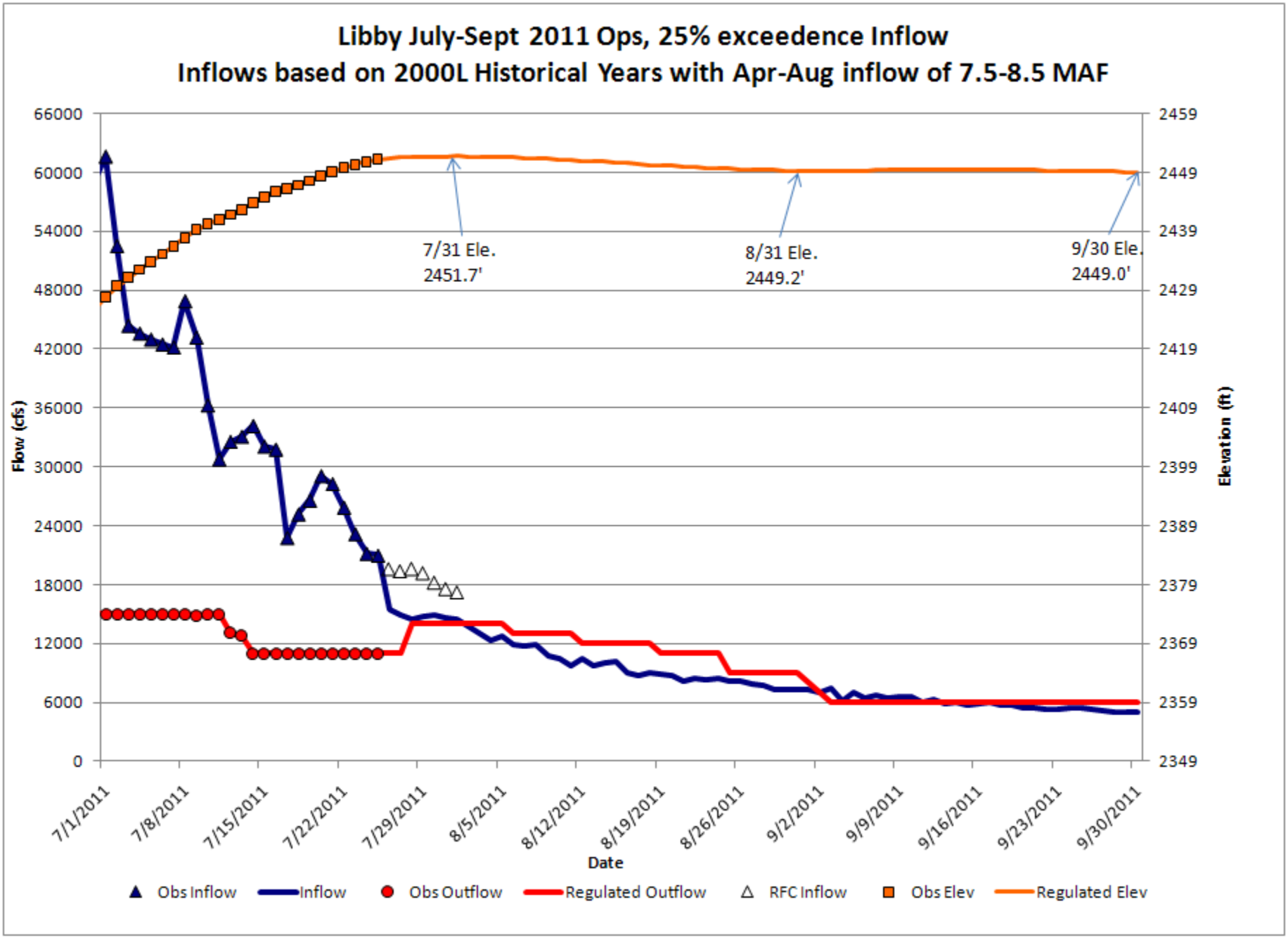
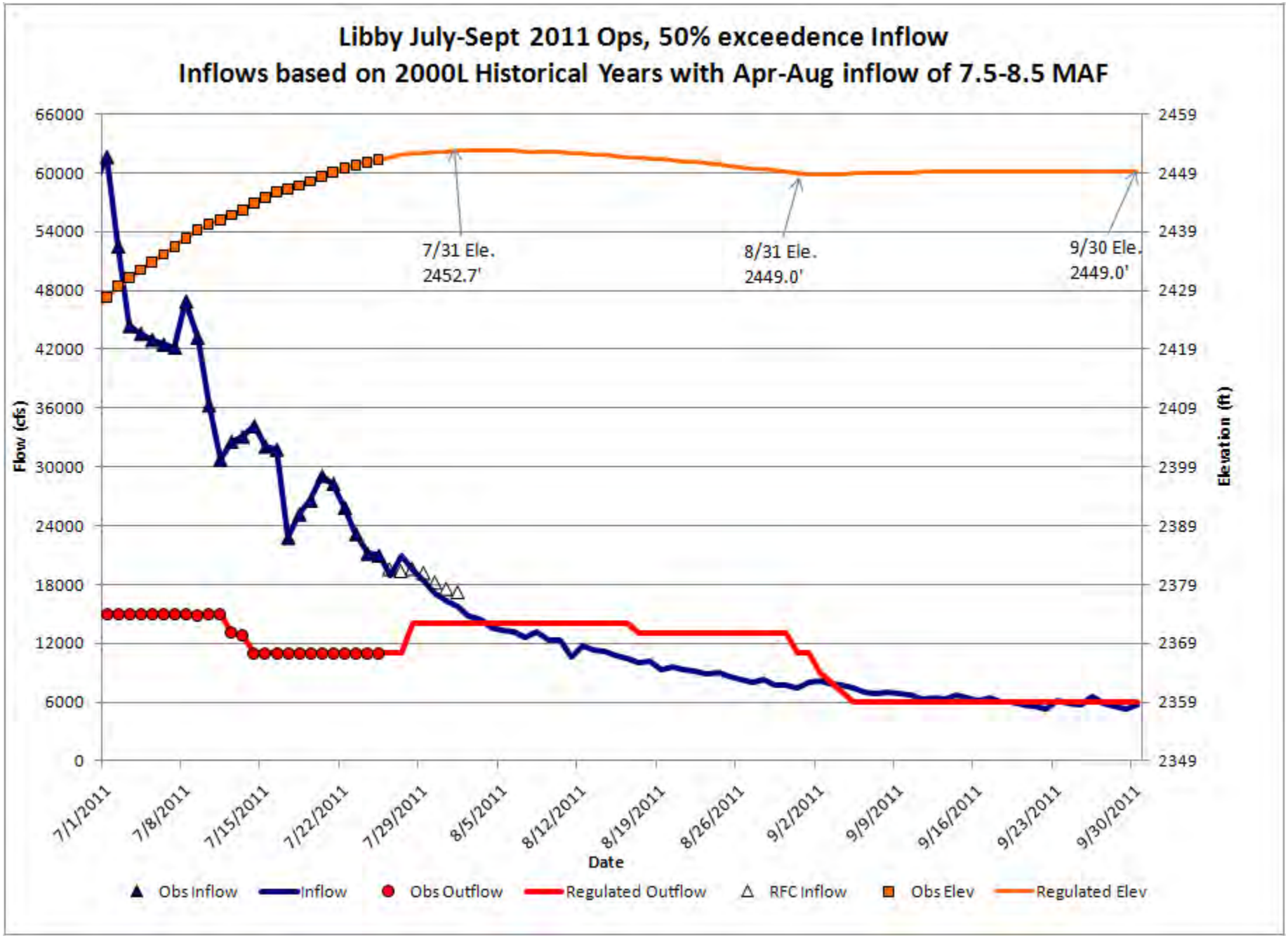
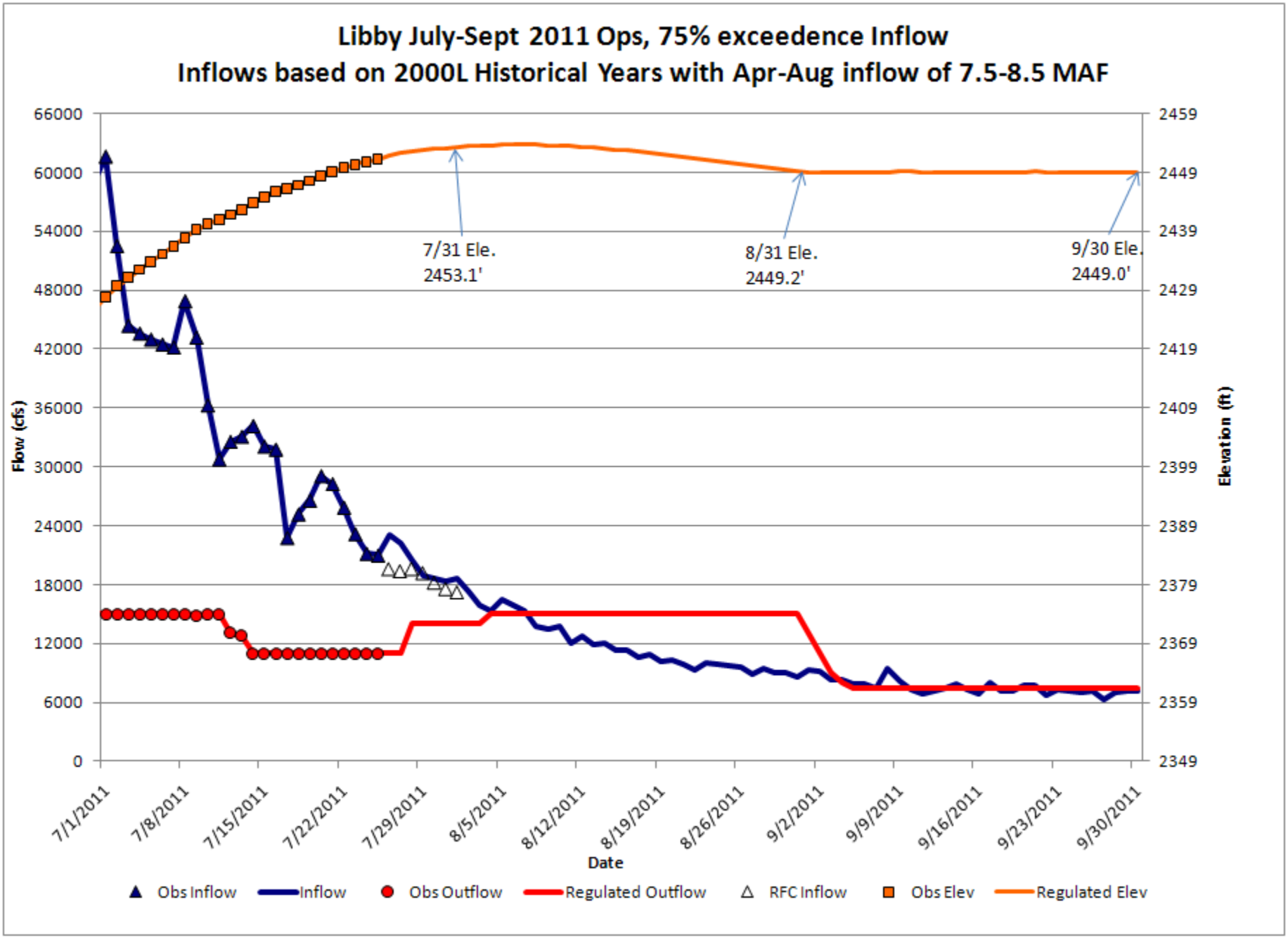
28-Sep-11
30-Sep-11
Inflow
Outflow
Forebay


Libby July-Sept 2011 Ops, 25% exceedence Inflow
Inflows based on 2000L Historical Years with Apr-Aug inflow of 7.5-8.5 MAF
Flow (cfs)
Elevation (ft)
66000
60000
54000
48000
42000
36000
30000
24000
18000
12000
6000
0
2459
2449
2439
2429
2419
2409
2399
2389
2379
2369
2359
2349
7/31 Ele.
2451.7'
8/31 Ele.
2449.2'
9/30 Ele.
2449.0'
7/1/2011
7/8/2011
7/15/2011
7/22/2011
7/29/2011
8/5/2011
8/12/2011
8/19/2011
8/26/2011
9/2/2011
9/9/2011
9/16/2011
9/23/2011
9/30/2011
Date
Obs Inflow
Inflow
Obs Outflow
Regulated Outflow
RFC Inflow
Obs Elev
Regulated Elev


Libby July-Sept 2011 Ops, 50% exceedence Inflow
Inflows based on 2000L Historical Years with Apr-Aug inflow of 7.5-8.5 MAF
Flow (cfs)
Elevation (ft)
66000
60000
54000
48000
42000
36000
30000
24000
18000
12000
6000
0
2459
2449
2439
2429
2419
2409
2399
2389
2379
2369
2359
2349
7/31 Ele.
2452.7'
8/31 Ele.
2449.0'
9/30 Ele.
2449.0'
7/1/2011
7/8/2011
7/15/2011
7/22/2011
7/29/2011
8/5/2011
8/12/2011
8/19/2011
8/26/2011
9/2/2011
9/9/2011
9/16/2011
9/23/2011
9/30/2011
Date
Obs Inflow
Inflow
Obs Outflow
Regulated Outflow
RFC Inflow
Obs Elev
Regulated Elev


Libby July-Sept 2011 Ops, 75% exceedence Inflow
Inflows based on 2000L Historical Years with Apr-Aug inflow of 7.5-8.5 MAF
Flow (cfs)
Elevation (ft)
66000
60000
54000
48000
42000
36000
30000
24000
18000
12000
6000
0
2459
2449
2439
2429
2419
2409
2399
2389
2379
2369
2359
2349
7/31 Ele.
2453.1'
8/31 Ele.
2449.2'
9/30 Ele.
2449.0'
7/1/2011
7/8/2011
7/15/2011
7/22/2011
7/29/2011
8/5/2011
8/12/2011
8/19/2011
8/26/2011
9/2/2011
9/9/2011
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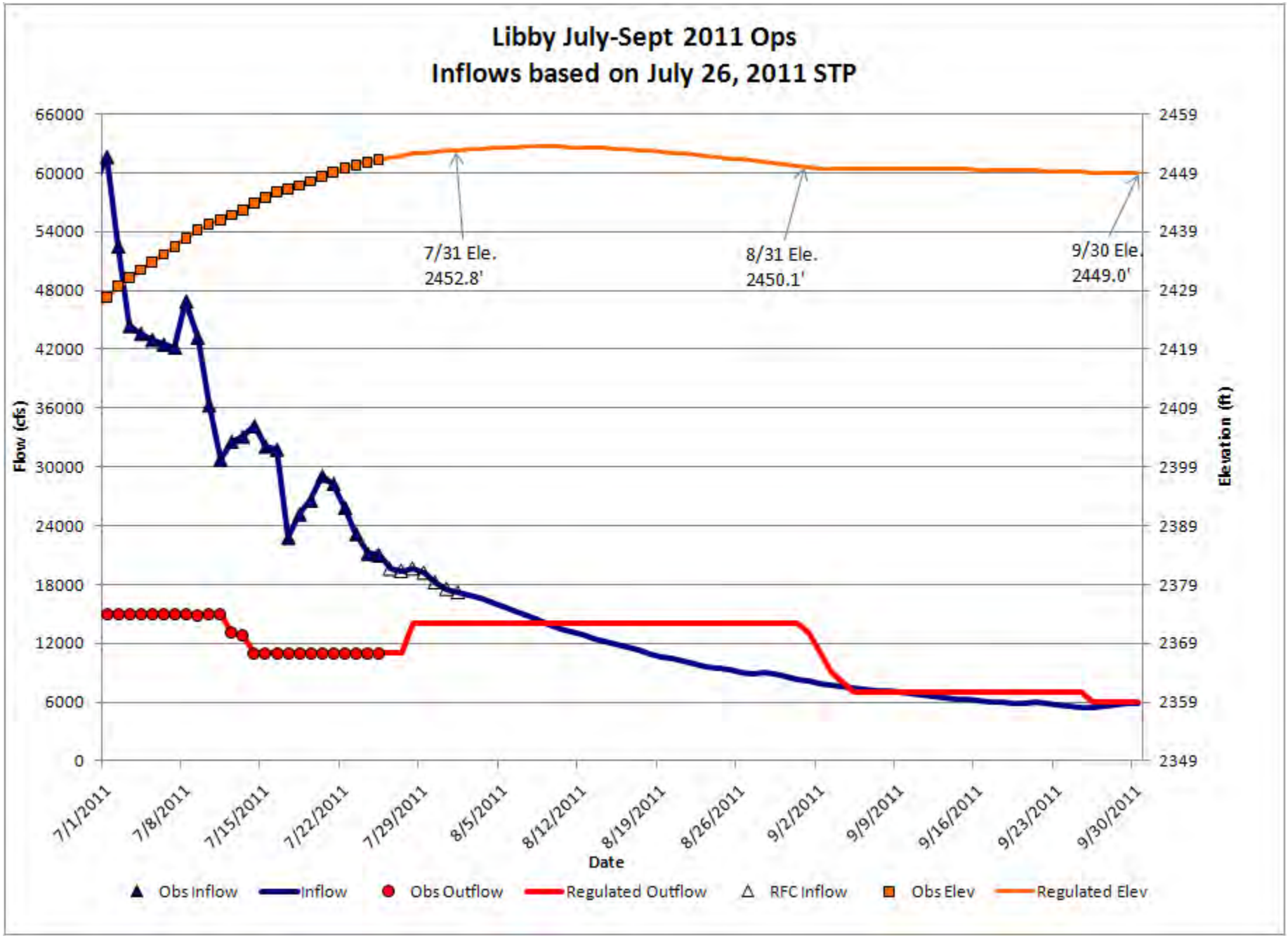
Inflow
Obs Outflow
Regulated Outflow
RFC Inflow
Obs Elev
Regulated Elev


Libby July-Sept 2011 Ops
Inflows based on July 26, 2011 STP
66000
60000
54000
48000
42000
36000
30000
24000
18000
12000
6000
0
Flow (cfs)
2459
2449
2439
2429
2419
2409
2399
2389
2379
2369
2359
2349
Elevation (ft)
7/31 Ele.
2452.8'
8/31 Ele.
2450.1'
9/30 Ele.
2449.0'
7/1/2011
7/8/2011
7/15/2011
7/22/2011
7/29/2011
8/5/2011
8/12/2011
8/19/2011
8/26/2011
9/2/2011
9/9/2011
9/16/2011
9/23/2011
9/30/2011
Date
Obs Inflow
Inflow
Obs Outflow
Regulated Outflow
RFC Inflow
Obs Elev
Regulated Elev

COLUMBIA RIVER TECHNICAL MANAGEMENT TEAM

July 27, 2011 Conference Call

Facilitator's Summary

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.

Dworshak Operations

Doug Baus, COE, said today's discussion of Dworshak operations would focus on updating TMT on current operations. Gunnar Leffler, Walla Walla District, provided a visual of the current operation, 14 kcfs, and the project's projected elevation moving forward at this outflow. The COE is managing the operation to stay within Idaho's state water quality standards of 110% therefore it is unlikely Dworshak will reach 1535' by the end of August. The current model shows that this elevation will be reached around 9/3 at this outflow. TDG was hovering around 108-108.5% and Gunnar explained that many changing factors (like barometric pressure) influence TDG and do not have a linear relationship with powerhouse spill, so from a risk management perspective the COE does not believe the risk associated with operating at TDG levels higher than the current operation are worth the potential adverse impacts that could result from higher TDG levels downstream on hatchery operations. In response to a question from Oregon's Rick Kruger about trying to meet the elevation target closer to the end of August, Gunnar said increasing outflows to 14.5 kcfs would have the project reaching 1535' by 9/2, and could cause TDG cap exceedances. Dave Wills, USFWS, added that from the hatchery perspective, there is a biological need to stay within the TDG limits, as higher levels cause stressors to the fish and could cause disease outbreaks. He said the current conditions were acceptable to the hatchery. The Nez Perce Tribe was contacted after the TMT meeting and had no comment on the current operation.

Next Steps/Action: The COE planned to continue operating the project at 14 kcfs and in the meantime work with the Dworshak Board to understand their preference for shaping 200 kaf releases in September to reach elevation 1520'. Operations at Dworshak will be contingent on the Dworshak Board's recommendations. TMT will revisit this item at their next meeting on 8/3.

Libby Operations

Doug Baus, Division COE, and Kristian Mickelson, Seattle District COE, shared that Libby was operating 11 kcfs outflows and was at elevation 2451.69'. Kristian developed a set of slides to depict different inflow projections tied with a COE proposal to increase flows to 14 kcfs in anticipation of an SOR from the Kootenai Tribe for lower releases in September (approximately 6 kcfs) that would accommodate the tribe's habitat work. The current end of September draft target is 2449 feet. Kristian said this proposed flow was based on the COE's best professional judgment for managing conditions and meeting multiple needs in the river. The first slide, he said, was the 'ideal' scenario; other slides were also potential outcomes of this operation. TMT members thanked the COE for

sharing the slides and said they were helpful to paint the picture. After further clarifying discussion about the slides, TMT members were polled on their level of support for the COE's proposal to increase flows at Libby to 14 kcfs today:

- Oregon – No objection
- Washington – No objection
- Montana – Support the operation for now; want to monitor closely with changing inflow conditions
- USFWS – No objection
- NOAA – Support the operation, and agree on the need to monitor closely
- Salish Kootenai Tribe – Support
- Reclamation – Support
- BPA – Support
- *Nez Perce - No objection (the Tribal representative was not in attendance during the meeting but contacted via phone after the meeting).

Action/Next Steps: Given no objections to the proposal, the COE planned to increase flows at Libby to 14 kcfs today. TMT will revisit the operation next week (on 8/3) with updated scenarios and likely an SOR from the Kootenai Tribe.

SOR 2011-03 Follow Up

Doug Baus, COE, said that the request submitted last week from USFWS, WDFW, ODFW, Nez Perce Tribe and Shoshone-Bannock Tribe had been discussed at the 7/20 TMT meeting and further coordinated internally by the COE and partner action agencies. There was no consensus on the SOR nor from TMT members during the 7/20 TMT meeting. The COE feels that the 2009 study at Little Goose did not show a clear biological benefit to implementing the request for additional spill at Little Goose. Also, the majority of the subyearling Chinook had passed the project therefore it does not appear this operation would result in significant biological benefits. For those reasons the COE made the decision not to implement the SOR at this time. However they were committed to staying engaged and coordinated with the region on the concerns raised with operating Lower Granite at MOP+2. The 8/3 TMT meeting agenda will include Lower Granite and the COE will share information on survey results from the area that will inform next steps.

Paul Wagner, NOAA, commented that NOAA does accept the need to operate outside Lower Granite this year for navigation safety reasons, and would like to see the issue resolved by next year. The option put forward in the SOR was a creative solution, and at this time, NOAA does not see a meaningful biological benefit to implementing it. Fall Chinook have a decreased propensity to migrate this time of year. NOAA is OK with the COE decision not to implement the SOR.

BPA's Scott Bettin said BPA supports the COE's decision not to implement the SOR. Reclamation's John Roache said Reclamation supports the COE's decision not to implement the SOR.

Dave Wills, USFWS, said his agency would not elevate the issue but asked the COE to

consider that the 2009 study conditions were different than this year's, and reiterated the position that the proposed operation would have a benefit to the fish, with higher survival through the spillway than the turbines. Washington and Oregon representatives agreed with what was expressed by USFWS, and also said they would not elevate the issue. Rick Kruger, Oregon, added that many of the Clearwater fish were still passing the project.

Next Face to Face Meeting, 8/3

Agenda items include:

- Dworshak Operations
- Lower Granite MOP Operations/Survey Update
- Libby Operations/SOR
- Operations Review
- Other?

Columbia River Regional Forum
TECHNICAL MANAGEMENT TEAM OFFICIAL MINUTES

July 27, 2011
Notes: Pat Vivian

1. Introduction

Today's TMT conference call was chaired by Doug Baus, COE, and facilitated by Robin Gumpert, DS Consulting. Representatives of Washington, Montana, NOAA, BPA, USFWS, BOR, COE, Oregon, the Salish-Kootenai Tribe and others attended. This summary is an official record of the proceedings, not a verbatim transcript. Any questions or comments should be directed to the TMT chair.

2. Dworshak Operations

Baus and Gunnar Leffler, COE Walla Walla, reported. A link to this agenda item shows a graph of the current Dworshak operation. Consistent with RPA 4 the Corps is operating Dworshak not to exceed Idaho State Total Dissolved Gas (TDG) water quality standard of 110%. Based on this operation the Corps expects to reach an elevation of 1535 feet about September 3, according to current forecast estimates provided by the Walla Walla district office

Current discharges of 14 kcfs consist of 9.5 kcfs through the powerhouse and 4.5 kcfs spill. Baus emphasized that the COE has yet to coordinate with the Dworshak board regarding the Nez Perce 200 kaf. Today's graph therefore depicts only a hypothetical transition from elevation 1,535 feet to 1,520 feet at end September. The COE will report to TMT after the Dworshak board decides on an operation for the 200 kaf.

TDG levels at Dworshak are a function of temperature, barometric pressure and the spill to powerhouse ratio, Leffler explained. It's not a linear relationship, and conditions can change suddenly. Therefore the COE decided a consistent operation of 14 kcfs out is best. A scenario that raised outflows to 14.5 kcfs only attained the target elevation (1535 feet) one day sooner – September 2 instead of September 3, based on the analog water year 1974 – while increasing the odds of exceeding the TDG limit.

Rick Kruger, **Oregon**, asked whether it would be possible to adjust outflows when barometric pressure and temperatures are suitable to operate below 110% TDG. Leffler said increasing outflows even on a short term basis would make it too easy to exceed the gas cap.

David Wills, **USFWS**, said a sustained TDG saturation level of 110% and above for periods in August would put extra stressors on fish, which could tip the

balance toward disease outbreak. Therefore, USFWS does not recommend operating close to the 110% standard at this time.

The COE contacted the Nez Perce after the meeting and the Nez Perce had no comment on the current operation.

There was discussion of the likelihood that inflows will decline or increase from what the modeling projects. This would affect the date on which the target elevation is reached. If inflows decrease, the target elevation (1535 feet) would be attained sooner. If inflows increase and modeling indicates that attainment will be pushed out past, say September 3, the COE will provide TMT with an operations plan.

The COE will coordinate with the Dworshak board and TMT will revisit Dworshak operations at its next meeting on August 3.

3. Libby Operations

Kristian Mickelson, COE Seattle, reported. The current operation consists of 11 kcfs releases, with a forebay elevation of 2,451.69 feet. Mickelson showed TMT four slides, linked to today's agenda. Slide 1 depicts a COE proposed operation to achieve a gradual rampdown and smooth transition into September with discharges, in September, of approximately 6 kcfs. The proposal would increase releases from 11 kcfs to 14 kcfs now, to accommodate an anticipated Kootenai Tribe request for lower releases in September to accommodate habitat restoration work The tribe is planning to formally present a request to TMT in an SOR on August 3. All four slides linked to today's agenda depict the goal of reaching elevation 2,449 feet by the end of September, but show different inflow forecasts with corresponding outflow adjustments, both in August and September, to meet the elevation goal

There was discussion of the importance of monitoring Libby inflows closely as the season progresses. Today's decision will affect operations for only the next week or so, and the COE has identified 14 kcfs out as a good starting point for this near-term operation. When TMT members commented that today's range of scenarios was particularly helpful, Mickelson said he would continue to produce them weekly throughout the season. The COE will monitor Libby inflows closely.

TMT members were polled on their views of the COE proposal:

- **Oregon** – No objection.
- **Washington** – No objection.

- **Montana** – Supports the operation. Libby operations should be revisited weekly throughout the rest of passage season.

- **USFWS** – No objection.

- **NOAA** – Supports the operation.

- **Salish-Kootenai** – Supports the operation.

- **BPA** – Supports the operation; looks forward to finishing the habitat project this year.

- **BOR –** Supports the operation.

- **Nez Perce** – No objection (did not attend today's meeting, but provided comments afterward).

Hearing no objections, the COE will ramp Libby discharges up to 14 kcfs today. TMT will review this operation at its August 3 meeting along with the SOR presented by the Kootenai Tribe.

4. SOR 2011-03 Little Goose Nighttime Spill to Gas Cap

On July 19, the COE received SOR 2011-03 signed by USFWS, Washington, Oregon, the Nez Perce and Shoshone-Bannock tribes, Baus recalled. Unanimous consensus was not evident based on the signatories of the SOR nor there unanimous consensus after the TMT polling on the SOR during the July 20 TMT meeting. During the July 20 TMT meeting the COE committed to completing additional coordination on the SOR and would notify TMT once the COE made a decision on the SOR.

After reviewing additional information the Corps decided not to implement the SOR 2011-03. The COE rational was based on factors such as lack of unanimous consensus on the SOR, information in the 2009 Beeman evaluation of the TWS operation and, the high proportion of subyearling Chinook that have already passed LWG to date. Based on this information it was unclear on what, if any survival improvement would result from this operation. Furthermore, based on the relatively high percentage of subyearling Chinook that had passed Lower Granite Dam it did not appear implementing this operation would result in significant survival benefits.

That said, the COE continues to be aware of concerns regarding the Lower Granite MOP+2 operation requested in SOR 2011-01. The COE will continue to coordinate with TMT on the results of channel surveys and implementation of MOP+2 for navigation at Lower Granite.

TMT members gave their views of the COE's decision not to implement SOR 2011-03:

- **NOAA** – Didn't sign the SOR because fall Chinook have a decreased propensity to migrate this time of year. The proposal is creative but there appears to be no meaningful benefit based on the 2009 Beeman report. NOAA is OK with the COE decision not to implement the SOR.

- **BPA** – Supports the COE's decision; agrees with continuing the current operation at Little Goose.

- **USFWS** – Won't elevate the issue beyond TMT, but asked the COE to consider additional factors. Now only would the extra spill resulting from implementation of SOR 2011-03 reduce forebay residence time, it would divert more fish away form the turbines and through the spillway, which appears to offer survival advantages.

- **Washington** – Agrees with USFWS comments. However, no objection at this time. TMT needs an opportunity to discuss the 2009 study report regarding this issue. After that discussion, Washington might have additional comments.

- **BOR** – Supports the COE's decision.

- **Oregon** – Disagrees with the decision but won't elevate the issue.

5. Next TMT Meeting

TMT will meet next in person August 3. That agenda will include updates on Dworshak and Libby operations and presentation of the Libby SOR from the Kootenai Tribe.

Name	***Affiliation***
Charles Morrill	Washington
Jim Litchfield	Montana
Paul Wagner	NOAA
Scott Bettin	BPA
David Wills	USFWS
John Roache	BOR
Doug Baus	COE
Kyle Kanbergs	COE
Rick Kruger	Oregon
Kevin Shaffer	COE
Gunnar Leffler	COE Walla Walla
Dave Benner	FPC
Kristian Mickelson	COE

Josh McCall	Puget Sound Energy
Barry Espenson	CBB
Mike Shafley	Snohomish PUD
Richelle Beck	Grant PUD
Rob Allerman	Deutsch Bank
Steve XX	Salish Kootenai Tribe
Doug Vine	Thompson Reutters

TDG INSTANCE TYPES
June 1 – June 30, 2010

Instances of when TDG levels exceed state water quality standards are classified into "types" which are shown on Table 1. These types are regionally approved and have been used since 2003. The states have requested information on TDG instances which include:

1. Date and times of exceedance
2. Amount of exceedance in percent saturation
3. Explain reason for exceedance
4. Discuss steps taken to fix the problem.

Because TDG instances are events when state TDG standards are exceeded, it is necessary to describe the current legal arrangement of how the state water quality standards are being implemented by the USACE. The 2010 Court Order requires the Corps to operate according to the 2006 fixed monitoring station (FMS) system, and the 2006 state water quality standards which is referred to as "Roll-Over". Therefore, the Camas/Washougal FMS, and the high 12-hour average calculation method are used to manage spill.

During the spill for fish passage season from April through August the Washington Department of Ecology (WDOE) has issued a temporary %TDG Rule Adjustment to their current water quality standards, and Oregon Department of Environmental Quality (ODEQ) issued a 5-year %TDG Waiver. The state water quality standards are calculated differently from one another, and also from the 2006 Roll-Over.

USACE is currently tracking and recording the current state water quality standards as follows.
Oregon: http://www.nwd-wc.usace.army.mil/ftppub/water_quality/12hr/or/201004.html
Washington: http://www.nwd-wc.usace.army.mil/ftppub/water_quality/12hr/wa/201004.html
Comparison of OR & WA: http://www.nwd-wc.usace.army.mil/ftppub/water_quality/12hr/201004.html

Table 2 provides the TDG instances that occurred in the June 2010 spill for fish passage season.

Table 1

Types of Instance	
Type 1 Condition	**TDG levels exceed the TDG standard due to exceeding powerhouse capacity at run-of-river projects resulting in spill above the BiOp fish spill levels. This condition type includes:**
• High runoff flows and flood control efforts.	
• BPA load requirements are lower than actual powerhouse capacity.	
• Involuntary spill at Mid Columbia River dams resulting in high TDG levels entering the lower Columbia River.	
• Involuntary spill at Snake River dams resulting in high TDG levels entering the lower Columbia River.	
Type 1a Condition	**Planned and unplanned outages of hydro power equipment including generation unit, intertie line, or powerhouse outages.**
Type 2 Exceedance	**TDG exceedances due to the operation or mechanical failure of non-generating equipment. This exceedance type includes:**
• Flow deflectors unable to function for TDG abatement with tailwater elevations above 19 - 26 feet at Bonneville Dam.	
• Spill gates stuck in open position or inadvertently left open.	
• Increased spill in a bulk spill operation to pass debris.	
• Communication errors, such as teletype were transmitted but change was not timely made or misinterpretation of intent of teletype by Project operator.	
Type 2a Exceedance	**Malfunctioning FMS gauge, resulting in fewer TDG or temperature measurements when setting TDG spill caps.**
Type 3 Exceedance	**TDG exceedances due to uncertainties when using best professional judgment, SYSTDG model and forecasts. This exceedance type includes:**
• Uncertainties when using best professional judgment to apply the spill guidance criteria, e.g., travel time, degassing, and spill patterns.	
• Uncertainties when using the SYSTDG model to predict the effects of various hydro system operations, temperature, degassing, and travel time.	
• Uncertainties when using forecasts for flows, temperature and wind.	
• Unanticipated sharp rise in water temperature (a 1.5 degree F. or greater change in a day).	
• Bulk spill pattern being used which generated more TDG than expected.	

Exceedances are shown on the following table for June 1 to June 30, 2010.

Table 2
Types of TDG Instances
June 2010

DATE	Lower Granite Forebay	Lower Granite Tailrace	Little Goose Forebay	Little Goose Tailrace	Lower Monum. Forebay	Lower Monum. Tailrace	Ice Harbor Forebay	Ice Harbor Tailrace	McNary Forebay	McNary Tailrace	John Day Forebay	John Day Tailrace	The Dalles Forebay	The Dalles Tailrace	Bon Forebay	Bon Tailrace	Camas Forebay
6/1/2010	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	3
6/2/2010	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
6/3/2010	---	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
6/4/2010	---	1	---	---	---	---	---	1	---	---	---	---	---	---	---	1	---
6/5/2010	---	1	1	1	1	1	1	1	---	1	---	---	---	---	---	1	---
6/6/2010	---	1	1	1	1	1	1	1	---	1	---	---	---	---	1	1	1
6/7/2010	---	1	1	1	1	1	1	1	1	---	---	---	---	---	---	1	1
6/8/2010	---	1	1	1	1	1	1	1	1	1	---	---	---	---	---	1	1
6/9/2010	---	1	1	1	1	1	1	1	1	1	---	---	---	---	1	1	1
6/10/2010	---	1	1	1	1	1	1	1	---	1	---	---	---	---	---	1	1
6/11/2010	---	1	1	1	1	1	1	1	---	1	---	---	---	---	---	1	1
6/12/2010	---	1	1	---	1	1	1	1	---	1	---	---	---	---	1	1	1
6/13/2010	---	1	1	---	1	---	1	1	1	---	---	---	---	---	1	1	1
6/14/2010	---	1	1	---	1	---	1	---	1	---	1	---	---	---	---	---	---
6/15/2010	---	1	1	---	1	1	1	---	---	---	---	---	---	---	---	1	---
6/16/2010	---	1	1	---	1	1	1	---	---	1	---	---	---	---	---	1	---
6/17/2010	---	---	---	---	---	---	---	---	---	1	---	---	---	---	---	1	1
6/18/2010	---	1	---	---	---	---	---	---	---	1	---	---	---	---	---	1	1
6/19/2010	---	---	---	---	---	---	---	---	---	1	---	---	---	---	---	1	1
6/20/2010	---	---	---	---	---	---	---	---	---	1	---	---	---	---	---	---	---
6/21/2010	---	---	---	---	---	---	---	---	---	1	---	---	---	---	---	1	---
6/22/2010	---	---	---	---	---	---	---	---	---	1	---	---	---	---	---	1	---
6/23/2010	---	---	---	---	---	---	---	---	---	1	---	---	---	---	1	1	1
6/24/2010	---	---	---	---	---	---	1	---	1	1	---	---	---	---	1	1	1
6/25/2010	---	---	---	---	---	---	1	---	1	1	---	---	---	---	---	1	1
6/26/2010	---	---	---	---	---	---	---	---	1	1	---	---	---	---	---	1	1
6/27/2010	---	---	---	---	---	---	---	---	1	1	---	---	---	---	---	1	1
6/28/2010	---	---	---	---	---	---	1	---	1	1	---	---	---	---	1	1	1
6/29/2010	---	---	---	---	---	---	---	---	1	1	---	---	---	---	---	1	---
6/30/2010	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1	1

Total	**0**	**15**	**12**	**7**	**12**	**10**	**15**	**10**	**11**	**21**	**1**	**0**	**0**	**0**	**7**	**25**	**19**
Monthly Grand Total			**165**														

TECHNICAL MANAGEMENT TEAM			
BOR:	*John Roache / Mary Mellema / Pat McGrane*	**BPA:**	*Tony Norris / Scott Bettin / Robyn MacKay*
NOAA-F:	*Paul Wagner / Richard Dominigue*	**USFWS:**	*David Wills / Steve Haeseker*
OR:	*Rick Kruger / Ron Boyce*	**ID:**	*Russ Kiefer / Pete Hassemer*
WDFW:	*Cindy LeFleur / Charles Morrill*	**MT:**	*Jim Litchfield / Brian Marotz*
Kootenai:	*Sue Ireland / Billy Barquin*	**Spokane:**	*Deanne Pavlik-Kunkel / Andy Miller*
Colville:	*Sheri Sears / Steve Smith*	**Nez Perce:**	*Dave Statler*
Umatilla:	*Tom Lorz (CRITFC)*		
COE:	*Doug Baus / Karl Kanbergs*		

TMT MEETING

Wednesday August 3, 2011 9:00am - 12:00pm

1125 N.W. Couch Street, Suite 500, Columbia Room
Portland, Oregon 97209-4142
Map Quest [Directions]

TMT MEETING
Phone Number (877) 336-1274
Access Code 3871669
Security Code 6845

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

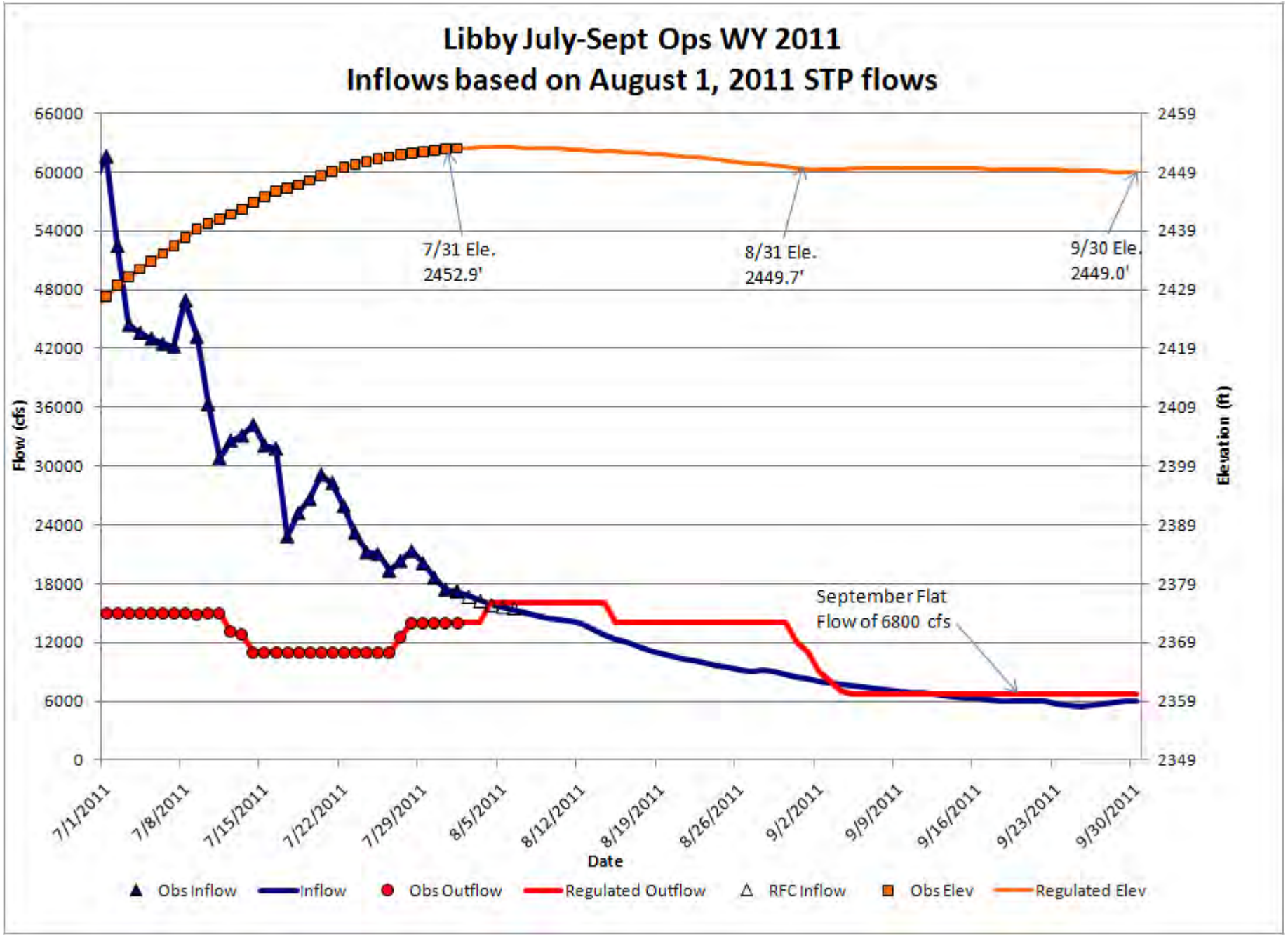
All members are encouraged to call Robin Gumpert with any issues or concerns they would like to see addressed. Please e-mail her at rgumpert@cnnw.net or call her at (503) 248-4703.

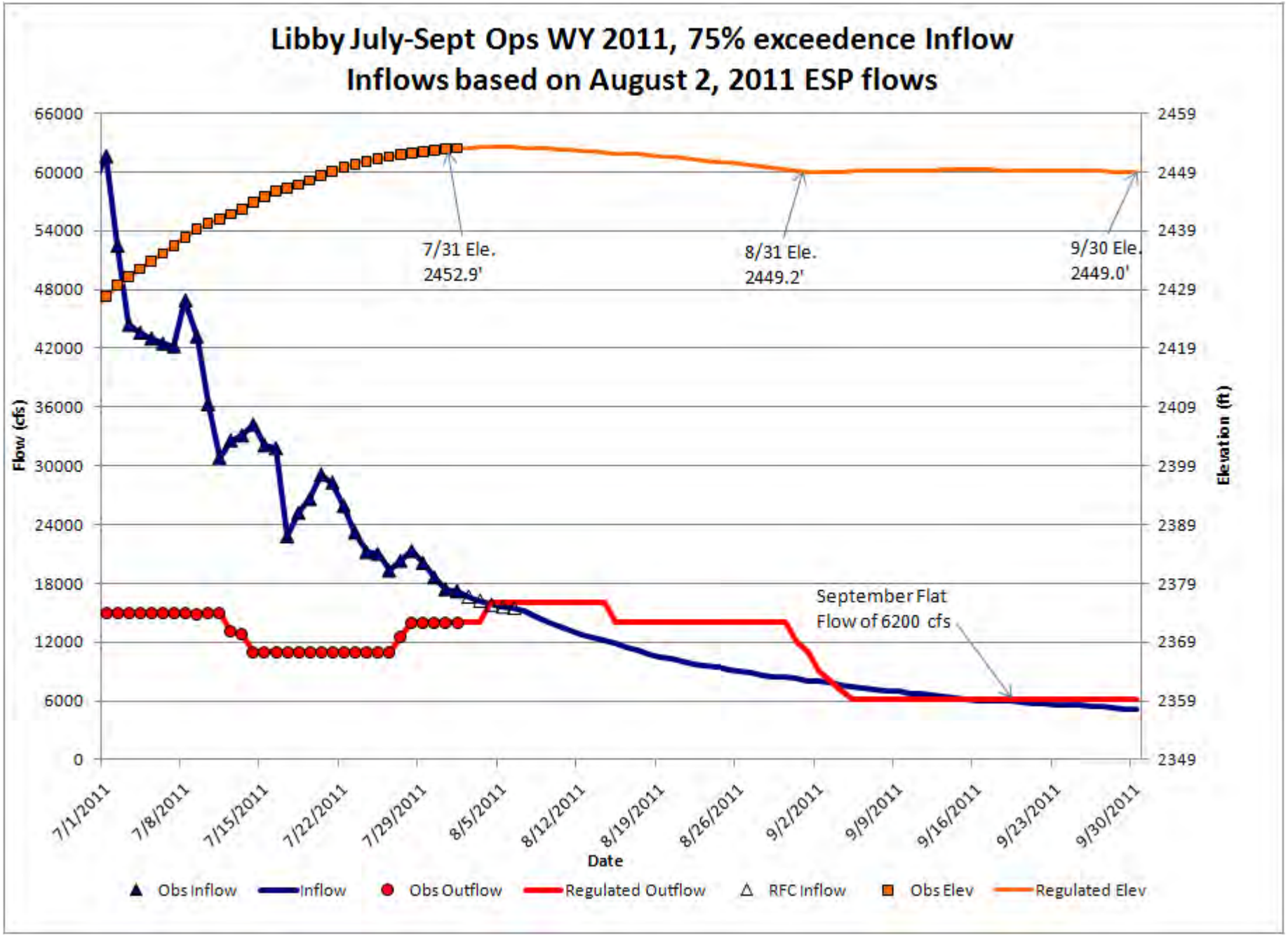
AGENDA

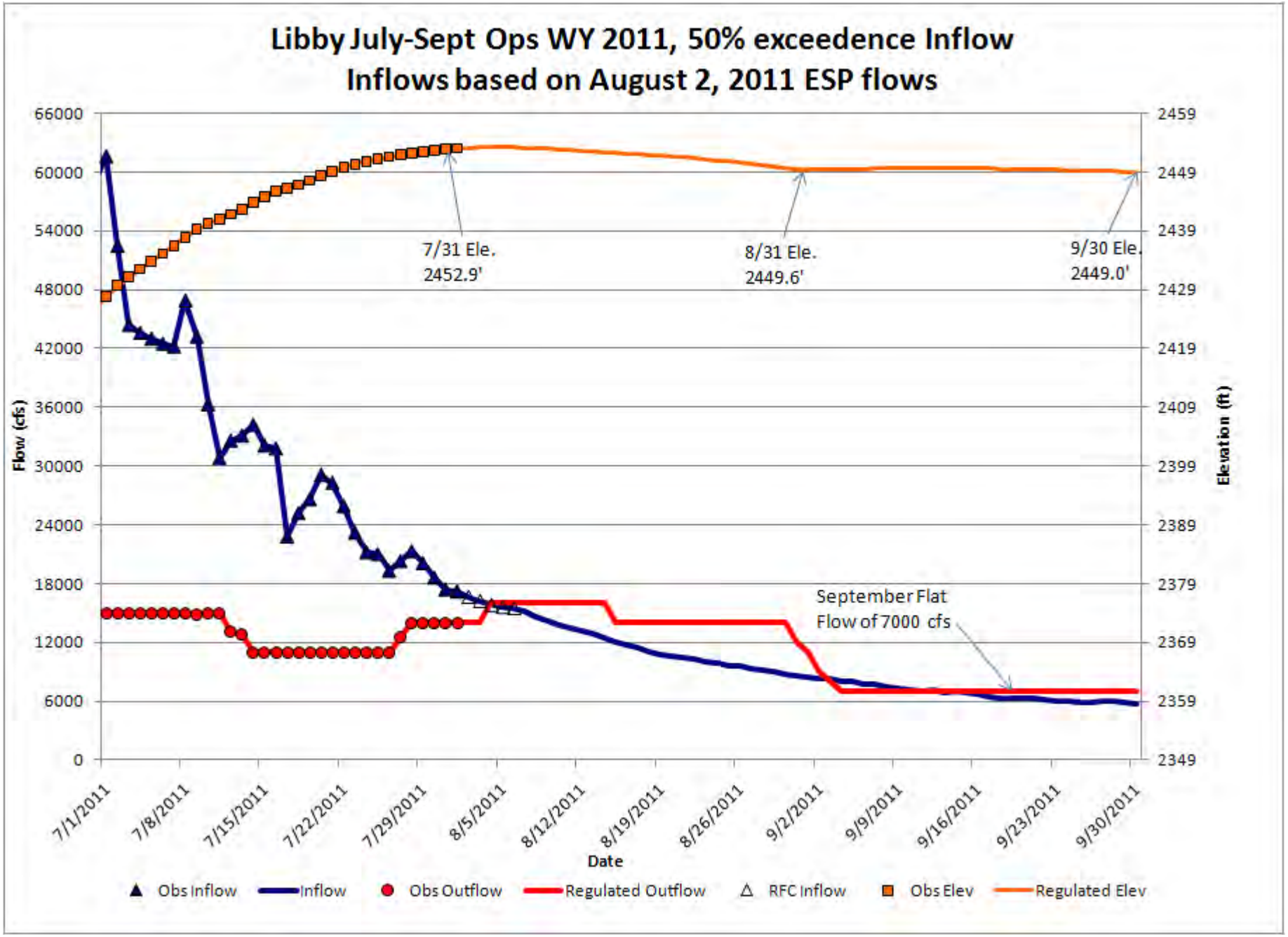
1. Welcome and Introductions
2. Review July 27 Meeting Minutes [Meeting Minutes]
3. Dworshak Operations - *Karl Kanbergs, COE-NWD; Steve Hall, COE-NWW*
    a. Water Temperature Comparisons
4. Kootenai Tribe SOR - *Sue Ireland, Kootenai Tribe*
    a. SOR 2011-04
5. Libby Dam Operations - *Karl Kanbergs, COE-NWD; Kristian Mickelson, COE-NWS*
    a. Operations
6. Operations Review
    a. Reservoirs
    b. Fish
    c. Water Quality
    d. Power System
7. Other

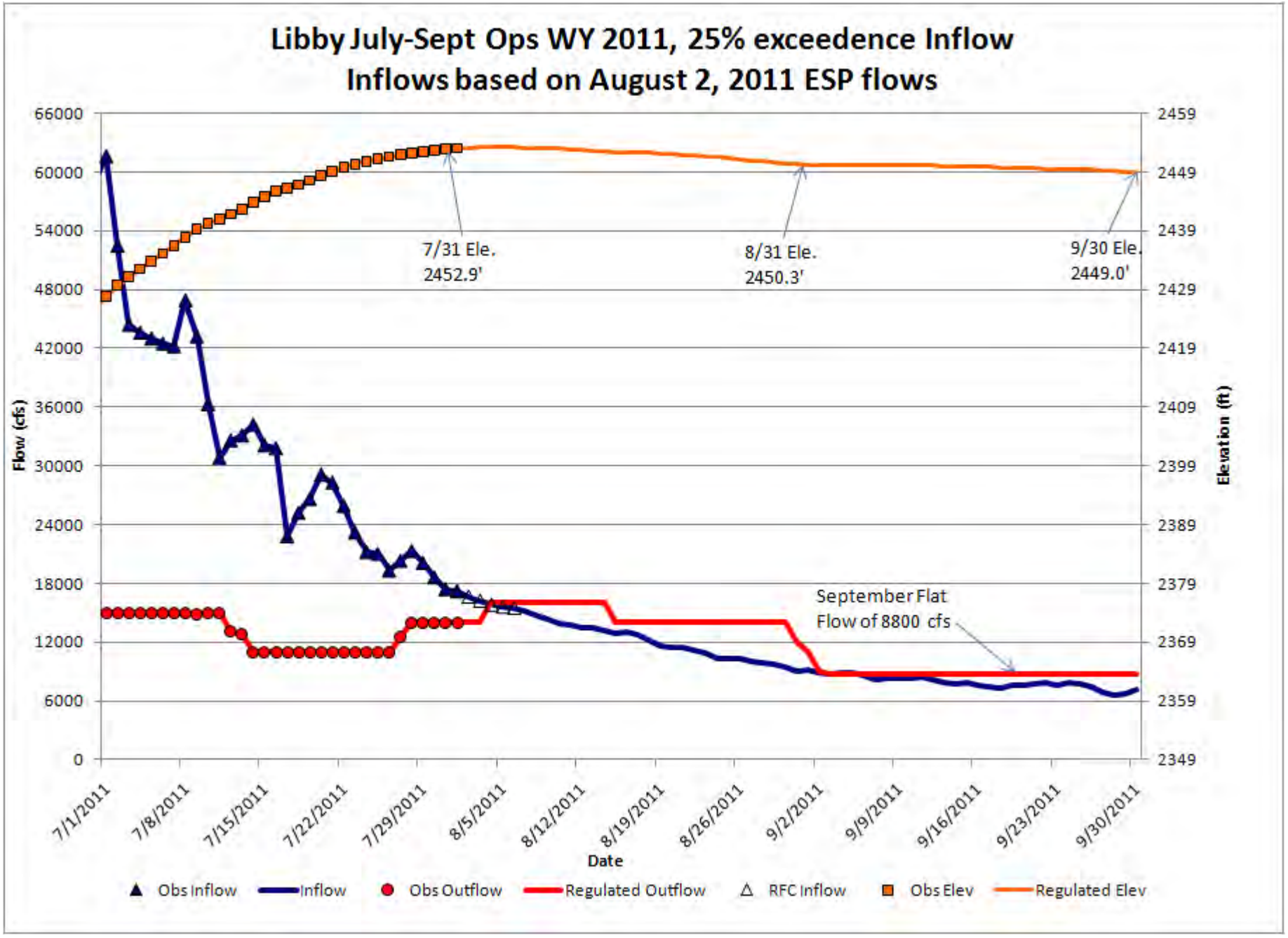
a. Set agenda and date for next meeting - **August 10, 2011**
b. [Calendar 2011]

Questions about the meeting may be referred to:
Doug Baus at (503) 808-3995


Libby July-Sept Ops WY 2011
Inflows based on August 1, 2011 STP flows
Flow (cfs)
Elevation (ft)
66000
60000
54000
48000
42000
36000
30000
24000
18000
12000
6000
0
2459
2449
2439
2429
2419
2409
2399
2389
2379
2369
2359
2349
7/31 Ele.
2452.9'
8/31 Ele.
2449.7'
9/30 Ele.
2449.0'
September Flat
Flow of 6800 cfs
7/1/2011
7/8/2011
7/15/2011
7/22/2011
7/29/2011
8/5/2011
8/12/2011
8/19/2011
8/26/2011
9/2/2011
9/9/2011
9/16/2011
9/23/2011
9/30/2011
Date
Obs Inflow
Inflow
Obs Outflow
Regulated Outflow
RFC Inflow
Obs Elev
Regulated Elev


Libby July-Sept Ops WY 2011, 75% exceedence Inflow
Inflows based on August 2, 2011 ESP flows
66000
60000
54000
48000
42000
36000
30000
24000
18000
12000
6000
0
Flow (cfs)
2459
2449
2439
2429
2419
2409
2399
2389
2379
2369
2359
2349
Elevation (ft)
7/31 Ele.
2452.9'
8/31 Ele.
2449.2'
9/30 Ele.
2449.0'
September Flat
Flow of 6200 cfs
7/1/2011
7/8/2011
7/15/2011
7/22/2011
7/29/2011
8/5/2011
8/12/2011
8/19/2011
8/26/2011
9/2/2011
9/9/2011
9/16/2011
9/23/2011
9/30/2011
Date
Obs Inflow
Inflow
Obs Outflow
Regulated Outflow
RFC Inflow
Obs Elev
Regulated Elev


Libby July-Sept Ops WY 2011, 50% exceedence Inflow
Inflows based on August 2, 2011 ESP flows
Flow (cfs)
Elevation (ft)
66000
60000
54000
48000
42000
36000
30000
24000
18000
12000
6000
0
2459
2449
2439
2429
2419
2409
2399
2389
2379
2369
2359
2349
7/31 Ele.
2452.9'
8/31 Ele.
2449.6'
9/30 Ele.
2449.0'
September Flat
Flow of 7000 cfs
7/1/2011
7/8/2011
7/15/2011
7/22/2011
7/29/2011
8/5/2011
8/12/2011
8/19/2011
8/26/2011
9/2/2011
9/9/2011
9/16/2011
9/23/2011
9/30/2011
Date
Obs Inflow
Inflow
Obs Outflow
Regulated Outflow
RFC Inflow
Obs Elev
Regulated Elev


Libby July-Sept Ops WY 2011, 25% exceedence Inflow
Inflows based on August 2, 2011 ESP flows
66000
60000
54000
48000
42000
36000
30000
24000
18000
12000
6000
0
Flow (cfs)
2459
2449
2439
2429
2419
2409
2399
2389
2379
2369
2359
2349
Elevation (ft)
7/31 Ele.
2452.9'
8/31 Ele.
2450.3'
9/30 Ele.
2449.0'
September Flat
Flow of 8800 cfs
7/1/2011
7/8/2011
7/15/2011
7/22/2011
7/29/2011
8/5/2011
8/12/2011
8/19/2011
8/26/2011
9/2/2011
9/9/2011
9/16/2011
9/23/2011
9/30/2011
Date
Obs Inflow
Inflow
Obs Outflow
Regulated Outflow
RFC Inflow
Obs Elev
Regulated Elev

COLUMBIA RIVER TECHNICAL MANAGEMENT TEAM

August 3, 2011

Facilitator's Summary

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.

Announcement

After a round of introductions, Karl Kanbergs, COE, announced that Bill Proctor will serve as Interim RCC Chief for the COE. He has served as Team Leader for the Hydrologic Engineering Team in the Columbia Basin Water Management Division since 2009.

Meeting Minutes

The TMT web page was experiencing technical difficulties, so TMT will finalize the 7/27 TMT meeting Official Minutes and Facilitator's Notes at the next meeting. (This will be completed at the scheduled 8/17 face-to-face TMT meeting.)

Dworshak Operations

Gunnar Leffler and Steve Hall, Walla Walla District COE, shared an update on Dworshak operations and the latest temperature modeling results. Lower Granite temperatures had increased to about 66 degrees and were anticipated to stay there, based on the available water quality models, for the next week to ten days before increasing closer to the 68 degree threshold. Outflows from Dworshak were currently14.2 kcfs and 48 degrees.

Paul Wagner, NOAA, said FPAC had discussed this issue during their call yesterday and recommended that the COE reduce temperatures to 45 degrees to be proactive and stay ahead of rising temperatures at Lower Granite. This was acceptable to the hatchery so long as TDG levels did not exceed 110%. The COE responded that to do this, they would need to run some spill through the ROs which could result in higher TDG levels. However, the cooler temperatures will also influence TDG so it was not certain what the actual response would be to this change. The COE was in the process of modeling the temperatures at Lower Granite that would result from a change to 45 or 43 degree water coming out of Dworshak. The USFWS reiterated the desire of the hatchery to not exceed 110% TDG, and Oregon stated its preference not to reduce flows to achieve the lower temperatures.

After further discussion, TMT members present generally agreed that the COE should be guided by three criteria: provide cooler water now; maintain current flows to the extent possible; and do not violate 110% TDG standards. The COE added a fourth parameter, to minimize frequent changes to spill through the ROs, as these changes could have damaging effects on the seals of the RO gates.

Action/Operating Plan: The COE planned to shift some spill to the ROs to achieve a lower outflow temperature at the project, effective today. The agency will share the results of the latest modeling efforts with TMT as soon as they are available. Unless the TDG cap is exceeded, this operation will continue until the next TMT check in on 8/10. If a deviation from the plan will be required due to excessive TDG or other unforeseen issues, the COE may reconvene TMT to discuss next steps for the operation.

SOR 2011-04

Sue Ireland, Kootenai Tribe, presented a request to minimize outflows at Libby in September and October to support a habitat restoration construction project on the Kootenai River. She said this request had come forth after thorough regional coordination around the Kootenai Conservation and Restoration Plan and the Bull Trout BiOp. This project would be the first phase of a Master Plan for the Kootenai River. The specific flows requested in the SOR were for 6 kcfs bull trout minimums in September and 4 kcfs minimums in October. She added the desire for certainty around this operation now as the project begins, and also added that there may be some flexibility around the actual low flows; the intent is for them to be consistent and low while dewatering occurs for construction. She offered to share photos and other updates on the project as it develops. One TMT member suggested that a report on the construction work could be shared at the TMT Year End Review in December.

The COE's Kristian Mickelson (Seattle District) shared a set of operating scenarios developed in anticipation of this request. Each scenario showed Libby increasing outflows to 16 kcfs today; then reducing outflows to about 14 kcfs on August 15 as required due to maintenance and unit outages already scheduled at the project; followed by a ramp down to flat flows, starting August 31 and using allowable ramp rates – the flat flow shown in each scenario varied based on varying inflow predictions per the STP and ESP model runs, and showing Libby reaching a BiOp target elevation of 2449' by the end of September. To meet this latter objective, the flat flows in September might be higher than was requested by the Tribe. In all scenarios the project would hit 2449' elevation on September 30.

TMT members explored different options for shaping flows at Libby to meet the request: 1) Extend 14 kcfs further in to September, then ramp down to 6 kcfs for the remainder of the month; 2) Increase flows today to greater than 16 kcfs to get more water out and provide better assurance for meeting the low flow targets specified for September and October and the target elevation; or 3) allow the 6 kcfs flat flow in September as specified in the request drive operations rather than trying to meet the September 2449' elevation objective.

To option 1), Sue said she would need to check in with the project to determine if this would be acceptable. She noted that likely the project would proceed if the flat flow was 6.8 kcfs as predicted in one of the COEs' operating scenarios. She expected work to begin just after Labor Day weekend. To option 2), Montana and the Kootenai Tribe said they would not prefer bumping flows up beyond 16 kcfs as this could be detrimental to resident fish. To option 3), there is a requirement in the BiOp to reduce the project

elevation to 10' from full; that said, if the project reaches that elevation in August and the region does not object, this could be a viable operating plan.

TMT members were polled on their level of support for the COE's proposed Libby operation that would meet the request described in SOR 2011-04:

Increase outflows today to 16 kcfs; ramp down to 14 kcfs on August 15; ramp down on August 31 to a flat flow of about 6 kcfs or slightly higher, using ramp down rates to get to that flat flow; hold the flat flow through September; and ramp the project down further in October to a flat flow of about 4 kcfs.

- Oregon – Does not object to implementing the operation for now; needs to check with policy to determine if the deviation from the BiOp (meeting elevation 2449' in September) is acceptable. *NOTE: A follow up email was sent to the COE from Rick Kruger to the effect that Oregon does not object to the Corp's proposed operation in order to implement SOR 2011-04 with the understanding that the Corps would make best efforts to draft Libby to 2449' by August 31 and may be higher or lower than 2449' by the end of September.
- Montana – Supports this operation to meet the request and believes it is a good plan. Would prefer to meet the specified 6 kcfs flat flow in September at the risk of the reservoir ending above or below the 2449' target at the end of September.
- Washington – No objection to the proposed operation to meet the request.
- Idaho – Supports the operation and SOR, and believes this will be a better operation for anadromous and resident fish. Suggest choosing a flat flow that is acceptable to all needs of the region (habitat construction, bull trout minimums and 2449' end of September elevation) to the extent possible.
- NOAA – No objection to the proposed operation to meet the request.
- USFWS – Supports the operation plan and request.
- BPA – Supports the operation and request.
- Reclamation – Supports and believes this is a reasonable operation to meet the request.
- *Nez Perce – was not on the phone today, but a follow up email exchange between the COE and the Tribe indicated that the Nez Perce Tribe does not object to increasing flows at Libby to 16 kcfs to support the request.

Action/Operation Plan: The COE planned to increase outflows at Libby today to 16 kcfs and to operate the project through the month and in September and October to meet the needs specified in the request. The COE will monitor conditions closely and continue to coordinate with the region on this operation as the season progresses. The COE will also contact other sovereign parties that were not available on the call today to engage their input and level of support for the operation. (*Karl Kanbergs, COE, later reported that no objections were received). TMT will revisit this operation during a conference call next week, 8/10.

