

# TECHNICAL MANAGEMENT TEAM

**BOR:** Tony Norris / Lori Postlethwait      **BPA:** Scott Bettin / Robyn MacKay  
**NMFS:** Paul Wagner / Chris Ross      **USFWS:** David Wills / Howard Schaller  
**OR:** Ron Boyce    **WA:** Shane Scott    **ID:** Steve Pettit    **MT:** Jim Litchfield  
**COE:** Cindy Henriksen / Cathy Hlebechuk

## TMT Meeting

**9 January 2002      0900 - 1200 hours**

**Custom House      Room 118  
Portland, Oregon  
Conference call line: 503-808-5190**

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

## AGENDA

1. Welcome, introductions.
2. Water Supply, Long Range Weather, Snowpack (Harold Opitz, RFC, NRCS)
3. Flood Control Operation
4. Project Operations, Chum Status
  - [SOR #2001-13](#)
  - SOR #2001-01
5. [TMT Water Management Plan WY 02](#)
  - [Corrections](#)
6. Other.
  - Finalize Emergency Protocol
  - Report from IT to TMT: Chum Dewatering Criteria
  - 2002 TMT Web Page
  - Set agenda for next TMT

*Questions about the meeting may be referred to Cindy Henriksen at (503) 808-3945, or Cathy Hlebechuk at (503) 808-3942.*

# MEMO

To: Technical Management Team  
From: NMFS  
Date: January 9, 2002  
Subject: Chum Spawning Considerations

This memo is in response to a request from the Implementation Team (IT) for NMFS to prepare a list of factors and our decision process that led us to the chum spawning operation for the 2001 fall season. The IT directive followed a request from the Technical Management Team (TMT) for the IT to clarify which team (TMT or IT) should develop criteria that would be used if conditions were to deteriorate and a determination of de-watering existing redds was necessary. The specific question of whether chum de-watering criteria should be developed, and by which team, was not addressed. Instead, the IT request came after extensive discussion of chum spawning considerations. NMFS considered a number of factors in making its weekly recommendation during this year's chum spawning season and would consider a number of factors if it were faced with a dewatering decision.

The general approach taken by NMFS in its 2000 FCRPS Biological Opinion is to be conservative in the quantity of water used to support the chum spawning operation. The rationale being, chum spawn at a time when little information exists regarding the coming year's water supply. Also, the length of time that flows need to be maintained to support established redds through emergence can be as long as six months. Since many actions in the RPA are based on reservoirs being as full as possible in the spring, a conservative use of water for the chum provides a higher level of assurance that other RPA actions will be implemented. By being conservative at the onset of spawning, the likelihood of having to make a dewatering decision is reduced.

There were several factors unique to the year 2001 which influenced this year's decision process. These included the following issues:

- A refill analysis which indicated initiating the chum operation at a 125 kcfs level in early November would result in lower than an 85% probability of achieving April 10 flood control elevation at Grand Coulee as specified in NMFS' 2000 FCRPS Opinion. The Opinion specifies the initiation of chum spawning flows should not affect implementation of other RPA actions which include refill probabilities of FCRPS storage project and spring and summer flow objectives.
- A recognition that November rains resulted in high discharge from Hardy and Hamilton creeks which were providing spawning habitat for chum. Also, the discharge from Hamilton Creek was inundating much of the mainstem Columbia River spawning habitat similar to what was observed in prior years with a Bonneville Dam discharge of 125 kcfs.
- A recognition that chum were spawning in areas previously not described. The BiOp's specification for the Columbia River to provide a minimum 125 kcfs discharge below

Bonneville Dam was based on observations of habitat used by mainstem chum spawners. At that time, habitat was believed to be limited to the Ives Island area, which required a Bonneville Dam flow of 125 - 160 kcfs to become usable. During the late fall and winter of 2000 and 2001, chum have been observed spawning in mainstem areas near I-205 (Woods Seeps and Rivershore development), which is habitat less restricted by mainstem flow levels.

- A desire for the chum spawning operation to not conflict with the Vernita Bar agreement. NMFS' 2000 Opinion specifies that a mainstem chum operation cannot adversely affect implementation of the parties' ability to comply with the Vernita Bar agreement. This year, due to the extremely low natural stream flows during October and early November, the initiation of a chum spawning operation would have exceeded the targeted flow level agreed upon by parties to the Vernita Bar agreement. NMFS, BPA, several tribes, and the states of Oregon and Washington are among the signatories to this agreement.
- Based on the lessons learned from 2000 and 2001, the Bonneville tailwater gauge level can be used for management purposes instead of a fixed flow. Use of the Bonneville tailwater gauge better reflects the influence of the Willamette River, tides, and local stream flow on the available spawning habitat below Bonneville Dam than managing to a fixed discharge. A linear regression of the data collected over the past several years between flow and tailwater elevation resulted in an excellent fit ( $R^2 = .97$ ). This analysis indicated a flow of 125 kcfs was equivalent to a tailwater elevation of approximately 11.5 ft.

There are several other factors relevant to the chum population which indicate they are at a lower risk than other listed anadromous stocks covered by NMFS' FCRPS 2000 Opinion. These include:

- NMFS estimated median population growth rate ( $\lambda$ ) over a base period of the Columbia River chum ESU (including the Grays River system, Hardy and Hamilton Creeks, and Hamilton Springs) during development of its 2000 Opinion to be 1.04. A  $\lambda$  of 1 indicates a stable population trend. NMFS' management interpretation of this is reflected in the Opinion's specification that the chum operation should not come at the expense of the RPA's water management operation for other threatened and endangered ESUs for which median population growth rates actually declined over the base period.
- The geographic distribution of the chum salmon ESU. Genetic Stock Identification studies by WDFW indicate that this ESU is comprised of two distinct population segments, the Grays River chum and the chum which spawn in the mainstem and tributary creeks below Bonneville Dam as far as I-205 bridge. Results of WDFW's analysis indicate that the chum spawning in the mainstem Columbia/Ives Island complex are part of the same population as the chum spawning in Hamilton and Hardy creeks.
- Adherence to a chum operation that is consistent with the conservative direction provided in NMFS' 2000 Biological Opinion. The BiOp specifies that a chum spawning operation

should only be initiated if it is believed the operation can be maintained from the initiation of spawning through emergence. Data collection in 2001 indicate the chum operation necessitates a flow operation being sustained for nearly six months. A lower flow level has a much higher probability of being sustained than a higher flow level with less of an impact on FCRPS refill probabilities and spring and summer flow augmentation programs for threatened endangered Snake River and Upper Columbia river ESUs .

While a conservative approach to managing the quantity of water used during spawning reduces the risk of having to make a dewatering decision, it does not eliminate dewatering as a possibility. However, the development of a priori criteria for making a dewatering decision is not appropriate. The basis for a dewatering decision would depend greatly on in-season conditions. These types of decisions are best made by the TMT process because of their focus on real time conditions. Factors that should be considered in making a dewatering decision include:

- The number and percentage of the total redds which would be affected by the decision
- The percentage of the total chum population that spawned in the creeks
- The percentage of the total chum population that spawned at other locations
- The component of the overall population that these redds represent
- Status of the FCRPS reservoir elevations
- Expected benefit to reservoir levels and river operations which would be provided by the dewatering decision
- Precipitation and runoff forecasts
- Expected river operations due to power market environment
- Status of the upriver listed stocks
- Existence and status of a brood contingency plan

**TECHNICAL MANAGEMENT TEAM  
MEETING NOTES  
January 9, 2002  
CORPS OF ENGINEERS NORTHWESTERN DIVISION OFFICES – CUSTOM HOUSE  
PORTLAND, OREGON**

**TMT Internet Homepage: <http://www.nwd-wc.usace.army.mil/TMT/index.html>**

**COLUMBIA RIVER REGIONAL FORUM**

**TECHNICAL MANAGEMENT TEAM  
January 9, 2002**

FACILITATOR'S NOTES ON FUTURE ACTIONS  
Facilitator: Richard Forester

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.

**Weather Service/ NRCS:**

Phil Pasteris (Natural Resources Conservation Services) and Harold Opitz (Northwest River Forecast Center) updated TMT on snowpack conditions, precipitation and water supply. Regarding water supply, a “recharge” period continues. The forecast continues to show “climatology”, which means that at this point, there is equal likelihood for precipitation to be above or below normal. However, conditions look consistent. All the information is posted on the NRCS and NWRFC websites, which can be linked through the TMT web page.

**Flood Control Operation:**

Chan Modini (COE) gave a presentation with handouts describing COE flood control operations. The floods of 1948 and 1956 were key in designing the control operation. Questions were raised over the transition from flood control to refill operations. When and how does this occur?

**Action:** TMT will be continually informed of refill probability in relation to flood control operations.

**SOR 2001-13:**

Ron Boyce requested to continue implementation of SOR 2001-12 through the end of 2001. The operation will continue through emergence unless extraneous circumstances occur.

**SOR 2002-1:**

Bob Hallock (USFWS) described the burbot population that lives in Kootenai Lake as depressed. As a result, USFWS and Idaho Fish and Game have requested that releases from Libby be maintained at a range of 6 – 10 kcfs through February 8, and that temperatures are as cool as possible.

After calculating the flood control plan from the early bird water supply forecast, the COE determined that they need to release 14.5 kcfs to meet their target of 2390' by the end of February. They have been working with USFWS to implement this operation, which USFWS finds more beneficial than fluctuating outflows at the end of January.

**Action:** The COE will release 14.5 kcfs out of Libby. They will monitor and decrease outflows if possible, but will keep release levels relatively stable.

**TMT Water Management Plan WY '02:**

Scott Boyd (COE) handed out two corrections made to the WMP. Comments are due by the next meeting, January 23<sup>rd</sup>. Each comment will receive a written response. Scott will send the document in Word to interested TMT members.

**Other:**

- **Finalize Emergency Protocols:** A meeting will be held next week between COE and Oregon legal staff, facilitated by Donna Silverberg.
- **Chum Dewatering Criteria:** Paul Wagner handed out an extended draft of NMFS' recommendations regarding dewatering chum. The memo points out a conservative approach to the issue (in order to avoid a dewatering situation) but lists factors to consider. NMFS feels that ultimately, this is a TMT decision.

**Action:** TMT will look over the listed factors and begin a prioritization process for discussion at the next TMT meeting.

- **2002 Web Page:** The web page has been updated for 2002. All 2001 information has been set aside, though fully accessible. TMT requested that the TMT home page have links to the COE's Water Control Data, historical data, and previous agendas and minutes.

**Next Meeting, January 23:**

Agenda items:

- Flood control
- Water Management Plan
- Chum dewatering comments
- Burbot update
- Web page
- Mid-month forecast

***1. Greeting and Introductions***

The January 9 Technical Management Team meeting, held at the Customs House in Portland, Oregon, was chaired by Cindy Henriksen of the Corps and facilitated by Donna Silverberg. The following is a distillation, not a verbatim transcript, of items discussed at the meeting and actions taken. Anyone with questions or comments about these minutes should call

Henriksen at 503/808-3945.

Forester welcomed everyone to the meeting, then led a round of introductions and a review of the agenda.

## ***2. Water Supply, Snowpack and Long Range Weather Forecast.***

Phil Pasteris from the Natural Resources Conservation Service Climate Center, which produces the water supply forecasts in partnership with the RFC, began this presentation with a review of the just-released January final water supply forecast. What a difference a year makes, he said – almost across the board, we’re now seeing snowpacks that are average or well above average, particularly in the Upper Columbia Basin. The recent warm weather has condensed the snowpack in the Cascades, but it is still well above average. Overall, he said, it’s a significant change from last year. The only real area of concern is Western Montana, he said; currently, the snow-water equivalent estimate for the Flathead Basin is around 85% of average. The snowpacks in the Snake Basin and most of the Oregon and Washington basins of concern, however, are all normal or above-normal.

Moving on, Pasteris said precipitation is also generally above-normal in Oregon, Washington and Idaho, and about average in western Montana. However, he noted, there are some deep groundwater and reservoir elevation deficits to be made up in Montana. The Columbia above Castlegar is slightly above average, in terms of composite snowpack, as is the Columbia above Grand Coulee, Pasteris said, noting that the RFC puts together a 10-day temperature and precipitation page on its website, summarizing the best available information on current and short-term weather conditions; the email address is [www.nwrfc.noaa.gov](http://www.nwrfc.noaa.gov).

Basically, said Pasteris, there aren’t many surprises; we’re pretty close to normal, or above normal, in most of the basins of significance. What has the recent warm weather done to our snowpacks? Steve Pettit asked. There has been some flooding on the west side of the Cascades, Pasteris replied; however, the estimate for the Columbia at The Dalles remains slightly above average -- 102% of average, compared to 59% of average last year. As I said, he added, the warm weather has essentially compacted the Cascades snowpack, which was relatively lightly-packed before. Overall, he said, I think it’s fair to say that we’re doing better than expected, in terms of the regional water supply forecast.

Harold Opitz of the RFC agreed, saying that, overall, the region isn’t doing too badly so far this winter. The Lower Granite January-July water supply forecast is currently was 92% of normal, according to the January final forecast; the forecast for Grand Coulee is also 92% of normal; for The Dalles, 95% of normal. In other words, said Opitz, the aquifer is still recharging, as you can see when you compare the runoff forecasts by basin with current snowpack information.

Ron Boyce said he has heard that 2002 runoff may be below-normal because there is still a long way to go, in terms of recharging the aquifer. Opitz replied that, while there is no quantitative measurement of the amount of recharge that has yet to occur, he expects runoff volumes to be close to normal this year. Opitz reiterated that the main area of concern, in terms

of the soil moisture deficit, is Western Montana. Bear in mind, however, that that area is notorious for late winter and early spring storms and precipitation events, so the snowpack and runoff volume forecast situations may yet improve in Western Montana.

At Henriksen's request, Opitz provided a brief description of how the RFC generates its early-bird, mid-month and monthly final water supply forecasts, noting that the early-bird and mid-month forecasts are to be used as trends and are not stand alone products. He added that the Southern Oscillation Index remains neutral; there has been some speculation that we may enter a new El Niño cycle beginning this September, he said, but at this point, all we can do is wait and see.

### ***3. Flood Control Operations.***

Chad Modini of the Corps reported on current flood control operations. He began by listing the storage projects that are a part of the flood control system in Canada and the U.S., then described the process through which the annual flood control elevations are calculated. Overall, said Modini, the goal is to regulate the 1894 flood to 800 Kcfs at The Dalles.

Modini went through some of the data from major flood events in the century; he noted that 1997 was actually a higher runoff volume year than the Vanport flood year of 1948. However, the shape of the runoff was different in 1997 than it was in 1948. The peak unregulated flow at The Dalles was only about 890 Kcfs in 1997, compared to more than 1 million cfs in 1948. Modini also reviewed a sampling of the data from the historic water supply record, to illustrate the role both runoff shape and volume in shaping the Corps' flood control operations.

Does the Corps always assume the worst, in terms of the range of variability in runoff shapes? Boyce asked. Not necessarily, Modini replied; we take the entire historic record into account, in combination with snowpack, water supply and weather forecast information within a given year.

Modini continued on through his presentation, touching on a number of key areas, including:

- The Corps' flood control objectives
- How flood control damage is measured
- The major elements of the system flood control operation

Boyce expressed concern about last year's flood control operation, in which the Corps evacuated more water than necessary from the storage reservoirs based on a near-normal water supply forecast that never actually materialized. How do we get ahead of that curve, he said, to ensure that the same thing doesn't happen again this year, leaving us with unnecessarily reduced storage volumes for later use in flow augmentation? Modini replied that all of the information the Corps uses to develop its flood control operation is available from the Corps website. Henriksen said that 2001 was a below average water year beginning in January. There were no flood control operations in 2001, she said.

It would be interesting to gain a better understanding of how we make the transition from the flood control operation to the refill operation, said Jim Litchfield – in other words, what criteria do the Corps use to decide when we have adequate protection from flooding, and can begin to refill, rather than draft, the storage reservoirs? Obviously, said Litchfield, the salmon managers would like refill to begin as early as possible, so that as much water as possible is left in storage for use in flow augmentation later in the season.

Modini replied that the decision about when to switch from flood control to storage is made on a month-to-month, project-by-project basis, and varies from year to year. I understand that, said Litchfield, but it would still be informative to get a better handle on how good a chance we have, from week to week, to refill each project, and the extent to which current operations are jeopardizing that probability of refill. It was agreed to revisit this topic in more detail at a future TMT meeting.

#### ***4. Project Operations, Chum Status.***

**A. SOR 2001-13.** On December 21, the Corps received SOR 2001-13. This SOR, supported by USFWS, NMFS, ODFW, IDFG, CRITFC and WDFW, requested the following specific operations:

- Continue implementation of SOR 2001-12 for chum spawning through December 31, 2001, as specified in the Biological Opinion.

Boyce explained that, as requested at the last face-to-face TMT meeting, the salmon managers discussed when the transition from the chum spawning to the chum maintenance operation should occur; that discussion led to this SOR, specifying a minimum tailwater elevation of 11.5 feet at Bonneville through the end of the year. He added that his understanding is that the SOR was implemented; Scott Bettin confirmed that this was the case. We have now transitioned to the chum maintenance operation, Bettin added.

Henriksen added that the Corps has been working with the Fish and Wildlife Service and the Idaho Governor's office, as well as with the Kootenai Tribe of Idaho, on SOR 2001-01. Bob Hallock explained that this request has to do with operations for burbot (a form of freshwater cod) in the Kootenai system, a once-abundant and now extremely depressed population. He said the Service is in the process of determining whether ESA listing is warranted for this species, noting that the population is continuing to decline, despite the fact that female burbot are extremely fecund. The suspected reason, he said, is habitat degradation, and the fact that burbot are very slow swimmers, and cannot migrate to spawning grounds through high-velocity water.

Historically, he said, burbot have spawned at flow volumes of around 5 Kcfs; in recent years, flows during the burbot spawning season have been 2-4 times that below Libby Dam. Lesser flow volumes would provide a greater opportunity for burbot spawning, he said; we've also requested that the reservoir be operated to release the lowest-temperature water. The other part of the request, he said, is an attempt to determine the upper flow threshold at which these fish can migrate. In response to a question, Hallock said burbot typically fish spawn in mid-to-

late January; they migrate to the spawning grounds beginning in mid-to-late-December. In response to another question, Hallock said the operation requested in the SOR would run through February 8.

Kyle Martin noted that CRITFC did not sign off on this SOR, due mainly to the fact that they have not yet been able to model its potential impacts because they have not yet received the final January water supply forecast. We're inclined to support it, however, because it would keep Libby outflow in the lower range during the period of the SOR, Martin said.

Henriksen said the Corps has been calculating the flood control evacuation requirement at Libby based on the most recent runoff volume forecast information; initially, she said, based on the early-bird forecast, we thought the forecast was 94% of average at Libby. That meant we would need to achieve a January 31 Libby elevation of 2392 feet to meet our flood control requirements, which would require steady outflows of about 10 Kcfs from Libby through the end of January, at the upper end of the range requested in this SOR, Henriksen said. By December 28, RCC staff were working with US Fish and Wildlife Service to describe this operation and discuss potential operational scenarios based on the water supply forecast. Based on these late December discussions, the Corps initially agreed to Libby outflow of 10 Kcfs, and to wait and see what the January final water supply forecast had to say.

Late yesterday, she said, we were able to finalize the Libby water supply forecast at 6 MAF, or 95% of normal. That translated to an upper rule curve flood control elevation of 2390 at Libby on January 31; to achieve that elevation, we need to release a level flow of 14.5 Kcfs from Libby through the end of January. We have been coordinating with the Fish and Wildlife Service, Henriksen said; another potential option would be to release 10 Kcfs for as long as possible in January, followed by much higher flows from Libby toward the end of the month.

Hallock said the Fish and Wildlife Service would prefer that the Corps release a level outflow of 14.5 Kcfs through the end of January, and reduce flows, if possible, toward the end of the month. Could the water be released in February, after spawning has occurred? Martin asked. Not according to our treaty requirements because we must meet the end of January flood control elevation, Henriksen replied; in addition, if the Libby water supply forecast goes up in February, we could be forced to spill at Libby in order to draft to our required flood control elevation at that project. The Service recognizes the need to meet flood control, Hallock said, this is noted in the specifications of the SOR where we recognize there may be a need to release more than 10 Kcfs in January. Hallock noted that the intent of this SOR is, again, to determine the upper flow limit at which the burbot can migrate to the spawning grounds; if they are unable to migrate at the flows the Corps will be releasing, he said, we will learn that that upper limit is something less than 14.5 Kcfs.

Steve Petit agreed to 14 Kcfs outflow for the remainder of January to meet flood control, but noted that Idaho would have preferred to see a flow no greater than 10 Kcfs. The Corps would have preferred to see a flow no greater than 10 Kcfs, said Henriksen, but we must meet our flood control elevation at the end of January.

Ultimately, no objections were raised to the proposed Libby operation; Hallock said the

operation falls within the range of operations requested by the Fish and Wildlife Service. In that case, said Henriksen, we will increase Libby outflow to about 14.5 Kcfs, beginning tomorrow, with the intent of maintaining that flow through February 8 unless something changes significantly, in terms of the meteorological or water supply situations. If we can reduce Libby outflow below 14.5 Kcfs during the first week of February, she said, we will.

#### **5. TMT 2002 Water Management Plan.**

Scott Boyd said that, last meeting, he had told the TMT he was available to answer any questions about the draft Water Management Plan; that is still the case, he said. Also, said Boyd, I did find one or two minor mistakes in the draft WMP; they have now been corrected. The goal of this agenda item is to answer any questions the TMT may have about the draft WMP. Henriksen reiterated that any written comments on the draft 2002 Water Management Plan are due to the action agencies by January 23.

In response to a question, Boyd said the Corps plans to begin work on the spring/summer update to the 2002 Water Management Plan around the end of this month; he noted that the TMT will have another opportunity to comment on the WMP once that update is released. He reminded the group that, in future years, the BiOp calls for the Water Management Plan to be produced in September, before anything concrete is known about water supply conditions in the year to come; hence the need for periodic updates as water supply forecast information comes in.

After a few minutes of discussion, Boyd said the Corps will attempt to incorporate or, where appropriate, respond to any comments received over the next week or so into a new draft of the WMP for distribution prior to the next TMT meeting.

#### **6. Other.**

**A. Finalize Emergency Protocols.** We have made some progress, in terms of getting the Oregon legal staff to enter the discussion, said Boyce; there will be a meeting between Oregon legal staff and Corps legal staff next week, and hopefully we will be able to resolve this item at the next TMT meeting.

**B. Report from TMT to IT on Chum Dewatering Criteria.** Paul Wagner described the changes he has made to his chum dewatering criteria memo in response to comments received at the last TMT meeting, laying out the many factors that would need to be weighed before a decision is made to halt the chum operation. In response to a question from Boyce, it was agreed that the TMT will review Wagner's document prior to its presentation to the IT and provide any comments they may have to him, including any thoughts they may have about which criteria should rank high, medium or low-priority, prior to the next TMT meeting.

Henriksen observed that, in her opinion, it would be much more useful to have at least a loosely-prioritized list of dewatering criteria than it would be to simply have a collection of potential dewatering criteria. Boyce noted that similar attempts to reach TMT consensus on criteria priorities have been relatively fruitless, and warned that it probably wouldn't behoove the TMT to spend too much time on such an effort. Understood, said Henriksen; while I certainly

don't expect that we would be able to develop an iron-clad TMT consensus on a prioritized list, some general priorities would be helpful if the dewatering criteria are needed in the future.

**C. 2002 TMT Web Page.** Henriksen said the recent access problems for the TMT website should now be fixed. The group spent a few minutes going through the newly-designed web page, observing that, in general, it is much easier to use than last year's page, although Boyce observed that better links to fish passage data would be helpful. Other participants observed that access to the historic TMT notes (available via the old TMT website) is also important. Henriksen asked that any further comments on the newly-configured page's organization be submitted to her.

In response to a question, Henriksen said the Corps may not be producing a weekly SSARR spreadsheet for the TMT meetings in 2002, due to changes in the River Forecast Center's modeling approach. She added that the TMT will have an opportunity for further discussion of this question at a future TMT meeting.

**7. Next TMT Meeting Date.**

The next meeting of the Technical Management Team was set for Wednesday, January 23. Meeting notes prepared by Jeff Kuechle, BPA contractor.

**TMT Attendance List  
January 9, 2002**

<b>Name</b>	<b>Affiliation</b>
Ron Boyce	ODFW
Scott Boyd	COE
Larry Beck	COE
Scott Bettin	BPA
Ruth Burris	PGE
Richard Forester	Facilitation Team
Robin Harkless	Facilitation Team
Cindy Henriksen	COE
Karl Kanbergs	COE
Jim Litchfield	Consultant (Montana)
Kyle Martin	CRITFC
Tony Norris	Reclamation
Mike O'Bryant	Columbia Basin Bulletin
Harold Opitz	RFC

Phil Pasteris	NRCS
Steve Pettit	IDFG
Shane Scott	WDFW
Craig Sprankle	Reclamation
Glen Traeger	Avista Energy
Maria Van Houten	Enron
Paul Wagner	NMFS

## TECHNICAL MANAGEMENT TEAM

BOR: Tony Norris\Lori Postlethwait      BPA: Scott Bettin\Robyn MacKay  
NMFS: Paul Wagner\Chris Ross      USFWS: David Wills\Howard Schaller  
OR: Ron Boyce      WA: Shane Scott      ID: Steve Pettit      MT: Jim Litchfield  
COE: Cindy Henriksen\Cathy Hlebechuk

# TMT Meeting

**23 January 2002      0900 - 1200 hours**

**Custom House      Room 118  
Portland, Oregon  
Conference call line: 503-808-5190**

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

## AGENDA

1. Welcome, introductions.
2. Flood control
3. 2002 Water Management Plan
  - CRITFC's 2002 River Operations Plan
  - Montana's Comments
  - Water Supply Forecast Correction Curves [\[PDF\]](#)
4. Chum dewatering comments
5. Burbot update
6. Web page
7. Mid-month forecast
8. Other
  - Finalize Emergency Protocol
  - Agenda for Next Meeting

*Questions about the meeting may be referred to Cindy Henriksen at (503) 808-3945, or Cathy Hlebechuk at (503) 808-3942.*

# TECHNICAL MANAGEMENT TEAM MEETING NOTES

January 23, 2002, 9:00 a.m.-12 p.m.

CORPS OF ENGINEERS NORTHWESTERN DIVISION HEADQUARTERS  
PORTLAND, OREGON

## FACILITATOR'S NOTES ON FUTURE ACTIONS

Facilitator: Donna Silverberg

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

### **FLOOD CONTROL:**

Chan Modini showed flood operations/storage reservation diagrams using the Libby project as an example. In a thorough presentation, TMT was walked through the calculations the COE uses to establish flood control curves – and how those curves are modified during a given year based on actual reservoir elevations. Currently, all data is coordinated with the various climate/weather agencies on a monthly basis; bi-monthly curves show partial data and are used for trending. The COE will next prepare a presentation on “initial control flows” and how Libby would look under VARQ as Lesson 2 on flood control issues to share with TMT.

### **WATER MANAGEMENT PLAN:**

Comments from Montana and NMFS have been received and are on the TMT web page. ODFW has completed their draft and will meet with the Governor’s office to review and have in by the end of the day. USFSW will do the same.

**Process:** The Action Agencies will receive, review and respond to comments to the Water Management Plan and attach them as an appendix to the 1-Year Implementation Plan. They will also share the WMP with IT at an upcoming meeting. Finally, NMFS will write a letter of response to the completed Plan.

### **CRITFC's 2002 River Operations Plan:**

Kyle Martin presented principles and concepts that will be the backbone of this year’s River Operation Plan from CRITFC. The anticipated release date of the plan is the end of February.

Kyle will present the plan to TMT at a later date and inform the group of any other opportunities to learn more about the plan.

**Montana Comments RE: WMP:**

Jim Litchfield explained to the group that key issues of concern for Montana are: VARQ, Hungry Horse and Libby. Montana believes refill should be a high priority. They are also concerned about exceeding the gas cap of 110% and increasing power capacity at Libby that would lead to more rapid fluctuations in the reservoir's elevations. Flexibility in the rule curve is also an issue. All comments from Montana have been posted on TMT's web page by the COE.

**WATER SUPPLY FORECAST CORRECTION CURVES:**

CRITFC's Kyle Martin presented an option for TMT to consider for helping project seasonal trends. The handouts can also be found on CRITFC's web page. The River Forecast Center also provided a handout of its 1970-2001 "verification study" to TMT. In reviewing the data provided, it became even clearer that weather and water forecasting is difficult!

**CHUM DEWATERING COMMENTS:**

A request was made at the last TMT meeting to assign value to each of the criteria listed in the NMFS 1/9/02 memo regarding considerations that should be made when faced with the difficult decision of dewatering chum redds in low flow years. Paul Wagner said the water year would determine criteria, while Cindy Henriksen reiterated the need for TMT, as a group, to try to develop a qualitative measurement of each of the criteria.

**Action:** TMT members will review Paul Wagner's list of criterion and bring suggestions for a high, medium, or low priority rating for each. These criteria are for low water years only. The group will engage in an exercise at the next TMT meeting (2/5) to see where initial thoughts might be.

**BURBOT UPDATE:**

Scott Bettin will forward an update from Idaho Fish and Game (with pictures) to TMT members. He will provide more updates at future TMT meetings. Currently, Libby is operating at 14.5 kcfs outflow.

**TMT WEB PAGE:**

Cindy Henriksen walked through the 2002 site, and received many compliments on the new layout from the group. While the site was currently down, the COE hopes to have all access issues resolved as soon as possible so that TMT and others can utilize the tools and data.

**MID-MONTH FORECAST:**

Cindy reported on the mid-month forecast from the River Forecast Center. The report can also be found on a link to the TMT web page.

**FINALIZE EMERGENCY PROTOCOLS:**

Oregon and COE staff and lawyers met and made legislative mark-ups together. Ron Boyce said the mark-ups will be discussed and finalized at the Oregon Governor's meeting today. If they are

approved as written, Cindy will email the new draft to TMT before finalizing at an upcoming TMT meeting.

**NEXT MEETING, February 6:**

Agenda items:

- Lesson 2 Flood Control
- Water Management Plan: Updates on process and presentation
- Chum Dewatering Exercise
- Burbot Update
- Early Bird Forecast
- Emergency Protocols – Finalize?
- Results of Transportation Studies (tentative)

***1. Greetings, Introductions and Review of the Agenda.***

The January 23, 2002 meeting of the Technical Management Team, held at the Corps of Engineers' Northwest Division headquarters in Portland, Oregon, was chaired by Cindy Henriksen of the Corps and facilitated by Donna Silverberg. Please note that this is a summary, not a verbatim transcript, of items discussed and decisions made at today's meeting.

***2. Flood Control***

This agenda item is a follow-up to a request made at the last TMT meeting, at which some of the participants asked for a fuller explanation of how the Corps' flood control plans are developed, Henriksen said. She then introduced the Corps' Chan Modini, who provided an overview of the Corps' current and historic flood control planning and implementation efforts.

Modini began by describing the development of the Libby flood control operation for 1999, showing end-of-month elevation targets through the season, plotted against the changing runoff volume forecast over time. Modini's presentation showed the volume of storage space that was required in Libby Reservoir during various points in the season

Modini touched on the way the Corps makes flood control operation adjustments over the course of the season, in response to changes in the runoff volume forecast that is finalized once each month. He also went through the difference between system and local flood control requirements, noting that system flood control requirements take precedence over local flood control operations, unless the local flood control requirement is more restrictive. Henriksen reiterated that the overall goal of the Corps' flood control strategy in development of the system plan was to maintain an initial control flow of 800 Kcfs at The Dalles under 1897 flood conditions.

The group devoted a few minutes of discussion to flood control operations at various individual projects in the system, notably Grand Coulee, Libby and Dworshak. Modini reiterated that the Corps' flood control criteria are recalculated monthly, once the monthly final forecast is received. In response to another question, Henriksen went through the various project minimum

flows that are factored into the flood control operation.

Using the overhead projector, Modini then went through an example from the 1999 flood control operation at Libby, illustrating how the flood control rule curve changed over time to take into account a changing water supply forecast.

Ron Boyce asked whether the Corps would be willing to consider going to a twice-monthly flood control calculation, particularly in low to moderate water years when the balance between flood control drafts and retaining water for later use in flow augmentation is particularly critical. Henriksen replied that twice-monthly flood control calculations may be an option for certain types of water years, but the Corps would have to have final quality water supply forecasts twice each month. Don Laurine of the River Forecast Center noted that such an effort would require a significant increase in RFC workload.

Part of what we struggle with every year is the timing of the transition point between the flood control operation and the refill operation, said Jim Litchfield – there almost always comes a point in the season where the flood control draft begins to eat into the probability of June 30 refill. Modini replied that this transition point is factored into the rule curve. It was agreed that a future TMT agenda will include a description of how initial control flows and VARQ are calculated and factored into the operation.

Has the Corps considered deeper drafts in the storage projects during the October-December time frame, to reduce the need to draft during the late winter and early spring period? Boyce asked. In other words, he said, can you shape your flood control drafts to provide more biological benefit to chum? That is an option, Henriksen replied, but in very low water years such as last year, if we would have gone below the flood control rule curve earlier in the season, there is no way that we would have even come close to our April refill targets – that's the caveat. In the fall, we have little or no information about the upcoming water year, Henriksen said.

### ***3. 2002 Water Management Plan***

Henriksen said Montana's comments on the 2002 WMP have been posted to the TMT web page. Scott Boyd said NMFS has also provided some comments, primarily editorial in nature; to date, these are the only comments received. Boyce said ODFW is also working on comments, which will be submitted by close of business today. David Wills said the Fish and Wildlife Service also hopes to submit its comments later today.

The Corps' plan is to incorporate the TMT comments received into a new draft, then submit the revised Water Management Plan to NMFS? Boyce asked. What's the next step in this process? The final Water Management Plan will be submitted to the Implementation Team, Boyd replied; the action agencies are also responsible for responding to the comments that are not incorporated. NMFS will then express its approval or disapproval of the 2002 Water Management Plan. In the meantime, said Henriksen, the action agencies will be working on the mid-year WMP update.

***A. CRITFC 2002 River Operations Plan.*** Kyle Martin described this presentation as a

preview; the full 2002 ROP will not be available until next month. He said his goal was to lay out the main principals of the plan at today's meeting; he asked that any comments be submitted to him after today's meeting. He described how the CRITFC River Operations Plan was developed – the historic water years used, the incorporation of water supply correction curves, the requirements of the Biological Opinion. He said he assumed a 93-MAF water supply volume for the purposes of the 2002 River Operations Plan, the overall goal of which is a more normative hydrograph, with normally-timed peaks and troughs in flow.

Martin spent a few minutes going through the River Operations Plan, noting some of the areas where the CRITFC plan likely differs from the action agencies' Water Management Plan. He noted that, in the CRITFC plan, he had shifted the target refill date backward from June 30 to May 31, with the projects passing inflow throughout the month of June. The CRITFC plan also assumes 427 KAF of flow augmentation volume from Idaho, that the Nez Perce/State of Idaho plan for Dworshak operations will be implemented in 2002, and that spill would occur from March through October and from April through September at various projects in the system, a different regime than that called for in the BiOp.

In response to a question, Martin said the CRITFC plan will be presented at various fora throughout the region once it is completed and approved by CRITFC's tribal members.

***B. Montana Comments on 2002 WMP.*** Henriksen reiterated that Montana's comments have been posted to the TMT webpage. In general, said Litchfield, we thought the draft Water Management Plan was a good effort; we especially appreciated the emphasis on refill, but did ask that VARQ implementation receive full consideration. The group devoted a few minutes of discussion to the question of how burbot, sturgeon and bull trout operations will fit into the 2002 Water Management Plan.

#### ***4. Water Supply Forecast Correction Curves.***

Martin led this presentation, noting that, every year, the TMT spends an inordinate amount of time arguing over some extremely small volumes of water. If you had more accurate forecasts available sooner, he said, that might help reduce some of that conflict. The water supply forecasts issued by the River Forecast Center obviously attempt to forecast future trends, Martin said; he spent a few minutes going through the data sets and equations used to produce the RFC's forecasts.

Martin then described his proposed water supply correction curves, noting that, while the tool is still a work in progress, its intent is to ensure that as much water is left in the storage reservoirs as possible for flow augmentation later in the season, rather than being unnecessarily drafted for flood control space that would not be needed if more accurate forecasts were available. He distributed a handout describing the correction curve tool; for a copy, please contact Martin directly at 503/731-1314.

Don Laurine of the River Forecast Center noted that what Martin is proposing is simply operating to a different risk analysis, based on a selection of historic water years and runoff shapes. What does this mean for TMT? Silverberg asked. The TMT would need to look at how

this analysis would change the risk analysis underlying the flood control operation, Laurine replied. I'm not saying this analysis will provide the perfect answer, Martin replied; I'm saying its intent is to make better use of the available water we have from year to year.

Laurine went on to say he does not disagree with Martin's point that there is some bias in most years' forecasts; however, he said, you need to bear in mind that, when the January final forecast is produced, typically we've only got 40% of the annual snow pack on the ground, with 60% yet to come. In other words, he said, there is a lot of uncertainty every year. Uncertainty is one thing, said Litchfield, but if there is a consistent bias to the forecast, that's something we ought to be able to get our hands around. And the RFC is working to improve its forecasting every year, Laurine replied.

Is it fair to say that, in general, dry years have turned out to be dryer than expected or forecast, while wet years have tended to be wetter than forecast? Wagner asked. That is sometimes correct, was the reply. Henriksen noted that, in years such as last year, when the forecast is dry, there is no flood control operation. We understand that, said Boyce; it's the in-between years that are problematic. After a few minutes of discussion, it was agreed that the TMT will re-address this topic at a future meeting.

### ***5. Chum Dewatering Comments***

Wagner said his hope for today was that the TMT would be able to discuss relative priorities for some of the chum dewatering criteria on the list he developed two meetings ago. I attempted to do so before today's meeting, Wagner said; my general conclusion is that those priorities depend on the type of water year it was. Henriksen observed that the chum dewatering criteria would not be needed in high water years; her assumption is that the prioritized criteria would be needed only in low water years.

After a few minutes of discussion, it was agreed that more time is needed to mull over this issue; it was agreed to discuss it further at the next TMT meeting, with the goal of developing a non-agency-specific list of at least the most important factors to be considered in the chum dewatering decision in low-water years. It's a qualitative exercise, rather than a quantitative exercise, Henriksen said – it would simply be helpful to know which of the criteria on Paul's list would be designated as highest- and lowest-priority for the TMT in a low water year. It was agreed that the group will have such a discussion at its next face-to-face meeting, to be limited to 20 minutes' duration; Silverberg asked each TMT member to spend a few minutes prior to that meeting weighing their own suggested priorities.

### ***6. Burbot Update.***

Scott Bettin said he will bring in some photographs of burbot to the next TMT meeting; the fish have been moving everywhere, he said, but at this point, we don't know whether or not any spawning is occurring, or how the burbot are responding to this flow regime. That's why we're doing the study, of course, Bettin said, adding that further updates will be provided as more information becomes available.

**7. TMT Web-Page Update.**

Henriksen noted that there have been some access problems for the TMT website in recent days; she said the Corps is working to resolve those problems. She said the web page has been updated in response to some of the comments received at the last TMT meeting, and spent a few minutes demonstrating the various features of the new and improved website.

**8. Mid-Month Forecast.**

Henriksen said the RFC has issued the January mid-month water supply forecast; it is available via the RFC homepage. At Grand Coulee, the January-July forecast is now 58.6 MAF, down 600 KAF from the January final. At Lower Granite, the April-July forecast is now 18.9 MAF, 87% of average, down from 20 MAF in the January final. At The Dalles, the January-July forecast is now 96.1 MAF, down from 98.7 MAF in the January final. That's 91% of average at The Dalles, Henriksen said, adding that significant amounts of precipitation have fallen since the mid-month forecast was developed. The February early bird water supply forecast is expected to be available soon.

**9. Other.**

**A. Emergency Protocol Update.** The meeting between State of Oregon and Corps of Engineers legal counsel has now taken place and was apparently quite productive, Boyce said; there is a meeting at the Governor's office today to discuss the proposed changes to the emergency protocol language, after which the proposed language will be sent to the Corps, hopefully by later today. After that, he said, we'll distribute the revised emergency protocols to the TMT, with the goal of finalizing them at the next face-to-face meeting of this group. If you have any heartburn about the proposed changes, Silverberg said, please let us know sooner rather than later.

**10. Next TMT Meeting Date.**

The next face-to-face meeting of the Technical Management Team was set for Wednesday, February 6. Meeting notes prepared by Jeff Kuechle, BPA contractor.

**TMT ATTENDANCE LIST**

**January 23, 2002**

<b>Name</b>	<b>Affiliation</b>
Larry Beck	COE
Scott Bettin	BPA
Ron Boyce	ODFW
Scott Boyd	COE

Ruth Burris	PGE
Pete Dickerson	COE
Margaret Filardo	FPC
Ray Fukunaga	River Forecast Center
Cindy Henriksen	COE
Don Laurine	River Forecast Center
Jim Litchfield	Montana
Ningjen Liu	IPC
Kyle Martin	CRITFC
Chan Modini	COE
Tony Norris	Reclamation
Mike O'Bryant	Columbia Basin Bulletin
Chris Ross	NMFS
Laura Scott	Advanced Energy
Donna Silverberg	Facilitation Team
Ken Soderlind	COE
Rudd Turner	COE
Paul Wagner	NMFS
David Wills	USFWS

## TECHNICAL MANAGEMENT TEAM

BOR: Tony Norris\Lori Postlethwait      BPA: Scott Bettin\Robyn MacKay  
NMFS: Paul Wagner\Chris Ross      USFWS: David Wills\Howard Schaller  
OR: Ron Boyce      WA: Shane Scott      ID: Steve Pettit      MT: Jim Litchfield  
COE: Cindy Henriksen\Cathy Hlebechuk

# TMT Meeting

**6 February 2002      0900 - 1200 hours**

**Custom House      Room 118  
Portland, Oregon  
Conference call line: 503-808-5190**

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

## AGENDA

1. Welcome, introductions.
2. Flood control, Lesson 2 (Corps)
3. [2002 Water Management Plan](#) / Updates on Progress and Process (All)
4. Chum dewatering Exercise (All)
5. Burbot update (IDFG, USFWS)
6. Early Bird Forecast
7. Emergency Protocols [\[PDF\]](#) / FINALIZE
8. Other.
  - Transportation Study Results (NMFS)
  - Agenda for Next Meeting

*Questions about the meeting may be referred to Cindy Henriksen at (503) 808-3945, or Cathy Hlebechuk at (503) 808-3942.*

# TECHNICAL MANAGEMENT TEAM MEETING NOTES

February 6, 2002, 9:00 a.m.-noon.

CORPS OF ENGINEERS NORTHWESTERN DIVISION HEADQUARTERS  
PORTLAND, OREGON

## FACILITATOR'S NOTES ON FUTURE ACTIONS

Facilitator: Donna Silverberg

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

### **FLOOD CONTROL LESSON 2:**

Chan Modini provided a presentation on initial controlled flow (ICF), the point at which reservoir refill begins for flood control (and June refill). Reservoirs are emptied so that, when needed, they can begin to hold water that would likely cause a flood. The reservoir "hole" is determined by forecast information at the River Forecast Center. The ICF calculates the day that reservoirs should begin refilling to reduce the risk of flooding. Chan handed out the chart for ICF at The Dalles.

**Action:** TMT will discuss process and plans for the Systemwide Flood Control Study as part of Lesson 3. This could have an impact on the current Flood Control Operating Plan, which was written in 1972 and updated in 1999. Many questions exist around the possibility of flexibility to meet multiple needs and purposes. The group will also discuss flood control "shifts" at the next TMT meeting, February 20<sup>th</sup>.

[Note: Next TMT will have a report on the Status of the System Flood Control Study. Lesson 3 is "Shifted Flood Control and its Application in 2002".

### **WATER MANAGEMENT PLAN UPDATE:**

Comments from Montana, NMFS, Oregon, and USFWS are on the web. Idaho and CRITFC will be responding by the next TMT meeting. A revised plan with attached written responses to comments will be available soon, and a spring update will begin in March. A suggestion was made for Action Agencies to structure the updating process to separate policy issues from those that need to be updated for flexibility.

### **CHUM DEWATERING CRITERIA:**

TMT did an exercise to prioritize the list of factors relevant to making the difficult decision of dewatering chum redds (should the situation ever occur). These factors were

spelled out in the NMFS memo from January 9<sup>th</sup>, 2002. TMT members rated these factors as high, medium or low in priority. The following chart captures the number of TMT members who selected the priority rating. The following criteria listed were placed in categories of high, medium, or low priority:

	HIGH	MED	LOW
The number and percentage of the total redds which would be affected by the decision	3	4	
The percentage of the total chum population that spawned in the creeks	2	5	
The percentage of the total chum population that spawned in other locations	3	4	
The component of the overall population that these redds represent	4	3	
Status of the FCRPS reservoir elevations	7		
Expected benefit to reservoir levels and river operations which would be provided by the dewatering decision	6	1	
Precipitation and runoff forecasts	7		
Expected river operations due to power market environment	6	1	1
Status of the upriver listed stocks	1	5	1
Existence and status of a brood contingency plan		6	

The exercise pointed out areas where the group has a common sense of importance with this issue. While the information is subjective, it is useful to show the commonality of views. Ron Boyce also pointed out that, rather than focusing on chum in a vacuum, a broader risk analysis approach could be beneficial. The analysis could be a combination of scientific data and a subjective allocation of risks that looks broadly at risks to fish viability, lambda, numbers affected, other listed stocks, etc.

**Question:** What risks does NMFS see for various stocks of fish as we enter this year?

**Action:** Paul Wagner will ask Chris Toole to discuss the Science Center/NMFS' risk assessment of stocks to help inform this year's decision making at the next TMT meeting. This discussion could continue at a later date with regards to other species (e.g. bull trout, sturgeon).

**BURBOT UPDATE:**

Scott Bettin handed out photographs of burbot. He updated TMT on his conversations with Montana biologists who report that the fish have migrated and would not be affected by an increase in flows for flood control operations at Libby. The Corps began flood control operations on 2/5 and went to full powerhouse capacity on 2/6.

**EARLY BIRD FORECAST:**

Cindy Henriksen reported that the forecast was released last week from the NWRFC. The early bird forecast shows water supply up from the January final. The information can be found on a link from TMT's web page. Ron Boyce mentioned that the Fish Passage Center used to attend the regular public weather briefings given by the COE. These briefings are not occurring this year, so Ron requested future weather briefings from the

COE at TMT. He will check with the FPC to determine what particular information was useful so that the COE can present relevant information.

**NEXT MEETING, FEBRUARY 27<sup>TH</sup>** (Note date change!):

Agenda Items:

- Weather Briefing
- Lesson 3: Flood Control
  1. Presentation on Flood Control Study plans
  2. “Shift” – discussion
- Spring Creek Operation Discussion
  - Pros/cons: power/financial and fish biology
- Status of Fish: Risk Assessment Views – NMFS
- “Q Adjust” Run: What is it? How does it affect TMT?
- 2002 WMP: Discussion of Comments Given/Received
- Update/Report on NMFS Transport Study

***1. Greetings, Introductions and Review of the Agenda.***

The February 6, 2002 meeting of the Technical Management Team, held at the Corps of Engineers’ Northwest Division headquarters in Portland, Oregon, was chaired by Cindy Henriksen of the Corps and facilitated by Donna Silverberg. Please note that this is a summary, not a verbatim transcript, of items discussed and decisions made at today’s meeting.

***2. Flood Control (Lesson 2).***

The Corps’ Chan Modini led a briefing on the initial controlled flow facet of the annual flood control planning equation. Modini noted that there are two periods of flood control: evacuation and refill. The TMT received a briefing on the evacuation period at its last meeting, Modini said; as you’ll recall, the Corps computes the region’s flood control storage requirements based on the monthly water supply forecasts, adjusting the amount of storage space required through the season as those forecasts evolve. The evacuation period generally ends by April 30; refill then takes place in May, June and July.

Modini distributed a handout showing an example of the charts the Corps uses to compute initial controlled flow: “Forecast of Residual Runoff, Columbia River at The Dalles from Date Through August, Corrected for Upstream Storage in MAF.” Modini noted that the initial controlled flow is defined as the unregulated flow at a given project (in this case, The Dalles) that the Corps uses as a trigger to initiate refill; he then spent a few minutes explaining how the ICF is calculated. According to this graph, said Modini, for the current water supply in 2002, once unregulated flow at the Dalles approaches 330 Kcfs after April 30, the evacuation period will end and the refill period will begin. He reiterated that the initial controlled flow changes over the season as better forecasts as received.

The group devoted a few minutes of discussion to the nuances of this concept, asking a variety of clarifying questions. Essentially, said Modini, the idea behind the initial controlled flow is to prevent floods -- to ensure that there is enough available storage to contain the annual runoff peak, after which controlled refill can begin. What you're saying, then, is that the forecasts determine how big to make the hole in the reservoirs, and the initial controlled flow determines when you start to fill the hole, one participant observed. That's correct, Modini replied.

Paul Wagner observed that it is getting near time to discuss the potential for a Dworshak/Grand Coulee flood control shift in 2002. We'll put that on the agenda for the next TMT meeting, said Henriksen.

In response to a question from Ron Boyce, Modini agreed that the Corps does take a fairly conservative view of their flood control responsibilities, generally opting for caution over risk. Part of the reason for that, Modini explained, was the 1948 flood -- while 1948 is only the 13<sup>th</sup>-highest water year on record, because it was a cold spring and a late runoff, it produced the second-highest unregulated peak flow on record at The Dalles. In other words, said Modini, the runoff volume forecast is only part of the flood control equation -- there is also considerable risk and uncertainty associated with how the snow pack comes off.

The problem with that approach, of course, is that, even as we speak, the storage reservoirs are being drafted to create flood control space, an operation that confers little or no biological benefit because of its timing, said Wagner. We will arrive at April 10 with our storage reservoirs drafted to some fairly low level, he said, and will then be waiting for the freshet to begin for some indeterminate period. Meanwhile, we have flow targets set in the BiOp which need to be met, said Wagner; the only way to meet them is by drafting the reservoirs further, creating an even bigger hole to fill by June 30. Perhaps the real discussion that needs to occur is, what would be the relative risk of shifting the timing of at least a portion of that flood control draft to April, before the runoff begins, but at a time when those flood control releases would provide some biological benefit? Wagner said.

Scott Bettin replied that, if sunspot predictions are correct, the timing of the freshet is moving earlier and earlier in the season, which would increase the risks associated with a shift such as the one Wagner suggested. Isn't that the type of question the flood control study is designed to answer? Silverberg asked. Yes, and that study is underway, Bettin replied.

The group discussed the logical next steps in the TMT's flood control briefings; there was general agreement that a presentation on the flood control study -- its status and timeline, and the opportunities for TMT input into its development -- should be the topic of the next briefing in this series. It was also agreed that the Corps and Reclamation will provide some information about the potential risks and benefits of a Grand Coulee/Dworshak flood control swap in 2002 at the February 20 TMT meeting.

At the conclusion of this discussion, Modini noted that a more detailed explanation of initial controlled flow and other flood control concepts are available on the Corps' NWD homepage.

### ***3. 2002 Water Management Plan.***

Henriksen reminded the group that the draft 2002 Water Management Plan is now available for review and comment; to date, Montana, NMFS, Oregon and the U.S. Fish and Wildlife Service have provided comments. Those comments are all available via the TMT website, Henriksen said; we hope to respond to those comments by the end of the month. Steve Pettit said Idaho will also be providing comments; Kyle Martin said comments from CRITFC will also be forthcoming. Henriksen asked that any further comments on the draft WMP be provided prior to the next TMT meeting on February 20. It was agreed to place a discussion of the comments submitted on the 2002 WMP on the agenda for the next TMT meeting, to give each agency a chance to present the highlights of their comments and allow for group discussion.

### ***4. Chum Dewatering Exercise.***

As you will recall, said Silverberg, at the last TMT meeting, we agreed to devote 20 minutes or so of today's meeting to an exercise in which we would attempt to assign basic priorities to some of the factors the TMT would need to weigh if they were to find themselves in the unenviable position of having to consider dewatering the Ives/Pierce Island chum redds. You will also recall, she said, that these suggested criteria were set forth in Paul Wagner's January 9 memo on this subject. Silverberg went to the board and wrote down this list of potential criteria; she asked each TMT member to (anonymously) rank these criteria as either high, medium or low-priority. The results of this exercise were as follows:

**Percent of redds affected:** 3 high, 4 medium

**Percent spawned in creeks:** 2 high, 5 medium

**Percent spawned at other sites:** 3 high, 4 medium

**Percent of overall population represented by these redds:** 4 high, 3 medium

**Reservoir elevation status:** 7 high

**Benefits to system if dewatering occurs:** 6 high, 1 medium

**Precipitation/runoff forecasts:** 7 high

**Expected river operations/power forecasts:** 6 high, 1 medium, 1 low

**Status of upriver listed stocks:** 1 high, 5 medium, 1 low

**Existence and status of broodstock contingency plan:** 6 medium, 1 low

Boyce observed that, while this was a useful exercise, in his opinion, what the TMT really needs is a more thorough and comprehensive risk assessment, which would factor in the risks associated with various operational strategies not only on chum, but on flood control and refill objectives, power system reliability and other species. Jim Litchfield agreed, noting that there is a clear need for a better understanding of how

various operations – say, an additional 10 Kcfs of flow in the Lower Snake in the spring vs. the summer – affect the viability of various species.

Essentially what we need is a better way to quantify the biological benefits and detriments associated with a range of actions, Litchfield said – unless we have that analysis, then we're basically making a random or subjective choice. A good example is last year's decisions about how to allocate the limited volume of spill that was made available, Boyce agreed.

Silverberg asked where the TMT wanted to go with this issue from here; it was agreed to ask Chris Toole of NMFS to provide a presentation at a future TMT meeting on the current lamda status of each population, and how those lamdas were developed for the BiOp. It would also be helpful to get similar presentations for the other listed species – sturgeon and bull trout – to see both where they're at, currently, and what impact our operations are having on them, said Boyce.

In terms of actions, then, said Silverberg, Paul Wagner will ask Chris Toole about a possible NMFS presentation at the next TMT meeting on lamda and NMFS' risk assessments on currently-listed stocks, to be followed at another meeting by similar presentations on sturgeon and bull trout from the Fish and Wildlife Service and, possible, Montana. It was so agreed.

### ***5. Burbot Update.***

Bettin distributed some recent pictures of burbot; he reported that, due to the need to release more water for flood control, Libby outflow has been increased to full powerhouse capacity. The word from the Fish and Wildlife Service is that all of the burbot that are going to migrate to the spawning grounds in 2002 have done so, said Bettin, so the increased flow from Libby should not have any detrimental biological impacts.

In summary, then, the burbot operation is over for this year? Silverberg asked. That's correct, Bettin replied.

### ***6. February Early Bird Forecast.***

Henriksen said the River Forecast Center released its February early-bird forecast last week; it generally showed an increase from the January final forecast, thanks to some significant recent rain and snow events. At Grand Coulee, the early-bird January-July forecast is 60.2 MAF, 95% of average, up from 94% of average in the January final forecast. At Lower Granite, the early-bird April-July forecast is 21.3 MAF, 98% of average, up from 92% of average in the January final forecast. At The Dalles, the early-bird January-July forecast is 101 MAF, 95% of average, up from 93% of average in the January final forecast. At Libby, the February early-bird April-September forecast shows 6.75 MAF, 100% of average, Henriksen added.

### ***7. Emergency Protocols.***

Silverberg said the January 14 meeting between the Corps and State of Oregon legal staffs resolved the state's concerns over the language in the emergency protocols appendix; she distributed copies of the revised emergency protocols, with the agreed-upon language highlighted in legislative format. Unless anyone has problems with the revised language, said Silverberg, the protocols can now be considered final.

### ***8. Next TMT Meeting Date.***

The next meeting of the Technical Management Team was moved to Wednesday, February 27, due to a scheduling conflict. Meeting notes prepared by Jeff Kuechle, BPA contractor.

## **TMT ATTENDANCE LIST**

**FEBRUARY 6, 2002**

<b>Name</b>	<b>Affiliation</b>	<b>Phone</b>
Donna Silverberg	Facilitation Team	503/248-4703
Scott Bettin	BPA	503/230-4573
Cindy Henriksen	COE	503/808-3945
Shane Scott	WDFW	360/902-2812
David Wills	USFWS	360/696-7605
Ron Boyce	ODFW	503/872-5252 x 5403
Paul Wagner	NMFS	503/231-2316
Pat McGrane	Reclamation	208/378-5215
Tony Norris	Reclamation	503/872-2802
Ruth Burris	PGE	503/464-7998
Mike Buchko	PowerX	604/891-5009
Maria Van Houten	UBS	503/464-7961
Tim Heizenrater	UBS	503/464-7417
Dave Statler	Nez Perce Tribe	208/476-7417
Steven Wallace	PacifiCorp	503/818-5325
Russ George	Water Management Consultants Inc.	503/253-1553
Robin Harkless	Facilitation Team	503/248-4703

Julie Ammann	COE	503/808-3946
Mary Scullion	COE	503/808-3947
Patrick O'Brian	COE	503/808-3961
Rudd Turner	COE	503/808-3954
Laura Hamilton	COE	503/808-3939
Richelle Harding	D. Rohr & Associates	503/408-4969
Mike O'Bryant	Columbia Basin Bulletin	503/281-9102
Scott Boyd	COE	503/808-3943
Larry Beck	COE	503/808-3935
Greg Bowers	COE	503/808-3944
Tom Le	PSE	425/462-3069
Kyle Martin	CRITFC	503/731-1314
Ken Soderlind	COE	503/808-3737
Rick Pendergrass	BPA	503/230-7666
Nancy Yun	COE	503/808-3737
Jim Litchfield	Montana (consultant)	503/222-9480
Chan Modini	COE	503/808-3958
Ninjen Liu	IPC	
Laura Scott	PGE	
Steve Pettit	IDFG	

## TECHNICAL MANAGEMENT TEAM

BOR: Tony Norris\Lori Postlethwait      BPA: Scott Bettin\Rick Pendergrass

NMFS: Paul Wagner\Chris Ross      USFWS: David Wills\Howard Schaller

OR: Ron Boyce      WA: Shane Scott      ID: Steve Pettit      MT: Jim Litchfield

COE: Cindy Henriksen\Cathy Hlebechuk\Rudd Turner

# TMT Meeting

**27 February 2002      0900 - 1200 hours**

**Custom House      Room 118  
Portland, Oregon  
Conference call line: 503-808-5190**

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

## AGENDA

1. Welcome, introductions.
2. Weather Briefing (RFC)
3. Spring Creek Hatchery Release Operation (USFWS)
4. Flood Control
  - Status of System Study (Tim Kuhn, COE)
  - Dworshak/Brownlee Shift to Grand Coulee (Description and 2002 Capability) [[Feb 27 QADJ](#)]
5. TMT members Comments Discussion on [2002 WMP](#)
  - IDF&G Comments
  - CRITFC Comments
6. Mid-month forecast
7. Other.
  - Agenda for Next Meeting

*Questions about the meeting may be referred to Cindy Henriksen at (503) 808-3945, or Cathy Hlebechuk at (503) 808-3942.*

## Summary of Feb 2002 QADJ Model Runs

### Assumptions:

- \* Streamflows were adjusted based on the Feb 2002 Final Water Supply Forecast and shaped 59 different ways based on observed historical runoff.
- \* Projects were operated to normal flood control (i.e. no shifted flood control).
- \* Starting Elevations were actual Jan 31 observed data.
- \* Grand Coulee meets 15 Apr and 30 Apr flood control elevations, targets full by 30 June, drafts to meet McNary flows in July and targets 1280 ft by 31 Aug.
- \* Hungry Horse meets Columbia Falls minimum flows of 3,500 cfs, targets full in June, and drafts to 3540 ft by 31 Aug.
- \* Dworshak operates to flood control, attempts to meet Lower Granite flow objectives in May, targets full in June, releases 14,000 cfs in July and targets 1520 ft by 31 Aug.
- \* Libby operates to flood control, releases flow for sturgeon and bull trout in May and June, targets full in July, and drafts to 2439 ft by 31 Aug.
- \* Brownlee operates to flood control elevations.

### Results:

#### Priest Rapids Meets Flow Objectives of 135 kcfs in Apr - Jun:

Month	Occurrences out Average Flow for	
	of 59 Years	59 Years (kcfs)
Apr1	10	112
Apr2	30	141
May	57	154
Jun	54	170

#### Lower Granite Meets Flow Objectives of 100 kcfs in Apr - Jun and 52 kcfs in Jul - Aug:

Month	Occurrences out Average Flow for	
	of 59 Years	59 Years (kcfs)
Apr1	8	72
Apr2	19	89
May	42	103
Jun	33	102
Jul	23	50
Aug1	0	34
Aug2	0	33

#### McNary Meets Flow Objectives of 247 kcfs in Apr2 - Jun and 200 kcfs in Jul - Aug:

Month	Occurrences out Average Flow for	
	of 59 Years	59 Years (kcfs)
Apr2	18	228
May	58	252
Jun	42	270
Jul	53	214
Aug1	0	133
Aug2	0	129

#### Projects Refill by 30 June:

Month	Occurrences out of 59 Years	Average
		Elevation on 30 Jun for 59 Years

Libby *	4	2451
Hungry Horse	50	3559
Grand Coulee	59	1290
Dworshak	36	1591

\* Libby refills 56 out of 59 years by 31 Jul with an average elevation of 2458.8 ft for the 59 years.

**TECHNICAL MANAGEMENT TEAM  
MEETING NOTES  
February 27, 2002  
CORPS OF ENGINEERS NORTHWESTERN DIVISION OFFICES – CUSTOM HOUSE  
PORTLAND, OREGON**

**TMT Internet Homepage: <http://www.nwd-wc.usace.army.mil/TMT/index.html>**

**FACILITATOR'S NOTES ON FUTURE ACTIONS**

Facilitator: Donna Silverberg

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

**Weather Briefing:**

Dan Matusiewicz from the River Forecast Center informed the group on the precipitation forecast for the region. He spoke of current “unsettled conditions” and little clues about the extended forecast. The information can also be found on their website, which has a link on the TMT home page.

**Spring Creek Hatchery Release Operation:**

Dave Wills updated the group and said there will be an SOR prepared for next week, to be discussed at a March 6<sup>th</sup> TMT conference call. The mild winter has supported a rapid growth of fish, so the USFWS is eager for an earlier release, March 11<sup>th</sup>.

FYI: Bonneville project managers joined the TMT meeting to discuss the installation of six new spill deflectors. The teletype will say: screens P1, DSM and P2 will be put in on March 11<sup>th</sup> in priority of use as noted in the fish passage plan (or language similar to this). The flow pattern at Bonneville will change, as new spill deflectors are being installed. The new patterns developed will allow ½ -- 1 foot opening of gates (instead of 4”). Problems have occurred with Bays 1 and 18, but 2 through 17 will be operational. BPA needs to also consider work on a barge in front of Bays 1 and 18. \*(The USFWS are running models for release that include analysis of the impacts on redds.)

**Flood Control:**

Project Manager Tim Kuhn gave a status report of the **Flood Control System Study** relating to Action 35 in the Biological Opinion. The study looks at how the system could be modified to increase flows during spring freshet. An “initial appraisal” document has been approved by the COE and unfortunately, what the COE requested in their budget is not in the President’s budget. It could be if non-federal interests show support for the study to the President’s ’03 budget. A non-federal agency could sponsor the study at a 50% cost share. The estimated cost for the reconnaissance investigation is \$200,000 for ’02. The total cost for the feasibility study is approximately \$10 million. TMT had questions about how the COE will coordinate the regional effort. Tim expressed a desire for a real cooperative effort with a good public involvement structure. Anyone that is interested in this study can call Tim at 503-808-4752.

Greg Bowers from the COE reported on the possibility of a **flood control shift** in order to move water into the lower Snake River in April. One option is to shift Dworshak's system flood control space to Grand Coulee. This would affect a 4.5 kcfs increase of flow at Lower Granite, decreased flows in the mainstem, and Lake Roosevelt down 4.5 feet but returning to the same elevation as usual on 4/30. After a brief caucus, the Salmon Managers expressed support for the shift, although Washington could not confirm support until checking in with other agency staff.

Cindy Henriksen shared a summary of the February 2002 **Q Adjust model runs** which look at expectations of elevations depending on volumes/flows of the past 60 years' averages matched with this year's forecasted water information.

#### **NMFS Biological Risk Assessment:**

Chris Toole gave an overview with a possible matrix for risk analysis of listed stocks in the 2000 Biological Opinion. NMFS cross-studied the risk status of each fish with each action and it's degree of affect (positive or negative) on each of the listed fish. NMFS wants no more than 5% risk of extinction and a 50% probability of recovery in 48 years. NMFS expects to complete the new analysis and evaluation in 2005. They don't want to repeat this study annually, but will do some stock status review (either as a result of the Alsea case, mediation or other needed re-analysis).

Next Steps: TMT members suggested using the NMFS status sheet as a guide and including it as a tool in the decision-making process.

Action: Jim Litchfield and Paul Wagner will work together to establish visual aids for population growth rates/ needed survival improvement to share with the rest of TMT.

#### **TMT Comments on 2002 WMP:**

This agenda item was deferred to the next face-to-face meeting, March 13<sup>th</sup>.

#### **Mid-Month Forecast:**

Cindy Henriksen reported normal precipitation for February. The early-bird forecast for March is expected out on February 28<sup>th</sup> on the River Forecast Center's website.

#### **Agendas:**

March 6<sup>th</sup>, 9:00 AM Conference Call:

- SOR – Spring Creek Hatchery Release

March 13<sup>th</sup>, 9:00 AM Face-to-Face Meeting: [NOTE: The meeting date and time has been changed to March 14 at 1:00 p.m.]

- Spring Creek Release Updates/Status, Update on BON Screen Program
- Weather Briefing: Water Supply Forecast, TMT Spring Products
- Water Management Plan: TMT Member Comments/Responses – Discussion
- Shiftable Amount
- Hanford Updates – 2002 Agreement

## ***1. Greeting and Introductions***

The February 27 Technical Management Team meeting, held at the Customs House in Portland, Oregon, was chaired by Cindy Henriksen of the Corps and facilitated by Donna Silverberg. The following is a distillation, not a verbatim transcript, of items discussed at the meeting and actions taken. Anyone with questions or comments about these minutes should call Turner at 503/808-3935.

Silverberg welcomed everyone to the meeting, then led a round of introductions and a review of the agenda.

## ***2. Weather Briefing.***

Dan Matusiewicz of the River Forecast Center began the briefing with an overview of conditions over the past 24 hours: light precipitation, mostly in the form of snow – less than a tenth of an inch. Another weak system is already moving into British Columbia, Matusiewicz said, adding that freezing levels were generally near the surface this morning. Through Sunday, he said, we'll be seeing similar weather, with a ridge of high pressure holding off the Oregon coast and a series of weak storms moving in off the Pacific -- scattered snow showers, with very light precipitation.

Starting Monday, said Matusiewicz, some models are predicting a trough of low pressure moving down from Alaska, bringing cooler, more unsettled weather, although other models are saying that the low pressure won't arrive until mid-week. Whichever model you believe, he said, the next significant precipitation won't arrive before mid-week.

The long-term forecast through March shows equal chances of above-normal, normal or below-normal precipitation and temperatures, Matusiewicz said. There is a slightly greater chance temperatures will be slightly above-normal than below normal.

## ***3. Spring Creek Hatchery Release Operation.***

David Wills said the Spring Creek Hatchery release will likely take place on March 11; the Fish and Wildlife Service is preparing an SOR which will be available for TMT review next week. It may be necessary to release the fish a little earlier, because of a weather-driven, higher-than-expected growth rate, Wills said.

The group devoted a few minutes of discussion to the installation of screens at Bonneville to spill patterns and to schedule; Wills said the Fish and Wildlife Service is in the process of finalizing its spill pattern request, in part because it is not known whether the gate work on Bonneville Bays 1 and 18 will be finished by March 11. Egress conditions are better if Bays 1 and 18 are used, Wills explained, hence our preference for including them in the spill pattern if possible. In response to a question, Wills said the Fish and Wildlife Service is still calculating what volume of spill it will be requesting; one factor to consider is the potential impact of the

spill operation on the chum redds below Bonneville. It was agreed that there may be a need to convene a TMT conference call once the Fish and Wildlife Service SOR is received next week.

#### **4. Flood Control.**

**A. Status of System Study.** Tim Kuhn of the Corps, the project manager for the system flood control study called for in the BiOp, explained that the goal of the study is to examine how flood control is calculated, with an eye toward increasing the spring freshet. The Corps has submitted a request for funding for the study, he said, but those funds were not included in the President's FY'03 budget. In other words, said Kuhn, we're stuck, as far as getting the study underway -- as federal employees, we can't lobby for the necessary funds (\$200,000, initially, to conduct a recon-level study).

It's important to do a good job at the recon level, because that will lay the groundwork for information that will come out of the study, and ensure that it is responsive to what the region needs, Kuhn explained. In response to a question from Jim Litchfield, Kuhn said any non-federal entities can lobby for funding for a particular project, such as this study. In response to a question from Ron Boyce, Kuhn said funding for the flood control study was included in the Corps' budget request for FY'03; however, he reiterated, it was not included in the President's budget. Another participant observed that Congressional activity on the FY'03 President's Budget is ongoing; there is still opportunity for interested parties to advocate for funding for the flood control study in FY'03. Various entities expressed their displeasure that this study, which is specifically called for in the Biological Opinion, has not been funded for FY'03.

Kuhn said he would like to hear the views of the TMT membership on the proposed study, particularly its scope and goals. He asked anyone who would like to comment to call him directly at 503/808-4752. We'll look forward to receiving regular updates for you, as you know more, Silverberg said.

**B. Dworshak/Grand Coulee Shift.** Greg Bowers of the Corps said he had been asked to calculate the difference in Lower Snake flows if Dworshak is not drafted for traditional flood control, or shifted flood control, this spring. He distributed graphic information, showing what might be expected this year, noting that the current Dworshak elevation is 1513.6 feet. Under either the shifted, or non-shifted operation, Bowers said, we would draft Dworshak to elevation 1503 feet by March 31.

Under the proposed Dworshak/Brownlee flood control shift operation, said Bowers, Dworshak would provide only local, not system, flood control, and would be at elevation 1512 on March 30. Dworshak would then be able to release an additional 4.6 Kcfs during April, Bowers explained. The difference in the March 31 Grand Coulee elevation would be about four feet less, Bowers said -- 1272 feet rather than 1276. Henriksen noted that Priest Rapids flows would be reduced by 4.6 Kcfs during April if this swap is implemented.

In response to a question from Boyce, Bowers said Brownlee has not been factored into this swap because it is already operating below its flood control elevation. Scott Bettin noted that, at the end of April, if the swap is implemented, Dworshak elevation will be right back

where it would have been if it had not been implemented.

The question for TMT, then, is whether or not this swap offers a biological advantage, Paul Wagner observed. That's correct, Henriksen replied. And the time to make that request is now at hand? Wagner asked. Correct, Henriksen replied -- we will need to begin drafting Dworshak soon if the swap is not implemented.

Henriksen also distributed a handout showing the February final water supply forecast, by subbasin, matched against each of the 60 historic water years and runoff shapes. What we wind up with is 60 water years with 60 different runoff shapes, with the goal of gaining some insight into what month-to-month, project-by project inflows and outflows might be, and into refill probabilities at each project, she explained.

Henriksen spent a few minutes going through her handout, explaining that it is primarily for the TMT's information, and will be updated as future forecasts come in from the RFC.

### ***5. BiOp Extinction Risk Analysis.***

In response to a request from last meeting, Chris Toole provided a presentation on the extinction risk analysis in the 2000 Biological Opinion. He noted that, in all of its operational decisions, the TMT must weigh the impacts of those decisions on each of the species of concern; one way to do that is by factoring in the current risk of extinction for each species. Any given action can affect multiple ESUs, either positively or negatively, Toole said; the question is, how do you quantify those benefits and detriments so you can make an informed decision?

A good example is the chum operation, which I understand is what gave rise to this agenda item in the first place, Toole said. The lower river chum populations are at less risk of extinction than the upriver stocks, but the annual chum operation can have a negative impact on the system's ability to provide flow augmentation in the spring and summer period. All of the ESUs are at risk, Toole said; the challenge we face is deciding which actions provide the greatest bang for our biological buck.

Toole used the overhead to demonstrate some of the analyses NMFS uses to calculate population trends and extinction risk. He noted that "lambda" denotes the annual rate of change for each species, adding that the focus of NMFS' extinction risk analysis is the magnitude of lambda change needed to reduce extinction risk to an acceptable level. Toole then went through some of the key assumptions NMFS used in its analysis, including time period, sampling error and data quality.

So how does this help us make the decision about the Dworshak/Grand Coulee swap? Litchfield asked. The effect of the swap would be an increase in Lower Snake flows and a decrease in flow at Priest Rapids during the month of April, he said; according to this analysis, the Snake River stocks are at a greater risk of extinction than the Hanford Reach stocks. If you can quantify the proportional changes in survival for each affected ESU, that should be very helpful in making a decision, Toole replied -- essentially, the stocks where the biggest change in survival is necessary are those most at risk.

The group discussed the implications of the NMFS extinction risk analysis for chum populations; Toole reiterated that, overall, chum are at less risk of extinction than most upriver ESUs. The other side of the coin, of course, is the magnitude of the biological benefit your actions will have for those more at-risk stocks, Toole said.

Where do we need to go with this topic at future TMT meetings? Silverberg asked. Perhaps we can at least ask ourselves, when an SOR is proposed, which ESUs will be affected, and use the NMFS extinction risk approach as a guide, Litchfield suggested. Boyce observed that, rather than a fish vs. fish debate, a fish vs. power and other river use debate would be more productive for the TMT.

The discussion then returned to the applicability of this analysis to the Dworshak/Grand Coulee shift. The group spent a few minutes discussing the implications of a 2002 swap for Upper and Mid-Columbia and Lower Snake chinook and steelhead ESUs. Ultimately, it was agreed that Litchfield and Wagner will attempt to apply this analysis to the Dworshak/Grand Coulee swap operation, and to develop a visual aid to inform further discussion of the swap at the next TMT meeting.

#### ***6. TMT Members' Comments on the Water Management Plan.***

In the absence of representatives from IDFG and CRITFC, it was agreed to defer this discussion until the next TMT meeting.

#### ***7. Water Supply Forecast.***

The February mid-month forecast has been issued by the RFC, Henriksen said; at Grand Coulee, the new January-July forecast is 61 MAF, up slightly from the February final. At Lower Granite, the April-July forecast is now 20.8 MAF, 94% of average, down slightly from the February final forecast. At The Dalles, the new forecast is 102 MAF, up slightly from the February final, and 97% of average. The March early-bird forecast is expected to be released tomorrow, Henriksen said; it will be available from the RFC homepage.

#### ***8. Next TMT Meeting Date.***

The next meeting of the Technical Management Team will be a conference call on March 6 to discuss the Spring Creek Hatchery release spill SOR. The next face-to-face TMT meeting was set for Wednesday, March 13; Meeting summary prepared by Jeff Kuechle, BPA contractor.

### **TMT Meeting Participant List February 27, 2002**

<b>Name</b>	<b>Affiliation</b>
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Scott Bettin	BPA
Greg Bowers	COE
Ron Boyce	ODFW
Scott Boyd	COE
Ruth Burris	PGE
Mike Buchko	PowerX
Margaret Filardo	FPC
Roger Fuhrman	IPC
Jim Gaspard	B.C. Hydro
Russ George	Water Management Consultants Inc.
Robin Harkless	Facilitation Team
Tim Heizenrater	
Cindy Henriksen	COE
Cathy Hlebechuk	COE
Jim Litchfield	Montana (consultant)
Ningjen Liu	IPC
Dave Matusiewicz	RFC
Tony Norris	Reclamation
Mike O'Bryant	Columbia Basin Bulletin
Shane Scott	WDFW
Donna Silverberg	Facilitation Team
Chris Toole	NMFS
Glen Traeger	Avista Energy
Rudd Turner	COE
Paul Wagner	NMFS
Steven Wallace	PacifiCorp
David Wills	USFWS

## TECHNICAL MANAGEMENT TEAM

BOR: Tony Norris\Lori Postlethwait      BPA: Scott Bettin\Rick Pendergrass

NMFS: Paul Wagner\Chris Ross      USFWS: David Wills\Howard Schaller

OR: Ron Boyce      WA: Shane Scott      ID: Steve Pettit      MT: Jim Litchfield

COE: Cindy Henriksen\Cathy Hlebechuk\Rudd Turner

## TMT CONFERENCE CALL

**6 March 2002      0900 - 1200 hours**

**Custom House      Room 118  
Portland, Oregon  
Conference call line: 503-808-5190**

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

### AGENDA

1. Welcome, introductions.
2. Spring Creek Hatchery Release Operation (USFWS)
3. Other.

*Questions about the meeting may be referred to Cindy Henriksen at (503) 808-3945, or Rudd Turner at (503) 808-3935.*

**TECHNICAL MANAGEMENT TEAM  
CONFERENCE CALL NOTES  
March 6, 2002  
CORPS OF ENGINEERS NORTHWESTERN DIVISION OFFICES – CUSTOM HOUSE  
PORTLAND, OREGON**

TMT Internet Homepage: <http://www.nwd-wc.usace.army.mil/TMT/index.html>

FACILITATOR'S NOTES ON FUTURE ACTIONS

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 2002-1:**

Today's conference call was convened to discuss SOR 2002-1, presented by the Salmon Managers from ODFW, WDFW, USFWS, CRITFC, and NMFS. The request was for spill and flow at Powerhouse II at Bonneville Dam for the Spring Creek Hatchery release.

The request included:

- Flow of 170 kcfs;
- spill starting at 80 kcfs and increasing to 100 kcfs;
- maintenance of a TDG of 105% or lower;
- a five- to ten-day operation beginning March 11 at 8:00 PM; and
- consideration of the April 10<sup>th</sup> rule curve elevations named in the Biological Opinion.

Redds have been found in areas never seen before so there is little information about gas levels in these areas – which is why the request asks for a gradual increase of spill and the use of real-time monitoring throughout the operation.

The COE responded that, based on current expectations with the Federal projects in meeting April 10 objectives, the request as it relates to the water supply forecast would be too risky to implement. The final forecast is due out Friday, which everyone agreed would provide more insight into this issue. BPA also noted that this operation could show potential dewatering of chums later. Any water that is used now must be made up later. Tony Norris said the BOR's priorities are chum and meeting the April 10 target and that this operation could jeopardize those priorities. Cindy Henriksen asked the Salmon Managers to consider a lesser flow that could be negotiated.

After a caucus, the Salmon Managers announced that the SOR was to remain as it was submitted and requested a response from the Action Agencies. BPA said that the current operation, drafting at 125 kcfs with no spill, would remain as it stands if the alternative was to implement the SOR. The BOR was not willing to jeopardize chum or the April 10 refill. The COE also was not willing to jeopardize the refill objective to implement this SOR, but was willing to discuss flexibility. The Action Agencies offered an alternative to the SOR: implement flow of 150 kcfs, 50 kcfs of spill, for a 24-hour, three-day period (subject to real-time monitoring of gas levels).

The Salmon Managers did not agree to the proposed alternative, so the issue was raised to IT. The following question, which Cindy Henriksen sent out to TMT members, will be framed at the IT conference call tomorrow at 2 pm:

What are acceptable risks to implementation of SOR 2002-1, and how are they calculated? The three components of risk to the SOR include:

- 170 kcfs flow at Bonneville Dam for three days. Of this total flow, 100 kcfs is spill.
- The spill from Bonneville Dam is not to impact chum redds downstream and therefore total dissolved gas should not exceed 105% as measured at the chum redds.
- The operation should not compromise the system's ability to achieve April 10 flood control elevations at federal projects.

*\*The next TMT face-to-face meeting was rescheduled for Thursday, March 14<sup>th</sup>, at 1 pm. Check the Feb. 27<sup>th</sup> notes for a draft agenda.*

### ***1. Greeting and Introductions***

The March 6 Technical Management Team conference call to discuss spill operations in support of the upcoming Spring Creek Hatchery release was chaired by Cindy Henriksen of the Corps and facilitated by Donna Silverberg. The following is a distillation, not a verbatim transcript, of items discussed at the meeting and actions taken. Anyone with questions or comments about these minutes should call Cindy Henriksen at 503/808-3945.

### ***2. Spring Creek Hatchery Spill Operation.***

Prior to today's conference call, the action agencies received SOR 2002-1, covering spill operations in support of the 2002 Spring Creek Hatchery release. This SOR, supported by ODFW, WDFW, CRITFC, USFWS and NMFS, requests the following specific operations:

- No operation of unscreened units at Bonneville Powerhouse I or II and follow the turbine operating priority in the Fish Passage Plan; Operate Powerhouse II as first priority.
- Fully load PH II before operating PH I; Operate PH II ice and trash sluiceway; Operate turbine units within 1% of peak efficiency; Operate juvenile and adult facilities according to criteria;
- Provide an instantaneous flow of 170 Kcfs. Based on modeling by the USFWS, we estimate that a flow of 170 Kcfs is sufficient to allow approximately 100 Kcfs of spill 24 hours a day, while maintaining a maximum level of 105 % TDG (factored for depth compensation) at the Ives Island gage 3 and the highest elevation chum salmon redd on the Oregon shore.
- Provide an initial spill level of 80 Kcfs, increasing to 100 Kcfs or more dependent on real-time TDG monitoring. Because of our desire to be conservative and

provide maximum protection to the ESA listed chum salmon, we request that spill initially be provided at a level of 80 Kcfs. Spill is to be increased based on real-time TDG measurements collected by the USFWS. The USFWS will notify the project operator beginning the evening of March 11, 2002 if spill levels can be increased while not exceeding 105% TDG factored for depth compensation at the highest elevation chum redd. (At no time is spill to exceed 120% total dissolved gas measured at the Warrendale monitor as allowed under the dissolved gas waiver request to be considered by the Oregon Environmental Quality Commission on March 8.)

- These operations are to begin at 2000 hours on March 11, 2002. If after five days of flow augmentation and spill operations it has been estimated that at least 85% of the release has passed Bonneville Dam, the operations may be terminated. If less than 85% of the release has passed Bonneville Dam after five days of operations, continue flow augmentation and spill for up to ten days or until an estimated 85% of the release has passed Bonneville Dam.
- We recognize that based on the past few months' reservoir operations, reservoirs are presently near, or in some cases below, flood control rule curves. We request that the Action Agencies use the remaining flexibility in the system to accomplish this SOR without jeopardizing the April 10<sup>th</sup> rule curve elevations called for by the Biological Opinion.

Ron Boyce spent a few minutes going through the actions requested and justifications for this SOR, the full text of which is available via the TMT's Internet homepage. The salmon managers feel there is adequate water in the system to accommodate this operation without significantly impacting refill possibilities later this spring, said Boyce; it is, in fact, substantially less than we've requested in past years' Spring Creek Hatchery spill SORs.

You would expect most of this additional water to come out of Grand Coulee? Scott Bettin asked. That's something the operating agencies would need to decide, Boyce replied. Henriksen said that, with respect to the probability of meeting the April 10 flood control elevation targets, the water supply forecast has been dwindling somewhat; the March final forecast is due out this Friday. Based on the most recent forecast information we have, however, Henriksen said, we would expect to see flows in the 120 Kcfs-125 Kcfs range at Bonneville through April 10 if we're to stay on track in meeting those April 10 elevations. The additional 50 Kcfs in flow requested in this SOR is troublesome to the action agencies, in terms of meeting those April 10 elevation targets.

Flows were higher in February, said Boyce – in the 170-180 Kcfs range. Why are they projected to be so much lower in March and April? We were meeting higher loads in February, Bettin replied; the purpose of that operation was to meet load and intersect with the flood control elevation targets in April.

Jim Litchfield observed that it will be necessary to fill Grand Coulee by five feet, to elevation 1262, by April 10 if the target at that project is to be met. How much spill could we have if Bonneville flows continue in the 120-125 Kcfs range? Litchfield asked.

About 50 Kcfs, replied David Wills, but that will not provide adequate coverage for all of the chum redds below Bonneville. The group discussed whether or not precise information exists about the location of all of the redds of concern; Boyce replied that ODFW can provide a map showing the GPS coordinates and elevation of all of the redds. Wills added that a map of Ives/Pierce Island redd locations is available via the Fish Passage Center homepage.

In response to a question from Bettin regarding chum emergence timing, Don Englund and Howard Schaller said field crews are just starting to see juvenile chum emerging from the redds; emergence will likely continue through April. Flows were in the 140-150 Kcfs range at Bonneville during the most recent field surveys; water levels were at least four feet over the highest redds at that flow volume.

Bettin said that, as far as he knows, there isn't enough system flexibility to provide 170 Kcfs in Bonneville flow and to meet the April 10 flood control elevations at the upriver storage projects. My concern, he said, is that if we draft Grand Coulee deeper now, that's water that won't be available to us later in the spring and summer period. In response to a question, Boyce said the salmon managers don't want to violate any BiOp RPAs in order to accommodate this SOR; however, the Spring Creek fish have tremendous importance and value to the ocean and lower river fishery.

The group discussed what would be lost, biologically, if the requested Spring Creek spill is not provided. Essentially, you're asking for 100 Kcfs spill for five days? Henriksen asked. For 100 Kcfs spill until 80% of the Spring Creek juveniles have passed Bonneville, Wills replied. Litchfield asked about the incremental benefits of this operation – how many Spring Creek chinook would be expected to survive to adulthood if this operation is implemented. Wills estimated that 250,000-300,000 fewer juveniles will survive past Bonneville if this spill is not provided. This is out of a total release of about 15 million fish, said Bettin.

We can talk about incremental benefits, said Paul Wagner, but the real issue here is the fact that there has been a historical commitment, on the part of the action agencies, to provide spill in support of the Spring Creek Hatchery release. Has something changed? Wagner asked. One thing that has changed is the fact that chum are now a listed species, while the Spring Creek chinook are a hatchery stock, said Bettin; protecting the Ives/Pierce Island chum is a higher priority than providing spill for the Spring Creek Hatchery fish.

Boyce expressed discomfort with the direction of this debate -- we shouldn't be talking about whether we should be protecting these fish at all, he said; we should be talking about what we can do for these fish.

Henriksen reiterated her concern about the adverse impacts of a lower river flow of 170 Kcfs on the system's ability to meet its April 10 flood control target elevations. In response to a question from Boyce, Henriksen said the current SSARR run shows detailed current reservoir elevation data; based on that data, she said, if we are to meet

those April 10 flood control targets, the Corps is projecting an average flow at Bonneville of 120-125 Kcfs over the next month or so. Any additional flow in the lower river between now and April 10 will diminish the volume we have in storage, she said.

Wills observed that there is considerable uncertainty associated with the water supply forecast at this point in the season. That is true, Henriksen agreed. The group then discussed possible compromise flows – flows at which at least some spill can be provided at Bonneville, without severely impacting storage reservoir refill probability. Wagner noted that lower river flows were also about 125 Kcfs at this point in the 2001 season; the TMT ultimately agreed to spill 50 Kcfs at Bonneville in support of the Spring Creek release. The concern, of course, is depth compensation -- the depth of coverage over the redds, and potential TDG impacts if there isn't enough water over the highest redds, Wagner said.

The discussion continued in this vein for some minutes. Boyce reiterated his request that the action agencies use the inherent flexibility in the system to provide the requested flow and spill at Bonneville without detrimentally impacting later refill probability. If you can point us in the direction of that flexibility, Bettin replied, we're willing to listen. Henriksen said that, while there is some flexibility in the system to provide additional flow, an additional 50 Kcfs isn't just flexibility – it's a major change in operation.

If we were to provide 50 Kcfs spill, Henriksen said, how much powerhouse flow would be needed to provide adequate depth compensation? At least 150 Kcfs in total flow, Wills replied. Then let's explore the option of 150 Kcfs as the total flow at Bonneville for a few days, said Henriksen.

After a few minutes of additional discussion, Boyce observed that, in his opinion, the winter power drafts have emptied the reservoirs to the extent that it is not possible to meet the Spring Creek spill request. They have been drafted for power, but only to an extent that the action agencies are confident of meeting their April refill targets, Tony Norris replied. At this point, Boyce requested a caucus break, to give the salmon managers an opportunity to discuss how best to proceed with this issue.

When the meeting resumed, Boyce said the salmon managers had agreed that the SOR stands as written; this being the case, he said, we would like a response from the action agencies about the SOR. If it has to be all or nothing, Bettin replied, then the operation you'll see is 125 Kcfs at Bonneville with no spill. In other words, said Henriksen, we will continue to operate toward the April 10 refill targets.

Saying “the SOR stands” could mean many things, Henriksen said – what is your understanding of what it means? That the operations requested in SOR 2002-1 -- increase Bonneville outflow to 170 Kcfs flow and 80 Kcfs spill beginning at 8 a.m. Monday, with TDG not to exceed 105% TDG over the chum redds, with spill ramping up gradually until 85% of the Spring Creek juveniles have passed Bonneville -- will be implemented

as written, Boyce replied. We do not, however, want this operation to conflict with the operation to achieve the April 10 rule curve elevations, he added.

It sounds, then, as though BPA's response to this SOR is that they will provide 125 Kcfs total flow at Bonneville, with no spill, said Boyce. If the salmon managers' position is that we must implement all or nothing of this SOR, with no possibility for a compromise operation, that's correct, Bettin replied. There simply isn't enough physical flexibility in the system to implement this SOR as written, Bettin said.

What might the action agencies be willing to provide, in terms of a compromise? Boyce asked. We talked before the break about the possibility of providing 50 Kcfs spill, with a powerhouse flow to be determined – something on the order of 150 Kcfs total flow at Bonneville, Henriksen said. That's where we broke for the caucus, so we never heard a response from the salmon managers, she said.

So the SOR stands, but it has been rejected by the action agencies, Boyce said. We are trying to work with you to implement this SOR, but we're not willing to jeopardize Biological Opinion operations to provide Spring Creek spill, Bettin replied. It sounds as though we need a better understanding of the flow and spill volumes it might be possible to provide at Bonneville without jeopardizing April 10 refill, Litchfield said. Again, said Henriksen, there is a new water supply forecast due out on Friday; it might be possible to explore some sort of a compromise, with spill in the 50 Kcfs range and flow in the 150 Kcfs range, for some fixed period -- say, three days. Obviously, intensive monitoring of TDG levels at the chum redds would be a necessary component of such an operation. Would that spill be around the clock? Litchfield asked. We could meet the 150 Kcfs flow around the clock, said Bettin, but we might want to turn spill on and off as appropriate to meet downstream TDG needs at the redds.

The group devoted a few minutes of discussion to this proposed operation. Ultimately, Wills said that, in his view, there would be value in having the IT discuss this operation at a conference call tomorrow. The issue, he said, is that the salmon managers feel they have crafted a reasonable operation; there is adequate flexibility in the system to implement that operation, and the question is, why can't this SOR request be met? Oregon would also like to join the Fish and Wildlife Service in elevating this issue to IT, said Boyce, in the hopes of obtaining a fuller explanation of why this SOR cannot be implemented.

For the record, said Henriksen, the action agencies are not refusing to implement this SOR – they physically cannot implement this SOR while meeting all of their other requirements. On the other hand, she said, the action agencies have offered a compromise of providing 150 Kcfs of flow and 50 Kcfs of spill for three days at Bonneville, and the salmon managers have refused that compromise.

Wills reiterated that, in his opinion, this discussion needs to be elevated to the IT. Boyce suggested the 10 flood control elevations while meeting the 125 Kcfs minimum flow at Bonneville for chum protection, Bettin replied.

A few minutes of further TMT discussion yielded the following issue statement to be elevated to the IT: What are the acceptable risks associated with the full implementation of SOR 2002-1, and how should those risks be calculated? To me, said Wagner, the issue here is simple – we can implement this SOR if we’re willing to place April 10 refill in jeopardy at some projects – what magnitude of risk is acceptable? Are the SOR supporters willing to add half a MAF of additional risk to meeting the April 10 target elevations? Norris said – that’s something you probably need to talk about internally prior to the IT call.

Henriksen said she will contact the IT to let them know this issue will be elevated; it is expected that a 1 p.m. Thursday conference call will be convened to resolve this issue.

**3. Next TMT Meeting Date.**

An IT conference call to resolve this issue will be convened at 2 p.m. Thursday, March 7. The next face-to-face meeting of the Technical Management Team was changed to Thursday, March 14 from 1 p.m. to 4 p.m.. Meeting summary prepared by Jeff Kuechle, BPA contractor.

**TMT Participant List**

**March 6, 2002**

<b>Name</b>	<b>Affiliation</b>
Scott Bettin	BPA
Ron Boyce	ODFW
Ruth Burris	PGE
Dick Cassidy	COE
Don Englund	USFWS
Margaret Filardo	FPC
Russ George	Water Management Consultants Inc.
Laura Hamilton	COE
Richelle Harding	D. Rohr & Associates
Cindy Henriksen	COE
Jim Litchfield	Consultant (Montana)
Ningjen Liu	IdaCorp Energy
Kyle Martin	CRITFC

Tony Norris	Reclamation
Mike O'Bryant	Columbia Basin Bulletin
Bill Rudolph	NW Fish Letter
Howard Schaller	USFWS
Shane Scott	WDFW
Rudd Turner	COE
Paul Wagner	NMFS
Steve Wallace	PacifiCorp
David Wills	USFWS

**IMPLEMENTATION TEAM/TECHNICAL MANAGEMENT TEAM  
CONFERENCE CALL NOTES  
March 7, 2002  
NATIONAL MARINE FISHERIES SERVICE OFFICES  
PORTLAND, OREGON**

**TMT Internet Homepage: <http://www.nwd-wc.usace.army.mil/TMT/index.html>**

***1. Greeting and Introductions***

The March 7 Implementation Team/Technical Management Team conference call to discuss the issue, elevated at the March 6 TMT meeting, regarding spill operations in support of the upcoming Spring Creek Hatchery release, was chaired by Bill Hevlin of NMFS and facilitated by Donna Silverberg. The following is a distillation, not a verbatim transcript, of items discussed at the meeting and actions taken. Anyone with questions or comments about these minutes should call Kathy Ceballos at 503/230-5420.

***2. Spring Creek Hatchery Spill Issue.***

Cindy Henriksen briefed the IT on yesterday's TMT discussion of SOR 2002-1, regarding spill in support of the Spring Creek Hatchery release. The issue that is being elevated to the IT has to do with the risk surrounding implementation of this operation, Henriksen said – specifically, what is the acceptable risk associated with implementation of this SOR, and how is that risk to be calculated? The SOR requests five days of 170 Kcfs flow at Bonneville, with spill up to 105% TDG over the Ives/Pierce Island redds, Henriksen explained; the SOR includes a provision for intensive monitoring. Henriksen noted that the 170 Kcfs total flow requested in SOR 2002-1 represents an increase of 45 Kcfs-50 Kcfs over the current average flow at Bonneville, which raises some concern about the likelihood of achieving the April 10 flood control elevation at Grand Coulee.

Our goal today is to explore the risks associated with the requested operation, and hopefully come to some resolution, Henriksen said. Is there agreement that the SOR as written is not implementable? John Palensky asked. The action agencies feel it is not implementable as currently written,. Henriksen replied. David Wills said that, from the Fish and Wildlife Service's perspective, the SOR is both implementable and low-risk.

The issue really has to do with the fact that we need to store another five feet into Grand Coulee between now and April 10, Jim Litchfield observed; the operation requested in this SOR would draft Grand Coulee, at least for a few days. To me, said Ron Boyce, the real issue is how much flexibility exists in the system to implement this SOR – the action agencies have said it should be feasible to provide 150 Kcfs at Bonneville for three days, so why can't they provide 170 Kcfs for five days?

One participant noted that the March early-bird forecast is now available, and has decreased slightly at The Dalles, compared to the February final. What about the flexibility

issue? Palensky asked. The flexibility that was identified at yesterday's TMT meeting is what we think we can provide, Jim Athearn replied – 150 Kcfs in total flow at Bonneville for three days. We are interested in doing what we can for the Spring Creek hatchery release, Athearn said, but looking at where we are today, and the best available forecast information, we've identified the volume of water we feel is available – that's the flexibility that exists if we're to maintain an acceptable level of risk with respect to April refill targets.

Boyce asked how the Corps defines "flexibility." Why isn't there enough volume throughout the hydro system, not just Grand Coulee, to implement this SOR? he asked. At yesterday's meeting, we went through the projects one by one – current and expected operations and current reservoir levels, Henriksen said. Based on that analysis, we expect average flows on the order of 120 Kcfs-125 Kcfs at Bonneville between now and April 10, she said; the flexibility we offered yesterday, in terms of the 150 Kcfs flow for three days at Bonneville, is pure risk. In response to another question from Boyce, Henriksen said the uncertainty associated with the current forecast at The Dalles is +/- 17 MAF. Once the March final forecast is released tomorrow, she said, we'll have better information.

The discussion turned to current power operations in the system; Scott Bettin said a combination of flood control drafts, meeting the minimum tailwater elevation at Bonneville, and steadily-declining forecasts are to blame for the current reservoir elevation situation. Boyce replied that, for much of January and February, flows well in excess of those required to meet the Bonneville minimum tailwater were running past Bonneville; up to 200 Kcfs. That was purely for power production, Howard Schaller observed. If meeting load is something we're not supposed to do, Bettin replied, then we need to revisit our entire operating purpose– there have also been many days when we could have saved 40 Kcfs-50 Kcfs, if we were just meeting load, rather than maintaining the minimum tailwater elevation at Bonneville.

Schaller said that, in his view, the purpose of today's call is to talk about risk. Kim Fodrea replied that, in her view, the purpose of today's call is to make a decision about the Spring Creek Hatchery release. Palensky agreed, saying that, while the past operations that contributed to the present reservoir elevation situation may be germane to a more in-depth discussion of the risk issue at a future IT meeting, today probably isn't the time to have that discussion. Athearn suggested that the group would be better served to look forward, rather than back, at this point in the season.

The discussion continued in this vein for some minutes. Ultimately, Silverberg suggested that, while further conversation about the decisions that have contributed to the current system operation and reservoir levels would be useful, today's meeting needs to focus on the decision issue.

Litchfield noted that, at yesterday's meeting, the action agencies offered a compromise: 150 Kcfs of flow at Bonneville for three days; the salmon managers' response was that, in their view, implementation of SOR 2002-1 is all or nothing. Palensky said that, in NMFS' view, the SOR doesn't work as written; the other salmon managers are trying to get a cup and a half of water from a one-cup measure. While we are willing to accept some risk, he said, particularly that associated with the uncertainty surrounding the forecast, we don't want to see listed species

get hammered so that we can provide spill in support of a hatchery release -- particularly the Mid- and Upper-Columbia stocks that got hammered last year.

Specifically, said Palensky, NMFS is willing to commit 200 KAF to the 2002 Spring Creek spill operation, as long as the 14.5-foot tailwater elevation is maintained at Bonneville, and tailwater TDG at Bonneville stays below 115%. That will increase the risk that Grand Coulee won't achieve its April 10 target elevation, Palensky said, but we're willing to accept that risk. An operation within those parameters could be shaped several ways, he said; it would be up to the TMT to decide how it should be designed. It was observed that 200 KAF in additional flow translates roughly to 150 Kcfs in total flow for 3+ days at Bonneville.

Boyce asked how NMFS had determined that 200 KAF was an acceptable risk at Grand Coulee. If we knew for sure that we were going to be 200 KAF short at Grand Coulee on April 10, that would not be acceptable to NMFS, Palensky replied. However, there is a chance that we won't fall 200 KAF short, depending on what the forecast does; in our internal discussions, that was the level of risk we were willing to accept. If it looks as though you're going to miss the April 10 target at Grand Coulee, would NMFS consider dewatering the redds? Litchfield asked. No, Palensky replied – we would want to keep the chum redds watered.

In response to a question from Litchfield, Schaller said it is a mischaracterization to say that the salmon managers have said the implementation of this SOR is an “all or nothing” proposition – rather, said Schaller, what we were saying yesterday is that the operation outlined in the SOR is our recommendation of what is best for this stock.

Where do we go from here? Silverberg asked. I need to hear first whether or not the action agencies have rejected SOR 2002-1, Schaller replied. The action agencies are willing to implement seven of the eight points in the SOR, Bettin replied – it's the eighth point we cannot fully implement. Boyce said that, to him, it is unbelievable that the action agencies are willing to provide protection, via spill, for only a quarter to a third of the Spring Creek Hatchery fish. To me, he said, five days of spill is the only thing worth discussing.

Schaller reiterated that, in his opinion, there is flexibility in April 10 vs. April 15; there is flexibility in how Libby is operated, and there is flexibility in ponding and release at John Day. We went through all of the projects yesterday, Litchfield replied – what we heard at yesterday's meeting was that any additional water will have to come out of Grand Coulee. It sounds to me as though Oregon is willing to accept a risk that Grand Coulee would be three to ten feet below its April flood control rule curve elevation in order to implement this operation, Jim Fodrea said. Actually, what I'm saying is that Oregon wants to fully explore the flexibility that exists in the system to implement this SOR, without jeopardizing the BiOp elevations, Boyce replied.

In response to a question from Schaller, Palensky said that NMFS will re-evaluate its 200 KAF recommendation once the new forecast is released tomorrow; however, that recommendation won't necessarily change even if the forecast goes down, as it is expected to do. In response to another question, Rudd Turner said that, based on the most recent passage survival analyses, the Corps estimates that about 100,000 additional juvenile Spring Creek Hatchery chinook will survive past Bonneville if 50 Kcfs spill is provided for a release group of this size

(7.8 million fish).

Bill Tweit said Washington is very concerned about putting a deeper hole into Grand Coulee, particularly given the region's experience last year. At the same time, he said, the Spring Creek Hatchery releases are incredibly important, particularly to the ocean fishery. Given these facts, he said, it isn't easy for Washington to reach a recommendation on this issue. If push comes to shove, said Tweit, we would probably recommend that the water be conserved to help the upriver stocks later, rather than released now to help the Spring Creek fish. That said, said Tweit, we do want to see some spill provided for the Spring Creek juveniles, particularly early in their migration.

Fodrea suggested that the action agencies commit to providing a volume of 200 KAF, no matter what the new forecast says tomorrow; if the forecast goes up, he said, we could then consider increasing the spill volume at Bonneville. It was observed that 200 KAF represents approximately three feet of storage in Grand Coulee. Palensky replied that NMFS is willing to commit to no more than 200 KAF to support the Spring Creek Hatchery release; if tomorrow's forecast declines, NMFS reserves the right to revisit that 200 KAF volume, and revise it downward if necessary.

Schaller noted that while a portion of the IT considers this an acceptable compromise, another portion does not – in other words, he said, I want the record to reflect the fact that this is not a unanimous decision. The IT's task is to implement the BiOp, said Palensky; in the absence of consensus, it's up to NMFS to make the call as to the best way to implement the BiOp. In NMFS' view, he said, SOR 2002-1 is not implementable as written.

In all fairness, said Schaller, I think there are differing views about whether or not this SOR is implementable; it all comes down to how you view risk, and in the end, the fish are being asked to assume the majority of the risk. All we're trying to do is what's best for fish, Boyce added – that's what you have to set out first, before you can discuss any constraints the hydrosystem may impose. Boyce noted that he has heard rumors for some time that this is exactly the volume BPA was willing to provide; miraculously, he said, that volume is exactly what NMFS decides would be acceptable, in terms of risk. Palensky replied that NMFS didn't look at this issue in terms of spill volumes; it looked at it in terms of acceptable risk to the operations called for in the Biological Opinion.

Tweit suggested that, in future years, it would make sense to factor spill in support of the Spring Creek Hatchery release into the annual water management plan. Bettin replied that, while that is certainly an option, what has changed in the past few years is the need to protect the chum redds below Bonneville – we need to factor in the depth compensation needs for those redds, he said. It would certainly be worth discussing, so that a more reasoned discussion of the tradeoffs inherent in the Spring Creek Hatchery spill operation can take place.

After a few minutes of further discussion, Palensky said the other participants have now heard NMFS' recommendations to the action agencies; it is now up to the salmon managers to decide how best to shape the available volume. Boyce replied that, in his view, there are other operational alternatives the action agencies could be looking at to allow fuller implementation of

the SOR without impacting the BiOp operations.

We've been through that, said Athearn; what's on the table now – 200 KAF at Bonneville, which may come out of Grand Coulee, or 150 Kcfs of total flow for 3+ days at Bonneville – is the volume the action agencies are willing to make available for this operation. Jim Fodrea said that, from Reclamation's standpoint, there is no flexibility in Hungry Horse operations; the water for this operation will have to come out of Grand Coulee. In response to another question from Boyce, Jim Fodrea said Reclamation's other storage reservoirs are generally in worse shape than Hungry Horse.

What about the possibility of drafting John Day pool down below 262.5 feet? Boyce asked. That volume to elevation 262.5 feet is available, Henriksen replied. You could then refill John Day pool once the spring freshet begins, and we're exceeding our flow targets, Boyce suggested. Henriksen noted that the volume available above 262.5 feet from John Day is the equivalent of 25 Ksfd; if that water is released, it would need to be returned fairly quickly -- within 2-3 days -- to maintain irrigation pumping viability. So there is no flexibility to go below elevation 262.5 feet at John Day, even though there is very little irrigation pumping going on during April? Schaller asked. That would not be acceptable to the irrigated agriculture contingent around John Day pool, Henriksen replied.

The group devoted a few minutes of discussion to the question of whether the 200 KAF should be measured at Bonneville or at Grand Coulee, without reaching a definitive conclusion. What about Libby? Schaller asked – you could use some water from Libby now, then run it at a flat discharge to meet the April 10 flood control rule curve. Henriksen said the Libby water supply forecast has gone down; as a result, the April 10 flood control point has gone up, and the project is on a trajectory to go to minimum outflow this weekend.

So what's the IT's pleasure, Silverberg asked – do you want the TMT to talk about how to shape the available volume, or would the salmon managers prefer to take that task on? We've heard the decision from NMFS and the Action agencies, Boyce replied; I would like to say for the record that Oregon feels more could be done for fish this year. Boyce said the salmon managers will develop a recommended operation, as to how the available 200 KAF should best be used. It was agreed that the salmon managers will provide their recommendations to the action agencies by mid-day Monday, March 11.

In response to a request, Palensky repeated NMFS' sideboards for this operation for the record: 200 KAF total additional volume (above the 125 Kcfs average flow that would otherwise be provided at Bonneville), a 14.5-foot minimum tailwater elevation at Bonneville to ensure adequate depth compensation, and 115% tailrace TDG cap at Bonneville. The group discussed the factors NMFS used to arrive at the 14.5-foot tailwater elevation; Palensky said NMFS is willing to consider an alternative tailwater depth proposal, if the salmon managers feel another approach would be more effective.

Henriksen asked that the salmon managers' proposal be provided to the action agencies by noon tomorrow; Boyce said that should be possible. It was further agreed that, if the new forecast shows a significant change, another conference call will be convened tomorrow

afternoon.

Liz Hamilton reiterated the vital importance of hatchery releases like Spring Creek to the Northwest's commercial and recreational fisheries; she noted that operations that result in even small increases in survival are most welcome.

With that, today's conference call was adjourned. Meeting summary prepared by Jeff Kuechle, BPA contractor.

**TECHNICAL MANAGEMENT TEAM  
CONFERENCE CALL NOTES**

**March 8, 2002**

**CORPS OF ENGINEERS NORTHWESTERN DIVISION OFFICES – CUSTOM HOUSE  
PORTLAND, OREGON**

**TMT Internet Homepage: <http://www.nwd-wc.usace.army.mil/TMT/index.html>**

***1. Greeting and Introductions***

The March 8 Technical Management Team conference call to discuss spill operations in support of the upcoming Spring Creek Hatchery release was chaired by Cindy Henriksen of the Corps and facilitated by Donna Silverberg. The following is a distillation, not a verbatim transcript, of items discussed at the meeting and actions taken. Anyone with questions or comments about these minutes should call Henriksen at 503/808-3945.

***2. Continued Discussion of Spring Creek Hatchery Spill Operation.***

Henriksen noted that the March final water supply forecast is now available; it is down slightly from the February final forecast. The January-July volume forecast at Grand Coulee is now 60 MAF, 95% of average, down from 60.8 MAF in the February final forecast. At Lower Granite, the April-July forecast is now 19.7 MAF, 91% of average, down from 20.8 MAF in the February final forecast. At The Dalles, the January-July forecast is now 97.3 MAF, 91% of average, down from 101 MAF in the February final. The Corps will be re-calculating its flood control rule curves based on this revised forecast, Henriksen said.

Howard Schaller said the salmon managers had an opportunity to discuss a revised Spring Creek Hatchery release spill operation earlier this morning. We are now requesting a total flow of 150 Kcfs at Bonneville beginning at 9 a.m. Tuesday, March 12, he said, with 50 Kcfs spill and a Bonneville tailwater gauge elevation of 13.5-14 feet. On March 13 at 9 a.m., said Schaller, we would like the action agencies to increase the flow at Bonneville to 170 Kcfs, with spill of 70 Kcfs, while still maintaining a minimum tailwater elevation of 13.5 feet. At the same time, Schaller said, the Fish and Wildlife Service will be monitoring TDG levels over the redds at the Ives/Pierce Island complex and on the Oregon shore. We would like to increase spill in 10 Kcfs increments based on those TDG readings (not to exceed 105% over the redds) as well as compensation depth over the highest redds, said Schaller. The spill operation would end on March 14, once the 200 KAF is exhausted.

What if we find that dissolved gas at Skamania or Camas/Washougal is in excess of 105%? Henriksen asked. Again, we'll be monitoring TDG levels very closely, Schaller replied; if there isn't enough depth compensation over the redds, we would terminate spill until we can develop a better operation. Actually, rather than terminating spill altogether, we would probably want to decrease total flow so that we could provide at least some spill with adequate depth compensation, said Ron Boyce. We don't anticipate that TDG will be a problem at 150 Kcfs, Schaller said, adding that hatchery personnel will release the fish at about 11 a.m. Monday,

March 11.

Henriksen noted that, based on her calculations, the available volume would be used up by about 1 a.m. Friday, March 15. Is that all right with the salmon managers? she asked. Boyce said the salmon managers would strongly prefer that spill not be cut off during the peak nighttime passage hours. Henriksen replied that the available volume is 200 KAF above the 125 Kcfs average flow that would normally be delivered at Bonneville. The group devoted a few minutes of discussion to the question of how, and where, this volume is to be measured; Boyce said his understanding was that up to 25 KAF of additional water would be available from John Day pool. Henriksen replied that the 25 KAF from John Day is included in the 200 KAF total.

If you would rather that spill not be cut off at 1 a.m. on the 15th, said Scott Bettin, you could continue the operation at 150 Kcfs, rather than 170 Kcfs. Schaller said he would prefer to provide 170 Kcfs during the migration peak, which is expected to occur on the second day following release. Paul Wagner suggested that the salmon managers could request a flow of 170 Kcfs beginning at 9 a.m. on March 13, followed by a reduction to 150 Kcfs starting at noon on Thursday. We would then run 150 Kcfs until the available volume is exhausted, Wagner said. That's a possibility, Schaller agreed.

In response to a question from Schaller, Henriksen said she thought Wagner's suggested operation would allow the spill operation to continue until about 6 a.m. on March 15. That would give us 28 hours at 170 Kcfs flow, before we dropped back to 150 Kcfs again, Schaller said. That should be implementable, said Scott Bettin. In response to a question, Schaller said 13.5 feet is the minimum tailwater depth at Bonneville during this operation; again, he said, we will be monitoring TDG at the Ives Island complex closely. So if tailwater depth falls below 13.5 feet because of the upcoming low tide, we may need to increase flow at Bonneville to maintain that minimum depth? Rudd Turner asked. Correct, Schaller replied.

What about NMFS' criteria of 115% TDG in the tailwater? Bettin asked – that was one of NMFS' sideboards. NMFS agreed to review the salmon managers' proposal, Wagner replied; we won't insist on the 115% TDG cap as long as there is adequate depth compensation over the redds.

Is 150 Kcfs and 170 Kcfs the upper limit, Bettin asked, or do you want to increase flow if tailwater depth falls below 13.5 feet? After a few minutes of discussion, Schaller said his preference would be to increase total flow to ensure the 13.5-foot minimum tailwater depth during Day 1 of the operation, rather than maintaining the total flow cap and curtailing spill until the tailwater elevation comes back up. On Day 2, however, our preference would be to reduce spill while limiting total flow to 170 Kcfs, Schaller said.

Rudd Turner said that, based on his preliminary calculations, if there is no need to increase total flow above 150 Kcfs on the first day, there should be an adequate volume to allow this operation to run the full three days. It was agreed to schedule a brief TMT conference call for Wednesday afternoon, March 13 at 3 p.m. to check in on the status of this operation. Schaller noted that the ODEQ waiver has now been received to cover this operation.

Meeting summary prepared by Jeff Kuechle, BPA contractor.

**TMT MEETING PARTICIPANTS**

**MARCH 8, 2002**

<b>Name</b>	<b>Affiliation</b>
Scott Bettin	BPA
Ron Boyce	ODFW
Scott Boyd	COE
Michelle DeHart	FPC
Robin Harkless	Facilitation Team
Cindy Henriksen	COE
Tony Norris	Reclamation
Steve Pettit	IDFG
Howard Schaller	USFWS
Shane Scott	WDFW
Rudd Turner	COE
Paul Wagner	NMFS

## TECHNICAL MANAGEMENT TEAM

BOR: Tony Norris\Lori Postlethwait      BPA: Scott Bettin\Rick Pendergrass

NMFS: Paul Wagner\Chris Ross      USFWS: David Wills\Howard Schaller

OR: Ron Boyce      WA: Shane Scott      ID: Steve Pettit      MT: Jim Litchfield

COE: Cindy Henriksen\Cathy Hlebechuk\Rudd Turner

## TMT CONFERENCE CALL

**13 March 2002      1500 - 1600 hours**

**Custom House      Room 118  
Portland, Oregon  
Conference call line: 503-808-5190**

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

### AGENDA

1. Welcome, introductions.
2. Spring Creek Hatchery release update (USFWS, COE).

*Questions about the meeting may be referred to Cindy Henriksen at (503) 808-3945, or Rudd Turner at (503) 808-3935.*

**TECHNICAL MANAGEMENT TEAM  
CONFERENCE CALL NOTES**

**March 13, 2002**

**CORPS OF ENGINEERS NORTHWESTERN DIVISION OFFICES – CUSTOM HOUSE  
PORTLAND, OREGON**

**TMT Internet Homepage: <http://www.nwd-wc.usace.army.mil/TMT/index.html>**

***1. Greeting and Introductions***

The March 13 Technical Management Team conference call to update the TMT on spill operations in support of the upcoming Spring Creek Hatchery release was chaired by Rudd Turner of the Corps and facilitated by Donna Silverberg. The following is a distillation, not a verbatim transcript, of items discussed at the meeting and actions taken. Anyone with questions or comments about these minutes should call Henriksen at 503/808-3945.

***2. Update on Spring Creek Hatchery Spill Operation.***

Turner began by noting that the last of the screens and turbine intake extensions were installed last Saturday at Bonneville Powerhouse 2, in preparation for the arrival of the Spring Creek Hatchery fish. The release took place as scheduled on Monday, said Turner; Bonneville started passing 150 Kcfs total flow and 50 Kcfs spill shortly after 9 a.m. yesterday, as requested. By mid-afternoon, the TDG reading at the Warrendale station was 104%, at Skamania, 103.9%, both showing a rising trend, with 53.6 spill and 153 Kcfs total flow. This is the first operation we've done with all of the flow deflectors installed at Bonneville, Turner said; the project has been using a special spill pattern developed at WES, and in general, we're quite pleased with the TDG readings we've seen so far during the spill operation.

Then yesterday, the weather turned very wet, Turner said. Tributary flows and inflows picked up significantly, and we began increasing total flow and spill at Bonneville. At 6 p.m. last night, flow at Bonneville was increased to 170 Kcfs with 50 Kcfs spill; by 9 p.m., spill was increased to 70 Kcfs.

So that 20 Kcfs spike was side flows; it wasn't part of the request, said Ron Boyce. The request was for 170 Kcfs beginning this morning, Turner replied – yesterday's increase was caused by the rainfall yesterday.

Flows have picked up further since last night, Turner continued, with total Bonneville discharge increased to 200 Kcfs at 8 a.m. this morning, with 70 Kcfs spill. Spill has since been increased incrementally to its current level of 100 Kcfs. Again, said Boyce, this is beyond what was requested; these are just natural increases in flow. We can talk about that, said Turner; I'm just reporting what's been happening.

As of 10 a.m., Warrendale was showing 108-109% TDG, said Turner, Skamania, 102%, Camas/Washougal 103%. That does not reflect the 100 Kcfs spill, however, Turner said. As of 2

p.m., the TDG reading at Warrendale was 110%, Margaret Filardo reported.

As of 1 p.m, today, the accounting stood at 108 KAF above the 125 Kcfs that would normally have been provided, said Cathy Hlebvchuk. In terms of our operation over the next couple of days, the action agencies would propose to reduce total flow at Bonneville to 170 Kcfs as soon as possible, then down to 150 Kcfs by tomorrow. The Spring Creek spill operation would then cease at 8 a.m. Friday, March 15, Hlebechuk said. In response to a question from Boyce, Hlebechuk said natural flows are now falling, hence the planned reduction in flow.

So your proposal is to reduce Bonneville flow to 150 Kcfs by noon tomorrow? Boyce asked. Correct, Hlebechuk replied. And you will maintain 150 Kcfs total discharge at Bonneville until 8 a.m. on Friday? Boyce asked. Yes, Hlebechuk replied. And natural flows will have receded such that we won't be able to maintain more than 125 Kcfs after 8 a.m. on Friday? Boyce asked. That's correct, Hlebechuk replied.

Howard Schaller provided a series of field TDG readings, as well as data on water depth over the redds. With respect to the mid-channel readings, as of an hour ago, they were 113.8% and 111.8%, he said. On the Washington shore, the readings are running 103.1%-103.5%; on the Oregon shore, 112.3%-112.5%. The highest-elevation redd was covered by 4.7 feet of water, he said, adding that depth-compensated TDG at the redds is below 100%.

Could we spill even more, given the fact that we have more than adequate depth compensation? Boyce asked. Bear in mind that flows are receding, replied Paul Wagner; if we increase spill while flows are falling to 150 Kcfs, we won't have that level of depth compensation any more. We're also a little concerned about the TDG readings at Warrendale, said Turner – we're edging up toward 115%.

Margaret Filardo said fish sampling has been occurring since yesterday morning; average flow was 161 Kcfs over the 24-hour period ending at 7 a.m. this morning, and field personnel counted 18,242 subyearling chinook past Bonneville during that period. We expect to see the passage indices pick up over the next two days, Filardo said.

Silverberg reminded the group that the next face-to-face TMT meeting is scheduled for 1 p.m. tomorrow, March 14. With that, the conference call was adjourned. Meeting summary prepared by Jeff Kuechle, BPA contractor.

## **TMT MEETING PARTICIPANTS**

**FEBRUARY 13, 2002**

<b>Name</b>	<b>Affiliation</b>
Ron Boyce	ODFW
Scott Boyd	COE

Suzanne Cooper	BPA
Margaret Filardo	FPC
Jim Gaspard	B.C. Hydro
Richelle Harding	D. Rohr & Associates
Cathy Hlebechuk	COE
Chris Ross	NMFS
Howard Schaller	USFWS
Donna Silverberg	Facilitation Team
Rudd Turner	COE
Paul Wagner	NMFS
David Wills	USFWS

## TECHNICAL MANAGEMENT TEAM

BOR: Tony Norris\Lori Postlethwait      BPA: Scott Bettin\Rick Pendergrass

NMFS: Paul Wagner\Chris Ross      USFWS: David Wills\Howard Schaller

OR: Ron Boyce      WA: Shane Scott      ID: Steve Pettit      MT: Jim Litchfield

COE: Cindy Henriksen\Cathy Hlebechuk\Rudd Turner

# TMT MEETING

14 March 2002      1300 - 1600 hours

## NOTE THE CHANGE IN DAY AND TIME!!

Custom House      Room 118  
Portland, Oregon  
Conference call line: 503-808-5190

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

## AGENDA

1. Welcome, introductions.
2. Spring Creek Release Updates/Status, Update on BON Screen Program
3. Weather Briefing: Water Supply Forecast, TMT Spring Products (RFC, COE)
4. Water Management Plan: TMT Member Comments/Responses - Discussion
  - CRITFC comments and 2002 [Plan of Operation](#). [\[Hydrographs\]](#)
5. Shiftable Amount
6. Hanford Updates - 2002 Agreement
7. Other
  - Agenda for Next Meeting

*Questions about the meeting may be referred to Cindy Henriksen at (503) 808-3945, or Rudd Turner at (503) 808-3935.*

**TECHNICAL MANAGEMENT TEAM  
MEETING NOTES  
March 14, 2002  
CORPS OF ENGINEERS NORTHWESTERN DIVISION OFFICES – CUSTOM HOUSE  
PORTLAND, OREGON**

**TMT Internet Homepage: <http://www.nwd-wc.usace.army.mil/TMT/index.html>**

**FACILITATOR'S NOTES ON FUTURE ACTIONS**

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.

**Spring Creek Release Updates/Status, Update on BON Screen Program:**

The Spring Creek Release operation was changed after a TMT conference call Wednesday. Due to heavy rain over the last few days, flows at Bonneville were increased to 200 kcfs and 100 kcfs spill, ending at 1 AM Thursday 3/14. Flows were then dropped to 170 kcfs and spill of 100 kcfs until noon on Thursday, when flows dropped again to 151 kcfs and 53.5 kcfs spill. This was to continue until 8 AM Friday. Dissolved gas levels were still low with plenty of depth submergence.

The Fish Passage Center shared passage sampling information. 26% of the released fish have passed Bonneville. As a result of this Oregon would like to extend the protection beyond Friday 3/15 at 8 AM and asked the Action Agencies if there was any room for flexibility. The BOR, BPA, COE, Washington, Montana and NMFS said the spill agreement reached on Friday 3/8 was already fulfilled and there is no more flexibility for continued spill. Oregon and USFWS would like to see more than 26% passage.

The operation continued until 6 AM Friday 3/15 and then went back to a tailwater of 11.4' or greater to protect chum redds.

The COE reported that the Bonneville screen installation at PH2 was completed March 9.

**Weather Briefing:**

**Water Supply Forecast:** Harold Opitz gave reports from the River Forecast Center. February's precipitation was above average at Grand Coulee and near normal everywhere else. The ten-day forecast showed a probability of below normal precipitation and temperatures.

**TMT Spring Products:**

COE members and Harold Opitz explained the new “spring products” or tools for TMT, which included volumes in relation to the water supply forecast, exceedance probabilities using various regulations, and potential flow ranges based on precipitation and temperature forecasts. TMT members gave a thumbs up to the tools which will be used to aid TMT members in risk

assessment of management actions throughout the season. Adding a 50% trace to ESP flow-ranges would be appreciated by some.

**Water Management Plan:**

**CRITFC River Operation Plan 2002:**

Kyle Martin gave an overview of the plan. Generally, tribes feel CBFWA is a better place for involvement. They are interested in government-to-government consultations on treaty trust issues. TMT members asked questions about why CBFWA is better for the tribes and suggested more discussion on this in the River Operation Plan for clarification purposes.

Comments are welcome from Salmon Managers and Action Agencies – send them to Bob Heinith at CRITFC.

Tom Lorz discussed CRITFC's spill proposal for 2002. He said the Fish Passage Plan and Water Management Plan should be linked more closely for TMT use.

CRITFC feels that an agreement is needed for spill at McNary and Lower Monumental to help increase survival and mitigate for last year's loss. The proposal is to spill what is possible at Lower Monumental until construction begins. Spring spill should start April 1, and summer spill should begin June 20. Questions came up about tern predation versus turbine spill, and which is worse. CRITFC's risk analysis supports spill as the better option. Tom said the plan will change as new data is gathered. Comments to the Action Agencies' Water Management Plan will be submitted to the COE next week.

**Action:** CRITFC and the COE will look together at the calculations used for reservoir elevations regarding modified VARQ at Libby and Hungry Horse.

**WMP Discussion:**

In their written comments, Oregon said the WMP should not replace Performance Standards. Paul Wagner discussed the standards and asked TMT to consider potential measures that could be implemented this year to make up for lack of survival at Lower Monumental. The Action Agencies need to make up 1% at the bottom of the system for in-river survival. Paul would like suggestions and further discussion at the next TMT meeting. NMFS will model any suggestions that are handed in before the next meeting.

The Action Agencies said they will respond to WMP comments in two to three weeks after the work is finished and reviewed by attorneys. Oregon suggested including the Spring Creek operation in the WMP to help plan for it in the future. Montana and others felt that more regional conversation may need to occur before putting the operation in the Plan.

**Action:** Oregon will send in a recommendation for the Action Agencies to consider and respond to.

**Shiftable Amount:**

The March final water supply forecast is down from the February final. 153 kaf of water will be shifted from Dworshak to Grand Coulee by the end of March.

The **Hanford Update** will begin when enough fish are caught. This may be an agenda item at the next meeting.

### **Sturgeon Operations:**

Scott Bettin gave an update on the process. There may be an SOR from USFWS at the next meeting.

### **Next Meeting, March 27<sup>th</sup>, 9 AM:**

#### **Agenda Items:**

- Hanford Update
- Sturgeon Pulse Operation (possible SOR from USFWS)
- Water Management Plan Comments
- Performance Standards
- Start of Snake River Spill
- Flow Augmentation of Spill
- MOP and MOP + 1 Discussion
- John Day

### ***1. Greeting and Introductions***

The March 14 Technical Management Team meeting was chaired by Rudd Turner of the Corps and facilitated by Donna Silverberg. The following is a distillation, not a verbatim transcript, of items discussed at the meeting and actions taken. Anyone with questions or comments about these minutes should call Henriksen at 503/808-3945.

### ***2. Spring Creek Hatchery Release Update.***

Rudd Turner reported that total flow at Bonneville has now been reduced to 151 Kcfs, 53.5 Kcfs of which is spill. That operation will continue until 8 a.m. tomorrow, at which point the 2002 Spring Creek spill operation will end, Turner said. Dissolved gas levels have stayed low, despite higher-than-anticipated flows, Turner said; none of the readings has exceeded 115%. Depth compensation over the chum redds has been adequate as well, Turner said.

Scott Bettin said it was his understanding that the spill operation was to end at 6 a.m., not 8 a.m. Ron Boyce said his preference would be to look at current fish passage information before making that decision. Margaret Filardo said there were questions at yesterday's meeting about the percentage of the Spring Creek Hatchery fish that have passed the Bonneville project so far; she said that, during the 24 hours ending at 7 a.m. this morning, subyearling chinook passage at Bonneville was 385,935, up from 18,242 during the 24-hour period ending at 7 a.m. yesterday. In all, said Filardo, about 26% of the total Spring Creek Hatchery release of 7 million+ is estimated to have passed Bonneville as of 7 a.m. this morning.

The take-home message, to me, is that we don't have any way of knowing what percentage of the run will have passed the project by tomorrow, said Boyce; that's why I would like to talk about extending this operation, to protect a larger percentage of the release group. Turner noted that, based on historic information, 80%-90% of the Spring Creek run should have passed Bonneville by tomorrow morning. I don't understand why you believe passage would be so much lower this year, given the fact that we saw a significant increase in natural flow just after the Spring Creek fish were released, he said. Filardo replied that Turner was basing that passage assumption on the wrong data set.

Scott Bettin noted that the salmon managers had the option of shaping the spill and flow any way they wanted; given that fact, and this historical data, why didn't you shape the spill somewhat differently? he asked. Wouldn't it have made more sense to start spilling when the fish began arriving at the project, rather than starting automatically at 9 a.m. Tuesday? Bettin asked.

The group discussed this point for a few minutes. Boyce observed that the 2002 Spring Creek operation so far has been essentially a freebie, because most of the water came from natural inflow, rather than from reservoir storage. Bettin replied that this is not entirely true; a total of 311 KAF will pass Bonneville by 7 a.m. tomorrow morning over and above the 125 Kcfs that would normally have been provided at Bonneville. He added that a significant volume of water was moved into the lower river in anticipation of this operation beginning.

Boyce reiterated his request that the Spring Creek spill operation be extended, given the fact that natural flows, rather than reservoir drafts, had provided most of the 311 KAF that will be delivered. I would like to explore what flexibility may exist in the system to continue that operation, he said. We've had a series of TMT and IT meetings, which yielded a clear direction for this operation, Bettin replied; we have exceeded the volumes we promised to deliver, and feel that no extension is warranted, particularly given the fact that the salmon managers had the option of shaping this spill any way they wanted to. We have lived up to our side of the bargain, said Bettin, and have no flexibility to extend this operation. I agree that we ought to stick to the agreement, said Turner. Wagner said NMFS agrees that the action agencies have lived up to their end of the agreement; it's now time to move on to other operational priorities, he said. Shane Scott said WDFW also agrees that the operation should end; they would prefer not to increase the risk to Grand Coulee refill. We had an agreement, said Jim Litchfield, and should abide by it. David Wills said the Fish and Wildlife Service would prefer to extend the Spring Creek spill program to protect more than 26% of the release group.

It sounds, then, as though the majority of the TMT feels there is no flexibility to continue the operation, said Silverberg; only Oregon and the Fish and Wildlife Service feel it should continue. Everyone else is ready to move on., she said, so that's what we're going to have to do. Fair enough, said Boyce, but I would like a written explanation from the action agencies laying out their rationale for refusing the extension request. Turner replied that there are meeting notes and facilitator's notes from all five of the recent TMT and IT sessions at which this topic has been discussed; those should be sufficient, in terms of a written decision record, he said.

### ***3. Weather Briefing.***

Harold Opitz of the National Weather Service reported that a weather pattern is emerging over the Northwest which appears somewhat similar to the one that produced spring drought conditions last year. He then shared information from the March early-bird forecast, noting that the Grand Coulee forecast is up 400 KAF from the March final forecast, to 96% of normal. There was no change in the forecast at The Dalles or Lower Granite from the March final forecast.

In general, said Opitz, the water supply is looking near-normal or slightly below-normal in most basins in the Northwest. Overall, he said, we are seeing at least some improvement over the conditions that prevailed last year. Aquifer recharge continues to be a concern, he added; even though we're seeing normal and near-normal snowpacks throughout the basin, there are some who feel that the need to recharge the aquifer is going to result in reduced streamflows during the runoff period; no one is sure how much. Opitz added that the current indications are that precipitation is slightly more likely to be above-average than below-average during the April-June period.

Karl Kanbergs and Julie Ammann of the Corps provided a briefing on the spreadsheet the Corps has used in years past to illustrate the available flow augmentation volume at three of the FCRPS storage projects. The model uses the March final water supply forecast to show the available augmentation volumes in Dworshak, Hungry Horse and Libby, factoring in three different future precipitation assumptions (below-average, average and above-average) and matching this information to the 60-year historic record of runoff shapes. Basically, said Kanbergs, we wanted to get a sense, from the TMT, of whether or not this tool has been useful in years past. He then spent a few minutes demonstrating this tool, explaining the nuances of how it is initiated, calibrated and run.

After a few minutes of discussion, there was general TMT agreement that this is a useful tool, and should be produced this spring. In response to a question from Turner, the TMT agreed that it would be acceptable for the Corps to choose a subset of historic water years to match the forecast water supply in 2002, once this year's forecast becomes clearer.

Ammann then described an alternative modeling approach, developed by the Corps to provide a more accurate picture of conditions in the system than SSARR. There was general agreement that this model, as well, would be a useful addition to the TMT toolbox.

#### ***4. 2002 Water Management Plan.***

Kyle Martin said CRITFC's comments on the 2002 Water Management Plan are not quite finished; he noted that the full text of these comments will be posted to the TMT homepage as soon as they are available. What we do have ready, however, is CRITFC's 2002 River Operation Plan, Martin said; he distributed copies of the plan and noted that further copies are available via the CRITFC homepage. Page 3 of the CRITFC plan lists 10 key recommendations:

- ***Decision-Making:*** The Technical Management Team and Implementation Team are useful for some regional information sharing but they do not suffice for river operations

decision-making and are not government-to-government forums. The Federal operators and NMFS should use CBFWA as a technical forum to discuss river operations where tribes can have meaningful input. Disputed issues should be raised to the executive committee table.

Turner noted that the tribes are welcome to take their place at the Regional Forum table and resume their role as active participants. Litchfield expressed surprise that the CRITFC tribes would favor the CBFWA table over the Regional Forum table, as the place where operational decisions would be made. Litchfield explored the value of the CBFWA table over the regional forum table. Martin said the tribes are heard more at CRITFC. Both Litchfield and Turner asked whether the CRITFC expectation was to include the Action Agencies in CBFWA. Martin invited Litchfield to write down and submit any comments he may have on the CRITFC River Operations Plan.

Continuing on through CRITFC's 2002 River Operations Plan, Martin touched on:

- **Emergency Declarations.** The definition of "emergency" and related procedures must be re-cast for 2002 to exclude any BPA financial problems. The definition of "emergency" must be based on unforeseen circumstances. Any power sales revenues accruing to BPA and attributable to an emergency situation must be set aside for salmon mitigation, where such amounts will be in addition to and not in lieu of previously planned BPA expenditure levels.
- **Energy and Water Conservation.** Water and land acquisition programs begun in 2001 should be continued. BPA should renew the 1995-2001 contract with Idaho Power Company to allow flexibility in flow augmentation through power exchanges.
- **Runoff Forecast.** The Plan assumes that the current forecast of 95% of normal precipitation pattern will continue into the spring, while the NW River Forecast Center continues to predict "near-normal" precipitation. Based upon the historical flow record that shows a declining runoff pattern in average to below-average water years, CRITFC anticipates that a continuing pattern of below-normal precipitation is likely. New water supply correction curves suggest a medium-low water year. Runoff in the CRITFC 2002 River Operations Plan is based on 95% of normal precipitation.
- **Flow and Reservoir Management.** Available storage and runoff should be shaped to meet peaking, normative hydrographs at Priest Rapids, Lower Granite, The Dalles and other index points. The object is to provide flushing flows during the main portions of the juvenile and adult migrations and to leave as much storage as possible for resident fish and tribal cultural resource protection. Current, aggressive flood control drafts should be immediately curtailed. As opposed to the Corps' 2002 Water Management Plan that does not implement Variable Q operations, the CRITFC 2002 Plan recommends that Variable Q operations be implemented at Libby and Hungry Horse without compensating drafts at Lake Roosevelt. This action would hold storage at upper reservoirs consistent with historic runoff volumes for less than average water years. (please refer to CRITFC's 2002 River Operations Plan for further details of this recommendation.)
- **Power Peaking.** Power peaking should be restricted, particularly in the Hanford Reach, to avoid impacts to emerging juveniles, to fish ladders and to allow proper conduct of treaty fisheries

- **Flow Augmentation.** An additional 500 KAF should be added to the 427 KAF required in the 2000 FCRPS Biological Opinion for a total of 927 KAF flow augmentation from the Upper Snake and Bureau of Reclamation and Corps Upper Snake reservoirs. Banks Lake should provide 260 KAF in August for flow augmentation and energy production. An additional 500 KAF from Canadian non-treaty storage above the 1 MAF called for in the NMFS Biological Opinions should be allocated for downstream flows.
- **Dworshak Operations:** CRITFC recommends that the Nez Perce/Idaho plan for Dworshak be implemented in 2002
- **Extra Storage.** CRITFC recommends the retention of an extra half-foot of water in all storage reservoirs at the end of 2002 in anticipation of El Niño conditions in 2003.