Sue Ireland thanked TMT for their thoughtful discussion and support for the Tribe's request. She will update TMT on progress of the habitat construction project later in the year.

Operations Review

Reservoirs: Ted Day reported on Reclamation projects. Hungry Horse was at elevation 3559.16' with 4 kcfs outflows and 4.5 kcfs inflows. Flat flows will continue at the project until it reaches elevation 3550' at the end of September. Grand Coulee was at elevation 1289.9'. Banks Lake will begin drafting very soon. Upper Snake flow augmentation is underway and going well. Also, Ted added that since April, Upper Snake flow totaled 2.6 MAF for flood control – much more than normal. Karl Kanbergs reported on COE projects. Libby was at elevation 2453.18' with 17.9 kcfs inflows and 14 kcfs outflows. Albeni Falls elevation, as measured at the Hope gage on Lake Pend Oreille was at 2062.1' with 26.2 kcfs inflows and 27.1 kcfs outflows. Dworshak was at elevation 1583.84' with 3.4 kcfs inflows and 14.1 kcfs outflows. TDG was hovering around 109.1%. Lower Granite flows were 51.5 kcfs; the June 21-July 31 average was 113 kcfs and the project is expected to exceed its summer flow objective, currently forecast to come in at near 80 kcfs, for the period June 21 through August 31. Likewise McNary is expected to exceed its summer flow objective – flows were 217.9 kcfs yesterday, with a summer average flow of 321 kcfs from June 1 through July 31 Finally, Karl reported that outages at Lower Granite and Little Goose were ongoing, as coordinated through FPOM.

Fish: Cindy LeFleur, Washington, reported on the adult forecasts and said she would provide graphs at an upcoming TMT meeting. The Fall Chinook forecasted return is 766,300 (higher than last year's actuals); upriver bright returns are forecasted at 399,600 (also higher than last year's actuals) and of those, 17,5000 wilds were expected to return. Spring Creek hatchery adults are forecasted at 116,400 (down from last year); Mid-Columbia bright returns are forecasted at 100,300 (above last year's actuals); the Bonneville dam adult Chinook count is predicted to be over 500,000; so far 900 have been observed. Finally, 391,000 upriver summer steelhead are predicted to return – this number is close to last year's actual count.

Paul Wagner, NOAA, reported on the juvenile migration. Subyearling Fall Chinook counts at Lower Granite were about 5,000/day and about 100,000/day at McNary (this count was much higher than seen in previous years on this day). Lamprey continue to pass in small numbers – 10-30/day at Lower Granite and in the 100's/day at John Day. It was noted that most of these counts are of non-migrating lamprey.

Power system: Nothing to report.

Water quality: Scott English, COE, reported that the tailwater gauge at Bonneville will be back on line in August. Some TDG exceedances have occurred in the system due to involuntary spill, but generally the system had calmed down since the last report. The July water quality report will be available at the next TMT meeting.

Next Meeting – Conference Call, 8/10

Agenda items include:

- Dworshak Operations Update
- Libby Operations Update

- Lower Granite Survey Status Update

Next Face to Face Meeting, 8/17

Agenda items include:

- Dworshak Operations
- Lower Granite MOP Operations/Survey Results Update
- Libby Operations
- Operations Review
- Other?

Columbia River Regional Forum
TECHNICAL MANAGEMENT TEAM OFFICIAL MINUTES

August 3, 2011
Notes: Pat Vivian

1. Introduction

Today's TMT meeting was chaired by Karl Kanbergs, COE, and facilitated by Robin Gumpert, DS Consulting. Representatives of NOAA, the COE, Montana, USFWS, Oregon, BOR, BPA, Washington, Kootenai Tribe and others attended. This summary is an official record of the proceedings, not a verbatim transcript. Any questions or comments should be directed to the TMT chair.

2. Review Meeting Minutes for July 27

Review of meeting minutes and facilitator's notes was postponed because the TMT website was malfunctioning.

3. Dworshak Operations

The Lower Granite tailwater is expected to hover around 67 degrees F for the next few days, which is close to the 68 degree criterion, Gunnar Leffler, COE, reported.

Paul Wagner, NOAA, reported that FPAC reached consensus yesterday on a recommendation to reduce Dworshak outflows to 45 degrees F which would reduce Lower Granite temperatures and still accommodate Dworshak hatchery operations. The COE has modeled the effect of 43-degree releases from Dworshak on temperatures downstream, but those modeling results are not yet available, Steve Hall, COE, reported.

In light of current temperatures, the COE believes it's prudent to reduce Dworshak outflow temperatures to 45 degrees F. Further discussion clarified that in order to reduce the temperature of Dworshak releases to 45 degrees F, the COE would have to switch some volume from the spillway to the RO gates. All 3 units are already in undershot mode, releasing the coldest water available. The COE expects that switching to the RO gates will raise the TDG values of Dworshak releases. The RO gates are not designed for frequent repositioning, so following the gas cap closely would put them at risk of failure during spill season, Hall said.

CEQUAL 2 modeling indicates that Lower Granite tailwater temperatures will reach 68 degrees sometime around August 15-17. Hall said he will email the temperature modeling results to TMT as soon as they are available. The COE will also coordinate this operation with the Nez Perce Tribe and the BOR which were not represented today. BOR joined the meeting after this point.

When the temperature modeling results are available, the COE will look at the effects of shifting a percentage of spill from the spillway to the RO gates on TDG production, Kanbergs said. If there is less total flow as a result of keeping TDG levels down, that would affect the target elevation at the end of September. The COE will do its best to reduce Dworshak outflows to 45 degrees F without violating the gas cap, Hall said.

There was no official poll on Dworshak operations today. TMT members present gave their views. Based on today's discussion, the COE will reduce temperatures and let TMT know if anything changes.

- **Oregon** – Does not want a reduction in total flows in order to reach the end of September elevation at Dworshak. There was consensus at FPAC that reducing temperatures in the Lower Granite tailwater should be done sooner rather than later.

- **NOAA** – Reducing temperatures is important because there's a strong relationship between cooler temperatures at Lower Granite and increased survival. Sooner is better than later because we won't know until we do it.

- **Montana** – Asked for clarification of the operation. Agrees with NOAA.

- **Washington** – No objections to the proposed operation.

- **BPA** – Defers to the COE on this operation.

4. Kootenai Tribe SOR 2011-04

Sue Ireland, Kootenai Tribe, presented SOR 2011-04, which requests minimum outflows from Libby Dam to accommodate sturgeon habitat restoration in the Kootenai River basin. The request for 6 kcfs outflows in September (bull trout minimum) and 4 kcfs in October will likely provide the lower flows the tribe needs to proceed with a contract for phase 1 of the Braided Reach portion of the Kootenai River Habitat Restoration Project.

Ireland clarified that 6 kcfs in October, rather than 4 kcfs as stated in the SOR, would likely be sufficient. The COE noted that 4 kcfs, or project minimum is generally the normal outflow for much of October. This is the first in what will be a series of requests from the tribe to accommodate habitat restoration according to a master plan developed in 2009 in collaboration with regional stakeholders. Jim Litchfield suggested the tribe give a presentation on its habitat restoration work at the TMT year-end review. TMT moved from discussion of the SOR itself to the requisite operations at Libby.

5. Libby Operations

TMT considered the effects of supporting SOR 2011-04. Current Libby outflows are 14 kcfs. The COE has an operational goal of getting the reservoir to 2,449 feet by the end of September, based on a 10-foot draft from full per RPA 4 of the BiOp, Kanbergs said.

Kristian Mickelson, COE Seattle, presented slides of COE modeling results in light of the Kootenai Tribe's request to go to minimum bull trout flows at Libby. Libby inflow estimated used are from latest STP data and the latest ESP runs.

Based on the modeling results, the COE proposed to raise outflows to 16 kcfs today through August 15, then drop to 14 kcfs out through August 31 with the goal of reaching 2,449 feet by end August instead of September. The drop to 14 kcfs or perhaps to as high as 14.5 kcfs if needed is because of scheduled unit outages restricting total available output, Kanbergs explained. On August 31 the operation would then ramp down to 12 kcfs and then follow ramp rates to flat flows to accommodate the restoration work.

Flows out of Libby are expected to be around 6.8 kcfs in September under these scenarios, Mickelson said. Litchfield asked whether that would be acceptable, and suggested that outflows could simply be set at a flat 6 kcfs Ireland said the tribe does not expect flows to be exactly 6 kcfs. She will ask the construction contractor whether 6.8 kcfs would be a problem. The tribe anticipates that ramping down will begin on August 31 and continue without fluctuations.

Increasing outflows to 16 kcfs today could have negative impacts on the river, Jim Litchfield, Montana, said. There was discussion of the fact that raising flows to meet the BiOp end of September elevation target could impair the tribe's habitat work. COE modeling shows that flows varying from 6 to 9 kcfs (high end based on a rainy September), depending on inflows, would be needed to reach 2,449 feet elevation by end September. Kanbergs told TMT the Libby reservoir elevation could go higher than 2,449 feet if TMT supports this SOR and it rains in September. In that event, should Libby outflows be ramped up to say 10 kcfs to get to 2,449 feet by end September, or should flows be kept low even if it means missing the target?

Tony Norris, BPA, asked how important it is to draft to an elevation when we will probably exceed the flow objective through the end of August, and there are relatively few fish in the river that late in the season. Litchfield agreed, noting that it's more important to commit to dropping flows to 6 kcfs in September for habitat restoration than it is to meet a specified elevation target. Norris asked for information from NOAA regarding the status of the fish migration in late summer.

If the reservoir reaches 2,449 feet by end August instead of end September, that would be fine with NOAA if others agree, Paul Wagner said.

TMT members stated their views of the COE's proposed operation of 16 kcfs out through August 15, then 14 kcfs with the intent of reaching 2,449 feet by end August.

- **Oregon** – Does not object to the proposed operation, but can't agree to it without consulting internally first. In an email to the COE on August 4, Kruger affirmed that Oregon does not object but expected for Libby elevation to be near 2449 feet at the end of August.

- **Montana** – Supports the proposed operation. TMT should agree now to a plan of holding 6 kcfs out through September, then work around whatever conditions arise in Libby reservoir.

- **Washington** – No objection.

- **Idaho** – Supports the SOR as it is, but suggests a slight modification that might win full regional support. By end August, identify a flow amount that is expected to result in 2,449 feet elevation by end September and agree to it.

- **NOAA** – Supports the proposed operation.

- **USFWS** – Supports the proposed operation.

- **BPA** – Supports the SOR and the proposed operation.

- **BOR**- Support for the operation

In light of no objections, the COE will consult with other sovereigns, then proceed with the proposed Libby operation if there are no objections. TMT will revisit Libby operations in its conference call next week on August 10.

6. Operations Review

Reservoirs. Hungry Horse is at 3,559.16 feet, 10 inches from full, with inflows dropping off to around 4.5 kcfs and outflows at 4 kcfs. BOR plans to continue steady releases of 4 kcfs. With further outflow decreases likely necessary. The end of September elevation target is 3,350 feet.

Grand Coulee is at elevation 1,289.9 feet. Banks Lake will stop pumping and draft through the end of August.

Upper Snake: The operation is on target to provide flow augmentation in the upper Snake by August 31. Upper Snake inflows in June and July were 185% of average, the highest for the past 100 years.

Libby is at elevation 2,453.18 feet, with inflows of 17.9 kcfs and outflows of 14 kcfs. Albeni Falls continues to operate within the summer elevation range of 2,062-2,062.5 feet. Current elevation is 2,062.12 feet, with inflows of 26.12 kcfs and releases of 27.1 kcfs.

Dworshak is at elevation 1,583.84 feet, with inflows of 3.4 kcfs and releases of 14.3 kcfs. Of that, 4.6 kcfs is spill. TDG saturation in the forebay is 109.1%.

Lower Granite flows are 51.5 kcfs. Average flows from June 21 to July 31 were 113 kcfs. Based on the current STP, average flows for June 21 to August 31 will be around 80 kcfs. The COE will give TMT an update on the channel surveys for navigation dredging at either the August 10 or August 17 TMT meetings. Lower Granite is experiencing a total powerhouse outage due to BPA initiated work in combination with COE unit maintenance.

McNary flows are 217.9 kcfs. Average flows from June 1 to July 31 were 321 kcfs, with an expected seasonal average of about 260 kcfs – well above the summer flow objective of 200 kcfs.

Fish. Adults: Cindy LeFleur reported. The forecast for Columbia River fall chinook returns is 766,300 fish, compared to last year's return of 657,100 fish. Upriver brights are predicted to have a strong return of 399,600 this year. The Snake River wild component is predicted to be 17,500 fish, compared to 15,400 last year. This continues an increasing trend for these wild fish. Spring Creek Hatchery returns are predicted to be 116,500 fish, compared to 130,800 last year. Mid Columbia brights returning to areas above Bonneville are predicted to be 100,300 fish, compared to 79,000 last year at the river mouth. The Bonneville Dam count of adult chinook could be over 500,000 fish, compared to last year's count of more than 467,000. The largest count of Bonneville adult chinook was more than 610,000 in 2003.

Juveniles: Fall chinook are the main migrants now, Paul Wagner reported. Lower Granite had a bump of 2,000 per day. Little Goose numbers are in the 3,000-4 ,000 per day range; Lower Monumental, 1,000 fish per day; McNary, more than 100,000 per day; John Day, 30,000; and Bonneville, 30,000. Juvenile lamprey are still passing in small numbers: 10-30 per day at Lower Granite; 10 per day at Little Goose; 100 or so at both McNary and John Day; and less than 100 per day at Bonneville. Kruger said FPAC has discussed the fact that none of these are smolt-type lamprey juveniles.

Water quality. Scott English, COE, reported that TDG levels have calmed down since he last reported. The Bonneville tailrace gage remains out of service and is scheduled for repairs in August. Meanwhile, the COE is using Warrandale gage for analog readings in its daily spill review. There have been minor excursions above TDG with involuntary spill resulting from outages at Lower Granite, Little Goose, Chief Joseph and Grand Coulee dams. English will provide a TDG instance report for July at the next face-to-face TMT meeting.

Power. There was nothing to report today.

6. Next Meeting

A conference call was scheduled for August 10. The next regular TMT meeting will be August 17.

Name	***Affiliation***
Paul Wagner	NOAA
Jim Litchfield	Montana
Lisa Wright	COE
Kristian Mickelson	COE
David Wills	USFWS
Rick Kruger	Oregon
Dan Feil	COE
Scott English	COE
Richelle Beck	DRA
Ted Day	BOR
Phone:	
Tony Norris	BPA
Cindy Lefleur	Washington
Sue Ireland	Kootenai Tribe
Gunnar Leffler	COE Seattle
Dave Benner	FPC
Shane Scott	PPC
Russ George	WMC
Bruce McKay	hydropower consultant
Margaret Filardo	FPC
Russ Kiefer	Idaho
Steve Hall	COE Walla Walla

SYSTEM OPERATIONAL REQUEST: 2011-04

TO:	**BG John R. McMahon**	**COE-NWD**
	Jim Barton	**COE-Water Management**
	Doug Baus	**COE-RCC**
	David Ponganis	**COE-PDD**
	Colonel Bruce A. Estok	**COE-Seattle District**
	J. William McDonald	**USBR-Boise Regional Director**
	Steven Wright	**BPA-Administrator**
	Steve Oliver	**BPA-PG-5**

FROM: Kootenai Tribe of Idaho; Sue Ireland, Fish and Wildlife Department Director

DATE: August 2, 2011

SUBJECT: **September / October 2011 Libby Dam Outflow for Kootenai River Habitat Restoration Project, Phase 1, Braided Reach**

SPECIFICATIONS:
Release minimal outflow from Libby Dam during September (6,000 cfs minimum bull trout flow) and October (4,000 cfs minimum), 2011.

JUSTIFICATION:

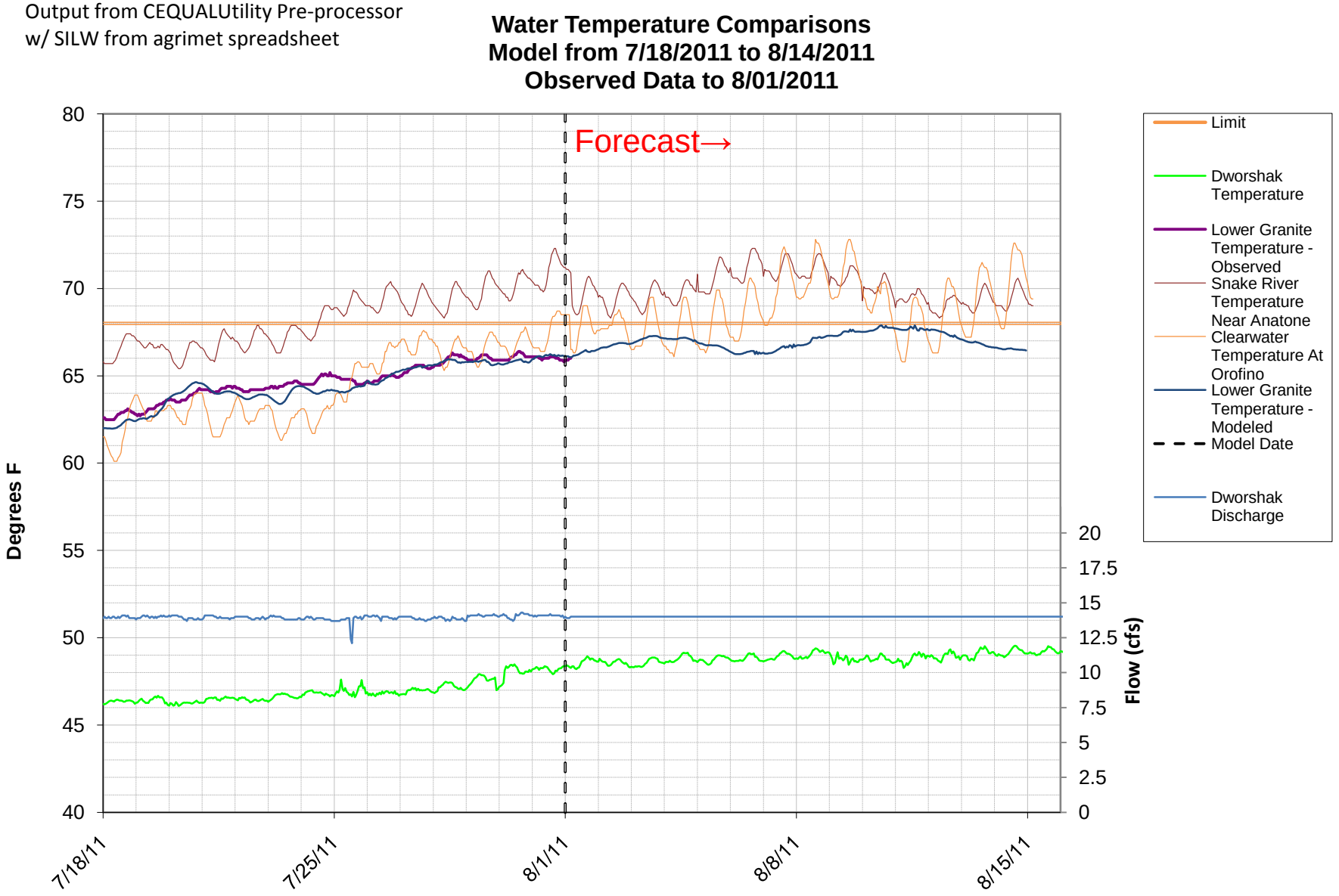
- Minimum flows in the Kootenai River in September and October are requested to allow the Kootenai Tribe of Idaho's contractor to de-water two areas (channels) located in the Kootenai River Habitat Restoration Project, Phase 1, Braided Reach 1 project area. The restoration strategy for this portion of the project is to stabilize eroding banks, trap sediment and promote floodplain development, increase riparian vegetation, and increase channel margin and side channel complexity. The Phase 1 effort will result in restoration of approximately 4,000 feet of river bank and will substantially reduce sediment loading that is contributing to degraded habitat conditions downstream.

- Provide gradually declining discharge to the target flow following ramping rates and minimum flow guidelines in the 2006 BiOp for bull trout and white sturgeon.

- The proposed operation is requested in order to implement the Tribe's Phase 1, Braided Reach 1 portion of the Kootenai River Habitat Restoration Project. The proposed operation will also ensure action agency compliance with the USFWS Biological Opinion regarding the Effects of Libby Dam Operations on the

Kootenai River White Sturgeon, Bull Trout, and Kootenai Sturgeon Critical Habitat (1901F0279R) as clarified (2008). Action 2.1 under RPA Component 2 (Management of Sturgeon Habitat) calls for action agency cooperation in implementing the Kootenai Tribe of Idaho's Kootenai River Restoration Project Master Plan. If construction is not implemented by 2012, re-initiation of consultation will be triggered, interim river operations shall continue, and the action agencies shall evaluate the benefits to sturgeon associated with additional Kootenai River flows through the use of spill over Libby Dam pursuant to Action 1.5.

Output from CEQUALUtility Pre-processor
w/ SILW from agrimet spreadsheet



TECHNICAL MANAGEMENT TEAM			
BOR:	*John Roache / Mary Mellema / Pat McGrane*	**BPA:**	*Tony Norris / Scott Bettin / Robyn MacKay*
NOAA-F:	*Paul Wagner / Richard Dominigue*	**USFWS:**	*David Wills / Steve Haeseker*
OR:	*Rick Kruger / Ron Boyce*	**ID:**	*Russ Kiefer / Pete Hassemer*
WDFW:	*Cindy LeFleur / Charles Morrill*	**MT:**	*Jim Litchfield / Brian Marotz*
Kootenai:	*Sue Ireland / Billy Barquin*	**Spokane:**	*Deanne Pavlik-Kunkel / Andy Miller*
Colville:	*Sheri Sears / Steve Smith*	**Nez Perce:**	*Dave Statler*
Umatilla:	*Tom Lorz (CRITFC)*		
COE:	*Doug Baus / Karl Kanbergs*		

TMT CONFERENCE CALL

Wednesday August 10, 2011 9:00am - 12:00pm

CONFERENCE CALL INFORMATION
Phone Number (877) 336-1274
Access Code 3871669
Security Code 6845

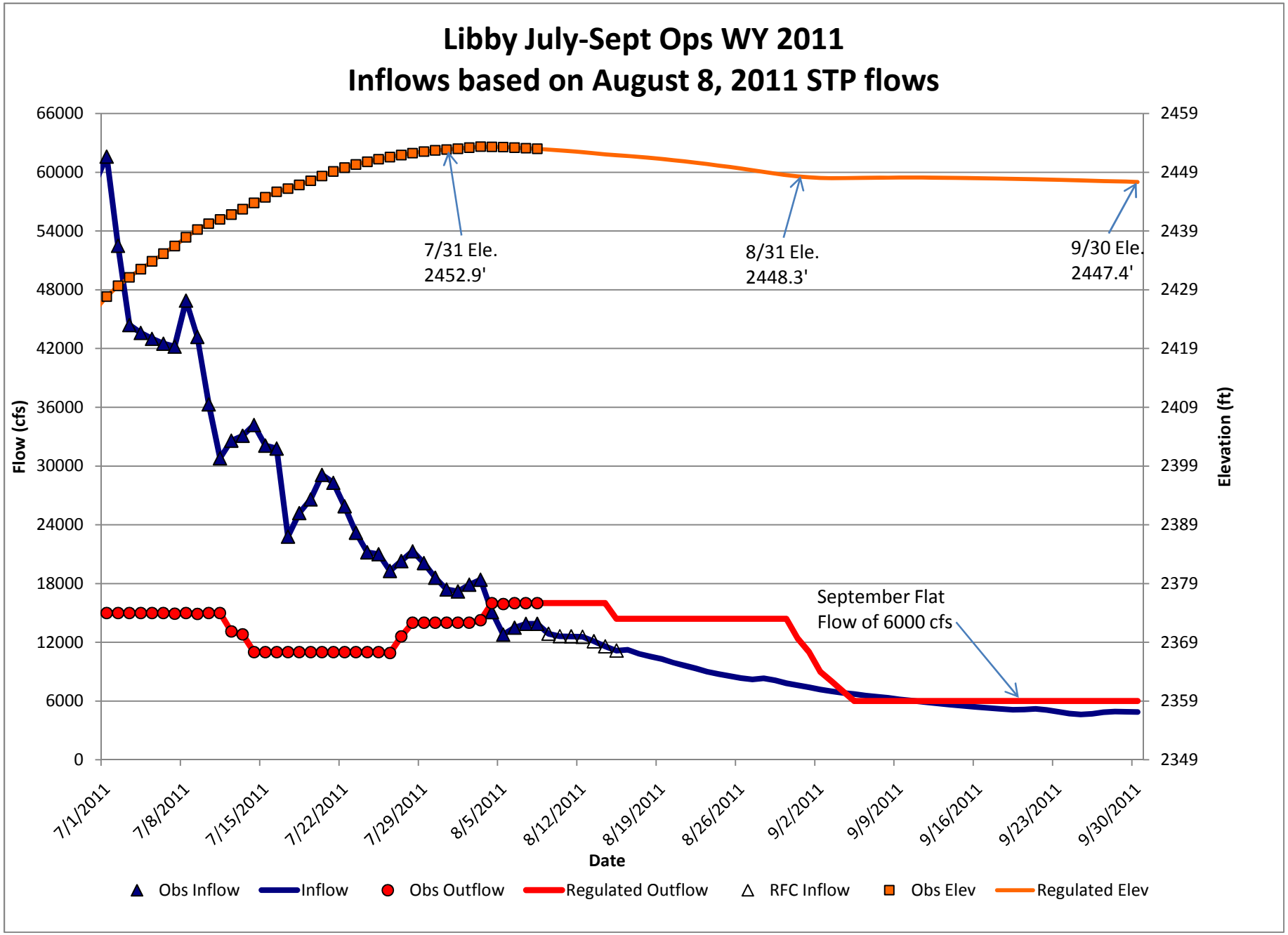
We have had disruptions on the phone because people are not hitting 'mute' after dial in.
Please MUTE your Phone

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@cnnw.net or call her at (503) 248-4703.

AGENDA

1. Welcome and Introductions
2. Dworshak Operations - *Doug Baus, COE-NWD; Steve Hall, COE-NWW*
   a. Water Temperature Comparisons
3. Libby Dam Operations - *Doug Baus, COE-NWD; Kristian Mickelson, COE-NWS*
   a. July to Sept Operations
4. August Grand Coulee Operations - *John Roache, BOR*
5. Other
   a. Set agenda and date for next meeting - **August 17, 2011**
   b. [Calendar 2011]

Questions about the meeting may be referred to:
Doug Baus at (503) 808-3995


Libby July-Sept Ops WY 2011
Inflows based on August 8, 2011 STP flows
Flow (cfs)
Elevation (ft)
66000
60000
54000
48000
42000
36000
30000
24000
18000
12000
6000
0
2459
2449
2439
2429
2419
2409
2399
2389
2379
2369
2359
2349
7/31 Ele.
2452.9'
8/31 Ele.
2448.3'
9/30 Ele.
2447.4'
September Flat
Flow of 6000 cfs
7/1/2011
7/8/2011
7/15/2011
7/22/2011
7/29/2011
8/5/2011
8/12/2011
8/19/2011
8/26/2011
9/2/2011
9/9/2011
9/16/2011
9/23/2011
9/30/2011
Date
Obs Inflow
Inflow
Obs Outflow
Regulated Outflow
RFC Inflow
Obs Elev
Regulated Elev

COLUMBIA RIVER TECHNICAL MANAGEMENT TEAM

August 10, 2011

Facilitator's Summary of Conference Call

Facilitator: Donna Silverberg

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

Dworshak Operations

Doug Baus, COE and Steve Hall, Walla Walla District COE, shared an update on Dworshak operations and the latest temperature modeling results since last week's TMT meeting. The COE has been managing to meet the request of dropping temperatures at DWK. As a result, temperatures have been continuing on a downward trend since the shift to cooler water. After questions about TDG levels/management at DWK, the downward temperature trend at Anatone, and the Clearwater temperatures, no concerns were raised about the operations at DWK.

> **ACTION**: Year End Review Topic – Provide a retrospective on temperatures in the Lower Granite Pool at MOP to look at the impacts of actions.

Libby Operations:

The COE reported that it had coordinated with all remaining TMT members about the SOR put forward by the Kootenai tribe last week. There were no objections to the SOR, so the COE began implementing it last week. At this point, the forecast models indicate that with the current implementation plan the project should meet the 2449' elevation by the end of August. No concerns were raised.

Grand Coulee Operations:

John Roache, BOR reported that GCL is at 1289.5', higher than usual for this time of year. He noted that McNary is still in excess of the weekly flow objective of 200kcfs at this time with no need of a GCL draft. Because of this, BPA has a proposed August operation for Grand Coulee on which the Bureau of Reclamation (BOR) would like TMT feedback prior to internal BOR leadership discussions. Tony Norris, BPA proposed an operation of GCL:

> Proposal: Draft GCL only as needed to meet a weekly flow objective of 200 kcfs at McNary, but no lower than 1280' by August 31.

Questions:

- What is the draft projection if following the proposal?
  - Based of the latest STP model run, 1282-1283'
- How much below the 200 kcfs weekly average might we see on a daily basis?
  - The Action Agencies plan to meet the weekly average flow at McNary following the 80% rule as described in the Water Management Plan - which could drop flows on weekends below 200 kcfs.

- What is the plan for September?
    - The reservoir will be at elevation 1283' or higher at the end of September.

After discussion, TMT members were polled for their initial input on this proposal:

- Idaho –No objection
- Oregon – Needs to review with FPAC and internally
- Washington – Needs to review with FPAC and internally
- Montana – not present
- Salish Kootenai Tribe – no objection
- Colville Tribe – no objection
- Nez Perce - No objection
- CRITFC – Needs to review with FPAC
- USFWS –not present
- NOAA – Needs to review documents. If okay there, will be okay with the action
- COE – this proposal is not a Corps operation, but the Corps will support BOR's decision.
- BPA – Support

Action/Next Steps: FPAC will meet Wed. 8/10 in the afternoon for a call. CRITFC, OR, WA and NOAA will all coordinate their responses with BOR.

- John will email the resulting BOR decision to TMT by Friday a.m., 8/12.
- Doug will forward the decision to the TMT interested parties list.

Next Face to Face Meeting, 8/17

Agenda items include:

- Dworshak Operations
- Libby Operations
- Grand Coulee Operations
- Other?

Columbia River Regional Forum
TECHNICAL MANAGEMENT TEAM OFFICIAL MINUTES

August 10, 2011
Notes: Pat Vivian

1. Introduction

Today's TMT conference call was chaired by Doug Baus, COE, and facilitated by Donna Silverberg, DS Consulting. Representatives of BPA, the COE, Washington, Nez Perce Tribe, NOAA, BOR, Colville and Salish-Kootenai tribes, Idaho, Oregon, and others attended. This summary is an official record of the proceedings, not a verbatim transcript. Any questions or comments should be directed to the TMT chair.

2. Dworshak Operations

During the August 3 TMT meeting the COE received FPAC's request to reduce Dworshak discharges to 45 degrees to manage temperatures in the Lower Granite tailwater. Steve Hall, COE Seattle, gave an update on the status of the implementation of this request. Attachment 2a shows water temperature comparisons between Dworshak releases and Lower Granite tailwater. The COE has had to work to keep Lower Granite tailwater temperatures below 68 degrees, but temperatures are expected to go down. The current Dworshak elevation is 1,575.07 feet, with inflows of 2.3 kcfs and discharges of 13.2 kcfs.

Dave Statler, Nez Perce Tribe, asked whether the downward trend in temperatures is weather-related. Yes, Hall said, it's normal for the first two weeks of August to be warmer than the last two weeks. From mid August on, temperatures at Anatone tend to cool. However, temperatures on the Clearwater tend to stay high longer. The modeled results shown in attachment 2a are the most predictable through August 16. After that, projections become uncertain.

Tom Lorz, CRITFC/Umatilla, asked whether the COE planned on picking up discharge at Dworshak since TDG was only 108.2%. Hall indicated that we have been trying to pick up discharges at Dworshak in an effort to manage closer to 110% but this is very difficult due to structural limitations of the RO gates. As a matter of fact in an effort to manage closer to 110% yesterday TDG saturation was 110.1% (on one hour) and the day before even higher at 111.2% (on one hour). It's difficult to fine-tune the Dworshak operation to follow the gas cap closely because the RO gates tend to make flow errors of 200-300 cfs each time they are adjusted, although he plans to experiment with some daily flow shaping next week. Russ Kiefer, Idaho, asked whether the COE had modeled what Dworshak release temperatures would be if the project spilled more through the spill gates at 49 degrees F. Raising the temperature of Dworshak releases would have a significant impact on tailwater temperatures at Lower Granite, Steve Hall replied.

NOAA approves of this operation, Paul Wagner said. He asked when Dworshak is expected to reach elevation 1,535 feet. Based on STP values, the reservoir should be around 1,540 feet elevation on September 1. Depending on inflows, it will reach 1,535 feet about 3 days later, Karl Kanbergs replied.

Statler asked whether the model factors in depth or volume at Lower Granite pool; Hall said it does. Statler suggested the COE give a retrospective at the TMT year-end review showing what the temperatures in Lower Granite tailwater would have been had the project operated at MOP. Charles Morrill, Washington, asked whether spill associated with the powerhouse outage at Lower Granite has an effect on downstream temperatures. It does because spill pulls water from the upper half of the pool, while the powerhouse releases water from the bottom layer, Hall replied. There were no objections today to the plan for Dworshak operations.

3. Libby Operations

Joel Fenolio, COE Seattle, gave an update on the operation of Libby to fulfill SOR 2011-04 presented by the Kootenai Tribe at TMT last week. Attachment 3a is a graph of projected operations from July 1 through September 30. Inflows peaked last week and the reservoir is starting to draft; current releases are 11.9 kcfs. Based on latest STP inflows, the reservoir is expected to reach elevation 2,449 feet by end August, operating under the limitation of two unit outages beginning August 15. The COE plans to release 16 kcfs through August 15, and then powerhouse capacity (with only 3 units available) (14-14.4 kcfs) through the end of August, and then 6 kcfs in September as the tribe has requested for its habitat restoration work. TMT had no questions today on this operation.

4. August Grand Coulee Operations

The Grand Coulee reservoir elevation is within the top foot at 1,289.5 feet, which is unusually high for this time of year, John Roache, BOR, reported. McNary flows are still expected to exceed the 200 kcfs summer flow objective through end August. The Grand Coulee draft limit for end August is 1,280 feet elevation to support the summer flow objectives.

Given the strong likelihood that McNary flows will exceed 200 kcfs on a weekly average basis through the rest of this summer, BPA proposed to TMT that Grand Coulee be drafted as needed to meet the McNary flow objective through end August. This could result in the Grand Coulee elevation being above its draft limit on August 31. Based on model data, the reservoir could be at 1,283-4 feet elevation by August 31. The BOR plans to keep the reservoir elevation at no lower than 1,283 feet by September 30 for the sake of resident fisheries.

The purpose of this proposal is to preserve volume for flows in September for the fall chum operation and winter refill, as well as other river uses, Tony Norris, BPA, explained. For the purposes of system planning, BOR and BPA need to know by noon tomorrow whether TMT approves of the proposal.

Kanbergs noted that DOD Navy divers will be doing maintenance work in August and need Priest Rapids flows to be limited to 150 kcfs during daylight hours while they are working. This adds to the need for a quick decision on whether to implement the proposal. He further added that the Navy had other options but just needed to know what expected flows were going to be as soon as possible. Keeping flows under 150 kcfs at Priest Rapids could be a problem, Norris said.

Due to insufficient information on the proposal, not all TMT members were ready to state their views for the record today.

- **Washington** – Not ready to vote; needs time to review.
- **Idaho** – No objection.
- **Colville Tribe** – No objection.
- **Salish-Kootenai** – No objection.
- **NOAA** – Gave provisional approval as long as the proposed operation is consistent with language in water management plans and other relevant documents. Needs time to review these before giving final approval.
- **Nez Perce** – No objection based on what is known at present.
- **Oregon** – Needs more information before voting.
- **CRITFC/Umatilla** – Needs to see load projections before giving approval. The caveat here is to avoid abrupt drawdowns.
- **COE** – This proposal is not a Corps operation, but the Corps will support BOR's decision.

Washington, NOAA, Oregon and CRITFC will email their views to the BOR as soon as possible. The BOR and BPA will coordinate with USFWS which was not represented on today's call. Richelle Beck, Grant PUD, asked whether the operational decision could be sent to all interested parties, not just TMT members. BOR and the COE will coordinate to email information on this operation to all recipients on the broader TMT list.

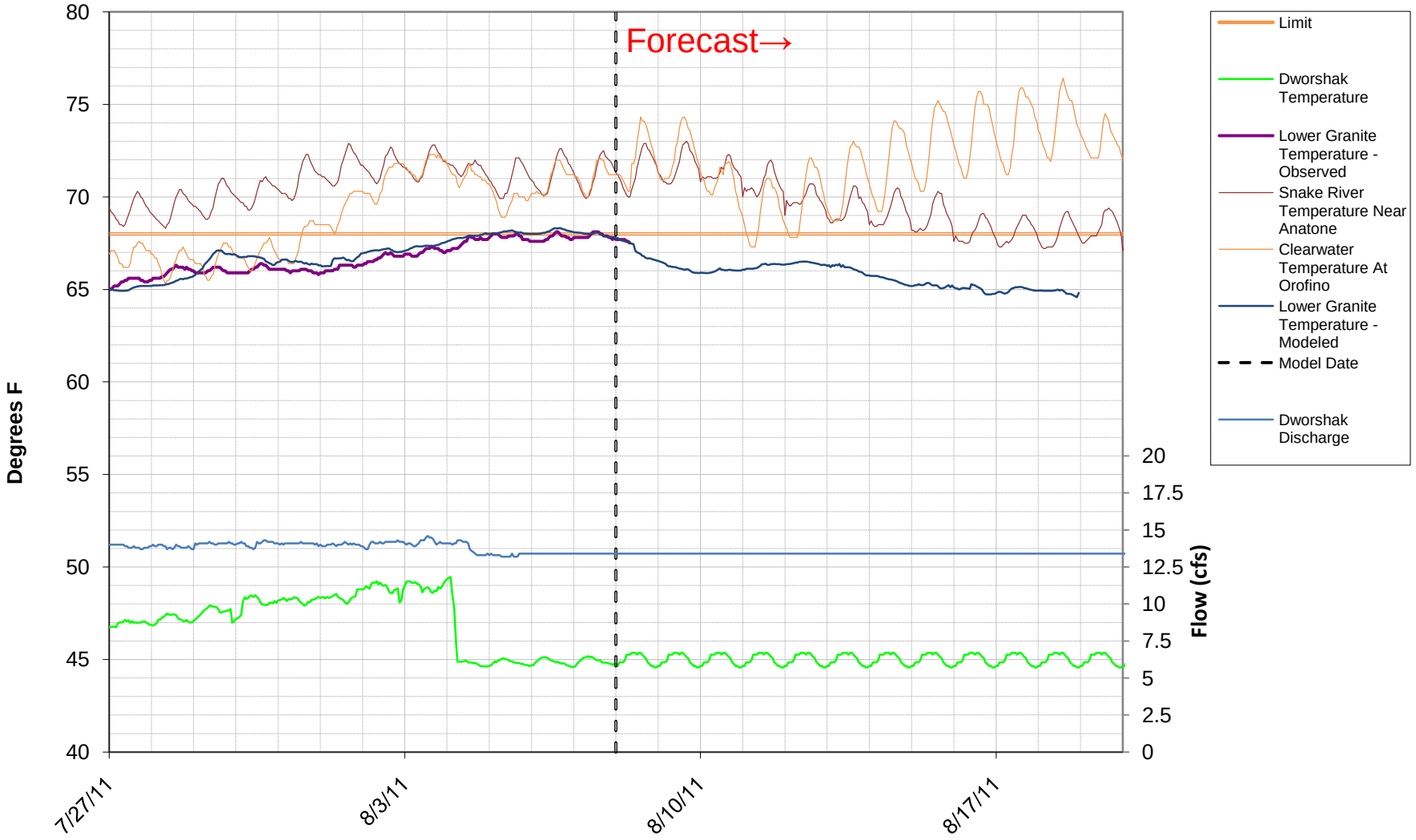
5. Next TMT Meeting

TMT will meet next in person August 17, with updates on the same agenda topics covered in today's meeting.

Name	***Affiliation***
Doug Baus	COE
Tony Norris	BPA
Charles Morrill	Washington
Dave Statler	Nez Perce
Paul Wagner	NOAA
John Roache	BOR
Steve Smith	Colville
Stu Leavitt	Salish-Kootenai
Karl Kanbergs	COE
Laura Hamilton	COE
Dan Feil	COE
Mike Shapley	Snohomish PUD
Jason Mays	EWEB
Joel Fenolio	COE Seattle
Bruce McKay	hydropower consultant
Richelle Beck	Grant PUD
Russ George	WMC
Dave Benner	FPC
Tom Lorz	CRITFC/Umatilla
Russ Kiefer	Idaho
Ron Boyce	Oregon
Steve Hall	COE Walla Walla

Output from CEQUALUtility Pre-processor
w/ SILW from agrimet spreadsheet
Change to 45F and 13,400 cfs

Water Temperature Comparisons
Model from 7/27/2011 to 8/20/2011
Observed Data to 8/8/2011



TECHNICAL MANAGEMENT TEAM			
BOR:	*John Roache / Mary Mellema / Pat McGrane*	**BPA:**	*Tony Norris / Scott Bettin / Robyn MacKay*
NOAA-F:	*Paul Wagner / Richard Dominigue*	**USFWS:**	*David Wills / Steve Haeseker*
OR:	*Rick Kruger / Ron Boyce*	**ID:**	*Russ Kiefer / Pete Hassemer*
WDFW:	*Cindy LeFleur / Charles Morrill*	**MT:**	*Jim Litchfield / Brian Marotz*
Kootenai:	*Sue Ireland / Billy Barquin*	**Spokane:**	*Deanne Pavlik-Kunkel / Andy Miller*
Colville:	*Sheri Sears / Steve Smith*	**Nez Perce:**	*Dave Statler*
Umatilla:	*Tom Lorz (CRITFC)*		
COE:	*Doug Baus / Karl Kanbergs*		

TMT MEETING

Wednesday August 17, 2011 9:00am - 12:00pm

1125 N.W. Couch Street, Suite 500, Columbia Room
Portland, Oregon 97209-4142
Map Quest [Directions]

TMT MEETING
Phone Number (877) 336-1274
Access Code 3871669
Security Code 6845

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

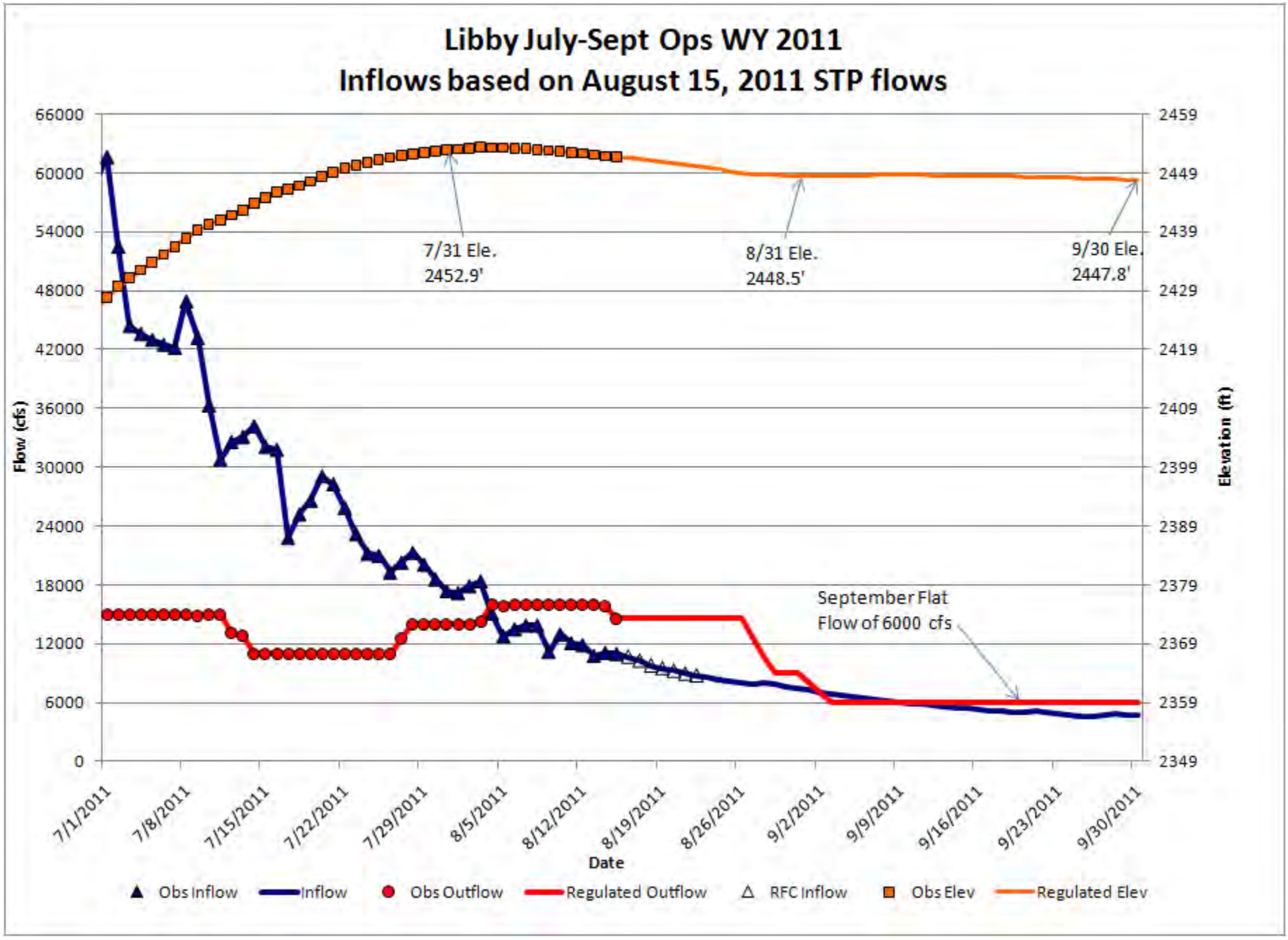
All members are encouraged to call Robin Gumpert with any issues or concerns they would like to see addressed. Please e-mail her at rgumpert@cnnw.net or call her at (503) 248-4703.

AGENDA

1. Welcome and Introductions
2. Review August 3 and 10 Meeting Minutes [Meeting Minutes]
3. Dworshak Operations - *Doug Baus, COE-NWD; Steve Hall, COE-NWW*
    a. Water Temperature Comparisons
4. Libby Dam Operations - *Doug Baus, COE-NWD; Joel Fenolio, COE-NWS*
    a. July to September Operations
5. Autumn Treaty Fishery - *Tom Lorz (CRITFC), Umatilla*
    a. SOR 2011-C7
6. End of MOP Operation - *Doug Baus, COE-NWD; Tony Norris, BPA*
7. Operations Review
    a. Reservoirs
    b. Fish
    c. Water Quality
    d. Power System

8. Other
    a. Set agenda and date for next meeting - **August 24, 2011**
    b. [Calendar 2011]

Questions about the meeting may be referred to:
Doug Baus at (503) 808-3995


Libby July-Sept Ops WY 2011
Inflows based on August 15, 2011 STP flows
Flow (cfs)
Elevation (ft)
66000
60000
54000
48000
42000
36000
30000
24000
18000
12000
6000
0
2459
2449
2439
2429
2419
2409
2399
2389
2379
2369
2359
2349
7/31 Ele.
2452.9'
8/31 Ele.
2448.5'
9/30 Ele.
2447.8'
September Flat
Flow of 6000 cfs
7/1/2011
7/8/2011
7/15/2011
7/22/2011
7/29/2011
8/5/2011
8/12/2011
8/19/2011
8/26/2011
9/2/2011
9/9/2011
9/16/2011
9/23/2011
9/30/2011
Date
Obs Inflow
Inflow
Obs Outflow
Regulated Outflow
RFC Inflow
Obs Elev
Regulated Elev

COLUMBIA RIVER TECHNICAL MANAGEMENT TEAM

August 17, 2011

Facilitator's Summary

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.

Autumn Treaty Fishery

Tom Lorz, CRITFC/CTUIR, reported on SOR 2011-C7, a request for operating Bonneville, The Dalles and John Day pools within a 1.5' elevation to support treaty fishing. The fishing dates are 8/23-8/26; 8/30-9/2; and 9/6-9/9. It was noted that the TAC sets fishing estimates in-season and on a weekly basis. This triggers the fishery and operations requests that come to the COE/TMT.

> **Planned Operation**: Doug Baus, COE, said the COE planned to implement the request as described in the SOR.

Dworshak Operations:

Doug Baus, COE, reported that the Dworshak Board had met and determined a plan for shaping releases out of Dworshak in September per the Nez Perce agreement. The plan is consistent with 2010 operations. The project was expected to reach elevation 1540' around 8/31 (above 1535' due to high inflows this year) discharging approximately 14 kcfs; when the pool reaches 1535', go to full powerhouse/10.2 kcfs around 9/3; ramp to 8 kcfs around 9/9; to 5.9 kcfs around 9/13; to 4.8 kcfs around 9/16; to 2.4 kcfs around 9/19; and to 1.5 kcfs when the reservoir reaches elevation 1520', around 9/22. Doug noted the dates for ramping down and discharge rates are approximations and subject to change pending real time conditions.

Steve Hall, Walla Walla District COE, updated TMT on current operations. The project was at elevation 1565' and being operated to provide cool temperatures for Lower Granite, maximize discharge, stay within TDG standards and minimize impacts to equipment. As such, day time outflows when TDG is highest were about 13.2-13.6 kcfs, and nighttime flows when TDG is lower were about 14 kcfs. Steve reported that when the pool reaches elevation 1560-1555', one unit will switch to overshot mode and this was expected to occur this or early next week. He also noted that temperatures were now past their peak and currently, Lower Granite tailwater temperatures were about 65-66 degrees F. TMT members noted that the operation had gone well so far.

Libby Operations:

Doug Baus, Division COE, and Joel Fenolio, Seattle District COE, reported on Libby operations. The project was currently being operated according to the plan agreed on to support the Kootenai Tribe's request discussed at TMT on 8/3. A Libby July-September operations update was posted based on the latest STP flows. It projected the same outcome as had been forecast at the last update – the COE will continue to release 14.6 kcfs until the project reaches elevation 2449', around 8/27. Then it will pass inflows or

release bull trout minimums. TMT will hear updates on the operation as the season progresses.

End of MOP Operation

Tony Norris, BPA, and Doug Baus, COE, described the plan for operating projects once MOP restrictions are lifted at the Lower Snake projects on 8/31. Lower Granite will continue to be operated in order to provide safe navigation conditions and the lower pools will be used as needed to support power needs. The action agencies are committed to return all projects to MOP (with the exception of Lower Granite due to navigation safety concerns) on 9/22 (at the end of the Dworshak release).

With regards to the Lower Granite survey, the COE reported that a contract was awarded this week and the survey would likely start next week, and will begin at the confluence. As data is collected, summarized and coordinated internally, information will be shared with TMT and other stakeholders – likely in the September/October timeframe.

Operations Review

Reservoirs – John Roache, Reclamation, reported on projects. Hungry Horse was at elevation 3558.0' and releasing 4 kcfs outflows to reach elevation 3550' by 9/30. Grand Coulee was at elevation 1287.4' and drafting to the draft limit of1280' by 8/31. As follow up to the 8/10 TMT meeting, John said the water supply forecasts and the latest STP model run had changed as such that flows at McNary would average below 200 kcfs for the remainder of the month with Grand Coulee drafting to 1280'. McNary summer flow objectives were met (and exceeded) this year. Doug Baus, COE, reported on projects. Libby was at elevation 2451' with 9.6 kcfs inflows and 14.6 kcfs outflows. Albeni Falls was at elevation 2062' with 16.5 kcfs inflows and 20.3 kcfs outflows. Dworshak was at elevation 1565' with 2.5 kcfs inflows and 13.4 kcfs outflows. Lower Granite inflows were 35.3 kcfs. Priest Rapids inflows were 157.4 kcfs.

Doug Baus, informed TMT the COE will be removing the John Day TSWs on Aug 31. During the TSW removal process all scheduled spill will be redistributed to the remaining bays. Little Goose spillway weirs would be out of service by Aug 31. Per the FOP should low flows limit the ability to spill 30% at LGS the COE would the implement operation consistent with the 2009 and 2010 operations of changing from 30% spill to a constant spill rate.

Fish – Paul Wagner, NOAA, reported on fish passage. Adult Fall Chinook counts at Bonneville were 10,660, about 1,000/day. A strong jack return was observed so far this season. Steelhead counts at Bonneville were 213,000, about 5,000-8,000/day and on track with the 10-year average. Of those, 88,000 were wild. Sockeye counts were 1,491 at Lower Granite. Juvenile Fall Chinook subyearlings were passing Lower Granite at about 1,000/day – though a caution was shared that the passage index at Lower Granite is impacted by powerhouse outages and more fish through the spillway. Counts at McNary were running high, around 25,000/day.

Water quality – Laura Hamilton, COE, reported that there were few TDG exceedances in August. A temporary Bonneville tailwater gauge at Cascade Island was currently being installed by Portland District COE and USGS; they hoped to be able to collect data this week. A permanent gauge will be installed this Fall when the water is lower.

Next Meeting, 8/31 (Please note: Due to a very light agenda, this meeting might be cancelled and TMT would resume discussions on 9/7. Please check the TMT web page for updates on schedule and agendas.)

Agenda items include:

- Dworshak Operations
- Libby Operations
- Grand Coulee Operations
- Other?

Columbia River Regional Forum
TECHNICAL MANAGEMENT TEAM OFFICIAL MINUTES

August 17, 2011
Notes: Pat Vivian

1. Introduction

Today's TMT meeting was chaired by Doug Baus, COE, and facilitated by Robin Gumpert, DS Consulting. Representatives of Idaho, BPA, COE, NOAA, Washington, BOR, CRITFC and others attended. This summary is an official record of the proceedings, not a verbatim transcript.

2. Review Meeting Minutes for August 3 and 10

There were no comments today on either the facilitator's notes or official minutes. The August 10 notes and minutes were deemed final. The August 3 notes and minutes will be finalized next week.

3. Autumn Treaty Fishery – SOR 2011-C7

Tom Lorz, CRITFC, presented this SOR, which makes the typical treaty request of 1.5-foot operating bands at Bonneville, The Dalles and John Day pools for tribal fisheries over the next 3 weeks:

- 6 am Monday, August 22, to 6 pm Friday, August 25
- 6 am Tuesday, August 30, to 6 pm Friday, September 2
- 6 am Tuesday, September 6, to 6 pm Friday, September 9

Baus asked how harvest quantities are used in planning future treaty fisheries. A regional group of experts, including Washington representative Cindy LeFleur, does the planning based on harvest estimates and run forecasts, Lorz replied. The group meets whenever new data are available and adjusts fishery plans accordingly. Hearing no comments on this SOR today, the COE will implement the operation as requested.

4. Dworshak Operations

The Dworshak board has convened and made the Operational Plan for the use of the Nez Perce Tribe's 200 kaf of Stored Water in Dworshak Reservoir, Baus said. The COE plans in implementing the Operational Plan and would like to hear any comments from TMT on the plan.

The following are specific details associated with the release of the Nez Perce Tribe's 200 KAF:

A. On or about August 31, Dworshak will be drafted to approximately elevation 1540 feet (about 5 feet higher than the objective of 1535 feet due to high inflows and late refill because of the high inflows), and discharge is expected to be about 14.0 kcfs.

B. Maintain discharge at approximately 14.0 kcfs until the pool reaches elevation 1535 feet (approximately September 3rd). When the pool reaches elevation 1535 feet, reduce discharge to full power house (approximately 10.2 kcfs). The temperature of the water is expected to be in the range of 46 or 48 degrees Fahrenheit.

C. Maintain discharge at approximately 10.2 kcfs (all three units) for approximately 5 days (September 8th). The temperature of the water is expected to be in the range of 46 or 48 degrees Fahrenheit.

D. On about September 9th, reduce discharge to 8.0 kcfs (big unit and small unit) and maintain for approximately of 4 days. The temperature of the water is expected to be in the range of 46 or 48 degrees Fahrenheit.

E. On about September 13, reduce discharge to 5.9 kcfs (big unit) and maintain for a minimum of 2 days. The unit will operate in undershot mode to achieve water temperature near 47 degrees Fahrenheit.

F. On about September 16th, reduce discharge to 4.8 kcfs (two small units) and maintain for a minimum of 2 days. The discharge water temperature is expected to be in the range of 46 to 48 degrees Fahrenheit.

G. On about September 19th, reduce discharge to 2.4 kcfs (one small unit) and maintain for a minimum of 2 days or until the pool reaches 1520. The unit will operate in undershot mode to achieve water temperature near 47 degrees Fahrenheit.

H. Reduce to minimum outflow (about 1.5 kcfs), when the reservoir pool drafts to elevation 1520 feet (forecasted to be about September 22nd).

Russ Kiefer, Idaho, said this sounds like a reasonable operation.

Steve Hall, Walla Walla, gave an update on Dworshak operations. The COE is targeting discharges of 13.2-13.6 kcfs from 10 am to 10 pm, when TDG levels tend to be highest. At night, discharges increase to slightly more than 14 kcfs when TDG levels are lower, with all three units in undershot mode and a discharge target of 48 degrees F. The current reservoir elevation is 1,565 feet; spillway access will end once the operation drops below 1,560-1,555 feet. At that time, one unit will go into overshot mode, selecting warmer water. That is predicted to happen late this week or early next week.

A graph of Dworshak water temperature comparisons, attached to this item on today's agenda, shows that the warmest temperatures of 2011 probably occurred in early August. Lower Granite tailwater temperatures are now in the 65-66 degrees F range, well below the 68-degree threshold. TMT will continue to monitor Dworshak operations throughout the rest of passage season.

5. Libby Operations

The COE has been implementing the operation to support SOR 2011-04, presented to TMT by the Salish-Kootenai Tribe. Baus reported there have been no changes in the COE's plan to implement the tribe's request for a flat flow of 6 kcfs in September to accommodate habitat restoration.

The current end of August elevation target at Libby is 2,448.5 feet, Joel Fenolio reported. Releases will continue at 14.6 kcfs until the reservoir hits elevation 2,449 feet. At that time, predicted to be around August 24-27, Libby will go either to bull trout minimums or passing inflows.

There were no questions today on this operation. TMT will continue to monitor Libby operations throughout the rest of passage season.

6. End of MOP Operations

The COE's intention is to repeat last year's end of MOP operation, Baus said. Tony Norris, BPA, gave details of the operation. The official MOP restriction will be lifted at the end of August. After that, Lower Granite will continue to be maintained within its current operating range and BPA will use the lower Columbia pools as needed, returning those pools to the MOP range when the Dworshak release ends around September 22.

Baus noted that Lower Granite is currently operating at MOP+2, which will continue as long as there are navigation safety concerns. A contract for the channel survey was awarded on August 15. The surveys are expected to start next week at the confluence of the Snake and Columbia and work their way up the Snake. Data processing will take a few weeks once the survey is complete, with data expected around mid September. The COE will keep TMT informed as the survey progresses.

7. Additional Items

John Day Dam, Baus indicated the TSWs will be removed from service on August 31. Little Goose Dam, Kiefer asked whether flows are in the range where keeping spill at 30% for all hours causes turbine cycling. Current STP information indicates that flows won't be in that range (when daily average flows in the Snake River are less than or equal to 32 kcfs) until early September, Baus and Lisa Wright, COE, replied. The COE will notify TMT if flows reach the trigger but the

planned operation would be consistent with the 2010 operation that resulted in switching from 30% spill to spilling at a constant rate. TMT will revisit this operation at its next meeting August 31. In addition at Little Goose Dam the spillway weirs will be out of service by August 31.

8. Operations Review

Reservoirs. Hungry Horse is at 3,558.01 feet elevation with releases of 4 kcfs, targeting elevation 3,550 feet by September 30. BOR is considering reducing releases to 3.5 kcfs next week in order to reach the September 30 elevation target.

Grand Coulee is at elevation 1,287.4 feet, moving toward a draft limit of 1,280 feet elevation on August 31. Russ Kiefer, Idaho, asked why the draft limit is now 1,280 feet and the STP indicates downstream flows will be less than 200 kcfs, not elevation 1,284 feet while maintaining 200 kcfs flows at McNary as presented to TMT a week ago with the BPA proposal. John Roache, BOR, said that Reclamation's decision to draft the 1,280 foot draft limit was based on feedback from TMT whose members didn't reach full consensus on the proposal. Tony Norris, BPA, said inflow forecasts have dropped significantly such that inflows are now expected to be too low to make the 200 kcfs weekly average at McNary. There is no requirement to meet weekly average flows but flows at McNary will significantly exceed the seasonal flow objective.

Libby is at elevation 2,451 feet, with inflows of 9.6 kcfs and releases of 14.6 kcfs. Albeni Falls is at elevation 2,062 feet, with inflows of 16.5 kcfs and releases of 20.3 kcfs. Dworshak is at elevation 1,565 feet, with inflows of 2.5 kcfs and releases of 13.4 kcfs. Lower Granite inflows are 35.3 kcfs. Priest Rapids inflows are 157.4 kcfs.

Fish. Adults: Fall chinook passage is strong at Bonneville, with a projected total of 700,000 fish at the river mouth and 500,000 at the dam. Approximately 1,000 chinook per day are passing Bonneville. Like spring and summer chinook this year, fall chinook jacks are showing a strong return of 30% to date. Steelhead run size is projected to be 213,000 fish, with 88,000 wild steelhead. A total of 1,491 sockeye have passed Lower Granite, and 22,000 steelhead have moved up the river. Steelhead passage is on track with the 10-year average, unlike last year which was exceptional.

Juveniles: Over the past week, fall chinook subyearlings have been passing Lower Granite at the rate of 1,000 to 350 fish per day. Kiefer pointed out that index counts aren't very accurate when most juveniles are passing via spill, as they are now due to the Lower Granite powerhouse outages. Little Goose is passing 1,000 to 300 subyearlings per day over the past week. McNary has been passing 10,000 per day for the past few days, with an average closer to 25,000 per day over the past week. This is more fish than usual for this time of year.

Passage numbers are dropping off at John Day. Downstream passage at Bonneville has moved to the 1st powerhouse, making the passage indexes relatively meaningless.

Water quality. Laura Hamilton, COE, reported that spill has subsided and there have been few TDG exceedances on the lower Snake and Columbia in the past week. Replacement of the temporary Bonneville tailwater gage will occur this week or next, depending on availability of an underwater cable. The permanent gage replacement will be installed when water levels are as low as possible, probably in September or October.

Power. There was nothing to report today.

6. Next Meeting

The next regular TMT meeting will be on August 31, with a retrospective of summer operations on the agenda.

Name	***Affiliation***
Russ Kiefer	Idaho
Tony Norris	BPA
Lisa Wright	COE
Paul Wagner	NOAA
Doug Baus	COE
Bill Proctor	COE
Dan Feil	COE
Laura Hamilton	COE
Karl Kanbergs	COE
Scott Bettin	BPA
XX	BPA

Phone:

Charles Morrill	Washington
John Roache	BOR
Steve Hall	COE Walla Walla
Gunnar Leffler	COE
Bob Gagnon	Snohomish PUD
Russ George	WMC
Ruth Burris	PGE
Bruce McKay	consultant
Dave Benner	FPC
Richelle Beck	Grant PUD
Margaret Filardo	FPC
Doug Vine	Thompson Reutters
Tom Lorz	CRITFC
Joel Fenolio	COE

COLUMBIA RIVER INTER-TRIBAL FISH COMMISSION
729 NE Oregon, Suite 200, Portland, Oregon 97232 Telephone 503 238 0667
Fax 503 235 4228

SYSTEM OPERATIONAL REQUEST: 2011 C-7

TO:	Brigadier General McMahon	COE-NWD
	James D. Barton	COE-NWD-NP-Water Management
	Steve Barton, Karlis Kanbergs	COE-NWD-NP-WM-RCC
	D. Feil, R. Peters, D. Ponganis	COE-NWD-PDD (Fish Management Office)
	Col. John W. Eisenhauer	COE-Portland District
	JR Inglis, Paul Cloutier	COE-Portland District/NWD (Tribal Liaison)
	Karl Wirkus	USBR- PNW Regional Director
	Steven J. Wright	BPA Administrator
	Steve Oliver, Lorri Bodi	BPA-PG-5
	Tony Norris, Scott Bettin	BPA-Operations Planning-PGPO
	Stan Speaks, Keith Hatch	BIA, Northwest Regional Office

FROM: Babtist Paul Lumley, *Executive Director*

DATE: August 1, 2011

SUBJECT: **Operation of the Lower Columbia Pools for the Autumn 2011 Treaty Fishery**

The Columbia River Inter-Tribal Fish Commission, on behalf of its member tribes, the Nez Perce Tribe, the Confederated Tribes of the Umatilla Indian Reservation, the Confederated Tribes of the Warm Springs Reservation of Oregon, and the Confederated Tribes and Bands of the Yakama Nation, requests the following reservoir operations in "Zone 6" (Bonneville to McNary dams) during the 2011 autumn Treaty fishery. This effort supports the 2011 autumn ceremonial, subsistence, and commercial Treaty fishery times as established by the tribes and the Columbia River Compact.

SPECIFICATIONS: Implement the following pool operations as a hard system constraint, as follows:

August 22, 2011, 6 am, Monday, through 6 pm, August 25, 2011, Thursday.
August 30, 2011, 6 am, Tuesday, through 6 pm, September 2, 2011, Friday.
September 6, 2011, 6 am, Tuesday, through 6 pm, September 9, 2011, Friday.

Bonneville: Operate the pool within a 1.5 foot band during the treaty fishing period.
The Dalles (Celilo): Operate the pool within a 1.5 foot band during the treaty fishing period
John Day: Operate the pool within a 1.5 foot band during the treaty fishing period.

JUSTIFICATION:

The 2011 autumn treaty fishing season is of critical importance to CRITFC's member tribes. The escapement of an estimated **504,100** (Columbia at Bonneville Dam) adult fall Chinook (way above normal rank), **81,500** coho (near normal rank), and **366,800** steelhead (near normal rank), will create harvest opportunities for tribal fishers who will exercise their treaty rights by participating in this harvest, using platform and gillnet fishing methods. This harvest will provide for the cultural, religious, and economic needs of the treaty tribes.

CRITFC will sponsor net flights each week to count the nets in each Zone 6 pool. The survey data will be shared with COE-RCC staff by early afternoon of the flight day.

Achieving good river conditions through managed river operations during the treaty fishery have been the basis of past litigation that have been supported by federal courts and are consistent with the trust and fiduciary responsibilities that the federal operators have with respect to CRITFC's member tribes. Good river conditions during the treaty fishery are also consistent with the spirit of the 10-year Memorandum of Agreements signed by tribal and Corps, BPA, and BOR officials.

In past meetings with Corps officials, tribal fishers have explained that a pool fluctuation of more than 1.5 foot disrupts tribal fishery operations. Specific problems include: (1) increased local currents that sweep debris into fishing nets, (2) rapid 1-2 hour drops in water level will lead to entanglement of nets or change local currents that affect fishing success, (3) boat access problems, and (4) nets torn from their anchors if pools are raised after nets are set. Nets and gear are costly to replace and may become "ghost nets" that continue to catch fish and may negatively affect fish populations outside of the treaty fishing period.

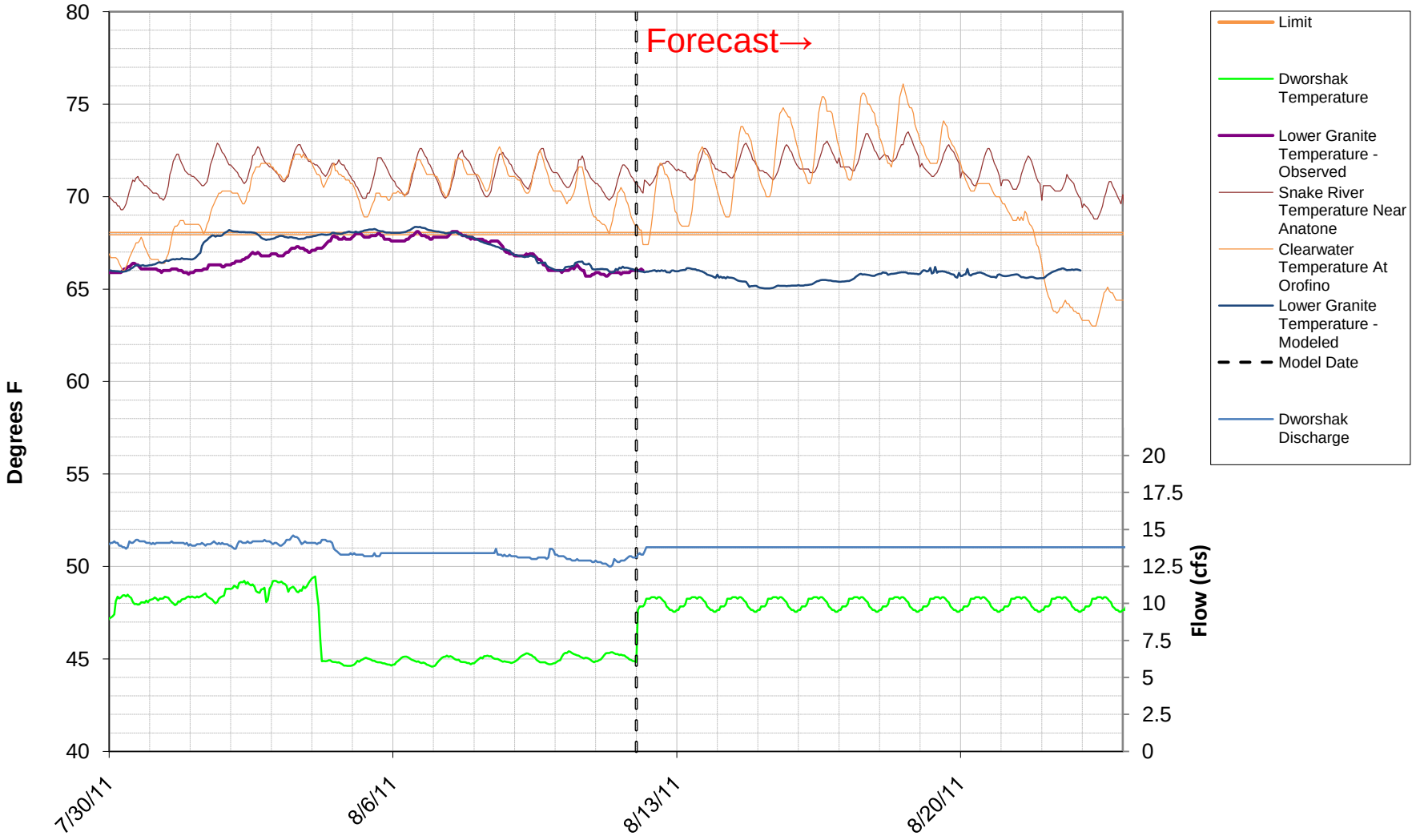
Any delays or disruptions to tribal fishing operations caused by the excessive pool fluctuations in Zone 6 can negatively impact tribal incomes, food resources and cultural practices. Much of the tribal fishers' annual income and food is generated during the brief treaty fishing season. The fishers have expressed to Corps officials that the loss of fishing opportunity during the extremely limited treaty fishery period cannot be replaced.

If this SOR cannot be accommodated, CRITFC requests a verbal response with an explanation from the federal operators by COB Friday, August 5, 2011. Thank you for considering this request. Please contact Kyle Dittmer or Bob Heinith should you have any questions at (503) 238-0667.

cc: Tribal Staffs and Attorneys

Output from CEQUALUtility Pre-processor
w/ SILW from agrimet spreadsheet
Current OP 13,800 cfs 48F out

Water Temperature Comparisons
Model from 7/30/2011 to 8/24/2011
Observed Data to 8/12/2011



TECHNICAL MANAGEMENT TEAM			
BOR:	*John Roache / Mary Mellema / Pat McGrane*	**BPA:**	*Tony Norris / Scott Bettin / Robyn MacKay*
NOAA-F:	*Paul Wagner / Richard Dominigue*	**USFWS:**	*David Wills / Steve Haeseker*
OR:	*Rick Kruger / Ron Boyce*	**ID:**	*Russ Kiefer / Pete Hassemer*
WDFW:	*Cindy LeFleur / Charles Morrill*	**MT:**	*Jim Litchfield / Brian Marotz*
Kootenai:	*Sue Ireland / Billy Barquin*	**Spokane:**	*Deanne Pavlik-Kunkel / Andy Miller*
Colville:	*Sheri Sears / Steve Smith*	**Nez Perce:**	*Dave Statler*
Umatilla:	*Tom Lorz (CRITFC)*		
COE:	*Doug Baus / Karl Kanbergs*		

TMT CONFERENCE CALL

Wednesday August 24, 2011 1:00pm - 2:00pm

CONFERENCE CALL INFORMATION
Phone Number (877) 336-1274
Access Code 3871669
Security Code 6845

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Please MUTE your Phone

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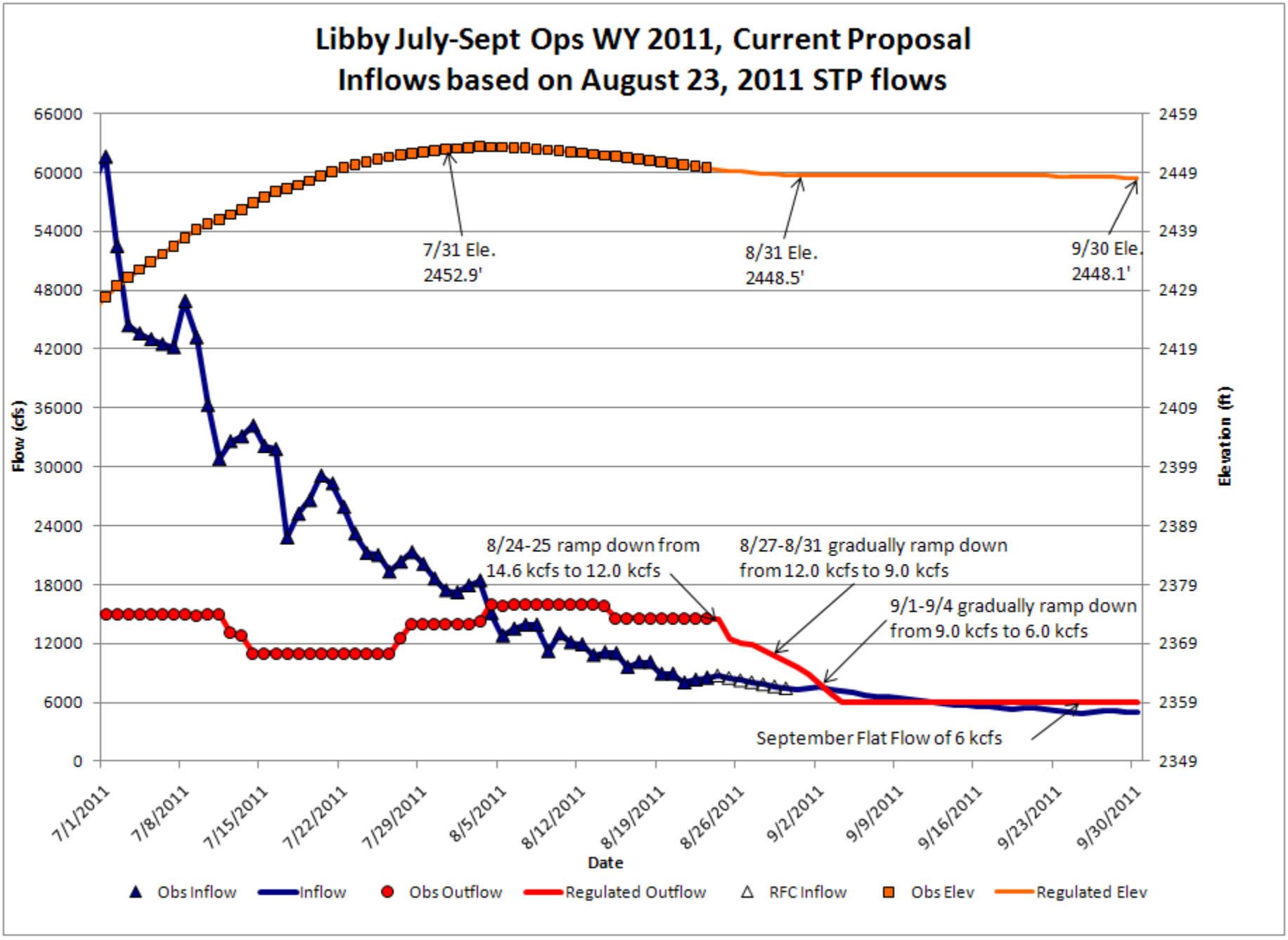
AGENDA

1. Welcome and Introductions
2. Libby Dam Operations - *Doug Baus, COE-NWD; Joel Fenolio, COE-NWS*
   a. July to September Operations
3. Other
   a. Set agenda and date for next meeting - **August 31, 2011**
   b. [Calendar 2011]

Questions about the meeting may be referred to:
Doug Baus at (503) 808-3995


Libby July-Sept Ops WY 2011, Current Proposal
Inflows based on August 23, 2011 STP flows
Flow (cfs)
Elevation (ft)
66000
60000
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48000
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36000
30000
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18000
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7/31 Ele.
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8/24-25 ramp down from
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from 12.0 kcfs to 9.0 kcfs
9/1-9/4 gradually ramp down
from 9.0 kcfs to 6.0 kcfs
September Flat Flow of 6 kcfs
7/1/2011
7/8/2011
7/15/2011
7/22/2011
7/29/2011
8/5/2011
8/12/2011
8/19/2011
8/26/2011
9/2/2011
9/9/2011
9/16/2011
9/23/2011
9/30/2011
Date
Obs Inflow
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Obs Outflow
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RFC Inflow
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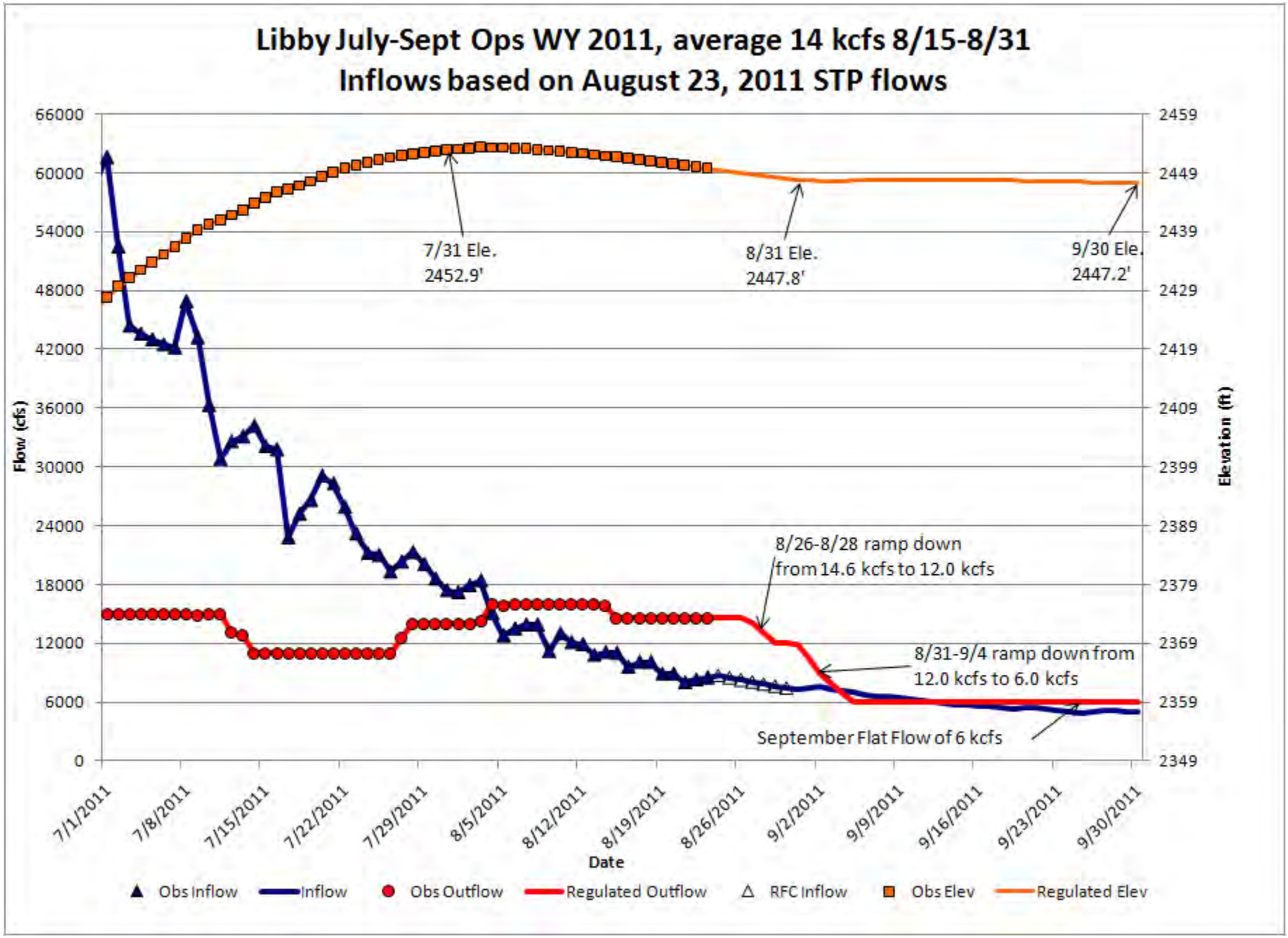
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8/26/2011
9/2/2011
9/9/2011
9/16/2011
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9/30/2011
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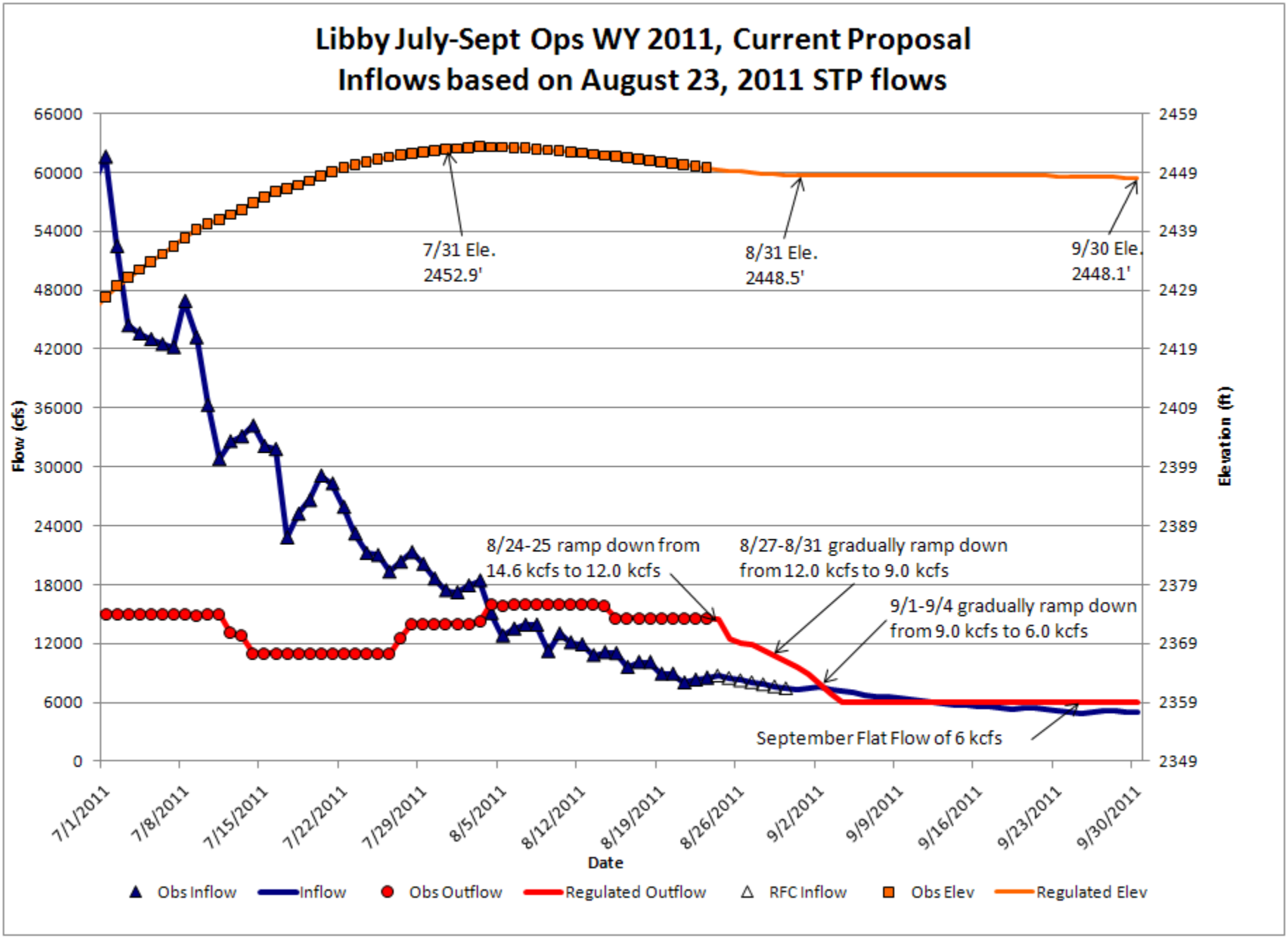
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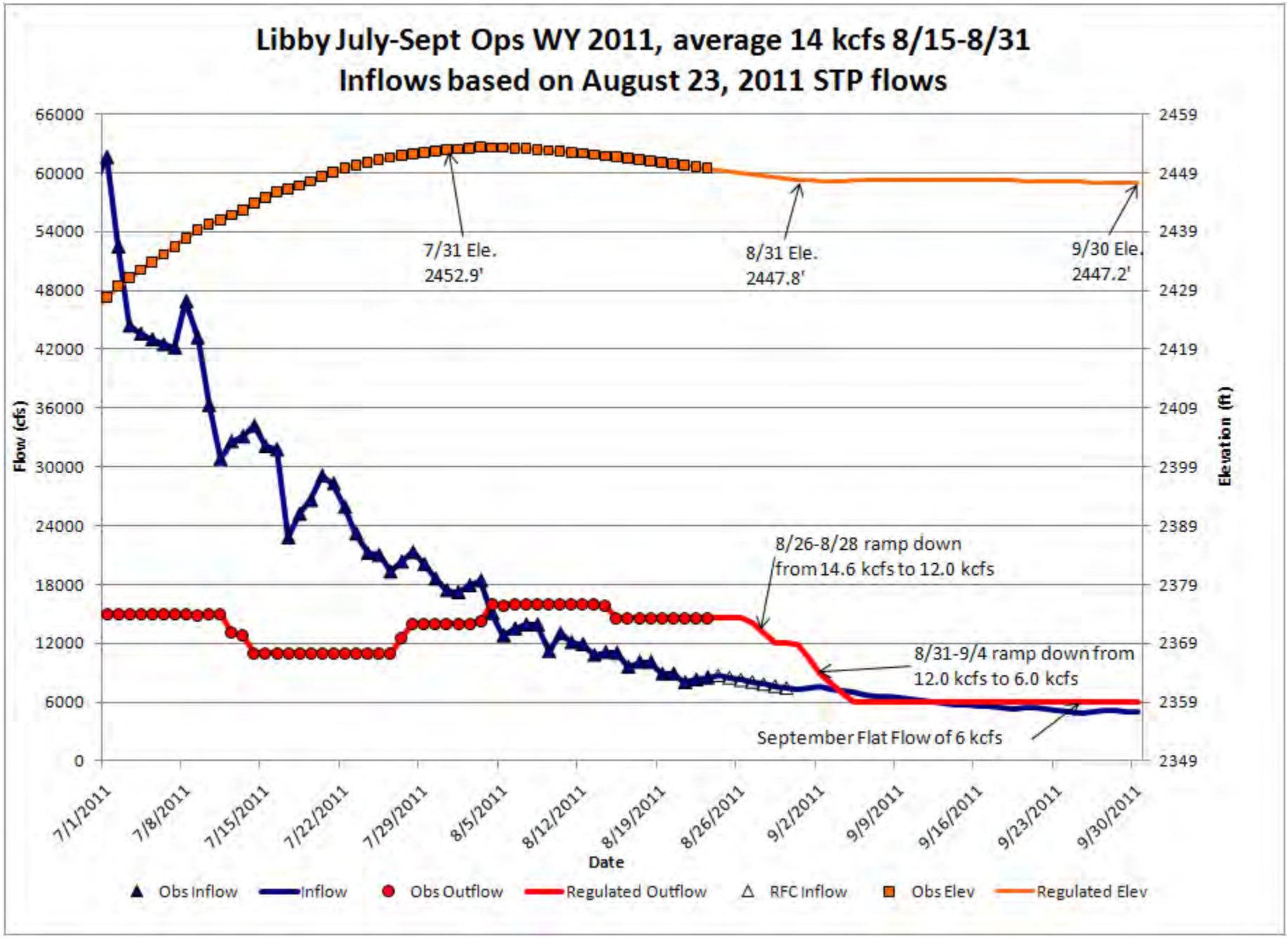
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9/23/2011
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Date
Obs Inflow
Inflow
Obs Outflow
Regulated Outflow
RFC Inflow
Obs Elev
Regulated Elev

COLUMBIA RIVER TECHNICAL MANAGEMENT TEAM

August 24, 2011 Conference Call

Facilitator's Summary

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.

TMT members in attendance: Doug Baus, **COE**; Ron Boyce, **Oregon;** Russ Kiefer, **Idaho**; Jim Litchfield, **Montana**; Charles Morrill, **Washington**; Tony Norris, **BPA**; Paul Wagner, **NOAA**.

Libby Operations:

A special conference call was held to clarify and discuss Libby operations for the remainder of August. Doug Baus, COE, reminded the group that a plan for Libby operations was developed at the 8/3 TMT meeting at which SOR 2011-4 from the Kootenai Tribe was presented, requesting that the project be operated in August to allow for specified flows in September and October that would accommodate habitat work on the Kootenai River. TMT at that time agreed to a plan for operating Libby that the COE had developed based on current inflow projections. On August 17, the COE again outlined its plan for Libby operations for the remainder of August, and following that meeting, TMT members asked for further clarification on the operation. Today, the COE shared two slides depicting the operation as was described on 8/17 (Slide 1) and a current proposed operation based on TMT feedback the COE had received following the 8/17 meeting (Slide 2). Both operations would have the project reach elevation 2449' end of August; both operations would have the project ramping down to 6 kcfs in early September; a slightly different ramp down schedule between the two operations would result in an end of August elevation difference of about .7'.

Joel Fenolio, Seattle District COE, said the current proposed operation depicted in Slide 2 would allow the COE to meet its commitment stated on 8/3 to maintain a 14 kcfs day average flow (14 kcfs day average flow would be based on LIB discharges between the dates of 8/15 – 8/31) through the end of August, as well as commitments to reach elevation 2449' end of August and set the project up to meet the specifications requested in SOR 2011-4. Joel Fenolio also stated that the actual shape of the ramp down was not finalized but that the final schedule would have Libby Dam releases averaging 14 kcfs between 8/15 – 8/31. Tony Norris, BPA, added that depending on future inflows, Libby may end up below or above elevation 2449' at the end of September.

Planned Operation Moving Forward:

TMT discussed the COE's plan and had no objections to the planned operation moving forward:

> Maintain 14.6 kcfs flows until the project reaches elevation 2449', LIB discharges between 8/15 and 8/31 will have a day average of 14 kcfs; then ramp the project

down in September to 6 kcfs. Specific shaping of the ramp down will be gradual and intended to support the fish while maintaining day average 14 kcfs flows.

Procedurally, TMT members agreed that for the future, planned operations need to be clearly articulated at the meetings and in the summary notes (including operation objectives, specifics and any caveats). Modifications to the operation should be communicated with TMT and given an opportunity for further discussion.

Finally, it was clarified again that, given changing forecasts, Libby might end up above or below 2449' by the end of September. No objections were raised.

Columbia River Regional Forum
TECHNICAL MANAGEMENT TEAM OFFICIAL MINUTES

August 24, 2011
Notes: Pat Vivian

1. Introduction

Today's TMT conference call was chaired by Doug Baus, COE, and facilitated by Robin Gumpert, DS Consulting. Representatives of Washington, NOAA, BPA, Idaho, Montana, Oregon, the COE and others attended. This summary is an official record of the proceedings, not a verbatim transcript.

2. Libby Dam Operations

The reason for today's call was to clarify the COE's intended operation of Libby Dam in light of recent changes to the hydrograph, as well as confusion that arose between the operation as discussed at TMT on August 17 vs. the operation TMT members thought they had agreed to on August 3. The COE's intent with the proposed operation on August 3 was to maintain flat flows in September and October to accommodate habitat restoration work as requested by the Kootenai Tribe in SOR 2011-04, while drafting to 2,449 feet by August 31 instead of September 30. TMT members expressed willingness to accept an elevation above 2,449 feet at end September if inflows increased, in order to accommodate the habitat restoration work.

Paul Wagner, NOAA, recalled that part of the August 3 discussion included moving the draft target date from end September to end August, which TMT members accepted when polled. Wagner and Tony Norris, BPA, agreed that TMT members acknowledged a rainflow event or high streamflows could cause the end of September elevation to exceed 2,449 feet.

In response to concerns that NOAA and Idaho raised after the August 17 TMT meeting, the COE presented an operation today that attempts to reconcile the initial intent to draft the reservoir to 2,449 feet elevation by end August with expectations that daily flows out of Libby would be at least 14 kcfs from August 15-31.

Joel Fenolio, COE Seattle, reported that forecasts were higher than actual inflows for August. Kristian Mickelson, COE Seattle, reported that the unit outage on August 15 allowed for releases of 14.6 kcfs, more water than the conservative estimate of 14 kcfs. The COE has been holding Libby releases at 14.6 kcfs since August 15. The reservoir will probably hit 2,449 feet Friday August 26, and releases have been higher than planned, so the COE's intent was to begin a gradual ramp down, Fenolio explained. Current reservoir elevation is 2,449.6 feet. Dan Feil, COE, noted that the reservoir is expected to be at or under the BiOp target of 2,449 feet by end August and probably all through September.

Fenolio said the official meeting notes and facilitators' summary from August 3 did not completely and accurately capture all aspects of that discussion. He presented two scenarios for Libby July to September operations, linked to today's agenda.

Scenario 1 depicts the operation the COE presented to TMT on August 17 with an updated STP forecast. This graph represents the COE's interpretation of what TMT had agreed to on August 3, with outflows ramping down from 14.6 kcfs to 12 kcfs and finally 9 kcfs at the end of August after 2,449 feet is attained. This operation would have put Libby elevation at 2,448.5 feet on August 31 and 2,448.1 feet on September 30, Fenolio said.

Scenario 2, created in response to the concerns Idaho and NOAA raised, shows the COE's intention to release daily average outflows of 14 kcfs for August 15-31. It fulfills a primary purpose of today's meeting: to clarify the COE's plan for Libby going forward. Current flows of 14.6 kcfs will continue until elevation 2,449 feet is attained on approximately August 26-27, then flows will ramp down accordingly to 12 kcfs from approximately August 28-31. Flat flows of 6 kcfs for the habitat restoration work will begin on September 4.

The main goal of this operation is to hold 14 kcfs daily average outflows at Libby from August 15-31, to satisfy TMT expectations. Fenolio emphasized that 14 kcfs is a daily average flow for August 15-31, not a daily flow, and the shape might change. Some days flows could dip below 14 kcfs. The COE will shape flows to be as fish-friendly as possible. Fenolio said that Libby could end up in a situation like last year, with a rainstorm at the end of September and a September 30 elevation that exceeds the BiOp draft target because inflows are being limited to 6 kcfs in accordance with SOR 2011-04.

The COE's intention is to operate according to the second scenario, which meets what has been interpreted from the August 3 notes. This scenario puts the Libby end of August elevation at 2,447.8 feet based on current STP inflow projections.

Jim Litchfield, Montana, asked how much additional water will be drafted by beginning the rampdown on August 26, as shown in scenario 2. About 0.9 feet more than the current proposed operation shown in scenario 1, Mickelson replied. Russ Kiefer, Idaho, said he raised the issue because his understanding on August 3 was that the COE would use its best professional judgment regarding the 2,449 foot elevation target while releasing at least 14 kcfs. Tony Norris, BPA, noted that it's impossible to specify both volume and elevation targets. There was general agreement that intentions on both sides of an operational dispute need to be clearly and accurately articulated in the meeting and in the notes.

An official polling was not conducted but several Salmon Managers stated their views of the Libby operation shown in scenario 2:

- **Idaho** – The biological impact of the discrepancy would probably have been minimal, but what the COE presented to TMT on August 17 differed from the operation TMT agreed to on August 3. That said, Idaho supports the COE's intended operation moving forward.

- **NOAA** – Agrees with Idaho there was a discrepancy in how intended operations were documented in the August 3 meeting notes and facilitator's summary and what TMT members thought the operation would be. Requested today's meeting for the sake of clarity moving forward.

- **Montana** – The discrepancy between scenarios 1 and 2 is insignificant. As long as the COE has released the flow volume TMT agreed to, it should be okay to ramp down. A more gradual rampdown is better for the river. Overall, this has been a great year for flows, so discrepancies of less than a foot in water volume should be acceptable. Agrees with Idaho that there was a misunderstanding.

- **Oregon** – Needs to consult internally before stating a position on this, will provide the COE with any comments by COB August 25.

The COE will implement the operation shown in scenario 2, maintaining a daily average of 14 kcfs releases from Libby from August 15-31 and attaining elevation 2,449 feet by end August, with a fish-friendly rampdown to flows of 6 kcfs in September and 4 kcfs in October to accommodate the Kootenai habitat restoration.

3. Next TMT Meeting

TMT will meet in a week via conference call on August 31.

Name	***Affiliation***
Charles Morrill	Washington
Paul Wagner	NOAA
Tony Norris	BPA
Russ Kiefer	Idaho
Jim Litchfield	Montana
Ron Boyce	Oregon
Doug Baus	COE
Lisa Wright	COE
Bill Proctor	COE
Joel Fenolio	COE
Greg Hoffman	COE

Karl Kanbergs	COE
Russ George	WMC
Barry Espenson	CBB
Richelle Beck	Grant PUD
Kristian Mickelson	COE
Dan Feil	COE
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TECHNICAL MANAGEMENT TEAM			
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Umatilla:	*Tom Lorz (CRITFC)*		
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TMT CONFERENCE CALL

Wednesday August 31, 2011 9:00am - 12:00pm

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Phone Number (877) 336-1274
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AGENDA

1. Welcome and Introductions
2. Dworshak Operations - *Doug Baus, COE-NWD; Steve Hall, COE-NWW*
   a. Water Temperature Comparisons
3. Ice Harbor MOP Operation - *Doug Baus, COE-NWD; Steve Hall, COE-NWW*
4. Removal of Spillway Weirs at John Day & Little Goose - *Doug Baus, COE-NWD; Lisa Wright, COE-NWD*
5. Libby Dam Operations - *Doug Baus, COE-NWD; Kristian Mickelson, COE-NWS*
   a. July to September Operations
6. August Grand Coulee Operations - *John Roache, BOR*
7. Other
   a. Set agenda and date for next meeting - **September 7, 2011**
   b. [Calendar 2011]

Questions about the meeting may be referred to:
Doug Baus at (503) 808-3995

Output from CEQUALUtility Pre-processor
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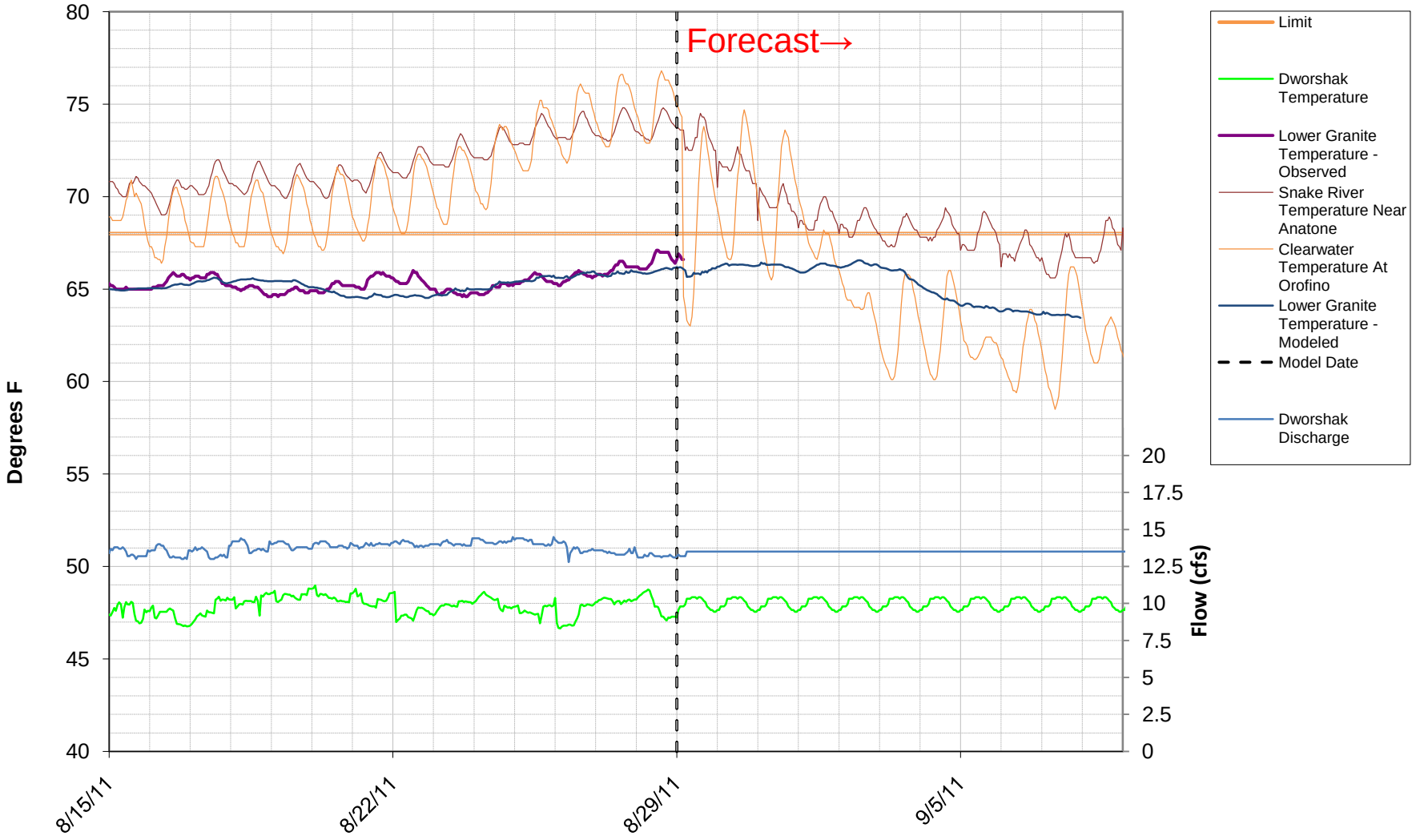
Observed Data to 8/29/2011



COLUMBIA RIVER TECHNICAL MANAGEMENT TEAM

August 31, 2011 Conference Call

Facilitator's Summary

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.

TMT members in attendance: Doug Baus, **COE**; Scott Bettin, **BPA**; Russ Kiefer, **Idaho**; Jim Litchfield, **Montana**; John Roache, **Reclamation**; Paul Wagner, **NOAA**; Dave Wills, **USFWS**

Dworshak Operations:

Doug Baus, Division COE, and Steve Hall, Walla Walla District COE, reported on Dworshak operations. The project was continuing to manage to TDG due to high runoff volumes this year, and as had been reported at previous TMT meetings, would end at an elevation higher than 1535' at the end of August. The project is holding at 13.4 kcfs day average, which should result in elevation 1541.5' by midnight on 8/31. Temperature modeling graphs showed a cooling trend and no issues with temperatures had occurred to date. The project will continue to target elevation 1535', likely around 9/5, at which time the project will follow Dworshak Board recommendations to ramp down to full powerhouse, and from there, will ramp down to minimums (1.5 kcfs) by around 9/21. TMT will receive updates on Dworshak operations during the Operations Review portion of the TMT meetings every two weeks.

Ice Harbor MOP Operations

Doug Baus said this item was on today's agenda as follow up to an email sent to TMT on 8/23 informing them that the COE had to increase the pool elevation at Ice Harbor to 437.5-438.5' to address a passage safety concern at the entrance of the navigation lock in the tailwater of Lower Monumental due to that pool being too low. This change, Doug noted, remained consistent with August 2010 operations coordinated with TMT and with operations specified in the 2011 Fish Operations Plan. Steve Hall also shared that a gauge was added to the Lower Monumental navigation lock area which allowed the COE to have an accurate reading of the pool elevation.

In response to a question, Steve shared that the Lower Granite survey data has been collected and is in 'post-processing'. After it is received by the District and coordinated internally at the COE, TMT will receive the survey results. Steve and Doug will keep TMT apprised of this process/schedule.

Spillway Weirs Removal

Doug Baus and Lisa Wright, Division COE, reported that removal of spillway weirs at John Day and Little Goose were scheduled for today – John Day would likely be out by noon; Little Goose might be delayed to tomorrow morning due to high wind conditions.

Libby Operations

Doug Baus, Division COE, and Kristian Mickelson, Seattle District COE, reported on Libby operations. As was discussed at the last TMT meeting, daily average outflows from 8/15 through 8/31 were around 14 kcfs. Kristian said 14.6 kcfs flows were ramped down to 14 kcfs; then to 12 kcfs on 8/30; and would ramp down to 10 kcfs today. Flows will be further reduced to 6 kcfs after Labor Day. A graph depicting this operation was also provided. TMT members will receive Libby updates during the Operations Review portion of the meetings every two weeks.

Grand Coulee Operations

John Roache, Reclamation, reported that Grand Coulee was at elevation 1280.3' and would reach 1280' by midnight this evening. September will see a slow refill of the project until it reaches elevation 1283' or higher by the end of September. Again, regular two-week updates on Grand Coulee operations will be shared with TMT at future meetings.

Columbia River Regional Forum
TECHNICAL MANAGEMENT TEAM OFFICIAL MINUTES

August 31, 2011
Notes: Pat Vivian

1. Introduction

Today's TMT conference call was chaired by Doug Baus, COE, and facilitated by Robin Gumpert, DS Consulting. Representatives of USFWS, NOAA, BOR, COE, Idaho, Montana, BPA and others attended. This summary is an official record of the proceedings, not a verbatim transcript.

2. Dworshak Operations

Baus gave an end of August update. Due to high runoff volume, the COE has been managing discharges at Dworshak within the Idaho water quality standard of 110% TDG. As TMT discussed previously, this would result in an August 31 elevation above the BiOp draft target of 1535 feet. Current elevation is 1,543.14 feet, with inflows of 1.3 kcfs and releases of 13.4 kcfs.

The operation is limited by TDG concerns to 13.4 kcfs discharges, Steve Hall, COE Walla Walla, said. The end of month elevation is expected to be around 1.541.5 feet. The operation will continue at full powerhouse until elevation 1,535 feet is attained sometime around September 5. At that point discharges will be reduced to full powerhouse. Temperatures in general are cooling. TMT will revisit Dworshak operations at its next meeting on September 14.

3. Ice Harbor MOP Operation

On August 23 the COE notified TMT that the COE would increase MOP operations at Ice Harbor by 0.5 feet, changing the elevation range from 437-438 feet to 437.5-438.5 feet. The COE is continuing that operation to ensure safe entrance to the Lower Monumental Dam navigation lock, Baus said. This operation is consistent with the Ice Harbor 2010 operation coordinated with TMT, and it was identified in the 2011 summer FOP.

In the past, a similar situation at Lower Granite was addressed by placing a gage at the navigation lock entrance to verify adequate clearance over the sill, Hall said. Since then, gages have been added at each lower Snake project including Lower Monumental this summer. All gages are up and running now. In August, data from the gages verified that Lower Monumental Dam tailwater had dropped below the required minimum elevation of 437.0 feet. The gages will be used to monitor navigation conditions at the Snake River projects.

Paul Wagner, NOAA, asked whether the channel survey at Lower Granite has been completed. Data are being processed now, Hall replied. The COE will keep TMT informed of Lower Granite operations.

4. Removal of Spillway Weirs at John Day and Little Goose

On August 17 the COE told TMT the spillway weirs at John Day and Lower Granite would be removed on August 31, Baus said. Lisa Wright, COE, reported that the John Day weir will be removed today as planned. However, high winds at Little Goose could delay weir removal until tomorrow morning.

5. Libby Dam Operations

The COE is implementing the Libby operation of 14 kcfs outflows (day averages from August 15-31), as TMT discussed on August 24, Baus said. Releases were at 14.6 kcfs on August 15, ramping down to 14 kcfs on August 26, to 12 kcfs on August 30, Kristian Mickelson, COE Seattle, said. The rampdown will continue to 10 kcfs tonight and 6 kcfs on September 5. There was agreement that Libby operations can proceed successfully without further TMT consultation, even if a major rain event occurs. Further updates on Libby operations will be covered as part of the standard operations review.

6. August Grand Coulee Operations

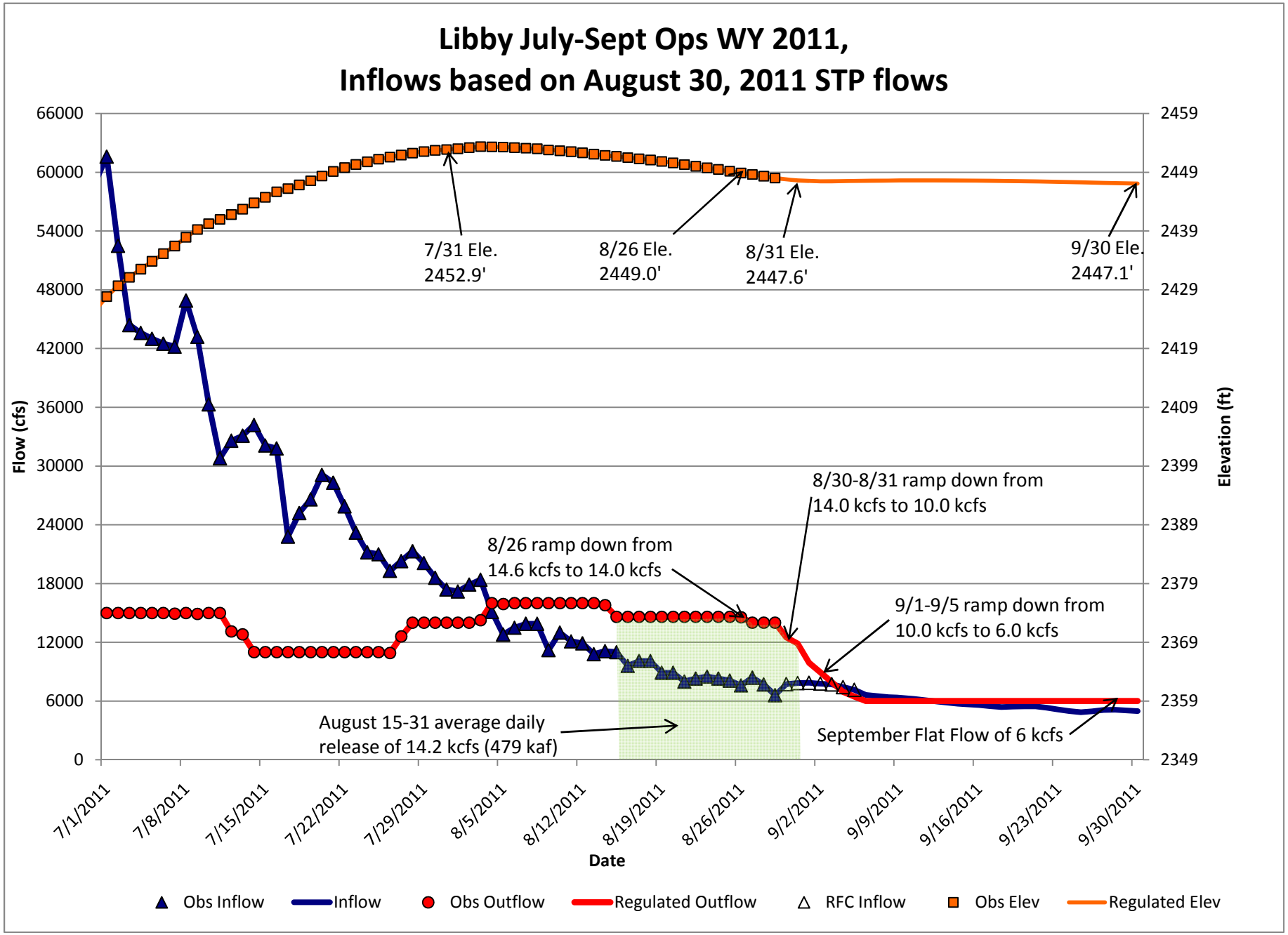
Current reservoir elevation is 1,280.3 feet, on track to hit 1,280 feet by midnight, John Roache, BOR, reported. September's operation will be a slow refill, targeting 1,283 feet or higher by end month.

7. Next TMT Meeting

TMT will meet next in person on September 14.

Name	***Affiliation***
Lisa Wright	COE
Dave Wills	USFWS
Paul Wagner	NOAA
John Roache	BOR
Steve Hall	COE Walla
Dave Benner	FPC
Russ George	WMC
Margaret Filardo	FPC
Bruce McKay	hydropower consultant
Shane Scott	PPC
Richelle Beck	Grant PUD
Kristian Mickelson	COE Seattle
Barry Espenson	CBB
Ruth Burris	PGE
Mike Shapley	Snohomish PUD
Russ Kiefer	Idaho

Jim Litchfield	Montana
Scott Bettin	BPA


Libby July-Sept Ops WY 2011,
Inflows based on August 30, 2011 STP flows
Flow (cfs)
Elevation (ft)
Date
66000
60000
54000
48000
42000
36000
30000
24000
18000
12000
6000
0
2459
2449
2439
2429
2419
2409
2399
2389
2379
2369
2359
2349
7/1/2011
7/8/2011
7/15/2011
7/22/2011
7/29/2011
8/5/2011
8/12/2011
8/19/2011
8/26/2011
9/2/2011
9/9/2011
9/16/2011
9/23/2011
9/30/2011
7/31 Ele.
2452.9'
8/26 Ele.
2449.0'
8/31 Ele.
2447.6'
9/30 Ele.
2447.1'
8/30-8/31 ramp down from
14.0 kcfs to 10.0 kcfs
8/26 ramp down from
14.6 kcfs to 14.0 kcfs
9/1-9/5 ramp down from
10.0 kcfs to 6.0 kcfs
August 15-31 average daily
release of 14.2 kcfs (479 kaf)
September Flat Flow of 6 kcfs
Obs Inflow
Inflow
Obs Outflow
Regulated Outflow
RFC Inflow
Obs Elev
Regulated Elev

TECHNICAL MANAGEMENT TEAM			
BOR:	*John Roache / Mary Mellema / Pat McGrane*	**BPA:**	*Tony Norris / Scott Bettin / Robyn MacKay*
NOAA-F:	*Paul Wagner / Richard Dominigue*	**USFWS:**	*David Wills / Steve Haeseker*
OR:	*Rick Kruger / Ron Boyce*	**ID:**	*Russ Kiefer / Pete Hassemer*
WDFW:	*Cindy LeFleur / Charles Morrill*	**MT:**	*Jim Litchfield / Brian Marotz*
Kootenai:	*Sue Ireland / Billy Barquin*	**Spokane:**	*Deanne Pavlik-Kunkel / Andy Miller*
Colville:	*Sheri Sears / Steve Smith*	**Nez Perce:**	*Dave Statler*
Umatilla:	*Tom Lorz (CRITFC)*		
COE:	*Doug Baus / Karl Kanbergs*		

TMT MEETING

Wednesday September 14, 2011 9:00am - 12:00pm

1125 N.W. Couch Street, Suite 500, Columbia Room
Portland, Oregon 97209-4142
Map Quest [Directions]

TMT MEETING
Phone Number (877) 336-1274
Access Code 3871669
Security Code 6845

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

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@cnnw.net or call her at (503) 248-4703.

Note: Members of the public are encouraged to refer to the Official Meeting Minutes and the TMT agenda links for information re: discussions and decisions made at TMT. Operational decisions that are made outside a TMT meeting will be reported on at the next scheduled meeting and/or linked to the agenda item of the meeting at which it was discussed, as soon as is reasonably possible.

AGENDA

1. Welcome and Introductions
2. Review August 17, 24, and 31 Meeting Minutes [Meeting Minutes]
3. Autumn Treaty Fishery - *Tom Lorz (CRITFC), Umatilla*
    a. SOR 2011-C8
4. Dworshak Operations - *Doug Baus, COE-NWD; Steve Hall, COE-NWW*
5. Operations Review
    a. Reservoirs
    b. Fish

    i. Update on SOR 2011-08
  c. Water Quality
  d. Power System
6. Other
  a. Set agenda and date for next meeting - **September 21, 2011**
  b. [Calendar 2011]

Questions about the meeting may be referred to:
Doug Baus at (503) 808-3995

COLUMBIA RIVER TECHNICAL MANAGEMENT TEAM

September 14, 2011

Facilitator's Summary

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.

Meeting Minutes

With no comments on the 8/17, 8/24 or 8/31 Official Meeting Minutes and Facilitator's Notes, the notes were considered final.

SOR 2011-C8 Treaty Fishery

Tom Lorz, CRITFC/Umatilla, reported on the latest request for treaty fishing, from 9/12-9/16. He said harvest levels had been set and had not yet been reached, thus the request for an additional week of operations to support the fishery. With no further questions or discussion from TMT, the COE's Doug Baus said the COE was implementing the request.

Dworshak Operations

A Dworshak operations update was provided by Walla Walla District COE's Steve Hall. The project reached elevation 1541.4' on 8/31 and was currently operating to release 200 kaf per the Nez Perce agreement. The project continued to discharge full powerhouse plus 2.5 kcfs through 9/3 and reached elevation 1535' on 9/4 and ramped down to full powerhouse, ramped down to 8.2 kcfs on 9/9, down to 5.9 kcfs on 9/13, down to 4.8 kcfs on 9/15 and down to 2.4 kcfs on 9/17. The project will hold here until it intersects with elevation 1520' (expected to be reached on 9/19), at which time it will ramp down to minimums/1.5 kcfs.

Russ Kiefer, Idaho, noted that he intended to check in on how the kokanee fishery went this year given the high flows. Paul Wagner, NOAA, asked about the discharge temperatures at Dworshak which had reached 50 degrees. Steve Hall responded that there is some flexibility around temperature releases given there has not been and will not be any negative impacts downstream at Lower Granite. That said, the COE is targeting 48 degrees. Tony Norris, BPA, asked if there had been any temperature impacts at Lower Granite from the increase in Brownlee discharges, to which Steve replied there had not been significant impacts. Finally, he noted that the leak reported on at previous TMT meetings was scheduled to be fixed in late September after the Nez Perce agreement water release has been completed, and the unit would be back on around mid-October.

Operations Review

Reservoirs: John Roache, Reclamation, reported on projects. Hungry Horse was at elevation 3553.02' and targeting 3550' end of September. Current outflows were 3.0 kcfs and will reduce to meet Columbia Falls minimums at the end of September. The Grand

Coulee midnight elevation was 1282'. After meeting the target 1280' on 8/31 the project will be operated to meet a 1283' minimum elevation at the end of September.
Doug Baus, COE, reported on projects. Libby was at elevation 2447.48'; Albeni Falls was at elevation 2062.19'; and Dworshak was at elevation 1523.15' with 6.7 kcfs outflows. Lower Granite inflows were 39.9 kcfs; Priest Rapids inflows were 65.8 kcfs; McNary inflows were 116.3 kcfs; and Bonneville inflows were 117.4 kcfs.

Fish: Paul Wagner, NOAA, provided a fish update. Fall Chinook adults were passing Bonneville dam at a rate of 15,000/day (250,000 total) and counts were close to the 10-year average. The season forecast is approximately 400,000. Chinook jacks were well above the 10-year average, around 2,000/day. Coho jacks also were above the 10-year average, around 5,000/day. Steelhead counts were 2,000/day. Sockeye counts at Lower Granite were well above the 10 year average. Russ Kiefer, Idaho, noted that a single sockeye was found at Hells Canyon Dam and returned to its home. Genetic sampling helped the biologists know the fish's origin. He also shared that they are seeing good returns in lakes where adult sockeye had been released for natural reproduction. . Discontinuing juvenile transportation at McNary resulting from debris problems was coordinated with the region during September 8 FPOM meeting

With respect to juveniles, Paul reported that subyearling Chinook counts at Lower Granite were 200/day – an increase also seen at Little Goose and Lower Monumental that was comprised mostly of Clearwater surrogates. McNary was in bypass mode due to debris issues so no counts were done there. The COE is working to remove the debris, and Ann Setter, COE, reported that they needed to use a gradual approach to remedy the situation so resolution would likely take several days.

Water quality: Nothing to report.

Power system: Nothing to report.

Other:

- Dave Wills, USFWS, said that to prepare for the removal of Condit Dam scheduled on 10/26, a crew was working to move spawning fish to above the dam. Peak returns were hitting and crews notified USFWS that Bonneville pool had dropped two feet below the level needed for crews to continue their efforts. Dave requested the Bonneville pool be elevated by 2 feet while the crews are out there (Monday, Wednesday and Friday of this week and next week) so they can complete their work.
    - Action: The COE, USFWS and BPA will discuss this issue off line and come up with a plan to address needs of the adult collection, debris clean up and treaty fishing at Bonneville. A follow up email will be sent to TMT with the planned operation. This decision will also be posted to the TMT web page, linked to today's agenda under "Other" as a means for the broader public to stay apprised before the next TMT meeting.
    - Tony Norris, BPA, shared that there is a link on the Pacific Corps website that shares information about the dam removal, including photos of the

area pre-dam. The dam removal is set to take place on October 26th and the website will be posting time-lapse photography of the dam breach: http://whitesalmontimelapse.wordpress.com/category/dam-removal-updates/.

- Lower Granite survey data: Steve Hall, Walla Walla District COE, reported that surveys at Lower Granite were still in post-processing and would likely be available to TMT as soon as the information is reviewed internally and this could be some time in October. An additional survey by ERDC (the COE's research arm) was being conducted this and next week, and those results will also be shared with TMT as soon as possible. Tom Lorz, CRITFC/Umatilla, raised a concern that the delay in sharing results has implications for the region's ability to coordinate a response. Steve acknowledged this frustration and said there are strict contractor rules the federal government has to abide by. He will continue to update TMT on progress of the surveys and availability of the data. The differences between the two surveys were in purpose of the studies and resolution of the data.

Next Meeting, 9/28 CONFERENCE CALL

Agenda items include:

- Operations Review
- (tentative) Lake Pend Oreille SOR

Columbia River Regional Forum
TECHNICAL MANAGEMENT TEAM OFFICIAL MINUTES

September 14, 2011
Notes: Pat Vivian

1. Introduction

Today's TMT meeting was chaired by Doug Baus, COE, and facilitated by Robin Gumpert, DS Consulting. Representatives of BOR, Idaho, the COE, NOAA, USFWS, BPA, CRITFC and others attended. This summary is an official record of the proceedings, not a verbatim transcript.

Gumpert announced a new resource for members of the public who want to follow TMT's activities closely. Beginning as soon as possible, information on operational coordination that occurs between TMT meetings will be linked to the "Other" item at the end of the TMT agenda for the meeting at which the topic first came up for discussion.

These links, along with attendance at TMT meetings and reading the official minutes and notes, are intended to help the public stay informed of TMT activities. Richelle Beck, Grant PUD, asked whether the public will be notified when new information is posted. Gumpert said the most efficient way of tracking new information will be to check the TMT agendas.

2. Review Meeting Minutes for August 17, 24 and 31

There were no changes today to the meeting minutes or facilitator's notes for these three conference calls, so all were deemed final.

3. Autumn Treaty Fishery – SOR 2011-C8

Tom Lorz, CRITFC, presented this SOR which was submitted to the COE last week. It requests the typical operation for tribal fisheries for another week of fishing beginning at 6 am, September 19, through 6 pm, September 23. The current harvest estimate is 504,000 fish at Bonneville. The COE has implemented this SOR as requested.

4. Dworshak Operations

The August 31 elevation of Dworshak reservoir was 1,541.4 feet, Steve Hall, COE, reported. Hall gave an update on the operation for disposition of the Nez Perce 200 kaf. The operation started out running full powerhouse plus 2.5 kcfs spill through September 3. On September 4, elevation 1,535 feet was attained and the project backed off to full powerhouse discharges. This continued through September 9, then the project backed off to 8.2 kcfs outflows using the big and small unit. This continued through the morning of September 13. The

next step down was to the big unit (5.9 kcfs), which the COE plans to hold through the end of today. Then the project will ramp down to two units for two days (4.8 kcfs), then back off to one small unit (2.4 kcfs) on September 19. Dworshak reservoir is expected to intersect 1,520 feet elevation on September 19, based on current inflow projections. When that occurs, the project will back off to minimum discharges of 1.5 kcfs through the turbines, and the fall maintenance period will begin.

Russ Kiefer, Idaho, said that sounds like a good plan. He will follow up with TMT on the latest information his agency can provide regarding kokanee entrainment during the high flows of this spring.

Paul Wagner, NOAA, asked whether the COE plan is to maintain the current Dworshak discharge temperature of approximately 50 degrees F, or whether there's flexibility on that. Hall said there is some flexibility although project staff have been struggling with temperature management as the project loses units and elevation. At this point, Dworshak outflow temperatures are not affecting temperatures at Lower Granite tailwater. Although Dworshak temperatures were around 50 degrees this weekend, the current temperature is around 48 degrees. Maintaining that temperature is the plan going forward. Temperatures crept up briefly to 50 degrees while the project was switching units from overshot to undershot mode for winter.

Tony Norris, BPA, asked whether increased temperatures in Brownlee Dam releases have affected Lower Granite temperatures. Not much, Hall replied; over the past few days, temperatures rose from around 64-65 degrees F to 66.5 degrees F. Brownlee increased its discharges on September 8. The impact of Brownlee releases has since leveled off, and Lower Granite temperatures are likely to remain in the current zone.

Richelle Beck, Grant PUD, asked about the status of repairs to unit 3. Repairing the leak will be a #1 priority at Dworshak once the Nez Perce releases are completed, Hall replied. Repairs will probably begin on September 19 when the Nez Perce operation is complete, and will take 2-3 weeks. Dworshak unit 3 should be back in service by mid October. TMT will revisit Dworshak operations at its next meeting September 28.

5. Operations Review

Reservoirs. Hungry Horse is at elevation 3,553.02, heading to 3,550 feet at the end of the month. Last night discharges decreased from 3.5 to 3 kcfs, as inflows are dropping off. After September 30, discharges to Columbia Falls will decrease to around 2 kcfs, depending on the weather this fall.

Grand Coulee is at elevation 1,282 feet after hitting 1,280 feet on August 31. The plan is to target 1,283 feet or higher by the end of the month.

Libby is at elevation 2,447.48 feet. Albeni Falls is at elevation 2,062.19 feet. Dworshak is at elevation 2,062.19 feet, with inflows of 0.8 kcfs and releases of 6.7 kcfs. A decimal point shift in the Dworshak inflow data posted online will be corrected.

Lower Granite inflows are 39.9 kcfs. Priest Rapids inflows are 68.5 kcfs. McNary inflows are 116.3 kcfs, and Bonneville inflows are 117.4 kcfs.

Fish. Adults: Paul Wagner, NOAA, reported. Adult migration is slowing but will continue for a few more weeks. Around 15,000-16,000 fall chinook adults per day have been passing Bonneville over the past week. Yesterday's count was 12,455, with a seasonal count of close to 250,000 fish. An earlier run forecast of 500,000 has been reduced to around 400,000 for this year. Fall chinook jacks are passing Bonneville at the rate of 2,800 per day; coho, 5,000 per day; and steelhead, 2,000 per day, with a seasonal count of 328,000. This year's fall chinook count at Bonneville Dam is well above the 10-year average at this point.

Russ Kiefer reported that a single sockeye from the Snake River took a wrong turn and ended up at Hells Canyon Dam. IDFG checks the genetics of any fish included in the sockeye program to make sure that it's a Snake River fish, not a returning kokanee. IDFG has also had success with releasing adults into natural lakes to increase returns from natural reproduction. One of IDFG's long-term goals is to establish a Snake River population based on natural reproduction, not just captive broodstock.

Juveniles: Their passage season is ending, with subyearling chinook as the species of the moment. Passage is around a few hundred per day at Lower Granite; the prior week was less than 100 fish passed. Yesterday the FPC used PIT detection data to try to figure out where these fish are from, Kiefer said. Wagner noted that passage numbers have picked up at all projects (Lower Granite, Little Goose, Lower Monumental).

As coordinated during the September 8 FPOM the COE is still attempting to resume normal juvenile collection operations at McNary Dam due to debris issue. Ann Setter, COE Walla Walla, reported on the debris removal efforts. Cycling the units followed by spill yesterday afternoon was unsuccessful. Most of the debris moved toward bay 14, but the dewatering channel became clogged. Orifice cycling got it functioning again. The path forward will be to spill through bay 20 at McNary until debris removal from the forebay is complete. This will probably take several more days, but the COE believes it will be an effective approach.

Water quality. There was nothing to report today.

Power. There was nothing to report today.

6. Other Issues

Condit Dam removal.

Dave Wills, USFWS, informed TMT the crews associated with the Condit Dam trap and haul effort were unable to collect fish today due to low levels in the Bonneville Pool. The COE and BPA indicated there were several concurrent operations occurring this week in the Bonneville Pool that had been previously been coordinated (treating fishing and the debris clean up operation) but they would work with USFWS after the TMT meeting to see what could be done to meet the need of the trap and haul operation associated with the Condit Dam Removal Project.