Tom Lorz then briefed the TMT on the spill operations laid out in the CRITFC 2002 River Operations Plan. The plan makes the following key recommendations:

- Passage through spill should be provided whenever possible this year, given the poor passage conditions and survival experienced by fish due to lack of spill in 2001.
- CRITFC recommendations provision for summer spill at Lower Granite, Little Goose and McNary Dams above the requirements of the 2000 Biological Opinion
- CRITFC recommends provision for daytime spill at John Day, McNary and the Lower Snake Dams. When implemented, daytime spill has been demonstrated to be as successful or more so than nighttime spill at most dams.
- The Corps of Engineers should complete their timely application for a total dissolved gas waiver to the appropriate water quality agencies to allow for both spring spill at the eight federal dams and summer spill at all dams except Lower Monumental where emergency stilling basin repairs preclude spill.

The group thanked Lorz for his input, then moved on to a discussion of the comments TMT member received on the 2002 Water Management Plan. Wagner said he was struck by one comment from Oregon: that the Water Management Plan is not a substitute for performance standards. Wagner spent a few minutes going through the applicable BiOp in-river performance standards for spring chinook and other species; he noted that, according to NMFS' analysis, system survival will not meet the BiOp performance standards in 2002. Basically, said Wagner, we need to increase system survival by approximately 1%. I wanted to get the TMT members thinking about what sort of potential measures -- spill and other actions -- could be implemented this year to make up for the expected lack of survival, survival below the performance standards for this year, Wagner said. Hopefully, we can then discuss those potential survival enhancements at the next TMT meeting. Those would be measures that could be implemented this spring? Silverberg asked. Correct, Wagner replied. And NMFS has some ideas? Litchfield asked. We do, Wagner replied. Has NMFS put something in writing? Boyce asked. Yes, Wagner replied – I'll distribute it to the rest of the TMT.

Boyce asked when the action agencies will be responding to the comments submitted to date on the 2002 Water Management Plan. It will likely be two or three weeks from today, Scott Boyd replied. Boyce said that, in Oregon's view it would be prudent to institutionalize the Spring Creek spill operation in the Water Management Plan – I even think it would be a good idea to include a section on that operation in the 2002 plan, Boyce said. Bettin replied that it is his

understanding that the Power Planning Council will be taking up the Spring Creek issue, and should develop their recommendation prior to the development of the 2003 Water Management Plan. That doesn't preclude us from including a section on the Spring Creek operation in the 2002 Water Management Plan, said Boyce. Litchfield replied that there is an ongoing debate about the entire Spring Creek release and options that might preclude the need for this annual spill program in the future.

The group devoted a few minutes of debate to the question of whether or not the 2002 Water Management Plan should be modified to include a section on the Spring Creek Hatchery spill operation. Ultimately, Boyce said he will submit his suggestion in the form of a comment on the 2002 WMP as soon as possible; the action agencies can then respond accordingly.

**5. *Shiftable Amount.***

Cathy Hlebechuk said that, with respect to the 2002 Dworshak/Grand Coulee flood control shift, it should be possible to shift 153 KAF from Dworshak to Grand Coulee by March 31; that will result in a Dworshak elevation of 1518 feet, 11 feet above the flood control elevation at that project. We'll then be at 1277.9 feet at Grand Coulee following the shift, instead of 1279.8 feet, Hlebechuk added.

**6. *Hanford Update – 2002 Agreement.***

Bettin said the Hanford fish protection operation has not yet begun because field personnel have not yet caught enough emerging fish; he said he will provide another update at the next TMT meeting.

**7. *Next TMT Meeting Date.***

The next meeting of the Technical Management Team was set for Wednesday, March 27 from 9 a.m. to noon. Meeting summary prepared by Jeff Kuechle, BPA contractor.

**TMT MEETING PARTICIPANTS**

**MARCH 14, 2002**

<b>Name</b>	<b>Affiliation</b>
Scott Bettin	BPA
Ron Boyce	ODFW
Ruth Burris	PGE
Dick Cassidy	COE
Suzanne Cooper	BPA
Margaret Filardo	FPC

Russ George	WMCI
Laura Hamilton	COE
Richelle Harding	D. Rohr & Associates
Robin Harkless	Facilitation Team
Tim Heizenrater	
Cindy Henriksen	COE
Jim Litchfield	Consultant (Montana)
Kyle Martin	CRITFC
Tony Norris	Reclamation
Harold Opitz	NWS
Steve Pettit	IDFG
Chris Ross	NMFS
Howard Schaller	USFWS
Shane Scott	WDFW
Donna Silverberg	Facilitation Team
Rudd Turner	COE
Maria Van Houten	
Paul Wagner	NMFS
Steve Wallace	PacifiCorp
David Wills	USFWS

## TECHNICAL MANAGEMENT TEAM

BOR: Tony Norris\Lori Postlethwait      BPA: Scott Bettin\Rick Pendergrass

NMFS: Paul Wagner\Chris Ross      USFWS: David Wills\Howard Schaller

OR: Ron Boyce      WA: Shane Scott      ID: Steve Pettit      MT: Jim Litchfield

COE: Cindy Henriksen\Cathy Hlebechuk\Rudd Turner

## TMT MEETING

**27 March 2002      0900 - 1200 hours**

**Custom House      Room 118  
Portland, Oregon  
Conference call line: 503-808-5190**

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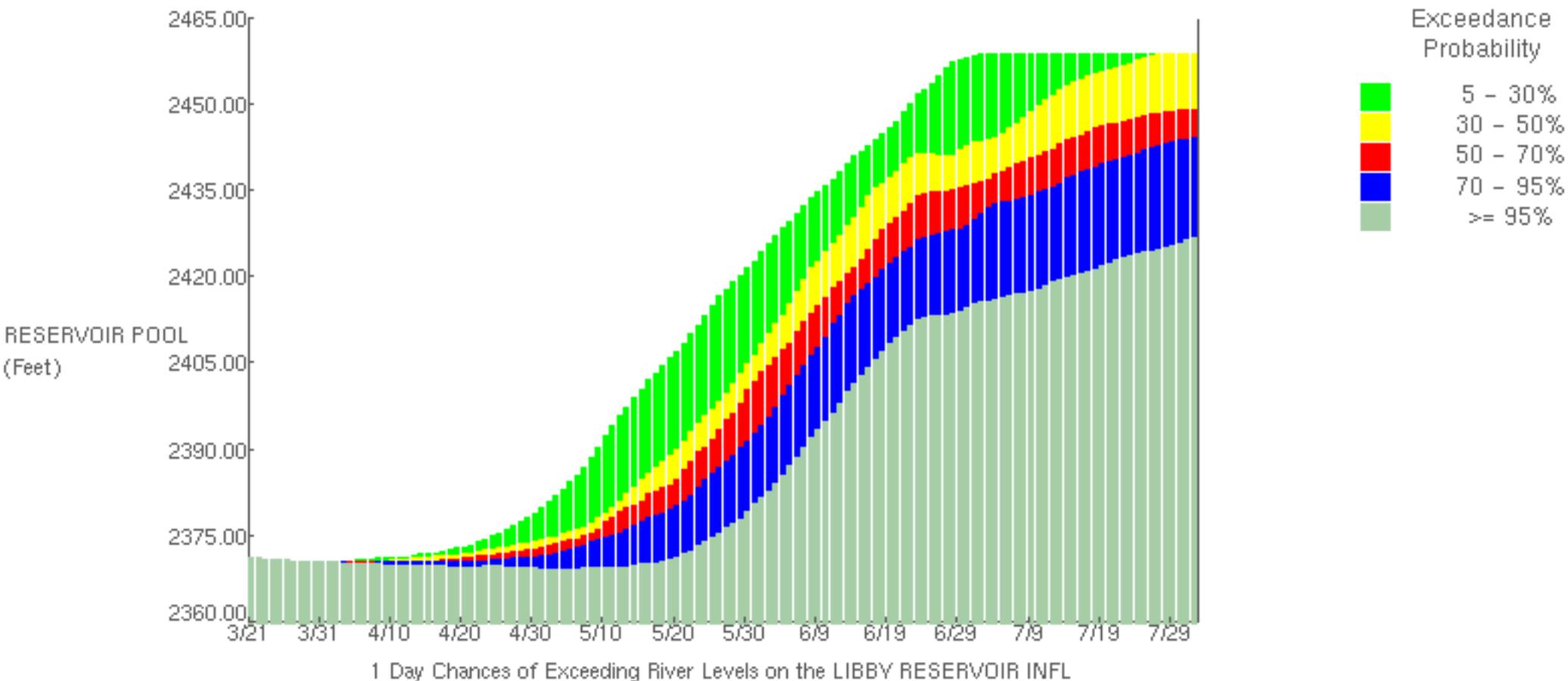
*All members are encouraged to call Donna Silverberg with any issues or concerns they would like to see addressed. Please e-mail her at [dsilverberg@cnnw.net](mailto:dsilverberg@cnnw.net) or call her at (503) 248-4703.*

## AGENDA

1. Welcome, introductions.
2. Hanford reach update (Grant PUD).
3. Sturgeon pulse operation at Libby (USFWS) [[Libby Refill Plot](#)].
4. Water Management Plan.
  - comments
  - performance standards
5. Start of fish operations on the lower Snake River.
  - migration timing (NMFS)
  - spill
  - flow augmentation
  - MOP and MOP+1
6. John Day pool elevation for fish and irrigation.
7. Other.
  - agenda for next meeting

*Questions about the meeting may be referred to Cindy Henriksen at (503) 808-3945, or Rudd Turner at (503) 808-3935.*

1 Day Chances of Exceeding River Levels on the LIBBY RESERVOIR INFL  
Latitude: 48.4 Longitude: 115.3  
Forecast for the period 3/21/2002 6h - 8/1/2002 6h  
This is a conditional simulation based on the current conditions as of 3/21/2002



**TECHNICAL MANAGEMENT TEAM  
MEETING NOTES  
March 27, 2002  
CORPS OF ENGINEERS NORTHWESTERN DIVISION OFFICES – CUSTOM HOUSE  
PORTLAND, OREGON**

**TMT Internet Homepage: <http://www.nwd-wc.usace.army.mil/TMT/index.html>**

***1. Greeting and Introductions***

The March 27 Technical Management Team meeting was chaired by Rudd Turner of the Corps and facilitated by Donna Silverberg. The following is a distillation, not a verbatim transcript, of items discussed at the meeting and actions taken. Anyone with questions or comments about these minutes should call Turner at 503/808-3935.

***2. Hanford Reach Update.***

Chris Carlson of Grant County PUD reported that field personnel had begun doing index studies in early March; we reached the criteria of 50 fish or more on March 19, with 99 fish, he said. The 2002 Hanford Reach fish protection operation started at one minute after midnight on March 21, with the imposition of a 30 Kcfs flow band. On March 23, Carlson said, field personnel sampled for mortality at 10 sites, finding three chinook mortalities. What have your flow fluctuations been? Scott Bettin asked. On March 21, they were a high of 89.5 Kcfs, a low of 79 Kcfs – a band of 10.5 Kcfs, Carlson replied. On March 22, the low was 72.4 Kcfs, and the high was 100.1 Kcfs, a band of 27.7 Kcfs. On Saturday, March 23, the low was 50.8 Kcfs, and the high was 72.3 Kcfs on Saturday. On Sunday, the low was 50.8 Kcfs, while the high was 54 Kcfs. It sounds, then, as though you stayed within the agreement, except for portions of Saturday, Bettin said. That was because we received an estimate of Chief Joseph discharge that was higher than what we actually received, Carlson replied. In response to a question from Rudd Turner, Carlson said the plan is to continue the biological monitoring on a weekly basis, on Wednesdays, for the time being.

***3. Libby Sturgeon Pulse Operation.***

We're approaching the time period during which the sturgeon pulse normally occurs, said Don Anglin, but beyond that, I'm not sure what the current status of this operation is. Henriksen said this item is on the agenda because the Corps was expecting a request from the Fish and Wildlife Service for this year's sturgeon pulse operation. Since that has not been received, she said, I would suggest we defer this discussion until Dave Wills or Bob Hallock can attend the meeting. It was so agreed.

On a related subject, said Turner, there are two handouts relating to Libby, incorporating the likely sturgeon pulse, bull trout and spill test operations with various inflow, meteorological and elevation predictions, to give us an indication of what daily reservoir elevations are likely to be through the season, with bands of exceedance probability, Turner explained. The bottom line,

as to what this shows, is that it is unlikely Libby will refill by the end of June, but there is a good probability that Libby will refill by the end of July, he said. There is also information about the available flow augmentation volume from Libby under these various scenarios, Turner added. The Libby handouts are available via the TMT's Internet homepage; please refer to these documents for further details.

Jim Litchfield noted that the takeaway message, to him, is that there is a 40% chance that Libby will not refill by the end of June 2002. That's a pretty high probability, he said; with that in mind, I would suggest that we keep a very close eye on the Libby operation, and do everything we can to get Libby as full as possible in 2002.

#### ***4. 2002 Water Management Plan – Continued Discussion.***

Turner noted that the current draft of the 2002 Water Management Plan is undergoing in-house review at the action agencies; it is hoped that the revised draft, incorporating the action agencies' responses to comments, will be available for review at next week's TMT meeting.

What about the performance standards issue? Silverberg asked. Wagner reminded the group that, due to spillway repairs at Lower Monumental, no spill is possible at that project, which is expected to reduce in-river survival by 1%. The assignment to TMT was to see whether we can come up with any modifications to operations that will offset that expected decrease in survival, he said. I shopped that around among the other FPAC participants, Wagner said, and what they came up with was sort of a package deal. Option 1 would be to spill 24 hours up to the gas cap at Little Goose until May 1, which would put a greater proportion of the run into the river below Little Goose. At Lower Monumental, he said, we're recommending that the action agencies go to full-flow bypass until May 1, due to eddy-induced predation problems at the outfall location. The downside of full-flow bypass is that we would collect no data on the fish passing the project, Wagner said. The rest of the operation would be 24-hour spill at McNary for the entire season. At John Day, we would propose 30% daytime, 60% nighttime spill, through the spill season, he added.

So that's Option 1, Wagner continued. Option 2 is to spill at Little Goose and go to full-flow bypass at Lower Monumental through the entire spring season, rather than just until May 1. The only real difference between the two is the Little Goose and Lower Monumental operations, he explained; the Columbia operation would be the same.

Obviously these options have potential impacts on planned studies, Wagner said; we're in the process of evaluating those effects overall, and by project, as well as the implications for the studies planned in 2002.

Option 3, said Wagner, is no spill at Little Goose, with maximum transport throughout the season, beginning March 29. Option 4 is no spill at Lower Granite or Little Goose, with maximum transportation throughout the system. This would include eliminating the test of the new removable spillway weir (RSW) at Lower Granite.

So you're still evaluating these operations, Silverberg said; do you want some discussion

of those options now, or do you want to wait until that analysis is complete? I would prefer to wait, said Wagner, although I would welcome any comments or suggestions the TMT may have. The group asked a variety of clarifying questions, which Wagner answered.

Ultimately, it was agreed that Wagner will distribute NMFS' analysis of these options to the TMT membership prior to next week's meeting, at which point a more thorough discussion will occur. In the interim, said Wagner, again, if anyone has comments, suggestions or concerns, please contact me directly. Turner noted that, in addition to the potential power impacts of some of these options, the Corps is concerned about the potential impacts to studies, because many of those studies are required under the BiOp.

### ***5. Start of Fish Operations in the Lower Snake River.***

Turner noted that the planning dates on which salmon operations are to commence are April 3 in the Lower Snake and April 10 in the Lower Columbia. What TMT did last year was to develop two-week operations, Turner said; if we can reach agreement today on an operation that would take us through April 10, that would be helpful. Offhand, he said, I would think that the operation would be to attempt to meet the Biological Opinion spill, flow, and reservoir refill objectives as soon as TMT agrees that those operations should begin. We would like to get a sense from the salmon managers about the timing of this year's operation, Turner said, and from that determine when operations for fish should begin.

So far, Wagner replied, hatchery releases have commenced on schedule; juveniles have begun showing up at various trap sites in the basin, and how soon they begin to pass the projects is going to depend on how fast flows start to pick up in the Snake and Lower Columbia. In general, he said, our assumption is that the run timing is on schedule, and that April 3 would be an appropriate date to start spill at Lower Granite. We have a TMT meeting scheduled for that date, he said, and can discuss the status of the migration at that point. We would then decide whether the fish passage information warrants starting spill at the other projects, and when, Wagner said. Silverberg polled TMT members, and all supported implementing Wagner's suggested approach, with spill to commence at Lower Granite on April 3. In response to a question, Turner noted that the SSARR is predicting a total flow of about 70 Kcfs at Lower Granite by next week.

We're also heading down toward our MOP elevations on the lower Snake, Bettin observed. Turner said 262.5-264 feet is the planned operating range at John Day beginning about April 10. If there are no objections, said Bettin, we'll be at MOP at the Lower Snake projects by April 3. No objections were raised at today's meeting. Bettin added that there is an option to use the pools above Lower Monumental to curtail or, depending on total river flow, eliminate spill at Lower Monumental. That's a dam safety issue, said Turner, but given the erosion situation there, obviously we would prefer to avoid any involuntary spill at Lower Monumental. The action agencies would like to have the flexibility to pond above MOP at the projects above Lower Monumental, if that becomes necessary during the highest-flow periods this spring, he explained. Such an operation could actually have some biological benefit, Turner said, because it would extend the high-flow period into the time when flows would otherwise be receding. In response to a request from Steve Pettit, Turner said the Corps will develop a proposal for this operation for

discussion at the next TMT meeting.

Turner added that Dworshak went to full powerhouse capacity at 5 a.m. this morning; that operation is expected to continue through the end of March. Turner spent a few minutes going through the most recent histogram flow augmentation volume and refill forecasts for Dworshak; it looks as though, if we feel lucky, we might have up to 1.15 MAF available for flow augmentation from Dworshak this year (30% confidence of refill), he said. At 50% confidence of refill, we would have 952 KAF available for flow augmentation at Dworshak, Turner said; if we assume a 70% confidence of refill, 748 KAF. The group also discussed the most recent flow augmentation volume histogram for Hungry Horse; Turner said the current analysis shows 693 KAF available for flow augmentation from Hungry Horse at 30% confidence of refill, 621 KAF at 50% and 506 KAF at 70% confidence. In response to a question from Litchfield, Henriksen said the Corps believes Hungry Horse is likely to refill in 2002.

#### ***6. John Day Pool Elevation for Fish and Irrigation.***

Turner reiterated that the plan is to go to an operating range of 262.5 feet-264 feet at John Day beginning on April 10. Any objections? he asked. It was agreed that this is the most likely operation, but the TMT will discuss the John Day operation further at its April 3 meeting.

#### ***7. Next TMT Meeting Date.***

The next meeting of the Technical Management Team was set for Wednesday, April 3 from 9 a.m. to noon at the Corps Northwest Division offices in Portland, Oregon. Meeting summary prepared by Jeff Kuechle, BPA contractor.

### **TMT PARTICIPANT LIST March 27, 2002**

<b>Name</b>	<b>Affiliation</b>
Don Anglin	USFWS
Colin Beam	PPM
Scott Bettin	BPA
Scott Boyd	COE
Mike Buchko	PowerX
Chris Carlson	Grant County PUD
Dick Cassidy	COE
Suzanne Cooper	BPA
Scott Corwin	PNGC Power
Michele DeHart	FPC

Russ George	Water Management Consultants Inc.
Laura Hamilton	COE
Scott Hanson	BPA
Tim Heizenrater	
Cindy Henriksen	COE
Karl Kanbergs	COE
Jim Litchfield	Consultant (Montana)
Ningjen Liu	IdaCorp Power
Tom Lorz	CRITFC
Kyle Martin	CRITFC
Steve Pettit	IDFG
Lori Postelthwait	Reclamation
Chris Ross	NMFS
Shane Scott	WDFW
Donna Silverberg	Facilitation Team
Craig Sprankle	Reclamation
Glen Traeger	Avista Energy
Rudd Turner	COE
Marian Valentine	COE
Maria Van Houten	
Marian Valentine	COE
Paul Wagner	NMFS
Steve Wallace	PacifiCorp

# TECHNICAL MANAGEMENT TEAM

BOR: Tony Norris\Lori Postlethwait      BPA: Scott Bettin\Rick Pendergrass

NMFS: Paul Wagner\Chris Ross      USFWS: David Wills\Howard Schaller

OR: Ron Boyce      WA: Shane Scott      ID: Steve Pettit      MT: Jim Litchfield

COE: Cindy Henriksen\Cathy Hlebechuk\Rudd Turner

## TMT MEETING

**3 April 2002      0900 - 1200 hours**

**Custom House      Room 118  
Portland, Oregon  
Conference call line: 503-808-5190**

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

## AGENDA

1. Welcome, introductions.
2. Hanford reach/Vernita Bar update (Grant PUD).
3. Sturgeon pulse operation at Libby (USFWS).
4. [Water Management Plan](#).
  - comments
  - Spring/Summer update
  - Report to IT
5. Review current system conditions.
  - reservoir operation, water supply, power system, water quality (COE, BOR, BPA)
  - fish migration status (NMFS, USFWS)
6. Start of spring system operations for fish on the lower Snake and Columbia.
  - spill
  - flow augmentation
  - John Day pool elevations for fish and irrigation
7. Lower Snake reservoir operation to minimize Lower Monumental spill (NMFS).
8. Review operations requests. [\[SOR 2002-C1 ?\]](#)
9. Develop recommended operations.
10. Other.
  - set agenda for 10 April TMT meeting

*Questions about the meeting may be referred to Cindy Henriksen at (503) 808-3945, or Rudd Turner at (503) 808-3935.*

**TECHNICAL MANAGEMENT TEAM  
MEETING NOTES  
April 3, 2002  
CORPS OF ENGINEERS NORTHWESTERN DIVISION OFFICES – CUSTOM HOUSE  
PORTLAND, OREGON**

**TMT Internet Homepage: <http://www.nwd-wc.usace.army.mil/TMT/index.html>**

**FACILITATOR'S NOTES ON FUTURE ACTIONS**

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.

**Hanford Reach/Vernita Bar Update:**

Discharge at Priest Rapids has remained stable at 53 kcfs with about three kcfs fluctuations. 364 Chinook fry were found. Future reports will be posted on TMT's website and regular updates will be made at TMT.

**Water Management Plan (WMP):**

Scott Boyd reported that the COE sent a draft Spring/Summer update for the Action Agencies to provide comments on. The federal attorneys have not yet released the WMP.

**Action:** Scott will update TMT on all communications and expects to share a final draft at the next TMT meeting.

Cindy Henriksen will give a report on the WMP to IT members at their April 4 meeting in Boise. She will outline priorities, compare the Plan to previous years' plans, share the Action Agencies' interpretation of the Plan, give a summary of comments, and explain how the Spring/Summer update fits into the WMP.

**Sturgeon Pulse Operation at Libby:**

Dave Wills reported that USFWS is currently consulting with Idaho, Montana, tribes and BC Hydro on an upcoming SOR that will be presented to TMT on April 24. The request will likely include a two-week operation at 20 kcfs down to 15 kcfs (about 350 total KAF). This will be preceded by tiered Bull Trout flows as per the USFWS Biological Opinion, a total of 150-200 KAF. The draft plan proposes operation from May 5 through the second week in July and the use of 500-800 KAF. USFWS is working with USGS to develop gravel and dispersal studies. Ron Boyce expressed the need to closely monitor operations in order to balance all fish needs.

**Action:** USFWS will get an SOR to TMT members prior to discussion on April 24.

**Current System Conditions:**

Fish: Fish managers reported that smolts have been moving steadily since March 20. As of April 3, many fish were en route to Lower Granite or had already arrived. The spring migration has indeed begun!

Operations, water supply, power: The COE and BOR reported that the reservoirs are drafting to end of April flood control based on the March final water supply forecast. The April final should be out early next week. Dworshak outflow has increased to 16 kcfs and should continue through April without exceeding gas levels. Grand Coulee is expected to meet its target and Hungry Horse is still drafting. The BOR is struggling to fill all reservoirs in the upper Snake except for Boise/Payette.

### **Spring Spill System Operations:**

Spill: TMT noted that fish numbers and movement supported the beginning of spill at Lower Granite, which was scheduled to begin April 3 at 6 pm. Little Goose will begin 24-hour spill at 6 pm Friday April 5. Ice Harbor will begin 24-hour spill on April 11 at 6 pm. Lower Granite and Ice Harbor will operate at a MOP + 1 range. All lower Columbia projects are scheduled to begin spill on April 10; TMT will hold discussions at their 4/10 meeting to confirm this.

Flow augmentation: Lower Granite is at 60 kcfs and is expected to come down a little in the next week. Grand Coulee will begin drafting 1 – 1.5’ after April 11. There was a request for more technical data to assist with the next TMT discussion, e.g. runoffs expected. Ron Boyce will call the Action Agencies Tuesday if the Salmon Managers feel they don’t have all the information they need.

John Day pool elevations: The pool should be near normal spring/summer operating range by April 10. It is currently at 262.5 to 264’ (close to the target).

### **Lower Monumental Offset Operation Proposals:**

NMFS evaluated the four options discussed at the last meeting for proposals to offset no spill at Lower Monumental caused by needed repairs at the project. Paul Wagner reported that, prior to TMT, there was Federal agreement on Option 1, which is to spill at Little Goose and use of Lower Monumental full flow bypass until May 1. At Lower Monumental, bypass fish until May 1, then transport them for the remainder of the season. Analysis of the other options didn’t provide the best survival and would not support needed research. Paul opened the discussion up for questions and comments by TMT. There were no objections to the decision.

### **SOR 2002 C-1:**

Kyle Martin presented CRITFC’s request concerning operations from April 2 – 13 of lower Columbia pools for the spring 2002 Tribal fishery. TMT members discussed and support the SOR.

Action: RCC issued a teletype, effective immediately, to operate with a 1.5’ pool range as a soft constraint at Bonneville Dam. The elevations are expected to be 75.0 – 76.5’.

### **Develop Operations:**

Spill at Lower Granite began at 6 pm on April 3; Little Goose will begin spill at 6 pm on April 5; and Ice Harbor is scheduled to spill at 6 pm on April 11. The Lower Columbia projects are scheduled to begin spill (upon discussion at TMT) on April 10. McNary spill deflectors and avian wires may create problems for an April 10 start. April 10 flow targets will be met. Pools at

Bonneville are operating at a 1.5' (soft constraint) range. The pool at John Day should be at 262.5 – 264' by April 10.

**Next Meeting, April 10, 9 am:**

**Agenda items:**

- Hanford Reach Update
- WMP Comments, Spring/Summer Update
- Current System Operations – Fish and Projects
- Minimizing Spill at Lower Monumental
- Flow Augmentation
- Spill Priority List (handed out at 4/3 meeting)

***1. Greeting and Introductions***

The April 3 Technical Management Team meeting was chaired by Cindy Henriksen of the Corps and facilitated by Donna Silverberg. The following is a distillation, not a verbatim transcript, of items discussed at the meeting and actions taken. Anyone with questions or comments about these minutes should call Henriksen at 503/808-3945.

***2. Hanford Reach Update.***

Scott Bettin said Priest Rapids discharge has been flat at 53 Kcfs since the last TMT meeting; field crews found no stranded juvenile chinook last week. We were within 3 Kcfs fluctuation last week, added Chris Carlson, on March 27, index seining found 364 chinook fry. Daily monitoring didn't occur because of the flat flows, which are expected to continue at least through mid-week. He added that, in the future, he will be posting the weekly Hanford Reach update to the TMT website.

***3. Sturgeon Pulse Operation.***

Scott Bettin said he has heard the sturgeon pulse SOR will be submitted on April 16. David Wills agreed, saying it is his understanding is the Fish and Wildlife Service will submit an SOR in time for the April 17 TMT meeting. The goal this year is to work with the sturgeon hatchery larvae outplants, Wills said – 4-day-old larvae will be planted above Bonners Ferry, and the hope is then to mimic the natural hydrograph to study the effects of increased flow on predator dispersal and sturgeon movement. The first part of the pulse would require an outflow of about 20 Kcfs measured at Bonners Ferry, tailing down to about 15 Kcfs during the latter part of the operation. With a current base flow of about 6 Kcfs at Bonners Ferry, that would require an increase of about 14 Kcfs, and an estimated total volume of about 450 KAF.

Wills said the Fish and Wildlife Service would also like to start releasing some bull trout flows prior to the sturgeon pulse, beginning about May 15, if it would be possible to do so without significantly affecting refill probability at Libby. That operation would continue for two weeks after the sturgeon pulse ends, if possible, bringing the total of the operation to 500-800 KAF. The first batch of sturgeon larvae is expected to be available around the first of June, Wills

added.

Ron Boyce said FPAC will discuss the bull trout/sturgeon operation at its April 16 meeting. In response to a question from Wagner, Henriksen said refill probability at Libby is always heavily dependent on precipitation in May and June, so it's hard to say, at this point, to what degree the proposed bull trout/sturgeon operation may affect refill probability at that project. In response to a question from Boyce, Henriksen noted that Libby is already on minimum outflow, so there is nothing that can be done to store additional water in Libby, at least until the bull trout operation begins. She added that water released from Libby will end up in Grand Coulee, where it is more readily usable for lower river flow augmentation.

#### ***4. Review of Water Management Plan.***

Scott Boyd said Corps legal staff is reviewing the action agencies' response to comments, but has not yet approved this document for release. Their review is expected to be completed by early next week, Bettin added. Boyd said the draft spring/summer update to the water management plan is being reviewed by the action agencies, and should be ready for TMT review next week. The final draft 2002 WMP, incorporating the comments received, will also hopefully be ready for TMT review at next week's meeting.

With respect to the report to IT, said Henriksen, once the Water Management Plan is finalized, when can we expect a findings letter from NMFS? That will be submitted 45 days after we receive the annual progress report from the action agencies, Paul Wagner replied. Henriksen said her presentation on the 2002 Water Management Plan to the IT on April 4 will include a review of the new WMP, how it differs from previous years' plans, the action agencies' interpretation of the priorities laid out in the BiOp and the WMP, a review of the comments received, current system conditions and the most recent forecast information, as well as the timeline for the completion of the 2002 WMP and the spring/summer update.

#### ***5. Review of Current System Conditions.***

Wagner reported on the current status of the migration. Referring to the Fish Passage Center website, he said the past two weeks of passage data show Imnaha trap collections pretty consistent since March 20; as many as 7,000 have been trapped daily at that site. At Lower Granite, fish have been collected for the past week, about 300 per day with a peak of 2,000. At Little Goose, they just wetted-up the facility yesterday, said Wagner; we saw 150 fish there yesterday, so some fish are showing up at that project as well. Typically, he added, most of the early-arriving fish are wild migrants. In a nutshell, said Wagner, we have fish. Michelle DeHart said that, so far today, 2,550 fish have arrived at Lower Granite.

Henriksen said the headwater storage projects are drafting toward their April 30 flood control elevations, where necessary; we're still operating based on the March final water supply forecast, she said. The April final water supply forecast is expected to be released on Monday, April 8. There was a spate of rain last week, Henriksen added, increasing inflows at some projects. Dworshak continues to release full powerhouse capacity, 16 Kcfs. We were able to shift only 115 KAF in flood control storage from Dworshak to Grand Coulee, she said.

In response to a question, Henriksen said Dworshak's current outflow of 16 Kcfs is not exceeding the 110% gas cap at that project. When we get the April final forecast, she said, we will likely adjust that operation. Henriksen noted that, as water and air temperatures begin to warm, it will no longer be possible to release 16 Kcfs from Dworshak without exceeding the 110% TDG standard.

Grand Coulee achieved its March 31 elevation target, and is on target to meet its April 10 target of 1263 feet, Tony Norris reported. Hungry Horse is drafting slightly to meet the Columbia Falls minimum flow. The Upper Snake is going to struggle to refill its reservoirs, due to last year's drought, lack of carryover, and less-than-rosy water supply forecast this year, said Norris; the Boise and Payette systems are the only exceptions, Norris said.

#### ***6. Start of Spring System Operations for Fish on Lower Snake and Columbia.***

Bettin said the spill operation will start at 6 p.m. tonight at Lower Granite, as planned. The Little Goose operation will likely start in a couple of days, based on travel time, he added. Michelle DeHart said the Fish Passage Center is estimating a three-day travel time between projects, so three days after the Lower Granite operation begins, we would recommend that you start at Little Goose, six days after that, on April 11, at Ice Harbor. We expect the Tucannon fish to start arriving at Ice Harbor on about April 20, she said, so the April 11 start date should be appropriate. Boyce said that, based on the number of fish arriving at Lower Granite, he would recommend that 24-hour spill at Little Goose begin this Friday, April 5 at 6 p.m.. Spill would then begin at 6 p.m. April 11 at Ice Harbor. Henriksen added that the Lower Snake pools are now at MOP, with the exception of Ice Harbor and Lower Granite, which are at MOP +1.

The discussion then turned to the onset of spill at the Lower Columbia projects; Wagner recommended that spill begin on the BiOp planning date of April 10, because fish, including listed steelhead, have already begun to arrive at John Day. Boyd noted that the Corps is working on some of the technical details of the spill pattern at McNary; the test did not go well, so they need to develop a revised spill pattern. We'll plan on starting spill at all Lower Columbia projects at 6 p.m. on April 10, and discuss the operation further at next week's TMT meeting, Bettin said. In response to a question from Wagner, Bettin said increased Brownlee and Dworshak discharge is the reason Bonneville flows have been higher than expected during the past week.

The discussion moved on to spring flow augmentation; Henriksen referred the group's attention to the most recent flow augmentation histograms developed by the Corps. She noted that flow at Lower Granite (60 Kcfs yesterday) can't be increased at this time, because Dworshak is at maximum outflow. If anything, said Dick Cassidy, Dworshak outflow is likely to decrease slightly (by 300-500 cfs) due to increased solar radiation, in order to stay below the gas cap at that project.

We could also talk about Grand Coulee operations, Wagner said. After a brief discussion, Bettin noted that, until the April 10 elevation target is achieved at Grand Coulee, any increase in discharge from Grand Coulee will be driven by snowmelt. Grand Coulee outflow will likely be

in the 70 Kcfs range until the freshet begin, he said.

Boyce expressed concern that current flows are likely to be less than half of the spring flow target in the near term, primarily because reservoirs are filling like crazy. Hindsight is 20-20, he said, but I wish there was something we could have done differently to prevent this situation. Reservoirs are not filling per se, said Henriksen, they are operating to meet Arpil flood control elevations, which in some cases are drafts. We're just following the priorities laid out by TMT, said Bettin; we are operating to meet the storage reservoir elevation targets, and given the fact that the spring freshet has not yet begun, there really isn't anything we could be doing differently at this point. The group discussed the possibility of increasing Grand Coulee discharge; no TMT consensus was reached on this issue. To a certain extent, this is an artifact of last year's drought, Norris said; again, there was much less carryover in the storage reservoirs than usual. It sounds as though we'll have more information to discuss at next week's TMT meeting, Silverberg said.

Albeni Falls has been operating in its bottom foot since January, 2051 feet, Henriksen reported; that project is now starting to refill, will be at 2054-2055 by the end of April, and will be full by about June 30.

With respect to John Day pool elevation, said Henriksen, we touched briefly on this issue last week; it is our intent to have John Day pool at its normal summer operating range of 262.5-264 feet by Wednesday of next week. We were at 264.3 as of midnight last night, she added.

### ***7. Lower Snake operations to Minimize Lower Monumental Spill.***

Wagner reminded the group that NMFS had agreed to analyze the various options that have been put forward to offset the expected 1% decrease in in-river survival due to the lack of spill at Lower Monumental this year. You will recall that Option 1 was 24-hour spill at Little Goose, and go to full-flow bypass at Lower Monumental, through May 1, he said. Option 2 is the same thing, except that the Little Goose and Lower Monumental operations would continue all the way through the spring season. Option 3 is no spill at Little Goose to reduce in-stream migration, instead emphasizing transport; Option 4 puts even more weight on transport by reducing spill at both Little Goose and Lower Granite.

With respect to our goal of increasing in-river survival, said Wagner, we rejected Options 3 and 4, because they actually reduce in-river survival. The difference between Options 1 and 2 is the duration of the Little Goose and Lower Monumental operations; our analysis mainly focused on Option 1, because of the impact of Option 2 on key research activities called for in the BiOp, he said – particularly the studies focused on differential delayed mortality. Option 2 essentially would mean zero transport through the spring season, he said, and we want to get some idea of what the survival difference is between transported fish and in-river fish. The bottom line is that Option 2 would interfere with a wide range of planned research, he said.

Based on NMFS' analysis, he said, we would see an in-river survival increase of about 0.34%-0.38% if Option 1 is implemented. He noted that the SYMPAS model measures only the impacts to juvenile survival; it says nothing about adult impacts, and the real goal of increasing

survival is to increase adult populations. NMFS' research shows that, for juveniles migrating early in the season, SSARRs are higher for in-river migrants; once you hit early May, however, SSARRs are higher for transported fish. In NMFS' view, up to May 1, our operations should emphasize in-river migration, while after May 1, operations should emphasize transportation – hence our support for Option 1, Wagner said.

The bottom line is that we have discussed this among the federal operators, and have agreed to go with Option 1, Wagner said. The spill program at John Day will proceed as planned, and we're still looking at the McNary spill program, considering 24-hour spill every other day. So you're not looking at a departure from the BiOp spill program at Lower Granite? Sharon Kiefer asked. Except for the planned RSW test, no, Wagner replied.

Moving on to the Corps' analysis of reservoir operations that will reduce the likelihood of spill at Lower Monumental this spring, Rudd Turner said the Corps is in the process of analyzing this issue and developing a proposal. It looks as though Lower Granite will not be on the table, due to the need to maintain the one-foot operating range for the RSW test, he said. Little Goose and Lower Monumental have the potential to store 26 ksf, Turner said; however, the most recent SSARR shows that it is likely that there will be at least some involuntary spill during a two-week period in May – up to 200 ksf at Lower Monumental. The best we're likely to be able to do with the reservoir manipulation is to avoid spill on some days when some marginal spill would otherwise occur, Turner said. One other possibility would be to manipulate Dworshak outflow during that period, he added. Again, he said, we're looking into this question, and will try to provide you with a specific proposal at next week's meeting.

#### ***8. Review of New System Operational Requests.***

On April 2, CRITFC submitted SOR 2002 C-1, regarding reservoir operations during the spring treaty fishery. Kyle Martin went briefly through the specifics of this SOR, including the following:

- Implement the following pool operations as follows:
- April 2, 2002, 6 a.m. Tuesday through 6 p.m. April 13, 2002
- Bonneville Pool: operate the pool within 1 foot from full pool (msl elevation 77-76)
- The Dalles Pool: operate the pool within 1 foot (msl elevation 159.5-158.5)
- John Day pool: operate the pool within 1 foot (msl elevation 264.5-263.5)

Martin said the Compact will be meeting late next week or early the following week to discuss any potential additional fishing periods; he noted that, if the SOR cannot be implemented, the CRITFC member tribes request a written explanation from the federal operators.

Boyce said FPAC supports this SOR as well. Turner said the Corps received the request after the requested start time, and went to work on it right away, issuing a teletype specifying operations of 75.0-76.5 feet at Bonneville pool as a soft constraint. That's the normal operating range, he said, effective immediately and running through April 13. If you could let us know as soon as possible when the next SOR will be submitted, we would appreciate it, Turner said. Will

do, Martin replied.

**9. Develop Recommended Operations.**

Bettin reiterated that spill at Lower Granite will begin tonight at 6 p.m., at Little Goose this Friday, April 5 at 6 p.m., and at Ice Harbor at 6 p.m. Thursday, April 11. Spill will begin at the four Lower Columbia projects on April 10 at 6 p.m.; we will revisit that operation at our April 10 meeting in light of current fish passage information, Bettin said. Flow targets will be what they are at Lower Granite and McNary, because of the current constraints on the system. Turner added that project personnel have asked that spill be delayed until April 11 at Bonneville, due to contractor delays in installing the spill gates at Bays 1 and 18.

**10. Next TMT Meeting Date.**

The next meeting of the Technical Management Team was set for Wednesday, April 10. Meeting summary prepared by Jeff Kuechle, BPA contractor.

**TMT PARTICIPANT LIST  
April 3, 2002**

<b>Name</b>	<b>Affiliation</b>
Don Anglin	USFWS
Colin Beam	PPM
Scott Bettin	BPA
Ron Boyce	ODFW
Scott Boyd	COE
Mike Bucko	Powerex
Ruth Burris	PGE
Chris Carlson	Grant County PUD
Dick Cassidy	COE
Suzanne Cooper	BPA
Scott Corwin	PNGC Power
Michele DeHart	FPC
Roger Fuhrman	IPC
Russ George	Water Management Consultants Inc.
Laura Hamilton	COE
Scott Hanson	BPA

Tim Heizenrater	UBS
Cindy Henriksen	COE
Cathy Hlebechuk	COE
Richelle Harding	D. Rohr & Assoc.
Jonne Hower	USBR
Eric Keefer	
Kyle Martin	CRITFC
Kevin Nordt	PGE
Tony Norris	USBR
Mike O'Bryant	CBB
Rick Pendergrass	BPA
Todd Perry	AEP
Chris Ross	NMFS
Shane Scott	WDFW
Donna Silverberg	Facilitation Team
Craig Sprankle	Reclamation
Glen Traeger	Avista Energy
Rudd Turner	COE
Maria Van Houten	UBS
Paul Wagner	NMFS
Steve Wallace	PacifiCorp
Nancy Yun	COE

# TECHNICAL MANAGEMENT TEAM

BOR: Tony Norris\Lori Postlethwait      BPA: Scott Bettin\Rick Pendergrass

NMFS: Paul Wagner\Chris Ross      USFWS: David Wills\Howard Schaller

OR: Ron Boyce      WA: Shane Scott      ID: Steve Pettit      MT: Jim Litchfield

COE: Cindy Henriksen\Cathy Hlebechuk\Rudd Turner

## TMT MEETING

10 April 2002      0900 - 1200 hours

Custom House      Room 118  
Portland, Oregon  
Conference call line: 503-808-5190

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

## AGENDA

1. Welcome, introductions.
2. Hanford reach/Vernita Bar update (Grant PUD).
3. [Water Management Plan](#).
  - comments
  - Spring/Summer update
4. Review current system conditions.
  - reservoir operation, water supply, power system, water quality (COE, BOR, BPA)
  - fish migration status (NMFS, USFWS)
5. Spring system operations for fish on the lower Snake and Columbia.
  - flow augmentation
  - spill priority list
6. Lower Snake reservoir operation to minimize Lower Monumental spill.
7. Review operations requests.
8. Develop recommended operations.
9. Other.
  - set agenda for 24 April TMT meeting

*Questions about the meeting may be referred to Cindy Henriksen at (503) 808-3945, or Rudd Turner at (503) 808-3935.*

**TECHNICAL MANAGEMENT TEAM  
MEETING NOTES  
April 10, 2002  
CORPS OF ENGINEERS NORTHWESTERN DIVISION OFFICES – CUSTOM  
HOUSE  
PORTLAND, OREGON**

**TMT Internet Homepage: <http://www.nwd-wc.usace.army.mil/TMT/index.html>**

FACILITATOR'S SUMMARY NOTES ON FUTURE ACTIONS

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.

**Hanford Reach/Vernita Bar Update:**

Chris Carlson reported on discharges out of Priest Rapids for April 1 – 7. 1, 268 fish were found on April 3. On April 5, fourteen mortalities were found; April 6, fifteen were found; and April 7, eight were found. They had to digress from the regular program because of a test at Priest Rapids and hope to avoid this in the future. All information will be posted on the old TMT website, under Discussion Forum. Chris will report again at the April 24 TMT meeting.

**Water Management Plan (WMP):**

Comments: The Federal attorneys are still reviewing the response to comment on the WMP.

Spring/Summer Update: Scott Boyd handed out a rough draft of the Update, which does not include the April final forecast numbers. Note: Do not rely on this draft for substantive information, as it has not all been put into the update! Scott presented the draft so TMT could see the direction the update is taking. He explained the QADJ 59-year chart calculations. He will continue to refine and bring the final update to a future TMT meeting.

**Action:** The Action Agencies will send a more accurate update (with the April data) to TMT members as soon as it is available. The update will be discussed at the next TMT meeting and Scott will inform TMT members as soon as it is posted on the web site.

**Review Current System Conditions:**

Water Supply Forecast: Harold Opitz reported on precipitation forecasts. He noted “quite a variation” throughout the region for precipitation as of March 31 and suggested near or slightly below normal overall precipitation for the year. The April to June forecast shows a slight chance of being above normal, while October to December shows a slight chance of being below normal.

There are some glitches with the new ESP model, as well as training and testing issues at the RFC. Harold said the new model will be available anywhere from two weeks to two months from now. TMT noted that it would be useful to have some spreadsheet overlap for use as soon as possible, and they look forward to utilizing the new tools!

Reservoir Operations: The system is operating to meet end of April flood control points. Libby is at 2370' now, and should refill in July. Grand Coulee is at 1264' and will meet its April 30 target of 1245'. Hungry Horse is well below flood control and may increase slightly this month. Contrary to previous projections, all upper Snake reservoirs (including Boise/Payette) will struggle to fill. Dworshak is at 1507' and will release 5 kcfs spill through April. Ron Boyce asked whether there are any headwater "Confidence of Refill" charts for the Snake River projects.

Action: Tony Norris will check on available data from the BOR. Ron Boyce would like to see the information only if it's readily available, not wanting to make more work.

Kyle Martin registered concern on behalf of the CRITFC Tribes regarding Dworshak operations and their fear that current operations will create a hole in the reservoir. The COE is monitoring this on a daily basis and will continue to have discussions at TMT. Fish are expected to arrive at the project the first ten days of May.

Water Quality: Spill at Lower Granite began April 3, but exceedance of gas levels caused a reduction of spill for the next few days. The COE is working on the issue and trying to get spill up to 50-60 kcfs without exceeding the state-mandated gas levels. At Little Goose, 50 kcfs spill began April 5 at 6 pm. Adjustments were made April 6 for gas levels; the COE is monitoring and evaluating this project on a daily basis and adjusting spill as needed.

Fish: The Salmon Managers are seeing a steady increase of juveniles at Lower Granite and Little Goose. Adult chinook passage at Bonneville is steadily increasing as well. Ron Boyce reported that estimated chum emergence dates are March 31, April 11, and May 5. The emergence numbers thus far look good. Temperature will be a key factor as chum fry respond better to warmer temperatures.

### **Spring System Operations for Fish on the Lower Snake and Columbia:**

Spill: Donna Silverberg developed a "TMT Spill Matrix" that listed projects and their expected spill operations. The following is a summary of spring spill decisions at each of the projects discussed at today's meeting:

- Lower Granite: Spill is currently at 44 kcfs at eight spill bays; COE is evaluating daily for gas levels.
- Little Goose: While managing dissolved gas, spill will occur for a 24-hour period until May 1, then 12-hour spill from 6 pm to 6 am.

- Lower Monumental: No spill will occur for fish passage, but some involuntary spill could occur in May. The juvenile fish passage facility will operate on full-flow bypass through April, except operation of the separator for fish sampling and evaluation of condition 1 hour per week (Monday at 10 am).
- Ice Harbor: NMFS' proposed change is to move the spill start up a day, to April 10 at 6 pm, due to sufficient numbers of fish – no objections were made from TMT.
- McNary: There are still problems with water on the walkway, but the COE is working with contractors to move the bridge or make changes to spill patterns; spill is expected to begin April 10 at 4 pm.
- John Day: Spill begins April 10 at 6 pm; research project operations begin at 8 pm, which may require a spill pattern change – Rudd Turner will work with the contractors; the group agreed there are enough fish at this project to begin spill.
- The Dalles: The Corps' fish biologists requested two changes to this spill operation for test purposes. Ramp bays 4 and 9 up after all other bays at the beginning of spill. This will slow the whole spill operation down from 15 minutes to 30-60 minutes so that data can be collected. They also requested transitioning to 40% spill over two hours instead of one to get data similar to last year's flows duplicated this year. TMT supported these requests. Spill will begin April 10 at 6 pm for 24 hours at 40%.
- Bonneville: Spill of 50 kcfs will begin April 10 at 6 pm until April 12, then adjust to the gas cap while providing depth compensation for emerging chum salmon at redds downstream of the project. Also, open Bay 18 for 5-10 minutes at the start of the operation to test a possible problem with the walkway structure.

**Lower Snake Reservoir Operation to Minimize Lower Monumental Spill:**

The COE said there is not sufficient justification to shape the water at this time, but the issue could re-surface in May. TMT voiced no objections.

**Next Meeting, April 10, 9 am:**

Agenda items:

- Hanford Reach Update
- WMP Comments, Spring/Summer Update
- Current System Operations – Fish and Projects
- Dworshak – CRITFC Concerns and Update on Elevation
- SOR for Sturgeon Pulse
- Forecast Error Tools – Harold Opitz
- Develop Recommended Operations

***1. Greeting and Introductions***

The April 10 Technical Management Team meeting was chaired by Cindy Henriksen of the Corps and facilitated by Donna Silverberg. The following is a distillation, not a verbatim transcript, of items discussed at the meeting and actions taken. Anyone with questions or comments about these minutes should call Henriksen at 503/808-3945.

## ***2. Hanford Reach Update.***

Chris Carlson said that, for the period of April 1-7, on April 1, the average discharge from Priest Rapids was 53.3 Kcfs, with a minimum of 53.1 Kcfs. On April 3, the average discharge was 58.8 Kcfs, with a minimum discharge of 53.1 Kcfs and a maximum of 73.4 Kcfs. The average flow on April 4 was 64.7 Kcfs, with a minimum of 55.1 Kcfs and a maximum of 72.7 Kcfs. On April 5, the average was 67.2 Kcfs, with a minimum discharge of 52.8 Kcfs and a maximum of 98.5 Kcfs. On April 6, the average Priest Rapids discharge was 54.3 Kcfs, with a minimum of 53 Kcfs and a maximum of 67.8 Kcfs. On April 7, average discharge was 53.8 Kcfs, with a minimum of 53.1 Kcfs and a maximum of 54.6 Kcfs. A 20 Kcfs flow band was in place all week, Carlson reported.

On April 3, field crews doing index monitoring found 1,268 fish, Carlson continued. On April 10, they checked five sites for mortalities, finding 72 fish, 14 of which were dead. On April 6, field crews examined seven sites, finding 15 stranded fish, all of which were dead. On April 7, they looked at six sites, finding eight mortalities, Carlson said.

Any sense of when emergence might end this year? Scott Bettin asked. We're currently about 110 temperature units away from the end of emergence, Carlson replied; we've been gaining about seven temperature units per day. That gives us 13 to 14 more days of emergence, which would put us at April 23 or 24, said Carlson; if it gets warmer, as you would expect it to do, emergence could end a couple of days sooner than that – say April 21.

## ***3. 2002 Water Management Plan.***

Scott Boyd reported that Corps legal staff is still reviewing the most recent draft of the 2002 Water Management Plan; he said he doesn't know, at this time, when that draft will find its way back to the TMT. Boyd distributed what he called a very rough draft of the spring/summer update to the 2002 WMP, noting that he is in the process of incorporating the April final water supply forecast into this document. Boyd said he should have a more complete draft of the update ready in time for the next TMT meeting two weeks hence; he said he will post it to the TMT homepage as soon as it is ready.

Will there be an opportunity for the states and tribes to comment on the spring/summer update? Boyce asked. I don't know that we want to get into a formal comment process, in which the action agencies are compelled to provide a written

response to all of the comments received, Boyd replied; however, you will have an opportunity for review, and if there is something you strongly disagree with, or there is a piece of information you feel should be added, we'll be happy to accommodate you.

#### ***4. Current System Conditions.***

Harold Opitz of the River Forecast Center provided an overview of current water supply forecast, meteorological and reservoir elevation data. In general, he said, snowpacks are ranging from 140% of normal in the Clearwater Basin to near-normal in the Snake River above Ice Harbor and the Columbia above Castlegar. At Grand Coulee, the April final January-July water supply forecast was 61.1 MAF, 97% of normal. At Lower Granite, the April final forecast was down slightly to 24.2 MAF, 81% of normal. The April final forecast at The Dalles also went down slightly to 96.4 MAF, 90% of average. Overall, said Opitz, the comment I made in January still stands – in all likelihood, we're looking at a water year that is near or slightly below-normal in 2002. In response to a question from Paul Wagner, Opitz said the standard error around these forecasts is +/- 5.1 MAF at Grand Coulee, +/- 2.9 MAF at Lower Granite and +/- 8.2 MAF at The Dalles.

Moving on to the most recent 30-day meteorological forecast, Opitz said there is a slightly higher (about 40%) chance of above-normal temperatures and precipitation in most of the Northwest. For the May-July period, the forecast indicates a slightly higher chance of above-normal temperatures and precipitation; for the October-December period, the forecast indicates a slightly-elevated chance of below-normal precipitation. There are some indications that the Northwest may be entering an El Niño event over the next seven to eight months, Opitz said. Kyle Martin added that the information he has seen indicates that this will be a relatively weak El Niño; if so, it will yield below-normal precipitation across the basin, but how far below normal is anyone's guess at this point.

Moving on, Henriksen reported that the operation of the system continues to be geared toward meeting the April 30 flood control points for the headwater storage projects. Libby continues to release 4 Kcfs, and is currently near elevation 2370. That operation is expected to persist for at least the next two weeks. Tony Norris said Grand Coulee is now at elevation 1264 feet, headed down toward its April 30 flood control elevation of 1245 feet at a rate of 1.5 feet per day. Hungry Horse is currently at elevation 3509 feet, below its April 30 flood control elevation of 3542 feet. Inflows are starting to pick up at that project, Norris said.

Norris added that, last week, he had mentioned that the Upper Snake River projects, with the exception of those on the Boise and Payette, would struggle to refill in 2002; that is no longer the case, he said – it now appears that the Boise and Payette projects also will struggle to refill this year. Does it appear that the 427 KAF in Upper Snake flow augmentation water is going to be jeopardized this year? Boyce asked. The Bureau is going to make every effort to secure enough water to allow us to provide the 427 KAF, Norris replied; however, at this point, I can't tell you how much is going to be available.

Henriksen reported that the current Dworshak elevation is 1507 feet; the project is releasing 15 Kcfs, about 5 Kcfs of which is spill. That rate of outflow is expected to continue for the foreseeable future, she said. Henriksen referred the group's attention to the most recent flow/volume histograms prepared by the Corps, noting that, for the April 1-June 30 period, at Dworshak, the available flow augmentation volume would be 1,199 KAF if a 30% confidence of refill is assumed; it would be 1,078 KAF at a 50% refill confidence and 955 KAF at a 70% refill confidence. At Libby, the available flow augmentation volumes are 806 KAF at 30% confidence of refill, 538 KAF at 50% refill confidence and 320 KAF at 70% confidence. At Hungry Horse, the available flow augmentation volumes are now predicted to be 589 KAF at 30% confidence of refill, 530 KAF at 50% confidence and 429 KAF at 70% confidence.

Henriksen also distributed a series of graphs illustrating the percent confidence of 2002 refill at Libby, Hungry Horse and Dworshak if various April 30 reservoir elevations are assumed; she noted that the individual water supply forecasts at these projects increased somewhat, based on the April final water supply forecast, while the forecasts at Grand Coulee, Lower Granite and The Dalles decreased slightly.

Martin said CRITFC is less than comfortable with the current Dworshak operation, noting that there the forecast on which the Corps is basing this operation is more than 100 KAF more optimistic than the RFC's runoff volume forecast for the Dworshak. He noted that this could mean a difference of more than 10 feet in Dworshak's June elevation; the Nez Perce Tribe in particular wants to ensure that we do everything we can to make sure Dworshak refills by June 30, Martin said. What is the April 30 elevation target at Dworshak? Boyce asked. We don't know, at this point, Henriksen replied – we're planning to release 15.8 Kcfs through the end of the month, while keeping a close eye on these curves and observed inflow. If the runoff shape indicates that the observed elevation point to exceed these curves, she said, we may need to increase Dworshak outflow and exceed the TDG standard to ensure adequate flood control space. Wagner said NMFS is comfortable with the current Dworshak operation; in our view, he said, there is plenty of volume to get to refill at that project. The current discharge is consistent with what we would advocate, in terms of a fishery operation, he said. Obviously we need to monitor the situation, Wagner said, but from the looks of things, we would need to try very hard if we are to avoid refilling Dworshak in 2002.

Nancy Yun briefed the group on the current water quality situation, noting that spill had been adjusted last week to accommodate the removable spillway weir (RSW) test at Lower Granite. Rudd Turner said there was some concern about the fish release pipe located at the RSW, but that, last night, the Corps authorized a spill increase to 44 Kcfs at Lower Granite, which resulted in a tailrace TDG reading of 119%. We're planning to hold spill at 44 Kcfs tonight, to see where TDG levels end up before we explore a higher spill volume tomorrow night, Henriksen said. The group also discussed spill operations at the other Lower Snake River projects; the message here, said Henriksen, is that, throughout the spring season, we will be monitoring and re-evaluating

our operations on a daily basis, to ensure that we stay within the 120% tailwater and 115% forebay TDG standard.

With respect to the fish migration status, Wagner said the 2002 outmigration proceeds apace; the fish began to appear in substantial numbers at Lower Monumental beginning April 4. We had planned to begin spill at Ice Harbor on April 11, based on travel time calculations from Ice Harbor to Lower Granite, Wagner said; these fish are ahead of schedule. We will not be seeing any additional information from Lower Monumental for a while, because full-flow bypass is in effect at that project, he said. Wagner said the indices at McNary and John Day are increasing slowly. Adult spring chinook counts at Bonneville are also on the rise, with approximately 3,000 adults counted past Bonneville yesterday. Wagner said Ives Island emergence numbers indicate good emergence for both chum and chinook fry; for that reason, flows need to be maintained at a stable or increasing level as water temperatures start to increase.

***5. Spring System Operations for Fish in the Lower Snake and Columbia.***

The group reviewed a handout titled “TMT Spill Matrix, which detailed project-by-project expected spill and start date. The results of their deliberations were as follows:

<b>Project</b>	<b>Expected Spill and Start Date</b>	<b>Status</b>
Lower Granite	April 3, 6 p.m.	Monitor daily to operate to gas cap at night
Little Goose	April 5, 6 p.m.	Monitor for dissolved gas and spill will drop as needed until May 1, when the project will go to 12-hour spill
Lower Monumental	No voluntary spill, operate juvenile facilities in full-flow bypass mode until May 1, 7 a.m.	There may be involuntary spill for several weeks after May 1 due to high river flows. Also the fish separator will operate for one hour, one day per week for fish sampling.
Ice Harbor	April 10 – 5 a.m.	Operation to begin April 10, rather than April 11, due to influx of smolts. This includes 45 kcfs day spill limit.
McNary	April 10 – planning date	Spill will begin at 6 p.m. tonight; need to remove construction bridges over the next couple of weeks and will monitor operations.

John Day	April 10 – planning date	Spill to begin a 6 p.m. No daytime spill; 60% nighttime spill. Maintenance could delay the 4/10 start
The Dalles	April 10 – planning date	Begin spill at 6 p.m. tonight at 40% of total river flow. Due to recent installs in Bays 4 and 9, pressure transducers need two-hour ramp-up to 40% spill.
Bonneville	April 10 – planning date	Spill to begin at 6 p.m. tonight. The Corps requested that Spill Bay 18 be opened to 4 feet for a few minutes to ensure that the bridge will not be damaged by this spill volume. It was agreed to spill to the gas cap and use the Warrendale gauge and project tailwater to monitor TDG and depth compensation at chum redds. Spill levels will be adjusted on Friday once spilled water from The Dalles reaches Bonneville.

***6. Lower Snake Reservoir Operation to Minimize Lower Monumental Spill.***

It was reported that this is no longer an issue until at least May.

***7. New System Operations Requests.***

No new system operational requests were received prior to today’s meeting.

***8. Develop Recommended Operations.***

Recommended operations were detailed during a previous agenda item.

***9. Next TMT Meeting Date.***

The next meeting of the Technical Management Team was set for Wednesday, April 24. Meeting summary prepared by Jeff Kuechle, BPA contractor.

**TMT ATTENDANCE LIST**

**April 10, 2002**

<b>Name</b>	<b>Affiliation</b>
Colin Beam	PPM
Scott Bettin	BPA
Ron Boyce	ODFW
Scott Boyd	COE
Mike Buchko	PowerX
Ruth Burris	PGE
David Clugston	COE
Timothy Coffing	UDSW
Scott Corwin	PNGC
Sean Cradall	UBS
Laurie Ebner	COE
Robin Harkless	Facilitation Team
Richelle Harding	D. Rohr & Associates
Cindy Henriksen	COE
Kyle Martin	CRITFC
Kevin Nordt	PGE
Tony Norris	Reclamation
Mike O'Bryant	Columbia Basin Bulletin
Rick Pendergrass	BPA
Todd Perry	AEP
Chris Ross	NMFS
Shane Scott	WDFW
Donna Silverberg	Facilitation Team
Rudd Turner	COE
Paul Wagner	NMFS
Steven Wallace	PacifiCorp
David Wills	USFWS
Nancy Yun	COE

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## TECHNICAL MANAGEMENT TEAM

BOR: Tony Norris\Lori Postlethwait      BPA: Scott Bettin\Rick Pendergrass

NMFS: Paul Wagner\Chris Ross      USFWS: David Wills\Howard Schaller

OR: Ron Boyce      WA: Shane Scott      ID: Steve Pettit      MT: Jim Litchfield

COE: Cindy Henriksen\Cathy Hlebechuk\Rudd Turner

## TMT MEETING

**24 April 2002      0900 - 1200 hours**

**Custom House      Room 118  
Portland, Oregon  
Conference call line: 503-808-5190**

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

## AGENDA

1. Welcome, introductions.
2. Hanford reach / Vernita Bar update (Grant PUD).
3. Historical Water Supply forecast error graph/standard deviation and weather update (NWRFC) [Corel Presentation](#)
4. [Water Management Plan](#).
  - comments
  - [Spring / Summer update](#)
5. Review current system conditions.
  - reservoir operation, water supply, power system, water quality (COE, BOR, BPA)
  - fish migration status (NMFS, USFWS)
6. Snake River fish operations after May 1 (NMFS)
7. Expected Sturgeon Operation in 2002 (USFWS)
8. Review operations requests.
9. Develop recommended operations.
10. Other.
  - set agenda for 8 May TMT meeting

*Questions about the meeting may be referred to Cindy Henriksen at (503) 808-3945, or Rudd Turner at (503) 808-3935.*

**TECHNICAL MANAGEMENT TEAM  
MEETING NOTES  
April 24, 2002  
CORPS OF ENGINEERS NORTHWESTERN DIVISION OFFICES – CUSTOM HOUSE  
PORTLAND, OREGON**

**TMT Internet Homepage: <http://www.nwd-wc.usace.army.mil/TMT/index.html>**

**FACILITATOR’S SUMMARY NOTES ON FUTURE ACTIONS**

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.

**Hanford Reach/Vernita Bar Update:**

Chris Carlson reported on discharges out of Priest Rapids for April 8 – 23. 271 fish were found April 8-14 with an average length of 41.1 mm. 318 were found April 15-23, averaging 42.9 mm. Flows fluctuated due to rain and runoff. On April 19, flows were at 150 kcfs, instead of the proposed 103 kcfs, due to a misunderstanding with the operator. A correction was made quickly and communication is improving between agencies and operators. Chris was asked to include the size of the fish in his reports that are posted on the TMT web site. The fish are close to the end of emergence, which is expected late today or tomorrow, April 25.

**Water Supply Forecast:**

Harold Opitz reported that the water supply forecast is slightly near or above normal for the year. He presented and explained confidence intervals and the refill expectations based on them. He will send the graphs to Cindy Henriksen for distribution to TMT members.

**Water Management Plan (WMP):**

Idaho Fish and Game’s comments to the WMP were handed out. These may be included in the Spring/Summer Update. An April 23 draft of the Update and the charts and graphs that will be included were distributed for review. TMT members expressed appreciation for the thoroughness of the Update.

**Action:** Cindy will email TMT members when the Update is posted on the web site. Comments will be received at later TMT meetings, either orally or in writing.

**McNary Bridge Removal:** The COE began removal of the bridge April 24. The work is expected to be completed May 9.

**Action:** The COE will email a schedule of the planned removal work to TMT members. (This was done on April 24. Thank you Cathy Hlebechuk for such a quick turnaround.)

**Review Current System Conditions:**

Water Supply: The Action Agencies reported on current system conditions and the group discussed the following:

Review Flow Projection Spreadsheet: Flows were high in the past two weeks due to rains and runoff. Projections show numbers coming down. The Salmon Managers expressed concern that there are a lot of fish in the river and flow is needed to support them. The Action Agencies said their strategy is to make every effort to meet the flow objectives and to try to smooth flows for the transition to freshet (expected mid-May).

Water Quality:

A new spill priority list was put out by the COE. Because of concerns with gas caps and workers in the stilling basin for McNary bridge removal work, TMT members agreed to move McNary to below Lower Granite on the spill priority list. There was also concern that by moving McNary down, John Day was bumped to the top of the list. Some members wanted to see John Day moved further down to minimize impacts on the study at the project. It was noted that the list was developed in case of emergency and “over-generation”. As such, TMT decided to list the projects in the following order until further discussion at the May 8 TMT meeting:

- The Dalles
- Bonneville
- Little Goose
- Ice Harbor
- John Day
- Lower Granite
- McNary

Dick Cassidy reported that the COE will provide graphs on spill operations, patterns and resulting gas levels that are occurring. These graphs will be available on the TMT web page. The COE is working on smoothing out flows with spill requirements for studies at John Day and Bonneville.

Fish Status: Juveniles are expected to peak in the next 2-3 weeks. Adult passage is average, although there was a big dip during high flows from April 13-20 and another has begun in the last day. It is unclear why this is occurring.

**Snake River Fish Operations after May 1:**

The spring spill operations discussed at the last meeting began as scheduled at each of the projects. Paul Wagner said NMFS proposes to deviate from the Biological Opinion and run Lower Monumental in a manner to collect enough fish for Ice Harbor study objectives and the transport study. Paul proposed an every other day collection and transport operation. If the transport study does not compromise the Ice Harbor study (which is in its third year), the COE and other TMT members support a variation, but want to explore the options further with NMFS and the researchers. NMFS, the COE, and AFEP will communicate and get information to TMT as soon as possible.

Oregon noted they have a problem with studies that compromise transport of migrating fish. Needs of migrating fish and research should be balanced.

**Expected Sturgeon Operation in 2002:**

Dave Wills reported on USFWS' finalized proposal that he presented at the April 10 TMT meeting. TMT asked how the operation will affect Libby and other projects. Dave said benefits to salmon, sturgeon and bull trout are expected with the operation. The SOR 2002-1 was accepted by TMT. June 23 is the target date for the beginning of this operation.

**SOR 2002 C-3:**

Kyle Martin presented CRITFC's request for stable levels within 1 foot of full at The Dalles, John Day and Bonneville pools for tribal treaty fishing. The COE will implement operations as we always have, with a priority on Bonneville while attempting to maintain levels at the other pools.

**Next Meeting, May 8, 9 AM:**

**Agenda Items:**

- Hanford Reach Update
- Water Supply Forecast
- Water Management Plan
- Spill Priority List
- McNary Bridge Construction Update
- Fish Migration Status (including chum emergence)
- Current System Status
- Snake River Fish Operations
- Updates from Idaho Power
- Recommended Operations

***1. Greeting and Introductions***

The April 24 Technical Management Team meeting was chaired by Cindy Henriksen of the Corps and facilitated by Donna Silverberg. The following is a distillation, not a verbatim transcript, of items discussed at the meeting and actions taken. Anyone with questions or comments about these minutes should call Henriksen at 503/808-3945.

***2. Hanford Reach Update.***

Chris Carlson reviewed the most recent Hanford Reach flows, beginning on April 8, when average Priest Rapids discharge was 54.3 Kcfs, with a 20 Kcfs flow band in effect. On April 9, the average flow was 60.0 Kcfs; on April 10, average discharge was 83.5 Kcfs. On April 11, average discharge was 77 Kcfs. On April 12, average discharge was 139.2 Kcfs. On April 13, average discharge was 113.6 Kcfs, with a 30 Kcfs flow band in effect. On April 14, average discharge was 110.1 Kcfs, again with a 30 Kcfs flow band in effect.

On April 10, said Carlson, index seining found 271 fish, average length 41 mm. On April 13, field personnel sampled seven random sites, finding 32 fish, 29 of which were mortalities. On April 14, crews looked at six sites and found nine subyearling chinook mortalities. Carlson noted that the reason Grant PUD was unable to stay within the flow band on April 13-14 was the

very large and unexpected increase in flows that came down the river on those days.

Moving on to the second week's sampling, Carlson said field crews index seined on April 17; they sampled 318 fish, average fork length 42.9 mm. Field crews also randomly sampled 13 sites on April 20, finding a single mortality. They also sampled on April 18, 19 and 21, but found zero fish. However, flows had come up so much that most of the usual sampling areas were inundated. During this time, said Carlson, we were outside the flow bands because flows had gone up a whole lot more; even though we tried to flatten out the flows operationally as much as possible, we were unable to stay within the 30 Kcfs, 40 Kcfs and 60 Kcfs flow bands imposed last week. On April 19, Priest Rapids went to a 150 Kcfs flow minimum.

Anything you would have done differently? Paul Wagner asked. We have very limited ability to pond, Carlson replied; all we have down below are run-of-the-river dams, and given the very large fluctuations coming out of Chief Joseph last week, there really wasn't much we could do – one day, the estimate of Chief Joseph discharge was 77 Kcfs, and the actual we received was 139 Kcfs that day. We're always looking for additional ways to smooth flows out, he said.

Shane Scott asked that, in future reports, Carlson include information on the average, minimum and maximum size of the index-sampled fish; Carlson replied that he will include that data in future updates. In response to a question from Henriksen, Carlson said the end of emergence, based on degree-days since spawning, will take place later today or early tomorrow.

Will we be in the 150 Kcfs minimum operation for the next week? Wagner asked. As long as the five-day average exceeds 170 Kcfs, yes, Carlson replied – it looks as though, based on the forecasts we've seen, that meeting the 170 Kcfs average will not be a problem for the foreseeable future.

### ***3. Historical Water Supply Forecast Error/Standard Deviation and Weather Update.***

Harold Opitz went through the most recent weather and water supply forecast information, noting that little has changed since his last presentation; the May early-bird forecast is due out May 2, and it still looks as though, overall, the basin will experience near-normal to slightly-below-normal water supply conditions in 2002. He said the April final water supply forecast for the January through July period predicts slight decreases at Lower Granite (24.2 MAF, 81% of average), Grand Coulee (61.1 MAF, 97% of average) and The Dalles (96.4 MAF, 90% of average).

Opitz also provided a presentation on observed vs. forecast error and standard deviation for the period 1981-2001, explaining the method the River Forecast Center uses to compute standard error and deviation. Opitz noted that the largest uncertainty always occurs at the beginning of the runoff season; as the season progresses, the forecast always firms up. In response to a question from Henriksen, Opitz said the equations the RFC uses to calculate standard error have not been updated for some time; the RFC is currently in the process of updating them. Opitz added that he can provide copies of these calculations upon request.

### ***4. 2002 Water Management Plan.***

Henriksen said the 2002 Water Management Plan has not yet been finalized. She noted that Idaho has just submitted its comments, so the action agencies will determine how best to respond to the Idaho comments; the primary focus now I on the spring/summer update. Henriksen noted that IDFG's comments are available via the TMT homepage.

With respect to the spring/summer update, Henriksen said this document has been fleshed out considerably since the last TMT meeting, including the additional probability of refill bar charts requested at the last TMT meeting, and the incorporation of the April final water supply forecast. This document, too, is available via the TMT homepage. Henriksen asked the other TMT participants to review the spring/summer update prior to the next meeting of the group, and come to that meeting prepared to discuss any concerns they may have about the update. She added that there will be no formal written comment period on the spring/summer update, as there was on the 2002 Water Management Plan itself, so this will be the group's primary opportunity to comment on the update.

### ***5. Current System Conditions.***

The group discussed the ongoing McNary bridge removal work; the Corps noted that concrete-cutting started on Monday, and that, until that work is complete, project personnel have requested a change in the spill priority list, such that McNary receives a lower spill priority until the last bridge is removed on May 9. After the bridges are removed at McNary it can be higher on the list, but during construction it must avoid spill because of safety issues, said Henriksen. The bridge removal may be complete by May 9. At that time the TMT can revisit the position of McNary on the list. In response to a question, Rudd Turner said the Corps' recommendation is that Lower Granite be second to last on the spill priority, with McNary being last on the list.

A lengthy discussion ensued, with various participants expressing concern about the potential impact of the lack of spill at McNary (and the potential increase in spill at Lower Granite and John Day) on planned research at those projects. Wagner said NMFS' preference would be to move John Day down the spill priority list as well. Ultimately, the TMT agreed that the following spill priority list will be in effect until May 9: The Dalles, followed by Bonneville, Little Goose, Ice Harbor, John Day, Lower Granite and McNary. We can discuss this topic again at the May 8 TMT meeting, said Rudd Turner; in the meantime, we'll monitor the situation closely.

Henriksen went through the April final water supply forecasts for Grand Coulee, Lower Granite and The Dalles, reiterating that the Grand Coulee runoff volume is now predicted to be 97% of average; Lower Granite's, 81% of average; The Dalles', 90% of average. At Libby, the most recent forecast is 6.3 MAF, is 99% of average. At Hungry Horse, for the May-September period, the forecast is 105% of average.

Henriksen noted that the Corps has once again begun to produce a flow spreadsheet; this document is available via the TMT website by selecting "documents," then "operations," then "flow projections." The group spent a few minutes discussing this information, and the likely shape of the 2002 runoff. Boyce expressed concern about the fact that flows came up following

last week's rain events, and are now receding; do we have any options for maintaining the higher flows through the end of April? he asked. We're already drafting Grand Coulee at a rate of 1.5 feet per day, Tony Norris replied; that is the limitation on our ability to augment flows in the lower river. And when will Grand Coulee refill begin this year? Boyce asked. May 1 is the planning date, but that could vary depending on the weather, Henriksen replied.

Wagner noted that this is an opportune time to have a discussion about meeting the spring flow objectives. The group discussed various operational scenarios, including one under which Grand Coulee would continue to draft to meet the lower river flow objective until the freshet begins in earnest. That's really our only option for keeping flows up in the lower river, said Wagner; it would mean some delay in Grand Coulee refill, but there may be some opportunity to "round the corner," in terms of reducing the depth of the flood control draft at Grand Coulee, or at least moving some of that draft up earlier in the season.

The group discussed the tradeoffs inherent in this issue, which essentially boil down to flows now vs. flows later in the season. After a few minutes of debate, Henriksen said that, unless drastic changes occur in the weather or runoff situations, the action agencies will strategy will be to continue to operate Grand Coulee to maintain lower river flows past April 30, drafting the project up to 1.5 feet per day until the freshet begins. If there is an opportunity to round the corner later in the month, she said, we will gladly explore that.

With respect to current water quality conditions, Dick Cassidy said that, in general, there are no significant water quality problems to report; TDG levels everywhere in the system are within waiver limits, except at Bonneville, where TDG levels have exceeded 130% at times during spill testing.

Moving on to the current status of the fish migration, Wagner spent a few minutes going through the most recent passage index data. We're still not seeing huge numbers at Lower Granite, with 17,000 juveniles passing yesterday, Wagner said; we saw a good response to last week's flow increase, with indices of up to 80,000 one day; passage numbers have tailed off since then. The same pattern is holding true at the projects below Lower Granite, Wagner said. In general, he said, the juvenile migration is still at the lower end of the cumulative passage graph; however, juvenile passage is expected to peak in over the next two to three weeks. The group also discussed current adult information; Wagner noted that 2002 adult numbers are running well in excess of the 10-year average for this date, but are not as spectacular as the last two years of adult returns. It was noted that, in response to lower-than-forecast adult returns, the sport fishing season in the Columbia below Bonneville will end today. In general, said Wagner, there are substantial numbers of juvenile and migrants distributed throughout the Snake and Lower Columbia; the peak of the migration is expected to occur in the next two to three weeks.

#### ***6. Snake River Fish Operations After May 1.***

Wagner said the goal of this agenda item is to take TMT input on a decision NMFS has already made; essentially, he said, this is a continuation of the discussion we had previously. We're still on track to go to 12-hour spill at Little Goose after May 1; we are no longer on track, however, to go to full transportation at Lower Monumental after May 1. Basically, he said, in re-

evaluating the transport survival data from Lower Monumental, there is too much variability in the historical data from that project to draw conclusions about the relative survival of in-river vs. transported fish. Wagner added that, given the lack of spill at Lower Monumental this year, there is an opportunity to greatly increase the knowledge in this area; what NMFS will likely propose is alternating days of collection and transport with days of full-flow bypass, although the details may be altered based on further discussion with the researchers. The goal is to collect enough fish to meet the study objectives, he said. Marvin Shutters said his understanding is that five day blocks of collection/transport and full-flow bypass may be necessary for the Ice Harbor spillway survival test; Wagner reiterated that the details of the Lower Monumental operation still need to be worked out.

This is a bit of a problem, Henriksen said; essentially, the Corps will be responsible for the operation at Lower Monumental and at this time, the Corps still doesn't know what NMFS is requesting and how that will fit with all the other project needs, including research. This understanding must be reached soon because Lower Monumental is expecting to begin daily transport on May 1. Basically, said Wagner, we wanted to let the TMT know we're planning to operate Lower Monumental in a manner that is inconsistent with the BiOp, which says go to full transport at that project on May 1. We're hoping to work out the details of the Lower Monumental operation over the next few days, he said. After a few minutes of additional discussion, Shutters said he will coordinate a conference call to finalize the Lower Monumental operations tomorrow afternoon; all interested TMT members are invited to join that call. We'll discuss this topic further at the next TMT meeting, Silverberg said.

### ***7. Expected Sturgeon Operations in 2002.***

David Wills distributed a final version of the sturgeon pulse SOR described at the TMT meeting two weeks ago; he said the electronic version will be posted to the Corps website later today. Wills said nothing has changed, in terms of the operations that were proposed at that meeting; this is simply a more formalized notification of the operation we desire, he said. Henriksen said the Corps understands the proposal and has incorporated the operating strategy into model runs. As the water supply varied, the Corps will explore actual implementation of the request.

### ***8. New System Operational Requests.***

On April 23, the action agencies received SOR 2002 C-3, on the subject of the operation of the Lower Columbia pools for the spring 2002 treaty fishery. This SOR, submitted by CRITFC, requests the following specific operations:

- Implement the following pool elevations as follows for the period 6 a.m. April 25 through 6 p.m. April 27:
- Bonneville Pool – operate the pool within 1 foot from full pool (msl elevation 77-76)
- The Dalles (Celilo) Pool -- operate the pool within 1 foot (msl elevation 159.5-158.5)
- John Day Pool -- operate the pool within 1 foot (msl elevation 264.5-263.5)

Kyle Martin went briefly through the main points of this SOR, the full text of which is

available via the TMT and FPC homepages. Please refer to this document for full details and justification. Martin noted that CRITFC is requesting that this operation be considered a hard constraint; he added that the Compact will be meeting again over the next few days and may decide to implement a further commercial fishing season.

The Corps plans to hold the Bonneville pool to a 1.5-foot operating range, 75-76.5 feet, Henriksen said; I do expect that to be a hard constraint. At John Day, a 1.5-foot range is also in effect; at The Dalles, we will request a somewhat steady operating range, but that pool will fluctuate somewhat based on flows and power demand.

**9. Recommended Operations.**

In general, said Henriksen, over the next two weeks, we plan to operate the system to meet the flow targets in the lower river. Please refer to the previous agenda items for further details of planned project operations over the next two weeks.

**10. Next TMT Meeting Date.**

The next meeting of the Technical Management Team was set for Wednesday, May 8. Meeting summary prepared by Jeff Kuechle, BPA contractor.

**TMT ATTENDANCE LIST**

**APRIL 24, 2002**

<b>Name</b>	<b>Affiliation</b>
Scott Bettin	BPA
Ron Boyce	ODFW
Chris Carlson	Grant PUD
Dick Cassidy	COE
Margaret Filardo	FPC
Jim Gaspard	B.C. Hydro
Russ George	Water Management Consultants Inc.
Terry Gruel	PP&L
Scott Hanson	BPA
Richelle Harding	D. Rohr & Associates
Robin Harkless	Facilitation Team
Tim Heizenrater	
Cindy Henriksen	COE
Jim Litchfield	Consultant (Montana)

Ningjen Liu	IdaCorp Energy
Kyle Martin	CRITFC
Kevin Nordt	PGE
Tony Norris	USBR
Mike O'Bryant	Columbia Basin Bulletin
Shane Scott	WDFW
Donna Silverberg	Facilitation Team
Mark Smith	COE
Rudd Turner	COE
Maria Van Houten	
Paul Wagner	NMFS
David Wills	USFWS

**TECHNICAL MANAGEMENT TEAM  
CONFERENCE CALL NOTES**

**April 30, 2002**

**CORPS OF ENGINEERS NORTHWESTERN DIVISION OFFICES – CUSTOM HOUSE  
PORTLAND, OREGON**

**TMT Internet Homepage: <http://www.nwd-wc.usace.army.mil/TMT/index.html>**

***1. Greeting and Introductions***

The April 30 Technical Management Team conference call to discuss Grand Coulee operations in support of spring flow augmentation was chaired by Cindy Henriksen of the Corps and facilitated by Donna Silverberg. The following is a distillation, not a verbatim transcript, of items discussed at the meeting and actions taken. Anyone with questions or comments about these minutes should call Henriksen at 503/808-3945.

***2. Grand Coulee Operations and Spring Flow Augmentation.***

Henriksen explained that today's meeting was requested by the Bureau of Reclamation. Tony Norris said Reclamation is concerned with the timing of the freshet, and continuing to draft Grand Coulee past its flood control rule curve elevation of 1245 feet. We've seen a variety of forecasts recently, Norris said; however none of them predicts that the freshet will begin for at least 10 days, and in the interim, Grand Coulee is drafting a foot per day. This digs a big hole in Grand Coulee, he continued; when refill begins, flows in the lower river will drop significantly. Reclamation would prefer to draft no more than a quarter-foot per day from Grand Coulee after today, said Norris; we would like to see Grand Coulee elevation go no lower than 1240 feet on any date. Norris added that the current Grand Coulee elevation is 1245.8 feet, with current flow at McNary in the 225 Kcfs range.

The point is that we have some very diverse forecasts over the next 10 days, none of which show a significant increase in local inflows below the project, Norris said. To maintain 225 Kcfs, we will need to draft the project at least a foot per day. We don't want to have an abrupt transition in flows, hence we're giving the fishery agencies five feet in which to transition to a soft landing, he said -- they can shape that five feet any way they want to, but once the project reaches elevation 1240, we're not willing to go below that elevation. Norris added that Reclamation's position is that 1240 feet is the minimum elevation at which it can protect cultural resources and continue to pump into Banks Lake; we consider that more than fair, he said.

My understanding was that we agreed, at last week's TMT meeting, that Grand Coulee would be at elevation 1238 by the end of this week, said Paul Wagner. It depends on which forecast you believe, said Norris; if flows increase or decrease, fine, but Reclamation is unwilling to draft Grand Coulee below elevation 1240, regardless of what McNary flows are.

Ron Boyce expressed the concern that the number of juvenile outmigrants in the river is now starting to peak. You need to consider the fact that flows have been dropping steadily since

April 16, said Michelle DeHart; they've gone from 319 Kcfs at McNary on April 16 to 217 Kcfs yesterday, and the passage indices reflect that. From a biological standpoint, she said, it would be a very bad idea to drop flows at this point in the season. Boyce agreed, noting that it is his understanding that Grand Coulee refill is not a concern this year. All we're talking about is shaping that runoff to keep flows up now, then refill later, he said. I don't think what Reclamation is proposing is a good-faith effort to implement the BiOp, said Chris Ross.

We're talking about an operation that will avoid a sharp decrease in flows later, said Norris; once the freshet begins and flows pick back up, the fish will start moving again. The fish are already moving, said DeHart; the problem is that they are moving slowly because flows are so low. Perhaps there is an opportunity to shape flows so that they're higher now, as fish are really starting to move, in order to get as many fish as possible out early, rather than later in May.

Henriksen observed that it was not a change in operation that has caused flows to recede from their April 16 level; they increased in response to the rain event in mid-April, and have now receded because temperatures have been cool and precipitation low. This is a natural recession, in other words, Henriksen said – we haven't changed the operation at any of the federal projects.

To get back to my question, said Ross, is the Bureau concerned that Grand Coulee will not refill this year? It's a question of how low you want the flows to go later, said Norris – the bigger the hole we dig now, the lower flows will be later when refill begins. Boyce observed that, at some point, the water will come; this is not a refill issue, he said, and once the freshet begins there will be plenty of water to both refill Grand Coulee and meet or exceed the flow target at McNary.

It's not a refill issue – it's an upstream vs. downstream equity issue, Pat McGrane replied. Also, 1240 is a pretty hard constraint because of the Banks Lake pumping. The pumps do work below elevation 1240, through, said Ross – just at diminished efficiency. They work, McGrane replied, at the cost of additional damage to the units. Also, he said, as was mentioned before, the tribes are extremely sensitive to drafting Grand Coulee below 1240 feet, from a cultural resources protection perspective. The fact of the matter is, it is always difficult to meet the flow targets in April, before the weather warms up and the freshet begins, McGrane said.

In response to a question from DeHart, McGrane said Banks Lake is currently about 2.5 feet from full. Lori Postlethwaite said that, if Banks Lake pumping is reduced because Grand Coulee elevation drops below 1240 feet, it will be difficult to keep up with irrigation demand, particularly if Banks Lake elevation sags more than five feet from full. We're delivering 7.6 Kcfs in irrigation water from Banks Lake right now, and we're barely keeping up, she said. Is that a hard constraint? Boyce asked. We can't draft Banks Lake below five feet from full, said McGrane.

What we're saying is that, until the freshet begins, we would like to see an operation where the salmon managers ramp discharge down to where Grand Coulee elevation is stabilized at 1240 feet, McGrane said. I sympathize with the fact that we couldn't be above the flood control elevation at Grand Coulee earlier in the month and we don't want to be below flood

control now, said McGrane, but it's just hard to know how things are going to shake out, in terms of runoff shape, in early April. Every forecast we're looking at says we're looking at a foot-per-day draft to maintain the current flow in the lower river, McGrane said.

In response to a question, Henriksen said Libby continues to release 4 Kcfs; Albeni Falls is passing inflow, and is not filling significantly. Libby flows will increase in response to the sturgeon SOR on May 15, Henriksen said. Will Libby go to 8 Kcfs tomorrow, as the SSARR run said? Ross asked. We probably won't need to do that, Henriksen replied; we think there is too much volume in the Libby portion of the current SSARR run.

The 2000 FCRPS BiOp requires project operators to attempt to meet the flow objectives on a weekly basis, said Ross; it doesn't sound as if Reclamation wants to do that next week. The BiOp also says we're unlikely to achieve those flow targets this time of year, McGrane replied -- 48% in April and 64% in May, over the historical record; I think what we're seeing here is the fallacy of the monthly modeling. Many years the weather stays cool in late April and early May; the freshet hangs up, and it becomes very difficult to meet the targets in late April and early May. If we can't agree on the operation Reclamation is proposing, said McGrane, I suggest that we elevate this issue to the IT.

The other thing we're seeing is that, year after year, the fish operation functions as the shock absorber for all of the other river uses, said DeHart -- the bottom line is that, right now is a very poor time to decrease flows in the lower river. If we have to suffer through a low-flow period, from a biological standpoint it would be better for that to occur later in the spring period.

I'm hearing, then, that the salmon managers would prefer that flows be much lower in late June, when we're refilling Grand Coulee heavily, rather than now, Henriksen observed. In response to a question from Wagner, Henriksen and McGrane said that, if Reclamation's 1240-foot draft limit at Grand Coulee is implemented, depending on whose forecast you believe, week-average flow at McNary would fall to between 160 Kcfs and 200 Kcfs for the week ending May 12. If we draft Grand Coulee to elevation 1228, she said, we can keep flows up around 210 Kcfs on a weekly average. The point is that these are very diverse forecasts, said McGrane; our "soft-landing" proposal operates independently of these highly variable forecasts.

Where would Grand Coulee end up if we continue with the current operation? DeHart asked. Based on the SSARR, Grand Coulee would be at 1238 feet on May 5, Henriksen replied; if we continue to draft a foot and a half per day, we would be at about 1228 feet on May 10. That would give us 210 Kcfs at McNary, on average, through May 10, she said.

What can you tell us about the effects of the natural recession on passage indices? Henriksen asked. All of those numbers are available on the FPC web page, DeHart replied; historically, we would expect the passage indices going up right now. I think everyone in the region agrees that there is a flow-travel time relationship, she said. I would say we're experiencing normal conditions, given the natural recession, Henriksen said. The passage indices are flat right now, which has the effect of pushing the fish back into May, DeHart replied. So the lower flows you requested later in May would be preferable, from a biological standpoint, to lower flows now? Henriksen asked. First of all, no one is requesting lower flows in May, DeHart

replied; if you look at the SSARR, flows at McNary are expected to be in the high 300s once the freshet begins. Tom Bergeron went through some of the most recent passage indices for chinook and steelhead, noting that steelhead indices are dropping at an alarming rate.

Wagner suggested that the rest of this conversation be postponed until Thursday, when better information will be available and everyone will be back in town; in the interim, he said, we would recommend that a minimum McNary flow of 210 Kcfs be maintained. That's somewhere in the middle of where the various flow scenarios put us, he said.

Keith Underwood said the Spokane Tribe objects to going below upper flood control rule curve, at Grand Coulee; we expect Reclamation to respect their treaty trust responsibilities and maintain Grand Coulee elevation at or above 1245 feet, he said. McGrane briefly recapped Reclamation's proposed operation, noting that Reclamation's seems to be the minority view at today's meeting. Again, said Underwood, the Spokane Tribe expects that 1245 feet is as low as Lake Roosevelt will be drafted in 2002. Wagner reiterated his suggestion that a minimum flow of 210 Kcfs at McNary be maintained until Thursday, when the TMT can reconvene. Are you suggesting that we elevate this issue to the IT? Henriksen asked. No, I think TMT can resolve this with a little more internal discussion and deliberation among the agencies, Wagner replied.

It sounds to me as though we have a dispute, said Henriksen; I'm not sure we'll have any more information on Thursday that will significantly inform this debate. If no one wants to raise this issue to the IT, I'd say we have a consensus that we will draft Grand Coulee to elevation 1240, Henriksen said. Steve Pettit said IDFG is concerned about any sudden drop in lower river flows. The other thing that concerns me is that Grand Coulee has not been drafting at a foot and a half per day, said Wagner; Grand Coulee was at 1248 a week ago, and it's at 1245 per day. The project is now drafting at just over a foot per day, Norris replied.

The discussion continued in this vein for some minutes, with various TMT participants reiterating their positions. The question, as I hear it, is one of priority on weekly flow augmentation, and concern about setting a lower draft limit, Henriksen observed. Boyce suggested that the action agencies put together some better numbers about the relative impact of the various operational scenarios discussed at today's meeting. I would suggest that we not call this a dispute at this point, and address it further at Thursday's IT meeting, said David Wills.

Ultimately, it was agreed to request that the TMT reconvene at 11 a.m. Thursday, asking the IT to adjourn for lunch an hour early so that the TMT can attempt to resolve this issue. If it is not possible to resolve it, then the IT will take it up after lunch. Tom Lorz added that CRITFC has submitted a new SOR covering treaty fishery pool elevations, which are the same as those requested in CRITFC's last SOR; whether or not we continue to request that the SOR be implemented will depend on the outcome of this issue, said Lorz.

With that, the conference call was adjourned. Meeting summary prepared by Jeff Kuechle, BPA contractor.

**TMT PARTICIPANT LIST  
APRIL 30, 2002**

<b>Name</b>	<b>Affiliation</b>
Don Anglund	USFWS
Tom Bergeron	FPC
Scott Bettin	BPA
Ron Boyce	ODFW
Dick Cassidy	COE
Michelle DeHart	FPC
Cindy Henriksen	COE
Cathy Hlebechuk	COE
Tom Lorz	CRITFC
Dave Lyngholm	Reclamation
Pat McGrane	Reclamation
Tony Norris	Reclamation
Steve Pettit	IDFG
Lori Postlethwaite	Reclamation
Chris Ross	NMFS
Donna Silverberg	Facilitation Team
Rudd Turner	COE
Paul Wagner	NMFS
David Wills	USFWS

# COLUMBIA RIVER REGIONAL FORUM

## TECHNICAL MANAGEMENT TEAM

May 2, 2002

### FACILITATOR'S SUMMARY NOTES ON FUTURE ACTIONS

Facilitator: Donna Silverberg

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

#### **Flow Operations:**

TMT held an emergency call on Thursday May 2 to further discuss flow shaping possibilities in the Mid- and Upper-Columbia. The BOR expressed that they would not be willing to drop Grand Coulee elevations below 1240' due to tribal trust responsibilities. TMT explored other flow shaping options, such as Banks Lake and Priest Rapids. The BOR is willing to look into Banks Lake as a possibility, noting that a bass fishery is occurring there right now. NMFS proposed a 220 kcfs minimum at McNary and 135 kcfs at Priest Rapids to use the five feet shaping flexibility available in the system. Cathy Hlebechuk handed out SSAR runs of possible operational scenarios at Grand Coulee.

**Action:** After a caucus, the group agreed to operate to draft Grand Coulee to 1240' in the next ten days and keep flow targets at Priest Rapids at 135 kcfs or greater. The Salmon Managers noted that the preferred operation for migrating and endangered fish is 220 kcfs flows at Priest Rapids. They would like to see further discussion on this at the next TMT meeting, Wednesday May 8.

**Action:** The BOR will look into putting enforcement officers in place if necessary to protect burial grounds of the Spokane and Colville Tribes at Grand Coulee. Gary Sims will ask the two tribes what they need to protect their burial grounds if Grand Coulee goes below 1240'. He will report any information on this to the Salmon Managers at their next meeting, Tuesday, May 7.

**Action:** The BOR will inform TMT on any possible water available from Banks Lake at the May 8 meeting.

**Action:** If in the next week temperatures do not increase or freshet does not occur, IT may be asked to hold a conference call on Thursday, May 9 to discuss future actions on this issue.

**TECHNICAL MANAGEMENT TEAM  
CONFERENCE CALL NOTES**

**May 2, 2002**

**CORPS OF ENGINEERS NORTHWESTERN DIVISION OFFICES – CUSTOM HOUSE  
PORTLAND, OREGON**

**TMT Internet Homepage: <http://www.nwd-wc.usace.army.mil/TMT/index.html>**

# **DRAFT**

## ***1. Greeting and Introductions***

The May 2 Technical Management Team conference call to discuss Grand Coulee operations was chaired by Cathy Hlebechuk of the Corps and facilitated by Donna Silverberg. The following is a distillation, not a verbatim transcript, of items discussed at the meeting and actions taken. Anyone with questions or comments about these minutes should call Cindy Henriksen at 503/808-3945.

## ***2. Continued Discussion of Grand Coulee Operations, Fish Passage and Declining Inflows.***

Tony Norris recapped the issue discussed at Tuesday's TMT emergency conference call, which had to do with Reclamation's desire to impose a 1240-foot draft limit at Grand Coulee this spring. He noted that Reclamation is very concerned about its tribal trust responsibilities, and potential impacts to cultural resources if Grand Coulee elevation dips below 1240 feet; Banks Lake impacts are also a concern, because if Grand Coulee sags below 1240 feet we will have a difficult time keeping up with irrigation demand, he said. Reclamation has made the decision to hold 1240 as the minimum elevation at Grand Coulee, he said; how we get there from the current elevation of 1245 feet is up to TMT to decide.

Tom Lorz went briefly through CRITFC's SOR 2002 C-5, covering May 2002 flows for Hanford Reach, the Lower Snake and the Lower Columbia. This SOR requests the following specific operations:

- Assume initial pool elevations relative to Sunday, April 21, 2002. Operate appropriate reservoirs to meet BiOp flow targets at McNary Dam (260 Kcfs) and Priest Rapids (135 Kcfs) as well as meeting the criteria for Hanford Reach flows. Any flow reduction should be accompanied by an appropriate fluctuation rate to reduce stranding in the Hanford reach as well as reducing the risk of slope failure due to rapid flow fluctuations. At the current flow rates of about 130 Kcfs at Priest Rapids, that would be a band of no more than 24 hours, which would equate to a change of no more than approximately 1.2 feet.

Lorz said CRITFC is hoping that it will be possible to use at least some water from Banks Lake (between full and 5 feet from full) to help keep flows up in the lower river. Lorz noted that recreational impacts would be minimized at this time of year; Norris replied that he does not believe there is much flexibility in Banks Lake operations, given the myriad of users with whom operational changes would need to be coordinated.

Scott Bettin suggested the following Grand Coulee operation: meet a minimum flow of 135 Kcfs at Priest Rapids (on a weekly average) while drafting Grand Coulee gradually to elevation 1240 over the next 7 to 10 days, and hope that the freshet begin in the interim. If that occurs, said Bettin, McNary flows would likely be about 200 Kcfs on a weekly average, until the additional Grand Coulee volume is exhausted. Bettin noted that the Dworshak operation is fixed until mid-May. In response to a question, Ningjen Liu said he does not know what Brownlee's planned operation will be in the next week or two. The only way we can provide additional water to the Lower Columbia is through additional Snake River flow, Bettin said; the problem is that we can't push Snake River flows much higher because of the turbine outage situation at Lower Granite. He added that any additional discharge from Libby or Hungry Horse would be trapped in the lakes immediately downstream from those projects, which are currently on fixed discharge.

Ron Boyce reiterated Oregon's position that this is a critical time in the 2002 outmigration, and that it is extremely undesirable, from a biological perspective, to decrease lower river flows now. The bottom line is that this is a natural recession, and we really don't have any options, until the freshet begins, to keep flows up to meet the target at McNary, Bettin replied. NMFS believes it would be possible to meet at least 225 Kcfs at McNary until the freshet begins, if we draft Grand Coulee below 1240 feet, said Chris Ross.

If we go below 1240 feet, can we mitigate for those cultural impacts? Lorz asked. We take our tribal trust responsibilities very seriously, Norris replied; even at the current elevation of 1245 feet, there are problems with burial sites being exposed. We are talking with the tribes about ways to mitigate for those impacts, said Jim Fodrea; there are also impacts on resident fish, irrigation and power. Our obligation under the BiOp is to provide spring flows until refill begins, then to provide such flows as are possible while refill occurs. We are concerned about fish, said Fodrea; we are also concerned about potential refill failure if we release too much water at this time.

Boyce said his understanding is that Grand Coulee refill is not an issue this year. I would agree that the probability of refill failure at Grand Coulee is low this year, Fodrea replied; however, there are years in the historical record when refill failure has occurred at this runoff volume. From a strictly anadromous fish standpoint, the operation you're advocating makes sense, Fodrea said; again, however, there are other factors and river uses that have to be considered, in particular, the fact that 1240 feet is already lower than what Reclamation told the tribes would be called for under Reclamation's BiOp obligations. For that reason, Reclamation has made the decision to cut off the Grand Coulee draft at 1240 feet. The decision has been made, Fodrea said; it would be more productive for you to turn your discussion to how best to use the available five feet in Grand Coulee volume.

What about the Banks Lake operation – is that off the table too? Lorz asked. I don't have a good answer for you today, Fodrea replied; we'll continue to discuss the 50-60 KAF that might be provided if Banks Lake were drafted to five feet from full. We'll find out if there is some flexibility to do anything at Banks Lake; for the purposes of today's decision, he said, it would be best to assume that no flexibility exists in the Banks Lake operation. He noted that there is also a bass fishery currently underway on Banks Lake. Not to be cynical, said David Wills, but I'm not sure how Reclamation can justify putting the needs of Banks Lake bass fishermen above its treaty trust responsibilities and the needs of listed anadromous species.

The discussion then turned to expected Priest Rapids and McNary flows under Reclamation's proposed operation; Fodrea noted that one foot of Grand Coulee elevation is equivalent to 5 Kcfs in flow for one week.

Does NMFS concur with Reclamation's proposal? Boyce asked. We think it buys us some time, particularly for Mid-Columbia steelhead, Ross replied. We support maintaining a minimum Priest Rapids minimum flow of 135 Kcfs, and flows of 190-200 Kcfs at McNary for as long as possible. After that, he said, we'll just have to pray for warm weather and rain.

Cathy Hlebechuk distributed a pair of SSARR runs, showing expected flows under various Grand Coulee operational scenarios. Essentially, what we're proposing is to draft to elevation 1240 over the next 10 days, with a week-average flow objective of 135 Kcfs at Priest Rapids Dam, Bettin said. In response to a question from Wills, Fodrea said whether or not Grand Coulee begins to refill after it reaches 1240 feet, or whether the project passes inflow, is up to the TMT to decide. In response to another question from Wills, Bettin said the intent is to touch elevation 1240 ten days from now, and if Grand Coulee inflow increases, that additional volume will be passed downriver in addition to the volume above elevation 1240.

After a brief caucus break, Wills said the salmon managers had agreed that the plan they would like to see is 135 Kcfs at Priest and 220 Kcfs at McNary; that is our preferred alternative, he said, but given the fact that Reclamation is unwilling to go below 1240 feet, we endorse Reclamation's proposal to maintain 135 Kcfs at Priest Rapids and

draft to elevation 1240 feet by May 12. If the freshet does not begin by that date, Wills said, we will need to revisit the operation.

In response to a question from Lorz, Fodrea said that, last year, when Grand Coulee was drafted to elevation 1218, Reclamation did not provide mitigation because it was a power system emergency. There was some mitigation, in terms of additional monitoring and enforcement, to help alleviate tribal cultural resources concerns, Fodrea said. Gary Sims said he will explore what sort of mitigation the tribes would need, and what concerns they would have, if, in fact, there is a desire to draft Grand Coulee below elevation 1240 once that elevation is reached on May 12. Generally, said Fodrea, cultural resources mitigation takes the form of additional manpower and patrols.

We will have further discussion on the cultural resources issue next week, said Silverberg; in the interim, I hear grudging acceptance of the operation outlined above. Norris said he will try to find out what, if any, flexibility exists to use Banks lake storage to provide some additional downstream flow, and will report back at the next TMT meeting. The only other issue is SOR 2002 C-4, said Bettin; the action agencies agreed to operate Bonneville in the top 1.5 feet of its operating range. If you can give us prior warning of any large flow fluctuations, Lorz said, we would appreciate it.

With that, the conference call was adjourned. Meeting summary prepared by Jeff Kuechle, BPA contractor.

**TMT ATTENDANCE LIST  
MAY 2, 2002**

<b>Name</b>	<b>Affiliation</b>
Scott Bettin	BPA
Ron Boyce	ODFW
Mike Buchko	PowerX
Jim Fodrea	Reclamation
Kim Fodrea	BPA
Russ George	Water Management Consultants Inc.
Greg Haller	Nez Perce Tribe
Robin Harkless	Facilitation Team
Cathy Hlebechuk	COE
Ningjen Liu	IdaCorp Energy
Tom Lorz	CRITFC
Tony Norris	Reclamation

Lori Postlethwaite	Reclamation
Chris Ross	NMFS
Jim Ruff	NMFS
Shane Scott	WDFW
Donna Silverberg	Facilitation Team
Gary Sims	NMFS
Dave Statler	Nez Perce Tribe
Bill Tweit	WDFW
David Wills	USFWS

## TECHNICAL MANAGEMENT TEAM

BOR: Tony Norris\Lori Postlethwait      BPA: Scott Bettin\Rick Pendergrass

NMFS: Paul Wagner\Chris Ross      USFWS: David Wills\Howard Schaller

OR: Ron Boyce      WA: Shane Scott      ID: Steve Pettit      MT: Jim Litchfield

COE: Cindy Henriksen\Cathy Hlebechuk\Rudd Turner

## TMT MEETING

**08 May 2002      0900 - 1200 hours**

**Custom House      Room 118  
Portland, Oregon  
Conference call line: 503-808-5190**

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

## AGENDA

1. Welcome, introductions.
2. Hanford reach/Vernita Bar update (Grant PUD).
3. Water Supply forecast and weather update (NWRFC)
4. [Water Management Plan](#).
  - comments
  - [Spring / Summer update](#)
5. Spill priority list
6. McNary service bridge removal contract update.
7. Review current system conditions.
  - fish migration status including chum emergence (NMFS, USFWS)
  - reservoir operation, water supply, power system, water quality (COE, BOR, BPA)
8. Snake River fish operations
9. Updates from Idaho Power
10. Review operations requests.
11. Develop recommended operations.
12. Other.
  - set agenda for 22 May TMT meeting

*Questions about the meeting may be referred to Cindy Henriksen at (503) 808-3945, or Rudd Turner at (503) 808-3935.*

# COLUMBIA RIVER REGIONAL FORUM

## TECHNICAL MANAGEMENT TEAM

May 8, 2002

### FACILITATOR'S SUMMARY NOTES ON FUTURE ACTIONS

Facilitator: Donna Silverberg

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

#### **Hanford Reach/Vernita Bar Update:**

Chris Carlson reported on discharges out of Priest Rapids for April 22 through May 5. As requested, he added the average length and range of fish to his web-posted report. The fish are about the same size as when he last reported, roughly 43 mm. Emergence ended on April 25. The Grant County PUD's are working to minimize impacts to fish and smooth operations out, as there was a misunderstanding between the dispatcher and operators on April 29.

The USFWS reminded the group that USFWS, WDFW ([see clarification below](#)) and CRITFC don't agree with the Grant PUD's fish and flow management plan. USFWS stated that they do not feel the samplings are representative of fish in the reach.

[Clarification from Mr. Shane Scott, WDFW TMT representative: The WDFW is in support of the agreement. The WDFW was a partner in negotiating this agreement with various natural resource entities and Grant County PUD.](#)

#### **Water Supply Forecast:**

The River Forecast Center did not attend today's meeting, but data can be found on their website. Cathy Hlebechuk reported that the forecasts at Grand Coulee, the Dalles and Dworshak are up, Libby's forecast is down slightly, and Lower Granite remains at 81% of normal. The temperature forecast is uncertain.

#### **Water Management Plan (WMP):**

**Action:** The COE will send an email out to TMT when the WMP "comments" have been finalized, which should be next week. The COE's final draft of the Spring/Summer update was handed out. It includes updated histograms, the family of curves, and HYSSR model runs. Comments are welcome from TMT members. Oregon will send comments to the COE in two weeks.

#### **Spill Priority List:**

Dick Cassidy reported that the spill priority list has not changed from the last TMT discussion. It is as follows: The Dalles, Bonneville, Little Goose, Ice Harbor, John Day,

Lower Granite, and McNary. No forced spill is occurring, but modified patterns are in place at McNary for bridge work that is being done.

BPA asked the group to consider what the operation priority list should look like in the emergency event that spill would need to be cut. TMT will discuss this at the next meeting.

### **McNary Bridge Removal and Spill:**

Due to problems, the COE expects bridge removal work at McNary to be completed Friday, May 10. Cathy H. noted that BPA has done a “fantastic” job of coordinating with the COE on this. She will continue to email any updates to TMT members.

### **Idaho Power Updates:**

Jon Bowling reported that Brownlee is currently ten feet from full and working to refill to 2077'. The current operating plan is to draft no more than one foot from the highest elevation for the thirty-day spawning period (beginning May 20) of resident fish. The project may fill, but the one foot drafting range will remain. Idaho Power will then try to keep Brownlee full through June and July and save storage for August. Idaho Power asked about the possibility of a flow augmentation shaping agreement with BPA. BPA's position is still where it was in 2000; it is waiting for the completion of the Biological Opinion by NMFS for the operation of IPC facilities before deciding on whether to enter into a new shaping agreement. NMFS and Oregon feel the water out of Brownlee would be most beneficial to fish if released in July. TMT would like further clarification on the Brownlee issue and clarification of Idaho Power's choice to save water until August. At this time, unless there is an agreement to do otherwise, Idaho Power will draft to optimize the value of energy produced. Once Brownlee fills, the BOR water being released will pass through Brownlee. TMT members appreciated the input from Jon and hope to have further discussions with him as the season continues.

**Action:** Paul Wagner will report back to TMT on the status of the NMFS Biological Opinion with IPC.

**Action:** Tony Norris will provide the Salmon Managers with the BOR's spreadsheet for shaping water at Brownlee in August.

Tony reported that the BOR plans to spill roughly 300 KAF out of Lucky Peak. He will provide further information (e.g. fish benefits) to TMT at the next meeting.

### **Fish Status:**

**Adults:** Many adult spring chinook have passed the Bonneville project (199,270!). The group discussed apparent effects of Bonneville spill and a fallback study on the movement of fish. The salmon managers have asked the University of Idaho to review this, as will NMFS. The delays are causing some concern, but everyone agreed that the information provided by the studies is needed.

Pat Frazier, ODFW, discussed chum emergence. The numbers slowed down during the last half of April. He believes the chum emergence has ended.

**Action:** The COE will change the spill teletype which has been holding elevations at 16.5', and remove this restriction. ODFW will work up the numbers for date of emergence completion and present it at the next TMT meeting.

**Juveniles:** The Upper Columbia steelhead ESU is of great concern to the salmon managers. They would like to see these fish pass through the system as quickly as possible, as they took a huge hit last year. Numbers for steelhead and yearling chinook increased on May 4; many more are still to come.

**Flows in the Mid-Columbia:**

The salmon managers are wrestling with balancing upriver and downriver fish needs and erratic weather and water to support them all. They posed the question to TMT of how to manage Grand Coulee given current conditions. The Biological Opinion calls for 220-260 kcfs flow range at McNary, but with well below normal temperatures throughout the basin resulting in a dramatic drop in natural flows this cannot happen without drafting Grand Coulee deeper than elevation 1240.

After discussion, the salmon managers recommended the following operation: a minimum flow of 135 kcfs at Priest Rapids including weekend operations; use the 4 feet of available water at Grand Coulee to maintain 220 kcfs flow target at McNary but try to stretch the volume into next week unless the freshet begins.

Although the action agencies could not commit to the weekend operation of a 135 kcfs minimum without Grant County on board or commit to meet the 220 kcfs flow at MCN without going below 1240 unless greater than predicted snow melt occurs, they did understand the request and will attempt to meet the proposal. TMT members will touch base on operations over a conference call Monday, May 13 at 3 pm. The call-in number will be posted on TMT's web site.

**System Status Update:**

**Reservoir operations:** Lower Granite will have problems at Unit 1 for 4-8 weeks. Unit 5 should be back online in mid-June. The powerhouse capacity will be around 80k during that time. There is a proposal out to extend the RSW test by six days – no objections were raised at the FFDRWG meeting last week.

Kyle Martin reported that the tribes might request one last commercial fishery for the season, this Friday and possibly Saturday. He will send an SOR out as soon as it is available.

**Power: Action:** Scott Bettin will send a proposed emergency spill shutoff list (in the event one is needed) to Ron Boyce for discussion at the next FPAC meeting.

Water Quality: The COE is working to understand why gas levels crept up to above gas waiver levels at Lower Monumental. They took necessary actions to reduce the levels, but it is yet unclear why they rose. Dick Cassidy will update TMT when they have more certainty.

**Other:**

Lower Granite:

The downstream lock sill elevation is 618'. The COE has a navigation requirement to have at least a 633' tailwater elevation so there is at least 15' of water at all times. When flows are low the tailwater has been going below 633'. In order to provide the required water, the COE must increase the Little Goose operating range to 634' – 635'. As flows increase, the COE will evaluate the situation and reduce the Little Goose operating range accordingly.

**Next Meeting, May 22:**

Agenda items:

- Hanford Reach/Vernita Bar Agreement
- Water Supply Forecast
- Review Current System Conditions
- Review Spring Treaty Fishing
- WMP Final Comments and Spring/Summer Update Comments
- Boise Water Information
- Status of Biological Opinion on Idaho Power Operations

**TECHNICAL MANAGEMENT TEAM  
MEETING NOTES  
May 8, 2002  
CORPS OF ENGINEERS NORTHWESTERN DIVISION OFFICES – CUSTOM  
HOUSE  
PORTLAND, OREGON**

**TMT Internet Homepage: <http://www.nwd-wc.usace.army.mil/TMT/index.html>**

# **DRAFT**

## ***1. Greeting and Introductions***

The May 8 Technical Management Team meeting was chaired by Cathy Hlebechuk of the Corps and facilitated by Donna Silverberg. The following is a distillation, not a verbatim transcript, of items discussed at the meeting and actions taken. Anyone with questions or comments about these minutes should call Hlebechuk at 503/808-3942.

## ***2. Hanford Reach/Vernita Bar Update.***

Chris Carlson said that, for the week of April 22-28, average flow at Priest Rapids was 164 Kcfs; the average fork length of the fish captured during index seining (40 in all) was 42.9 mm, unchanged from the previous week. A total of eight juvenile fall chinook were found during random sampling, three of which were mortalities. Carlson noted that the operation changed from a 150 Kcfs minimum to a 40 Kcfs flow band over the weekend. The end of emergence occurred on April 25, he added.

For the week of April 29-May 5, the 150 Kcfs minimum was in effect on April 29 and April 30, Carlson said, although, due to operator error, the average flow on Monday was only 113.8 Kcfs. We went to a 60 Kcfs flow band for May 1-3, he said; on May 2, the difference between minimum and maximum flows was 93 Kcfs, again due to operator error. Average flow for the week was 148 Kcfs. We went to a 40 Kcfs flow band on Saturday and Sunday, he said. A total of 15 random sites were monitored this week, Carlson said; a single juvenile fall chinook was found. A total of 241 fish were sampled during our index sampling, average fork length 45.5 mm. As of May 5, we're at 81 temperature units toward the 400 needed before the end of the fish protection operation; water temperatures have been running in the 8-degree C range, said Carlson, about one degree less than the average for this date.

The operators still look like they could do a bit better, observed Paul Wagner – I hope you're working on that? We certainly are, Carlson replied – coordinating the switch between project minimum flow and the various flow bands is not a simple operation, and when something does happen, we're working as hard as possible to minimize the impact on fish. Don Anglin noted that the U.S. Fish and Wildlife Service does not feel that the

sampling program implemented by Grant County PUD this year is representative of the true stranding and mortality picture in the Hanford Reach. In response to a question from Scott Bettin, Anglin said he does not have any hard physical evidence on which to base that assessment.

### ***3. Water Supply Forecast and Weather Update.***

Cathy Hlebechuk reported that the TMT website was updated this morning to reflect the May final forecast; the forecast went up about 2% at Grand Coulee and The Dalles. The May final forecast is 98.2 MAF at The Dalles, 92% of normal, and 62.3 MAF at Grand Coulee, 99% of normal. The Corps has revised the Libby forecast downward to 6.2 MAF, 97% of average; at Dworshak, upward slightly to 3.2 MAF, 127% of average. At Lower Granite, the May final forecast is 24.2 MAF, 81% of normal, the same as the April final forecast.

With respect to the weather forecast, Hlebechuk said the current 10-day forecast shows little or no prospect of significant warming or precipitation. Keith Underwood noted that Spokane received 17 inches of snow yesterday; parts of the Idaho mountains received more than 20 inches. Overall, at least for the next 10 days, the weather is expected to be mild to cool, which means that, if this forecast is correct, the freshet will continue to be delayed.

### ***4. 2002 Water Management Plan.***

Rudd Turner said the Corps attorneys have now commented on the 2002 Water Management Plan; once the legal comments are received from Reclamation and BPA, he said he will make the final draft available via the TMT website, and will send out an email to the TMT membership letting them know when that posting occurs, probably next week.

Turner also distributed a final draft of the spring/summer update to the 2002 WMP, and went briefly through the changes that have been made to this document. Ron Boyce asked whether there will be an opportunity to comment on the update; Turner replied that the Corps requested comments at the TMT meeting two weeks ago, and has yet to receive any. My understanding was that the update would be posted to the website when available, and that comments would be submitted either orally or in writing, Boyce said. We'll still respond to your comments, if you want to submit them, said Tony Norris. So this is a final draft of the update, then? Shane Scott asked. Turner stated that the COE considers this our final crack at this, but if you want to comment, feel free. I'll provide any comments within two weeks, said Boyce.

### ***5. Spill Priority List.***

Dick Cassidy said there had been some talk of the salmon managers re-prioritizing the current spill priority list of The Dalles-Bonneville-Little Goose-Ice Harbor-John Day-Lower Granite-McNary. Boyce said the salmon managers have not

decided what, if any, changes need to be made. Has there been any forced spill anywhere? Boyce asked. No, Bettin replied, although fish spill is occurring; there has been some spill occurring at McNary at night due to the ponding for the bridge removal work. If an emergency does occur, such that more capacity is needed, where would the salmon managers prefer to cut spill first? Bettin asked. We'll discuss that at next Tuesday's FPAC meeting, Boyce replied.

#### ***6. McNary Service Bridge Removal Contract Update.***

There are four bridges to be removed, said Hlebechuk; it was supposed to be an easy thing, with the last bridge scheduled for removal today. Of course, it's never that simple, she said; the contractor was unable to get underneath the bridge in Bay 2 last week, and had to move on to the bridge over Bay 21. They got 21 out on Monday, she said, got 2 off yesterday, will remove the bridge over Bay 1 tomorrow, and should have the bridge over Bay 22 out by this Friday. The removal operation is requiring us to reduce flows at McNary, Hlebechuk said. There is also another problem, said Bettin – the hoists in Bays 1, 2, 21 and 22 have failed, so they're unable to spill from those bays. We need to check on that, said Hlebechuk; we'll find out the details of what's going on, and will send out an email to the TMT membership.

#### ***7. Current System Conditions.***

Wagner said adult chinook passage at Bonneville has improved since the last meeting of this group; right after our last meeting, adult passage jumped to 16,000 fish per day, then to 27,000 fish per day, he said. We're currently at 199,270 fish passed, which compares to a 10-year average of 56,000 fish by this date; in short, the adult picture looks a lot better than it did the last time we looked at this information, said Wagner.

Boyce said there is some concern among harvest managers that the spill test may be causing delay in adult passage at Bonneville; he said it has been suggested that the University of Idaho investigate the incidence of fallback at Bonneville this year. Bettin noted that the fish seem to be avoiding passage on high-spill days and waiting for the lower spill days. That may be all it is, Boyce agreed; however, there may be a request for a more formal investigation of the effects of the Bonneville spill test on adult passage.

The group devoted a few minutes of discussion to this issue; ultimately, Wagner reiterated that the issue is under investigation, and further reports will be provided as more information becomes available. Boyce said that, in his view, the juvenile passage information provided by the Bonneville spill test is too important to suspend the test simply because it may be causing a few days of delay in adult passage at Bonneville.

Pat Frazier from ODFW then updated the group on the current status of chum emergence; he noted that seining catches have fallen steadily since mid-April, and the feeling is that, for all intents and purposes, chum emergence is now complete in the Ives/Pierce Island complex. The bottom line is that there is no longer any impact in

Bonneville operations on emerging chum and chinook, Boyce said. Does TMT agree that the COE can issue a new teletype to the project, eliminating the need to maintain a minimum tailwater depth? Rudd Turner asked. Yes, was the reply. In response to another question, Frazier said he will calculate the end of emergence at the Ives/Pierce Island complex and will provide that date to the Corps.

Moving on to current combined juvenile passage indices, Wagner said that, at McNary, the hot topic of the moment is flows in the Mid-Columbia and the need to maintain higher flows to provide good passage conditions for listed Upper Columbia steelhead through the Hanford Reach. These fish really took a licking last year, Wagner said; we don't want to see that happen again this year. We have a window of approximately three weeks, beginning now, when Upper Columbia steelhead outmigrate successfully. We've only seen 2% of the predicted total run to date, he said; we want to see the project operators provide good passage conditions for these fish over the next three weeks.

At Lower Granite, Wagner continued, juvenile chinook passage is generally on the rise; Little Goose is following more or less the same pattern. We're seeing more fish at Lower Monumental this year than we have in years past, he said; the RSW appears to be doing an amazing job of passing fish. Turner noted that there is no spill at Lower Monumental this year, causing inriver migrants to move through the powerhouse and juvenile bypass facilities. Passage at Ice Harbor is slow to date, pretty good at McNary, John Day, The Dalles and Bonneville, Wagner said. Wagner also touched on juvenile steelhead passage indices, noting that, in general, steelhead passage is lower than expected for this date.

So it's fair to say that we have a lot of fish in the system, currently, with a lot more still to come? Boyce said. That's correct, Wagner replied.

The next major issue to discuss is Mid-Columbia flows, said Wagner; as you're aware, the current elevation at Grand Coulee is just over 1243 feet, and Reclamation has expressed their intention to draft that project no lower than 1240 feet in 2002. This fact, combined with a somewhat erratic runoff pattern to date, has made for some interesting challenges, in terms of maintaining reasonable flows at Priest Rapids and McNary. The predicted week-average flow at McNary is 214 Kcfs this week, less than the 240 Kcfs target in the BiOp; achieving that average flow will require the full four-foot draft at Grand Coulee, which means lower flows next week, Wagner said. He noted that inflows to Grand Coulee have been somewhat higher than expected recently; NMFS has been talking with Reclamation, the upriver tribes and with the other salmon managers about what to do.

Where we are currently is that we have agreement that a minimum flow of 135 Kcfs will be maintained at Priest Rapids, during the week and on the weekend, said Wagner; we will use the available volume at Grand Coulee to keep McNary flows as close as possible to 220 Kcfs. We would like to retain a portion of the Grand Coulee volume to keep flows up through the first part of next week, at which point we can

discuss the operation again, Wagner said. Maintaining 135 Kcfs as a minimum at Priest Rapids shouldn't be a problem over the next week, Wagner said; he added that he will coordinate this operation with Grant County PUD. What are the prospects of meeting the 220 Kcfs at McNary through the weekend? Boyce asked. Given the uncertainty in the forecast, and the lack of an agreement with Grant County PUD, we can't make any guarantees, Bettin replied; we can, however, agree to 220 Kcfs as a target at McNary. Kyle Martin noted that the next four to five days are the most critical; his view of the current weather forecast is that air temperatures should begin to warm next week, causing inflows to rise. Boyce suggested a TMT conference call at 1 p.m. on Monday afternoon to review current weather conditions; it was so agreed.

So we will continue to draft Grand Coulee through the weekend? Litchfield asked. If necessary, Wagner replied – as I mentioned earlier, inflows to the project were higher than expected last week, so hopefully that will continue, and we won't have to draft the project as much as we thought. Turner reiterated that this recession in flows is a natural event, and is not due to project operations. Hlebechuk added that the current Dworshak outflow will be reduced from its current level of 14 Kcfs beginning May 16, so that the project can begin to refill.

Rudd Turner reminded everyone that what we are seeing is a natural recession in flows prior to the start of the freshet/snow melt period. Scott and others agreed that this was a useful perspective to keep in mind.

Wagner touched briefly on the current cumulative juvenile passage indices for steelhead and chinook; he said that, in general, the cumulative indices are on the rise, and are poised for takeoff.

Vern Perry reported on the status of the Lower Granite unit outage; they have confirmed that there is a fault in the winding of Unit 1, and are removing the shrouds today, he said. They'll be testing through early next week to see whether it's something they can repair, Perry said; depending on how bad the fault is, it could take at least a month and as much as three months to get the unit back on line. Unit 5 should be back on-line by June 20, Perry said. That gives us a Lower Granite powerhouse capacity of about 92 Kcfs? Steve Pettit asked. It's closer to 80 Kcfs if we stay within 1% peak efficiency, Perry replied. How much can we spill at Lower Granite and stay within the gas cap? Boyce asked. With the RSW in operation, we can spill up to 63 Kcfs and still stay within the gas cap, Hlebechuk added. The longer it stays cold, the higher the spike will be when runoff finally begins, Pettit observed. What if flows at Lower Granite hit 200 Kcfs? The RSW should be able to stay in the water up to about 300 Kcfs, Bettin replied. In response to another question, Turner said the Corps is planning to extend the Lower Granite RSW test by one week, due to the disruption caused to the test by the unit outages at Lower Granite. Any chance of accelerating the repairs at Unit 1? Boyce asked. One month is the soonest we can do, Perry replied.

Hlebechuk reported that the last seven day's average flows at Lower Granite, McNary and Priest Rapids were 73 Kcfs, 224 Kcfs and 148 Kcfs, respectively. Libby is at

elevation 2382 feet and releasing 4 Kcfs; outflow will be increased to 8 Kcfs beginning May 15. Albeni Falls is at elevation 2056, releasing 28 Kcfs, and on track to refill by June 30. Dworshak is at 1515 feet, has filled a little over a foot since May 1, and is releasing 14 Kcfs. The plan at this point is to reduce outflow from Dworshak to just over 3 Kcfs beginning May 16, she said; that should allow us to refill the project by June 30. We will re-assess that operation next week, said Turner; we may want to keep discharge up at that project a bit longer, given the fact that the runoff forecast keeps edging up at that project.

The current Hungry Horse elevation is 3515 feet, said Tony Norris; we plan to increase discharge from Hungry Horse next week from 6.2 to 7.2 Kcfs to avoid spill at that project. He added that Reclamation is unwilling to consider drafting Banks Lake at this time, due to heavy recreational use on that reservoir over the next several weeks. What's the minimum elevation needed to maintain full use of all the boat ramps? Boyce asked. We need an elevation of at least 1567.5 feet, Norris replied; otherwise the businesses around the lake begin to suffer.

Will there be any more treaty fishing seasons? Bettin asked. They're having a Compact conference call as we speak, Martin replied; it looks like we'll have a one- or two-day commercial fishery later this week, and that it will be the last of the year. He said an SOR covering the fishery will be submitted to the action agencies once that decision is made.

Bettin said everything is fine, with respect to the status of the power system. Moving on, Cassidy said the most recent water quality information is available via the TMT homepage; in general, there have been a few exceedances at McNary and Lower Monumental over the past two weeks, caused by restrictions imposed by the bridge removal work at McNary, and by an unknown cause, possibly relating to 24-hour spill at Little Goose, at Lower Monumental. In response to a question from Boyce, Cassidy said the Corps has been adjusting the Little Goose spill volume both upward and downward in an effort to meet the 115% forebay TDG standard at Lower Monumental.

### ***8. Snake River Fish Operations.***

This topic was covered during a previous agenda item.

### ***9. Idaho Power Update.***

Jon Bowling of IPC described recent changes to the Idaho Power organization; in response to a question from Boyce, Bowling said he can be reached at 208/388-2905. Bowling reported that Brownlee is currently at 2067 feet, 10 feet from full; we're starting to refill from 2064, the May 1 flood control elevation. We should be released from our 9 Kcfs fall chinook minimum flow on May 15, said Bowling; at that point, emergence will essentially be complete. Brownlee inflows are currently 14 Kcfs-15 Kcfs, which is pretty low for this time of year. As soon as the fall chinook minimum flows end, we may begin some flushing flows to move the fry out, said Bowling, raising flows to 11 Kcfs for a

certain period each day. That may or may not occur, said Bowling; we're talking with the Fish and Wildlife Service right now.

Once the fall chinook protection operations end, said Bowling, our plan is to get Brownlee full as quickly as possible. He noted that, whatever Brownlee's project elevation is on May 20, Idaho Power has a self-imposed draft limit of one foot over the next 30 days, to protect resident fish spawning in the reservoir. We can, however, fill, he said; again, the plan is to refill as soon as possible, and stay full as long as possible, at least through July. We will draft the project only for emergencies and to meet load, he said, saving our storage until August.

In the absence of an agreement with BPA, said Bowling, we will operate the project for power. The status of the agreement is that it is in limbo, currently, he said; the company's position is that if BPA wants to send us a reasonable proposal, we're willing to look at it, and work with BPA to get it done. What is the status of the agreement, from BPA's standpoint? Boyce asked. We're waiting to see how NMFS assigns responsibility for this operation through its Hells Canyon Biological Opinion, said Bettin. My understanding is that the BiOp has been on hold for some time, pending the outcome of other negotiations, said Wagner – there is a conceptual disconnect between water being provided for salmon flows, but then impounded and used for power generation. Bowling said that, as long as Brownlee is full, any water that is provided from the Upper Snake will be passed through.

What issues need to be resolved in order for the Snake River BiOp to be finalized? Kyle Martin asked. I'm not sure, but I'll try to find out, and will report back at the next TMT meeting, Wagner replied. How much water would have to be shaped in order to be fully delivered from the Upper Snake? Boyce asked. We expect our total Upper Snake contribution to be 300 KAF this year, Norris replied – most of that is coming out of the Boise and Payette systems. We have started a release of 300 cfs above what we would normally be releasing from Arrow Rock and Lucky Peak reservoirs for resident fish, Norris said; that will total approximately 60 KAF if it runs through August. I'm unaware of the biological basis for that operation said Boyce – could you provide some further information about which species you're trying to protect, and what this water is intended to provide biologically? It was agreed that Norris will provide an update at the next TMT meeting.

Boyce said the salmon managers would prefer to release water from Brownlee earlier in the season, and release water from Dworshak later in the season, due to temperature concerns. Norris reiterated that, in the absence of a BPA/IPC agreement, there is little flexibility to accomplish that requested operation. And absent that agreement, the likely operation will be to fill Brownlee by July 1, pass inflow and maintain full pool through July, then begin drafting for power production after August 1? Wagner asked. That's correct, Bowling replied.

#### ***10. New System Operational Requests.***

No new System Operational Requests were submitted prior to today's meeting.

**11. Recommended Operations.**

Recommended operations were discussed during a previous agenda item.

**12. Other.**

**A. Little Goose Pool Operations.** There is a problem in the Lower Granite tailwater, said Hlebechuk; we need at least 15 feet of water over the sill for navigation, which means a pool elevation of at least 633 feet. We have dropped slightly below that elevation frequently in recent weeks, Hlebechuk said; at lower flows, this problem tends to occur daily, and we need to correct it. Our plan is to raise Little Goose's minimum forebay elevation by one foot, from 633 feet to 634 feet, she said – that's one foot above MOP. It's a safety issue, she said; if we don't have 15 feet of water over the sill, barges can bump. After a brief discussion, no TMT objections were raised to this operation; Hlebechuk said the Corps will revisit this operation once Snake River flows begin to rise, and will let the TMT know when changes occur.

**13. Next TMT Meeting Date.**

It was agreed to convene a TMT conference call at 1 p.m. Monday, May 13. The next face-to-face meeting of the Technical Management Team was set for Wednesday, May 22. Meeting summary prepared by Jeff Kuechle, BPA contractor.

**TMT ATTENDANCE LIST  
MAY 8, 2002**

<b>Name</b>	<b>Affiliation</b>
Don Anglin	USFWS
Scott Bettin	BPA
Brian Black	Spokane Tribes
Ron Boyce	ODFW
Mike Buchko	PowerEx
Ruth Burris	PGE
Chris Carlson	Grant County PUD
Dick Cassidy	COE
Larry Drew	PP&L
Margaret Filardo	FPC
Russ George	Water Management Consultants Inc.

Laura Hamilton	COE
Scott Hanson	BPA
Richelle Harding	D. Rohr & Associates
Robin Harkless	Facilitation Team
Cathy Hlebechuk	COE
Tim Heizenrater	UBS
Jiong Ji	Avista Energy
Jim Litchfield	Consultant (Montana)
Kyle Martin	CRITFC
Kevin Nordt	PGE
Brian Norgard	TransCanada Power
Tony Norris	USBR
Mike O'Bryant	Columbia Basin Bulletin
Rick Pendergrass	BPA
Steve Pettit	IDFG
Dennis Rohr	D. Rohr & Associates
Shane Scott	WDFW
Donna Silverberg	Facilitation Team
Craig Sprankle	Reclamation
Rudd Turner	COE
Keith Underwood	Spokane Tribe
Paul Wagner	NMFS
Steven Wallace	PacifiCorp

## TECHNICAL MANAGEMENT TEAM

BOR: Tony Norris\Lori Postlethwait      BPA: Scott Bettin\Rick Pendergrass

NMFS: Paul Wagner\Chris Ross      USFWS: David Wills\Howard Schaller

OR: Ron Boyce      WA: Shane Scott      ID: Steve Pettit      MT: Jim Litchfield

COE: Cindy Henriksen\Cathy Hlebechuk\Rudd Turner

## TMT CONFERENCE CALL

**13 May 2002      1500 - 1700 hours**

**Custom House      Room 118  
Portland, Oregon  
Conference call line: 503-808-5190**

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

### AGENDA

1. Welcome, introductions.
2. Updated weather/flow forecasts / Grand Coulee operation / Dworshak operation (All)
3. Other.

*Questions about the meeting may be referred to Cindy Henriksen at (503) 808-3945, or Rudd Turner at (503) 808-3935.*

# COLUMBIA RIVER REGIONAL FORUM

## TECHNICAL MANAGEMENT TEAM

May 13, 2002

### FACILITATOR'S SUMMARY NOTES ON FUTURE ACTIONS

Facilitator: Donna Silverberg

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

#### **Water Supply Forecast:**

Dave Westnedge from the National Weather Service reported that a low pressure trough will cause below normal temperatures that are expected to last from Friday through the middle of next week. Although it is difficult to predict that far out, he said no warming is likely until the first part of June. He expects the runoff peak to occur around June 10 to 14.

#### **Current Operations:**

TMT discussed current system operations. Cathy Hlebechuk reported that discharge out of Libby is expected to increase Wednesday, May 15, as requested by the USFWS for bull trout operations. Idaho Fish and Game will complete their entrainment study at Dworshak Thursday night; the COE plans to reduce releases out of Dworshak Friday through June 30 for refill. Tony Norris reported that Grand Coulee's operating plan has not changed from last week, which is to meet Priest Rapids flows and target 220 kcfs at McNary as much as possible. The minimum at Grand Coulee remains 1240' (unless flows at Priest Rapids cannot be met). There were concerns that weekend flows were low at McNary. Scott Bettin said that Biological Opinion requirements caused the fluctuation in flows.

Bridge removal work at McNary was completed Saturday. Four hoists still need to be fixed and there is uncertainty as to when this will be done.

**Action:** The BOR will notify TMT if flows at Priest Rapids cannot be met.

**Action:** The Salmon Managers will discuss the possibility of delaying Dworshak refill to increase flows for fish. They may develop an SOR based on this and present it at a TMT conference call Wednesday, May 16, at 1 pm. TMT members will notify their IT representatives that IT may be asked to join the call Wednesday or meet Thursday to discuss the possible SOR.