Using the new procedure to inform the public, the COE will link subsequent information on this issue to today's agenda item 6.

Lower Granite pool survey. Lorz asked about the status of this survey. The contractor is processing data from the full survey for presentation to the COE, Hall reported. The data are expected sometime next week, then the COE will review the report internally.

Wagner asked what the difference is between the two surveys of Lower Granite now under way. The ERDC study is part of a sediment management study that focuses on sediment transport, while the contractor's official survey is an annual survey of navigation conditions, Hall said. The COE has asked the contractor to work as quickly as possible, but the COE must still review the data before releasing it to outside entities.

The COE is planning to give TMT an expert presentation on this issue sometime this fall.

Water Management Plan. The new WMP will be posted to the TMT site by October 1.

7. Next Meeting

The next regular TMT meeting will be a conference call on September 28. Potential agenda items are Lake Pend Oreille operations, an autumn treaty fishing update, Banks Lake operations and the Water Management Plan.

Name	***Affiliation***
John Roache	BOR
Russ Kiefer	Idaho
Lisa Wright	COE
Doug Baus	COE
Paul Wagner	NOAA
David Wills	USFWS

Tony Norris	BPA
Tom Lorz	CRITFC
Scott Bettin	BPA

Phone:

Steve Hall	COE Walla Walla
Ann Setter	COE Walla Walla
Ruth Burris	PGE
Russ George	WMC
Margaret Filardo	FPC
Dave Benner	FPC
Bruce McKay	hydro consultant
Rob Allerman	Deutsch Bank
Richelle Beck	Grant PUD

COLUMBIA RIVER INTER-TRIBAL FISH COMMISSION
729 NE Oregon, Suite 200, Portland, Oregon 97232 Telephone 503 238 0667
Fax 503 235 4228

SYSTEM OPERATIONAL REQUEST: 2011 C-8

TO:	Brigadier General McMahon	COE-NWD
	James D. Barton	COE-NWD-NP-Water Management
	Karlis Kanbergs	COE-NWD-NP-WM-RCC
	D. Feil, R. Peters, D. Ponganis	COE-NWD-PDD (Fish Management Office)
	Col. John W. Eisenhauer	COE-Portland District
	JR Inglis, Paul Cloutier	COE-Portland District/NWD (Tribal Liaison)
	Karl Wirkus	USBR- PNW Regional Director
	Steven J. Wright	BPA Administrator
	Steve Oliver, Lorri Bodi	BPA-PG-5
	Tony Norris, Scott Bettin	BPA-Operations Planning-PGPO
	Stan Speaks, Keith Hatch	BIA, Northwest Regional Office

FROM: Babtist Paul Lumley, *Executive Director*

DATE: September 8, 2011

SUBJECT: **Operation of the Lower Columbia Pools for the Autumn 2011 Treaty Fishery**

The Columbia River Inter-Tribal Fish Commission, on behalf of its member tribes, the Nez Perce Tribe, the Confederated Tribes of the Umatilla Indian Reservation, the Confederated Tribes of the Warm Springs Reservation of Oregon, and the Confederated Tribes and Bands of the Yakama Nation, requests the following reservoir operations in "Zone 6" (Bonneville to McNary dams) during the 2011 autumn Treaty fishery. This effort supports the 2011 autumn ceremonial, subsistence, and commercial Treaty fishery times as established by the tribes and the Columbia River Compact.

SPECIFICATIONS: Implement the following pool operations as a hard system constraint, as follows:

September 12, 2011, 6 am, Monday, through 6 pm, September 16, 2011, Friday.

Bonneville: Operate the pool within a 1.5 foot band during the treaty fishing period.
The Dalles (Celilo): Operate the pool within a 1.5 foot band during the treaty fishing period
John Day: Operate the pool within a 1.5 foot band during the treaty fishing period.

JUSTIFICATION:

The 2011 autumn treaty fishing season is of critical importance to CRITFC's member tribes. The escapement of an estimated **504,100** (Columbia at Bonneville Dam) adult fall Chinook (way above normal rank), **81,500** coho (near normal rank), and **386,000** steelhead (slightly above normal rank), will create harvest opportunities for tribal fishers who will exercise their treaty rights by participating in this harvest, using platform and gillnet fishing methods. This harvest will provide for the cultural, religious, and economic needs of the treaty tribes.

CRITFC will sponsor net flights each week to count the nets in each Zone 6 pool. The survey data will be shared with COE-RCC staff by early afternoon of the flight day. The September 7, 2011 survey showed 672 nets in the Zone 6 pools, as follows: 276 (41%) in Bonneville, 136 (20%) in The Dalles, and 260 (39%) in John Day.

Achieving good river conditions through managed river operations during the treaty fishery have been the basis of past litigation that have been supported by federal courts and are consistent with the trust and fiduciary responsibilities that the federal operators have with respect to CRITFC's member tribes. Good river conditions during the treaty fishery are also consistent with the spirit of the 10-year Memorandum of Agreements signed by tribal and Corps, BPA, and BOR officials.

In past meetings with Corps officials, tribal fishers have explained that a pool fluctuation of more than 1.5 foot disrupts tribal fishery operations. Specific problems include: (1) increased local currents that sweep debris into fishing nets, (2) rapid 1-2 hour drops in water level will lead to entanglement of nets or change local currents that affect fishing success, (3) boat access problems, and (4) nets torn from their anchors if pools are raised after nets are set. Nets and gear are costly to replace and may become "ghost nets" that continue to catch fish and may negatively affect fish populations outside of the treaty fishing period.

Any delays or disruptions to tribal fishing operations caused by the excessive pool fluctuations in Zone 6 can negatively impact tribal incomes, food resources and cultural practices. Much of the tribal fishers' annual income and food is generated during the brief treaty fishing season. The fishers have expressed to Corps officials that the loss of fishing opportunity during the extremely limited treaty fishery period cannot be replaced.

If this SOR cannot be accommodated, CRITFC requests a verbal response with an explanation from the federal operators by COB Friday, September 9, 2011. Thank you for considering this request. Please contact Kyle Dittmer or Bob Heinith should you have any questions at (503) 238-0667.

cc: Tribal Staffs and Attorneys

During our TMT meeting today we received information indicating implementation of SOR 2011-08 Autumn Treaty Fishing precluded the ability of the USFWS to conduct the trap and haul operation associated with the Condit Dam Removal Project on the White Salmon River today. After the TMT meeting we followed up with USFWS and BPA and determined we could satisfy the needs of both operations. We determined this could be accomplished by operating in the upper end of the 1.5 foot operating band that is identified within the current SOR. The Corps will continue to operate in accordance with the operation requested in SOR 2011-08 while operating Bonneville pool in a manner that will facilitate the USFWS trap and haul operation.

TECHNICAL MANAGEMENT TEAM			
BOR:	*John Roache / Mary Mellema / Pat McGrane*	**BPA:**	*Tony Norris / Scott Bettin / Robyn MacKay*
NOAA-F:	*Paul Wagner / Richard Dominigue*	**USFWS:**	*David Wills / Steve Haeseker*
OR:	*Rick Kruger / Ron Boyce*	**ID:**	*Russ Kiefer / Pete Hassemer*
WDFW:	*Cindy LeFleur / Charles Morrill*	**MT:**	*Jim Litchfield / Brian Marotz*
Kootenai:	*Sue Ireland / Billy Barquin*	**Spokane:**	*Deanne Pavlik-Kunkel / Andy Miller*
Colville:	*Sheri Sears / Steve Smith*	**Nez Perce:**	*Dave Statler*
Umatilla:	*Tom Lorz (CRITFC)*		
COE:	*Doug Baus / Karl Kanbergs*		

TMT CONFERENCE CALL

Wednesday September 28, 2011 9:00am - 12:00pm

CONFERENCE CALL INFORMATION
Phone Number (877) 336-1274
Access Code 3871669
Security Code 6845

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

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@cnnw.net or call her at (503) 248-4703.

Note: Members of the public are encouraged to refer to the Official Meeting Minutes and the TMT agenda links for information re: discussions and decisions made at TMT. Operational decisions that are made outside a TMT meeting will be reported on at the next scheduled meeting and/or linked to the agenda item of the meeting at which it was discussed, as soon as is reasonably possible.

AGENDA

1. Welcome and Introductions
2. Lake Pend Oreille SOR - *Jason Flory, USFWS*
   a. SOR USFWS/IDFG2011-1
3. Operations Review
   a. Reservoirs
   b. Fish
   c. Water Quality
   d. Power System
4. Other
   a. Set agenda and date for next meeting - **October 12, 2011**
   b. [Calendar 2011]

Questions about the meeting may be referred to:
Doug Baus at (503) 808-3995

SYSTEM OPERATIONAL REQUEST #___ - USFWS/IDFG -2011-1

TO: B. G. John R. McMahon COE-NWD
Jim Barton COE-Water Management
Doug Baus COE-RCC
David Ponganis COE-PDD
Karl Kanbergs COE-NWD-NP-WM-RCC
Col. Bruce A. Estok COE-Seattle District
J. William McDonald USBR-Boise Regional Director
Steven Wright BPA-Administrator
Tony Norris BPA-PGPO-5
Scott Bettin BPA- KEWR-4
Steve Oliver BPA-PG-5
Lori Bodi BPA-KE-4

FROM: Chip Corsi, Regional Supervisor, Idaho Department of Fish and Game (IDFG)
Ben Conard, Field Supervisor, U.S. Fish and Wildlife Service (USFWS)

SUBJECT: Request to implement a 2011-2012 winter lake elevation of 2051' and a 2012-2013 winter lake elevation of 2055' for Lake Pend Oreille, Idaho.

SPECIFICATIONS:
IDFG and USFWS request that the Army Corps of Engineers (COE) draw Lake Pend Oreille down to a winter minimum control elevation (MCE) no lower than 2051' in the winter of 2011-2012 and a winter MCE no lower than 2055' during the winter of 2012-2013. Conduct drawdowns while minimizing or eliminating the need to spill at Albeni Falls Dam. We request that the drawdown be completed by November 8 if reasonably possible. During the past five years, kokanee spawning has commenced around November 8 (earlier than years prior). If this is not possible, the MCE should be reached as soon as possible after November 8 and no later than November 15, and should not be dropped below this elevation for the duration of the winter. During the 2011-2012 drawdown, if kokanee spawning is in progress prior to November 15, and occurs in locations and depths that are deemed vulnerable to continued drawdown, the COE shall, within five days of notification (but not later than November 15), cease drawdown activities even if 2051' has not been reached. IDFG will monitor arrival time of kokanee at shoreline spawning areas and provide timely reports to the federal agencies. These proposed operations are not anticipated to cause exceedance of the state maximum total dissolved gas standards at downstream projects barring unforeseen circumstances. Lake Pend Oreille will then be held within 0.5' above the MCE to the end of kokanee spawning (monitored by IDFG) or December 31, whichever comes first.

JUSTIFICATION:
In Lake Pend Oreille, bull trout are heavily dependent upon kokanee as forage. Without kokanee, the Lake Pend Oreille bull trout population is at risk of becoming severely depressed, threatening recovery efforts in both the Idaho and Montana portions of the Pend Oreille basin. Examples of this negative population interaction include Flathead Lake, Montana and Priest Lake, Idaho. Adult kokanee in Lake Pend Oreille are at low, but increasing, abundance. The estimated number of wild female kokanee expected to spawn this fall is about 86,000 fish. Research indicates three decades of annual deep draw downs during the winter months is the primary contributing factor to the large declines in kokanee abundance observed from the 1970's into the 1990's. More recently, the combined predation effects of lake trout and rainbow trout have limited kokanee recovery, despite improved egg-to-fry survival as a result of the modified winter lake level management. Both populations of predators are being intensively researched, managed, and controlled to reduce their impacts on kokanee abundance, but kokanee recovery efforts will require adequate egg-to-fry survival in addition to reduced predation to be successful.

A decision tree has been developed (included below) to help guide selection of Lake Pend Oreille winter elevation. Data used in the decision tree in 2011 indicates a 2055' MCE for the winter of 2011-2012. The decision tree has been, and should continue to be, a useful tool to arrive at a decision that balances the spawning needs of both kokanee in Lake Pend Oreille and chum salmon below Bonneville Dam. However, circumstances have created a desire by managers to deviate from the decision tree for the next two years. The rationale for this recommendation is as follows:

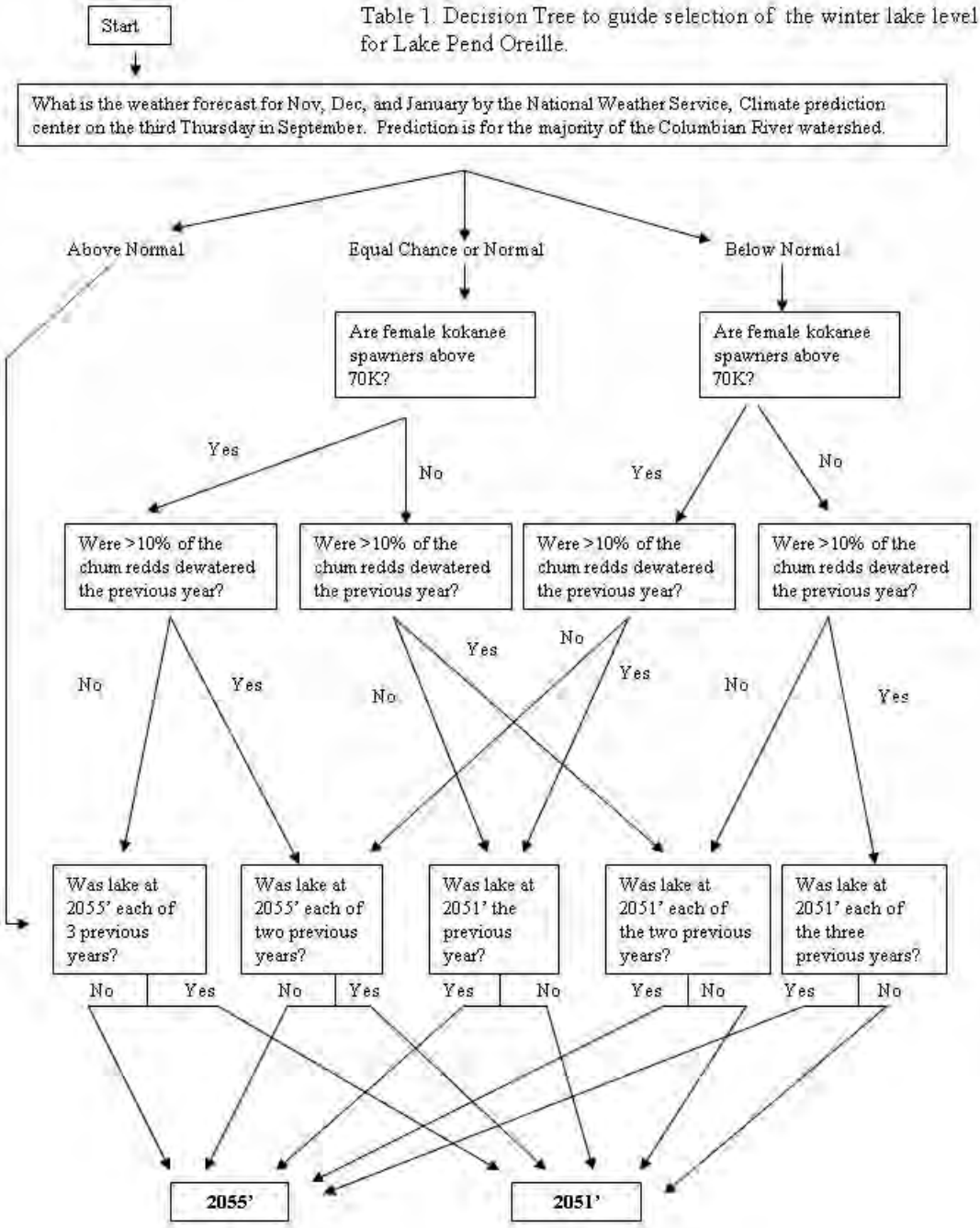
The Lake Pend Oreille kokanee population was recently on the verge of collapse, with record low abundance in 2007. Management efforts in recent years have attempted to provide every advantage to kokanee to prevent population collapse (winter lake level management, kokanee fishery closure, and predator removal). Kokanee survival has improved dramatically, abundance increases have followed, and while abundance is still low relative to recovery goals, the population is trending upwards and there is lower risk of population collapse. We weighed the benefits of a 2055' MCE this winter (2011-2012) against the benefits an MCE of 2055' could provide the following year. This request to deviate from the decision tree for the next two years is being made to provide the greatest opportunity for achieving recovery goals in a more timely fashion.

While spawner abundance is the highest it has been since 2005, it is only 16,000 fish above the 70,000 fish threshold identified in the decision tree, and we anticipate a larger spawning population in 2012. An MCE of 2055' in winter 2012-2013 providing the best spawning conditions for this anticipated larger spawning population should contribute to achieving recovery goals sooner and help rebuild the weak cohort produced with the record low abundance in 2007.

Another factor strongly influencing our recommendation to deviate from the decision tree relates to a study of kokanee spawning ecology. A graduate project through the University of Idaho was developed to provide a better understanding of the role lake level management plays in kokanee egg-to-fry survival. A major component of this study involves incubating kokanee eggs in a variety of substrate types and lake depths, including elevations between 2051' and 2055'. Field work will begin this year, but most of the lakeshore incubation work will occur during the winter of 2012-2013 and will require a 2055' MCE to evaluate all elevations influenced by lake level management. Accommodating this study is important because information gained should help guide future Lake Pend Oreille water management decisions.

For these reasons, we recommend drafting Lake Pend Oreille to elevation 2051' during the winter of 2011-2012 and to elevation 2055' during the winter of 2012-2013. In both years, the spawning elevation should be maintained as the minimum through kokanee emergence.

Table 1. Decision Tree to guide selection of the winter lake level for Lake Pend Oreille.



COLUMBIA RIVER TECHNICAL MANAGEMENT TEAM

September 28, 2011Conference Call

Facilitator's Summary

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.

SOR USFWS/IDFG 2011-01

Russ Kiefer, Idaho, presented this SOR on behalf of USFWS and IDFG for winter lake level management operations at Lake Pend Oreille, specifying a minimum lake elevation of 2051' for 2011-12 and 2055' for 2012-13. Russ offered his hope that the region could set up a planned operation for the next two years while acknowledging that it will need to be revisited next year (USFWS/IDFG would submit an SOR in 2012) and is subject to change based on actual conditions and biological data. He went on to briefly describe the justification (details can be found in the SOR) and said that because kokanee are improving and are expected to spawn in high numbers next year, the authors of the SOR recommend a slight departure from the Decision Tree just for these two years to provide the higher elevation next year when more fish are expected to return. Also, this operation would support a University of Idaho graduate project that is collecting data to help identify how this lake level management has supported kokanee recovery, and what operation would be 'enough' to support egg-to-fry survival.

TMT members discussed the factors that would contribute to shaping next year's operation –the number of bull trout returning to the area, water conditions, and the needs of the graduate project were all deemed important considerations for setting up operations next year. TMT members also expressed that revisiting this operation next year and looking at all these factors is key to their support for the recommendation. Joel Fenolio, Seattle District COE, said for this year, a deviation request would be submitted by Seattle District to operate Albeni Falls to get to the minimum lake elevation if the COE did decide to implement the request this year.

With that, TMT members were polled on their level of support for the recommendation outlined in the SOR:

- Oregon – no objection
- Montana – no objection
- Washington –not present; FPAC Chair Paul Wagner reported that Washington had raised concerns about setting up a two year operation, but would likely not object with the caveat that the plan would be revisited next year.
- BPA – no objection if revisit next year
- Reclamation – no objection if revisit next year
- CRITFC/CTUIR -- no objection if revisit next year
- COE -- no objection if revisit next year
- Nez Perce – no objection (not in attendance at the meeting but contacted via phone after the meeting)

Planned Operation: Hearing no objections, the COE planned to implement the request for this year's operation. TMT will revisit Lake Pend Oreille operations again next year.

Operations Review

Reservoirs – John Roache, Reclamation, reported on projects: Grand Coulee was at elevation 1283.5' and will slowly fill in October as conditions allow. Hungry Horse was at elevation 3550.8' with 3 kcfs outflows that would be reduced to meet Columbia Falls minimums next week. Doug Baus, COE, reported on projects. Libby was at elevation 2446.91' with 4.7 kcfs inflows and 6.0 kcfs outflows. Albeni Falls was at elevation 2060.51' with 11.5 kcfs inflows and 19.5 kcfs outflows. Dworshak was at elevation 1519.48' with 1.0 kcfs inflows and 1.7 kcfs outflows. Inflows at Lower Granite were 32.7 kcfs; at Priest Rapids were 77.5 kcfs; at McNary were 118.8 kcfs and at Bonneville were 116.9 kcfs. Doug reported that fish ladder work at Bonneville was expected to be completed by 10/31 and the COE anticipated no impacts to chum operations.

Fish – Paul Wagner, NOAA, reported on fish. Subyearling Chinook at Lower Granite continued to show "reasonably high" counts, around 977/day, and 500/day at Bonneville. The adult fall Chinook total season count was 359,000. McNary steelhead passage was about 1,000-2,000/day. Total Fall Chinook counts at Lower Granite were 17,800 – a high number relative to the 10-year average. Steelhead lined up with the 10-year average at 11,000.

Water quality – Laura Hamilton, COE, reported that forebay gauge TDG data is no longer being reported. Doug Baus also reported that a revised spill priority list for winter will be forthcoming.

Power system – Nothing to report

TMT Schedule

TMT discussed their schedule for the rest of the year, and it is proposed as follows (as always, check the TMT web page for updates to the schedule):

- October: 10/5, 10/12, 10/26; conference call as needed on 10/19.
- November: 11/2, 11/9 face to face; conference calls as needed on 11/16, 11/23, and 11/30.
- December: 12/7 Year End Review; 12/14 face to face; conference calls as needed on 12/21 and 12/28.

Columbia River Regional Forum
TECHNICAL MANAGEMENT TEAM OFFICIAL MINUTES

September 28, 2011
Notes: Pat Vivian

1. Introduction

Today's TMT conference call was chaired by Doug Baus, COE, and facilitated by Robin Gumpert, DS Consulting. Representatives of Oregon, BPA, BOR, the COE, USFWS, NOAA, Montana, CRITFC/Umatilla, Idaho and others attended. This summary is an official record of the proceedings, not a verbatim transcript.

2. Lake Pend Oreille Operations – SOR USFWS/IDFG 2011-1

Russ Kiefer, Idaho, presented this SOR, which is a two-year request with a minimum control elevation of 2,051 feet for this winter's operation of Lake Pend Oreille and a MCE of 2,055 feet for next winter's operation. Kiefer emphasized that the requesting agencies realize a two-year operation cannot be guaranteed. There is awareness that, if this SOR is implemented, its planned operation might need to change in response to actual water supply, power system and chum spawning conditions. The specifications in the SOR would end either when kokanee spawning is done or at the end of December, whichever comes first. USFWS/IDFG will submit a SOR in 2012 requesting the MCE of 2,055 feet allowing TMT members evaluate the operation based on real time conditions.

The SOR aims to boost kokanee populations, based on data indications that there will be more adult spawners next year, Kiefer explained. Switching the decision tree at this time next winter would speed recovery as this population rebounds. The kokanee population has been growing incrementally each year since it began to recover from record lows in 2007. Rick Kruger, Oregon, said the spawning population next year could turn out to be smaller than expected. There was strong interest among TMT members in reevaluating the SOR next year in light of prevailing conditions.

In addition to spawning considerations, a graduate study project is planned for next winter that would address critical uncertainties, Kiefer said. The study depends on the lake level being high next winter. Rick Kruger, Oregon, said he can support the SOR for the sake of the kokanee population, but isn't enthusiastic about risking the downstream water supply to support a graduate study project. Kiefer emphasized that the study findings will address uncertainties and help tighten the focus of future requests regarding management of lake levels and the needs of kokanee.

Joel Fenolio, COE Seattle, gave an update on Lake Pend Oreille operations. The goal is to attain 2060 feet by the end of September. After that,

the lake will be drafted below 2051.5 feet as quickly as possible. The current draft rate is around 0.2 feet per day. Dropping to a low elevation with channel restrictions upstream means that the COE will need to draw the lake down as aggressively as possible. The Water Control Manual specifies an elevation of 2054 feet on October 31, so the COE is planning to submit a deviation request to provide more operational flexibility.

Tom Lorz, CRITFC/Umatilla asked about the potential impacts of a deviation request on operations at Grand Coulee. It's approximately a foot of elevation at Albeni Falls and a foot at Grand Coulee, Tony Norris, BPA, replied.

TMT members gave their views of the SOR. A number of them emphasized that their support is contingent on revisiting the operation next year.

- **Oregon** – No objection
- **Montana** – No objection
- **Idaho** – Co-signatory; supports SOR
- **USFWS** – Co-signatory
- **Washington** – No representation today; Paul Wagner said it's unlikely they'll object
- **NOAA** – No objection
- **BPA** – No objection
- **BOR** – No objection
- **CRITFC/Umatilla** – No objection
- **COE** – No objection
- **NP** – (Not in attendance at the meeting but no objection via phone after the meeting).

3. Operations Review

Reservoirs. Grand Coulee is at elevation 1283.5 feet, targeting elevation 1283 feet by the end of the month. Hungry Horse is at elevation 3550.82 feet, discharging 3 kcfs and aiming to hit 3550 feet at the end of September, although it may come in a bit higher than that. Libby is at elevation 2446.91 feet with inflows of 4.7 kcfs and outflows of 6 kcfs. Albeni Falls is at elevation 2060.51 feet with inflows of 11.5 kcfs and outflows of 19.5 kcfs. Dworshak is at elevation 1519.48 feet with inflows of 1.0 kcfs and outflows of 1.7 kcfs.

Lower Granite inflows are 32.7 kcfs. Priest Rapids inflows are 77.5 kcfs. McNary inflows are 118.8 kcfs, and Bonneville inflows at 116.9 kcfs.

Tom Lorz asked for an update on repairs to the Bonneville fish ladder. The current schedule calls for rebuilding and restabilizing the slope by October 31, Baus replied. The concrete grounding beneath the ladder is scheduled to be complete on October 15. According to the current schedule the repairs will not have any impacts on the chum operation.

Fish. *Juveniles:* Subyearling chinook are passing Lower Granite in large numbers at present, Wagner reported, with a passage index of 977 yesterday – high for this time of year. The passage index has been between 700-900 fish daily over the past week. Little Goose is passing fewer numbers – 204 fish per day a week ago and 69 yesterday. Lower Monumental passage numbers are ranging from 100-27 fish per day.

McNary passed 20,000 subyearlings on September 22, which is highly unusual for this time of year. Counts have been around 2,000 fish per day over the past five days. Bonneville is passing 500 subyearlings per day.

Adults: The total count for fall chinook adults is 359,000 for the season, down from the original forecast of 500,000. The latest seasonal forecast is 360,000 fish to date. Fish are still passing at the rate of 4,000-7,000 per day which is a lot. Steelhead passage to date is 357,000 fish. Passage counts at McNary are in line with the 10-year average for steelhead. Fall chinook passage at Lower Granite is 17,800, one of the highest runs to date.

Water Quality. Laura Hamilton, COE, reported that the switch to wintertime TDG monitoring began on September 14, and the forebay gages in Oregon are no longer transmitting data. Baus gave TMT a heads-up to expect a winter spill priority list to come up for discussion soon.

7. Next TMT Meeting

TMT will meet next in person on October 5. Beyond that, more offline discussion among TMT members is needed to establish a meeting schedule for the rest of October and November. The TMT year end review will be on December 7.

Name	***Affiliation***
Rick Kruger	Oregon
Tony Norris	BPA
John Roache	BOR
Doug Baus	COE
Dave Wills	USFWS
Laura Hamilton	COE
Paul Wagner	NOAA
Jim Litchfield	Montana
Tom Lorz	CRITFC/Umatilla
Andy Dux	IDFG
Russ Kiefer	Idaho
Joel Fenolio	COE Seattle
Steve Hall	COE Walla Walla
Jason Flory	USFWS

Shane Scott	PPC
Barry Espensen	CBB
Margaret Filardo	FPC
Richelle Beck	Grant PUD
Rob Allerman	Deutsch Bank
Bruce McKay	hydropower consultant

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Fisheries Science Center
Fish Ecology Division
2725 Montlake Boulevard East
Seattle, WA 98112-2097
(206) 860-3270

September 13, 2011

MEMORANDUM FOR: F/NWR5 - Bruce Suzumoto

FROM: F/NWC3 - John W. Ferguson

SUBJECT: Preliminary survival estimates for passage during the spring migration of juvenile salmonids through Snake and Columbia River reservoirs and dams, 2011

This memorandum summarizes conditions in the Snake and Columbia Rivers and preliminary estimates of survival of PIT-tagged juvenile salmonids passing through reservoirs and dams during the 2011 spring outmigration. We also provide preliminary estimates of the proportion of Snake River smolts that were transported from Snake River dams in 2011. Our complete detailed analyses and report for the spring migration will be available by the end of the year. As in past years, changes in the database between the time of our annual summer memo and the publication of our final report may result in differences of up to 3 or 4% in estimated survival values. As described below, unusual conditions at Bonneville Dam in 2011 might have led to a slight overestimate of average hydrosystem survival for the season. We will look into this further before we complete our final report for 2011.

Summary of Research

For survival studies funded by BPA in 2011, NOAA Fisheries PIT tagged approximately 22,010 river-run hatchery steelhead, 18,000 wild steelhead, and 16,030 wild yearling Chinook salmon for release into the tailrace of Lower Granite Dam. From studies funded by the USACE, we used about 74,790 hatchery yearling Chinook salmon PIT tagged by NOAA Fisheries at Lower Granite Dam for evaluation of "extra" or "latent" mortality related to passage through Snake River dams.

Survival estimates provided in this memorandum are derived from PIT-tag data from fish PIT tagged by or for NOAA Fisheries, as described above, along with fish PIT tagged by others within the Columbia River Basin.

For yearling Chinook salmon from Snake River Basin hatcheries, estimated survival to Lower Granite Dam tailrace has been relatively stable since 1998 (Figure 1, Table 1). Mean estimated survival was a composite of production releases from hatcheries Dworshak, Kooskia, Lookingglass/Imnaha Weir, Rapid River, McCall/Knox Bridge, Pahsimeroi, and Sawtooth and has ranged between 54.9 and 69.7% since 1998. Mean estimated survival to Lower Granite Dam tailrace for the index hatchery release groups in 2011 was 63.4%.

Estimated survival for Snake River yearling Chinook salmon (hatchery and wild combined) in 2011 was close to average (1993-2011) in almost every reach (Tables 2 and 4, Figures 2 and 3). Mean estimated survival for yearling Chinook salmon from Lower Granite Dam tailrace to McNary Dam tailrace in 2011 was 74.5% (95% CI: 72.5, 76.5%). Mean estimated survival in 2011 from McNary Dam tailrace to Bonneville Dam tailrace was 69.4% (95% CI: 55.7, 83.1%). Mean estimated survival for yearling Chinook salmon from Lower Granite Dam tailrace to Bonneville Dam tailrace in 2011 was 51.7% (95% CI: 41.4, 62.0%). Estimated survival for the Lower Granite project (head of reservoir to tailrace) was 94.3%, based on fish PIT tagged at and released from the Snake River trap. The combined yearling Chinook salmon survival estimate from the trap to the Bonneville Dam tailrace in 2011 was 48.8% (95% CI: 39.0, 58.5%).

For Snake River steelhead (hatchery and wild combined), mean estimated survival in 2011 was above the average (1993-2011) in every reach (Tables 3 and 5, Figures 2 and 3). Mean estimated survival for steelhead from Lower Granite Dam tailrace to McNary Dam tailrace in 2011 was 69.1% (95% CI: 66.6, 71.6%). Mean estimated survival in 2011 from McNary Dam tailrace to Bonneville Dam tailrace was 83.5% (95% CI: 70.2, 96.8%). Mean estimated survival from Lower Granite Dam tailrace to Bonneville Dam tailrace was 57.7% (95% CI: 48.8, 67.2%). Estimated survival for the Lower Granite project (head of reservoir to tailrace) was 98.6%, based on fish PIT tagged at and released from the Snake River trap. The combined steelhead survival estimate from the trap to the Bonneville Dam tailrace in 2011 was 56.9% (95% CI: 47.4, 66.4%).

For PIT-tagged hatchery yearling Chinook salmon originating from the upper Columbia River in 2011, estimated survival from McNary Dam tailrace to Bonneville Dam tailrace was 70.1% (95% CI: 51.8, 94.9%; see Table 6).

For PIT-tagged hatchery steelhead originating from the upper Columbia River in 2011, estimated survival from McNary Dam tailrace to Bonneville Dam tailrace was 65.1% (95% CI: 45.6, 92.9%; Table 6). For fish released from upper Columbia River hatcheries, we cannot estimate survival in reaches upstream from McNary Dam (other than the overall reach from release to McNary Dam tailrace) because of limited PIT-tag detection capabilities at Mid-Columbia River PUD dams.

Estimated survival in 2011 of Snake River sockeye salmon (hatchery and wild combined) from the tailrace of Lower Granite Dam to the tailrace of McNary Dam was 65.9% (95% CI: 59.7%, 72.7%; Table 7). Poor detection in the Lower Columbia River made it impossible to estimate survival to Bonneville Dam tailrace for Snake River sockeye. Estimated survival in 2011 of Columbia River sockeye salmon (hatchery and wild combined) from the tailrace of Rock Island Dam to the tailrace of Bonneville Dam was 51.3% (95% CI: 10.4%, 99.9%; Table 7).

Our preliminary estimates of the proportion transported of non-tagged wild and hatchery spring-summer Chinook salmon smolts are 35.2% and 40.7%, respectively. For steelhead, the estimates are 36.1% and 37.8% for wild and hatchery smolts, respectively. These estimates represent the proportion of smolts that arrived at Lower Granite Dam that were subsequently transported, either from Lower Granite Dam or from one of the downstream collector dams.

Discussion

Estimated survival for Snake River yearling Chinook salmon and steelhead through the hydropower system (Snake River trap to Bonneville tailrace) in 2011 was lower than in the previous two years. For yearling Chinook, the 2011 estimated hydropower system survival was 48.8%, which is nearly equal to the long-term average of 49.3%, but lower than (though not significantly different than; $P = 0.31$) the 2010 estimate of 55.1% (Table 4). For steelhead, the 2011 estimated hydropower system survival was 56.9%, which is higher than the long-term average of 41.7%, but lower than (though not significantly different than; $P = 0.40$) the 2010 estimate of 61.8% (Table 5).

Snake River flow volume in 2011 was higher than in recent years for most of the migration period (Figure 4). With the exception of higher flow in early April, the flow volume and pattern during April and early May in 2011 were most similar to 2009, while the volume and pattern during the remainder of May and June were more similar to 2006 and 2008. Snake River flow increased sharply starting around 10 May, rising from near 90 kcfs to over 200 kcfs on 16 May, and then stayed above 150 kcfs through the end of May. Mean spill volume at the Snake River dams in 2011 was on the high end of average until about 15 May when high flow forced very high spill volumes (Figure 5). Average Snake River spill percentages in 2011 hovered around 30% until the flow increase in early May, when average spill percentages increased to levels higher than any seen in recent years (Figure 5). Water temperatures in the Snake River in 2011 were on the cool side of average for most of the season (Figure 4).

High flows resulted in increased debris, which caused problems for dam operations and juvenile bypass systems at several projects. Debris clogged orifices in the gatewells at Little Goose Dam on 19 May, resulting in smolt mortalities. Debris at Bonneville Dam necessitated removal of the bypass screens from several turbine units starting on 19 May, with screens not reinstalled until 12 July. High flow and debris also caused problems for the towed PIT-tag detection array in the estuary, resulting in less sampling time and restricted sampling areas compared to previous years.

The removal of the bypass screens at Bonneville Dam resulted in greater numbers of fish going through turbines, which likely resulted in lower survival through the dam than would have occurred otherwise. At the same time, screen removal also resulted in an extreme reduction in PIT-tag detections, which meant that survival could not be estimated during that period. Therefore, any annual average survival estimate for Chinook or steelhead that includes the John Day to Bonneville reach in 2011 is most likely an overestimate of the actual survival of the population. Smolt indices at John Day Dam indicated that when the screens were first removed at Bonneville Dam on 19 May, approximately 40% of Chinook population and 45% of steelhead population originating from above John Day Dam had not yet passed John Day Dam.

A transformer at Little Goose Dam was damaged and resulted in the powerhouse being shut down for several hours on 20 May. The powerhouse at Little Goose Dam was shut down again to repair the

transformer starting 24 May and did not return to normal operations until 2 June. A limited amount of discharge (5 kcfs) was passed through the powerhouse during that time for on-site power usage. One consequence of the powerhouse shut down was a drastic reduction to elimination of PIT tag detections at Little Goose Dam. In an effort to avoid estimation problems introduced by the lack of detection, we did not use the fish detected and released from Lower Granite from 23 May to 1 June in calculation of our average survival estimates for the Snake River. Another consequence of the powerhouse shutdown at Little Goose was an increase in the amount of discharge forced to go through the spillways. This occurred during a period of high flow and resulted in high levels of dissolved gas in Lower Monumental reservoir. These increased gas levels may have resulted in increased smolt mortality for both yearling Chinook salmon and steelhead.

Estimated percentages of yearling Chinook salmon and steelhead transported from Snake River dams in 2011 were similar to those of 2010, which were among the lowest seen from 1995-2009. Collection for transportation began on 1 May at Lower Granite Dam, 5 May at Little Goose Dam, and 8 May at Lower Monumental Dam. When transportation began at Lower Granite on 1 May, about 28% of the yearling Chinook and 36% of the steelhead had already passed the dam (Figure 6). Some hatchery releases of steelhead occurred earlier than in previous years and resulted in a spike in passage in the first week of April. For steelhead, 50% of the run had passed Lower Granite Dam by 10 May, and 80% had passed by 18 May. For yearling Chinook, 50% had passed by 8 May, and 80% had passed by 14 May. Transportation at Lower Granite and Lower Monumental Dams was suspended from 16-18 May due to high flow and again from 22-28 May due to high flow and due to repair of the lock at The Dalles, which impeded barge passage. Transportation from Little Goose was suspended from 24 May through 1 June when the powerhouse was being serviced. Throughout the migration season, high spill percentages, in combination with surface bypass collection at each of the collector dams on the Snake River, resulted in low proportions of fish entering juvenile bypass systems. These relatively low collection rates, a late start in collection relative to run timing, and temporary suspensions of transportation resulted in relatively low proportions transported in 2011.

cc: F/NWC3 - Smith
F/NWC3 - Muir
F/NWC3 - Faulkner
F/NWC3 - Zabel

Table 1. Mean estimated survival and standard error (s.e.) for yearling **Chinook** salmon released at Snake River Basin and Upper Columbia River hatcheries to Lower Granite Dam tailrace (LGR) and McNary Dam tailrace (MCN), 2009 through 2011.

	2009		2010		2011[a]	
Hatchery	Survival to LGR (s.e.)	Survival to MCN (s.e.)	Survival to LGR (s.e.)	Survival to MCN (s.e.)	Survival to LGR (s.e.)	Survival to MCN (s.e.)
Dworshak	0.696 (0.007)	0.544 (0.010)	0.898 (0.017)	0.780 (0.014)	0.722 (0.006)	0.511 (0.010)
Kooskia	0.633 (0.012)	0.456 (0.017)	0.744 (0.030)	0.624 (0.022)	0.729 (0.014)	0.542 (0.029)
Lookingglass (Catherine Cr.)	0.371 (0.006)	0.298 (0.012)	0.447 (0.020)	0.369 (0.015)	0.300 (0.007)	0.228 (0.020)
Lookingglass (Grande Ronde)	0.444 (0.022)	0.295 (0.036)	0.422 (0.029)	0.356 (0.034)	0.434 (0.019)	0.386 (0.097)
Lookingglass (Imnaha River)	0.699 (0.009)	0.555 (0.017)	0.682 (0.025)	0.563 (0.017)	0.573 (0.009)	0.424 (0.025)
Lookingglass (Lostine River)	0.585 (0.010)	0.474 (0.024)	0.447 (0.020)	0.369 (0.015)	0.490 (0.022)	0.409 (0.097)
McCall (Johnson Cr.)	0.309 (0.019)	0.326 (0.072)	0.322 (0.018)	0.230 (0.022)	0.264 (0.015)	0.222 (0.053)
McCall (Knox Bridge)	0.513 (0.005)	0.414 (0.008)	0.566 (0.014)	0.462 (0.010)	0.631 (0.015)	0.471 (0.018)
Rapid River	0.728 (0.005)	0.631 (0.010)	0.786 (0.019)	0.666 (0.012)	0.766 (0.006)	0.535 (0.016)
Entiat	---	---	---	---	---	---
Winthrop	---	0.372 (0.043)	---	0.634 (0.069)	---	0.529 (0.051)
Leavenworth	---	0.478 (0.020)	---	0.653 (0.028)	---	0.432 (0.022)

a. Estimates are preliminary and subject to change.

Table 2. Annual weighted means of survival probability estimates for yearling **Chinook** salmon (hatchery and wild combined), 1993–2011. Standard errors in parentheses. Reaches with asterisks comprise two dams and reservoirs (i.e., two projects); the following column gives the square root (i.e., geometric mean) of the two–project estimate to facilitate comparison with other single–project estimates. Simple arithmetic means across all years are given. Abbreviations: Trap–Snake River Trap; LGR–Lower Granite Dam; LGO–Little Goose Dam; LMO–Lower Monumental Dam; IHR–Ice Harbor Dam; MCN–McNary Dam; JDA–John Day Dam; TDA–The Dalles Dam; BON–Bonneville Dam.

Year	Trap–LGR	LGR–LGO	LGO–LMO	LMO–MCN*	LMO–IHR IHR–MCN	MCN–JDA	JDA–BON*	JDA–TDA TDA–BON
1993	0.828 (0.013)	0.854 (0.012)						
1994	0.935 (0.023)	0.830 (0.009)	0.847 (0.010)					
1995	0.905 (0.010)	0.882 (0.004)	0.925 (0.008)	0.876 (0.038)	0.936			
1996	0.977 (0.025)	0.926 (0.006)	0.929 (0.011)	0.756 (0.033)	0.870			
1997	NA	0.942 (0.018)	0.894 (0.042)	0.798 (0.091)	0.893			
1998	0.925 (0.009)	0.991 (0.006)	0.853 (0.009)	0.915 (0.011)	0.957	0.822 (0.033)		
1999	0.940 (0.009)	0.949 (0.002)	0.925 (0.004)	0.904 (0.007)	0.951	0.853 (0.027)	0.814 (0.065)	0.902
2000	0.929 (0.014)	0.938 (0.006)	0.887 (0.009)	0.928 (0.016)	0.963	0.898 (0.054)	0.684 (0.128)	0.827
2001	0.954 (0.015)	0.945 (0.004)	0.830 (0.006)	0.708 (0.007)	0.841	0.758 (0.024)	0.645 (0.034)	0.803
2002	0.953 (0.022)	0.949 (0.006)	0.980 (0.008)	0.837 (0.013)	0.915	0.907 (0.014)	0.840 (0.079)	0.917
2003	0.993 (0.023)	0.946 (0.005)	0.916 (0.011)	0.904 (0.017)	0.951	0.893 (0.017)	0.818 (0.036)	0.904
2004	0.893 (0.009)	0.923 (0.004)	0.875 (0.012)	0.818 (0.018)	0.904	0.809 (0.028)	0.735 (0.092)	0.857
2005	0.919 (0.015)	0.919 (0.003)	0.886 (0.006)	0.903 (0.010)	0.950	0.772 (0.029)	1.028 (0.132)	1.014
2006	0.952 (0.011)	0.923 (0.003)	0.934 (0.004)	0.887 (0.008)	0.942	0.881 (0.020)	0.944 (0.030	0.972
2007	0.943 (0.028)	0.938 (0.006)	0.957 (0.010)	0.876 (0.012)	0.936	0.920 (0.016)	0.824 (0.043)	0.908
2008	0.992 (0.018)	0.939 (0.006)	0.950 (0.011)	0.878 (0.016)	0.937	1.073 (0.058)	0.558 (0.082)	0.750
2009	0.958 (0.010)	0.940 (0.006)	0.982 (0.009)	0.855 (0.011)	0.925	0.866 (0.042)	0.821 (0.043)	0.906
2010	0.968 (0.040)	0.962 (0.011)	0.973 (0.019)	0.851 (0.017)	0.922	0.947 (0.021)	0.780 (0.039)	0.883
2011[a]	0.943 (0.009)	0.919 (0.007)	0.966 (0.008)	0.843 (0.012)	0.918	0.895 (0.026)	0.773 (0.085)	0.879
Mean	**0.939 (0.009)**	**0.927 (0.009)**	**0.917 (0.011)**	**0.855 (0.015)**	**0.924**	**0.878 (0.022)**	**0.790 (0.035)**	**0.886**

a. Estimates are preliminary and subject to change.

Table 3. Annual weighted means of survival probability estimates for **steelhead** (hatchery and wild combined), 1993–2011. Standard errors in parentheses. Reaches with asterisks comprise two dams and reservoirs (i.e., two projects); the following column gives the square root (i.e., geometric mean) of the two–project estimate to facilitate comparison with other single–project estimates. Simple arithmetic means across all years are given. Abbreviations: Trap–Snake River Trap; LGR–Lower Granite Dam; LGO–Little Goose Dam; LMO–Lower Monumental Dam; IHR–Ice Harbor Dam; MCN–McNary Dam; JDA–John Day Dam; TDA–The Dalles Dam; BON–Bonneville Dam.

Year	Trap–LGR	LGR–LGO	LGO–LMO	LMO–MCN*	LMO–IHR IHR–MCN	MCN–JDA	JDA–BON*	JDA–TDA TDA–BON
1993	0.905 (0.006)							
1994	NA	0.844 (0.011)	0.892 (0.011)					
1995	0.945 (0.008)	0.899 (0.005)	0.962 (0.011)	0.858 (0.076)	0.926			
1996	0.951 (0.015)	0.938 (0.008)	0.951 (0.014)	0.791 (0.052)	0.889			
1997	0.964 (0.015)	0.966 (0.006)	0.902 (0.020)	0.834 (0.065)	0.913			
1998	0.924 (0.009)	0.930 (0.004)	0.889 (0.006)	0.797 (0.018)	0.893	0.831 (0.031)	0.935 (0.103)	0.967
1999	0.908 (0.011)	0.926 (0.004)	0.915 (0.006)	0.833 (0.011)	0.913	0.920 (0.033)	0.682 (0.039)	0.826
2000	0.964 (0.013)	0.901 (0.006)	0.904 (0.009)	0.842 (0.016)	0.918	0.851 (0.045)	0.754 (0.045)	0.868
2001	0.911 (0.007)	0.801 (0.010)	0.709 (0.008)	0.296 (0.010)	0.544	0.337 (0.025)	0.753 (0.063)	0.868
2002	0.895 (0.015)	0.882 (0.011)	0.882 (0.018)	0.652 (0.031)	0.807	0.844 (0.063)	0.612 (0.098)	0.782
2003	0.932 (0.015)	0.947 (0.005)	0.898 (0.012)	0.708 (0.018)	0.841	0.879 (0.032)	0.630 (0.066)	0.794
2004	0.948 (0.004)	0.860 (0.006)	0.820 (0.014)	0.519 (0.035)	0.720	0.465 (0.078)	NA	NA
2005	0.967 (0.004)	0.940 (0.004)	0.867 (0.009)	0.722 (0.023)	0.850	0.595 (0.040)	NA	NA
2006	0.920 (0.013)	0.956 (0.004)	0.911 (0.006)	0.808 (0.017)	0.899	0.795 (0.045)	0.813 (0.083)	0.902
2007	1.016 (0.026)	0.887 (0.009)	0.911 (0.022)	0.852 (0.030)	0.923	0.988 (0.098)	0.579 (0.059)	0.761
2008	0.995 (0.018)	0.935 (0.007)	0.961 (0.014)	0.776 (0.017)	0.881	0.950 (0.066)	0.742 (0.045)	0.861
2009	1.002 (0.011)	0.972 (0.005)	0.942 (0.008)	0.863 (0.014)	0.929	0.951 (0.026)	0.900 (0.079)	0.949
2010	1.017 (0.030)	0.965 (0.028)	0.984 (0.044)	0.876 (0.032)	0.936	0.931 (0.051)	0.840 (0.038)	0.917
2011[a]	0.986 (0.017)	0.956 (0.004)	0.947 (0.010)	0.770 (0.015)	0.877	0.992 (0.095)	0.805 (0.091)	0.897
Mean	**0.953 (0.009)**	**0.917 (0.011)**	**0.903 (0.015)**	**0.753 (0.036)**	**0.862**	**0.809 (0.054)**	**0.754 (0.032)**	**0.866**

a. Estimates are preliminary and subject to change.

Table 4. Hydropower system survival estimates derived by combining empirical survival estimates from various reaches for Snake River yearling **Chinook** salmon (hatchery and wild combined), 1997–2011. Standard errors in parentheses. Simple arithmetic means across all years are given. Abbreviations: Trap–Snake River Trap; LGR–Lower Granite Dam; MCN–McNary Dam; BON–Bonneville Dam.

Year	Trap–LGR	LGR-MCN	MCN-BON	LGR–BON	Trap–BON
1997	NA	0.653 (0.072)	NA	NA	NA
1998	0.924 (0.011)	0.770 (0.009)	NA	NA	NA
1999	0.940 (0.009)	0.792 (0.006)	0.704 (0.058)	0.557 (0.046)	0.524 (0.043)
2000	0.929 (0.014)	0.760 (0.012)	0.640 (0.122)	0.486 (0.093)	0.452 (0.087)
2001	0.954 (0.015)	0.556 (0.009)	0.501 (0.027)	0.279 (0.016)	0.266 (0.016)
2002	0.953 (0.022)	0.757 (0.009)	0.763 (0.079)	0.578 (0.060)	0.551 (0.059)
2003	0.993 (0.023)	0.731 (0.010)	0.728 (0.030)	0.532 (0.023)	0.528 (0.026)
2004	0.893 (0.009)	0.666 (0.011)	0.594 (0.074)	0.395 (0.050)	0.353 (0.045)
2005	0.919 (0.015)	0.732 (0.009)	0.788 (0.093)	0.577 (0.068)	0.530 (0.063)
2006	0.952 (0.011)	0.764 (0.007)	0.842 (0.021)	0.643 (0.017)	0.612 (0.018)
2007	0.943 (0.028)	0.783 (0.006)	0.763 (0.044)	0.597 (0.035)	0.563 (0.037)
2008	0.992 (0.018)	0.782 (0.011)	0.594 (0.066)	0.465 (0.052)	0.460 (0.052)
2009	0.958 (0.010)	0.787 (0.007)	0.705 (0.031)	0.555 (0.025)	0.531 (0.025)
2010	0.968 (0.040)	0.772 (0.012)	0.738 (0.039)	0.569 (0.032)	0.551 (0.038)
2011[a]	0.943 (0.009)	0.745 (0.010)	0.694 (0.070)	0.517 (0.053)	0.488 (0.050)
Mean	**0.947 (0.007)**	**0.737 (0.017)**	**0.696 (0.026)**	**0.519 (0.027)**	**0.493 (0.026)**

a. Estimates are preliminary and subject to change.

Table 5. Hydropower system survival estimates derived by combining empirical survival estimates from various reaches for Snake River **steelhead** (hatchery and wild combined), 1997–2011. Standard errors in parentheses. Simple arithmetic means across all years are given. Abbreviations: Trap–Snake River Trap; LGR–Lower Granite Dam; MCN–McNary Dam; BON–Bonneville Dam.

Year	Trap–LGR	LGR-MCN	MCN-BON	LGR–BON	Trap–BON
1997	1.020 (0.023)	0.728 (0.053)	0.651 (0.082)	0.474 (0.069)	0.484 (0.072)
1998	0.924 (0.009)	0.649 (0.013)	0.770 (0.081)	0.500 (0.054)	0.462 (0.050)
1999	0.908 (0.011)	0.688 (0.010)	0.640 (0.024)	0.440 (0.018)	0.400 (0.017)
2000	0.964 (0.013)	0.679 (0.016)	0.580 (0.040)	0.393 (0.034)	0.379 (0.033)
2001	0.911 (0.007)	0.168 (0.006)	0.250 (0.016)	0.042 (0.003)	0.038 (0.003)
2002	0.895 (0.015)	0.536 (0.025)	0.488 (0.090)	0.262 (0.050)	0.234 (0.045)
2003	0.932 (0.015)	0.597 (0.013)	0.518 (0.015)	0.309 (0.011)	0.288 (0.012)
2004	0.948 (0.004)	0.379 (0.023)	NA	NA	NA
2005	0.967 (0.004)	0.593 (0.018)	NA	NA	NA
2006	0.920 (0.013)	0.702 (0.016)	0.648 (0.079)	0.455 (0.056)	0.418 (0.052)
2007	1.016 (0.026)	0.694 (0.020)	0.524 (0.064)	0.364 (0.045)	0.369 (0.047)
2008	0.995 (0.018)	0.716 (0.015)	0.671 (0.034)	0.480 (0.027)	0.478 (0.028)
2009	1.002 (0.011)	0.790 (0.013)	0.856 (0.074)	0.676 (0.059)	0.678 (0.060)
2010	1.017 (0.030)	0.770 (0.020)	0.789 (0.027)	0.608 (0.026)	0.618 (0.032)
2011[a]	0.986 (0.017)	0.691 (0.013)	0.835 (0.068)	0.577 (0.048)	0.569 (0.049)
Mean	**0.960 (0.011)**	**0.625 (0.042)**	**0.632 (0.042)**	**0.429 (0.046)**	**0.417 (0.047)**

a. Estimates are preliminary and subject to change.

Table 6. Estimated survival and standard error (s.e.) through reaches of the lower Columbia River hydropower system for hatchery yearling **Chinook** salmon and **steelhead** originating in the upper Columbia River, 1999–2011. Abbreviations: Rel–Release site; MCN–McNary Dam; JDA–John Day Dam; BON–Bonneville Dam.

	Yearling Chinook Salmon				Steelhead			
Year	Rel–MCN	MCN-JDA	JDA-BON	MCN–BON	Rel–MCN	MCN-JDA	JDA-BON	MCN–BON
1999	0.572 (0.014)	0.896 (0.044)	0.795 (0.129)	0.712 (0.113)				
2000	0.539 (0.025)	0.781 (0.094)	NA	NA				
2001	0.428 (0.009)	0.881 (0.062)	NA	NA				
2002	0.555 (0.003)	0.870 (0.011)	0.940 (0.048)	0.817 (0.041)				
2003	0.625 (0.003)	0.900 (0.008)	0.977 (0.035)	0.879 (0.031)	0.471 (0.004)	0.997 (0.012)	0.874 (0.036)	0.871 (0.036)
2004	0.507 (0.005)	0.812 (0.019)	0.761 (0.049)	0.618 (0.038)	0.384 (0.005)	0.794 (0.021)	1.037 (0.112)	0.823 (0.088)
2005	0.545 (0.012)	0.751 (0.042)	NA	NA	0.399 (0.004)	0.815 (0.017)	0.827 (0.071)	0.674 (0.057)
2006	0.520 (0.011)	0.954 (0.051)	0.914 (0.211)	0.871 (0.198)	0.397 (0.008)	0.797 (0.026)	0.920 (0.169)	0.733 (0.134)
2007	0.584 (0.009)	0.895 (0.028)	0.816 (0.091)	0.730 (0.080)	0.426 (0.016)	0.944 (0.064)	0.622 (0.068)	0.587 (0.059)
2008	0.582 (0.019)	1.200 (0.085)	0.522 (0.114)	0.626 (0.133)	0.438 (0.015)	NA	NA	NA
2009	0.523 (0.013)	0.847 (0.044)	1.056 (0.143)	0.895 (0.116)	0.484 (0.018)	0.809 (0.048)	0.935 (0.133)	0.756 (0.105)
2010	0.660 (0.014)	0.924 (0.040)	0.796 (0.046)	0.735 (0.037)	0.512 (0.017)	0.996 (0.054)	0.628 (0.038)	0.626 (0.033)
2011[a]	0.531 (0.011)	1.041 (0.049)	0.674 (0.108)	0.701 (0.109)	0.435 (0.012)	1.201 (0.064)	0.542 (0.101)	0.651 (0.119)
Mean	**0.551 (0.016)**	**0.904 (0.032)**	**0.825 (0.049)**	**0.758 (0.032)**	**0.438 (0.014)**	**0.919 (0.051)**	**0.798 (0.063)**	**0.715 (0.035)**

a. Estimates are preliminary and subject to change.

Table 7. Estimated survival and standard error (s.e.) for **sockeye** salmon (hatchery and wild combined) from Lower Granite Dam tailrace to Bonneville Dam tailrace for fish originating in the Snake River, and from Rock Island Dam tailrace to Bonneville Dam tailrace for fish originating in the upper Columbia River, 1996–2011. Note that this table represents all available data on sockeye, and so estimates are provided regardless of the size of their associated standard errors. The estimates to Bonneville tailrace are of questionable quality in several cases due to small release sizes and low detection probabilities. Caution is warranted if using those estimates for inference. Abbreviations: LGR–Lower Granite Dam; MCN–McNary Dam; BON–Bonneville Dam; RIS–Rock Island Dam.

	Snake River Sockeye			Upper Columbia River Sockeye		
Year	LGR-MCN	MCN-BON	LGR-BON	RIS-MCN	MCN-BON	RIS-BON
1996	0.283 (0.184)	NA	NA	NA	NA	NA
1997	NA	NA	NA	0.397 (0.119)	NA	NA
1998	0.689 (0.157)	0.142 (0.099)	0.177 (0.090)	0.624 (0.058)	1.655 (1.617)	1.033 (1.003)
1999	0.655 (0.083)	0.841 (0.584)	0.548 (0.363)	0.559 (0.029)	0.683 (0.177)	0.382 (0.097)
2000	0.679 (0.110)	0.206 (0.110)	0.161 (0.080)	0.487 (0.114)	0.894 (0.867)	0.435 (0.410)
2001	0.205 (0.063)	0.105 (0.050)	0.022 (0.005)	0.657 (0.117)	NA	NA
2002	0.524 (0.062)	0.684 (0.432)	0.342 (0.212)	0.531 (0.044)	0.286 (0.110)	0.152 (0.057)
2003	0.669 (0.054)	0.551 (0.144)	0.405 (0.098)	NA	NA	NA
2004	0.741 (0.254)	NA	NA	0.648 (0.114)	1.246 (1.218)	0.808 (0.777)
2005	0.388 (0.078)	NA	NA	0.720 (0.140)	0.226 (0.209)	0.163 (0.147)
2006	0.630 (0.083)	1.113 (0.652)	0.820 (0.454)	0.793 (0.062)	0.767 (0.243)	0.608 (0.187)
2007	0.679 (0.066)	0.259 (0.084)	0.272 (0.073)	0.625 (0.046)	0.642 (0.296)	0.401 (0.183)
2008	0.763 (0.103)	0.544 (0.262)	0.404 (0.179)	0.644 (0.094)	0.679 (0.363)	0.437 (0.225)
2009	0.749 (0.032)	0.765 (0.101)	0.573 (0.073)	0.853 (0.076)	0.958 (0.405)	0.817 (0.338)
2010	0.723 (0.039)	0.752 (0.098)	0.544 (0.077)	0.778 (0.063)	0.627 (0.152)	0.488 (0.111)
2011[a]	0.659 (0.033)	NA	NA	0.742 (0.088)	0.691 (0.676)	0.513 (0.498)
Mean	**0.602 (0.045)**	**0.542 (0.099)**	**0.388 (0.069)**	**0.647 (0.034)**	**0.780 (0.112)**	**0.520 (0.076)**

a. Estimates are preliminary and subject to change.

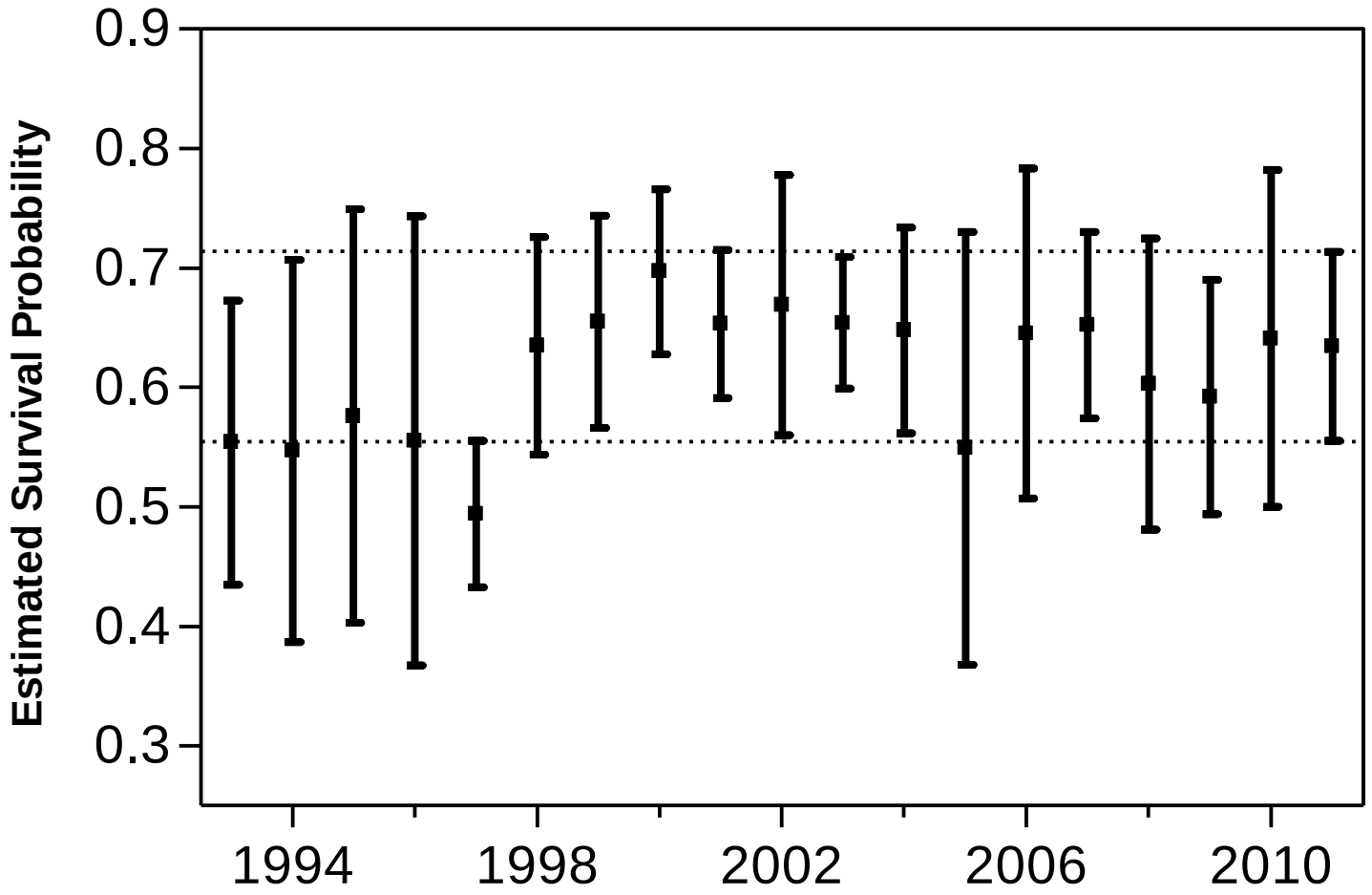


Figure 1. Annual average survival estimates from release to Lower Granite Dam for PIT-tagged yearling **Chinook** salmon released from Snake River Basin hatcheries, 1993-2011. Hatcheries used for average (index groups) are those with PIT-tag releases through a long series of years. Vertical bars represent 95% confidence intervals. Horizontal dashed lines are the 2011 confidence interval endpoints and are shown for comparison to other years.

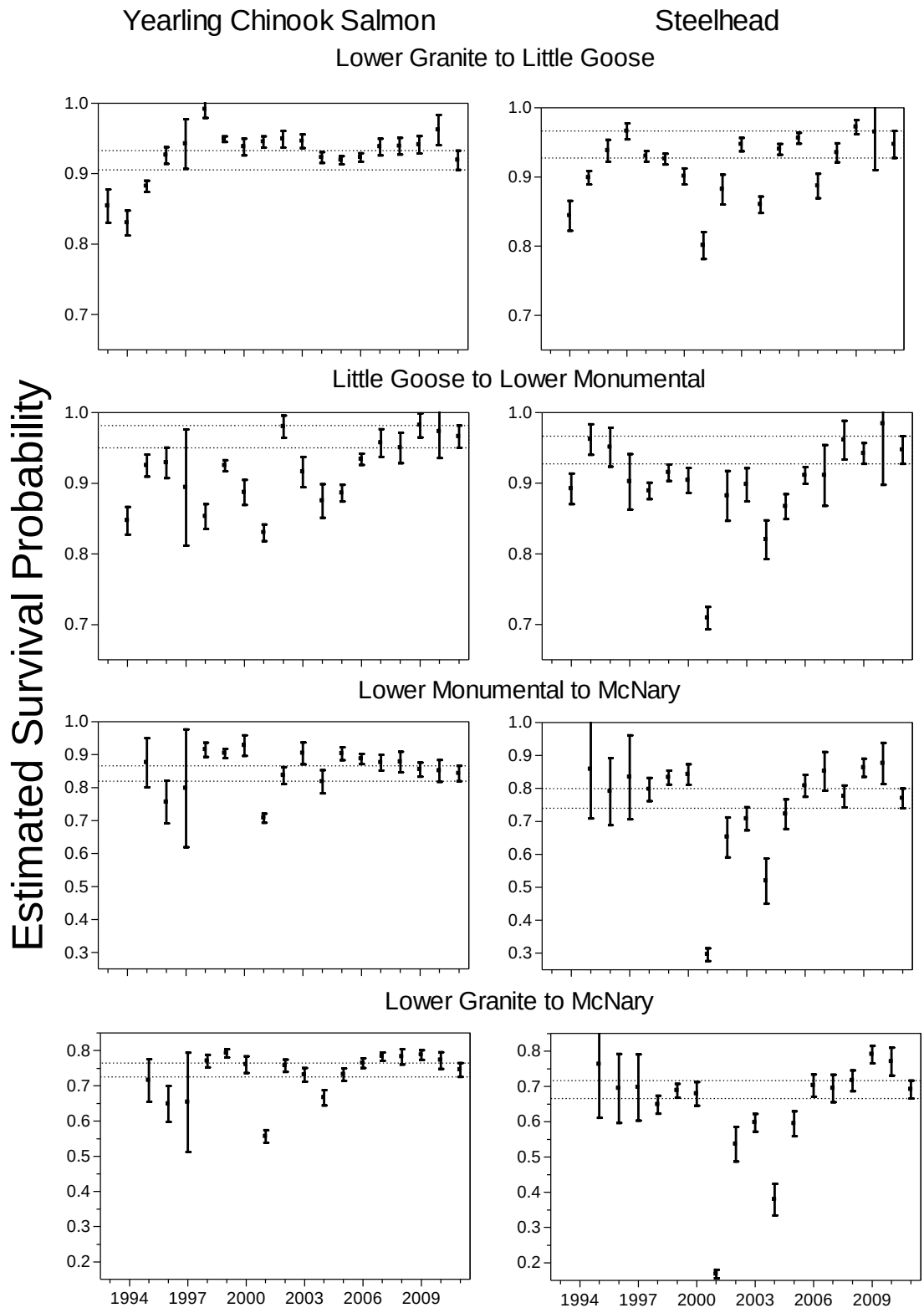


Figure 2. Annual average survival estimates for PIT-tagged yearling **Chinook** salmon and **steelhead**, hatchery and wild fish combined. Vertical bars represent 95% confidence intervals. Horizontal dashed lines are 95% confidence interval endpoints for 2011 estimates.

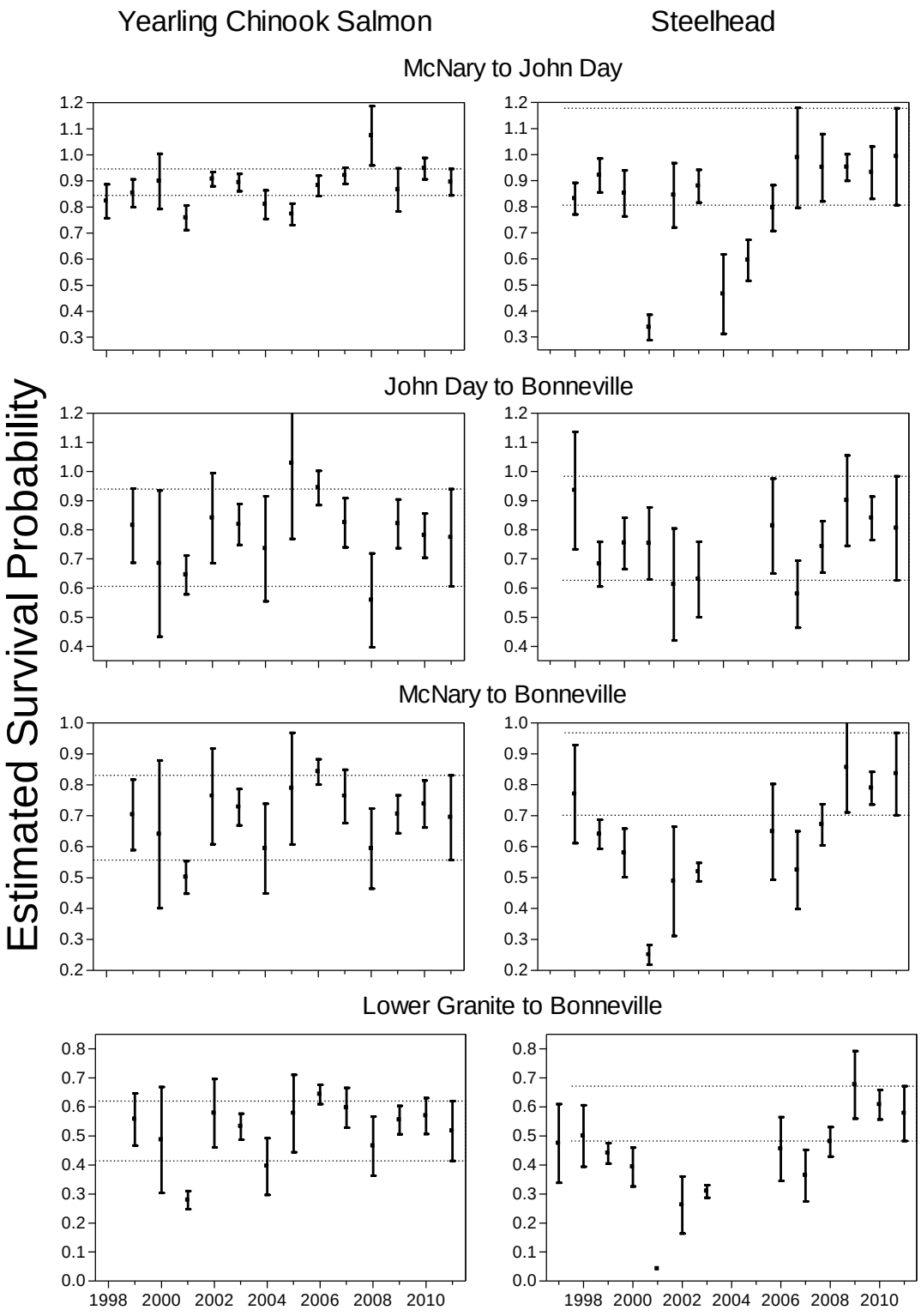


Figure 3. Annual average survival estimates for PIT-tagged yearling **Chinook** salmon and **steelhead**, hatchery and wild fish combined. Vertical bars represent 95% confidence intervals. Horizontal dashed lines are 95% confidence interval endpoints for 2011 estimates.

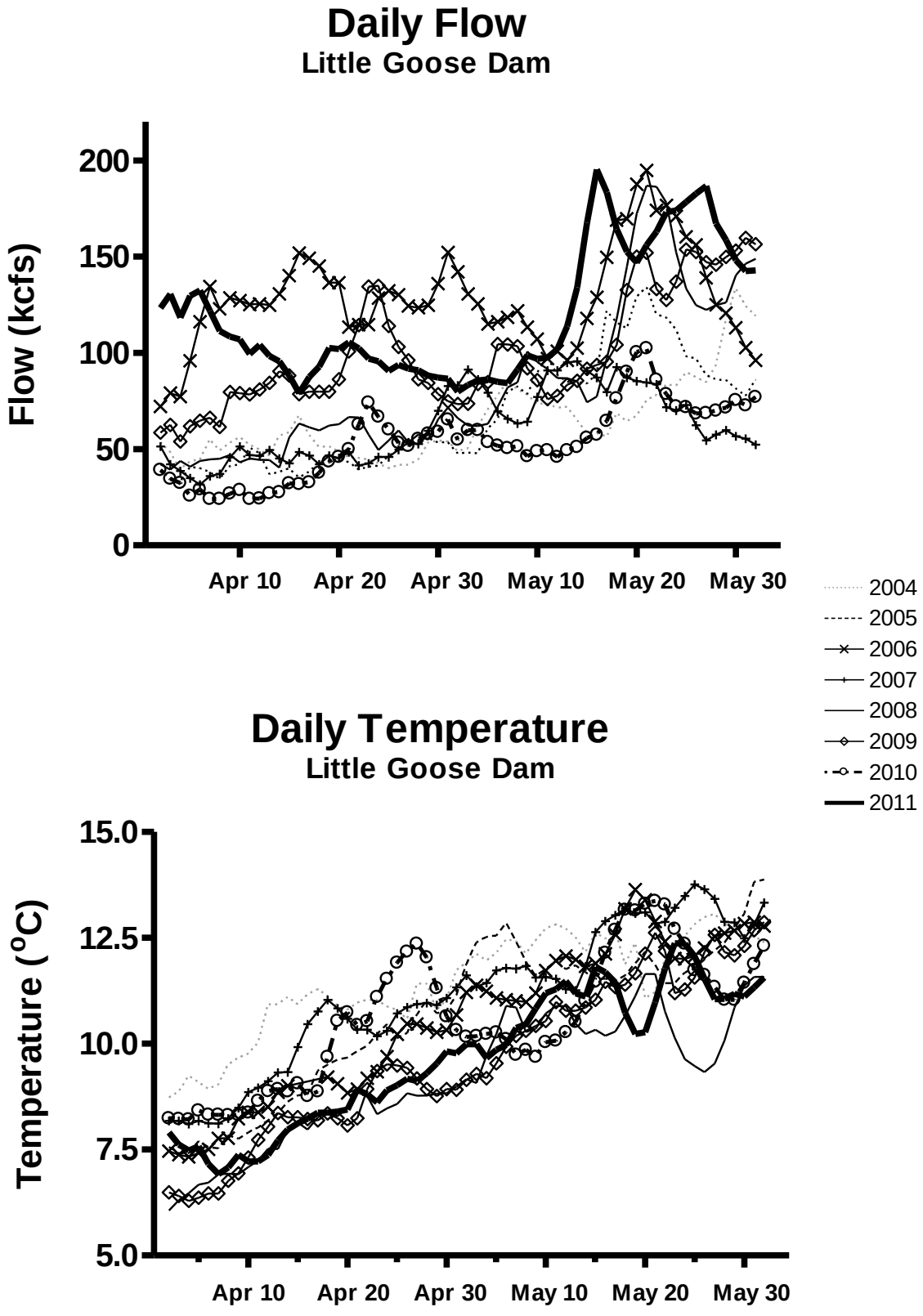


Figure 6. Snake River flow (kcfs; top panel) and water temperature (^{o}C; bottom panel) measured at Little Goose Dam during April and May, 2004-2011.

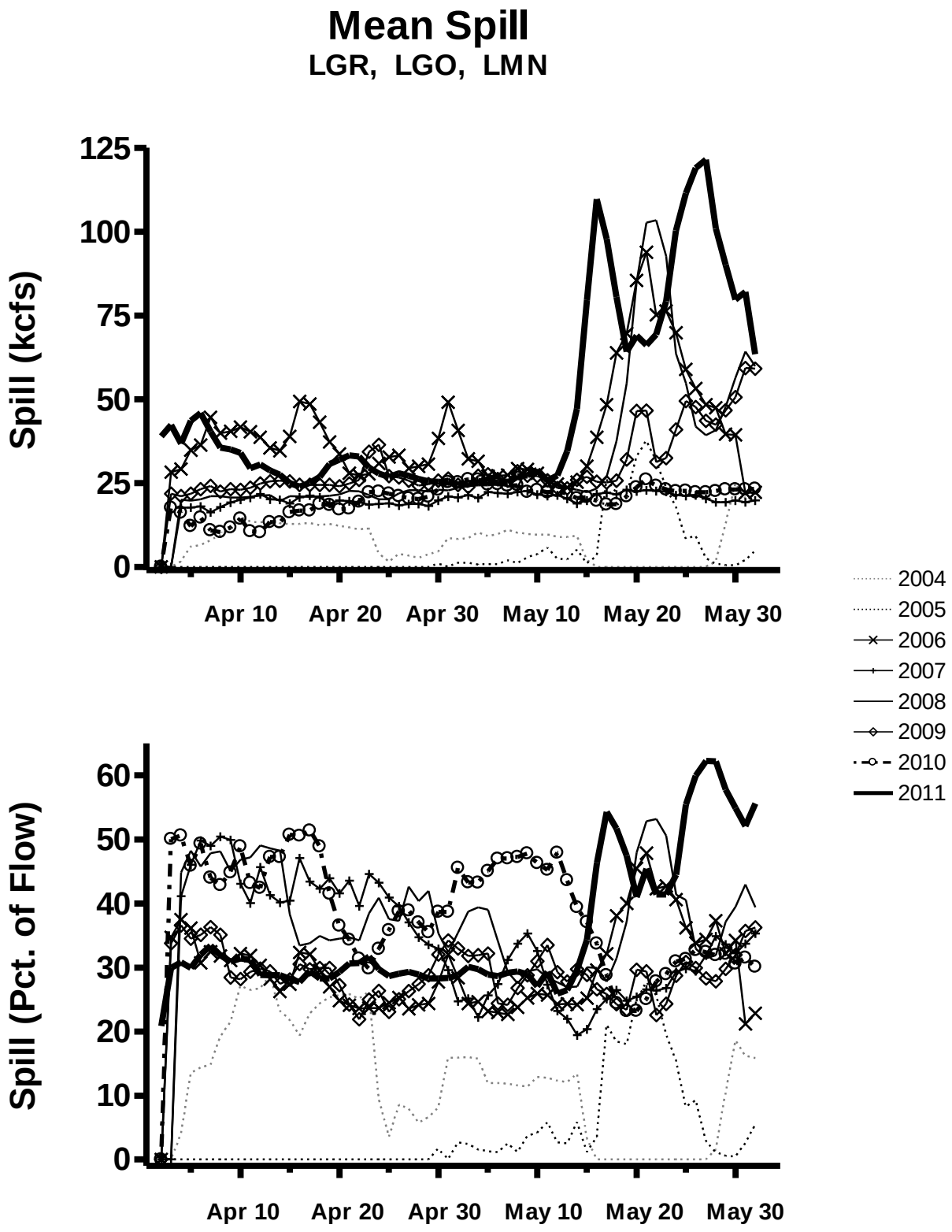


Figure 5. Mean spill (top=kcfs; bottom=percentage of total flow) at Snake River dams during April and May, 2004-2011.

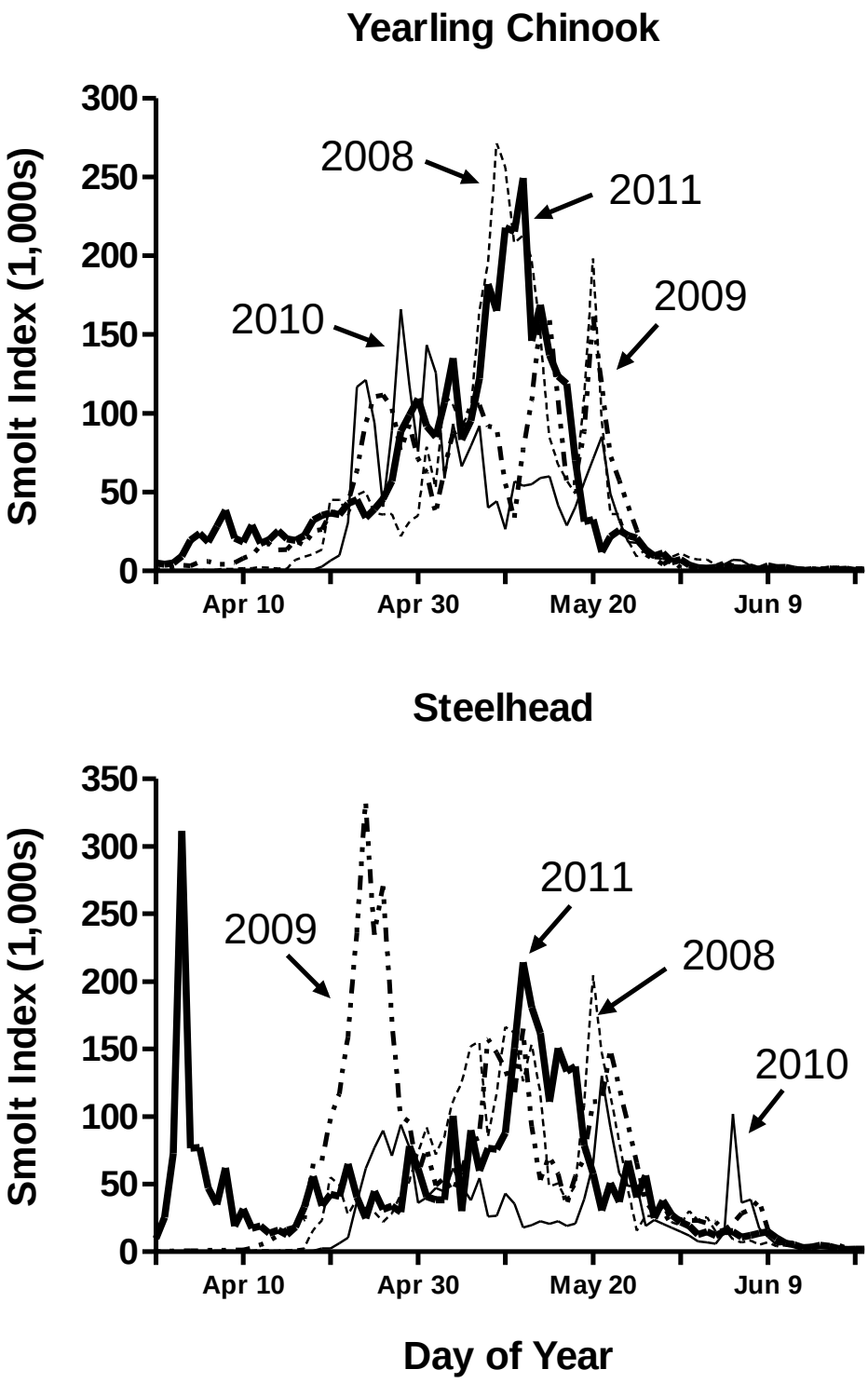


Figure 6. Smolt index in thousands at Lower Granite Dam 2008-2011 for hatchery and wild combined yearling **Chinook** and **steelhead**.

TECHNICAL MANAGEMENT TEAM			
BOR:	*John Roache / Mary Mellema / Pat McGrane*	**BPA:**	*Tony Norris / Scott Bettin / Robyn MacKay*
NOAA-F:	*Paul Wagner / Richard Dominigue*	**USFWS:**	*David Wills / Steve Haeseker*
OR:	*Rick Kruger / Ron Boyce*	**ID:**	*Russ Kiefer / Pete Hassemer*
WDFW:	*Cindy LeFleur / Charles Morrill*	**MT:**	*Jim Litchfield / Brian Marotz*
Kootenai:	*Sue Ireland / Billy Barquin*	**Spokane:**	*Deanne Pavlik-Kunkel / Andy Miller*
Colville:	*Sheri Sears / Steve Smith*	**Nez Perce:**	*Dave Statler*
Umatilla:	*Tom Lorz (CRITFC)*		
COE:	*Doug Baus / Karl Kanbergs*		

TMT MEETING

Wednesday October 5, 2011 9:00am - 12:00pm

1125 N.W. Couch Street, Suite 500, Columbia Room
Portland, Oregon 97209-4142
Map Quest [Directions]

TMT MEETING
Phone Number (877) 336-1274
Access Code 3871669
Security Code 6845

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

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@cnnw.net or call her at (503) 248-4703.

Note: Members of the public are encouraged to refer to the Official Meeting Minutes and the TMT agenda links for information re: discussions and decisions made at TMT. Operational decisions that are made outside a TMT meeting will be reported on at the next scheduled meeting and/or linked to the agenda item of the meeting at which it was discussed, as soon as is reasonably possible.

AGENDA

1. Welcome and Introductions
2. Review September 28 Meeting Minutes [Meeting Minutes]
3. Preliminary Reach Survival Estimates - *Paul Wagner, NOAA Fisheries*
    a. Preliminary Memo
4. Spill Priority List - *Doug Baus COE-NWD, Scott English COE-NWD*
    a. Proposed Spill Priority List
5. Water Management Plan - *Doug Baus COE-NWD*
6. Operations Review

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

7. Other
    a. Set agenda and date for next meeting - **October 12, 2011**
    b. [Calendar 2011]

Questions about the meeting may be referred to:
Doug Baus at (503) 808-3995

COLUMBIA RIVER TECHNICAL MANAGEMENT TEAM

October 5, 2011

Facilitator's Summary

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.

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Paul Wagner, NOAA, shared a memo containing preliminary reach survival estimates for 2011. These numbers were subject to change based on further analysis. Walking through all the tables, Paul summarized that:

- Yearling Chinook survival was close to average compared to the '93-2010 mean.
- Juvenile steelhead estimates were higher than the mean but not as high as 2009 or 2010.
- Estimated survival of Snake River sockeye from Lower Granite to McNary was 65.9% compared to the mean of 60.2%. Poor detection in the Lower Columbia River made it impossible to estimate Snake River sockeye survival to Bonneville.
- 35% wild and 41% hatchery Chinook were transported; 36% wild and 38% hatchery steelhead were transported. These percentages are low compared to historical numbers.

The memo notes several factors that might have impacted detection and overall survival estimates. High flows resulted in increased debris, which caused problems for dam operations and juvenile bypass systems at several projects. A transformer at Little Goose Dam was damaged and resulted in the powerhouse being shut down for approximately seven days. The screens were pulled at Bonneville beginning about the middle of May and the trawl PIT tag detector had debris issues as well. These factors will be considered when producing the final report.

Questions were raised about the analysis, including how Clearwater fish are accounted for in the estimates and the overlay of natural conditions, system configuration and operations on the survival estimates. It was suggested that NOAA's COMPASS model includes these types of analysis and some of this analysis could be shared at the TMT Year End Review.

Spill Priority List

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that involuntary spill would be infrequent and short in duration, if at all. This list would be in effect through the end of the year, and revisited in early 2012. TMT discussed the list and offered initial thoughts. Laura Hamilton, COE, shared that involuntary spill during this time typically occurs as a result of lack of turbine for line outages/maintenance, and sometimes due to lack of load.

Action/Next Steps: FPAC will review the list and be prepared to offer comments/approval at the 10/12 TMT meeting.

Water Management Plan

Doug Baus, COE, said the 2012 Draft WMP had been posted to the TMT web page. Comments on this draft are due 10/31 and will be posted to the web. A second draft will be posted by 11/15, followed by another comment period until the end of November, and the final WMP will be posted by 12/31. TMT will hear another status update on the WMP in early November.

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Reservoirs – Mary Mellema, Reclamation, reported on projects: Grand Coulee was at elevation 1285.1'. Hungry Horse was at elevation 3549.66' and operating 2.1 kcfs outflows to meet Columbia Falls minimums. Doug Baus, COE, reported on projects. Libby was at elevation 2446.92' with 6.2 kcfs inflows and 4.0 kcfs outflows. Albeni Falls was at elevation 2058.70' with 11.4 kcfs inflows and 26.7 kcfs outflows. Dworshak was at elevation 1518.8' with 1.2 kcfs inflows and 1.8 kcfs outflows. Lower Granite outflows were 30.7 kcfs; at McNary were 104.2 kcfs and at Bonneville were 101.1 kcfs.

Fish – Paul Wagner, NOAA, reported on fish. Subyearling Chinook at Lower Granite continued to show "reasonably high" counts, around 200/day, and 400/day at Bonneville. The adult fall Chinook total season count was 378,000. Jack total counts were 75,000, steelhead counts totaled 361,000 and sockeye counts totaled 185,000. At Lower Granite, Fall Chinook adult counts were 21,500, well above the 10-year average; jacks were 15,000 and steelhead were 134,000 (also above the 10-year average).

Water quality – Nothing to report.

Power system – Nothing to report.

TMT Schedule

- 10/12 – brief TMT meeting to discuss the winter spill priority list
- 10/26 – face to face meeting, agenda TBD

Columbia River Regional Forum
TECHNICAL MANAGEMENT TEAM OFFICIAL MINUTES

October 5, 2011
Notes: Pat Vivian

1. Introduction

Today's TMT meeting was chaired by Doug Baus, COE, and facilitated by Robin Gumpert, DS Consulting. Representatives of the Nez Perce Tribe, BPA, COE, NOAA, Montana, USFWS, Idaho, BOR and others attended. This summary is an official record of the proceedings, not a verbatim transcript.

2. Review Meeting Minutes for September 28

There were no changes today to the meeting minutes or facilitator's notes so they were deemed final.

3. Preliminary Reach Survival Estimates.

Paul Wagner, NOAA, reported on the preliminary report linked to today's agenda. Estimates of juvenile survival in 2011 could see a 3-4% increase or decrease when final numbers are released at the end of the year.

In-river estimates. Yearling spring chinook arriving at the Lower Granite trap from all reaches had a 94.3% survival rate in 2011, compared to 93.9% average survival for the past 15 years. The trap is located at the head of Lower Granite reservoir. For the entire lower Snake reach from the Granite trap to McNary, the survival rate was 74.5%, compared to a 15-year average of 73.7% and a 2010 survival rate of 78.7%. From Lower Granite to Bonneville, survival was 51.7% in 2011 compared to a 15-year average survival rate of 51.9%. From the trap to Bonneville, survival was 48.8% this year, compared to a 15-year average survival rate of 49.3%.

Steelhead in 2011 fared about the same as the 10-year average on a project-by-project basis. From the trap to Lower Granite, the survival rate was 98.6%; last year's rate wasn't much higher. The lower Snake River reach had 69% survival, which was better than the 15-year average of 62.5% but not as good as 77% survival in 2010, or 79% survival in 2009. Survival from McNary to Bonneville was 83.5%, much better than the 15-year average of 63.2% and a little better than 2009 and 2010 survival rates. For the whole reach from the trap to Bonneville, survival was 56.9%, much better than the 15-year average but not as good as 2010.

There was general acknowledgement that although 2011 offered plentiful water supplies, it was too much and caused a lot of debris to clog the system.

Combined with a complete powerhouse outage at Little Goose for 7-9 days, this meant that passage conditions in 2011 were not the best despite abundant flows.

Another factor that skewed the results, Wagner said, is that the estimates themselves are based on detected fish. This reflects what is measured but raises the question, did we measure everything? Little Goose, Bonneville and the Lower Granite trap all had operational issues in 2011 that affected detection probability.

The report gave no sockeye estimates because the screens had to be pulled in spring 2011 due to debris issues, Jim Litchfield, Montana, noted. Dave Statler, Nez Perce Tribe, wondered how combinations of detection histories for individual fish are represented in the report. Fish must have been detected at one other point besides Bonneville in order to be included in the Bonneville estimate, Wagner said. They are marked at the Lower Granite trap, Litchfield added. Statler and Russ Kiefer reported that fish are also marked at hatcheries and smolt monitoring project traps run by Oregon, Idaho and the Nez Perce Tribe.

Mid Columbia chinook and steelhead had a survival rate of 53% this year compared with a 14-year average of 55%, Wagner said. Rates in 2009-2010 were similar, although last year's survival rate was slightly higher. From McNary to Bonneville, chinook and steelhead survival rates were 70% in 2011, a little lower than the 14-year average and in recent years.

Snake River sockeye from Lower Granite to McNary had a survival rate of 65% this year vs. 60% for the 14-year average, but lower than 2009 and 2010 survival rates. Upper Columbia River sockeye from Rock Island to Bonneville had a 51% survival rate this year, better than the 2010 rate and the 15-year average.

Transported fish. Transport rates were significantly lower this year than historically. The 2011 wild chinook transport rate was 53%; for hatchery chinook, 41%. The wild steelhead transport rate was 36% and the hatchery rate, 38%. Both transport rates are similar to last year, which had a higher proportion of spill. In 2006, another high flow year, transport rates for steelhead were much higher at 70-80% compared to 43% for 2011. These fish will be tracked for the next three years to see how they fare. Ocean conditions are looking good this year, Wagner added.

Dave Statler asked whether this analysis includes steelhead from the Clearwater River and Dworshak Dam. Wagner showed TMT a breakdown of transport rates for individual hatchery releases and pointed out a comparison between 1997 and 2011, which were both high-flow years. Tony Norris, BPA, noted that the hydro system had no surface bypasses in 1997 so comparisons between the two years are moot. One thing that came up this year was a Salmon Manager request for more spill on the Snake, but the only way to accomplish that would have been to operate the Snake projects outside MOP. Norris suggested that in a high-flow year, MOP might not be the biggest driver of survival. Further

discussion of detection and reporting protocols used in this report will continue offline and at the TMT year end review in December.

4. Spill Priority List

The COE proposed a wintertime spill priority list today which is posted to the TMT agenda. Baus acknowledged that FPAC had not yet had an opportunity to discuss the proposal as of this meeting. He said the reason for the proposed change in spill priorities is to provide biological benefits for overwintering fish, particularly juveniles.. The following is the proposed wintertime spill priority list from now until December 31, 2011: LWG, LGS, LMN, IHR, MCN, JDA, TDA, BON, DWR, CHJ.

The Salmon Managers gave some preliminary responses to the list, with the caveat that FPAC discussion is needed. Paul Wagner said the order looks fine for now. Russ Kiefer observed that spilling fish at Little Goose doesn't seem to benefit their survival, but spilling them at Bonneville might help them reach the estuary. Tony Norris cautioned against spill during the fall chum operation at Bonneville. Laura Hamilton, COE, observed that winter spill typically occurs from January to March, most often on the lower Columbia and occasionally on the Snake; there is typically little or no spill in the October-December timeframe. Generally the causes of involuntary spill in winter are lack of load, lack of turbine and line outages.

TMT will revisit the proposed spill priority list at next week's TMT, after which the COE plans to implement it if TMT does not object.

5. Water Management Plan

Draft 1 of the WMP has been posted for TMT review, with comments due by October 31, Baus said. The COE will reissue draft 2 on November 15 after considering comments received from TMT participants. Comments on draft 2 of the WMP are due by COB November 30. The final WMP will be posted by December 31. Jim Litchfield said the draft looks good, but TMT should discuss it nevertheless because a review based on individual comments without live conversation could result in missed opportunities. TMT will next revisit the WMP in early November when the initial comment period is over.

6. Operations Review

Reservoirs. Hungry Horse is at elevation 3549.66 feet, releasing 2100 cfs to meet the Columbia Falls minimum. Grand Coulee is at elevation 1285.1 feet. Libby is at elevation 2446.92 feet, with inflows of 6.2 kcfs and releases of 4 kcfs. Albeni Falls is at elevation 2058.7 feet with inflows of 11.4 kcfs and releases of 26.7 kcfs. Dworshak is at elevation 1518.8 feet, with inflows of 1.2 kcfs and releases of 1.8 kcfs.

Lower Granite discharges are 30.7 kcfs. McNary discharges are 104.2 kcfs. Bonneville discharges are 101.1 kcfs.

Fish. Juveniles: Bonneville counts are down from 1,000 fish per day a week ago to 400 fish per day, Paul Wagner reported. Little Goose has been passing 100 to 300 fish per day over the past week. Juveniles at Lower Granite and Lower Monumental are being collected at the bypasses, so there are no fish to report at those sites.

Adults: Fall chinook passage at Bonneville has been 1,100-3,800 fish per day for the past week, with a total count of 378,000 to date. This is close to the recent run estimate for 2011, down from the initial projection of 500,000 fish. Jack counts for the year are 75,000, which is above the 10-year average. Steelhead total count is 361,000 to date, with about 500-700 fish per day still passing Bonneville. Sockeye passage is nearly done, with 35,000 fish to date, well above the 10-year average. The total fall chinook count is 21,500, fewer fish than last year but more than the 10-year average. Last year's fall chinook jack count was 54,000. Steelhead are still passing Lower Granite at the rate of a couple thousand per day, with a 2011 count of 134,000 to date. Fall chinook passage at Lower Granite is well above the 10-year average. However, Wagner cautioned, there were a number of poor passage years, making the Bonneville 10-year average easy to exceed.

Almost 360,000 fall chinook jacks passed Bonneville in 2011, compared to 406,000 for 2010 and 400,000 for the 10-year average, Dave Wills reported. This year 360,000 adult steelhead passed Bonneville, compared to 400,000 last year and 400,000 for the 10-year average. This year 378,000 fall chinook adults passed Bonneville, compared to 385,000 for the 10 year average. And 21,500 fall chinook adults passed Lower Granite, compared to 35,000 last year and the 10-year average of 13,000. Steelhead passage at Granite was 134,000 fish, compared to 147,000 last year and 122,000 for the 10-year average.

Water quality. There was nothing new to report today, as all the forebay gages are turned off for winter. Tailwater gages are still collecting TDG data, Laura Hamilton reported. Wagner said water temperatures are average for this time of year.

Power. There was nothing to report today.

7. Next Meeting

The next regular TMT meeting will be held at NOAA on October 12, with followup on the winter spill priority list the COE proposed today. The next regular TMT meeting will be on October 26.

Name	***Affiliation***
Dave Statler	Nez Perce
Tony Norris	BPA
Lisa Wright	COE
Paul Wagner	NOAA
Doug Baus	COE
Laura Hamilton	COE
Kim Johnson	COE
Jim Litchfield	Montana
Scott Bettin	BPA
Phone:	
Dave Wills	USFWS
Russ Kiefer	Idaho
Mary Mellema	BOR
Margaret Filardo	FPC
Dave Benner	FPC
Steve Hall	COE Walla Walla
Barry Espenson	CBB
Bruce McKay	hydropower consultant
Richelle Beck	Grant PUD

COLUMBIA RIVER TECHNICAL MANAGEMENT TEAM

October 5, 2011

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Combined with a complete powerhouse outage at Little Goose for 7-9 days, this meant that passage conditions in 2011 were not the best despite abundant flows.

Another factor that skewed the results, Wagner said, is that the estimates themselves are based on detected fish. This reflects what is measured but raises the question, did we measure everything? Little Goose, Bonneville and the Lower Granite trap all had operational issues in 2011 that affected detection probability.

The report gave no sockeye estimates because the screens had to be pulled in spring 2011 due to debris issues, Jim Litchfield, Montana, noted. Dave Statler, Nez Perce Tribe, wondered how combinations of detection histories for individual fish are represented in the report. Fish must have been detected at one other point besides Bonneville in order to be included in the Bonneville estimate, Wagner said. They are marked at the Lower Granite trap, Litchfield added. Statler and Russ Kiefer reported that fish are also marked at hatcheries and smolt monitoring project traps run by Oregon, Idaho and the Nez Perce Tribe.

Mid Columbia chinook and steelhead had a survival rate of 53% this year compared with a 14-year average of 55%, Wagner said. Rates in 2009-2010 were similar, although last year's survival rate was slightly higher. From McNary to Bonneville, chinook and steelhead survival rates were 70% in 2011, a little lower than the 14-year average and in recent years.

Snake River sockeye from Lower Granite to McNary had a survival rate of 65% this year vs. 60% for the 14-year average, but lower than 2009 and 2010 survival rates. Upper Columbia River sockeye from Rock Island to Bonneville had a 51% survival rate this year, better than the 2010 rate and the 15-year average.

Transported fish. Transport rates were significantly lower this year than historically. The 2011 wild chinook transport rate was 53%; for hatchery chinook, 41%. The wild steelhead transport rate was 36% and the hatchery rate, 38%. Both transport rates are similar to last year, which had a higher proportion of spill. In 2006, another high flow year, transport rates for steelhead were much higher at 70-80% compared to 43% for 2011. These fish will be tracked for the next three years to see how they fare. Ocean conditions are looking good this year, Wagner added.

Dave Statler asked whether this analysis includes steelhead from the Clearwater River and Dworshak Dam. Wagner showed TMT a breakdown of transport rates for individual hatchery releases and pointed out a comparison between 1997 and 2011, which were both high-flow years. Tony Norris, BPA, noted that the hydro system had no surface bypasses in 1997 so comparisons between the two years are moot. One thing that came up this year was a Salmon Manager request for more spill on the Snake, but the only way to accomplish that would have been to operate the Snake projects outside MOP. Norris suggested that in a high-flow year, MOP might not be the biggest driver of survival. Further

discussion of detection and reporting protocols used in this report will continue offline and at the TMT year end review in December.

4. Spill Priority List

The COE proposed a wintertime spill priority list today which is posted to the TMT agenda. Baus acknowledged that FPAC had not yet had an opportunity to discuss the proposal as of this meeting. He said the reason for the proposed change in spill priorities is to provide biological benefits for overwintering fish, particularly juveniles. The following is the proposed wintertime spill priority list from now until December 31, 2011: LWG, LGS, LMN, IHR, MCN, JDA, TDA, BON, DWR, CHJ.

The Salmon Managers gave some preliminary responses to the list, with the caveat that FPAC discussion is needed. Paul Wagner said the order looks fine for now. Russ Kiefer observed that at this time of year, spilling fish in the lower Snake River may not be as beneficial as in the lower Columbia River where it might help them reach the estuary. Tony Norris cautioned against spill during the fall chum operation at Bonneville. Laura Hamilton, COE, observed that winter spill typically occurs from January to March, most often on the lower Columbia and occasionally on the Snake; there is typically little or no spill in the October-December timeframe. Generally the causes of involuntary spill in winter are lack of load, lack of turbine and line outages.

TMT will revisit the proposed spill priority list at next week's TMT, after which the COE plans to implement it if TMT does not object.

5. Water Management Plan

Draft 1 of the WMP has been posted for TMT review, with comments due by October 31, Baus said. The COE will reissue draft 2 on November 15 after considering comments received from TMT participants. Comments on draft 2 of the WMP are due by COB November 30. The final WMP will be posted by December 31. Jim Litchfield said the draft looks good, but TMT should discuss it nevertheless because a review based on individual comments without live conversation could result in missed opportunities. TMT will next revisit the WMP in early November when the initial comment period is over.

6. Operations Review

Reservoirs. Hungry Horse is at elevation 3549.66 feet, releasing 2100 cfs to meet the Columbia Falls minimum. Grand Coulee is at elevation 1285.1 feet. Libby is at elevation 2446.92 feet, with inflows of 6.2 kcfs and releases of 4 kcfs. Albeni Falls is at elevation 2058.7 feet with inflows of 11.4 kcfs and releases of 26.7 kcfs. Dworshak is at elevation 1518.8 feet, with inflows of 1.2 kcfs and releases of 1.8 kcfs.

Lower Granite discharges are 30.7 kcfs. McNary discharges are 104.2 kcfs. Bonneville discharges are 101.1 kcfs.

Fish. Juveniles: Bonneville counts are down from 1,000 fish per day a week ago to 400 fish per day, Paul Wagner reported. Little Goose has been passing 100 to 300 fish per day over the past week. Juveniles at Lower Granite and Lower Monumental are being collected at the bypasses, so there are no fish to report at those sites.

Water quality. There was nothing new to report today, as all the forebay gages are turned off for winter. Tailwater gages are still collecting TDG data, Laura Hamilton reported. Wagner said water temperatures are average for this time of year.

Power. There was nothing to report today.

7. Next Meeting

The next regular TMT meeting will be held at NOAA on October 12, with followup on the winter spill priority list the COE proposed today. The next regular TMT meeting will be on October 26.

Name	***Affiliation***
Dave Statler	Nez Perce
Tony Norris	BPA
Lisa Wright	COE
Paul Wagner	NOAA
Doug Baus	COE
Laura Hamilton	COE
Kim Johnson	COE
Jim Litchfield	Montana
Scott Bettin	BPA
Phone:	
Dave Wills	USFWS
Russ Kiefer	Idaho
Mary Mellema	BOR
Margaret Filardo	FPC
Dave Benner	FPC
Steve Hall	COE Walla Walla
Barry Espenson	CBB
Bruce McKay	hydropower consultant
Richelle Beck	Grant PUD

Proposed Wintertime Spill Priority List
from present to December 31, 2011.
Prepared at the request of Bonneville Power Administration

LEVEL 1 SPILL IS AS FOLLOWS:
1) LWG UP TO 110% TDG SPILL CAP*
2) LGS UP TO 110% TDG SPILL CAP*
3) LMN UP TO 110% TDG SPILL CAP*
4) IHR UP TO 110% TDG SPILL CAP*
5) MCN UP TO 110% TDG SPILL CAP*
6) JDA UP TO 110% TDG SPILL CAP*
7) TDA UP TO 110% TDG SPILL CAP*
8) BON UP TO 110% TDG SPILL CAP*
9) DWR UP TO 110% TDG SPILL CAP*
10) CHJ UP TO 110% TDG SPILL CAP*

LEVEL 2 SPILL IS AS FOLLOWS:
11) LWG UP TO 115% TDG SPILL CAP*
12) LGS UP TO 115% TDG SPILL CAP*
13) LMN UP TO 115% TDG SPILL CAP*
14) IHR UP TO 115% TDG SPILL CAP*
15) MCN UP TO 115% TDG SPILL CAP*
16) JDA UP TO 115% TDG SPILL CAP*
17) TDA UP TO 115% TDG SPILL CAP*
18) BON UP TO 115% TDG SPILL CAP*
19) CHJ UP TO 115% TDG SPILL CAP*

LEVEL 3 SPILL IS AS FOLLOWS:
20) LWG UP TO 120% TDG SPILL CAP*
21) LGS UP TO 120% TDG SPILL CAP*
22) LMN UP TO 120% TDG SPILL CAP*
23) IHR UP TO 120% TDG SPILL CAP*
24) MCN UP TO 120% TDG SPILL CAP*
25) JDA UP TO 120% TDG SPILL CAP*
26) TDA UP TO 120% TDG SPILL CAP*
27) BON UP TO 120% TDG SPILL CAP*
28) CHJ UP TO 120% TDG SPILL CAP*
29) GCL UP TO 110% TDG SPILL CAP*

LEVEL 4 SPILL IS AS FOLLOWS:
30) LWG UP TO 122% TDG SPILL CAP*
31) LGS UP TO 122% TDG SPILL CAP*
32) LMN UP TO 122% TDG SPILL CAP*
33) IHR UP TO 122% TDG SPILL CAP*
34) MCN UP TO 122% TDG SPILL CAP*
35) JDA UP TO 122% TDG SPILL CAP*
36) TDA UP TO 122% TDG SPILL CAP*
37) BON UP TO 122% TDG SPILL CAP*
38) CHJ UP TO 122% TDG SPILL CAP*

39) GCL UP TO 115% TDG SPILL CAP*

LEVEL 5 SPILL IS AS FOLLOWS:
40) LWG UP TO 125% TDG SPILL CAP*
41) LGS UP TO 125% TDG SPILL CAP*
42) LMN UP TO 125% TDG SPILL CAP*
43) IHR UP TO 125% TDG SPILL CAP*
44) MCN UP TO 125% TDG SPILL CAP*
45) JDA UP TO 125% TDG SPILL CAP*
46) TDA UP TO 125% TDG SPILL CAP*
47) BON UP TO 125% TDG SPILL CAP*
48) CHJ UP TO 125% TDG SPILL CAP*
49) GCL UP TO 120% TDG SPILL CAP*

LEVEL 6 SPILL IS AS FOLLOWS:
50) LWG UP TO 127% TDG SPILL CAP*
51) LGS UP TO 127% TDG SPILL CAP*
52) LMN UP TO 127% TDG SPILL CAP*
53) IHR UP TO 127% TDG SPILL CAP*
54) MCN UP TO 127% TDG SPILL CAP*
55) JDA UP TO 127% TDG SPILL CAP*
56) TDA UP TO 127% TDG SPILL CAP*
57) BON UP TO 127% TDG SPILL CAP*
58) CHJ UP TO 127% TDG SPILL CAP*
59) GCL UP TO 122% TDG SPILL CAP*

LEVEL 7 SPILL IS AS FOLLOWS:
60) LWG UP TO 130% TDG SPILL CAP*
61) LGS UP TO 130% TDG SPILL CAP*
62) LMN UP TO 130% TDG SPILL CAP*
63) IHR UP TO 130% TDG SPILL CAP*
64) MCN UP TO 130% TDG SPILL CAP*
65) JDA UP TO 130% TDG SPILL CAP*
66) TDA UP TO 130% TDG SPILL CAP*
67) BON UP TO 130% TDG SPILL CAP*
68) CHJ UP TO 130% TDG SPILL CAP*
69) GCL UP TO 125% TDG SPILL CAP*

LEVEL 8 SPILL IS AS FOLLOWS:
70) LWG UP TO 135% TDG SPILL CAP*
71) LGS UP TO 135% TDG SPILL CAP*
72) LMN UP TO 135% TDG SPILL CAP*
73) IHR UP TO 135% TDG SPILL CAP*
74) MCN UP TO 135% TDG SPILL CAP*
75) JDA UP TO 135% TDG SPILL CAP*
76) TDA UP TO 135% TDG SPILL CAP*
77) BON UP TO 135% TDG SPILL CAP*
78) CHJ UP TO 135% TDG SPILL CAP*
79) GCL UP TO 130% TDG SPILL CAP*

TECHNICAL MANAGEMENT TEAM			
BOR:	*John Roache / Mary Mellema / Pat McGrane*	**BPA:**	*Tony Norris / Scott Bettin / Robyn MacKay*
NOAA-F:	*Paul Wagner / Richard Dominigue*	**USFWS:**	*David Wills / Steve Haeseker*
OR:	*Rick Kruger / Ron Boyce*	**ID:**	*Russ Kiefer / Pete Hassemer*
WDFW:	*Cindy LeFleur / Charles Morrill*	**MT:**	*Jim Litchfield / Brian Marotz*
Kootenai:	*Sue Ireland / Billy Barquin*	**Spokane:**	*Deanne Pavlik-Kunkel / Andy Miller*
Colville:	*Sheri Sears / Steve Smith*	**Nez Perce:**	*Dave Statler*
Umatilla:	*Tom Lorz (CRITFC)*		
COE:	*Doug Baus / Karl Kanbergs*		

TMT MEETING

Wednesday October 12, 2011 9:00am - 12:00pm

NOAA Fisheries
1201 NE Lloyd Blvd., Suite 1100
Mt. St. Helens Room
Portland, OR 97232

TMT MEETING
Phone Number (877) 336-1274
Access Code 3871669
Security Code 6845

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

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@cnnw.net or call her at (503) 248-4703.

Note: Members of the public are encouraged to refer to the Official Meeting Minutes and the TMT agenda links for information re: discussions and decisions made at TMT. Operational decisions that are made outside a TMT meeting will be reported on at the next scheduled meeting and/or linked to the agenda item of the meeting at which it was discussed, as soon as is reasonably possible.

AGENDA

1. Welcome and Introductions
2. Review October 5 Meeting Minutes [Meeting Minutes]
3. Follow-up on Proposed Winter Spill Priority List - *Doug Baus COE-NWD*
   a. Proposed Winter Spill Priority List
4. Bonneville Dam MOP Operation for Condit Dam breach - *Tom Lorz CRITFC*
   a. Request Letter from CRITFC, October 3, 2011
   b. Effects of Bonneville Pool Drawdown

5. Operations Review
    a. Reservoirs
    b. Fish
    c. Water Quality
    d. Power System
6. Other
    a. Set agenda and date for next meeting - **October 26, 2011**
    b. [Calendar 2011]

Questions about the meeting may be referred to:
Doug Baus at (503) 808-3995

August 2, 2011

To: Bob Heinith

From: Dennis Gathard

Bob,

I have provided a brief discussion of the potential effects of drawing down the In-lieu site for several days immediately after the Condit Dam breach in the following.

Sincerely,

Dennis Gathard, P.E.

GEC
4003 1st Ave NW
Seattle, WA 98107

(206) 547-4148
Fax 547-4052

Effects of Bonneville Pool Drawdown

The following is a discussion of the effects of lowering the Bonneville Pool elevation for a brief period immediately following the breach of the Condit Dam. Lowering the Pool would result in a lower water surface elevation at the mouth of the White Salmon River resulting in a change in the mix of particles trapped in the Underwood In-lieu Site near the mouth of the White Salmon River.

- The Lower Reach of the White Salmon River is defined by the slack water region extending from the Columbia River approximately 4,200 feet upstream. River elevations in this reach are controlled by the elevation of the Columbia River at the Mouth of the White Salmon. The reach is characterized by a flat water surface gradient, deep river depths, and much wider widths than in the middle reach.
- River elevations for 1996 and 1997 at Bonneville Dam and Columbia River Flows recorded at Bonneville Dam for the same period were used to calculate surface elevations at the White Salmon River. Elevations at Bonneville generally ranged from 74.3 to 79.8 NAVD88 (71 to 76.5 NGVD). Columbia River Elevations at Hood River varied primarily in response to river flow by over 9 feet, from 76.8 to 86.1 NAVD88.
- The elevation of the Underwood site at the mouth of the White Salmon River is essentially equivalent to the elevation of the Columbia River at the mouth of the White Salmon River. Lowering the Underwood Site to elevation 75 would reduce the volume of water in the by as much as 250,000 cubic yards.
- A HEC-6 analysis was conducted in 1997 to determine the particle size distribution that would be contained in the Underwood Site for various water surface elevations, assuming that that elevation was maintained indefinitely. Results are shown below in Tables 1 through 4.
- Lower water elevations would increase White Salmon River flow velocities in the Underwood reach. Higher flow velocities would result in a greater portion of the larger sand particles and fewer silt particles settling in the Underwood site. In other words, less silt would settle if the surface water elevations were lowered.
- However, if the pool is not maintained at the lower elevation for the entire period of sediment erosion, which could last up to many months, the total volume of sediment trapped in the Underwood Site would not be change because larger particles would eventually fill in the upper elevations but with slightly larger particles than would have occurred if the water surface elevation were not lowered.

Underwood Site Effects

- The effect of lowering the pool for a short period of time would be to increase the overall size of the mix of sediment particles in the Underwood Site without changing the final volume of sediment trapped.

Effects in the Columbia River

- Sediment introduced into the Columbia River would, on average, be smaller because smaller particles not trapped in the Underwood Site would move into the Columbia. The result would be a slightly smaller delta formation at the mouth of the White Salmon River, since finer silt and very fine sand particles would be more likely to erode downstream.

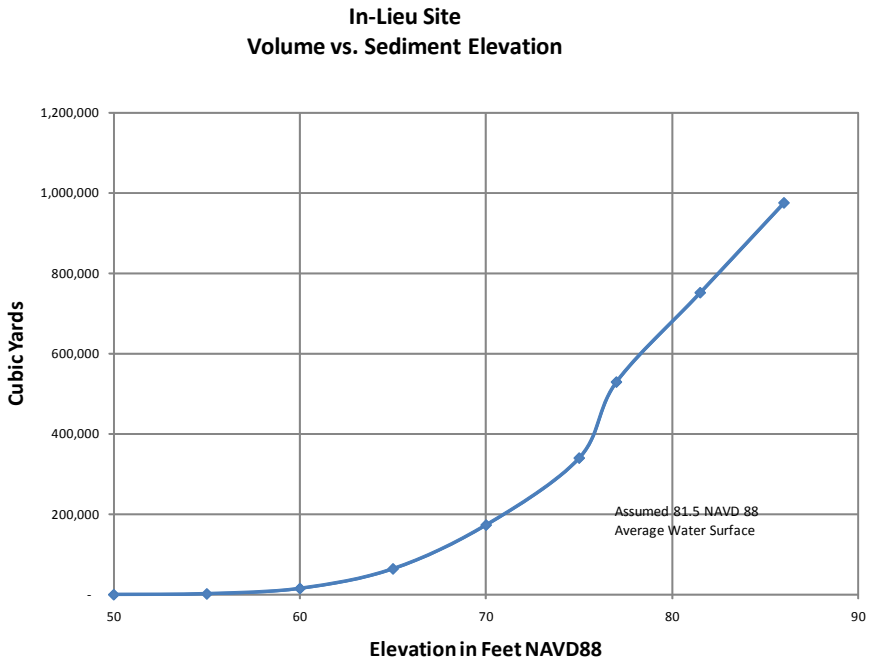

Table 1 Volume of the Underwood Site

Volume of Storage Potential In Lieu Site	
At Bonneville Pool elevation - NAVD88	Cubic Yards
75	370,000
80	616,000

Table 2 Volume and Size Distribution of Sediment in Northwestern Lake

Total Contained in Segment						
Silt CY	Very Fine Sand CY	Fine Sand CY	Medium Sand CY	Coarse Sand CY	Very Coarse Sand CY	Gravel CY
796,400	**519,200**	**356,400**	**237,600**	**167,200**	**50,600**	**74,800**
36.2%	23.6%	16.2%	10.8%	7.6%	2.3%	3.4%

Table 3 Material Settled in Underwood In-lieu Site for Water Elevation 81.5 NAVD88

Underwood In-Lieu Site Settling							
Size	Silt CY	Very Fine Sand CY	Fine Sand CY	Medium Sand CY	Coarse Sand CY	Very Coarse Sand CY	Gravel CY
Total Volume	123,593	256,495	189,543	78,829	23,897	1,375	-
Fraction of All Material	5.62%	11.66%	8.62%	3.58%	1.09%	0.06%	0.00%
Percentage of Size Class	15.52%	49.40%	53.18%	33.18%	14.29%	2.72%	

Table 4 Summary of Volume of Sediment by Location

Total Volume in Size Segment into Columbia River - Cubic Yards								
	Total Volume	CY silt	VFS	FS	Med Sand	CS	VCS	CY Gravel
Reservoir Volume	2,151,600	796,400	519,200	356,400	237,600	167200	50600	24200
Trapped In-lieu constant w/s at 81.5	673,732	123,593	256,495	189,543	78,829	23,897	1,375	-
Columbia River	1,477,868	672,807	262,705	166,857	158,771	143,303	49,225	24,200

COLUMBIA RIVER TECHNICAL MANAGEMENT TEAM

October 12, 2011

Facilitator's Summary

Facilitator: Doug Baus, COE

The TMT meeting on October 12, 2011, was chaired and facilitated by Doug Baus, COE. The Official Meeting Minutes are provided below in-lieu of a facilitator's summary.

Columbia River Regional Forum
TECHNICAL MANAGEMENT TEAM OFFICIAL MINUTES

October 12, 2011

Notes: Pat Vivian

1. Introduction

Today's TMT meeting was chaired and facilitated by Doug Baus, COE. Representatives of the COE, BPA, USFWS, NOAA, Oregon, Idaho and others attended. This summary is an official record of the proceedings, not a verbatim transcript.

2. Review Meeting Minutes for October 5

Review was postponed until the next TMT meeting because the minutes and notes had not yet been posted to the TMT site.

3. Follow-up on Winter Spill Priority List

The COE introduced a proposed list for winter spill at last week's TMT meeting, with the goal of implementing it today unless there were objections. FPAC had not yet discussed the list as of today. Hearing no objections today, the COE would implement the list as proposed, while leaving the door open for TMT members to propose changes.

4. Bonneville Dam MOP Operation for Condit Dam Breaching

The COE has received a letter from CRITFC requesting a special operation of Bonneville forebay during the removal of Condit Dam on October 26, Baus reported. The COE will be able to implement CRITFC's request for a lower Bonneville pool operation. However, the letter requests a minimum operation of 70 feet elevation which the COE won't be able to meet because that elevation is below the normal minimum operating elevation of 71.5 feet The COE has discussed with CRITFC its commitment to operate within a 1.5-foot band (71.5-73.0 feet elevation) as a hard constraint and a 1-foot band (71.5-72.5 feet elevation) as a soft constraint. The operation would begin on October 26 with the breaching of the dam and last for approximately 3 days. However, a delay in the dam breaching schedule or another operational requirement could require

modifications to the Corps' planned operation. For example, repairs of the B-branch fish ladder at Bonneville could affect the COE's ability to achieve the requested operation.

A day or two before the dam breaching on October 26, Lisa Wright, COE, will post to the TMT webpage a link to a live feed of the event.

5. Operations Review

Reservoirs. Grand Coulee is at elevation 1286.4 feet, holding flat flows and slowly filling. Hungry Horse is at elevation 3549.25 feet, releasing 1.7 kcfs to meet the Columbia Falls minimum. Inflows are around 1.2-1.3 kcfs. Libby is at elevation 2447.52 feet, with inflows of 6.2 kcfs and releases of 4.0 kcfs. Albeni Falls is at elevation 2056.46 feet with inflows of 15.2 kcfs and releases of 27.1 kcfs. Dworshak is at elevation 1518.89 feet, with inflows of 2.9 kcfs and releases of 1.7 kcfs.

Lower Granite previous day average discharges were 21.2 kcfs. McNary discharges were 107.7 kcfs. Bonneville discharges were 125.2 kcfs.

Fish. Juveniles: Subyearlings have been passing Lower Granite at the rate of 121-309 per day and Little Goose at the rate of 52-100 per day for the past week, Paul Wagner reported. This pace should continue for another week or two. Trucking at Little Goose daily and at Lower Granite every other day will cease at the end of October.

Adults: Fall chinook numbers are winding down, Cindy LeFleur, Washington, reported. Steelhead passage is also nearly complete. A late run of coho will continue through this month. Wagner asked whether any chum have been caught as part of the lower river fishery. There's a fishery tomorrow and possibly one next week, which would be the last, LeFleur replied. Wagner reported that spawning surveys have found chinook and coho redds in the Ives Island area, but no chum yet.

Water quality. There was nothing to report today.

Power. There was nothing to report today.

7. Next Meeting

The next regular TMT meeting will be held at NOAA on October 26. Chum operations, Condit Dam breaching, a Bonneville pool update including the B-branch repair, and the winter spill priority list will be on the agenda.

Name	***Affiliation***
Doug Baus	COE

Joel Fenolio	COE
Karl Kanbergs	COE
Lisa Wright	COE
Tony Norris	BPA
Dave Wills	USFWS
Paul Wagner	NOAA
Rick Kruger	Oregon
Scott Bettin	BPA
Kim Johnson	COE
Cindy LeFleur	Washington

Phone:

Russ Kiefer	Idaho
Margaret Filardo	FPC
Dave Benner	FPC
Shane Scott	PPC
Glen Trager	Iberdrola
Richelle Beck	Grant Co. PUD
Ruth Burris	PGE
Laura Hamilton	COE

COLUMBIA RIVER INTER-TRIBAL FISH COMMISSION
729 NE Oregon, Suite 200, Portland, Oregon 97232
Telephone 503 238 0667
Fax 503 235 4228

October 3, 2011

Brigadier General John R. McMahon
Northwestern Division Engineer
U.S. Army Corps of Engineers
P.O. Box 2870
Portland, OR 97208-2870

Dear General McMahon:

The initial deconstruction of Condit Dam on the White Salmon River is scheduled for October 26, 2011. The breaching of the dam on that day will release fine sediment that has accumulated behind the dam for decades. Because of the slack water at the mouth of the White Salon due to the presence of the Bonneville pool, we expect considerable volumes of fine sediments will be deposited in this area. To assist in moving these sediments out of the federally-reserved treaty tribal fishing site at Underwood to the mainstem Columbia, we are requesting a three day regulation of the Bonneville pool, to minimum operating pool if possible. To have the greatest beneficial effect, this requested regulation should be in place at the Underwood site just before the dam breach.

As is provided in the attached engineer's memorandum, we estimate that a Bonneville pool elevation reduction by even five feet from normal at the mouth of the White Salmon River could reduce fine sediment deposition at the Underwood treaty fishing site by as much as 250,000 cubic yards. Operation Bonneville at minimum operation pool will likely further reduce sediment deposition. Reducing the sediment accumulation at the site is important to preserve tribal accfess to site fishing facilities and to reduce the need for more intrusive sediment management methods such as dredging.

In summary, we formally request the Corps of Engineers to provide a Bonneville pool regulation at minimum operating pool of 70 feet from 0700 hours on October 26 to 0700 hours on October 29. Please contact me or Bob Heinith at 503-238-0667 should you have questions and thank you for considering this special request.

Sincerely,

Babtist Paul Lumley
Executive Director

Attachment

Cc: Colonel John W. Eisenhauer, Corps Portland District
James Barton, Corps NW Division
Karl Kanberg, Corps RCC
G. Paul Cloutier, Corps NW Division
J.R. Inglis, Corps Portland District
Kristen Hafer, Corps Portland, District

August 2, 2011

To: Bob Heinith

From: Dennis Gathard

Bob,

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Sincerely,

Dennis Gathard, P.E.

GEC
4003 1st Ave NW
Seattle, WA 98107

(206) 547-4148
Fax 547-4052

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- The Lower Reach of the White Salmon River is defined by the slack water region extending from the Columbia River approximately 4,200 feet upstream. River elevations in this reach are controlled by the elevation of the Columbia River at the Mouth of the White Salmon. The reach is characterized by a flat water surface gradient, deep river depths, and much wider widths than in the middle reach.
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- Lower water elevations would increase White Salmon River flow velocities in the Underwood reach. Higher flow velocities would result in a greater portion of the larger sand particles and fewer silt particles settling in the Underwood site. In other words, less silt would settle if the surface water elevations were lowered.
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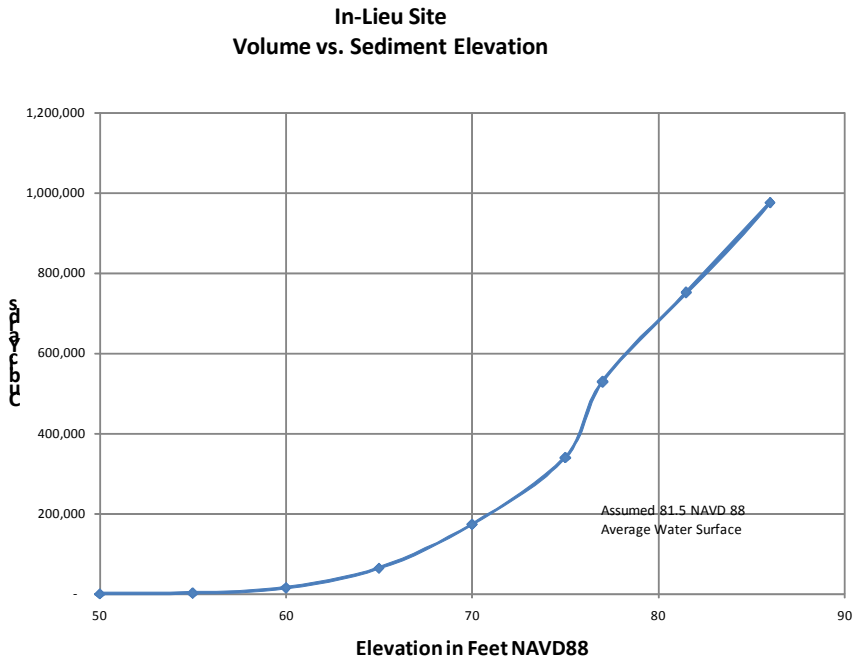

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36.2%	23.6%	16.2%	10.8%	7.6%	2.3%	3.4%

Table 3 Material Settled in Underwood In-lieu Site for Water Elevation 81.5 NAVD88

Underwood In-Lieu Site Settling							
Size	Silt CY	Very Fine Sand CY	Fine Sand CY	Medium Sand CY	Coarse Sand CY	Very Coarse Sand CY	Gravel CY
Total Volume	123,593	256,495	189,543	78,829	23,897	1,375	-
Fraction of All Material	5.62%	11.66%	8.62%	3.58%	1.09%	0.06%	0.00%
Percentage of Size Class	15.52%	49.40%	53.18%	33.18%	14.29%	2.72%	

Table 4 Summary of Volume of Sediment by Location

Total Volume in Size Segment into Columbia River - Cubic Yards								
	Total Volume	CY silt	VFS	FS	Med Sand	CS	VCS	CY Gravel
Reservoir Volume	2,151,600	796,400	519,200	356,400	237,600	167200	50600	24200
Trapped In-lieu constant w/s at 81.5	673,732	123,593	256,495	189,543	78,829	23,897	1,375	-
Columbia River	1,477,868	672,807	262,705	166,857	158,771	143,303	49,225	24,200

TECHNICAL MANAGEMENT TEAM			
BOR:	*John Roache / Mary Mellema / Pat McGrane*	**BPA:**	*Tony Norris / Scott Bettin / Robyn MacKay*
NOAA-F:	*Paul Wagner / Richard Dominigue*	**USFWS:**	*David Wills / Steve Haeseker*
OR:	*Rick Kruger / Ron Boyce*	**ID:**	*Russ Kiefer / Pete Hassemer*
WDFW:	*Cindy LeFleur / Charles Morrill*	**MT:**	*Jim Litchfield / Brian Marotz*
Kootenai:	*Sue Ireland / Billy Barquin*	**Spokane:**	*Deanne Pavlik-Kunkel / Andy Miller*
Colville:	*Sheri Sears / Steve Smith*	**Nez Perce:**	*Dave Statler*
Umatilla:	*Tom Lorz (CRITFC)*		
COE:	*Doug Baus / Karl Kanbergs*		

TMT MEETING

Wednesday October 5, 2011 9:00am - 12:00pm

1125 N.W. Couch Street, Suite 500, Columbia Room
Portland, Oregon 97209-4142
Map Quest [Directions]

TMT MEETING
Phone Number (877) 336-1274
Access Code 3871669
Security Code 6845

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

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@cnnw.net or call her at (503) 248-4703.