## TECHNICAL MANAGEMENT TEAM

BOR: Tony Norris\Lori Postlethwait      BPA: Scott Bettin\Rick Pendergrass

NMFS: Paul Wagner\Chris Ross      USFWS: David Wills\Howard Schaller

OR: Ron Boyce      WA: Shane Scott      ID: Steve Pettit      MT: Jim Litchfield

COE: Cindy Henriksen\Cathy Hlebechuk\Rudd Turner

# TMT CONFERENCE CALL

**15 May 2002      1300 - 1500 hours**

**Custom House      Room 118  
Portland, Oregon  
Conference call line: 503-808-5190**

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

## AGENDA

1. Welcome, introductions.
2. Grand Coulee operation / Dworshak operation (All)
3. Other.

*Questions about the meeting may be referred to Cindy Henriksen at (503) 808-3945, or Rudd Turner at (503) 808-3935.*

# COLUMBIA RIVER REGIONAL FORUM

## TECHNICAL MANAGEMENT TEAM CONFERENCE CALL NOTES

May 15, 2002

CORPS OF ENGINEERS NORTHWESTERN DIVISION OFFICES – CUSTOM HOUSE  
PORTLAND, OREGON

**TMT Internet Homepage: <http://www.nwd-wc.usace.army.mil/TMT/index.html>**

### FACILITATOR'S SUMMARY NOTES ON FUTURE ACTIONS

Facilitator: Donna Silverberg

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

#### **Grand Coulee Operation:**

TMT had a conference call Monday, May 13 to discuss operations at Grand Coulee. After discussions, the Salmon Managers met the following day to develop an SOR for TMT to consider at today's meeting. Ron Boyce summarized SOR 2002-3, which requests Grand Coulee, Brownlee and Lower Granite operations to meet minimum flow targets at McNary for the spring migration of chinook and steelhead which is currently underway.

In response to the request, Tony Norris said the BOR will draft Grand Coulee to as low as 1237' in order to meet a weekly average flow target of 220 kcfs at McNary while maintaining flows of 135 kcfs at Priest Rapids. This operation will be effective through May 24; TMT will check in at their May 22 meeting. The BOR acknowledged that the Colville and Spokane Tribes are not supportive of drafting Grand Coulee below 1240' and the BOR will make every effort to minimize the draft during this operation. The BOR and BPA will coordinate with the Tribes on cultural resource survey work being done at the reservoir.

After a caucus, the Salmon Managers expressed appreciation for the compromise and asked that 220 kcfs not be the average but rather the minimum flow at McNary.

**Action:** If a freshet occurs, the BOR will fill Grand Coulee up to 1240' and then pass inflow to help meet this request.

TMT will continue to monitor operations and will revisit the issue next week.

#### **Dworshak:**

The Salmon Managers also requested that there be a delay in dropping Dworshak to minimum outflows in order to provide flow now for migrating fish. CRITFC is concerned with refilling Dworshak in June and supports refill over spring flow operations. Kyle Martin asked TMT to be mindful of this desire and to be conservative with Dworshak outflows.

**Action:** After reviewing the SSARR runs, TMT agreed to drop Dworshak from 14 kcfs to 10 kcfs this evening and track the Dworshak operation closely to be mindful of refill targets. CRITFC expressed concern with this. TMT will reassess the operation at next week's May 22 meeting. If an error has occurred in the model runs, a TMT emergency call will be convened.

**SOR 2002-2:**

The Salmon Managers requested that Biological Opinion spill levels be maintained and that protocols for power emergency situations be followed. This request is a result of a power emergency that occurred last week in which TMT was not notified when BPA shut off spill for one hour. Scott Bettin sent power emergency actions to FPAC and asked them to prioritize the list and discuss other actions to take if a power emergency occurs. He will continue to keep Salmon Managers in the loop.

**Action:** TMT will discuss the prioritization list at the next TMT meeting.

**SOR 2002 C-7:**

Kyle Martin presented a request from the lower river Tribes to operate Bonneville pools within one foot of full for a tribal commercial fishery. The COE will operate the pool at 75'-76.5'.

**Other:**

Paul Wagner of NMFS acknowledged that Grant County operators did an excellent job of maintaining steady flows at Priest Rapids throughout the week and weekend and expressed appreciation for their efforts.

The next TMT meeting will be May 22 at 9 am. An agenda will be posted on the website.

## **Meeting Minutes**

### ***1. Greeting and Introductions***

The May 15 Technical Management Team conference call to discuss Grand Coulee operations was chaired by Rudd Turner of the Corps and facilitated by Donna Silverberg. The following is a distillation, not a verbatim transcript, of items discussed at the meeting and actions taken. Anyone with questions or comments about these minutes should call Turner at 503/808-3935.

### ***2. Grand Coulee Operation/Dworshak Operation.***

On May 14, the action agencies received SOR 2002-3. This SOR, supported by ODFW, USFWS, CRITFC, WDFW, IDFG and NMFS, requests the following specific operations:

- Provide at least the minimum juvenile fish migration flows specified in the NMFS 2000 Biological Opinion at McNary and Lower Granite Dams, utilizing Grand Coulee,

Dworshak and Brownlee operations. Meet Biological Opinion flow objectives through drafting of Grand Coulee reservoir and utilizing the options of reshaping outflows from other storage reservoirs to provide higher flows at Lower Granite and McNary Dams.

Ron Boyce spent a few minutes going through the specifications of and justification for this SOR, the full text of which is available via the TMT's Internet homepage. Please refer to this document for full details.

Boyce noted that mainstem flows are falling, at a time when the juvenile outmigration is peaking. As a result, he said, we're seeing passage indices at the mainstem projects that are only about half of what we would expect to see this week. That means significant delay and the potential for serious biological consequences for all of our juvenile outmigrants, said Boyce.

In response to a question from Scott Bettin, Boyce said the BiOp flow target at McNary is 246 Kcfs; at Priest Rapids, 135 Kcfs. Paul Wagner said NMFS' understanding is that the SOR request is that the action agencies meet the minimum BiOp flow range of 220 Kcfs at McNary; Shane Scott said that is Washington's understanding as well.

Rudd Turner noted that passage indices have actually held fairly steady in the average range this week; they have not shown a significant decline. Are we really seeing a biological impact from the current flow situation? he asked. Boyce replied that indices should be sharply increasing at this point, not holding steady; in addition, the Snake River outmigrants that have been sampled are in very poor condition for this time of year.

So 220 Kcfs is your target at McNary? Bettin asked. At minimum, Boyce replied.

Tony Norris said Reclamation is willing to provide some additional water from Grand Coulee, and plans to operate the project to produce a week-average flow of 220 Kcfs at McNary between now and May 24. If natural flows don't start to pick up, and it is necessary to draft Grand Coulee to maintain that flow, we will go no lower than elevation 1237, unless a deeper draft is required to maintain the 135 Kcfs week-average flow at Priest Rapids, Norris said, adding that the current elevation at Grand Coulee is 1241.5. That's a potential 4.5 feet of additional draft? Wagner asked. That's correct, said Norris, although we would prefer to draft less if possible. Based on our analysis, said Norris, we should be able to maintain 220 Kcfs at McNary at least through May 24, even with 1237 feet as the floor.

What is the 1237 draft limit based on? Boyce asked. That's as far as we're willing to compromise, Norris said – after the 24<sup>th</sup>, we'll talk again, if the freshet still has not begun. In response to a question from Kyle Martin, Norris said he had spoken to Keith Underwood about this operation; the Spokane Tribe is not happy with this compromise, and do not want Grand Coulee drafted below 1240 feet. Craig Sprankle said he had spoken to a representative from the Colville Tribe, and the Colvilles, too, are extremely unhappy about this operation. Will you be modifying your contract with the tribes to make more funding available for surveys and patrols? Boyce asked. There isn't time to modify the contracts, Norris replied; in addition, it's doubtful the tribes have the manpower available to do the additional surveys over the next two weeks. Actually, said Chris Ross, I spoke to the tribes and they said they do have the manpower

available. Norris said this issue will be coordinated between BPA, Reclamation and the tribes.

It sounds, then, as though there is no need to get the IT on the phone, Silverberg said -- the action agencies are willing to maintain a week-average flow of 220 Kcfs at McNary through next week. Let's just talk it through first, said Boyce -- the action agencies are willing to provide 220 Kcfs on a week-average basis through May 24, with the caveat that you will draft Grand Coulee no lower than 1237 feet by that date, unless a deeper draft is necessary to maintain the 135 Kcfs Priest Rapids week-average target. Boyce noted that 220 Kcfs is the bare-bones minimum flow at McNary for this time of year; if flows begin to pick up, will you continue to draft Grand Coulee to elevation 1237, providing flows closer to the 246 Kcfs target? he asked. No, Norris replied; again, we're willing to meet the 220 Kcfs, and if we can do so without drafting Grand Coulee all the way to elevation 1237, that would be our preference.

The group discussed whether or not an IT conference call is necessary; Boyce said that, in his view, that would be useful, but Norris replied that this decision has already been coordinated at the top echelon of the Bureau, and Reclamation is not going to change its mind. Essentially, he said, this is what we plan on doing. He added that, given the current weather forecast, he would not be in a big hurry to blow through the available volume at Grand Coulee; it doesn't look as though the freshet will be starting anytime soon, he said.

At this point, Boyce requested a caucus break to discuss the 220 Kcfs flow cap at McNary with the other salmon managers. When the meeting resumed, Boyce said the salmon managers accept Reclamation's proposal; while we're appreciative of the Bureau's willingness to compromise, said Boyce, we ask that you view the 220 Kcfs flow at McNary as a minimum flow, not a maximum. Norris replied that if the freshet begins, Grand Coulee will refill to elevation 1240, then pass inflow. Basically, if flows come up, we want the fish to enjoy the benefit from it, said Steve Pettit. Again, we won't fill Grand Coulee past elevation 1240, Norris replied. We can revisit the operation next Wednesday, said Bettin. It was so agreed. Again, said Boyce, the salmon managers appreciate the Bureau's willingness to compromise on this issue.

At Kyle Martin's request, the group next discussed Dworshak operations; Boyce noted that SOR 2002-3 also requests that the transition to minimum outflow at Dworshak be delayed. Based on the flow forecast information furnished today, it appears that the action agencies would prefer to go to minimum outflow at Dworshak as soon as possible. Why the change? Boyce asked. Turner went through the reasoning that went into the Dworshak numbers in the most recent SSARR run; he agreed that the action agencies see a need to reduce Dworshak outflow to 5.8 Kcfs this Friday, hold that outflow for a week, then reduce Dworshak outflow to minimum on Friday, May 24. Martin noted that there is a discrepancy between the current SSARR and the current water supply forecast. Hlebechuk replied that the Corps has been discussing that issue with the River Forecast Center; the feeling is that the current SSARR underpredicts the runoff volume at Dworshak. Martin said CRITFC is concerned that, given the uncertainty in the current forecasts, Dworshak will not refill by June 30 unless outflow is curtailed as soon as possible.

Turner noted that different forecast models operate on different assumptions; they are not absolute predictors, but tools on which to base best-judgement decisions. We just want to be sure Dworshak is operating in a conservative manner, so that the project does refill on June 30,

Martin said. The Corps is comfortable with the planned operation, said Turner; we will continue to monitor the Dworshak operation and the forecasts closely, and can discuss it further next week.

Sharon Kiefer asked whether it would be possible to continue to release 10 Kcfs from Dworshak through next Wednesday, when the TMT meets again. That will be too late, Bettin replied – if one of the forecasts is correct, we will miss refill at Dworshak on June 30. This is absolutely the wrong time to be reducing flow in the Snake, said Boyce; to me, it makes more sense to maintain higher outflow now, even if that creates a slightly larger hole in Dworshak and delays refill by a few days. Pettit said IDFG agrees with Oregon's assessment; the flow situation is already abysmal in the Snake, he said, and if flows go down another 10 Kcfs, a large portion of the 2002 outmigration are not going to make it. We're already seeing a high percentage of fish at the Snake River trap that are fungused up, Pettit said; that situation is only going to get worse as May continues.

Turner replied that the Corps sees Dworshak refill as a very high priority under the action agencies' Biological Opinion responsibilities. The discussion returned to the discrepancies in the current and recent forecasts for Dworshak; Chris Ross observed that, in the information distributed at last week's TMT meeting, at 70% confidence of refill, based on the May final water supply forecast, there should have been 472 KAF available for flow augmentation this spring from Dworshak, which translates into nearly 10 Kcfs over the next 10 days. Hlebechuk replied that there are now only 278 KAF available, because the project has been releasing 14 Kcfs over the past 10 days. Right, said Ross – that translates into 10 Kcfs over the next 10 days, if we're willing to accept a 70% confidence of refill.

Kiefer added that, according to her information, Hells Canyon will be cutting back to 6.5 Kcfs beginning May 16. However, Brownlee is only eight feet from full, Kiefer said, so if the freshet begins soon, Brownlee inflow will have to pick up again.

The discussion proceeded in this vein for some minutes. Ultimately, it was agreed that Dworshak will go to 10 Kcfs, beginning as soon as possible, and will hold that discharge level at least through next Wednesday, May 22. Martin said CRITFC stands alone in advocating an operation that would reduce Dworshak outflow to minimum as soon as possible, to ensure Dworshak refill by June 30. The Corps agrees on the refill priority, said Turner; that's why we put the 6 Kcfs on the table. Wagner said NMFS is comfortable with maintaining 10 Kcfs outflow from Dworshak, at least until next Wednesday's TMT meeting. Scott said Washington agrees with that operation; Pettit said Idaho does as well. Martin reiterated that CRITFC opposes this operation; we'll just track what happens to see who turns out to be right, he said. So agreed, then, said Silverberg; we'll go with 10 Kcfs outflow from Dworshak, at least through next Wednesday. We'll go to 10 Kcfs outflow from Dworshak beginning tonight, said Hlebechuk. If we feel a change in this operation is needed sooner, said Turner, we'll convene an emergency call.

Boyce said the SOR also requests that Brownlee pass inflow until the freshet begins; in the absence of an Idaho Power representative, however, it is difficult to have a meaningful dialogue on this issue, he said.

On May 14, the action agencies also received SOR 2002-3. This SOR, supported by ODFW, USFWS, CRITFC, WDFW, IDFG and NMFS, requests the following specific operations:

- Implement the 2000 NMFS Biological Opinion spill levels
- Follow the existing protocol to be used during a NW or SW reliability event

Boyce spent a few minutes going through the specifications of and justification for this SOR, the full text of which is available via the TMT's Internet homepage. Please refer to this document for full details.

Boyce noted that Bonneville declared a power emergency earlier this week, briefly interrupting spill; we were concerned for two reasons, he said: we were unclear about the need for this operation, and Bonneville did not convene a TMT conference call to discuss it. We need a better set of guidelines that will allow us to discuss the need for the power system emergency, as well as potential alternative operations that will not impact operations for fish, he said. Bettin replied that there are seven or eight alternatives on the emergency protocols list before curtailing spill; in this particular instance, BPA was able to buy enough energy to cover its obligations during the hour-long emergency.

Again, said Boyce, I think it would be useful to have some further discussion about emergency notification procedures. If these situations do arise again, he said, please keep us in the loop. Will do, said Bettin; between now and next meeting, if you could look over the current emergency procedures list and come prepared to discuss any changes you would like to see, that would be very helpful.

On May 15, CRITFC submitted SOR 2002 C-7. This SOR requests the following specific operations:

- Implement the following hydrosystem operations during the ceremonial and subsistence and commercial Treaty fishery times as established by the tribes and the Columbia River Compact, for the period 6 a.m. May 17-6 p.m. May 18:
- Bonneville Pool: operate the pool within 1 foot from full pool (msl elevation 77-76)
- The Dalles Pool: operate the pool within 1 foot (msl elevation 159.5-158.5)
- John Day pool: operate the pool within 1 foot (msl elevation 264.5-263.5)

Martin went through the specifications of this SOR, the full text of which is available via the TMT homepage. Please refer to this document for further details. After a brief discussion, Turner said that, as per the Corps' usual policy, they will maintain a 1.5-foot operating range, 75 – 76.5 feet, in Bonneville pool for the duration of the fishery.

With that, the conference call was adjourned. Meeting summary prepared by Jeff Kuechle, BPA contractor.

## **BPA ATTENDANCE LIST**

**MAY 15, 2002**

<b>Name</b>	<b>Affiliation</b>
Colin Beam	PPM
Scott Bettin	BPA
Ron Boyce	ODFW
Scott Boyd	COE
Suzanne Cooper	BPA
Scott Corwin	PNGC Power
Russ George	Water Management Consultants Inc.
Robin Harkless	Facilitation Team
Cathy Hlebechuk	COE
Sharon Kiefer	IDFG
Tony Norris	Reclamation
Steve Pettit	IDFG
Shane Scott	WDFW
Donna Silverberg	Facilitation Team
Craig Sprankle	Reclamation
Glen Traeger	Avista Energy
Rudd Turner	COE
Paul Wagner	NMFS

## TECHNICAL MANAGEMENT TEAM

BOR: Tony Norris\Lori Postlethwait      BPA: Scott Bettin\Rick Pendergrass

NMFS: Paul Wagner\Chris Ross      USFWS: David Wills\Howard Schaller

OR: Ron Boyce      WA: Shane Scott      ID: Steve Pettit      MT: Jim Litchfield

COE: Cindy Henriksen\Cathy Hlebechuk\Rudd Turner

## TMT MEETING

22 May 2002      0900 - 1200 hours

Custom House      Room 118  
Portland, Oregon  
Conference call line: 503-808-5190

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

## AGENDA

1. Welcome, introductions.
2. Hanford reach / Vernita Bar update (Grant PUD).
3. Weather update
4. Final [Water Management Plan](#)
  - comments
  - [Spring / Summer update](#) comments
5. Boise Water Information
6. Status of Idaho Power operations/Biological Opinion
7. Review spring Treaty Fishery. [Impact of Pool Fluctuations](#)
8. Review current system conditions.
  - fish migration status including chum emergence (NMFS, USFWS)
  - reservoir operation, water supply, power system, water quality (COE, BOR, BPA)
9. Review operations requests.
10. Develop recommended operations. (28 May - 9 June, also Dworshak 22 - 27 May).
11. Other.
  - set agenda for 5 June TMT meeting

*Questions about the meeting may be referred to Cindy Henriksen at (503) 808-3945, or Rudd Turner at (503) 808-3935.*



## COLUMBIA RIVER INTER-TRIBAL FISH COMMISSION

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

Telephone (503) 238-0667

Fax (503) 235-4228

[www.critfc.org](http://www.critfc.org)

TO: Technical Management Team

FROM: Kyle Martin, *Mainstem Hydrologist*, CRITFC Hydro Program

DATE: May 22<sup>nd</sup>, 2002

SUBJECT: Impact of Pool Fluctuations on the 2002 Spring Treaty Fishery

Six System Operation Requests (SORs) were submitted to the Regional Forums' Technical Management Team in support of this spring's treaty fishing. The CRITFC requests asked for stable pool elevations at all times in Zone 6 during each week of the treaty fishery. We asked for the pools to be managed within one-foot of full during the treaty fishery. The Corps replied with a commitment to a 1.5 foot range (75 – 76.5 feet) and then only in Bonneville pool. The COE uses an operating range limit at the Bonneville forebay of up to 76.5 feet, and not 77 feet (full pool), as specified in the CRITFC SORs.

Figure 1 is a summary of the hourly compliance of CRITFC's one-foot criteria during the treaty fishery. Figure 2 is a summary of the hourly compliance using the COE's 1.5 foot criteria.

Relative to the CRITFC criteria, the John Day pool was in compliance 44% of the time. The Celilo pool was in compliance 41% of the time. The Bonneville pool was in compliance 63% of the time. Compliance was highest in last two weeks of the fishery. Compared with Spring 2001, where compliance was 92% at the John Day pool, 70% at the Celilo pool, and 8% at the Bonneville pool, the Action Agencies greatly improved compliance for Bonneville, but slipped at The Dalles and John Day. CRITFC did stress this spring that the Action Agencies needed better compliance at Bonneville dam, since the majority of nets are in that pool.

Figures 3 through 8 show the observed hourly data for the spring 2002 treaty fishing seasons for the Zone 6 pools. The catch efficiency was reported to be good by tribal fishers. High daily Chinook counts coincided with the April 25<sup>th</sup> – 27<sup>th</sup> and May 10<sup>th</sup> – 11<sup>th</sup> fishing seasons.

Attachments

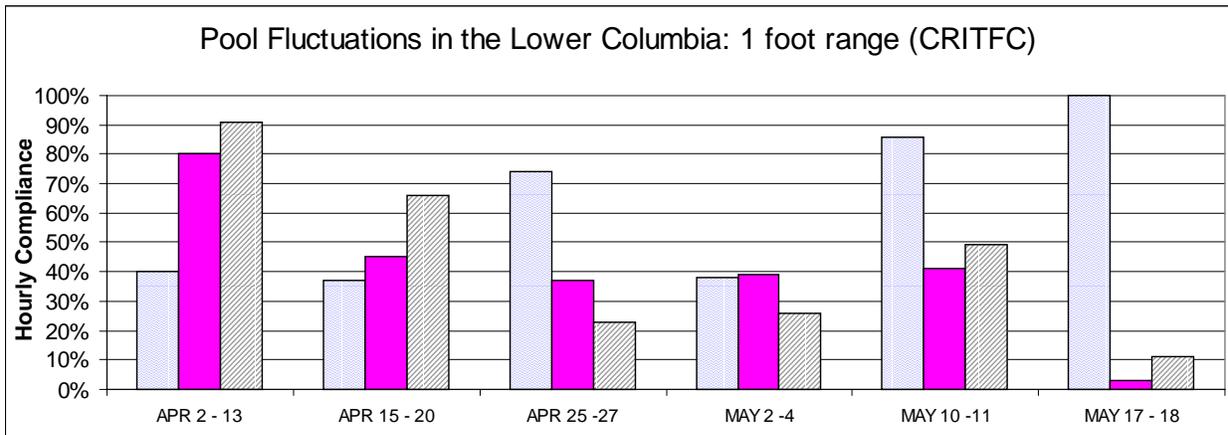


Figure 1. Compliance with CRITFC SORs, using CRITFC criteria.

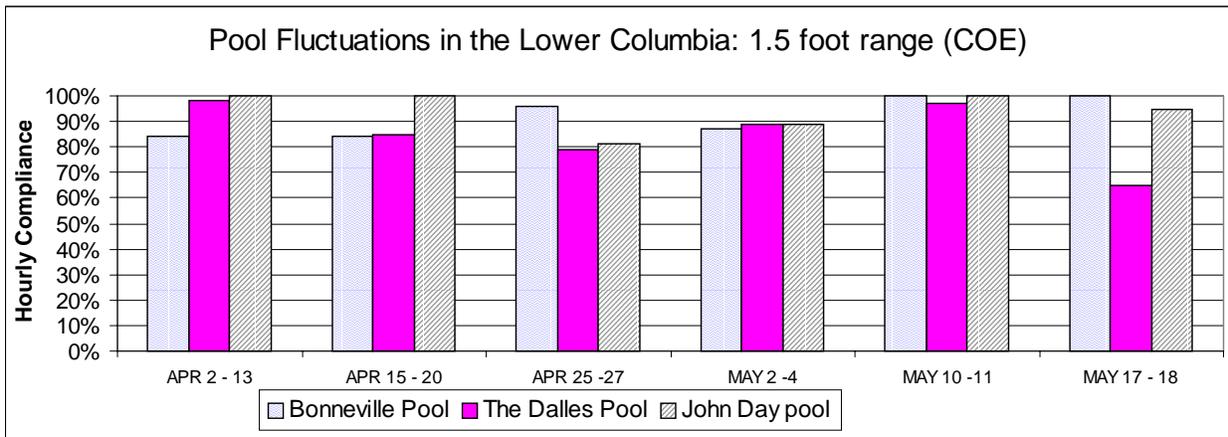


Figure 2. Compliance with CRITFC SORs, using Corps of Engineers criteria.

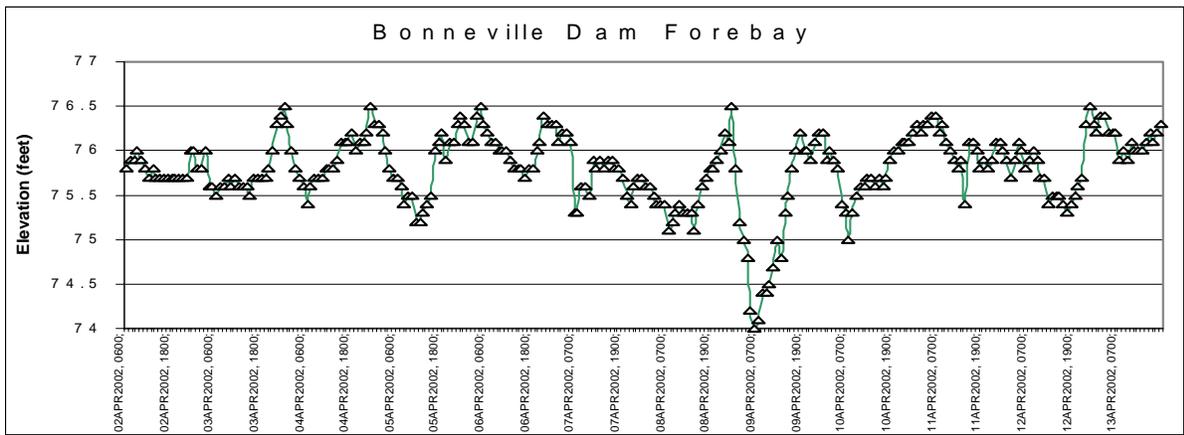
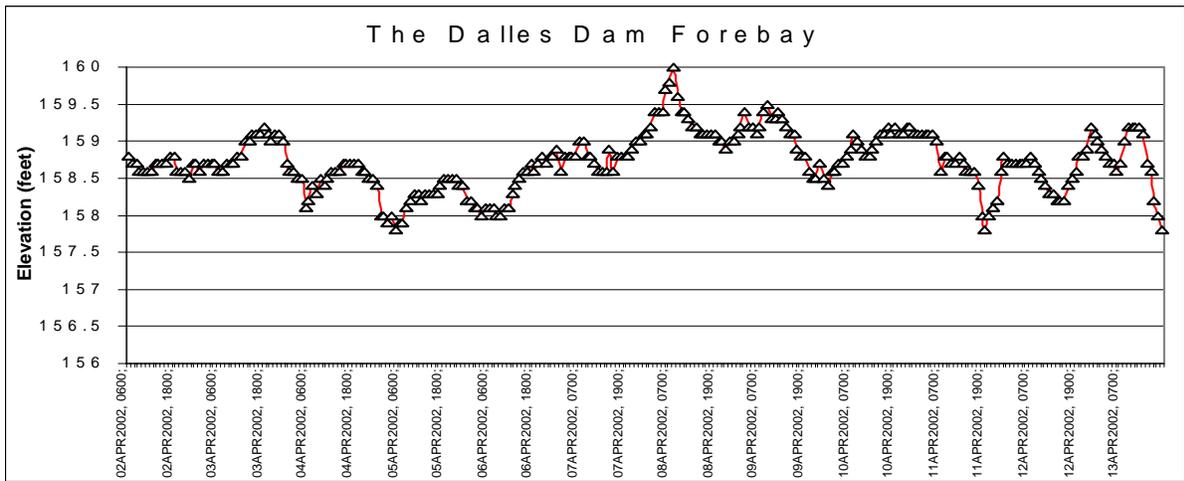
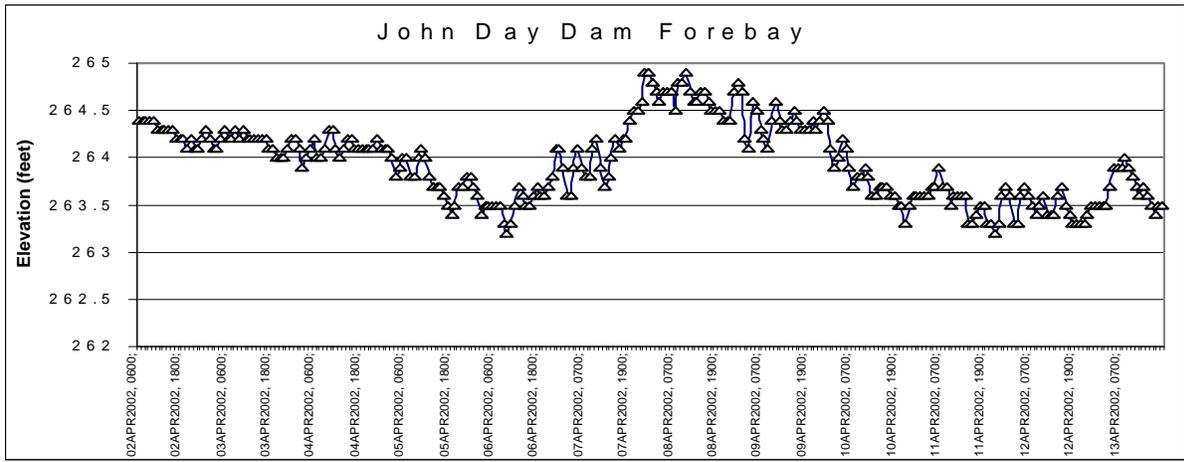


Figure 3. April 2<sup>nd</sup> – 13<sup>th</sup> 2002 treaty fishery pool elevations.

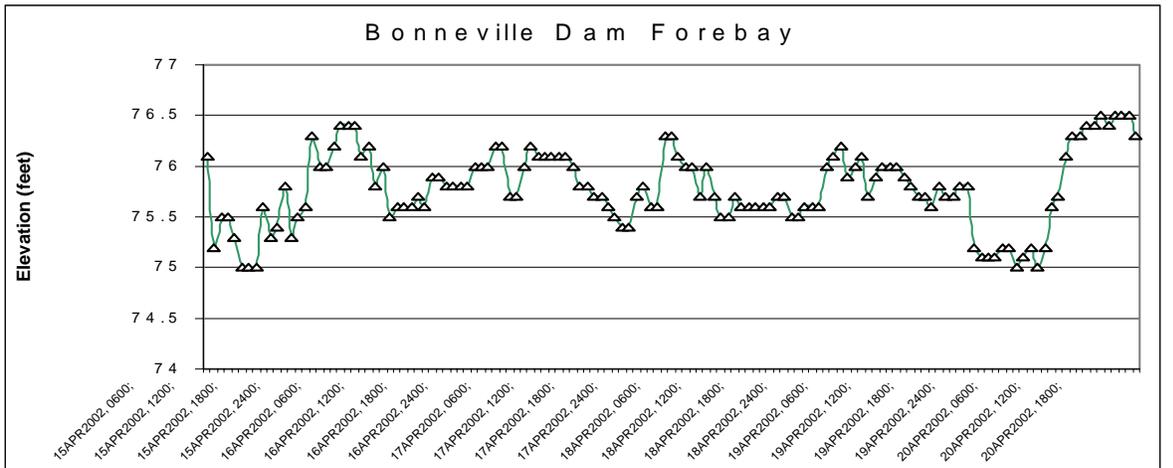
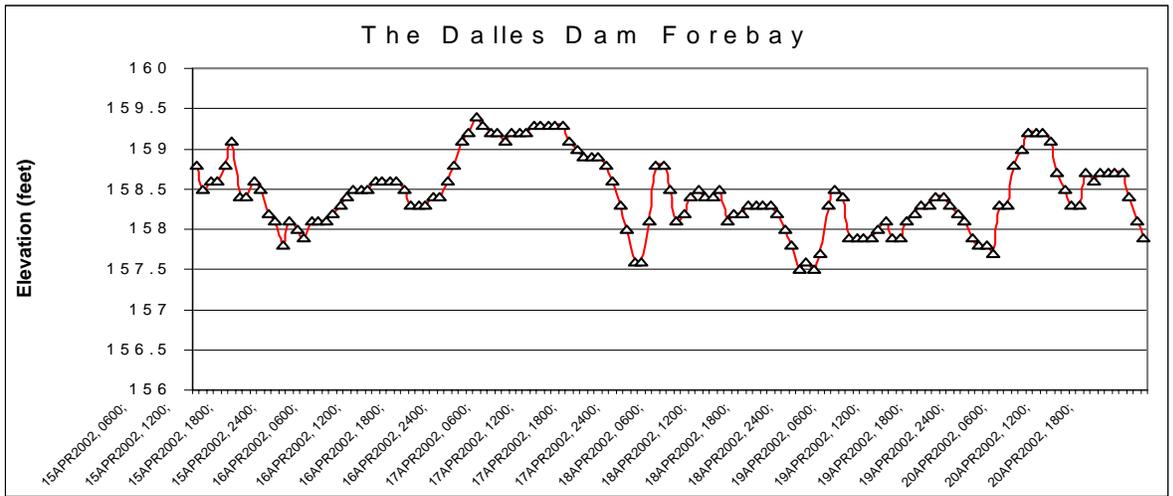
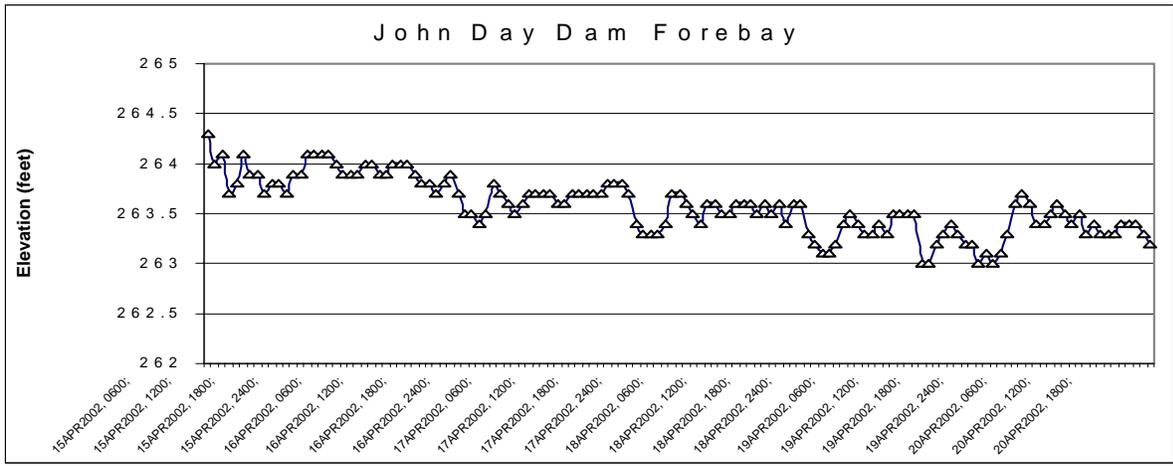


Figure 4. April 15<sup>th</sup> – 20<sup>th</sup> 2002 treaty fishery pool elevations.

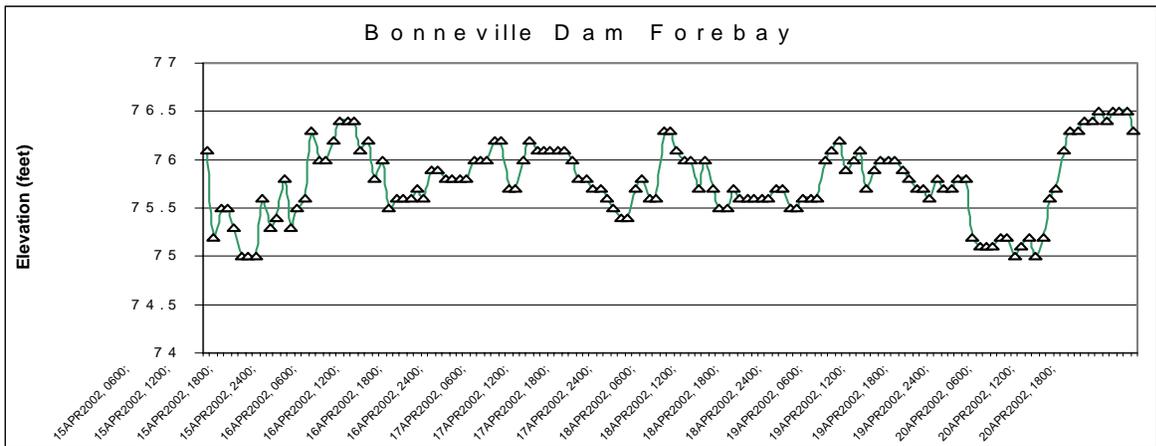
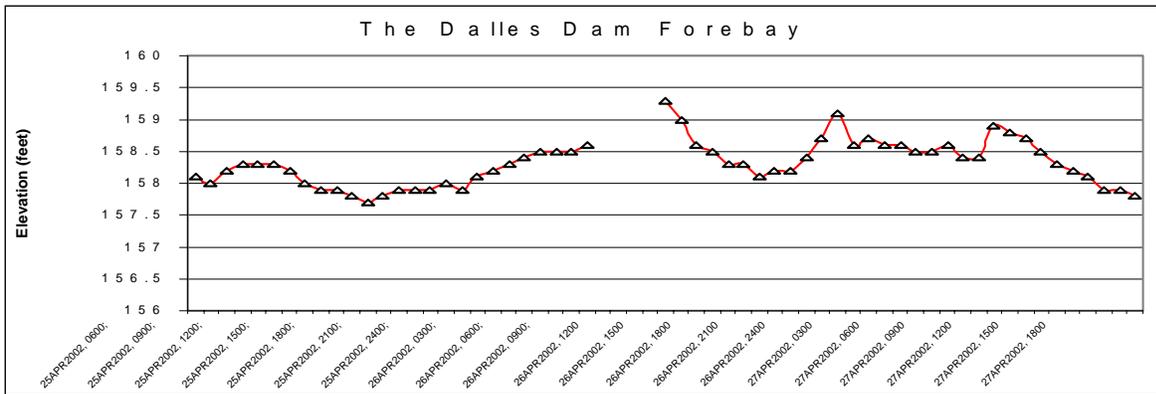
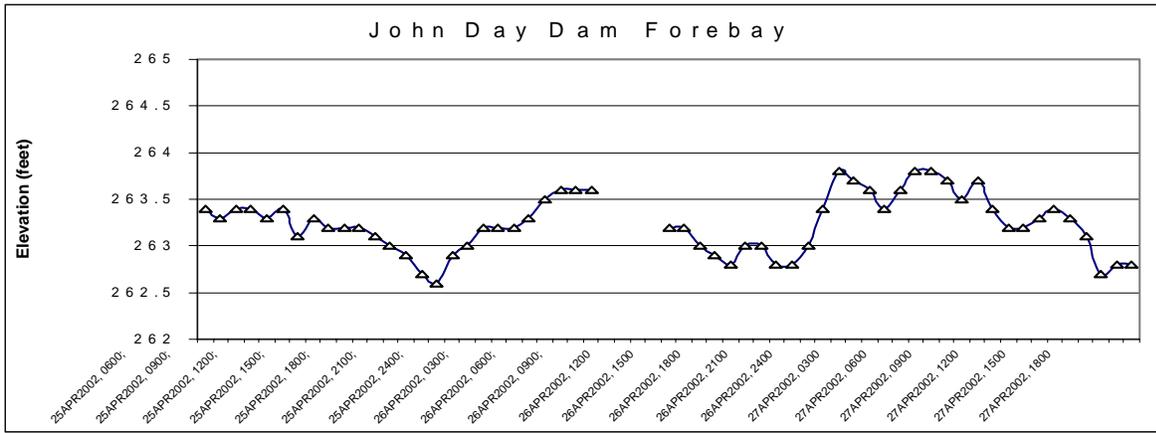


Figure 5. April 25<sup>th</sup> – 27<sup>th</sup> 2002 treaty fishery pool elevations.

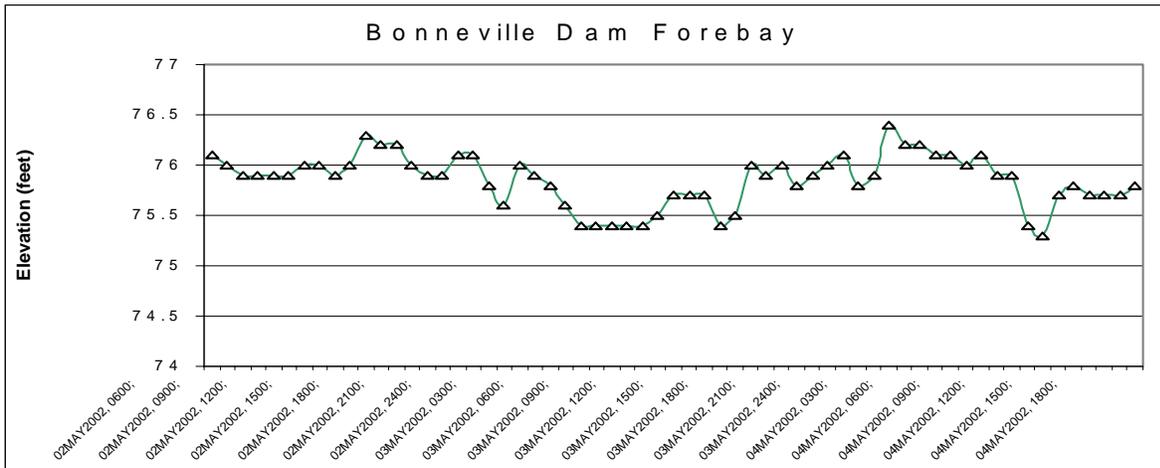
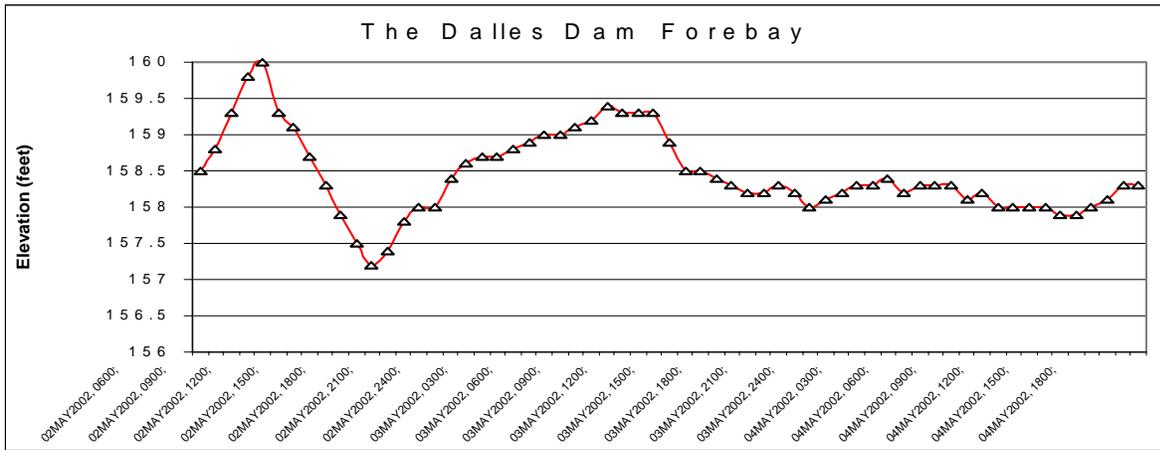
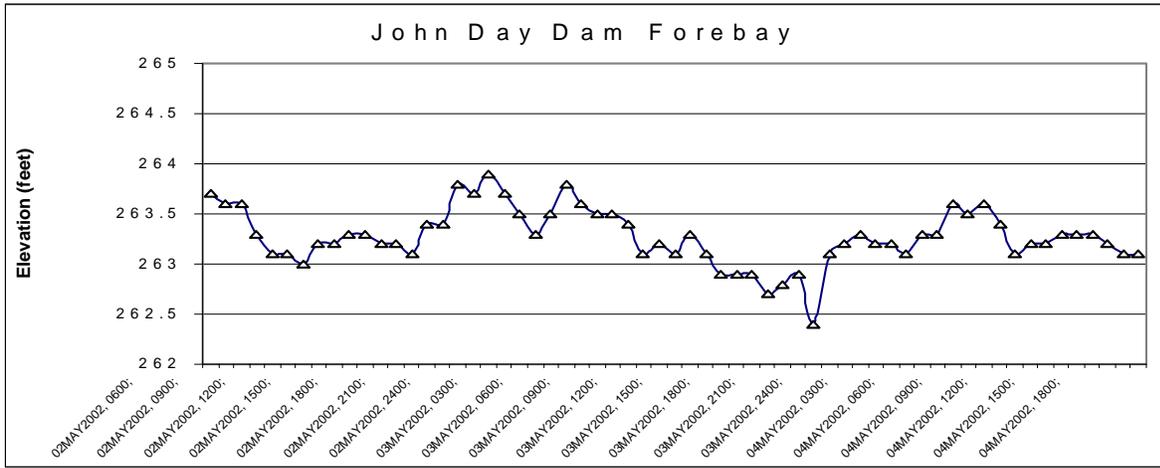


Figure 6. May 2<sup>nd</sup> – 4<sup>th</sup> 2002 treaty fishery pool elevations.

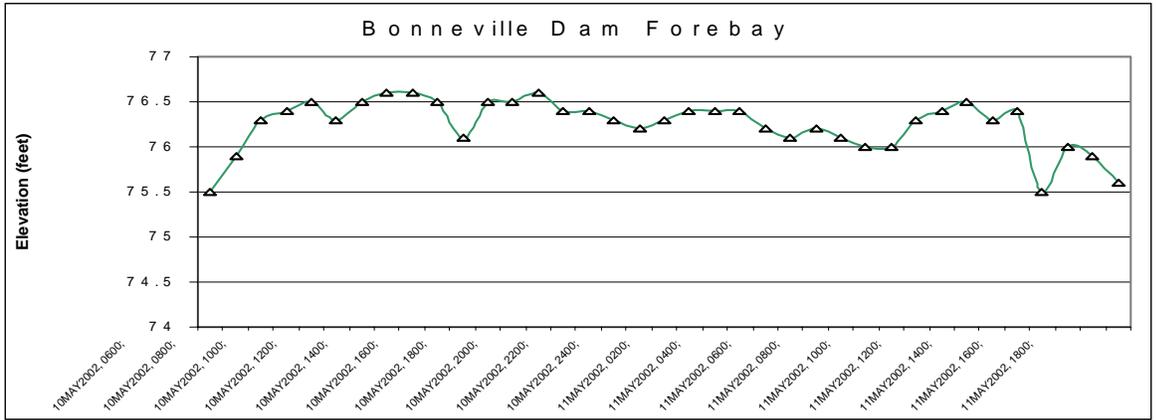
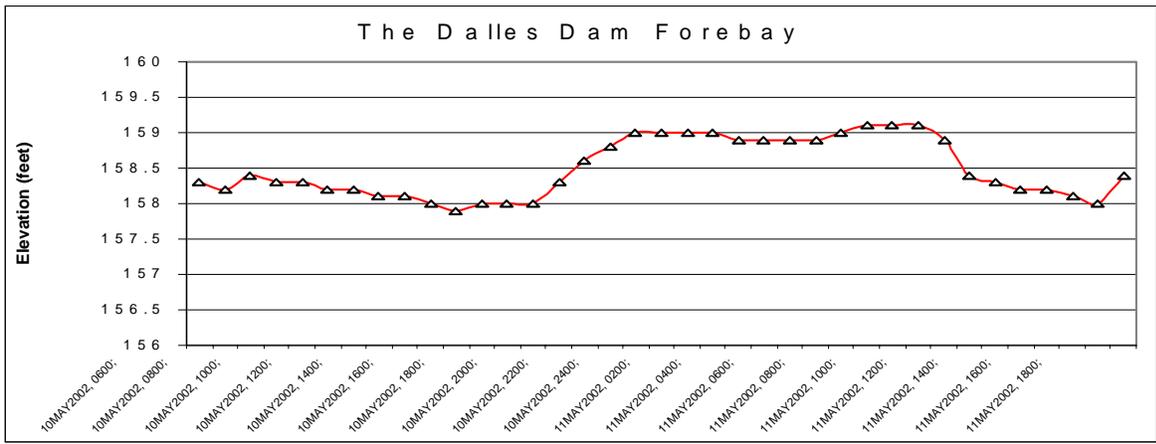
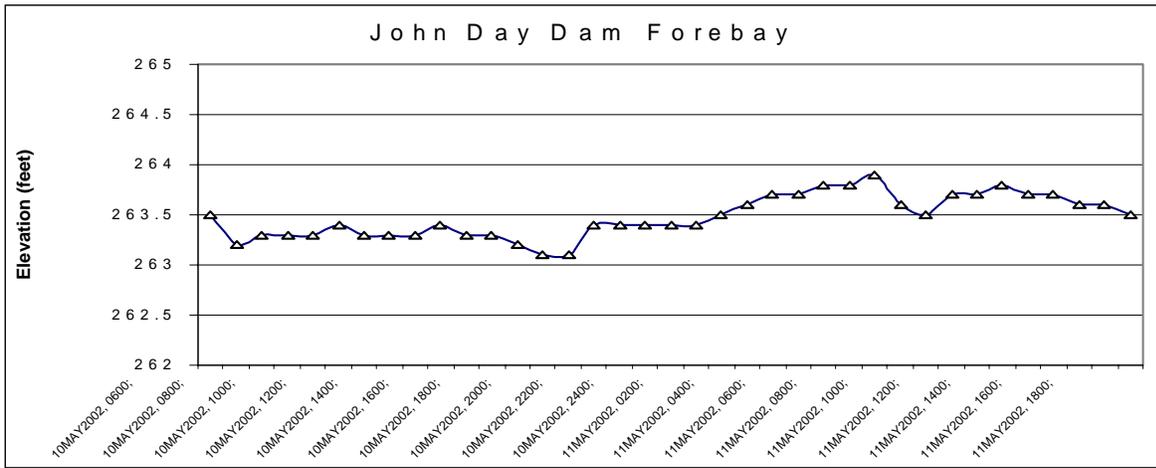


Figure 7. May 10<sup>th</sup> – 11<sup>th</sup> 2002 treaty fishery pool elevations.

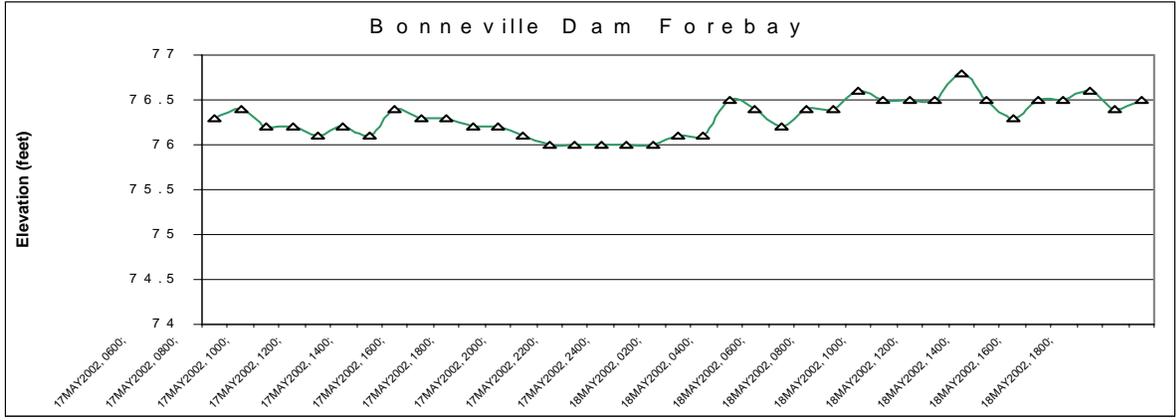
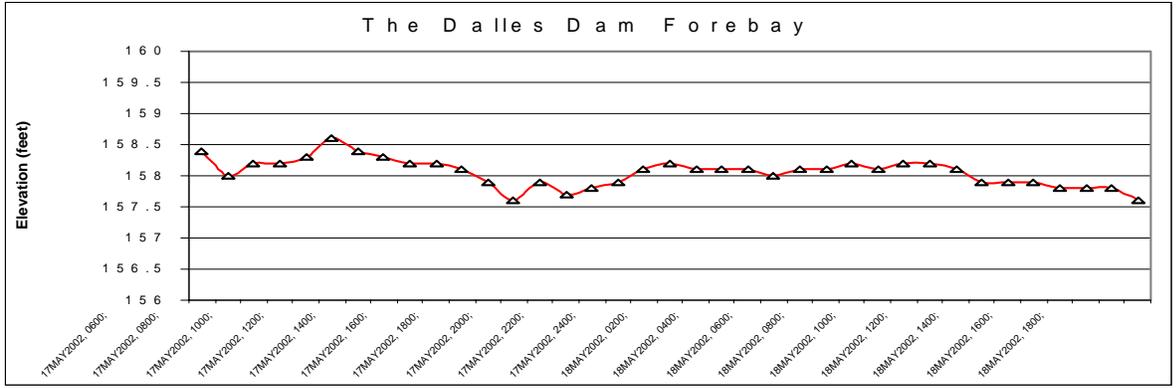
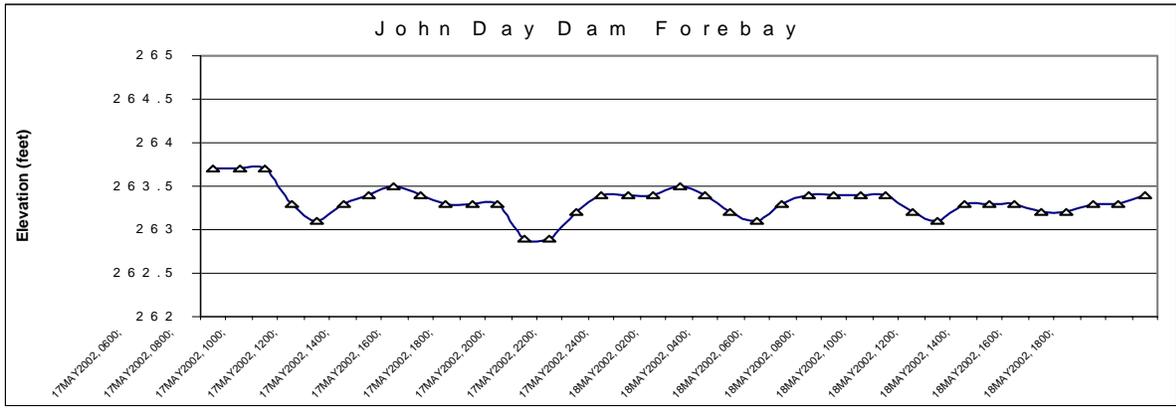


Figure 8. May 17<sup>th</sup> – 18<sup>th</sup> 2002 treaty fishery pool elevations.

# COLUMBIA RIVER REGIONAL FORUM

## TECHNICAL MANAGEMENT TEAM

### MEETING NOTES

May 22, 2002

CORPS OF ENGINEERS NORTHWESTERN DIVISION OFFICES – CUSTOM HOUSE  
PORTLAND, OREGON

**TMT Internet Homepage:** <http://www.nwd-wc.usace.army.mil/TMT/index.html>

### FACILITATOR'S SUMMARY NOTES ON FUTURE ACTIONS

Facilitator: Donna Silverberg

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

#### **Hanford Reach/Vernita Bar:**

Chris Carlson of the Grant County PUD's reported on the weeks of May 6 – 12 and May 13 –19. The group looked at the chart posted on the website and Chris clarified the purpose of some of the numbers. He will continue to work with dispatchers to keep flows as smooth as possible.

#### **Weather Update:**

The National Weather Service reported on weather forecasts for the region.

#### **Final Water Management Plan:**

Response to comments from Idaho, Montana, NMFS and USFWS were handed out with the final WMP. It is also posted on the website. There were questions about how comments are incorporated into the Plan and where detailed issues are placed.

**Action:** All TMT members will review the comments. TMT will hold a session in July specifically to discuss how well the WMP is working. This is the Action Agencies' first attempt and they welcome suggestions on ways to improve the Plan. Donna Silverberg will work with the Action Agency team and the Salmon Managers to develop an agenda and structure for the July meeting.

#### **Spring/Summer Update:**

The USFWS gave comments on the Spring/Summer Update to Scott Bettin. They will be posted on the website for everyone to review.

**Action:** TMT will discuss the comments at the next meeting if necessary.

#### **Upper Snake Water Information:**

At the last meeting, the Salmon Managers requested information on upper Snake water. Oregon

explained that this was to assist them in the development of flow management plans for summer. More detailed knowledge is needed for the Salmon Managers to create a plan for use of Dworshak. The BOR will bring a spreadsheet of upper Snake numbers to the next meeting. The BOR will provide 300 cfs through August for trout spawning at the request of Idaho Fish and Game.

**Idaho Power Operations:**

Jon Bowling reported that Brownlee is at 2075.5' and will pass inflows for the next few days (14-16 kcfs) and possibly into the weekend. Jon said the goal is to reach 2077' by July 1 and he reminded the group that they cannot draft more than 1' from the highest elevation for resident fish.

**Spring Treaty Fishery:**

Kyle Martin of CRITFC gave a positive report on this year's spring treaty fisheries. The results are posted as a link to today's agenda on the website. The Action Agencies asked if there were any complaints or incidents from this year. None are known but Kyle will check into this. Compliance was high this year. The success seems to be a result of advanced planning and overall high adult counts.

**Action:** At the request of TMT, Kyle will email the numbers of fish caught by tribal fisheries for this year.

**Review Current System Conditions:**

**Fish Migration Status:** Yearling chinook numbers are down at Lower Granite. The RSW test may have something to do with this as there are more fish at Little Goose. The runs seem to be late in the Snake. There is some concern about how low the numbers are at this point in the season. Adults are late but the numbers are high. Chum emergence is ending at Hamilton Creek but still occurring at Hardy Creek.

**Action:** Ron Boyce and Shane Scott will share a Mainstem chum emergence end date with TMT at the next meeting.

**Reservoir Operations:**

**Action:** TMT will have comments on the emergency spill priority list for discussion at the June 5 meeting.

There is a potential for involuntary spill at Lower Monumental due to a unit being down. The group discussed a number of possibilities to reduce or eliminate spill: operate outside the 1% requirement, increase the pond (outside MOP + 1) to eliminate spill, or use the ponding option but set a limit.

**Action:** TMT agreed to pond as long as necessary to make sure the unit is back in service, but if not by tomorrow (5/23) morning, hold an emergency TMT call to discuss what actions to take. If a call is needed, the COE will make sure a technical COE expert is on the call to answer questions.

**SOR 2002-4:**

The Salmon Managers requested specific operations at Lower Granite for May 22-28 and McNary for May 22 – June 6.

The COE expressed their preference to minimize outflows at Dworshak until the end of June. CRITFC supports the SOR but would like Dworshak water to be used sparingly.

**Agreement:** The COE will operate DWR to provide up to 10 kcfs discharge, and total volume up to 50 ksf (~100 kaf), as needed to attempt to meet 97 kcfs weekly average flow at LWG. Weekly average flow is for 20 - 27 May, which includes Memorial Day. Higher discharges will be shaped earlier in the augmentation period, less during the holiday weekend, for load shaping. DWR discharge will be reduced to minimum on 28 May and held there for end-of-June refill.

**Brownlee:** Idaho Power (by luck) will operate to meet the requested 97 kcfs at Lower Granite.

**McNary** will operate to meet 246 kcfs flow objectives through June 9<sup>th</sup>, as requested – as long as Grand Coulee is above 1240'. If the forecast changes dramatically, an emergency TMT call will be convened to discuss operations.

**Other:**

**Lower Monumental:** A current teletype reads that there will be full flow bypass at Lower Monumental through June 2. If there is no effect on studies being done there, the COE could extend the operation to June 20.

**Action:** The Salmon Managers will discuss this option and email to the COE the operation they prefer.

**Little Goose:** MOP + 1 to MOP + 2 is in effect for navigation. Flows are high enough that the COE could reduce the pool to MOP + 1 or MOP.

**Action:** The group agreed to go to MOP/MOP + 1 and shape the water later when flows are lower (Friday or Saturday). This will be on the next agenda to discuss refill.

The Technical Advisory Committee has concerns with the adult fallback study results and its impact on juvenile fish. There will be an update at the next meeting on this.

**Next Meeting, June 5:**

Agenda Items:

- Snake Water Spreadsheet – BOR
- Idaho Power Operations Update
- Chum Emergence End Date – Shane Scott and Ron Boyce
- Comments on Spill Priority List
- Adult Fallback Study Results – Technical Advisory Committee
- Current System Conditions
- Hanford Reach/Vernita Bar
- Weather Update
- Review Operations Requests

- Other

## Meeting Minutes

### *1. Greeting and Introductions*

The May 22 Technical Management Team meeting was chaired by Rudd Turner of the Corps and facilitated by Donna Silverberg. The following is a distillation, not a verbatim transcript, of items discussed at the meeting and actions taken. Anyone with questions or comments about these minutes should call Turner at 503/808-3935.

### *2. Hanford Reach Update.*

Chris Carlson of Grant County PUD said that, for the week of May 6-12, a single juvenile chinook was found during random-site sampling; index seining took place on May 8, during which field personnel recorded an average length of 45 mm. The flow band was missed on May 6 due to a flow transitioning problem; however, fish impacts were minimal because flows steadily increased throughout the day. We were also off on May 8, because of a load problem, Carlson said.

For the week of May 13-19, Carlson continued, field crews looked at 14 fish monitoring sites, finding eight juvenile chinook, seven of which were mortalities. On May 15, index seining looked at 1,739 fish, average fork length 47.5 mm. We missed the flow band on a number of days during this week, due to a line outage and dispatcher error, he added. Will information on the reason for these excursions be included in Grant County's annual report? Ron Boyce asked. I believe so, Carlson replied. He added that he is continuing to work with Grant's dispatchers to eliminate dispatcher error.

### *3. Weather Update.*

Dan from the National Weather Service reported that, over the past 24 hours, a low-pressure system tracked off from Idaho to Montana; precipitation from the system was heavy in the mountains of Idaho, Montana and southern British Columbia – as much as 1.5 inches across a widespread area. Morning freezing levels have been in the 4,500-6,000-foot range, with blizzard warnings in force in parts of Montana. Snow is forecast today from northern Idaho to western Montana. High pressure is starting to build, however, and precipitation is expected to decrease tomorrow and Friday; daytime freezing levels are expected to rise into the 8,000-11,000-foot range today and tomorrow. Another weather system is moving in behind that one, and is expected to bring some precipitation to the Northwest this weekend.

Over the longer term, extending into the end of next week, a strong ridge of high pressure is expected to bring a drying trend to the Northwest, Dan said. Temperatures are expected to be above-normal during the middle and latter portions of next week.

Tom Fero of the NWS noted that Lower Granite flows peaked at about 112 Kcfs today,

and are expected to recede to the 70-75 Kcfs range over the next four days. Columbia River flows will be about 270 Kcfs over the next two days, followed by a recession to about 220-220 Kcfs into the foreseeable future. Upper Columbia flows are slightly on the wane, currently, but should also stay relatively high, Ferro said. In response to a question from Kyle Martin, Ferro said that, in his opinion, the precipitation expected over the next few days should bring many basins in the Northwest into the near-normal range for May precipitation.

#### ***4. Final Water Management Plan.***

Turner noted that copies of both the final 2002 Water Management Plan (WMP) and the action agencies' responses to comments are now available via the TMT homepage; he thanked BPA's Suzanne Cooper for her hard work in finalizing the plan. The group devoted a few minutes of discussion to the action agencies' responses to the comments from various agencies and tribes, some of which was focused on the replies "Too detailed to include in the Water Management Plan" and "This item will be addressed during the in-season management period." Ultimately, Silverberg suggested that the group defer this discussion, as well as discussion of the 2003 Water Management Plan, until a special TMT session in late June or early July, by which time all participants will have had a chance to review the action agencies' response to their comments. It was so agreed.

Scott Boyd noted that, barring any changes dictated by new information from studies, the 2003 WMP will likely be very similar to the WMP submitted in 2002; he asked that any significant comments with a bearing on next year's WMP be submitted to him or to Cooper.

Turner noted that the final spring/summer update to the 2002 WMP was distributed two weeks ago. Ron Boyce stated that Oregon does not have any comments on the spring/summer update. David Wills said the Fish and Wildlife Service has a few comments on the spring/summer update; no other comments have been provided. Turner said the USFWS comments will be posted to the TMT website.

#### ***5. Boise Water Information.***

Tony Norris said most of the Snake River flow augmentation water will be provided from the Boise and Payette systems in 2002. With respect to a previous question from Boyce, Norris said it is not possible, at this time, for Reclamation to say which specific reservoirs will furnish that water; there are still a lot of reservoirs that are not full and likely will not fill in 2002. Norris reiterated that, given the current water supply forecast for the Upper Snake basin, it is unlikely that Reclamation will be able to provide the full 427 KAF of flow augmentation water this summer; he said the figure will likely be closer to 300 KAF.

The group also discussed Reclamation's decision to begin releasing 300 cfs from Lucky Peak Reservoir; Norris explained that the release was at the request of IDFG, in support of a rainbow trout fishery below that project. Boyce noted that the reason he has pursued this information is the fact that the salmon managers are going to begin discussions on a summer flow management plan for the Snake River in 2002, hence the need for detailed information on planned project-by-project operations. The sooner you can provide that information to us, the

better, he said. In response to a question from Turner, Boyce said the plan will be used to inform the salmon managers' SOR development process; the plan will likely not be submitted to the TMT.

#### ***6. Status of Idaho Power Operations/Biological Opinion.***

John Bowling of Idaho Power said Brownlee Reservoir is currently at elevation 2075.5 feet and passing inflow, at least for the next few days. Inflows have been in the 15 Kcfs-17 Kcfs range in recent days, which means outflows should be in the 14 Kcfs-16 Kcfs range, Bowling said. Over the next two weeks, he said, Brownlee will creep up toward the 2077 mark; for the time being, he said, we will leave some space in the reservoir in case of a sudden major precipitation or runoff event. We're hoping to be at full pool at Brownlee no later than July 1, he added. From a practical standpoint, then, Idaho Power will be passing inflow through the end of June? Turner asked. That's correct, Bowling replied.

#### ***7. Review of Spring Treaty Fishery.***

Kyle Martin noted that CRITFC's report on the impact of pool fluctuations on the spring treaty fishery is now available via a hot link on the TMT website; he spent a few minutes going through this document. CRITFC submitted six separate SORs requesting stable pool elevations in Bonneville, The Dalles and John Day pools in support of various tribal fisheries this spring. As far as operations impacting the spring treaty fishery, the Corps agreed to maintain a 1.5-foot operating range in Bonneville pool only; Martin noted that there is a difference of opinion between the Corps and CRITFC about what the operating range in the three pools should be during the tribal fisheries.

In general, said Martin, John Day pool was in compliance with CRITFC's requested one-foot operating range 44% of the time during this spring's treaty fisheries; Celilo (The Dalles) 41%, and Bonneville pool 63% of the time. That compares to only 8% of the time in 2001, Martin said, so Bonneville pool compliance was much better this year. Catch efficiency was good this year, and there were few complaints from the tribal fishers. Martin noted that compliance during the final tribal fishery was 100%; he said the Corps and BPA deserve congratulations for their efforts to maintain stable pools.

Turner noted that it is much more difficult to meet these kinds of operating range requests during the spring, when flows and weather are quite variable; it is much easier to meet them during the fall. Our main concern is whether or not the operations we put in place result in satisfactory or unsatisfactory fishing conditions, he said, noting that the Corps has not received any complaints this year. I haven't heard any complaints either, Martin said. He added that he will provide final figures on the total size of the 2002 adult spring chinook run at a future TMT meeting.

#### ***8. Current System Conditions.***

Chris Ross reviewed the current status of the fish migration, beginning with year-to-date cumulative passage information for yearling chinook at Lower Granite, which he characterized

as lower than expected for this date. Cumulative juvenile steelhead passage at Lower Granite is also lower than expected for this date. Does that factor in the RSW at Lower Granite? Scott Bettin asked. No – we are seeing higher passage numbers at Little Goose than we are at Lower Granite on some days, Ross replied. Still, that discrepancy does not make up for the difference in the expected year-to-date passage, Boyce observed.

Moving on to McNary, Ross said wild Snake River chinook passage at this project has been increasing in recent days. He added that endangered Upper Columbia steelhead PIT-tag detections continue to be very low. The bottom line, said Ross, is that the Snake River outmigration continues to be delayed. In addition, said Boyce, we're very concerned about the fact that cumulative passage to date is only about half of what NMFS had projected for this date before the season began; that is likely because there are still a lot of fish waiting to get out. It may also be because NMFS' pre-season estimates were incorrect, Scott Bettin observed – they're not seeing a lot of fish at the upstream traps at this time. The traps don't provide an abundance index, Ross replied – the numbers you see there are not reflective of the number of fish in the run at large.

With respect to adult passage to date, Ross said that, while numbers have been good, the adult run peaked later than expected, indicating that some delay may have occurred. Boyce noted that it now appears that the pre-season estimate of 330,000 adult spring chinook will be met. Ross added that 2.1% of the total 2002 adult spring chinook run has been jacks, which compares to a 10-year average of just over 6%. However, that is in the context of a very large adult run, he said; if we look at absolute numbers, the 2002 jack count is 131% of the 10-year average. If the normal percentages hold true, Ross said, that means we should be looking at a larger-than-average adult spring chinook run in 2003 as well. Another way of looking at it is the fact that the disastrous jack counts many were predicting because of the terrible in-river conditions in 2001 have not materialized, said Boyce – the 2002 jack run was better than many expected. Turner observed that the vast majority of the 2002 jacks were transported last year, and encountered good ocean conditions.

The group briefly discussed 2002 chum emergence; Boyce and Shane Scott agreed to provide the official date of the end of mainstem chum emergence at the next TMT meeting.

Moving on to the status of the system, Turner said the day-average flow at Bonneville yesterday was 268 Kcfs; the project is spilling 75 Kcfs during the day. Week-average flows at Bonneville were 218 Kcfs for the week ending May 19; a week-average flow of 263 Kcfs is projected for this week, he said. Day-average flow at McNary yesterday was 273 Kcfs, Turner said; for the week ending May 19, the average flow at McNary was 210 Kcfs, and a week-average of 246 Kcfs is projected at McNary this week.

At Lower Granite, yesterday's average flow was 109 Kcfs, Turner said; it looks as though flows at that project will peak today, then begin to recede somewhat. The average flow at Lower Granite for the week ending May 19 was 67 Kcfs, and we're projecting an average flow of 104 Kcfs this week, Turner said. Spill was 40 Kcfs yesterday. At Dworshak, the elevation was 1523 feet as of midnight last night; the project filled four feet yesterday and 12 feet over the past week. You will recall that Dworshak went to minimum outflow (1.6 Kcfs) on Monday, Turner

said; yesterday's inflow to the project was about 29 Kcfs.

Libby elevation is currently 2390, Turner continued, with outflow of 8 Kcfs and inflow of 45 Kcfs; the project filled 2.5 feet yesterday and 15 feet over the past week. There is a flood concern at Bonners Ferry, where they're forecasted to get within 1.5 feet of flood stage; we don't expect flooding to occur, he said, but the Corps is watching the situation closely and may have to reduce Libby discharge to attempt to lower the maximum stage at Bonners Ferry. This could include ramp rates faster than the BiOp rates, to provide flood control.

Moving on to Albeni Falls, Turner said the project is now gradually filling -- about elevation 2058. Project outflow has just been increased from 45 Kcfs to 58 Kcfs, he said. Tony Norris said the current elevation at Hungry Horse is 3518 feet; the project is filling rapidly, with inflows of 28.6 Kcfs and outflows of about 3 Kcfs. The current Grand Coulee elevation is 1242 feet, and as Rudd said, we're targeting 246 Kcfs as a week-average flow at McNary for the next two weeks, said Norris. We're expecting to be just above flood control elevation -- 1245 feet -- by the end of that period, he added. According to our current flood control guidance, said Turner, it looks as though Grand Coulee refill will begin next week.

And the power system? Silverberg asked. So far, so good, Bettin replied. In response to a question, Boyce said the salmon managers didn't get very far in discussing the emergency priorities list at this week's FPAC meeting; they will submit their comments at a later date.

Water quality? Silverberg asked. Dick Cassidy drew the TMT's attention to the various water quality resources available on the Internet; he said the main topic to discuss today is McNary's spill priority, now that the access bridges have been removed. In response to a question from Bettin, Cassidy said the gate hoists still are not operational; Turner added that McNary will be going to a new spill pattern later today, with the gates raised three feet and left in that position 24 hours a day. And we're up to BiOp spill levels at all other projects? Boyce asked. As close as we can get, yes, Cassidy replied.

Turner added that a unit went down at Lower Monumental this morning, which means that there may be some involuntary spill at that project starting today -- powerhouse capacity is currently right around 100 Kcfs, which means we might see a few hours of spill at around 15 Kcfs. The group discussed the possibility of operating Lower Monumental's generating units outside 1% peak efficiency or using pondage at the project in order to obviate the need to spill; ultimately, it was agreed to allow Lower Monumental to operate outside of 1% peak efficiency as needed to avoid spill today; if the generating unit is not back in service by tomorrow morning, there will be an emergency TMT call to discuss operations at that project.

### ***9. New System Operational Requests.***

On May 21, the action agencies received SOR 2002-4. This SOR, supported by USFWS, NMFS, ODFW, IDFG, CRITFC, the Nez Perce Tribe and WDFW, requests the following specific operations:

Beginning immediately, for the period May 22-May 28 at Lower Granite Dam and May 22-June

2 at McNary Dam:

- Adjust Dworshak outflows in accordance with flows recorded at Lower Granite Dam above the 97 Kcfs Biological Opinion flow objective
- Begin passing inflows at Brownlee Reservoir to meet the BiOp flow objective of 97 Kcfs at Lower Granite Dam
- Meet the Biological Opinion flow objective of 246 Kcfs at McNary Dam on a week-average basis. This operation includes the potential drafting of Grand Coulee to 1237 feet and incorporates the Bureau of Reclamation agreement on May 15 not to fill Grand Coulee above 1240 feet if the flow objective of 246 Kcfs at McNary Dam is not being met.

Boyce spent a few minutes going through the specifics of this SOR, the full text of which is available via the TMT homepage.

With respect to the request to adjust Dworshak outflows, said Turner, there is still some difference between the various forecasts; the RFC forecast is running leaner than the Corps' forecast. According to the RFC forecast, even if we go to minimum outflow at Dworshak this week, we will miss Dworshak refill on June 30 by 10 feet, and by 7 feet by the time we normally start to use Dworshak for flow augmentation in early July. The Corps' forecast, on the other hand, shows that we've got about 140 KAF of spring flow augmentation volume to work with if we're to achieve a 70% confidence of Dworshak refill by June 30.

With Dworshak at minimum outflow, said Turner, we would expect an average flow at Lower Granite of about 93 Kcfs during the period covered by this SOR; we would need to provide up to five days of 10 Kcfs outflow -- about 100 KAF -- in order to meet the 97 Kcfs week-average flow target at Lower Granite. The Corps would be willing to provide that additional flow if the salmon managers request it, Turner said. He added that another forecast will be available tomorrow, which will need to be factored into this operation. This is not the Corps' preferred operation, said Turner. The Corps' preference would be to hold minimum and refill from now to the end of June. The salmon managers must understand that this operation potentially risks water for summer fish. Recognizing this, we are willing to bring Dworshak up from minimum flow for a few more days if that's what the salmon managers would like to see. Boyce, Ross, and Wills indicated that this would be desirable.

Litchfield recommended that the TMT adopt a conservative approach to the Dworshak operation, given the fact that, in recent years, the forecast tends to overpredict actual runoff volumes. I think there is a potential that we will miss refill at Dworshak by a significant margin this year, he said, particularly if we increase outflow at this time. After a few minutes of additional discussion, Turner reiterated that the Corps is willing to provide up to 100 KAF of additional flow from Dworshak over the next five days, with the caveat that they reserve the right to change that operation if tomorrow's forecast changes significantly. Steve Pettit observed that many areas in the Idaho mountains have received up to 20 inches of new snow in the past several days; Sno-Tel information indicates that only 2% of the existing snowpack melted during the recent warm weather event.

Turner summarized by saying that the Corps will operate Dworshak to meet the 97 Kcfs week-average flow target at Lower Granite during the period Monday – Monday 20 – 27 May, including the Memorial Day holiday, using up to 100 KAF (50 Ksf) of Dworshak storage to meet that objective. In all likelihood, that will mean providing an average outflow of 8 Kcfs from Dworshak beginning tomorrow, as natural flows begin to recede, he said. Once the 97 flow objective is met, it was agreed that Dworshak will pass inflow. I want to be clear, however, that the Corps will begin to refill Dworshak some time on May 28, Turner said. If we can use less than 100 KAF and meet the flow objective, we will do that.

With respect to the Brownlee operation, Bowling said it just happens that Idaho Power's planned operation coincides with the operation requested in SOR 2002-4. Moving on to the McNary and Grand Coulee operations, Norris said Reclamation is willing to use Grand Coulee to meet the 246 Kcfs flow target as long as Grand Coulee elevation does not fall below 1240 feet. It looks as though it should be possible to meet the 246 Kcfs flow objective at McNary for the foreseeable future, Norris said; if the forecast or flow conditions change dramatically, we'll convene an emergency call. It was so agreed.

#### ***10. Recommended Operations.***

Recommended operations were addressed during the previous agenda item.

#### ***11. Other.***

***A. Lower Monumental Full-Flow Bypass.*** Turner said June 2 is the last scheduled day of full-flow bypass at Lower Monumental; the Corps' position is that as long as the operation does not affect planned research, the Corps is willing to extend the full-flow bypass operation at Lower Monumental through June 20. After a brief discussion, Boyce said the salmon managers will discuss the full-flow bypass operation, and will provide a recommendation to the Corps prior to June 2.

***B. MOP+1-MOP+2 at Little Goose.*** Turner said MOP+1-MOP+2 is in effect at Little Goose at this time; given the current flow situation, that could be rescinded so that we return to MOP at Little Goose if the salmon managers so desire – we can maintain sufficient depth over the sill at the navigation lock without this operation, he said. Once Snake River flows recede, however, we will need to return to the MOP+1-MOP+2 operation, which means some filling at Little Goose probably some time in late June, causing a greater flow reduction temporarily while flows are receding. Boyce and others acknowledged the tradeoff and stated that, even given impacts from a fill while flows are receding, they wanted to aid the fish present at this time. After a brief discussion, it was agreed that the Corps will return Little Goose to MOP later in the week.

***C. Adult Fallback at Bonneville.*** Boyce asked whether the TMT would like a presentation from the researchers on the adult passage and fallback situation at Bonneville this year, particularly the question of whether this year's operation has raised any red flags with respect to delayed adult passage. There was general agreement that such a presentation would be useful.

***11. Next TMT Meeting Date.***

The next face-to-face meeting of the Technical Management Team was set for Wednesday, June 5. *[Meeting was postponed to Thursday, June 13.]*

Meeting summary prepared by Jeff Kuechle, BPA contractor.

**TMT MEETING PARTICIPANTS**

**MAY 22, 2002**

<b>Name</b>	<b>Affiliation</b>
Colin Beam	PPM
Scott Bettin	BPA
Ron Boyce	ODFW
John Bowling	IPC
Scott Boyd	COE
Mike Buchko	PowerEx
Ruth Burris	PGE
Chris Carlson	GCPUD
Dick Cassidy	COE
Suzanne Cooper	BPA
Scott Corwin	PNGC
Tom Ferro	NWS
Margaret Filardo	FPC
Russ George	Water Management Consultants Inc.
Laura Hamilton	COE
Richelle Harding	D. Rohr & Associates
Robin Harkless	Facilitation Team
Tim Heizenrater	UBS
Cathy Hlebechuk	COE
Karl Kanbergs	COE

Tom Le	PSC
Jim Litchfield	Consultant (Montana)
Ningjen Liu	IdaCorp Energy
Kyle Martin	CRITFC
Tony Norris	Reclamation
Mike O’Bryant	Columbia Basin Bulletin
Todd Perry	AEP
Steve Pettit	IDFG
Chris Ross	NMFS
Shane Scott	WDFW
Ken Soderlind	COE
Rudd Turner	COE
Maria Van Houten	UBS
Steven Wallace	PacifiCorp
David Wills	USFWS
Donna Silverberg	Facilitation Team

## TECHNICAL MANAGEMENT TEAM

BOR: *Tony Norris\Lori Postlethwait*      BPA: *Scott Bettin\Rick Pendergrass*

NMFS: *Paul Wagner\Chris Ross*      USFWS: *David Wills\Howard Schaller*

OR: *Ron Boyce*      WA: *Shane Scott*      ID: *Steve Pettit*      MT: *Jim Litchfield*

COE: *Cindy Henriksen\Cathy Hlebechuk\Rudd Turner*

## TMT MEETING

**5 June 2002**

*has been rescheduled for*

**13 Jun 2002      0900 - 1200 hours**

*Questions about the meeting may be referred to Cindy Henriksen at (503) 808-3945, or Rudd Turner at (503) 808-3935.*

## TECHNICAL MANAGEMENT TEAM

BOR: Tony Norris\Lori Postlethwait      BPA: Scott Bettin\Rick Pendergrass

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OR: Ron Boyce      WA: Shane Scott      ID: Steve Pettit      MT: Jim Litchfield

COE: Cindy Henriksen\Cathy Hlebechuk\Rudd Turner

## TMT MEETING

**13 June 2002      0900 - 1200 hours**

**Custom House      Room 118  
Portland, Oregon  
Conference call line: 503-808-5190**

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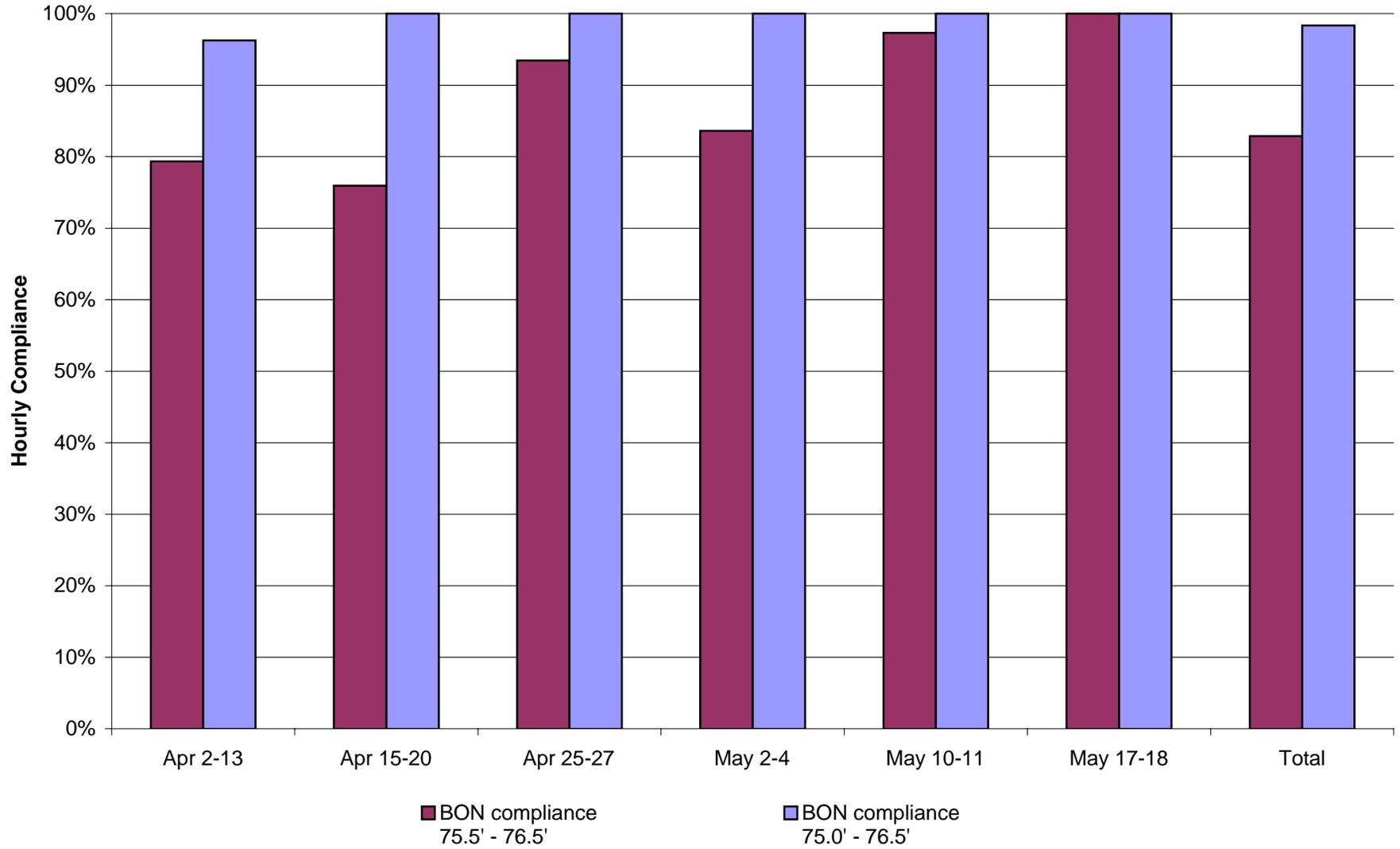
*All members are encouraged to call Donna Silverberg with any issues or concerns they would like to see addressed. Please e-mail her at [dsilverberg@cnnw.net](mailto:dsilverberg@cnnw.net) or call her at (503) 248-4703.*

## AGENDA

1. Welcome, introductions.
2. Hanford reach / Vernita Bar update (Grant PUD).
3. Weather update (NWS-RFC).
4. Snake water update (BOR).
5. Idaho Power operations update (IPC).
6. Chum emergence end date (WDFW, ODFW).
7. Lower Columbia adult migration study (COE).
8. Comments on FCRPS [emergency action list](#).
9. Review current system conditions.
  - fish migration status (NMFS, USFWS)
  - reservoir operation, water supply, power system, water quality (COE, BOR, BPA)
10. End of spill at collector dams, start of full transport at McNary (NMFS).
11. Review operational requests.
12. Develop recommended operations.
13. Other.
  - Corps Analysis of [Bonneville Pool Fluctuations](#) on 2002 Spring Treat Fishing
  - No spill Operation at The Dalles for Repair Work
  - Set agenda for 19 June TMT meeting

*Questions about the meeting may be referred to Cathy Hlebechuk at (503) 808-3942, or Rudd Turner at (503) 808-3935.*

### Pool Fluctuations at Bonneville



# **COLUMBIA RIVER REGIONAL FORUM**

## **TECHNICAL MANAGEMENT TEAM MEETING NOTES**

**June 13, 2002**

**CORPS OF ENGINEERS NORTHWESTERN DIVISION OFFICES – CUSTOM HOUSE  
PORTLAND, OREGON**

**TMT Internet Homepage: <http://www.nwd-wc.usace.army.mil/TMT/index.html>**

### ***1. Greeting and Introductions***

The June 13 Technical Management Team meeting was chaired by Cathy Hlebechuk of the Corps. The following is a distillation, not a verbatim transcript, of items discussed at the meeting and actions taken. Anyone with questions or comments about these minutes should call Cathy Hlebechuk at 503/808-3942.

### ***2. Hanford Reach Update.***

No Hanford Reach update was presented at today's meeting.

### ***3. Weather Update.***

Dan Macusiewicz of the River Forecast Center said that, over the next three days, little or no precipitation is expected in the Columbia Basin. Record temperatures are being reported across the basin, with freezing levels in the 11,000-13,000-foot range. Above-normal temperatures are expected across the Northwest today. We could get some scattered showers or thunderstorms beginning tonight, Macusiewicz said, but by Friday the weather is expected to dry out again. There may be some scattered showers and thunderstorms on Saturday, but temperatures will moderate.

The early part of next week is characterized by varying forecasts, Macusiewicz said; in general, there is a chance of showers across the northern part of the basin on Monday and Tuesday, with a chance of thunderstorms as the system pushes inward over the course of the week. Over the next two weeks, it looks as though below-normal precipitation and normal temperatures will prevail. Seasonally, it appears that precipitation will be somewhat below normal this summer.

Dave Westledge reported that the runoff response to the current hot weather has been good; although no flooding is anticipated, there could be several rivers in a bank-full condition on the east side of the Cascades well into next week. We don't expect inflows to exceed previous peaks except in the B.C. portion of the Columbia mainstem, Westledge said. We should see up to 50 Kcfs inflow to Libby by this weekend; in the Clearwater Basin, there isn't a huge amount of snow left in the mountains, he added.

With respect to the water supply forecast, said Westnedge, in the Upper Columbia, the forecast has increased, but to the south, in the Snake River Basin, we're seeing a decline over the past few months. The Clearwater/Dworshak forecast has stayed more or less constant since January, as has the forecast at The Dalles, where the forecast is in the mid-90% of average range. At Lower Granite, the June final forecast for January - July is 23 MAF, or 77% of average.

#### ***4. Snake River Water Update.***

In response to a question raised at a previous TMT meeting by Ron Boyce, Tony Norris provided a brief presentation about how Upper Snake flow augmentation water is typically routed through Brownlee Reservoir. Norris put up a series of overheads, noting that Idaho Power Company has a commitment to ensure that Reclamation's water gets out in a timely fashion. Norris provided a graph plotting cumulative daily storage in Brownlee against the cumulative volume passing Brownlee, for the period June 1-August 30, 1998. A second graph showed the same information for 1999, when Brownlee did not refill until late June. What this shows, essentially, is that the Upper Snake storage water does come out of Brownlee, Norris said.

What happened historically is pretty straightforward, said Boyce; the question was, what is the planned operation at Brownlee, given the fact that we have only 300 KAF of Upper Snake flow augmentation volume to work with this year? Idaho Power's operation does not vary from year to year, Norris replied – the water will still pass the project in much the same way. We do not have a shaping agreement this year; that option is not available to us, he said. But the timing of the release of the Upper Snake water is critical to salmon, Boyce said. I'm not sure what else you want to hear, said Norris – IPC will fill Brownlee, and will pass inflow until they start to draft the reservoir for power later this summer. John Bowling agreed that this is the case – Brownlee is now full, and will begin to draft in late July or early August, when the weather heats up and power prices increase.

How much of the Upper Snake water can we draft during July? Boyce asked. Absent a shaping agreement, none, until the weather starts to heat up, Norris replied – that's something that will have to be solved at a policy level, not at TMT. Boyce expressed profound frustration with this state of affairs. In response to a question, Norris said he can bring other graphs showing how Brownlee has been operated during years when there was no shaping agreement in place.

Bowling clarified Idaho Power's planned operation by saying that they hope to keep Brownlee full through all of July, if possible, then begin drafting in August. He added that Idaho Power did call Bonneville to discuss a 2002 shaping agreement, but that Bonneville elected to table that discussion, saying they are not interested in entering into a shaping agreement this year. Our plan, therefore, is to keep Brownlee full as long as possible, to avoid having to buy high-priced energy in August, said Bowling. Hlebechuk noted that it would be highly unusual if Idaho Power did not draft Brownlee at all in July.

In response to a question, Bettin said that, because a BPA/IPC shaping agreement is not required under the 2000 Biological Opinion, Bonneville does not feel obligated to negotiate one this year. Actually, said Paul Wagner, NMFS and BPA are still negotiating on that issue; a 2002 shaping agreement isn't completely off the table yet.

### ***5. Idaho Power Operations Update.***

This topic was covered during the previous agenda item.

### ***6. Chum Emergence End Date.***

Boyce said that, due to staffing reductions, he will not be able to provide the date of the end of 2002 chum fry emergence until the next TMT meeting. Shane Scott said that, with respect to recently-rehabilitated Duncan Creek, five miles downstream from Bonneville Dam, about 20 spawning pairs of chum were placed in the new spawning habitat. Field personnel have recently collected several thousand fry from that area, so the rehabilitated spawning area in Duncan Creek was conducive to successful spawning this year. We'll have a final report out detailing all of the chum spawning activity in 2001/2002 as soon as possible, Scott said. The sooner, the better, said Bettin.

### ***7. Lower Columbia Adult Migration Study.***

This agenda item was deferred until a future TMT meeting.

### ***8. Comments on FCRPS Emergency Action List.***

Hlebechuk noted that this list has been posted to the TMT homepage. Chris Ross said FPAC has talked about the list somewhat, but has not finalized its comments; we're proposing to finalize it at next week's meeting, he said. Conceptually, our feeling is that there need to be seasonal lists, because there are different priorities in spring, summer, fall and winter, said Ross. During the summer, for example, the first priority might be drafting storage reservoirs more steeply to meet load during a power system emergency. Bettin noted that the BiOp specifies ramp rates at various projects; he said some projects may not be available for instantaneous outflow increases. It's a coordination issue, he said, but I agree that season priority lists make sense.

We also wanted to discuss the possibility of going to overload at run-of-the-river projects, said Ross, with operation outside 1% happening first at projects where the fewest fish are present. There may be a little bit of incremental capacity to be had through that operation, but most of the gain is at McNary and Bonneville, which are already on the list, Rudd Turner said. We have also talked about reducing spill first at the projects where the fewest fish are present, said Ross, adding that the salmon managers appreciate the fact that they need to provide their emergency action list recommendations as soon as possible, in case anything happens.

Bettin noted that this list is intended for the use of dispatchers, who must deal with a problem that arises suddenly, often in the middle of the night. By the next morning, he said, if the emergency persists, we can convene an emergency TMT conference call to develop a more refined operation, but this prioritized list is intended for use during the short term only, after BPA has bought as much energy as possible and drafted Grand Coulee as hard as possible. Again, said Ross, we'll try to finalize the salmon managers' recommended summer emergency

action list by next week. In response to a question from Boyce, Bettin said he will provide ballpark estimates of how much additional generation will result from each of the measures on the current emergency list. He added that, until the summer priority list is finalized, the current list will remain in force.

### ***9. Review of Current System Conditions.***

Paul Wagner said that, with respect to the current status of the fish migration, there are two new memos regarding changes to the indices on the FPC homepage, which would be worth the TMT's time to read.

Yearling chinook indices are now on the wane, said Wagner, down to a few thousand per day at Lower Granite. A similar pattern holds sway at Little Goose and John Day. By the same token, subyearling chinook indices are on the rise at the Lower Snake projects, McNary and John Day. A similar pattern is true of steelhead yearlings and subyearlings, Wagner said, with yearling indices falling and subyearling indices on the rise at most projects.

In terms of the season as a whole, said Wagner, yearling chinook passage at the Lower Snake projects is right on the FPC's pre-season estimate for this date. He noted that the memos explain that while indices were lower than expected at Lower Granite (due to the spill provided and the effective operation of the RSW), the indices were right on what was forecast at Little Goose, the next project downstream. Bettin requested that the FPC include a brief but detailed explanation of exactly how this came about in their annual report, given the salmon managers' urgent requests earlier in this season for additional flows from Grand Coulee because of the delayed runoff and its presumed detrimental effects on outmigration success in 2002.

Wagner noted that yearling chinook passage at Rock Island and McNary did not meet pre-season expectations in 2002. With respect to steelhead passage at Rock Island, actual passage has far exceeded the pre-season forecast, which was a pleasant surprise, given the heavy hit this stock took in 2001, Wagner said.

Moving on to daily passage indices at Bonneville, Wagner said the run was somewhat later and more protracted than expected in 2002. At Lower Granite, the yearling chinook and steelhead daily indices are on the wane, while subyearling daily indices are on the rise, Wagner said – the bottom line is that the juvenile outmigration is definitely not over at Lower Granite. Boyce noted that wild juveniles from the Upper Grande Ronde are still being collected in ODFW's trap; obviously, he said, protecting the fish at the tail end of the migration is as important as protecting those at the peak of the migration.

Wagner noted that adult spring chinook passage has now slowed to a crawl. A total of 296,477 spring chinook passed Bonneville this year; about 67,000 passed Lower Granite. About 3,000 summer chinook continue to pass Bonneville daily, he added. This year's jack chinook count was 7,782 at Bonneville, nowhere near the 23,871 and 16,816 seen in 2000 and 2001, respectively, but still well in excess of the 10-year average. Wagner added that more than 46,000 wild steelhead passed Lower Granite in 2001, up from an average of about 10,000 in 1998 and 1999.

With respect to project operations, Hlebechuk said Lower Granite released 75 Kcfs yesterday, down from about 107 Kcfs over the weekend. At McNary, flows continue to be above the spring seasonal flow objective of 246 Kcfs; the day average has exceeded 246 Kcfs every day since May 22. The average flow for the week ending June 16 is expected to be 316 Kcfs, Hlebechuk said. Libby has filled 8.5 feet over the past week, and is now at elevation 2432.7 feet; the project is releasing full powerhouse capacity of 26 Kcfs, an operation that began Tuesday, after we looked at the most recent forecast, Hlebechuk said.

Continuing on, she said Albeni Falls elevation is now 2060.88 feet; the project is drafting slightly. At Dworshak, we're at 1588.6 feet, up 15 feet over the past week, said Hlebechuk; yesterday, we increased project discharge to 7.5 Kcfs. We'll hold that until the weekend, then ramp down to minimum outflow, then back up again to 7.5 Kcfs on Monday, Hlebechuk said – we're watching that situation carefully. She added that IDFG had asked if the Corps could maintain flat outflows in support of the fishery below Dworshak; the Corps and IDFG discussed that operation, but we've been receiving all kinds of different flow requests for fishing – 1.5 Kcfs, 6 Kcfs, 10 Kcfs, she said. Fishing really isn't an authorized project purpose, said Hlebechuk; we do daily shaping both for power and to reduce spill in the Lower Snake over the weekend.

The only issue is holding a flat flow, whatever outflow you choose from Dworshak, Steve Pettit said -- it's a big issue. After a brief discussion, Hlebechuk said the Corps has pretty much decided that the above-described operation – 7.5 Kcfs Dworshak outflow during the week, 1.9 Kcfs Saturday and Sunday – is what it is going to do. She noted that the Corps does try to consider fishing in its operations, but again, that is not an authorized purpose – she said she worked very hard over the Memorial Day weekend to meet the Salmon Manager's May 20 – 27 week-average flow of 97 Kcfs. She said she could have simply held 10 kcfs (full load) at Dworshak for the entire weekend which would have resulted in even higher Lower Granite outflows. However, on Monday, May 27 (the Memorial Day holiday), she noted the 97 kcfs objective would be met even if Dworshak flows were reduced that day. Noting that the Dworshak Hatchery complex has felt a 6 kcfs outflow is good for fishing, she reduced flows that day to 5800 cfs. So the answer is no to our request to hold 6 Kcfs Dworshak outflow through the weekend? Pettit asked. That's correct, Hlebechuk replied – we'll be adjusting Dworshak outflow to ensure steady refill through the remainder of the month. In response to a question from Bettin, Pettit requested that the reduction from 7.5 Kcfs outflow to 1.9 Kcfs outflow take place at night. In response to a question from Pettit, Hlebechuk said the reason for this operation is to avoid premature refill and forced spill at Dworshak.

Boyce noted that it would have been preferable to have released some of the water that is now being released a month ago, when more fish were migrating through the system. Is the migration over now? Bettin asked. No, but there were more fish in the river then, said Boyce. Hlebechuk noted that, last month, the action agencies agreed to continue to release 10 Kcfs from Dworshak, even as the forecasts were indicating that refill could be a problem at Dworshak and Grand Coulee. Now we have too much water, and we're gassing up fish, Boyce said – hindsight obviously makes this discussion easier, but to me, refill was never an issue at either Grand Coulee or Dworshak. Can you show me on the FPC website where we're gassing up fish? Bettin

asked. We are exceeding the 120% TDG standard, Boyce said. I would agree with that, said Bettin. And I agree that hindsight makes this discussion simpler, said Jim Litchfield.

Hlebechuk went through the operations the action agencies agreed to earlier this spring to benefit migrating fish, including the maintenance of high outflows from Dworshak for as long as possible. I'm not sure what we could have done better, particularly with respect to Dworshak operations, she said. Hlebechuk added that many in the region tend to forget the importance of shape, in addition to volume, in the overall runoff picture. Even though this was a below-average runoff year, said Hlebechuk, we would have reached 22.5' on the Columbia River at Vancouver (six feet above flood stage) last week rather than the actual 11.7' peak elevation reached if we hadn't been able to use flood control storage. It can go either way, Litchfield agreed – this year, we happened to get a warm spike, and runoff volumes were higher, rather than lower, than expected.

Moving on, Norris said Grand Coulee was at elevation 1276.8 feet this morning. Grand Coulee spilled on June 7, 8 and 9. Hungry Horse was at 3541 feet this morning, and releasing 9.5 Kcfs (powerhouse capacity: 9 Kcfs) to avoid filling and spilling at that project. Inflows to the project are about 10.5 Kcfs and rising, he added. Bettin added that there are no problems to report in the power system, currently, although there were a couple of problems with the Southern California transmission lines last week; fires caused two lines to be de-rated. Those problems have now been fixed, he said.

Dick Cassidy noted that the system was operated to 125% TDG for more than a week when flows were peaking and the California transmission lines were being derated; it is now being operated to stay within 120% TDG. There are still a number of exceedences of the 120%/115% TDG standard ongoing, he said. We worked with NMFS to change the spill priority list, said Cassidy; it is now Bonneville first. As Tony mentioned, Grand Coulee also spilled this weekend, Cassidy added. In response to a question from Boyce, Bettin said the California transmission line derating caused TDG levels to rise by an average of perhaps 5% during the hours it persisted. Again, he said, that problem is over, at least until the next lightning strike. In response to another question, Cassidy said the Fish Passage Center has estimated that 5% of the fish sampled during the line derating showed Level 1 signs of gas bubble trauma. Bettin added that, thanks to the installation of flow deflectors, the spill cap at John Day has increased from 7 Kcfs in 1995 to up to 200 Kcfs today.

#### ***10. End of Spill at Collector Dams, Start of Full Transport at McNary.***

Wagner noted that the BiOp says that full transport at McNary should begin when conditions are no longer spring-like – flows below 220 Kcfs, water temperatures of 17 degrees C or higher. We're no where near those conditions at this point, and probably won't be until July, he said. NMFS therefore feels that full transport at McNary should not begin for at least the next two weeks. With respect to the end of required spill at collector dams, said Wagner, we expect that uncontrolled spill will continue for some days yet. The question is, when can we lift the spill requirement at the collector dams? Bettin asked. June 20 is the planning date in the BiOp,

Wagner replied.

Turner expressed concern about the possibility that full transport at McNary might not begin until mid-July, if Wagner's predictions hold true. Turner noted that, although the SSARR does show that McNary flows are unlikely to fall below 220 Kcfs until the third week in July, water temperatures and, consequently, predator activity, are likely to increase before flows fall below 220 Kcfs at McNary. Wagner replied that NMFS and the other salmon managers will monitor the situation closely, and will bring their recommendations to TMT at the appropriate time.

It sounds, then, as though we will not begin full transport at McNary for at least the next two weeks, but that we will plan to end spill at the collector dams on June 20, Bettin said. Boyce said he would like to keep the question of ending spill at the collector dams on the table for the time being; we're still reviewing some of the relevant information, he said. Bettin noted that spill at the collector dams will continue; it is simply the 150 Kcfs requirement that would be lifted. So if we want to change that planned operation, we will need to submit an SOR? Boyce asked. Correct, Bettin replied.

With respect to the Snake River projects, said Wagner, as was mentioned earlier, the subyearling migration is on the rise, while yearling numbers are falling. He said that, given current conditions in the Snake River, NMFS is comfortable with ending the spill requirement at the Snake River collector projects on June 20 as well. Bettin said that, based upon the information he has seen this morning, with yearling passage indices being flat for the past week, he would prefer to end spill at the Snake river collector projects on Monday morning, June 17. Wagner replied that 6 a.m. June 20 would be his preference; it was so agreed.

### ***11. Review of New System Operational Requests.***

No new system operational requests were presented at today's meeting; Boyce reiterated that the salmon managers are working on their summer operations plan.

### ***12. Recommended Operations.***

For the period of June 17-30, we will operate the system to refill the projects and stay within the 120%/115% TDG standards, Hlebechuk said; the only significant change in planned operations is that we will end the spill requirement of 150 Kcfs at McNary at midnight, June 20, and 6 a.m. June 20 at Little Goose and Lower Granite.

### ***13. Other***

#### *Corps Analysis of Bonneville Pool Fluctuations on 2002 Spring Treat Fishing*

Rudd Turner handed out a sheet showing Corps computations fluctuations of the pool during the spring treaty fishing periods this year. The Corps data shows for the seven week fishing period, the 1.5 foot operational band requirement was met 96.2%, of the time one week,

98.2% of the time one week and 100% of the time for the remaining five week period. Rudd said he wasn't sure where CRITFIC was getting their data in their May 22 analysis which showed a much lower compliance percentage.

*No spill Operation at The Dalles for Repair Work*

Mike Langeslay of Walla Walla District Corps office requested a no spill operation at The Dalles on Friday, June 21 between 0900 – 1700 hours to replace a fish release hose for spillway control releases (fishery research work). TMT members approved the request.

***Next TMT Meeting Date.***

The next meeting of the Technical Management Team was set for Wednesday, June 26. Meeting summary prepared by Jeff Kuechle, BPA contractor.

**TMT ATTENDANCE LIST**

**JUNE 13, 2002**

<b>Name</b>	<b>Affiliation</b>
Colin Beam	PPM
Jennifer Bennett	BPA
Scott Bettin	BPA
John Bowling	Idaho Power Co.
Ron Boyce	ODFW
Mike Buchko	PowerX
Ruth Burris	PGE
Richard Cassidy	COE
Suzanne Cooper	BPA
Margaret Filardo	FPC
Russ George	Water Management Consultants Inc.
Laura Hamilton	COE
Scott Hanson	BPA
Richelle Harding	D. Rohr & Associates
Tim Heizenrader	UBS
Cathy Hlebechuk	COE
Mike Langeslay	COE

Jim Litchfield	Consultant (Montana)
Tom Lorz	CRITFC
Tony Norris	Reclamation
Mike O'Bryant	Columbia Basin Bulletin
Amy Reese	COE
Chris Ross	NMFS
Shane Scott	WDFW
Mary Scullion	COE
Glen Traeger	Avista Energy
Rudd Turner	COE
Paul Wagner	NMFS
Steven Wallace	PacifiCorp
Terry Weeks	PNGC
David Wills	USFWS

# TECHNICAL MANAGEMENT TEAM

BOR: Tony Norris \ Lori Postlethwait      BPA: Scott Bettin \ Rick Pendergrass

NMFS: Paul Wagner \ Chris Ross      USFWS: David Wills \ Howard Schaller

OR: Ron Boyce      WA: Shane Scott      ID: Steve Pettit      MT: Jim Litchfield

COE: Cindy Henriksen \ Cathy Hlebechuk \ Rudd Turner

## TMT MEETING

**26 June 2002      0900 - 1200 hours**

**Custom House      Room 118  
Portland, Oregon  
Conference call line: 503-808-5190**

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

## AGENDA

1. Welcome, introductions.
2. Weather update (NWS-RFC).
3. Sturgeon pulse / Libby spill test update (Corps).
4. Lower Columbia adult migration study (COE).
5. Review current system conditions.
  - fish migration status (NMFS, USFWS)
  - reservoir operation, water supply, power system, water quality (COE, BOR, BPA)
6. Review operational requests.
7. Develop recommended operations for 1 - 14 July.
8. Other.
  - [Chinook chum emergence below Bonneville](#)
  - set agenda for 10 July TMT meeting

*Questions about the meeting may be referred to Cathy Hlebechuk at (503) 808-3942, or Rudd Turner at (503) 808-3935.*

# COLUMBIA RIVER REGIONAL FORUM

## TECHNICAL MANAGEMENT TEAM

### MEETING NOTES

June 26, 2002

## CORPS OF ENGINEERS NORTHWESTERN DIVISION OFFICES – CUSTOM HOUSE PORTLAND, OREGON

**TMT Internet Homepage: <http://www.nwd-wc.usace.army.mil/TMT/index.html>**

### FACILITATOR'S SUMMARY NOTES ON FUTURE ACTIONS

Facilitator: Donna Silverberg

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

#### **Weather Update:**

Marty Lee, RFC, reported high (some record) temperatures throughout the region for the next day or so with a weaker trough moving in over the weekend and bringing some light precipitation, cloud cover, and a slight cooling trend.

#### **Sturgeon Pulse:**

Three sturgeon larvae will be released out of the hatchery near Libby. One larva was released last week, another is scheduled this week, and one more will be released next week. It is hoped that the that additional flows this year will help fish movement, some of which has been observed in wild fish. The cooler temperatures have led to fewer spawners this year, an anomaly that has been seen before but is still not well understood.

#### **Libby Spill Test Update:**

The spill test at Libby began June 25 in the face of very high inflows to the reservoir. What is left of the winter snow pack is coming off and fast! COE noted that the total dissolved gas cap of 125% was reached sooner than expected: as early as spill releases of 6,000 cfs. Under different circumstances, this would have stopped the study. However, due to the natural high flows and spill being done for flood control measures, the COE has continued to collect study related data. Local biologists are closely monitoring initial observations of gas bubble trauma to fish in net pens and two wild fish (trout). The regional Water Quality Team will be alerted to the situation. At the same time, spill data is being collected and will be for some time. It was noted that thorough documentation of this high flow situation and its effects on fish will be very important for continued learning of the system. The COE's Rudd Turner asked TMT for input as the Corps moves into a flood control operation at Libby. TMT did not object to the proposed gradual ramping up to 32,000 cfs.

#### **Lower Columbia Adult Migration Studies:**

David Clugston, COE, and Chris Perry, University of Idaho, reported their initial assessment of a spill test at Bonneville. While the intent of the study was to examine adult fallback, preliminary analysis shows a relationship between changes in spill and fish movement, but the connection between passage times in relation to high and low spill is not so clear. It was noted that this could be a result of the high number of adults returning. In any event, the data needs to be more thoroughly analyzed before any conclusions are drawn. The data collection will continue through the summer with summer Chinook. ODFW's Ron Boyce requested that communications between the researchers and the Salmon Managers be kept open as the study continues through the summer. He noted they are expecting record number of returns and information on fallback or impacts to harvest due to the spill fluctuations would be helpful.

**Next Steps:** Chris and David will discuss further data assessment from this study at the July 10 TMT meeting.

**Review Current System Conditions:**

**Fish:** Paul Wagner reported that yearling Chinook are on the wane after a very large spring return. Sub-yearling numbers have increased and should peak in late August.

Paul also noted that with the higher flows at the John Day pool decreasing the likelihood of predation and the lower temperatures at JDA and McNary, NMFS is requesting that transport at McNary not begin just yet. He noted that the situation will need to be closely monitored, but as yet NMFS does not believe the "end of spring-like conditions" has been reached. Paul will report on temperatures at McNary and Lower Granite at a special July 3<sup>rd</sup> call to discuss the beginning of transport.

**Action:** After some discussion about what should be considered the "end of spring-like conditions", the group agreed to wait to begin full transport operations at McNary until further discussion next Wednesday. Any TMT member may call an emergency if in-river temperatures rise to dangerous levels for fish (over 17 degrees for a period of days).

**Conference call at 9 am Wed. July 3<sup>rd</sup> to discuss this issue.**

**Chum emergence:** Ron Boyce handed out preliminary graphs on chum emergence; a full report will be out in September. The group agreed that this report would be helpful to inform decisions for Fall chum operations. Ron will provide graphs on chum emergence numbers, locations, and elevations from the 2001/2002 season so that TMT can start to track the new movements of chum **at the July 10 TMT meeting.**

**Reservoir operations:** Rudd Turner reported that all COE projects are close to full. The current Dworshak operation is to pass inflow at around 18 kcfs until July 7, then operate at full powerhouse plus 110% TDG until the end of August. This modeled operation, Rudd said, is open to future TMT discussions. Lori Posthleitwait reported on BOR projects. Hungry Horse is five feet from full and expected to be full after the first week in July. Grand Coulee will fill after the July 4 holiday weekend. They are not anticipating any of the Snake River projects to fill this year with 61% for the Upper, 77% for the Boise and 98% for the Payette the expected fill levels.

Water quality: Dick Cassidy reported that maximum TDG levels have been reached at Dworshak over the past week. Due to high flows and involuntary spill, they have been struggling with TDG exceedences of 120% at McNary, John Day and Bonneville.

**SOR 2002 C-8:**

Tom Lorz discussed the Dworshak summer operations plan as requested by the Nez Perce Tribe, CRITFC, and Idaho. The request is to keep Dworshak full until July 14, then begin ramping down through September 29. The request is mindful of temperatures and flows, and is open for modification as conditions change and is needed. Washington supports the guidelines within the request, but would like to see flexibility with the ending elevation. Oregon is concerned with shifting water from summer to fall, and supports implementation of the Biological Opinion. USFWS is concerned that water be available in July for the early part of the run, but feels that based on this year's flows, there may be some water left over in August to be used as per the request. NMFS said this is looking like a year they might be able to accommodate this request from the tribes given this year's conditions.

**Action:** The request will be implemented at least until July 3. Dworshak will remain full until the TMT revisits the issue at TMT's call on July 3. In addition, there is a request to utilize one Walla Walla COE monitoring station for this operation. Dick Cassidy will explore with the Walla Walla group ways to implement this part of the request. All members will discuss the request with their agencies and report back on July 3.

**Review Recommended Operations:**

TMT reviewed all projects and agreed to the recommended operations until July 3.

**Other:**

The Salmon Managers are working on an SOR for BOR and Brownlee project operations and will have it available next week.

The Salmon Managers are coordinating with the COE and BPA on an emergency action list. An updated draft was handed out. The Action Agencies will examine the list and Scott Bettin will present scenarios and additional information at the next FPAC meeting. TMT will discuss any changes to the list at their July 10 meeting with the intent of creating a "TMT Guidance" document for schedulers/operators. In the interim, the list provided at this meeting will be utilized.

A separate TMT Water Management Plan meeting will be held July 17 from 9 am to 12 pm. TMT will discuss just the WMP and will not discuss operations.

**Next Meeting, July 3 (call):**

Agenda Items:

- McNary
- SOR 2002 C-8—beyond July 4

- SOR from Salmon Managers re: BOR projects & Brownlee

### **July 10 Meeting:**

Agenda Items:

- Chum numbers, locations from 2002
- Bonneville Spill Test – Additional Analysis
- Next Steps on Emergency Action List
- Weather Update

## **Meeting Minutes**

### ***1. Greeting and Introductions***

The June 26 Technical Management Team meeting was chaired by Rudd Turner of the Corps and facilitated by Donna Silverberg. The following is a distillation, not a verbatim transcript, of items discussed at the meeting and actions taken. Anyone with questions or comments about these minutes should call Turner at 503/808-3935.

### ***2. Weather Update.***

A National Weather Service representative briefed the TMT on current weather conditions across the basin; he said that, over the past three days, temperatures have been ramping up. That will be a continuing trend over the next 24 hours until we head into a gradual cooling trend, he said. Boise temperatures are expected to hit 102 degrees today; in Missoula, 94 degrees. Temperatures will be cooling off over the next two days, however, he said. There is a chance of minor precipitation on the east side of the Cascades from this weak front, he said. Once we reach the weekend, a second front might provide a bit more in terms of effective cooling and cloud cover, with the possibility of a few scattered showers in the Middle Snake and up into the Idaho panhandle.

### ***3. Sturgeon Pulse/Libby Spill Test Update.***

Turner reported that there is considerable inflow at Libby currently – 50 Kcfs-70 Kcfs, which is expected to persist for the next two or three days. The project is about eight feet from full. The spill test got underway yesterday, Turner said. There is still some snow up there, and the shape of what's left becomes very important at this point in the season. We may need to hold discharge above full powerhouse capacity – as much as 10 Kcfs spill – past the planned duration of the test – it looks as though we'll need to hold 35 Kcfs for several days in order to delay refill, Turner said. Spill does create gas at Libby, Turner said, so we're going to try to minimize that as much as possible.

Bob Hallock reported that the first batch of sturgeon larvae were released last Friday; a couple of more batches are expected to be ready in the next few days. We'll only be spawning three sturgeon in the hatchery this year, Hallock said, adding that the high flows currently being experienced in the Kootenai should be beneficial to natural spawners in the system. In response

to a question from Paul Wagner, Hallock said field personnel have documented some wild sturgeon spawning in the Kootenai. The current flow at Bonners Ferry is about 35 Kcfs, added Scott Bettin.

Marian Valentine reported on the spill test at Libby; she noted that the plan for the test has been altered in response to the most recent weather and runoff forecasts. She noted that safeguards are in place to stop the test if signs of gas bubble trauma were seen in net-pen rainbow trout or if dissolved gas levels exceeded the 125% threshold below the project. Both of those parameters were exceeded at 6 Kcfs spill yesterday, Valentine said; however, because of the current high inflows Libby is experiencing, we did not stop the test. Instead, the decision was made to continue to gather physical and biological data during this period of high flow and spill at Libby. Technically, Libby is now into a flood control operation, not a spill test, added Hallock; however, we are going to continue to collect data. In response to a question from Turner, Valentine said preliminary monitoring results showed gas levels of 110% at 3 Kcfs. At 4 Kcfs, we saw TDG levels of 115%-122%, Hallock added.

We're now heading toward 10 Kcfs spill for an indeterminate period? Jim Litchfield asked. We haven't decided that yet, but it is possible, Turner replied – the project is now releasing 25 Kcfs through the powerhouse and 5 Kcfs through the spillway. There is a conference call scheduled for this afternoon to talk about going to a total discharge of 32 Kcfs, 7 Kcfs of which would be spill, Turner said. He added that, based on the current spreadsheet, it appears that some spill could occur at Libby through the month of July. We'll give you a further update at next week's TMT call, he said.

#### ***4. Lower Columbia Adult Migration Study.***

Turner reminded the group that there had been a request, at a previous TMT meeting, to hear some preliminary results from the ongoing Lower Columbia adult migration study; in particular, the effects of the ongoing spill study at Bonneville on adult passage and fallback at that project. Turner introduced David Clugston of the Corps and Chris Peery of the University of Idaho, two of the principals involved in the test.

Clugston said the Bonneville spill test began on April 10; it consists of two-day blocks of 75 Kcfs spill followed by two days of spill up to the gas cap, about 134 Kcfs on average. So far, everything has cooperated, flow-wise, and we've been able to achieve good study conditions, he said. One thing we saw right away is that the adult passage counts changed noticeably and consistently in response to the two spill regimes, Clugston said – during the high-spill blocks, counts went down, and when spill was reduced to 75 Kcfs, passage came back up. This was particularly apparent at the Cascade ladder, he said; at the Washington ladder, the pattern was less well-defined, which is indicative that the spillway channel the fish choose to take is involved to some degree. He noted that the majority of the adults are using the Washington ladder, according to the PIT-tag data.

Peery then described his radio-telemetry work to evaluate passage conditions for adults through the basin; he said adult fish are collected and radio-tagged at Bonneville, and are then released about five miles downstream from the project. The fish are then monitored as they make

their way back upstream. We're tracking travel time from release to the Bonneville trailrace, then from the tailrace to the fishways, under both low and high spill conditions. In general, he said, we're seeing little difference in travel time under the high and low spill conditions, Peery said. Do you have any feel for whether or not there is a difference in fallback rates under the high and low spill conditions? Ron Boyce asked. I don't have a feel for that at this time, no, Peery replied; it takes a lot of processing to evaluate the telemetry data. Based on a cursory look at the data, fallback has been relatively low this year – about 5% of the total number of fish passing. He added that average travel times have been somewhat slower this year than normal; this is most likely a reaction of the fish to the spill treatment. In looking at the data, it appears to me that the fish are reacting to the change in spill from low to high and high to low, rather than the absolute level of spill that is occurring, Peery said. He reiterated that all of these data are preliminary, and said his final report will contain a much more refined evaluation of what occurred in the spring of 2002.

In response to a question from Boyce, Clugston said the plan is to continue the Bonneville spill test into the summer period. Boyce noted that a record summer chinook run is forecast for this year, the highest since the 1950s; he said there is a great deal of concern among harvest managers about the possible detrimental impacts of the spill test on those fish. It is very important that you communicate any problems with respect to delay or fallback immediately, Boyce said. We'll do our best, Clugston said; however, it takes a long time to get the telemetry data into coherent shape. The reality is that this is a research project, not a monitoring project, he said – we're just not set up to provide the kind of real-time data you're talking about.

In response to a question from Silverberg, Peery said it should be possible to provide more detailed information from the test at the next face-to-face TMT meeting. What we're particularly interested in is any problems you saw with adult fallback during the spring period, before we get too deep into the summer run, said Boyce. Is it fair to say that you're not seeing any significant adverse impact on adult passage with either the high spill or the low spill treatments? Turner asked. Not so far, Peery replied. That's good, said Turner – we feel this test is giving us some very valuable information, and intend to continue it through the end of August, unless there is strong evidence that the test is significantly impacting adult passage.

### ***5. Current System Conditions.***

With respect to the status of the migration, Wagner said yearling chinook migrants are definitely on the wane; we saw a slight bump in the indices at Lower Granite and Little Goose during the few days leading up to May 20, with steelhead showing a similar trend while high levels of spill were being provided at those projects. While we're only talking about a few thousand fish per day out of a run of 2.8 million, he said, these are valuable, late-migrating fish.

We're now seeing a dramatic increase in subyearling passage at Lower Granite, Wagner continued, although we're not seeing huge numbers at Little Goose or Lower Monumental as yet. At McNary, we saw 589,000 subyearling chinook yesterday; transport has not yet begun at that project, because flows continue to be high and temperatures are still relatively low. The question now becomes, when will we reach the 95% passage point in the subyearling migration past Lower Granite, said Wagner; the current estimate is that 22% of the run has now passed that

project (with error bounds of 28%), and the prediction is that 50% of the run will pass Lower Granite by about July 8, with the 95% point of passage reached sometime around mid-August.

With that in mind, he said, we'll be managing the system primarily for flow and temperature over the next two months, particularly given the fact that water temperatures are expected to approach the 20 degree C threshold in the Lower Snake River by mid-July. The current water temperature at the Lower Granite forebay is about 14.5 degrees C; they will only climb from here, with air temperatures forecast to be in the 90-degree+ range for the foreseeable future.

Wagner noted that, while water temperatures are now approaching 17 degrees C at McNary, flows are still well in excess of 220 Kcfs, so the decision, at this point, is to continue to leave the fish in the river and not to begin transport at McNary at this time. We'll check back in on that decision as conditions change, Wagner said; with flows as high as they are currently, predation is less of a concern than it might normally be at this point in the season.

Turner noted that the BiOp states that, as long as flows exceed 220 Kcfs and water temperatures are less than 17 degrees C, springlike conditions persist. He said the Corps' interpretation of that statement is that once either or both of those conditions no longer exist, springlike conditions no longer exist. We've got some concern about that, he said; despite the fact that flows remain high, water temperatures are on the rise. What it comes down to is that we want to be sure that we're implementing the Biological Opinion, Turner said. It sounds to me as though, if flows remain high but water temperatures reach 17 degrees C at McNary, we may want to go ahead and start transporting, he said.

We may, Wagner agreed; however, the best study data we have shows little benefit to transportation from McNary until late July and August. The 1995-'96 study showed only a slight benefit to transport from McNary across the entire summer season. The bottom line, he said, is that I am not overly concerned that we must start transport once water temperatures at McNary reach 17 degrees. Is that your interpretation, or NMFS' interpretation? Silverberg asked. That is NMFS' position, Wagner replied. Boyce added that the other salmon managers are concerned about the number of subyearlings transported in previous years, and would prefer, given the uncertainty of the science about the benefits of subyearling transportation, to achieve a greater balance between transportation and in-river migration.

After a few minutes of further discussion, it was agreed to revisit the McNary transport issue at the July 3 TMT conference call; until that time, there will be no transport from McNary, with the caveat that any TMT member can convene an emergency conference call if water temperatures rise above 17 degrees C.

Moving on to current system operations, Turner said most of the storage reservoirs in the system are now nearing full, and the project operators are managing those facilities to smooth the operation out to the greatest extent possible. Flows at Bonneville averaged 326 Kcfs last week; at McNary, 330 Kcfs; at Lower Granite, 90 Kcfs. Day-average flows at Lower Granite were 91.5 Kcfs yesterday; there is still some involuntary spill occurring at that project due to lack of unit availability.

At Dworshak, we're currently releasing full powerhouse capacity plus 2 Kcfs spill and the reservoir is hanging in there within a half-foot of full, 1599.6 feet, Turner said. Inflows to the project continue to be in the 16 Kcfs range. It's basically a pass inflow operation at Dworshak, currently; this week's spreadsheet shows that operation continuing until July 7, said Turner. After that, the spreadsheet shows us releasing full powerhouse capacity plus spill to the 110% TDG level in order to achieve elevation 1520 feet by August 31, he said. That's a modeled operation, he said, but we're open to further discussion about what the actual operation should be.

The current elevation at Libby is 2451 feet, Turner continued; the project is releasing 30 Kcfs, with the possibility of up to 35 Kcfs outflow from that project later this week. The spreadsheet shows us running full and spilling at Libby through the month of July, he said. Libby will then release full powerhouse capacity through July, drafting about a foot per day to reach elevation 2439 by August 31. Albeni Falls is very close to full and releasing 75 Kcfs, he added.

Lori Postlethwaite reported that Grand Coulee is now about 5 feet from full, and will likely fill some time after Fourth of July weekend. In the Upper Snake, only the Cascades project is expected to refill this year. The Upper Snake projects are only expected to reach 61% of full this year; the Boise projects are forecast to be 77% full, and the Payette system will be at about 98% full/ She added that Hungry Horse is expected to fill to elevation 3560 feet by the first week in July; there is a possibility that it will surcharge slightly above that elevation.

Moving on to water quality, Dick Cassidy went through some of the current total dissolved gas hot spots in the system. Flows continue to be high throughout the Snake and Lower Columbia; involuntary spill is occurring at Lower Granite, McNary, John Day and Bonneville. In general, he said, there are still a number of exceedances of the 120% TDG standard occurring. The power system continues to be in good shape, Bettin said.

## ***6. New System Operational Requests.***

On June 26, the action agencies received SOR 2002 C-8. This SOR, supported by the Columbia River Inter-Tribal Fish Commission, requests the following specific operations:

1. Keep Dworshak full (elevation 1600) through July 14. Pass inflow and use 47 degree F water
2. Ramp up flows to 6 Kcfs by mid-day July 15; hold this outflow through July 21
3. Ramp up flows to 9 Kcfs by mid-day July 22; hold this outflow through July 28
4. Ramp up flows to 13 Kcfs by mid-day July 29; hold this outflow through August 4
5. Ramp up flows to 14 Kcfs by mid-day August 5; hold this outflow through September 1
6. From September 2 through September 8, reduce flows to 10 Kcfs
7. From September 9 through September 15, reduce flows to 7 Kcfs
8. From September 16 through September 22, reduce flows to 2.5 Kcfs
9. From September 23 through September 29, reduce flows to near minimum (1.4 Kcfs)

Tom Lorz spent a few minutes going through this SOR, the full text of which is available via the TMT website. Bettin noted that, given the fact that Dworshak will be passing inflow for

at least the next week, it probably isn't necessary for the TMT to make a decision on this SOR at today's meeting. Lorz agreed, saying that the tribes felt it would be prudent to get their Dworshak operations proposal out on the table now to give the other stakeholders adequate time to assess it. In response to a question, Lorz said EPA has not yet had an opportunity to model the expected water temperatures under this proposed operation.

The group devoted a few minutes of discussion to CRITFC's proposal; Boyce noted that Oregon supports the BiOp direction that Dworshak be drafted to elevation 1520 feet by August 31. David Wills said the Fish and Wildlife Service feels the earlier part of the run is the most important, and that all of the available draft from Dworshak should be used in July and August if needed. It may not be possible to get all of that water out by August 31 this year, however, he said, so Mother Nature may implement this SOR whether or not we intend to. Wagner noted that, in most previous years, low summer flows and high water temperatures have made it difficult or impossible to implement the tribes' recommended summer operation and save some of the Dworshak water for use in September; this year, however, it appears that we should be able to come closer to that operation, if not achieve it. NMFS is supportive of the concept of using a portion of the cooler water from Dworshak in September, with the caveat that, once Snake River flows begin to decrease and water temperatures rise, we begin flow augmentation from Dworshak. We're certainly in favor of postponing the draft of Dworshak as long as possible, Wagner said; we are interested in working with others around this table to implement this SOR, as long as we don't violate the objectives laid out in the BiOp.

Ultimately, it was agreed to revisit SOR 2002 C-8 at next week's TMT conference call.

#### ***7. Recommended Operations for July 1-14.***

The recommended operations for the period of July 1-14 were covered during the previous agenda item; they will be revisited at next week's TMT conference call.

#### ***8. Summer Operations Emergency Priority List.***

Chris Ross led a discussion of the most recent draft of the emergency priorities list; various TMT participants offered changes and additions to the list. It was agreed that a revised emergency priorities list will be distributed prior to the next TMT meeting, and that the group will attempt to finalize the list at its July 10 meeting.

#### ***9. 2003 Water Management Plan.***

It was agreed to set a meeting date to begin development on next year's plan, so that it is completed in time to meet the September delivery date called for in the BiOp; July 17 was the date set for that meeting.

#### ***9. 2002 Chum Emergence Data.***

As requested at a previous TMT meeting, Boyce provided a memo detailing the timing of

2002 Lower Columbia chum emergence. He noted that this data is preliminary; it has not been reviewed by WDFW or the Fish and Wildlife Service. We'll be producing a fact sheet on chum abundance, spawning and emergence in September, prior to the planning season for the 2002 chum spawning, Boyce said. Bettin said that, from his perspective, information on the number of spawners and the location and elevation of the 2001 chum redds would be most useful to our discussions this fall. We can provide that, Boyce replied.

**10. Next TMT Meeting Date.**

The next meeting of the Technical Management Team (a conference call) was set for Wednesday, July 3. Meeting summary prepared by Jeff Kuechle, BPA contractor.

**TMT Meeting Attendance**

**June 26, 2002**

<b>Name</b>	<b>Affiliation</b>	<b>Phone</b>
Rudd Turner	COE	503/808-3935
Scott Bettin	BPA	503/230-4573
Shane Scott	WDFW	360/902-2812
Paul Wagner	NMFS	503/231-2316
David Wills	USFWS	360/696-7605
Ron Boyce	ODFW	503/872-5252 x 5403
Nancy Yun	COE	503/808-3937
Rick Pendergrass	BPA	503/230-7666
Suzanne Cooper	BPA	503/230-5077
Russ George	Water Management Consultants Inc.	503/253-1553
Roland Springer	BPA	503/230-4793
Richelle Harding	D. Rohr & Associates	503/408-4969
Robin Harkless	Facilitation Team	503/248-4703
Mike O'Bryant	Columbia Basin Bulletin	503/281-9102
Dick Cassidy	COE	503/808-3938
Steven Wallace	PacifiCorp	503/813-5325
Chris Peery	U of I	208/885-7223
David Clugsdon	COE	503/808-4751
Lauren Hamilton	COE	503/808-3939

Maria Van Houten	UBS	503/464-7961
Scott Boyd	COE	503/808-3943
Ruth Burris	PGE	503/464-7998
Jennifer Love	PPM	503/813-6235
Chris Ross	NMFS	503/230-5416
Donna Silverberg	Facilitation Team	503/248-4703
Jim Litchfield	Consultant (Montana)	503/222-9430
Tom Lorz	CRITFC	503/238-3574

# TECHNICAL MANAGEMENT TEAM

**BOR:** Tony Norris / Lori Postlethwait

**BPA:** Scott Bettin / Rick Pendergrass

**NMFS:** Paul Wagner / Chris Ross

**USFWS:** David Wills / Howard Schaller

**OR:** Ron Boyce

**WA:** Shane Scott

**ID:** Steve Pettit

**MT:** Jim Litchfield

**COE:** Cindy Henriksen / Cathy Hlebechuk / Rudd Turner

## TMT CONFERENCE CALL

**03 July 2002      0900 - 1200 hours**

**Custom House      Room 118  
Portland, Oregon  
Conference call line: 503-808-5190**

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

### AGENDA

1. Welcome, introductions.
2. McNary Juvenile fish transport (All)
3. SOR 2002-5 Brownlee Operations For Fall Chinook Migration
4. SOR 2002 C-8 Dworshak Summer Operations Plan
5. Other.

*Questions about the meeting may be referred to Cathy Hlebechuk at (503) 808-3942, or Rudd Turner at (503) 808-3935.*

**TECHNICAL MANAGEMENT TEAM  
CONFERENCE CALL NOTES**

**July 3, 2002**

**CORPS OF ENGINEERS NORTHWESTERN DIVISION OFFICES – CUSTOM HOUSE  
PORTLAND, OREGON**

**TMT Internet Homepage: <http://www.nwd-wc.usace.army.mil/TMT/index.html>**

***1. Greeting and Introductions***

The July 3 Technical Management Team conference call to discuss summer system operations was chaired by Cathy Hlebechuk of the Corps and facilitated by Donna Silverberg. The following is a distillation, not a verbatim transcript, of items discussed at the meeting and actions taken. Anyone with questions or comments about these minutes should call Hlebechuk at 503/808-3942.

***2. McNary Juvenile Fish Transport.***

Paul Wagner said FPAC discussed this issue yesterday; the decision is not to begin transport at this time, given the current flow and temperature regime in the river. Flow at McNary was 332 Kcfs yesterday; temperatures are still only about 62 degrees F. We'll check back in on this issue at the TMT's July 10 meeting, Wagner said.

***3. SOR 2002-5 – Brownlee Operations for Fall Chinook Migration.***

On June 25, the action agencies received SOR 2002-5. This SOR, supported by USFWS, NMFS, ODFW, CRITFC, the Nez Perce Tribe and WDFW, requests the following specific operations:

- Draft Brownlee reservoir to shape USBR water which will not pass through Brownlee until after July 31 to assist in meeting the July/early August flow objective at Lower Granite Dam. This draft will likely be between 150 and 215 KAF (elevation 2066 to 2061 from full pool) by July 31. This volume of pass-through and draft should total between 300 and 427 kaf of USBR water from the Upper Snake Basin.
- Draft an additional 137 KAF of water volume by August 10, to assist in meeting the summer flow objective of 51 Kcfs at Lower Granite, pursuant to the current Northwest Power Planning Council Fish and Wildlife Program draft from Brownlee Reservoir.
- Draft the remainder of the NWPPC required volume from Brownlee reservoir, 100 KAF during the rest of August to assist in meeting the summer flow objective of 51 Kcfs at Lower Granite.
- It would be most beneficial for salmon to begin refill at Brownlee after August 31.
- Flow augmentation should be provided in a manner to avoid adverse impacts to water quality and other fish and wildlife resources.
- USBR should take all reasonable effort to deliver water held as power head for Anderson Ranch, Palisades and Minidoka to minimize the deficit between 427 KAF and actual

deliveries.

Boyce spent a few minutes going through the recommended operations in this SOR, the full text of which is available via the TMT website. Please refer to this document for full details of this SOR.

We continue to say that approximately 300 KAF will be available from the Upper Snake reservoirs this year, said Tony Norris; there will be no flow augmentation above Milner. With respect to the power head issue, we have already used the power head at Anderson Ranch, and the power head at Palisades and Minidoka is not available, because it would be a change of use – the state of Idaho does not recognize in-stream flows as a beneficial use. It's a state law issue we're working on gradually, Norris said; it's not something the TMT can resolve. Norris added that Anderson Ranch did not come close to refilling this year.

Where will the water come from this year – the Payette and Boise systems? Boyce asked. That's correct – we'll deliver approximately 300 KAF from those other basins, Norris replied. We have made a lot of purchases, mainly from pumpers, to supply that water, he said. Norris added that a significant portion of that water has already been delivered. In response to a request from Boyce, Norris said he will provide a breakdown of how much water is being delivered from the Boise and from the Payette at the July 10 TMT meeting.

Norris noted that there is still no shaping agreement between IPC and BPA, so there is no mechanism by which to ask IPC to shape this water. John Bowling reiterated IPC's position that, absent such a shaping agreement, IPC cannot ask its shareholders to incur the cost of shaping that water. Again, he said, our plan is to keep Brownlee full through July, in order to avoid having to purchase more-expensive energy in August. BPA has informed us that their position is that they are meeting their ESA obligations without a shaping agreement, Bowling said, so essentially, nothing has changed since the last time we discussed this issue.

We need to continue to work on this issue, said Boyce; if you read the SOR, you'll see that there is very compelling information about the need for that water to be delivered in late July and early August. We can't do anything more with this issue at this time, Boyce said, but I would urge Idaho Power and the Bureau of Reclamation to continue to try to reach an agreement that will allow this water to be shaped.

#### ***4. SOR 2002 C-8: Dworshak Summer Operations Plan.***

On June 26, the action agencies received SOR 2002 C-8. This SOR, supported by the Columbia River Inter-Tribal Fish Commission, requests the following specific operations:

- Keep Dworshak full (elevation 1600) through July 14. Pass inflow and use 47 degree F water
- Ramp up flows to 6 Kcfs by mid-day July 15; hold this outflow through July 21
- Ramp up flows to 9 Kcfs by mid-day July 22; hold this outflow through July 28

- Ramp up flows to 13 Kcfs by mid-day July 29; hold this outflow through August 4
- Ramp up flows to 14 Kcfs by mid-day August 5; hold this outflow through September 1
- From September 2 through September 8, reduce flows to 10 Kcfs
- From September 9 through September 15, reduce flows to 7 Kcfs
- From September 16 through September 22, reduce flows to 2.5 Kcfs
- From September 23 through September 29, reduce flows to near minimum (1.4 Kcfs)

It was noted that this SOR was presented at the last TMT meeting; what remains today is for the action agencies to make a decision about whether or not it will be implemented. Wagner provided a letter from Billy Connor about the status of the wild Snake River fall chinook subyearling emergence and outmigration, and the fact that the majority of wild Snake River fall chinook juveniles are already moving downstream. Connor estimates that about half of the wild Snake River fall chinook subyearlings have already outmigrated. Rick Prendergast observed that Lower Granite has been spilling about 40 Kcfs over the past few days, primarily due to lack of load. Boyce added that subyearling collections at Lower Granite increased dramatically yesterday.

The main point of this SOR is that the weather and water temperatures are still relatively cool, said Martin; while some might want to see higher flows in the Lower Snake at this time, the cool water from Dworshak will be much more beneficial, biologically, if it is retained for use later in July. Dave Statler noted that the outflow temperature at Dworshak has increased from 47 degrees to about 52 degrees over the past few days; Hlebechuk said she will check on the reasons for that increase.

Wagner noted that flow at Lower Granite is 56 Kcfs and receding. Water temperatures are about 62 degrees in the reservoir, currently. Hlebechuk noted that Lower Snake flows are receding faster than forecast in the current SSARR. The Corps' perspective is that, if there is a need to augment flows from Dworshak, we should probably wait until after the Fourth of July holiday – probably beginning July 7, she said. Martin said CRITFC would prefer to continue to pass inflow at Dworshak, and revisit this issue at next Wednesday's TMT meeting.

Boyce replied that Lower Snake flows have dropped by 20 Kcfs over the past few days; there are a lot of fish in the river right now, he said, and we don't want to see Snake River flows drop below 51 Kcfs. Martin and Dave Statler reiterated that it would be more beneficial, biologically, to keep Dworshak full as long as possible, and to use the flow augmentation volume from that project later in the summer, when the flow and water temperature situation in the Lower Snake will be much worse than it currently is. Wagner said NMFS agrees that it would be acceptable to continue to pass inflow at Dworshak and to revisit this issue at next week's TMT meeting.

Statler noted that it would be preferable to reduce the current Dworshak outflow temperature to 47 degrees. Dick Cassidy said he will check to see whether the project has switched from undershot mode to overshot mode. When he returned, Cassidy said Dworshak project personnel will lower the selector gates at that project to reduce outflow temperature to 47 degrees.

Boyce suggested that it would make sense to have a TMT check-in on this issue on Monday; Hlebechuk said she will reserve the conference call line for 1 p.m. Monday, and will send out an email notification to the TMT membership. In the interim, she said, we will continue to pass inflow at Dworshak.

**5. Other.**

Boyce asked whether forced spill is occurring in the Lower Columbia due to lack of load. Forced spill is occurring throughout the system, Hlebechuk replied; Grand Coulee, for example, is spilling 30 Kcfs, and will continue to do so for the foreseeable future. Libby is spilling 15 Kcfs, she added. Where are the TDG hot spots? Boyce asked. Chief Joseph is the main one, Cassidy replied; TDG levels below that project exceeded 130% for several hours yesterday. There are also high gas levels below McNary, John Day and Bonneville – TDG levels exceeded 125% below Bonneville yesterday. Flows in the lower river are expected to start receding soon, Hlebechuk added. If there is anything you can do to reduce gas levels below Bonneville, said Boyce, that would be desirable.

**6. Next TMT Meeting Date.**

The next face-to-face meeting of the Technical Management Team was set for Wednesday, July 10. Meeting summary prepared by Jeff Kuechle, BPA contractor.

**List of Attendees  
TMT Meeting July 3, 2002**

<b>Name</b>	<b>Affiliation</b>
Kyle Martin	CRITFC
Cathy Hlebechuk	COE
David Wills	USFWS
Rudd Turner	COE
Shane Scott	WDFW
Ron Boyce	ODFW
Russ George	WMCI
Ruth Burris	PGE
Tony Norris	USBR
Rick Pendergrass	BPA
John Bowling	Idaho Power Co.
Steven Wallace	PacifiCorp
Richelle Harding	D. Rohr & Associates

Dave Statler	NPT
Paul Wagner	NMFS

# TECHNICAL MANAGEMENT TEAM

**BOR:** Tony Norris / Lori Postlethwait

**BPA:** Scott Bettin / Rick Pendergrass

**NMFS:** Paul Wagner / Chris Ross

**USFWS:** David Wills / Howard Schaller

**OR:** Ron Boyce

**WA:** Shane Scott

**ID:** Steve Pettit

**MT:** Jim Litchfield

**COE:** Cindy Henriksen / Cathy Hlebechuk / Rudd Turner

## TMT CONFERENCE CALL

**08 July 2002      1400 - 1500 hours**

**Custom House      Room 118  
Portland, Oregon  
Conference call line: 503-808-5190**

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

### AGENDA

1. Dworshak operations.
2. Other.

*Questions about the meeting may be referred to Cathy Hlebechuk at (503) 808-3942, or Rudd Turner at (503) 808-3935.*

# **COLUMBIA RIVER REGIONAL FORUM**

## **TECHNICAL MANAGEMENT TEAM CONFERENCE CALL NOTES**

**July 8, 2002**

**CORPS OF ENGINEERS NORTHWESTERN DIVISION OFFICES – CUSTOM HOUSE  
PORTLAND, OREGON**

**TMT Internet Homepage: <http://www.nwd-wc.usace.army.mil/TMT/index.html>**

### ***1. Greeting and Introductions***

The July 8 Technical Management Team conference call to discuss Dworshak operations was chaired by Cathy Hlebechuk of the Corps and facilitated by Donna Silverberg. The following is a distillation, not a verbatim transcript, of items discussed at the meeting and actions taken. Anyone with questions or comments about these minutes should call Rudd Turner at 503/808-3935.

### ***2. Dworshak Operations.***

Hlebechuk began with a report on current system conditions, noting that, while the seasonal average flow target of 51 Kcfs was met last week at Lower Granite, the current flow at the project is only 40 Kcfs. The current Dworshak elevation is 1599.1 feet; Brownlee elevation, as of midnight last night, was 2074 feet, 3 feet from full.

Paul Wagner reminded the group that the purpose of today's conference call was to check in on current flows, water temperatures and reservoir operations, and to give the TMT an opportunity to decide whether or not to implement an operation other than passing inflow at Dworshak. He said the salmon managers were somewhat surprised at the precipitous recession in flows at Lower Granite, a drop from 50 Kcfs on Friday to 38 Kcfs today. What does the Corps expect, in terms of a weekly average flow at Lower Granite this week? Wagner asked. I would expect to see flows decline from their current level, Hlebechuk replied.

Wagner noted that current forebay water temperatures at Lower Granite are fluctuating between 64 degrees and 68 degrees F, depending on time of day. Air temperatures at Lewiston are forecast to be 100 degrees+ starting Wednesday, he added. The salmon managers convened to discuss this issue this morning, he said; while there wasn't complete agreement on a recommended operation, some of the parties believe that increasing Dworshak outflow now is more important than maintaining higher discharge in late August. What we would like to do, then, is to increase Dworshak outflow to 14 Kcfs today, said Wagner, with the goal of retaining 100 KAF of Dworshak storage (above elevation 1520) for use in the month of September.

Ron Boyce said Oregon does not support an unequivocal reserve of 100 KAF of Dworshak storage for use in September; we would prefer to review conditions as they unfold, and make decisions about how best to use that water from week to week, he said. We do, however, support increasing Dworshak outflow to 14 Kcfs today, Boyce said.

Steve Pettit said IDFG also supports the increase to maximum outflow from Dworshak today; however, IDFG, unlike ODFW, does support reserving at least 100 KAF of Dworshak storage for use in September. Shane Scott said WDFW agrees with IDFG's position. Kyle Martin said that if there are assurances that at least 100 KAF, and preferably 200 KAF, of storage above elevation 1520 will remain in Dworshak on August 31, CRITFC is willing to support increasing Dworshak outflow to 14 Kcfs today. I don't see how we can assure that, Turner replied.

What I'm hearing, then, is that people are generally comfortable with the idea of bumping Dworshak outflow up to 14 Kcfs today, Silverberg said, but that there are still some longer-term issues that need to be resolved. Actually, said Dave Statler, I think what some of us are saying is that we're not comfortable with the idea of increasing Dworshak outflow to 14 Kcfs today without some assurance that at least 100 KAF will be reserved for use in September. And at least some of us are willing to discuss reducing Dworshak outflow slightly in August in order to meet that goal, added Scott.

After a few minutes of additional discussion, it was agreed that the Corps will model the following scenarios to assess the impact of various summer outflow regimes at Dworshak on the volume of storage left in the reservoir for use in September:

- Hold maximum outflow (13 Kcfs-14 Kcfs, up to gas cap) as long as possible, ramp down to about 10 Kcfs (full powerhouse) to achieve elevation 1537 feet (approximately 200 KAF of storage above elevation 1520) at Dworshak on August 31
- Hold maximum outflow as long as possible, ramp to 10 Kcfs to achieve elevation 1527.5 (approximately 100 KAF of additional storage) on August 31
- Hold maximum outflow from July 10 through August 31
- Hold about 10 Kcfs (full powerhouse) from July 9 to August 31

Hlebechuk said she will provide the results of these modeling runs at this Wednesday's face-to-face TMT meeting. In the interim, it was agreed to release about 10 Kcfs (full powerhouse) from Dworshak over the next 24 hours before ramping outflow up to 13 Kcfs tomorrow. The TMT will then revisit the Dworshak operation once the results of the model runs are available at its face-to-face meeting on Wednesday, July 10.

With that, the conference call was adjourned. Meeting summary prepared by Jeff Kuechle, BPA contractor.

# TECHNICAL MANAGEMENT TEAM

**BOR:** Tony Norris / Lori Postlethwait

**BPA:** Scott Bettin / Rick Pendergrass

**NMFS:** Paul Wagner / Chris Ross

**USFWS:** David Wills / Howard Schaller

**OR:** Ron Boyce

**WA:** Shane Scott

**ID:** Steve Pettit

**MT:** Jim Litchfield

**COE:** Cindy Henriksen / Cathy Hlebechuk / Rudd Turner

## TMT MEETING

10 July 2002      0900 - 1200 hours

Custom House      Room 118  
Portland, Oregon  
Conference call line: 503-808-5190

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

## AGENDA

1. Welcome, introductions.
2. Weather update (NWS-RFC).
3. Libby spill / TDG updates (COE) and fish update (Montana Fish, Wildlife and Parks).  
[\[Captive Fish\]](#) [\[Electrofishing\]](#) [\[MFWP Dissolved Gas\]](#)
4. Lower Columbia adult migration study (COE).
5. Chum numbers, locations from 2002.
6. McNary Juvenile fish transport.
7. Next steps on Emergency Action List [\[Draft FPAC List\]](#) [\[Draft BPA list\]](#).
8. Snake River flow augmentation plan (BOR).
9. Dworshak modeling scenarios (COE). [\[July 7 SSARR scenarios\]](#)
10. Review current system conditions.
  - fish migration status (NMFS, USFWS)
  - reservoir operation, water supply, power system, water quality (COE, BOR, BPA)
11. Review operational requests.
12. Develop recommended operations.
13. Other.
  - BPA financial choices public process
  - set agenda for 24 July TMT meeting

*Questions about the meeting may be referred to Cathy Hlebechuk at (503) 808-3942, or Rudd Turner at (503) 808-3935.*

MONTANA FISH, WILDLIFE AND PARKS  
PRELIMINARY REPORT

7/1/02 Captive Fish- examined and released

Site 3 Net 1 = pink flag  
Depth = 4.2 feet  
time = 23:00

Species	Count	# Exhibiting GBD	% Exhibiting GBD	Morts
Mountain Whitefish	5	5	100%	1
Rainbow Trout	2	2	100%	0

7/1/02 Captive Fish- examined and released

Site 1 Net 1 = pink flag  
Depth = 6.7 feet  
time = 23:50

Species	Count	# Exhibiting GBD	% Exhibiting GBD	Morts
Mountain Whitefish	10	10	100%	2

The severity of the GBD symptoms at this site seemed less severe than site 3, perhaps due to deeper positioning of the hoop net.

7/3/02 Captive Fish- examined and released

Site 3 Net 2 = blue flag  
Depth = 4.4 feet  
time = 15:00

Species	Count	# Exhibiting GBD	% Exhibiting GBD	Morts
Mountain Whitefish	8	8	100%	1
Rainbow Trout	0	0		

Site 3 hydrolab TDG measurements BP = 700.4 TDG = 844; % saturation = 120.5%

7/3/02 Captive Fish- examined and released

Site 1 Net 1 = blue flag  
Depth = 9 feet  
time = 15:45

Species	Count	# Exhibiting GBD	% Exhibiting GBD	Morts
Mountain Whitefish	9	9	100%	1
Rainbow Trout	0	0		

The severity of the GBD symptoms at this site seemed less severe than site 3, perhaps due to deeper positioning of the hoop net.

Site 1 hydrolab TDG measurements

BP = 700.6  
TGD= 850  
% Saturation = 121.30%

7/8/02 Captive Fish- examined and released

Site 3 Net 3 = no flag  
Depth = 1.5 feet  
time =21:30

<b>Species</b>	<b>Count</b>	<b># Exhibiting GBD</b>	<b>% Exhibiting GBD</b>	<b>Morts</b>
Mountain Whitefish	8	8	100%	8
Rainbow Trout	0	0		

Only 2 of the 8 morts were used in the estimation of incidence of GBD  
The remaining morts had excessive fungus, making it difficult to determine cause of death.  
Although symptoms of GBD were found in all fish, they appeared to be healing.

7/8/02 Captive Fish- examined and released

Site 1 Net 3 = No flag  
Depth = 1.5 feet  
time = 22:00

<b>Species</b>	<b>Count</b>	<b># Exhibiting GBD</b>	<b>% Exhibiting GBD</b>	<b>Morts</b>
Mountain Whitefish	4	4	100%	5
Rainbow Trout	0	0		

None of the 5 morts were used in the estimation of incidence of GBD  
The remaining morts had excessive fungus, making it difficult to determine cause of death.  
Although symptoms of GBD were found in all fish, they appeared to be healing.

# **BPA Draft 5/29/02**

This is the list currently being used by BPA

## **Prioritized List of FCRPS Operations Which May Be Used During a short term NW or SW System Reliability Event**

This list has been developed to cover an unexpected loss of generation or transmission capability. The list is to be used by the BPA duty scheduler when the system cannot be maintained using normal operating procedures. Examples of the type of incidents where lists of this nature have been needed in the past are loss of all generation at GCL due to a fire in the powerhouse. Transmission lines shorting out and causing thirteen states on the west coast to experience some form of power interruption. Fires under the transmission lines during extremely warm weather causing the lines to be taken out of service. All of these are unexpected outages where immediate actions must be taken to maintain the integrity of the power system.

1. Purchase all available energy
2. GCL – draft at 1.5 ft/day (or until restricted by JDA cutplane)
3. Banks Lake – operate PGs / sag on Banks Lake to elevation 1565 ft.
4. IHR – reduce spill to 25 kcfs
5. LGS – reduce spill to 20 kcfs (at night)
6. TDA – reduce spill to 30%
7. JDA – reduce daytime spill to zero
8. BON – reduce daytime spill to 50 kcfs
9. BON – operate outside of 1% operating efficiency
10. MCN – reduce spill to 50 kcfs (if spilling)
11. HGH – operate all available units (daily shaping as necessary)
12. MCN – operate outside 1% up to full overload (approx. 81 megawatts per unit)
13. LGS – reduce spill to zero (if spilling)
14. JDA – reduce spill to zero
15. TDA – reduce spill to zero
16. BON – reduce spill to zero

Possible options if the operation is of a long duration.

- Increase Willamette Projects' generation for peaking
- JDA – increase operating range to 265 ft. to 262.5 ft.
- Snake River Projects – go to zero nighttime flow
- GCL – increase draft to 2 ft/day
- DWR – increase discharge to 21 kcfs
- LWG – utilize full operating pool
- LIB – operate all available units (daily shaping as necessary)
- JDA – increase operating pool range to a low of 260 ft.
- MCN – pull fish screens

The above list has been coordinated with the Technical Management Team (TMT). If the emergency is expected to be longer than a day, additional coordination will occur with the TMT.

Emergency declarations, notifications, and coordination for all system reliability events will be implemented in accordance with the TMT document “FCRPS Protocols for Emergency Operations in Response to Generation , Transmission or other Emergencies” dated February 6, 2002.

*Emergency actions list 5/29/02.*

**FPAC Draft 6/19/02**  
**Prioritized List of FCRPS Operations To Be Used During a**  
**Short Term NW or SW System Reliability Event Until August 31,**  
**2002**

This list has been developed to cover an unexpected loss of generation or transmission capability. The list is to be used by the BPA duty scheduler when the system cannot be maintained using normal operating procedures. Examples of the type of incidents where lists of this nature have been needed in the past are: Loss of all generation at GCL due to a fire in the powerhouse, transmission lines shorting out and causing thirteen states on the west coast to experience some form of power interruption, fires under transmission lines during extremely warm weather causing lines to be taken out of service. All of these are unexpected outages where immediate actions must be taken to maintain the integrity of the power system.

Actions to be taken for short-term outages (24 hours or less) follow. ~~These may apply to longer-term outages (over 24 hours) as well.~~

1. Purchase all available energy (including alternative sources, such as wind)
2. GCL – draft at 1.5 ft/day (or until restricted by JDA cutplane)
3. Banks Lake – operate PGs / sag on Banks Lake to elevation 1565 ft.
4. **Increase Willamette Projects' generation for peaking**
5. **GCL – increase draft to 2 ft/day**
6. **DWR – increase discharge as needed**
7. **LIB – operate all available units (daily shaping as necessary); ramp down discharge at USFWS Biological Opinion ramp rates.**
8. **HGH – operate all available units (daily shaping as necessary); ramp down discharge at USFWS Biological Opinion ramp rates.**
9. **Operate the following powerhouses outside of 1% operating efficiency in the following order:**
  - a. **Ice Harbor**
  - b. **Lower Monumental**
  - c. **The Dalles**
  - d. **Bonneville**
  - e. **John Day**
10. IHR – reduce spill to 25 kcfs (24 hour)
11. IHR – reduce day spill to 0 kcfs
12. IHR – reduce night spill to 0 kcfs
13. JDA – reduce daytime spill to zero
14. TDA – reduce spill to 30%
15. BON – reduce daytime spill to 50 kcfs
16. JDA – reduce spill to zero
17. **BON – reduce spill to zero (no first powerhouse operation)**
18. **TDA – reduce spill to zero**

Possible actions to be taken for longer-term outages follow (over 24 hours).

**Regional plea for energy conservation**

**Rescheduling of unit outages**

**Maximize Treaty/Non-Treaty water releases**

**Voluntary load curtailment by industrial users**

JDA – increase operating range to 265 ft. to 262.5 ft.

LWG – utilize full operating pool

JDA – increase operating pool range to a low of 260 ft.

~~MCN – pull fish screens~~

7/1/02 Electrofishing-examined and released  
 David Thompson Bridge to Dunn Creek  
 Left Bank (looking downstream)  
 23:50 - 02:00

Species	Count	# Exhibiting GBD	% Exhibiting GBD	Morts
Mountain Whitefish	13	4	31%	0
Bull Trout	10	8	80%	0
Rainbow Trout	14	12	86%	0
Suckers (all Spp.)	7	0	0%	0
Columbia River Chub	1	0	0%	0
Redsided Shiner	2	2	100%	0
Kokanee	1	0	0%	0

7/1/02 Electrofishing-examined and released  
 David Thompson Bridge to Dunn Creek  
 Right Bank (looking downstream)  
 02:00-02:30

Species	Count	# Exhibiting GBD	% Exhibiting GBD	Morts
Mountain Whitefish	3	2	67%	0
Bull Trout	9	4	44%	0
Rainbow Trout	5	4	80%	0
Suckers (all Spp.)	1	0	0%	0
Northern Pikeminnow	3	0	0%	0
Kokanee	3	3	100%	0

7/8/02 Electrofishing-examined and released  
 David Thompson Bridge to Dredge Cuts  
 Left Bank (looking downstream)  
 23:50 - 01:00

Species	Count	# Exhibiting GBD	% Exhibiting GBD	Morts
Mountain Whitefish	18	15	83%	0
Bull Trout	7	5	71%	0
Rainbow Trout	12	8	67%	0
Suckers (all Spp.)	5	2	40%	0
Burbot	1	1	100%	0
Kokanee	10	10	100%	0

0 Symptoms of GBD in MWF were less severe than those observed in captive fish on same date.  
 0 Most symptoms of GBD in all fish species were found in the eyes.  
 0 Although symptoms of GBD were found in the majority of fish, they appeared to be healing.

MONTANA FISH, WILDLIFE AND PARKS  
PRELIMINARY REPORT

**Total Dissolved Gas Concentrations - Kootenai River 7/2/02**

**Location**

City of Libby boat Ramp - left bank 14:15

Sweeny	112.30%
Hydrolab BP	709.2
Hydrolab TDG	778
Hydrolab % saturation	109.70%

**Location**

Dunn Creek boat ramp-off dock -left bank- 14:40

Sweeny	119.1
Hydrolab BP	707.4
Hydrolab TDG	850
Hydrolab % saturation	120.16%

**Location**

Dredge cuts -left bank- 15:30

Sweeny	116.5
Hydrolab BP	706.4
Hydrolab TDG	853
Hydrolab % saturation	120.75%

**Location**

Directly below Thompson Bridge -left bank- 16:00

Sweeny	120.8
Hydrolab BP	707.3
Hydrolab TDG	867
Hydrolab % saturation	122.58%

**Location**

Directly below Thompson Bridge -right bank- 16:30

Sweeny	103.0
Hydrolab BP	706.5
Hydrolab TDG	719
Hydrolab % saturation	101.77%

**Location**

Alexander Creek -right bank- 17:00

Sweeny	97.6	Meter jumping around quite a bit
Hydrolab BP	707.2	
Hydrolab TDG	754	
Hydrolab % saturation	106.62%	

**Location**

Re-reg bridge site -right bank- 17:46

Hydrolab BP	707.2
Hydrolab TDG	802
Hydrolab % saturation	113.40%

July 9, 2002

Summary of Dworshak scenarios requested by TMT on 8 July 2002:

These model results are based on the July 7, 2002 SSARR run. Actual and future inflows forecasted by River Forecast Center in this model are shown below as a percentage of the 1928-1989 monthly average:

Dworshak Inflows

April actual, 14.8 kcfs, 125% of 60 year avg

May actual, 19.4 kcfs, 111% of 60 year avg

June actual, 21.2 kcfs, 177% of 60 year avg

July forecast, 3.4 kcfs, 164% of 60 year avg

Aug forecast, 2.2 kcfs, 138% of 60 year avg

7 July 02 SSARR RESULTS

scenario	description	<u>elev.</u>	<u>date ramp to 10</u>	<u>31 Aug - kaf abv. 1520'</u>
a	hold 13 kcfs as long as possible, ramp to 10 kcfs for 1537' on 31 Aug.	1537.0	25-Aug	228
b	hold 13 kcfs as long as possible, ramp to 10 kcfs for 1527.5' on 31 Aug.	N.A.	never	
c	hold 13 kcfs from 10 July to 31 Aug	1534.2		189
d	hold 10 kcfs from 9 July to 31 Aug	1556.3		501

# COLUMBIA RIVER REGIONAL FORUM

## TECHNICAL MANAGEMENT TEAM

### MEETING NOTES

July 10, 2002

CORPS OF ENGINEERS NORTHWESTERN DIVISION OFFICES – CUSTOM HOUSE  
PORTLAND, OREGON

TMT Internet Homepage: <http://www.nwd-wc.usace.army.mil/TMT/index.html>

### FACILITATOR'S SUMMARY NOTES ON FUTURE ACTIONS

Facilitator: Donna Silverberg

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

#### **Libby:**

Brian Marotz reported that Montana fish made it through the involuntary spill event pretty well. Overall mortalities related to gas bubble trauma were very low, although there was trauma to some fish. Of greatest concern were those few fish with eye bubbles. The day after spill ended, trauma to the fish was reduced. Brian said he believes the majority of the fish will recover. He summarized that while the fish were indeed impacted, the level of harm to fish appears to have been low. Another survey will be out next week.

**REQUEST:** Brian requested that if anyone is aware of good literature sources regarding fish sounding to avoid gas please pass this on. His email address is: [bmarotz@state.mt.us](mailto:bmarotz@state.mt.us).

Libby Spill Test: COE reported on the preliminary numbers resulting from the Libby spill test. It was noted that not all data has been collected as the instruments are still in the river. The following information are the initial assessments:

- 1) It appears that the TDG plateaued at 125%;
- 2) Gas levels below Kootenai Falls prior to spill was 116-118; once spill began, it remained at 116-118;
- 3) There was 120% TDG around the Dave Thompson bridge.

When asked whether there was any recommendation of a safe spill amount if more was needed, staff responded that a little over 2 kcfs spill could be added (if needed) and still keeps within 110% TDG level.

#### **Weather Update:**

Temperatures have been very high around the region. Very little precipitation is forecasted for the next 5-7 days.

#### **Lower Columbia Adult Migration Study:**

The adult migration is still preliminary but coming along. Of interest is that the total time to pass the dam this year is between 53 and 59 hours, whereas 1996 and 2001 tests showed that it only took around 24 hours. More work will be done to determine what may be causing the migration to slow down.

Fallback: The study also showed a correlation between higher fallback and higher spill. It was noted that the overall numbers of fallback are very low, but more fish passed with lower spill. The spill test will continue through the end of August. More information will be shared with TMT as it is compiled.

#### **McNary Juvenile Fish Transport:**

NMFS requested that juvenile collection begin today due to the change from spring to summer conditions. The COE said they would be able to begin full transport today.

#### **Next Steps for Emergency Action List:**

BPA will go to FPAC next Tuesday 7/16 to discuss and resolve issues related to the priority list. A report will be made at the July 24<sup>th</sup> TMT meeting.

#### **Snake River Flow Augmentation Plan for July/August:**

Tony Norris, BOR, presented the plan for Snake River flow augmentation. It is as follows:

- 160 kaf out of the Payette system
- 60 out of the Boise system
- 18 kaf out of OR (natural flows)
- 40 kaf from “pumpers”
- 0 kaf out of Upper Snake  
(278 kaf less 40 kaf) Total of 238 kaf from BOR in July and August

Regarding the “less 40 kaf”, NMFS requested two feet be left in Cascade in August to reduce fish mortalities and improve water quality in the reservoir and rivers. The agency requested that the two feet (or 40 kaf) be released early next spring.

As requested, Tony will provide additional information on how the 40 kaf will be accounted for so it is not lost during flood control periods in spring '03, a BOR release schedule (if available), and a written response from the BOR regarding no use of Milner power head for fish operations.

#### **Idaho Power's Response to SOR 2002-5:**

TMT appreciated the written response from Idaho Power and requested closer cooperation between IPC and TMT in the future. IPC said they are happy to cooperate if the Federal agencies will mitigate their losses.

#### **Dworshak Modeling Scenarios:**

COE and CRITFC both ran scenarios for Dworshak operations. The runs show if held at 13 kcf through the end of August, 100 to 200 kaf will be available to meet the interest expressed by the Nez Perce Tribe and Idaho. The Salmon Managers requested that the slow growth rates of fall Chinook be monitored from week-to-week and, if river and air temperatures stay cool, the group

will revisit the issue of whether to reduce flows from 13 down to 10 to encourage growth of the smolts.

**Action:** Dave Statler will fax the information to the Salmon Managers for discussion of temperature and growth information at their next FPAC meeting.

**Action:** The COE will begin to release 47-degree water from Dworshak at about 13.3 kcfs 7/10/02. TMT will check-in on the status of fish and elevations next Wednesday.

**Current System Status:**

Libby inflows are holding steady at 35 kcfs. COE may need to spill again as early as today. Kathy Hlebechuk, COE, will keep the group informed on this matter via email.

Hungry Horse and Grand Coulee are within 10ths of being full and most likely will be full on Friday. The BOR can hold HH through Monday if the group wants to use the water later in the summer since Columbia River flows are high. The BOR would need Biological Opinion flexibility at the end of August if the date got pushed back.

**Action:** Tony Norris will review the options at HH regarding operations after HH is full and email a proposed operation to TMT members as soon as possible. If there are concerns, a call will be requested on Monday.

**Water Quality:** Tom Lorz had questions from the last meeting on Lower Granite forebay water quality issues: specifically, is it possible to get more regular information from the tri-level thermograph? No information was available at this time, but Kathy Hlebechuk will email information to Tom as soon as it is available.

**Fish Migration Status:** Fish are at more than 50% passage. Clearwater juveniles are experiencing slow growth while wild Snake River Chinook juveniles are moving rapidly.

**BPA “Financial Choices” Public Process:**

Suzanne Cooper provided information on a new public process that BPA has begun on “financial choices”. There was a 5-6% shortfall in revenue from last year. BPA has choices to make about how to manage the shortfall and are looking for input on five choices. For more information, see BPA’s website. To give input, email [financialchoices@bpa.gov](mailto:financialchoices@bpa.gov). The deadline for input is September 30, 2002. Regarding potential risks to fish and wildlife programs, Suzanne said “everything is on the table”.

**Next Meeting, July 24:**

Agenda items:

- New BON Fallback Study Information
- Portland District Spill Test Study
- Emergency Action List Update
- BOR – 40 kaf Accounting Plan
- Dworshak Operations
- Lower Granite Forebay Tri-level Thermograph Update

**Reminder:** on July 17<sup>th</sup> there will be a work session for TMT members regarding the 2003 Water Management Plan. The session is scheduled from 9 a.m. – 12 noon.

## **Meeting Minutes**

### ***1. Greeting and Introductions***

The July 10 Technical Management Team meeting was chaired by Cathy Hlebechuk of the Corps and facilitated by Donna Silverberg. The following is a distillation, not a verbatim transcript, of items discussed at the meeting and actions taken. Anyone with questions or comments about these minutes should call Hlebechuk at 503/808-3942.

### ***2. Weather Update.***

Marty Lee of the River Forecast Center said there is currently a strong ridge of high pressure over the entire West Coast; it looks as though the thermal trough west of the Cascades is going to hop the mountains and bring prolonged high temperatures to the interior part of the basin over the next week or so – temperatures at Missoula are expected to exceed 100 degrees over the next two days, then fall to the mid-90s by the weekend. There is some possibility that we may see some precipitation by late Friday, likely on the west side of the Cascades, said Lee; no precipitation is expected on the east side.

David Westnedge reported that, on the hydrologic front, most systems are currently experiencing slowly-receding inflows. There is still some minor snowmelt going on, particularly in the northern Cascades. Flows in the Upper Kootenai are expected to recede following the recent rainfall event; over the next couple of weeks, the snowpack should disappear from the Upper Kootenai. At Libby, inflows are already starting to recede; inflows are expected to peak today, then begin to fall off by about 2 Kcfs per day. So you're not anticipating a dramatic recession in the Kootenai? Hlebechuk asked. How long do you think it will take for Libby inflows to fall to the 25 Kcfs range? That will likely take 5-6 days, Westnedge replied.

### ***3. Libby Spill/TDG and Fish Update.***

Hlebechuk drew the group's attention to a preliminary report from Montana Fish, Wildlife and Parks on the topic of spill, TDG and fish at Libby Dam. Brian Marotz went through some of the information generated by the planned Libby spill test monitoring, which was continued during last week's uncontrolled spill at the project. The monitoring effort included net-pen rainbow trout held in the top 3 to 4 feet of the water column. Marotz said 100% of those fish showed signs of GBT; we did see some mortality toward the end of the test, he said. Marotz emphasized that these fish probably are not representative of fish in the river, which had the option of seeking deeper refuge during what eventually became a full-blown spill emergency. He added that at least some of the net-pen mortalities could have been due to fungus and other causes, rather than gas bubble trauma. We saw no mortality in the at-large fish in the river, Marotz said, although some low levels of mortality could have gone undetected. Overall, he said,

it appears that mortality due to GBT was low during the spill emergency, although we did see numerous signs of GBT, including bubbles in eyes.

The day after the spill ceased, signs of GBT reduced, and the fish began to recover, Marotz said. We saw some level of signs of GBT in about 80% of the mountain whitefish sampled, he said; in wild bull trout, we saw up to 81% of fish with signs during spill, which went down to 71% a day later. In the rainbow and cutthroat trout sampled, 80% showed GBT signs during the spill event, a percentage that went down significantly a day after spill ceased. 100% of the kokanee sampled showed signs of GBT during the spill event, although that species is less abundant in the reach of concern.

All in all, said Marotz, it looks as though we came through the Libby spill event pretty well, from a biological standpoint; while we did see numerous signs of GBT in all of the species sampled, it doesn't appear that the fish suffered much in the way of permanent harm. Marotz added that a more detailed report covering incidence and severity of signs and species affected will be available later this summer. Marotz asked the TMT to recommend any literature citations they are aware of regarding a fish's ability to avoid gas by sounding, and to email those citations to him at bmarotz@state.mt.us.

Carolyn Fitzgerald of the Corps' Seattle District then provided some preliminary results from the spill test and spill emergency; she noted that TDG appears to plateau at about 125% below Libby, regardless of spill volume. Below Kootenai Falls, Falls about 30 river-miles downstream of the project, TDG stayed at 116%-118% during the spill test, the same level it was at before the test. There was a definite change in TDG levels from the left bank to the right bank, Fitzgerald said, with TDG levels of about 125% observed near the David Thompson Bridge on the left bank at a volume of 6 Kcfs-7 Kcfs spill. A final report on the Libby spill test will be available by the end of the calendar year, she said; again, the results I've presented today are preliminary. Carolyn provided this synopsis of preliminary results from the spill test.

Readings taken at David Thompson Bridge

Libby Spill	Preliminary tdg
2 kcfs	109%
3 kcfs	114%
4 kcfs	119%
5 kcfs	122%
6-7 kcfs	124-125%

Hlebechuk noted that, given current project elevation (2457 feet) and continuing inflows of 35 Kcfs to Libby, it may be necessary to spill again at that project over the next few days. In response to a question from Hlebechuk, Fitzgerald said it appears that it should be possible to spill about 2 Kcfs at Libby without violating the 110% Montana state TDG standard. If at all possible, we will attempt to avoid spill, Hlebechuk said; we'll be watching project inflows closely in an effort to avoid filling and spilling at Libby. It does appear that inflows will start to recede soon, she said; the question is, how quickly? Libby filled about half a foot yesterday, Hlebechuk noted.

#### ***4. Lower Columbia Adult Migration Study.***

David Clugston of the Corps distributed a report titled “Spill and Fallback Test Summary;” he emphasized that the information it contains is preliminary. Basically what this shows is that, from where the fish are released, travel time to the Bonneville tailrace is essentially the same under both spill treatments, Clugston said. From the tailrace to the dam itself, there is a significant difference in travel time, with fish taking less time to reach the dam under the low spill condition – a median of 14.61 hours -- compared to a median of 23.55 hours under the high-spill treatment. There is some difference in total travel time from the release point to the dam under the low spill and high spill conditions, Clugston said – 53.86 hours during the low spill treatment vs. 59.37 hours during the high spill treatment. He noted that travel times under both treatments are significantly longer this year than they were in the last study in 1996. There are a number of reasons why this may be occurring, he said – we now have flow deflectors at the project, and the spill pattern is different, in addition to the effects of the ongoing spill test.

With respect to fallback, said Clugston, 593 radio-tagged fish were released for the spring test, 34 of which eventually fell back. What’s interesting, he said, is that 24 of those fish took more than 24 hours to fall back – in other words, they were on their way upstream, then turned around. What the data also show is that more fallback occurred during the high-spill treatment periods, he said (18 fallbacks during high spill, 14 during low spill). The take-home message is that fallback was very low this spring, but delay may be higher – we’ll be looking more closely at that over the next few weeks, he said. In response to a question from Boyce, Clugston said the Bonneville spill test is scheduled to continue through August 31. In response to another question, Clugston said 410 of the 593 radio-tagged fish passed Bonneville during the low-spill condition; the other 183 passed during the high-spill treatment.

#### ***5. Chum Numbers and Locations in 2002.***

Boyce said there is nothing to report on this agenda item at today’s meeting; it will be up to the Fish and Wildlife Service to provide this information.

#### ***6. McNary Juvenile Fish Transport.***

Wagner said that, with McNary flows on the wane (about 210 Kcfs and falling) and water temperatures on the rise (about 63 degrees F, currently) , NMFS recommends that juvenile transport begin today at McNary. He added that, given the fact that about half of the run has already passed McNary in 2002, the total percentage of the run that will be transported this year is expected to be 25% or less, which should give us some good information about the relative benefit of transport vs. in-river migration this year, Wagner said. Turner replied that it should be possible for transportation to begin at McNary today.

#### ***7. Emergency Action List – Next Steps.***

Rick Pendergrass said the May 29 draft of the emergency priorities list is still in use by project schedulers. There is a more recent draft, dated June 19, but you’re not using it? asked Chris Ross. No, Pendergrass replied, because some of the items called for in the June 19 version

of the emergency actions priority list -- the two-foot draft of Grand Coulee, for example -- cannot be implemented instantly, but will take hours or even days to coordinate. It was agreed that Scott Bettin will attend next Tuesday's FPAC meeting to explain the complications associated with some of the measures recommended in the June 19 list. We'll look forward to a further conversation on this topic at the next TMT meeting, Silverberg said.

#### ***8. Snake River Flow Augmentation Plan.***

Tony Norris said that, this year, 160 KAF of flow augmentation water will be delivered from the Payette system; NMFS has requested that 40 KAF of that water be retained in Cascade Reservoir. A further 60 KAF will be delivered from the Boise system, 18 KAF from purchased natural flows from Skyline Farms in Oregon, and another 40 KAF from the pumps -- a total of 278 KAF in all, minus the 40 KAF that will stay in Cascade Reservoir. Norris said Reclamation has been releasing water from both the Payette and Boise systems; all of the Boise water will be out by the end of July, and the remainder of the water will be delivered by August 31.

With respect to the 40 KAF to be retained in Cascade Reservoir, Norris said there are concerns about water quality at that project when the elevation gets too low. He noted that 40 KAF translates into two feet in elevation at that project; NMFS has requested that the 40 KAF be left in that project through August.

Wagner explained that, since there is no BPA/IPC shaping agreement this year, the decision has been to retain the 40 KAF in Cascade through next year, in order to avoid creating a water quality problem in that reservoir; that 40 KAF will be released next summer, and will not count against the 427 KAF in 2003 Upper Snake flow augmentation water.

In response to a question from Boyce, Norris said the State of Idaho accounts very closely for this water. In response to a request, Norris said he will check on how this water will be accounted for during next year's flood control release period, and will report back to the TMT. In response to another request, Norris said he will see what Reclamation is willing to provide, in terms of the release dates for the various Upper Snake water deliveries this year. In response to another question from Boyce, Norris said Reclamation will provide a written response to SOR 2002-5, particularly on the question of why power head is off the table this year. Norris reiterated that the power head question is under discussion between the Bureau and the State of Idaho, and is not something the TMT can resolve.

Silverberg drew the group's attention to the July 9 letter from Idaho Power to the TMT, the Company's written response to SOR 2002-5; essentially, it spells out the Company's view that Idaho Power is not liable to incur expense in order to mitigate for the impact of federal facilities on ESA listed species, and, absent an agreement with Bonneville, Idaho Power is unwilling to shape the Upper Snake flow augmentation water in 2002.

Wagner noted that one topic that is not addressed in Idaho Power's letter is the thermal impact of the Hells Canyon complex on outmigration timing and on the life-cycle of the fish. There are ongoing discussions between Idaho power and NMFS on the temperature issue, Jon Bowling (from Idaho Power) replied, but I'm not prepared to address that issue today.

We appreciate this response, said Boyce; however, without Idaho Power's cooperation, it makes it very difficult for the TMT to manage the Upper Snake flow augmentation operation. I would encourage IPC to be as cooperative as possible, and to work with this group to make Snake River operations as beneficial as possible all the way around, Boyce said. Second, he continued, the best data set we have about the biological benefits of flow augmentation is the data we have on the Snake River – I want to emphasize that there is no dispute, among the salmon managers, at least, about the biological benefits of flow augmentation. Bowling replied that Idaho Power is endeavoring to be cooperative, but some cooperation from the federal agencies is needed as well. If we can reach an agreement that will make us whole financially, Bowling said, we would be willing to shape the Upper Snake water.

Is it still your plan to keep Brownlee full through the month of July? Boyce asked. Yes – that hasn't changed, Bowling replied. However, Idaho Power's operation will be market-driven, Wagner observed – if energy prices stay high, you may begin to draft Brownlee sooner. That's correct, Bowling replied.

### ***9. Dworshak Modeling Scenarios.***

Hlebechuk drew the group's attention to the summary of Dworshak modeling scenarios requested at this week's TMT conference call, showing what might happen if a portion of the Dworshak storage is reserved for use in September. Hlebechuk said the Corps modeled the following scenarios:

- Hold 13 Kcfs (110% tdg) as long as possible, ramp to 10 Kcfs (full load) to achieve Dworshak elevation 1537 feet on August 31
- Hold 13 Kcfs (110% tdg) as long as possible, ramp to 10 Kcfs (full load) to achieve elevation 1527.5 on August 31
- Hold 13 Kcfs (110% tdg) from July 10 through August 31
- Hold 10 Kcfs (full load) from July 9 to August 31

Hlebechuk noted that it was not necessary to model Scenario 2 because of the volume of water in the current forecast. The results of the model runs were as follows:

- Scenario 1: ramp down to 10 Kcfs on August 25, end August 31 with 228 KAF available for use in September
- Scenario 3: 189 KAF available for use in September
- Scenario 4: 501 KAF available for use in September

Kyle Martin said CRITFC had also modeled these scenarios, and their numbers correspond fairly closely with the Corps' modeling results. Silverberg noted that Scenario 3 appears to meet the preferred operation identified at Monday's TMT conference call. What that would allow us to do is to ramp Dworshak outflow down to 10 Kcfs during the last week in August, hold 10 Kcfs through the first week in September, go to 7 Kcfs outflow during the second week in September and to 3 Kcfs during the third week in September, to achieve elevation 1520 at Dworshak by the end of September, Martin said. In response to a question from

Hlebechuk, Martin said he had used the RFC inflows in the current TMT spreadsheet in developing his analysis.

Are you comfortable with the SSARR inflow forecast? Hlebechuk asked. Yes, Martin replied – it looks reasonable to me, at this point in the season. So where do we go from here? Jim Litchfield asked. We'll monitor the SSARR data on a weekly basis, and keep CRITFC's and Idaho's recommendations in mind during our week-to-week decision-making process, Wagner replied. My understanding is that we'll be managing the system for flow and temperature control through the summer, with the goal of leaving 100 KAF in storage on August 31 if possible, Shane Scott said. My understanding is that 100 KAF-200 KAF is the goal, Silverberg replied.

Dave Statler reported that the mean fork length of the Clearwater fall chinook is 62 mm this year, which compares to a mean fork length of 70 mm on July 1 last year. Essentially, the fish are a couple of weeks behind in their development this year, Statler said, and need as many thermal units as we can give them over the next few weeks, as long as water temperatures at Lower Granite are within the 20 degree-C threshold. Our recommendation is that 10 Kcfs outflow from Dworshak would be preferable to 13 Kcfs over the next two weeks, from the standpoint of Clearwater fall chinook growth, Statler said.

What evidence do you have that reducing Dworshak outflow to 10 Kcfs would be beneficial to those fish? Boyce asked. It's based on chinook growth experiments, which indicate that optimal growth occurs at water temperatures of 60 degrees F and above, Statler replied.

Wagner noted that air temperatures at Lewiston are expected to exceed 100 degrees F over the next three days; water temperatures in the Lower Snake are already 64.5 degrees F and rising, even before we've seen that scorching weather, he said. The tribe had agreed that we need to get ahead of the water temperature curve and keep Dworshak outflow at 13 Kcfs through this week, Statler said; however, we would like to see Dworshak outflow reduced to 10 Kcfs, if possible, beginning next week. Boyce and Statler devoted a few minutes of discussion to the question of what the literature indicates with respect to optimal water temperatures for fall chinook growth. Ultimately, Statler and Boyce agreed to discuss this issue in more detail outside of today's meeting. Statler said he will fax the relevant literature to Boyce.

What I'm hearing is that 13 Kcfs outflow at Dworshak is OK for this week, and we can revisit this issue at next week's TMT meeting, Wagner said. Actually, we're currently releasing 12.5 Kcfs at Dworshak, but our plan is to increase outflow to 13.3 Kcfs later today, said Laura Hamilton. She said the Corps has been able to increase outflow and still maintain tdk below 110%. Boyce said he will provide a copy of Billy Connor's growth projections for distribution to the TMT membership prior to next week's meeting.

### ***10. Current System Conditions.***

Hlebechuk said that, for the week ending July 7, flows averaged 51 Kcfs at Lower Granite, right at the summer flow objective; at McNary, 290 Kcfs, well above the 200 Kcfs summer flow objective. Albeni Falls is operating in the top half-foot and releasing 40 Kcfs. Libby is at elevation 2457 feet, with inflows of 35 Kcfs and outflows of 25 Kcfs. It does look like we're going to have to resume spill at Libby, she said, given the forecast continuing high

inflows at that project. We will try to keep in mind the 2 Kcfs spill cap to stay within the 110% TDG waiver limit, she added. Hlebechuk noted that a lightning strike caused an emergency line outage and a three-hour reduction in Libby outflow from 25 Kcfs to 18 Kcfs on July 8. This caused us to exceed our Biological Opinion ramp rates, she said.

Should we hold 2 Kcfs spill at Libby until the project fills, then pass inflow, or should we spill at a higher volume and fill the project more gradually over the next few days? Hlebechuk asked. Ultimately, there was no consensus reached on this issue. In response to a question, Turner said it is not possible to fill Libby above 2459 feet without a major treaty negotiation with Canada. In response to a request, Hlebechuk said the Corps will send out an email once the spill operation at Libby is defined.

Norris reported that both Hungry Horse and Grand Coulee are very close to full; Hungry Horse is releasing 4 Kcfs, currently, and it looks as though outflow will need to be increased to 8 Kcfs once the project touches full, probably by Monday. The TMT could also decide to waive the August 31 draft requirement of 3540 feet at Hungry Horse, keep outflow at 4 Kcfs for the time being, and either retain or release any volume above elevation 3540 during the month of September, Norris said.

Given current flows in the Columbia, Norris said, we could probably hold off on increasing Hungry Horse outflow now. Oregon would prefer to go to 8 Kcfs on Monday, Boyce said. Montana would prefer to delay that increase to 8 Kcfs while flows in the Lower Columbia are well in excess of the summer flow objective, Litchfield said – if we don't need the full 20-foot draft from Hungry Horse this summer to meet the seasonal flow objective, we shouldn't take it. Drafting Hungry Horse at this point in the season, given current flows in the system, is simply punitive, Litchfield said – it serves no biological purpose at this time.

In response to a question from Boyce, Norris said he will find out when the fourth unit at Hungry Horse will be back on line. Once that unit is back in service, he explained, it would be possible to release more water without spilling, Reclamation's goal being to avoid spill at that project. That would give us some added flexibility in Hungry Horse operations this summer, Boyce noted.

Litchfield observed that there have been years, such as 2000, when it wasn't necessary to draft Hungry Horse the full 20 feet in order to meet the lower river flow targets; such an option is welcome, from Montana's standpoint, because it minimizes some of the biological damage to the reservoir the 20-foot draft causes every year. The BiOp is also clear that the flow targets are a minimum, not a maximum, Boyce said. Is Monday soon enough to make a decision on the Hungry Horse operation? Silverberg asked. Yes, was the reply. My goal is to balance upriver and downriver interests in a way that doesn't necessarily follow the letter of the BiOp, as we did in 1999, Litchfield said. Again, said Norris, I'll try to find out when the fourth unit at Hungry Horse will come back on line; if that won't occur until mid-August, that's going to constrain our operational alternatives somewhat.

Norris summarized this issue by saying that what is at stake here is the August 31 ending elevation at Hungry Horse – whether it should be 3540 feet, or some elevation above that. The

only real wild card, operationally, is the availability of the fourth unit, Norris said – if it is not going to be available, and if we want to take the full 20 feet this year, then Reclamation will need to start releasing 8 Kcfs from Hungry Horse this Monday.

Ultimately, it was agreed that Reclamation will make a decision about whether or not to increase Hungry Horse outflow to 8 Kcfs on Monday, and will send an email explaining that decision to the TMT membership. It was agreed there will be a conference call on Monday if there is major TMT disagreement with that decision.

BPA's Rick Pendergrass said there are no problems, currently, with the power system. Hamilton distributed information on the current TDG situation in the system; she noted that while the system has been averaging four TDG standard exceedences per day, flows are now receding, so TDG will become less of a concern. Water temperature is now becoming the parameter of concern, Hamilton said; Lower Monumental is the current hot spot, with temperatures approaching 72 degrees F for a few hours yesterday.

In response to a request from Wagner, Hlebechuk said she will check to see whether the tri-level thermograph information from Lower Granite forebay can be made available on a weekly, rather than a monthly, basis.

With respect to the status of the fish migration, Wagner said the 50% passage point has now been reached for subyearling chinook outmigrants at both Lower Granite and McNary. The adult summer chinook run is going gangbusters, with record numbers arriving at Bonneville – 102,000 to date, Wagner said. Statler noted for the record that the juvenile fall chinook in the Lower Clearwater are still below the size necessary for outmigration, and need to grow. Chris Ross added that outmigrant travel times for wild fall chinook in the Lower Snake River are much faster than they were last year, a fact for which we have higher flows to thank, he said.

### ***11. New System Operational Requests.***

No new SORs were presented at today's meeting.

### ***12. Recommended Operations, July 15-28.***

Recommended operations were summarized during previous agenda items.

### ***13. Other.***

***A. BPA Financial Choices Public Process.*** Suzanne Cooper said she wanted to share some information about a public process BPA started last week regarding financial choices. She noted that, last year, BPA set its power rates for the current rate period, which runs through September 2006; since then, our financial condition has deteriorated significantly, Cooper said. Although our rates have several cost recovery adjustment mechanisms built in, even with those adjustments, BPA's power revenues are expected to fall 5%-6% short of projections over the rate period, she said. Cooper distributed two handouts summarizing BPA's financial condition and the public process under which it is to be addressed; she went through some of the reasons for

the current financial situation.

BPA would like to create a comprehensive financial plan to guide operations over the next few years, Cooper said; we're providing information about the current situation and outlining five possible alternative ways to address the situation. Cooper went briefly through those options, then noted that what BPA needs is public input on those options and the policy questions laid out in the handouts. There will be a series of public meetings this summer, she said; the public comment period will be open through September, after which we will develop a plan, based on the input received, by December.

With respect to BPA-funded fish and wildlife programs, Cooper said BPA's focus is to meet the performance objectives in the Biological Opinion at the lowest possible cost; if it is possible to meet those objectives while reducing our fish and wildlife spending, she said, we're open to doing that.

Cooper emphasized that BPA has made no decision to date about which approach to pursue; she asked the TMT membership to review this information and to provide any feedback they may have to the following website: [financialchoices@bpa.gov](mailto:financialchoices@bpa.gov).

#### ***14. Next TMT Meeting Date.***

The next face-to-face meeting of the Technical Management Team was set for Wednesday, July 24. Meeting summary prepared by Jeff Kuechle, BPA contractor.

### **TMT PARTICIPANT LIST JULY 10, 2002**

<b>Name</b>	<b>Affiliation</b>
Kyle Martin	CRITFC
Shane Scott	WDFW
Rudd Turner	COE
Ron Boyce	ODFW
Nancy Yun	COE
Scott Boyd	COE
Tim Heizenrater	UBS
Maria Van Houten	UBS
Cathy Hlebechuk	COE
Paul Wagner	NMFS
Tony Norris	Reclamation

Mike O'Bryant	Columbia Basin Bulletin
Rick Pendergrass	BPA
Ruth Burris	PGE
Colin Beam	PPM
Laura Hamilton	COA
David Clugston	COE
David Brenner	FPC
Russ George	WMCI
Tina Lundell	COE
Eugene Rosolie	PNGC
Suzanne Cooper	BPA
Chris Ross	NMFS
John Bowling	IPC
Brian Marotz	Montana FWP
Caroline Fitzgerald	COE
Kevin Lewis	COE
Jiong Ji	Avista Energy
Mike Buchko	PowerX
Jim Litchfield	Consultant (Montana)
Marty Lee	NWS
Donna Silverberg	Facilitation Team

# COLUMBIA RIVER REGIONAL FORUM

## TECHNICAL MANAGEMENT TEAM

### MEETING NOTES

July 17, 2002

CORPS OF ENGINEERS NORTHWESTERN DIVISION OFFICES – CUSTOM HOUSE  
PORTLAND, OREGON

TMT Internet Homepage: <http://www.nwd-wc.usace.army.mil/TMT/index.html>

### FACILITATOR'S SUMMARY NOTES ON FUTURE ACTIONS

Facilitator: Donna Silverberg

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

#### **Updates:**

The purpose of today's meeting was to discuss the 2003 Water Management Plan. As promised, Rudd Turner gave a quick update on river operations. Dworshak was at elevation 1593.7' today and discharging 13.7 kcfs. Total dissolved gas has remained below the 110% level for the past week. Updated SSARR models are posted on the TMT web page.

**Action:** TMT members agreed to hold outflows at Dworshak to 13.8 kcfs maximum until next week, unless the 110% gas cap is reached.

The Salmon Managers are looking to discuss Grand Coulee shaping and swapping possibilities. Tony Norris offered the BOR's perspective on some alternative options to consider. The Salmon Managers will discuss these options and respond to Tony as soon as possible.

#### **WATER MANAGEMENT PLAN (WMP) WORK SESSION:**

TMT received a list of issues and questions to consider for today's work session on the WMP. The issues focused on the purpose, level of detail, decision criteria/characteristics and format of the plan.

#### **Purpose:**

Prior to the meeting, the Action Agencies shared their thoughts on the purpose of the WMP. The following purposes were discussed:

- To reach agreement among regional managers on the FCRPS
- To tell the reader how the Action Agencies intend to implement the 2000 BiOp requirements
- To provide guidance to in-season management
- To provide clarity to interested parties
- To enable longer term planning by reducing last minute decision making wherever possible
- To highlight BiOp system operation requirements
- Through review and discussion, to identify differences in approach to managing the FCRPS

- A place to account for shifts in operations based on new research, forecasted fish migrations, weather and other conditions (such as forecasted fish status)
- To identify any changes to Biological Opinions' operations based on Progress Reports

Generally, positive feedback was given to the Action Agencies for their work in developing the WMP. Some TMT members would like more of a consensus process that is clearly articulated in the Plan. The need for review, analysis and discussion of the WMP was stressed, which could be incorporated into a “lessons learned” session that includes a review of the past year’s research. Other “lessons” learned, such as chum operations, could piggyback with a research and WMP review sometime in late spring or early fall.

**Level of Detail:**

While there was a suggestion for a “one-stop shopping” Plan, the group agreed that some information should be put into appendices to keep the body of the document from being too detailed and to help ease reference checks. The group agreed to put the following information into appendices:

- Ramp rates for Libby and Hungry Horse
- Water quality issues including QA/QC and calibrating instruments
- The Spill Priority List strategy
- A summary of project elevations
- A timeline for river operations.

The group also agreed that there are some operations that occur annually that are not BiOp related – but should be accounted for in a planning document. Those measures that are not part of a Biological Opinion that will be included in the WMP are:

- Vernita Bar
- Spring Creek releases
- Tribal fishery operations
- Canadian operations that are known

These measures will be clearly marked in the table of contents, noted in a paragraph at the front of the document, and possibly listed in an appendix.

Scott Boyd asked that comments and suggestions for improvement of the WMP be shared with him, Tony Norris or Suzanne Cooper. The group will revisit suggestions to the WMP at the next TMT meeting, July 24. The Action Agencies will try to have a new WMP draft out for the August 21 TMT meeting.

*A “WMP and Chum Data Review” meeting is tentatively scheduled for September 3 from 1-4 pm.*

**Next TMT Meeting, July 24:**

Agenda Items (in addition to usual discussion items):

- TMT schedule
- Follow-up suggestions to WMP
- Spring Creek release discussions

## Meeting Minutes

### *1. Greeting and Introductions*

The July 17 Technical Management Team meeting was chaired by Rudd Turner of the Corps and facilitated by Donna Silverberg. The following is a distillation, not a verbatim transcript, of items discussed at the meeting and actions taken. Anyone with questions or comments about these minutes should call Turner at 503/808-3935.

### *2. Water Management Plan Work Session.*

Turner began by updating the group on current operations at Dworshak; outflow continues at 13.8 Kcfs, with inflows in the 5 Kcfs-6 Kcfs range. The current SSARR shows a project elevation of 1529 feet on August 31, if a flat discharge of 13.8 Kcfs is maintained through that date; this will leave approximately 150 KAF for release in September. Dissolved gas levels below the project continue to be below the waiver standard, Turner added. After a brief discussion, the TMT recommended that the action agencies continue to release 13.8 Kcfs from Dworshak until further notice.

Scott Boyd explained that the purposes of the Water Management Plan include reaching agreement among the action agencies on operation of the Federal Columbia River Power System to implement the 2000 BiOp, to provide guidance to the in-season management process, to provide clarity to interested parties, to enable longer-term planning by reducing the need for last-minute decision-making, and to highlight BiOp system operational requirements. He said the Corps' hope is that, by starting the process now, it will be possible to finalize the 2003 WMP by early September, as called for in the BiOp.

The discussion then turned to TMT recommendations as to the specific contents of the 2003 Plan. These comments and suggestions included the following:

- In general, NMFS felt that the content of the 2002 WMP plan was adequate; however, charts detailing the ramp rates at each project, as well as the 2003 Spill Priority List, would be welcome additions as appendices.
- The TMT Guidelines should be a stand-alone document.
- The 2003 Water Management Plan should lay out the planned Spring Creek hatchery release operation, the Vernita Bar operation and the tribal fisheries operations.
- All non-BiOp operations should be detailed in the introduction to the 2003 Plan.
- A time-frame for flow augmentation events would be helpful.
- A list of planned Canadian operations would be a useful addition to Table 3.
- Project data – seasonal elevation targets, powerhouse capacities, planned outages – would be a useful appendix to the 2003 Plan.

Boyd asked that any further suggestions as to the contents of the 2003 Water Management Plan be submitted to him at the next regularly scheduled TMT meeting on July 24.

After that, he said, I will incorporate the comments received into a final draft of the 2003 Plan in time for presentation at the August 21 TMT meeting. Another Water Management Plan work session was tentatively scheduled for Tuesday, September 3.

### **TMT ATTENDANCE LIST**

**JULY 17, 2002**

<b>Name</b>	<b>Affiliation</b>
Rudd Turner	COE
David Wills	USFWS
Donna Silverberg	Facilitation Team
Ron Boyce	ODFW
Paul Wagner	NMFS
Scott Bettin	BPA
Tony Norris	USBR
Karl Kanbergs	COE
Scott Boyd	COE
Tina Lundell	COE
Dick Cassidy	COE
Robin Harkless	Facilitation Team
Suzanne Cooper	BPA
Chris Ross	NMFS
Shane Scott	WDFW
Steve Pettit	IDFG
Kyle Martin	CRITFC

# TECHNICAL MANAGEMENT TEAM

**BOR:** Tony Norris / Lori Postlethwait

**BPA:** Scott Bettin / Rick Pendergrass

**NMFS:** Paul Wagner / Chris Ross

**USFWS:** David Wills / Howard Schaller

**OR:** Ron Boyce

**WA:** Shane Scott

**ID:** Steve Pettit

**MT:** Jim Litchfield

**COE:** Cindy Henriksen / Cathy Hlebechuk / Rudd Turner

## TMT EMERGENCY CONFERENCE CALL

19 July 2002      1300 - 1400 hours

Custom House      Room 118  
Portland, Oregon  
Conference call line: 503-808-5190

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

### AGENDA

1. Summer operations at Hungry Horse and Grand Coulee.

*Questions about the meeting may be referred to Cathy Hlebechuk at (503) 808-3942, or Rudd Turner at (503) 808-3935.*

# COLUMBIA RIVER REGIONAL FORUM

## TECHNICAL MANAGEMENT TEAM

July 19, 2002

### FACILITATOR'S SUMMARY NOTES ON FUTURE ACTIONS

Facilitator: Donna Silverberg

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

#### **SOR 2002-6:**

Today's emergency conference call focused on SOR 2002-6 from the Salmon Managers regarding Hungry Horse and Grand Coulee summer operations. Dave Wills, USFWS, said the SOR is based on salmon manager concerns for lower river fish and resident fish concerns in Flathead River. He reviewed the SOR and invited questions and discussion.

Tony Norris said the BOR is not willing to draft Grand Coulee below 1280' due to a Biological Opinion constraint and other local issues. He suggested an alternative operation: release 4 kcfs out of Hungry Horse beginning tomorrow (7/20), ramp up to 6 kcfs for the last two weeks of August, and drop back down to 4 kcfs until Hungry Horse reaches a 3540' elevation. Preliminary SSAR models show that releases could continue close to the end of September. Tony offered that the BOR might delay refill of Banks Lake in September and leave that water (roughly 130 kaf) in the system for use in the lower river. Spokane tribal representatives agreed with Tony that drafting Grand Coulee below 1280' would have negative impacts on cultural resources, fisheries, erosion control and recreation in the area.

Although NMFS preferred the Grand Coulee shaping operation, the agency agreed to the proposal when it was clear that the BOR would not draft Grand Coulee below 1280' in September. Chris Ross noted that flexibility with the Hungry Horse ramp-up is important because of routing issues. He inquired about passing Hungry Horse water released in September through Grand Coulee in September. Idaho agreed to Tony's proposed operation as long as the Banks Lake delay takes place. Montana supported the operation. Shane Scott, Washington, reported that they expect no biological problems with delaying the Banks Lake refill and agreed to the operation. Oregon was not represented.

#### **Action:**

- July 20, 4 kcfs will be released out of Hungry Horse on July 20.
- Tony will present ramping scenarios to TMT at the July 24 meeting, as requested. Hungry Horse will ramp to 6 kcfs for two to three weeks in August.
- Sometime in August or September, Hungry Horse will ramp down to 4 kcfs until 3540' is reached.

- Tony will email the group today or Monday about whether Banks Lake will not be refilled in September, allowing the approximately 130 kaf to be left in the system for the lower river. Banks Lake will refill in October.
- Grand Coulee will not draft below 1280' in August and will target 1283-1285' in September.

# TECHNICAL MANAGEMENT TEAM

**BOR:** Tony Norris / Lori Postlethwait

**BPA:** Scott Bettin / Rick Pendergrass

**NMFS:** Paul Wagner / Chris Ross

**USFWS:** David Wills / Howard Schaller

**OR:** Ron Boyce

**WA:** Shane Scott

**ID:** Steve Pettit

**MT:** Jim Litchfield

**COE:** Cindy Henriksen / Cathy Hlebechuk / Rudd Turner

## TMT MEETING

24 July 2002      0900 - 1200 hours

Custom House      Room 118  
Portland, Oregon  
Conference call line: 503-808-5190

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

## AGENDA

1. Welcome, introductions.
2. Bonneville spillway test (COE).
3. Snake 40 kaf accounting plan (BOR).
4. Emergency action list update (BPA, NMFS).
5. 2003 Water Management Plan content.
6. Lower Granite forebay tri-level temperature collection update (COE).
7. Dworshak and Libby operations (NMFS, COE).
8. Review current system conditions.
  - fish migration status (NMFS, USFWS)
  - reservoir operation, water supply, power system, water quality (COE, BOR, BPA)
9. Review operational requests.
10. Develop recommended operations.
11. Other.
  - set agenda for 7 August TMT meeting

*Questions about the meeting may be referred to Cathy Hlebechuk at (503) 808-3942, or Rudd Turner at (503) 808-3935.*

# **COLUMBIA RIVER REGIONAL FORUM**

## **TECHNICAL MANAGEMENT TEAM**

### **MEETING NOTES**

**July 24, 2002**

**CORPS OF ENGINEERS NORTHWESTERN DIVISION OFFICES – CUSTOM HOUSE  
PORTLAND, OREGON**

**TMT Internet Homepage: <http://www.nwd-wc.usace.army.mil/TMT/index.html>**

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

Facilitator: Donna Silverberg

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

#### **Bonneville Spillway Test:**

Laurie Ebner, COE Portland District, reported on desired plans for spillway deflector tests at Bonneville. They would like to do the test at the end of August, but will push the date back to the first week in September if juvenile fish numbers are high. Timing (hourly and day) will be based on the migration patterns of juvenile fish and coordination with the Salmon Managers.

CRITFC expressed concerns that the test will conflict with the fall treaty fishing season, depending on river flows. Fishing usually occurs Wednesday through Saturday so spill test days may need to occur Sunday through Wednesday. BPA expressed concerns with spilling in September and would need a TDG variance to do so. They prefer August as a start date. The COE will coordinate with TMT and others to assure the least disruption to fish and the system.

#### **Snake 40 kaf Accounting Plan:**

Tony Norris reported that it is unclear how the 40 kaf in the Snake River will be accounted for if there is a medium to high water year. He said that there is a letter from NMFS that outlines this exchange more clearly, which he will present to TMT when it is available.

#### **Emergency Action List:**

Chris Ross provided a revised draft of a priority list. The 7/23 draft will be shared with the schedulers and used if an emergency occurs. Discussions on this will continue at a meeting on Tuesday July 30 at 2 pm. Those interested should meet at the security kiosk at BPA.

#### **2003 WMP:**

No further suggestions were made on the WMP. A revised draft will be completed on August 21.

#### **Lower Granite Tri-level Temperature Collection Update:**

Joe Carroll, contractor for the Walla Walla COE, did a 3-D temperature study for the lower Snake to address RPA 143 for water quality and temperature. Real-time data is note yet

available. The information could be useful to aid in management of Dworshak operations, if in real-time. Cost, logistics and security are issues the COE has with this monitoring. Laura Hamilton shared the COE's latest on the database and how the information might be used in the future.

### **Hungry Horse Update:**

Tony Norris reported that Hungry Horse is releasing 4 kcfs. He asked the Salmon Managers when they would like to ramp up to 6 kcfs and offered some suggestions. Ron Boyce presented Oregon's perspective on Hungry Horse operations. The group agreed to ramp up to 6 kcfs on August 5.

**Action:** Tony will run models that show elevations and volumes and send them to the Salmon Managers for their meeting on July 30. **NOTE:** Since Washington, Idaho and Montana were not represented, further discussions on Hungry Horse will be held at FPAC next week. If FPAC wants to change the operation based on their discussions on Tuesday, a TMT call will be held on Wednesday, July 31. FPAC will notify TMT as soon as possible on Tuesday if this call is necessary.

### **Libby Operations:**

TMT agreed to a steady ramp-down at Libby. There will be a flat flow of 22 kcfs out for now, and adjustments will be made as needed.

### **Dworshak Operations:**

Dworshak is currently operating at an outflow of 13.8 kcfs. Work at Dworshak that is scheduled for September 3 may have effects on the ability to use the water the first two weeks of September, as TMT had hoped. The group will revisit this issue on August 7. Karl Kanbergs offered TMT volume sheets to be re-activated for TMT's use at the August 7 meeting, which TMT members accepted.

### **Current System Conditions:**

**Fish migration status:** Paul Wagner reported that juvenile passage appears to be on schedule. He reported high numbers of adult summer Chinook passage.

**Reservoir Conditions:** Grand Coulee will reach 1280' at the end of August. TMT members agreed to a gradual step-down.

**Temperatures:** Temperatures are heating up in the Snake River. Dave Wills will explore the possibility of lower temperature releases out of Dworshak and will contact Karl Kanbergs if lower temperatures can be released.

**Water Quality:** Bonneville spill regulation continues to cause problems for the COE. They are testing a number of reasons for this (e.g. temperature, wind, upriver gas). Laura Hamilton will provide daily average spill levels in addition to TDG at the August 7 meeting.

### **Other:**

Ron Boyce requested that the Bonneville 1 smolt monitoring facility be shut down, as few fish have been seen there. Rudd Turner will find out if the facility will shut down this week so crews can move to Bonneville 2.

Kyle Martin reported that the Wy-Kan-Ush-Pum tribal festival will be held August 3-4. Information on this can be found at [www.salmonpeople.org](http://www.salmonpeople.org).

### **Next Meeting, August 7:**

#### **Agenda items:**

- Bonneville Spillway Test – check in
- Emergency Action List – check in
- Hungry Horse Operations – check in
- Scheduled Work at Dworshak
- Additional Information on Water Quality
- Dworshak Temperature Range – check in

## **Meeting Minutes**

### ***1. Greeting and Introductions***

The July 24 Technical Management Team meeting was chaired by Karl Kanbergs of the Corps and facilitated by Donna Silverberg. The following is a distillation, not a verbatim transcript, of items discussed at the meeting and actions taken. Anyone with questions or comments about these minutes should call Rudd Turner at 503/808-3935.

### ***2. Bonneville Spillway Test.***

Laurie Ebner from COE described the planned near-field TDG test scheduled for Bonneville during the last week in August. The purpose of the test is to determine the TDG performance of the 7-foot deflectors under a low tailwater condition, she explained. Monitoring instruments will be installed on August 24-25, which will require a three-hour curtailment of spill on both of those days. This will be followed by 36 hours of testing (12 three-hour blocks). Instruments will then be retrieved on September 3, after spill has stopped. The test will also require some disruption to the normal juvenile spill pattern at Bonneville during the 36 hours data is being collected.

If juvenile fish passage is still high, we would prefer to push the test back a week, into the first week in September, Ebner said; that was the preference expressed during the most recent FFDRWG meeting. She went through some of the issues associated with delaying the test a week. Kyle Martin noted that this is about the time the tribes will be holding their first week of fall treaty fishing, during which time they will be requesting that the three Lower Columbia pools be held at a stable, near-full condition. I just wanted to give you a heads-up that we will likely be submitting an SOR covering that operation some time in the next three weeks, Martin said. It shouldn't be a huge problem, Scott Bettin observed; it should be possible to hold the test on Sunday-Monday-Tuesday, to avoid the weekend, during which the tribal fisheries are

generally held. The bigger issue would be spill during the first week in September, Bettin added; from our standpoint, it would be better to do the test in late August, when the variances will still be in place.

The point is that you would like to coordinate the timing of the test to minimize or eliminate any detrimental biological impacts? Silverberg asked. That's correct, Ebner replied. And you'll coordinate further as the test approaches? Silverberg asked. That's correct, said Ebner.

### ***3. Snake River 40 KAF Accounting Plan.***

Tony Norris distributed a handout detailing Reclamation's flow augmentation releases in 2002 (60 KAF from the Boise system, 160 KAF from the Payette system). The handout also included a brief statement regarding the use of powerhead above Milner Dam.

At the last TMT meeting, there was also a question about our ability to account for the 40 KAF in Cascade Reservoir storage NMFS has asked Reclamation to shift to a spring release next year. In a lower water year, it would be easier to account for that water, Norris said; in a near-normal year, the picture is going to be murkier. In April, we're filling reservoirs, but there are other factors that are going to make it harder to say, here's your 40 KAF, and this is when and how it was delivered. You don't have an agreement with Idaho Power to pass that 40 KAF through? Boyce asked. That's correct, Norris replied – basically, Brownlee will fill quicker because of that 40 KAF, and will begin passing inflow sooner next year. Boyce asked what steps Reclamation is taking to ensure the delivery of the full 427 KAF in 2003; Norris replied that there isn't anything Reclamation can do, under Idaho state law – it all comes down to what Mother Nature gives us, he said. Norris added that a letter expressing the agreement between NMFS, the State of Idaho and the Bureau of Reclamation is being prepared; he said he will provide copies of the letter to TMT as soon as it is available.

### ***4. Emergency Action List Update.***

Chris Ross said he had taken a shot at another draft of the prioritized emergency action list. Bettin explained that he had submitted Ross' July 12 list to the BPA schedulers, with the understanding that it will not be possible to implement some of the items on the list within the stipulated two-hour period. The list was subsequently re-worked by Bettin; he said a meeting has been scheduled to further refine the list at 2 p.m. Tuesday, July 30 at BPA headquarters.

Bettin noted that coordination is the main problem with many of the items on the current list; many of them would be difficult or impossible to implement in the time frame currently indicated. In general, he said, the two-hour list probably works, but the list of actions to be taken for outages longer than two hours will require substantially more coordination. We'll discuss those issues at next Tuesday's meeting, and will also provide some information about the process our schedulers go through.

Ross noted that there are two items on the July 12 list (which the BPA schedulers are currently using) – zero nighttime flow at the Lower Snake projects and pulling the fish screens at

McNary – that NMFS does not concur with. Bettin added that Item 11 on the “Actions to be taken for outages of two hours or less” list should be modified to indicate a priority on Powerhouse 2 operation, rather than no first powerhouse operation. After a few minutes of discussion, Bettin agreed to provide the version of the emergency priorities list dated July 23 to Bonneville’s schedulers.

#### ***5. 2003 Water Management Plan Content.***

Scott Boyd said this item is on the agenda because this is the last chance for the TMT to offer any changes or additions to the 2003 Water Management Plan content. No additions were offered at today’s meeting; Silverberg noted that the revised 2003 WMP will be provided at the August 21 TMT meeting.

#### ***6. Lower Granite Forebay Tri-Level Temperature Collection Update.***

Rudd Turner said a question was asked two weeks ago about the status of tri-level thermograph data this summer. The Corps has two contractors collecting temperature with depth information in the Lower Granite forebay, Turner said -- Joe Carroll, who is collecting detailed temperature profile data to inform RPA action #143, the 3-D water temperature modeling effort in the Lower Snake River, and Dave Bennett’s work for AFEP in support of the Lower Snake River adult migration studies. In both cases, those are research applications, so the data are not readily available in real-time, Turner said – it will be approximately 4 weeks between the time data is collected and the time it would be available for use. Neither contract calls for downloading that data in real time this year, Turner said. Next year, however, the Corps is considering a satellite link downloaded to a host computer. Again, this is primarily a research application but it may also give us something closer to real-time data, he added.

What, specifically, is the utility of this information, from a river management and operations perspective? Turner asked. Its utility probably isn’t that important now, Wagner replied; you will recall that every year we have a debate about when to start the cold water releases from Dworshak, but that decision has already been made for this year. What about the evaluation of fish behavior in response to the September releases from Dworshak? Boyce asked – it could be useful from that perspective, at least in a “lessons learned” context. As long as the information is made available at a later date, that would be satisfactory for this year, although it would be useful if we could get the information on at least a weekly basis next year, Wagner said.

The group devoted a few minutes of discussion to the management utility of the Lower Snake temperature data. Laura Hamilton noted that the Corps is in the process of developing an on-line database which will display the Lower Snake temperature data from 2002 and past years; our ultimate goal, she said, is to link that temperature data with TDG and fish movement information.

#### ***7. Dworshak, Hungry Horse and Libby Operations.***

Norris said that, last week, Hungry Horse went down to 4 Kcfs outflow; the way we left

it was that the salmon managers would decide when they wanted to ramp Hungry Horse up to 6 Kcfs, and how long they wanted it for, he said. Norris said he had discussed this issue with Montana's Brian Marotz on Friday, who told him that conditions in the main fork of the Flathead are optimal for cutthroat at 6 Kcfs. This is a year when Montana would prefer not to see minimum flow (3.5 Kcfs), followed by a significant increase in flow due to power operations and increasing natural flows -- the so-called "double peak," Norris said. The bottom line is that it would be preferable to hold 6 Kcfs for two weeks, rather than three weeks, he said -- that will allow us to continue to maintain more than minimum flow from Hungry Horse until closer to the end of September. I guess what I'm saying is that this is a year when you can bleed some of the water that would normally be released in August into September, because that 2 Kcfs won't mean much to flows in the lower river, but has a significant impact on conditions in the Flathead immediately below Hungry Horse, Norris said.

Boyce said his preference would be to ramp Hungry Horse flow up to 6 Kcfs as soon as possible; there will still be a significant volume above elevation 3540 for release in September, he said. We can go to 6 Kcfs now, Norris said; the question is, how long should we maintain 6 Kcfs outflow from Hungry Horse? Kanbergs noted that the current SSARR run shows 11 days of 6 Kcfs release from Hungry Horse beginning in mid-August; under this modeling run, Hungry Horse's August 31 elevation would be 3549 feet, and Hungry Horse would then release 4 Kcfs throughout the month of September. After a few minutes of discussion, it was agreed to increase Hungry Horse outflow to 6 Kcfs on Monday morning, August 5. Norris said he will produce some additional projections of Hungry Horse inflows, outflows and elevations under several potential flow scenarios. It was further agreed that a TMT conference call will take place Wednesday morning, July 31, if needed to discuss the Hungry Horse operation.

With respect to current Libby operations, Kanbergs said the goal was to reach full pool, 2459 feet, by July 31, followed by a steady draft at full powerhouse capacity to 2439 feet by August 31. Late last week, we realized that inflows were falling faster than anticipated, he said; the decision was made, in consultation with the other action agencies, NMFS and the State of Montana, to go to a flat outflow of 22.8 Kcfs through the end of August to avoid a double peak, and to achieve elevation 2439 at Libby by August 31. The only operational alternative we can see is to bump Libby outflow up to full powerhouse capacity -- 25 Kcfs -- now, then ramp flow down to some steady outflow in August, Bettin said. After a brief discussion, it was agreed to maintain the current 22.8 Kcfs outflow at Libby through August 31. We'll revisit this operation over the next few weeks on an as-needed basis, Bettin said.

With respect to Dworshak operations, said Kanbergs, the goal is to maintain a flat outflow of 13.8 Kcfs through the end of August; that should leave us a volume of approximately 117 KAF for release in September to reach elevation 1520' by September 30. However, there is a glitch -- a planned maintenance outage, currently scheduled for the first week in September, which would limit us to a single unit -- 2.5 Kcfs -- plus whatever spill we can get from the R/O system, Kanbergs said. We could probably delay the start of at least part of the operation for about a week, he said. In response to a question, Kanbergs said the maintenance operation is currently scheduled to run from September 3-October 25.

CRITFC and the Nez Perce Tribe would prefer to see you delay the start of the repairs

until after the second week of September, said Martin; after that, the biological benefits associated with that release will decrease significantly. It was so agreed; in the interim, said Kanbergs, we will continue to release 13.8 Kcfs from Dworshak. In response to a question, Kanbergs said the Corps will produce an updated version of the “TMT volume diagrams” for Dworshak, showing the remaining flow augmentation volume through August, in time for discussion at the next TMT meeting.

#### **8. Current System Conditions.**

Kanbergs said Grand Coulee has begun drafting slightly to reach its end-of-August elevation target. Ross wondered about that operation, given the fact that the current flow at McNary is still nearly 220 Kcfs, and it might be better to hold the Grand Coulee storage for use later in August. Kanbergs said Grand Coulee has drafted 8/10 of a foot over the past five days, which is within the two-foot operating range.

With respect to the status of the fish migration, Wagner reported that subyearling passage continues to be strong, although we’re definitely in the second half of the migration – 59,000 fish on July 21 at Lower Granite, the daily peak for the season. Current indices at Lower Granite are down in the 10,000-fish range, and should taper down further as we head into August. The trend is similar at McNary, with the peak having passed and daily indices headed downward, Wagner said. According to the DART forecast, we’re at the 79% passage point for the season at Lower Granite, as of July 22; at McNary, we’re at 52%. Typically, the 95% passage point for subyearling chinook at McNary occurs around August 31, said Boyce.

Moving on to adult passage, Wagner said the summer chinook run totals 121,000 to date, a “whopping big” number. The forecast for the season is 140,000 fish. Passage is down to about 1,000 fish per day, but the seasonal total will include the fish caught below Bonneville as well as those passing the dam. With respect to cumulative subyearling passage indices at Lower Granite Dam, we’re not meeting our expectations, he said; that could be due to the more extensive spill program in effect this year. A similar pattern holds true at McNary, Wagner said – cumulative passage is well below the pre-season forecast.

Moving on to current reservoir operations, Kanbergs said 1287.6 feet is the current elevation at Grand Coulee; the project will continue to draft to reach elevation 1280 on August 31. The SSARR shows an average outflow of 195 Kcfs at McNary during the week ending August 4, he added; yesterday’s day-average flow was 209 Kcfs. The summer seasonal average is expected to be 204 Kcfs, Bettin added, but McNary flows will be much lower in August than they are, currently -- 157 Kcfs as a weekly average for the week ending August 25. Is the sort of gradual rampdown shown in the SSARR run the way the salmon managers would prefer to see the system operated? CRITFC would prefer a gradual recession, Martin replied. Wagner also said this would be an acceptable operation; no objections were raised by the other salmon managers.

Moving on, Kanbergs reported that Libby elevation was 2457.8 Kcfs at Libby as of midnight last night, with outflows of 22.8 Kcfs and inflows of about 14 Kcfs yesterday, down from 20.6 Kcfs five days ago. The current Dworshak elevation is 1587 feet, with 13.9 Kcfs out

and 4 Kcfs in – we’ve drafted about four feet over the past week at that project, he said. At McNary, again, the current flow is 209.8 Kcfs; the summer seasonal flow objective is 200 Kcfs. It does look as though we will achieve an average flow of 204 Kcfs for the summer season at McNary, he added.

Average flow yesterday at Lower Granite was 31.4 Kcfs, compared to a summer seasonal target of 51 Kcfs. It looks as though we’ll average about 35 Kcfs at Lower Granite over the next two weeks, he said. The actual summer seasonal average flow at Lower Granite is expected to be about 46 Kcfs, Kanbergs added. Wagner noted that current water temperatures in the Lower Granite forebay are in the 74 degree F range; in McNary forebay, 67-69 degrees F. The current release temperature at Dworshak is 47 degrees. In response to a question, Kanbergs said he will check with the Nez Perce Tribe and the Fish and Wildlife Service to see whether a lower release temperature would be possible at Dworshak.

What about power supply? Silverberg asked. Life is good, Bettin replied, although the Central Oregon fires are an ongoing threat – we have had some outages due to smoke fouling the insulators. There have been no serious outages so far, he said; we’ll keep our fingers crossed.

Moving on to water quality, Laura Hamilton said that, on the TDG front, McNary has been the main place where exceedances have occurred over the past week, primarily due to water temperatures in the Mid- and Lower Columbia. Water temperatures in the Lower Granite forebay have been the highest in the system, in the 73-76 degree range. Hamilton noted that maintaining a consistent spill volume at Bonneville continues to be a challenge, due to temperature and wind effects, as well as incoming gas levels. In response to a question from Boyce, Hamilton said it should be possible to provide daily average spill volumes at the various projects at the next TMT meeting.

#### ***9. New System Operational Requests.***

No new SORs were submitted prior to today’s meeting.

#### ***10. Recommended Operations.***

Recommended operations were summarized during a previous agenda item.

#### ***11. Other.***

***A. Shutdown of the Bonneville 1 Smolt Monitoring Facility.*** Boyce requested that this shutdown occur as soon as possible; Turner agreed to check on facility status.

#### ***12. Next TMT Meeting Date.***

The next face-to-face meeting of the Technical Management Team was set for Wednesday, August 7. A tentative conference call was scheduled (if needed) for July 31. Meeting summary prepared by Jeff Kuechle, BPA contractor.

## TMT ATTENDANCE LIST

JULY 24, 2002

<b>Name</b>	<b>Affiliation</b>
Karl Kanbergs	COE
Scott Bettin	BPA
Tony Norris	USBR
Paul Wagner	NMFS
David Wills	USFWS
Ron Boyce	ODFW
Donna Silverberg	Facilitation Team
Tina Lundell	COE
Rudd Turner	COE
Laura Hamilton	COE
Chris Ross	NMFS
Tom Le	PSE
Kyle Martin	CRITFC
David Benner	FPC
Russ George	WMCI
Robin Harkless	Facilitation Team
Richelle Harding	D. Rohr & Associates
Scott Boyd	COE
Colin Beam	PPM
Steven Wallace	PacifiCorp
Laurie Ebner	COE
Margaret Filardo	FPC
Glen Traeger	Avista Energy
Mike Buchko	PowerX
Lance Elias	PPL

# TECHNICAL MANAGEMENT TEAM

**BOR:** Tony Norris / Lori Postlethwait

**BPA:** Scott Bettin / Rick Pendergrass

**NMFS:** Paul Wagner / Chris Ross

**USFWS:** David Wills / Howard Schaller

**OR:** Ron Boyce

**WA:** Shane Scott

**ID:** Steve Pettit

**MT:** Jim Litchfield

**COE:** Cindy Henriksen / Cathy Hlebechuk / Rudd Turner

## TMT MEETING

**7 August 2002      0900 - 1200 hours**

**Custom House      Room 118  
Portland, Oregon  
Conference call line: 503-808-5190**

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

## AGENDA

1. Welcome, introductions.
2. Weather/climate forecasts (NWS).
3. Bonneville spillway test (COE).
4. [Emergency action list](#) update (BPA, NMFS).
5. Hungry Horse operations update (BOR).
6. Libby operations update (COE). [\[Corps analysis\]](#)
7. Review operational requests. [\[SOR #2002-MT-1\]](#)
8. Dworshak operations - discharge temperature, planned outage, September releases (COE, NMFS). [\[Corps Aug 5 analysis\]](#) [\[Corps Aug 8 analysis\]](#)
9. Review current system conditions.
  - fish migration status (NMFS, USFWS)
  - reservoir operation, water supply, power system, water quality (COE, BOR, BPA)
10. Develop recommended operations.
11. Other.
  - USFWS Mid-Columbia flow request (USFWS)
  - Lower Monumental 500kV line work (BPA)
  - Little Goose Doble Testing (COE)
  - set agenda for next TMT meeting

*Questions about the meeting may be referred to Cathy Hlebechuk at (503) 808-3942, or Rudd Turner at (503) 808-3935.*

Hlebechuk  
5 Aug 02

#### DWORSHAK HYSSR ANALYSIS

The July 29 SSARR forecast shows if 13.8 kcfs outflow is maintained through 31 August the project will draft to 1529.3' which is 123 kaf above 1520'. In order to draft a total of 200 kaf in September, based on the latest forecast, the project would have to be drafted to about elevation 1514'.

The Corps ran the HYSSR model for WY 29 - 87 for the 1 Oct - 30 June period

Assumptions: 1514' on 30 Sep  
operate for flood control  
WY 29 - 87 actual inflows

Conclusions: DWR would refill 43 out of 59 years by the end of June.  
Average end of June elevation 1598'  
Average outflows Oct 1300 cfs Nov 1300 cfs Dec 1700 cfs  
Jan 3700 cfs Feb 6200 cfs Mar 6700 cfs Apr 1 - 14 8300 cfs  
Apr 15 - 30 12200 cfs May 5300 cfs June 4600 cfs

#### AS A COMPARISON

The Corps ran the HYSSR model for WY 29 - 87 for the 1 Oct - 30 June period

Assumptions: 1520' on 30 Sep  
operate for flood control  
WY 29 - 87 actual inflows

Conclusions: DWR would refill 46 out of 59 years by the end of June.  
Average end of June elevation 1598.1'  
Average outflows Oct 1300 cfs Nov 1300 cfs Dec 1900 cfs  
Jan 4000 cfs Feb 6700 cfs Mar 6700 cfs Apr 1 - 14 8300 cfs Apr 15 - 30  
12500 cfs May 5300 cfs June 4700 cfs

Hlebechuk  
8 Aug 02

#### DWORSHAK HYSSR ANALYSIS

The August 5 SSARR forecast shows if 13.8 kcfs outflow is maintained through 31 August the project will draft to 1530.4' which is 138 kaf above 1520'. In order to draft a total of 200 kaf in September, based on the latest forecast, the project would have to be drafted to about elevation 1515.3'.

The Corps ran the HYSSR model for WY 29 - 87 for the 1 Oct - 30 June period

Assumptions: 1515.3' on 30 Sep  
operate for flood control  
WY 29 - 87 actual inflows

Conclusions: DWR would refill to its April 15 flood control elevation 43 out of 59 years. DWR would also fill to 1600' 43 out of 59 years by the end of June.

Average end of June elevation 1598'

Average outflows Oct 1300 cfs Nov 1300 cfs Dec 1800 cfs

Jan 3800 cfs Feb 6300 cfs Mar 6700 cfs Apr 1 - 14 8300 cfs

Apr 15 - 30 12200 cfs May 5300 cfs June 4700 cfs

#### AS A COMPARISON

The Corps ran the HYSSR model for WY 29 - 87 for the 1 Oct - 30 June period

Assumptions: 1520' on 30 Sep  
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Jan 4000 cfs Feb 6700 cfs Mar 6700 cfs Apr 1 - 14 8300 cfs Apr 15 - 30

12500 cfs May 5300 cfs June 4700 cfs

Hlebechuk  
5 Aug 02

LIBBY SSARR MODEL  
ANALYSIS

Using last week's SSARR inflows from RFC, here are target elevations and associated Libby outflows

Elev	Date	Libby flow now - end Aug
2439	8/31	21 kcfs
2449	8/31	14 kcfs

Elev	Date	Libby flow now - end Sep
2439	9/30	14 kcfs
2449	9/30	11 kcfs

Also, we talked with BC Hydro and they said if we released 21 kcfs from Libby in August vs. 14 kcfs in August, Kootenay Lake would trap 35% of the water. In other words, if we released 7 kcfs less from Libby in August, Kootenay Lake would release about 4.6 kcfs less.

# **COLUMBIA RIVER REGIONAL FORUM**

## **TECHNICAL MANAGEMENT TEAM**

August 7, 2002

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

Facilitator: Donna Silverberg

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

#### **Bonneville Spillway Test:**

Update on plans for the spillway deflector tests at Bonneville was deferred to the next TMT meeting.

#### **Emergency Action List:**

Scott Bettin reported that the current list should be used through the end of August, with minor changes. They include changing the time period from 2 hours to 24 hours, and deleting item 4 in the list of actions to be taken.

Ron Boyce requested that a meeting be set up with those interested when BPA could go over list in detail.

**ACTION:** Ron will contact Scott with potential dates and times available for a meeting to review the Emergency Action List. August 13 was mentioned as a potential date.

#### **Hungry Horse Operations Update:**

Tony Norris reported that Hungry Horse is releasing 6 kcfs now, and will ramp down to 4 kcfs by August 26. Elevation 3545.5 is expected at the end of August, with flows being provided through September 21. Ron Boyce expressed Oregon's concern about current flows in the lower Columbia, but did not object to the operation.

#### **Libby Operations:**

BPA reported on status of negotiations for a swap with Canada. This year, very little is available from Arrow, so they are pursuing a swap with 90% of the water coming from Duncan. This should allow 4-5 kcfs reduction from Libby through the end of this month. There is a verbal agreement at this point, and the swap could start as early August 8. This is a 1-1 swap and water will need to come back out of Libby by the end of the year.

#### **Operational Request SOR #2002-MT-1**

Jim Litchfield presented Montana's request that flows out of Libby be reduced to 11 kcfs and maintained as close as possible to this flow until the end of September. Justifications for the request are noted on the SOR and include resident fish and local needs balanced against the needs of lower river salmon. A discussion followed about the impact of the Libby/Duncan swap on this SOR (and visa versa). If flows are reduced to less than 15-16 kcfs, then the opportunity to make the swap with Canada no longer exists. The swap allows some reduction to occur, but not to the level of the SOR.

NMFS reported that its internal discussions had led them to support reducing flows only enough to allow the Libby/Duncan swap. Other Salmon Managers supported the reduction in flows from Libby because of the water from Duncan, but did not agree with reducing the flows out of Libby further than that.

**Action:** Flows from Libby will be reduced to 16 kcfs as soon as possible, depending on the timing of the Libby/Duncan swap.

### **Dworshak Operations:**

- **Temperature Issues:**

COE reported that DWR was at elevation 1570.45 releasing 13.7 kcfs. FPAC requested that DWR be operated to increase temperatures from the current 45 degrees to 48 degrees to help the downstream USFWS hatchery. COE said operations would start August 8, 2002 to reach this temperature. It was agreed that the Corps will coordinate with the hatchery to dictate a temperature range. There was a discussion about whether this temperature could be maintained through the end of September.

**Action:** DWR will be operated to target an increase in water temperature to 48 degrees.

**Action:** Cathy Hlebechuk will email TMT members more information on the water mixing capabilities at DWR to help them understand how long this temperature can be maintained. She will also post a revised DWR HYSSR chart on the website with current data.

- **Planned Outage:**

COE reported that the planned outage for work at DWR has been rescheduled to start September 16 and will run through the end of October.

- **September Releases:**

FPAC, COE and Univ. of Idaho representatives have been meeting to discuss study plans involving DWR. They will be developing an SOR related to the Idaho Nez Perce request to release an additional 200 kaf from DWR this year.

**Action:** TMT will meet on Thursday August 15 to discuss the SOR in the usual room at the COE, 9-12 pm. The call in number will be 503-808-5191.

### **Current System Conditions:**

**Fish migration status:** Paul Wagner reported on status and answered questions.

**Action:** Include 10-year average data for subyearling Chinook to the information at the “Lessons Learned” session at the end of the year.

**Water Quality:** Laura Hamilton provided daily average spill levels in addition to TDG in a new format in response to TMT members request.

### **Other:**

**Lower Monument** 500kV line work. Scott Bettin reported that this would take place August 24, 25 and 26 from 6AM to 6PM each day. He also asked that ‘when to end MOP’ should be on the next TMT agenda, and proposed that TMT members think about August 24 as a possible date to end MOP.

Little Goose Doble Testing. Rudd Turner reported that this testing would take place for 4 days from August 19-22 from 5:30AM to 5:00PM each day. Unit 5 will still be running.

FPAC SOR to be submitted: As noted above, FPAC requested that a TMT meeting be held next week to consider the SOR they will be filing about DWR operations in September.

Action: TMT agreed to meet in person from 9:00AM to noon on Thursday, August 15. There will be a different call-in number, which is #5191.

**Next Meeting, August 15:**

Agenda items:

- SOR re: DWR releases filed by FPAC
- End of MOP
- Bonneville Spillway Test

**August 21 Meeting:**

- Draft Water Management Plan
- Emergency Action List update
- Libby/Duncan Swap status
- CRITFC on Fall Treaty Fishing
- Pictures of construction at Lower Monument

**TECHNICAL MANAGEMENT TEAM  
MEETING NOTES  
August 7, 2002  
CORPS OF ENGINEERS NORTHWESTERN DIVISION OFFICES – CUSTOM HOUSE  
PORTLAND, OREGON**

**TMT Internet Homepage: <http://www.nwd-wc.usace.army.mil/TMT/index.html>**

**DRAFT**

***1. Greeting and Introductions***

The August 7 Technical Management Team meeting was chaired by Cathy Hlebechuk of the Corps and facilitated by Donna Silverberg. The following is a distillation, not a verbatim transcript, of items discussed at the meeting and actions taken. Anyone with questions or comments about these minutes should call Hlebechuk at 503/808-3942.

***2. Weather Update.***

Dan Matusiewicz of the RFC said freezing levels this morning were in the 8,000-13,000-foot range. He said low pressure is lingering across the Northwest, bringing some minor precipitation. Over the next couple of days, that trough of low pressure will move gradually to

the east, replaced by a ridge of high pressure bringing dry weather and warmer temperatures through Friday, August 9. Another low pressure system will then follow that high pressure ridge inland, and could produce some weak moisture events. Next week, another ridge of high pressure will move in from the Pacific, with below-normal precipitation everywhere except perhaps Northern Idaho and Eastern Montana.

Over the longer term, said Matusiewicz, El Niño conditions are expected to persist into early 2003, although the effects are expected to be weaker than the 1997-'98 El Niño. From September 2002-May 2003, he said, we're forecasting a 43%-53% chance of slightly above-normal temperatures, and a 43%-53% chance of slightly below-normal precipitation. Beyond that, there are equal chances of above-, below- and normal temperatures and precipitation, Matusiewicz said. Kyle Martin said the latest CRITFC forecast calls for normal temperatures and below-normal precipitation over the next 30 days.

### ***3. Bonneville Spillway Test.***

Discussion of this item was deferred until next meeting.

### ***4. Emergency Action List Update.***

Scott Bettin said there have been no changes made to the list since the last TMT meeting, with the exception of the fact that some of the two-hour actions could take up to 24 hours to implement. At Chris Ross' request, Bettin said he will provide a detailed briefing about the reasons why certain actions will take longer to implement at NMFS' Portland offices next Tuesday, August 13.

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

Tony Norris said USBR is now projecting 3545.5 feet as the August 31 ending elevation at Hungry Horse, the equivalent of 121 kaf above elevation 3540. At a discharge rate of 4 Kcfs, that water is expected to last until September 27. Hungry Horse is currently releasing 6 Kcfs, but is scheduled to ramp down to 4 Kcfs on August 26.

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

Hlebechuk reported the current elevation at Libby as 2452.5 feet, with 21 Kcfs outflow. BPA's Rick Pendergrass said BPA has been discussing the possibility of a 2002 Libby/Arrow swap with Canada; however, there isn't much water available at Arrow for the swap. Duncan is also a possibility, he said, but Duncan is a much smaller reservoir than Libby. However, it now appears that we will be able to work out a Libby-Duncan swap equivalent to about 5 feet in Libby elevation this year. He added that Duncan can release up to 10 Kcfs in non-power discharge. That will be a one-for-one flow swap? Jim Litchfield asked. That's correct, Pendergrass replied, adding that the swap is expected to begin tomorrow. That's good news, Silverberg said. [Editors comment: On Wednesday morning, August 7 there was tentative verbal agreement with Canada to swap 108.7 ksf of storage \(draft Libby to 2444' at end of August rather than the normal 2439'\). This was what reported at the TMT meeting. However, on Thursday morning the BC](#)

Hydro people that had negotiated the 108.7 ksfd swap talked further with field staff who expressed concerns about high Duncan discharge (flooding problems) and lower Duncan levels for recreation. So, the final agreement was for a swap for 70 kcfd (draft Libby to 2442.2' at end of August). Flows were reduced from 21,000 to 18000 cfs at Libby on Thursday, August 8 at 1315 MDT. The agreement is being written up and will be signed by BCH, BPA and the Corps.

There is also a mandatory planned outage coming up at Libby, said Bettin, but it will take place in the first two weeks in September, and shouldn't interfere with any planned operations – it will restrict generation to 10 Kcfs during that two-week period. We'll probably only be running about 8 Kcfs out from the project during that time, he added.

### ***7. New System Operational Requests.***

Earlier this week, the action agencies received SOR 2002-MT-1. This SOR, supported by the State of Montana, requests the following specific operations:

- As soon as practical, reduce flows out of Libby to 11 Kcfs and maintain as close as possible to this flow until the end of September. Maintaining a flow of 11 Kcfs from Libby is estimated to require drafting Koocanusa to elevation 2449 at the end of September based on current inflow forecasts. Since the projected outflow is based on forecasts of inflows to Lake Koocanusa the actual flows should be gradually adjusted to achieve the desired ending elevation at the end of September. Any flow changes should be effected by following the flow ramp rates in the Biological Opinion for bull trout.

Jim Litchfield spent a few minutes going through the specifics of and justification for this SOR, the full text of which is available via the TMT's Internet homepage. He noted that the overall intent of this SOR is to balance the needs of Montana residents and resident fish with those of anadromous fish downstream. The group devoted a few minutes of discussion to the current SSARR run, which does not take into account the just-negotiated Libby-Duncan swap. Hlebechuk noted that B.C. Hydro has told the Corps that they are trapping 35% of the water released from Libby this summer, as per their rights under International Joint Commission rules

Paul Wagner said Libby operations were discussed at yesterday's FPAC meeting, and have been discussed internally at NMFS. The bottom line is that we will not meet the BiOp summer flow target at McNary, he said, and while we appreciate and sympathize with the feelings of the citizens of Montana on this issue, the planned Libby-Duncan swap is as far as we're willing to go, in terms of reducing the 20-foot Libby draft this summer and reducing planned outflow from the project. What the swap will accomplish is a reduction in Libby outflow from the current 21 Kcfs to 15 Kcfs-16 Kcfs, Wagner added.

With respect to Libby operations after August 31, Bettin reiterated that the action agencies plan to release a flat 8 Kcfs during the first two weeks of September.

## ***8. Dworshak Operations.***

Hlebechuk said Dworshak continues to release 13.7 Kcfs; 1570.45 was the project elevation as of midnight last night. We're releasing 45-degree F water, although we may be getting a request for warmer water from the hatchery soon, she added. We discussed Dworshak operations at yesterday's FPAC meeting, and reached agreement that we could go up to 48 degrees on Dworshak discharge, at least for the time being, David Wills said. We believe we can implement that compromise and still stay within acceptable temperature criteria at Lower Granite, he said. So the salmon managers are requesting that we raise the Dworshak discharge temperature to at least 48 degrees? Hlebechuk asked, That's correct, starting today, Wills replied – we'll continue to monitor water temperatures at Lower Granite to make sure we're within an acceptable temperature range.

Dick Cassidy reported that, according to his analysis, there should be enough cold water left in Dworshak to provide three more weeks of 45-degree water, followed by 48-degree release water at least through the first two weeks in September. The group devoted a few minutes of discussion to the nuances of the temperature mixing capabilities at Dworshak; Cassidy said that, basically, once Dworshak's elevation nears 1520 feet, the Corps loses much of its ability to control outflow temperature at that project. Hlebechuk said she will provide a brief written explanation of the temperature mixing capabilities at Dworshak for TMT perusal.

Hlebechuk noted that there is a scheduled transformer outage at Dworshak, which will run from September 16 through the end of October. Only one unit will be available at Dworshak once that outage takes effect. The capacity of that unit is about 2.5 kcfs and an additional 0.5 – 1 kcfs could be spilled to stay within the 110% tdg state standard, Hlebechuk added. The question we've got is, does that schedule fit in with the operation the TMT wants to see in September? Rudd Turner asked.

We discussed this issue at yesterday's FPAC meeting, Ron Boyce replied; the bottom line is that we plan to develop an SOR covering August-September operations later this week, and are requesting a special TMT meeting next Thursday, August 15 at 9 am, to discuss FCRPS operations through mid-September. Hlebechuk noted that there will be a different call-in number for that meeting, 503/808-5191. Mainly, we need to decide how much of the volume above elevation 1520 feet at Dworshak will be released in August, and how much will be released in September, Turner said, and whether TMT is willing to draft below 1520 feet to conduct the temperature study.

Hlebechuk noted that, according to the most recent SSARR, Dworshak's August 31 elevation will be 1530.4 feet, 138 kaf above 1520, if the project continues to release 13.8 Kcfs through the end of the month. It would draft to near elevation 1515 if we were to draft 200 kaf of storage in September, she added.

## ***9. Current System Conditions.***

Wagner began with a report on the status of the juvenile migration; he said Billy Connor's current assessment is that 89% of the PIT-tagged wild Snake River subyearling chinook have now passed Lower Granite. He added, however, that most of the fish in the early part of the subyearling run are of hatchery origin, and many of the most valuable wild fish have not yet arrived at Lower Granite. He added that the survival of the wild PIT-tagged subyearlings has been higher than normal this year.

Moving on, Wagner said fall chinook subyearling passage indices at Lower Granite have fallen to about 1,500 fish per day, about one-tenth the index numbers seen two weeks ago. A similar trend is in effect at McNary, he said, adding that, while the decline in index numbers has been more precipitous than what has been seen in recent years, it is not unexpected at this point in the season. He reiterated that the late-migrating fish at the tail of the run are especially valuable because of their high SAR rates.

With respect to adult passage, Wagner continued, the total summer chinook run at Bonneville is 127,000, compared to a 10-year average of 21,000. It wasn't the 140,000 summer chinook predicted pre-season, he said, but that's a phenomenal year. Boyce observed that 140,000 was the predicted number of fish entering the Columbia, not counted at Bonneville. He added that the 2002 fall chinook pre-season forecast is more than 600,000 adults. Coho numbers are way down this year, however, he said.

With respect to reservoir operations, Hlebechuk said these were covered during previous agenda items. The power system continues to hum along smoothly, Bettin reported. Moving on to water quality, Cassidy said that, with falling flows in the system, there are no dissolved gas problems to report; due to the minimum generation requirement at Bonneville, it is not currently possible to spill up to the gas cap at that project. He distributed a spreadsheet showing recent dissolved gas and temperature information throughout the system.

## ***10. Recommended Operations.***

Hlebechuk said Libby outflow will be reduced to 16 Kcfs as soon as a written request is received. [Editors comment: The Libby/Canadian storage swap agreed to on Thursday, August 8, resulted in Libby outflow being reduced from 21 to 18 kcfs at 1515 hours MDT August 8. This outflow will be adjusted as needed to draft Libby to about 2442.2' by the end of August, resulting in a 70 ksf swap.](#)

## ***11. Other.***

***A. Lower Monumental 500 kV Line Work.*** Bettin said some work needs to be done on the Lower Monumental 500 kV line; it will take Lower Monumental down to a single 5 Kcfs unit for 12 hours (6 a.m. to 6 p.m.) on August 25, 26 and 27. The excess water will be ponded and released through the generating units during nighttime hours. In response to a question from Wagner, Bettin reported that the Lower Monumental stilling basin repairs are proceeding apace.

**B. Little Goose Doble Testing.** Turner said this testing is scheduled to occur August 19-22; this will require a full powerhouse outage from 5:30 a.m. to 2:30 p.m. all four days. The project will operate one 5 Kcfs unit on speed-no-load and will then spill to maintain the 11 Kcfs minimum flow in the Lower Snake. We should probably discuss when to end the MOP operation at the August 15 meeting, Bettin said; if we could fill above MOP, that would give us some additional operational flexibility which would allow for a smoother operation during the doble test. Chris Ross observed that the timing of the test is good, as it will occur during the lull between the juvenile and adult migrations.

**C. One-Year and Five-Year Implementation Plans.** Scott Boyd reported that the one-year and five-year implementation plans are now available via the [www.salmonrecovery.gov](http://www.salmonrecovery.gov) website. The comment period on those documents is relatively short, he said, so I would suggest that anyone who intends to review them do so soon.

**12. Next TMT Meeting Date.**

A special TMT meeting to discuss August and September operating plans was set for 9 a.m. Thursday, August 15. The next regularly-scheduled face-to-face meeting of the Technical Management Team was set for Wednesday, August 21. Meeting summary prepared by Jeff Kuechle, BPA contractor.

**TMT PARTICIPANT LIST  
AUGUST 7, 2002**

<b>Name</b>	<b>Affiliation</b>
Donna Silverberg	Facilitation Team
Jim Litchfield	Consultant, Montana
Shane Scott	WDFW
Kyle Martin	CRITFC
Scott Bettin	BPA
Cathy Hlebechuk	COE
Tony Norris	USBR
David Wills	USFWS
Ron Boyce	ODFW

Paul Wagner	NMFS
Chris Ross	NMFS
Rudd Turner	COE
Rick Pendergrass	BPA
Richelle Harding	D. Rohr & Associates
Scott Boyd	COE
Steven Wallace	PacifiCorp
Tim Heizenrater	UBS
Laura Hamilton	COE
Dick Cassidy	COE
Ruth Burris	PGE
John Bowling	Idaho Power
Dan Matusiewicz	RFC
Glen Traeger	Avista Energy
Steve Pettit	IDFG

# TECHNICAL MANAGEMENT TEAM

**BOR:** Tony Norris / Lori Postlethwait

**BPA:** Scott Bettin / Rick Pendergrass

**NMFS:** Paul Wagner / Chris Ross

**USFWS:** David Wills / Howard Schaller

**OR:** Ron Boyce

**WA:** Shane Scott

**ID:** Steve Pettit

**MT:** Jim Litchfield

**COE:** Cindy Henriksen / Cathy Hlebechuk / Rudd Turner

## TMT MEETING

15 August 2002      0900 - 1200 hours

Custom House      Room 118

Portland, Oregon

Conference call line: 503-808-5191

**NOTE PHONE NUMBER CHANGE**

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

## AGENDA

1. Welcome, introductions.
2. Bonneville spillway test (COE).
3. End of spill for fish and Min Pool Operations (MOP) at IHR, LGS, LMN (BPA, NMFS). [[Spill Chart](#)] 
4. Dworshak operations.
5. Review operational requests
6. Review current system conditions.
  - fish migration status (NMFS, USFWS)
  - reservoir operation, water supply, power system, water quality (COE, BOR, BPA)
7. Develop recommended operations.
8. Other.
  - set agenda for next TMT meeting

*Questions about the meeting may be referred to Cathy Hlebechuk at (503) 808-3942, or Rudd Turner at (503) 808-3935.*

**TECHNICAL MANAGEMENT TEAM  
MEETING NOTES  
August 15, 2002  
CORPS OF ENGINEERS NORTHWESTERN DIVISION OFFICES – CUSTOM HOUSE  
PORTLAND, OREGON**

**TMT Internet Homepage: <http://www.nwd-wc.usace.army.mil/TMT/index.html>**

***1. Greeting and Introductions***

The August 15 Technical Management Team meeting was chaired by Karl Kanbergs of the Corps and facilitated by Donna Silverberg. The following is a distillation, not a verbatim transcript, of items discussed at the meeting and actions taken. Anyone with questions or comments about these minutes should call Kanbergs at 503/808-3941.

***2. Bonneville Spillway Test.***

Dennis Schwartz of the Corps led this presentation. He reminded the group of the recent presentation to the TMT on this subject; he said he has been asked to talk about the near-field testing in association with the Bonneville spill test, which the Corps would like to begin on August 24 and end on September 4. Schwartz went through the background for the summer spill test at Bonneville, explaining that the proposed timing of the test has to do with the fact that flow conditions during this period are expected to be conducive to testing the flow deflectors at a low tailwater elevation, and because juvenile passage is expected to be at a very low ebb in late August.

Schwartz distributed handouts detailing historic passage information at Bonneville, as well as the near-field test schedule and design. He noted that while the near-field test instruments are being deployed on August 24 and 25, several hours of zero spill will be required. Schwartz said there are 12 three-hour test blocks in all; total spill during these test blocks will range between 9 feet of total gate opening, or about 20 Kcfs spill (under Test Blocks A and B) to 100 Kcfs spill (under Test Block L). Again, said Schwartz, our goal is to minimize the impacts of the test on juvenile passage.

The TMT devoted a few minutes of discussion to the proposed near-field test, as well as the historic juvenile passage information provided by the Corps; Schwartz noted that, according to the Fish Passage Center, more than 99% of both the yearling and subyearling chinook runs have already passed Bonneville. Schwartz said Tom Lorz of CRITFC, Shane Scott of WDFW and Gary Fredricks of NMFS have all agreed that the fish impacts of the test would be minimal.

Ron Boyce replied that there will still be some fish in the system through the end of the month; he said Oregon feels it is important to protect the tail of the run, which consists mainly of juveniles from some of the weakest upriver stocks. For that reason, he said, Oregon would prefer that the near-field test be deferred until September, if possible. Schwartz replied that the Corps' concern about postponing the test is the lack of support, among the action agencies, for continuing spill for fish passage past August 31; there are also permitting concerns. In general, he said, a lot of coordination would be required to move this spill test into the post-August 31 period, and there probably isn't enough time to accomplish that coordination in the short period remaining before the planned start of the test.

In response to a question from Scott, Schwartz said the first night of the test would be a major departure from the current 75 Kcfs day/spill to the gas cap at night spill operation. He added, however, that due to low flows in the Lower Columbia and the minimum generation requirement at Bonneville, it hasn't been possible to spill up to the gas cap at that project for some time.

In response to a question, Steve Pettit said IDFG is willing to support the recommendation of the downriver salmon managers on this issue. Schwartz said he will return to the Corps and BPA and report that the salmon managers would prefer to move the test into September. Scott Bettin said BPA is unwilling to move the test into September, given the fact that screens are still in place, most of the fish are being transported, and it is likely that

only a handful of juvenile fish would be affected. Boyce replied that the BiOp stipulates that the spill program continue through August 31; you could make the argument that only X number of fish would be affected about any number of BiOp RPAs. The BiOp is a package, not just a series of individual actions, he said.

Kanbergs and Schwartz noted that, with flow in the lower river receding, water conditions are not expected to be conducive to the test if it is delayed a week; while the test would impact a certain, indeterminate number of juveniles in late August, the overall goal is to optimize flow deflector performance and, ultimately, the spill program at Bonneville, which will have long-term benefits for juvenile fish passage at that project.

The discussion continued in this vein for some minutes. The group discussed the possibility of moving the higher-spill test blocks to the beginning, rather than the end, of the test period; Schwartz said he will investigate that possibility, because there is some flexibility in terms of the order of the test blocks.

Ultimately, Pettit said he would hate to see the test deferred a year; Boyce agreed that it is up to the action agencies to decide whether or not to proceed with the test as planned – they have heard our concerns, he said, but those concerns are not strong enough to cause us to elevate this issue to IT. David Wills concurred, reiterating that the salmon managers would like to see the Corps move as many of the high-spill test blocks as possible to the early part of the test. Understood, said Schwartz, although I do know there are some concerns about the fact that, if we go from high spill to lower spill, there is a delay while the stilling basin clears before the next block can proceed. Schwartz added that he will email a revised version of his handout to Kanbergs for distribution to the TMT membership. [\(As of 08/20/02, there has been no revision, but a summary of spill volumes, as a separate new spreadsheet, was received and forwarded to TMT\).](#)

### ***3. End of Fish Spill and Minimum Pool Operations at Ice Harbor, Little Goose and Lower Monumental.***

Rick Pendergrass asked when the TMT would like to see these projects released from MOP and when spill should end. I think the salmon managers have clearly expressed their position that spill should end on August 31 at midnight, Paul Wagner said. With respect to the end of the MOP period at the Lower Snake projects, Chris Ross said the BiOp says that this should occur once low numbers of juveniles are present, to raise pool elevations over the sills of the adult passage facilities. The planned outage at Lower Monumental beginning August 24 (resulting in total outflow of 5 Kcfs from Lower Monumental for three 12-hour periods) gives us a chance to fill the pool at that project, Ross said; we would recommend that MOP end at Lower Monumental and Little Goose on August 24. [\(As of 08/20/02, the extent and duration of the Lower Monumental outage is not verified. Any changes to this schedule will be provided to TMT as soon as possible\).](#)

Ultimately, the TMT declined to make a recommendation on this issue at today's meeting. In response to a question, Scott Boyd said he can ask that the action agencies will make operation in the top foot of the pool elevations a soft constraint. After a few minutes of discussion, it was agreed that the TMT participants will discuss this topic within their agencies and will come to next week's TMT meeting prepared to make a decision on the end of MOP at the three Lower Snake projects.

### ***4. Dworshak Operations/New System Operational Requests.***

On August 13, the action agencies received SOR 2002-07. This SOR, developed and supported by the Nez Perce Tribe, IDFG, USFWS, NMFS, CRITFC and WDFW, requests the following specific operations at Dworshak:

- Continue to provide the current discharge rate of 13.8 Kcfs through August 24
- Provide 12 Kcfs outflow August 25 through August 31
- Provide 10 Kcfs outflow September 1 through September 10
- At the end of the test period, begin to ramp project discharge down at the standard project ramp rate (no greater than 1 foot per hour at the Peck gauge) until the minimum outflow of approximately 1.4 Kcfs is achieved.
- Discharge water temperature during this operation will be maintained at approximately 48 degrees F.
- If the provision of the 200 KAF for the test appears to require a draft below elevation 1517, FPAC and TMT will reconvene to reconsider the operation.

Greg Haller went through the details of this SOR, the full text of which is available via the TMT website. Kanbergs said that, based on the most recent SSARR run, this proposal would not use up the entire 200 KAF available after September 1; that means we should be able to implement this operation without drafting Dworshak below elevation 1520, he said. That would certainly be the Nez Perce's preference, Haller said, although we did agree to provide the three feet of flexibility below elevation 1520 if necessary. In response to a question from Kyle Martin, Kanbergs said the Corps would be willing to provide an extra day of 10 Kcfs outflow if inflows to Dworshak continue to be higher than expected.

Ross suggested that the action agencies draft Dworshak to elevation 1520, then ramp down. The 1520-foot elevation was one of the sideboards, Martin agreed. After a few minutes of additional discussion, it was agreed to set a TMT conference call for 3 p.m. Monday, September 9 to discuss the end of the Dworshak operation.

I guess what I'm hearing is that the TMT recommends that SOR 2002-07 be implemented as written, Silverberg said. No TMT objections were raised to this statement. Boyce said Oregon has developed a letter expressing ODFW's lack of concurrence with this operation, but will not more actively oppose it.

[Boyce's Comments via email, August 14, 2002](#)

"For inclusion into the TMT minutes, I wanted to clarify Oregon's position on SOR 2002-07 (attached) regarding August and September Dworshak operations. We fully support the proposed evaluation in September (Biological Opinion RPA Action 34) to determine the benefits of cool water releases from Dworshak in September on adult and juvenile passage. However, we do not support the proposal to reduce discharge from Dworshak in August (nor did we support the reductions that occurred in July by not initiating augmentation earlier in the month) to accommodate the September study. We believe the Biological Opinion contemplates conducting the September evaluation using additional water from Dworshak above the volume earmarked for July and August flow augmentation for juvenile migrants. Summer (July-August) flows in the Snake this year will average only 38 kcfs, substantially below the minimum Biological Opinion flow target of 50 kcfs. Based on NMFS' survival data (NMFS Section 7 Consultation White Papers) these low flows and any further reduction in flows proposed in the SOR will result in extremely low survival rates of ESA listed juvenile fall chinook. As stated in the Biological Opinion and confirmed by modeling done by both the Corps and CRITFC, there would be little risk to spring flows and refill by drafting Dworshak below 1520 ft in September to get the full 200 kaf for the study. Thanks for your consideration and look forward to working with TMT on these important issues."

Ron Boyce  
Columbia River Coordination Program  
Interjurisdictional Fisheries Management  
Fish Division  
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FAX : (503) 872-5632  
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## ***6. Current System Conditions.***

Libby is releasing 17 Kcfs, as per the recently-negotiated Libby-Duncan swap, Kanbergs reported. (End of August target elevation is 2442.2 feet, reflecting the negotiated swap. Flows will be adjusted as needed based on ongoing modeling.)

## ***7. Recommended Operations.***

Recommended operations were detailed earlier in today's meeting.

## ***8. 2002 Spill Accounting.***

This topic was not discussed at today's meeting.

### ***9. October Spill Test at The Dalles.***

Wagner said NMFS has been discussing the possibility of a 38,800 MW-hour spill program at The Dalles this October, to gather data that will allow the training walls at that project to be planned and built in 2004. If the information isn't collected this year, Wagner said, training wall construction will have to be deferred until 2005. We've discussed the need for this spill with Bonneville, Wagner said, and their answer is no. It's still no, said Rick Pendergrass; due to BPA's financial condition, we're scrutinizing all such requests, and we can't justify funding it outside of the normal spill season. In BPA's view, he said, this test could be accomplished just as well during the normal spill season next August. Wagner replied that NMFS' preference would be to conduct the test in October, when no juveniles are present.

We knew BPA's response coming in, said Wagner; I was asked, then, to shop for spill reductions during the season that would allow The Dalles training wall spill test to go forward this October. We have heard that there will likely be some reduction in the planned spill program at Bonneville at the end of this month, due to the near-field test at that project, he said; we'll have some megawatt-hours available there, in terms of a tradeoff. Pendergrass noted that spill is more valuable in October than it is in August; therefore, there would need to be more than a 38,800 MW-hour reduction in August spill to allow NMFS' proposed The Dalles spill program to go forward in October.

Wagner said he has developed a spreadsheet showing the reductions in BiOp spill that would need to occur at John Day and Ice Harbor, starting August 16 (tomorrow) at John Day and August 24 at Ice Harbor, to allow the October spill program at The Dalles to proceed; he said this spreadsheet has been distributed to the other salmon managers. Wagner said it is NMFS' position that these reductions in BiOp spill be implemented so that The Dalles October test can proceed

Pendergrass noted that BPA is looking very closely at risk and risk management; he said he and Bettin will need to elevate this decision upwards within the BPA organization before he can say whether or not it will be possible for the action agencies to implement this operation.

Pettit said Idaho is concerned that the action agencies and NMFS are asking the TMT to make a policy decision about curtailing a BiOp operation; this isn't necessarily a precedent we want to set, he said. We should be asking IT to make this decision, he said, but at this time, Idaho does not support the spill swap. Kyle Martin said that CRITFC does not support the swap either. Boyce said Oregon feels that any reduction in the BiOp spill program should be avoided at all costs this year; he suggested that the action agencies use spill mitigation funds from 2001 to help fund the October test at The Dalles. Essentially, he said, we need to look at other ways to fund the test besides reductions in measures that provide immediate benefits to in-river migrants. Wills said the Fish and Wildlife Service concurs, noting that BPA's financial problems are outside the concerns of BiOp implementation. Scott said that, while NMFS' idea may be biologically sound, and may yield a net benefit, FPAC was not generally supportive of NMFS' proposal.

Bettin said he and Pendergrass will shop the NMFS proposal internally at Bonneville; if the swap is within the realm of possibility, he said, we will convene a special IT meeting tomorrow afternoon to decide this issue. It was so agreed.

### ***10. Little Goose Doble Testing.***

Kanbergs reminded the group of last week's discussion of the upcoming Little Goose double test -- a four-day test beginning August 19, with 12 hours of testing each day. During the test, Little Goose will be able to release only 5 Kcfs through the powerhouse. Additional units will be available during nighttime hours, but some additional spill may be required to get back to MOP, Kanbergs said. We would prefer to go out of MOP during the day, then spill at night, he explained.

We should be able to recover by the next morning, given the fact that we would fill the Little Goose pool by only about 1.9 feet, Pendergrass said; BPA would prefer to generate with that water, rather than spilling it. Would the TMT rather increase spill during the day at Little Goose, or store the water and release it at night, increasing

flow and velocity during nighttime hours? Kanbergs asked. In response to a question, Kanbergs said that, if the water is ponded, then released at night, it would result in nighttime flows of approximately 50 Kcfs in the Lower Snake; if we spill it all during the day, the result would be approximately 20 Kcfs of spill, plus the 5 Kcfs powerhouse discharge.

After a brief discussion, Kanbergs said he will email the details of the two potential operations during the double test to the other TMT participants later this morning; the salmon managers and action agencies will then reach a decision later this afternoon. (A decision was reached to go out of MOP during the day, and generate more at night, with highest releases between 2000 and 2400 hrs.)

**11. Next TMT Meeting Date.**

The next meeting of the Technical Management Team was set for Wednesday, August 21. A special TMT conference call to discuss the end of the Dworshak operation was set for 3 p.m. Monday, September 9. A special TMT meeting to discuss the Water Management Plan and chum operations was set for 9 a.m. September 3, subject to confirmation later. Other face-to-face TMT meetings were set for September 11 and September 25. Meeting summary prepared by Jeff Kuechle, BPA contractor.

**TMT ATTENDANCE LIST**

**August 15, 2002**

<b>Name</b>	<b>Affiliation</b>
Karl Kanbergs	COE
Tony Norris	Reclamation
Kyle Martin	CRITFC
Shane Scott	WDFW
David Wills	USFWS
Ron Boyce	ODFW
Paul Wagner	NMFS
Rick Pendergrass	BPA
Tina Lundell	COE
David Benner	FPC
Jacqueline Abel	Facilitation Team
Mike O'Bryant	Columbia Basin Bulletin
Russ George	WMCI
Mary K. Scullion	COE
Chris Ross	NMFS
Ruth Burris	PGE
Dick Cassidy	COE

Laura Hamilton	COE
Colin Beam	PPM
Scott Bettin	BPA
Margaret Filardo	FPC
Jiong Ji	Avista
Steve Pettit	IDFG
Greg Haller	NPT

# TECHNICAL MANAGEMENT TEAM

**BOR:** Tony Norris / Lori Postlethwait

**BPA:** Scott Bettin / Rick Pendergrass

**NMFS:** Paul Wagner / Chris Ross

**USFWS:** David Wills / Howard Schaller

**OR:** Ron Boyce

**WA:** Shane Scott

**ID:** Steve Pettit

**MT:** Jim Litchfield

**COE:** Cindy Henriksen / Cathy Hlebechuk / Rudd Turner

## TMT MEETING

21 August 2002      0900 - 1200 hours

Custom House      Room 118  
Portland, Oregon  
Conference call line: 503-808-5190

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

## AGENDA

1. Welcome, introductions.
2. Lower Monumental Spillway Repair update (COE). [\[Debris\]](#) [\[Pipe Elevation\]](#)
3. The Dalles October spill test - IT update (NMFS).
4. Libby/Canada swap update (COE, BPA).
5. End of spill and MOP.
6. Fall Treaty Fishing (CRITFC).
7. [Emergency action list](#) update (BPA, NMFS).
8. Water Management Plan [Draft](#)
9. Review [operational requests](#)
10. Review current system conditions.
  - fish migration status (NMFS, USFWS)
  - reservoir operation, power system, water quality (COE, BOR, BPA) [\[TDG Table\]](#)
11. Develop recommended operations.
12. Other.
  - set agenda for 11 September TMT meeting

*Questions about the meeting may be referred to Cathy Hlebechuk at (503) 808-3942, or Rudd Turner at (503) 808-3935.*



31 7 2002



7 8 2002

**Draft 8/07/02**  
**Prioritized List of FCRPS Operations To Be Used During a  
Short Term NW or SW System Reliability Event Until August 31,  
2002**

This list has been developed to cover an unexpected loss of generation or transmission capability. The list is to be used by the BPA duty scheduler when the system cannot be maintained using normal operating procedures. Examples of the type of incidents where lists of this nature have been needed in the past are: Loss of all generation at GCL due to a fire in the powerhouse, transmission lines shorting out and causing thirteen states on the west coast to experience some form of power interruption, fires under transmission lines, warm weather causing lines to be taken out of service. All of these are unexpected outages which immediate actions must be taken to maintain the integrity of the power system.

Actions to be taken for outages up to 24 hours:

1. Purchase all available energy (including alternative sources, such as wind)
2. GCL – draft at 1.5 ft/day (or until restricted by JDA cutplane)
3. Banks Lake – operate PGs / sag on Banks Lake to elevation 1565 ft.
4. IHR – reduce spill to 0 kcfs
5. JDA – reduce daytime spill to zero
6. TDA – reduce spill to 30%
7. BON – reduce daytime spill to 50 kcfs
8. JDA – reduce spill to zero
9. BON – reduce spill to zero (minimize first powerhouse operation)
10. TDA – reduce spill to zero

Actions to be taken for outages longer than 2-24 hours:

1. GCL – increase draft to 2 ft/day
2. DWR – increase discharge as needed
3. LIB – operate all available units (daily shaping as necessary); ramp down discharge at USFWS Biological Opinion ramp rates.
4. HGH – operate all available units (daily shaping as necessary); ramp down discharge at USFWS Biological Opinion ramp rates.
5. Increase Willamette Projects' generation for peaking
6. Operate McNary 1% operating efficiency. If possible use this in two hour blocks with an hour off between blocks to allow debris to settle from the screens.
  - f. McNary (not longer than 2 hours)

Possible actions to be taken for outages over 24 hours:

- Regional plea for energy conservation

- Rescheduling of unit outages
- Maximize Treaty/Non-Treaty water releases
- Voluntary load curtailment by industrial users
- JDA – increase operating range to 265 ft. to 262.5 ft.
- LWG – utilize full operating pool
- JDA – increase operating pool range to a low of 260 ft.

# COLUMBIA RIVER REGIONAL FORUM

## TECHNICAL MANAGEMENT TEAM

### MEETING NOTES

August 21, 2002

CORPS OF ENGINEERS NORTHWESTERN DIVISION OFFICES – CUSTOM HOUSE  
PORTLAND, OREGON

TMT Internet Homepage: <http://www.nwd-wc.usace.army.mil/TMT/index.html>

### FACILITATOR'S SUMMARY NOTES ON FUTURE ACTIONS

Facilitator: Jacqueline Abel

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

#### **Lower Monumental Spillway Repairs:**

Everett Wright of the COE's Walla Walla District reported on the status of these repairs and the current schedule for completion. The underwater work will take place through the first week of November; the concrete work between November 15 and the end of November; and the completion of all work to happen no later than February 13, 2003.

#### **The Dalles October Spill Test – IT Update:**

Paul Wagner provided a summary of the results of two IT conference calls to resolve this issue, which was elevated to IT from TMT last week. IT agreed to: (1) proceed with the Bonneville flow deflector test and credit that spill reduction toward the swap; (2) curtail daytime spill at John Day for the last two 30/30% spill days, 28 – 29 August; and (3) end daytime spill at Ice Harbor on 25 August. Details of those calls and the agreement reached are contained in the IT conference call notes of August 19.

#### **Libby/Canada Swap Update:**

Rudd Turner reported that Libby's elevation is expected to be 2442.3 ft. by the end of August, as was agreed to in the negotiations for the swap. Rudd alerted TMT members that there have been some concerns about possible impacts downstream of Duncan and in the reservoir; however, no request has been made to change the operation.

#### **End of Spill and MOP:**

The end spill for this year will be at midnight on August 31, minus the daytime spill curtailments at John Day and Ice Harbor, as agreed to at IT and described above.

BPA proposed August 24 for the end of MOP and TMT discussed various approaches this issue, before deciding on the following:

#### **Action:**

A 2-foot operating range will be authorized at Ice Harbor and Lower Monumental by adding 1 foot to MOP or MOP+1 until 6 AM on August 25, effective immediately. Pools will then return to MOP or MOP+1 until midnight August 29, which is when the Lower Monumental outage will occur. MOP or MOP+1 operation will end for the year at Ice Harbor, Lower Monumental, and Little Goose at midnight on August 29. MOP+1 will remain in effect at Lower Granite until the fall. In addition, a minimum spill of 20 kcfs and 4 hours duration is requested at Ice Harbor, to last until the end of the spill season, August 31.

**Action:**

COE agrees in concept to the action above, but will need to do some additional analysis. Rudd will contact TMT if this analysis indicates this operation will not work for the COE.

**Operational Request SOR #2002 C-9**

Kyle Martin of CRITFC presented this SOR, regarding operation of the Lower Columbia Pools for the Autumn Treaty Fishery. He stated that hard system constraints, along with stable flows and pool elevations, are some of CRITFC's main interests. In response to questions, he stated that it is the tribes' policy to ask that Bonneville Pool be operated at 77, not 76.5, with that 1/2 foot making a difference to those fishing from platforms.

**Action:**

The COE responded that it would operate Bonneville pool to a hard constraint of 75 – 76.5 feet elevation during the periods requested. As to the pools at The Dalles and John Day, the COE will work with BPA with CRITFC's request in mind, but there will not be hard constraints or teletypes issued for these two pools. The COE agreed to do what it can to cooperate with what it acknowledged is an important fishery for the tribes.

**Emergency Action List:**

The latest draft of the Emergency Action List is on the TMT website. Scott Bettin has consulted with Chris Ross about this, and they propose that this be used for the rest of August.

**Water Management Plan Draft:**

Rudd walked TMT members through the draft of the 2003 Water Management Plan.

Ron asked when the appropriate time would be for developing the specifics about the Spring Creek Hatchery release? There was discussion that this should be part of the fall/winter update, which could be started at the work session for the plan, scheduled for September 3. Members agreed to the following TMT schedule and next steps to enable the AAs to finalize the 2003 Water Management Plan by the end of September:

- Sept. 3 from 9 AM – Noon (not at 1 PM, as previous notes indicated). Initial comments on draft plan to be discussed at 9 AM, as well as presentations on chum and start of the fall/winter update for 2003. USF&WS will have a presentation at 10 AM, and Oregon will also try to present its data at that time. This meeting will be facilitated and have an official note taker.

- Sept. 6 – written comments are due to the AAs
- Sept. 11 – discussion of comments with AAs at TMT; discussion of data presented by Oregon, if it is not available on Sept. 3

**Action:**

Ron will check on whether Oregon wants a written response to their comments and get back to Rudd on this.

**Action:**

Since this document is a pdf file on the website, the COE will send it out to TMT members in Word.

**Operational Request from U.S. Geological Survey:**

The USGS submitted a request for on and off operation of turbine 1 at McNary Dam to study effects on water temperature at the turbine intakes and fish collection system. After discussion, TMT agreed to implement this as described by USGS in their "specifications of request", with one change. Under the fish protective measures, item #1 will be changed, so that states: "Tests will not be conducted if water temperatures in the fish collections system exceed 72 degrees F for three consecutive hours. The McNary Project Biologist may also decide to stop tests before that time."

**Action:**

The details of the 24 hour minimum notification by USGS for conducting the tests will be worked out between USGS and the COE and BPA.

**Future Meeting Schedule (revised):**

- Tuesday, Sept. 3, from 9 AM to 12 noon (not at 1 PM, as previous notes indicated). Work session on Water Management Plan and start of fall/winter update, including chum; see details under Water Management Plan section above.
- Monday, Sept. 9 at 3 PM, conference call on Dworshak operation
- Sept. 11 & 25, from 9 AM to 12 noon, regular TMT face-to-face meetings
- October meeting dates were discussed with final decisions on those meeting dates to be made Sept. 11. Oct. 9 and 23 were suggested, but some members have conflicts for Oct. 23.

**September 11 TMT Meeting, Agenda Items:**

- Discussion of comments on Draft Water Management Plan (Due to COE Sept. 6)
- Continuation of chum presentations and discussion, if needed
- Update on Dworshak
- Presentation by BPA on financial decisions (Scott Bettin added this after the meeting)
- October meeting dates

## **Meeting Minutes**

### ***1. Greeting and Introductions***

The August 21 Technical Management Team meeting was chaired by Rudd Turner of the

Corps and facilitated by Jacqueline Abel. The following is a distillation, not a verbatim transcript, of items discussed at the meeting and actions taken. Anyone with questions or comments about these minutes should call Turner at 503/808-3935.

## ***2. Lower Monumental Spillway Repair Update.***

Everett Wright from the Corps' Walla Walla District reported that in-water work on the Lower Monumental stilling basin repairs has now begun; an underwater video survey revealed a variety of debris that had been pulled into the basin or out of the eroded areas. It took about two weeks to remove 49 cubic yards of rock material from the stilling basin, said Wright, a 16-inch vacuum pipe was used to pull the material directly off the bottom and into a barge. Turbidity didn't seem to be much of a problem, he added, noting that one erosion hole had penetrated through all five feet of concrete and seven feet into the bedrock below.