Note: Members of the public are encouraged to refer to the Official Meeting Minutes and the TMT agenda links for information re: discussions and decisions made at TMT. Operational decisions that are made outside a TMT meeting will be reported on at the next scheduled meeting and/or linked to the agenda item of the meeting at which it was discussed, as soon as is reasonably possible.

AGENDA

1. Welcome and Introductions
2. Review October 5 and 12 Meeting Minutes [Meeting Minutes]
3. Chum Discussion - *Paul Wagner, NOAA Fisheries*
4. Bonneville Pool Operation for Condit Dam Removal - *Doug Baus COE-NWD*
    a. Webcam of Condit Dam
5. Spill Priority List - *Doug Baus COE-NWD*
6. Operations Review
    a. Reservoirs

b. Fish
c. Water Quality
d. Power System

7. Other
   a. Set agenda and date for next meeting - **November 2, 2011**
   b. [Calendar 2011]

Questions about the meeting may be referred to:
Doug Baus at (503) 808-3995

TECHNICAL MANAGEMENT TEAM			
BOR:	*John Roache / Mary Mellema / Pat McGrane*	**BPA:**	*Tony Norris / Scott Bettin / Robyn MacKay*
NOAA-F:	*Paul Wagner / Richard Dominigue*	**USFWS:**	*David Wills / Steve Haeseker*
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TMT MEETING

Wednesday October 26, 2011 9:00am - 12:00pm

1125 N.W. Couch Street, Suite 500, Columbia Room
Portland, Oregon 97209-4142
Map Quest [Directions]

TMT MEETING
Phone Number (877) 336-1274
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AGENDA

1. Welcome and Introductions
2. Review October 5 and 12 Meeting Minutes [Meeting Minutes]
3. Lower Granite Pool Bathymetry Survey Results - *Doug Baus, COE-NWD; Steve Hall, COE-NWW; Gregg Teasdale, COE - NWW; Robert Eskildsen, COE NWW; Richard Turner, COE NWW*
   a. Sedimentation of Lower Granite Navigation Channels presentation
   b. Snake and Clearwater River Survey Data
4. Update on Bonneville Operations - *Doug Baus, COE-NWD; Lisa Wright, COE - NWD*
   a. Bradford Island B-Branch Ladder Repair Work

   b. Webcam of Condit Dam
   c. October 27 Update on Bonneville Operations
5. Chum Update - *Paul Wagner, NOAA Fisheries*
6. Operations Review
   a. Reservoirs
   b. Fish
   c. Water Quality
   d. Power System
7. Other
   a. Set agenda and date for next meeting - **November 2, 2011**
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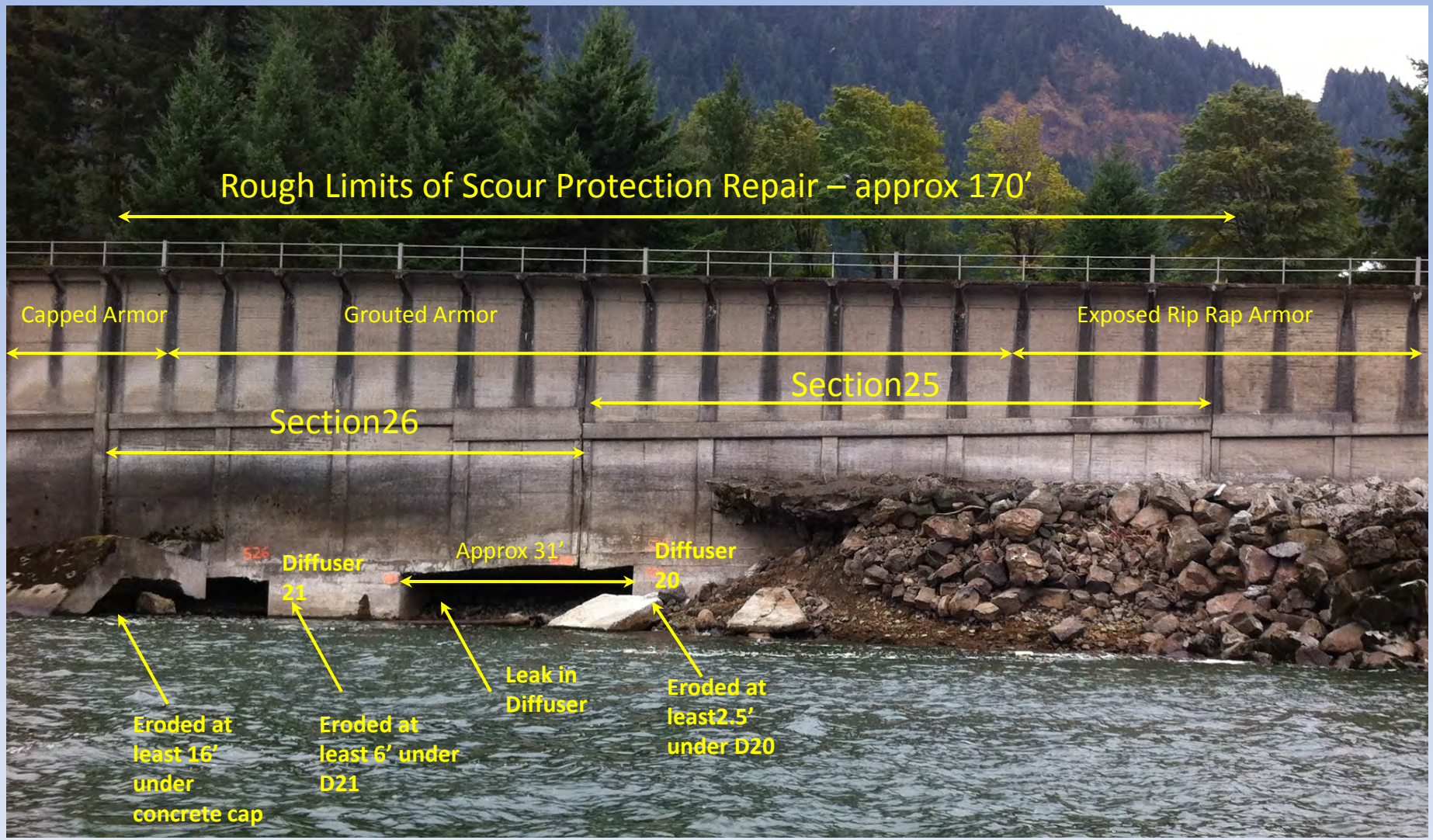
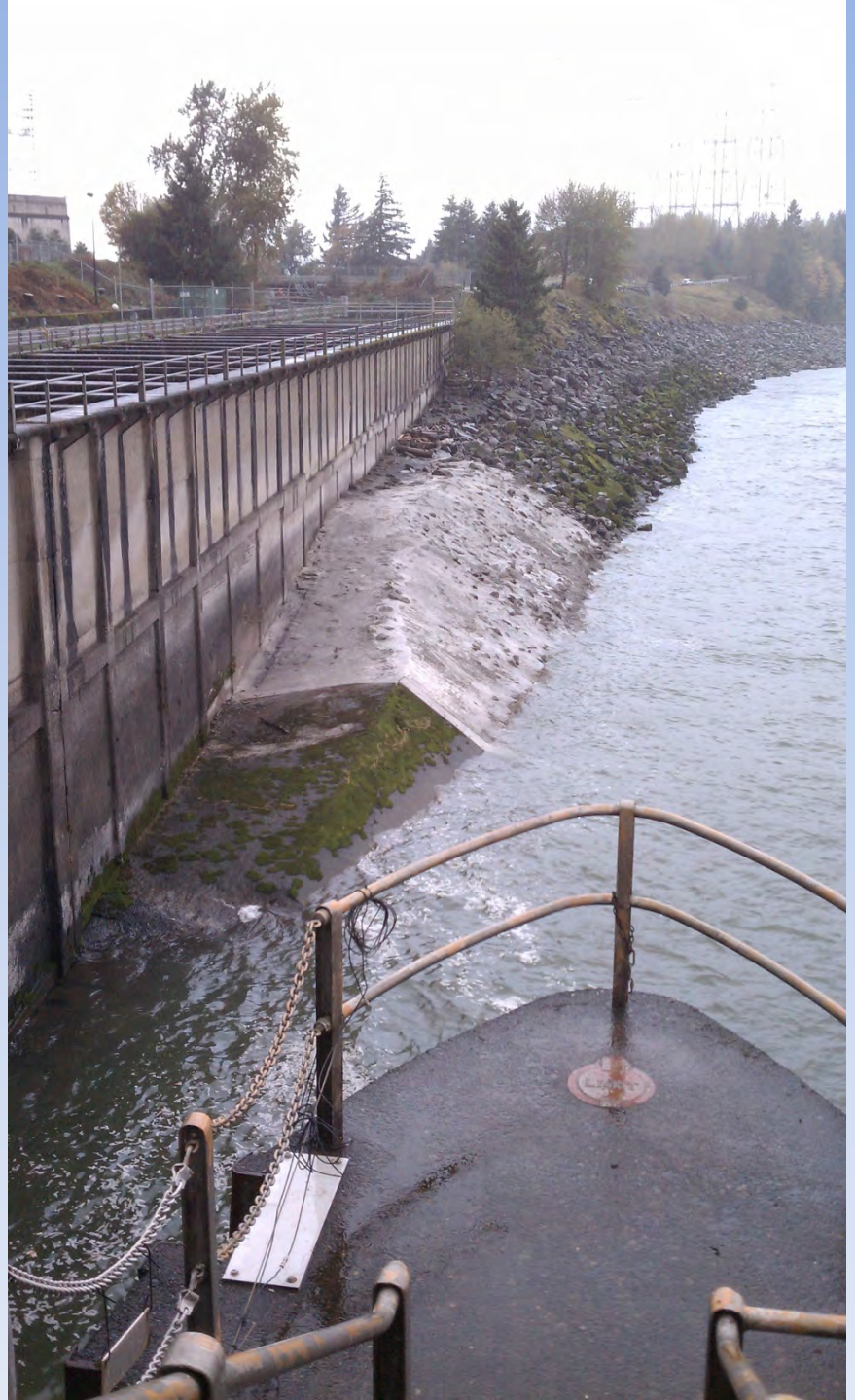

Rough Limits of Scour Protection Repair – approx 170’
Capped Armor
Grouted Armor
Exposed Rip Rap Armor
Section25
Section26
Approx 31’
Diffuser 21
Diffuser 20
Eroded at least 16’ under concrete cap
Eroded at least 6’ under D21
Leak in Diffuser
Eroded at least2.5’ under D20

17 September 2011

11 October 2011

11 October 2011

Repair complete
02 November 2011



Sent to: CO
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
BON R 102711 1729 CO TDA BON JDA MCN BPA NPD NPB NPC NPP

ATTN: BONNEVILLE AND BPA

SUBJECT: CANCELLED - FOREBAY CONSTRAINTS FOR CONDIT DAM BREACH

*** CANCELS TELETYPE BON R 102511 1431 UPDATED FOREBAY CONSTRAINTS FOR CONDIT DAM BREACH

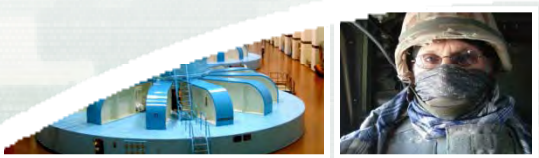
*** REFERENCE TTY – BON R 102411 1321 OPERATIONS TO FACILITATE REPAIRS OF BRADFORD ISLAND B-BRANCH FISH LADDER

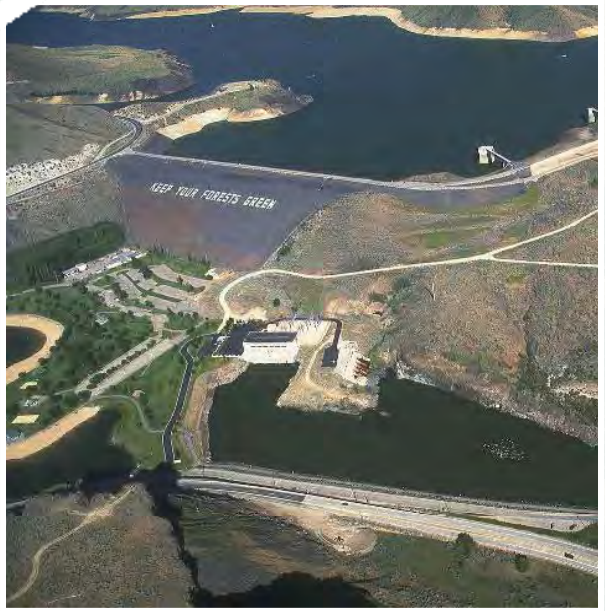
1. EFFECTIVE IMMEDIATELY, CANCEL THE FOREBAY CONSTRAINTS AUTHORIZED IN TTY BON R 102511 1431 FOR THE CONDIT DAM BREACH. CRITFC HAS REPORTED THAT SEDIMENT LOADS AT THE UNDERWOOD TRIBAL FISHING SITE HAVE DECREASED SUFFICIENTLY SINCE THE BREACH, THUS THE OPERATION TO MAINTAIN A LOW BONNEVILLE POOL IS NO LONGER NECESSARY.

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

Sedimentation of Lower Granite Navigation Channels

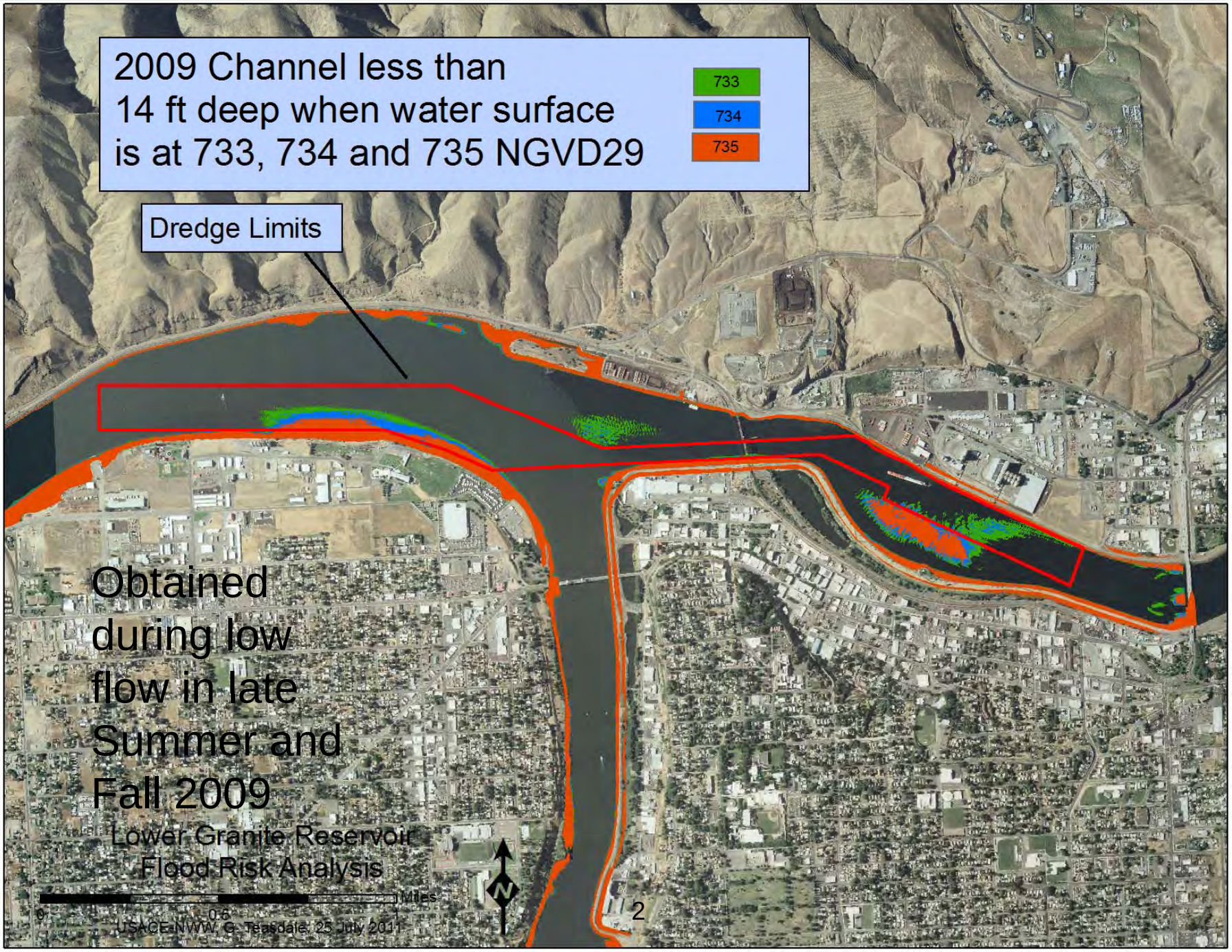
2009 – 2011 Bathymetry

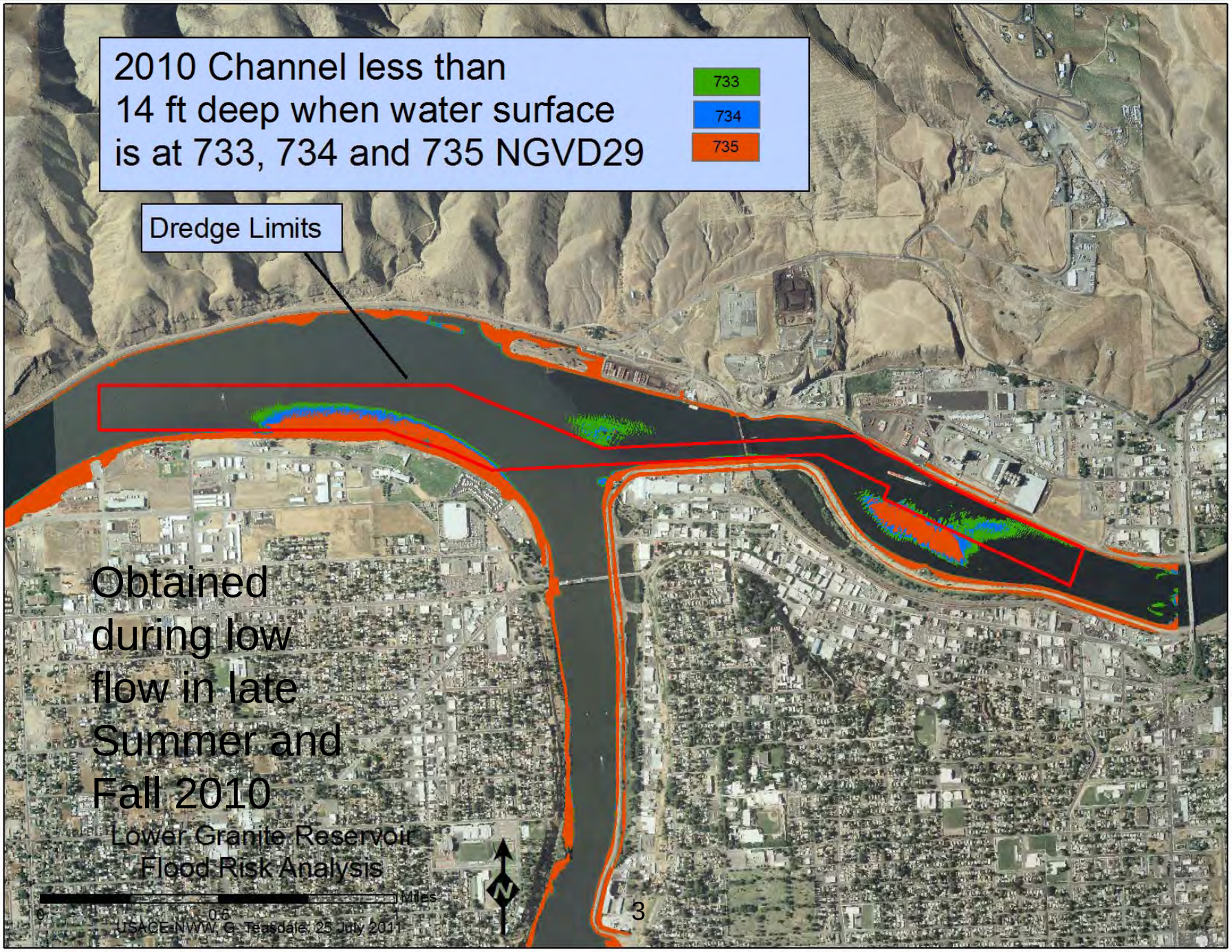


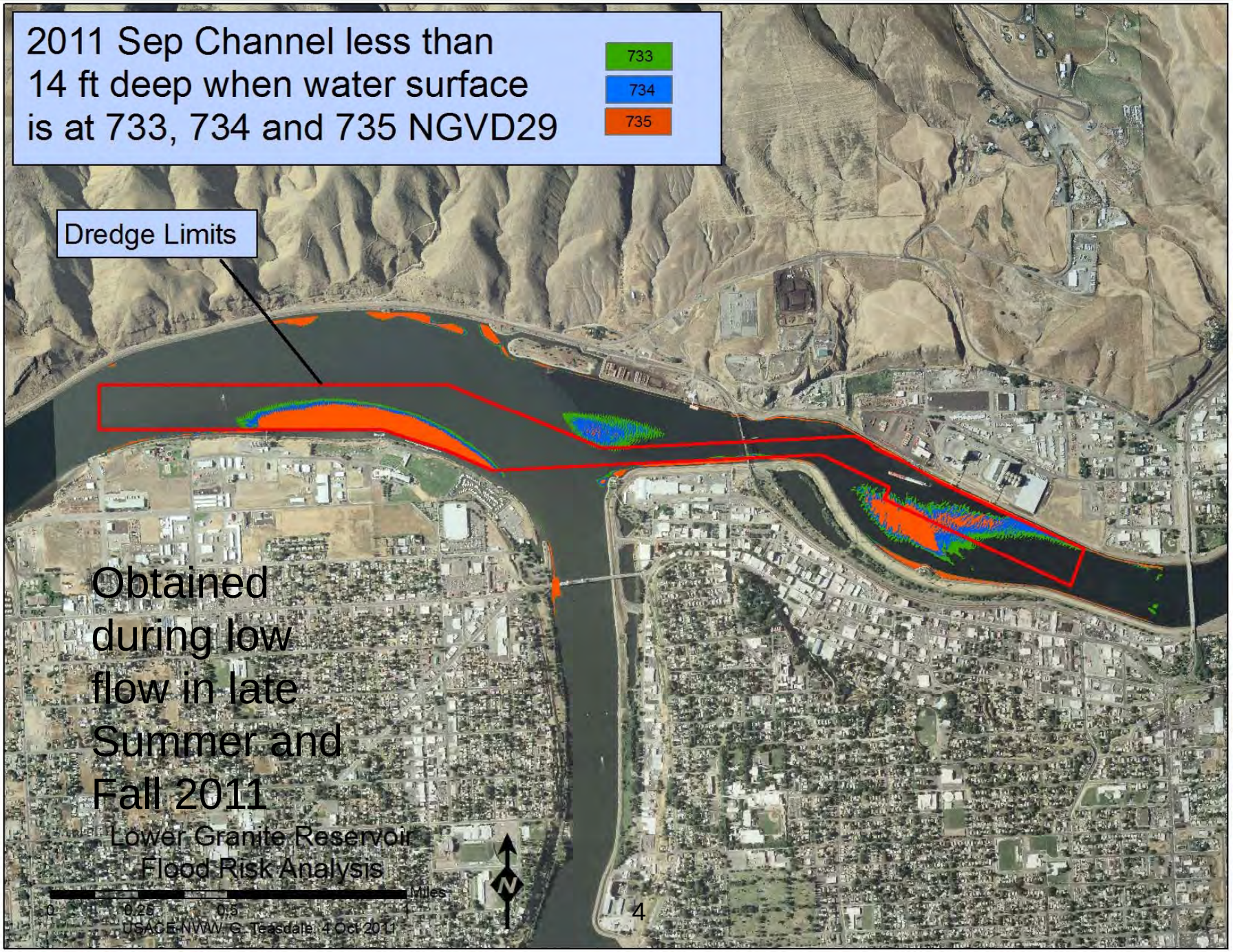



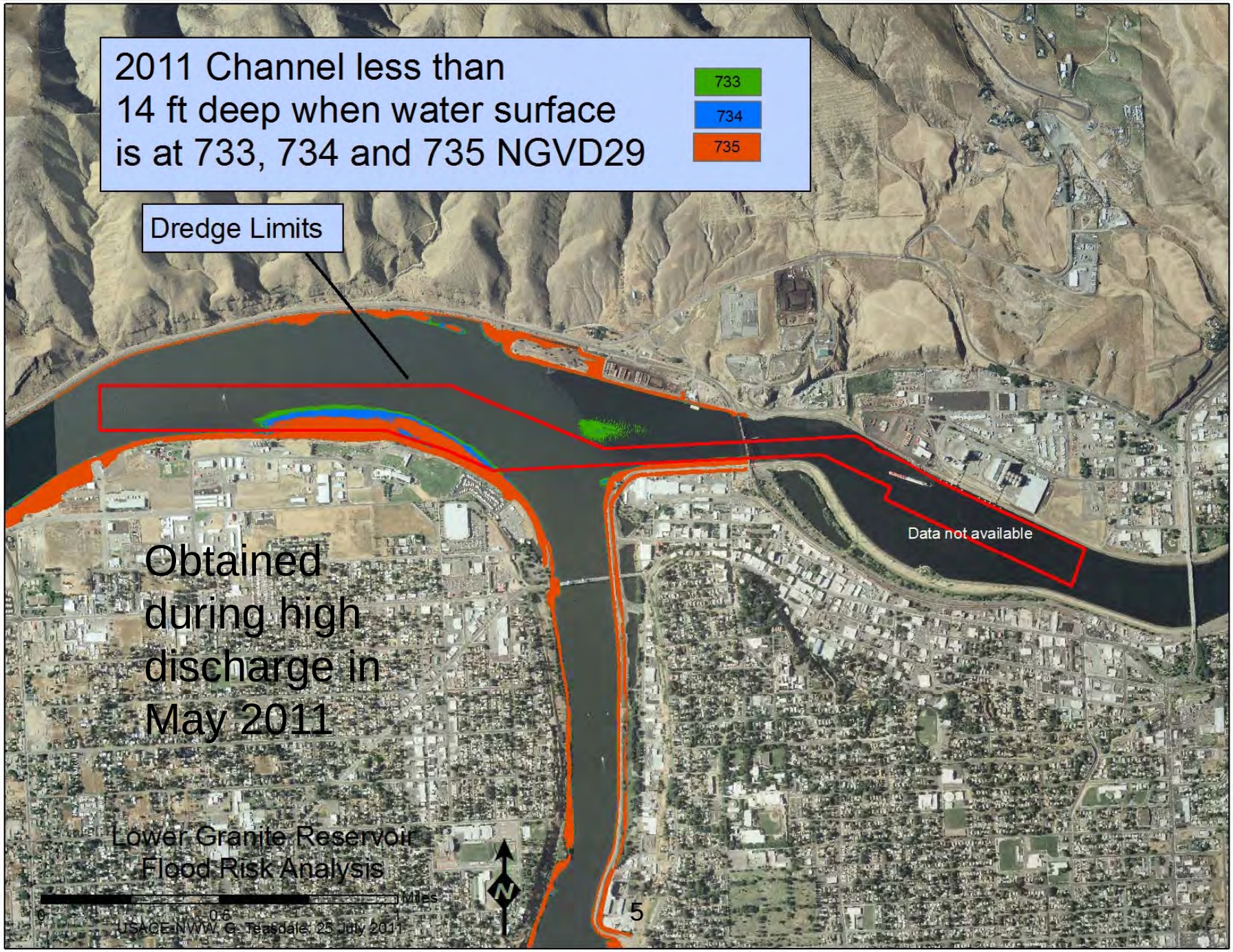


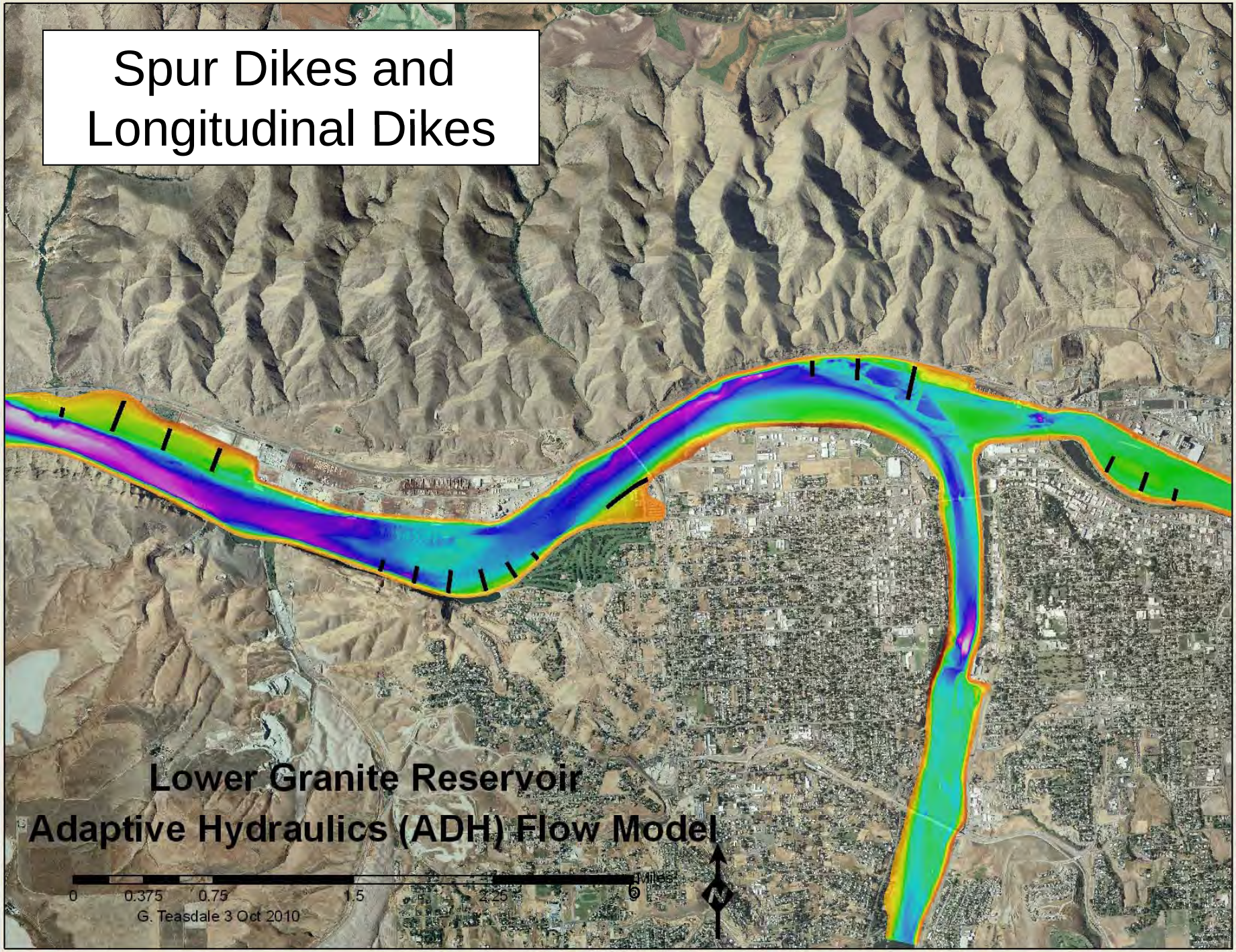

US Army Corps of Engineers
BUILDING STRONG®

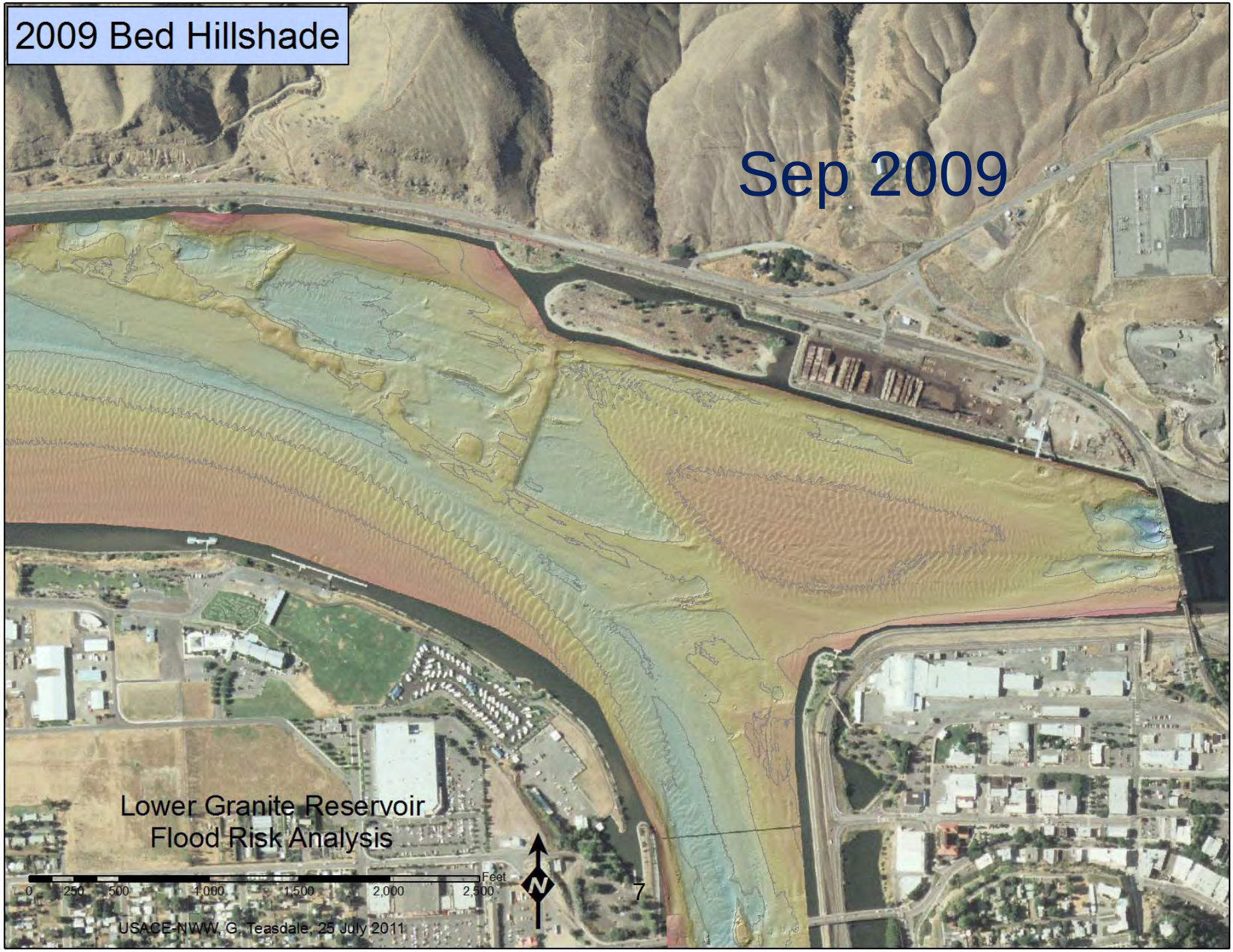

2009 Channel less than
14 ft deep when water surface
is at 733, 734 and 735 NGVD29
733
734
735
Dredge Limits
Obtained
during low
flow in late
Summer and
Fall 2009
Lower Granite Reservoir
Flood Risk Analysis
0
0.5
1
Miles
USACE-NWW, G. Teasdale, 25 July 2011
N
2

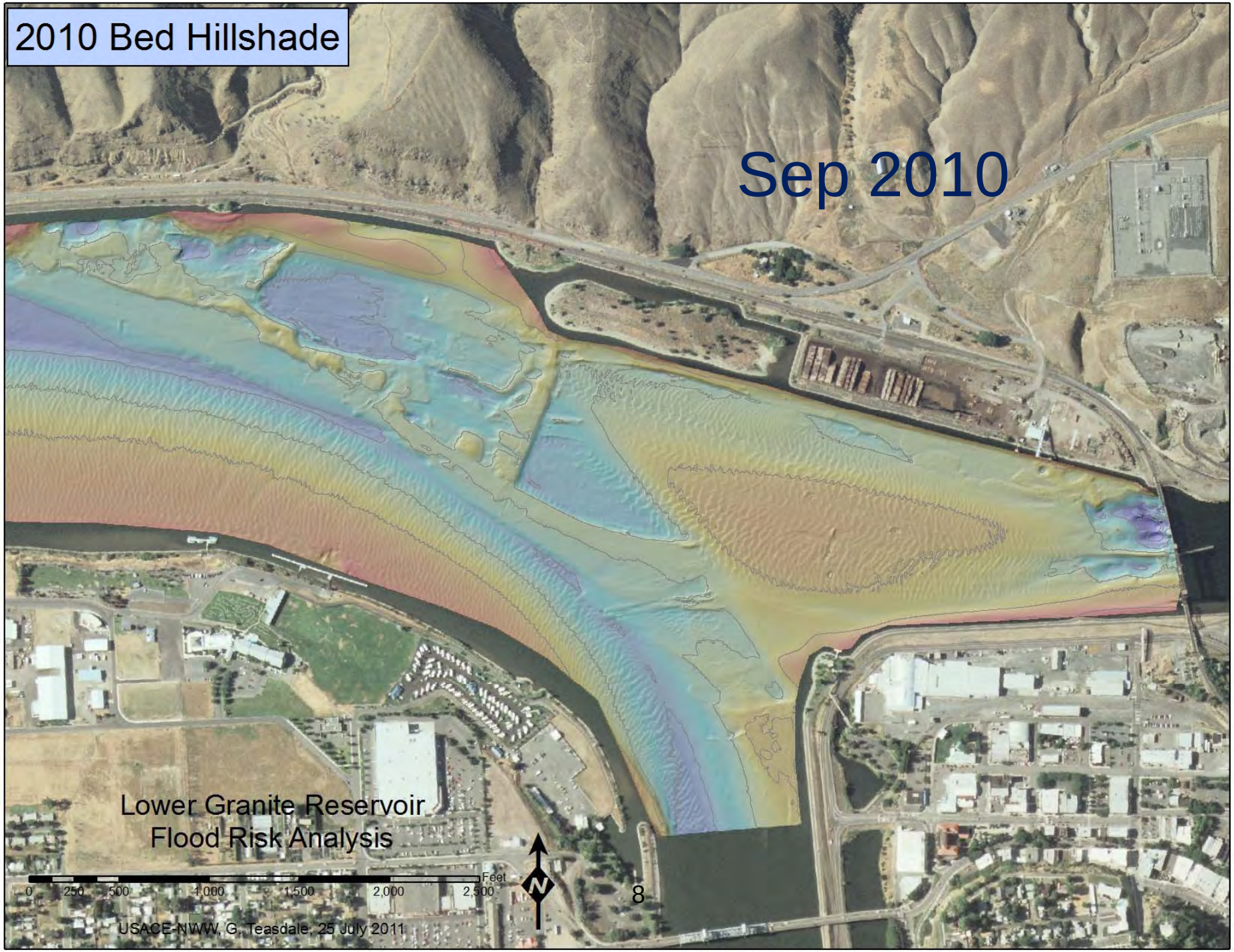

2010 Channel less than
14 ft deep when water surface
is at 733, 734 and 735 NGVD29
733
734
735
Dredge Limits
Obtained
during low
flow in late
Summer and
Fall 2010
Lower Granite Reservoir
Flood Risk Analysis
0
0.5
1 Miles
USACE-NWW, G. Teasdale, 25 July 2011
N
3


2011 Sep Channel less than
14 ft deep when water surface
is at 733, 734 and 735 NGVD29
733
734
735
Dredge Limits
Obtained
during low
flow in late
Summer and
Fall 2011
Lower Granite Reservoir
Flood Risk Analysis
Miles
0 0.25 0.5 1
N
USACE-NWW C. Teasdale 4 Oct 2011

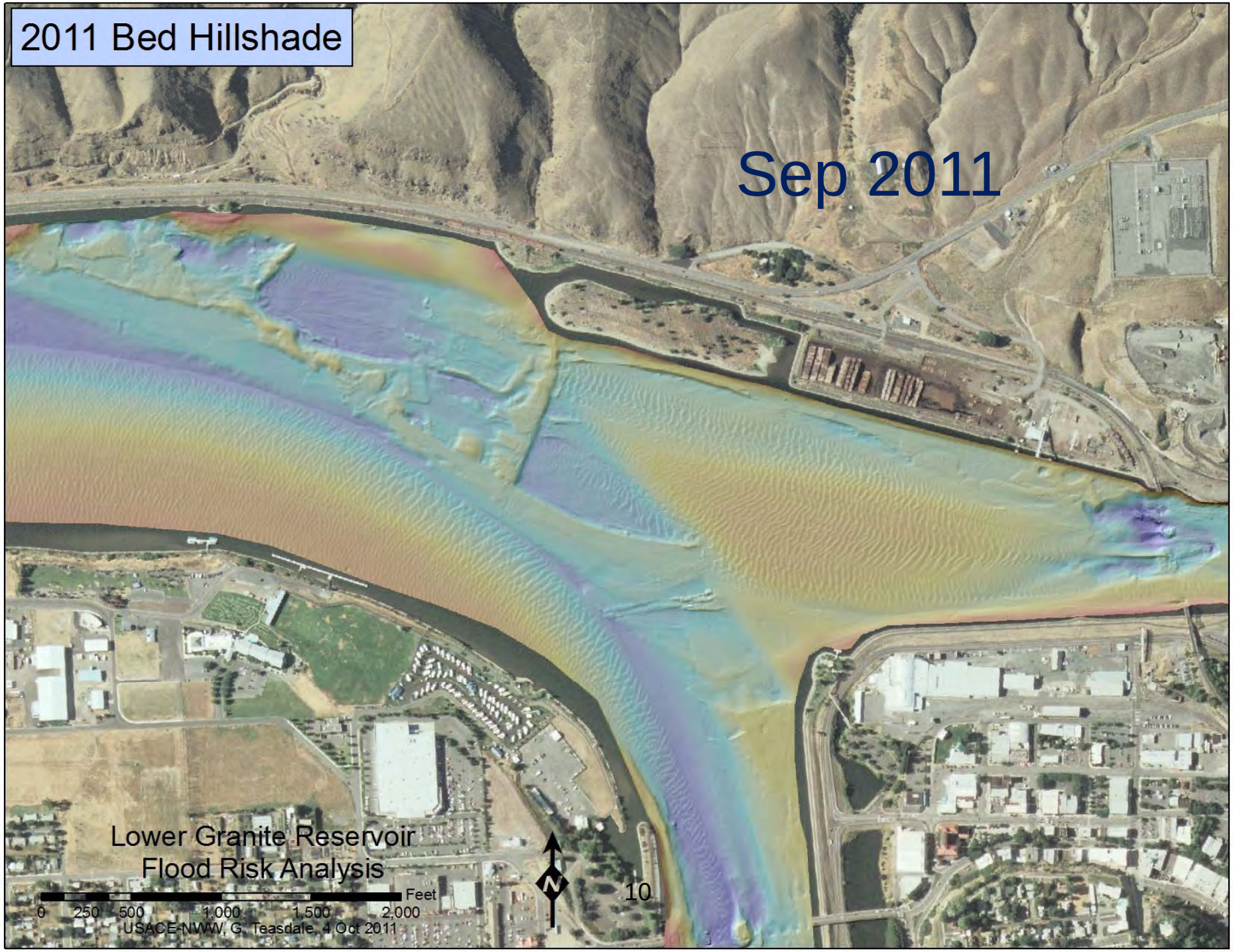

2011 Channel less than
14 ft deep when water surface
is at 733, 734 and 735 NGVD29
733
734
735
Dredge Limits
Data not available
Obtained
during high
discharge in
May 2011
Lower Granite Reservoir
Flood Risk Analysis
Miles
0
0.5
1
USACE-NWW, G. Teasdale, 25 July 2011
N
5


Spur Dikes and
Longitudinal Dikes
Lower Granite Reservoir
Adaptive Hydraulics (ADH) Flow Model
0
0.375
0.75
1.5
2.25
3
Miles
N
G. Teasdale 3 Oct 2010


2009 Bed Hillshade
Sep 2009
Lower Granite Reservoir
Flood Risk Analysis
0 250 500 1,000 1,500 2,000 2,500
Feet
N
USACE-NWW, G. Teasdale, 25 July 2011

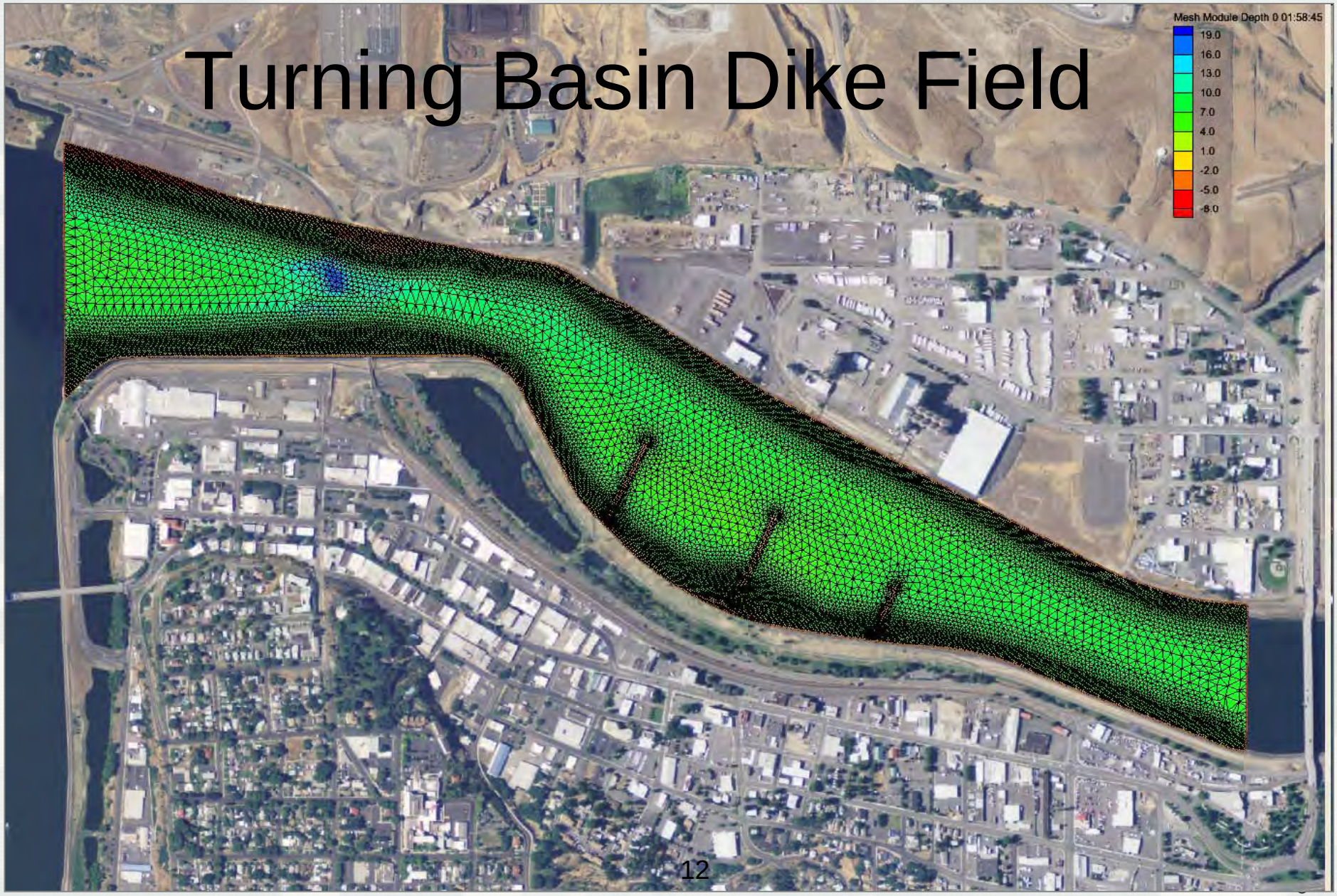

2010 Bed Hillshade
Sep 2010
Lower Granite Reservoir
Flood Risk Analysis
0 250 500 1,000 1,500 2,000 2,500 Feet
N
USACE-NWW, G. Teasdale, 25 July 2011
8

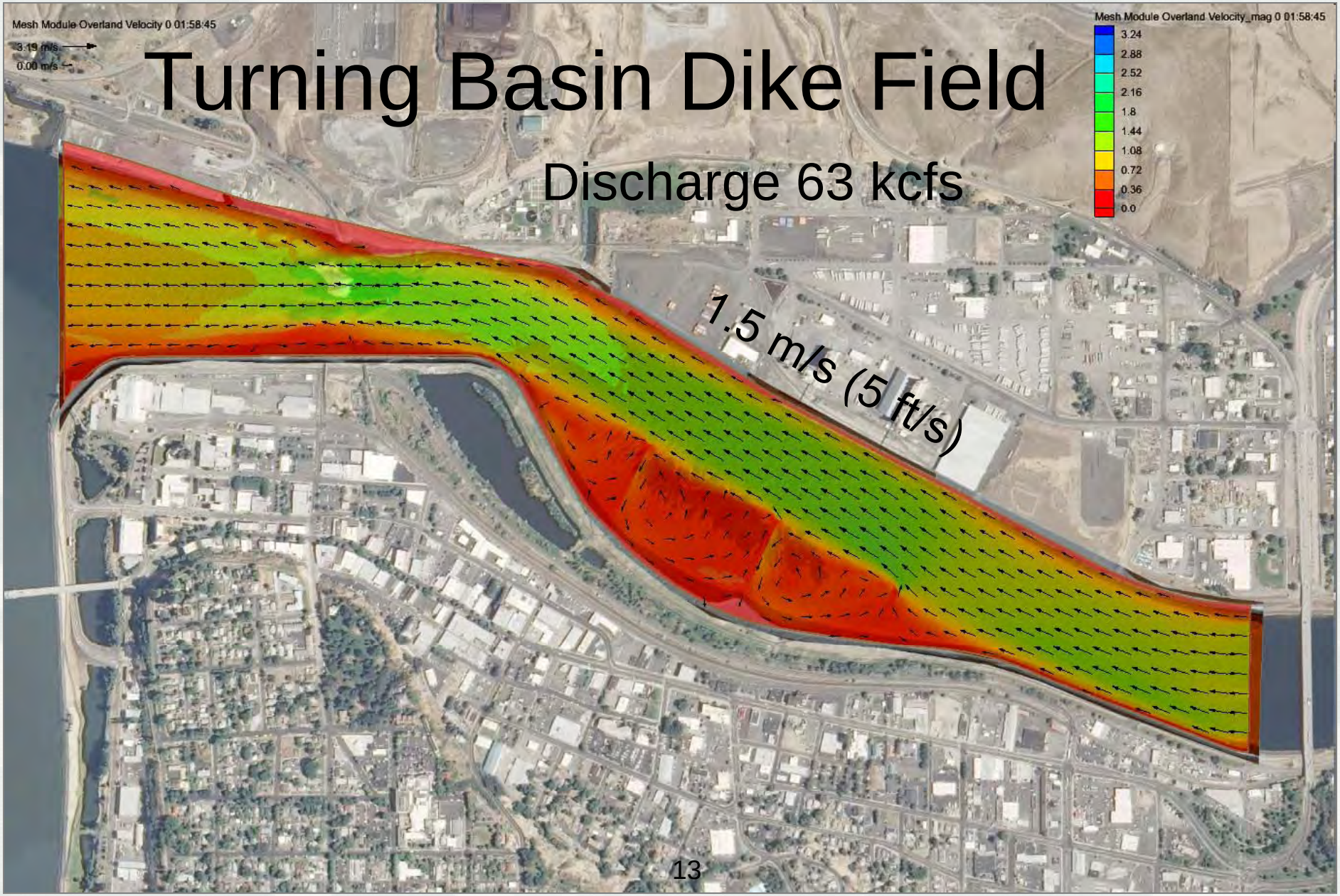

2011 Bed Hillshade
May 2011
Lower Granite Reservoir
Flood Risk Analysis
0 250 500 1,000 1,500 2,000 2,500
Feet
N
USACE-NWW, G. Teasdale, 25 July 2011


2011 Bed Hillshade
Sep 2011
Lower Granite Reservoir
Flood Risk Analysis
Feet
0 250 500 1,000 1,500 2,000
USACE-NWW, G. Teasdale, 4 Oct 2011
N
10

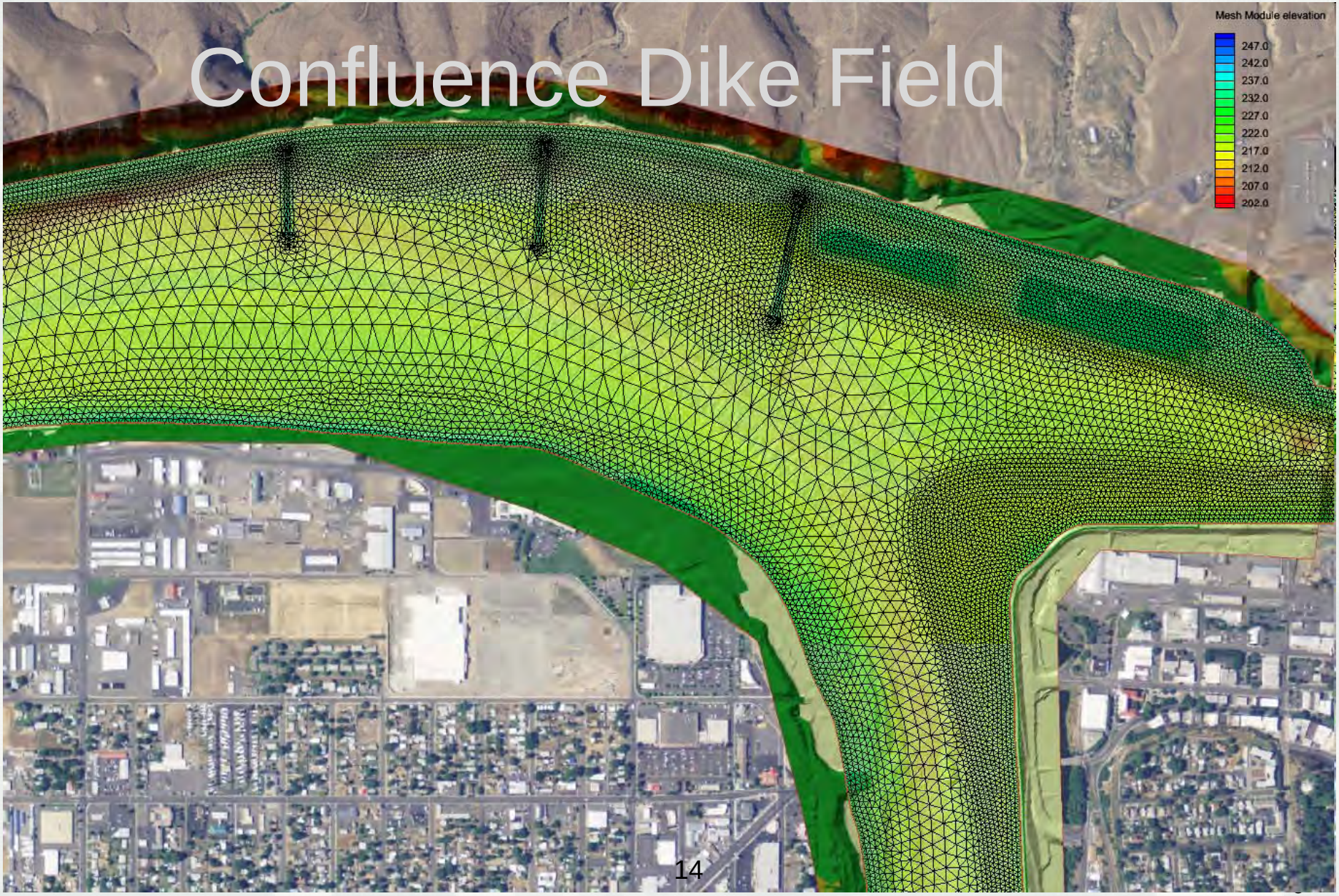
PTM 26 May 2011

Turning Basin Dike Field

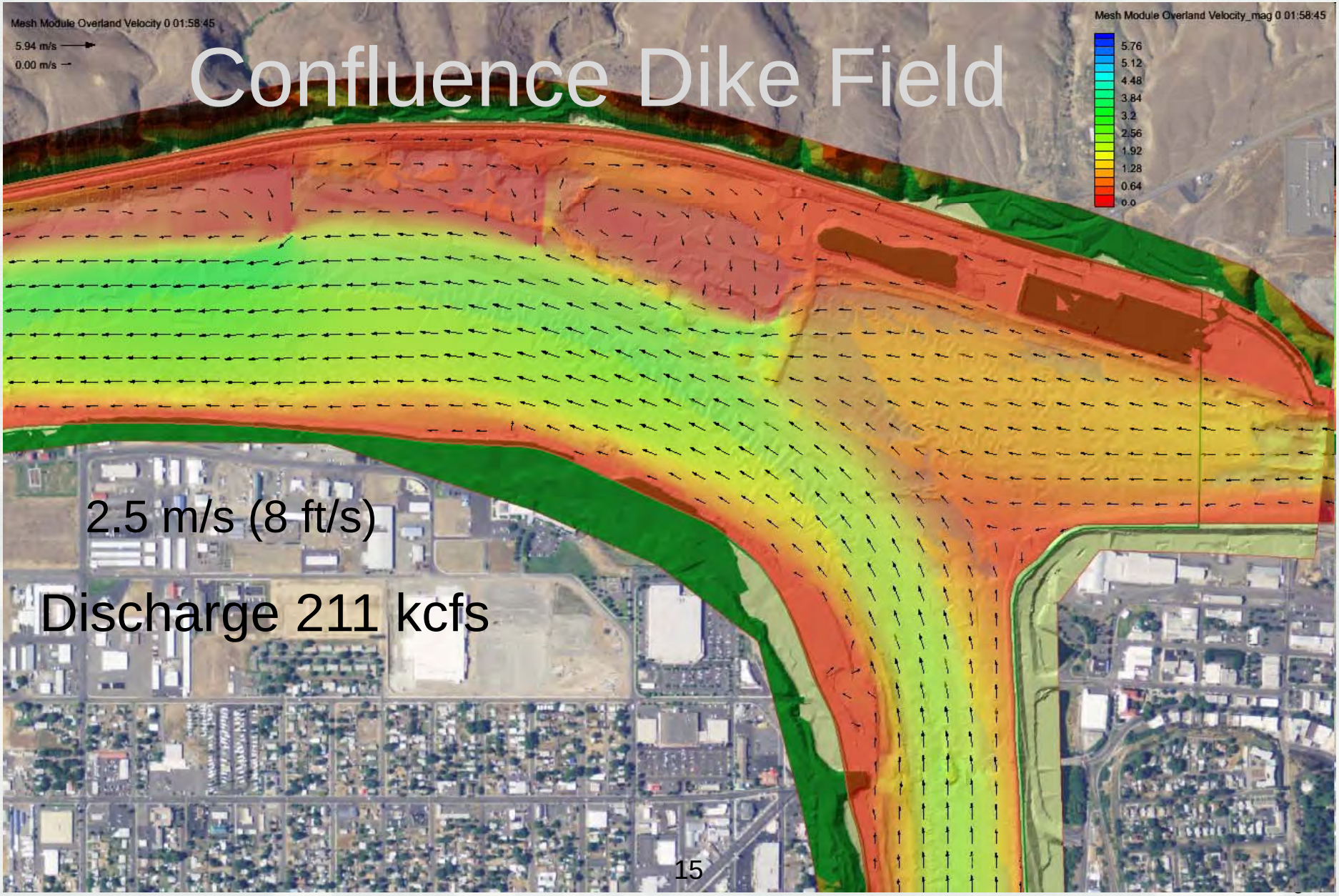



Mesh Module Overland Velocity 0 01:58:45
3.19 m/s
0.00 m/s
Mesh Module Overland Velocity_mag 0 01:58:45
3.24
2.88
2.52
2.16
1.8
1.44
1.08
0.72
0.36
0.0
Turning Basin Dike Field
Discharge 63 kcfs
1.5 m/s (5 ft/s)

Confluence Dike Field



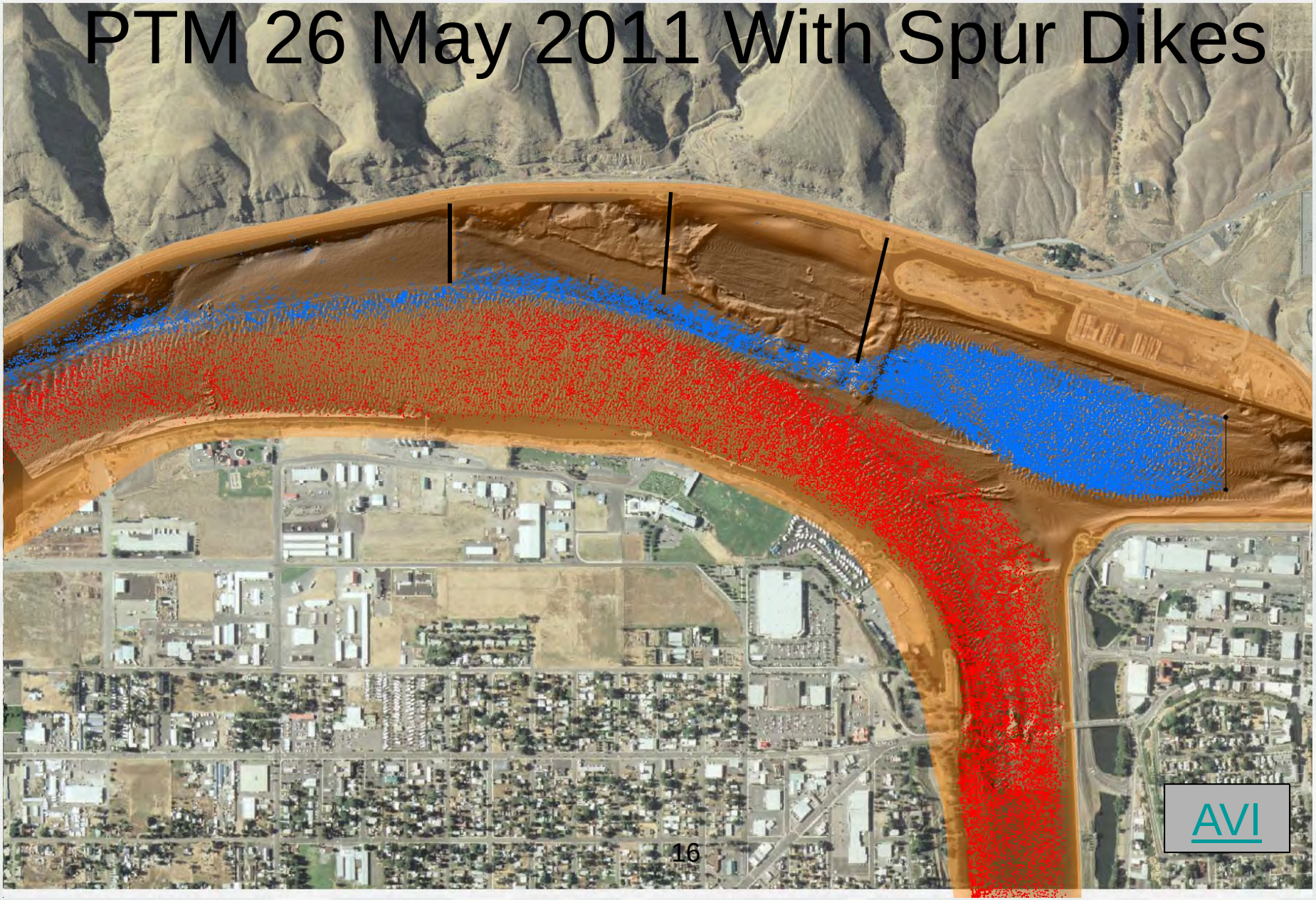
Confluence Dike Field



2.5 m/s (8 ft/s)

Discharge 211 kcfs

PTM 26 May 2011 With Spur Dikes



System Management - 1992 Drawdown


2011 Bed Hillshade
Sand Trap
Lower Granite Reservoir
Flood Risk Analysis
0 250 500 1,000 1,500 2,000 2,500 Feet
N
USACE-NWW, G. Teasdale, 25 July 2011

COLUMBIA RIVER TECHNICAL MANAGEMENT TEAM
October 26, 2011
Facilitator's Summary
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.

Meeting Minutes/Notes
The 10/5 Official Minutes and Facilitator's Notes, and 10/12 Official Minutes were reviewed. With the following two changes, they were considered final:
October 5 Official Minutes –

- Russ Kiefer, Idaho, clarified a comment he made under the Spill Priority List discussion, and offered to send specific language to Doug Baus to correct the notes.
- Dave Wills, USFWS, referred to page 6 on which he shared particular fish passage count numbers – as many of these were incorrect, he asked that the data be removed and just include a note that he reported the data.