The contractor has now moved into the basin with his drilling barge, said Wright, and has conducted an initial hydrographic survey to get a feel for exactly what the situation is now. He added that there was only a few hours of involuntary spill at the project this year. The contractor is going to be drilling anchor bars next; some 600 are needed, each drilled 10 feet into bedrock. That process will continue until the first week in November, at which point the contractor will start setting forms in Bays 2 and 3. The erosion is worst in Bay 2. Concrete will be poured on November 15, he said; the area to be repaired is about 75 by 85 feet. The forms will be placed and concrete poured in Bay 7 during the last week in November. That will give us a month of curing before winter flows increase to the point that some spill might be necessary, Wright said.

During the last week in December, the contractor will drill relief drains through the concrete, said Wright; these will give us added assurance that the repairs will hold up. He went on to describe the upcoming deflector work at Lower Monumental's Bay 1 and 8; the first order of business is to extend the pier noses on Piers 1 and 7. The contractor will then prepare the surface for deflector installation in November; various bulkheads will need to be set up, and deflector construction will proceed right up to the end of the in-water work window on February 13.

In another month, we'll have a lot more information, he said; however, almost all of the repair work will be conducted underwater, so there won't be much to see from the surface.

## ***3. The Dalles October Spill Test Update.***

Paul Wagner briefed the group on the IT/TMT conference calls of August 16 and 19, at which the participants attempted to reach agreement on how to cover the cost of an October spill test at The Dalles. Ultimately, the decision was to reduce daytime for seven days at Ice Harbor and two days John Day later this month, Wagner said; nighttime spill will continue at both projects through August 31.

## ***4. Libby/Canada Swap Update.***

Turner said Libby is operating to draft to elevation 2442.3 feet by August 31, 3.3 feet

above its usual 2439-foot end of summer elevation. That elevation is equivalent to the total ksfd flow of the swap, Turner explained. Libby is releasing 17 Kcfs, an operation that will continue through the end of August. There are no issues from the U.S. side of the swap, Turner said; however, there are some concerns in the Duncan area about recreation impacts and potential low-level flooding. We haven't received a request to change the terms of the swap, however, Turner said. The fire at Libby didn't impact the swap? Ron Boyce asked. No, Turner replied.

### ***5. End of Spill and MOP.***

TMT has determined that spill will end on August 31, said Scott Bettin; at our last meeting, we discussed the possibility of ending MOP on August 24. That's correct – we talked about doing it in conjunction with the powerhouse and transmission line outage at Lower Monumental, Wagner said. That test has now been moved to August 30, Bettin said; we would like the flexibility to go outside of MOP for that test.

With respect to Ice Harbor spill, Wagner said minimum spill at the project has been as low as 5 Kcfs for extended periods due to the low flows in the Lower Snake. There has been some discussion of implementing a 20 Kcfs minimum, he said, because 5 Kcfs spill does not yield optimal biological conditions – 20 Kcfs spill is the minimum to create adequate egress conditions for fish. Rather than an extended string of 5 Kcfs spill, he said, we've been talking about going to zero spill for some hours to store water to create 20 Kcfs spill blocks. Once the project reaches minimum pool, he said, we would begin to store again.

That type of pulsing operation makes it very difficult to maintain pool elevations within one foot of MOP, Bettin said, unless you want the pulses to be smaller -- for that reason, it would be helpful if we could go outside of MOP. TMT agreed to implement a 20 Kcfs minimum spill pulsing operation tonight and tomorrow at Little Goose; it was further agreed that the project operators can go to MOP +2 in Ice Harbor and Lower Monumental pools for the next 48 hours, effective immediately, in order to provide a larger pulse of spill.

TMT members then returned to a discussion of Ice Harbor spill, specifically duration of spill, and agreed that a minimum four-hour duration for the 20 kcfs spill would be best. Pettit said it takes an hour or two for a flow net to become established in the forebay and for fish to respond to it, also to set up and have good downstream egress conditions.

We talked about the end of lower Snake MOP at yesterday's FPAC meeting, Wagner replied; it was agreed to end MOP in conjunction with the Lower Monumental line outage, which has now been moved to August 30. We would probably need to go outside of MOP only on August 25, Bettin said, in order to have some additional shaping ability. It was so agreed; the action agencies will have one additional day of MOP+2 operation at Ice Harbor; the projects will then return to MOP operation, with MOP ending at 0001 hours August 30. It was further agreed to implement a four-hour minimum on the 20 Kcfs spill blocks at Ice Harbor; Turner stated that the Corps can agree in principle with the proposed operation, but will run some further analysis to ensure that such an operation is feasible and won't cause flow problems in the Lower Snake. He agreed to get back with TMT later in the day if there are issues with implementing the operation.

## ***6. Fall Treaty Fishing.***

Kyle Martin distributed SOR 2002 C-9 covering three weeks of Zone 6 fall treaty fishing. The SOR requests the following specific operations:

- August 28, 6 a.m. through August 31, 6 p.m.
- September 4, 6 a.m. through September 7, 6 p.m.
- September 11, 6 a.m. through September 14, 6 p.m.
- Bonneville Pool: operate pool within one foot of full pool (msl elevation 77-76)
- The Dalles (Celilo) pool: operate pool within one foot (msl elevation 159.5-158.5)
- John Day pool: operate the pool within one foot (msl elevation 264.5-263.5)
- Maintain flows through all Zone 6 pools at a near constant rate. Fluctuate no more than +/- 10 Kcfs from the beginning of the fishery to the end of the fishery.

This SOR is available via the TMT website; please refer to this document for full details.

Martin said CRITFC would like the action agencies to implement full, stable pools at Bonneville, The Dalles and John Day as a hard constraint, rather than a soft constraint, this fall; with 429,000 adult fall chinook forecast to return past Bonneville this year, the third-largest escapement since 1948, this year's fishery is of particular importance to the tribal fishers, and any disruption due to fluctuating pool elevations would be especially undesirable.

Bettin asked why CRITFC continues to ask that Bonneville to be operated to a full pool elevation of 77 feet, rather than 76.5 feet, which is the project's official full pool. It's CRITFC policy, Martin replied; that extra half-foot makes a difference to the platform fishers.

Turner replied that the Corps will provide its usual operation; Bonneville pool will be maintained between elevation 75.0 feet and 76.5 feet during the hours of the fishery, as a hard constraint. At the other two pools, as in the past, we will do our best to implement the requested pool elevations, but will not issue a teletype to that effect, Turner said. The flow constraint requested will be difficult to implement, due to changes in Grand Coulee and Dworshak operations beginning September 1, he said. The flow restriction at John Day will not work for us, Bettin said; we need more flexibility than the +/- 10 Kcfs flow band the tribes are requesting.

Again, anything the action agencies can do to minimize pool fluctuations during the fishery would be much appreciated, Martin said. We recognize the importance of this fishery to the tribes, Turner said, and will do our best to keep the pools stable.

In response to a question from Bettin, Martin said CRITFC does not plan to develop any additional SORs for the tribal fishery this fall; if escapement is greater than forecast, CRITFC will likely issue additional fishing permits during the planned three-week tribal fishery. Martin noted that the tribes have provided two weeks of lead time on this SOR, partly in appreciation for the good fishing conditions provided by the action agencies during the 2002 spring treaty fishery.

## ***7. Emergency Action List Update.***

We met after the TMT meeting two weeks ago, and discussed the most recent draft of the emergency action list, Bettin said; the list was subsequently distributed for comment, and the only comment we received was from Chris Ross, saying the list looked good to him. Bettin noted that because the list will be in effect for only one more week, the need for it is essentially over for this year. If something comes up that affects chum or chinook spawning, Bettin said, we'll reconvene to discuss that. Essentially, he said, we just wanted to check the box that the emergency action list has been finalized this year; the list is already being implemented.

#### ***8. Water Management Plan Draft.***

The draft 2003 Water Management Plan is available now for review and comment, said Turner; this document is a meeting handout and also is available via the TMT homepage. The group spent a few minutes going through this document at today's meeting; offering a variety of clarifying questions and comments. It was agreed that a more detailed discussion of the 2003 Water Management Plan will take place at the special TMT meeting on September 3; Turner requested that the other TMT participants review the draft 2003 WMP and come to that meeting prepared to provide detailed comments. He also asked that any written comments be provided by September 7, so that they can be incorporated into a new draft of the Water Management Plan.

Turner noted that the action agencies hope to finalize the 2003 WMP by the end of September, and to finalize the fall/winter update to the plan by mid-November. The group also devoted a few minutes of discussion to the additional information and personnel needed at the September 3 meeting, in particular, the chum experts from the various agencies who will need to attend.

#### ***9. New System Operational Requests.***

CRITFC's SOR 2002 C-9 was discussed earlier in today's meeting. On August 1, the action agencies also received an SOR from Ken Tiffan of the U.S. Geological Survey, requesting an on and off operation of McNary Dam's Turbine 1 to study the effects on water temperature at the turbine intakes and fish collection system. Essentially, this SOR requests 12-hour blocks of on and off operation of Turbine 1 during the period of August 22 through September 9, on days when the test criteria (minimal wind, maximum daily air temperatures between 90 and 100 degrees F, no testing if water temperatures exceed 72 degrees F, no testing if juvenile salmon mortality exceeds 3% in the fish collection system) are met.

Dennis Rondorf, USGS, went briefly through the specifications of and justification for this SOR, the purpose of which is to study the water temperature effects of Turbine 1 operation. We need to understand the dynamics of how warmer water moves through the turbine and gatewell and into the fish collection system, Rondorf said; we have chosen this period because the number of juvenile fall chinook moving through the system is low, while temperatures are high. Rondorf also described the temperature monitoring system that has been set up to collect data during the test. Bettin noted that the test would require a change to the unit priority laid out in the fish passage plan.

Wagner noted that the fish passage plan reflects what is known, so far; we need more information if we're to cure the McNary temperature problems, hence the need for this test, he said. Bettin said Bonneville has conditionally approved the test with the understanding that it will not cause spill; Rondorf replied that, to the best of his knowledge, this test will not cause spill.

The group discussed the specifications and fish protection measures associated with the test. It was agreed that a single, instantaneous reading of 72 degrees is too conservative a measure at which to shut down the test, if useable data is to be obtained; rather, three consecutive hours of water temperatures at or above 72 degrees F will be the criteria, unless the project biologist decides to terminate the test sooner. Ultimately, the TMT recommended that the McNary water temperature test be allowed to proceed, with the understanding that the project biologist will monitor the situation closely and make the determination about when conditions require the test to be shut down.

#### ***10. Current System Conditions.***

Wagner reviewed the current status of the migration, beginning with combined subyearling chinook indices at Lower Granite: about 1,000 fish per day, currently, lower at Little Goose and Lower Monumental. The surprise is the index at McNary, he said; we've seen daily counts of up to 70,000 subyearling chinook during the past week. The counts are lower at John Day, The Dalles and Bonneville. With respect to the adult migration, said Wagner, we're into the fall chinook passage season, and have been seeing counts in the 1,000 fish-per-day range at Bonneville. Adult steelhead passage is on the upswing at Lower Granite, Wagner said; at Ice Harbor, there was a huge upswing in adult steelhead passage yesterday, with more than 2,500 fish passing the project.

Wagner added that water temperatures in the Lower Snake River have been amazingly low this summer; Steve Pettit observed that air temperatures have been much lower than usual at night.

Moving on to reservoir operations, Turner said daily flow at Bonneville has ranged between 139 Kcfs and 179 Kcfs over the past week. At McNary, last week's average flow was 148 Kcfs, with an average of 139 Kcfs forecast this week. Day-average flows at Lower Granite were 34 Kcfs yesterday; for the week ending August 18, the average was 32 Kcfs, with an average of 31 Kcfs forecast for this week. The current Dworshak elevation is 1550.6 feet; the project continues to release 13.8 Kcfs, with inflows continuing with surprising strength in the 3 Kcfs-4 Kcfs range. The August 31 elevation at Dworshak is now forecast to be 1534.8 feet. The plan is to reduce Dworshak outflow to 12 Kcfs for the period of August 25-31, Turner said, followed by 12 days at 10 Kcfs outflow, or until elevation 1520 is reached. In other words, we plan to continue to operate Dworshak as agreed last week, he said.

As was reported earlier in the meeting, Libby is releasing 17 Kcfs, with inflows in the 7 – 8 Kcfs range; the August 31 elevation at that project will be just over 2442 feet, Turner said. Albeni Falls continues to operate in the 2062-foot range, with 12.2 Kcfs outflow. In response to a question, Turner said Albeni Falls is not expected to draft significantly until mid-September.

Tony Norris said the current elevation at Grand Coulee is 1281.6 feet; the project is releasing 100 Kcfs. At Hungry Horse, we're releasing 6 Kcfs; project elevation is 3549 feet, currently, with a forecast elevation of 3545.3 feet on August 31. That means we'll have 116 KAF of extra water left in the project on August 31, he said. In response to a question, Norris said the final water supply forecast for The Dalles shows 100 MAF, 101% of average. Brownlee actually drafted slightly last week, Norris added. In response to a question, Bettin said the power system continues to operate smoothly.

With respect to water quality, Turner said TDG levels in the system are settling down; there were only a couple of exceedences over the past week. Water temperatures, as reported previously, continue to be lower than usual for this time of year.

**11. Recommended Operations.**

Recommended operations were detailed during the previous agenda item.

**12. Next TMT Meeting Date.**

The next face-to-face meeting of the Technical Management Team was set for Wednesday, September 11. Another meeting, to discuss the 2003 Water Management Plan and the 2002/2003 chum operation, was set for 9 a.m. September 3. A conference call to discuss the end of the Dworshak operation was also set for 3 p.m. Monday, September 9. It was agreed that the TMT will continue to meet every two weeks during October, with meetings tentatively set for October 9 and 23. Meeting summary prepared by Jeff Kuechle, BPA contractor.

**TMT ATTENDANCE LIST**

**August 21, 2002**

<b>Name</b>	<b>Affiliation</b>
Steve Pettit	IDFG
Jacqueline Abel	Facilitation Team
David Wills	USFWS
Shane Scott	WDFW
Scott Bettin	BPA
Colin Beam	PPM
Tony Norris	USBR
Scott Boyd	COE
Ron Boyce	ODFW

Rick Pendergrass	BPA
Kyle Martin	CRITFC
Paul Wagner	NMFS
Rudd Turner	COE
Russ George	WMCI
Richelle Harding	D. Rohr & Associates
Eugene Rosolie	
Maria Van Houten	UBS
Everett Wright	COE
Craig Sprankle	USBR
Suzanne Cooper	BPA
Lance Elias	PPL
Tim Heizenrater	UBS

# TECHNICAL MANAGEMENT TEAM

**BOR:** Tony Norris / Lori Postlethwait

**BPA:** Scott Bettin / Rick Pendergrass

**NMFS:** Paul Wagner / Chris Ross

**USFWS:** David Wills / Howard Schaller

**OR:** Ron Boyce

**WA:** Shane Scott

**ID:** Steve Pettit

**MT:** Jim Litchfield

**COE:** Cindy Henriksen / Cathy Hlebechuk / Rudd Turner

## TMT EMERGENCY CONFERENCE CALL

**28 August 2002      1400 - 1600 hours**

**Custom House      Room 118  
Portland, Oregon  
Conference call line: 503-808-5190**

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

### AGENDA

1. Welcome, introductions.
2. Libby/Canadian storage swap / Libby operations (All)

*Questions about the meeting may be referred to Cathy Hlebechuk at (503) 808-3942, or Rudd Turner at (503) 808-3935.*

**TECHNICAL MANAGEMENT TEAM  
CONFERENCE CALL NOTES  
August 28, 2002  
CORPS OF ENGINEERS NORTHWESTERN DIVISION OFFICES – CUSTOM  
HOUSE  
PORTLAND, OREGON**

**TMT Internet Homepage: <http://www.nwd-wc.usace.army.mil/TMT/index.html>**

***1. Greeting and Introductions***

The August 28 Technical Management Team conference call to discuss the Libby/Canadian storage swap and Libby operations was chaired by Cathy Hlebechuk of the Corps and facilitated by Donna Silverberg. The following is a distillation, not a verbatim transcript, of items discussed at the meeting and actions taken. Anyone with questions or comments about these minutes should call Henriksen at 503/808-3945.

***2. Libby/Canada Storage Swap and Libby Operations.***

Hlebechuk explained that this emergency TMT call was convened at the request of NMFS because it was discovered yesterday, in reviewing the treaty storage regulation (TSR), that it appeared that the storage swap between Libby and the Canadian projects was not playing out as hoped. Specifically, she said, the August 8 TSR showed a 70 Ksf delivery of water from the Canadian projects and a corresponding non-delivery from Libby. The most recent TSR showed that there would basically be no swap water delivery from Canada, but a 70 Ksf reduction in Libby storage releases, said Hlebechuk.

The final TSR, which will show the actual volumes delivered from Canada and retained in Libby, will be available next week, she continued. Hlebechuk noted that the TSRs are based on forecast inflows; one of the things that happened was that inflows on the August 22 TSR were lower than those on the August 8 TSR. That created a proportional draft of the system, and as a result, the swap water would not be coming out of the Canadian projects, she explained. Basically, we wanted to be sure, as we approach the end of August, that everyone was aware of this development, Hlebechuk said.

Rick Pendergrass noted that the August 22 TSR created additional draft at treaty projects; as a result, Arrow discharge was increased from 58 Kcfs to 64 Kcfs. This resulted in more flow across the border during the last week in August, he said. However, the net effect is that, rather than the planned 70 Ksf swap, the Canadian projects will not be able to furnish this amount and the final amount will be determined when the September 11 TSR is completed.

What I was told, and the reason I requested this conference call, is that the 2002 Libby/Arrow/Duncan swap did not work out quite as planned, said Paul Wagner. Basically, when the treaty/non-treaty numbers were run, they were very close to what would have happened under the normal treaty/non-treaty operation if there was no swap

this year, he said. Back in early August, we recommended this exchange between Libby, Arrow and Duncan because we thought it would keep more water in Libby through the end of August, Wagner explained. I got a call from the Corps yesterday, explaining this situation and asking whether, if the expected volume was not released from the Canadian projects, we wanted to change the Libby operation for the four days that remain until August 31. Our answer was, let's keep Libby outflow at 17 Kcfs and discuss the situation with our co-managers, Wagner said; however, NMFS' preference is not to increase Libby discharge at this time. We would still like to see Libby end August at elevation 2442, he said.

The TMT devoted a few minutes of discussion to this question. Ultimately, Tony Norris said the Bureau of Reclamation is willing to draft Grand Coulee an extra half-foot in order to make the swap NMFS agreed to earlier in August whole. Essentially, NMFS has asked the action agencies to consider actions that would make up the difference in flow, and the Bureau is stepping forward to do so, Norris said. The 1279.5' would be reached sometime on Friday, August 30, and the half-foot of additional Grand Coulee storage will then be refilled between August 31 – September 2, he added.

So Reclamation has offered to release an additional half-foot of Grand Coulee storage, although NMFS did not ask them to do that, specifically? Hlebechuk asked. Also, the Bureau will inform the Spokane and Colville Tribes that they will be drafting Grand Coulee to elevation 1279.5 feet this Friday because NMFS has asked the action agencies to find an additional water source to make up this shortfall? she asked. Norris said he would. Actually, I think the way I would characterize it is that, consistent with the spirit of the Biological Opinion, the Corps is the agency that said what actions need to be taken, Wagner replied. If any, said Hlebechuk, adding that, if NMFS is OK with Reclamation's offer, the Corps has no objection. I'm pleased that an agency is stepping forward with an offer, said Wagner.

After a brief discussion, the TMT endorsed Reclamation's offer. With that, the conference call was adjourned. Meeting summary prepared by Jeff Kuechle, BPA contractor.

**TMT ATTENDANCE LIST  
SEPTEMBER 28, 2002**

<b>Name</b>	<b>Affiliation</b>
Cathy Hlebechuk	COE
Rudd Turner	COE
Scott Boyd	COE
Steve Pettit	IDFG
Russ George	Water Management Consultants Inc.
David Wills	USFWS

Rick Pendergrass	BPA
Tony Norris	USBR
Paul Wagner	NMFS
Chris Ross	NMFS
David Benner	FPC
Tom Lorz	CRITFC
Robin Harkless	Facilitation Team
Donna Silverberg	Facilitation Team
Shane Scott	WDFW
Jim Litchfield	Consultant (Montana)

## **COLUMBIA RIVER REGIONAL FORUM**

### **TECHNICAL MANAGEMENT TEAM**

August 28, 2002

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

Facilitator: Donna Silverberg

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

#### **Libby/Canada Swap:**

Today's emergency TMT call was requested by NMFS to discuss the swap operation between Duncan, Arrow and Libby Dams. Due to changes in the treaty storage regulation (TSR), the intended swap amount changed. The August 8 TSR showed the full 70 ksf swap being completed – provided from Canada and stored in Libby. The August 22 TSR forecast had less inflow and therefore, a requirement for proportional draft from Canada. Therefore, the TSR showed no swap water delivery from Canada. While there was less swap water from Canada than planned, proportional draft storage from Arrow is being provided through the end of August. Arrow was increased from 58 to 64 kcfs on August 24 and will remain at that level the rest of August.

NMFS said they were okay with this operation, as the operation was entered into in good faith, it was intended to provide water from Canada, but because the forecast change, the swap amount might be less. NMFS said they did not want to draft additional water out of Libby before the end of the month, as they had made promises to the Montana delegation. NMFS requested that the Action Agencies consider actions that would help complete the swap. The BOR offered to draft Grand Coulee to 1279.5' on Friday, August 30 and refill above 1280' over the long weekend. This would put approximately 35 KAF into the

system. Tony Norris will contact the Spokane and Colville tribes to notify them of this action. The COE had some concern that the BOR's action would have no effect on the system as Lake Roosevelt would likely be back above 1280' by the end of August, but agreed to the proposal. NMFS is still looking for additional water to make the swap "whole". TMT members agreed that Treaty Operations should be included in the end-of-year review.

The next TMT meeting will be held on Tuesday, September 3, from 9 am to noon, to finalize the WMP and discuss chum operations.

# TECHNICAL MANAGEMENT TEAM

**BOR:** Tony Norris / Lori Postlethwait

**BPA:** Scott Bettin / Rick Pendergrass

**NMFS:** Paul Wagner / Chris Ross

**USFWS:** David Wills / Howard Schaller

**OR:** Ron Boyce

**WA:** Shane Scott

**ID:** Steve Pettit

**MT:** Jim Litchfield

**COE:** Cindy Henriksen / Cathy Hlebechuk / Rudd Turner

## TMT MEETING / WORKING SESSION

**03 September 2002      0900 - 1200 hours**

**Custom House      Room 118  
Portland, Oregon  
Conference call line: 503-808-5190**

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

### AGENDA

1. Welcome, introductions.
2. Bonneville 2nd powerhouse corner collector construction schedule / special operations request (COE)
3. Working session on Water Management Plan and start of fall/winter update, including chum (all)
  - United States Fish and Wildlife Service Chum Presentation
  - Oregon Department of Fish and Wildlife Chum Presentation
4. Other.

*Questions about the meeting may be referred to Cathy Hlebechuk at (503) 808-3942, or Rudd Turner at (503) 808-3935.*

# **COLUMBIA RIVER REGIONAL FORUM**

## **TECHNICAL MANAGEMENT TEAM**

### **MEETING NOTES**

**September 3, 2002**

**CORPS OF ENGINEERS NORTHWESTERN DIVISION OFFICES – CUSTOM HOUSE  
PORTLAND, OREGON**

**TMT Internet Homepage: <http://www.nwd-wc.usace.army.mil/TMT/index.html>**

## **Meeting Minutes**

### ***1. Greeting and Introductions***

The September 3 Technical Management Team meeting was chaired by Rudd Turner of the Corps and facilitated by Donna Silverberg. The following is a distillation, not a verbatim transcript, of items discussed at the meeting and actions taken. Anyone with questions or comments about these minutes should call Turner at 503/808-3935.

### ***2. Bonneville Second Powerhouse Corner Collector Construction Schedule and Special Operations Request.***

Turner said it appears, at this point, that construction at Bonneville's second powerhouse should not have a significant impact on chum operations this fall and winter; essentially, the contractor is requesting minimal operation (no more than four units) of PH2, and no spill operation, between mid-November and December 31. Nine units are scheduled to be available at PH1 during the month of December, Turner said, which results in a powerhouse capacity of just over 200 Kcfs. Unless we see unusually high natural or power flows in December, we don't anticipate that powerhouse capacity will be a problem. *[Later in the week, the COE Portland District informed RCC that a maximum tailwater limit will be requested as well, which will result in further flow constraints. This will be discussed further in the 25 September TMT meeting.]*

### ***3. Work Session on 2003 Water Management Plan and Fall/Winter Update, Including Chum Operations.***

Ron Boyce said Oregon's written comments on the 2003 Water Management Plan should be available by the end of this week; he touched on the highlights of those comments at today's meeting, noting that they are not substantially different from Oregon's comments on the 2002 plan. He said that, in general, Oregon likes the format and organization of the 2003 WMP, and thanked the action agencies for their hard work in putting the plan together.

The group devoted a lengthy discussion to the 2003 Plan, offering a variety of comments and clarifying questions. In the course of this discussion, various participants requested a briefing on IDFG's burbot program, the prospects for listing that species under ESA, and on

planned burbot operations in 2003. In response to a request, the Corps agreed to give the Water Quality Team a chance to discuss the Plan's water quality appendix (Appendix 4) at the September 10 WQT meeting, and to furnish comments in time to allow the Plan and its appendices to be finalized by September 30.

During the portion of the discussion devoted to the 2003 Spring Creek Hatchery smolt release operation, Scott Bettin said Bonneville is leaning toward not supporting spill for these non-listed fish in 2003. Given that fact, he said, I wanted to try to give the salmon managers enough lead time to explore other, non-spill management alternatives. It would probably make sense to plan as if no spill will be provided, said Shane Scott; that way we're prepared either way.

David Wills said the U.S. Fish and Wildlife Service has been working internally on an idea under which the March Spring Creek release would be eliminated. This alternative would require significant support from the tribes and from Bonneville, he said, and we're currently working to gather that support. However, it will not be ready for implementation this spring, Wills added.

Would it be possible to rear the fish at, say, Washougal? Bettin asked. There has been some discussion of doing some supplemental rearing at other locations, but I'm not sure whether Washougal was one of the sites under consideration, Wills replied. Boyce said that, in his opinion, the usual spill operation in support of the Spring Creek Hatchery release should stay in the 2003 Water Management Plan for now, given the fact that Bonneville has not yet made a final decision on whether or not to provide that spill. That's fine, as long as we continue to explore non-spill alternatives, Bettin said.

Jim Litchfield said he had heard that there had been an effort to transport smolts from Spring Creek Hatchery in years past – did that happen? he asked. I don't remember the exact year, Wills replied, but there was an effort to transport a portion of those fish; my recollection is that when the transported fish returned, there was a significant amount of straying to other systems and facilities. In response to a request, Wills said he will check the U.S. Fish and Wildlife Service archives to see whether he can find the report on the Spring Creek transportation experiment, and will report back at the TMT's September 11 meeting.

Turner reiterated the Corps' intent to finalize the 2003 Water Management Plan by September 30; he added that it is possible that Appendix 4 will still be in draft form at that time, depending on how soon the Water Quality Team is able to furnish their comments. He asked that this review proceed in a timely manner so that the overall Plan can be completed on schedule.

Next, various representatives from WDFW and the Fish and Wildlife Service provided a presentation on chum salmon. This presentation, requested by the TMT, was designed to answer three questions:

- What did we learn from 2001/2002 and before?
- What are the objectives for 2002/2003?

- How can we achieve those objectives?

Will you be producing a map of the chum spawning sites? Bettin asked. We will be producing a map showing redd locations for both chum and chinook spawners in 2001/2002, Todd Hillsen replied.

The presentation touched on the following major topic areas:

- 2001/2002 adult chum spawning ground counts, by week
- Peak spawning counts at the Ives/Pierce Island complex, 2001/2002 (255 adults, during the week of November 26)
- 2001/2002 chum counts at other, non Ives/Pierce Island spawning sites in the mainstem Columbia and tributaries. It was observed that chum spawning was much more widespread than expected, geographically, in 2001/2002, with some chum spawning observed as far upstream as the outlet of Multnomah Falls.
- The total Lower Columbia chum run, 2001 (unexpanded): 5,500 fish, (expanded): 10,000+
- Chinook and chum spawn timing and emergence numbers and timing in 2001/2002. Fall chinook: spawning began on October 22 and ended on December 10; emergence began on March 11 and ended on May 18. Chum: spawning began on November 12 and ended on December 20; emergence began in mid-March 25 and ended in mid-May.
- While population estimates are not complete for the 2001/2002 chum spawning year, preliminary estimates of the total catch of smolts in traps in 2002 were 146,725 at Hamilton Springs and 106,123 at Hardy Creek.
- The chum salvage plan for 2002/2003: funding has been requested for chum salvage this year; it is a possibility that fish will be taken for re-introduction to Duncan Creek, and possibly Hamilton/Hardy and/or the mainstem Columbia. It will be up to the fish managers to decide whether or not some sort of intervention is necessary, one of the WDFW participants observed.

Joe Hymer noted that WDFW's final report on the 2001/2002 chum spawning season will be available in March, although more refined analyses of the data from 2001/2002 should be available within the next month. At Boyce's request, Turner said it would be possible to get an update on the Corps' chum-related activities at the September 25 TMT meeting. It was further agreed that WDFW and the Fish and Wildlife Service will attempt to provide a comprehensive GPS map of all of the known chum spawning sites in the Lower Columbia.

When do we need to start discussing what we want to do for this year? Bettin asked. We'll need to have some fairly intensive discussion about whether or not the information collected to date warrants a departure from the BiOp operation for chum, Boyce observed. We also need to discuss the potential impacts of the chum operation on Vernita Bar operations, Boyce said. It was agreed that this discussion will be taken up again at the TMT's September 25 meeting.

The group devoted a few minutes of discussion to the questions that need to be answered in the course of the TMT's discussion of the 2002/2003 chum operation. These included:

- What impact, if any, could chum operations have on Vernita Bar operations?
- Did last year's "staggering" (gradually raising tailwater elevation at Bonneville to allow staggered access to more and more spawning area) help or hurt chum?
- Was reverse load factoring an issue, in terms of dewatering redds?

In response to the reverse load factoring question, one WDFW participant said field crews observed occasional instances of a few redds being dewatered, but for the most part, the spawning grounds were pretty well watered up. There certainly weren't any observations of mass dewaterings, he said.

In summary, Silverberg asked the action agencies to work together to try to answer these questions; she asked all TMT participants to consider the 2002/2003 chum operation and come to the TMT's September 25 meeting prepared to discuss it in detail. It was so agreed. It was also agreed that today's chum presenters will attend the September 25 TMT meeting, if possible.

#### ***4. Next TMT Meeting Date.***

There is a TMT conference call to discuss the end of Dworshak operations scheduled for 3 p.m. Monday, September 9. The next face-to-face meeting of the Technical Management Team is scheduled for Wednesday, September 11 at 9 a.m. Meeting summary prepared by Jeff Kuechle, Bonneville contractor.

### **TMT Attendance List**

September 3, 2002

<b>Name</b>	<b>Affiliation</b>
Rudd Turner	COE
Tony Norris	USBR
Scott Bettin	BPA
David Wills	USFWS
Shane Scott	WDFW
Paul Wagner	NOAA
Ron Boyce	ODFW
Jim Litchfield	Consultant (Montana)
Richelle Harding	D. Rohr & Associates
Chris Ross	NOAA
Russ George	WMCI
Mike O'Bryant	CBB

Scott Boyd	COE
Todd Hillson	WDFW
Joe Hymer	WDFW/PSMFC
Nic Lane	BPA
Dick Cassidy	COE
Ruth Burris	PGE
Donna Silverberg	Facilitator
Nancy Uusitalo	USFWS
Patrick Frazier	ODFW

# TECHNICAL MANAGEMENT TEAM

**BOR:** Tony Norris / Lori Postlethwait

**BPA:** Scott Bettin / Rick Pendergrass

**NMFS:** Paul Wagner / Chris Ross

**USFWS:** David Wills / Howard Schaller

**OR:** Ron Boyce

**WA:** Shane Scott

**ID:** Steve Pettit

**MT:** Jim Litchfield

**COE:** Cindy Henriksen / Cathy Hlebechuk / Rudd Turner

## TMT CONFERENCE CALL

**09 September 2002      1530 - 1700 hours**

**Custom House      Room 118  
Portland, Oregon  
Conference call line: 503-808-5190**

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

### AGENDA

1. Welcome, introductions.
2. End of Dworshak Operation (All)

*Questions about the meeting may be referred to Cathy Hlebechuk at (503) 808-3942, or Rudd Turner at (503) 808-3935.*

# COLUMBIA RIVER REGIONAL FORUM

## TECHNICAL MANAGEMENT TEAM

September 9, 2002

### FACILITATOR'S SUMMARY NOTES ON FUTURE ACTIONS

Facilitator: Donna Silverberg

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

#### **Dworshak Operations:**

TMT members called in today to receive updates on Dworshak operations and how to proceed with the ending of the test at Dworshak. Cathy Hlebechuk informed the group that Dworshak was at elevation 1534' on August 31, approximately 187 kaf above elevation 1520'. At the August 15 meeting, TMT recommended the COE release 10 kcfs from Dworshak through 1 – 10 September and reevaluate on September 9 if additional water could be drafted from Dworshak. The COE said since the forecasted elevation September 10 is 1520.1', the COE is planning on reducing outflows from 10 kcfs to minimum flow at midnight at the rate of one foot per hour at Peck which is the normal project ramp rates. Greg Haller, Nez Perce, requested a gradual ramp-down of more than three hours.

The group agreed to ramp down over a period of about 24 hours; turn the small unit (2.3 kcfs) off at midnight on the 10th, change to an intermediate level at noon on the 11th, and drop to minimum flows (1.3-1.8 kcfs) at midnight on the 11th. Cathy Hlebechuk will work with the operating crew to determine an intermediate level, and then email TMT with the information.

Temperatures may vary during the ramp-down. The USFWS prefers temperatures to remain 48-49.5 degrees.

Everyone looks forward to reading the COE's report on the test at Dworshak.

# TECHNICAL MANAGEMENT TEAM

**BOR:** Tony Norris / Lori Postlethwait

**BPA:** Scott Bettin / Rick Pendergrass

**NMFS:** Paul Wagner / Chris Ross

**USFWS:** David Wills / Howard Schaller

**OR:** Ron Boyce

**WA:** Shane Scott

**ID:** Steve Pettit

**MT:** Jim Litchfield

**COE:** Cindy Henriksen / Cathy Hlebechuk / Rudd Turner

## TMT MEETING

11 September 2002      0900 - 1200 hours

Custom House      Room 118  
Portland, Oregon  
Conference call line: 503-808-5190

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

## AGENDA

1. Welcome, introductions.
2. [911 Remembrance](#)
3. Dworshak update (COE).
4. New River Forecast Center products
5. Discuss comments on draft 2003 Water Management Plan (Due to COE 6 Sep).
6. Libby winter operations for burbot (USFWS).
7. Alternatives for Spring Creek Hatchery releases (USFWS).
8. Presentation by BPA on financial decisions.
9. Review current system conditions.
  - fish migration status (NMFS, USFWS)
  - reservoir operation, power system, water quality (COE, BOR, BPA) [\[31-Aug spill\]](#) [\[9-Sep spill\]](#)
10. Review operations requests.
11. Develop recommended operations.
12. Other.
  - Set agenda for next meeting
  - Set October meeting dates

*Questions about the meeting may be referred to Cathy Hlebechuk at (503) 808-3942, or Rudd Turner at (503) 808-3935.*

**TECHNICAL MANAGEMENT TEAM  
MEETING NOTES  
September 11, 2002  
CORPS OF ENGINEERS NORTHWESTERN DIVISION OFFICES – CUSTOM HOUSE  
PORTLAND, OREGON**

**TMT Internet Homepage: <http://www.nwd-wc.usace.army.mil/TMT/index.html>**

***1. Greeting and Introductions***

The September 11 Technical Management Team meeting was chaired by Cathy Hlebechuk of the Corps and facilitated by Donna Silverberg. The following is a distillation, not a verbatim transcript, of items discussed at the meeting and actions taken. Anyone with questions or comments about these minutes should call Hlebechuk at 503/808-3942.

***2. 9/11 Remembrance.***

The meeting participants observed the one-year anniversary of the September 11 Attacks on America, viewing a brief slide presentation.

***3. Dworshak Update.***

Hlebechuk said Dworshak reached elevation 1520.2 at midnight last night. We started ramping outflow down last night, she said, and the project will reach minimum outflow by 1 a.m. Thursday morning. The current Dworshak outflow is 6.6 Kcfs, and will be down to 5 Kcfs later today, Hlebechuk said. She noted that approximately 185 kaf of Dworshak storage has been delivered during the month of September. The project will continue to draft slightly through the month of September, as inflows are expected to be slightly less than minimum outflow from Dworshak.

***4. New River Forecast Center Products.***

Harold Opitz of the RFC began by saying the RFC is in the process of developing a new web page. I've been keeping track of some of the questions the TMT has been asking, he said, and have revamped many of our work products to answer those questions. One thing that will be released some time in October is a sub-page that shows the products that will be available in the future, Opitz said; what we've added is a new means of getting to the information by clicking on a map showing various sites across the basin – Dworshak, Grand Coulee, Libby etc.

Opitz went through some of the other new features on the RFC webpage:

- historical forecast and actual runoff information
- a new product that tracks both forecast and observed runoff volumes, by project, over an entire water year.
- The mid-month and early-bird forecasts will now include the entire gamut of information included in the monthly final forecasts
- Expanded verification information (forecast vs. 30-year average and observed runoff, by month)

Again, many of these changes were based on the TMT's input, Opitz said. In response to a question, Opitz said the RFC is also working on standard deviation and error calculations; in general, he said, if we're within 5%-8%, we're doing pretty well. Opitz added that the new RFC web page will debut in October. The group complimented Opitz on the changes, saying that they appear to be extremely useful.

The discussion then turned to the end of SSARR as the Corps' and RFC's forecasting tool of choice. Opitz said he had taken the observed runoff for this season, plotted it up, then plotted all of the SSARR forecasts over the season. If you look at that, he said, it appears to be an ensemble trace. We know there is a lot of uncertainty in the SSARR runs, Opitz said; the bottom line is that, if you thought you were getting useful information out of the SSARR in years past, you might be surprised if you look at our plot of this year's information.

In addition, he said, SSARR is old calculations on old HP machines that can no longer be supported, technically, if anything goes down. For that and other reasons, said Opitz, we will be transitioning to the ESP method this fall. ESP will also allow us to run the same model year-round, which will be another improvement, Opitz said.

So the forecast won't necessarily be more accurate with ESP, but it will give you a more explicit understanding of the variability surrounding that forecast? Boyce asked. That's correct, Opitz replied.

##### ***5. Comments on Draft 2003 Water Management Plan.***

Comments were due September 6, Hlebechuk said; we received comments from NMFS, Oregon, USFWS and Reclamation. The NMFS, Oregon and Fish and Wildlife Service comments have been posted to the TMT website, said Scott Boyd; we probably won't post the Reclamation comments, because they're considered internal comments.

Boyd said some of the comments have already been incorporated into the final draft of the Plan; others have not, and he has sent out a variety of clarifying emails on some of the unincorporated comments. Again, said Hlebechuk, the plan is to post the final draft of the 2003 Water Management Plan on the TMT website by September 30. Boyce said ODEQ will be commenting on the Water Quality Plan (Appendix 4); he said he will contact Russell Harding, because comments are due to Dick Cassidy by September 25.

##### ***6. Libby Winter Operations for Burbot.***

Bob Hallock of the Fish and Wildlife Service said that, essentially, the goal of this operation is to achieve lower Libby outflows during the period of December 15 through January 31 in support of burbot spawning. Flows would range 4 Kcfs and 10.7 Kcfs; hopefully flows would be around lower than, 7.3 Kcfs, Hallock said. The usual caveats would stay in place in terms of power or flood control needs overriding the burbot operation, he said, adding that an SOR covering the burbot operation will be available by the end of September. Essentially, we wanted to talk about this today so that we can get it into the 2003 Water Management Plan, said Scott Bettin.

Hallock asked Boyd to send him an email describing what additional information is needed so he can submit a detailed written description of the burbot operation, for inclusion in the Water Management Plan, ahead of the formal SOR. Again, Hallock said, we'll submit the SOR to the action agencies as soon as it is available.

In response to a question from Silverberg, Hallock said burbot are not currently listed, but are proposed for listing – the Fish and Wildlife Service has until March 1 to respond to the listing proposal.

Flood control operations are always the sticking point with the burbot operation, Hlebechuk said; she noted that the Corps has developed a fall/winter forecast for Libby, which hopefully will provide some insight into our flood control needs at Libby this winter. That forecast will be available on November 1, Hlebechuk said. Kyle Martin noted that El Niño conditions are expected to persist into the winter, so runoff will likely be below normal, at least through the early part of the winter season. He asked that the Corps take the Southern Oscillation Index into account in its forecast.

This is definitely an issue we'll have to wrestle with, said Bettin; burbot operations have an impact on the sturgeon pulse and on salmon flows later in the season. Boyce added that any forecast that comes out in November is unlikely to be very reliable, so will need to be taken with a grain of salt.

The group discussed the relative legal importance of operations for burbot, which are proposed for listing, and operations for salmon and sturgeon, which are already listed. The Fish and Wildlife Service is discussing the issue with NMFS and the action agencies, Hallock replied; even if they're not currently listed, depending on the court ruling, burbot could become a part of the settlement agreement.

It sounds as though this is definitely going to be an ongoing issue, Silverberg said; we'll hear more at the September 25 TMT meeting. In response to a question, it was agreed that a presentation from IDFG on burbot life-history and on how the changes to the Kootenai River have affected this species would be helpful.

### ***7. Alternatives for Spring Creek Hatchery Releases.***

David Wills said that, as requested at the last TMT meeting, he had found the report on the 1980 Spring Creek barging study conducted by NMFS. The bottom line of this study is the table that shows hatchery recoveries at the homing site and as strays to other hatcheries of fall chinook and coho salmon from the 1980 Spring Creek and

Willard NFH homing experiments; the test results showed fish from the two barge treatments straying at a rate of 74% and 72%, respectively. The inference from this information is that the fish that were barged, although they survived well, strayed a lot, Wills said. He added, however, that 1980 was the year Mt. St. Helens erupted, so the conditions these fish encountered in the estuary were far from typical.

The group devoted a few minutes of discussion to this information. Ultimately, Wills said the Fish and Wildlife Service is concerned about the potential for straying, given the BiOp language specifying the acceptable rate of straying, if the Spring Creek fish were to be barged; the Service's preference continues to be to release those fish at the hatchery, and to rely on spill to move them past Bonneville Dam.

Given the test parameters, as well as the unusual conditions in the estuary due to the volcanic eruption, said Bettin, it might be a good idea to test barging again. If you want to test barging again, if you can gather enough regional support, anything can be tested, Wills replied; however, it would be the Service's preference not to go there. Boyce observed that there would likely be serious issues for several parties to U.S. v. Oregon if barging the Spring Creek fish becomes a management option receiving serious consideration.

If this is off the table as an option, said Bettin, what other options are you considering? Barging is not off the table for Washington, said Shane Scott; the most important issue for us is getting the fish safely past the dam. What about hatchery facilities downstream from the dam? Bettin asked. Again, that would require serious discussion among the U.S. v. Oregon parties, Wills said – we are discussing a variety of options with the U.S. v. Oregon parties, and we will report back once there is some information to present. I can tell you that this issue is being taken seriously by U.S. v. Oregon, he said; however, it is safe to say that there will be no changes in place before next season. That is my understanding as well, Boyce said.

What is Bonneville's official position on spill for the 2003 Spring Creek Hatchery release? Boyce asked. We are highly unlikely to support it, Bettin replied – it is possible that involuntary spill will occur during that time, but I wouldn't count on it – hence the six months notice we're giving you to consider alternative management scenarios. Paul Wagner observed that it might be possible to use chilled water to slow the development of the eyed eggs such that they are ready for release after the spill season begins.

In response to a request from Silverberg, Wills reiterated that he will report back on this topic as soon as more information is available.

#### ***8. Presentation by BPA on Financial Decisions.***

This presentation was deferred until a future TMT meeting.

#### ***9. Current System Conditions.***

With respect to the status of the fish migration, Wagner reported that subyearling migration is essentially over; numbers at Lower Granite are down in the hundreds, although there was an uptick to the 1,000-2,000 range last week. At McNary, the indices

have been running 1,000-2,000 per day; Bonneville has been averaged less than 1,000 fish per day. Wagner added that the total number of smolts passing McNary in 2002 was in excess of 8 million.

Moving on to adult fall chinook passage numbers, Wagner said the season-to-date total at Bonneville is almost 314,000, with nearly 20,000 fish per day continuing to pass the project. The 10-year average is about 125,000, and includes the last two years, both excellent years. With respect to adult steelhead, about 106,000 have passed the project to date, up from a 10-year average of 75,000. Jack chinook counts are about 15,000 to date, slightly higher than the 10-year average of 12,000.

At Ice Harbor, things get interesting, Wagner said – a total of 6,200 adult spring chinook have passed that project, compared to a 10-year average of 1,400. Passage numbers continue to be high – 300-400 fish per day, at least partly in response to better temperature conditions this year. Wagner also touched on adult passage numbers at Lower Monumental and Little Goose, noting that numbers have continued high at those projects as well. At Lower Granite, 3,651 fall chinook have passed the project to date, compared to a 10-year average of 472. Adult steelhead passage has also shown a dramatic increase this year at Lower Granites, Wagner said; the question now becomes, will we see a dramatic drop-off in passage now that Dworshak outflow is going to minimum?

Wagner noted that water temperatures in the Lower Snake have been remarkably cool this year; the current temperature in the Lower Granite forebay is about 66 degrees F. Tailwater readings have been a consistent 3-4 degrees less than the forebay readings, he added.

Moving on to reservoir operations, Hlebechuk said Libby continues to release 6 Kcfs; the Corps has received several calls from outfitters saying flows are too low, and need to be brought up to 9 Kcfs. I told them that 6 Kcfs had been coordinated at TMT and suggested that they call Jim Litchfield, Hlebechuk said. The current elevation at Libby is 2441.8, she added.

Albeni Falls is currently at elevation 2062.2, and we will start drafting that project in mid-September, Hlebechuk continued. The winter elevation at Albeni Falls is 2055 by November 15; we can only draft one foot at Albeni Falls by the end of September, she said. Dworshak, again, is at elevation 1520.2 and ramping down to minimum flow by 1 a.m. Thursday. At Lower Granite, the day-average flow was 23 Kcfs yesterday, and 25 Kcfs, on average, over the last seven days. Flows at McNary averaged 121 Kcfs yesterday; at Bonneville, 109 Kcfs, up from a seven-day average of 104 Kcfs.

John Roche of Reclamation reported that Hungry Horse is now at elevation 3542, continuing to release 4 Kcfs. Hungry Horse was at 3544.7 on August 31, 107 kaf above its usual end-of-summer elevation of 3540 feet. We expect to have that additional volume out by the end of September, Roche said. Grand Coulee is at 1285.1 feet, currently.

There are no problems to report with the power system, said Bettin, although there have been some fires under the power lines in California. With respect to water

quality, Tina Lundell of the Corps said there have been no TDG exceedences since late August; the spill season is now over. Water temperatures are cooling down everywhere except Ice Harbor, John Day and The Dalles, where temperatures have been slightly above the 68-degree standard at times.

#### ***10. New System Operational Requests.***

No new SORs were submitted prior to today's meeting.

#### ***11. Recommended Operations.***

Hlebechuk said system operations will continue in their current mode for the foreseeable future.

#### ***12. Other.***

***A. Tribal Fisheries.*** Kyle Martin said the compliance statistics for the fall tribal treaty fishery, in terms of the percentage of the hours in which the action agencies have provided the operation requested by the tribes in CRITFC's most recent SOR, have been surprisingly poor to date; he said CRITFC has sent a letter to the Corps expressing the tribes' displeasure with this fact. He asked that the action agencies try to do a better job during the last weeks of the season.

Martin said there will likely be another CRITFC SOR requesting continued fishery operations, because fish numbers continue to be higher than expected. The Compact is meeting today, and will likely extend the season by one to two weeks. Hlebechuk said her understanding is that Bonneville pool has been operated within elevation 75 and 76.5 feet, but said she will check on that. Boyce said ODFW would also like to see the SOR conditions implemented; this is the single most important tribal fishery in many years, and Oregon would like to see all possible flexibility used by Bonneville and the action agencies to implement this request.

The message you're giving is somewhat conflicting, said Bettin; it appears that the tribal fishers will likely catch their full quota under the compact. It seems to me that our objective is to allow you an opportunity to meet the compact catch limit, and we're doing that, yet you've come to the table today to tell us what a poor job we're doing implementing the SOR. We haven't caught the limit yet, said Martin; it is a policy sticking point with the tribes. Bettin asked whether there would be an opportunity to go out and observe tribal fishing; Martin said he will check with CRITFC's policy and legal staffs to see if that would be possible.

#### ***13. Next TMT Meeting Date.***

The next meeting of the Implementation Team was set for Wednesday, September 25 in Portland. It was agreed to ask IDFG's Vaughn Paragamian to make his burbot presentation at this meeting. The TMT's October meetings were set for October 8 at 1 p.m. (a change) and October 23. Meeting summary prepared by Jeff Kuechle, BPA contractor.

## TMT ATTENDANCE LIST

September 11, 2002

<b>Name</b>	<b>Affiliation</b>
Donna Silverberg	Facilitation Team
Cathy Hlebechuk	COE
Ron Boyce	ODFW
Paul Wagner	NOAA
Shane Scott	WDFW
Kyle Martin	CRITFC
Scott Boyd	COE
David Wills	USFWS
Russ George	WMCI
Robin Harkless	Facilitation Team
Colin Beam	PPM
Scott Bettin	BPA
Mike O'Bryant	CBB
Ruth Burris	PGE
Tina Lundell	COE
Steve Pettit	IDFG
John Roche	USBR
Margaret Filardo	FPC
Mike Buchko	Powerex
Richelle Harding	D. Rohr & Associates
Vaughn Paragamian	IDFG
Harold Opitz	RFC

## COLUMBIA RIVER REGIONAL FORUM

### TECHNICAL MANAGEMENT TEAM

September 11, 2002

## FACILITATOR'S SUMMARY NOTES ON FUTURE ACTIONS

Facilitator: Donna Silverberg

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

### **9/11 Remembrance:**

After introductions, the COE presented a slide show in memory of the events of last September 11.

### **Dworshak Update:**

Cathy Hlebechuk updated the group on Dworshak operations. Flows were reduced at midnight on 9/10, as decided during a TMT conference call on 9/9. The Nez Perce Tribe and CRITFC thanked the COE for helping to meet their needs with this operation.

### **New River Forecast Center Products:**

Harold Opitz, RFC, has developed a new web page that includes tools that TMT members have expressed an interest in over the past year. Products include a map with sites pertinent to TMT discussions, a summary of different products for monthly and annual run-offs, and a verification page. Harold will notify the group when the web page is available. Also, the SSAR model will be replaced soon by an “ESP” model, which Harold said should give a more realistic picture of forecast variability.

### **2003 WMP Comments:**

USFWS, BOR, Oregon and NMFS comments on the WMP were sent to the COE. Comments from NMFS, Oregon and USFWS are posted on the TMT website. Scott Boyd, COE, made some changes to the draft after receiving comments. The final draft should be posted by September 20. The hope is to finalize the document by the end of September. Some comments may be submitted through the WQT and will be included in the document. Dick Cassidy, COE, is the contact person for the WQT.

### **Tribal Treaty Fishery:**

CRITFC sent a letter to the COE expressing concerns over compliance with the tribal fishery agreement. The concern is that pool elevations have not remained as stable as agreed on. The COE feels that it has met the terms of the operating agreement. Oregon supports CRITFC in their desire to implement the request. Kyle Martin said CRITFC will distribute an SOR today or tomorrow requesting a week to two-week extension of the tribal fishing season.

### **Libby Winter Operations for Burbot:**

Bob Hallock, USFWS, updated TMT on an upcoming SOR for burbot operations. The SOR should be out by the end of September, and USFWS would like to include the SOR in the WMP.

**Action:** Bob will send an explanation of the request to Scott Boyd to include in the WMP as a placeholder.

Cathy Hlebechuk said the COE fall forecast for Libby might help the group in making operating decisions and in planning for the burbot issue. The COE will give a presentation on forecast modeling at a future TMT meeting. The USFWS and NMFS are working together to find a balance between operations for ESA-listed and non-listed fish. Discussions on this issue will continue at subsequent TMT meetings.

**Alternatives for Spring Creek Hatchery Releases:**

Dave Wills, USFWS, presented information on a barging study done in 1980 for fall Chinook. Given the results from the study, the USFWS would prefer not to use barging techniques as an alternative for Spring Creek hatchery releases. Oregon and NMFS agree with USFWS. Washington and BPA would like to see another test done, considering that the study in 1980 was conducted during the Mt. St. Helens eruption. As of yet, there have been no other alternatives offered from USFWS. Conversations are occurring between the parties involved in US v. Oregon. Dave will update TMT when new information is available.

**Review Current System Conditions:**

**Fish Status:** Paul Wagner, NMFS, reported that smolts are nearly gone and there are record numbers of adults in the system.

**Reservoir Operations:** Cathy Hlebechuk and John Roache reported on operations at the COE and BOR projects. Albeni Falls is expected to begin drafting around mid-September.

**Power Status:** Scott Bettin, BPA, reported that fires in California that caused power lines to go down put some strain on the power system, but ultimately caused no problems for the system.

**Water Quality:** Tina Lundel, COE, reported that there have been no TDG exceedances since August 20 and there are currently no spill operations except for some minor spill occurring at Bonneville. Temperatures are normal and cooling.

**Next Meeting, September 25:**

**Agenda Items:**

- Chum Discussions
  - Answers to Questions from 9/3 – OR, WA, USFWS
  - Five Alternative Chum Operations from 9/13 Meeting – COE
  - Plan for '02-'03 Chum Operations
- Emergency Protocols – COE
- Burbot SOR
- BPA Financial Choices
- Power House II Corner Collector Impacts on Flows
- Burbot Life History Presentation – USFWS
- Libby November/December Forecast

**Other:**

- The October face-to-face TMT meeting has been rescheduled for Tuesday, October 8, from 1-4 pm.
- There will be a TMT field trip to Bonneville in mid-November to look at chum spawning grounds.
- Donna Silverberg will reserve an off-site location for the annual “Lessons Learned” meeting. Potential locations are OMSI, CRITFC, or RFC.
- The Facilitation Team will distribute a services evaluation form and request that each member fill it out completely and honestly, and return it to us as quickly as possible. Thank you!
- The Lake Roosevelt Forum is planning a conference for April 21-23 on “Economic Development”. They have requested that the TMT meeting be held in Spokane during the conference.

# TECHNICAL MANAGEMENT TEAM

**BOR:** Tony Norris / Lori Postlethwait

**BPA:** Scott Bettin / Rick Pendergrass

**NMFS:** Paul Wagner / Chris Ross

**USFWS:** David Wills / Howard Schaller

**OR:** Ron Boyce

**WA:** Shane Scott

**ID:** Steve Pettit

**MT:** Jim Litchfield

**COE:** Cindy Henriksen / Cathy Hlebechuk / Rudd Turner

## TMT MEETING

25 September 2002      0900 - 1200 hours

Custom House      Room 118  
Portland, Oregon  
Conference call line: 503-808-5190

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

## AGENDA

1. Welcome, introductions.
2. Bonneville 2nd powerhouse corner collector construction schedule / special operations request (COE) [\[B2 Corner Collector Construction\]](#) 
3. Libby November/December volume forecast (COE) [\[Libby Forecast Procedure\]](#) 
4. Burbot life history (IDFG) [\[Burbot Biology and Life History\]](#) 
5. 2003 [Water Management Plan](#).
  - emergency protocols for short-term situations (COE, BPA)
  - fall/winter update
6. Lower river operations for chum - additional information, strategies. [\[Chum Questions\]](#) 
  - COE Portland District activities for chum spawning
  - Answers to Chum questions (Salmon Managers)
7. Review current system conditions.
  - fish migration status (NMFS, USFWS)
  - reservoir operation, power system, water quality (COE, BOR, BPA)
8. Presentation by BPA on financial choices
9. Review operations requests.
10. Develop recommended operations.
11. Treaty Fishing - Bonneville forebay compliance (COE) [\[Bonneville Compliance\]](#) 
12. Other.
  - Set agenda for next meeting
  - Set date and topics for 2002 post-season review

*Questions about the meeting may be referred to Cathy Hlebechuk at (503) 808-3942, or Rudd Turner at (503) 808-3935.*

B2 Corner Collector Construction  
TMT Meeting 25 September

Background:

- Review of project scope
- \$32 million contract to Kiewit/Manson Joint Venture awarded in July 2002
- Contract completion scheduled for 19 December 2003
- Critical in-water and low water work description
  - a) Excavation along north side of Cascades Island to Elev 14 at downstream end, increasing by 0.5' in elevation every 100' of flume length
  - b) In-water work at tip of island and near existing trash chute
- Coordinated with FFDRWG & consulted with NMFS on specific actions
  - a) 11/15/02 – 11/30/02 early in-water work period
  - b) Construction Task Force for issues that arise during construction
  - c) Restrictions on work near existing Cascade Island adult ladder entrance & UMT

What's Already Setup:

- B1 priority during in-water work period to minimize B2 flow
- Working to delay B1 ladder outage as late as possible in winter maintenance season to keep B2 ladder down as long as possible
- Limitations on blasting included in specs (bubble curtain, 2 FPS max velocity)

Construction Actions:

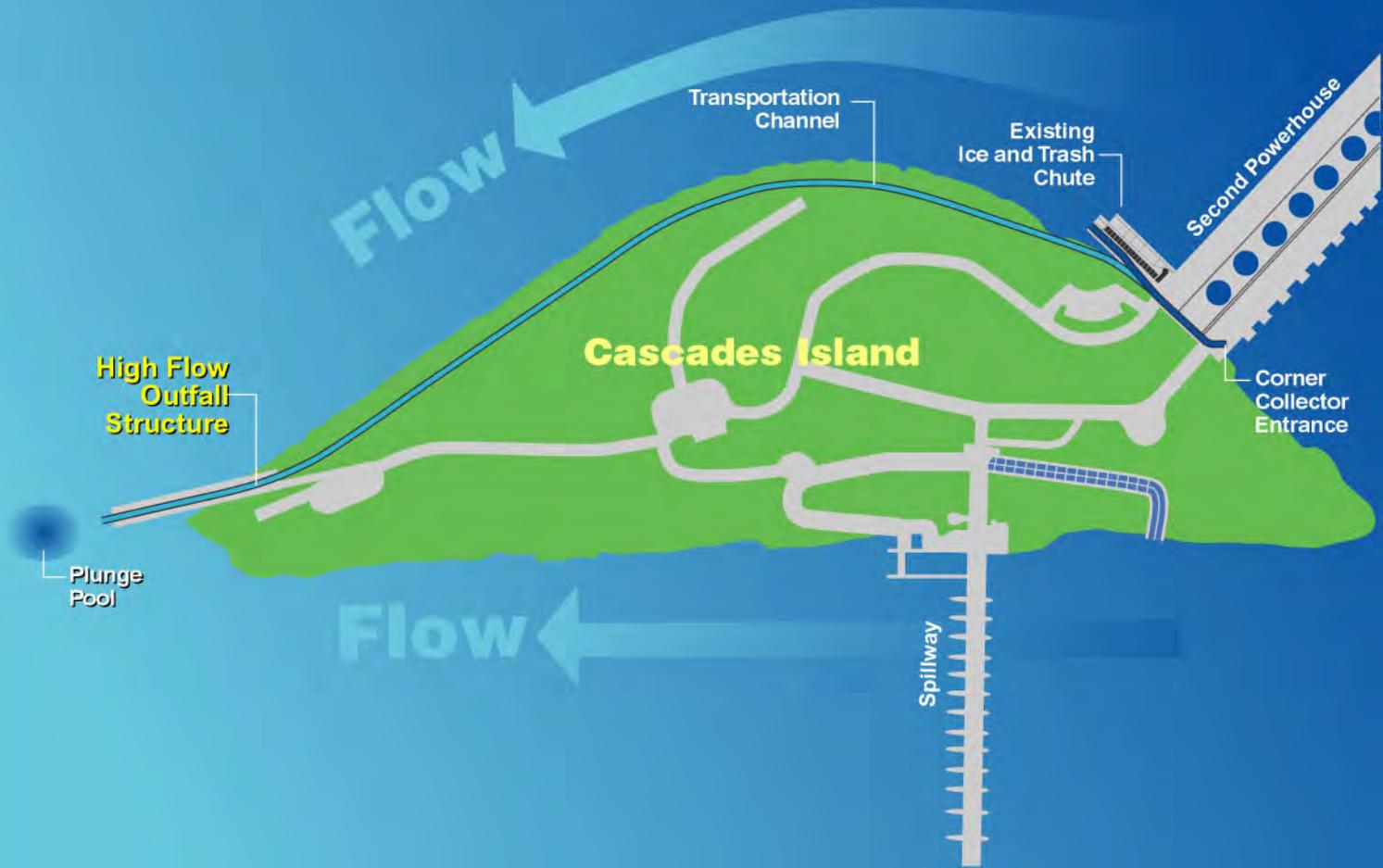
- 10/02 – 2/03 (based on tailwater level): low water chute placement

<u>Date:</u>	<u>Preferred Maximum Tailwater</u>
10/17	14' (increasing by 0.5' every 2 weeks)
12/19	16.5'
12/20	19.5 (increasing by 0.5' every 2 weeks)
2/1/03	21'
- 11/15/02 – 2/28/03: Construct plunge pool, u/s work to support channel, and downstream monolith
- 7/03 – 11/03: Completion of low-water work including placing chute on monolith

Potential Issues:

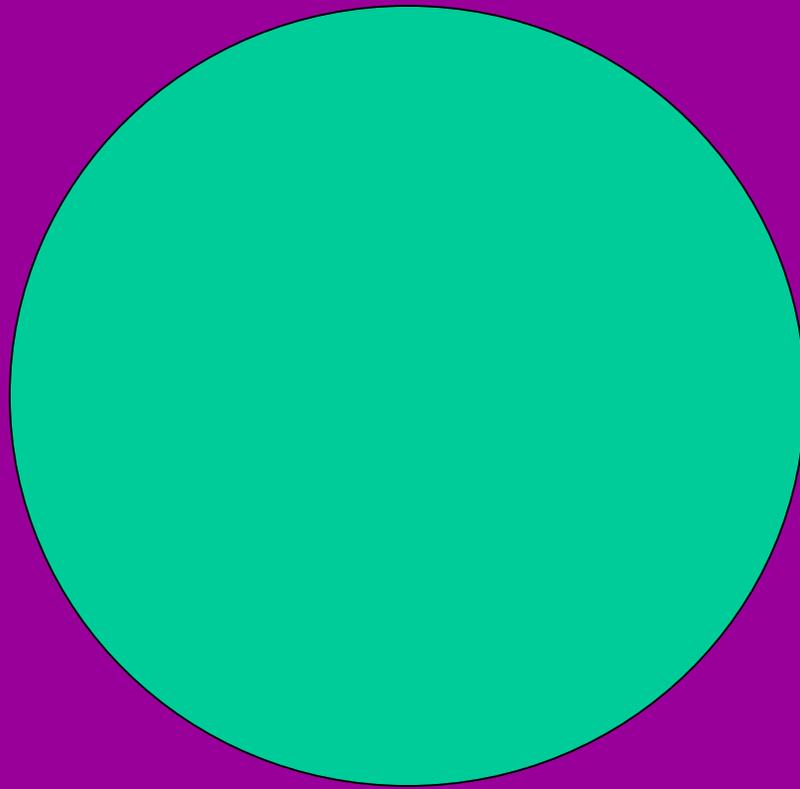
- Need for special operations for up to 4 hours for blasting/bubble curtain
  - a) Developing alternatives to blasting
  - b) Early December 02 if blasting is needed
- Chum operations
  - a) Changing tailwater and impact on low water construction
  - b) Minimum flows and flow at B2: specifications state up to 4 units during in-water period at B2

# Transportation Channel Site Plan



# **Burbot Biology and Life History**

Burbot Circumpolar in distribution





**Freshwater  
cod**

# Burbot life stages and food



Adults migrate to streams  
In winter and form  
“spawning balls”

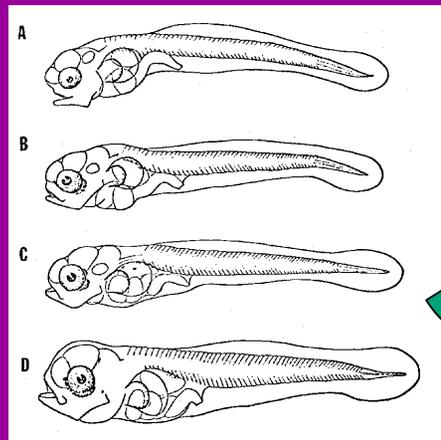


Larger burbot move  
To deeper water and  
Feed on fish and shrimps



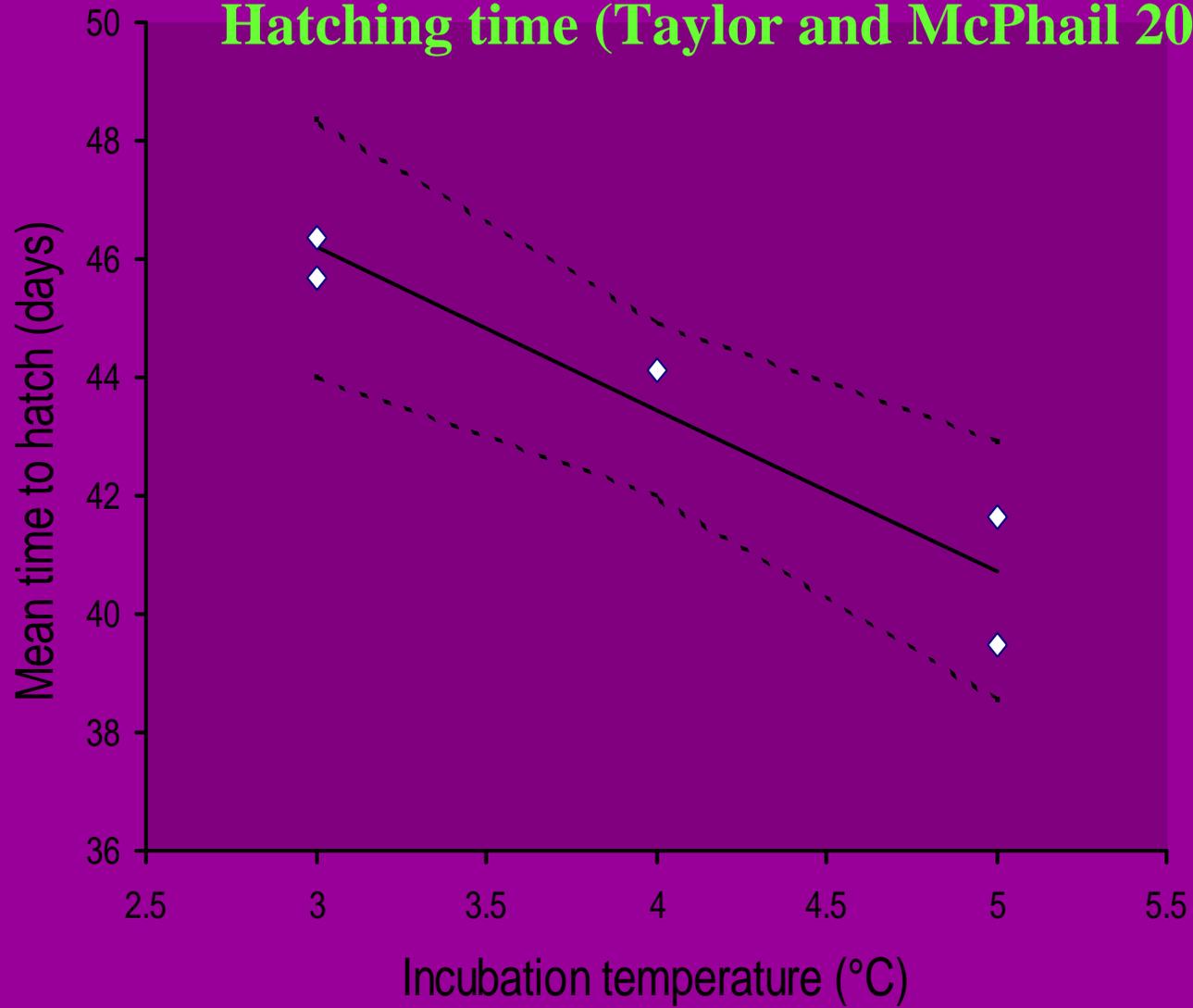
Burbot  
Egg 1 mm  
in diameter

Pelagic  
(open water)  
Feed on  
plankton

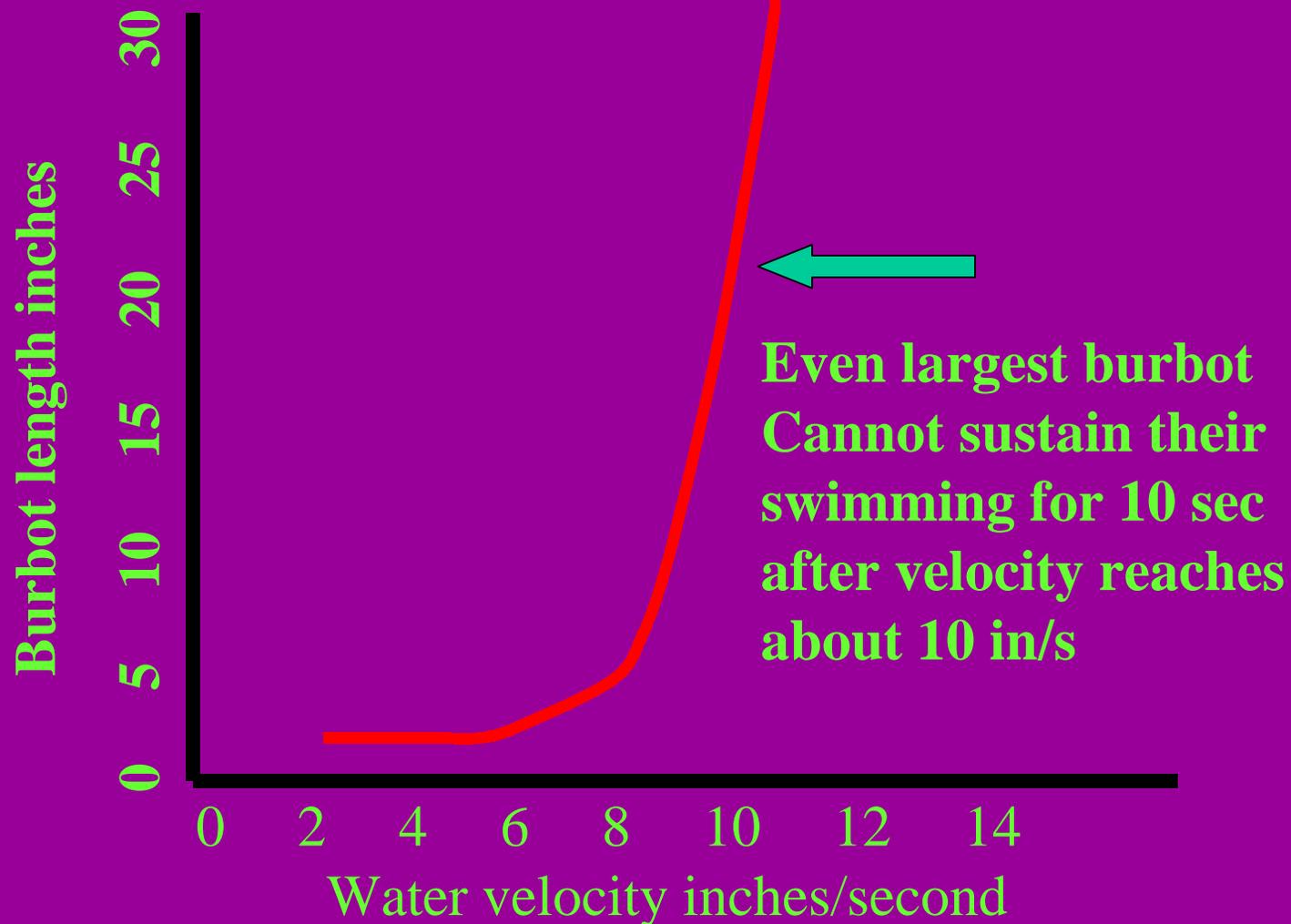


As young grow  
in length they  
move to shoreline  
and feed on insects  
and small fish

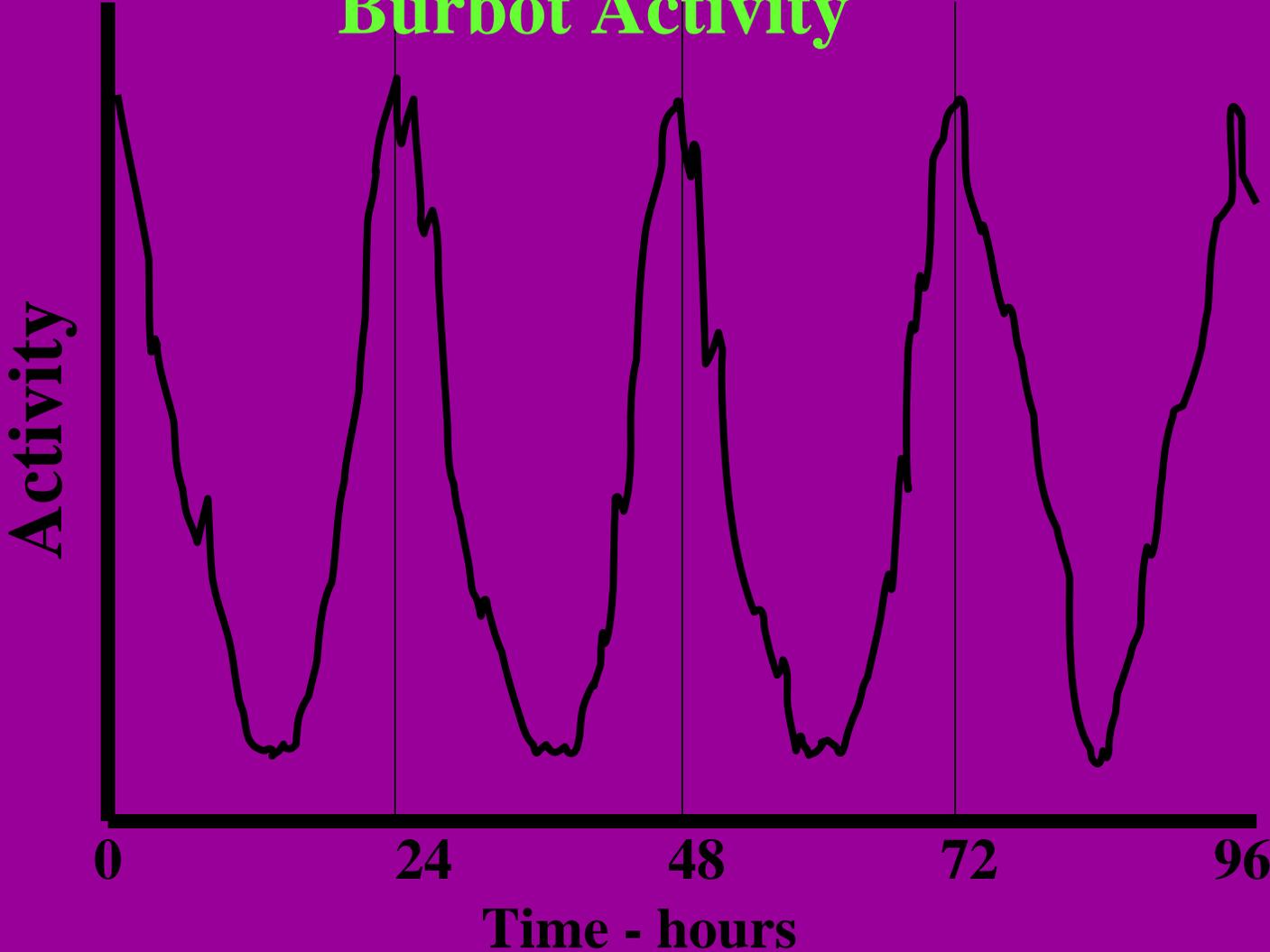
# Hatching time (Taylor and McPhail 2000)

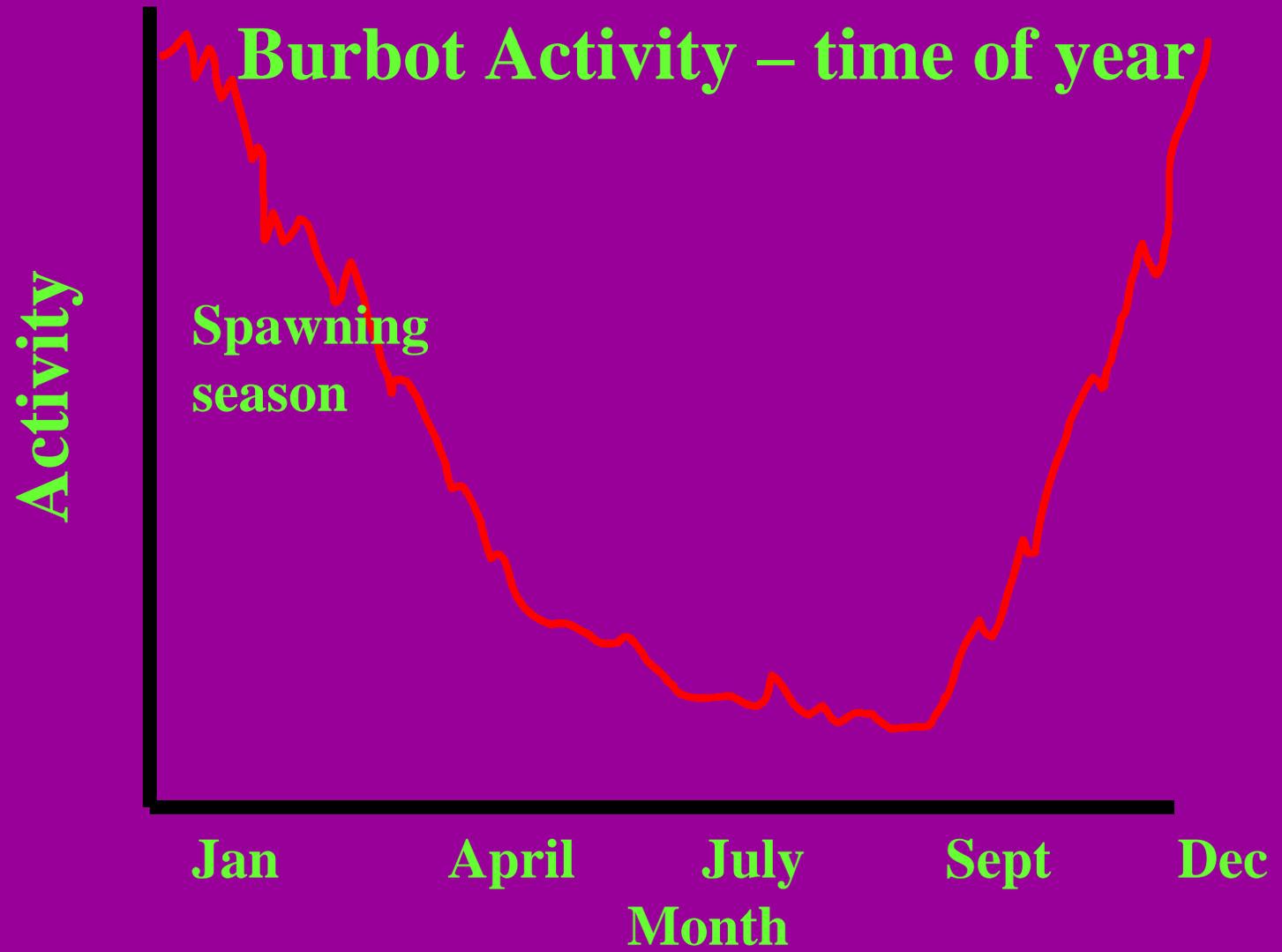


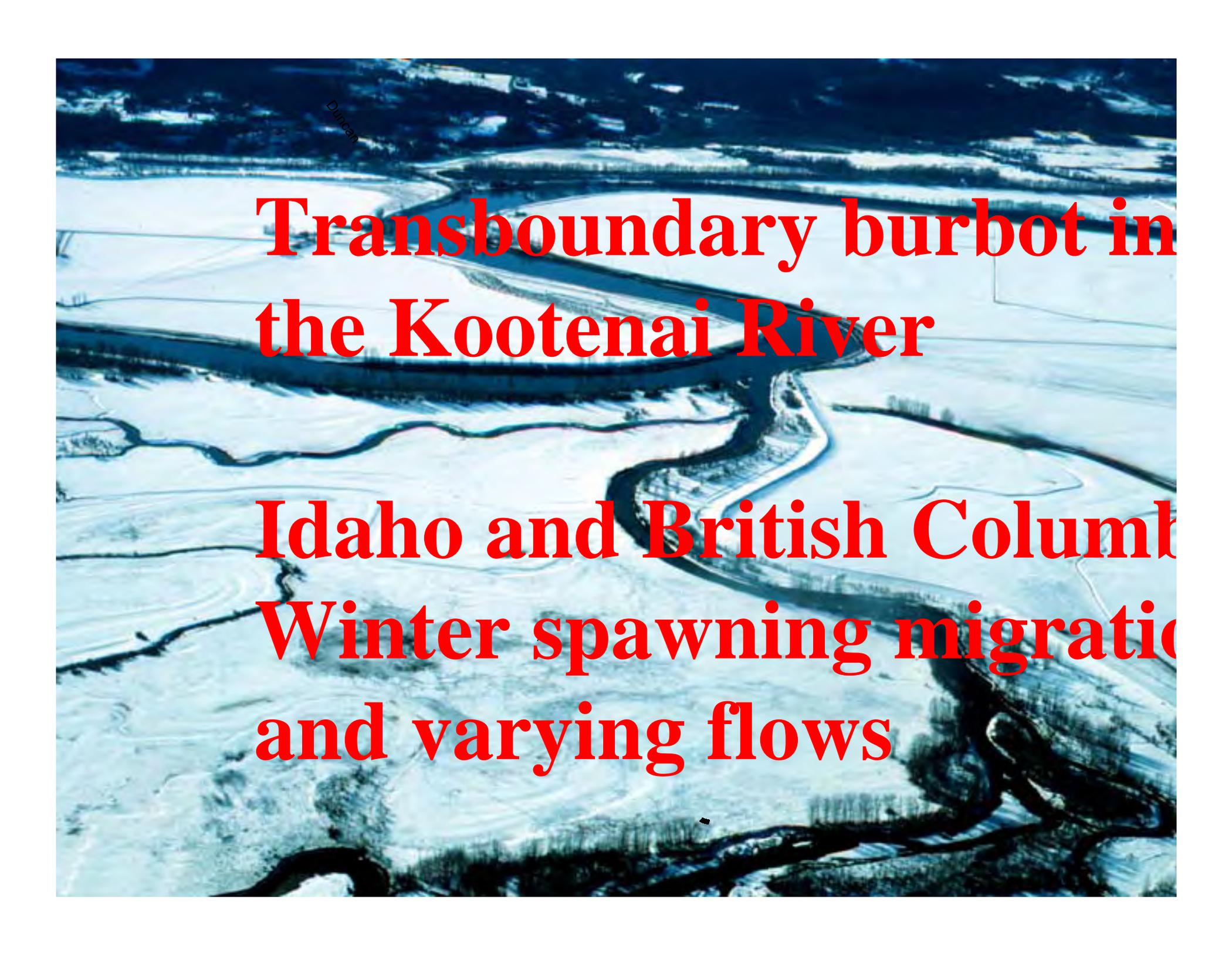
## Burbot swimming endurance (Jones 1974)



# Burbot Activity

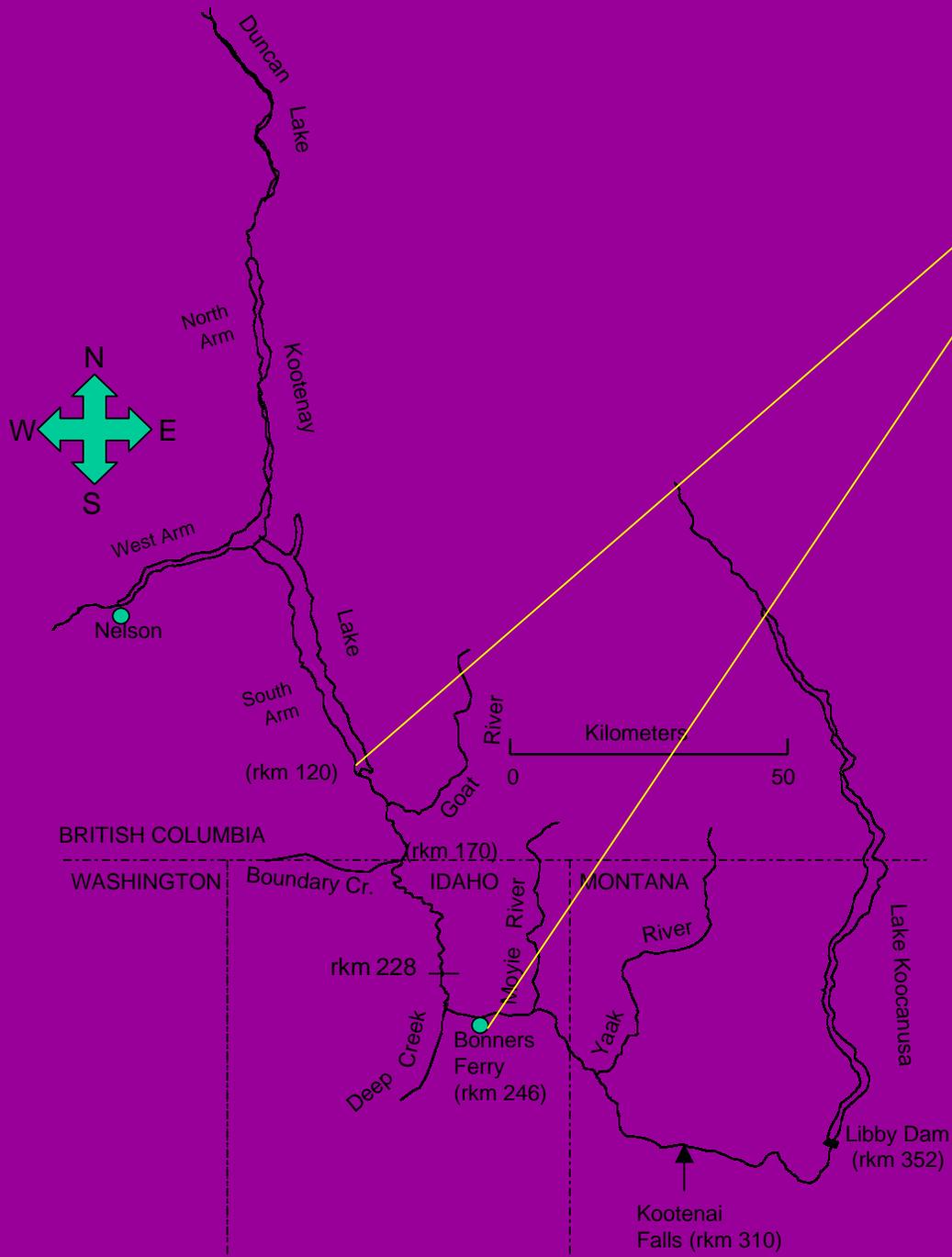




An aerial photograph of a wide, winding river in a snowy landscape. The river flows from the top right towards the bottom left, with several meanders. The surrounding land is covered in snow, with some patches of dark vegetation or trees visible. The overall scene is a winter landscape. The text is overlaid in red on the image.

**Transboundary burbot in  
the Kootenai River**

**Idaho and British Columbia  
Winter spawning migration  
and varying flows**



**Primary  
burbot  
study area**

## **Objectives 1993-1994**

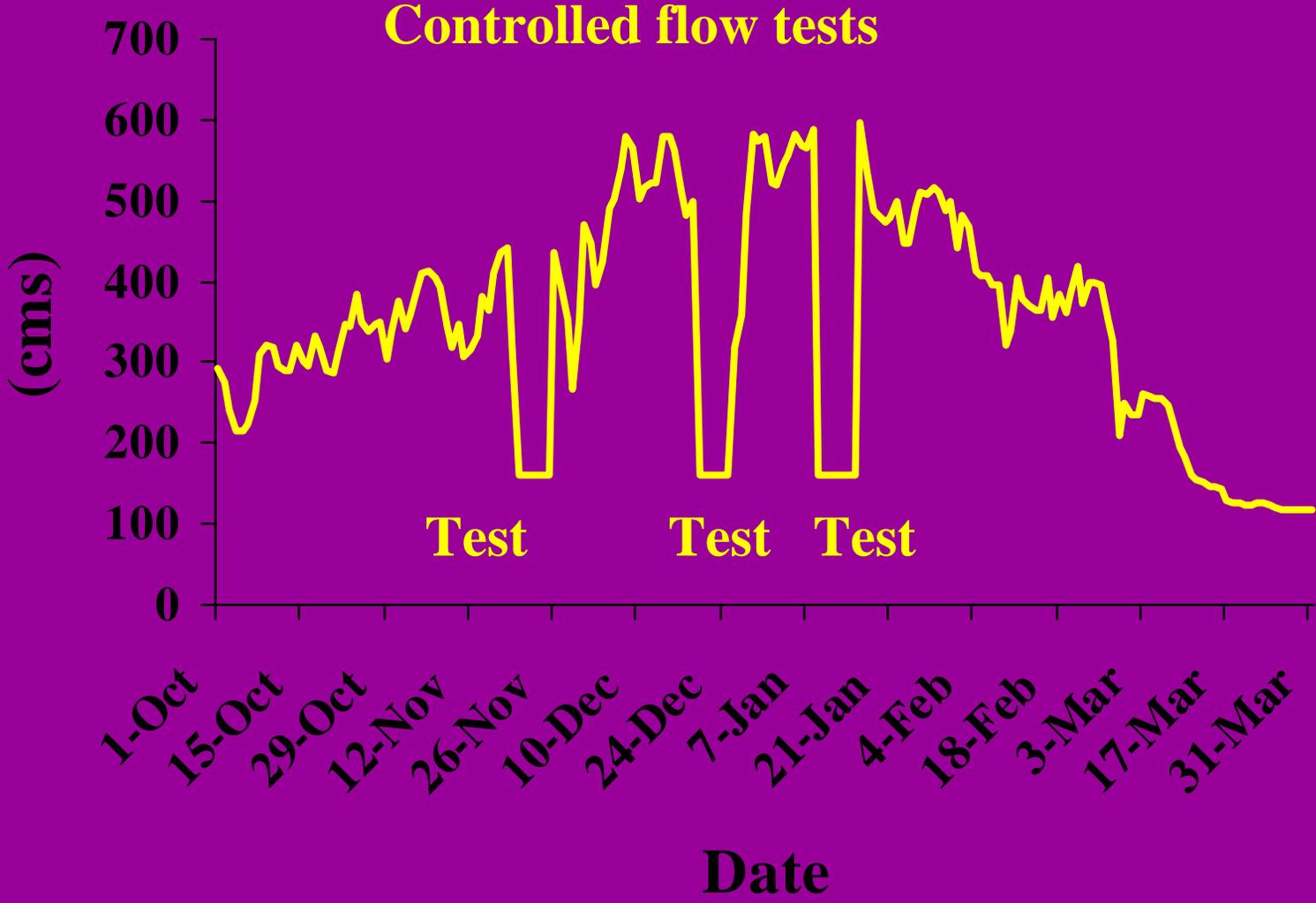
**Determine the population status  
of burbot in the Kootenai River**

**(1) Size structure**

**(2) Distribution**

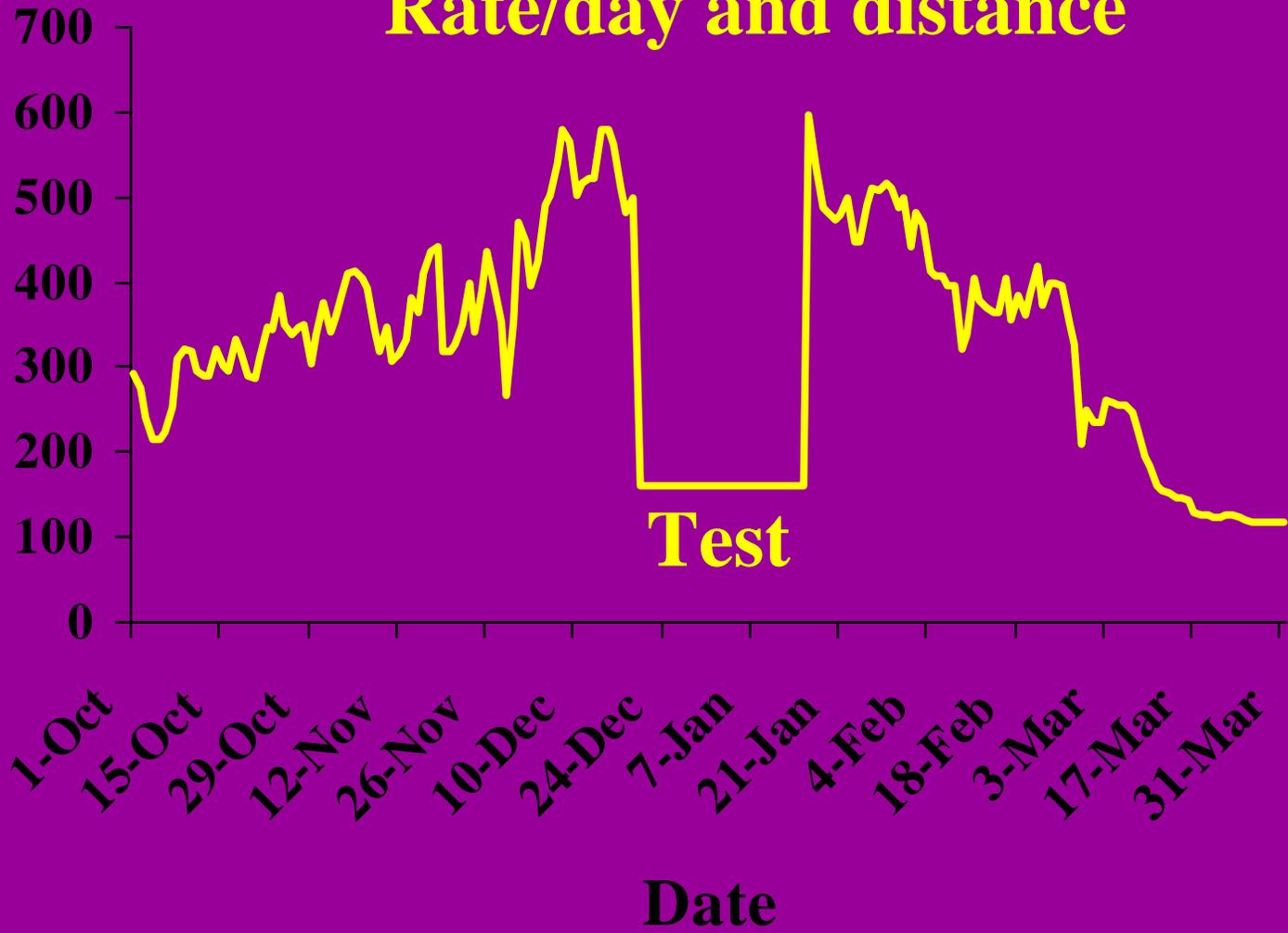
**(3) Abundance**

**Discharge at Libby Dam**



**Discharge at Libby Dam  
(cms)**

**Rate/day and distance**



# Hypothesis tests

## Movement/flow

1995-1996- No

1996-1997- Two incomplete

1997-1998- Three Complete

## Travel rate/distance

1998-1999- Incomplete

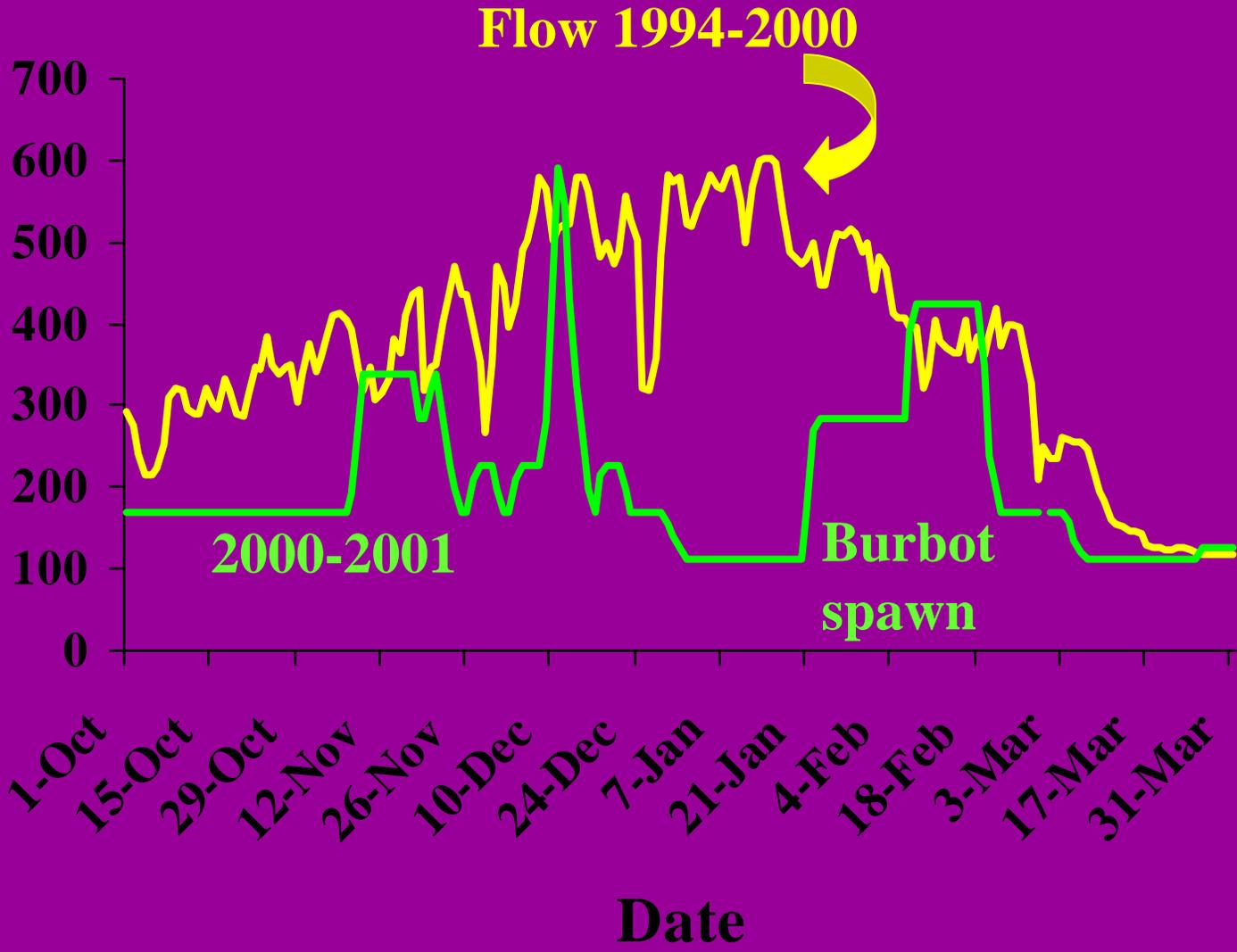
1999-2000- No

2000-2001- No control

2001-2002- Yes three weeks +



# Discharge at Libby Dam (cms)



**Long distance movements –  
5 km or more in 10 days or less**

**Examined all telemetry records  
and flows from 1994-2002**

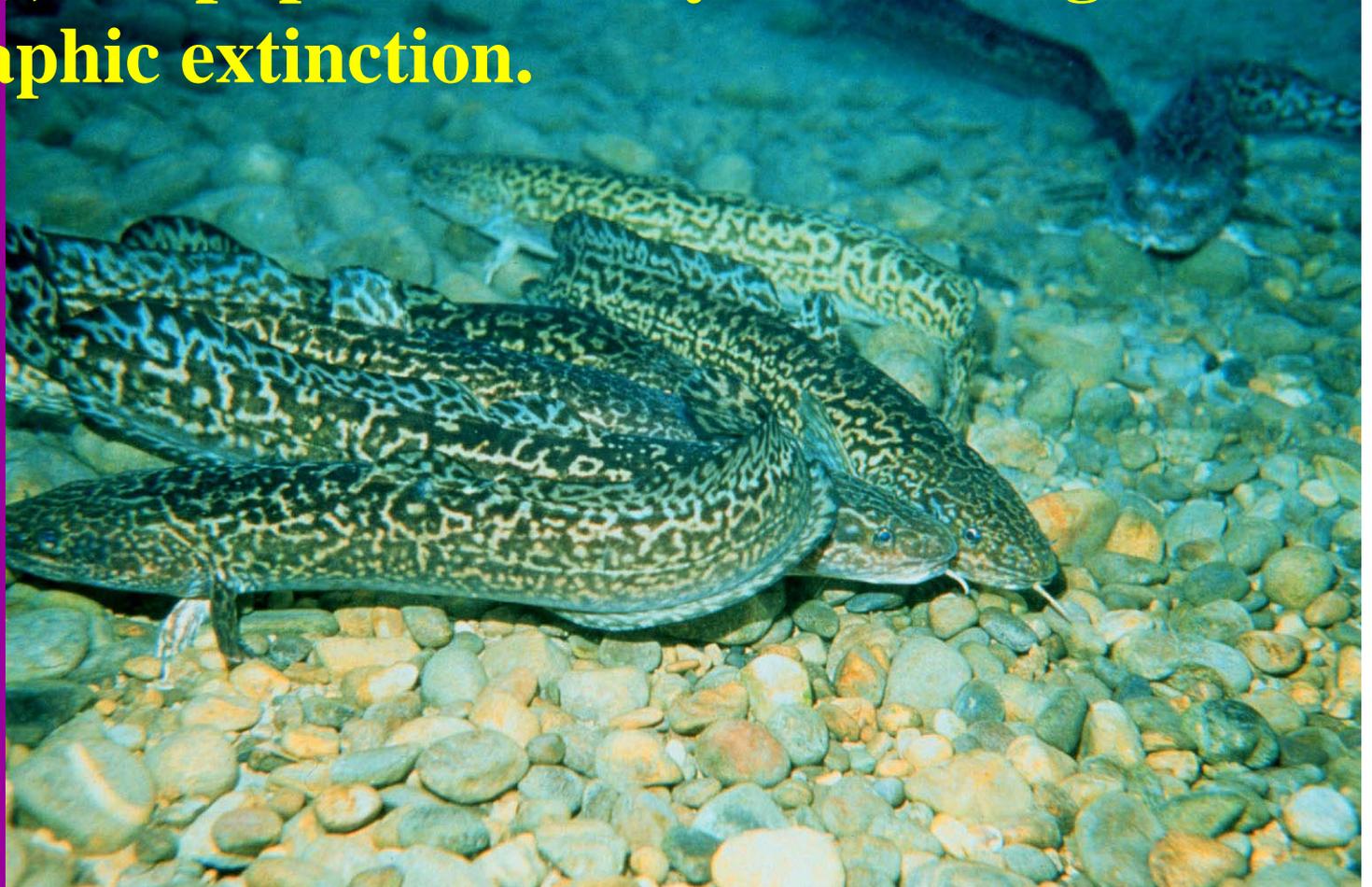
<b>Flow range</b>	<b>Number of cases</b>
<b>100-200</b>	<b>20</b>
<b>201-300</b>	<b>7</b>
<b>301-400</b>	<b>6</b>
<b>401-500</b>	<b>4</b>
<b>501-600</b>	<b>4</b>
<b>601-700</b>	<b>1</b>

## **Other limiting factors**

- 1) Reduced productivity**
- 2) Warmer water**
- 3) Disrupted spawning synchrony**
- 4) Physiological stress**
- 5) Low stock numbers**



**The Kootenai River burbot in Idaho and British Columbia is genetically distinct from Montana and the population is at about 540 fish (SE=757), the population may be nearing demographic extinction.**



## **Objectives 1995-present**

- 1) Determine genetic differences**
- 2) Estimate population size**
- 3) Determine physiological if stressed**
- 4) Determine flow vs. movement relationship**
- 5) Determine travel rate and distances**

## **What is needed?**

**1) An International Conservation Strategy has been prepared**

**2) A Conservation Agreement is needed**

**Examined all movements of burbot 5 km or more in 10 days or less and flows in two class intervals and Nov-Feb 1994-2000 only**

	<b>Cases of movement</b>	<b>Cases of flow (m<sup>3</sup>/s)</b>
<b>100-300</b>	<b>12</b>	<b>186</b>
<b>301-700</b>	<b>11</b>	<b>538</b>

## **Fisher exact test**

**Examined all movements of burbot 5 km or more in 10 days or less and flows in two class intervals and Nov-Feb 1994-2000 only**

<b>3</b>	<b>Cases of</b>	<b>Contacts<sup>3</sup> but</b>
<b>(m /s) movement</b>		<b>non-conformance</b>
<b>100-300</b>	<b>15</b>	<b>496</b>

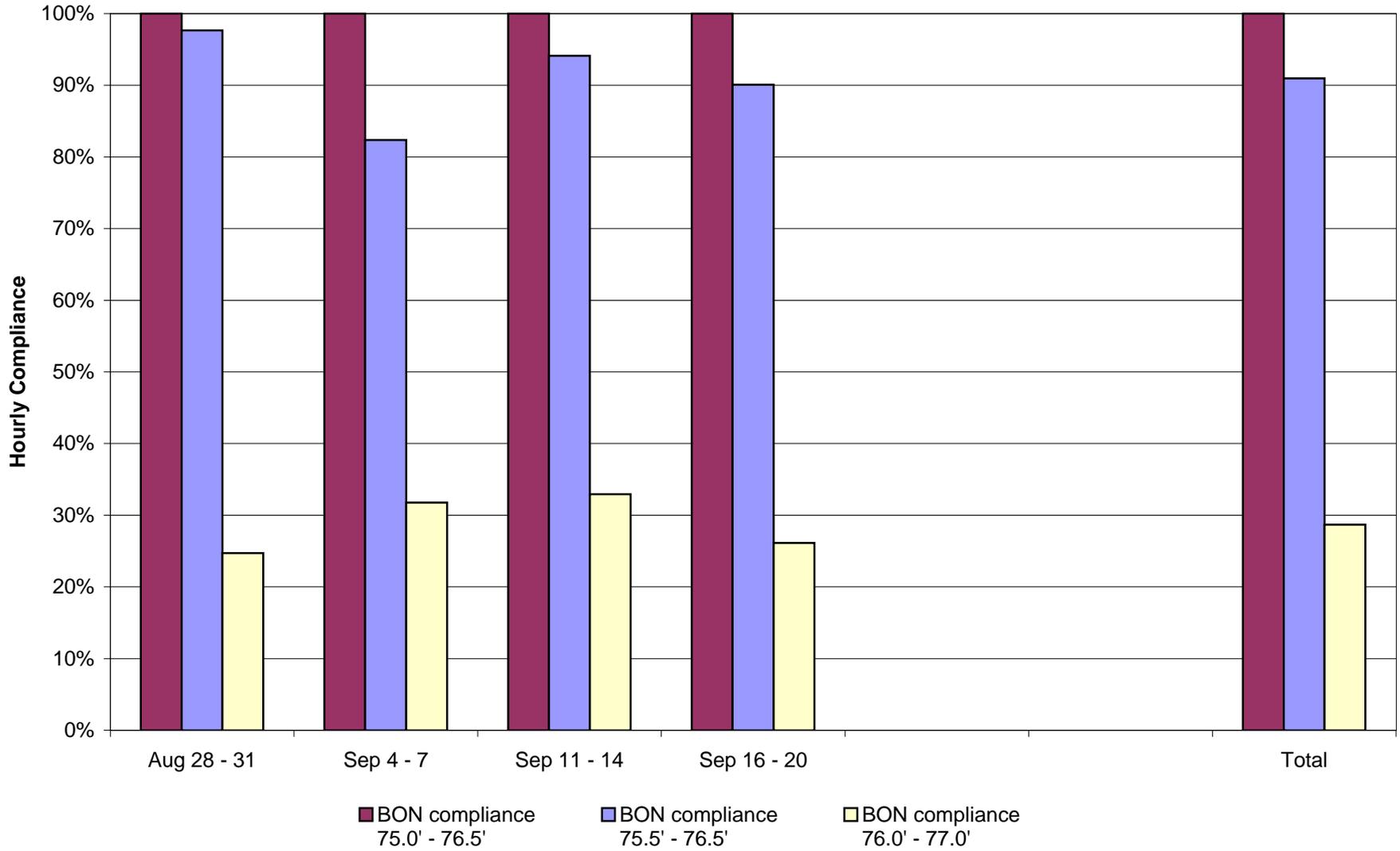
<b>301-700</b>	<b>11</b>	<b>998</b>
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**Significance  $p = 0.012$**

CHUM QUESTIONS FOR SALMON MANAGERS

- 1) What were the impacts of chum ops on Vernita Bar and visa versa?
- 2) Did last year's staggering of flows help or hurt the chum spawning?
- 3) What effect did reverse load seem to have on the Ives Island chum?
- 4) Compare and contrast the Ives & St. Clouds effects
- 5) Provide additional flow data for Hamilton Creek
- 6) What advice can be given after analyzing the data related to redd distribution and flow over the past number of years?
- 7) What additional restrictions of spawners at Hardy/Hamilton need to be made (or avoided) in the upcoming season?

### Pool Fluctuations at Bonneville (BON\_HSIRXZZA)



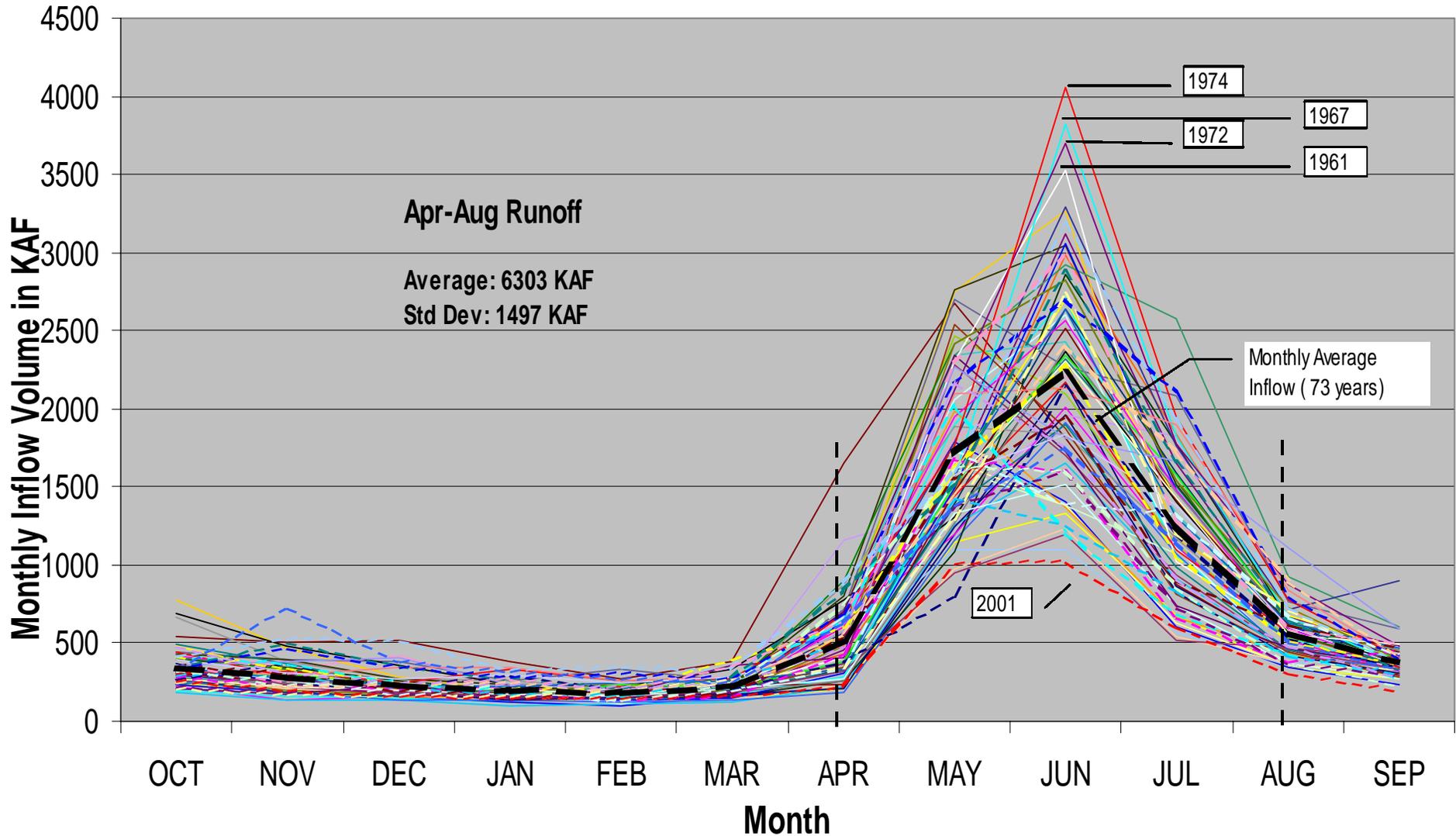
# Update of Libby Statistical Forecast Procedure to Improve Early Season Forecasts

*Randy Wortman*

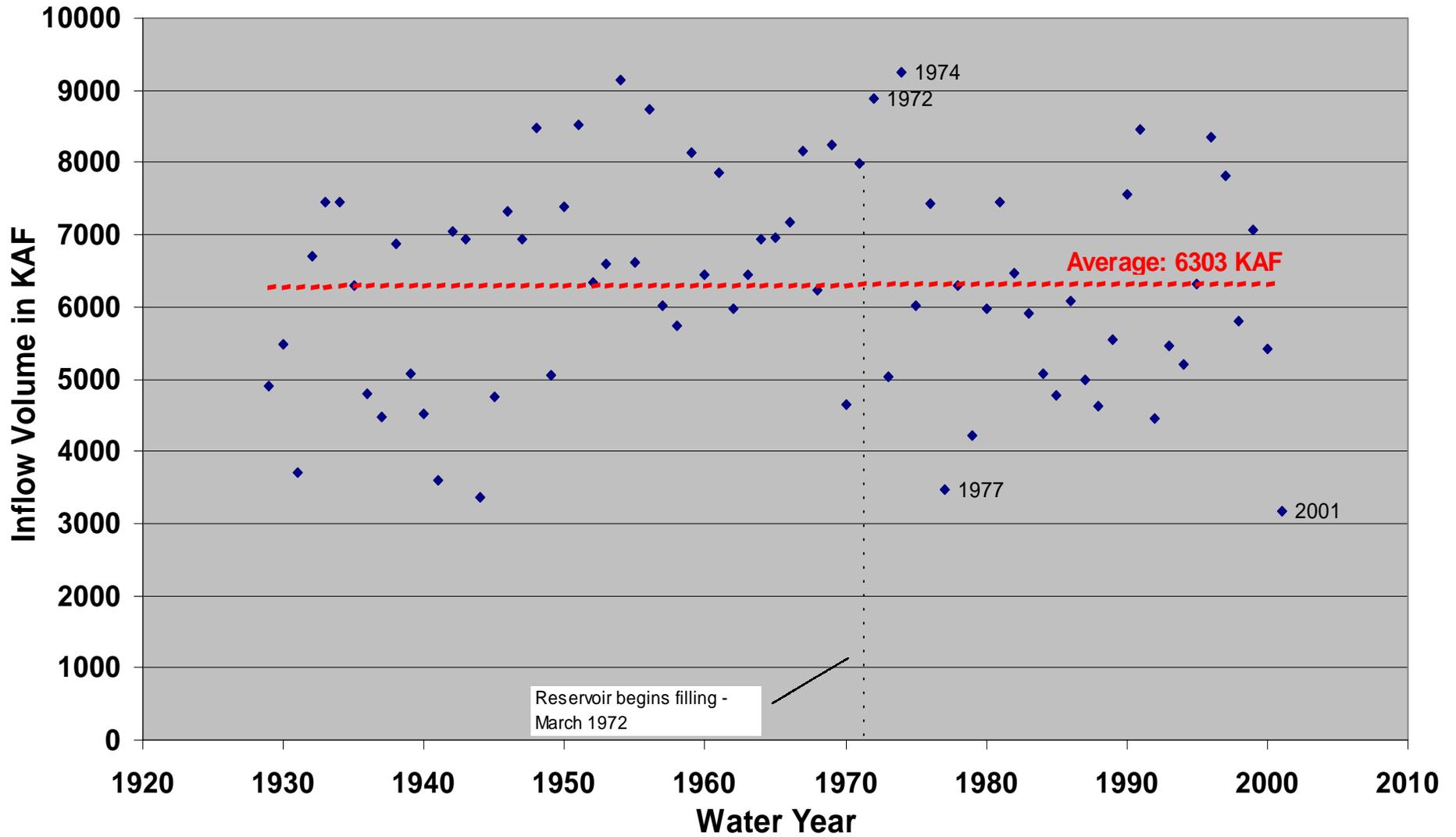


Sept 25, 2002

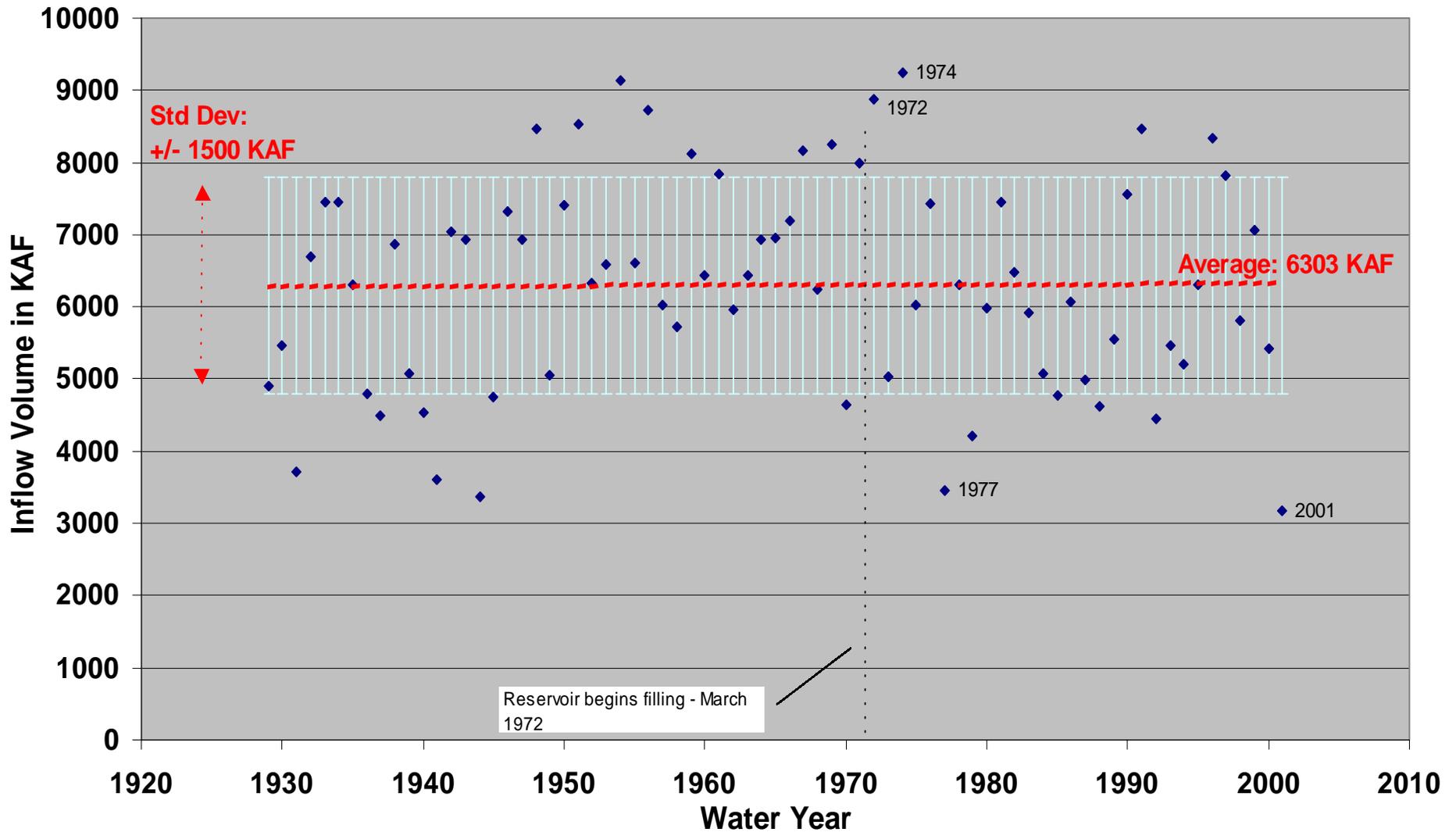
# Historic Libby Inflow 1929-2001



# Historic Apr-Aug Runoff 1929-2001

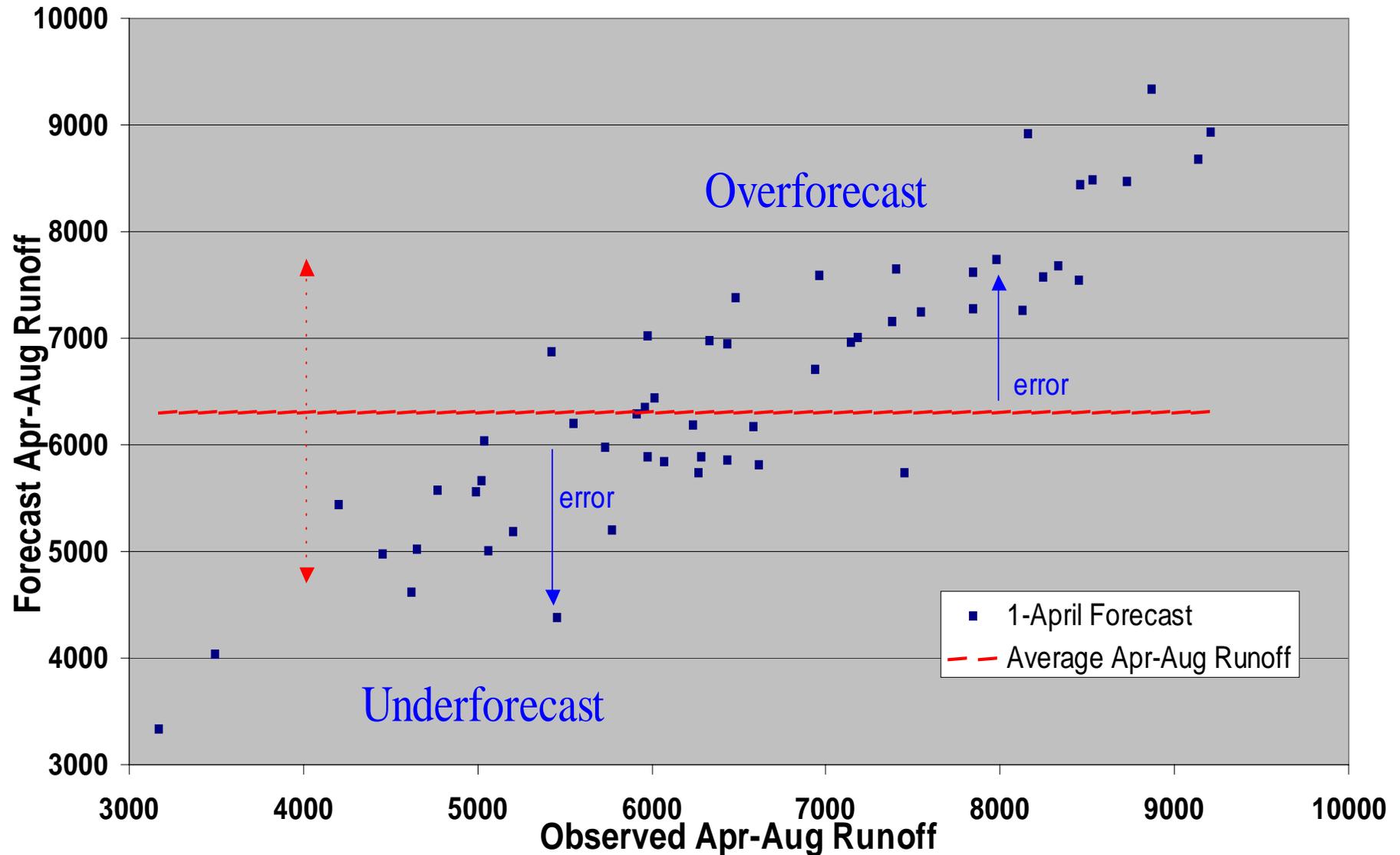


# Historic Libby Apr-Aug Runoff



# Libby Forecast Performance

## 1 April Forecast (Forecast = Average)



# Current Libby Forecast Model Equations

## Fort Steele Regression Model

$$1.309 \text{ FRO} + 0.067 \text{ SWE} + 0.068 \text{ WP} + 0.167 \text{ SP} - 5.114$$

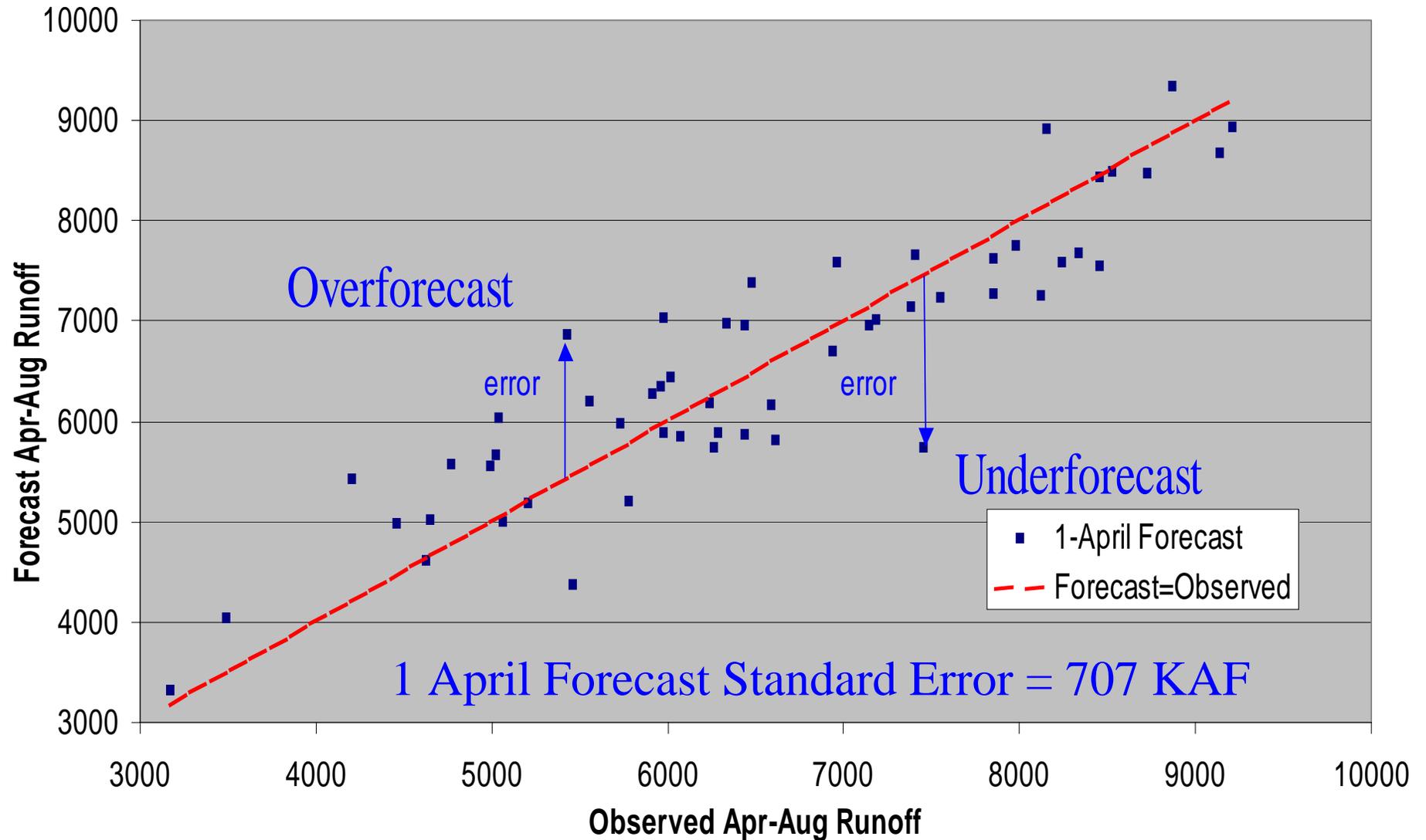
$$R^2=.914 \quad \text{Std Error}=213 \text{ KAF}$$

## Libby Local Regression Model

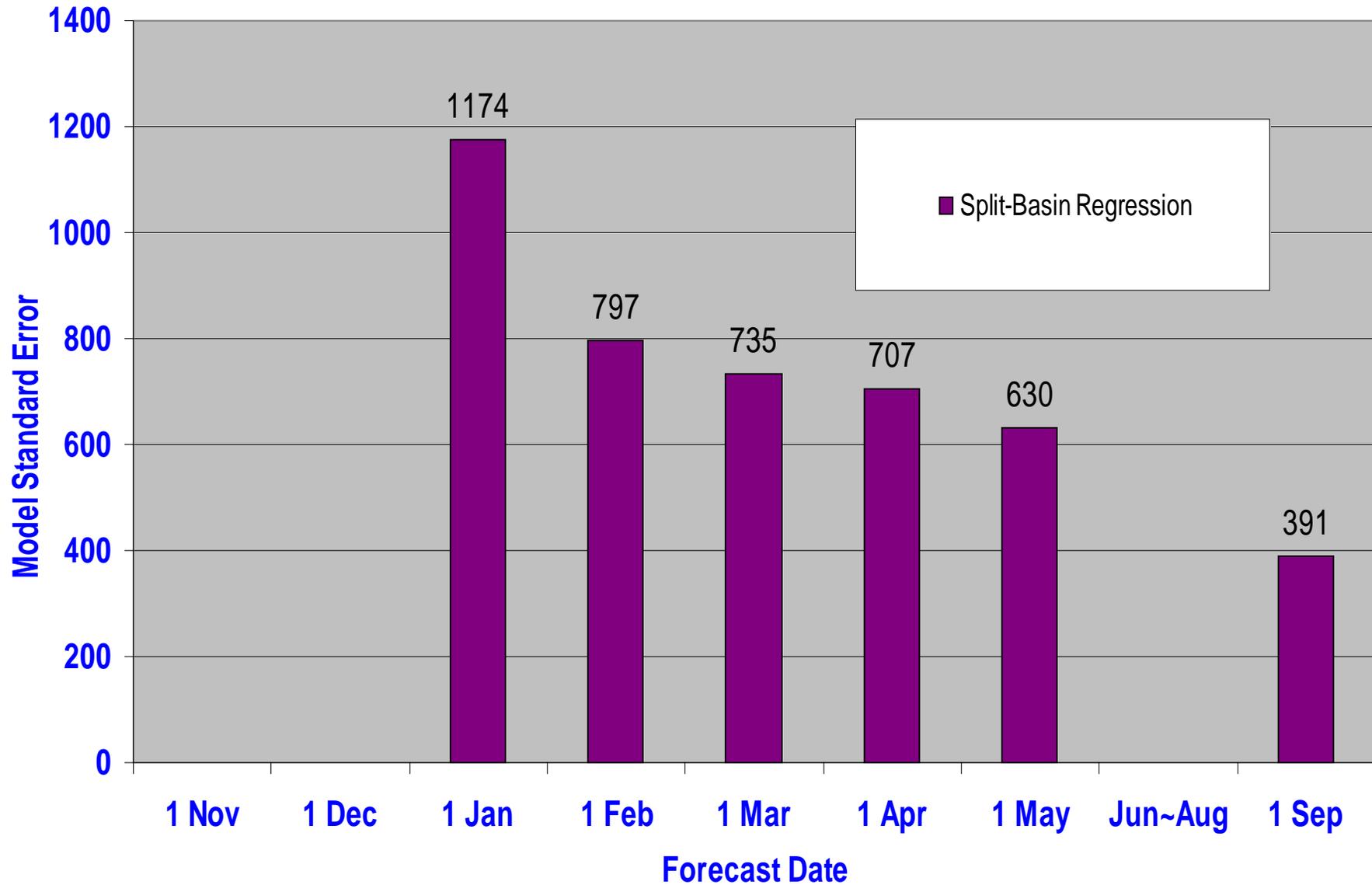
$$0.921 \text{ FRO} + 0.046 \text{ SWE} + 0.086 \text{ WP} + 0.152 \text{ SP} - 4.183$$

$$R^2=.874 \quad \text{Std Error}=262 \text{ KAF}$$

# Libby Forecast Performance – 1 April Split-Basin Regression



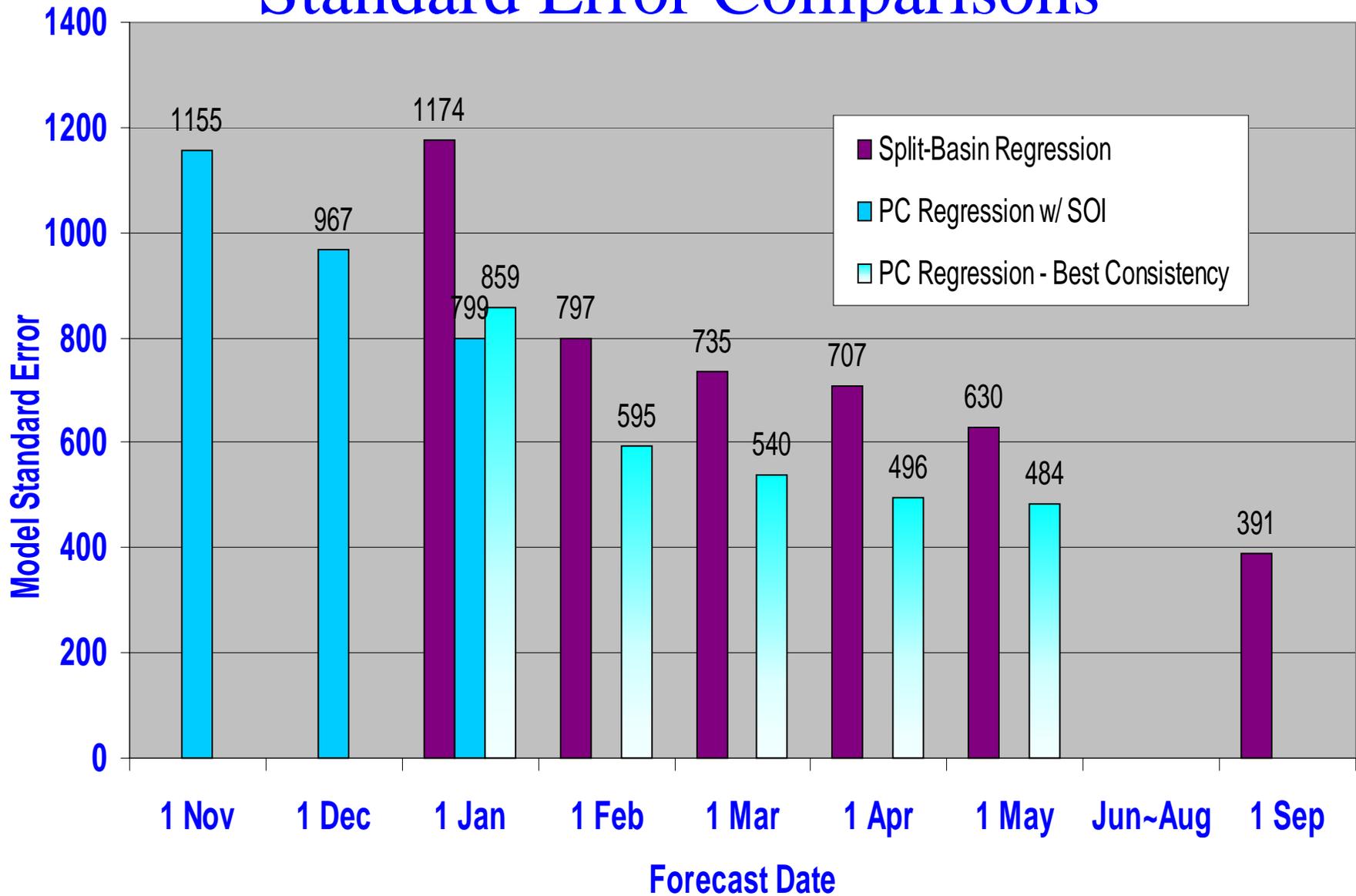
# Current Libby Forecast Model Standard Errors



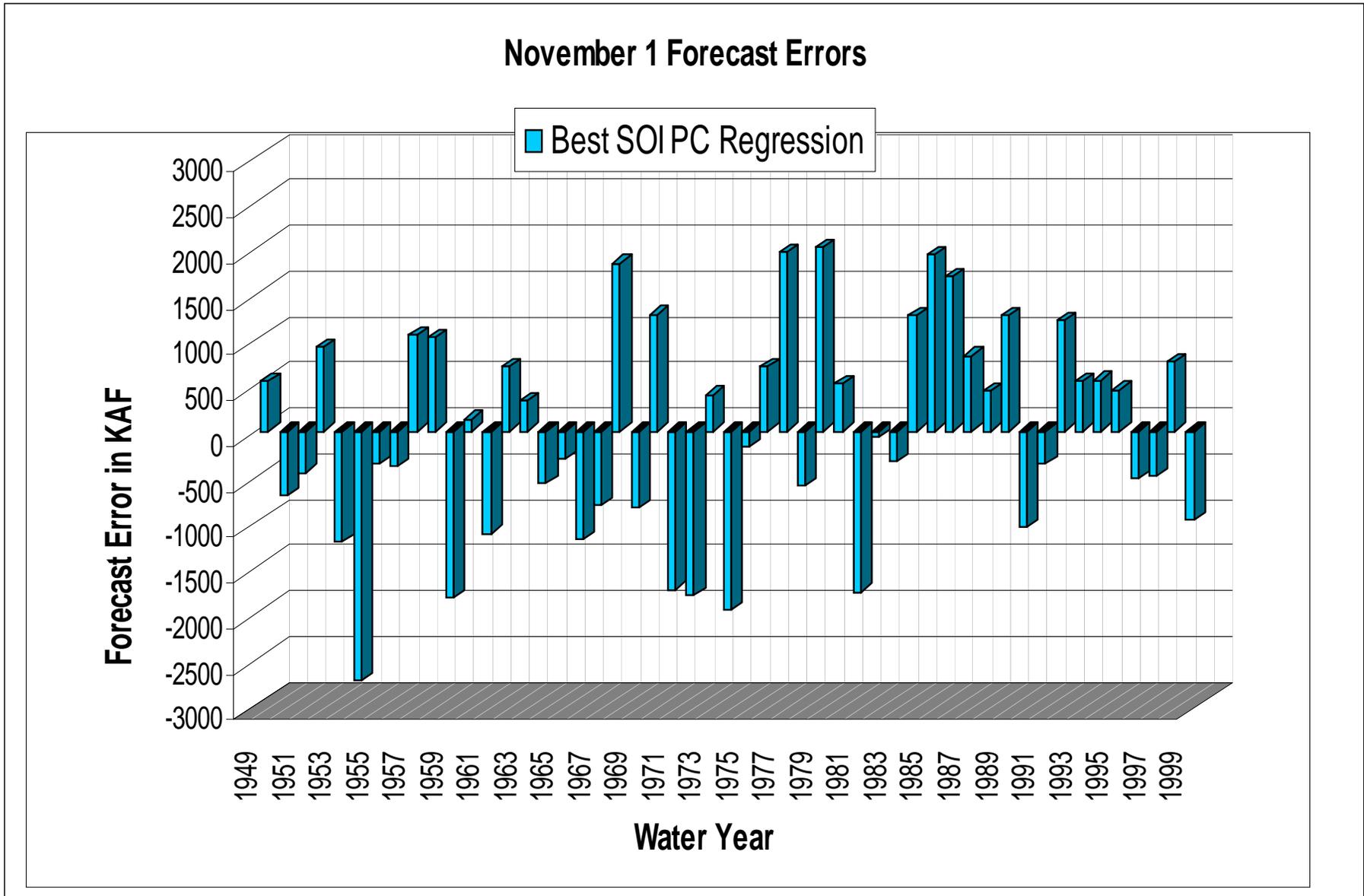
# Libby Fall Forecast Model

- Climate variable
  - Selected composite  $\Sigma$  June, July, Aug, Sept SOI
- Precipitation variables
  - 19 stations (9 MT, 2 ID, 7 BC, 1 AB)
- Snow variable
  - No reliable snow data prior to 1 January
- Principal components regression
  - 1 November, 1 December, 1 January forecasts

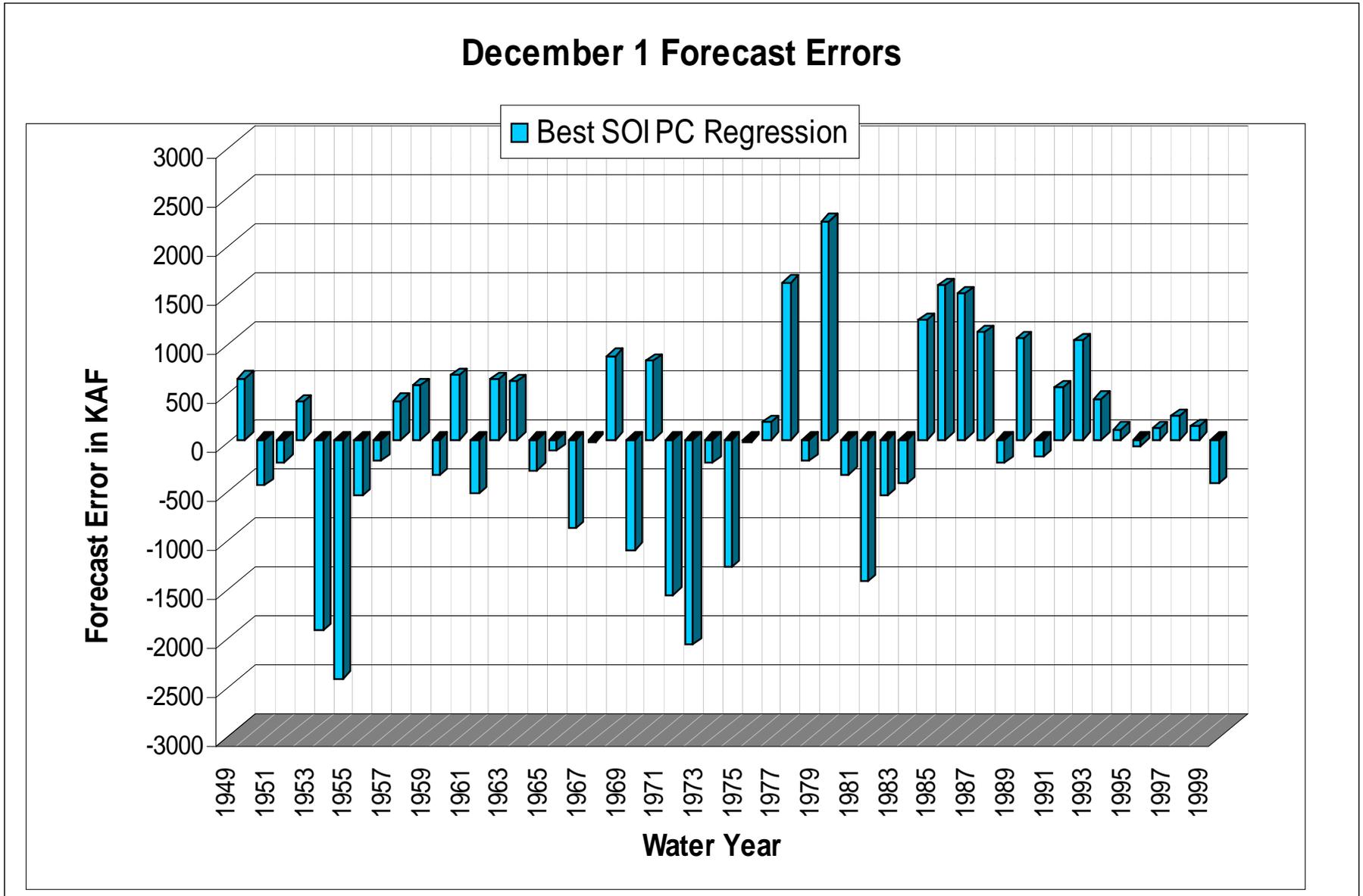
# Libby Forecast Model Standard Error Comparisons



# New Fall Libby Forecast Model – Nov Errors

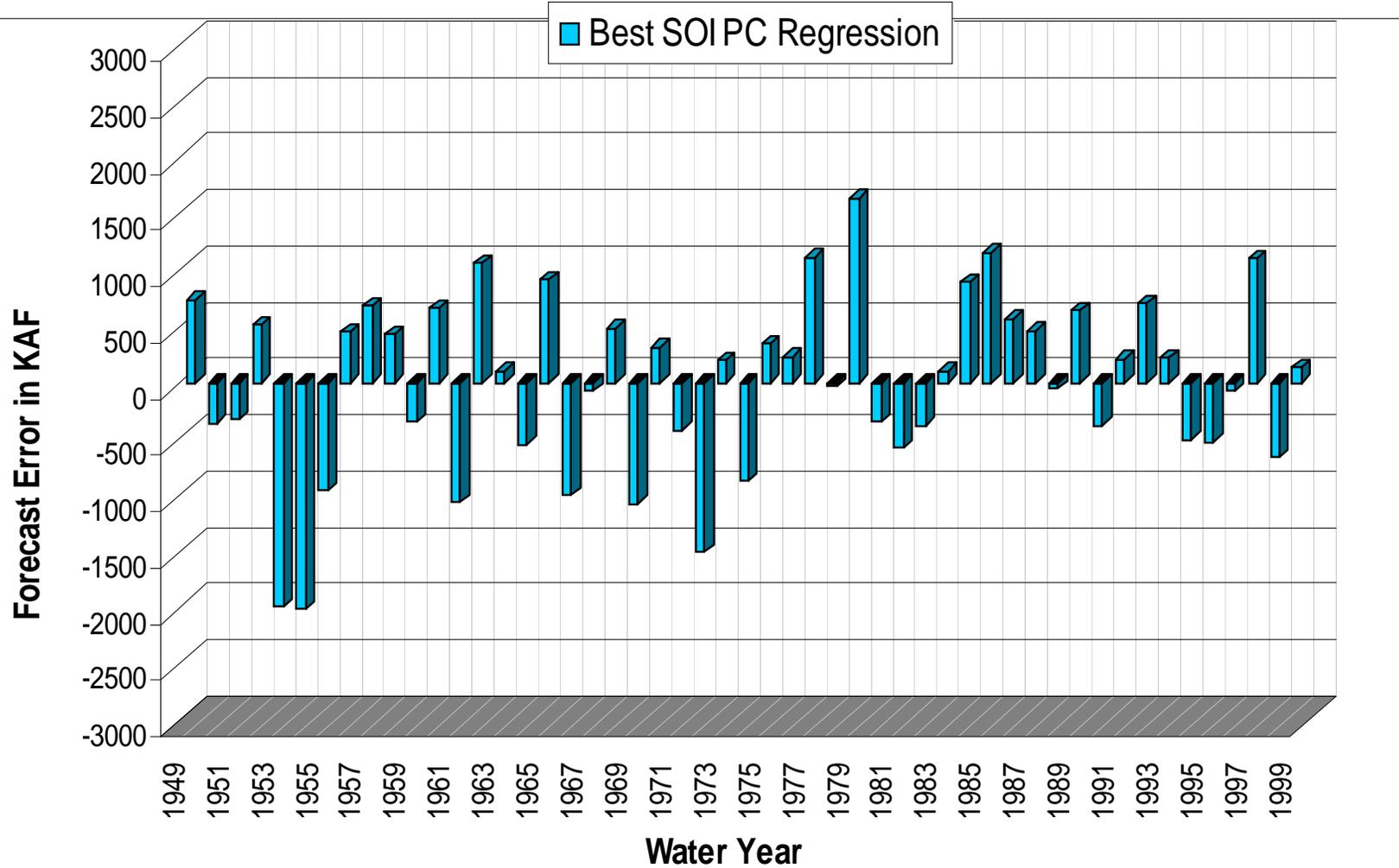


# New Fall Libby Forecast Model – Dec Errors



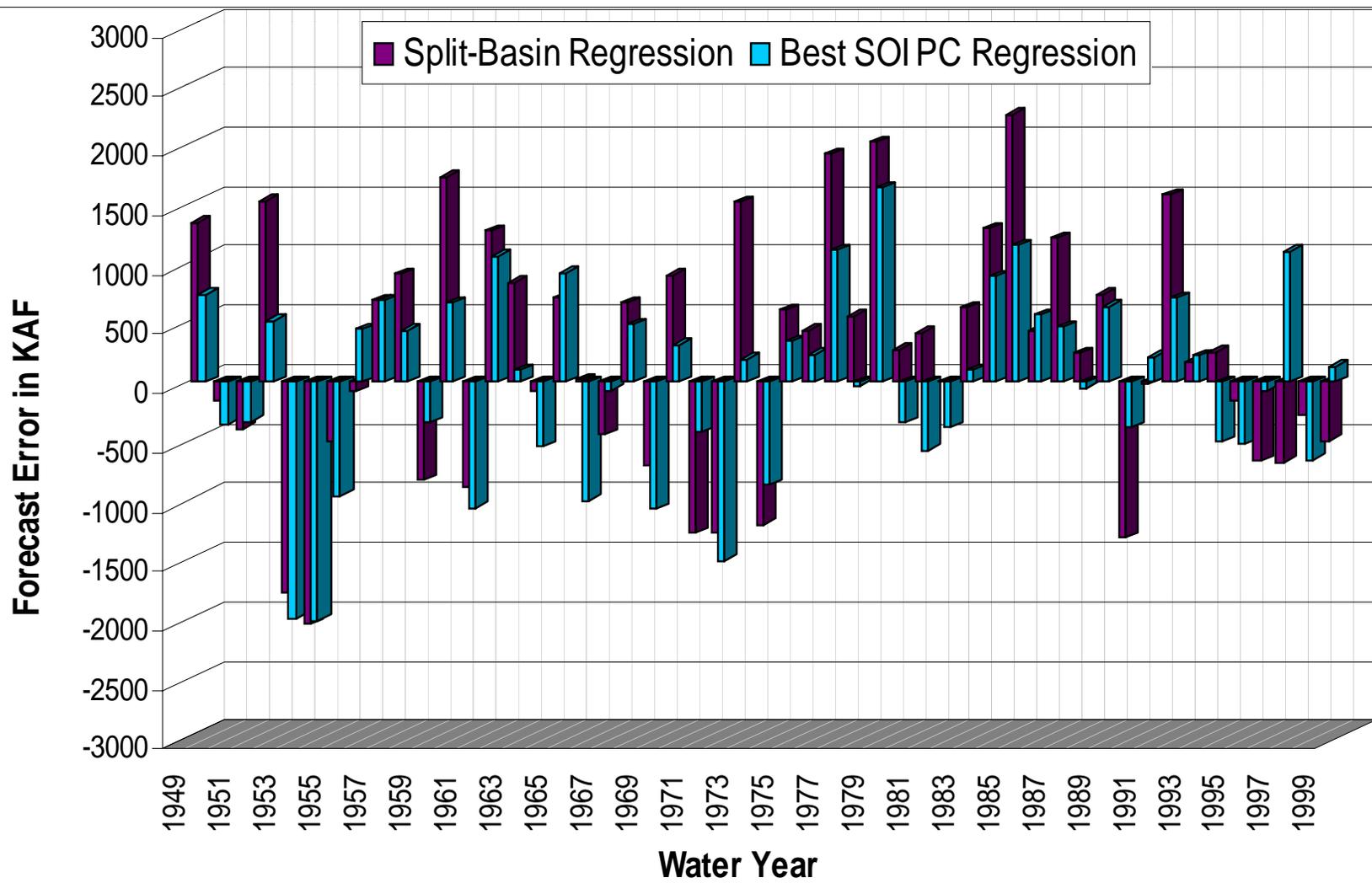
# New Fall Libby Forecast Model – Jan Errors

## January 1 Forecast Errors



# Libby Forecast Model Error Comparison

## January 1 Forecast Error Comparison



# Current Investigations

## Climate Variables

- SOI - Southern Oscillation Index
- ENSO – El Nino Southern Oscillation
- PDOI – Pacific Decadal Oscillation Index
- NPI – North Pacific Index

## Fall vs Winter Models – Separate or Merged?

- Climate driven Fall model (no snow)
- Snow/rain driven Winter model

Questions?

# Fall Forecasting Model



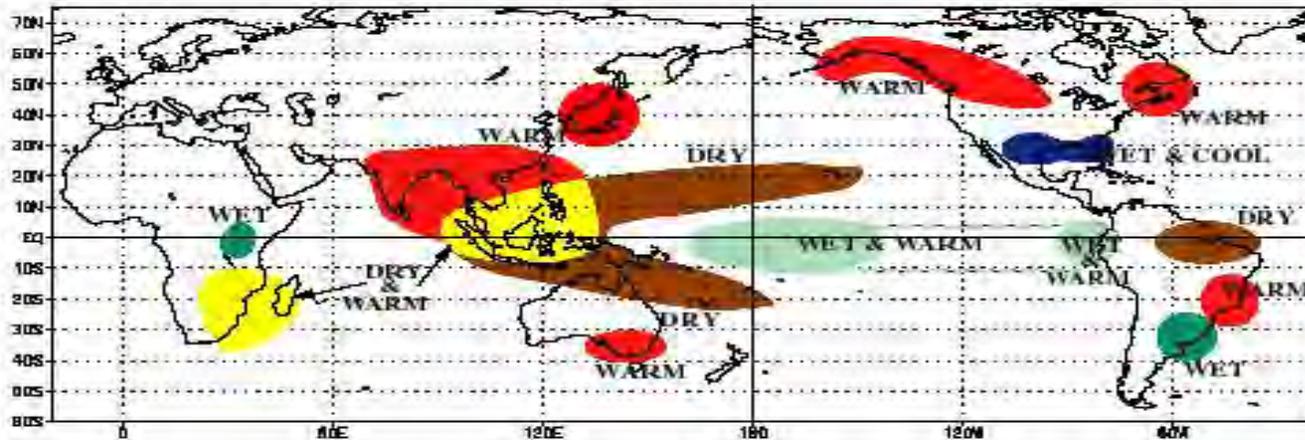
## Fall Forecast Model

Forecast <u>Date</u>	<u>R<sup>2</sup></u>	<u>#</u> <u>Variables</u>	<u># Princ.</u> <u>Comp.s</u>	<u>#</u> <u>Years</u>
1 Nov	.335	3	1	51
1 Dec	.534	5	1	51
1 Jan	.682	7	1	51

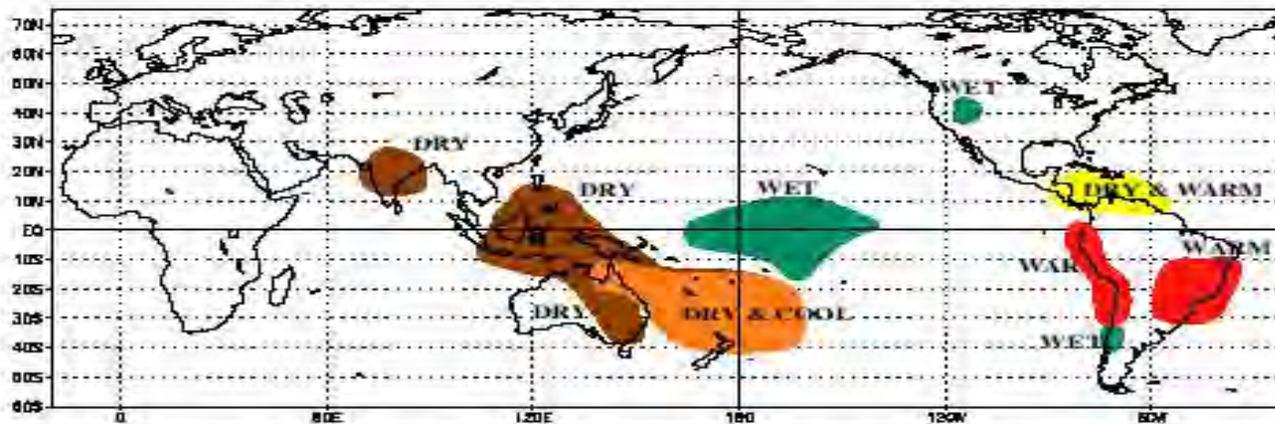
- 1 Nov = 75.0  $\Sigma$ SOI<sub>JJAS</sub> + 277.6 WGLM<sub>Oct</sub> + 141.3 GRPB<sub>Oct</sub> + 5202.7
- 1 Dec = 73.0  $\Sigma$ SOI<sub>JJAS</sub> + 230.6 WGLM<sub>Oct</sub> + 121.7 GRPB<sub>Oct</sub> +  
394.0 FTIM<sub>Nov</sub> + 433.1 BABB<sub>Nov</sub> + 4327.4
- 1 Jan = 86.6  $\Sigma$ SOI<sub>JJAS</sub> + 103.4 FREB<sub>Oct</sub> + 100.3 GRPB<sub>Oct</sub> +  
447.5 FTIM<sub>Nov</sub> + 431.1 BABB<sub>Nov</sub> + 223.1 POLM<sub>Dec</sub> +  
169.5 BFEI<sub>Dec</sub> + 3332.9

# Climate Variable – ENSO Warm

WARM EPISODE RELATIONSHIPS DECEMBER - FEBRUARY

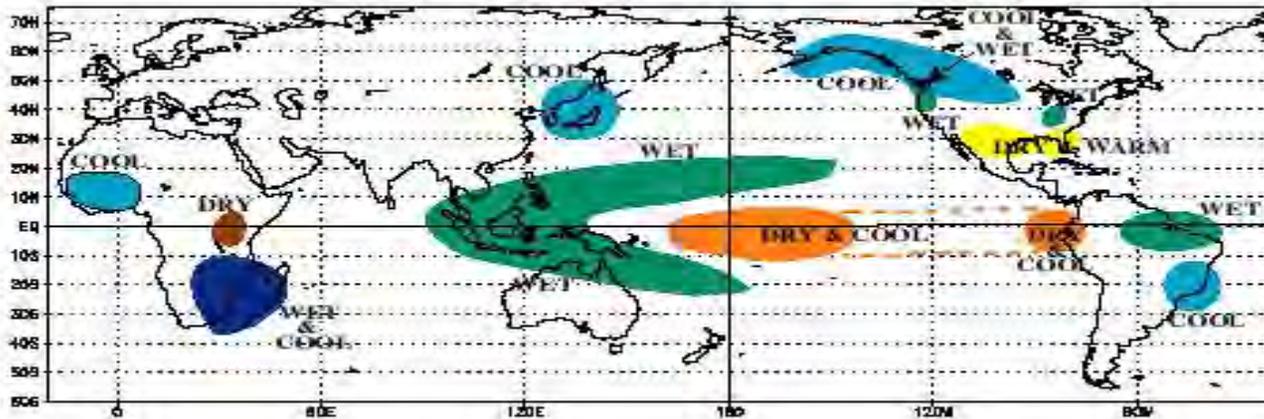


WARM EPISODE RELATIONSHIPS JUNE - AUGUST

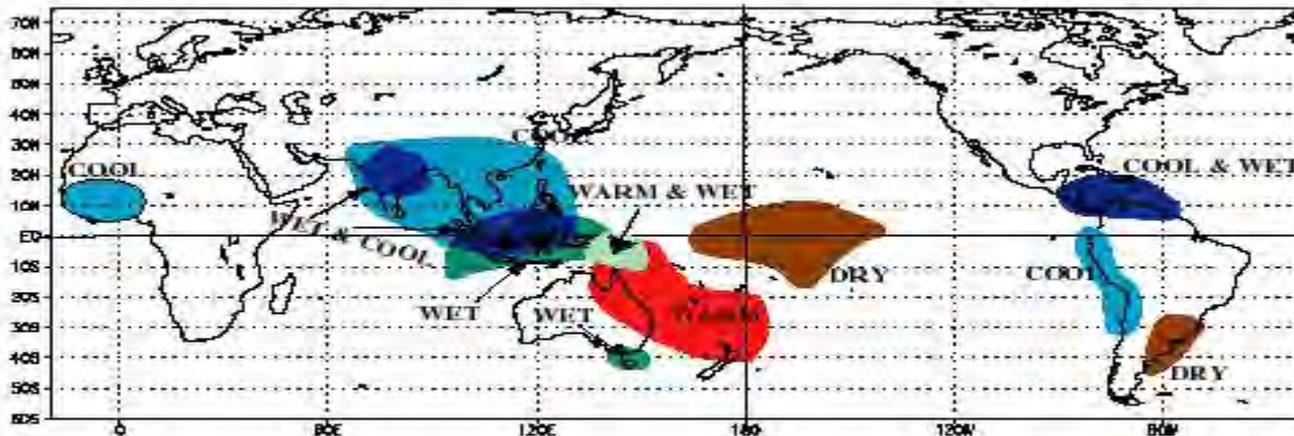


# Climate Variable – ENSO Cold

**COLD EPISODE RELATIONSHIPS DECEMBER - FEBRUARY**

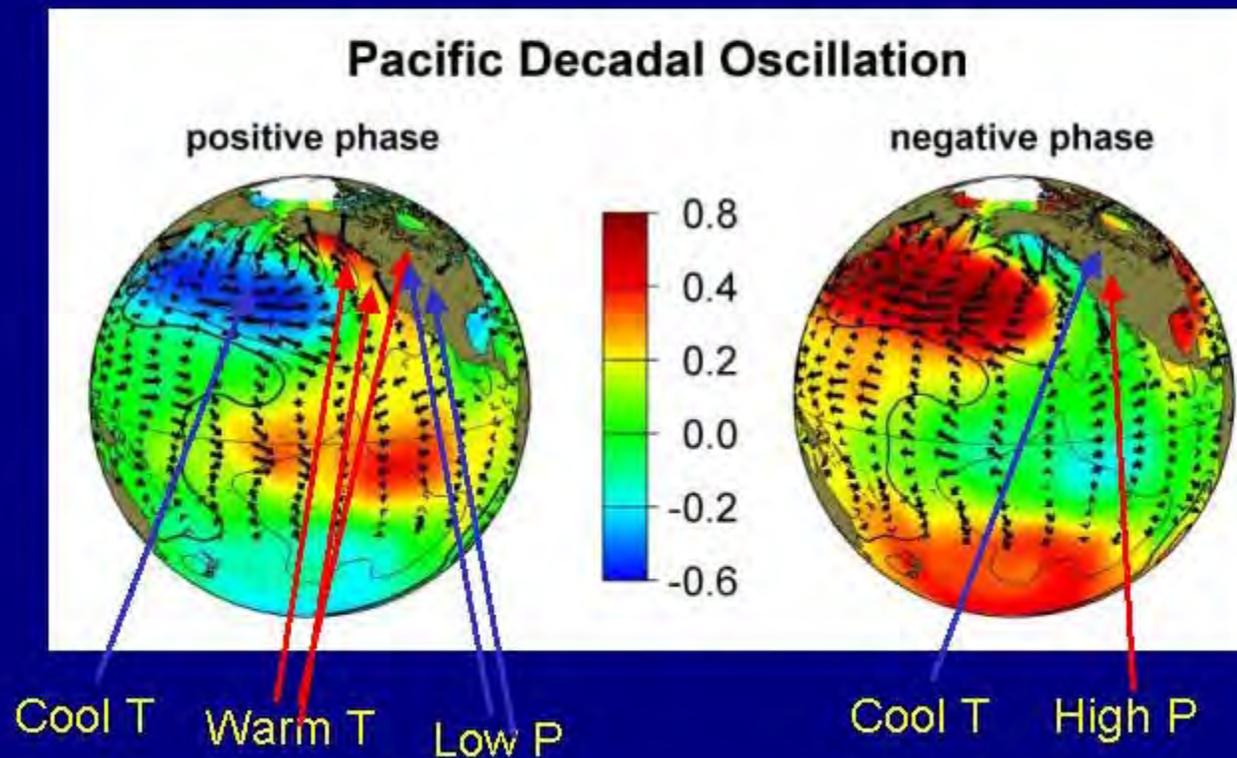


**COLD EPISODE RELATIONSHIPS JUNE - AUGUST**

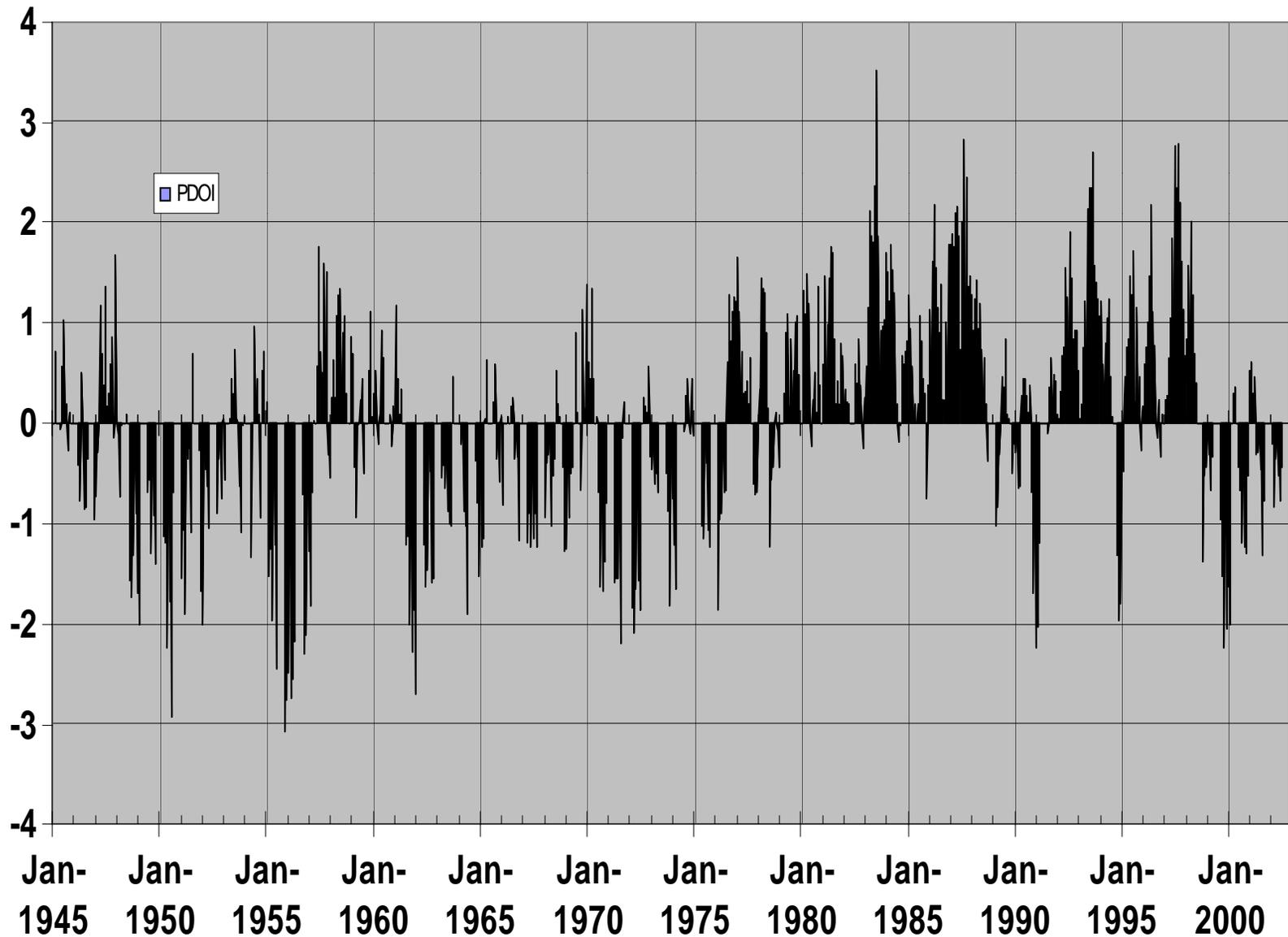


# Climate Variable - PDO

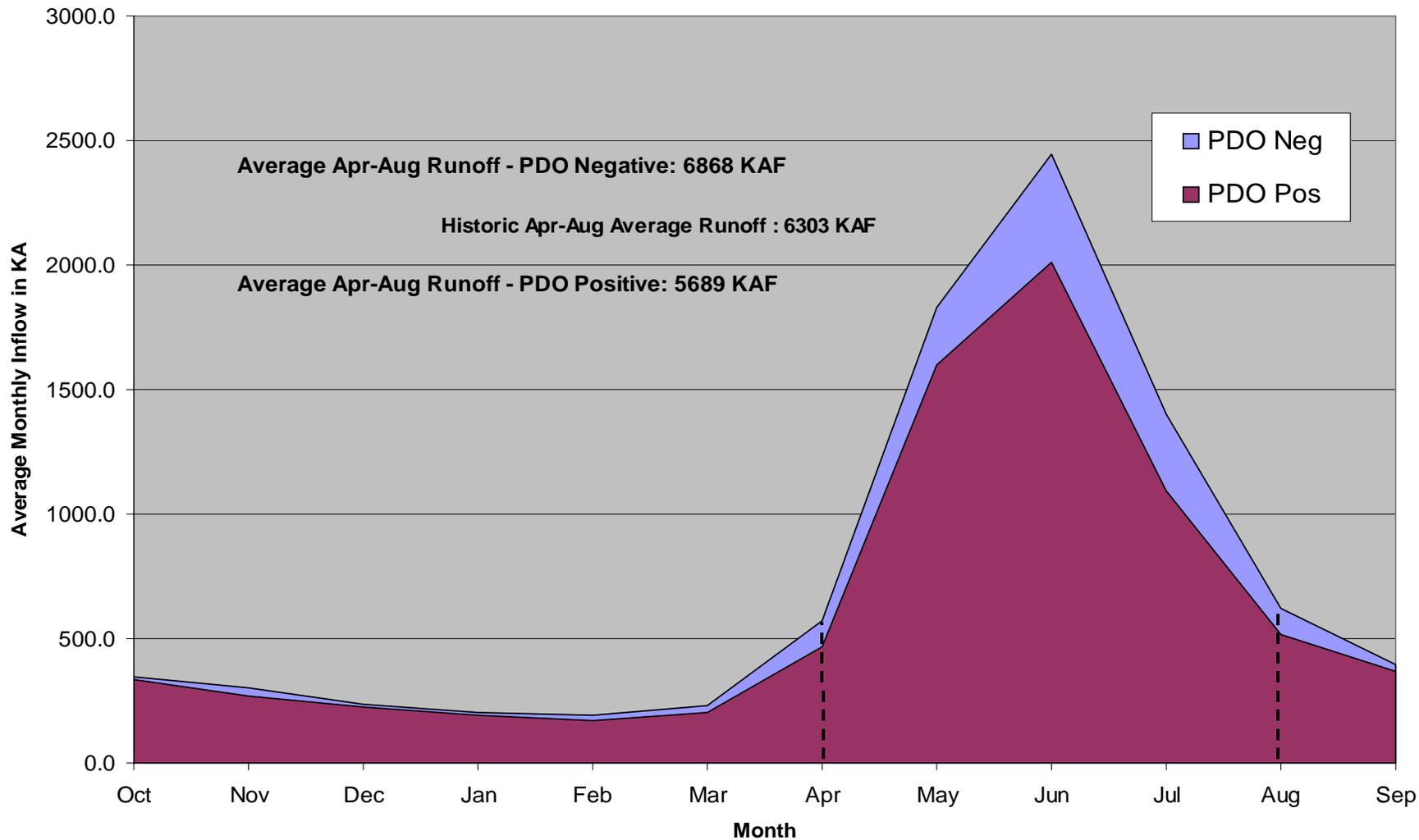
The effect of warm (positive) and cool (negative) phases of the PDO on western N American climate



# Monthly PDO Index 1945 - 2002

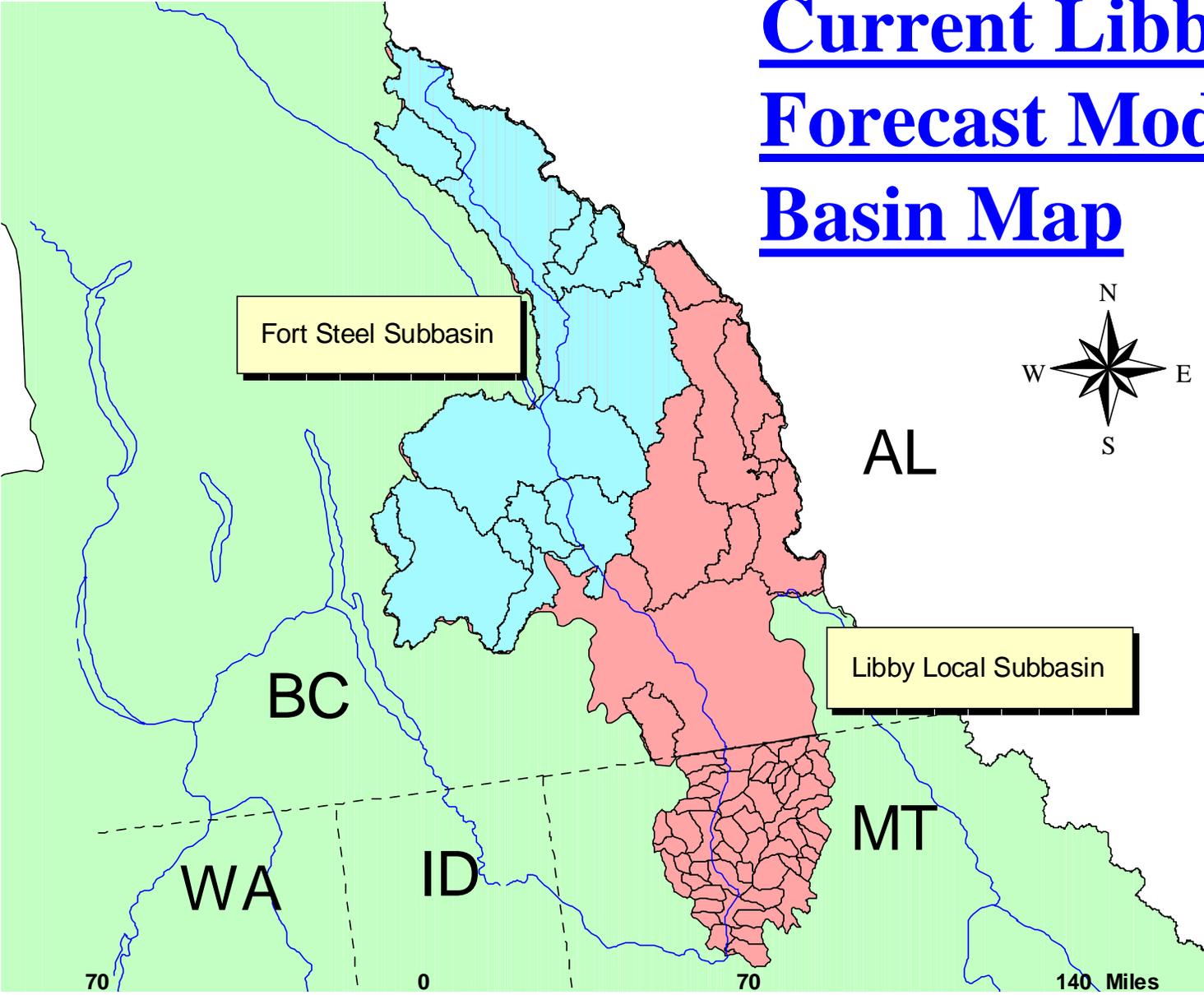


# Libby Runoff vs Oct-Dec PDO Climate Index



# Current Libby Forecast Model

# Current Libby Forecast Model – Basin Map



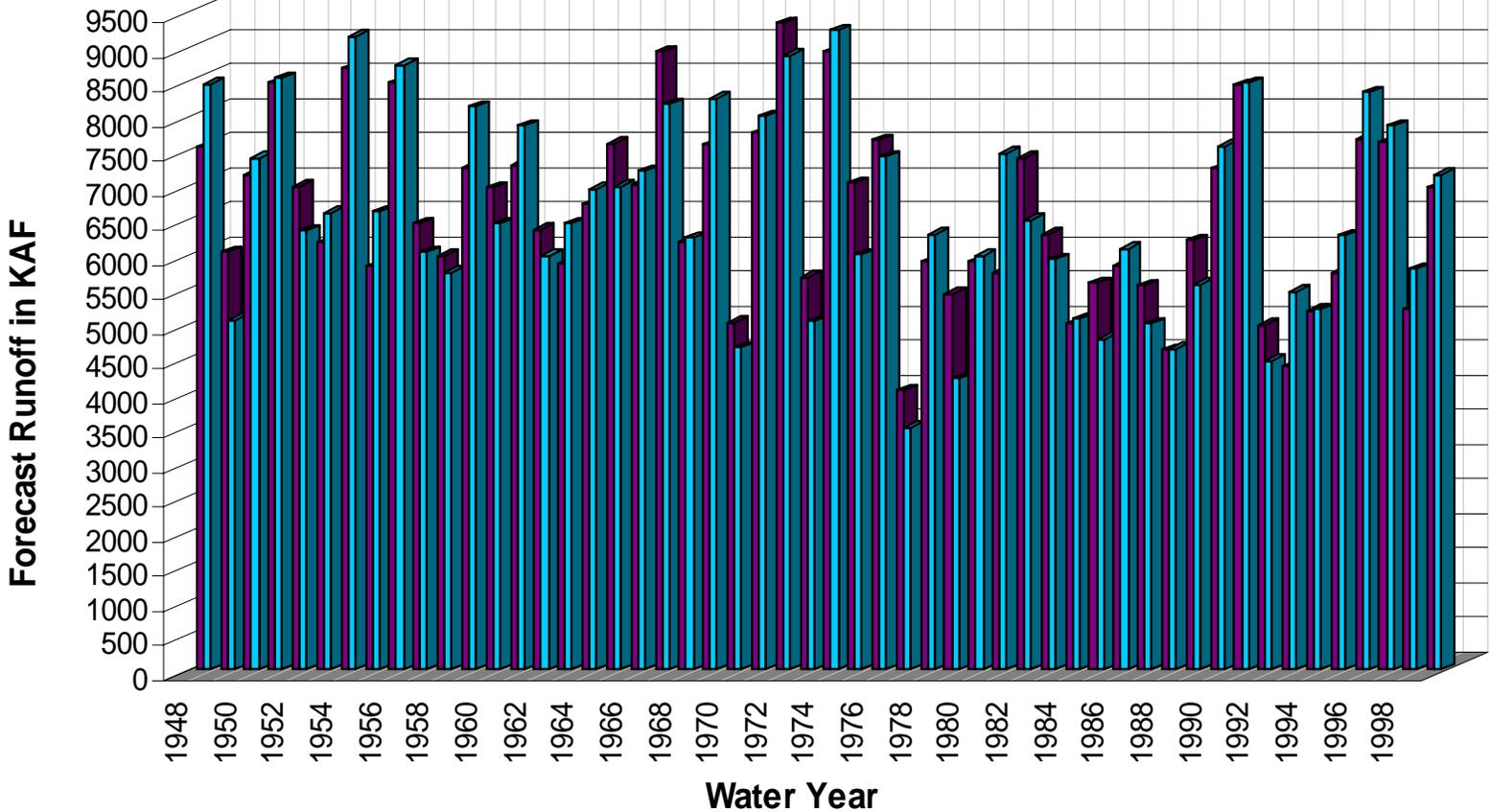
## Current Libby Forecast Model

<u>Variable</u>	<u>Ft Steel Basin</u>	<u>Libby Local Basin</u>
1 April Snow Water Equivalent (SWE)	$\Sigma$ MILB, MORB, KGHB, SUMB, MBCB, GRPB, NFRB	$\Sigma$ SUMB, NFRB, RMTM, KIMB, WSLM, 0.5*MORB
Winter (Oct--Mar) Precipitation (WP)	$\Sigma$ Oct, Nov, Dec, Jan, Feb, Mar $\Sigma$ ELKB, BABB, GRPB, BRIB, KASB	$\Sigma$ Oct, Nov, Dec, Jan, Feb, Mar $\Sigma$ ELKB, FENB, FTIM, LRSM, BONI, POLM
Spring (Apr--Aug) Precipitation (SP)	$\Sigma$ Apr, May, .8 Jun, .5 Jul, .2 Aug $\Sigma$ BRIB, KASB, PTHI, WASB, CRSB	$\Sigma$ Apr, May, .8 Jun, .5 Jul, .2 Aug $\Sigma$ FTIM, PTHI, KASB, WHFM
Fall Runoff (FRO)	$\Sigma$ Oct, Nov Ft Steele basin runoff	$\Sigma$ Oct, Nov Libby Local basin runoff

# Current Libby Forecast Model - Flows

## April 1 Apr--Aug Forecast vs Observed

■ Split-Basin Regression ■ Observed Apr-Aug



**TECHNICAL MANAGEMENT TEAM  
MEETING NOTES  
September 25, 2002  
CORPS OF ENGINEERS NORTHWESTERN DIVISION OFFICES – CUSTOM HOUSE  
PORTLAND, OREGON**

**TMT Internet Homepage: <http://www.nwd-wc.usace.army.mil/TMT/index.html>**

***1. Greeting and Introductions***

The September 25 Technical Management Team meeting was chaired by Cathy Hlebechuk of the Corps and facilitated by Donna Silverberg. The following is a distillation, not a verbatim transcript, of items discussed at the meeting and actions taken. Anyone with questions or comments about these minutes should call Hlebechuk at 503/808-3936.

***2. Bonneville PH2 Corner Collector Construction Schedule.***

Doug Clarke of the Corps, project manager for the B2 corner collector project, briefed the TOC on upcoming construction plans and associated special operations needed. He distributed a handout that described the background, current status, construction actions and potential issues associated with the corner collector project. Clarke explained that, basically, what the Corps will be doing is modifying the existing ice and trash sluiceway at Bonneville's second powerhouse; 1998 testing showed that a significant number of juveniles would pass through this chute. The chute was not designed to pass fish effectively, however, Clarke said, so what we're doing is putting a new gate on the upstream end to increase flow through the system, as well as making some improvements inside the powerhouse to transition flow more smoothly. We will also be constructing a transportation channel all the way alongside Cascade Island.

With respect to construction actions, Clarke said that during the construction period (October 17-February 2003) the Corps is requesting a gradually-increasing series of target tailwater elevations at Bonneville, from 14 feet up to 21 feet. Plunge pool, support channel and downstream monolith construction will take place from November 15 through February 28; low-water work, including the placement of the chute on the monolith, will be accomplished from July 2003 through November 2003.

Clarke said the Corps has identified the following potential issues:

- Need for special operations for up to four hours of blasting/bubble curtain to remove several large underwater boulders (the Corps is developing alternatives to blasting, but if blasting is needed, it will take place in early December 2002)
- Chum operations (changing tailwater elevation could impact low-water construction; there will be minimum flows at PH2, up to four units during the in-water work period).

Clarke noted that the total cost of this project is \$55 million; the Corps awarded a \$32 million construction project in July 2002. The contract will be completed in December 2003.

The group discussed the potential impact of tidal effects on the action agencies' ability to maintain the requested tailwater range at Bonneville. In response to a question, Clarke said the contractor will be working 24-hour shifts six days a week. It's important that we get as much done as possible this year, he said, because if we have a high runoff year in 2003, we may not be able to complete this project by next year. Any chance you could start the in-water work sooner? Scott Bettin asked. The construction task force is meeting on October 4 to go through the most recent proposal from the contractor, Clarke replied; there is a chance that some of the work could be done a little sooner, but not a significant amount.

The group discussed the operational nuances associated with this project. Clarke said that is all he has to report at this time; once we make a decision about whether or not blasting will be necessary, we will coordinate further with TMT, he said.

### ***3. Libby November/December Volume Forecast.***

Hlebechuk introduced Randy Wortman of the Corps' Hydrologic Engineering Branch, noting that this arm of the Corps is charged with developing the official monthly Libby and Dworshak volume forecasts during the winter months. She noted that Wortman has created a method for developing a fall Libby forecast; usually, we don't have a Libby forecast until the January final forecast comes out. Basically the Corps is experimenting with this tool, in the hopes that we might be able to get a glimpse of what's going to happen at Libby during the winter, so that we can make some decisions about how to operate that project, Hlebechuk said. The question for TMT to consider is, do we want to adopt this tool and base some decisions on it this year? Hlebechuk said.

Wortman then led the TMT through a presentation titled "Update of Libby Statistical Forecast Procedure to Improve Early-Season Forecasts." This presentation touched on the following major subject areas:

- Historic Libby inflow, 1929-2001 (graph)
- Historic April-August runoff, 1929-2001 (graph)
- Historic Libby April-August runoff (graph)
- Libby forecast performance – April 1 forecast (forecast = average) (graph)
- Current Libby forecast model equations
- Libby forecast performance – April 1 split-basin regression (graph)
- Current Libby forecast model standard errors (graph)
- The Libby fall forecast model (graph)
- Libby forecast model standard error comparison (graph)
- New Libby forecast model – November errors, 1949-1999 (graph)
- New Libby forecast model – December errors, 1949-1999 (graph)
- Libby forecast model error comparison (graph)
- Current investigations – climate variables, fall vs. winter models

Wortman also provided information on some of the climate variables factored into this model, including the southern oscillation index (SOI) and Pacific decadal oscillation (PDO) and its correlation with Libby runoff volumes. He ended his presentation with a graph showing the current Libby forecast model (flows) – split-basin regression vs. observed for the period 1948-1998.

Your gut instinct is that you are comfortable with this new approach, and would recommend switching models? Bettin asked. Yes, Wortman replied – the new approach, on the average, is going to give you better guidance, despite the fact that it has errors and occasional anomalies. The TMT devoted a few minutes of discussion to the differences between the new and old Libby forecasting methods; ultimately, it was agreed that the TMT will use the new Libby modeling approach in its 2002/2003 decision-making. The model will be available on the Internet, for those who want to investigate it further, Hlebechuk added.

#### ***4. Burbot Life History.***

Vaughn from IDFG led this presentation, touching on the following major topics:

- Burbot's circumpolar distribution and unique taxonomy – burbot are the world's only species of freshwater cod
- Burbot size records (up to 24 pounds)
- Burbot growth and longevity (up to 15 years)
- Burbot life stages and food
- Burbot spawning synchrony
- Burbot hatching time
- Burbot swimming endurance
- Burbot activity – diurnal and time of year
- Burbot travel range and speed
- Sensitive burbot life history factors
- Transboundary burbot in the Kootenai River
- Primary burbot study areas (map)
- Objectives of the burbot study – 1993-1994, 1995-present
- Current Kootenai River burbot population estimates (about 540 fish, nearing extinction levels)
- The current burbot study structure, parameters and objectives
- What is needed, currently (an international conservation strategy has been prepared, but a conservation agreement is needed).

What is the status of the conservation agreement? Shane Scott asked. We're working very hard to make that happen, Vaughn replied – the Kootenai Tribe of Idaho, the Idaho Office of Species Conservation, IDFG, Boundary County Commissioners, the City of Bonners Ferry, staff members from the Idaho Congressional delegation, BPA, the B.C. Ministry of Water, Land and Air and the USFWS are all involved in that effort. Are there any insurmountable obstacles in front of such an agreement? We hope there's nothing insurmountable, replied Bob Hallock, but everyone has their interest in this issue, and we need to know exactly what those interests are. We would like to get this agreement in place as soon as possible, he said, but there is still substantial progress to be made. At Scott's request, Hlebechuk said she will make copies of the burbot conservation strategy available to the TMT.

Hallock added that the Kootenai Tribe of Idaho, the Idaho Office of Species Conservation, IDFG, Boundary County Commissioners, the City of Bonners Ferry and USFWS have also collectively endorsed an SOR, SOR 2002-B1, covering a request for limited releases

from Libby Dam for the migration and spawning of burbot in the Kootenai River. This SOR requests the following specific actions:

- Maintain low flows in the Lower Kootenai River below Bonners Ferry for 45 days between December 15 and January 31.
- Flows would be a combination of local runoff and releases from Libby Dam ranging between 4 Kcfs and 10.6 Kcfs.
- Preferably, the releases from Libby Dam would remain below 7.3 Kcfs, the median
- Operate the selective withdrawal system at Libby Dam to release the coldest available water during December and January if a temperature gradient exists within the reservoir.
- The requested operation is to be implemented within flood control constraints.
- The power system is to continue to be operated to assure system stability and public safety.
- The existing BiOp ramping rates will remain in effect.
- This request is subject to favorable analysis of the effects on listed species, and in-season mitigation or adjustments to satisfy their needs.

You're hoping to implement this SOR this year? Wagner asked. Yes, Hallock replied. And is it fair to say that you don't need a decision on this SOR today, but that you would like it to be on the TMT's radar screen as they make decisions about fall and winter operations? Silverberg asked. Yes, Hallock replied.

#### ***5. 2003 Water Management Plan.***

Scott Boyd said the final draft of the 2003 Water Management Plan has been posted to the TMT website; our hope is to issue a final document by September 30, he said. We're also hoping that Appendix 4, the water quality appendix, will also be finalized by September 30, said Boyd. Dick Cassidy noted that he had requested and received comments on Appendix 4 from the Water Quality Team. We should have a draft of the fall/winter update in time for discussion at the October 23 TMT meeting, Hlebechuk added. With respect to the emergency protocols, she added, the action agencies are still discussing those. How do the salmon managers feel about the current emergency protocols list and notification procedures? she asked. The Salmon Managers will give the Action Agencies feedback on the protocol for notification of emergencies. There is some debate over how TMT members should receive notification and who should send out the notification. Discussions will continue on this issue at the next meeting.

#### ***6. Lower River Operations for Chum.***

It was agreed to defer discussion of this agenda item until the next TMT meeting.

#### ***7. Current System Conditions.***

Hlebechuk presented final numbers on the 2002 Libby/Canada swap. Libby ended up 63 Ksfd above its normal August 31 elevation of 2439, she said – elevation 2442. Because of the difference in inflows between the August 8 and August 22 TSRs, however, there was inadvertent storage in Canada, 35 Ksfd above the TSR target. After a brief discussion, it was agreed that a visual aid would be helpful in trying to understand this issue. Norris said Hungry Horse ended August at elevation 3544.7 feet, 103 KAF above its normal August 31 elevation of 3540 feet.

## **8. Presentation on BPA Financial Choices.**

Chuck Maichel from BPA gave the TMT a presentations covering the current Bonneville financial crisis and the “Financial Choices” public process that has been initiated to take regional input on how best to respond to the crisis. Maichel touched on the following major topic areas:

### **Original Expectations**

- The 1998 Cost Review formed the foundation of the expense targets included in the rate case.
- In early 2000, Bonneville set its base rates for FY’02-FY’06 with the expectation that it could achieve its financial objectives. These included:
- Achieving all of BPA’s public purpose responsibilities, including conservation and renewable resources
- Meeting 1,700 aMW load requests above the federal system generation capability at prices in the \$28/Mwh range
- Meeting Fish & Wildlife obligations, including an average increase of \$100 million per year
- Increasing internal operating efficiencies and decreasing costs within BPA, the Corps, Reclamation and the Columbia Generating Station
- Achieving higher than historic levels of surplus sales and revenue and
- Achieving an average wholesale power rate of around \$20/Mwh for “flat” power – no increase over 1996 base rates

However, as all of you are aware, the environment has changed, Maichel said:

- Customers requested 1,500 aMW more service, for a total of 3,200 aMW in excess of the federal system’s generating capability, requiring large purchases from the market at higher-than-expected prices.
- In order to keep rates as low as possible and avoid the need to re-set BPA’s base rates with its customers, BPA adopted a customer proposal to address the significant financial uncertainty through the five-year rate period by implementing a three-part cost-recovery adjustment clause (CRAC) provision in its power rate schedule.
- Market prices skyrocketed, causing the cost of augmenting the system to rise dramatically compared to what was assumed in the base rates. Most of the cost is covered by the Loab-Based (LB) CRAC.
- The non-power portion of the Residential Exchange settlement costs increased as a consequence of rate case negotiations.
- BPA lost \$260 million in FY’01 due to a volatile energy market and drought conditions in the Pacific Northwest.
- We consumed most of our Fish Cost Contingency Fund (FCCF) in FY’01, leaving little for future use.
- We ended FY’01 with low reservoirs, requiring water to be used for refill in FY’02 instead of generation.
- Market prices have since dropped dramatically, reducing the expected revenue from surplus sales.
- Investments in conservation and, since September 2001, increased security measures to

ensure BPA meets its mission obligations, have resulted in increased program expense levels.

Maichel went through a series of graphs showing the major drivers of adverse financial impacts for the FY'02-FY'06 period, as well as the total FY'03-'06 net increase in program costs by major program category. He then moved on to the topic of "Uncertainty Around BPA's Financial Outlook:"

- Given the combination of reduced revenue from surplus sales, the net program cost increases and the reduction in 4(h)(10)(C) credits,
- The total net revenue for FY'02-'06 is projected at \$860 million, with no use of Safety-Net (SN) CRAC and no further use of Financial-Based (FB) CRAC after FY'03.
- There is a 20% probability that the net revenue loss could be eliminated if prices are higher than expected or if we experience greater than average hydro conditions.
- However, there is also a 20% probability that the net revenue loss could double in the event of lower-than-expected prices or lower-than-average hydro conditions.
- Plans to address this net revenue gap need to recognize this large range of uncertainty.

Maichel then moved on to the topic of "Regional Discussion:"

- BPA intends to put a four-year financial plan in place to address its financial condition by the end of this year. The plan must acknowledge the range of uncertainty around BPA's expected financial outlook (e.g., low water, low market prices)
- Before deciding on the plan, BPA needs regional input on the approaches it is considering:

1. Simply letting the established rate mechanisms (FB and SN CRAC) play out over the next four years (which includes cost cuts and capital and expense reductions already in place)
2. Cutting more costs (both capital and expense) down to levels that put mission accomplishments at risk and raising rates as necessary to cover the remaining gap.
3. Taking more risk in paying the Treasury (no SN CRAC).
4. Using financial tools to manage net revenue and cash shortfalls and to push the financial problem into the future.
5. Making a one-time adjustment to FY'03-'06 rates through SN CRAC to achieve a five-year 80% TPP, then applying no further FB or SN CRAC adjustments. Potentially combined with using cash tools to increase FY'03 TPP.

Maichel noted that the public comment period on the "Financial Choices" process ends September 30. After that, he said, BPA will take about a month to evaluate its expenses and the comments received, to analyze various scenarios, and to develop some alternatives for Steve Wright's consideration. He will then be making his final decisions, and announcing them to the region by mid-November, Maichel said. Any rate increases imposed through this process would be imposed beginning in April 2003, he added.

Has Bonneville actually entered into contracts to deliver that 3,200 aMW in power over and above the capacity of the federal system? Wagner asked. Yes, Maichel replied. And you entered into those contracts while prices were artificially high? Wagner asked. For the most part, that is correct, Maichel replied.

***9. New System Operational Requests.***

This topic was discussed during Agenda Item 5, above.

***10. Recommended Operations.***

Recommended operations were discussed during a previous agenda item.

***11. Next TMT meeting Date.***

The next face-to-face meeting of the Technical Management Team was set for Wednesday, October 8. Meeting summary prepared by Jeff Kuechle, BPA contractor.

**TMT ATTENDANCE LIST  
September 25, 2002**

<b>Name</b>	<b>Affiliation</b>
Cathy Hlebechuk	COE
Tony Norris	USBR
Shane Scott	WDFW
Bob Hallock	USFWS

Chuck Maichel	BPA
Paul Wagner	NOAA Fisheries
David Wills	USFWS
Rudd Turner	COE
Tina Lundell	COE
Robin Harkless	Facilitation Team
Donna Silverberg	Facilitation Team
Chris Ross	NOAA Fisheries
Doug Clarke	COE
Blaine Ebberts	COE
Steven Wallace	PacifiCorp
Nancy Yun	COE
Richelle Harding	D. Rohr & Associates
Tim Heizenrater	UBSWE
Kourtney Nelson	UBSWE
Mike O'Bryant	CBB
Scott Boyd	COE
Richard Cassidy	COE
Colin Beam	PPM
Ken Soderlind	COE
Randy Wortman	COE
Tom Lorz	CRITFC

## **COLUMBIA RIVER REGIONAL FORUM**

### **TECHNICAL MANAGEMENT TEAM**

September 25, 2002

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

Facilitator: Donna Silverberg

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

### **Bonneville 2<sup>nd</sup> Powerhouse Corner Collector Construction:**

Doug Clark, Portland District COE, handed out a schedule and graph for the construction plans at the 2<sup>nd</sup> powerhouse at Bonneville. The COE would like to complete construction by December 2003. Chum concerns are being addressed in consultations with NMFS. TMT requested an earlier start than the proposed October 17<sup>th</sup> date. The COE might begin work a week early, but a test panel needs to be completed first. There are two potential issues for TMT to discuss as the project moves forward: special operations (four hours) for blasting and the effects on chum operations. The COE will coordinate with TMT on this project as needed. For safety reasons and to complete the project in a timely fashion, the contractors requested that alternatives to spill be used during construction. The project contractor is aware of the need for regional discussions as progress continues.

### **BPA Financial Choices:**

Chuck Maichel, BPA, presented a handout on 1998-2000 financial expectations for BPA, deviations from those expectations in the last two years, and options for BPA's four-year financial plan. Options include letting the established rate mechanism play out, cutting costs, taking higher risks in paying the Treasury, pushing the financial problem into the future, and making a one-time rate adjustment to make up for the shortfall. The public comment period for feedback on the options ends on September 30<sup>th</sup>. All recommendations will be reviewed before BPA makes a decision, and the decision will be announced in mid-November. The decision will be followed by 40-60 rate hearings.

### **Libby November/December Volume Forecast:**

Randy Wortman, COE Hydrological Engineering Branch, gave a presentation on a new model for November and December forecasts at Libby. He showed graphs of the regression model currently being used by the COE, and compared it with the new model. Randy said that, on average, the new approach should provide better information than prior modeling efforts. It was pointed out that five storms create more than 50% of the annual snow pack.

TMT agreed to use the new model as an additional forecasting tool. The forecast model will be available on the TMT website.

### **2003 Water Management Plan:**

The final draft WMP is on the TMT website. There is an additional Appendix 4 that addresses water quality issues. The fall/winter update should be available by the October 23<sup>rd</sup> TMT meeting. Emergency protocols are still being discussed. The Salmon Managers will give the Action Agencies feedback on the protocol for notification of emergencies. There is some debate over how TMT members should receive notification and who should send out the notification. Discussions will continue on this issue at the next meeting.

### **Burbot Life History Study:**

Vaughn Paragamion, Idaho Fish and Game, gave a report on a burbot study conducted at the Kootenai River. The report is posted on the TMT website. Vaughn noted that the study has not yet gone through a peer review and that statistics are preliminary. He

highlighted some characteristics of burbot, a freshwater cod. Burbot are fecund, have low endurance, have highly-synchronized spawning times and maturity rates, migrate long distances, and spawn in the winter. Flow tests show that lower flows cause an increase in movement of burbot. Idaho Fish and Game are working with other partners to put together an international conservation strategy for burbot.

**Action:** Cathy Hlebechuk will email the proposed strategy to TMT members.

**SOR 2002-B1:**

Bob Hallock, USFWS, presented an operation request (for burbot) to maintain low flows in the lower Kootenai River below Bonner's Ferry for 45 days, and to keep water temperatures as cold as possible. TMT was asked to consider the request as they plan operations for the year. This issue will be on future TMT agendas for discussion.

**Current System Conditions:**

The Libby/Canada swap resulted in the release of 179 ksf days of treaty storage. The final elevation at Libby was 2442'.

Hungry Horse was at elevation 3544.7' on August 31. Tony Norris, BOR, handed out a summary of Hungry Horse operations for September.

**Treaty Fishing:**

Cathy Hlebechuk distributed a handout showing the COE's compliance with treaty fishing agreements. A letter has been sent out regarding SOR compliance. Meetings will be held to discuss the issue for next year's operations. The last fall tribal fishery began today and will last until 6 pm on Saturday, September 28<sup>th</sup>.

**Next Meeting, October 8, 1:30-4 pm:**

**Agenda Items:**

- Chum Discussions
  - Answers to Questions from 9/3 – OR, WA, USFWS
  - Five Alternative Chum Operations from 9/13 Meeting – COE
  - Plan for '02-'03 Chum Operations
- Notification of Issues/Emergencies
- Post-Season Review: Set Date (\*Email topics to Donna Silverberg)

**October 23<sup>rd</sup> Meeting: Agenda Items:**

- Report on RSW meeting in Walla Walla
- Modeling results of burbot discussions
- Fall/winter update for WMP

# TECHNICAL MANAGEMENT TEAM

**BOR:** Tony Norris / Lori Postlethwait      **BPA:** Scott Bettin / Rick Pendergrass  
**NMFS:** Paul Wagner / Chris Ross      **USFWS:** David Wills / Howard Schaller  
**OR:** Ron Boyce      **WA:** Shane Scott      **ID:** Steve Pettit      **MT:** Jim Litchfield  
**COE:** Cindy Henriksen / Cathy Hlebechuk / Rudd Turner

## TMT MEETING

**8 October 2002      1330 - 1600 hours**

**Custom House      Room 118  
Portland, Oregon  
Conference call line: 503-808-5190**

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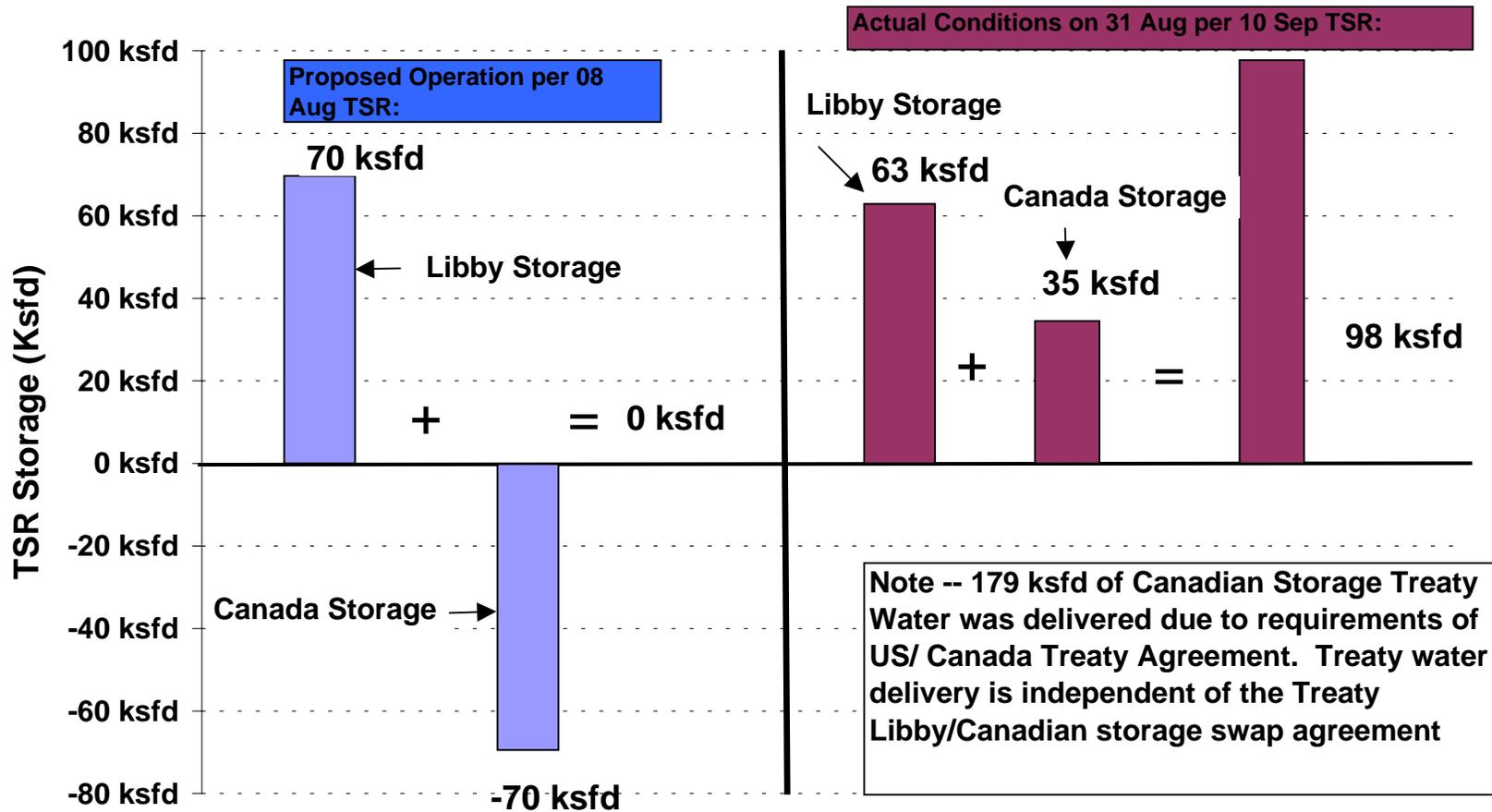
*All members are encouraged to call Donna Silverberg with any issues or concerns they would like to see addressed. Please e-mail her at [dsilverberg@cnnm.net](mailto:dsilverberg@cnnm.net) or call her at (503) 248-4703.*

## AGENDA

1. Welcome, introductions.
2. [2003 Water Management Plan](#).
  - Posting of Final Water Management Plan
  - Emergency protocols / notification procedures for short-term situations (All)
  - Fall/winter update
3. Lower river operations for chum - additional information, strategies.
  - COE Portland District activities for chum spawning
  - Answers to chum questions (Salmon Managers)
4. Libby / Canadian storage final [swap accounting](#)
5. Vernita Bar Flows (CRITFC)
6. Review current system conditions.
  - fish migration status (NMFS, USFWS)
  - reservoir operation, power system, water quality (COE, BOR, BPA)
7. Review operations requests.
8. Develop recommended operations.
9. Other.
  - Set agenda for next meeting
  - Set date and topics for 2002 post-season review

*Questions about the meeting may be referred to Cathy Hlebechuk at (503) 808-3942, or Rudd Turner at (503) 808-3935.*

## Libby/Canadian Storage Swap Operation



Bars show storage above or below TSR

**TECHNICAL MANAGEMENT TEAM  
MEETING NOTES  
October 8, 2002  
CORPS OF ENGINEERS NORTHWESTERN DIVISION OFFICES – CUSTOM HOUSE  
PORTLAND, OREGON**

**TMT Internet Homepage: <http://www.nwd-wc.usace.army.mil/TMT/index.html>**

***1. Greeting and Introductions***

The October 8 Technical Management Team meeting was chaired by Cathy Hlebechuk of the Corps and facilitated by Robin Harkless. The following is a distillation, not a verbatim transcript, of items discussed at the meeting and actions taken. Anyone with questions or comments about these minutes should call Hlebechuk at 503/808-3942.

***2. 2003 Water Management Plan.***

***3. Lower River Operations for Chum.***

At the September 3 TMT meeting, the group developed a list of questions to be answered in the course of the TMT's discussion of the 2002/2003 chum operation. These included:

1. Did last year's "staggering" (gradually raising tailwater elevation at Bonneville to allow staggered access to more and more spawning area) help or hurt chum?
2. Was reverse load factoring an issue, in terms of dewatering redds?

This agenda item began with a recap of last year's chum spawning operation; in particular, whether or not lower river flows should have been increased sooner to encourage more tributary spawning. Scott Bettin wondered whether the tributaries could have handled additional spawners over and above the thousands that were already spawning; David Wills replied that the question isn't just the tributaries – the other spawning areas around Ives and Pierce Island could have supported more spawning if higher flows had watered those areas up sooner. With respect to the reverse load factoring question, Bettin said he could not recall any instances where load factoring had resulted in dewatered redds.

Ron Boyce noted that displacement and scouring are also potential problems associated with reverse load factoring. Would it be possible to maintain a more constant flow? he asked. We tend to use the pool to smooth things out, Bettin replied, but that isn't always possible when rain or cold weather events occur. In general, we want the Bonneville operation to be as smooth as possible, he said.

The next chum-related question was "Compare and contrast the Ives and St. Cloud effect." Shane Scott explained that WDFW field staff had noted that the St. Cloud was much more affected by tidal influence than by Willamette flows. It sounds as though that is outside the sphere of Bonneville Dam influence, Paul Wagner observed. What, exactly, is the issue here? Boyce asked. We've been using the Ives Island gauge as our benchmark, Bettin replied – the question is whether there is something we could be doing differently at St Cloud to keep flows more constant. Chances are we can't, because we're so far away at that point that the tides would be more dominant than the dam discharge, Bettin said.

The group discussed the various monitoring efforts planned and ongoing at the Hamilton Creek/Hardy Springs area this fall. Bettin said there will be monitoring available this year, in-season. If there is a question about whether or not the the he creek is running at a given point in time, we'll be able to look it up on the Internet, Bettin said.

The next chum-related question was "What advice would you give after analyzing the data related to redd distribution and flow after the past several years?" It would be nice if there was a report, Wagner observed. The map on the website provides information about the redds, but not by elevation, Boyce said.

The next question was "What additional restrictions of spawners at Hamilton and Hardy need to be made or avoided during the upcoming season?" My understanding of that question is, did we reach spawning capacity in the stream? Wills said. Based on my understanding from talking to our field personnel, they can't answer that question specifically; their gut feeling is that it would be wrong to preclude access to the streams at this point, he said. This fall and winter, their studies will include logging the GPS locations of the redds, which will provide more accurate information that will allow us to track what is going on more closely, said Wills.

With respect to this year's chum operation, Bettin said the plan, at this point, is to bring Bonneville outflow up to 125 Kcfs during the first month when fish are present. The reservoirs are in much better shape this year, he said; it does not appear to be a drought year. Once fish are present, we'll start bringing up the tailwater elevation, he said – probably around November 5. We can talk about this more at our October 23 meeting, Bettin said; if fish have been observed in the lower river by that time, that will give us a better idea of where we are – if fish are observed on the spawning grounds before that, we can talk about starting the operation sooner. It does not appear that there will be much of a conflict between the chum and Vernita Bar operations at this time, Bettin added.

The group also discussed the possibility of a TMT “field trip” to the chum spawning areas; it was agreed to tentatively schedule this outing for Wednesday, November 27. Shane Scott said he will make the arrangements for this excursion.

#### ***4. Libby/Canadian Storage Final Swap Accounting.***

Hlebechuk said that, at a previous TMT meeting, there was a request for a more detailed accounting of the 2002 Libby/Canadian swap. She put up a graph showing treaty storage regulation (TSR) storage over time, noting that the proposed operation, per the August 8 TSR, was to store 70 Ksf in Libby, with Canada delivering an equivalent amount from their projects. However, actual inflows turned out to be lower than expected, Hlebechuk explained; as a result, Libby stored 62 Ksf, but Canada was unable to provide the 70 Ksf they thought they would be able to. The total storage was 98 Ksf of Treaty water with the swap operation, she said.

Because actual inflows were lower than the August 8 TSR projected inflows, there was what is called a “proportional draft” from the Canadian projects in the amount of 179 Ksf, Hlebechuk said. That is independent of the swap operation, and would have occurred whether or not there was a swap, she explained. So in other words, Canada was going to provide 70 Ksf in additional flow, but instead they stored 35 Ksf? Tony Norris asked. Correct, Hlebechuk replied.

#### ***5. Vernita Bar Flows.***

Kyle Martin said CRITFC has floated a proposal regarding Vernita Bar flows this year. Essentially, he said, we would like to see sustained flows of 60 Kcfs through the reach; according to CRITFC's analysis, this operation would not adversely impact flood control. Martin said Bob Heinith has been working with Grant County PUD to see whether such an operation might be possible. When you say 60 Kcfs, you're talking about daytime flows? Bettin asked. Essentially, yes, Martin replied.

#### ***6. Current System Conditions.***

Wagner said a total of 464,000 adult fall chinook have passed Bonneville Dam to date, very close to the highest counts in the historical record. With respect to reservoir operations, Hlebechuk said the operating agencies are mainly waiting for the fall rains to start. Current elevation at Libby is 2440 feet, and the project is releasing 6 Kcfs. Albeni

Falls is currently at elevation 2060, headed down to 2055 by November 15. Dworshak is at elevation 1518 feet and releasing minimum outflow. Tony Norris reported that Grand Coulee is currently at elevation 1287 feet, while Hungry Horse is at 3536 feet, releasing 2 Kcfs to meet the 3.5 Kcfs Columbia Falls minimum flow.

***7. New System Operational Requests.***

No new SORs were submitted prior to today's meeting.

***8. Recommended Operations.***

Recommended operations were summarized during Agenda Item 6.

***9. Next TMT Meeting Date.***

**The next Technical Management Team meeting was set for Wednesday, October 23. Meeting summary prepared by Jeff Kuechle, BPA contractor.**

**COLUMBIA RIVER REGIONAL FORUM**

**TECHNICAL MANAGEMENT TEAM**

October 8, 2002

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

Facilitator: Robin Harkless

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.

**Water Management Plan 2003:**

The final WMP was posted on the TMT website today. February 6<sup>th</sup> Emergency Protocols are posted, but the COE needs further internal discussions before the protocols can be finalized. This issue will be raised at the November 6<sup>th</sup> TMT meeting. Fall/winter update discussions will also be on the 11/6 agenda.

**Lower River Operations for Chum:**

Cathy Hlebechuk, COE, gave a report on Portland District COE studies being done to improve spawning conditions for chum. Twenty-four project areas have been identified and will be studied over the fiscal year. As the studies continue, TMT will be updated. An interagency chum team is looking at the studies together, and includes members of TMT.

The Salmon Managers discussed their answers to a set of questions about chum. Dave Wills, USFWS, led the group in the discussion on what the impacts of chum operations

on Vernita Bar were. He responded that the question should have been framed to ask what the effects of Vernita Bar were on chum operations. Although the group did not fully agree, he said that the late flows may have caused chum to spawn in areas where they normally would not, and that this could have been detrimental to chum. Washington saw no adverse effects on chum, although did say that chum found new spawning grounds. They feel that given the low water year, a balance was struck that spread the deficits throughout the system.

The effects of reverse loads at Ive's Island will be continually monitored and included in the WMP. TMT members agreed that smooth flows are ideal but not always possible.

Ive's Island and St. Cloud effects on chum will be monitored. Washington said that the issue is too complex to speculate on at the present time.

Hamilton Creek will be monitored this year, as the COE has put in a new gauge. Real-time data will be available on the COE website. This data can help the group determine if there should be restrictions on spawning at Hardy and Hamilton Creeks.

Much data exists relative to flow and redd distributions over the past several years. Ron Boyce, Oregon, reported that as this information is sorted out, it will be presented in an annual report.

TMT then discussed chum operations for this year. BPA suggested raising the tailwater at Bonneville to 125 cfs around November 5<sup>th</sup>, or when fish are present.

**ACTION:** Shane Scott will distribute spawning data from WDFW to aid TMT in making decisions about chum operations. The group will revisit this issue and make a decision at the October 23<sup>rd</sup> meeting. Shane will also set up a field trip to look at chum spawning grounds during the week of the 18<sup>th</sup> or 25<sup>th</sup> of November. He will notify the group when a date has been set.

**Libby/Canadian Storage Swap:**

As requested, Cathy Hlebechuk handed out a graph explanation of the Libby/Canada swap. There was 98 ksfd of inadvertent storage in Canada because the actual inflows were less than the forecasted inflows.

**Vernita Bar Flows:**

Kyle Martin, CRITFC, reported that CRITFC is working with Grant County and others to implement a request for minimum flows at 60 kcfs. He will give an update on this issue at the next TMT meeting.

**Current System Conditions:**

*Fish Migration:* Paul Wagner, NMFS, reported that record numbers of adult Chinooks have been seen at Bonneville.

*Reservoir Operations:* Cathy Hlebechuk updated the group on COE project operations. USFWS has not yet submitted requests for temperature changes at Dworshak, but may do so in the near future. Tony Norris, BOR, reported on operations at the BOR projects.

**Year End Review Topics:**

The Year End Review was scheduled for Wednesday, October 23. Due to scheduling conflicts, this date may change to November 6! The facilitation team will keep everyone posted on this matter.

- Report on Snake River Operations
- Dworshak Operations: Above or Below 1520'?
- TDG Level Variations: Criteria for Modifications to Spill – COE
- Fall Chinook Survival in Snake River – Billy Connor
- Chinook and Steelhead Adult Observations – Chris Perry
- Hanford Reach Juvenile Stranding – Joe Lucas?
- History of Spawning Correspondent to Vernita Bar Levels
- Migration Status – Paul Wagner
- Survival Study: Comparison with 2001
- Performance Standards – Paul Wagner
- Weather Review – Kyle Martin

**November 6<sup>th</sup> Meeting: Agenda Items:**

- Report on RSW Meeting in Walla Walla
- Burbot Modeling Results
- Fall/winter update for WMP

# TECHNICAL MANAGEMENT TEAM

**BOR:** Tony Norris / Lori Postlethwait      **BPA:** Scott Bettin / Rick Pendergrass  
**NMFS:** Paul Wagner / Chris Ross      **USFWS:** David Wills / Howard Schaller  
**OR:** Ron Boyce      **WA:** Shane Scott      **ID:** Steve Pettit      **MT:** Jim Litchfield  
**COE:** Cindy Henriksen / Cathy Hlebechuk / Rudd Turner

## TMT MEETING

23 October 2002      0900 - 1200 hours

Custom House      Room 118  
Portland, Oregon  
Conference call line: 503-808-5190

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

## AGENDA

1. Welcome, introductions.
2. [Report](#) on RSW Meeting in Walla Walla (Corps)
3. Proposed Lower Granite RSW special operation in November (Corps).
4. Hydro [Alternatives](#) (BPA)
5. [2003 Water Management Plan](#).
  - [Fall/winter update](#)
  - Emergency protocols/notification procedures for short-term situations (All)
6. [Burbot Modeling Results](#)
7. Chum update (Gray's River migration) (WDFW)
8. Review current system conditions.
  - fish migration status (NMFS, USFWS)
  - reservoir operation, power system, water quality (COE, BOR, BPA)
9. Review operations requests.
10. Develop recommended operations.
11. Other.
  - Set agenda for next meeting

*Questions about the meeting may be referred to Cathy Hlebechuk at (503) 808-3942, or Rudd Turner at (503) 808-3935.*

CENWD-CM-WR-N  
22 OCT 2002

MODEL RESULTS  
2002 – 2003 Burbot Operation

SOR #2002-B1 Request:

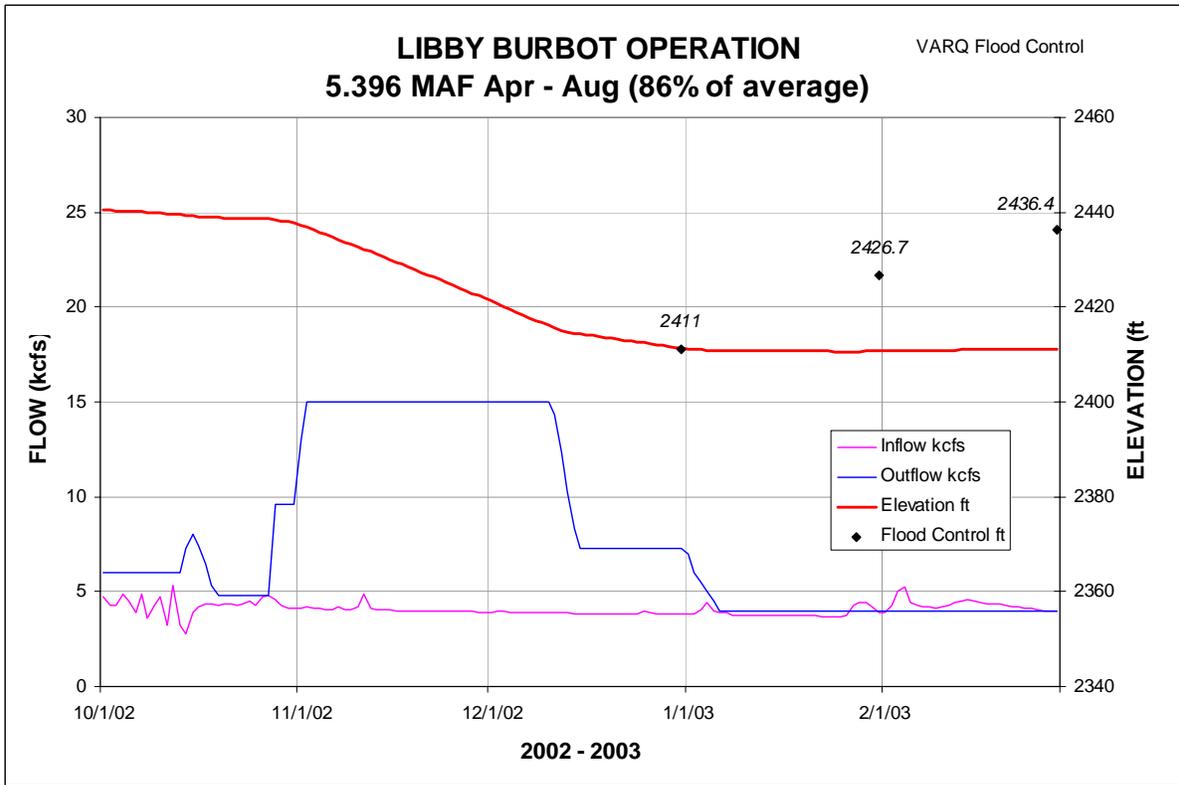
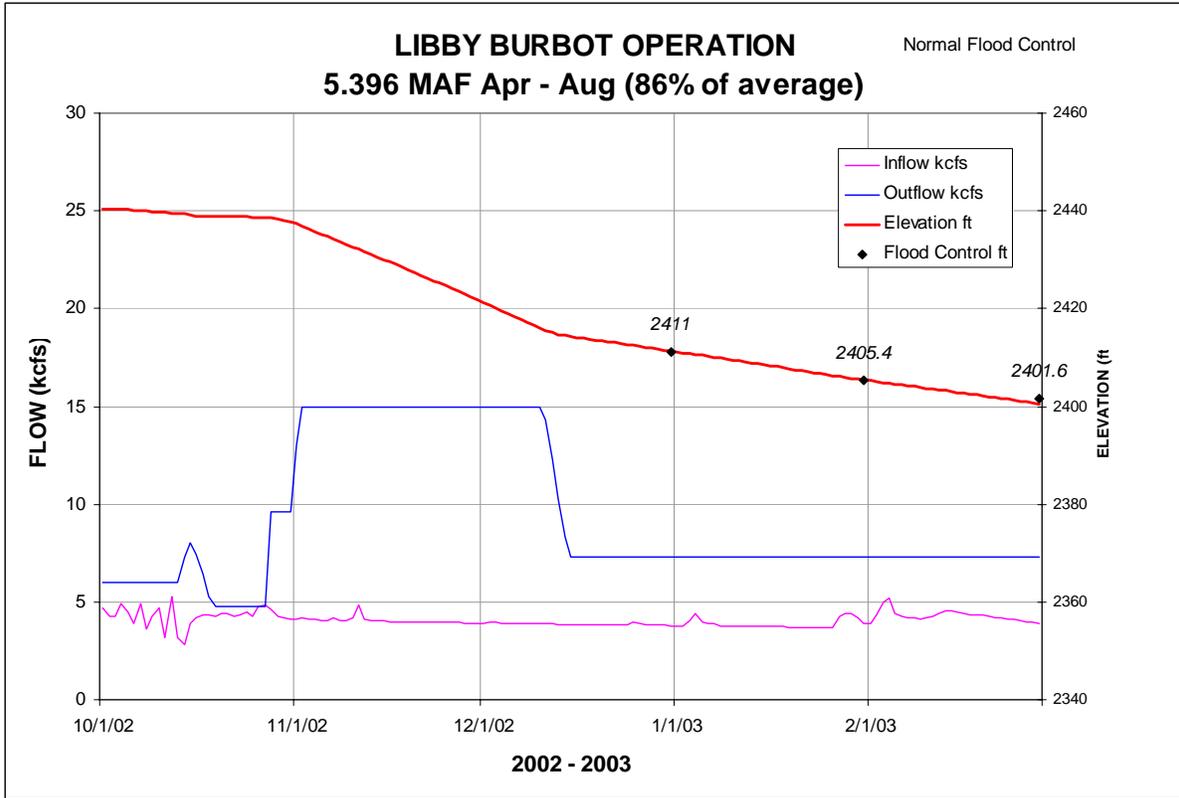
- 45 days of low flow ranging between 4,000 and 10,600 cfs (averaging 7,300 kcfs) as measured at Bonners Ferry.
- Preferably outflows at Libby Dam would remain below the average of 7,300 kcfs.
- Libby would meet the flood control criteria.
- BiOp ramprates would be followed.

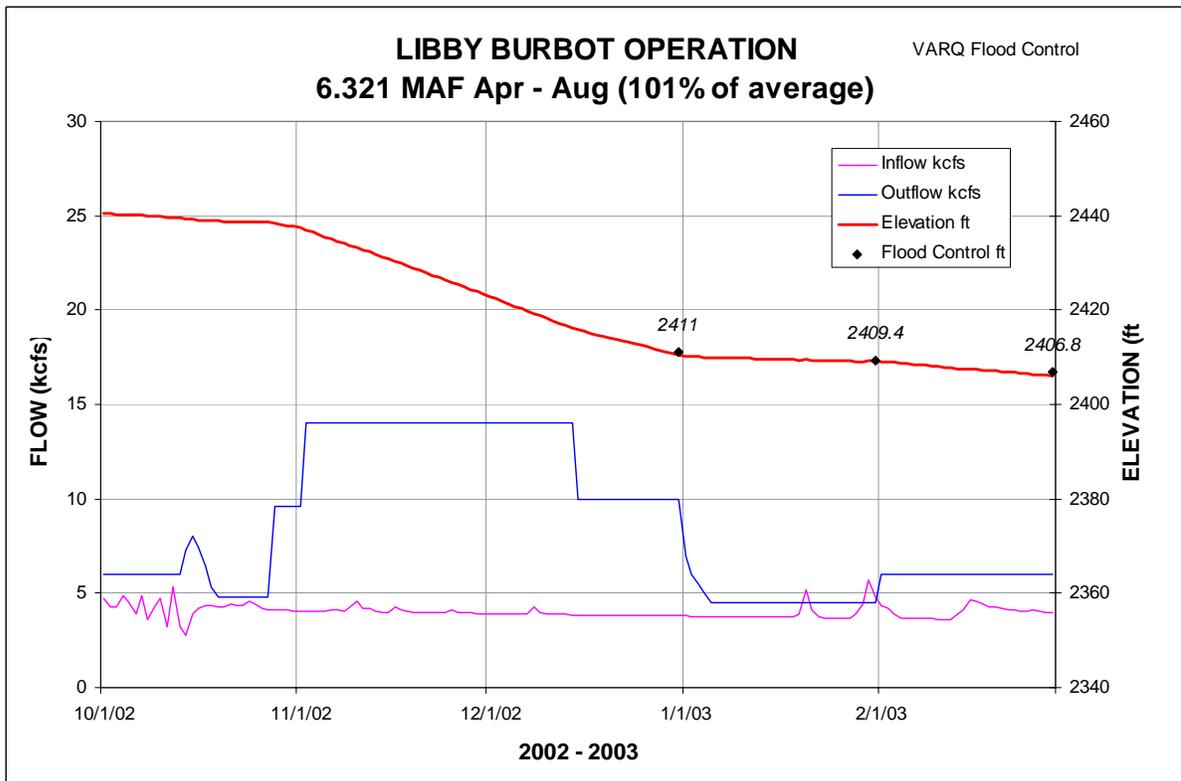
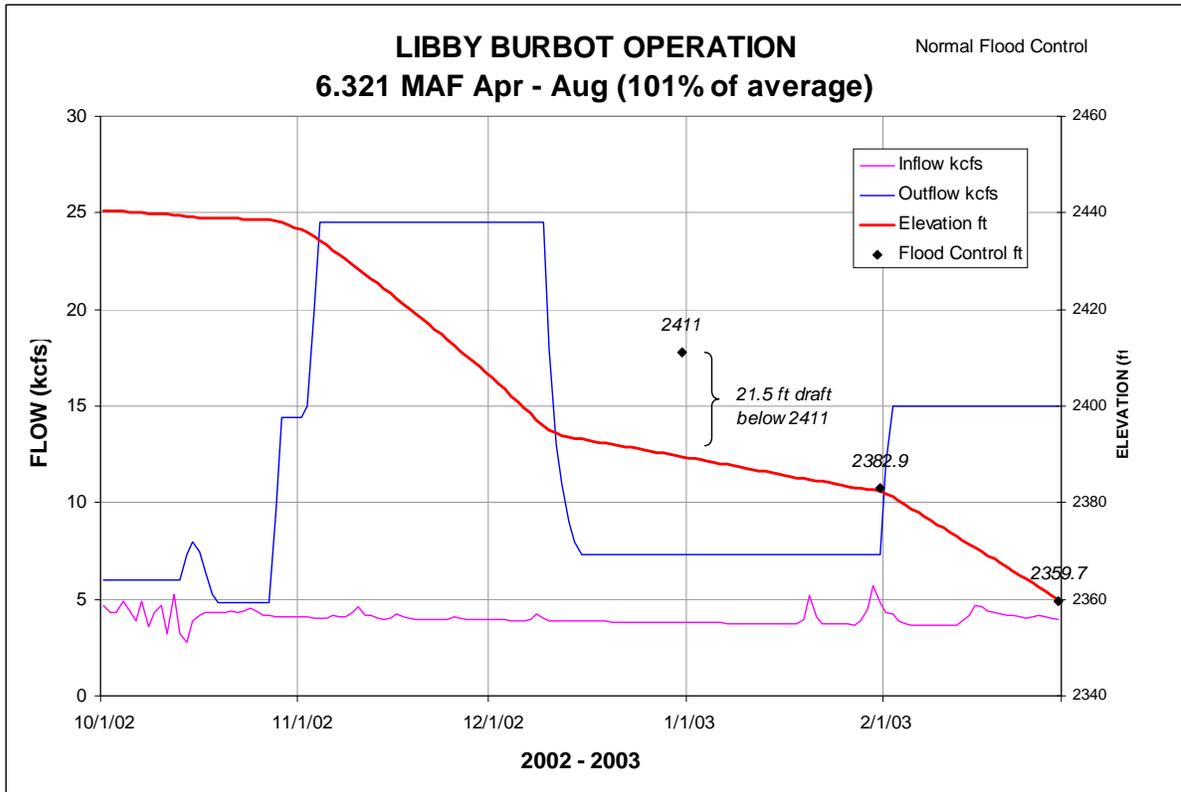
Modeling Assumptions:

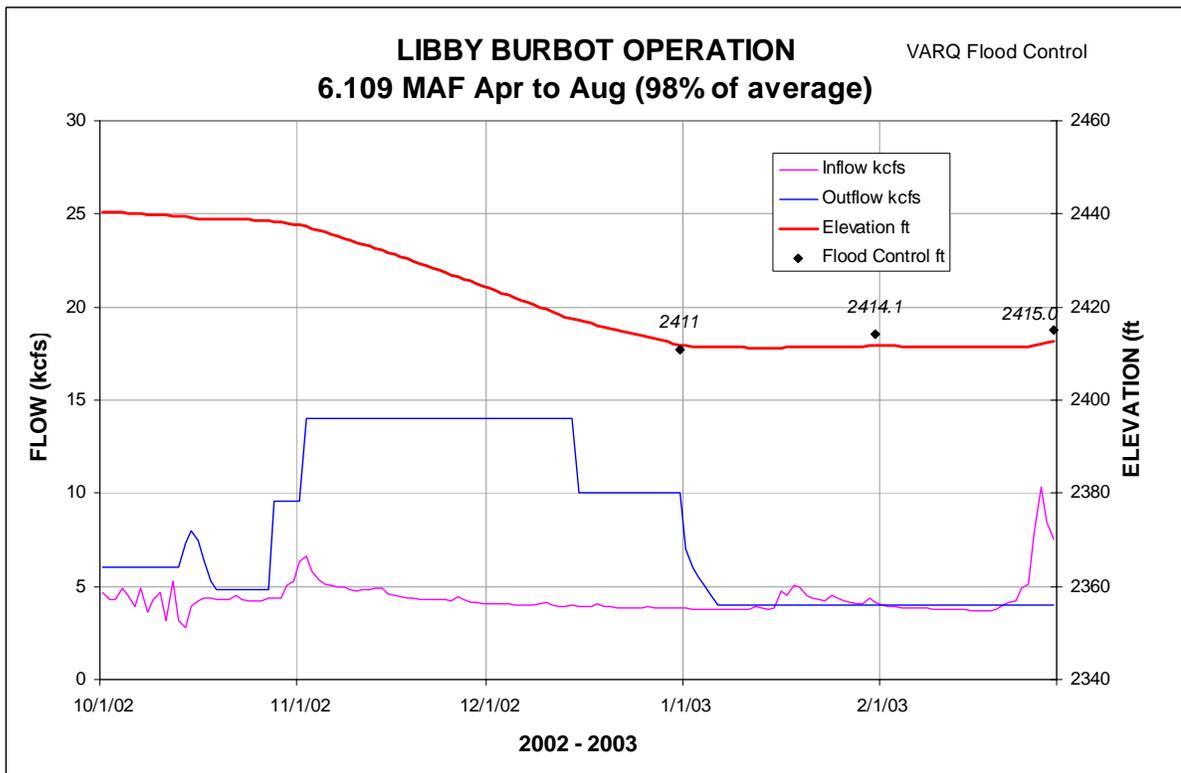
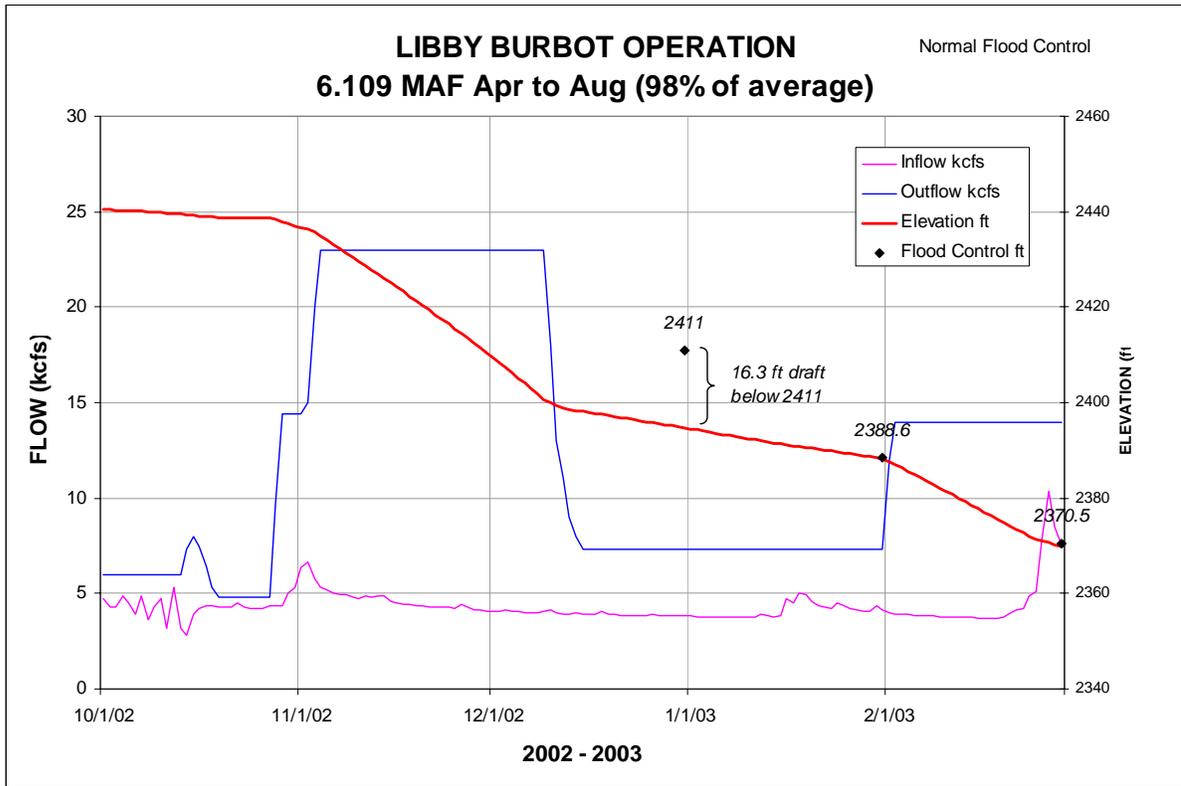
- Modeled 3 scenarios with the following Apr - Aug volumes: 2 near normal (98 and 101%) and 1 below normal (86%)
- Used ESP inflows
- Modeled CRT-63 (Standard) and VARQ flood control
- Modeled Libby flow at 7,300 cfs or less for 15 Dec – 31 Jan.

Results:

- Regardless of VARQ or standard flood control, the bulk of the draft will come in November and early December.
- In near-normal years:
  - If standard flood control is assumed Libby will need to draft below 2411 ft (by approximately 21 - 16 ft) to meet the 31 Jan flood control target and the 45 days of burbot flows.
  - If VARQ is used, 2411 ft is sufficient to meet the 31 Jan and the 45 days of burbot flows.
- In below normal years 2411 ft is sufficient for both standard and VARQ flood control to draft to meet 31 Jan flood control elevation and 45 days of burbot flows.









**U.S. Army Corps of Engineers  
Walla Walla District**

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**HYDROACOUSTIC EVALUATION OF FISH PASSAGE AND MOVEMENT AT  
THE LOWER GRANITE DAM REMOVABLE SPILLWAY WEIR**

**PRELIMINARY DATA REPORT**

**Task Order 0001**

**Biological Services Contract DACW68-02-D-0001**

**U.S. Army Corps of Engineers, Walla Walla District**

**September 5, 2002**



**U.S. Army Corps of Engineers  
Walla Walla District**

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**HYDROACOUSTIC EVALUATION OF FISH PASSAGE AND MOVEMENT AT  
THE LOWER GRANITE DAM REMOVABLE SPILLWAY WEIR**

**PRELIMINARY DATA REPORT**

**Prepared by:**

**S.M. Anglea, M.A. Simmons, C.S. Simmons (Battelle's Pacific Northwest Division)**

**E.A. Kudera**

**J.R. Skalski (University of Washington)**

**Task Order 0001**

**Biological Services Contract DACW68-02-D-0001**

**U.S. Army Corps of Engineers, Walla Walla District**

**September 5, 2002**

## Preface

This document is one in a series of reports that describe the results of the hydroacoustic evaluation at Lower Granite Dam in 2002. Summary of flow measurements in the RSW will be provided under separate cover. Individual reports in the series will be prepared according to the following schedule:

- September 1, 2002: Preliminary Data Report
- November 1, 2002: Draft Final Report
- January 15, 2003: Final Report

The emphasis of the Preliminary Data Report is on results. Methods, interpretation of results, and conclusions will be further developed in future reports. The data contained in this report are to be considered preliminary and are subject to change as analysis efforts proceed.

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## 1. Introduction

### 1.1. Background

Juvenile salmonids migrating down the Snake River must pass through up to eight hydroelectric projects on their way to the ocean. Presently, these fish pass the projects through turbines, spillways, sluiceways or powerhouse bypass systems. Passage through turbine units results in relatively high levels of mortality. Bypass systems divert juvenile fish from turbine intakes, and provide considerably safer passage, but the proportion guided into the bypass systems varies considerably by fish stock, project, and time of year. Spillways are thought by many to be a relatively safe means of passage, but this method is expensive in terms of lost power generation and can result in potentially lethal levels of total dissolved gas in the river.

The concept of collecting smolts near the surface for bypass or collection is a method that is believed to have much promise, and is currently being tested. Evaluations of the prototype surface bypass/collector (SBC) at Lower Granite were performed from 1996 through 2000, with incremental increases in performance being achieved as more was learned about surface collectors and how fish respond to flow fields and other environmental variables (Anglea et al. 2002). Due to deterioration of the SBC structure (it was designed and built as a temporary structure, without protective coating), it is no longer safe to operate. As the next step in surface collection studies, the Corps constructed a Removable Spillway Weir (RSW) at Lower Granite. The RSW is installed at spill bay 1. It is designed to operate with the spill gate fully open (out of the water). Discharge through the RSW ranges between 6,000 and 11,000 cfs, depending on forebay elevation.

Much of the original SBC structure was in place, including the Simulated Wells Intake (SWI). The northernmost portion (north of unit 6) of the SBC was removed, including the bulkhead and attachment to spill bay 1. A new cutoff wall was installed on the SBC at the end of the powerhouse (unit 6) and is approximately the same depth as the SWI. The Behavioral Guidance Structure (BGS) was in the deployed position and was attached at the south end of the existing SBC, between units three and four. The SBC, SWI and BGS function as a series of occlusion devices to guide fish near the RSW.

## 1.2. Study Goal

The goals of the 2002 Removable Spillway Weir study at Lower Granite Dam were to describe fish passage and movement in the vicinity of and in response to the presence and operation of the RSW, in combination with the SBC, SWI and BGS.

## 1.3. Objectives

Evaluation of the RSW at Lower Granite Dam in 2002 (Delivery Order 0001) has three objectives: 1) determine the relative passage rates of juvenile fish through the powerhouse, spillway and over the RSW, 2) determine the behavioral characteristics of juvenile fish directly in front of the RSW, and 3) determine the efficiency and effectiveness of the RSW and conventional spillway under the proposed operational scenarios. The specific tasks follow:

### 1.3.1. Task 1: Fish passage enumeration and comparison at the RSW, conventional spill bays and powerhouse

1. Estimate hourly passage rates (24 h/d) of juvenile salmonids migrating over the RSW, through conventional spill bays, and into turbine intakes
2. Estimate short range (~10 ft) efficiency and effectiveness of the RSW
3. Estimate horizontal, vertical, and diel passage distributions at the RSW
4. Estimate vertical distribution within each sampled spill bay and turbine intake and horizontal distribution for the spillway and powerhouse overall
5. Statistically compare passage rate, efficiency, and effectiveness among treatments identified by regional scientists

### 1.3.2. Task 2: Split-beam monitoring of fish passage and behavior

1. Determine fish target strength, travel direction, velocity, and trajectory and incorporate information into hydroacoustic detectability model
2. Characterize fish movement at the RSW entrance

## 1.4. Site Description

Lower Granite Dam is the first dam on the Snake River (River Mile 107.5) downstream from its confluence with the Clearwater River. It is one of the Corps' highest priorities to develop surface bypass

and collection systems because more smolts listed under the Endangered Species Act pass Lower Granite Dam than any other dam on the Snake River.

Lower Granite Dam has four primary structures: powerhouse, spillway, navigation lock, and an earthen dam. The powerhouse has 6 turbines operating at a nameplate capacity of 135 MW for a total generating capacity 810 MW. The total hydraulic capacity of the powerhouse is about 130 kcfs. The full power pool elevation is rated at 738 ft (above mean sea level) with the normal operating pool level between elevation 737 and 738 ft. The minimum operating pool (MOP) is elevation 733 ft. The spillway is comprised of 8 spill bays with Tainter gates. The spillway occupies approximately 512 ft of the south center portion of the dam. The crest of each spill bay is at elevation 681 ft. The top deck elevation of the entire dam is at elevation 751 ft.

### 1.5. Removable Spillway Weir

The RSW tested in 2002 is depicted in Figure 1. The RSW is designed as an overflow device in a spill bay. It will be hinged at the bottom to allow it to pivot out of place to restore full spillway capacity in the event of high flows. Once in operation, the flow over the RSW was regulated only by the forebay level. The RSW operates with the tainter gate completely out of the water. The approximate depth of the water flowing over the crest of the RSW is 10 feet when the forebay is at MOP.

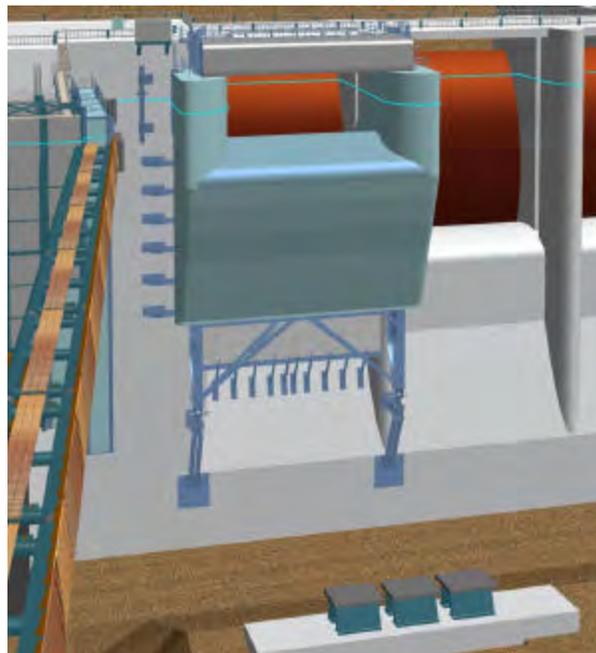


Figure 1. Image of the Removable Spillway Weir (RSW) at Lower Granite Dam.

## 1.6. Study Design

The study design for testing RSW performance comprised three operational scenarios.

Anticipated treatments were as follows:

- Day 1: Night spill (~60 kcfs; 1800-0600 hrs) to the gas cap (BiOp Base), identified as Gas Cap.
- Day 2: 22.2 kcfs total spill; 6.7 kcfs through the RSW and an additional 15.8 kcfs through bays 2-8, identified as RSW + 16.
- Day 3: 15.2 kcfs total spill; 6.7 kcfs through the RSW and an additional 8.5 kcfs through bays 3, 5, 6, 7, and 8, identified as RSW + 8.

The study period (15 April through 7 June 2002) was partitioned into nine 6-day blocks (Table 1). Each treatment was in place for two consecutive days during each block. All treatments encompassed a 24 hr period.

Table 1. Schedule of Operations for Testing of the RSW in 2002.

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
<b>April</b>	<b>14</b>	<b>15</b> RSW + 16 (24 hours)	<b>16</b> RSW + 16 (24 hours)	<b>17</b> RSW + 8 (24 hours)	<b>18</b> RSW + 8 (24 hours)	<b>19</b> Gas Cap (12 hours)	<b>20</b> Gas Cap (12 hours)
	<b>21</b> RSW + 16 (24 hours)	<b>22</b> RSW + 16 (24 hours)	<b>23</b> RSW + 8 (24 hours)	<b>24</b> RSW + 8 (24 hours)	<b>25</b> Gas Cap (12 hours)	<b>26</b> Gas Cap (12 hours)	<b>27</b> Gas Cap (12 hours)
<b>May</b>	<b>28</b> Gas Cap (12 hours)	<b>29</b> RSW + 8 (24 hours)	<b>30</b> RSW + 8 (24 hours)	<b>1</b> RSW + 16 (24 hours)	<b>2</b> RSW + 16 (24 hours)	<b>3</b> Gas Cap (12 hours)	<b>4</b> Gas Cap (12 hours)
	<b>5</b> RSW + 8 (24 hours)	<b>6</b> RSW + 8 (24 hours)	<b>7</b> RSW + 16 (24 hours)	<b>8</b> RSW + 16 (24 hours)	<b>9</b> RSW + 16 (24 hours)	<b>10</b> RSW + 16 (24 hours)	<b>11</b> Gas Cap (12 hours)
	<b>12</b> Gas Cap (12 hours)	<b>13</b> RSW + 8 (24 hours)	<b>14</b> RSW + 8 (24 hours)	<b>15</b> RSW + 16 (24 hours)	<b>16</b> RSW + 16 (24 hours)	<b>17</b> Gas Cap (12 hours)	<b>18</b> Gas Cap (12 hours)
	<b>19</b> RSW + 8 (24 hours)	<b>20</b> RSW + 8 (24 hours)	<b>21</b> RSW + 8 (24 hours)	<b>22</b> RSW + 8 (24 hours)	<b>23</b> RSW + 16 (24 hours)	<b>24</b> RSW + 16 (24 hours)	<b>25</b> Gas Cap (12 hours)
<b>June</b>	<b>26</b> Gas Cap (12 hours)	<b>27</b> RSW + 8 (24 hours)	<b>28</b> RSW + 8 (24 hours)	<b>29</b> Gas Cap (12 hours)	<b>30</b> Gas Cap (12 hours)	<b>31</b> RSW + 16 (24 hours)	<b>1</b> RSW + 16 (24 hours)
	<b>2</b> Gas Cap (12 hours)	<b>3</b> Gas Cap (12 hours)	<b>4</b> RSW + 16 (24 hours)	<b>5</b> RSW + 16 (24 hours)	<b>6</b> RSW + 6 (24 hours)	<b>7</b> RSW + 6 (24 hours)	

During the course of the study period, actual project operations diverged from planned operations resulting in the need to modify treatment day definitions. In order to satisfy one of the treatments, project operations had to be consistent throughout the entire 24 hr study day period (0600-0559). This resulted in some study days being excluded as the result of substantial changes in operations during the study day, i.e., turning the RSW on or off during the day. RSW performance was evaluated based on the following treatments or project operations:

- RSWG16: Days in which the RSW was operated with training spill equal to or greater than 16 kcfs
- RSWLT16: Days in which the RSW was operated with less than 16 kcfs training spill
- Gas Cap 12hr\_night: The nighttime period (1800-0600) for pure Gas Cap days (i.e., no daytime spill, no RSW)
- Gas Cap 24hr: Days in which pure Gas Cap operation was in place (i.e., no daytime spill, no RSW)

## 2. Methods

This section contains a brief description of the hydroacoustic sampling methods. One system each was used to monitor passage at the powerhouse, spillway, and RSW

### 2.1. Transducer Locations and Orientations

- Powerhouse: Six 10° single-beam and two 12° split-beam transducers sampled total powerhouse passage. Transducers were mounted to the first purlin above the sill at approximately 601 ft elevation (mean sea level) (bottom of forebay at 597 ft). Transducers were randomly placed on either the north or south side of the center vertical frame member, aimed upward and approximately 30° downstream. One of three slots was sampled for each turbine unit. Resultant aiming angle was approximately 39° with addition of trashrack slope. The randomly selected slots for each turbine were: 1A/south, 2C/south, 3B/north, 4B/south, 5A/north, and 6C/south (Figure 2 and Figure 3). Two units (T1 and T6) were also sampled from pier nose locations using single-beam transducers deployed at approximate elevation 601 ft. These transducers were aimed upward, approximately 6° upstream, and 21° to the north or south according to pier nose location.
- Spillway: Spill Bays 2, 4, 5, 6, 7, and 8 were sampled using 10° single-beam transducers while passage through spill bay 3 was sampled using a 12° split-beam transducer (Figure 2 and Figure 4).

All transducers were deployed in the center of the spill bays at approximate elevation 730 ft (surface elevation at 734.5 ft). Single-beam transducers were aimed downstream  $5^\circ$  and the split beam transducer was aimed  $3^\circ$  downstream.

- RSW: Two  $12^\circ$  split-beam transducers were used to monitor fish passage and movement into the RSW (Figure 2 and Figure 5). The transducers were mounted to a traversing frame at approximately elevation 694 ft. Due to electrical interference with concurrent research activities, the transducer parked were on April 24, 2002 approximately 17.5 ft on each side of the RSW centerline. The transducers monitored fish passage from these locations for the remainder of the study period.

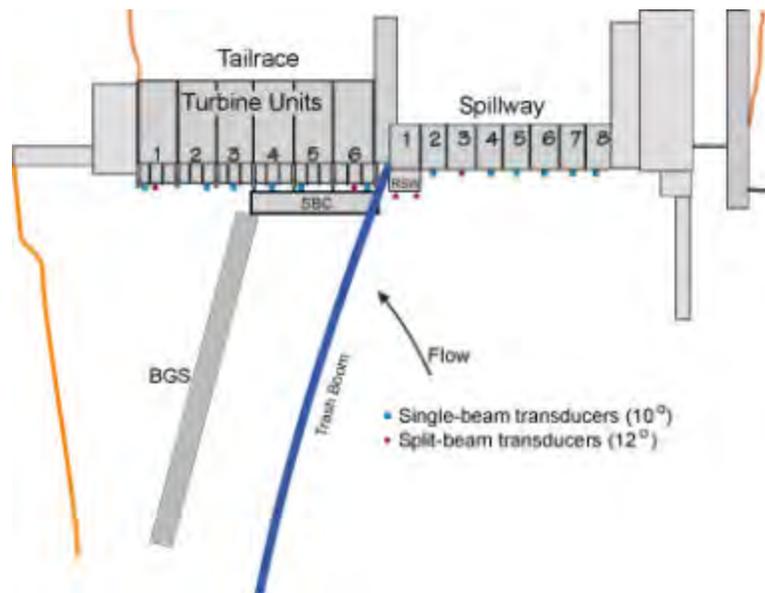


Figure 2. Plan view of Lower Granite Dam showing transducer locations.

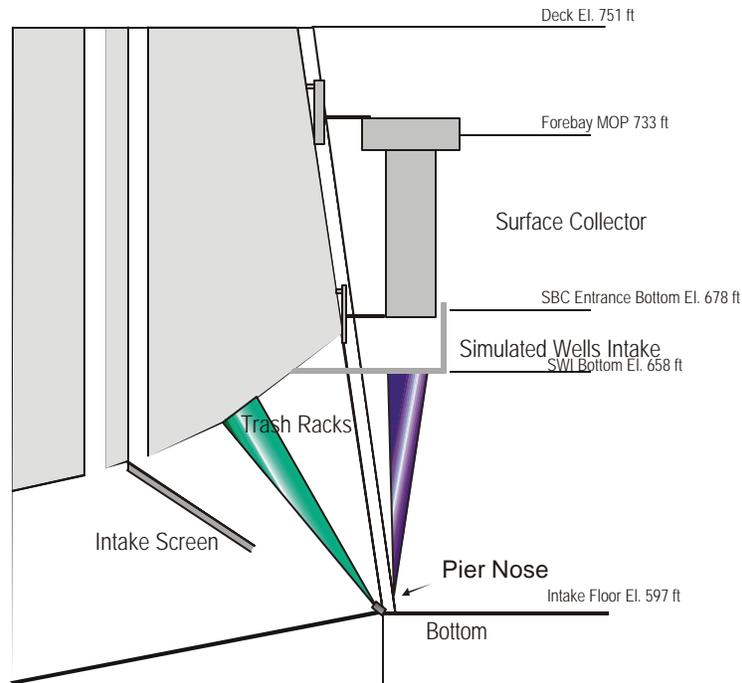


Figure 3. Side view of powerhouse showing location and approximate aiming angles of trashrack mounted and pier nose deployed transducers.

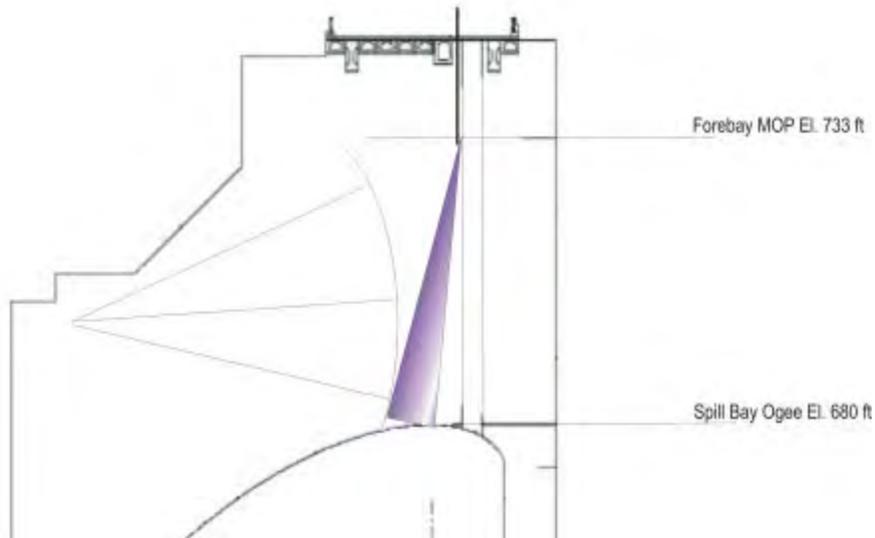


Figure 4. Side view of spillway showing transducer orientation.

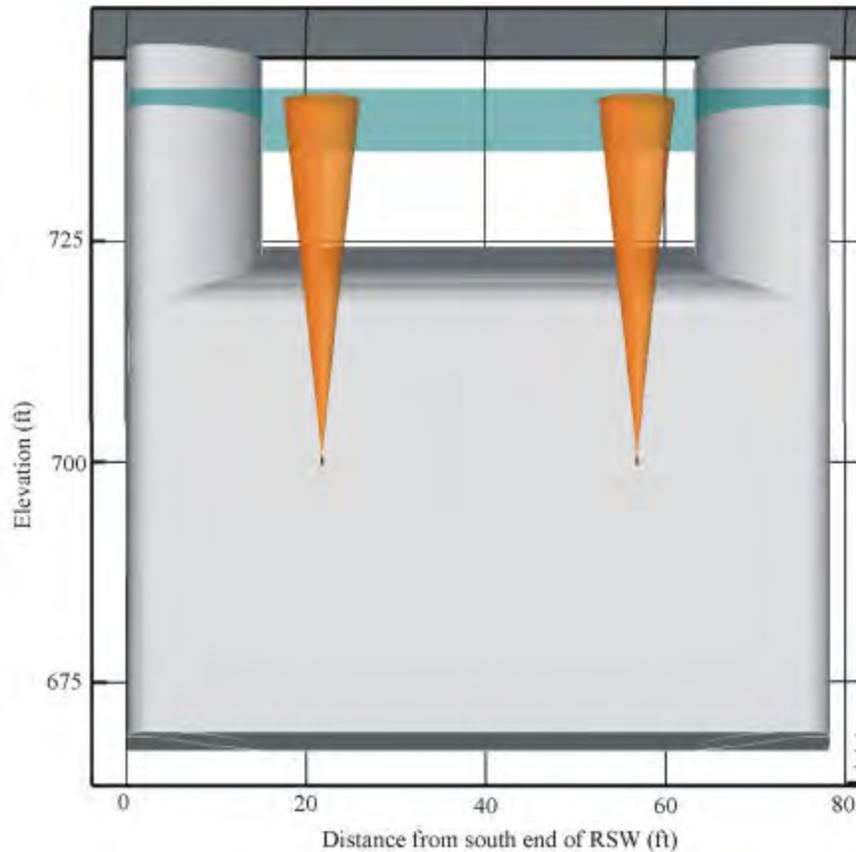


Figure 5. Front view of RSW showing fixed location of split-beam transducers.

Table 2 presents the primary metrics used to evaluate the performance of the RSW, powerhouse, and spillway passage routes.

Table 2. Definitions for parameters in the fish passage analysis.

Parameter	Descriptor	Estimator
<b>CY</b>	Combined RSW efficiency expresses passage through the RSW and spillway relative to total project passage.	$CY = (S_{2-8} + R) / (S_{2-8} + T + R)$ , where $S_{2-8}$ is spill bay 2-8 passage, $R$ is RSW passage, and $T$ is Turbine 1-6 passage
<b>CS</b>	Combined RSW effectiveness shows the relationship between the proportion of fish spilled through the RSW and spillway relative to proportion of water spilled.	$CS = CY * (F / (f_s + f_R))$ , where $CY$ is combined RSW efficiency, $F$ is total project discharge, $f_s$ is spillway discharge and $f_R$ is RSW discharge
<b>RY</b>	RSW efficiency expresses passage through the RSW relative to total project passage.	$RY = R / (S_{2-8} + T + R)$ , $S_{2-8}$ where $R$ is RSW passage, $S_{2-8}$ is spill bay 2-8 passage, and $T$ is Turbine 1-6 passage
<b>RS</b>	RSW effectiveness shows the relationship between the proportion of fish spilled through	$RW = RY * (F / f_R)$ where $RY$ is RSW efficiency, $F$ is total project discharge, and

	the RSW relative to proportion of water spilled.	$f_R$ is RSW discharge
<b>SY</b>	Spill efficiency shows the proportion of fish spilled	$SY = S_{2-8} / (S_{2-8} + T + R)$ where $S_{2-8}$ is spill bay 2-8 passage, $R$ is RSW passage, and $T$ is Turbine 1-6 passage
<b>SS</b>	Spill effectiveness shows the relationship between proportion of fish spilled and proportion of water spilled	$SS = SY * (F / f_s)$ where $SY$ is spill efficiency, $F$ is total project discharge, and $f_s$ is spillway discharge

### 3. Hydraulic Conditions and Migration Characteristics

This section provides data on river discharge, dam operations, species composition, and run timing during spring 2002 at Lower Granite Dam.

#### 3.1. Hydraulic Conditions

Mean hourly project discharge was 2,363 m<sup>3</sup>/s (83.5 kcfs) during the 2002 study period. Operations data were unavailable prior to April 18, though the study period began on April 15, 2002. Turbine discharge was relatively low throughout the study period. Overall discharge was highest during the end of the study period, in late May and early June (Figure 6). Turbine 5 was off-line throughout the entire study period and Turbine 1 was off-line after April 30, 2002. Discharge through Spill Bays 1-8 averaged 38% of outflow and mean hourly discharge through the spillway was 906 m<sup>3</sup>/s or 32 kcfs.

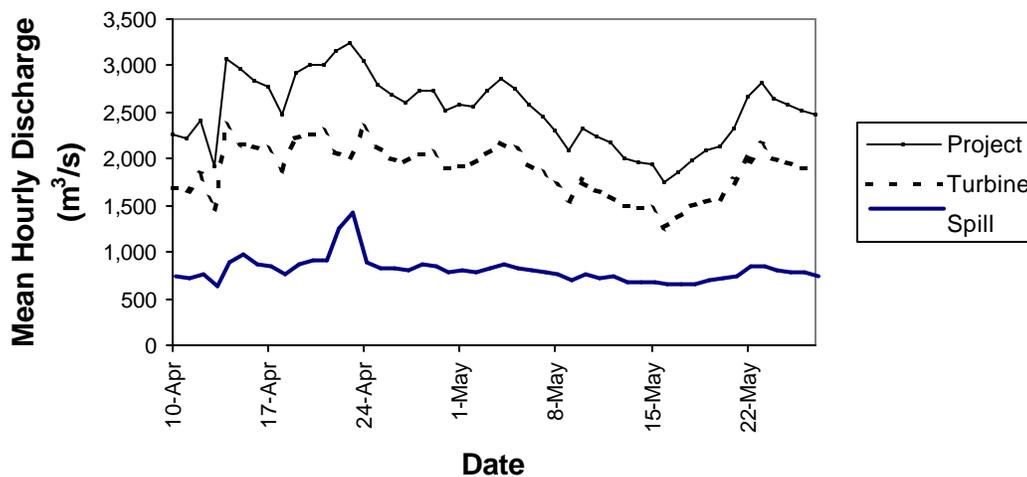


Figure 6. Hourly discharge for the total project, Turbines 1-6, and Spill Bays 1-8 at Lower Granite Dam from April 18 through June 7, 2002.

During the study period, spillway discharge was higher than anticipated due primarily to the outtages of Turbines 1 and 5. Due to the higher spillway discharge, project operations for Treatment 1

(RSW + 8) were seldom met (Figure 7). Mean hourly discharge through the spillway, including RSW discharge, was 29.3 kcfs for the RSW + 8 treatment, 39.5 kcfs for the RSW + 16 treatment, and 32.9 kcfs for the Gas Cap treatment. There was no significant difference in spillway discharge ( $P = 0.08$ ) between the two RSW treatment days.

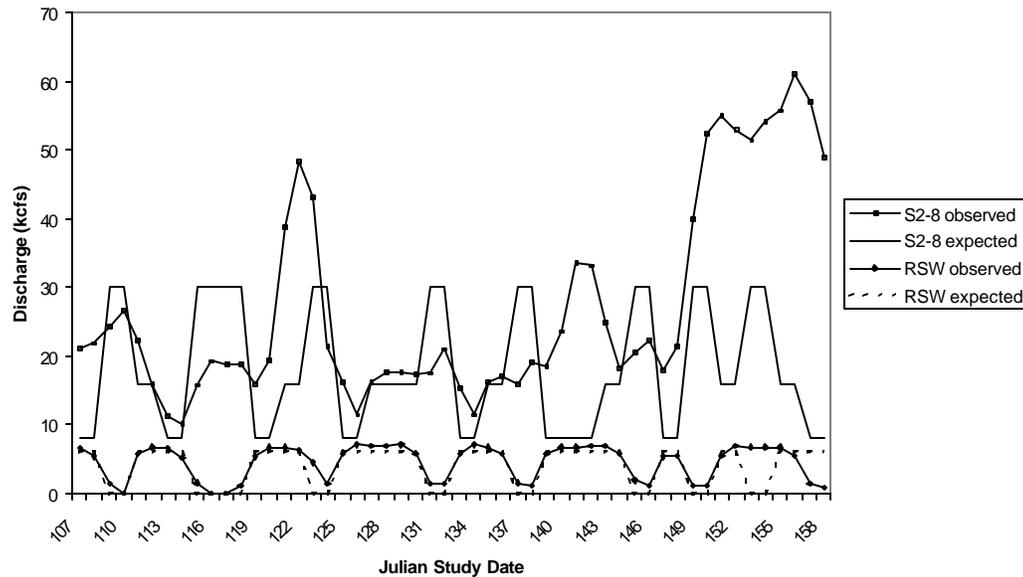


Figure 7. Daily observed and expected discharge at spill bays 2-8 and the RSW.

### 3.2. Migration Characteristics

The spring 2002 out-migration past Lower Granite Dam consisted primarily of steelhead (*Oncorhynchus mykiss*; 49%) and yearling chinook (*O. tshawytscha*; 47%) (Figure 8). Chinook salmon were dominant early in the study period, and again from May 1 through May 20, 2002, averaging 62% of total passage. Steelhead were predominant from May 21 through the end of the study period, averaging 68% of total passage. Passage numbers began to decline substantially after May 31, 2002. Wild sub-yearling chinook, sockeye (*O. nerka*), and coho (*O. kisutch*) were also collected in bypass samples during the study period. The smolt monitoring program passage index (SMP Index) of chinook salmon and steelhead peaked on May 4 (333,835 fish per day, 73% chinook) and May 23, 2002 (221,772 fish per day, 85% steelhead), respectively (Figure 9). Daily passage of chinook salmon had a smaller peak on April 16 (83,425) and May 19 (89,531). Daily passage of steelhead demonstrated small peaks on April 28 (96,281), May 4 (88,525), and May 6 (91,657) with the highest passage occurring on May 23 (188,682).

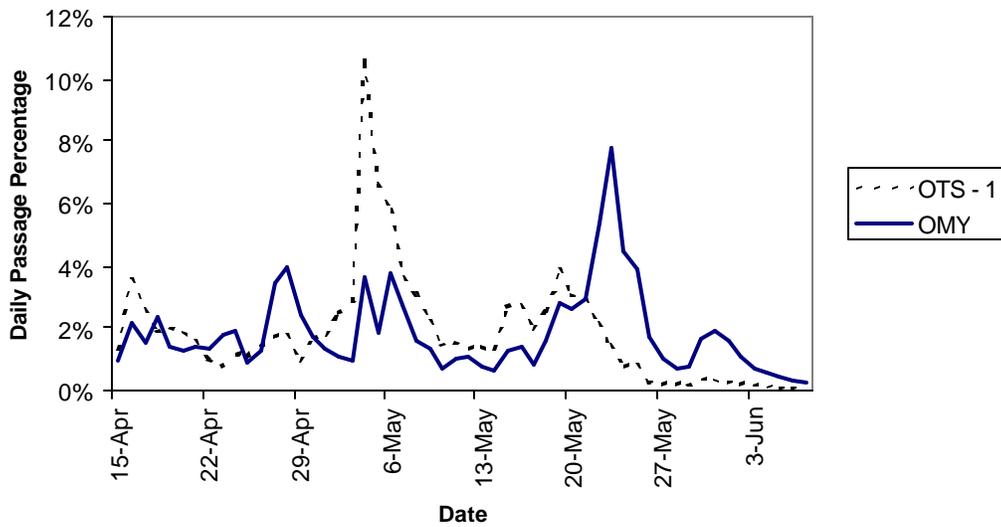


Figure 8. Daily percentages of steelhead (OMY) and chinook salmon (OTS - 1) of all fish collected at Lower Granite Dam from April 15 through June 7, 2002. (SMP data from DART <http://www.cqs.washington.edu/dart/>.)

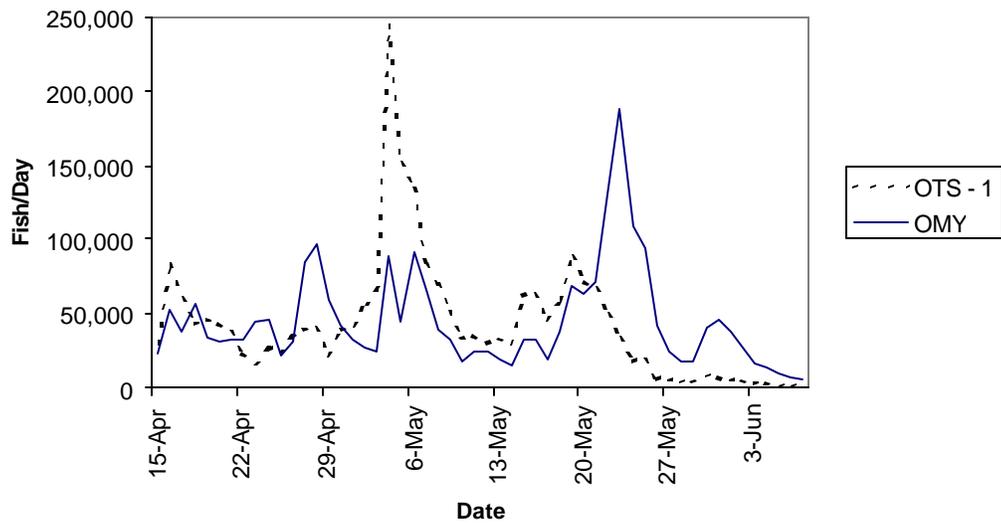


Figure 9. Daily run timing data from the Smolt Monitoring Program (SMP) at Lower Granite Dam in 2002. (SMP data from DART <http://www.cqs.washington.edu/dart/>.)