Lower Granite Pool Bathymetry Survey Results
Doug Baus, COE, gave an overview of today's presentation of the survey results, noting that topics to be covered included the data from the surveys; information about the Settlement Agreement; and timeline for accomplishing tasks related to the Programmatic Sediment Management Plan (PSMP) and activities for addressing sediment issues at Lower Granite.

Gregg Teasdale, Walla Walla District COE Hydraulic Engineer, presented from a power point (linked to today's agenda) that included information about sediment encroachment in 2009, 2010 and 2011 at various pool elevation levels (associated with MOP) at Lower Granite; and possible alternative options for addressing these issues (aside from channel dredging) that included spur dikes, different operational methods and a sand trap upstream on the Snake River. Gregg noted that the surveys were able to confirm for the COE what they posited, that during high discharge, sediment encroachment diminishes and then dunes reform on the backside of the hydrograph. He went through the merits of each of the alternative options for addressing sediment issues.

TMT members asked questions:

- What is 'depth encroachment'? Response: the amount of sediment that encroaches on the navigation areas which diminishes the navigation depth.
- What are the COE's 'navigation channel dredge limits'? Response: This is the area in which the COE has authority to dredge (marked by a solid line on the graphs) – this area does not change. Other areas, such as closest to the port shores, fall within the authority of the Ports.

- Have you looked in to how spur dikes might impact fish habitat conditions? Response: Yes, the USGS is doing a near-shore habitat assessment as part of the NEPA analysis, and it will include fish sampling to study impacts.
    - Suggestion: Include lamprey in the habitat assessment work. Response: Yes, this will be part of the NEPA process.
- What about downstream deposition from spur dike movement of sediment? Response: We are not seeing an adverse impact in the short term, but longer term (e.g. 50 years) this will need to be addressed.

Richard Turner, COE Walla Walla District Project Manager for the development of the Lower Snake Programmatic Sediment Management Plan and Environmental Impact Statement (PSMP/EIS), shared information about the schedule as it currently stands:

- A draft EIS is scheduled to be published in Feb/March 2012, followed by a public comment period.
- Depending on the comments received, a final EIS is scheduled to be published in Sept 2012.
- The COE's Record of Decision (ROD) is scheduled to be completed in Dec 2012.
- Action planning would begin in early 2013 – potential actions include channel maintenance (near term) and in-water structures (long term).
- Actions described in the ROD would likely begin in the following in-water work window of Dec 2013- March 2014.
- Specific actions would be analyzed in an Environmental Assessment (EA) tiered off the Programmatic EIS. ESA consultations would happen via an EA.

TMT questions about the timeline:

- How will actions be funded? Response: This will be an O&M action. Comment: O&M funds might be constrained in future years, challenging this and other Corps projects that are intended to provide BiOp-mandated fish protection measures.
- What is the cost estimate for sediment removal? Response: The COE is working that estimate in to our process, but an estimate is not available at this time.

Robert Eskildsen, Office of Counsel at Walla Walla District COE, presented information about the Settlement Agreement provisions, particularly related to short term channel maintenance. The Agreement, he said, limits the COE's ability to do channel maintenance until the PSMP is complete, unless in the case of an 'emergency' that would allow the COE to expedite alternative procedures while doing an EA. Robert said that the COE must meet the requirements in the Agreement as well as terms of NEPA and other environmental laws (e.g. ESA) – the former two contain similar definitions of 'emergency' around issues of public safety and economic hardship, while ESA also says the event must be 'unexpected', e.g. a major flood event or volcanic eruption. In the case at Lower Granite, the COE believes the issue to have developed more gradually by way of incremental deposition of sediment over time and would not warrant taking 'emergency' action, under that definition. Dredging must follow the general procedural requirements of environmental laws, a process the COE has set up and which was described briefly by Richard Turner. In summary, Robert said there are many factors for

not moving ahead with channel maintenance this year that include current operations, environmental laws and required processes, case law and others -- and this conclusion is based on many discussions the COE has had internally and with respect to the Settlement Agreement. Parties to the Settlement include the National Wildlife Federation, Earth Justice, the COE and Lower Granite Navigation Coalition.

Doug Baus concluded the presentation with a look forward. In developing 2012 operations, the COE will coordinate closely with TMT and other regional stakeholders. The COE will enlist NOAA and the COMPAS model to analyze effects of various operations on fish survival, as well as run an internal analysis of operations effects on water particle travel time. He opened the discussion up for feedback from TMT members. Generally, TMT suggested they need more information to understand how they might weigh in, and asked that the COE keep them apprised of new information and operational developments in a timely manner. They will be looking for a balanced operation that allows the COE to meet its navigation safety requirements while minimizing negative impacts to the fish.

Action/Next Step: Paul Wagner, NOAA, will coordinate a Comprehensive passage (COMPASS) model presentation for TMT in the near future, to help ground the team in the capabilities of the model and how it could be used to inform this process.

Bonneville Updates

Lisa Wright, COE, provided information to TMT about work happening at Bonneville. The Bradford Island 'B branch' fish ladder was dewatered in September to allow workers to address erosion problems. She showed pictures that depicted progress on this work. Concrete pouring to shore up the foundation was nearly complete as was placement of rip rap which will be followed by two days of grouting, to be completed by 10/31. Scott Bettin, BPA, also noted that the 'A branch' was out of criteria and being fixed as well, expected to be completed within the same timeframe.

Condit Dam removal was scheduled for today at noon. To mitigate against potential impacts to Tribal fishing sites near the mouth of the White Salmon and to move sediment faster through the dam, Bonneville dam will have a special low pool operation, as coordinated through FPOM. The live coverage of the dam removal could be found on www.pacificorp.com/condit.

Chum Update

Paul Wagner, NOAA, said two chum have been observed in the spawning area to date. The FCRPS BiOp offers guidance on the start of operations to protect chum that says the first week of November and 'when significant numbers of fish are present'. TMT members discussed this and other factors that should be considered around chum operations, including the status of Grand Coulee (which is nearly full), topography shifts that may have resulted from last year's sustained high flows; water supply into the area (it was noted that there was as yet no flow coming from Hamilton Creek); and completion of fish ladder repair work at Bonneville Dam.

Action/Plan: Given all this, BPA said they would plan to begin operations for chum on Tuesday, 11/1. The COE will set the operation as was done last year to target an 11.5' tailwater elevation within a range of 11.3-11.7' feet during daylight hours

The salmon managers planned a field trip to the chum spawning area on 11/4 to assess chum numbers and available spawning habitat, and would use this data to determine whether to recommend a different operation than the one described for the start of the season.

TMT agreed that if any changes to operations were made in between TMT meetings (either due to delay in fish ladder grouting work completion or salmon manager recommendations from their field trip observations), email updates would suffice as communication out to the team. Steve Smith, Colville Tribe, suggested that any recommended changes to operations should consider the full season and impacts. TMT will revisit chum operations at TMT meetings throughout the season.

Operations Review

Reservoirs – John Roache, Reclamation, reported on projects: Grand Coulee was at elevation 1287.3'. Hungry Horse was at elevation 3548.81' and operating 1.5 kcfs outflows to meet Columbia Falls minimums. Doug Baus, COE, reported on projects. Libby was at elevation 2448.23' with 4.0 kcfs inflows and 4.0 kcfs outflows. Albeni Falls was at elevation 2053.55' with 15.3 kcfs inflows and 23.8 kcfs outflows. Dworshak was at elevation 1518.96' with 1.8 kcfs inflows and 1.6 kcfs outflows. Lower Granite outflows were 25.4 kcfs; at Priest Rapids flows were 83.1 kcfs; at McNary flows were 114.4 kcfs and at Bonneville flows were 136.7 kcfs.

Fish – Paul Wagner, NOAA, reported on fish. Adult counts at Bonneville were in the 100's/day for Fall Chinook for a season total of about 400,000; 83,000 season total for jacks (well above the 10-year average); 366,000 season total for steelhead; and 24,700 season total for lamprey. At Lower Granite, less than 100/day adult Chinook were being observed, with a season total of 24,500; the season total for jacks at Lower Granite was 19,000 – again a very big number. 48 total adult lamprey were observed at Lower Granite. Juvenile counts were all but complete; smolt monitoring ends on 10/31. Subyearling Chinook counts at Lower Granite were less than 200/day, and less than 100/day at Little Goose.

Water quality – Nothing to report.

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Agenda items include:

- Bonneville Operations
- Water Management Plan Update

Columbia River Regional Forum
TECHNICAL MANAGEMENT TEAM OFFICIAL MINUTES

October 26, 2011
Notes: Pat Vivian

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Today's TMT meeting was chaired by Doug Baus, COE, and facilitated by Robin Gumpert, DS Consulting. Representatives of the Nez Perce Tribe, BPA, COE, NOAA, Montana, USFWS, Idaho, BOR and others attended. This summary is an official record of the proceedings, not a verbatim transcript.

2. Review Meeting Minutes for October 5 and 12

October 5 minutes: Regarding the spill priority list, Russ Kiefer, Idaho, said it's more beneficial to spill in the lower Columbia this time of year than in the lower Snake because fish in the Snake are likely to overwinter somewhere, while fish in the Columbia might make it to the estuary and ocean. He will supply language to that effect. Dave Wills, USFWS, suggested deleting a paragraph of fish counts that were not accurate. The COE will make these changes and repost the notes to the TMT page.

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Gregg Teasdale, COE Walla Walla senior hydraulic engineer, gave a presentation on the Programmatic Sediment Management Plan (PSMP) to address navigation problems at Lower Granite due to sediment buildup in the navigation channel at the confluence of the Snake and Clearwater rivers. Teasdale said he gave a similar presentation to navigators in the area last week. He showed TMT bathymetry slides that show the growing encroachment since 2009 at three pool surface elevations: 733 feet (MOP), 734 feet (MOP+1) and 735 feet (MOP+2). The ports of Lewiston and Clarkston each have responsibility for dredging small areas close to shore; historically they piggyback onto COE contracts for dredging in the main channel. Currently, even at 735 feet or MOP+2, sedimentation is causing significant impairment to navigation at both ports.

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The chum operation typically begins the first week in November when a significant number of fish are seen in the area per the BiOp, Wagner said. To date 2 fish have been seen. Grand Coulee is nearly full at 1287 feet in preparation for the chum operation, John Roache said. There are concerns about the chum operation this year because it's possible that sustained high flows for 6 weeks this spring could have changed the topography of the area. An elevation of 11.5 feet is desirable sooner rather than later so conditions can be monitored to see if adjustments are needed, Wagner said.

Another factor to consider is the Hamilton Creek, typically a big water contributor, is not flowing now, Bettin added. The chum operation is scheduled to begin November 1, Tony Norris said, but that could be delayed by the need to accommodate work on the fish ladder.

Wagner will do a field check on October 28 to monitor spawning conditions for chum. Unless a change is requested, the COE is planning the same operation as last year: a minimum tailwater of 11.3 feet and a range of 11.3-11.7 feet from 6:30 am to 5 pm. These are hard constraints. Baus asked whether the COE should expect a formal chum request from Salmon Managers at next week's TMT meeting. Wagner said that load factoring might be sufficient this year as it has been in past years. This will depend on fish numbers and precipitation. The chum operation will be adjusted as warranted, Norris said.

Steve Smith, Colville Tribe, asked that any request from NOAA for a higher tailwater elevation this year include plans for not only spawning but the subsequent egg and fry production period; Wagner agreed. TMT will revisit the chum operation in a conference call November 2.

6. Operations Review

Reservoirs. Hungry Horse is at elevation 3548.81 feet, discharging flat flows of 1.5 kcfs and meeting Columbia Falls minimums. Inflows continue to be

high. Grand Coulee is at elevation 1287.3 feet, 2-3 feet from full. Libby is at elevation 2448.23 feet, with inflows of 4 kcfs and releases of 4 kcfs. Albeni Falls is at elevation 2053.55 feet, with inflows of 19.3 kcfs and releases of 23.8 kcfs. Dworshak is at elevation 1518.96 feet, with inflows of 1.8 kcfs and releases of 1.6 kcfs.

Lower Granite discharges are 25.4 kcfs. McNary discharges are 114.4 kcfs. Bonneville discharges are 136.7 kcfs.

Fish. Adults: Close to 500 fall chinook adults are passing Bonneville daily. The fall chinook jack return of 83,000 is even bigger than last year and way ahead of the 10 year average, Wagner reported. Fall chinook passage at Lower Granite is 24,500 fish, which is good but doesn't match last year's record of 40,000 fish. The steelhead count of 176,000 is close to the 10 year average. The lamprey count of 48 at Lower Granite is below the 10 year average but better than last year.

Juveniles: Passage is nearly done and smolt monitoring ends on October 31. At Lower Granite Dam, 100-200 smolts are passing per day; Little Goose, with no spill, is passing about half that number.

Water quality. There was nothing to report today.

Power. There was nothing to report today.

7. Next Meeting

The next TMT meeting will be a conference call on November 2 to discuss chum operations. TMT will meet next in person on November 9, followed by conference calls as needed on November 16, 23 and 30.

Name	***Affiliation***
Doug Baus	COE
Tom Lorz	CRITFC
Paul Wagner	NOAA
David Wills	USFWS
Rick Kruger	Oregon
Lisa Wright	COE
John Roache	BOR
Tony Norris	BPA
Jim Litchfield	Montana
Scott Bettin	BPA
Laura Hamilton	COE
Steve Hall	COE Walla Walla
Gregg Teasdale	COE Walla Walla
Richard Turner	COE Walla Walla

Eric Braun	COE
Karl Kanbergs	COE
Bill Proctor	COE
Gail Lear	COE
Kim Johnson	COE

Phone:

Russ Kiefer	Idaho
Dave Statler	Nez Perce
Steve Smith	Colville
John Hart	EWEB
Ruth Burris	PGE
Margaret Filardo	FPC
Dave Benner	FPC
Russ George	WMC
Shane Scott	PPC
Richelle Beck	Grant PUD
Barry Espenson	CBB
David George	Port of Lewiston
Robert Eskildsen	COE

COLUMBIA RIVER TECHNICAL MANAGEMENT TEAM
October 26, 2011
Facilitator's Summary
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.

Meeting Minutes/Notes
The 10/5 Official Minutes and Facilitator's Notes, and 10/12 Official Minutes were reviewed. With the following two changes, they were considered final:
October 5 Official Minutes –

- Russ Kiefer, Idaho, clarified a comment he made under the Spill Priority List discussion, and offered to send specific language to Doug Baus to correct the notes.
- Dave Wills, USFWS, referred to page 6 on which he shared particular fish passage count numbers – as many of these were incorrect, he asked that the data be removed and just include a note that he reported the data.

Lower Granite Pool Bathymetry Survey Results
Doug Baus, COE, gave an overview of today's presentation of the survey results, noting that topics to be covered included the data from the surveys; information about the Settlement Agreement; and timeline for accomplishing tasks related to the Programmatic Sediment Management Plan (PSMP) and activities for addressing sediment issues at Lower Granite.

Gregg Teasdale, Walla Walla District COE Hydraulic Engineer, presented from a power point (linked to today's agenda) that included information about sediment encroachment in 2009, 2010 and 2011 at various pool elevation levels (associated with MOP) at Lower Granite; and possible alternative options for addressing these issues (aside from channel dredging) that included spur dikes, different operational methods and a sand trap upstream on the Snake River. Gregg noted that the surveys were able to confirm for the COE what they posited, that during high discharge, sediment encroachment diminishes and then dunes reform on the backside of the hydrograph. He went through the merits of each of the alternative options for addressing sediment issues.

TMT members asked questions:

- What is 'depth encroachment'? Response: the amount of sediment that encroaches on the navigation areas which diminishes the navigation depth.
- What are the COE's 'navigation channel dredge limits'? Response: This is the area in which the COE has authority to dredge (marked by a solid line on the graphs) – this area does not change. Other areas, such as closest to the port shores, fall within the authority of the Ports.

- Have you looked in to how spur dikes might impact fish habitat conditions? Response: Yes, the USGS is doing a near-shore habitat assessment as part of the NEPA analysis, and it will include fish sampling to study impacts.
    - Suggestion: Include lamprey in the habitat assessment work. Response: Yes, this will be part of the NEPA process.
- What about downstream deposition from spur dike movement of sediment? Response: We are not seeing an adverse impact in the short term, but longer term (e.g. 50 years) this will need to be addressed.

Richard Turner, COE Walla Walla District Project Manager for the development of the Lower Snake Programmatic Sediment Management Plan and Environmental Impact Statement (PSMP/EIS), shared information about the schedule as it currently stands:

- A draft EIS is scheduled to be published in Feb/March 2012, followed by a public comment period.
- Depending on the comments received, a final EIS is scheduled to be published in Sept 2012.
- The COE's Record of Decision (ROD) is scheduled to be completed in Dec 2012.
- Action planning would begin in early 2013 – potential actions include channel maintenance (near term) and in-water structures (long term).
- Actions described in the ROD would likely begin in the following in-water work window of Dec 2013- March 2014.
- Specific actions would be analyzed in an Environmental Assessment (EA) tiered off the Programmatic EIS. ESA consultations would happen via an EA.

TMT questions about the timeline:

- How will actions be funded? Response: This will be an O&M action. Comment: O&M funds might be constrained in future years, challenging this and other Corps projects that are intended to provide BiOp-mandated fish protection measures.
- What is the cost estimate for sediment removal? Response: The COE is working that estimate in to our process, but an estimate is not available at this time.

Robert Eskildsen, Office of Counsel at Walla Walla District COE, presented information about the Settlement Agreement provisions, particularly related to short term channel maintenance. The Agreement, he said, limits the COE's ability to do channel maintenance until the PSMP is complete, unless in the case of an 'emergency' that would allow the COE to expedite alternative procedures while doing an EA. Robert said that the COE must meet the requirements in the Agreement as well as terms of NEPA and other environmental laws (e.g. ESA) – the former two contain similar definitions of 'emergency' around issues of public safety and economic hardship, while ESA also says the event must be 'unexpected', e.g. a major flood event or volcanic eruption. In the case at Lower Granite, the COE believes the issue to have developed more gradually by way of incremental deposition of sediment over time and would not warrant taking 'emergency' action, under that definition. Dredging must follow the general procedural requirements of environmental laws, a process the COE has set up and which was described briefly by Richard Turner. In summary, Robert said there are many factors for

not moving ahead with channel maintenance this year that include current operations, environmental laws and required processes, case law and others -- and this conclusion is based on many discussions the COE has had internally and with respect to the Settlement Agreement. Parties to the Settlement include the National Wildlife Federation, Earth Justice, the COE and Lower Granite Navigation Coalition.

Doug Baus concluded the presentation with a look forward. In developing 2012 operations, the COE will coordinate closely with TMT and other regional stakeholders. The COE will enlist NOAA and the COMPAS model to analyze effects of various operations on fish survival, as well as run an internal analysis of operations effects on water particle travel time. He opened the discussion up for feedback from TMT members. Generally, TMT suggested they need more information to understand how they might weigh in, and asked that the COE keep them apprised of new information and operational developments in a timely manner. They will be looking for a balanced operation that allows the COE to meet its navigation safety requirements while minimizing negative impacts to the fish.

Action/Next Step: Paul Wagner, NOAA, will coordinate a Comprehensive passage (COMPASS) model presentation for TMT in the near future, to help ground the team in the capabilities of the model and how it could be used to inform this process.

Bonneville Updates

Lisa Wright, COE, provided information to TMT about work happening at Bonneville. The Bradford Island 'B branch' fish ladder was dewatered in September to allow workers to address erosion problems. She showed pictures that depicted progress on this work. Concrete pouring to shore up the foundation was nearly complete as was placement of rip rap which will be followed by two days of grouting, to be completed by 10/31. Scott Bettin, BPA, also noted that the 'A branch' was out of criteria and being fixed as well, expected to be completed within the same timeframe.

Condit Dam removal was scheduled for today at noon. To mitigate against potential impacts to Tribal fishing sites near the mouth of the White Salmon and to move sediment faster through the dam, Bonneville dam will have a special low pool operation, as coordinated through FPOM. The live coverage of the dam removal could be found on www.pacificorp.com/condit.

Chum Update

Paul Wagner, NOAA, said two chum have been observed in the spawning area to date. The FCRPS BiOp offers guidance on the start of operations to protect chum that says the first week of November and 'when significant numbers of fish are present'. TMT members discussed this and other factors that should be considered around chum operations, including the status of Grand Coulee (which is nearly full), topography shifts that may have resulted from last year's sustained high flows; water supply into the area (it was noted that there was as yet no flow coming from Hamilton Creek); and completion of fish ladder repair work at Bonneville Dam.

Action/Plan: Given all this, BPA said they would plan to begin operations for chum on Tuesday, 11/1. The COE will set the operation as was done last year to target an 11.5' tailwater elevation within a range of 11.3-11.7' feet during daylight hours

The salmon managers planned a field trip to the chum spawning area on 11/4 to assess chum numbers and available spawning habitat, and would use this data to determine whether to recommend a different operation than the one described for the start of the season.

TMT agreed that if any changes to operations were made in between TMT meetings (either due to delay in fish ladder grouting work completion or salmon manager recommendations from their field trip observations), email updates would suffice as communication out to the team. Steve Smith, Colville Tribe, suggested that any recommended changes to operations should consider the full season and impacts. TMT will revisit chum operations at TMT meetings throughout the season.

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The chum operation typically begins the first week in November when a significant number of fish are seen in the area per the BiOp, Wagner said. To date 2 fish have been seen. Grand Coulee is nearly full at 1287 feet in preparation for the chum operation, John Roache said. There are concerns about the chum operation this year because it's possible that sustained high flows for 6 weeks this spring could have changed the topography of the area. An elevation of 11.5 feet is desirable sooner rather than later so conditions can be monitored to see if adjustments are needed, Wagner said.

Another factor to consider is the Hamilton Creek, typically a big water contributor, is not flowing now, Bettin added. The chum operation is scheduled to begin November 1, Tony Norris said, but that could be delayed by the need to accommodate work on the fish ladder.

Wagner will do a field check on October 28 to monitor spawning conditions for chum. Unless a change is requested, the COE is planning the same operation as last year: a minimum tailwater of 11.3 feet and a range of 11.3-11.7 feet from 6:30 am to 5 pm. These are hard constraints. Baus asked whether the COE should expect a formal chum request from Salmon Managers at next week's TMT meeting. Wagner said that load factoring might be sufficient this year as it has been in past years. This will depend on fish numbers and precipitation. The chum operation will be adjusted as warranted, Norris said.

Steve Smith, Colville Tribe, asked that any request from NOAA for a higher tailwater elevation this year include plans for not only spawning but the subsequent egg and fry production period; Wagner agreed. TMT will revisit the chum operation in a conference call November 2.

6. Operations Review

Reservoirs. Hungry Horse is at elevation 3548.81 feet, discharging flat flows of 1.5 kcfs and meeting Columbia Falls minimums. Inflows continue to be

high. Grand Coulee is at elevation 1287.3 feet, 2-3 feet from full. Libby is at elevation 2448.23 feet, with inflows of 4 kcfs and releases of 4 kcfs. Albeni Falls is at elevation 2053.55 feet, with inflows of 19.3 kcfs and releases of 23.8 kcfs. Dworshak is at elevation 1518.96 feet, with inflows of 1.8 kcfs and releases of 1.6 kcfs.

Lower Granite discharges are 25.4 kcfs. McNary discharges are 114.4 kcfs. Bonneville discharges are 136.7 kcfs.

Fish. Adults: Close to 500 fall chinook adults are passing Bonneville daily. The fall chinook jack return of 83,000 is even bigger than last year and way ahead of the 10 year average, Wagner reported. Fall chinook passage at Lower Granite is 24,500 fish, which is good but doesn't match last year's record of 40,000 fish. The steelhead count of 176,000 is close to the 10 year average. The lamprey count of 48 at Lower Granite is below the 10 year average but better than last year.

Juveniles: Passage is nearly done and smolt monitoring ends on October 31. At Lower Granite Dam, 100-200 smolts are passing per day; Little Goose, with no spill, is passing about half that number.

Water quality. There was nothing to report today.

Power. There was nothing to report today.

7. Next Meeting

The next TMT meeting will be a conference call on November 2 to discuss chum operations. TMT will meet next in person on November 9, followed by conference calls as needed on November 16, 23 and 30.

Name	***Affiliation***
Doug Baus	COE
Tom Lorz	CRITFC
Paul Wagner	NOAA
David Wills	USFWS
Rick Kruger	Oregon
Lisa Wright	COE
John Roache	BOR
Tony Norris	BPA
Jim Litchfield	Montana
Scott Bettin	BPA
Laura Hamilton	COE
Steve Hall	COE Walla Walla
Gregg Teasdale	COE Walla Walla
Richard Turner	COE Walla Walla

Eric Braun	COE
Karl Kanbergs	COE
Bill Proctor	COE
Gail Lear	COE
Kim Johnson	COE

Phone:

Russ Kiefer	Idaho
Dave Statler	Nez Perce
Steve Smith	Colville
John Hart	EWEB
Ruth Burris	PGE
Margaret Filardo	FPC
Dave Benner	FPC
Russ George	WMC
Shane Scott	PPC
Richelle Beck	Grant PUD
Barry Espenson	CBB
David George	Port of Lewiston
Robert Eskildsen	COE

TECHNICAL MANAGEMENT TEAM			
BOR:	*John Roache / Mary Mellema / Pat McGrane*	**BPA:**	*Tony Norris / Scott Bettin / Robyn MacKay*
NOAA-F:	*Paul Wagner / Richard Dominigue*	**USFWS:**	*David Wills / Steve Haeseker*
OR:	*Rick Kruger / Ron Boyce*	**ID:**	*Russ Kiefer / Pete Hassemer*
WDFW:	*Cindy LeFleur / Charles Morrill*	**MT:**	*Jim Litchfield / Brian Marotz*
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Colville:	*Sheri Sears / Steve Smith*	**Nez Perce:**	*Dave Statler*
Umatilla:	*Tom Lorz (CRITFC)*		
COE:	*Doug Baus / Karl Kanbergs*		

TMT CONFERENCE CALL

Wednesday November 2, 2011 9:00am - 12:00pm

CONFERENCE CALL INFORMATION
Phone Number (877) 336-1274
Access Code 3871669
Security Code 6845

We have had disruptions on the phone because people are not hitting 'mute' after dial in.
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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@cnnw.net or call her at (503) 248-4703.

Note: Members of the public are encouraged to refer to the Official Meeting Minutes and the TMT agenda links for information re: discussions and decisions made at TMT. Operational decisions that are made outside a TMT meeting will be reported on at the next scheduled meeting and/or linked to the agenda item of the meeting at which it was discussed, as soon as is reasonably possible.

AGENDA

1. Welcome and Introductions
2. Chum Update - *Paul Wagner, NOAA Fisheries*
3. Other
   a. Set agenda and date for next meeting - **November 9, 2011**
   b. [Calendar 2011]

Questions about the meeting may be referred to:
Doug Baus at (503) 808-3995

COLUMBIA RIVER TECHNICAL MANAGEMENT TEAM

November 2, 2011Conference Call

Facilitator's Summary

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 Update

Paul Wagner, NOAA, updated that 12 chum had been observed in the Ives Island area, and reminded everyone that TMT reached agreement last week to set an 11.5' tailwater elevation at Bonneville to support the chum. The salmon managers and others have a site visit scheduled for this Friday, 11/4 to observe the area and look for any changes in topography resulting from last year's consistently high flows that might lead to a change in the recommended operation. Doug Baus, COE, also reported that FPOM discussed and made a recommendation to expand the operating range to 11.3-12.0' (rather than 11.3-11.7) to accommodate additional needs at Bonneville. Fish screens are out so PH 2 will not be operated and the expanded range would provide daytime flexibility to manage flows and fluctuating tides. Lisa Wright, COE, added that repair work at Bradford Island was expected to be completed by the end of tomorrow. Also, as yet there have been no local (tributary) flow contributions into the system but once there are, she suggested the need for this expanded operating range might not be as critical.

Operation Plan: Doug said the COE would expand the operating range to 11.3-12.0' for daytime operations today per the FPOM recommendation and will revisit chum operations with TMT next week on 11/9. If any major changes are recommended before then, there may be a need for additional TMT coordination before the regularly scheduled meeting.

Columbia River Regional Forum
TECHNICAL MANAGEMENT TEAM OFFICIAL MINUTES

November 2, 2011
Notes: Pat Vivian

1. Introduction

Today's TMT conference call was chaired by Doug Baus, COE, and facilitated by Robin Gumpert, DS Consulting. Representatives of BPA, NOAA, Washington, USFWS, BOR, the COE, confederated Salish-Kootenai tribes, CRITFC/Umatilla Tribe, Oregon, Idaho and others attended. This summary is an official record of the proceedings, not a verbatim transcript. Any questions or comments should be directed to the TMT chair.

2. Chum Operations Update

Paul Wagner, NOAA, reported that a dozen chum have been seen in the Ives Island area, triggering an FPAC recommendation to start the chum operation on November 1. Yesterday's FPAC call yielded tentative agreement to maintain the typical 11.5 foot elevation target below Bonneville, but field observations indicated that 11.5 feet might not be adequate because last year's high water event appears to have altered the gravel spawning beds. A field trip is planned for November 4 to assess conditions.

Meanwhile, FPOM has expressed a desire to expand the tailwater operating range from 11.3-11.7 feet to 11.3-12.0 feet in order to accommodate numerous operations currently underway (e.g. powerhouse 2 screen removal, chum operation, contractors downstream of the spillway), Baus said. The purpose of today's meeting was to solicit TMT members' views of the expanded operation.

John Roache, BOR, asked for more details on the reasons for an expanded range. It will provide more room to pass water during the day despite changing tides instead of having to reduce discharges when the tide comes in, Tony Norris, BPA, said. The ultimate goal is to keep water moving so the project doesn't fill. Lisa Wright, COE, reported on coordination of repairs underway. The Bradford Island work will be finished tomorrow. The goal of the expanded tailwater elevation range is to maximize use of the Bonneville 1st powerhouse where the functioning ladders are, Rick Kruger, Oregon, said. Wright added that local creeks are not yet flowing into the spawning area, and when they do, the chum operation won't be as dependent on flows through Bonneville. Then the upper elevation could be decreased.

The **COE** plans to continue the expanded tailwater range until TMT convenes next week for a more robust discussion of the chum operation. **Idaho**

and **NOAA** gave explicit support for the expanded range; **Oregon** and **Washington** voiced no objection.

When asked what daily average discharges from Bonneville will be with the extended range, Norris said it takes 70-145 kcfs to maintain an elevation of 11.3-12.0 feet below Bonneville at present, with flows of around 125 kcfs during the day. Those numbers will change with conditions. There was agreement that TMT will revisit this operation next week in greater detail, and stakeholders will be notified if field reports indicate a need for major changes.

3. Next TMT Meeting

There will be a face to face meeting on November 9 to review the chum operation as well as any other issues that arise.

Name	***Affiliation***
Tony Norris	BPA
Paul Wagner	NOAA
Cindy Lefleur	Washington
David Wills	USFWS
John Roache	BOR
Joel Hovenkotter	Salish-Kootenai
Kyle Dittmer	CRITFC
Doug Baus	COE
Lisa Wright	COE
Laura Hamilton	COE
Karl Kanbergs	COE
Barry Espenson	CBB
Shane Scott	PPC
Russ George	WMC
Richelle Beck	Grant PUD
Steve Hall	COE Walla Walla
Rick Kruger	Oregon
Alex Cibarra	Grant PUD
Russ Kiefer	Idaho

TECHNICAL MANAGEMENT TEAM			
BOR:	*John Roache / Mary Mellema / Pat McGrane*	**BPA:**	*Tony Norris / Scott Bettin / Robyn MacKay*
NOAA-F:	*Paul Wagner / Richard Dominigue*	**USFWS:**	*David Wills / Steve Haeseker*
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Colville:	*Sheri Sears / Steve Smith*	**Nez Perce:**	*Dave Statler*
Umatilla:	*Tom Lorz (CRITFC)*		
COE:	*Doug Baus / Karl Kanbergs*		

TMT MEETING

Wednesday November 9, 2011 9:00am - 12:00pm

1125 N.W. Couch Street, Suite 500, Columbia Room
Portland, Oregon 97209-4142
Map Quest [Directions]

TMT MEETING
Phone Number (877) 336-1274
Access Code 3871669
Security Code 6845

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Note: Members of the public are encouraged to refer to the Official Meeting Minutes and the TMT agenda links for information re: discussions and decisions made at TMT. Operational decisions that are made outside a TMT meeting will be reported on at the next scheduled meeting and/or linked to the agenda item of the meeting at which it was discussed, as soon as is reasonably possible.

AGENDA

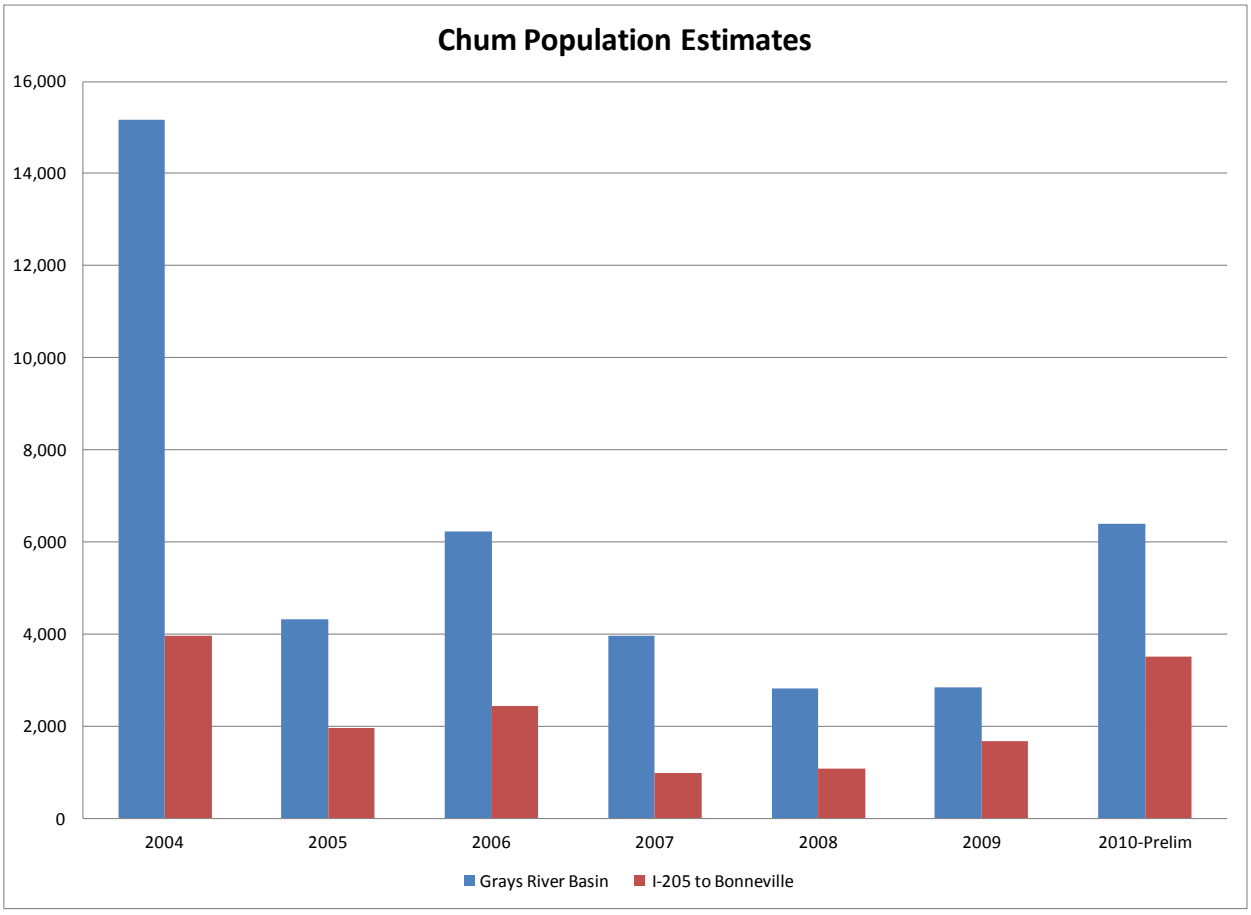
1. Welcome and Introductions
2. Review October 26 and November 2 Meeting Minutes [Meeting Minutes]
3. Chum Update - *Paul Wagner NOAA Fisheries*
    a. SOR 2011-5 Bonneville Chum Operation
    a. Chum Population Estimates
4. Operations Review
    a. Reservoirs
    b. Fish

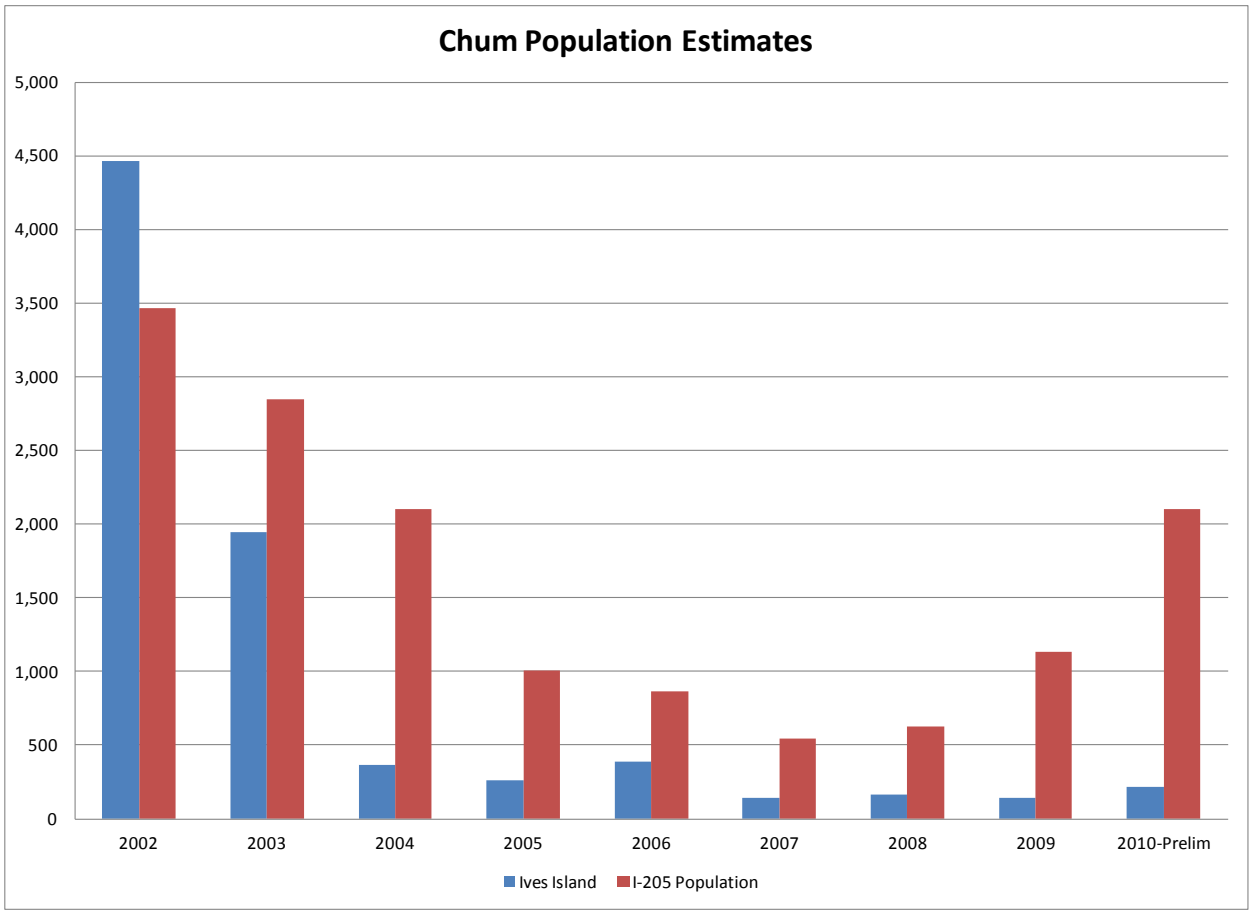
   c. Water Quality
   d. Power System
5. Other
   a. Set agenda and date for next meeting - **November 16, 2011**
   b. [Calendar 2011]

Questions about the meeting may be referred to:
Doug Baus at (503) 808-3995

Chum Spawning Population Estimates in the Columbia River

	2002	2003	2004	2005	2006	2007	2008	2009	2010-Prelim
Crazy Johnson Creek	---	---	966	1,471	3,639	759	1,034	981	677
West Fork Grays River	---	---	9,015	1,324	1,232	1,909	800	994	1,967
Mainstem Grays River	---	---	4,872	1,400	1,244	1,164	886	750	3,467
I-205 area	3,468	2,844	2,102	1,009	862	544	626	1,132	2,105
Multnomah area	1,267	1,130	665	211	313	115	28	102	427
St Cloud area	---	137	104	92	173	9	1	14	99
Horsetail area	---	---	106	40	63	17	33	6	45
Ives area	4,466	1,942	363	263	387	145	168	141	214
Duncan Creek	13	16	2	7	42	9	2	26	48
Hardy Creek	343	392	49	73	104	14	3	39	137
Hamilton Creek	1,000	500	222	174	246	79	114	115	247
Hamilton Spring Channel	794	363	346	84	236	44	109	91	187
Grays return			15,157	4,327	6,232	3,966	2,807	2,833	6,399
I-205 to Bonneville return	11,351	7,324	3,959	1,953	2,426	976	1,084	1,666	3,509
LCR total			19,116	6,280	8,658	4,942	3,891	4,499	9,908





Provided by Cindy LeFleur
Washington Department of Fish and Wildlife
November 9, 2011

COLUMBIA RIVER TECHNICAL MANAGEMENT TEAM

November 9, 2011 Meeting
Facilitator's Summary
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 Update: SOR 2011-5

Paul Wagner, NOAA, presented an SOR on behalf of all the signatories, and began with a note that this was a framework recommended for consideration while moving through the chum season, rather than a specific operation recommendation. It is intended to be implemented if flows support it, to allow access to additional spawning habitat areas, and to provide more natural flow conditions rather than big fluctuations between day and night time hours. The specifications were as follows:

- During November 2011, continue to provide a Bonneville tailwater elevation of approximately 11.5 feet (range 11.3 – 12.0 feet).
- If fish numbers of unspawned adult chum salmon are significant and natural precipitation results in flow levels that require a substantial increase in nighttime flow to maintain the 11.5 foot daytime tailwater, increase the day time tailwater elevation to approximately 12.5 feet to provide additional spawning habitat during the last week of November.
- If fish numbers are significant and precipitation is sufficient, increase the tailwater elevation to approximately 13.5 feet during the month of December.
- Maintain the 85% probability of achieving the April 10th flood control target at Grand Coulee Dam. TMT will use all available model data, including the STP and ESP forecasts, water supply forecasts and the climate forecasts and fully consider the decision to reduce the tailwater elevation on a regular basis. If these forecasts indicate that the 85% probability of reaching the April 10 refill objective is at significant risk, the tailwater elevation would be lowered to an appropriate level.

Paul stressed that refill for spring migrants would remain the highest priority while looking to provide an operation that supports chum spawning in potentially new habitat areas– such as Hamilton Springs where a habitat improvement project is underway.

TMT discussed the recommendation and identified key considerations that will be important when shaping the operation this year:

- Field observations will be critical to informing the finer details of the operation, including the tailwater operating range, in order to support spawning while minimizing risks of refill.
- "Significant" numbers of chum present is not specific and will require more clarification from the salmon managers further in to the season.
- Grand Coulee refill is a priority, as is refill of Banks Lake.
- Impacts to Vernita Bar operations need to be considered.

- The operation should not put any additional undue stress on other areas such as Lake Roosevelt.
- The operation in January will not be an 'all or nothing' scenario; rather there is the potential for dewatering some spawning areas if the forecasts indicate that Grand Coulee is at a less than 85% probability of refill.

In addition to the above considerations, a question was asked about whether there is sufficient habitat available to support the fish that are expected to spawn this year. Paul responded that the salmon managers hope this to be a planning exercise to determine if a 13.5' tailwater elevation truly is the ideal spot for chum spawning. Much can be learned if conditions will support this proposed operation. It was also noted that not all the salmon managers signed on to the SOR; Idaho's Russ Kiefer said he did provide input to the process and that Idaho would defer to its co-managers with direct authority to determine the best operation for the chum.

Operation Plan: The chum operation will continue to target an 11.5 feet (11.3-12.0' feet) tailwater elevation at Bonneville. Weekly field observations conducted by WDFW will inform FPAC and TMT discussions. TMT will revisit the issue on a weekly basis to discuss operations moving forward.

Cindy LeFleur, Washington, shared chum historic spawning data following today's meeting; it can be found as a link to this agenda item on the TMT web page.

Operations Review

Reservoirs – John Roache, Reclamation, reported on projects: Grand Coulee was at elevation 1289'. Hungry Horse was at elevation 3548.28' with 1.9 kcfs outflows to meet Columbia Falls minimums. Doug Baus, COE, reported on projects: Libby was at elevation 2447.41'. Albeni Falls (reported by Seattle District's Joel Fenolio) had reached its target winter elevation range on 11/7. Russ Kiefer, Idaho, said the timing of this aligned well with the timing of spawning, and thanked the COE for providing the operation. Dworshak was at elevation 1519.32' with 1.5 kcfs outflows. Lower Granite was releasing 27.10 kcfs outflows; Priest Rapids was releasing 98.40 kcfs outflows; McNary was releasing 121.20 kcfs outflows and Bonneville was releasing 133.40 kcfs outflows.

Fish – Paul Wagner, NOAA, reported on adult passage. At Bonneville, Fall Chinook counts were <100/day; jacks at BON were <10/day; and steelhead at BON were <100/day (30/day wild). At Lower Granite, Fall Chinook counts were <30/day; jacks at LGR were <10/day; and steelhead at LGR were 100-200/day. 19 chum had been seen at Bonneville this week.

Water quality – Nothing to report.

Power system – Nothing to report.

Next Meeting, 11/16 Conference Call (Please note that this call might be cancelled if TMT determines there is no need for discussion – a cancellation determination will be made by 3:00 pm on 11/15.)
Agenda items include:

- Chum Operations
- Zero Nighttime Generation on the Lower Snake Projects

Columbia River Regional Forum
TECHNICAL MANAGEMENT TEAM OFFICIAL MINUTES

November 9, 2011
Notes: Pat Vivian

1. Introduction

Today's TMT meeting was chaired by Doug Baus, COE, and facilitated by Robin Gumpert, DS Consulting. Representatives of Oregon, USFWS, NOAA, BOR, BPA, the COE, Washington, Idaho, the confederated Salish-Kootenai and Colville tribes, CRITFC and others attended. This summary is an official record of the proceedings, not a verbatim transcript.

2. Review Meeting Minutes for October 26 and November 2

David Wills, USFWS, changed "borrowing" to "burrowing" regarding lamprey in the October 26 official minutes. With this change, both sets of meeting minutes and facilitator's notes were deemed final.

3. Chum Operations Update – SOR 2011-5

This SOR doesn't request a specific operation, but a framework to consider throughout chum season in terms of operations that affect spawning below Ives Island, Paul Wagner, NOAA, explained. The current operation for chum, which targets 11.5 foot elevation in the Bonneville tailwater with a range of 11.3-11.7 feet, has been increased to a range of 11.3-12 feet. This seems to be working. However, there may be good reason to raise the tailwater elevation again later in the season if flows are high. Instead of reverse load factoring and increasing the Bonneville tailwater elevations dramatically at night, the SOR proposes increasing the tailwater elevation up to 13.5 feet during daytime if conditions warrant. This would allow the end of the run access to prime spawning grounds, where gravel and upwelling are present.

The SOR is predicated on a wet December with high flows. It also specifies that Grand Coulee maintain at least an 85% likelihood of refill throughout the operation. At any time the 85% threshold is not met, the Salmon Managers would prefer to abandon higher elevation chum redds in favor of refill probability for spring migrants.

Habitat improvement in the Hamilton Springs channel has already greatly expanded the chum spawning area, Wagner noted. The goal of this SOR is to make all potential habitat available to Ives Island spawners, a population that has not increased in the past 10 years. The operation outlined in the SOR could give this population a significant boost.

Tony Norris, BPA, asked whether the Ives Island fish might spawn elsewhere, or is the Ives population a separate ESU? Their ESU is the lower Columbia population, which extends from Grays River to the area above Bonneville Dam, Wagner replied. A genetic analysis found subtle differences between the I-205 population and fish in the Ives Island area. The recovery plan calls for establishment of chum in three areas: Grays River, the Lewis River to I-205, and the Columbia Gorge. Fish that spawn at Multnomah Falls are considered part of this population.

Scott Bettin, BPA, asked whether 13.5 feet is considered a minimum tailwater elevation, and would it apply during daytime only or at night as well? Rick Kruger, Oregon, suggested using an operational range like the 11.3-11.7 range around the 11.5-foot target. Oregon doesn't want the tailwater elevation to drop suddenly. When and if the operation goes to 13.5 feet, decisions will need to be made based on the latest water supply forecast, Wagner said. Bettin advocated using ramp-down rates to prevent stranding.

John Roache, BOR, asked for a definition of "significant chum presence" as used in the SOR. That will be up for discussion as time passes, Wagner said. TMT agreed to revisit the chum operation weekly throughout spawning season.

Two major **BOR** concerns regarding this SOR are maintaining an 85% likelihood of refill at Grand Coulee by April 10, and refilling Banks Lake by early April, Roache said. NOAA shares the Banks Lake concern because the lake needs to be full for summer flow augmentation, Wagner said. Roache and Norris asked about the relationship of Vernita Bar operations to this SOR in the event that maintaining an elevation of 13.5 feet at Bonneville disadvantages the reservoirs. Would there be a plan to dewater Vernita Bar after chum are dewatered? Wagner said he will find out whether a dewatering provision was added to the 2004 iteration of the Vernita Bar program. There was general agreement that potential impacts of the SOR on Vernita Bar, Banks Lake and Grand Coulee refill operations need to be looked at carefully.

Sheri Sears said the **Colville Tribe** wants a commitment from the Action Agencies that any plans to exceed the 11.5 foot operation specified in the BiOp do not mean that supporting chum redds at a higher elevation could impact drawdown of Lake Roosevelt through winter and spring. The tribe does not want resources jeopardized to provide water for perhaps 100-150 redds at the end of chum season. Wagner said the BiOp didn't specify 11.5 feet as a maximum; it was intended to be an annual operation, with flexibility for other potential operations. The intent of this SOR is to follow the water supply forecast throughout chum season and perhaps use it as a tool to make better use of resources in the Ives Island area.

Tony Norris said **BPA** shares the Colville Tribe's concerns regarding the SOR. Setting a higher chum tailwater in response to natural events in November

and December would mean making an operational commitment before a reliable water supply forecast is available. Moving enough water through the system to maintain 13.5 feet at Bonneville would pose a high risk to April 10 refill at Grand Coulee. For this reason, BPA does not support the SOR.

Norris asked about the significance of the 13.5 foot elevation to chum. The fish prefer this elevation whenever it is available, Wagner said. It might not be necessary to maintain 13.5 feet around the clock. One option would be rewetting the redds if 85% probability of refill is in jeopardy. There was discussion of when and how a decision might be made to abandon the higher elevation redds. It might be possible to maintain them with 2 hours of daily submergence at 13.5 feet, Wagner said. The basic intent of the SOR is to gain more flexibility if high-water conditions occur, Dave Wills noted.

Norris said the chum strategy needs to address the whole year, not just November/December. There was agreement today that the intent of the SOR is to operate Grand Coulee as specified in the 2011 Water Management Plan. Wagner said he would verify that the spawning location in question is warmer than other spawning grounds in the area. If so, that would reduce the risks associated with this operation.

Baus asked whether the fact that not all Salmon Managers signed this SOR indicates that other points of view need airing, such as the Colville Tribe views. Idaho did not sign the SOR because it has no direct management authority over chum, Russ Kiefer replied. Nevertheless, Idaho supports the SOR.

There was no poll of TMT members today because the SOR does not request a specific action at this time. TMT agreed to revisit the chum operation weekly throughout spawning season, based on WDFW field reports of chum activity in the areas below Bonneville Dam.

Cindy LeFleur, Washington, shared historical population data from the area. I-205: 3,500 chum in 2002, which decreased to 600 in 2008, then rose to 1,100 in 2009 and 2,100 in 2010. Ives Island: 4,500 chum in 2002, down to 200 in 2010. Some of the areas near Bonneville saw increases in 2010 that didn't occur at Ives. In general, chum populations at Bonneville have been declining. LeFleur will provide TMT with historical data going back to 2002, which the COE will post to the TMT page.

4. Operations Review

Reservoirs. Grand Coulee is at elevation 1289 feet, operating for chum. Hungry Horse is at elevation 3548.28 feet, with discharges of 1.9-2 kcfs to meet Columbia Falls minimums. Libby is at elevation 2447.41 feet. Albeni Falls has been drafting to a winter elevation range of 2051-2051.5 feet, which was attained

on November 7 for kokanee spawning. Dworshak is at elevation 1519.32 feet, releasing 1.5 kcfs.

Lower Granite discharges are 27.1 kcfs. McNary discharges are 121.2 kcfs. Bonneville discharges are 133.4 kcfs.

Fish. Juvenile passage is over and adult passage is winding down, Wagner said. Bonneville is passing less than 100 fall chinook per day, with a high count of 126 fish on November 3. Fewer than 10 jacks per day have passed Bonneville in the past few days. Steelhead passage is down to less than 100 fish per day, and less than 30 wild steelhead per day. Chum are warming up for fall spawning, with 19 fish at Bonneville now (the average for this time of year is 20).

Bettin asked, are we approaching the trigger for zero nighttime flows on the lower Snake River? Probably not for a few more weeks, Wagner replied.

Water quality. There was nothing to report today.

Power. There was nothing to report today.

7. Next Meeting

The next TMT meeting will be a conference call on November 16 to revisit chum and lower Snake operations. TMT will meet in person on November 9, followed by conference calls as needed on November 16, 23 and 30.

Name	***Affiliation***
Doug Baus	COE
Rick Kruger	Oregon
David Wills	USFWS
Paul Wagner	NOAA
Lisa Wright	COE
John Roache	BOR
Tony Norris	BPA
Scott Bettin	BPA
Karl Kanbergs	COE
Dan Feil	COE
Tom Lorz	CRITFC
Phone:	
Cindy LeFleur	Washington
Russ Kiefer	Idaho
Stu Leavitt	Salish Kootenai
Sheri Sears	Colville
Ruth Burris	PGE
John Hart	EWEB

Harvey Hall	Eweb
Joel Fenolio	COE
Heather XX	Puget Power
Bruce McKay	hydropower consultant
Russ George	WMC
Margaret Filardo	FPC
Dave Benner	FPC
Rob Allerman	Deutsch Bank
Glen Trager	Iberdrola
Barry Espenson	CBB
Craig Otting	Merrill Lynch
Richelle Beck	consultant

COLUMBIA RIVER TECHNICAL MANAGEMENT TEAM

November 9, 2011 Meeting
Facilitator's Summary
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 Update: SOR 2011-5

Paul Wagner, NOAA, presented an SOR on behalf of all the signatories, and began with a note that this was a framework recommended for consideration while moving through the chum season, rather than a specific operation recommendation. It is intended to be implemented if flows support it, to allow access to additional spawning habitat areas, and to provide more natural flow conditions rather than big fluctuations between day and night time hours. The specifications were as follows:

- During November 2011, continue to provide a Bonneville tailwater elevation of approximately 11.5 feet (range 11.3 – 12.0 feet).
- If fish numbers of unspawned adult chum salmon are significant and natural precipitation results in flow levels that require a substantial increase in nighttime flow to maintain the 11.5 foot daytime tailwater, increase the day time tailwater elevation to approximately 12.5 feet to provide additional spawning habitat during the last week of November.
- If fish numbers are significant and precipitation is sufficient, increase the tailwater elevation to approximately 13.5 feet during the month of December.
- Maintain the 85% probability of achieving the April 10th flood control target at Grand Coulee Dam. TMT will use all available model data, including the STP and ESP forecasts, water supply forecasts and the climate forecasts and fully consider the decision to reduce the tailwater elevation on a regular basis. If these forecasts indicate that the 85% probability of reaching the April 10 refill objective is at significant risk, the tailwater elevation would be lowered to an appropriate level.

Paul stressed that refill for spring migrants would remain the highest priority while looking to provide an operation that supports chum spawning in potentially new habitat areas– such as Hamilton Springs where a habitat improvement project is underway.

TMT discussed the recommendation and identified key considerations that will be important when shaping the operation this year:

- Field observations will be critical to informing the finer details of the operation, including the tailwater operating range, in order to support spawning while minimizing risks of refill.
- "Significant" numbers of chum present is not specific and will require more clarification from the salmon managers further in to the season.
- Grand Coulee refill is a priority, as is refill of Banks Lake.
- Impacts to Vernita Bar operations need to be considered.

- The operation should not put any additional undue stress on other areas such as Lake Roosevelt.
- The operation in January will not be an 'all or nothing' scenario; rather there is the potential for dewatering some spawning areas if the forecasts indicate that Grand Coulee is at a less than 85% probability of refill.

In addition to the above considerations, a question was asked about whether there is sufficient habitat available to support the fish that are expected to spawn this year. Paul responded that the salmon managers hope this to be a planning exercise to determine if a 13.5' tailwater elevation truly is the ideal spot for chum spawning. Much can be learned if conditions will support this proposed operation. It was also noted that not all the salmon managers signed on to the SOR; Idaho's Russ Kiefer said he did provide input to the process and that Idaho would defer to its co-managers with direct authority to determine the best operation for the chum.

Operation Plan: The chum operation will continue to target an 11.5 feet (11.3-12.0' feet) tailwater elevation at Bonneville. Weekly field observations conducted by WDFW will inform FPAC and TMT discussions. TMT will revisit the issue on a weekly basis to discuss operations moving forward.

Cindy LeFleur, Washington, shared chum historic spawning data following today's meeting; it can be found as a link to this agenda item on the TMT web page.

Operations Review

Reservoirs – John Roache, Reclamation, reported on projects: Grand Coulee was at elevation 1289'. Hungry Horse was at elevation 3548.28' with 1.9 kcfs outflows to meet Columbia Falls minimums. Doug Baus, COE, reported on projects: Libby was at elevation 2447.41'. Albeni Falls (reported by Seattle District's Joel Fenolio) had reached its target winter elevation range on 11/7. Russ Kiefer, Idaho, said the timing of this aligned well with the timing of spawning, and thanked the COE for providing the operation. Dworshak was at elevation 1519.32' with 1.5 kcfs outflows. Lower Granite was releasing 27.10 kcfs outflows; Priest Rapids was releasing 98.40 kcfs outflows; McNary was releasing 121.20 kcfs outflows and Bonneville was releasing 133.40 kcfs outflows.

Fish – Paul Wagner, NOAA, reported on adult passage. At Bonneville, Fall Chinook counts were <100/day; jacks at BON were <10/day; and steelhead at BON were <100/day (30/day wild). At Lower Granite, Fall Chinook counts were <30/day; jacks at LGR were <10/day; and steelhead at LGR were 100-200/day. 19 chum had been seen at Bonneville this week.

Water quality – Nothing to report.

Power system – Nothing to report.

Next Meeting, 11/16 Conference Call (Please note that this call might be cancelled if TMT determines there is no need for discussion – a cancellation determination will be made by 3:00 pm on 11/15.)
Agenda items include:

- Chum Operations
- Zero Nighttime Generation on the Lower Snake Projects

Columbia River Regional Forum
TECHNICAL MANAGEMENT TEAM OFFICIAL MINUTES

November 9, 2011
Notes: Pat Vivian

1. Introduction

Today's TMT meeting was chaired by Doug Baus, COE, and facilitated by Robin Gumpert, DS Consulting. Representatives of Oregon, USFWS, NOAA, BOR, BPA, the COE, Washington, Idaho, the confederated Salish-Kootenai and Colville tribes, CRITFC and others attended. This summary is an official record of the proceedings, not a verbatim transcript.

2. Review Meeting Minutes for October 26 and November 2

David Wills, USFWS, changed "borrowing" to "burrowing" regarding lamprey in the October 26 official minutes. With this change, both sets of meeting minutes and facilitator's notes were deemed final.

3. Chum Operations Update – SOR 2011-5

This SOR doesn't request a specific operation, but a framework to consider throughout chum season in terms of operations that affect spawning below Ives Island, Paul Wagner, NOAA, explained. The current operation for chum, which targets 11.5 foot elevation in the Bonneville tailwater with a range of 11.3-11.7 feet, has been increased to a range of 11.3-12 feet. This seems to be working. However, there may be good reason to raise the tailwater elevation again later in the season if flows are high. Instead of reverse load factoring and increasing the Bonneville tailwater elevations dramatically at night, the SOR proposes increasing the tailwater elevation up to 13.5 feet during daytime if conditions warrant. This would allow the end of the run access to prime spawning grounds, where gravel and upwelling are present.

The SOR is predicated on a wet December with high flows. It also specifies that Grand Coulee maintain at least an 85% likelihood of refill throughout the operation. At any time the 85% threshold is not met, the Salmon Managers would prefer to abandon higher elevation chum redds in favor of refill probability for spring migrants.

Habitat improvement in the Hamilton Springs channel has already greatly expanded the chum spawning area, Wagner noted. The goal of this SOR is to make all potential habitat available to Ives Island spawners, a population that has not increased in the past 10 years. The operation outlined in the SOR could give this population a significant boost.

Tony Norris, BPA, asked whether the Ives Island fish might spawn elsewhere, or is the Ives population a separate ESU? Their ESU is the lower Columbia population, which extends from Grays River to the area above Bonneville Dam, Wagner replied. A genetic analysis found subtle differences between the I-205 population and fish in the Ives Island area. The recovery plan calls for establishment of chum in three areas: Grays River, the Lewis River to I-205, and the Columbia Gorge. Fish that spawn at Multnomah Falls are considered part of this population.

Scott Bettin, BPA, asked whether 13.5 feet is considered a minimum tailwater elevation, and would it apply during daytime only or at night as well? Rick Kruger, Oregon, suggested using an operational range like the 11.3-11.7 range around the 11.5-foot target. Oregon doesn't want the tailwater elevation to drop suddenly. When and if the operation goes to 13.5 feet, decisions will need to be made based on the latest water supply forecast, Wagner said. Bettin advocated using ramp-down rates to prevent stranding.

John Roache, BOR, asked for a definition of "significant chum presence" as used in the SOR. That will be up for discussion as time passes, Wagner said. TMT agreed to revisit the chum operation weekly throughout spawning season.

Two major **BOR** concerns regarding this SOR are maintaining an 85% likelihood of refill at Grand Coulee by April 10, and refilling Banks Lake by early April, Roache said. NOAA shares the Banks Lake concern because the lake needs to be full for summer flow augmentation, Wagner said. Roache and Norris asked about the relationship of Vernita Bar operations to this SOR in the event that maintaining an elevation of 13.5 feet at Bonneville disadvantages the reservoirs. Would there be a plan to dewater Vernita Bar after chum are dewatered? Wagner said he will find out whether a dewatering provision was added to the 2004 iteration of the Vernita Bar program. There was general agreement that potential impacts of the SOR on Vernita Bar, Banks Lake and Grand Coulee refill operations need to be looked at carefully.

Sheri Sears said the **Colville Tribe** wants a commitment from the Action Agencies that any plans to exceed the 11.5 foot operation specified in the BiOp do not mean that supporting chum redds at a higher elevation could impact drawdown of Lake Roosevelt through winter and spring. The tribe does not want resources jeopardized to provide water for perhaps 100-150 redds at the end of chum season. Wagner said the BiOp didn't specify 11.5 feet as a maximum; it was intended to be an annual operation, with flexibility for other potential operations. The intent of this SOR is to follow the water supply forecast throughout chum season and perhaps use it as a tool to make better use of resources in the Ives Island area.

Tony Norris said **BPA** shares the Colville Tribe's concerns regarding the SOR. Setting a higher chum tailwater in response to natural events in November

and December would mean making an operational commitment before a reliable water supply forecast is available. Moving enough water through the system to maintain 13.5 feet at Bonneville would pose a high risk to April 10 refill at Grand Coulee. For this reason, BPA does not support the SOR.

Norris asked about the significance of the 13.5 foot elevation to chum. The fish prefer this elevation whenever it is available, Wagner said. It might not be necessary to maintain 13.5 feet around the clock. One option would be rewetting the redds if 85% probability of refill is in jeopardy. There was discussion of when and how a decision might be made to abandon the higher elevation redds. It might be possible to maintain them with 2 hours of daily submergence at 13.5 feet, Wagner said. The basic intent of the SOR is to gain more flexibility if high-water conditions occur, Dave Wills noted.

Norris said the chum strategy needs to address the whole year, not just November/December. There was agreement today that the intent of the SOR is to operate Grand Coulee as specified in the 2011 Water Management Plan. Wagner said he would verify that the spawning location in question is warmer than other spawning grounds in the area. If so, that would reduce the risks associated with this operation.

Baus asked whether the fact that not all Salmon Managers signed this SOR indicates that other points of view need airing, such as the Colville Tribe views. Idaho did not sign the SOR because it has no direct management authority over chum, Russ Kiefer replied. Nevertheless, Idaho supports the SOR.