### 4. Fish Passage

Passage and performance data are presented for the period from April 18 through June 7, 2002. Due to the similarity in spillway discharge between RSW + 8 and RSW + 16 treatment days, passage data

from these two treatment was combined. Confidence interval brackets in graphs are at the 95% level. We caution the reader that these data are preliminary and are subject to change as the data set undergoes further detailed scrutiny.

- The run timing curve for the period discussed in this report, comports well with the Smolt Monitoring Program (SMP) at Lower Granite Dam through the end of May (Figure 10). The hydroacoustic passage index indicated an increase in passage in the beginning of June, this peak was not reflected to the same degree in the SMP index.

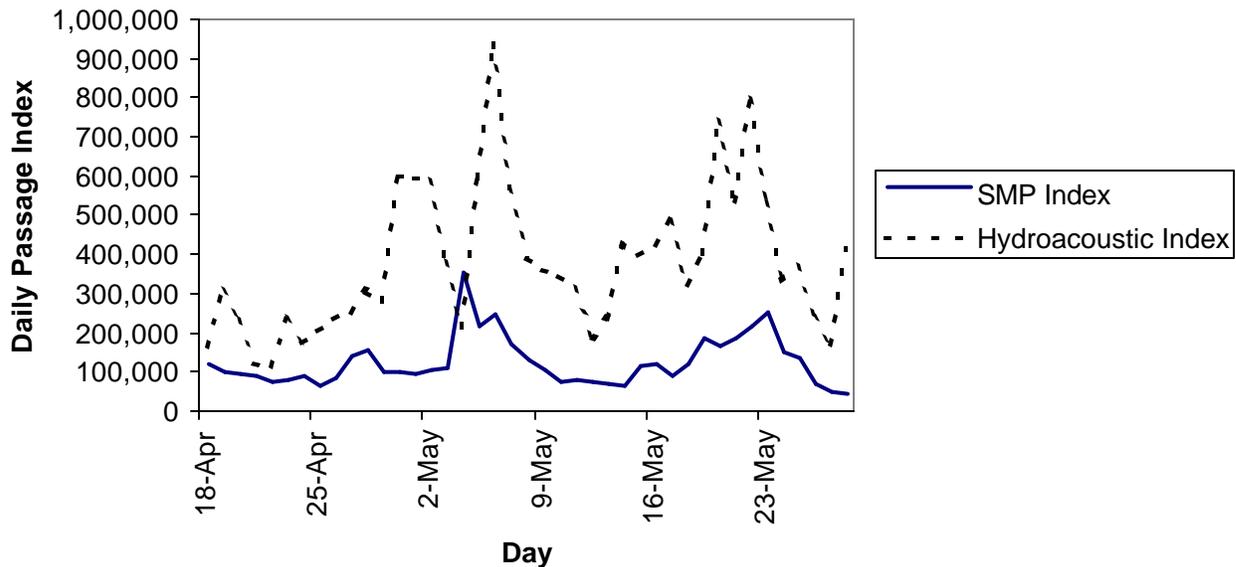


Figure 10. Daily fish passage proportions of hydroacoustic (HA) and SMP indices. (SMP data from DART <http://www.cqs.washington.edu/dart/>.)

#### 4.1. Combined RSW Efficiency and Effectiveness

- Combined spill efficiency and effectiveness for the RSW treatments were higher than observed for the Gas Cap treatment (Table 3). Efficiency and effectiveness values were higher when just the 12 hr period of night spill during Gas Cap operation was included. This compares to values in 2000, using SBC Single High configuration passage, of 0.66 and 2.65 for combined spill efficiency and effectiveness, respectively (Anglea et al. 2001).

Table 3. Combined RSW efficiency and effectiveness for the RSWG16, RSWLT16, and Gas Cap treatments.

Treatment	n (days)	Combined Spill Efficiency	Combined Spill Effectiveness
RSWG16	11	0.78	2.19
RSWLT16	6	0.71	2.13
Gas Cap 12hr night	7	0.86	1.31
Gas Cap 24hr	7	0.66	2.01

#### 4.2. RSW Efficiency and Effectiveness

- During the RSWG16 treatment RSW efficiency and effectiveness was 0.62 and 7.22, respectively. During the RSWLT16 treatment, RSW efficiency increased to 0.68 and RSW effectiveness decreased to 3.47. This follows the expected trend in RSW passage, with passage through the RSW being depressed while discharge was high through the existing unmodified spill bays. RSW efficiency is highest during the higher spill configuration, due to the smaller proportion of spill passing through the RSW. SBC efficiency ( $R_{all}$ ) and effectiveness ( $E_{all}$ ) in 2000 for the Single High configuration of the SBC was 0.56 and 11.17, respectively (Anglea et al. 2001).

#### 4.3. Spill Efficiency and Effectiveness

- Spill efficiency, not including RSW passage, was 0.16 during the RSWG16 treatment and 0.03 during the RSWLT16 treatment (Table 4). Spill efficiency was substantially higher during the Gas Cap treatment.
- Spill effectiveness, not including RSW passage, was 0.53 during the RSWG16 treatment and 0.26 during the RSWLT16 treatment (Table 4). Spill effectiveness was substantially higher during the Gas Cap treatment.

Table 4. Spillway efficiency and effectiveness for the RSWG16, RSWL16, and Gas Cap treatments.

Treatment	n (days)	Spill Efficiency	Spill Effectiveness
RSWG16	11	0.16	0.53
RSWL16	6	0.03	0.26
Gas Cap 12hr night	7	0.86	1.31
Gas Cap 24hr	7	0.66	2.01

#### 4.4. Spill Bay Efficiency and Effectiveness

- Efficiency of an individual spill bay, including the RSW at spill bay 1, was highest at the RSW (Figure 11). During the Gas Cap treatment, efficiency was high at bays 2 and 3 and then decreased at spill bays further to the north.

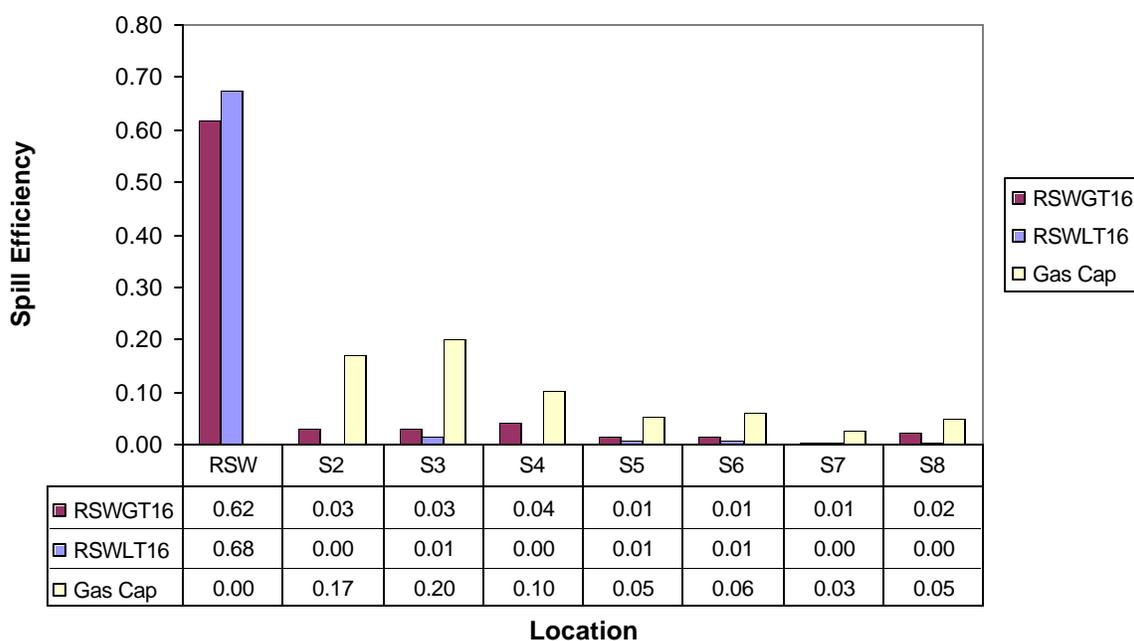


Figure 11. Spill efficiency of individual spill bays for the RSWG16, RSWL16, and Gas Cap treatments.

- The RSW at spill bay 1 was the most effective location while it was open (Figure 12). Effectiveness of spill bays 2 and 3 during the Gas Cap treatment were highest and still lower than at spill bay 1 during either RSW treatment.

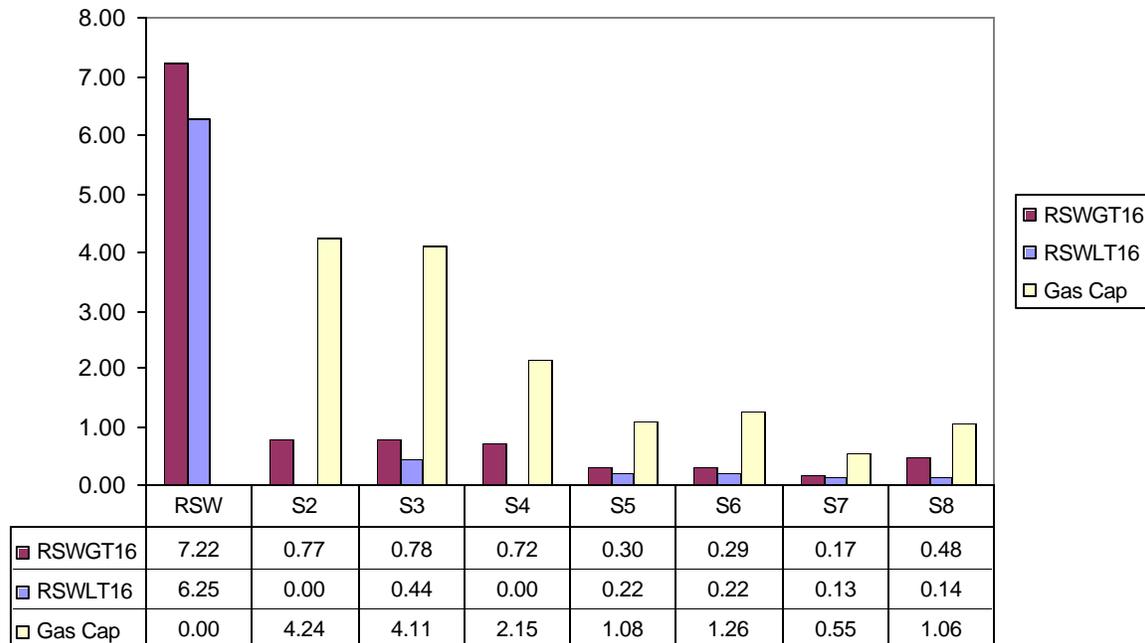


Figure 12. Spill effectiveness of individual spill bays for the Gas Cap separately and RSW + 8 and RSW + 16 treatments combined.

#### 4.5. Fish Distribution and Movement at the RSW

- The horizontal distribution of fish passage and characteristics of fish passage (direction, velocity) at the RSW was determined through the application of a 3-dimensional tracking process that formed tracks on an echo by echo basis. The data set to determine fish distribution and movement is from the same raw data as that used to determine passage rates, but has undergone an independent process to identify likely fish tracks. Tracks were constructed based on the relationship of one ping/echo to the next, rather than on the overall characteristics of a collection of echoes. Depending on the particular analysis, the resultant data set was composed at a minimum of over 60,000 individual tracks.
- Data collected on June 5, 2002, while the north RSW split-beam transducer was traversing, indicated a non-uniform distribution of fish passage. Fish density immediately upstream from the pier nose extension (~66 ft from south end of RSW) was lower than at the two locations toward the middle of the north half of the RSW (Figure 13).
- Fish density was highest near the transducer (elevation 694 ft) and decreased with decreasing depth, suggesting that fish are moving up in the water column as they approach the RSW.

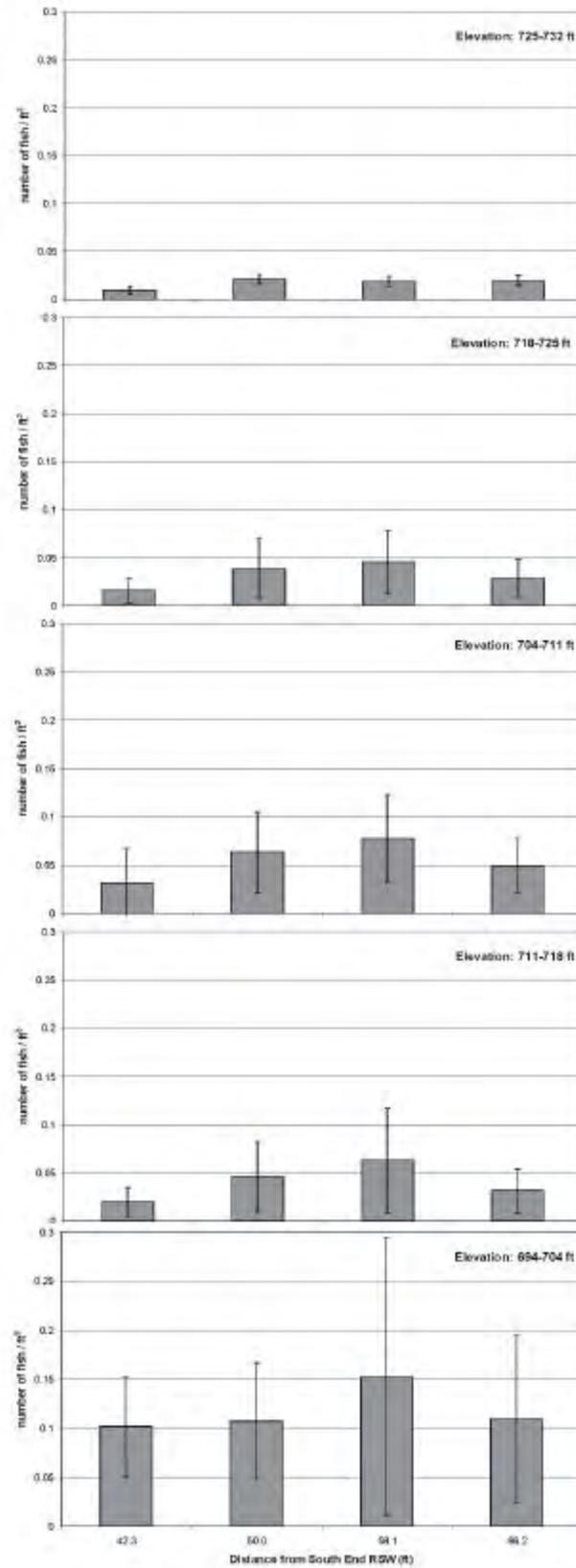


Figure 13. Density (fish/ft<sup>3</sup>) of targets through the north half of the RSW on June 5, 2002.

- More than 90% of the fish tracks above the RSW nose were moving in a downstream direction toward the RSW while the RSW was open, while less than 45% were moving downstream while the RSW was closed (Figure 14). Figure 14 shows fish track velocity along the Y-axis (upstream-downstream) for RSW open and closed conditions. Negative values indicate downstream movement.

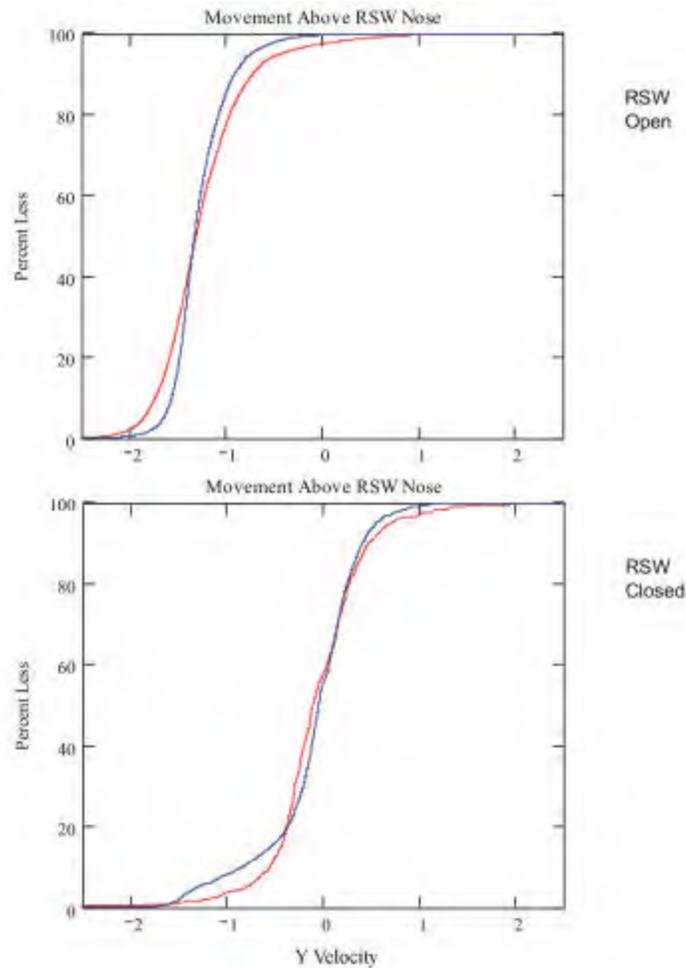


Figure 14. Velocity of fish tracks along the Y axis, above the RSW nose, for RSW open and closed conditions. Negative values indicate downstream movement, positive values indicate upstream movement. Red line represents the velocity of fish passing through the south RSW transducer, blue line represents the velocity of fish passing through the north RSW transducer.

- Vectors of fish paths, representing the median distance traveled in 2-s, indicate that fish passing through the sample volumes were directed toward the center of the RSW (Figure 15 and Figure 16). Through both sample volumes, fish tracks were steepest near the transducer and decreased in slope with decreasing depth.

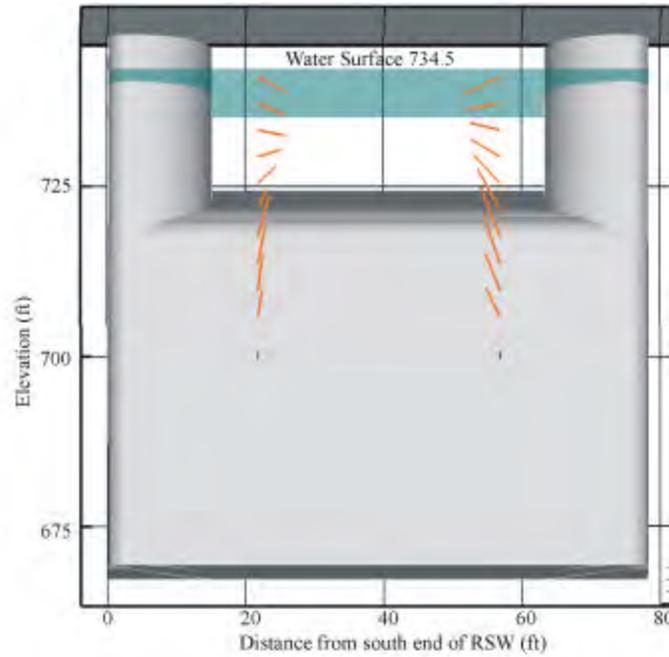


Figure 15. Front view of vectors of fish tracks passing through each RSW split-beam transducer. Vectors represent the median distance and direction traveled in 2-s.

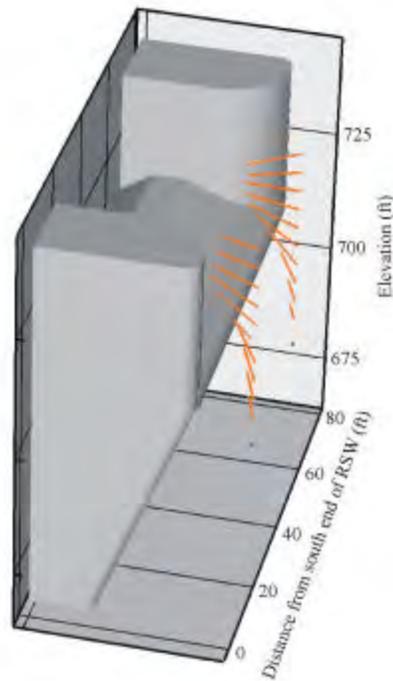


Figure 16. Side view of vectors of fish tracks passing through each RSW split-beam transducer. Vectors represent the median distance and direction traveled in 2-s.

## 5. Summary

This section summarizes our findings to date.

- Combined spill efficiency and effectiveness was highest for the RSWG16 treatment days. This is likely due to the relatively large discharge volume and operation of the RSW. Efficiency and effectiveness of the Gas Cap treatment over an entire 24 hr period was lower than either treatment while the RSW was open.
- RSW efficiency was highest during the low training spill configuration while RSW effectiveness was higher during the high training spill configuration. The increase in effectiveness with increased training spill is likely due to a decrease in the proportion of discharge through the RSW.
- Estimates of individual spill bay (including the RSW) efficiencies indicate that the RSW passes substantially more fish relative to the unmodified bays, > 60% compared to < 5% for unmodified bays during RSW treatments and  $\leq 20\%$  during the Gas Cap treatment.
- The RSW was the most effective bay while the RSW was open. Spill bays 2 and 3 were the most effective during the Gas Cap treatment.
- Horizontal and vertical distributions of fish tracks through the north half of the RSW on June 5, 2002, indicate that fish density is highest near the transducer and away from the pier nose extension. Fish density decreases with decreasing depth.
- Greater than 90% of the fish tracks in front of the RSW are traveling toward the RSW while it is open indicating that fish move readily into the RSW in the location of the split-beam sample volumes.
- Vectors of fish in each RSW split-beam sample volume, indicate that fish are generally heading toward the center of the RSW. Fish tracks are ascending steeply near the depth of the transducer and decrease in slope with decreasing depth.
- The data for this report were aggregated based on the RSW being open or closed. This was due to the divergence in actual versus planned project operations. Additional effort need to be expended identifying appropriate aggregations of days or hours based on factors such as: RSW open/closed, spill 12/24 hr, day/night, and block.

## 6. References

- Anglea, S.M., R.L. Johnson, M.A. Simmons, S.L. Thorsten, J.P. Duncan, M.A. Chamness, C.A. McKinstry, E.A. Kudera, and J.R. Skalski. 2001. Fixed-Location Hydroacoustic Evaluation of the Prototype Surface Bypass and Collector at Lower Granite Dam in 2000. Walla Walla District, U.S. Army Corps of Engineers.
- Anglea, S.M., G.E. Johnson G, T.O. Wik, L.A. Reese, and A.E. Giorgi.. 2002. Development of the Surface Bypass and Collector for Juvenile Salmon and Steelhead at Lower Granite Dam 1994-2000. Walla Walla District, U.S. Army Corps of Engineers.

## 5.1 Hydrosystem Priorities

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During development of the 2000 BiOps, the effect of current hydrosystem operations and dam configuration on threatened and endangered fish was estimated using the Simpas model (NMFS 2000 BiOp, Appendix D, tables D-1, D-2 and D-3). The projected increase in juvenile survival that may be achieved by altering hydro operations and installing new dam configurations was also estimated (Appendix D, Tables D-4, D-5 and D-6). These operation and configuration changes were used by NMFS as a basis to determine performance standards.

The strategies below were developed to guide hydrosystem actions and achievement of hydrosystem survival performance rates outlined in the BiOp. Priority criteria were used to determine the completion order for configuration projects. Water management priorities in this Plan are those provided in the BiOps. The implementation of these priorities is adaptively managed in-season using actual hydrological conditions. Operation and maintenance (O&M) priorities were established to develop O&M plans and allocate staff and funds.

The BiOp acknowledged long-term Clean Water Act goals for total dissolved gas (TDG) and water temperature, which were considered complementary to other recovery actions. The near-term and primary focus is to achieve the juvenile and adult survival performance standards. Efforts to meet Clean Water Act standards have been viewed as long-term goals and variances to the 110 percent **TDG standard are coordinated with the states to enhance achievement of ESA performance standards.**

### Hydrosystem Actions Under Consideration

Since the BiOps were issued in December 2000, research and evaluation has continued, revealing new information about BiOp implementation and performance results. In addition, BPA recently conducted a Financial Choices public process in which the agency asked the region (customers, constituents, states, tribes, interest groups, etc.) to comment on a range of actions the BPA might take to eliminate its forecasted revenue shortfall over the remainder of the current rate period (FY 2003 through FY 2006).

In September and October 2002, the Action Agencies together with NMFS and USFWS jointly reviewed configuration, spill and flow operations to see whether modifications or changes could be made that would sustain or accelerate progress in achieving hydro performance standards but potentially reduce hydrosystem operational costs. The actions include some that were already under consideration based on experience learned through research studies and implementation.

Our intent is to discuss these potential actions through the NMFS Regional Forum teams in November and December of 2002, and to make decisions on actions to be implemented in 2003 early in the year. The following actions are being considered for implementation during the 2003-2007 period:

#### **Configuration Alternatives**

The intent of the following options is to improve upon existing project survivals, or provide equivalent survival, while reducing spill levels. As we develop the options, and if implemented,

we would adaptively address necessary spill/operational requirements with the goal of meeting biological opinion performance objectives.

- Accelerate installation of a Removable Spillway Weir (RSW) and Behavioral Guidance System (BGS) at Ice Harbor Dam.
- Accelerate installation of an RSW and BGS at Lower Monumental Dam. Accelerate installation of a forebay physical guidance device at The Dalles Dam and reduce spill from levels called for in the BiOp.

#### **Water Management Alternatives**

- Discontinue spill at Bonneville Dam to assist passage of the Spring Creek Hatchery release in March. This alternative may involve reprogramming of hatchery funds or other actions to move fish production to facilities below Bonneville Dam.
- Eliminate daytime spill testing at John Day in the spring. Information to date does not show a survival advantage of 24-hour spill for spring migrants. Review of 2002 research results is needed to make a determination.
- Test alternative levels of nighttime spill at John Day Dam in the spring. Survival studies at John Day show no significant difference in tailrace egress for 30% and 60% spill levels. Reduced spill levels may not impact survival and would increase generation. Review of 2002 research results is needed to determine what level of intermediate spill may be appropriate for testing.
- Modify spill at Ice Harbor Dam to optimize tailrace egress. Reassessment of a spill cap based on tailrace condition (similar to what NMFS developed for other projects) will be considered for the summer passage period, and perhaps the spring. Recent evaluation results suggest survival through nighttime spill in the summer is lower than expected.
- Assess whether operations to maintain flows to benefit chum should be consistently maintained through emergence in low water years. This assessment will also take into account Vernita Bar flows.

Those interested in these additional/modified implementation plan measures are encouraged to participate in the System Configuration Team (for configuration alternatives), the Technical Management Team (for water management alternatives), and other regional technical teams. Policy issues will be addressed in the Implementation Team. Information on the scope of topics and contacts for each Regional Forum group is provided in Chapter 6.0.

### **5.1.1 Hydrosystem Strategy 1: Configure Dam Facilities to Improve Juvenile and Adult Fish Passage and Survival**

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Much attention has been given over the last decade to improving juvenile and adult passage survival

**TECHNICAL MANAGEMENT TEAM  
MEETING NOTES  
October 23, 2002  
CORPS OF ENGINEERS NORTHWESTERN DIVISION OFFICES – CUSTOM  
HOUSE  
PORTLAND, OREGON**

**TMT Internet Homepage: <http://www.nwd-wc.usace.army.mil/TMT/index.html>**

**FACILITATOR’S SUMMARY NOTES ON FUTURE ACTIONS**

Facilitator: Donna Silverberg

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

**Report on RSW Meeting in Walla Walla:**

Tim Wik reported on preliminary data from the Lower Granite RSW. The RSW seems to have increased passage for fish. A final report is expected out in January 2003.

**Proposed Special Operation for Lower Granite RSW:**

A request has been made for 6-7 kcfs flow for eight hours a day on November 25, 26 and 27 in order to take hydraulic measurements at Lower Granite. BPA is still working with the COE to agree on an operation. The Salmon Managers are not aware of any fish passage issues. Walla Walla may request approval of this request from TMT.

**Hydro Alternatives:**

Suzanne Cooper, BPA, distributed an excerpt from the Implementation Plan that lists water management alternatives to hydro system actions as contemplated by the adaptive management focus of the 2000 Biological Opinion. TMT was asked to consider what kind of information they would need to make decisions about whether to maintain flows for chum during low water years. Ron Boyce, Oregon, felt that changes to the Biological Opinion and other operations needed full discussions by TMT and other groups. A suggestion was made to invite the tribal and state folks into the discussions, particularly Spring Creek as there are many Washington state folks involved with that issue. Suzanne clarified that the listed alternatives are just a start and that additional ideas are welcome. A strong need was expressed for clarification on the process: where, when and how are decisions going to be made? How does TMT fit into this process? This is the first time modifications have been offered to the BiOp. outside of formal consultation processes. Clarification is needed on the metrics for measuring biological effects on fish, which may be answered through the SRWG process. Several TMT members are involved with SRWG.

**Action:** Donna Silverberg and Suzanne Cooper will work with others to develop a process and decision making chart before the next meeting.

### **2003 Water Management Plan:**

The Draft Fall/Winter update has been posted on the TMT web page. Comments are still welcome, and should be in by the next TMT meeting. If there are issues that members would like to see addressed at the meeting, please notify the facilitation team so they may be added to the agenda. There will be a short time for feedback at the next meeting. The COE is still working with their attorneys on the emergency protocols and will update TMT on this issue at the next meeting.

### **Burbot Modeling Results:**

The COE reported their results of model runs relative assuming 86%, 98% and 101% of normal forecast. Preliminary results show that the SOR could be implemented using VARQ or normal flood control without drafting below 2411' on December 31 if the runoff forecast was 86% of normal. Cindy Henriksen, COE, asked the group to consider how future operations may be effected if this SOR is implemented. There will be further data and discussions of this issue at the November TMT meeting.

**Action:** Dave Wills, USFWS, will consider Cindy's concern. He will respond whether it would be acceptable to USFWS to release extra water out of Libby in January in the event that implementing the burbot operation coupled with high precipitation in January make it necessary to do so.

**Next Steps:** Scott Bettin, BPA, will present the burbot issue at the next KIVRI group meeting, Friday October 25.

### **Chum Update:**

Shane Scott, Washington, said that WDFW staff are surveying from Gray's River to Bonneville and have not yet seen any chum. Surveys suggest chum travel time from Gray's River to Ive's Island to be approximately a week. Staff expect to see the arrival of chum at Gray's River sometime next week.

Ron Boyce, Oregon, distributed spawning ground surveys for 2000-2002. Washington and Oregon staff are working together on chum surveys and will try to give updates on the information at every TMT meeting. They would like to provide TMT with chum spawning elevations as another tool to use for making operating decisions.

**Next Steps:** A conference call will be held at 3 pm on Friday, November 1<sup>st</sup> to review the survey information.

### **Review Current System Conditions:**

*Fish Migration:* Paul Wagner reported that the Salmon Managers are waiting for chum to arrive!

*Reservoir Operations:* Cathy Hlebechuk reported that information from the COE gauge at Ive's Island will be posted on the TMT web page as soon as it is available. (Note: Cathy sent out an email on 10/24 that said that the information should be available around November 1<sup>st</sup>.)

Tony Norris, BOR, reported that the forebay gauge at Hungry Horse is working again.

CRITFC voiced a concern with Hanford Reach Vernita Bar operations. They plan to send a letter to Grant County regarding fluctuating flows. CRITFC would like to see smoother flows. They would also like BOR to respond to this issue. Tony Norris will get back to Kyle Martin as soon as possible on this issue.

**FIELD TRIP/CONFERENCE CALL:** An SOR is expected to go out next week requesting 125 at Bonneville when chum are present, presumably around November 5<sup>th</sup>. There will be a field trip on Friday, November 1<sup>st</sup> organized by Shane Scott to survey the spawning grounds, and then a TMT conference call will follow at 3 pm to discuss chum operations. TMT will use the regular call-in number. A subsequent meeting the following week may be called. TMT members will be notified of any other scheduled conference calls.

**Next Face to Face Meeting, November 6<sup>th</sup>:**

- *Year End Review*
- *Comment on the WMP Fall/Winter Update*
- *Burbot Update*
- *Process Update*
- *Chum Operations*

***1. Greeting and Introductions***

The October 23 Technical Management Team meeting was chaired by Cathryn Hlebechuk of the Corps and facilitated by Donna Silverberg. The following is a distillation, not a verbatim transcript, of items discussed at the meeting and actions taken. Anyone with questions or comments about these minutes should call Cathy at 503/808-3942.

***2. Report on Removable Spillway Weir (RSW) Meeting in Walla Walla.***

Tim Wik said that, originally, the Corps had planned to test three different conditions during the 2002 Lower Granite RSW evaluation: the RSW running plus 8 Kcfs training spill, the RSW running plus 16 Kcfs training spill (both 24-hour operations), and the BiOp spill condition, with 40 Kcfs-45 Kcfs of spill for 12 hours at night.

However, because of flow conditions and powerhouse problems, we weren't able to stick very closely to those planned operations, said Wik. We did collect a lot of information, however, and the researchers are in the process of sifting through it. Wik noted that the Corps has released some preliminary information from the 2002 RSW test, but emphasized that it is preliminary and subject to change. The key point is that when the RSW was on, about 60% of the fish passing the project passed through it, Wik said. The RSW and, in some cases, RSW plus training spill, tended to meet or be lower than the TDG levels allowed for a 24-hour period under the gas cap, he said, adding that when

the RSW was on, fish passed throughout the day, while when it was off, forebay residence times tended to be longer.

That pretty much sums up, in a nutshell, what we saw last spring, said Wik. The RSW “off” condition still included BiOp spill at night? Rudd Turner asked. Correct, Wik replied; in addition, there were some days when involuntary spill was occurring. And can you briefly describe the planned evaluation for 2003? asked Shane Scott. I can tell you what I think some aspects might be, Wik replied – we plan to remove the surface bypass collector (SBC) from in front of Units 4, 5 and 6 and to operate the RSW without that powerhouse occlusion in place. As far as the specific operations go, however, we really haven’t worked anything out at this time, said Wik. That will be discussed at a special meeting this week in Walla Walla, noted Ron Boyce.

### ***3. Proposed Lower Granite RSW Special Operation in November.***

Wik explained that the Corps is requesting a special operation, three days of 6 Kcfs-7 Kcfs flow through the RSW eight hours per day on November 25-27, to allow personnel at Lower Granite to take hydraulic measurements. This operation will also require a forebay elevation of about 734 feet. Scott Bettin said the details and timing of this operation are still being discussed by the Corps and BPA. In response to a question, Wik said he is unaware of any biological concerns about a November test on the part of the salmon managers. So this is mostly a heads-up, and you’ll provide a further report to TMT as we get a bit closer to the actual test? Silverberg asked. Correct, Bettin replied – we still have a month to work out the final details.

### ***4. Hydro Alternatives.***

Bonneville’s Suzanne Cooper provided a presentation on some of the hydrosystem alternatives under consideration by the action agencies; she distributed an excerpt from the 2003 Implementation Plan – Section 5.1, Hydrosystem Priorities. She noted that during the comment period on the draft Implementation Plan, the action agencies hosted a series of public meetings throughout the region to get input from interested parties. Since then, she said, we have added this section to the Plan.

Since the 2000 FCRPS Biological Opinion was issued, Cooper said, there has been ongoing research that has revealed new information about the effectiveness of some of the actions we have been taking. Over the last two months, the action agencies have been working with NMFS and the Fish and Wildlife Service to review configuration, spill and flow operations to see whether new information might indicate that we should modify our implementation of any of these measures, in a way that would sustain or accelerate our progress toward meeting the performance standards, but which could also potentially achieve that progress at a lower cost. We have identified several alternatives, listed in Section 5.1, which the action agencies, NMFS and the Fish and Wildlife Service feel merit further evaluation and discussion by the Regional Forum teams, Cooper explained. These alternatives include:

#### **Configurational Alternatives**

The intent of the following options is to improve upon existing project survivals, or provide equivalent survival, while reducing spill levels. As we develop options, and if implemented, we would adaptively address necessary spill/operational requirements with the goal of meeting biological opinion performance objectives.

- Accelerate installation of a Removable Spillway Weir (RSW) and Behavioral Guidance System (BGS) at Ice Harbor Dam
- Accelerate installation of an RSW and BGS at Lower Monumental Dam
- Accelerate installation of a forebay physical guidance device at The Dalles Dam and reduce spill from levels called for in the BiOp.

### **Water Management Alternatives**

- Discontinue spill at Bonneville Dam to assist passage of Spring Creek Hatchery release in March. This alternative may involve reprogramming of hatchery funds or other actions to move fish production to facilities below Bonneville Dam.
- Eliminate daytime spill testing at John Day in the spring. Information to date does not show a survival advantage to 24-hour spill for spring migrants. Review of 2002 research is needed to make a determination.
- Test alternative levels of nighttime spill at John Day Dam in the spring. Survival studies at John Day show no significant difference in tailrace egress for 30% and 60% spill levels. Reduced spill levels may not impact survival and would increase generation. Review of 2002 research results is needed to determine what level of immediate spill may be appropriate for testing.
- Modify spill at Ice Harbor to optimize tailrace egress. Reassessment of spill cap based on tailrace condition (similar to what NMFS developed for other projects) will be considered for the summer passage period, and perhaps the spring. Recent evaluation results suggest survival through nighttime spill in the summer is lower than expected.
- Assess whether operations to maintain flows to benefit chum salmon should be consistently maintained through emergence in low water years. This assessment will also take into account Vernita Bar flows.

The configurational alternatives are being discussed by the System Configuration Team (SCT), Cooper said. The water management alternatives, however, are slated for discussion here at TMT and at the Studies Review Work Group (SRWG). She added that the SRWG will be reviewing all of the relevant data, and all of these alternatives will be discussed at length in that forum.

With respect to the final operational alternative, Boyce asked what flow or runoff conditions the action agencies are considering under which they might terminate a given year's chum operation, and what basis they might use to determine impacts on the chum population. We need to understand those factors before we can make a decision here, Boyce said. The GPS map of redd locations will be important in making that determination, Bettin observed. It's coming, Shane Scott replied. It would obviously be only low water years, said Paul Wagner; in those years, the chum operation would

conflict with the Vernita Bar operation. Obviously low-flow years produce conflicts between many of our operational criteria for various species, Boyce observed.

What will be the process for considering these alternatives? Silverberg asked. Again, the configurational alternatives will be discussed at SCT; we can also brief the TMT on those alternatives if that would be desirable, she said. The spill alternatives will be discussed at SRWG, said Cooper; in the case of the John Day and Ice Harbor alternatives, the agencies have not yet defined what those operations will be because the analysis of the 2002 data is still outstanding. It is likely that, once that data is available, the SRWG will design the 2003 study protocols, Cooper said. After that, my assumption is that any research the SRWG designs will be brought here to TMT, where the specific operations needed to conduct that research will be discussed and refined.

Boyce said that, in his opinion, any change to the operational and configurational guidance laid out in the 2000 FCRPS BiOp merits full consultation, which NMFS should follow in considering such changes. The consultation process is the annual implementation planning process, Wagner replied – this is part of that process. This would not be “changing” the BiOp, added Cooper – it would be considered part of the adaptive management framework of the BiOp. Bear in mind that this is a 10-year Biological Opinion, she said – the intent was that as research indicates that particular actions are more or less effective than anticipated, we would potentially make changes in how we implement actions to meet the performance standards. Still, I’m unclear about the ability of the SRWG or the TMT in determining the effect of these changes on meeting the performance standards on the recovery of the listed stocks, said Boyce -- hence my question about the process for making that decision.

The entire notion of reviewing these alternatives is to assess their effect on survival, Wagner replied – if survival is increased as a result of making one or more of these changes, then that is the path to follow. If there is no benefit, we will not make those changes, he said. My concern is that we have to be consistent, and clearly lay out how we’re going to go about making that determination, said Boyce – these are potentially substantial deviations from the current program.

An extensive discussion of these issues ensued, including the suggestion that tribal representatives need to be fully involved in these discussions. Cooper emphasized that these alternatives are presented for consideration only, and are certainly not carved in stone at this point. It was strongly reiterated that there is a need for a clearer TMT understanding of how, when, where, and under what criteria any changes that impact the basic operational and configurational actions laid out in the 2000 FCRPS BiOp will be made, given the fact that this is the first time modifications have been proposed to the BiOp outside the formal consultation process. Additional clarification is needed on the metrics under which the biological effects of these potential actions will be measured.

The concern, from a big-picture standpoint, is communication, said Scott – rather than just telling the region later, after decisions are made, this is one instance when you really need to bring folks on board before and during the decision-making process. If we’re simply looking over the fence as the federal parties make changes to the actions

called for in the BiOp, that's not going to work, said Scott. And that's the process we want to put in place, Bettin replied.

Ultimately, it was agreed that Cooper will work with Silverberg to develop a flow chart showing how these questions will be answered, and how decisions will ultimately be made, for presentation at the next TMT meeting.

#### ***5. 2003 Water Management Plan.***

Hlebechuk said the draft fall/winter update to the 2003 Water Management Plan has been posted to the TMT homepage; we are now waiting for any comments you may have, she said. Hlebechuk asked that those comments be received by the next TMT meeting on November 6, so that the update can be finalized, hopefully, at that meeting. Hlebechuk added that Corps legal staff is still reviewing the emergency protocols; she said she will provide an update on that topic at the next TMT meeting as well.

#### ***6. Burbot Modeling Results.***

Hlebechuk distributed a handout showing the results of several Corps model runs of the propose SOR burbot operation, assuming 86%, 98% and 101% of normal water supply forecasts. She noted that at this point in the season, forecasters are predicting a below-average water supply in the Libby Basin. Hlebechuk added that Scott Bettin will also be presenting this information at Friday's Kootenai Valley Resource Initiative (KVRI) meeting.

The SOR calls for Libby to release 7.3 Kcfs or less for the period of December 15 through January 31; the project is currently releasing 4.8 Kcfs. According to the Corps' model runs, if we get 86% of average April-August runoff at Libby, if we hit elevation 2411 by December 31, we can provide the 7.3 Kcfs burbot flow from Libby whether or not we implement VARQ or normal flood control, Hlebechuk said. If runoff is 98% of average, reaching elevation 2411 by December 31 works for a VARQ operation, but not for a normal flood control operation, she said – we would need to draft 16 to 20 feet below elevation 2411 by December 31. In other words, said Hlebechuk, if we get a low runoff volume this year, we're in good shape to do the burbot operation. She added that the next Libby forecast will be available November 7; it was agreed that the TMT will discuss the burbot issue further at its November 13 meeting.

Cindy Henriksen asked what might happen if the project is operated to reach elevation 2411 by December 31, but it turns out that the water year is average or above-average? What if we have a wet January, as Kyle Martin is predicting we will, and have to draft the project deeply for flood control, releasing 15 Kcfs-20 Kcfs to meet a new flood control operation? Is that all right with the Fish and Wildlife Service? Henriksen asked. Actually, what I and everyone else are currently predicting is below-normal precipitation in November and December, and an average or below-average water year overall, Martin said. My point is simply that if the forecast changes, we might have to make some hard choices, Henriksen said. Wills replied that he will discuss this issue with others at the Fish and Wildlife Service, and will report back at the next TMT meeting.

## ***7. Chum Update.***

Shane Scott reported that although WDFW field personnel have been regularly surveying spawning areas from Grays River to Bonneville Dam, they have yet to see any chum. He noted that it generally takes about a week for the chum to migrate up from Grays River to Ives Island, adding that staff expect the chum to begin arriving at Grays River by next week, and at Ives Island by the first week in November. We'll keep you posted, he said.

Ron Boyce distributed Ives Island chum spawning ground survey information from 1998-2002; this information is available via the Fish Passage Center homepage. A few tule and upriver bright chinook have been observed in the area, he said, but as Shane said, no chum have arrived as yet. Boyce said ODFW and WDFW staff will be working together to develop the 2002 chum spawning surveys in 2002, adding that he will present this information on a weekly basis as it becomes available. After a brief discussion, it was agreed to convene a TMT conference call on Friday, November 1 to discuss the onset of the 2002 chum operation.

## ***8. Current System Conditions.***

With respect to fish passage, Wagner said that, basically, the salmon managers are waiting for the chum to arrive. Moving on the reservoir operations, Hlebechuk said the readings from the Corps' Ives Island gauge will be posted to the TMT website as soon as it is available. Tony Norris added that the Hungry Horse forebay gauge is now working again.

Martin expressed CRITFC's concern that smoother Mid-Columbia operations are needed for the Vernita Bar operation; he said CRITFC will be sending a letter to that effect to Grant County PUD. Martin also requested a Reclamation response on this issue. Norris said he will provide that response as soon as possible.

## ***9. New System Operational Requests.***

It was noted that the salmon managers will be developing and submitting an SOR covering the 2002 chum operation, probably by next week. This SOR will request a minimum instantaneous flow of 125 Kcfs from Bonneville, and will likely include a minimum tailwater elevation requirement as well. The SOR will request that this operation begin as soon as chum are observed on the spawning grounds at Ives Island, presumably in the first week in November. Scott reminded that group that he is arranging a TMT field trip to the Ives Island area for the morning of November 1; again, there will be a follow-up TMT conference call to discuss the status of the chum operation.

## ***10. Recommended Operations.***

Recommended operations were discussed earlier in today's agenda.

## ***11. Next TMT Meeting Date.***

The next meeting of the Technical Management Team was set for Wednesday, November 6. Meeting summary prepared by Jeff Kuechle, BPA contractor.

# TECHNICAL MANAGEMENT TEAM

**BOR:** Tony Norris / Lori Postlethwait

**BPA:** Scott Bettin / Rick Pendergrass

**NMFS:** Paul Wagner / Chris Ross

**USFWS:** David Wills / Howard Schaller

**OR:** Ron Boyce

**WA:** Shane Scott

**ID:** Steve Pettit

**MT:** Jim Litchfield

**COE:** Cindy Henriksen / Cathy Hlebechuk / Rudd Turner

## TMT CONFERENCE CALL

**01 November 2002      1500 - 1530 hours**

**Custom House      Room 118  
Portland, Oregon  
Conference call line: 503-808-5190**

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

### AGENDA

1. Field status report on chum spawning below Bonneville Dam (WDFW)

*Questions about the meeting may be referred to Cathy Hlebechuk at (503) 808-3942, or Rudd Turner at (503) 808-3935.*

# **COLUMBIA RIVER REGIONAL FORUM**

## **TECHNICAL MANAGEMENT TEAM CONFERENCE CALL**

November 1, 2002

### TMT CHAIRPERSON'S SUMMARY NOTES

Chair: Cathy Hlebechuk

#### **Status of Chum Spawning**

Shane Scott, WDFW reported that no spawning chum were sited at Ives Island this morning, only a few upriver brights. He also reported chum spawning at Gray's River Tuesday or Wednesday of this week. In the past, there has been about a one week lag time between chum showing up at Gray's River and chum showing up at Ives Island.

Cathy Hlebechuk asked if the Salmon Managers were supporting their SOR and wanted flows to start 1 November or if they wanted to follow the plan from last week's TMT meeting: have field trip and conference call Nov 1 and if none are sited Nov 1, schedule another field trip and conference call next week. Paul Wagner said the SOR stemmed from the apparent power operation that BPA felt they could start 1 November. Scott Bettin said BPA has the load, and recommended starting flows on Tuesday, November 5. He also said this fits in with the one week lag time between Gray's River and Ives Island spawning as well. All present Salmon Managers agreed to this operation. Tony Norris voiced concern with drafting below 1283' at Grand Coulee per his discussion with the Spokane Tribe. Scott Bettin said this shouldn't be a problem.

Discussion continued about the operation. Parties agreed to start it Tuesday, November 5 at 0700 hours. The operation will be: hard constraint 10.8' and target 11.0' between 0700 – 1900 hours. Between 1900 – 0700 hours project can exceed 11' if needed to move water to maintain lower tailwaters during daylight hours.

#### **TMT CONFERENCE CALL ATTENDANCE LIST**

**November 1, 2002**

<b>Name</b>	<b>Affiliation</b>
Cathy Hlebechuk	COE
Tony Norris	USBR
Shane Scott	WDFW
David Wills	USFWS
Scott Bettin	BPA

Paul Wagner	NOAA Fisheries
Kristine Bartlett	USFWS
Rudd Turner	COE
Dick Cassidy	COE
Russ George	Consultant
Jim Gaspard	BC Hydro
Margaret Filardo	FPC
Michelle Dehart	FPC
Scott Corvin	
Steven Wallace	PacifiCorp
Colin Beam	PPM
Richelle Harding	D. Rohr & Associates
Kyle Martin	CRITFIC

# TECHNICAL MANAGEMENT TEAM

**BOR:** Tony Norris / Lori Postlethwait

**BPA:** Scott Bettin / Rick Pendergrass

**NMFS:** Paul Wagner / Chris Ross

**USFWS:** David Wills / Howard Schaller

**OR:** Ron Boyce

**WA:** Shane Scott

**ID:** Steve Pettit

**MT:** Jim Litchfield

**COE:** Cindy Henriksen / Cathy Hlebechuk / Rudd Turner

## TMT MEETING - YEAR END REVIEW

06 November 2002      0900 - 1300 hours

Custom House      Room 210 **NOTE NEW ROOM**  
Portland, Oregon  
Conference call line: **503-808-5191 NOTE NEW NUMBER**

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

### AGENDA

1. Welcome, introductions.
2. [BPA Burbot Proposal](#)
3. Chum Operations Update
4. Comments on WMP Fall/Winter Update [\[Draft 10-22-2002\]](#) [\[Wagner, NMFS/5 Nov 02\]](#)
5. [Hydro Alternatives Process Update](#)
6. Year-End Review
  - Report on Snake River Operations
  - Dworshak Operations: Above or Below 1520'?
  - [TDG Level Variations: Criteria for Modifications to Spill - COE](#)
  - [Fall Chinook Survival in Snake River](#) - Billy Connor
  - Hanford Reach Juvenile Stranding - Paul Hoffarth
  - History of Spawning Correspondent to Vernita Bar Levels
  - Migration Status - Paul Wagner
  - Survival Study: Comparison with 2001-Paul Wagner
  - Performance Standards - Paul Wagner
  - [Weather Review](#) - Kyle Martin
  - [CRITFC Winter 2002-2003 Climate Forecast](#)
7. Other.
  - Set agenda for next meeting

*Questions about the meeting may be referred to Cathy Hlebechuk at (503) 808-3942, or Rudd Turner at (503) 808-3935.*

# BPA'S PROPOSED LIBBY OPERATION

*November 6, 2002*

BPA proposes to run one unit at Libby through November. Outlined below are some of the key factors that may affect the flow levels out of Libby dam in the months of January, December and November. BPA would like to use available flexibility in December in order to maximize the value of the available water. Most likely this will result in higher flows early in the month and lower flows during the holidays that are within the SOR's range.

## **January**

1. End of January Flood Control Elevation as defined by January Final Volume Forecast
  - o The end of January flood control elevation will determine how much water needs to be drafted from Libby to provide sufficient space for flood control. If the flood control elevation is greater than 2408', then the project will likely operate at minimum project outflows.
  - o Per BPA modeling, there is a 66% chance of being within the SOR flows (i.e., 10.6 kcfs or less).
2. Implementation of VARQ

All estimates above assume implementation of VARQ. If VARQ is not implemented, the flood control elevations are lowered and the likelihood of having to discharge water from Libby dam is increased. The result is decreased probabilities of meeting the SOR.
3. Northwest Regional Temperatures

All estimates above assume normal temperatures. If the region experiences below normal temperatures, increased generation from Libby may be contemplated which could result in decreasing the probability of meeting the SOR.

## **December**

1. Actual Libby Inflow

High inflows during the month of December would reduce the ability to back off flows over the holiday week. Current BPA estimates are that we have a 50/50 chance to be within the SOR for the holiday week.
2. Northwest Regional Temperatures

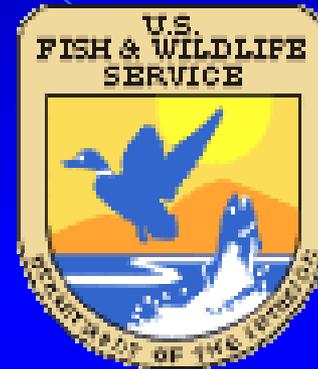
Cold temperatures during the last half of December could require increased generation from Libby that could result in decreasing the probability of meeting the SOR.

## **November**

### Actual Libby Inflow

High inflows during the month of November would affect the ability to stay at one unit for the entire month. Outflows might have to be increased to position the reservoir to achieve an end of December flood control elevation of 2411'.

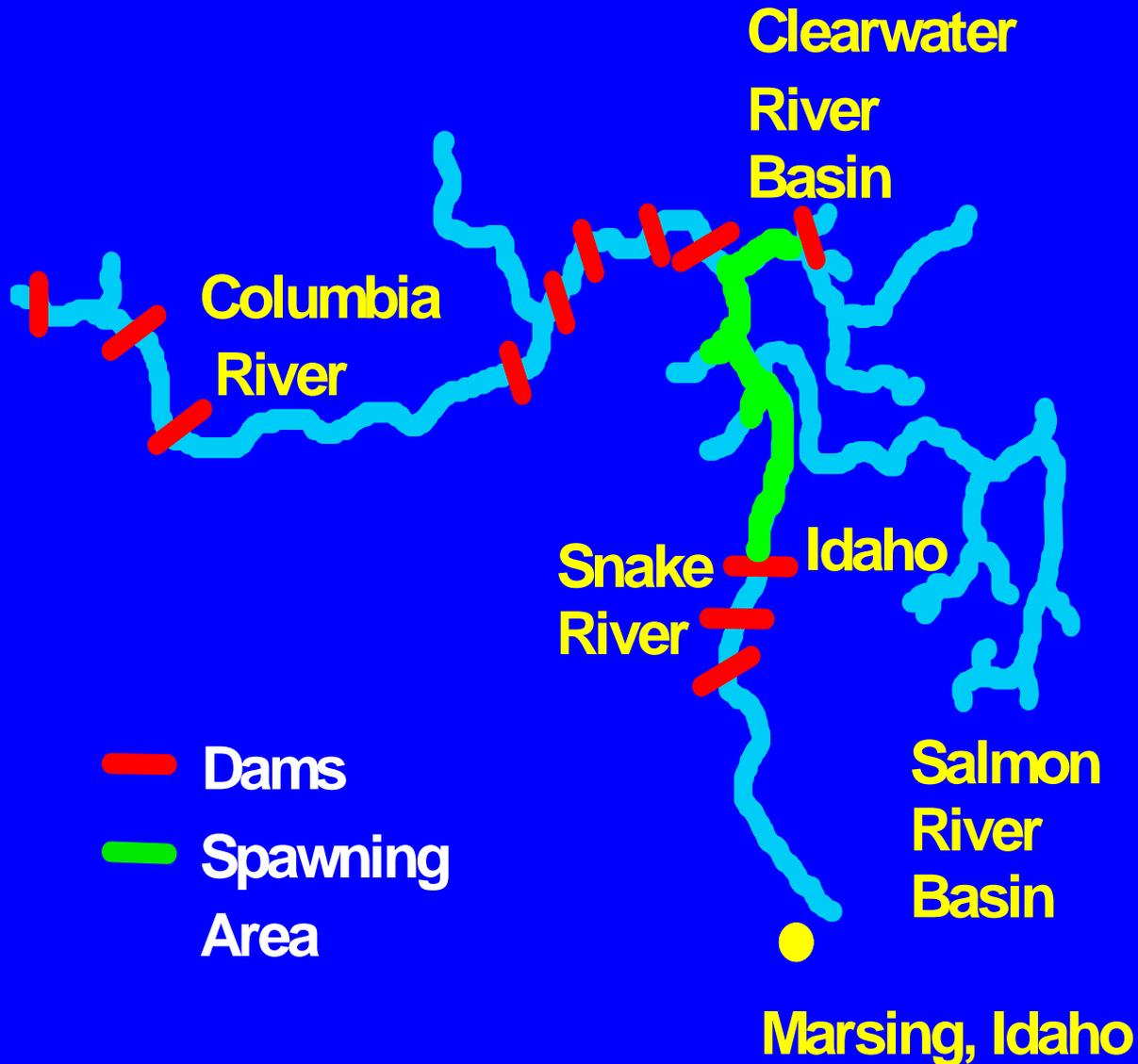
# Snake River Fall Chinook Salmon Research Summary 1992-2002



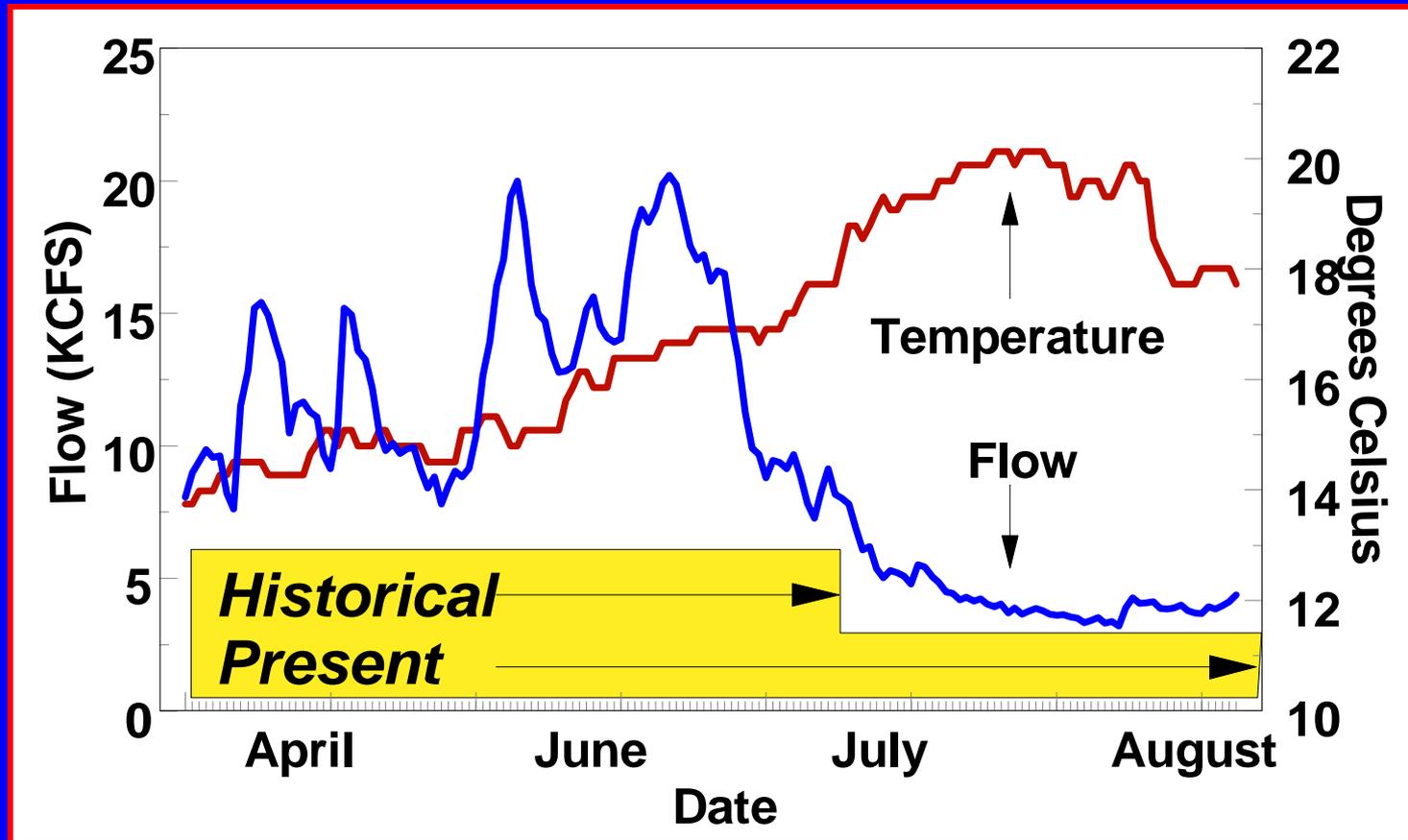
# Freshwater Habitat for Snake River Fall Chinook Salmon before 1953



# Freshwater Habitat for Snake River Fall Chinook Salmon after 1975



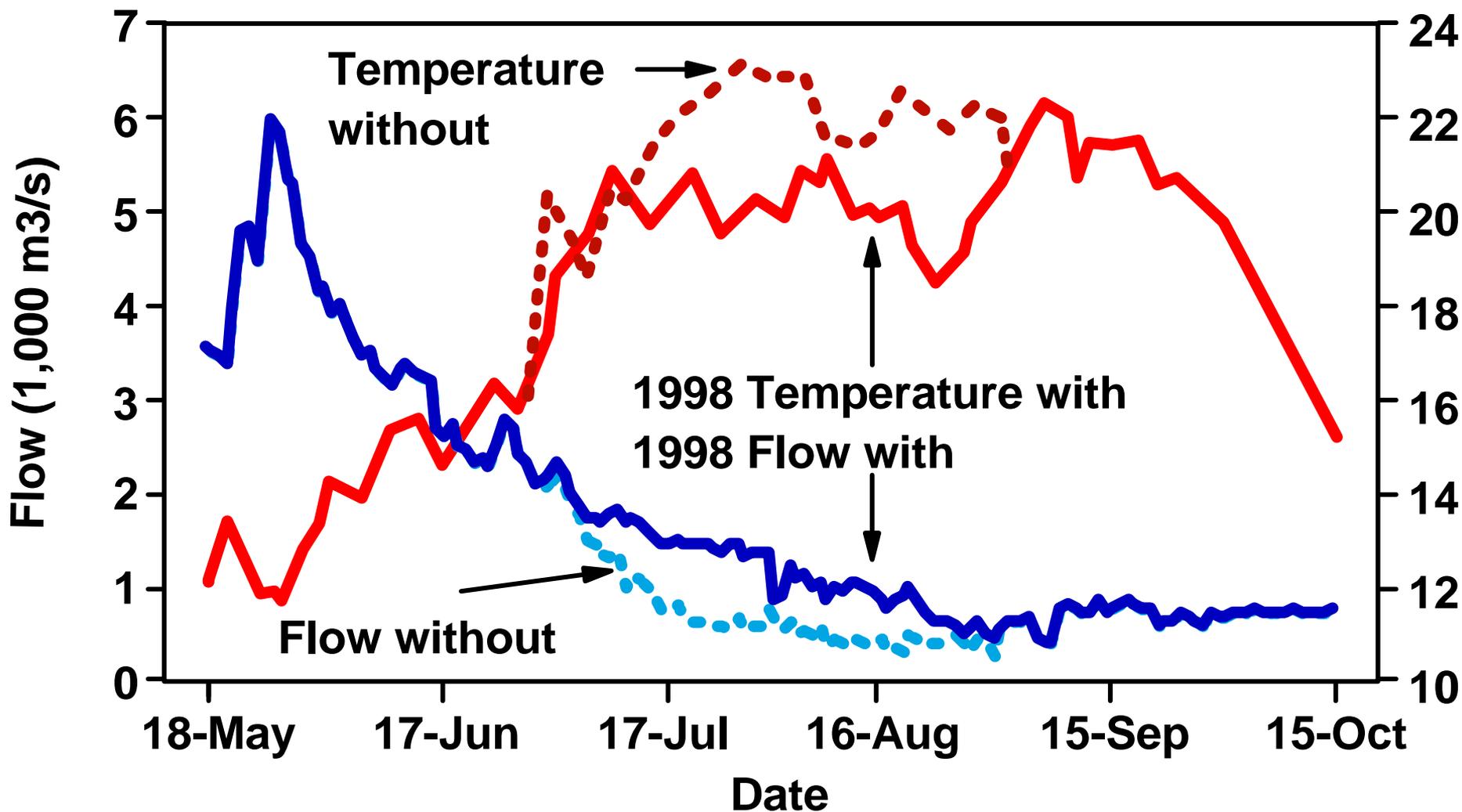
**Dam construction changed juvenile fall chinook salmon life history in the Snake River basin by shifting production to areas with relatively cool water temperatures (Connor et al. 2002).**



**Summer flow augmentation is the release of stored reservoir water between 21 June and 31 August to maintain an average flow of approximately 1,500 m<sup>3</sup>/s in Lower Granite Reservoir.**

**NMFS (1995)**

# Lower Granite Reservoir flow and temperature with and without summer flow augmentation (Connor et al. in press)



## **Underlying beliefs:**

**Summer flow augmentation increases rate of seaward movement and survival of young fall chinook salmon by increasing flow and decreasing temperature**

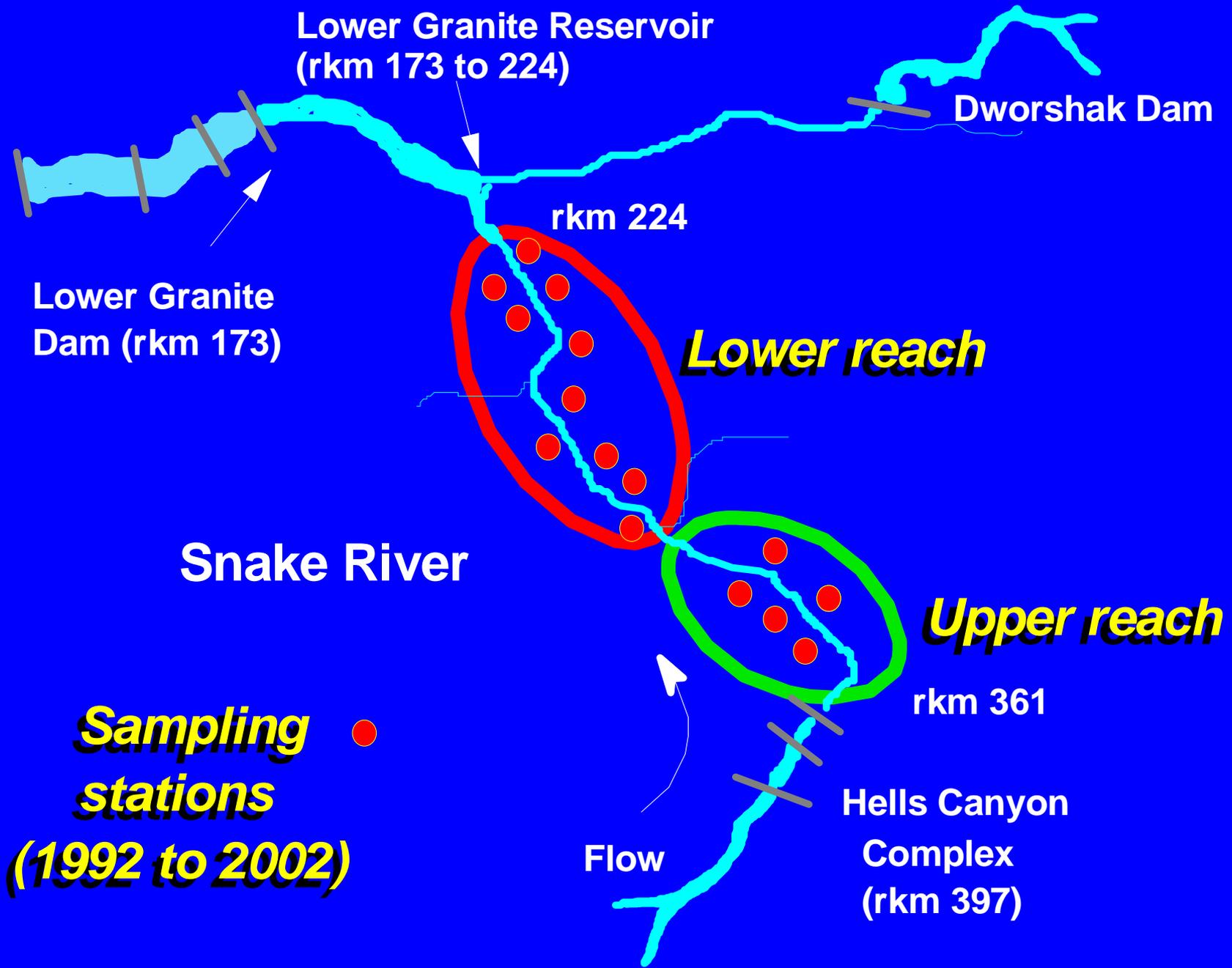
## **The disconnect between policy and science (Anderson 2002)**

*“While the cumulative body of scientific information all points to flow not affecting survival in any meaningful context, the policy of reducing water withdrawals and augmenting river flow has continued to expand. Furthermore, fish and water managers have consistently acted to discredit or ignore the information against their policies.”*

# **Why ignore all the data on wild Snake River fall chinook salmon?**

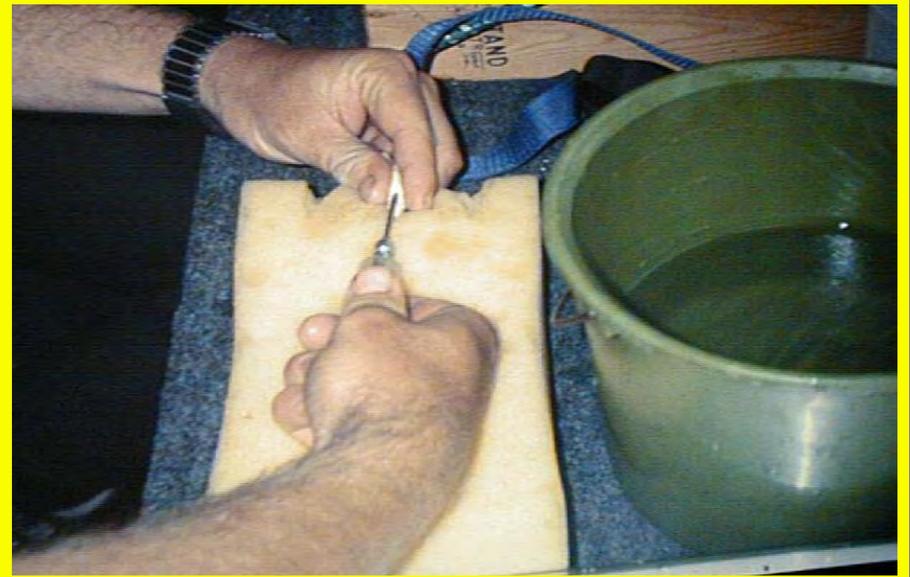
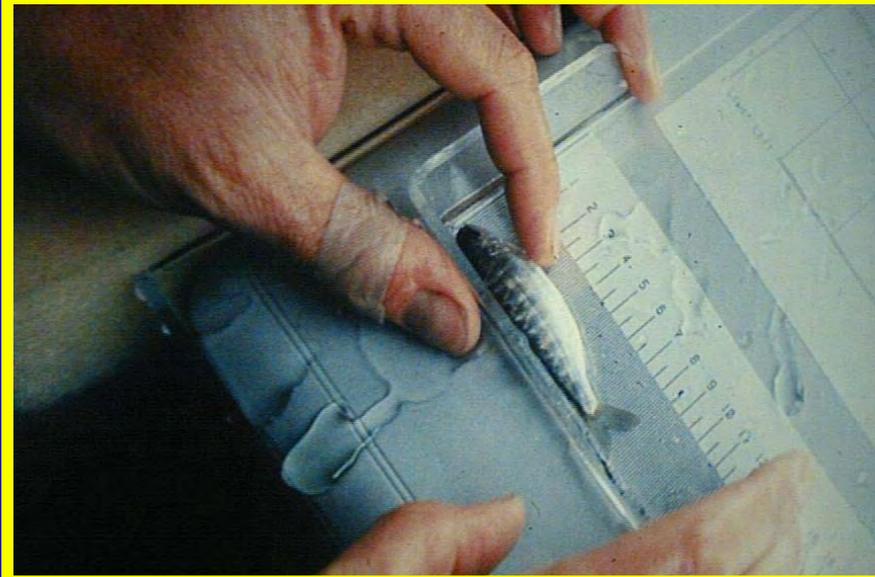
## **Discussion topics:**

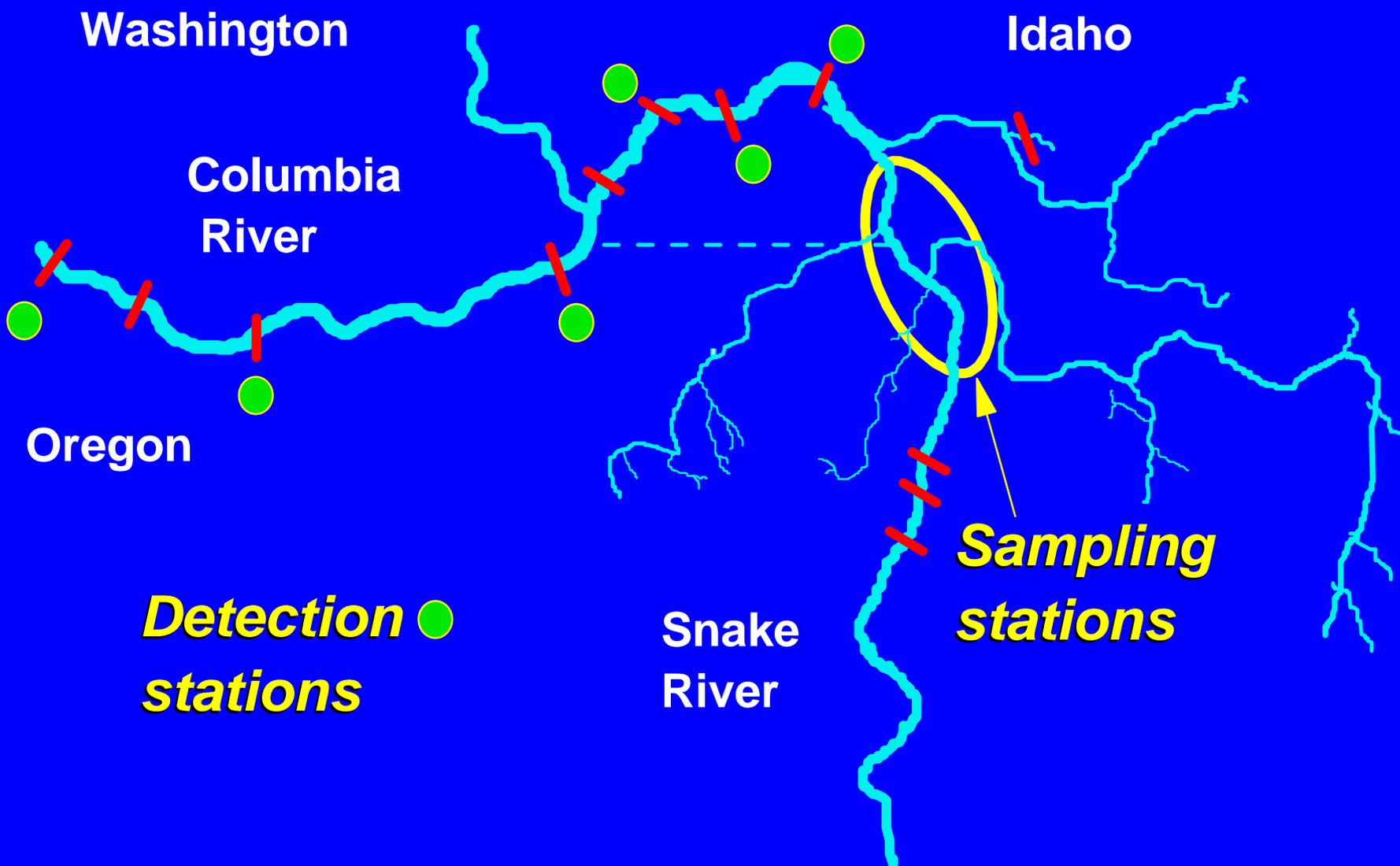
- 1) Seaward movement and the factors that affect it**
- 2) Survival and the factors that affect it**



**Sampling stations** ●  
**(1992 to 2002)**

# Collecting and Tagging Juveniles





Washington

Idaho

Columbia  
River

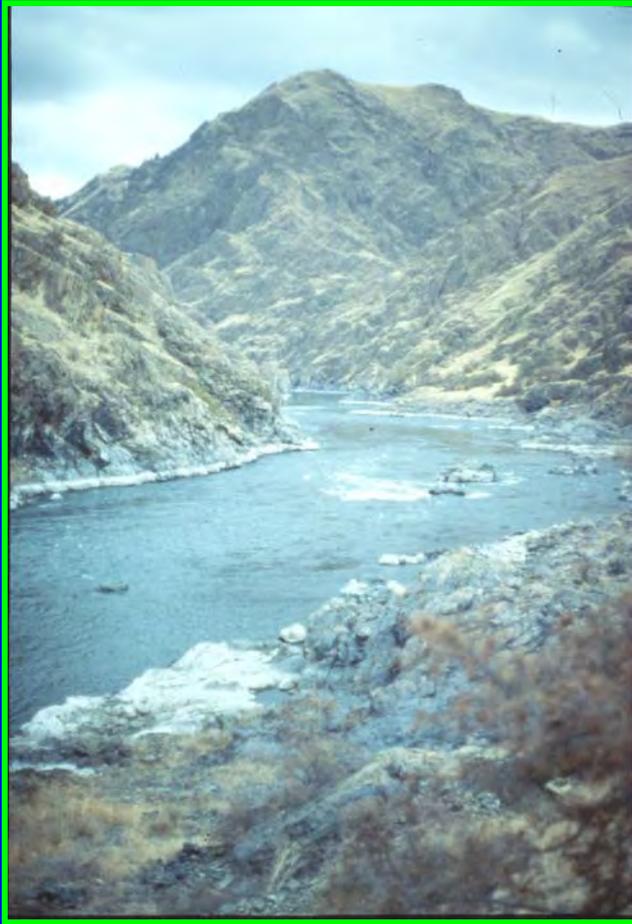
Oregon

Snake  
River

**Detection** ●  
**stations**

**Sampling  
stations**

# Period 1: Passage from the river to the tailrace of Lower Granite Dam



# Migrational phases (Connor et al. in pressa)

- 1) Discontinuous downstream dispersal along the shorelines of the free-flowing river.
- 2) Abrupt and mostly continuous downstream dispersal offshore in the free-flowing river.
- 3) Passive-discontinuous downstream dispersal offshore in Lower Granite Reservoir (*e.g.*, 32/40 d).
- 4) Active and mostly continuous seaward migration in Lower Granite Reservoir as fish become smolts.

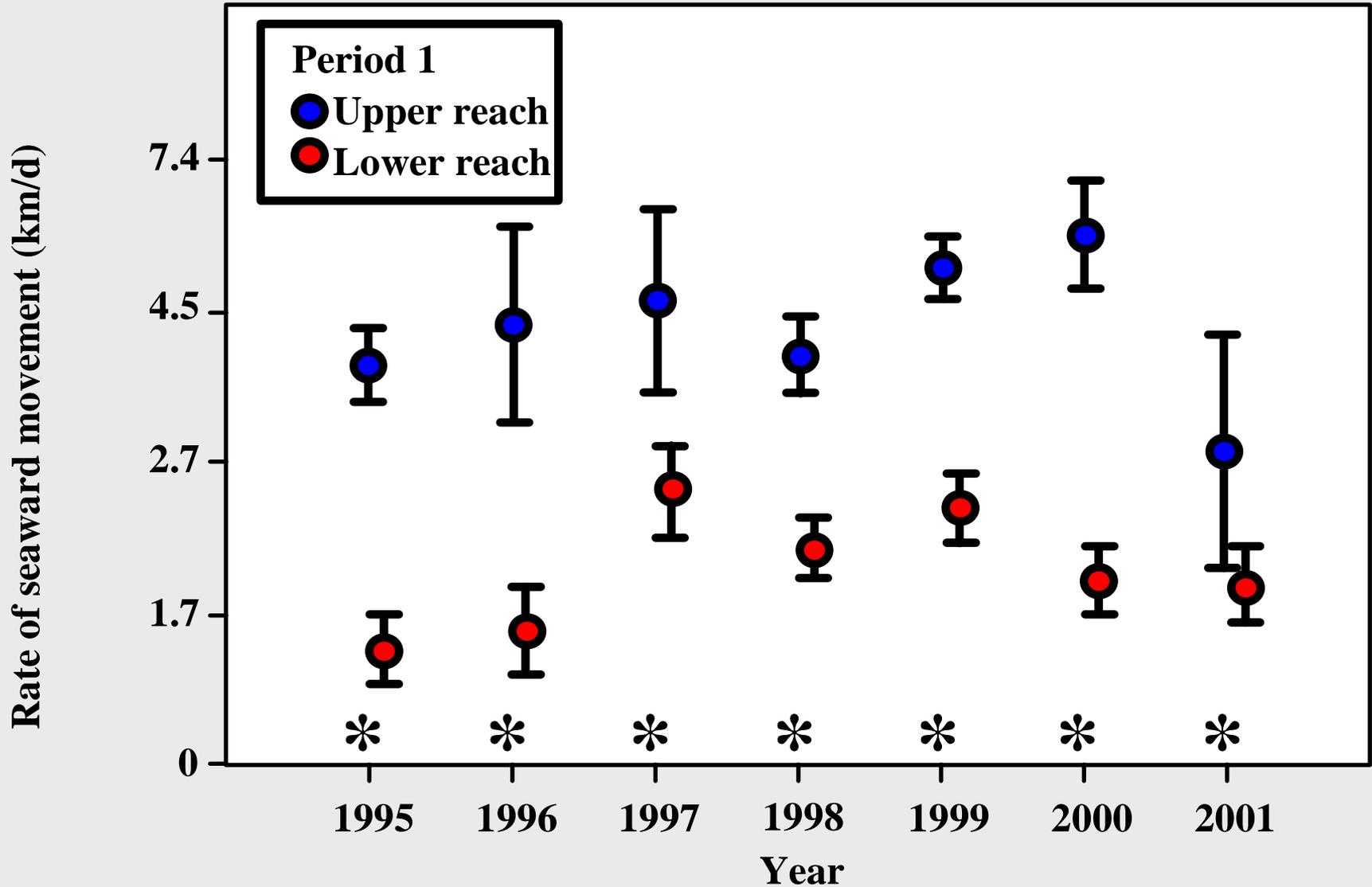


# Period 1 rate of seaward movement (km/d)

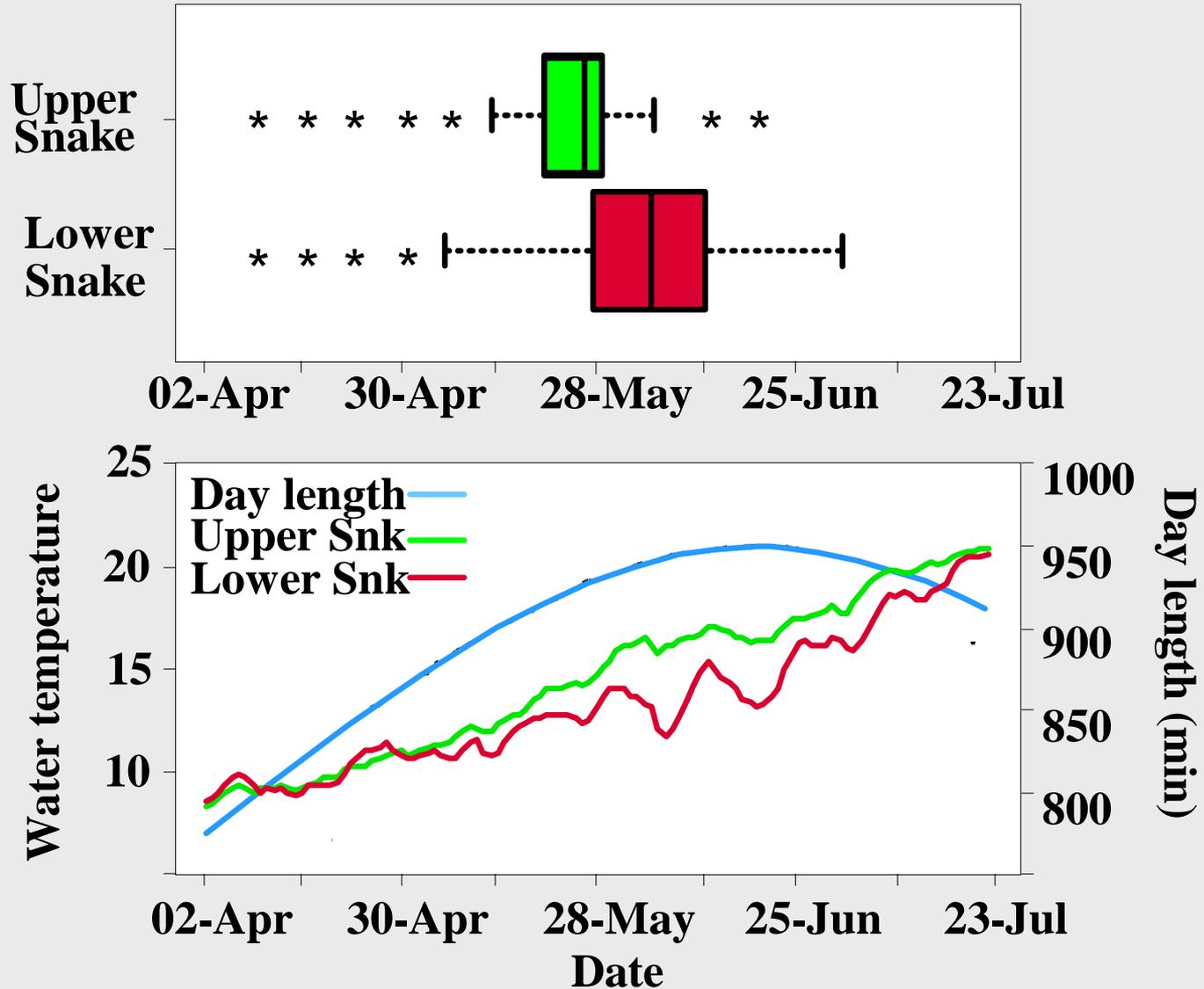
- Calculated on a fish-by-fish basis (1992-2001) as travel time divided by distance traveled
- Averaged by within each reach by year



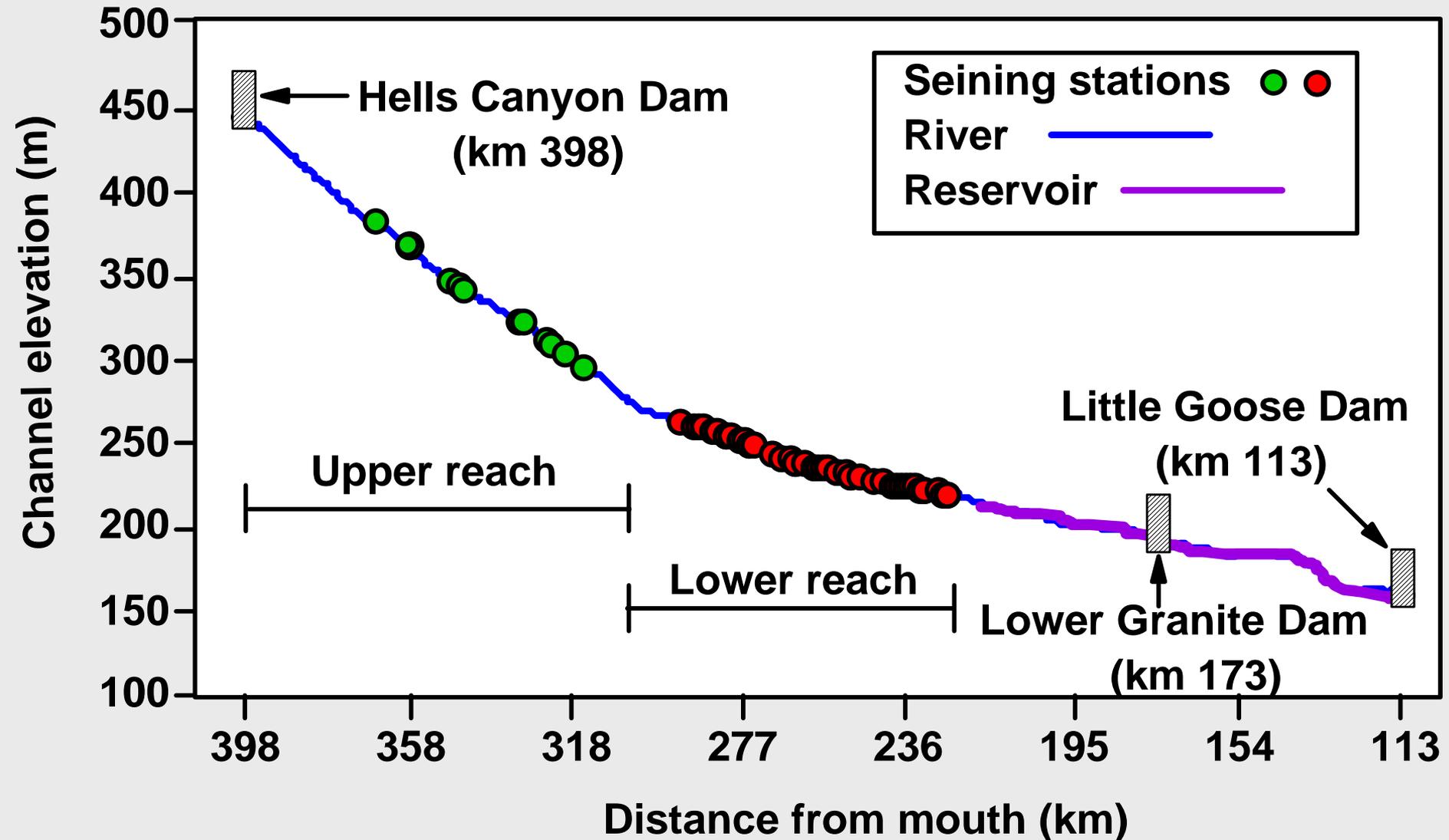
# Period 1 rates by reach and year (1995-2001)



# Difference in time dependent success of smoltification represented by release date

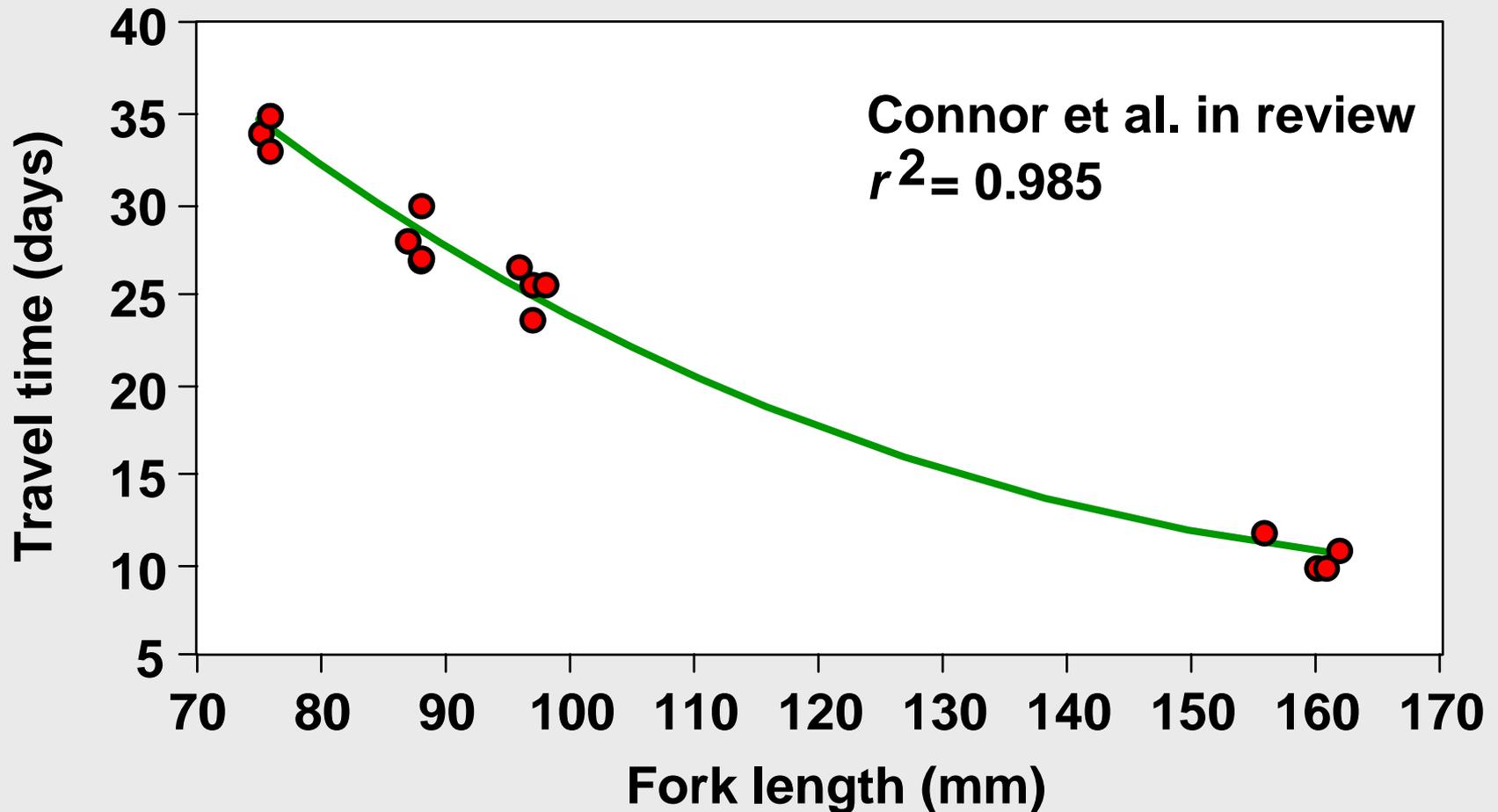


# Differences in distance traveled in the free-flowing river





**Fork length does not differ markedly between fish of the two reaches but is an important determinant of migrational behavior (Berggren and Filardo 1993; Giorgi et al. 1997; Connor et al. 2000).**



# Top two regression models

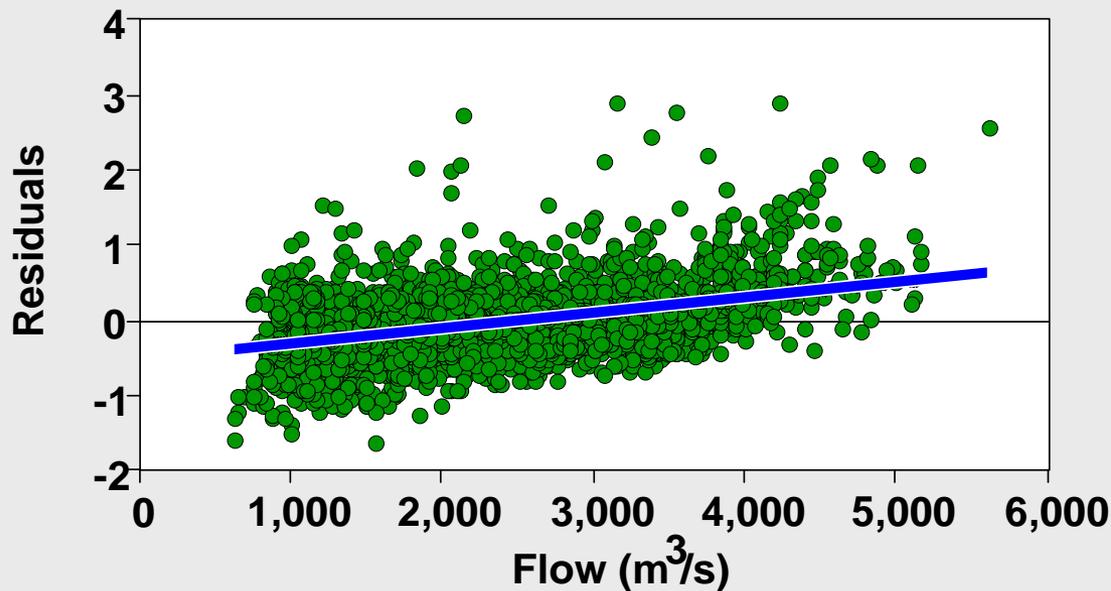
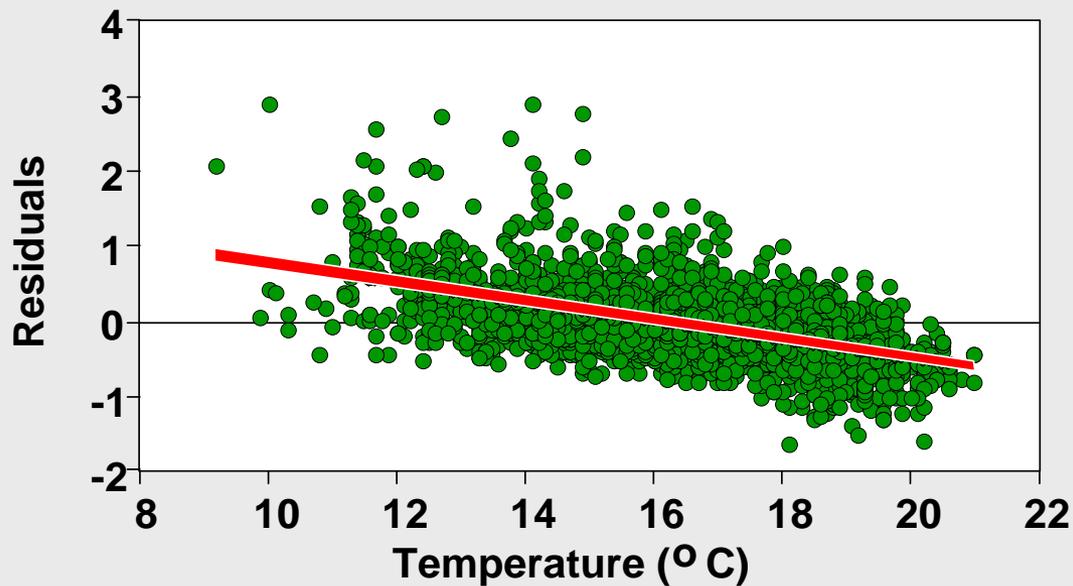
$$\text{Log}_e \text{ Rate} = 0.816 - 0.151 * \text{Temperature} \\ + 0.028 * \text{FI} + 0.008 * \text{Km}$$

$$R^2 = 0.726 \quad P_{\leq} 0.0001$$

$$\text{Log}^e \text{ Rate} = - 2.072 + 0.0002 * \text{Flow} \\ + 0.025 * \text{FI} + 0.009 * \text{Km}$$

$$R^2 = 0.659 \quad P_{\leq} 0.0001$$

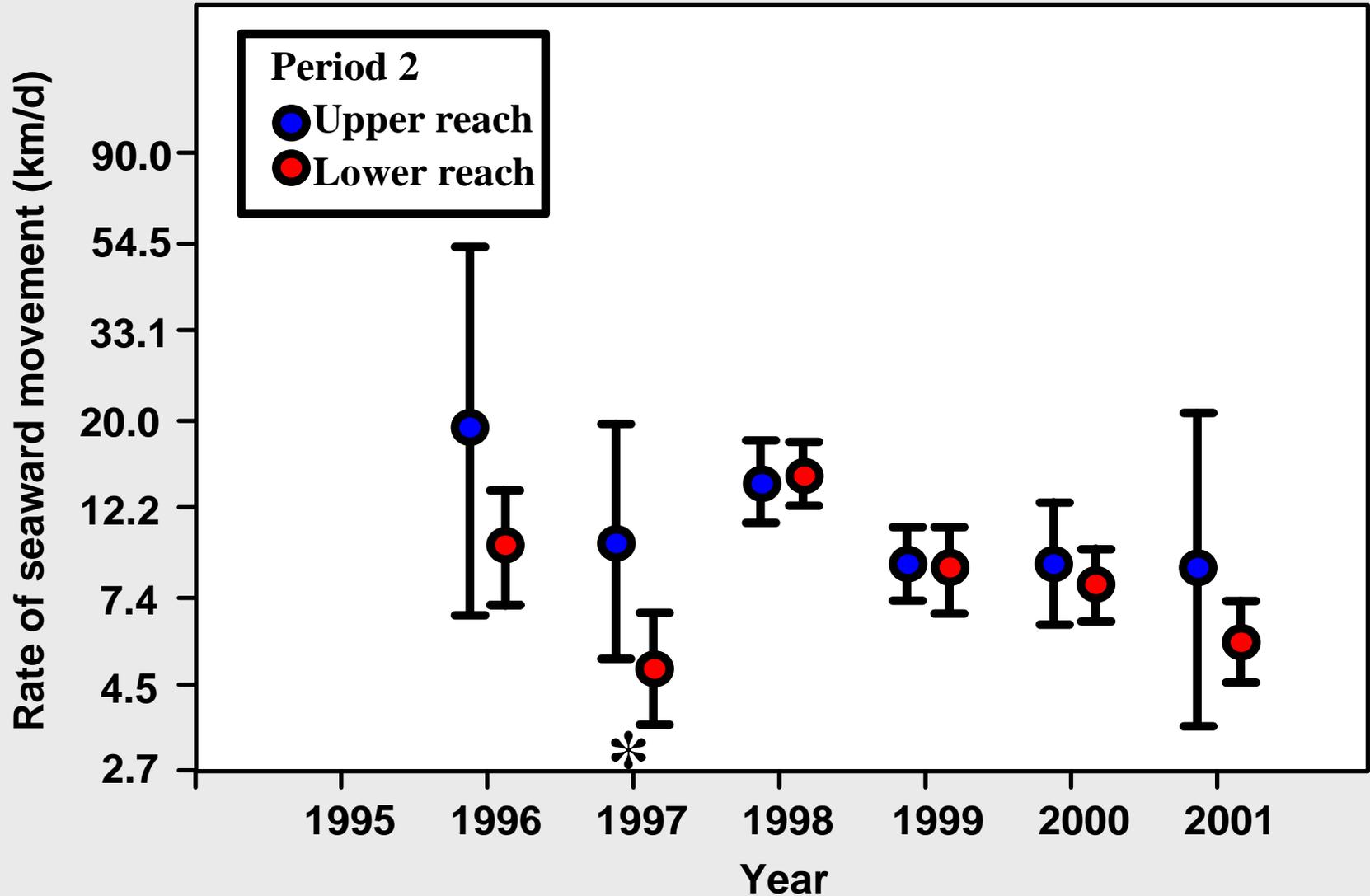
# The relation between temperature and rate and between flow and rate during period 1



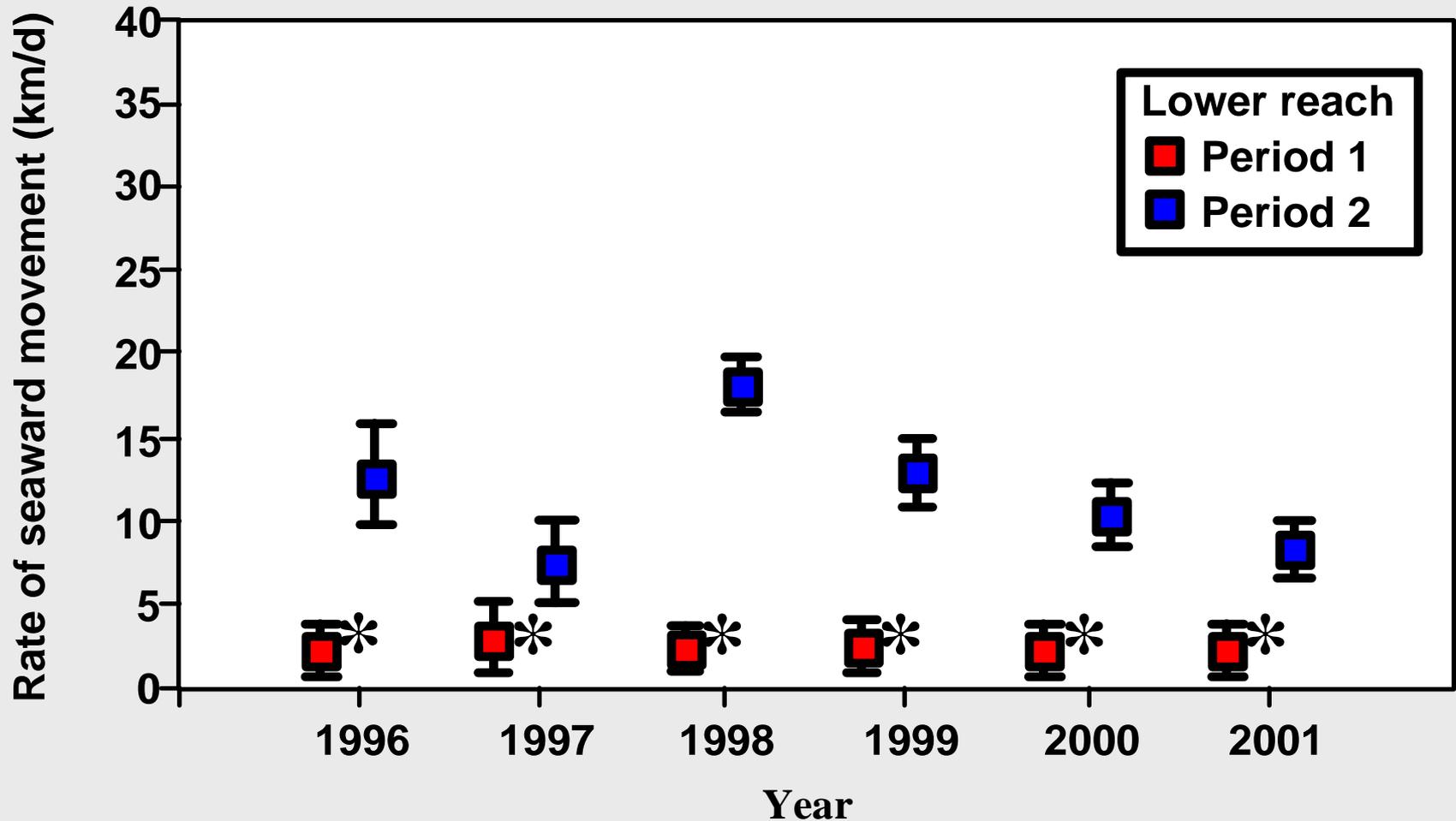
# Period 2: Passage from Lower Granite to Little Goose Dam



# Period 2 rates by reach and year (1996-2001)



# Period 1 versus period 2 rates for the lower reach (1996-2001)



# Top regression model for period 2:

$$\text{Log}_e \text{Rate} = B_0 + B_1 * \text{Flow} + B_2 * \text{Temp} \dots$$

$$R^2 = 0.19 \quad P_{\leq} 0.0001$$

# **Conclusions on seaward movement (Connor et al. in pressa)**

- Rate of seaward movement from release to the tail race of Lower Granite Dam is a multivariate process influenced simultaneously by several factors including flow.**
- Summer flow augmentation decreases the time young fall chinook salmon spend in Lower Granite Reservoir by 1 to 5 days.**

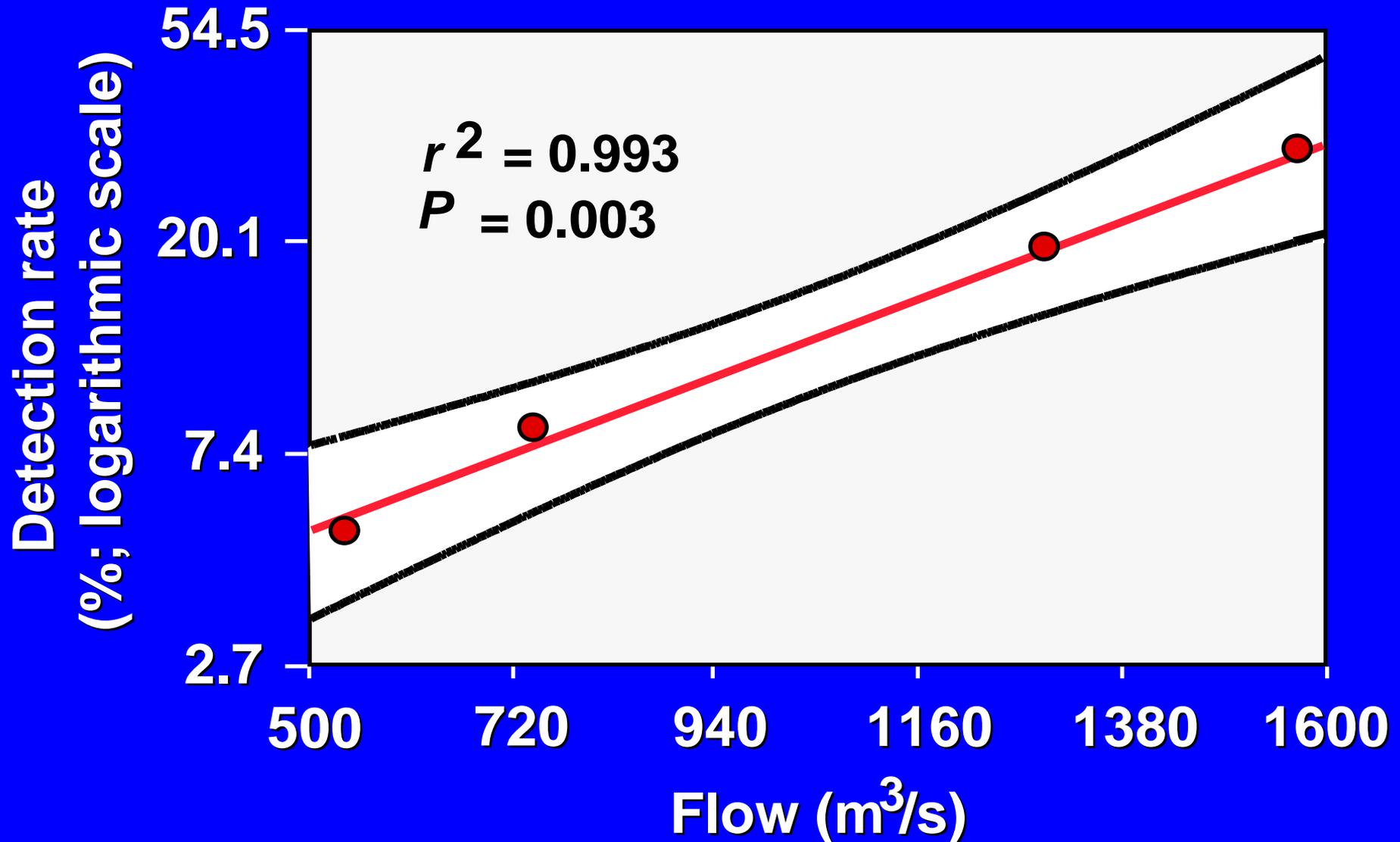
# Conclusions on seaward movement (Continued)

- Flow and temperature effects on rate of seaward movement of PIT-tagged fall chinook salmon in Little Goose Reservoir were not apparent in our study.
- However, even if rate of seaward movement is not linearly dependent on flow and temperature, warm temperatures in the absence of summer flow augmentation might disrupt growth and normal patterns of smoltification.

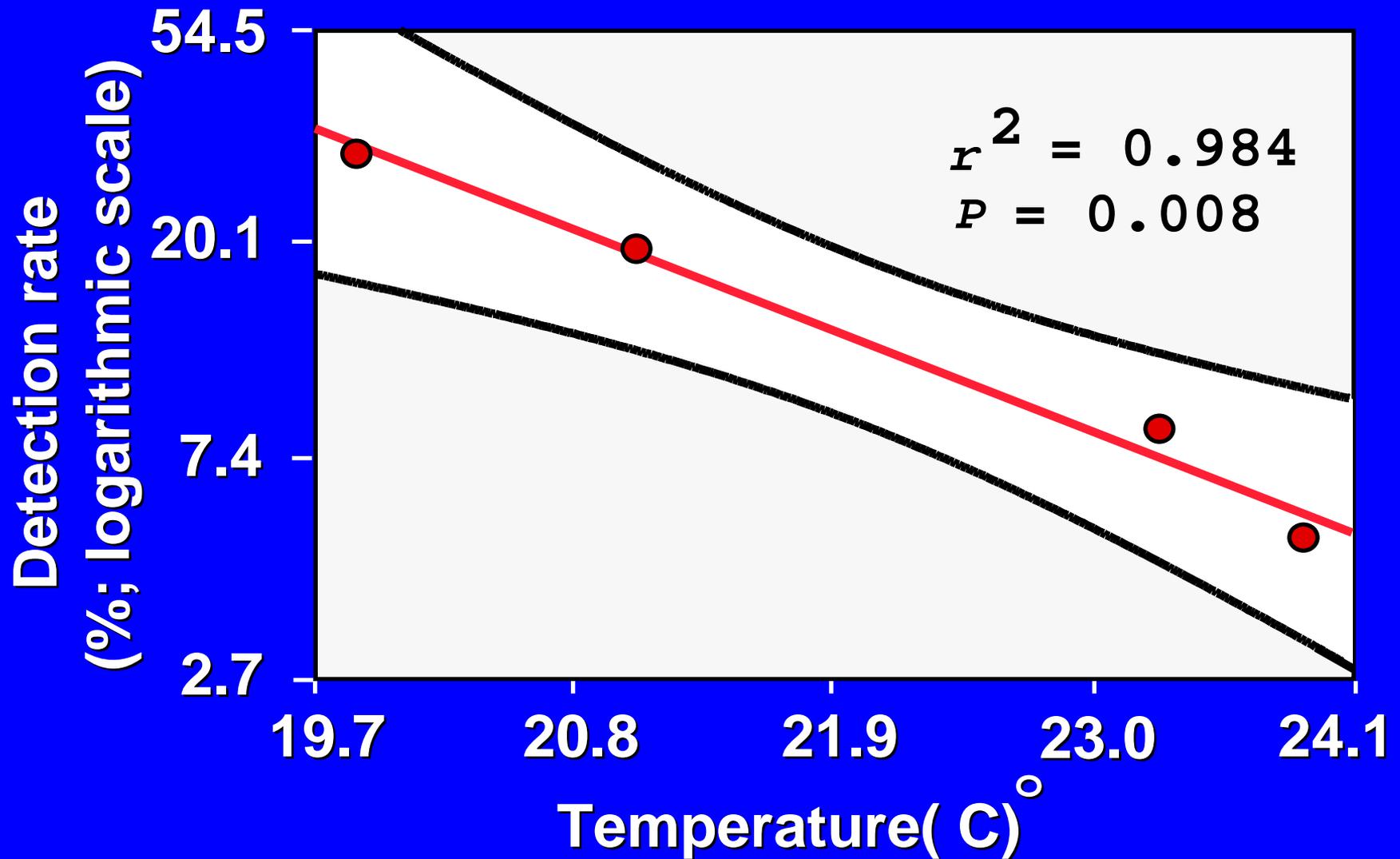
## **Discussion topics:**

- ~~1) Seaward movement and the factors that affect it~~
- 2) Survival and the factors that affect it

# Flow vs. Detection Rate (Connor et al. 1998)



# Temperature vs. Detection Rate (Connor et al. 1998)



# Objective # 2 analyses with 1998 to 2000 data

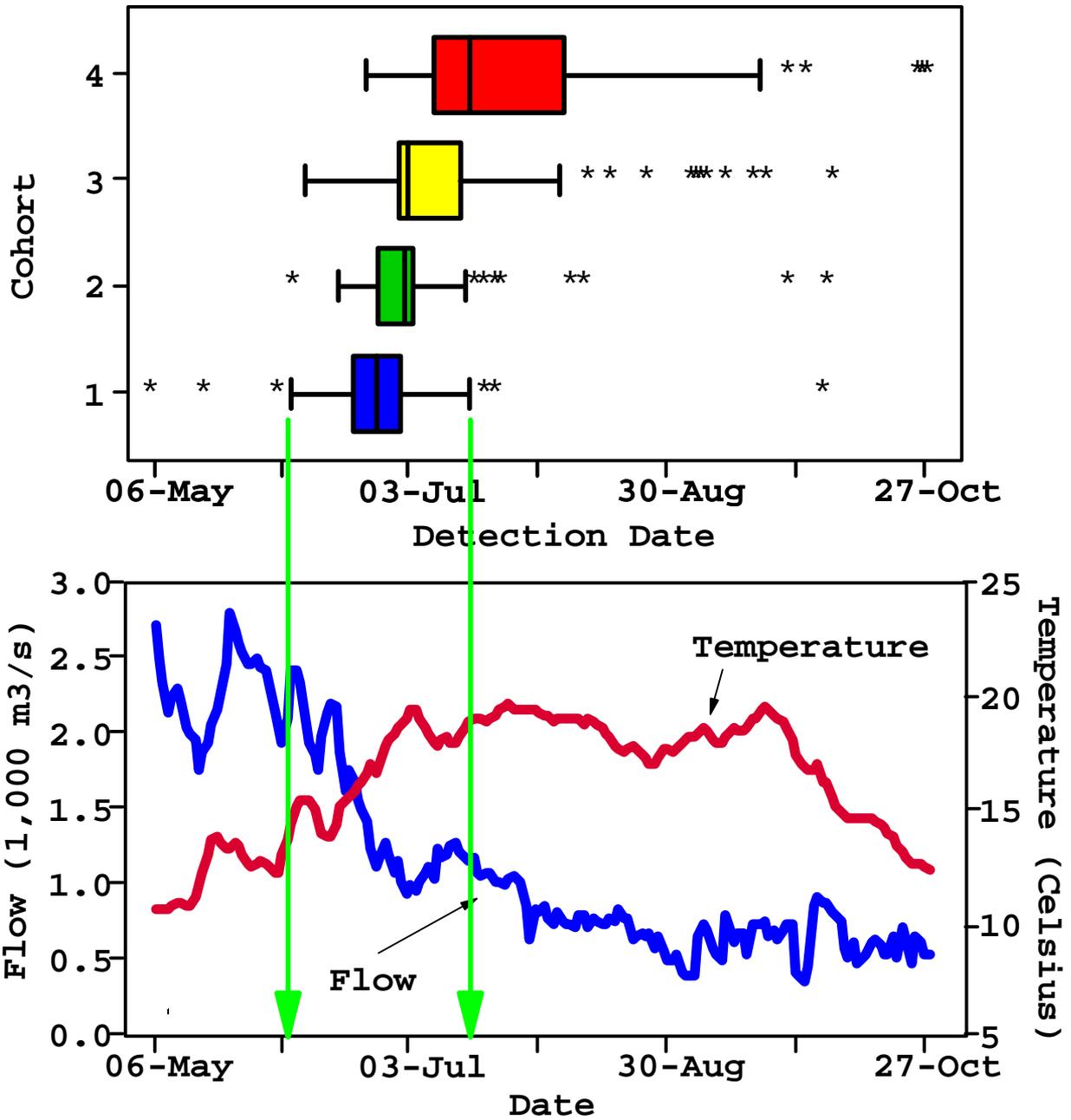
- Estimated survival to the tailrace of Lower Granite Dam on a “cohort” basis
- Cohort survival ranged from 36 to 88%



# **Factors on a cohort basis**

- Median date of release**
- Mean fork length at release**
- Flow exposure indice**
- Temperature exposure indice**

# Calculating Flow and Temperature Exposure Indices



# The final model

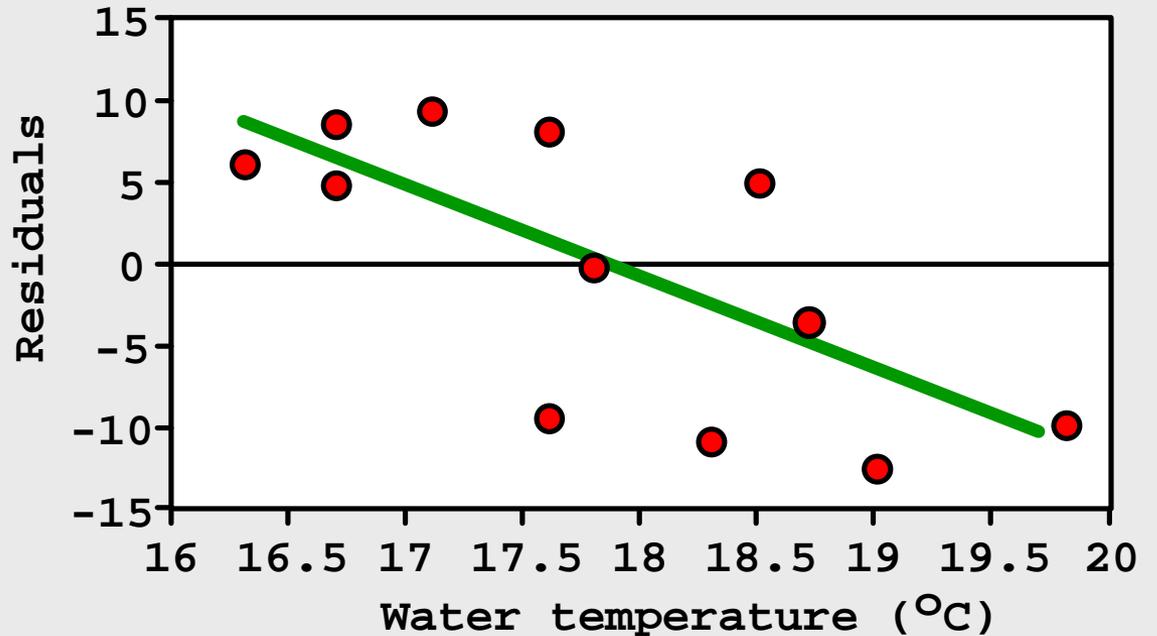
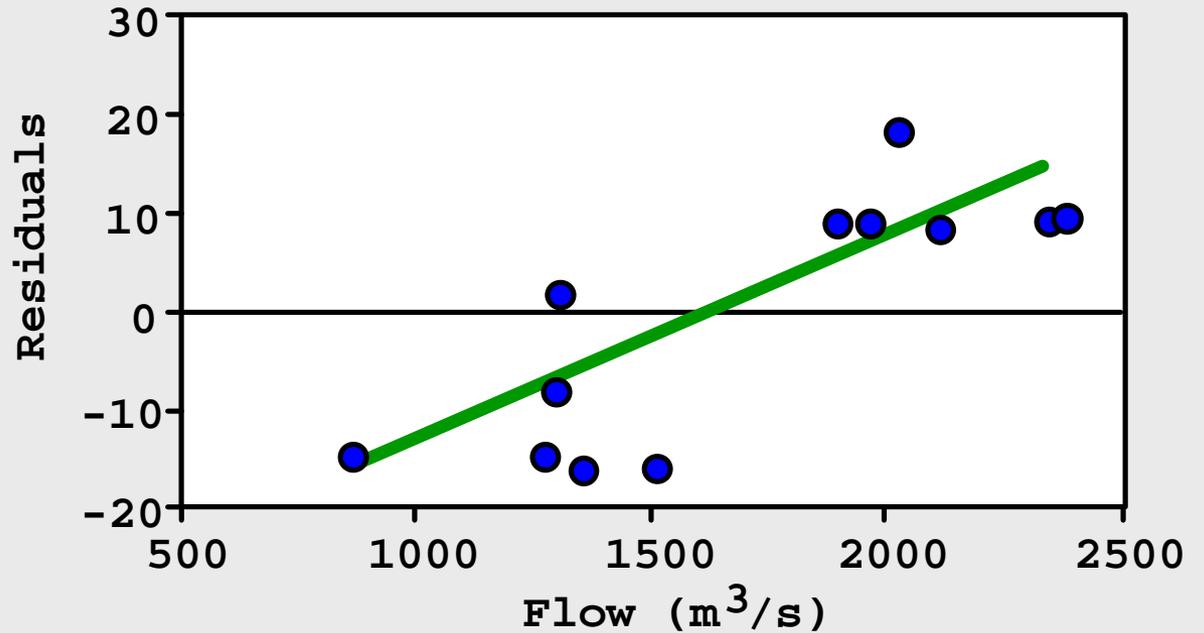
$$\text{Survival} = \text{constant} + 0.026 \times \text{Flow} - 7.14 \times \text{Temperature}$$

$$N = 12$$

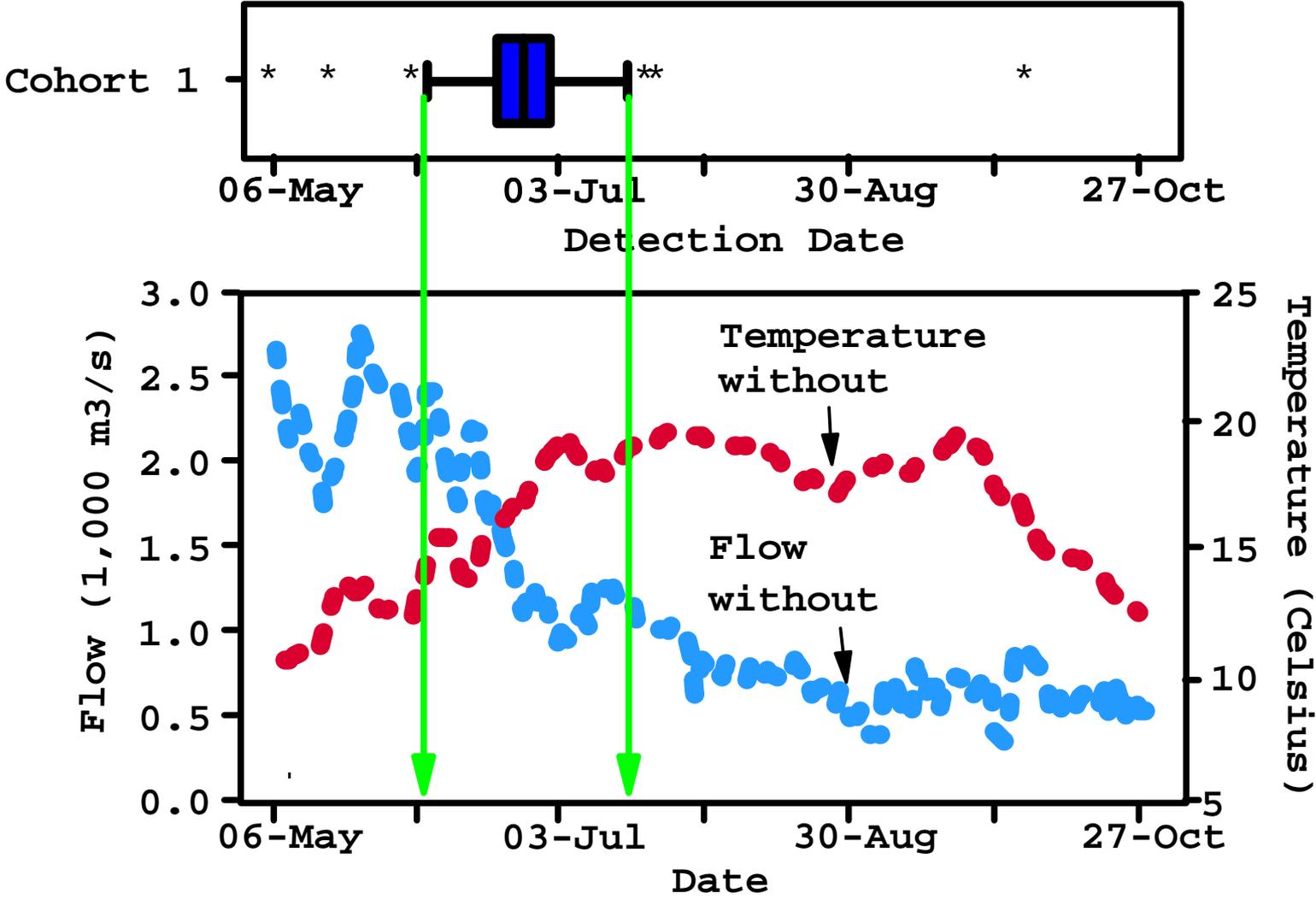
$$P \leq 0.0001$$

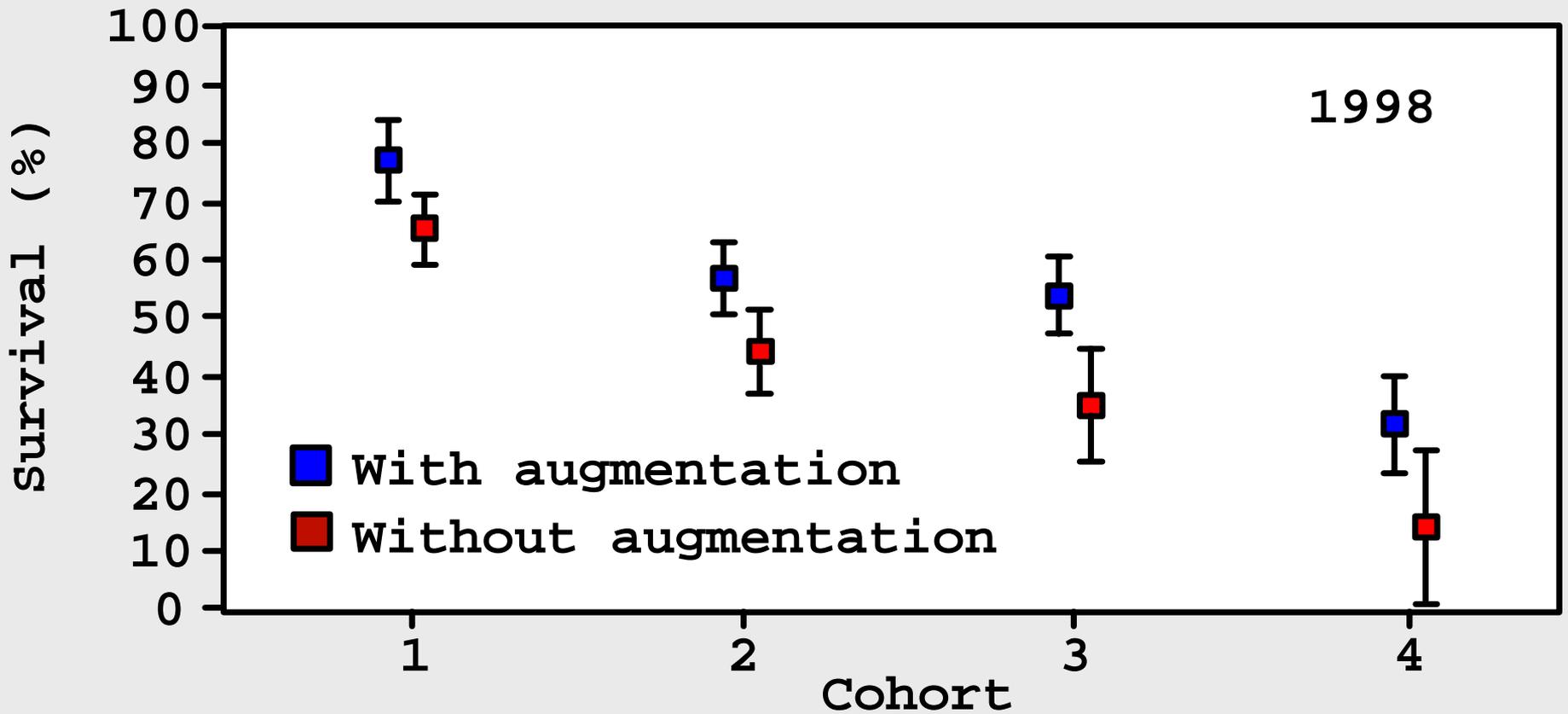
$$R^2 = 0.92$$

# Survival versus flow and temperature



# Recalculating flow and temperature exposure indices for survival analyses





## Estimated total decreases without augmentation

Cohort 1 down 12.4%

Cohort 2 down 13.0%

Cohort 3 down 19.2%

Cohort 4 down 19.0%

# **Conclusions (Connor et al. in pressb)**

- Survival is influenced simultaneously by flow and temperature**
- Summer flow augmentation increases flow and decreases temperature**
- Summer flow augmentation increases survival**

## **Underlying beliefs:**

**Summer flow augmentation increases rate of seaward movement and survival of young fall chinook salmon by increasing flow and decreasing temperature**

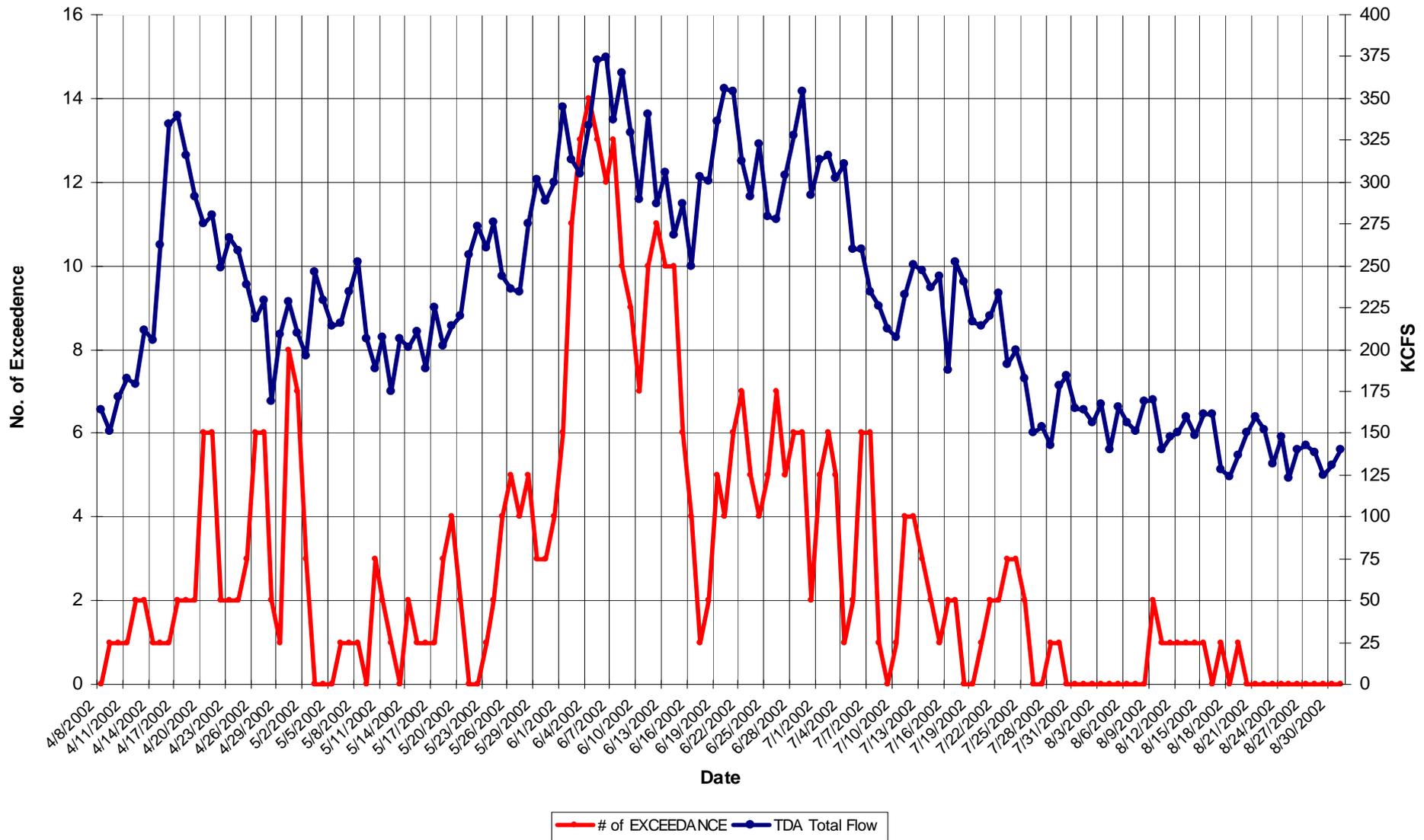
# My Home Town Reservoir



# Average Number of TDG EXCEEDANCES

## During 2002 Spill Season

(April 8 – August 31)



# **EXCEEDANCES**

## **On COE Columbia and Snake River Projects**

### **for 2000 – 2001 Spill Seasons**

(April 15 – August 31)

Before 2000      Exceedances were not tabulated

2000      269 days Exceedances out of 2760 days in spill season  
269/2760 = 0.097 or 9.7% Exceeding TDG standard  
**90.3% in compliance**

2001      13 Exceedances out of 2760 days in spill season  
13/2760 = 0.005 or 0.5 % Exceeding TDG standard  
**99.5% in compliance**

# **EXCEEDANCES**

## **On COE Columbia and Snake River Projects for 2002 Spill Seasons**

2002 490 Exceedances out of 2760 days in spill season  
 $490/2760 = 0.1775$  or 17.75 % Exceeding TDG standard

**82.3% in compliance**

# DWORSHAK EXCEEDANCES

During 2002 Spill Season

(April 15 – August 31)

Before 2000 Exceedances were not tabulated

2001 Exceedance for 2 hours out of a total of 3,312 hours in spill season. (0 hours spill occurred)

$2 \text{ hours} / 3312 \text{ hours} = 0.0006$

Exceeding State TDG standard 0.06% of the time spilled

**In compliance 99.94 % of the time spilled**

2002 Exceedance for 262 hours out of a total of 3,312 hours in spill season. (2684 hours spill occurred)

$262 \text{ hours} / 3312 \text{ hours} = 0.08$

Exceeding State TDG standard 8% of the time spilled

**In compliance 92 % of the time spilled**



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### WINTER WEATHER 2002-2002 FORECAST American Meteorological Society Meeting, October 25<sup>th</sup>, 2002

**Kyle Martin, Mainstem Hydrologist**

Climate prediction tools used (analog water years: 1952, 1958, 1964, 1966, 1970, 1973):

1. Dr. Landscheidt's Sunspot Cycle Model  
(<http://www.john-daly.com/sun-enso/sun-enso.htm>)  
(<http://www.vision.net.au/~daly/sun-enso/revisit.htm>)  
Current and historical sunspot data: (<http://www.sunspotcycle.com/>)
2. Sea Surface Temperature departures  
([http://www.emc.ncep.noaa.gov/research/cmb/sst\\_forecast/images/cmb.recordxy.gif](http://www.emc.ncep.noaa.gov/research/cmb/sst_forecast/images/cmb.recordxy.gif))
3. University of Washington Climate Impacts Group (CIG) VIC Hydro model  
(<http://www.ce.washington.edu/~hamleaf/DallesForecast.html>)

Winter 2002-2003 Climate Forecast:

Month:	Temperature (mean monthly):	"Hedge"	Precipitation (% normal):	"Hedge"
November	Near Normal (-1.8 to +1.8 degF)	1.1	Below Normal (70 - 90%)	84%
December	Near Normal (-1.8 to +1.8 degF)	-1.8	Near Normal (90 - 110%)	110%
January	Near Normal (-1.8 to +1.8 degF)	1.2	Above Normal (110 - 130%)	132%
February	Above Normal (> +1.8 degF)	2.5	Below Normal (70 - 90%)	80%
March	Above Normal (> +1.8 degF)	2.9	Below Normal (70 - 90%)	88%

Water Resources Forecast for WY 2003:

Seasonal Precipitation, as measured at the Columbia at The Dalles: **90%** of normal (1971-2000).