There was no poll of TMT members today because the SOR does not request a specific action at this time. TMT agreed to revisit the chum operation weekly throughout spawning season, based on WDFW field reports of chum activity in the areas below Bonneville Dam.

Cindy LeFleur, Washington, shared historical population data from the area. I-205: 3,500 chum in 2002, which decreased to 600 in 2008, then rose to 1,100 in 2009 and 2,100 in 2010. Ives Island: 4,500 chum in 2002, down to 200 in 2010. Some of the areas near Bonneville saw increases in 2010 that didn't occur at Ives. In general, chum populations at Bonneville have been declining. LeFleur will provide TMT with historical data going back to 2002, which the COE will post to the TMT page.

4. Operations Review

Reservoirs. Grand Coulee is at elevation 1289 feet, operating for chum. Hungry Horse is at elevation 3548.28 feet, with discharges of 1.9-2 kcfs to meet Columbia Falls minimums. Libby is at elevation 2447.41 feet. Albeni Falls has been drafting to a winter elevation range of 2051-2051.5 feet, which was attained

on November 7 for kokanee spawning. Dworshak is at elevation 1519.32 feet, releasing 1.5 kcfs.

Lower Granite discharges are 27.1 kcfs. McNary discharges are 121.2 kcfs. Bonneville discharges are 133.4 kcfs.

Fish. Juvenile passage is over and adult passage is winding down, Wagner said. Bonneville is passing less than 100 fall chinook per day, with a high count of 126 fish on November 3. Fewer than 10 jacks per day have passed Bonneville in the past few days. Steelhead passage is down to less than 100 fish per day, and less than 30 wild steelhead per day. Chum are warming up for fall spawning, with 19 fish at Bonneville now (the average for this time of year is 20).

Bettin asked, are we approaching the trigger for zero nighttime flows on the lower Snake River? Probably not for a few more weeks, Wagner replied.

Water quality. There was nothing to report today.

Power. There was nothing to report today.

7. Next Meeting

The next TMT meeting will be a conference call on November 16 to revisit chum and lower Snake operations. TMT will meet in person on November 9, followed by conference calls as needed on November 16, 23 and 30.

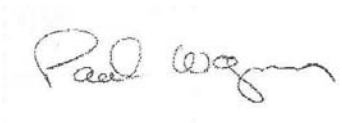
Name	***Affiliation***
Doug Baus	COE
Rick Kruger	Oregon
David Wills	USFWS
Paul Wagner	NOAA
Lisa Wright	COE
John Roache	BOR
Tony Norris	BPA
Scott Bettin	BPA
Karl Kanbergs	COE
Dan Feil	COE
Tom Lorz	CRITFC
Phone:	
Cindy LeFleur	Washington
Russ Kiefer	Idaho
Stu Leavitt	Salish Kootenai
Sheri Sears	Colville
Ruth Burris	PGE
John Hart	EWEB

Harvey Hall	Eweb
Joel Fenolio	COE
Heather Dohan	Puget Sound Energy
Bruce McKay	hydropower consultant
Russ George	WMC
Margaret Filardo	FPC
Dave Benner	FPC
Rob Allerman	Deutsch Bank
Glen Trager	Iberdrola
Barry Espenson	CBB
Craig Otting	Merrill Lynch
Richelle Beck	consultant

SYSTEM OPERATIONAL REQUEST: #2011-5

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

TO:	**Brigadier General McMahon**	**COE-NWD**
	James D. Barton	**COE-Water Management**
	Doug Baus	**COE-RCC**
	David Poganis	**COE-PDD**
	Karl Kanbergs	**COE-NWD-NP-WM-RCC**
	Col. Bruce A. Estok	**COE-Seattle District**
	Karl Wirkus	**USBR-Boise Regional Director**
	Steven Wright	**BPA-Administrator**
	Tony Norris	**BPA-PGPO-5**
	Scott Bettin	**BPA- KEWR-4**
	Steve Oliver	**BPA-PG-5**
	Lori Bodi	**BPA-KE-4**



FROM: Paul Wagner, FPAC Chair

DATE: November 8th, 2011

SUBJECT: 2011 Bonneville Chum Operation

OBJECTIVE: Allow chum to spawn in the Ives Island area at elevations higher than the 11.5 foot elevation if fish numbers and hydrologic conditions are favorable.

SPECIFICATIONS:

1. During November 2011, continue to provide a Bonneville tailwater elevation of approximately 11.5 feet (range 11.3 – 12.0 feet).
2. If fish numbers of unspawned adult chum salmon are significant and natural precipitation results in flow levels that require a substantial increase in nighttime flow to maintain the 11.5 foot daytime tailwater, increase the day time tailwater elevation to approximately 12.5 feet to provide additional spawning habitat during the last week of November.
3. If fish numbers are significant and precipitation is sufficient, increase the tailwater elevation to approximately 13.5 feet during the month of December.

4. Maintain the 85% probability of achieving the April 10th flood control target at Grand Coulee Dam. TMT will use the weekly ESP forecasts, the monthly water supply and 90 day climate forecasts and fully consider the decision to reduce the tailwater elevation on a regular basis. If these forecasts indicate that the 85% probability of reaching the April 10 refill objective is at significant risk, the tailwater elevation would be lowered to an appropriate level.

JUSTIFICATION:

The Ives/Pierce Islands Complex below Bonneville Dam represents a limited natural spawning area for ESA listed Columbia River chum and unlisted Lower Columbia River bright fall Chinook. The NOAA 2004 Biological Opinion (BiOp) recognizes that access to spawning habitat in the Ives/Pierce area and Hardy and Hamilton creeks is primarily a function of the water surface elevation. More so, the BiOp and experience over the last thirteen years recognizes that managing water levels to a tailwater gage height rather than a flow level is preferable. Chum populations have dropped and have remained low in the Ives area since 2002 (Figure 1). The salmon managers are proposing to allow access to a range of habitats by increasing Bonneville tailwater elevations through the spawning season. Higher tailwater through Bonneville will potentially increase the amount of spawning habitat and change the locations of suitable redds (Garland et al 2003), and may provide additional returns to this area.

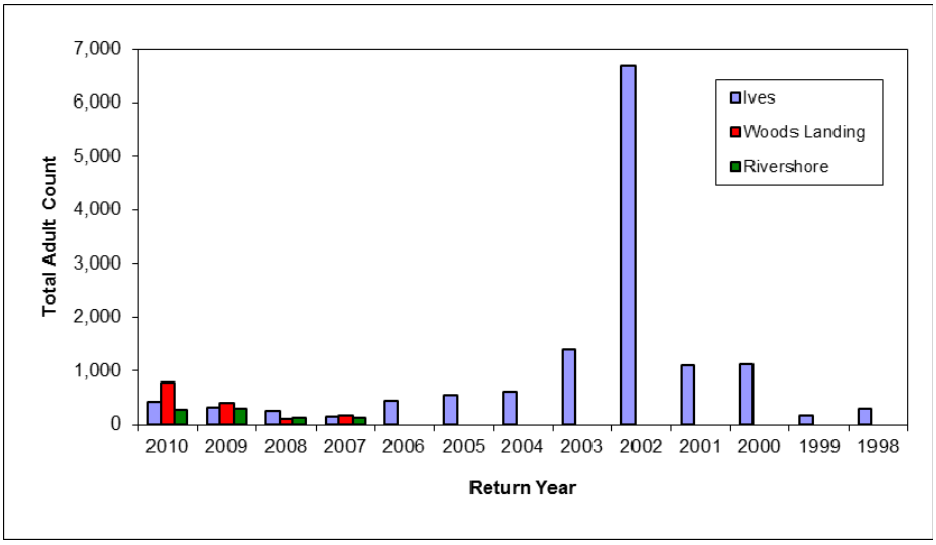


Figure 1: Total adult count of adult chum from 1998-2010. Data for Woods Landing and Rivershore sites have only been collected since 2007.

To avoid reducing the Bonneville tailwater elevation between the establishment of redds and emergence in the spring while still meeting the Biological Opinion April 10th Flood Control requirements, flow will be incrementally increased with the arrival of adult chum and/or the establishment of redds. Over the past 13 years, adult chum have begun to arrive at Ives spawning sites during, on average, the first week of November (Figure 2a). Peak adult

observations have occurred during the last week of November (Figure 2b). Redd formation has been observed as early as late October, but the average date of first observation is November 10th (Figure 3a). Peak redd density occurs, on average, December 1st (Figure 3b).

The salmon managers recognize that this operation increases the risk to achieving the 85% probability of meeting April 10 flood control target at Grand Coulee, which is important for spring migrating interior basin species, if redds are established at higher elevations and maintained through emergence. To help manage this risk the salmon managers will use the weekly ESP forecasts and fully consider the decision to reduce the tailwater elevation on a weekly basis, as well as the monthly water supply and 90 day climate forecasts available. If these forecasts indicate that the 85% probability of reaching the April 10 refill objective is at significant risk, the tailwater elevation would be lowered from 13.5 feet to the 12.5 feet elevation, then to the 11.5 foot elevation and lower still, if the April 10 refill objective appears to be at substantial risk. The strategy of this program is twofold. First, attempt to fill the available spawning area at the lower tailwater elevations and then gradually raise the tailwater to open up more suitable spawning area and reduce the incidence of superimposition of spawners. Second, to help reduce large flow fluctuations and create a more stable spawning condition. Some additional risk exists by placing redds at the higher elevations, but the numbers of redds expected to be formed at these higher elevations will be low, which will reduce the downside risk to the population if they cannot be maintained through emergence. The recent completion of additional spawning habitat in the Hamilton spring channel site should further reduce the risk to chum salmon spawning in the Ives Island area.

On October 21, 2011, two live chum adults were observed at the Ives/Pierce Complex (http://www.fpc.org/spawning/spawning_surveys/ODFW_reports/2011spawning.htm.). This is the earliest first date of observation in the past 13 years (Figure 2a). On November 1, 2011, nineteen live chum were observed at the Ives/Pierce Complex.

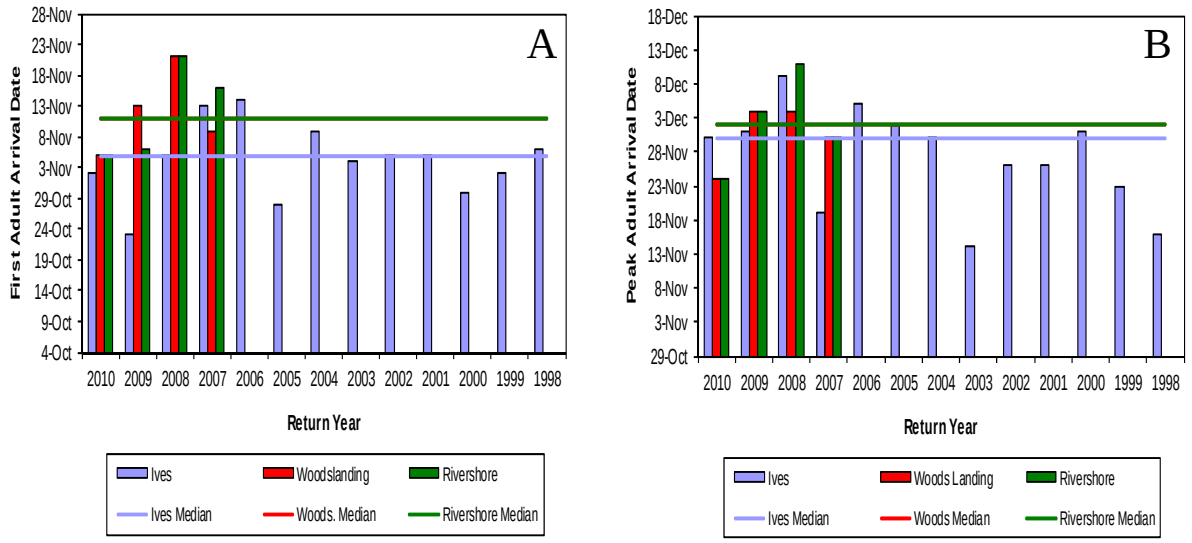


Figure 2. Dates of adult Chum observations for 1998-2010. Data for Woods Landing and Rivershore have only been collected since 2007. A) Date of first adult observation. B) Date of peak number of adults.

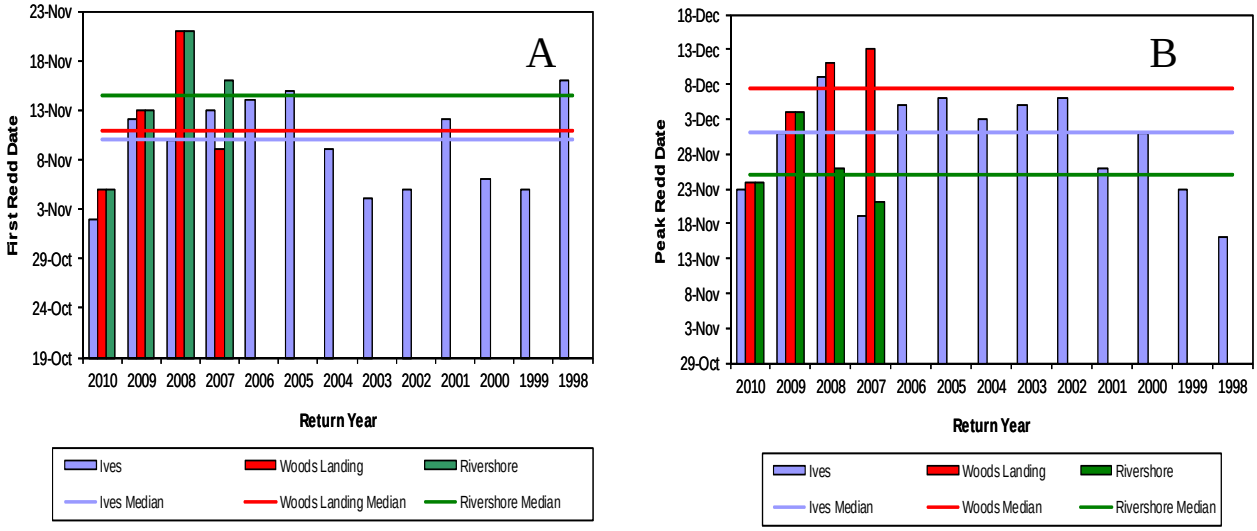


Figure 3. Dates of Chum redd observations for 1998-2010. Data for Woods Landing and Rivershore have only been collected since 2007. A) Date of first redd observation. B) Date of peak number of redds.

References

Garland, R., Tiffan, K., Rondorf, D., Skalicky, J., Anglin, D. 2003 "Evaluation of Fall Chinook and Chum Salmon Spawning Habitat near Ives and Pierce Islands on the Columbia River", Project No. 1999-00301, 152 pgs (BPA Report DOE/BP-00004701-1)

TECHNICAL MANAGEMENT TEAM			
BOR:	*John Roache / Mary Mellema / Pat McGrane*	**BPA:**	*Tony Norris / Scott Bettin / Robyn MacKay*
NOAA-F:	*Paul Wagner / Richard Dominigue*	**USFWS:**	*David Wills / Steve Haeseker*
OR:	*Rick Kruger / Ron Boyce*	**ID:**	*Russ Kiefer / Pete Hassemer*
WDFW:	*Cindy LeFleur / Charles Morrill*	**MT:**	*Jim Litchfield / Brian Marotz*
Kootenai:	*Sue Ireland / Billy Barquin*	**Spokane:**	*Deanne Pavlik-Kunkel / Andy Miller*
Colville:	*Sheri Sears / Steve Smith*	**Nez Perce:**	*Dave Statler*
Umatilla:	*Tom Lorz (CRITFC)*		
COE:	*Doug Baus / Karl Kanbergs*		

TMT CONFERENCE CALL

Wednesday November 16, 2011 9:00am - 12:00pm

CONFERENCE CALL INFORMATION
Phone Number (877) 336-1274
Access Code 3871669
Security Code 6845

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

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@cnnw.net or call her at (503) 248-4703.

Note: Members of the public are encouraged to refer to the Official Meeting Minutes and the TMT agenda links for information re: discussions and decisions made at TMT. Operational decisions that are made outside a TMT meeting will be reported on at the next scheduled meeting and/or linked to the agenda item of the meeting at which it was discussed, as soon as is reasonably possible.

AGENDA

1. Welcome and Introductions
2. Chum Update - *Paul Wagner, NOAA Fisheries*
3. Snake River Zero Nightime Generation - *Tony Norris, BPA*
4. Other
   a. Set agenda and date for next meeting - **November 23, 2011**
   b. [Calendar 2011]

Questions about the meeting may be referred to:
Doug Baus at (503) 808-3995

TECHNICAL MANAGEMENT TEAM			
BOR:	*John Roache / Mary Mellema / Pat McGrane*	**BPA:**	*Tony Norris / Scott Bettin / Robyn MacKay*
NOAA-F:	*Paul Wagner / Richard Dominigue*	**USFWS:**	*David Wills / Steve Haeseker*
OR:	*Rick Kruger / Ron Boyce*	**ID:**	*Russ Kiefer / Pete Hassemer*
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AGENDA

1. Welcome and Introductions
2. Chum Update - *Paul Wagner, NOAA Fisheries*
3. Other
   a. Set agenda and date for next meeting - **November 30, 2011**
   b. [Calendar 2011]

Questions about the meeting may be referred to:
Doug Baus at (503) 808-3995

Columbia River Regional Implementation Oversight Group

Technical Management Team

November 23, 2011 Meeting
Facilitator's Summary

Chum Update

Paul Wagner, NOAA, provided an update that as of 11/15, 37 chum had been observed in the Ives Island area and that officially 133 chum had been observed in the recently reconstructed off channel area. Observations were somewhat hindered by excess sediment that had arrived in the area from the Condit Dam breach. Given the chum counts and current and forecasted precipitation in to the system (with nighttime flows reaching over 200 kcfs last night), the salmon managers, per an FPAC call on 11/22, recommended taking the next step described in SOR 2011-5 to adjust the tailwater elevation range to 11.7-12.5 feet. Paul acknowledged that a letter from the Colville Tribes had been sent to the Action Agencies reiterating concerns the Tribe had expressed at the 11/9 TMT meeting regarding this operation, and offered that this recommended step posed no additional risk to spring refill. The Colville Tribes were not represented on today's call.

John Roache, Reclamation, asked Paul what minimum tailwater elevation would be needed through the winter if 12.5 feet were the upper limit, to protect spawning chum. Paul said the field survey crew would be best to answer this question and provide field verification, but his initial response was that the chum need about 6 inches of water depth, equating to a minimum elevation of about 11.8 feet.

With no further questions, the action agencies weighed in on the issue: Reclamation suggested that given the water in the system, the recommended operation fits well as a way to meet the system conditions. BPA added that a precipitation event underway had already required a change to the tailwater elevation, so was not opposed to the recommendation. BPA added that this operation was consistent with the BiOp.

Planned Operation: The COE planned to implement a Bonneville tailwater elevation range of 11.7-12.5 feet, as requested. TMT will revisit chum operations during their call on 11/30.

Columbia River Regional Forum

TECHNICAL MANAGEMENT TEAM OFFICIAL MINUTES

November 23, 2011

Notes: Pat Vivian

1. Introduction

Today's TMT conference call was chaired by Doug Baus, COE, and facilitated by Robin Gumpert, DS Consulting. Representatives of BPA, COE, NOAA, BOR, Idaho and others attended. This summary is an official record of the proceedings, not a verbatim transcript. Any questions or comments should be directed to the TMT chair.

2. Chum Operations Update

Paul Wagner, NOAA, reported that 37 spawners have been observed in the Ives Island area as of November 15, the latest count. Since then, sediment from the Condit Dam removal has impaired visibility of the spawning grounds. Field crews observed a total of 133 fish when they included offstream channel sites (unofficial reports say there could be as many as 200 fish in the area). Such high counts mean that chum are moving into the reconstructed habitat area to spawn.

In response to recent high flows and precipitation, The project has been reverse load factoring, releasing up to 200 kcfs in an effort to keep the tailwater elevation at 12 feet during the daytime. Even then, maintaining 12 feet has become impossible, so yesterday FPAC made a recommendation to increase the range to 11.7-12.5 feet. Participants in the FPAC call included Washington, Idaho, and CRITFC. Subsequently the Colvilles sent the Action Agencies a letter expressing concerns with the proposed operation (the tribe was not represented on today's call). Wagner said he didn't think the FPAC recommendation represents much increased risk because it's probably not necessary to maintain the full 12.5 feet through the incubation period.

John Roache, BOR, asked what winter elevation would be necessary to maintain protection of the chum redds under the proposed operation. That will depend on field crew reports, Wagner replied. Chum need at least 6 inches of water for spawning and deposit their eggs at some depth below that. A winter operation of 11.8 feet or 12 feet elevation might suffice. Field crews will need to confirm this estimate based on weekly visits to the spawning grounds.

The Action Agencies responded to the proposed operation:

BOR – The FPAC recommendation needs to be adopted in response to natural events. Nighttime flows are now very high and will continue to be so for the next few days. Review the operation again in early December.

BPA – Due to ongoing precipitation, the project is already operating at the recommended elevation range, a scenario TMT previously discussed.

The **COE** will implement the recommended 12.5-11.7-foot operating range for chum, with an update in a week.

3. Next TMT Meeting

There will be a conference call November 30 to revisit the chum operation.

Name	***Affiliation***
Tony Norris	BPA
Doug Baus	COE
Paul Wagner	NOAA
John Roache	BOR
Russ Kiefer	Idaho
Heather Dohan	Puget Sound Energy
Russ George	WMC
Russell Langshaw	Grant PUD
Rob Allerman	Deutsch Bank
Scott Bettin	BPA

Mike Shapley	Snohomish PUD
John Hart	EWEB
Dave Wills	USFWS
Bruce McKay	consultant

	LWG STEELHEAD COUNT		ROLLING 3-DAY AVERAGE		FEW = 3-day avg <65	FEW = 3-day avg<20
DATE	TOTAL	WILD	TOTAL	WILD	TOTAL	WILD
Thu-Dec-01	109	42				
Fri-Dec-02	33	9				
Sat-Dec-03	71	28	71	26	More than few	More than few
Sun-Dec-04	99	40	68	26	More than few	More than few
Mon-Dec-05	54	22	75	30	More than few	More than few
Tue-Dec-06	23	10	59	24	FEW	More than few
Wed-Dec-07	48	17	42	16	FEW	FEW
Thu-Dec-08	29	10	33	12	FEW	FEW

YTD	182,823	47,788
YTD since JUN-1	170,533	42,024

TECHNICAL MANAGEMENT TEAM			
BOR:	*John Roache / Mary Mellema / Pat McGrane*	**BPA:**	*Tony Norris / Scott Bettin / Robyn MacKay*
NOAA-F:	*Paul Wagner / Richard Dominigue*	**USFWS:**	*David Wills / Steve Haeseker*
OR:	*Rick Kruger / Ron Boyce*	**ID:**	*Russ Kiefer / Pete Hassemer*
WDFW:	*Cindy LeFleur / Charles Morrill*	**MT:**	*Jim Litchfield / Brian Marotz*
Kootenai:	*Sue Ireland / Billy Barquin*	**Spokane:**	*Deanne Pavlik-Kunkel / Andy Miller*
Colville:	*Sheri Sears / Steve Smith*	**Nez Perce:**	*Dave Statler*
Umatilla:	*Tom Lorz (CRITFC)*		
COE:	*Doug Baus / Karl Kanbergs*		

TMT CONFERENCE CALL

Wednesday November 30, 2011 9:00am - 12:00pm

CONFERENCE CALL INFORMATION
Phone Number (877) 336-1274
Access Code 3871669
Security Code 6845

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

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@cnnw.net or call her at (503) 248-4703.

Note: Members of the public are encouraged to refer to the Official Meeting Minutes and the TMT agenda links for information re: discussions and decisions made at TMT. Operational decisions that are made outside a TMT meeting will be reported on at the next scheduled meeting and/or linked to the agenda item of the meeting at which it was discussed, as soon as is reasonably possible.

AGENDA

1. Welcome and Introductions
2. Chum Update - *Paul Wagner, NOAA Fisheries*
3. Zero Nighttime Generation on the Lower Snake River Projects- *Tony Norris, BPA*
   a. Lower Granite Adult Steelhead Counts
4. Other
   a. Set agenda and date for next meeting - **December 7, 2011**
   b. [Calendar 2011]

Questions about the meeting may be referred to:
Doug Baus at (503) 808-3995

FPAC proposed criterion for defining when Snake River adult steelhead are migrating in few numbers through the lower Snake River during the winter.

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.

Run to date > #	Run to date ≤ #	Few criteria < #
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 TECHNICAL MANAGEMENT TEAM

November 30, 2011 Conference Call

Facilitator's Summary

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 Update

Paul Wagner, NOAA, shared that the live chum count on 11/22 was 38 and that while there was not much activity in the Ives channel, the new channel was proving to be a 'hot spot' with 500 active spawners observed on 11/23. Given this, the salmon managers recommended no change to the current operation of 11.7-12.5 foot tailwater elevation range at Bonneville. Paul suggested that given the current forecasts, the salmon managers would likely not recommend a change next week either, but reserved the option to change that recommendation after next Tuesday's FPAC call. The TMT Year End Review is scheduled for next Wednesday, 12/7 so there will not be a regular TMT business meeting unless necessary for chum operations.

Operation Plan: Doug Baus, COE, said the operation would continue at the current tailwater elevation range of 11.7-12.5 feet. If any major changes are recommended before the next regularly scheduled TMT meeting on 12/14, TMT will convene and the meeting will be announced via the TMT web page no later than late Tuesday afternoon 12/6.

Zero Nighttime Generation on Lower Snake River Projects

Tony Norris, BPA, reported that while the criteria for removing the zero nighttime generation operation constraint had been met, the fish passage numbers had since gone up. Paul Wagner, NOAA, said the criteria for removing the zero gen requirement this year is a 3-day running average of less than 65 total run (hatchery and wild) adult steelhead and less than 20 wild adult steelhead passing Lower Granite per day. The most recent passage count was 111 adults.

Action: Until the criteria are met, nighttime generation will continue at all hours on the Lower Snake projects. Once the criteria are met, Paul will notify Doug Baus at the COE to trigger a change to the operation. Doug will send an email to TMT and will post a brief notice as a link on today's agenda item related to this topic.

Next Meeting: TMT Year End Review, December 7, 9:00 am -3:30 pm

The annual year-end review will take place again at the Ambridge Center in Portland. Check the agenda and RSVP for a lunch by COB this Friday, 12/2. Unless there is a need for a TMT business meeting on that day, there will not be a phone line available. The presentations will be posted to the agenda linked to the TMT web page.

Columbia River Regional Forum
TECHNICAL MANAGEMENT TEAM OFFICIAL MINUTES

November 30, 2011
Notes: Pat Vivian

1. Introduction

Today's TMT conference call was chaired by Doug Baus, COE, and facilitated by Robin Gumpert, DS Consulting. Representatives of BPA, NOAA, BOR, COE, the Umatilla Tribe, Colville Tribe and others attended. This summary is an official record of the proceedings, not a verbatim transcript. Any questions or comments should be directed to the TMT chair.

2. Chum Operations Update

Paul Wagner, NOAA, reported that the latest Ives Island chum count remains low, 38 spawners on November 22. The area of greatest activity this year is the recently rebuilt spawning channel below Bonneville, where more than 500 chum were observed on November 23. The Salmon Managers who participated in yesterday's FPAC call (the same entities represented today) opted to continue the current Bonneville daytime operating range of an 11.7-12.5-foot tailwater elevation.

The Action Agencies intend to continue the current operation until the Salmon Managers indicate otherwise, Baus said. If there is a need to discuss chum operations next week, NOAA will notify Baus and TMT members by the afternoon of December 6, and chum will become the first item on the TMT year end review agenda December 7. Otherwise, TMT will revisit the chum operation at its next regular meeting December 14.

3. Zero Nighttime Generation on the Lower Snake River

Fish counts at Lower Snake projects were below the trigger for the zero nighttime generation operation on the Snake, but have recently rebounded, Tony Norris, BPA, reported. Wagner indicated since counts are below the trigger it would not be appropriate to implement the zero nighttime generation operation until fish reached the criteria.

The following are the criteria for implementing a zero nighttime generation operation after December 1: 1) the 3-day running average of adult steelhead passing Lower Granite Dam must be less than 65 steelhead total (hatchery and wild), and 2) of the 65 steelhead total passing less than 20 must be wild steelhead. Both criteria must be met. The most recent count is 171 hatchery and wild adult steelhead. There were no objections to this plan.

4. Next TMT Meeting

TMT will hold its year-end review on December 7. The next regular meeting will be on December 14.

Name	***Affiliation***
Tony Norris	BPA
Paul Wagner	NOAA
Tom Lorz	Umatilla
John Roache	BOR
Doug Baus	COE
John Hart	EWEB
Lisa Wright	COE
Laura Hamilton	COE
Karl Kanbergs	COE
Heather Dohan	Puget Sound
Steve Hall	COE
Russ George	WMC
Bruce McKay	hydro consultant
Richelle Beck	Grant PUD
Sheri Sears	Colville Tribe
Barry Espenson	CBB
Rob Allerman	Deutsch Bank
Scott Bettin	BPA
Bill Rudolph	NW Fish Letter

TECHNICAL MANAGEMENT TEAM			
BOR:	*John Roache / Mary Mellema / Pat McGrane*	**BPA:**	*Tony Norris / Scott Bettin / Robyn MacKay*
NOAA-F:	*Paul Wagner / Richard Dominigue*	**USFWS:**	*David Wills / Steve Haeseker*
OR:	*Rick Kruger / Ron Boyce*	**ID:**	*Russ Kiefer / Pete Hassemer*
WDFW:	*Cindy LeFleur / Charles Morrill*	**MT:**	*Jim Litchfield / Brian Marotz*
Salish-Kootenai:	*Joe Hovenkotter*	**Spokane:**	*Deanne Pavlik-Kunkel / Andy Miller*
Colville:	*Sheri Sears / Steve Smith*	**Kootenai:**	*Sue Ireland / Billy Barquin*
Shoshone-Bannock:	*Lytle Denny*	**Warm Springs:**	*Brad Houslet*
Yakima:	*Bob Rose*	**Nez Perce:**	*Dave Statler*
Umatilla:	*Tom Lorz (CRITFC)*	**Kalispel:**	*Deane Osterman / Joe Maroney*
COE: *Steve Barton / Karl Kanbergs / Doug Baus*			

TMT MEETING

Wednesday December 1, 2010 9:00am - 12:00pm

1125 N.W. Couch Street, Suite 500, Columbia Room
Portland, Oregon 97209-4142
Map Quest [Directions]

CONFERENCE CALL INFORMATION

Phone Number (877) 336-1274
Access Code 3871669
Security Code 6845

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AGENDA

1. Welcome and Introductions
2. Review November 10 Meeting Minutes [Meeting Minutes]
3. Chum Operation - *Paul Wagner, NOAA Fisheries*
    a. Spawning Surveys Below Bonnveille Dam
4. Water Management Plan - *Doug Baus, COE-NWD*
5. Snake River Nighttime Zero Flow - *Paul Wagner, NOAA Fisheries*
6. Operations Review
    a. Reservoirs
        i.

b. Fish
c. Power System
d. Water Quality

7. Other
   a. Set agenda and date for next meeting - **December 8, and possibly December 22, 2010**
   b. [Calendar 2010]

Questions about the meeting may be referred to:
Steve Barton at (503) 808-3945, or
Doug Baus at (503) 808-3995

TECHNICAL MANAGEMENT TEAM			
BOR:	*John Roache / Mary Mellema / Pat McGrane*	**BPA:**	*Tony Norris / Scott Bettin / Robyn MacKay*
NOAA-F:	*Paul Wagner / Richard Dominigue*	**USFWS:**	*David Wills / Steve Haeseker*
OR:	*Rick Kruger / Ron Boyce*	**ID:**	*Russ Kiefer / Pete Hassemer*
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Kootenai:	*Sue Ireland / Billy Barquin*	**Spokane:**	*Deanne Pavlik-Kunkel / Andy Miller*
Colville:	*Sheri Sears / Steve Smith*	**Nez Perce:**	*Dave Statler*
Umatilla:	*Tom Lorz (CRITFC)*		
COE:	*Doug Baus / Karl Kanbergs*		

TMT MEETING

Wednesday Dec 14, 2011 9:00am - 12:00pm

1125 N.W. Couch Street, Suite 500, Columbia Room
Portland, Oregon 97209-4142
Map Quest [Directions]

TMT MEETING
Phone Number (877) 336-1274
Access Code 3871669
Security Code 6845

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AGENDA

1. Welcome and Introductions
2. Review November 23 and 30 Meeting Minutes [Meeting Minutes]
3. Chum Update - *Paul Wagner, NOAA Fisheries*
4. End of Kokanee Spawning - *Russ Kiefer, IDFG*
    a. December 16 Update
5. Zero Nighttime Generation - *Scott Bettin, BPA*
6. Lower Granite MOP+ Update - *Doug Baus, Corps*
7. Operations Review

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

8. Other
    a. Set agenda and date for next meeting - **December 21, 2011**
    b. [Calendar 2011]

Questions about the meeting may be referred to:
Doug Baus at (503) 808-3995

The Corps and BPA will operate Albeni Falls Dam between a Lake elevation of 2051 and 2056 ft feet as measured at the Hope Gage. Pending a BPA request the Corps will maintain the Lake between 2051 – 2052 ft. Idaho Department of Fish and Game determined kokanee spawning ended on December 16 therefore this operation will be effective immediately and continue until approximately March 31. This operation was coordinated during the December 14 TMT meeting.

COLUMBIA RIVER TECHNICAL MANAGEMENT TEAM

December 14, 2011 Meeting
Facilitator's Summary
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 Update

Paul Wagner, NOAA, shared that the live chum count as of 12/5 was 226 in the Ives area, with 24 'mass redds' observed. Spawning is now past its peak according to observations. This year, he said, good chum numbers and distribution were observed, and the salmon managers recommended continuing the current operation of maintaining a Bonneville tailwater elevation range of 11.7-12.5' during the day time. Paul also said that the operation had been going well in terms of minimizing day and night elevation fluctuations, as had been a goal of the salmon managers' recommendations this year. In response to a question about drafting Grand Coulee, BPA's Robyn McKay said they are trying to meet load during this cold spell.

Operation Plan: The operation for chum will continue at the current day time tailwater elevation range of 11.7-12.5 feet. TMT will have a check in call next week (12/21) to discuss this operation.

End of Kokanee Spawning

Russ Kiefer, Idaho, reported on behalf of field staff that kokanee spawning was now past its peak and would likely be completed before the end of December. Russ said he recognized the importance of communicating that message in a timely manner, and said an email would come from IDFG's Andy Dux and include Doug Baus, TMT Chair, so the message could get to all TMT members quickly. When this occurs, a message will also be linked to today's agenda.

Zero Nighttime Generation on Lower Snake River Projects

As follow up to the last TMT discussion, Scott Bettin, BPA, reported that the agency (and all of TMT) received an email last Friday (12/9) that the steelhead criteria had been met to release constraints, and BPA was now operating at zero nighttime generation on the Lower Snake projects.

Lower Granite MOP+ Operations

Doug Baus, COE, reminded the region of past discussions around pending Lower Granite MOP+ operations to address navigation safety, noting that since the 10/26 TMT meeting at which LGR survey data was shared, the COE has been working internally to develop a plan for 2012. At this point, the COE planned to implement a 'variable MOP+2 operation' consistent with 2011 – to balance MOP needs identified in the FCRPS BiOp as well as safe navigation issues raised via an SOR from the Towboater's Association. No longer pursuing a MOP+3 scenario, the COE's plan is to follow the criteria used before:

- Inflow ≥120 kcfs, MOP (733-734 feet)
- Inflow ≥ 80 kcfs and <120 kcfs, MOP +1 (734-735 feet)
- Inflow ≥ 50 kcfs and < 80 kcfs, MOP +1.5 (734.5-735.5 feet)
- Inflow < 50 kcfs, MOP +2 (735-736 feet)

TMT member questions:

- Is the COE expecting another SOR from the navigation community? COE response: No. We are using currently available information to plan this operation.
- At a previous TMT meeting, the COE presented longer term options for addressing the sediment and navigation issue. How will those options come in to play? COE response: A draft EIS is expected to be published sometime around February/March 2012, followed by a public comment period and final EIS around September 2012. The COE will make its Record of Decision (ROD) around December 2012, which will set in motion any further actions. The schedule is tentative at this point.
- The BiOp addresses incremental steps to be taken to avoid jeopardy, particularly in the early Spring during the migration. Are you exploring operation alternatives or offsets given the shift away from MOP operations at Lower Granite? COE response: No. At this time, the COE intends to implement a variable MOP + 2 operation consistent with the 2011 operation that did not include operational alternatives or offsets. That said, we will continue to engage the region in discussions about how best to operate given this and all other needs of the system.
- The 2012 Dworshak forecast has not been posted. When will this be made available? COE (Walla Walla District) response: It is expected that the forecast will be published in January or February of 2012.

Operations Review

Reservoirs – John Roache, Reclamation, reported on projects. Grand Coulee was at elevation 1279.8 feet; Hungry Horse was at elevation 3544.08 feet with 2.5 kcfs outflows to meet Columbia Falls minimums. With about 500 cfs inflows, the project was drafting slightly. Doug Baus, COE, reported on projects. Libby was at elevation 2424.01 feet; Albeni Falls was at elevation 2051.38 feet; and Dworshak was at elevation 1519.72 feet with 1.5 kcfs outflows. Lower Granite flows were 24.8 kcfs; Priest Rapids flows were 136.7 kcfs; McNary flows were 146.0 kcfs; and Bonneville flows were 147.5 kcfs.

Fish – Paul Wagner, NOAA, reported on adult steelhead counts at Bonneville and Lower Granite. Typical for this time of year, the counts were low.

Water quality – Laura Hamilton, COE, reported that the current spill priority list is set to end on 12/31 and asked for any recommended changes from TMT. The salmon managers will review and TMT will revisit this issue on 12/21.

Power system – Scott Bettin, BPA, reported that Libby had to ramp down using a different ramp rate to allow for work on a transmission line, related to an insulator.

Next Meeting, Conference call 12/21

Agenda items include:

- Chum operations update
- Spill priority list

Columbia River Regional Forum
TECHNICAL MANAGEMENT TEAM OFFICIAL MINUTES

December 14, 2011
Notes: Pat Vivian

1. Introduction

Today's TMT meeting was chaired by Doug Baus, COE, and facilitated by Robin Gumpert, DS Consulting. Representatives of Oregon, NOAA, Washington, Idaho, USFWS, CRITFC, BOR, Idaho, BPA and others attended. This summary is an official record of the proceedings, not a verbatim transcript.

2. Review Meeting Minutes for November 23 and 30, 2011

There were no comments today, so both sets of meeting minutes and facilitator's notes were deemed final.

3. Chum Operations Update

Spawning has been going well in the channel and mainstem, Paul Wagner, NOAA, reported. The latest count on December 5 found 226 live and 24 dead fish in the Ives area, along with mass redds. This is more chum activity than Ives Island has seen in a long time. The redds are well distributed throughout the spawning habitat, with other sites such as Woods Landing and Multnomah Falls seeing consistently higher counts than in recent years. The peak count in the spawning channel was 500 fish, with the latest count around 100 fish.

The current operation of 11.7-12.5 feet in the Bonneville tailwater is serving the needs of chum, so no change is requested at this time. TMT will check in on the status of chum spawning at its next meeting December 21.

4. End of Kokanee Spawning

Russ Kiefer, Idaho, reported that peak kokanee spawning has passed. Idaho will likely declare spawning completed before the end of December, which will give the Action Agencies more operational flexibility. Also, spawning and egg take counts at the hatchery are at predictable levels, based on population surveys last fall.

5. Lower Snake Zero Nighttime Generation

On December 8, adult steelhead passage criteria were met and BPA began the zero nighttime generation operation at the four Lower Snake River projects on December 9, Scott Bettin, BPA, reported.

6. Lower Granite MOP+ Operations Update

On October 26, 2011, the COE showed TMT the latest survey information identifying additional encroachment in the Lower Granite navigation channel. Since then, the COE has coordinated internally on a tentative plan for 2012 to implement the same variable MOP+ operation (dependent on flows, a variable operation up to MOP+2) that was implemented in 2011. This operation appears to balance the needs of providing safe navigation conditions while maintaining MOP operations as identified in the BiOp as much as possible. Since the tentative 2012 variable MOP+ operation for Lower Granite does not envision going above MOP+2, Baus did not provide TMT any data on a MOP+3 operation as previously indicated. The following were the inflow dependent ranges for the variable MOP+2 operation in 2011:

Inflow >= 120 kcfs	733.0-734.0 feet (MOP)
Inflow >= 80 kcfs and < 120 kcfs	734.0-735.0 feet (MOP+1)
Inflow >= 50 kcfs and < 80 kcfs	734.5-735.5 feet (MOP+1.5)
Inflow < 50 kcfs	735.0-736.0 feet (MOP+2)

Lisa Wright pointed out that disposition of the 2011 SOR regarding MOP at Lower Granite, linked to the TMT webpage, lists the inflow levels and corresponding MOP operations in 2011. The information can be found in the "AA Decision" row at:
http://www.nwd-wc.usace.army.mil/tmt/sor/2011/dispositions.html#01

Russ Kiefer, Idaho, asked whether the COE expects to receive another SOR this year from the tow boaters. Baus said because the COE is aware of the current conditions in the Federal Navigation Channel the COE will not wait for a SOR to implement a variable MOP+2 operation in 2012. Kiefer asked about progress on the COE's long-term plans to address sedimentation in the navigation channel. The Programmatic Sediment Management Plan (PSMP) draft EIS is scheduled for publication in February-March 2012, Baus said. The final EIS is scheduled for publication in September 2012, with tentative ROD completion in December 2012. These dates are contingent upon comments received on the draft EIS. Kiefer asked if the COE intends on making operational adjustments to offset a variable MOP + operation in 2012. Consistent with the 2011 operation Baus indicated the COE does not plan on making operational changes to offset a variable MOP+ operation in 2012.

7. Operations Review

Reservoirs. Grand Coulee is at elevation 1279.8 feet, operating for chum. Hungry Horse is at elevation 3544.08 feet, with discharges of 2.5 kcfs to meet Columbia Falls minimums. Libby is at elevation 2424.01 feet. Albeni Falls is at elevation 2051.38 feet. Dworshak is at elevation 1519.72 feet, releasing 1.5 kcfs.

Lower Granite discharges are 24.8 kcfs. Priest Rapids discharges are 136.7 kcfs. McNary discharges are 146.0 kcfs. Bonneville discharges are 147.5 kcfs.

Fish. A few adult steelhead are passing Bonneville. An average of 25 steelhead per day are passing Lower Granite.

Water quality. There was nothing to report today.

Power. Scott Bettin reported that Libby had to ramp down outflows more rapidly than the daily ramp rate (5500 cfs instead of 5000 cfs) in order to lower flows enough to allow transmission line repair work.

7. Next Meeting

The next TMT meeting will be a conference call on December 21 to check in on the chum operation and the 2012 spill priority list.

Name	***Affiliation***
Doug Baus	COE
Rick Kruger	Oregon
Paul Wagner	NOAA
Lisa Wright	COE
Kim Johnson	COE
Laura Hamilton	COE
Dan Feil	COE
Phone:	
Charles Morrill	Washington
David Wills	USFWS
Tom Lorz	CRITFC
John Roache	BOR
Russ Kiefer	Idaho
Robyn McKay	BPA
Heather Dohan	Puget Sound Energy
Barry Espenson	CBB
Mike Shapley	Snohomish PUD
John Hart	EWEB
Margaret Filardo	FPC
Shane Scott	PPC
Russ George	WMC
Rob Allerman	Deutsche Bank
Ruth Burris	PGE
XXX	Puget Power
Richelle Beck	Grant PUD
Don Tinker	SCL

Steve Hall	COE Walla Walla
Gregg Teasdale	COE Walla Walla
Scott Bettin	BPA
Alex Ybarra	Grant PUD

Wintertime spill priority list
January 1, 2012 to March 31, 2012

LEVEL 1 SPILL IS AS FOLLOWS:
1) LWG UP TO 110% TDG SPILL CAP
2) LGS UP TO 110% TDG SPILL CAP
3) LMN UP TO 110% TDG SPILL CAP
4) IHR UP TO 110% TDG SPILL CAP
5) MCN UP TO 110% TDG SPILL CAP
6) JDA UP TO 110% TDG SPILL CAP
7) TDA UP TO 110% TDG SPILL CAP
8) BON UP TO 110% TDG SPILL CAP
9) DWR UP TO 110% TDG SPILL CAP
10) CHJ UP TO 110% TDG SPILL CAP

LEVEL 2 SPILL IS AS FOLLOWS:
11) LWG UP TO 115% TDG SPILL CAP
12) LGS UP TO 115% TDG SPILL CAP
13) LMN UP TO 115% TDG SPILL CAP
14) IHR UP TO 115% TDG SPILL CAP
15) MCN UP TO 115% TDG SPILL CAP
16) JDA UP TO 115% TDG SPILL CAP
17) TDA UP TO 115% TDG SPILL CAP
18) BON UP TO 115% TDG SPILL CAP
19) CHJ UP TO 115% TDG SPILL CAP

LEVEL 3 SPILL IS AS FOLLOWS:
20) LWG UP TO 120% TDG SPILL CAP
21) LGS UP TO 120% TDG SPILL CAP
22) LMN UP TO 120% TDG SPILL CAP
23) IHR UP TO 120% TDG SPILL CAP
24) MCN UP TO 120% TDG SPILL CAP
25) JDA UP TO 120% TDG SPILL CAP
26) TDA UP TO 120% TDG SPILL CAP
27) BON UP TO 120% TDG SPILL CAP
28) CHJ UP TO 120% TDG SPILL CAP
29) GCL UP TO 110% TDG SPILL CAP

LEVEL 4 SPILL IS AS FOLLOWS:
30) LWG UP TO 122% TDG SPILL CAP
31) LGS UP TO 122% TDG SPILL CAP
32) LMN UP TO 122% TDG SPILL CAP
33) IHR UP TO 122% TDG SPILL CAP
34) MCN UP TO 122% TDG SPILL CAP
35) JDA UP TO 122% TDG SPILL CAP
36) TDA UP TO 122% TDG SPILL CAP
37) BON UP TO 122% TDG SPILL CAP
38) CHJ UP TO 122% TDG SPILL CAP
39) GCL UP TO 115% TDG SPILL CAP

LEVEL 5 SPILL IS AS FOLLOWS:
40) LWG UP TO 125% TDG SPILL CAP
41) LGS UP TO 125% TDG SPILL CAP
42) LMN UP TO 125% TDG SPILL CAP
43) IHR UP TO 125% TDG SPILL CAP
44) MCN UP TO 125% TDG SPILL CAP
45) JDA UP TO 125% TDG SPILL CAP
46) TDA UP TO 125% TDG SPILL CAP
47) BON UP TO 125% TDG SPILL CAP
48) CHJ UP TO 125% TDG SPILL CAP
49) GCL UP TO 120% TDG SPILL CAP

LEVEL 6 SPILL IS AS FOLLOWS:
50) LWG UP TO 127% TDG SPILL CAP
51) LGS UP TO 127% TDG SPILL CAP
52) LMN UP TO 127% TDG SPILL CAP
53) IHR UP TO 127% TDG SPILL CAP
54) MCN UP TO 127% TDG SPILL CAP
55) JDA UP TO 127% TDG SPILL CAP
56) TDA UP TO 127% TDG SPILL CAP
57) BON UP TO 127% TDG SPILL CAP
58) CHJ UP TO 127% TDG SPILL CAP
59) GCL UP TO 122% TDG SPILL CAP

LEVEL 7 SPILL IS AS FOLLOWS:
60) LWG UP TO 130% TDG SPILL CAP
61) LGS UP TO 130% TDG SPILL CAP
62) LMN UP TO 130% TDG SPILL CAP
63) IHR UP TO 130% TDG SPILL CAP
64) MCN UP TO 130% TDG SPILL CAP
65) JDA UP TO 130% TDG SPILL CAP
66) TDA UP TO 130% TDG SPILL CAP
67) BON UP TO 130% TDG SPILL CAP
68) CHJ UP TO 130% TDG SPILL CAP
69) GCL UP TO 125% TDG SPILL CAP

LEVEL 8 SPILL IS AS FOLLOWS:
70) LWG UP TO 135% TDG SPILL CAP
71) LGS UP TO 135% TDG SPILL CAP
72) LMN UP TO 135% TDG SPILL CAP
73) IHR UP TO 135% TDG SPILL CAP
74) MCN UP TO 135% TDG SPILL CAP
75) JDA UP TO 135% TDG SPILL CAP
76) TDA UP TO 135% TDG SPILL CAP
77) BON UP TO 135% TDG SPILL CAP
78) CHJ UP TO 135% TDG SPILL CAP
79) GCL UP TO 130% TDG SPILL CAP

TECHNICAL MANAGEMENT TEAM			
BOR:	*John Roache / Mary Mellema / Pat McGrane*	**BPA:**	*Tony Norris / Scott Bettin / Robyn MacKay*
NOAA-F:	*Paul Wagner / Richard Dominigue*	**USFWS:**	*David Wills / Steve Haeseker*
OR:	*Rick Kruger / Ron Boyce*	**ID:**	*Russ Kiefer / Pete Hassemer*
WDFW:	*Cindy LeFleur / Charles Morrill*	**MT:**	*Jim Litchfield / Brian Marotz*
Kootenai:	*Sue Ireland / Billy Barquin*	**Spokane:**	*Deanne Pavlik-Kunkel / Andy Miller*
Colville:	*Sheri Sears / Steve Smith*	**Nez Perce:**	*Dave Statler*
Umatilla:	*Tom Lorz (CRITFC)*		
COE:	*Doug Baus / Karl Kanbergs*		

TMT CONFERENCE CALL

Wednesday December 21, 2011 9:00am - 12:00pm

CONFERENCE CALL INFORMATION
Phone Number (877) 336-1274
Access Code 3871669
Security Code 6845

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

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@cnnw.net or call her at (503) 248-4703.

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AGENDA

1. Welcome and Introductions
2. Chum Update - *Paul Wagner, NOAA Fisheries*
3. Spill Priority List - *Doug Baus, Corps*
    a. Wintertime
4. Water Management Plan - *Doug Baus, Corps*
5. Other
    a. Set agenda and date for next meeting - **December 28, 2011**
    b. [Calendar 2011]

Questions about the meeting may be referred to:
Doug Baus at (503) 808-3995

COLUMBIA RIVER TECHNICAL MANAGEMENT TEAM

December 21, 2011 Conference Call

Facilitator's Summary

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 Update

Paul Wagner, NOAA, and Charles Morrill, Washington, relayed a field update that the spawning numbers are declining but still going at Ives and the lower sites will be checked by the field crew on Friday, 12/23. Some redds were observed exposed during low tide, which was expected. Given where the redds have been spawned, the field crew and salmon managers recommended holding the Bonneville tailwater elevation around 12 feet during this protection 'maintenance' period. If the creek level goes up, there may be an opportunity to lower this target, pending further site reports.

TMT members discussed this operation, and agreed that the commitments to protect the chum redds AND meet Grand Coulee April 10 refill targets would continue. This will require a weekly look at conditions and appropriate adaptive management. To date, this protection level has not jeopardized refill. So far, it appears that both goals can be met with the current operation of 11.7-12.5 feet range, with the additional guidance to target 12 feet this week.

Operation Plan: Given the discussion, recommendation and no objections, USACE planned to continue at the current day time tailwater elevation range of 11.7-12.5 feet with a specific target of 12 feet to provide adequate protection for the chum redds that have been observed to date. TMT will check in again next Wednesday (12/28) to discuss the latest field reports (crews are expected to be out on Friday 12/23 and Tuesday 12/27) on spawning activity and any resulting recommended changes to this operation.

Spill Priority List

Doug Baus, USACE, shared the proposed January-March 2012 spill priority list, with no changes to the current list that is in effect until the end of 2011. While FPAC did not have a discussion on this, Paul Wagner, NOAA; Dave Wills, USFWS; and Charles Morrill, Washington agreed with the list and proposed no changes at this time. They would like to revisit the list in late February prior to the arrival of kelts. This item will be added to a late February TMT agenda.

Draft 2012 Water Management Plan

Doug reminded everyone to send any remaining comments on the draft WMP to him by COB tomorrow, 12/22. The plan will be finalized by the end of the year and posted to the TMT web page (along with any comments received on the plan).

Next Meeting, 12/28 Conference Call, 9:00 am: Chum operations will be discussed.

Columbia River Regional Forum
TECHNICAL MANAGEMENT TEAM – OFFICIAL MINUTES

December 21, 2011
Notes: Pat Vivian

1. Introduction

Today's TMT conference call was chaired by Doug Baus, COE, and facilitated by Robin Gumpert, DS Consulting. Representatives of Idaho, BPA, COE, BOR, NOAA, the Colville Tribe, USFWS and others attended. This summary is an official record of the proceedings, not a verbatim transcript.

2. Chum Operations Update

Charles Morrill, Washington, reported that field crews are recommending a minimum of 12 feet elevation in the Bonneville tailwater through the end of chum spawning. The increase from an 11.7 foot minimum is needed to protect established redds at Ives Island. Chum spawning is definitely on the wane, but during the heavy flows of November, redds were established at higher elevations than usual.

Tony Norris, BPA, asked whether an 11.8 foot minimum elevation could resume if creek inflows rise again. Morrill and Paul Wagner, NOAA, agreed that seems possible. Their current recommendation was to continue the current operating range of 11.7-12.5 feet elevation but adding a targeted operation of 12.0 feetbeginning as soon as possible. The underlying goal is to wet the redds, which are established at elevations up to 12.5 feet, during a portion of every day.

Baus asked for clarification regarding what appeared to be a request to change the chum operation when spawning is almost done. The expectation was that protection flows would drop to half a foot below the highest elevation where redds are established, Wagner explained. Field observations indicate that targeting 12 feet elevation now will protect redds that were established between 12 and 12.5 feet. The height of spawning coincided with peak inflows and releases from Bonneville Dam. Chum were spawning when precipitation was high enough to prevent reverse load factoring during the day to keep spawning elevations below 12.5 feet. This is why the current minimum of 11.7 feet would put a number of the established redds in jeopardy.

Sheri Sears, **Colville Tribe**, said the chum operation cannot jeopardize the probability of Grand Coulee refill – this needs to be closely watched. There was agreement to monitor Grand Coulee refill on a weekly basis through the end of chum spawning. The chum SOR submitted in November established anything less than an 85% probability of Grand Coulee refill as the trigger for suspending chum protection flows, Gumpert recalled. The BiOp clearly identifies Grand Coulee refill as a higher priority than chum, Wagner noted. Refill probability is

being continuously monitored as part of the chum operation. Field crews will visit the Ives Island site on December 23 and 27 to verify the end of spawning, Morrill reported. When spawning ends, the operation will move to the incubation phase.

Tony Norris said **BPA** could reasonably implement a range of 11.7-12.5 feet with 12 feet as a target until the end of chum spawning. John Roache said the proposal is also acceptable to the **BOR,** which is monitoring Grand Coulee refill closely, as always.

Based on todays discussion the AA's will continue implementing the same range of 11.7 – 12.5 feet but will target 12.0 ft Bonneville tailwater elevation.

TMT will revisit the chum operation on December 28 to determine whether spawning has ended and the incubation phase can begin.

3. Spill Priority List

Baus asked TMT whether any changes are needed to the spill priority list currently in place. The spill priority list posted to today's agenda is the same as the previous wintertime spill priority list coordinated at TMT.

NOAA recommended keeping the current list in effect until kelts arrive in March, and **USFWS** concurred with this recommendation. There was agreement to continue implementing the current spill priority list through March 31, 2012, unless the need arises for TMT to coordinate a change. TMT will revisit the spill priority list in late February.

4. Water Management Plan

Baus reminded everyone that comments on the 2012 WMP are due by the close of business on December 22. USFWS recently submitted comments. All comments will be posted to the TMT website.

5. Next TMT Meeting

TMT will meet via conference call on December 28 to check in on the chum operation.

Name	***Affiliation***
Russ Kiefer	Idaho
Robyn McKay	BPA
Donald Tinker	SCL
Alex Cibarra	Grant PUD
Tony Norris	BPA
Doug Baus	COE
Lisa Wright	COE

Laura Hamilton	COE
Steve Hall	COE Walla Walla
Russ George	WMC
John Roache	BOR
Rob Allerman	Deutsch Bank
Dave Benner	FPC
Richelle Beck	Grant PUD
John Hart	EWEB
Paul Wagner	NOAA
Charles Morrill	Washington
XX	Puget Power
Sheri Sears	Colville
Mike Shafley	Snohomish PUD
Harvey Hall	EWEB
Ruth Burris	PGE
David Wills USFWS	

TECHNICAL MANAGEMENT TEAM			
BOR:	*John Roache / Mary Mellema / Pat McGrane*	**BPA:**	*Tony Norris / Scott Bettin / Robyn MacKay*
NOAA-F:	*Paul Wagner / Richard Dominigue*	**USFWS:**	*David Wills / Steve Haeseker*
OR:	*Rick Kruger / Ron Boyce*	**ID:**	*Russ Kiefer / Pete Hassemer*
WDFW:	*Cindy LeFleur / Charles Morrill*	**MT:**	*Jim Litchfield / Brian Marotz*
Salish-Kootenai:	*Joe Hovenkotter*	**Spokane:**	*Deanne Pavlik-Kunkel / Andy Miller*
Colville:	*Sheri Sears / Steve Smith*	**Kootenai:**	*Sue Ireland / Billy Barquin*
Shoshone-Bannock:	*Lytle Denny*	**Warm Springs:**	*Brad Houslet*
Yakima:	*Bob Rose*	**Nez Perce:**	*Dave Statler*
Umatilla:	*Tom Lorz (CRITFC)*	**Kalispel:**	*Deane Osterman / Joe Maroney*
COE: *Steve Barton / Karl Kanbergs / Doug Baus*			

TMT MEETING

Wednesday December 22, 2010 9:00am - 12:00pm

1125 N.W. Couch Street, Suite 500, Columbia Room
Portland, Oregon 97209-4142
Map Quest [Directions]

CONFERENCE CALL INFORMATION
Phone Number (877) 336-1274
Access Code 3871669

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AGENDA

1. Welcome and Introductions
2. Review December 1 Meeting Minutes [Meeting Minutes]
3. Chum Operation - *Paul Wagner, NOAA Fisheries*
    a. Spawning Surveys Below Bonnveille Dam
4. Operations Review
    a. Reservoirs
        i.
    b. Fish
    c. Power System
    d. Water Quality

5. Other
    a. Set agenda and date for next meeting - **January 5, 2011**
    b. [Calendar 2010]

Questions about the meeting may be referred to:
Steve Barton at (503) 808-3945, or
Doug Baus at (503) 808-3995

TECHNICAL MANAGEMENT TEAM			
BOR:	*John Roache / Mary Mellema / Pat McGrane*	**BPA:**	*Tony Norris / Scott Bettin / Robyn MacKay*
NOAA-F:	*Paul Wagner / Richard Dominigue*	**USFWS:**	*David Wills / Steve Haeseker*
OR:	*Rick Kruger / Ron Boyce*	**ID:**	*Russ Kiefer / Pete Hassemer*
WDFW:	*Cindy LeFleur / Charles Morrill*	**MT:**	*Jim Litchfield / Brian Marotz*
Kootenai:	*Sue Ireland / Billy Barquin*	**Spokane:**	*Deanne Pavlik-Kunkel / Andy Miller*
Colville:	*Sheri Sears / Steve Smith*	**Nez Perce:**	*Dave Statler*
Umatilla:	*Tom Lorz (CRITFC)*		
COE:	*Doug Baus / Karl Kanbergs*		

TMT CONFERENCE CALL

Wednesday December 28, 2011 9:00am - 12:00pm

CONFERENCE CALL INFORMATION
Phone Number (877) 336-1274
Access Code 3871669
Security Code 6845

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AGENDA

1. Welcome and Introductions
2. Chum Update - *Paul Wagner, NOAA Fisheries*
3. Other
   a. Set agenda and date for next meeting - **January 4, 2012**
   b. [Calendar 2011]

Questions about the meeting may be referred to:
Doug Baus at (503) 808-3995

COLUMBIA RIVER TECHNICAL MANAGEMENT TEAM

December 28, 2011 Conference Call

Facilitator's Summary

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 Update

Charles Morrill, Washington, relayed a field update on chum numbers checked by the field crew on Friday, 12/23 and Tuesday, 12/27. While there was some activity in some areas, Charles suggested we were at the tail end of the chum spawning period at Ives Island with no new chum or redds observed. He also said the high/low tide coming in this week would likely provide adequate protection for the remainder of this week.

Given this information, BPA's Tony Norris proposed declaring the 'end of spawning' and moving to an incubation operation of a 12.0-foot minimum tailwater elevation during all hours at Bonneville. The action agencies would like to have as much flexibility at the project as possible to manage the pending higher flows expected to enter the system.

TMT members discussed this operation, and those present on the phone (Washington, Idaho, CRITFC/CTUIR, NOAA, Reclamation, BPA and COE) agreed with the proposal. (***NOTE***: ***Richie Graves, NOAA, joined late and concurred with the proposed action. With NOAA's concurrence, TMT members agreed with the implementation of the change.)***

Operation Plan: The COE planned to initiate a chum incubation operation effective today, with a 12.0-foot minimum tailwater elevation during all hours, at Bonneville. Karl Kanbergs (COE) stated that the 12.0 minimum tailwater elevation could be revisited by TMT at a later time based on the uncertainties of what kind of water year will actually occur, noting the unusually dry December.

Draft 2012 Water Management Plan

Lisa Wright, COE, reported that the final 2012 WMP would be posted to the TMT web page by the end of this week.

TMT Schedule

TMT members will coordinate off line and a 2012 schedule will be posted to the TMT page as soon as possible. The current schedule says there will be meetings on 1/4 and 1/18 – this schedule is subject to change based on needs and availability of the TMT members. All participants are encouraged to check the web page for updates.

Columbia River Regional Forum
TECHNICAL MANAGEMENT TEAM – OFFICIAL MINUTES

December 28, 2011
Notes: Pat Vivian

1. Introduction

Today's TMT conference call was chaired by Karl Kanbergs, COE, and facilitated by Robin Gumpert, DS Consulting. Representatives of BPA, COE, Washington, CRITFC/Umatilla, Idaho, BOR, NOAA Fisheries and others attended. There was no representation from USFWS, Oregon or Montana today. This summary is an official record of the proceedings, not a verbatim transcript.

2. Chum Operations Update

Charles Morrill, Washington, reported that field surveys on December 19 and 27 indicate chum spawning is nearly done in the Ives Island area. On December 27, visibility was excellent, and 11 live fish and 15 dead fish were observed. The Woods Landing and River Shore spawning sites are still active, however, with 19 new redds at Woods Landing and 7 new redds at River Shore as of December 23. Scott Bettin, **BPA**, noted that the survey on December 27 found no "new" chum from Multnomah Falls to the Ives/Pierce Island Complex, indicating that counted fish had been there for some time and had likely already spawned.

In light of this information, as well as high inflows and heavy rainfall, **BPA** proposed that the chum spawning operation at Bonneville Dam end today. What's at stake, Tony Norris said, is not maintaining a given protection level, but whether daytime elevation limits can safely end. With the volume of water that's coming down the river, limiting releases until December 31 could make it difficult to maintain the 11.7-12.5-foot protection band now in effect, Karl Kanbergs, **COE**, explained. RPA 17 in the BiOp extends spawning protections through December 31, but the Action Agencies would prefer to end the spawning phase of the chum operation sooner than that if possible.

Morrill noted that incoming tides are predicted to be high enough, at 67 feet, to protect spawners at River Shore and Woods Landing through the end of the week. The **BOR** concurred with BPA's proposal to move to a 12-foot minimum tailwater operation during all hours at Bonneville effective today. **Washington, Idaho**, **CRITFC/Umatilla Tribe** and **NOAA** did not object to the proposal.

Hearing no objection, the COE will end spawning operations at Bonneville today. The chum operation will transition to the incubation phase, with a 12-foot minimum tailwater elevation during all hours and no maximum daytime elevation. Karl Kanbergs (COE) stated that the 12.0 minimum tailwater elevation could be

revisited by TMT at a later time based on the uncertainties of what kind of water year will actually occur, noting the unusually dry December.

3. Water Management Plan

Lisa Wright, COE, confirmed that the Final 2012 Water Management Plan will be posted as planned to the TMT website by the end of this week.

4. Next TMT Meeting

TMT scheduled a tentative meeting for January 4, 2012, to check in on the chum operation. The next regular meeting after that will be January 18.

Name	***Affiliation***
Tony Norris	BPA
Karl Kanbergs	COE
Charles Morrill	Washington
Tom Lorz	CRITFC Umatilla
Russ Kiefer	Idaho
John Roache	BOR
Lisa Wright	COE
Ruth Burris	PGE
Barry Espenson	CBB
Bruce McKay	consultant
Russ George	WMC
Scott Bettin	BPA
Harvey Hall	EWEB
Mike Shapley	Snohomish
Lisa Beck	Grant PUD
Heather Dohan	Puget Sound Energy
Ritchie Graves	NOAA