January-July Water Supply Forecast (Columbia at The Dalles): **97 MaF** or 90% of normal.

The Sunspot Cycle model predicted the current *El Nino* four years ago—a huge leap in forecast science—and indicates this *El Nino* will peak in late November. Australian forecasters suggest the *El Nino* will die out by May. UW CIG research suggests that the warm-dry weather of *El*

*Nino* will almost be counteracted by the cold-wet phase of the Pacific Decadal Oscillation.

Wagner, NMFS/5 Nov 02

Comments on Fall / Winter update

### **Introduction**

no comments

### **Chum Spawning Flows**

The action agencies plan to start the chum spawning operation on November 5. The NMFS BiOp states that a chum operation will commence “If the best hydrologic data available by early October indicate that precipitation, runoff, and reservoir storage are likely to support the operation from the start of spawning (late October or early November) until the end of emergence...”. The climate forecast available in early October is highly uncertain, but indications are this will be an el nino year. This condition often results in lower precipitation in the Columbia River Basin. This is presently reflected in the early season forecast for Dworshak Reservoir. The October 2002 forecast for the North Fork Clearwater Basin is for below average runoff from that basin. This being the case, the Action Agencies propose starting the operation several days later than the November 1 start date specified in NMFS opinion for years when there is no perceived problem with initiating the operation. The action agencies also propose changing the November 1 start date to a planning date for future years, and making the start of the operation contingent on the presence of fish in the Ives Island Area. The process for making these changes to NMFS Biological Opinion is being developed.

### **Bonneville Corner Collector Construction**

no comments

### **Burbot Spawning Flows**

The action agencies have been working with the Kootenai Tribe, the U.S. Fish and Wildlife Service, and representatives from the Kootenai Valley to assess whether a burbot operation can be conducted this year. The burbot population which spawns in the Kootenai Valley is a candidate population for listing under the Endangered Species Act. An SOR has been submitted requesting an operation which is believed to be beneficial to the burbot in the near term and provide information on how the burbot respond to a controlled Libby discharge in the longer term. The degree of how this operation would effect current flood control practices, operations for other listed species, and power generation revenues is being evaluated. The degree of these impacts will determine the action agencies response to the SOR request.

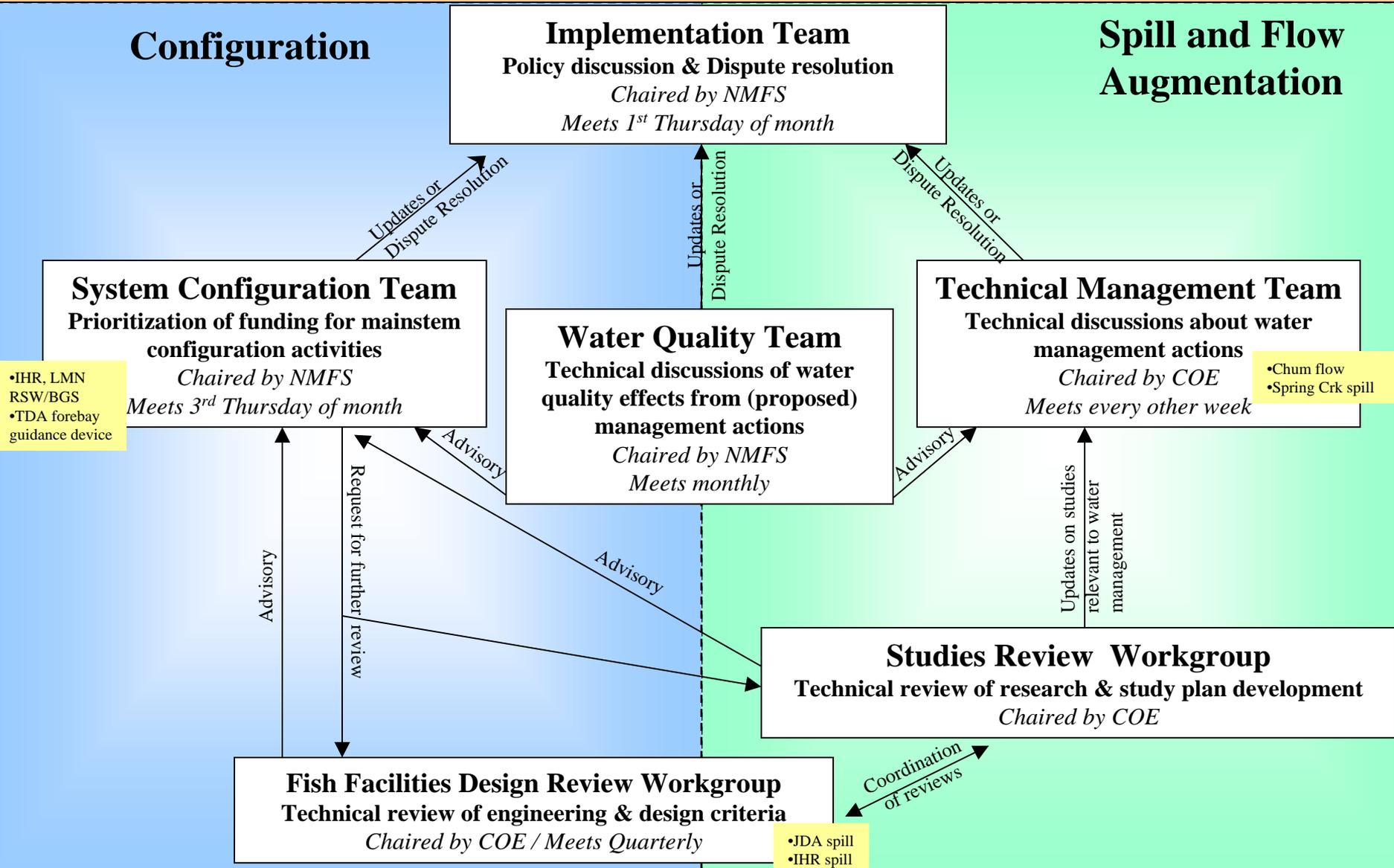
### **Flood Control**

Several notable issues regarding flood control will come into play this fall and winter. A decision on whether VARQ will be implemented at Libby Dam is scheduled to be made by December 31, 2002. Also a new forecasting tool has been developed for Libby Reservoir. This forecast tool utilizes SOI and current precipitation data to forecast flood control draft needs at the Libby project. It is anticipated this product will be used in conjunction with current forecast methods to determine flood control draft rates this season. Aside from these changes flood control will be operated in accordance with the Columbia River Treaty Flood Control Operating Plan.

# Regional Forum Approach to Hydrosystem Alternatives to the Action Agencies 2003-07 Implementation Plan – Opportunities for State & Tribal Discussion

## Configuration

## Spill and Flow Augmentation



# Draft IT Guidelines on Decision Making & Dispute Resolution

**The goal of the Regional Forum is to reach consensus on technical and policy issues whenever possible, with consensus being defined as the lack of strong objection. When consensus cannot be achieved in one of the technical teams or workgroups, the objecting member(s) may request the issue be elevated to the IT or Executive Committee as follows:**

1. If consensus cannot be achieved in a technical team or workgroup, the federal agencies will state how they intend to proceed. A member objecting to the proposed action may request the issue be raised to IT, and the technical team will formulate a written description of the disagreement.
2. If consensus cannot be achieved at IT, the agency with decision-making authority will state how they intend to proceed.
  - If the decision relates to weekly in-season management, the member with authority to make the decision will make the final decision.
  - If it is not an in-season management decision, a member objecting to the action may request that the issue be elevated to the Executive Committee, and the IT will formulate a written description of the disagreement.
3. Members will make all reasonable efforts to present an issue for decision by IT or the Executive Committee in writing one week prior to the relevant meeting date. The Executive Committee or IT may decline to entertain an issue that is not sufficiently defined.
4. When all efforts to achieve consensus have been made, the agency with authority will make the final decision.

# Upcoming Regional Forum Meetings

## **Implementation Team** (*at NMFS*)

- November 7, 12:30pm – 4:30pm
- December 5, 9:00am – 4:00pm
- January 9, 9:00am – 4:00pm

## **Technical Management Team** (*at Corps*)

- November 6, 9:00am – 1:30pm
- November 20, 9:00am – noon
- December 4, 9:00am – noon
- December 18, 9:00am – noon
- January 8, 9:00am – noon
- January 22, 9:00am - noon

## **System Configuration Team** (*at NMFS*)

- November 21, 9:00am
- December 19, 9:00am
- January 23, 9:00am

## **Water Quality Team** (*at NMFS*)

- November 12, 1:00pm
- December 10, 1:00pm
- January 14, 1:00pm

## **Fish Facilities Design Review Workgroup**

### *Corps Portland District*

- November 25, TDA Program Review
- December 12, JDA Program Review
- January 7

### *Corps Walla Walla District*

- January 22-23
- April 23-24

## **Study Review Workgroup** (*at Corps*)

- November 18-21, AFEP Program Review
- December 12 (w/ FFDRWG)



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TO: Technical Management Team (TMT)  
FROM: Kyle Martin, *Mainstem Hydrologist*, CRITFC Hydro Program  
DATE: November 6<sup>th</sup>, 2002

SUBJECT: **Summary of Water Year 2002 Weather**

At the request of TMT, this memo summarizes monthly weather events that impacted basin flows and fish migrations during Water Year 2002 (October 2001 - September 2002). NOAA's National Weather Service and Northwest River Forecast Center provided the data.

The drought of 2000-2001 was broken when a series of storms passed by mid-October. The 128% to 146% precipitation totals were the best of any month of WY 2002 (Figure 1).

Autumn saw warmer than normal temperatures and near normal precipitation patterns. Precipitation totals for Columbia at The Dalles in November, December, and January were 86%, 98%, and 94%, respectively, and mean basin wide temperature departures were +3.6, +0.6, and +2.5 degree F. Many new record high temperature records and daily precipitation totals were set across the region. Snow pack accumulation was on track.

Winter saw colder than normal conditions but near normal precipitation. Record breaking warm weather did occur during this time with a 54 - 74 degree F range. Precipitation totals for Columbia at The Dalles in February and March were 82% and 108%, respectively, plus mean basin wide temperature departures were -1.6 and +5.2 degree F.

Spring was colder than normal with near normal precipitation. Many record-breaking daily low temperatures were noted. The storm tracks delivered much spring snow to the Upper Columbia. Precipitation totals for Columbia at The Dalles in April and May were 95% and 94%, respectively, plus mean basin wide temperature departures were -0.8 and -1.7 degree F.

Summer started slightly warm but then cooled by August, which benefited migrating juveniles and adults. Many record-breaking daily high temperatures were set in late June, mid-July, and mid-August. Precipitation was below normal. Precipitation totals for Columbia at The Dalles in June, July, and August were 89%, 71%, and 56%, respectively, and mean basin wide temperature departures were +1.3, +2.9, and -1.5 degree F.

It is interesting to note the storm tracks favored the Clearwater basin in unexpected ways. Mid-winter storms rapidly built the snow packs. Snow accumulation was further enhanced during March and June. The late protracted runoff helped in implementing the Nez Perce Tribe-State of Idaho summer plan for Dworshak.

The water year ended on a dry and sunny note. Precipitation total for Columbia at The Dalles in September was 85%. The mean basin wide temperature departure was +0.3 degree F.

The cumulative precipitation totals for Water Year 2002 for Columbia at The Dalles ended at 94%. Western Montana, the Idaho Panhandle, and most of the west side were at or nominally above normal precipitation (Figure 2). While most of the east side was dry, eastern Oregon and southern Idaho remained at 50% to 70% of normal precipitation.

The climate outlook for WY 2003 is not as dire as first thought. Despite the onset of *El Nino* this summer, as predicted by the Sunspot Cycle model four years ago, its effects will almost be counter-balanced by the effects of the cold-wet phase of the Pacific Decadal Oscillation (PDO). UW Climate Impacts Group researchers suggest that WY 2003 runoff will be near normal (Figure 3) with a probable (50%) January-July volume forecast of 100 MaF for The Dalles. (<http://www.ce.washington.edu/~hamleaf/DallesForecast.html>)

The NOAA-NCEP long-range climate forecasts suggest above normal temperatures and below normal precipitation. NOAA-NCEP does not account for the PDO in its forecasts, just ENSO only. NOAA-NCEP had a poor track record during the 2000-2001 Drought, where they consistently forecasted normal-to-above normal precipitation.

## Attachments

cc: CRITFC Fish Management (Heinith, Matylewich, Lorz), Policy (Lothrop), PIO (Hudson)

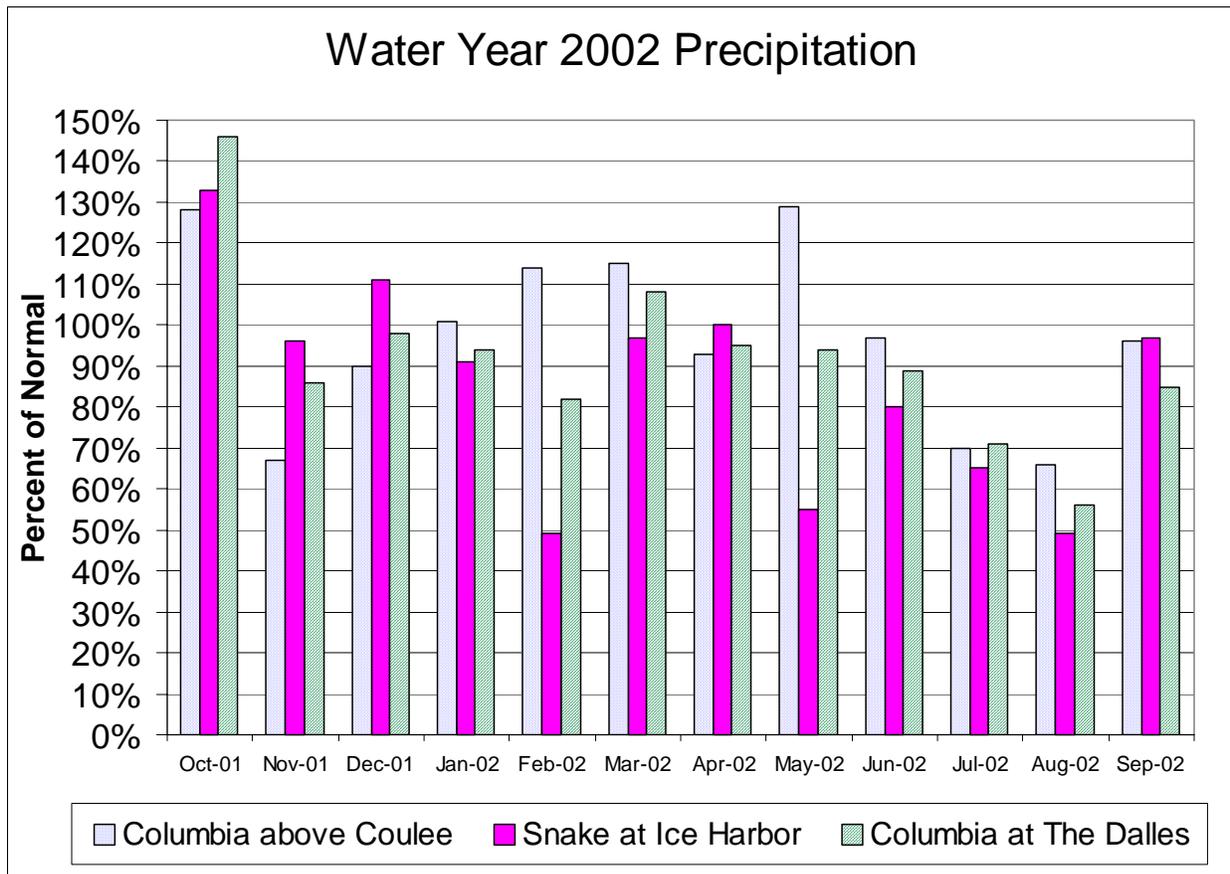


Figure 1. Water Year 2002 Division Precipitation Summary (using NWRFC data).

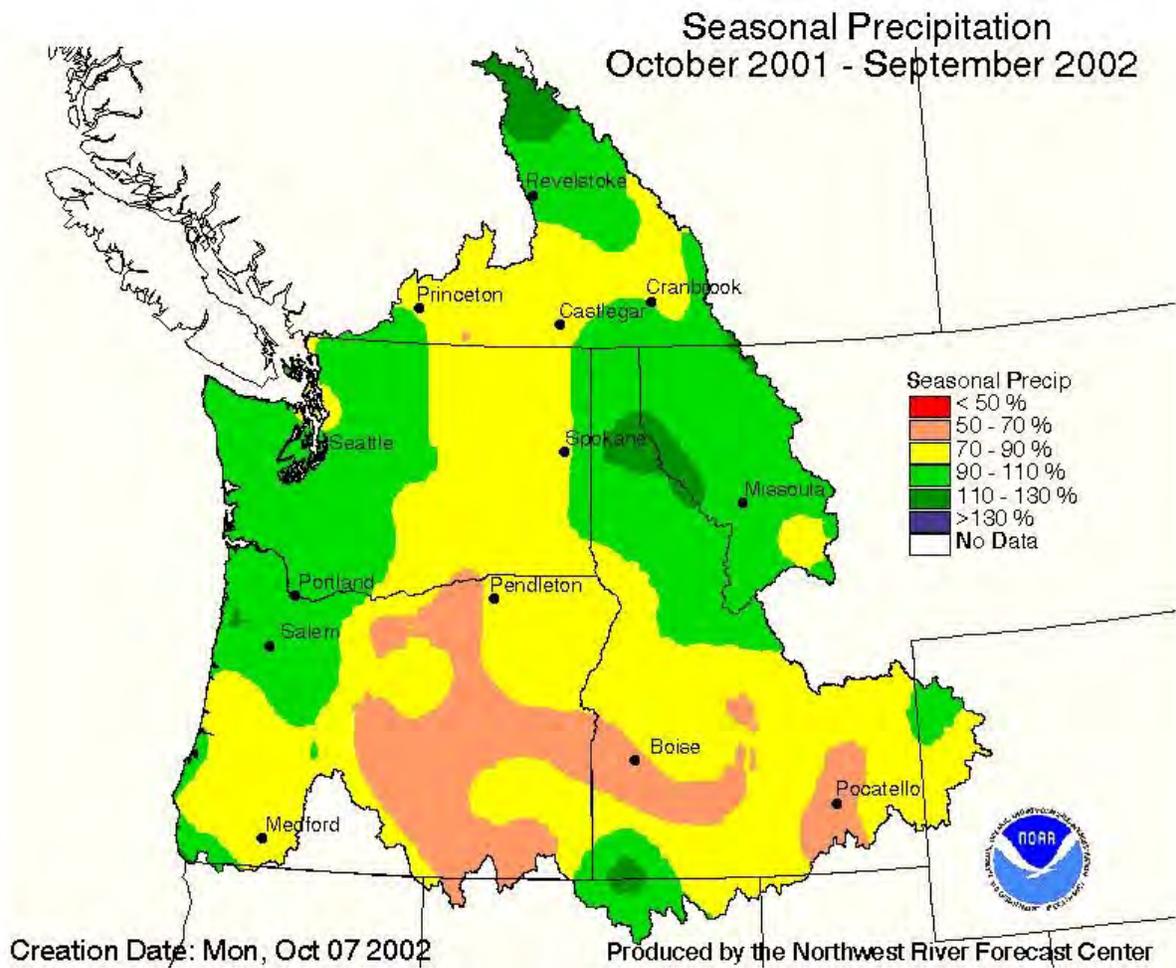


Figure 2. Water Year 2002 Columbia Basin Cumulative Seasonal Precipitation.

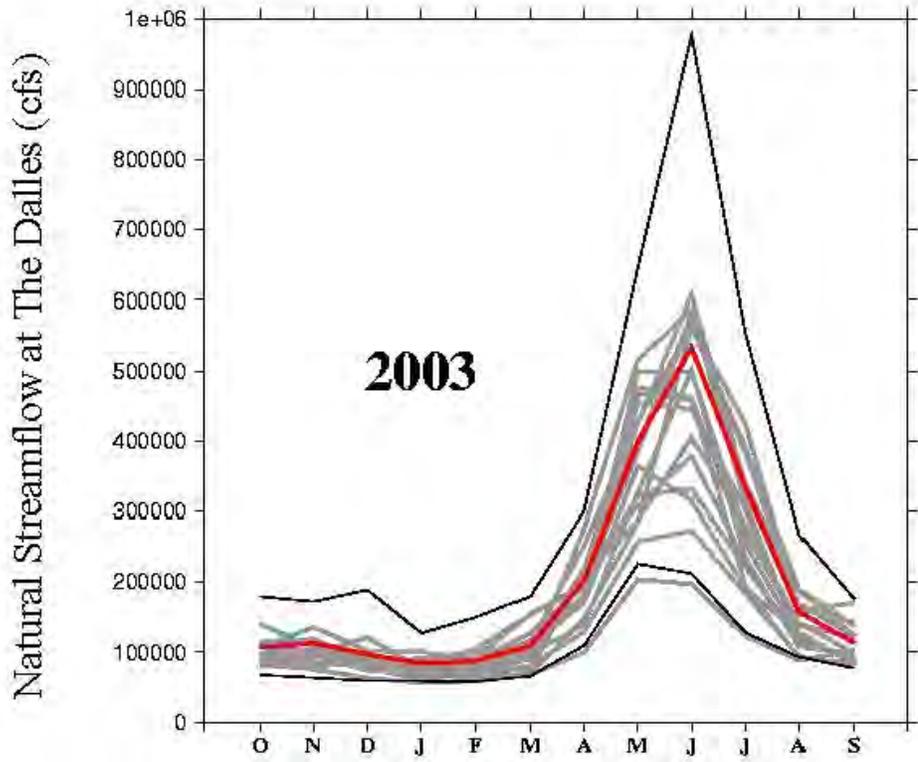


Figure 3. UW Climate Impacts Group 2003 Forecast for the Columbia River at The Dalles.

# COLUMBIA RIVER REGIONAL FORUM

## TECHNICAL MANAGEMENT TEAM

CORPS OF ENGINEERS NORTHWESTERN DIVISION OFFICES – CUSTOM HOUSE  
PORTLAND, OREGON

November 6, 2002

**TMT Internet Homepage: <http://www.nwd-wc.usace.army.mil/TMT/index.html>**

### FACILITATOR'S SUMMARY NOTES ON FUTURE ACTIONS

Facilitator: Donna Silverberg

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

#### **Burbot SOR:**

BPA offered a proposal for Libby operations based on weather forecast modeling. The proposal can be found on the TMT web site. Scott Bettin, BPA, explained that if VARQ is implemented and temperatures remain normal for the month of December, there is a higher likelihood that the burbot SOR will be implemented. BPA's suggestion is to maximize the value of the available water since power prices are higher in December than November, by increasing Libby discharges the first three weeks in December and reducing discharges to about 10.6 kcfs the last week in December. The SOR requested 4 – 10.6 kcfs the last two weeks in December and for the entire month of January. Dave Wills, USFWS, would like the burbot group to look at the proposal and make suggestions based on their technical expertise.

**ACTION:** The burbot group will look at the proposal and comment on it at the next TMT meeting, November 13.

#### **Chum Operations Update:**

During a conference call last Friday, TMT was informed that no chum had been sited. The group then agreed to begin the chum operation on Tuesday at 7 am (yesterday). Cathy Hlebechuk said that the COE will continue to make best efforts to target the requested elevations for this operation. Paul Wagner, NMFS, reported that during a site visit yesterday five chum and two redds were observed. Available habitat was low due to dry conditions. FPAC requested an increase to 11.5' tailwater elevation. The final operating decision was made to target 11.3' with an operating range of 11.1-11.5' until there is more rain in the Hamilton and Hardy Creek area.

Oregon expressed concern that the operation was at a lower range than previous years. Others expressed concerns for conditions to remain stable. USFWS expressed a preference for 11.5' elevation but was willing to accept the 11.3' operation, given that NMFS was comfortable with the operation. NMFS said that the operation is consistent with the Biological Opinion.

**ACTION:** A conference call will be held on Friday at 3 pm to assess conditions and discuss the chum operation. The call-in number is 503-808-5190. (NOTE: A summary of Friday's discussion will be available on the TMT website.)

**WMP Fall/Winter Update:**

NMFS handed out suggested changes to chum, burbot, and flood control operations in the Fall/Winter update. Suggestions were made to add Vernita Bar, current hydrology and early season forecasts to the update. Oregon suggested that storage levels could also be included to aid in chum discussions.

**Hydro Alternatives Process Update:**

Suzanne Cooper, BPA, gave a presentation and showed a "map" of the regional forum processes that show where and how decisions will be made on hydro alternatives to the Implementation Plan. TMT members requested clarification on the Executive Committee – its function and who its members are. Some TMT members expressed interest in reinvigorating the Executive Committee involving the public with this group.

**ACTION:** IT members will discuss the issues raised by TMT members at the IT meeting on Thursday, November 7. Issues will focus on IT guidelines and the Executive Committee's role in the Regional Forum.

TMT suggested a few changes to the "map", including clarifying that FFDRWG and SRWG are regional coordination rather than regional forum processes, and adding an "advisory" line from FFDRWG to TMT.

**Year End Review:**

The main purpose of today's meeting was to give TMT members a chance to reflect on the past year and discuss the various events and decisions that affected the regional hydro system.

**Report on Snake River Operations:**

Tony Norris, BOR, distributed a handout on the water that the BOR provided in 2002, the start date for releases, and other operations including Idaho Power's Brownlee operation and the Cascade operation. In summary, there was not a lot of water available to provide above Milner Dam except 24 kaf that Idaho Power provided.

**Dworshak Operations:**

Chris Perry, University of Idaho, was not available today but will present his information at a future TMT meeting.

**TDG Exceedances:**

Laura Hamilton, COE, gave a review of the 2002 spill program. There was lower TDG compliance (82.3%) than previous years due to water quality issues including spillway deflectors, new spill patterns, and other natural conditions that were out of the operators' control. Oregon pointed out that on the other side of the issue, there were some problems with not meeting spill and not reaching the spill cap. This issue will be continued at the next TMT meeting. The WQT could also be involved in these discussions.

#### Fall Chinook Survival in the Snake River:

Billy Connor, Idaho Fish and Game, presented a study on summer flow augmentation and effects on fish survival in the Snake River. Survival rates seem to correlate with flow augmentation and low temperatures. Billy offered to present flow augmentation and survival for 2002 at a future TMT meeting. Jim Ruff, NMFS, requested that the future presentation compare scenarios of extending or not extending flow augmentation further into the season. Augmentation shifts are assessed through modeling. During a presentation next spring, shifts will also be assessed through comparison to previous years. It was clarified that the data presented today is for the Snake River down to Lower Granite. A document that describes the study in more detail was handed out at the end of the presentation.

#### Hanford Reach Juvenile Stranding:

Paul Hoffarth, WDFW, presented a study on 2002 river temperatures and Chinook emergence. The study showed that: juveniles have a lower susceptibility to entrapment if they are 60 mm or bigger; entrapment areas tend to be at lower flow elevations; a decrease in discharge during nighttime hours tends to increase stranding; and fluctuating water levels severely limits structure, density and biomass of macroinvertebrates. Overall, Paul's assessment was that 2002 was a fairly successful year with low stranding rates.

#### Performance Standards:

Paul Wagner, NMFS, presented juvenile in-river survival rates for 2002. Survival rates were much higher than 2001, although it was noted that 95% of fish were transported in a barge that year. Further information will be provided during subsequent TMT meetings. Paul will send the information to Cathy Hlebechuk to post on the TMT website.

#### Fish Migration:

Chris Ross, NMFS, showed migration patterns for 2002. He also pointed out some weather or other emergency situations and commended the action agencies for responding quickly and successfully helping the fish. He noted that other fish migration studies are coming out.

#### Weather Review:

Kyle Martin, CRITFC, presented a review of 2002 weather patterns and forecasted weather for 2003. Overall, he reported that 2002 saw the end of a drought, normal precipitation and some record-breaking summer temperatures. Kyle's 2003 forecast shows near-normal conditions.

#### Chum:

Shane Scott, Washington, presented chum figures from 2002. The group will continue to use this and other data to make operational decisions about chum.

#### Next Meeting:

TMT will have a conference call on Friday to discuss chum operations. The call will begin at 3 pm and the number is 503-808-5190.

The next face to face meeting will be held on **Wednesday, December 4**. Topics include:

- Burbot operations
- Chum operations
- Spill Cap Continuing Discussions – Oregon

## **Meeting Minutes**

### ***1. Greeting and Introductions***

The November 6 Technical Management Team year-end review meeting was chaired by Cathy Hlebechuk of the Corps and facilitated by Donna Silverberg. The following is a distillation, not a verbatim transcript, of items discussed at the meeting and actions taken. Anyone with questions or comments about these minutes should call Henriksen at 503/808-3936.

### ***2. Burbot SOR.***

[These burbot notes are from Robin Harkless, facilitator contractor as our normal notetaker arrived late at the meeting.]

BPA offered a proposal for Libby operations based on weather forecast modeling. The proposal can be found on the TMT web site. Scott Bettin, BPA, explained that if VARQ is implemented and temperatures remain normal for the month of December, there is a higher likelihood that the burbot SOR will be implemented. BPA's suggestion is to maximize the value of the available water since power prices are higher in December than November, by increasing Libby discharges the first three weeks in December and reducing discharges to about 10.6 kcfs the last week in December. The SOR requested 4 – 10.6 kcfs the last two weeks in December and for the entire month of January. Dave Wills, USFWS, would like the burbot group to look at the proposal and make suggestions based on their technical expertise. Discussion will take place on November 13.

### ***3. Chum Operations Update.***

Hlebechuk began this agenda item by reporting that, at last Friday's field survey, field crews saw no chum on the spawning grounds. You will recall that we were targeting November 5 for the start of the chum operation, and went to a hard Bonneville tailwater constraint of no lower than 10.8 feet as of Tuesday morning, November 5, Hlebechuk said; that is the current operation in place from 7 a.m. to 7 p.m. Paul Wagner said that, during yesterday's site visit, five adult chum and two redds were observed in the Ives/Pierce Island area. He noted that the 11-foot tailwater at Bonneville is supposed to equate to a Bonneville outflow of 125 Kcfs; based on yesterday's site visit, that looks to be a bit on the low side, he said. Field crews feel that tailwater elevation is on the low side of marginal, from a habitat availability standpoint; therefore, NMFS is requesting an 11.5-foot minimum tailwater elevation at Bonneville, Wagner said.

Because chum are now on the spawning grounds, the action agencies have agreed to go to a Bonneville tailwater operating range of 11.1-11.5 feet, targeting 11.3 feet, Hlebechuk replied. Scott Bettin added that Hamilton and Hardy Creek are supposed to receive about two inches of rain by this weekend, and should start flowing more strongly.

Ron Boyce expressed his displeasure that tailwater elevations have been so low – traditionally, we have started the chum operation with a Bonneville tailwater elevation of 11.5

feet, he said. I don't understand what's changed this year, said Boyce – you have a lot of water in storage, so what's the problem? Bettin and Tony Norris replied that the Spokane and Colville Tribes are requesting that an elevation of 1283 feet be maintained at Grand Coulee through mid-November. It seems to me that you could maintain 11.5 feet in the Bonneville tailwater, the historic operating range once chum start to arrive on the spawning grounds, and still keep Grand Coulee above 1283 through mid-month, Boyce said. I would remind you that field crews saw no chum at Ives/Pierce Island on Friday, and only five fish yesterday, Bettin said – the fish are just beginning to arrive now. Our concern is balancing the chum operation and storage needs, he said.

We need to make a decision on this today, Boyce said. We're proposing to target 11.3 feet, Bettin replied. Why not target 11.3-11.7 feet? Boyce asked. Once flows in the river come up, that will be possible, said Bettin. We could go back to the Biological Opinion flow of 125 Kcfs, he said; again, we're concerned about using too much storage at this time. Wagner noted that the dry conditions over the past several months have depleted the groundwater that would normally help keep the Bonneville tailwater elevation up; he said that in past years, the current Bonneville discharge of 126.6 Kcfs would have produced the 11.5-foot tailwater elevation the salmon managers are seeking, rather than the 11 feet we're seeing currently.

There is no guarantee that the rain will fall and the fish will be able to access Hamilton Springs and Hardy Creek, said Boyce. There is spawning habitat in the mainstem, which the fish can access if you keep the tailwater elevation high enough, he said. Actually, we are going to see a nice, steady rain through next week, Kyle Martin said. CRITFC does love chum, he added, as long as Bonneville discharge doesn't exceed 125 Kcfs at this point in the season. And the action agencies have said that as soon as the rains begin and flows come up in the mainstem, they are willing to maintain the 11.5-foot Bonneville tailwater elevation you're requesting, said Silverberg.

We have heard that, from a technical standpoint, a steady 11.5-foot tailwater elevation would be best for fish, Silverberg said; we have heard also that the action agencies will maintain 11.1-11.5 feet as the tailwater range at Bonneville until precipitation and mainstem flows increase. In response to a question from Boyce, Hlebechuk said it would take an additional 5 Kcfs outflow from Grand Coulee to provide the requested 11.5-foot tailwater elevation at Bonneville. That equates to a foot of storage per week at Grand Coulee, Bettin said.

Wagner reminded the group that the current 2003 runoff forecast is far from rosy; at Dworshak; for example, they are predicting a 2 MAF water supply, which compares to a historic average runoff of 2.5 MAF in that basin. For that reason, he said, NMFS favors a more conservative approach to the chum operation this year. Starting at 125 Kcfs outflow from Bonneville, then gradually increasing it as flows come up naturally, is not inconsistent with the BiOp, Wagner said. After a few minutes of further discussion, David Wills said that, while he does not agree with the current operation, he is reluctant to push this issue further. It was agreed to hold further discussion of the chum operation at a TMT conference call at 3 p.m. Friday, November 8; in the interim, the action agencies will operate to a Bonneville tailwater elevation of 11.0-11.5 feet. .

#### ***4. Comments on WMP Fall/Winter Update.***

Are there any additional comments on the fall/winter update today? Silverberg asked. Wagner provided some NMFS comments, in particular, on the “Chum Spawning Flows,” “Burbot Spawning Flows” and “Flood Control” sections of the update. He spent a few minutes going through these comments, noting that NMFS will also be providing comments on the currently proposed Vernita Bar operation. It would also be nice to add a section about current hydrology and early runoff forecasts, Wagner said – we do have an early Southern Oscillation Index forecast for Dworshak and Libby, for example, and it would be helpful to have a few words about the current thinking about what kind of water year it’s going to be. That section should also include information about current reservoir storage, said Boyce.

What is the timeline for providing comments on the Water Management Plan? Boyce asked. Today, Hlebechuk replied – we wanted to finalize this document by the end of October. Boyce said he will provide a few additional Oregon comments as soon as possible.

### ***5. Hydro Alternatives Process Update.***

At the last TMT meeting, said Silverberg, there were a number of questions about the process for making changes to the BiOp; we wanted to get a report today on that topic. Bonneville’s Suzanne Cooper distributed a schematic showing how, under the current Regional Forum process, information and issues relating to Biological Opinion implementation are to be discussed and resolved. She also touched on the various hydrosystem alternatives the action agencies are considering, and how that decision process is expected to flow through the NMFS Regional Forum groups. Cooper spent a few minutes going through this information, noting that chum flows and Spring Creek spill, for example, will be addressed within TMT.

Cooper also went through the current dispute resolution language in the Regional Forum guidelines, noting that, for the purposes of this document, “consensus” is defined as a lack of strong objection. Issues on which consensus cannot be achieved can be elevated to the IT; if the IT cannot reach consensus, the operating agencies with the authority to make the decision will decide in-season management issues. Non-in-season management issues can be elevated to the Executive Committee.

Silverberg noted that the Regional Forum guidelines will be discussed in detail at tomorrow’s Implementation Team meeting. The group devoted a few minutes of discussion to the viability of the Executive Committee, given the fact that this group, as originally constituted, has not met for several years. Richelle Harding commented that, if it is re-constituted, the Executive Committee’s meetings need to be open and accessible to the public. Silverberg added that, as soon as the Regional Forum guidelines are finalized, they will be brought back to the TMT for further discussion.

So this is essentially the existing process? Jim Litchfield asked. That’s correct, said Cooper – at the last TMT meeting, there was a fair amount of confusion about how decisions that modify the 2000 BiOp are to be made. The intent was simply to lay out the existing process and to make sure they were clear, she said. In response to a question, Jim Ruff explained that this is also related to the implementation planning process; the action agencies submit their annual implementation plans to NMFS, which then reviews what is proposed for consistency with the BiOp RPAs. NMFS will then issue annual findings letters which will memorialize any changes to the hydro actions in the BiOp, he said. Cooper added that both the annual implementation plans and the water management plans are issued in draft form for public review and comment.

And is last year's findings letter available? Wills asked. Yes – from the <http://www.nwr.noaa.gov> website, Ruff replied.

## **6. Year-End Review.**

**A. Report on Snake River Operations.** Norris provided a handout detailing the water provided by Reclamation from the Upper Snake River in 2002: a total of 288.8 kaf, which includes the 40 kaf in Cascade Reservoir storage credited to this year. Releases began May 6, he said. One question is whether the Upper Snake water ever made it out of Brownlee, he said; the short answer is that yes, Idaho Power did pass the required amount of water through, based on an analysis of actual inflow and outflow at that project. The bottom line is that we didn't have a lot of water to provide in 2002, despite the fact that, as this handout shows, Reclamation does its utmost to pursue every available kaf of water, Norris said, adding that Idaho Power actually provided 24 kaf of their own power head water at Reclamation's request.

**B. Dworshak Operations.** Wagner said Chris Perry will provide this presentation at a future TMT meeting, once he has a chance to fully analyze the data from 2002.

**C. TDG Level Variations.** Laura Hamilton said this topic is probably too lengthy to address at today's meeting; she said her plan for today was to review the 2002 spill program only. She provided a handout, available via the TMT website, detailing the days of exceedance of the TDG standard at the Corps' Columbia and Snake River projects and at Dworshak. In 2002, there were 490 exceedances out of 2,760 spill-days at the Columbia and Snake River projects; at Dworshak, there were 262 hours of exceedance out of a total of 3,312 hours of spill. That translates into an 82.3% rate of compliance at the Columbia and Snake River projects, down from 90.3% compliance in 2002. At Dworshak, the compliance rate was 92% in 2002. Obviously, she said, we didn't do as well this year.

Ruff noted that there were reasons for this increase in exceedances in 2002, including problems with the fixed monitoring sites, some of which registered exceedances even on days when no spill was occurring. We have also installed new flow deflectors at a number of projects, said Ruff, and are still fine-tuning operations to see what spill volumes and patterns are optimal. Hamilton agreed, noting that there were many instances when exceedances occurred for reasons beyond the action agencies' control, including unit and Intertie outages.

Boyce noted that, in addition to the increased number of exceedances in 2002, there were other problems this year -- particularly the fact that, when exceedances occurred, the action agencies would reduce spill volumes and keep them well below the volumes needed to meet the 120%/115% standards for several days. I do have a presentation that will address that concern, explaining how those decisions are made in real-time, Hamilton said; however, it is too lengthy for today's meeting. It was agreed that Hamilton's presentation will be made at the November 20 TMT meeting.

**D. Fall Chinook Survival in Snake River.** Billy Connor provided a presentation titled "Does Summer Flow Augmentation Increase Survival of Young Fall Chinook Salmon?" The full text of this presentation is available directly from Connor at [william\\_connor@fws.gov](mailto:william_connor@fws.gov). He touched on the following major topic areas:

- What is summer flow augmentation?
- Lower Granite Reservoir flow and temperature with and without flow augmentation (graph)
- Underlying beliefs about summer flow augmentation
- The disconnect between policy and science
- Why ignore all of the data on wild fall chinook salmon?
- Detection and sampling stations on the Snake and Columbia Rivers (map)
- Flows vs. detection rates at Lower Granite Dam, 1998 (graph) – as flow increases, so does detection rate
- Water temperature vs. detection rates at Lower Granite Dam, 1998 (graph) – as temperature increases, detection rate decreases
- Survival analyses with 1998-2000 data – estimated survival from release to the tailrace of Lower Granite Dam on a “cohort” basis
- Factors on a cohort basis
- How flow and temperature exposure indices were calculated in this study (box plots)
- The final model
- Survival vs. flow and temperature (graphs)
- Survival is predicted to increase as flow increases and decrease as temperature increases
- Recalculating flow and temperature exposure indices for survival analyses (box plots)
- Estimated total decreases in survival, by cohort, without augmentation (range: 12.1% to 19.2%)
- Conclusions

What biological effects did you observe from the September flow augmentation releases this year? Bettin asked. I’ll have to get back to you on that, Connor replied – we did radio-tag some fish this year, so we will have some good data. Can you do a “with flow augmentation” and a “without” analysis on that? Ruff asked. Yes, Connor replied. Have you done a similar analysis for spring flow augmentation? Hlebechuk asked. I’ve never studied that, personally, Connor replied; it has been studied in detail by other folks. And what’s the time frame for the post-August 31 analysis? Boyce asked. Probably early spring, Connor replied.

Where was survival measured? Jim Litchfield asked. From the release points to below Lower Granite Dam, Connor replied – that’s as far down the system as I’ve gone, at this point. Chris Ross said NMFS has studied survival and travel time for Lyons Ferry fish to below Lower Monumental, but that’s as far down as they’ve gone for Snake River fall chinook. There is other data available for Hanford Reach fall chinook in the Columbia, Ross said – give me a call. Ross added that NMFS had used Connor’s model to predict survival in 2001, and the results were extremely close to actual survivals. We have a great deal of confidence in the model, he said.

Any new information on the necessary outmigration size for the Clearwater fall chinook? Wagner asked – it seems like we have that debate with the Nez Perce every year. At about 60 mm, they shift habitat from the littoral zone to the deeper part of the river and get flushed down into the reservoir, Connor replied. However, I don’t subscribe

to the theory that there is a magic size at which those fish are ready to actively migrate, he added.

Any advice for us, as water managers, in terms of what we've done to date? Boyce asked. I think you do the best you can do in a very complicated situation, Connor replied – you're juggling a lot of balls simultaneously. Once we complete the analysis of the 2002 data, I might be able to be a bit more helpful, Connor added.

***E. Hanford Reach Juvenile Stranding.*** Paul Hoffarth of WDFW led this presentation, titled "2002 Evaluation of Fall Chinook Stranding on the Hanford Reach." This is the sixth year of this study, Hoffarth said, noting that Grant PUD provided both funding and field personnel for the 2002 study. He touched on the following major topics:

- The current and previous study areas in the Hanford Reach (map)
- The location of the 2002 index sites
- 2002 river temperature and chinook emergence (graph) – Emergence started March 17; emergence ended April 25, and the Hanford Reach juvenile fall chinook protection program started on March 21 and ended June 4 (at 400 TUs beyond the start of emergence). The last entrapped fish was found on June 9. The random sampling program ended June 15.
- Length-frequency of stranded/entrapped fall chinook in random samples, 1999-2002 (graph) – typically, entrapment ends when average fork length reaches about 60 mm, Hoffarth said.
- Average fork length and relative abundance of juvenile fall chinook salmon, index sampling 2000, 2001 and 2002 (graph)
- A description of the 2002 protection plan
- Area of shoreline exposed within each 10 Kcfs flow band (graph)
- Monthly average discharges from Priest Rapids Dam, 1991-2002 (table)
- Daily fluctuations from Priest Rapids Dam, 2000, 2001, 2002, by period (tables)
- Hourly discharge and daily average flows at Priest Rapids Dam, March 1-June 30, 2002 (graph)
- Weekly numbers of juvenile fall chinook found in random plots in the Hanford Reach, 2002 (only 188 total chinook at reach for the entire period of March 17-June 15). Hoffarth noted that most of the mortalities occurred early in the season, when flows were low.
- Results from the 1999, 2000, 2001 and 2002 field seasons – the bottom line, said Hoffarth, is that, in the study area, we estimate that only about 110,000 chinook mortalities occurred in 2002, compared with 4.8 million in 2001 and 457,000 in 2000.

In closing, Hoffarth offered the following summary points:

- Start of emergence typically occurs in March and coincides with low flows
- End of emergence corresponds with peak abundance and length-frequency
- What we think we know: that decreases in discharge during hours of darkness are more likely to result in stranding and entrapment.

In response to a question from Litchfield, Hoffarth said the yearly Hanford Reach fish protection operation is revised following a daylong review of the 2002 field season, which typically occurs in January or February. Have you looked at all at the delayed mortality effects of stranding? Boyce asked. We haven't looked at cumulative effects in detail, Hoffarth replied, although we have done some temperature tolerance testing. We didn't see much of an effect, in terms of delayed mortality, following our temperature tolerance testing, he said.

***F. History of Spawning Corresponding to Vernita Bar Levels.*** Hoffarth also provided information on critical flow and elevation levels at Vernita Bar, with respect to optimal spawning conditions. He shared data on Vernita Bar spawning covering the period 1988-2002. In recent years (since 1993), the critical elevation has been set at 50 Kcfs, 60 Kcfs or 65 Kcfs; in 2001, it was 50 Kcfs. The critical elevation level has not yet been set for 2002, but if it was set now, it would likely be at 65 Kcfs, Hoffarth said. It looks like adult fall chinook escapement in the reach will be approximately 80,000 this year, with roughly double the emergence seen in 2002, Hoffarth added.

***G. Migration Status.*** Chris Ross provided a graph showing Lower Granite outflow over time during the spring period, noting that the onset of the freshet was very late in 2002. Another graph charted the response of the juvenile outmigrants, in terms of the number of ESU (wild Snake River spring/summer chinook, steelhead and sockeye) PIT-tag detections at Lower Granite, from late March to mid-June, 2002. In general, all three ESU groups responded strongly to the onset of the freshet. For the run at large, the response was similar, Ross said – detections increased significantly following the peaks in flow. He added that there was a particularly strong response to the brief operation in which Lower Granite ponded water during the day, then discharged up to 100 Kcfs during nighttime hours – that tells me that there are a lot of fish holding close to the project, Ross said.

Moving on to summer juvenile migration data, Ross said the wild Snake River fall chinook detections at Lower Granite showed four distinct peaks during July and early August. At McNary, the peak of the migration occurred during the first week in May. With respect to steelhead detections at McNary, Ross said that if they didn't make it by the second week in June, they didn't make it at all. Mid-Columbia steelhead passage timing at McNary was somewhat earlier in 2002 than it was in 2001. At McNary, the wild Snake River fall chinook migration was essentially over by mid-August this year.

***H. Survival Study – Comparison With 2001/I. Performance Standards.*** Wagner noted that the 2000 BiOp focuses on performance standards; however, he said, the bottom line is that we don't yet have all of the information we need. Wagner put up an overhead showing one survival component: in-river juveniles. For yearling chinook, the BiOp standard is 49.6%; in 2001, we saw 27.6% survival; in 2002, 52.9%. For in-river juvenile steelhead, the BiOp standard is 51.6%; last year, actual survival was only 4.2%; in 2002, 30%. The big drop-off area appears to be the reach below Lower Monumental Dam, for in-river steelhead, Wagner said. This is for Snake River fish during the spring period only? Hlebechuk asked. Correct, Wagner replied.

In response to a request, Wagner said he will send this table to Hlebechuk so she can post it to the TMT homepage. In response to another question, Wagner said one theory to explain the lower-than-expected steelhead survival is that juvenile steelhead are larger targets, and may be more susceptible to avian predation. Ruff added that 95% of the 2001 juvenile steelhead were transported; there were very few fish migrating in-river last year.

**J. Weather Review.** Martin began with a summary of percent-of-normal precipitation for the Columbia River above Grand Coulee, the Snake River at Ice Harbor and the Columbia at The Dalles, for the period Oct. 1 2001 through September 30, 2002. He went through 2001/2002 temperature and precipitation data by month, noting that spring featured lower-than-normal temperatures and higher-than-average precipitation, particularly in the Upper Columbia and Clearwater basins. During the summer, early-summer temperatures were higher than average, while late-summer temperatures were below normal, as was precipitation. Snow accumulation was enhanced during a flurry of late-winter and early-spring storms, which was somewhat unusual, Martin said.

Martin noted that seasonal flow augmentation was well below normal in much of Idaho and Eastern Oregon, while the Upper Columbia basin did pretty well. Overall, the water supply was about 95% of normal, which was right at my pre-season prediction, Martin said – you will recall that you laughed when I predicted 68% of normal precipitation in 2001, and we wound up with 70% of normal precipitation.

**K. CRITFC Winter 2002-2003 Climate Forecast.** That leads in to CRITFC's winter 2002/2003 forecast, Martin said. The bottom line is that, in my estimate, we will see 90% of normal seasonal precipitation at The Dalles, and a January-July water supply of 97 MAF, again 90% of average. The current El Niño is expected to peak in late November, and die out by May.

#### **7. Next TMT Meeting Date.**

The next meeting of the Technical Management Team was set for Wednesday, November 13 to discuss burbot operations. The next normal meeting was set for Wednesday, December 4. A conference call to discuss the status of the chum operation was set for Friday, November 8. Meeting summary prepared by Jeff Kuechle, BPA contractor.

# TECHNICAL MANAGEMENT TEAM

**BOR:** Tony Norris / Lori Postlethwait

**BPA:** Scott Bettin / Rick Pendergrass

**NMFS:** Paul Wagner / Chris Ross

**USFWS:** David Wills / Howard Schaller

**OR:** Ron Boyce

**WA:** Shane Scott

**ID:** Steve Pettit

**MT:** Jim Litchfield

**COE:** Cindy Henriksen / Cathy Hlebechuk / Rudd Turner

## TMT CONFERENCE CALL

**08 November 2002      1500 - 1530 hours**

**Custom House      Room 118  
Portland, Oregon  
Conference call line: 503-808-5190**

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

### AGENDA

1. Chum discussion
  - Field status report on chum spawning below Bonneville Dam (WDFW)
  - Operational recommendation

*Questions about the meeting may be referred to Cathy Hlebechuk at (503) 808-3942, or Rudd Turner at (503) 808-3935.*

# **COLUMBIA RIVER REGIONAL FORUM**

## **TECHNICAL MANAGEMENT TEAM CONFERENCE CALL NOTES**

**November 8, 2002**

**CORPS OF ENGINEERS NORTHWESTERN DIVISION OFFICES  
CUSTOM HOUSE  
PORTLAND, OREGON**

**TMT Internet Homepage: <http://www.nwd-wc.usace.army.mil/TMT/index.html>**

### FACILITATOR'S SUMMARY NOTES ON FUTURE ACTIONS

Facilitator: Donna Silverberg

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

#### **Chum Survey and Operations:**

Today's conference call was held to discuss chum spawning status and operations. Oregon did a site visit earlier today and reported an increase in fish numbers since Tuesday. 57 chum were observed in the areas around Hamilton and Ives and 7 redds were found. Numbers of Chinook were also counted. The current Bonneville tailwater elevation is being operated at 11.3'. Oregon requested that the elevation be increased to a minimum of 11.5' to provide for chum spawning and for Chinook in Hamilton and Hardy Creek areas as well as the slough above Hamilton.

**DISCUSSION:** Paul Wagner noted that the BiOps' 120-125 kcfs should result in meeting the 11.5' minimum tailwater elevation that salmon managers' discussions have supported. However, BOR and BPA noted that, given the lack of a rain event thus far, this operation could negatively affect the Grand Coulee elevation of 1283' that has been discussed at TMT and IT to support resident fish needs—as well as future operations if rain does not occur soon. Instead, the COE suggested the 11.3' elevation be held until there is a significant rain event in the Cascades and in eastern and northern parts of the region that provides inflows to Grand Coulee. The BOR agreed to wait until there is precip and a rise in Hamilton Creek. NOAA Fisheries expressed that that a higher elevation would be beneficial AND they must also consider the long term sustainability of the operation. As such, they prefer to take a conservative approach, operate in accordance with natural precipitation, and maintain 11.3' until a rain event allows the elevation to increase.

On the other hand, USFWS and Oregon supported an 11.5' minimum elevation for spawning that is occurring now and dewater redds later, if weather conditions make such an action necessary. Ron Boyce stated that he did not believe that 2/10 of a foot at GCL and a 2-3 kcfs to meet this request would break the hydro system, and strongly preferred

a minimum tailwater of 11.5' below Bonneville. The USFWS agreed. Neither agency felt it would be beneficial to elevate the conflict to IT.

**ACTION:** The operation will continue at a tailwater of 11.3', while also maintaining a smoother, more stable level. TMT will revisit the issue at next Wednesday's TMT meeting and hope for a big rain event over the weekend.

**ACTION:** Paul Wagner will provide Oregon with a detailed written rationale explaining why the request for 11.5 cannot be implemented at this time.

## **Meeting Minutes**

### ***1. Greeting and Introductions***

The November 8 Technical Management Team conference call to discuss the 2002 chum operation was chaired by Rudd Turner of the Corps and facilitated by Donna Silverberg. The following is a distillation, not a verbatim transcript, of items discussed at the meeting and actions taken. Anyone with questions or comments about these minutes should call Turner at 503/808-3935.

### ***2. Field Status Report on Chum Spawning Below Bonneville Dam and Operational Recommendation.***

An ODFW representative reported that numerous adult chum were observed in the Ives Island area during a site visit earlier today – we counted 56 chum and seven chum redds in the reach below Hamilton Creek. In addition, in that area, we counted 35 adult chinook and 14 coho, he said. Outside Pierce Island in the main channel, we saw 22 adult chinook and 11 chinook redds. In the channel break between Ives and Pierce Islands, we counted 107 adult chinook and 39 redds, he added.

The bottom line is that fish numbers have increased dramatically since Tuesday's survey, Boyce said. The creeks are still not running, although Hardy was watered up, he said – however, we saw no fish in any of the creeks. The purpose of today's conference call is to review the current operation (a minimum Bonneville tailwater elevation of 11.3 feet) in the context of today's survey information, Boyce said. In my opinion, he said, we probably have an adequate elevation for down in Hamilton Slough, but the problem is that at the top of the slough, chinook are attempting to spawn, but there isn't enough depth for them to do so – their backs are actually out of the water. For that reason, said Boyce, I would like to pursue the possibility of increasing the Bonneville tailwater depth to 11.5 feet to benefit that particular area. Was there any chum spawning in that area in

2001? Turner asked. No – they were all just below the mouth of Hamilton Creek, the ODFW representative replied.

My concern is that the rain that has been forecast has not yet materialized, said Scott Bettin – the spawners you’re talking about are chinook, but the focus of this operation is chum, and it sounds as though the 57 chum you observed today have adequate habitat in which to spawn. Also, he said, according to the most recent report I’ve seen from WDFW, chum are entering Greys River in small numbers, but there have been no reports of large numbers of chum hanging out waiting for the river levels to rise. No, but since Tuesday, we’ve seen a dramatic increase in the number of adult chum at Ives/Pierce Island, Boyce replied.

We’re not talking about a lot of additional water here, said Boyce – based on our surveys, 11.3 feet just does not look as good as 11.5 feet. We’re not exceeding 125 Kcfs out of Bonneville, he said; why can’t we use some of that operational flexibility to bump up the tailwater elevation slightly.

One concern is that, in the absence of a significant rain event so far this fall, it does look as though we will be approaching the 1283’ Grand Coulee elevation limit by November 15, said Bettin. What’s the issue there? Boyce asked. Reclamation would like to maintain a minimum Grand Coulee elevation of 1283 feet through mid-November for tribal kokanee operations in the reservoir, Tony Norris replied. That’s not a BiOp requirement, though, said Boyce. True, but it’s the elevation we’re targeting to manage that resource, Norris replied. Right now, we don’t have rain to fill Hamilton Creek, but fish are still able to access the slough – it just doesn’t make sense, to us, to bump the Bonneville tailwater up before we see any rain, he said. What happens if the rain doesn’t materialize, and the mainstem is the entire area we’re managing for chum spawning? Boyce asked. In that case, we need to be more conservative than ever in terms of increasing flows, because we would be using storage that may not be replaced, Turner replied.

Paul Wagner said that as long as Bonneville outflow doesn’t exceed 125 Kcfs at this point in the season, an 11.5-foot Bonneville tailwater elevation would be appropriate. On the other hand, he said, we would prefer that the Bureau meet its elevation commitment in Grand Coulee – would there be any possibility of bumping up Bonneville discharge by using water sources other than Grand Coulee? I don’t see that happening right now, Bettin replied.

Our real concern right now is the weather, because this fall is beginning to look more and more like fall 2000, which was the beginning of the very dry 2001 water year, Turner said. Here we’ve got the remnants of a typhoon from the South Pacific that was supposed to dump heavy rains over the Northwest beginning Wednesday, and instead the storm is breaking up before it reaches us. That’s the same pattern we saw in 2000, he said – storms would form up, march toward the coast, then break up before they reached us – as a result, the forecasts were consistently rich for several months. Who knows? said Turner – that may not be the case this year. However, in the Corps’ view, the weather pattern is looking a little ominous right now. NMFS shares that concern as well, said Wagner.

So what would the Corps prefer to do? Silverberg asked. We would prefer to hold on to the 11.3-foot tailwater elevation for at least a few days, and hope for a significant precipitation event to get things started, Turner replied -- once we bump up to an 11.5-foot tailwater elevation, we need to be able to sustain it. I'm talking about a rain event that provides significant precipitation not just here on the west side, but over the Cascades and into the eastern and northern basins as well, he said. And Grand Coulee will be pretty close to elevation 1283 on November 15 if we maintain the current operation? Chris Ross asked. Yes, Norris replied.

What about the Fish and Wildlife Service? Silverberg asked. The Fish and Wildlife Service would prefer to see a minimum tailwater elevation of 11.5 feet at this point, replied David Wills; we would rather begin with a little higher tailwater, then come down a bit if we have to during the incubation flow period. In other words, he said, we would prefer to dewater a few redds later than not give these fish a chance to spawn at this point.

And what is NMFS' view? Silverberg asked. That, while the higher elevation that is being requested would be beneficial to chum and chinook spawners at this point in the season, the long-term sustainability of the action is a concern -- for that reason, NMFS would prefer to take the more conservative approach and wait until natural precipitation arrives before increasing the Bonneville tailwater elevation, Wagner replied. And is it fair to say that Oregon and the Fish and Wildlife Service disagree with that position? Silverberg asked. Yes, it is, replied Boyce and Wills. We're talking about a difference of two-tenths of a foot and a few thousand cfs, Boyce said -- that's not going to make or break the hydrosystem, and I'm not hearing any compelling reasons why we shouldn't go to an 11.5-foot tailwater elevation now. It's true that it might require only 4 Kcfs-5 Kcfs in additional flow to provide an 11.5-foot tailwater elevation, said Bettin, but if we have to continue that augmentation for the next four to five months, that's where the operation gets scary.

In response to another question from Silverberg, both Boyce and Wills declined to elevate this issue to IT at this time, saying that, in their view, the IT would be unlikely to change the TMT's decision. Boyce requested that NMFS and the action agencies provide a detailed written explanation as to why the SOR cannot be implemented. We have discussed this several times, and there are meeting minutes documenting those discussions, and our reasons for preferring to hold the Bonneville tailwater elevation at 11.3 feet at this point in the season, said Turner -- what additional information are you looking for? Something in writing, Boyce replied. Wagner said he will develop such a written explanation.

In response to a request from Wills, Bettin said he will instruct the Bonneville project operators to maintain a smoother tailwater operation targeting an 11.3-foot minimum. What I'm hearing, then, is that the action agencies will continue with the current operation at Bonneville, with the caveat Dave Wills has just requested, but that Oregon and the Fish and Wildlife Service disagree with that decision, Silverberg summarized. No TMT disagreements were raised to this characterization.

With that, the conference call was adjourned. Meeting summary prepared by Jeff Kuechle, BPA contractor.

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**ID:** Steve Pettit

**MT:** Jim Litchfield

**COE:** Cindy Henriksen / Cathy Hlebechuk / Rudd Turner

## TMT MEETING

13 November 2002      0900 - 1200 hours

Custom House      Room 118  
Portland, Oregon  
Conference call line: 503-808-5190

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

## AGENDA

1. Libby burbot operation discussion

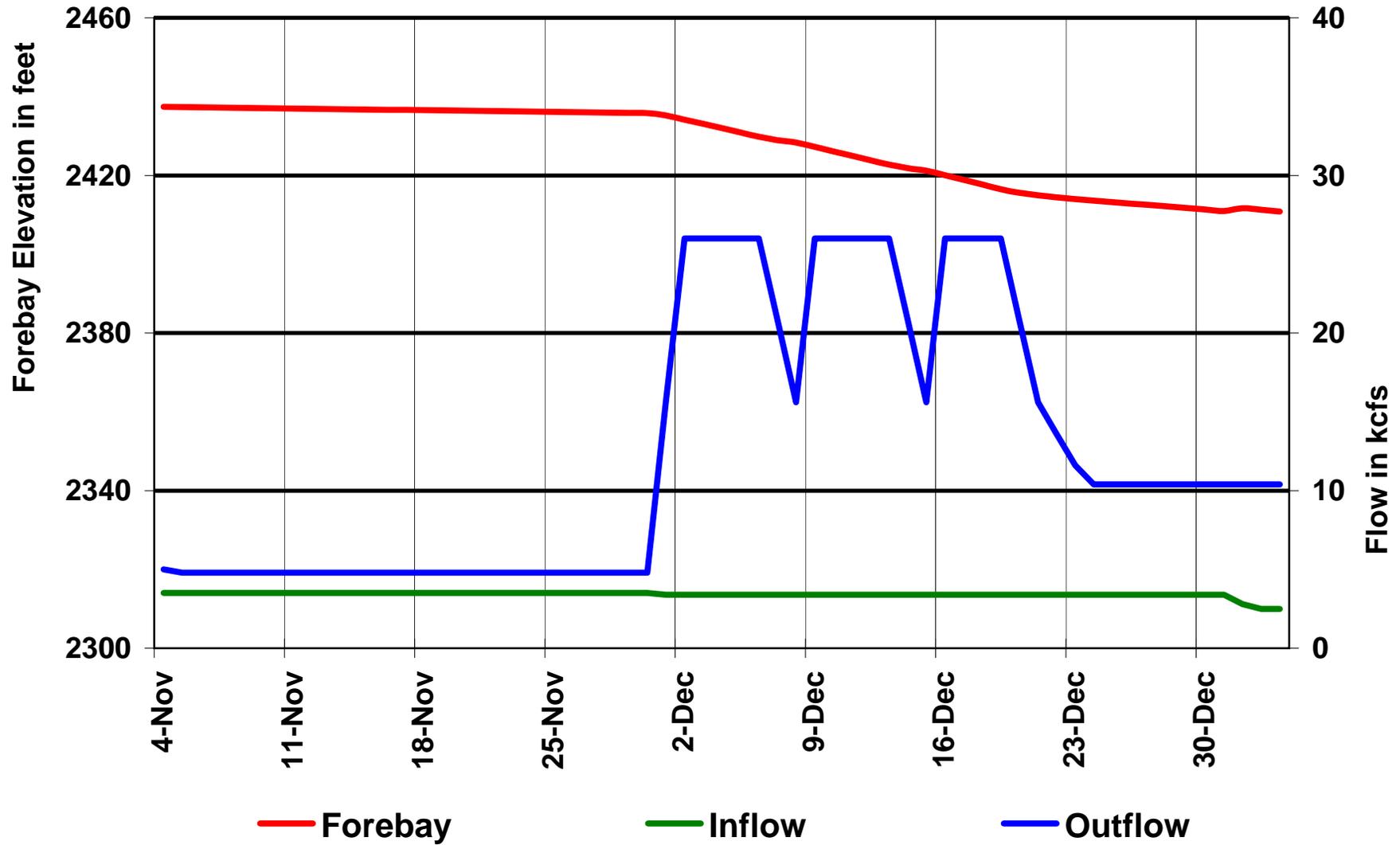
- [BPA's Libby Proposal](#)
- SOR [2002-B1](#)
- [November volume forecast](#)
- Libby modeling:
  - [\[BPA's Preferred Libby Operation\]](#)
  - [\[SSARR Inflows / 1 Week Burbot\]](#)
  - [\[SSARR Inflows / 2 Weeks Burbot\]](#)
  - [\[SSARR November Inflows / Highest December Inflows on Record / 1 Week Burbot\]](#)
  - [\[SSARR November Inflows / Highest December Inflows on Record / 2 Weeks Burbot\]](#)

2. Oregon Dept. of Fish and Wildlife Fall/Winter Update [comments](#)

*Questions about the meeting may be referred to Cathy Hlebechuk at (503) 808-3942, or Rudd Turner at (503) 808-3935.*

# BPA's PREFERRED LIBBY OPERATION

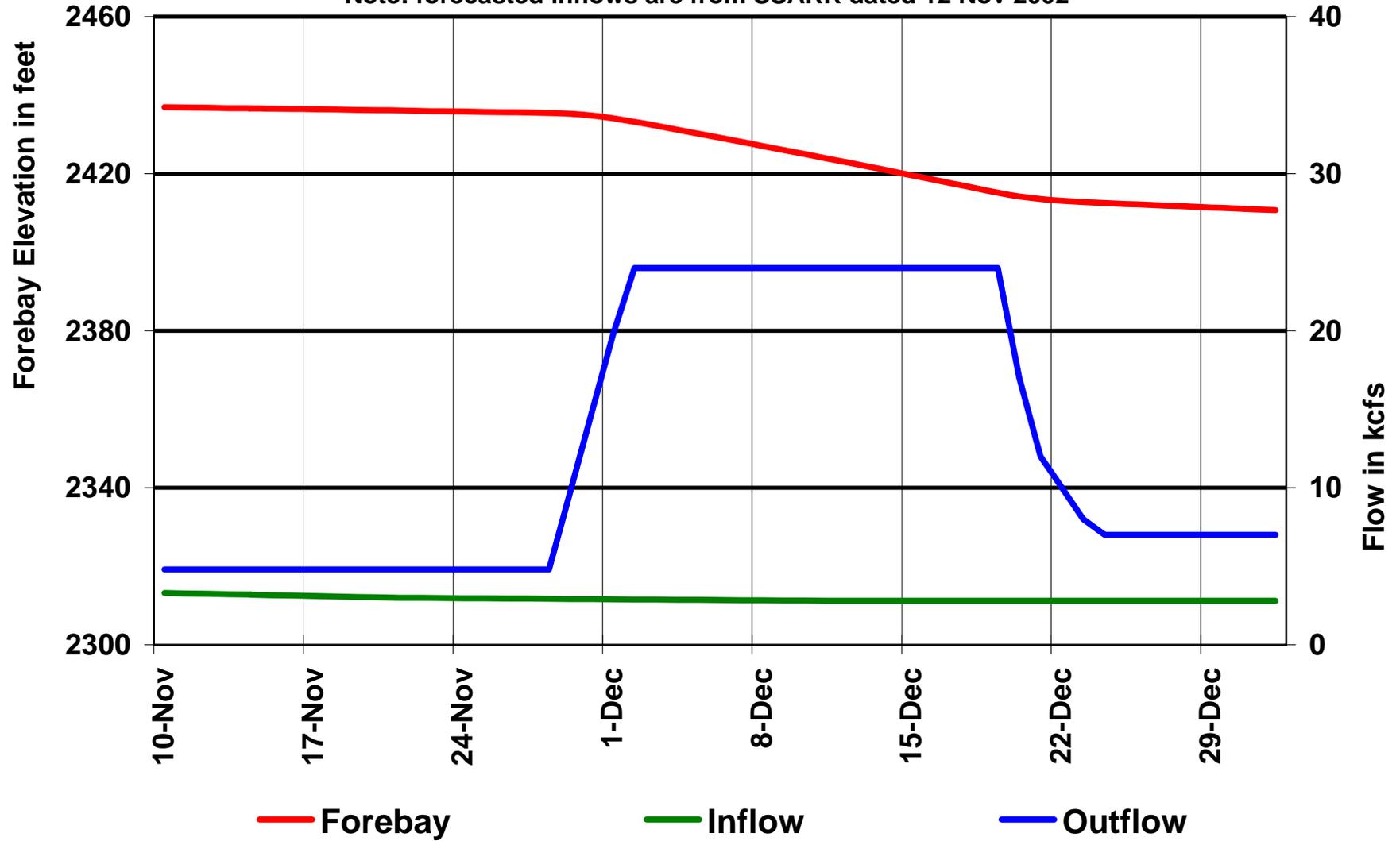
Note: Forecasted Inflows are from BPA



# LIBBY BURBOT OPERATION

1 week of 7 kcfs flows in December

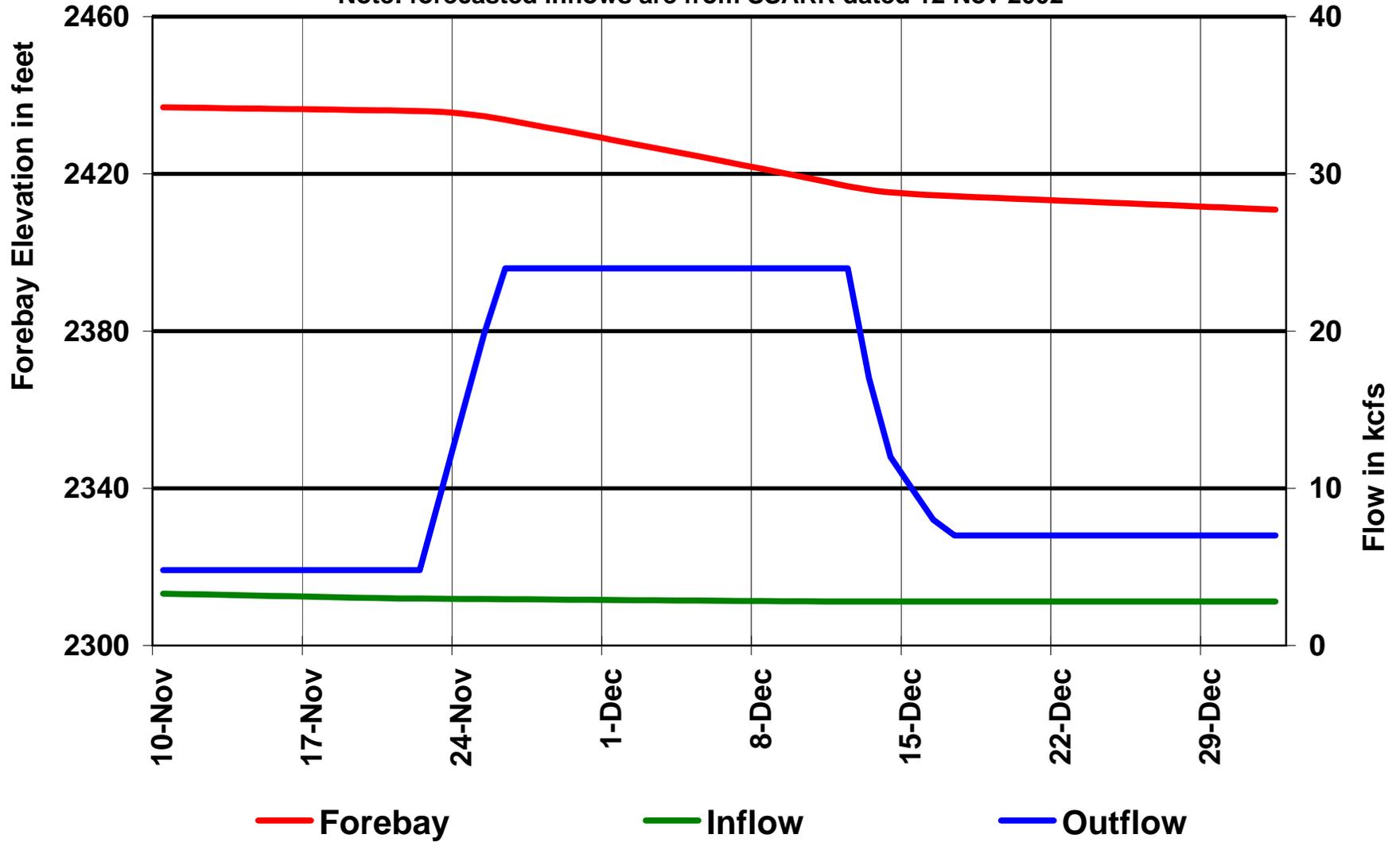
Note: forecasted inflows are from SSARR dated 12 Nov 2002



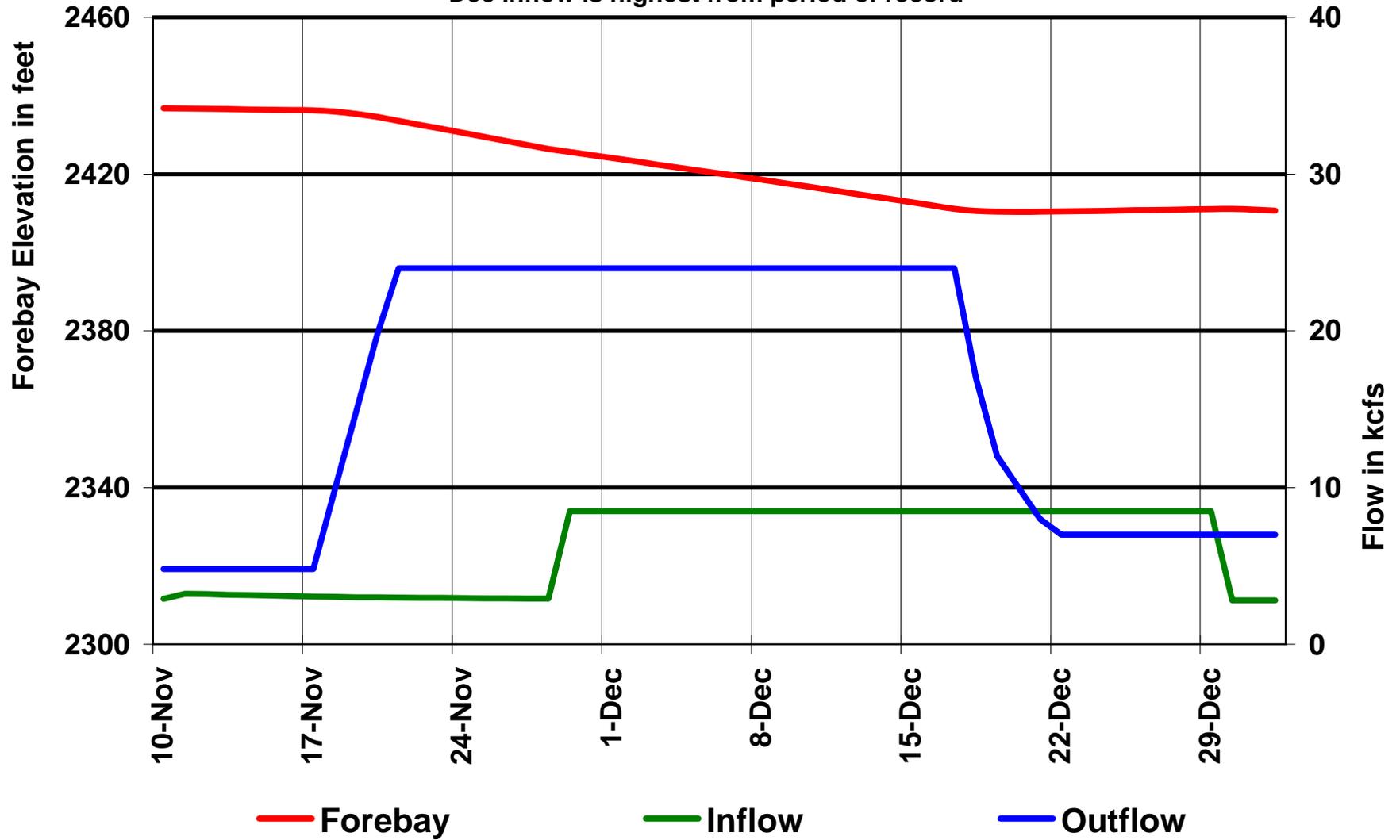
# LIBBY BURBOT OPERATION

2 weeks of 7 kcfs flows in December

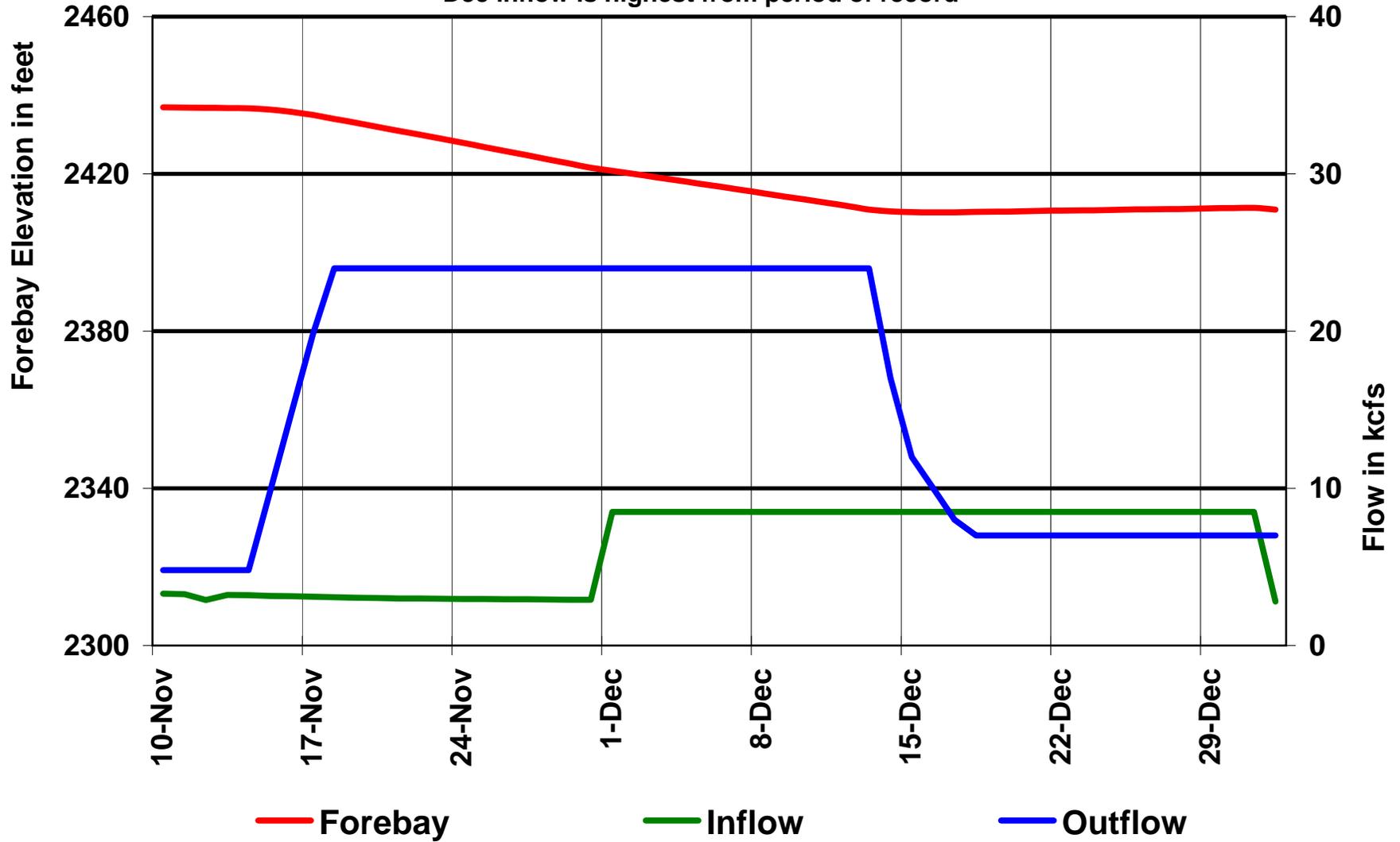
Note: forecasted inflows are from SSARR dated 12 Nov 2002



**LIBBY BURBOT OPERATION**  
1 week of 7 kcfs flows in December  
Note: Nov inflow forecasted from SSARR dated 12 Nov 2002  
Dec inflow is highest from period of record



**LIBBY BURBOT OPERATION**  
**2 weeks of 7 kcfs flows in December**  
 Note: forecasted inflows are from SSARR dated 12 Nov 2002  
 Dec inflow is highest from period of record





# MEMORANDUM

## Oregon Department of Fish and Wildlife

### Columbia River Coordination Section

**Date:** November 13, 2002  
**To:** TMT  
**From:** Ron Boyce  
**Subject:** Comments on 10-22-02 Draft Fall/Winter Update of the 2003 Water Management Plan

**Chum Spawning Flows-** Oregon is not supportive of changing Biological Opinion requirements for chum spawning below Bonneville Dam and for access of chum into Hamilton and Hardy creeks. The Biological Opinion 125 kcfs minimum instantaneous flow target that results in a 11.5 ft minimum tailwater elevation to be started when chum are present no later than November 1 is supported by research collected over the last 4 years. Research also indicates substantial more spawning habitat would be available above 11.5 ft tailwater, so a 11.5 ft tailwater elevation to be provided no later than November 1 (which historically is when chum spawning is initiated) is a very conservative protection level to achieve some level of spawning in the mainstem by both chum and chinook. The Biological Opinion has already provided TMT substantial flexibility in modifying the RPA action for chum spawning including delaying implementation of the operation if poor hydrologic conditions indicate that the operation cannot be sustained throughout spawning and incubation and reduce flows if the operation conflicts with implementation of other RPA actions (ex: April 10 rule curve elevations).

**Spring Creek Spill-** The Fall/Winter Update should plan for implementation of special operations at Bonneville including the full 10 day spill to the 120% TDG gas cap to improve survival of the March release fish from Spring Creek NFH. Many of you recently received from Shane an excerpt from Larry LaVoy who described the importance of this stock to regional fisheries.

“Spring Creek Hatchery is a federal hatchery located on the Washington side of Columbia upstream of Bonneville Dam near White Salmon River. I believe that Spring Creek NFH is the largest facility in the Columbia Basin in terms of numbers and pounds of salmon released. It

provides 90+% of the production for the Bonneville Pool Hatchery (BPH) fall chinook management unit in the Columbia. BPH chinook is one of five major components of the Columbia fall chinook run. BPH along with Upriver Brights (URB) originate above Bonneville Dam along with a portion of Mid-Columbia Bright (MCB). Lower Columbia Hatchery (LRH), lower Columbia wild (LRW) and remainder of MCB come from below Bonneville Dam.

BPH chinook are a major contributor to Washington sport and troll fisheries due to their ocean range which is centered off Washington and extends partially into southern Vancouver Island waters. BPH was expected to comprise between 25-45% of the chinook catch off Washington during 2002 due in part to the very favorable forecast for this stock. Forecasted return to the Columbia mouth in 2002 was 136,000; actual return is in neighborhood of 160+K or about 23% of the entire Columbia River run. This is a near record run. Average BPH returns in the 1990's have been around 30K. Even at these abundance levels, BPH chinook contribute about 10-15% of Washington coast chinook catches. Spring Creek Hatchery along with LRH fall chinook are the backbone of Washington troll and sport fisheries.

Spring Creek Hatchery has always had a reputation for good survivals from fingerling type releases. It's my belief that these good survivals are directly linked to the facility itself, its water supply, location, and a few other intangibles. Additionally, its ability to operate and collect broodstock has minimal ESA complications and makes Spring Creek Hatchery a prime "harvest augmentation" facility without major listed fish recovery plan negatives. One couldn't simply move the production elsewhere and expect the same success in adults produced or not experience major recovery plan headaches with other stocks. And in fact, Spring Creek Hatchery eggs have been transferred to lower Columbia facilities (Abernathy NFH and others) and have not achieved the same successes."

As you know, Spring Creek NFH also is the backbone of the popular Buoy 10 fishery in the lower Columbia that has only rebounded in recent years in large part because of BPH production that allows increased harvest of abundant hatchery and non listed chinook while complying with allowable impacts to ESA stocks.

Non spill management alternatives are not a viable option to providing spill until at least 2004. U.S. v Oregon parties are negotiating an agreement to relocate Spring Creek NFH production to lower river facilities to eliminate the March release; however the parties agreed that the earliest that the production can be reprogrammed is 2004 and only that can be accomplished if funding is secured. Given that, U.S. v Oregon parties have requested that spill be provided in March 2003 as requested by the Salmon Managers to not reduce survival of the Spring Creek NFH March release.

**TECHNICAL MANAGEMENT TEAM  
MEETING NOTES  
November 13, 2002  
CORPS OF ENGINEERS NORTHWESTERN DIVISION OFFICES – CUSTOM  
HOUSE  
PORTLAND, OREGON**

FACILITATOR’S SUMMARY NOTES ON FUTURE ACTIONS

Facilitator: Donna Silverberg

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

**Burbot:**

USFWS and members of the Kootenai Valley Resource Initiative requested flows of 7.3 kcfs out of Libby starting December 15<sup>th</sup> for burbot spawning in SOR 2002 B-1. The requested operation, based on nine years of observations, seeks a minimum of 45 days of low outflows. It was backed by Idaho Fish and Game and USFWS biologists, who stated that the ideal operation would last 120 days. The requested 45 day minimum was suggested as a more likely “compromise” operation. BPA responded that the request would cost .5-1.3 million dollars. Given BPA’s financial situation and lack of biological information regarding burbot listing, BPA could not support this operation. Instead, the agency offered an alternative operation, which would provide 37 days at 7.3 kcfs (IF no flood control or cold snap requirements arise.)

The USFWS is court-ordered to establish whether or not burbot meet listing criteria by March 1, 2003. According to IDFG and USFWS biologists, burbot are in worse shape now than sturgeon were prior to their listing. A suggestion was made to look at the criteria for sturgeon listing and compare them to the burbot situation. When asked if there are enough burbot for successful spawning, the biologists replied that burbot are different from salmon in that one female can produce upwards of a million eggs. They felt confident that there are enough burbot for successful spawning, if proper conditions are provided.

BPA could find no other flexibility for operations in November, as they are operating for already-listed chum. Since this request is for an operation outside Biological Opinion requirements, BPA is reluctant to agree to the request, given their financial limitations. The agency was encouraged to consider the long term savings of helping to avoid listing this species. Also, it was noted that this year’s weather conditions look as though there is a high likelihood of a successful operation. BPA is trying to find a power operation that also meets burbot needs to the best extent possible.

After lengthy discussions, TMT agreed to elevate the issue to IT. The facilitator helped the group frame a policy question for IT. The following question, sent in an issue document, was asked of IT:

“Should this special operation occur in the absence of a listing? Put another way, is there a regional benefit to avoiding a listing by taking action now or should the listing occur first before the region invests BPA funding in these operations? Is there a regional benefit for BPA to spend money to increase the probability of a burbot operation from 50% to 95%?”

The issue paper also noted the factors that TMT discussed around this issue, including VARQ; forecasting uncertainties for January; and questions about existing biological information and whether it adequately demonstrates that the requested operation will provide a biological benefit.

(NOTE: The detailed issue paper was sent out to IT and TMT members before the IT meeting. This will be available on the TMT website.)

**ACTION**: IT will meet tomorrow, Thursday November 14, at 1:30 pm to discuss the burbot issue. The meeting place is yet to be determined.

**\*\*UPDATE**: *IT met on November 14 to discuss the burbot issue elevated from TMT. Discussions focused on how this operation tied into the NPPC’s Mainstem Provincial process and proposed amendments, BPA’s financial situation, and reports from biologists Vaughn Paragamion (IDFG) and Bob Hallock (USFWS) on the advantages of implementing a burbot operation this year given the weather forecast. Bob Hallock asked the group to consider whether listing could be avoided if the operation was implemented and whether the species might be listed if the operation is NOT implemented. BPA then proposed another alternative operation. IT turned the issue back over to TMT with the understanding that the new proposed BPA alternative operation should be discussed from a technical standpoint. The burbot biologists reiterated that the preferred operation would be to maintain flows at 7.3 kcfs for as long as possible, with a minimum of 45 days. BPA’s proposal suggested a 37 day operation at 7.3 kcfs, or a longer operation at a higher outflow. While the burbot biologists on the phone did not feel that their needs would be met with BPA’s proposed alternatives, they would like to see some sort of operation that might be beneficial to the species. No consensus was reached on this issue. Sue Ireland, Kootenai Tribe, strongly suggested that whatever burbot operation is to be implemented be first discussed with Montana, who was not represented on the call.*

**ACTION**: *BPA and USFWS will continue to work to find a more optimal operation that is cost-neutral and more beneficial to burbot. If no other alternative is found, then BPA’s “preferred operation” will be implemented with a steeper ramp down from full powerhouse at the end of December to get to 7.3 kcfs as soon as possible.*

### **Chum Operations Update:**

Oregon reported results from a chum survey done yesterday. The report indicated that there are many species spawning. Oregon requested that the tailwater be increased immediately to a targeted 11.5’ elevation, with a range of 11.4-11.6’. The Action Agencies agreed to the targeted tailwater elevation, with a wider range to allow operational flexibility. Further increases in elevations will need careful consideration dependent on weather and water supply conditions.

**ACTION:** The chum operation, effective immediately, was increased to a target 11.5' tailwater elevation at Bonneville, with an operating range of 11.3-11.7'. The operators will attempt to maintain the target as close to 11.5' as possible.

**Oregon Comments to the WMP Fall/Winter Update:**

Ron Boyce distributed Oregon comments to the fall/winter update and asked the Action Agencies to append them to the update. Comments addressed chum spawning flows and Spring Creek spill.

**Next Meeting, December 4:**

**Agenda Items:**

- Vernita Bar
- CRITFC Review of 2002
- Spill Exceedances for 2002 – Laura Hamilton and Ron Boyce
- IT Guidelines

**Other:**

- AFEP is holding its Annual Review on November 18-21 at the World Trade Center in Portland.
- TMT has been extended a special invite to the Lake Roosevelt Forum on April 23. Shane Scott will give further details at the next TMT meeting.
- Paul Wagner handed out preliminary survival estimates for juveniles to show the type of information that is being collected. More detailed information will be provided at future TMT meetings, including methodology and actual numbers for the entire season.

***1. Greeting and Introductions***

The November 13 Technical Management Team meeting was chaired by Cindy Henriksen of the Corps and facilitated by Donna Silverberg. The following is a distillation, not a verbatim transcript, of items discussed at the meeting and actions taken. Anyone with questions or comments about these minutes should call Henriksen at 503/808-3945.

***2. Libby Burbot Operation Discussion.***

Silverberg noted that the burbot operation and its associated System Operational Request were discussed at the last face-to-face meeting of the TMT; at that meeting, BPA offered a counterproposal, which various parties requested additional time to study. David Wills said Sue Ireland of the Kootenai Tribe and others working closely with the burbot had studied the BPA proposal and had discussed it with BPA; various ideas have been floating back and forth, he said, so I'll ask Bob Hallock to discuss them.

Hallock said the main problem has been trying to get an additional week of low burbot flows during the third week in December; we're hoping to get some additional Libby outflow now to ensure that the Libby flood control elevation is achieved by

December 15, he said. Basically, he said, nine years of monitoring tells us we need an extended period of low Kootenai River flows in order to get burbot in position to spawn. What we're looking for is a minimum of 45 days of low Kootenai flows from mid-December through the end of January, he explained – somewhere in the neighborhood of 7.3 Kcfs from Libby. If we don't begin this operation soon, said Hallock, we'll be in a situation where we need to go to full powerhouse discharge from Libby for an extended period. We're hoping for some operational flexibility, he said, but unless something has changed at Bonneville's end, we haven't found it. IDFG's Vaughn Paragamian said that, from his agency's perspective, 120 days of low flows in the Kootenai would be optimal, 90 days would be acceptable and 45 days is the absolute minimum needed.

Steve Kerns of Bonneville said his agency's concern is the cost of this operation, specifically, the fact that the Libby releases are worth more in December, when power prices will be higher, than they are in November. He said Hallock had suggested some ways that Bonneville might minimize the cost of the burbot operation, specifically, through changes to the ramping rates specified in the BiOp. The conclusion we came to is that if we're going to manage to a worst-case flow scenario, we need to start picking up Libby outflow now if we're going to do a burbot operation this year, Kerns said. The cost of the operation, from Bonneville's point of view, is somewhere between \$500,000 and \$1.3 million, depending on the price of power, he said. As Scott Bettin stated last week, because of BPA's financial situation, we're just not willing to go there right now, Kerns said.

Henriksen said the Corps had put together several modeling scenarios showing how much Libby might need to draft, and when, if two weeks of 7.3 Kcfs Libby outflow is to be provided starting in mid-December. Essentially, if we assume the current forecast is correct, we would need to increase Libby outflow to full powerhouse capacity starting November 20 and hold that until December 17. We ran additional scenarios higher-than-average and lower-than-average project inflows, just to provide bookends to the operation, she explained. The Corps' concern about all of these scenarios is that running at full powerhouse capacity leaves zero operational flexibility, Henriksen said. If we were to get a rain event around Christmas, which happens frequently at Libby, we would be left with no flexibility in our end-of-December flood control point, effectively precluding a burbot operation.

The bottom line is that the operation Bonneville is proposing offers a good chance of achieving flows within the range requested in the SOR for 37 of the 45 days, said Kerns. There are no guarantees, however, Henriksen observed – in January, we'll have a new water supply forecast for Libby, and we will calculate a January 31 flood control point and operate to meet it.

So it's all sounding very uncertain, Silverberg said. What I'm hearing, in terms of the proposal from BPA, is an operation that has a good chance of achieving the requested burbot flow of less than 10 Kcfs for 37 of the 45 days requested in the SOR, as long as there are no additional requirements for flood control, she said.

The group then devoted a few minutes of discussion to the prospects for a decision to list the burbot as threatened or endangered. Hallock said that IDFG's and the

Fish and Wildlife Service's Bonneville-funded research has yielded a significant amount of data to date; what that information tells me, he said, is that burbot are in even worse shape than sturgeon were before they were listed. In other words, he said, we feel there is a genuine biological need out there, and we would like to begin addressing it as soon as possible. Paragamian added that IDFG's burbot research has been policy-reviewed, scientifically reviewed and published in scientific journals; there is no doubt in my mind, he said, that burbot are in worse shape than sturgeon were prior to their listing.

Kerns replied that the direction he has received from Bonneville's policy staff has been clear and consistent over the past several weeks – they feel they have not been given enough information to determine whether or not this species meets the Fish and Wildlife criteria for listing as threatened or endangered. If that can be demonstrated, he said, then that needs to be done. Hallock suggested that Bonneville review the listing decision for sturgeon and compare the criteria used in that decision with the information available on burbot. The rules haven't changed, he said.

Sue Ireland said the Kootenai Tribe believes that, given the current forecast, this is a year when the burbot operation is doable. Despite Bonneville's financial situation, she said, there is a real opportunity here to implement a conservation agreement in lieu of listing. Such an agreement would allow for significantly more flexibility in the recovery of the species, she said; Bonneville could well enjoy more benefit from that flexibility in the future than they would enjoy if they just say no to this operation in 2002. The alternative to listing is a conservation agreement, Hallock added, but that would need to be based on some certainty of implementation.

The discussion continued in this vein for some minutes; Kerns reiterated that he has not been given the flexibility to agree to anything other than the operation he proposed earlier in today's meeting. Ultimately, Silverberg observed that, although parties on all sides of this issue had tried very hard to consider one another's point of view, there doesn't appear to be much flexibility to do anything other than BPA's preferred operation, which could provide flows within the SOR range on 37 of the 45 days requested. Kerns clarified that what BPA is committing to under this proposal is not a modified burbot operation; rather, it is a power operation that looks, at this point, as though it will be able to match the burbot flow request for a good part of the month of December. At Paul Wagner's request, Kerns agreed to crunch the numbers to see whether it would be feasible to begin the proposed operation two weeks earlier; Henriksen said that should not be a problem, from the Corps' standpoint.

Is there anywhere else to go from here with this issue? Silverberg asked. David Wills said that, from the Fish and Wildlife Service's perspective, this issue should be elevated for resolution at the IT level. Silverberg agreed to frame the question for IT consideration; it was agreed to convene an IT conference call for 1:30 Thursday, November 14.

### ***3. Chum Operations Update.***

Boyce reminded the group that, at last Friday's TMT conference call, the action agencies decided to continue to provide an 11.3-foot tailwater elevation at Bonneville. It was further agreed to discuss the November 12 chum survey results at today's meeting, said Boyce. An ODFW representative (identified only as "Wayne") reported that, during yesterday's survey, field crews saw 128 live adult chinook, nine live chum and 46 chinook redds in the main channel along Pierce Island. We also took a look at Woodward Creek on the Washington side, he said, and saw quite a few coho spawning at the mouth of Woodward Creek. In the channel break between Ives and Pierce Islands, crews saw no chum, but 159 live adult chinook, 85 chinook redds and two live adult coho.

The most interesting area was below Hamilton Creek, said Wayne; crews saw 76 live adult chinook, 40 live adult coho and 174 live adult chum. They also saw 14 chinook redds, 14 coho redds and 35 chum redds, and sampled the following dead spawned-out salmon: 74 chinook, 15 coho and four chum.

Boyce said that, given the number of adult spawners in the area and the very confined space in which they have to spawn, the salmon managers are very interested in achieving a higher Bonneville tailwater elevation as soon as possible. Average daily flows have been over 130 Kcfs, he said, but a lot of that water is being pushed out at night. Flows are being kept purposely low during the day, he said, adding that NMFS and BPA discussed this issue yesterday. Kerns replied that the action agencies are willing to go to an 11.4-foot-11.6-foot operating range at the Bonneville tailwater, targeting 11.5 feet, beginning today.

Boyce said that, in the salmon managers' view, 11.5 feet is the absolute minimum that should be provided at Bonneville; they would prefer a higher tailwater elevation. This is going to be a very large chinook and chum run this year, he said; although the 11.4-11.6-foot tailwater range is fine for right now, we would like to reserve the right to re-assess the operation later this month as more information comes in. That's fine, Kerns replied.

Boyce also spent a few minutes going through ODFW's comments on the spring/summer update to the 2003 Water Management Plan. Oregon's comments are available via the TMT homepage; please refer to this document for details.

**4. Next TMT Meeting Date.**

The next meeting of the Technical Management Team was set for Wednesday, December 4 at the Corps' Northwestern Division headquarters in the Custom House. Meeting summary prepared by Jeff Kuechle, Bonneville contractor.

**TMT ATTENDANCE LIST**

**NOVEMBER 13, 2002**

Name	Affiliation
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Donna Silverberg	Facilitation Team
Ron Boyce	ODFW
Paul Wagner	NMFS
Tony Norris	Reclamation
David Wills	USFWS
Cindy Henriksen	COE
Steve Kerns	BPA
Colin Beam	PPM
Robin Harkless	Facilitation Team
Suzanne Cooper	BPA
Richard Cassidy	COE
Julie Ammann	COE
Laura Hamilton	COE
Scott Boyd	COE
Russ George	WMCI
Mike O'Bryant	Col. Basin Bulletin
Rudd Turner	COE
Tina Lundell	COE

# TECHNICAL MANAGEMENT TEAM

**BOR:** Tony Norris / Lori Postlethwait

**BPA:** Scott Bettin / Rick Pendergrass

**NMFS:** Paul Wagner / Chris Ross

**USFWS:** David Wills / Howard Schaller

**OR:** Ron Boyce

**WA:** Shane Scott

**ID:** Steve Pettit

**MT:** Jim Litchfield

**COE:** Cindy Henriksen / Cathy Hlebechuk / Rudd Turner

## TMT CONFERENCE CALL

14 November 2002      0900 - 1000 hours

Custom House      Room 118  
Portland, Oregon  
Conference call line: 503-808-5190

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

### AGENDA

1. Libby burbot operation discussion
  - [Policy Issue for Resolution by Implementation Team](#)

*Questions about the meeting may be referred to Cathy Hlebechuk at (503) 808-3942, or Rudd Turner at (503) 808-3935.*

# **COLUMBIA RIVER REGIONAL FORUM**

## **TECHNICAL MANAGEMENT TEAM Policy Issue for Resolution by the Implementation Team**

November 13, 2002

### **Background:**

The Kootenai Valley Resource Initiative group has been meeting since April 2002 to discuss burbot conservation in the lower Kootenai River. As a result of their conversations, and nine years of biological study of the fish, the group brought SOR 2002-B1 to TMT. The SOR requests 45 days of special operations this year to aid burbot spawning by providing low flows in the area this winter (please see SOR 2002-B1 for the full justification for the request).

In analyzing the request, BPA's modeling has shown the cost of the requested operation to be in the range of \$.5-1.3 million. Given their financial situation and additional biological questions they have, BPA has offered a counter proposal which is cost neutral and provides 37 days of special operations (so long as there is no need for flood control or cold snap operations). BPA has biological questions that they feel should be answered before implementing such an operation, especially given that the fish are not listed at this time (such as: Is this a distinct population? Will the numbers of fish spawning in the area be beneficial for recovery? Are there any other alternatives that would be cost neutral and equally as effective for the spawners? etc.) A USFWS decision regarding listing is due in March 2003. USFWS and IDFG biologists expressed at TMT that burbot are "in worse shape" than sturgeon were prior to their listing.

Issues discussed at TMT included: VARQ; forecasting uncertainties for January; and questions about existing biological information and whether it adequately demonstrates that the requested operation will provide a biological benefit.

### **POLICY QUESTION FOR IT:**

- Should this special operation occur in the absence of a listing? Put another way, is there a regional benefit to avoiding a listing by taking action now or should the listing occur first before the region invests BPA funding in these operations? Is there a regional benefit for BPA to spend money to increase the probability of a burbot operation from 50% to 95%?

NOTE: This policy question was discussed and framed at TMT and written for distribution by the facilitation team.

# **IMPLEMENTATION TEAM CONFERENCE CALL NOTES**

**November 14, 2002, 1:30 p.m.-4:00 p.m.**

**NATIONAL MARINE FISHERIES SERVICE OFFICES  
PORTLAND, OREGON**

## ***I. Greetings, Introductions and Review of the Agenda.***

The November 14, 2002 Implementation Team conference call to discuss operations for burbot was chaired by Jim Ruff of NMFS and facilitated by Donna Silverberg. The meeting list of attendees is attached.

The following is a distillation (not a verbatim transcript) of items discussed at the meeting, together with actions taken on those items. Please note that some enclosures referenced in the body of the text may be too lengthy to attach; all enclosures referenced are available upon request from NMFS's Kathy Ceballos at 503/230-5420 or via email at [kathy.ceballos@noaa.gov](mailto:kathy.ceballos@noaa.gov).

## ***II. Issue Raised From TMT Regarding Winter Operations for Burbot***

The focus of today's IT conference call is SOR 2002-B1, a request for limited releases from Libby Dam for migration and spawning of Burbot in the Kootenai River. This SOR, supported by the Kootenai Tribe of Idaho, the Idaho Office of Species Conservation, Idaho Department of Fish and Game, Boundary County Commissioners, the City of Bonners Ferry and the U.S. Fish and Wildlife Service, requests the following specific operations:

- Maintain low flows in the Lower Kootenai River below Bonners Ferry for 45 days between December 15 and January 31.
- Flows would be a combination of local runoff and releases from Libby Dam ranging

between 4 Kcfs and 10.6 Kcfs.

- Preferably, the releases from Libby Dam would remain below 7.3 Kcfs, the median.
- Operate the selective withdrawal system at Libby Dam to release the coldest available water during December and January if a temperature gradient exists within the reservoir.
- The requested operation is to be implemented within flood control constraints.
- Through written declaration by the regional managers, the power system will continue to be operated to assure system stability and public safety. The following definition and protocol for power emergencies as outlined by the Corps, the Bureau of Reclamation and BPA in "Cold Snap Operating Procedures" will be used for this purpose.
- The existing USFWS Biological Opinion ramping rates will remain in effect, except during emergency conditions.
- This request is subject to favorable analysis of the effects on listed species, and in-season mitigation or adjustments to satisfy their needs.
- Consideration should be given to the latest runoff forecasting procedures which will include November and December, and VARQ if adopted on an interim basis in January.
- This request will be fine-tuned in-season through the TMT.

The full text of SOR 2002-B1 is available via the TMT's Internet homepage; please refer to this document for justification and other details.

Silverberg explained that this SOR was discussed at the November 6 TMT meeting, as was Bonneville's analysis in response to the SOR. That discussion resulted in a policy issue, elevated from the TMT to the IT. The issue statement notes that, in analyzing this request, BPA's modeling has shown the cost of the requested operation would be in the range of \$500,000-\$1.3 million. Given BPA's financial situation and additional biological questions they have, BPA has offered a counterproposal which is cost-neutral and provides 37, rather than 45, days of special operations (so long as there is no need for flood control or cold snap operations). BPA has some biological concerns that they feel should be answered before implementing such an operation, especially given that burbot are not listed at this time (such as: is this a distinct population? Will the numbers of fish spawning in the area be beneficial for recovery? Are there any other alternatives that would be cost-neutral and equally effective for spawners?). A Fish and Wildlife Service decision regarding listing is due in March 2003. At the TMT, USFWS and IDFG biologists expressed their opinion that burbot are "in worse shape" than sturgeon were prior to their listing.

The specific question the TMT is asking IT to consider (full text also available via the TMT homepage) is:

- Should this special operation occur in the absence of a listing? Put another way, is there a regional benefit to avoiding a listing by taking action now or should the listing occur first before the region invests BPA funding in these operations? Is there a regional benefit for BPA to spend money to increase the probability of a burbot operation from

50% to 95%?

Jim Athearn of the Corps and Bill Tweit of WDFW noted that, in their opinion, this question is poorly-worded -- rather than emphasizing the listing question, the real question is, if the Northwest Power Planning Council had already adopted a mainstem amendment which included operations for burbot, would we even be discussing whether or not they are listed? Tweit said. Silverberg replied that the policy question, as worded, was the result of a thorough and lengthy debate at last week's TMT meeting. In response to a question from Tweit, Sue Ireland of the Kootenai Tribe said the Northwest Power Planning Council is aware that the burbot issue will need to be addressed during the mainstem amendment process.

Bob Hallock of the Fish and Wildlife Service noted that higher water years offer little or no opportunity to help burbot; however, 2002/2003 is shaping up to be a low water year, at least at this point -- this winter may provide one of our better opportunities for some time to do something positive for burbot, he said. There is no opportunity, at this point, to begin an artificial propagation program for this species, Hallock said, hence the urgency to do something, from a biological standpoint. He added that, because of the extraordinary fecundity of the typical burbot female -- up to 1 million eggs per spawning event -- it is possible to reap very high biological benefits, even from a relatively low number of spawners, if the proper spawning conditions are provided. It may be a rare opportunity, in other words, Hallock said.

Bonneville's Suzanne Cooper offered one clarification to the issue statement as worded, noting that it is not BPA's position that a listing will be required before Bonneville is willing to do something for burbot. However, given BPA's current financial condition, as well as our outstanding questions about whether or not the requested operation will in fact result in a successful burbot spawning situation, we're not willing to implement the operation as requested this year, Cooper said. However, we are planning to continue to work with the conservation groups about getting to survival and recovery of this species, she added. Ireland replied that the operation requested in SOR 2002 B-1 is needed so that monitoring and evaluation can be done to develop the very information needed to answer BPA's biological questions.

Do you have an M&E plan ready to go forward if this request is implemented? Ruff asked. In other words, are you funded and ready to go? Yes, replied IDFG's Vaughn Paragamian. To me, said Ruff, it sounds as if the issue is beginning to boil down to whether or not a 37-day burbot operation would be adequate or insufficient for your purposes. I believe, based on the evidence that we have in hand, that a 120-day operation would be optimal, Paragamian replied; 90 days would be good, and 45 days is the absolute minimum. We can certainly monitor burbot movement and spawning under a 37-day operation, but in my opinion, burbot need low-flow conditions similar to pre-Libby Dam for a minimum of 45 days.

In response to a question from Scott Bettin, Paragamian said there are currently three radio-tagged burbot in the study area, although one of those tags is stationary and has likely been expelled from the fish. He said that for the past two and a half weeks, IDFG has been attempting, unsuccessfully, to catch additional burbot for tagging; a minimum of 5-6, and

preferably 10-12, newly radio-tagged burbot are needed to ensure a successful M&E effort this year. There will also be a burbot netting operation which will provide valuable data, added Hallock. In response to another question from Bettin, Paragamian said it will become even more difficult to capture burbot for tagging once Kootenai River flows come up.

In response to another question, Ruff said it is his understanding that the current 82% forecast applies only at Libby, not in the rest of the Snake/Columbia basin. Cindy Henriksen of the Corps added that this is the first year this very early Libby forecast has been used; there has been no field testing to tell us how accurate we might expect it to be, she said.

Cooper noted that, under BPA's counterproposal, there is a 50-50 chance that Kootenai River flows below Bonners Ferry will be in the SOR's requested range during the last week of December. Given the fact that researchers have not yet caught and radio-tagged enough burbot to have a meaningful M&E operation this year, it sounds as though that evaluation could benefit from an additional week of low flows to allow more fish to be caught and tagged, Cooper said. Perhaps TMT could discuss some alternative burbot operations in the interim, she suggested.

In response to a question from Ruff, it was noted that the current outflow from Libby is 4.8 Kcfs. When does the Corps plan to start drafting Libby to its December 31 flood control elevation of 2411? Ruff asked. In the Bonneville proposal, we would start drafting December 1, yielding higher Kootenai River flows during the first three weeks of December, then dropping back down during the fourth week, Cooper replied. And the Corps is open to discussing how they get from the current Libby elevation of 2436 feet to elevation 2411 by December 31? Ruff asked. Yes, Henriksen replied. And the operation requested in this SOR would fit within the Corps' planned operation? Tweit asked. It would be one possible way to get to elevation 2411 by December 31, yes, Henriksen replied.

In response to a question from Hlebechuk, Cooper explained that the requested burbot operation would result in a 2.4 Kcfs increase over the current Libby outflow of 4.8 Kcfs. Because November energy prices are lower than December energy prices, if the burbot operation starts immediately, it will cost BPA \$500,000-\$1.3 million to implement. That's one of the reasons that, from our perspective, we would prefer to wait to start the burbot operation, Cooper said – the other is that another week of low Libby outflow will give researchers the opportunity to tag more fish. To us, the worst possible outcome would be for this operation to have an adverse financial impact on BPA, and to yield little or no useful M&E data, Cooper said. Howard Schaller reiterated that useful biological data will be gained even if no additional burbot are radio-tagged.

A lengthy discussion ensued, touching on the timing of the SOR's implementation, the consequences attendant on its delay, and whether or not there is anything further for the TMT to discuss relative to this issue. It was agreed to adjourn the IT meeting participants and re-convene the group as the TMT, to discuss some further burbot proposals BPA has circulated via email. Steve Kerns led this TMT discussion. Basically what I tried to do was to test some

strategies that have been proposed to minimize the cost of the proposed burbot operation, said Kerns; I spent a great deal of time talking to our experts here about current energy pricing and forecast prices through the end of November. I studied an operation that would pick Libby outflow up to full powerhouse discharge (26 Kcfs) starting next week, reduces it to 15.6 Kcfs during Thanksgiving week, then back up to full powerhouse discharge for a week and a half before ramping down to 7.3 Kcfs Libby outflow by December 15. That operation would yield a 90% confidence of being able to achieve the requested burbot flow levels at the end of December, as well as Libby's 2411 flood control elevation requirement by December 31, Kerns explained. Depending on the actual price of energy, the cost of this operation would be \$400,000-\$900,000 to Bonneville and an additional \$100,000-\$200,000 to the region.

Is that a price Bonneville is willing to live with? Paul Wagner asked. We haven't been given much room to negotiate that, Kerns replied.

One other question that arose at yesterday's TMT meeting was whether or not 10 days of 10.4 Kcfs Libby outflow was in any way acceptable, said Kerns; we could change the rampdown schedule somewhat to produce seven or eight days at 7.3 Kcfs. It depends on what is more important to you, Kerns said; that could be achieved at no cost.

Essentially, what we have is three scenarios, said Kerns – the one we discussed at yesterday's TMT meeting, the second operation described above, which would achieve a 90% probability of meeting both the burbot flow objectives and the 2411 elevation requirement at Libby, and a third operation, which would modify the rampdown rate included in BPA's original proposal to produce a week of 7.3 Kcfs at the end of December. The confidence of achieving the 7.3 Kcfs flow level is 50%, he added.

So because Bonneville's managers are not willing to incur a financial cost to implement the burbot operation, Option 2, which would cost BPA \$400,000-\$900,000, isn't really on the table, Silverberg observed. That's correct, Kerns replied – that's just an alternative I was asked to analyze at yesterday's TMT meeting. What's the possibility of holding 10.6 Kcfs from December 15-31 – is that something Bonneville would consider? Hallock asked. Our proposed operation gives you a 50-50 chance of holding that flow level not for 15 days, but for nine days, Kerns replied. So it is BPA's position that they are not going to spend any money on this operation? Scott asked. That's correct, Kerns replied -- we're not willing to spend any money to increase the probability from 50% to something greater than 50%.

The discussion continued in this vein for some minutes. Ultimately, Hallock said that, out of two bad scenarios, he would prefer to see 7.3 Kcfs for seven days rather than 10.3 Kcfs for nine days, due to the change in velocity. That's helpful, said Kerns. And would that still result in a 37-day operation? Chris Ross replied. It could be up to 45 days, if the weather cooperates, Cooper replied. The group also discussed the possibility of exceeding the BiOp ramp rates as a way to maintain the 7.3 Kcfs flow level for an extra day or two; Hlebechuk said her only concern is bank slumping at Bonners Ferry. We'll discuss it with Montana, she said.

So do we have a workable solution, recognizing that it is less than optimal? Silverberg asked. We would prefer a longer duration at 7.3 Kcfs, Hallock replied, but it sounds as though that is not going to be forthcoming. In that case, said Silverberg, what I've heard today is that the preference of the group is to ramp down to 7.3 Kcfs as early as possible, and to hold it for as long as possible. No objections were raised to this characterization. To be clear, said Hallock, what we would prefer is something less than 10.6 Kcfs for as long as possible. Understood, said Silverberg; it is also clear that we will be continuing to discuss this operation – in particular, ways to increase the duration of flows less than 10.6 Kcfs – at the TMT's remaining November and December meetings.

With that, the conference call was adjourned. Meeting summary prepared by Jeff Kuechle, BPA contractor.

## **IT Conference Call - November 7, 2002**

### **Participant List:**

Chris Ross, NOAA Fisheries  
Jim Ruff, NOAA Fisheries  
Paul Wagner, NOAA Fisheries  
Kathy Ceballos, NOAA Fisheries  
Jim Athearn, US Army Corps of Engineers  
Scott Boyd, US Army Corps of Engineers  
Cindy Henriksen, US Army Corps of Engineers  
Cathy Hlebechuk, US Army Corps of Engineers  
Greg Bowers, US Army Corps of Engineers  
Donna Silverberg, Facilitation Team  
Robyn Harkless, Facilitation Team  
Bob Hallock, US Fish & Wildlife Service  
Dave Wills, US Fish & Wildlife Service  
Howard Schaller, US Fish & Wildlife Service  
Ron Boyce, Oregon Department of Fish & Wildlife  
Kyle Martin, Columbia River Inter-Tribal Fish Commission  
Jerry Kuechle, BPA Contractor  
Shane Scott, Washington Department of Fish & Wildlife  
Bill Tweit, Washington Department of Fish & Wildlife  
Tony Norris, US Bureau of Reclamation  
Vaughn Paragamion, Idaho Department of Fish & Game  
Steve Pettit, Idaho Department of Fish & Game  
Russ George, Consultant  
Sue Ireland, Kootenai Tribe  
Suzanne Cooper, Bonneville Power Administration  
Nicole Ricci, Bonneville Power Administration

**Scott Bettin, Bonneville Power Administration**  
**Steve Kerns, Bonneville Power Administration**  
**Dave Statler, Nez Perce Tribe**

# TECHNICAL MANAGEMENT TEAM

**BOR:** Tony Norris / Lori Postlethwait

**BPA:** Scott Bettin / Rick Pendergrass

**NMFS:** Paul Wagner / Chris Ross

**USFWS:** David Wills / Howard Schaller

**OR:** Ron Boyce

**WA:** Shane Scott

**ID:** Steve Pettit

**MT:** Jim Litchfield

**COE:** Cindy Henriksen / Cathy Hlebechuk / Rudd Turner

## TMT MEETING

**04 December 2002      0900 - 1200 hours**

**Custom House      Room 118  
Portland, Oregon  
Conference call line: 503-808-5190**

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

## AGENDA

1. Vernita Bar
2. CRITFC Review of 2002
3. [TDG Level Variations: Criteria for Modifications to Spill - COE](#)  
Spill Exceedance Questions for 2002 - Ron Boyce
4. [IT Guidelines](#)
5. [Invitation to Lake Roosevelt Forum Spring Conference April 21 - April 23](#)
6. 2003 Water Management Plan.
  - Fall/winter update
7. Chum Flow Alternatives [\[Analysis\]](#)
8. Review current system conditions.
  - fish migration status (NMFS, USFWS)
  - reservoir operation, power system, water quality (COE, BOR, BPA)
  - zero nighttime flow at Lower Snake Dams
  - Libby ramp rates
9. Review operations requests.
10. Develop recommended operations.
11. Other.
  - Set agenda for next meeting

*Questions about the meeting may be referred to Cathy Hlebechuk at (503) 808-3942, or Rudd Turner at (503) 808-3935.*

XXXX Flow is greater than 125 kfs

XXXX Resulting flow is driven by the Vermita Bark minimum flow

Bonneville		00FSH27C: 2000BO					Vbar Min	IHR+Vbar Min+PRDtoBON Incr			
Outflows in KCFS		NOV	DEC	JAN	FEB	MAR		API	JAN	FEB	MAR
1929	106	125	128	100	111	110	55	93	88	111	110
1930	114	121	86	121	106	120	60	86	121	106	120
1931	112	118	94	90	105	152	60	94	90	105	152
1932	107	109	100	92	157	246	60	100	92	157	196
1933	130	147	175	157	164	198	60	112	99	119	150
1934	139	286	354	236	197	326	70	179	140	147	191
1935	120	136	163	187	153	159	55	100	103	102	130
1936	115	125	130	92	122	129	60	106	92	122	129
1937	114	121	105	90	108	119	60	87	90	108	119
1938	117	139	179	160	203	233	60	118	111	147	189
1939	111	129	139	130	139	172	55	96	91	121	145
1940	117	132	135	142	186	168	60	100	115	148	158
1941	120	137	139	102	112	159	55	103	99	110	118
1942	126	165	184	156	110	146	55	111	114	110	143
1943	119	148	194	208	197	332	60	141	156	162	255
1944	112	136	124	94	96	122	55	93	89	94	112
1945	111	114	100	108	107	122	60	100	108	107	122
1946	116	134	175	160	203	219	55	129	115	148	166
1947	119	190	215	202	204	212	55	122	141	128	148
1948	136	165	219	162	174	185	70	151	139	140	161
1949	117	135	151	157	242	237	60	102	126	181	185
1950	121	155	154	215	250	276	60	106	138	173	218
1951	140	234	258	263	239	297	65	153	178	165	208
1952	129	160	195	191	182	314	70	125	150	139	255
1953	109	127	159	234	140	168	55	139	144	118	133
1954	121	155	181	196	192	236	60	121	139	128	169
1955	136	152	112	111	104	171	70	112	103	104	142
1956	136	228	275	193	247	306	65	169	144	183	212
1957	116	153	167	146	174	293	60	103	113	158	219
1958	109	145	159	210	181	212	55	111	147	125	161
1959	136	168	256	198	199	250	60	150	128	132	160
1960	148	205	203	149	172	346	70	115	129	145	201
1961	129	132	167	223	206	238	60	105	154	145	148
1962	107	136	153	156	122	291	60	110	117	118	201
1963	136	167	188	206	126	152	65	115	159	120	139
1964	111	130	163	134	122	244	60	109	103	111	185
1965	123	225	288	263	234	239	70	189	206	168	180
1966	125	146	181	147	127	259	60	117	99	121	164
1967	114	154	185	211	168	190	60	118	130	106	133
1968	123	150	184	204	193	123	60	120	151	124	112
1969	136	162	241	207	208	305	70	159	146	159	209
1970	110	135	187	209	142	157	60	152	150	123	124
1971	108	154	219	276	226	244	50	160	174	146	184
1972	121	151	210	238	372	349	55	148	163	256	183
1973	115	152	204	107	109	109	60	132	100	109	110
1974	119	199	319	277	265	303	50	183	149	164	206
1975	116	146	174	185	208	188	55	125	122	140	153
1976	136	263	259	182	219	300	65	163	136	160	217
1977	107	134	132	95	94	117	65	104	95	94	109
1978	113	154	151	174	207	240	55	127	135	139	156
Average	120	156	180	171	172	216		123	126	135	164

Bonneville		00FSH52: Chum Priority					Vbar Min	IHR+Vbar Min+PRDtoBON Incr				
Outflows in KCFS		NOV	DEC	JAN	FEB	MAR		API	JAN	FEB	MAR	API
1929	106	125	125	125	93	116	115	60	98	93	116	115
1930	113	123	120	122	106	124	70	96	132	116	134	
1931	112	121	118	91	105	152	65	98	96	110	157	
1932	108	110	125	93	154	259	60	97	94	157	196	
1933	125	125	169	149	193	218	65	121	103	121	151	
1934	140	267	337	234	231	339	70	179	140	147	191	
1935	120	125	140	181	173	197	65	110	114	111	134	
1936	115	125	125	122	125	150	65	108	97	127	134	
1937	114	123	110	96	122	118	70	97	102	117	129	
1938	116	125	161	152	237	245	65	127	114	149	194	
1939	111	125	125	125	158	220	60	101	96	128	153	
1940	117	125	125	125	215	249	65	105	120	157	165	
1941	118	125	125	125	118	159	65	113	109	120	128	
1942	125	147	168	150	145	150	60	117	119	115	149	
1943	119	129	176	199	242	332	60	140	155	162	255	
1944	112	125	118	91	96	159	60	97	95	100	117	
1945	112	114	125	110	111	143	65	105	113	112	127	
1946	117	125	149	150	240	232	65	141	126	154	176	
1947	119	171	198	191	245	241	60	127	146	133	153	
1948	125	157	201	154	198	225	70	150	139	140	161	
1949	118	125	125	153	278	265	65	107	135	183	190	
1950	121	125	150	207	289	290	65	113	140	178	223	
1951	139	215	244	261	272	304	60	148	173	160	203	
1952	125	145	178	185	221	327	70	125	153	139	255	
1953	109	125	141	209	173	190	65	149	153	128	143	
1954	121	125	176	190	232	238	65	126	142	133	174	
1955	125	134	131	125	125	196	65	107	98	99	136	
1956	129	215	258	201	276	306	60	164	139	178	207	
1957	116	134	150	137	211	313	60	103	113	160	219	
1958	109	125	144	206	216	230	60	116	154	128	166	
1959	125	159	239	195	237	252	60	150	128	132	160	
1960	148	189	188	157	203	340	70	116	131	145	195	
1961	125	125	144	211	241	260	65	112	156	150	153	
1962	107	125	132	148	161	297	60	114	116	118	201	
1963	125	159	173	198	169	182	65	117	159	120	140	
1964	111	125	134	129	156	259	65	116	109	115	190	
1965	124	207	271	275	255	256	70	189	206	168	180	
1966	125	125	165	142	171	262	70	127	111	134	168	
1967	115	125	181	195	209	201	65	127	130	111	138	
1968	123	125	173	198	220	192	70	131	160	134	122	
1969	125	154	225	213	232	318	60	149	136	149	199	
1970	110	125	161	196	174	209	65	157	154	129	130	
1971	108	125	211	277	254	261	55	165	179	151	189	
1972	121	125	199	231	412	356	60	153	168	261	188	
1973	115	132	187	125	129	127	60	132	102	110	109	
1974	119	181	302	305	275	303	50	182	149	164	206	
1975	116	125	160	174	248	203	60	131	125	145	158	
1976	131	248	242	179	250	315	65	163	136	160	217	
1977	109	125	125	95	94	158	60	99	90	89	104	
1978	114	149	125	163	246	255	60	132	140	144	161	
Average	119	143	169	169	199	234		127	130	138	167	



October 21, 2002

Shane Scott  
Columbia River Policy Coordinator  
Intergovernmental Resource Management  
Washington Department of Fish and Wildlife  
600 Capitol Way North  
Olympia, WA 98501-1091

Dear Shane,

The Lake Roosevelt Forum would like to invite the Technical Management Team to participate in our Spring 2003 conference.

The conference will be held in Spokane from Monday, April 21<sup>st</sup> through Wednesday, April 23<sup>rd</sup>. The Bonneville Power Administration (BPA) fish and wildlife program has provided the Forum a grant to convene this conference. The Forum is also working with other government and industry sponsors to help host this event.

Currently, we are planning to hold the conference at the historic Davenport Hotel, which is located in downtown Spokane and has just undergone a multimillion dollar renovation. We expect daily attendance at the conference to range from 100 to 150 participants.

The conference will focus on water quality, fisheries and economic issues affecting the Upper Columbia. We expect attendees to be drawn from the Upper Columbia Intermountain area, Canada and several agencies with regional offices throughout the Northwest. As is the case with other Forum sponsored events, we are deeply committed to facilitating dialog between and amongst several stakeholders. This includes federal, state, tribal and county agencies, watershed groups, associations like the farm bureau and chambers of commerce, and interested individuals.

With the TMT's help, this conference is seeking to reach out to both technical, local governmental and community groups in two ways:

- 1) The first two days of the conference will feature a diversity of concurrent and plenary sessions that allow groups such as yours to learn from and brief others on interrelated topics such as operations, total dissolved gas, water temperature, and the health of fisheries. The Forum is hopeful that you will help develop and participate in sessions specific to your interests. In working with the Transboundary Gas Group, for instance, they have provided us a list of session topics that are of interest to them and their work in the Upper Columbia. We will be incorporating their suggestions into the conference.
- 2) The third day of the conference will be devoted to helping groups such as yours hold their regional meetings. In addition to the Technical Management Team, the Forum has been working with the Transboundary Gas Group, and made preliminary contact with the Columbia/Snake River TMDL group and the transboundary sturgeon recovery team. Each group has significant interests in Upper Columbia matters. By holding your regional meeting on the third day of the conference, we are hopeful that local interests (be they agencies, tribal, community, etc.) can sit in on all or part of your meeting. In this regard, Upper Columbia stakeholders have the opportunity to see committee work and collaboration in action. Examples of groups that are likely to have an interest in attending all or part of a Technical Management Team meeting include the Intermountain Province Subbasin Planning group, the Lake Roosevelt Fisheries Evaluation group, the Lake Roosevelt Water Quality Council, and local conservation districts. The Forum hopes that the TMT embraces the concept that holding a meeting which is open to these groups fits with your own commitment to stakeholder outreach.

The Forum is also actively working to assure strong local participation through the use of scholarships and other incentives. In this regard, the Forum has already successfully raised funds to support scholarships for non-agency participants.

The Forum will provide the following to the Technical Management Team to directly support hosting your regional meeting on the third day (Wednesday) of the conference:

- 1) A meeting room and related facilities (e.g.—chart paper, projector, etc.) will be provided. We will work with you to assure table configuration and other meeting room needs are met.
- 2) Coffee, rolls, etc. will be available as a side board in the meeting room.
- 3) Lunch will be provided. Here, all meeting participants will have lunch together in the banquet room.

Page 3

The only requirement of TMT participation is that each person register to attend the conference for either two days or three days. The Forum Steering Committee has set the cost of a two day registration at \$120, and a three day registration at \$150. Our ability to keep costs this low directly relates to the assistance that BPA and others are providing.

The Forum is very excited about the prospects of Technical Management Team participation. We value the excellent work that this group has done, and think it's essential that your knowledge be shared with individuals and groups throughout our region.

Please call me with any questions. I look forward to working with you and others from the Technical Management Team on this conference.

Sincerely,

Andy Dunau  
Executive Director, Lake Roosevelt Forum

# **COLUMBIA RIVER REGIONAL IMPLEMENTATION FORUM**

## **GUIDELINES AND PROCEDURES**

*Approved at the November 7, 2002 IT meeting.*

Executive Committee, Implementation Team, and Technical Teams

### **I. Purpose and Scope**

**Purpose:** The Implementation Team (IT) of the Columbia River Regional Forum is established to provide a forum for discussion, decision-making and coordination of the three sovereign governments working to implement hydro system related recovery strategies for endangered salmon and other species in the Columbia River. The purpose of the group is to provide an opportunity for input and thorough discussion of issues to inform federal, state and tribal agencies that are actively engaged in salmon recovery efforts. Each of the governments may assign upper level management staff experts to address the specifics of recovery actions that relate to the Federal Columbia River Power System (FCRPS/hydro). These staff experts must also have a working knowledge of the other “H’s” that are critical to the overall salmon recovery effort and be capable of communicating with a wide range of constituents both in and out of the team. The overall goal of the team is to provide a forum that increases the transparency of hydro-related salmon recovery decisions made in the Columbia River Basin concerning river operations, system configuration, and water quality.

**Scope:** The IT meetings will be held in venues throughout the Columbia Basin and will be utilized as a forum to:

- jointly and thoroughly discuss issues that arise in the implementation of the 2000 FCRPS BiOps and the Federal All-H Strategy;
- provide an opportunity for input to inform federal decision-making on these issues;
- resolve policy disputes that arise at the technical team level;
- notify state and tribal partners of the decisions that the federal government has or has not made as they relate to these issues, including how the state and tribal input was used in the decision-making process;
- focus on the longer term implications of short term management actions;
- make the necessary links to other “H”-team efforts in the recovery process;
- jointly develop criteria to support decisions or changes to current management practices;
- identify opportunities for improved coordination and partnerships to increase efficiencies and avoid unnecessary duplication;
- increase awareness and include consideration of BiOp actions on non-listed species, cultural and other resources, and the multi-purposes of the Columbia River Basin; and
- facilitate an open communication process that can keep the public and other agencies informed of on-going progress and the rationale behind the decisions that are made through the Regional Forum.

## II. Organization

The Regional Forum is hierarchical and will consist of an executive-level regional policy body known as the Executive Committee, a senior program managers' body known as the IT, and various technical teams and work groups. The technical teams will include a Technical Management Team, a Water Quality Team, a System Configuration Team, and such ad hoc technical teams and workgroups as the IT may deem necessary from time to time to address specific issues. Appendix A depicts the relationships among the Executive Committee, IT, and Technical Teams, and between the organization and other regional entities and processes.

## III. Goals

- a) To ensure the broadest possible technical and policy input in planning, funding, and implementation decisions regarding hydrosystem operation, configuration, and water quality actions related to implementation of the 2000 FCRPS BiOps or other applicable BiOps.
- b) To develop agreement and resolve disputes on operations to be implemented by the federal hydropower operating agencies and other actions related to FCRPS operations, including system configuration and water quality.
- c) To ensure that the decision making process for operations and system configuration is open and, when agreement can not be reached, to ensure the basis for federal decisions are fully explained.
- d) To promote coordination between implementation of the NMFS and USFWS 2000 Biological Opinions and actions taken under other related regional plans and fora to restore Columbia River Basin fish.

## IV. Membership

Membership of all bodies of the Regional Forum is open to:

- a) state and tribal sovereigns with management authority over fish and wildlife resources and water quality in the Columbia River Basin, including Alaska;
- b) Federal agencies with regulatory or action authority in the Columbia River, including the National Marine Fisheries Service, U.S. Fish and Wildlife Service, Bonneville Power Administration, U.S. Army Corps of Engineers, Bureau of Reclamation, and the Environmental Protection Agency;
- c) the Northwest Power Planning Council; and

d) the Idaho Power Company and the Mid-Columbia Public Utility Districts, except that they may not block consensus or request that matters be raised to the next level of the Forum.

#### V. Participation and Representation

a) Members may participate, through designated representatives or their alternates, in all discussions of any bodies of the Regional Forum; present proposals; register objection, concurrence, or abstention on decisions before the body; and request that a decision be elevated to the next level of the Regional Forum. The members will make efforts to enable all represented members to have a meaningful opportunity to participate in the work of the Regional Forum.

b) Members of any body of the Regional Forum must be represented by a designated representative or alternate in order to participate in the decision-making.

c) A list of designated representatives and alternates, where applicable, will be maintained at NMFS' office in Portland. The IT Chair shall update the list at least annually.

#### VI. Roles and Activities of the Implementation Team

##### a) General

1. Maintain ongoing oversight of the Technical Management Team (TMT), System Configuration Team (SCT), and Water Quality Team (WQT).

2. Act on behalf of the Executive Committee in developing policy guidelines and resolving disputes related to the operation, configuration, and water quality of the hydrosystem.

##### b) Dispute Resolution

1. Resolve in-season management disputes elevated from the TMT.

2. Address longer-term, in-season management policy issues related to the deliberations of the TMT, SCT or WQT.

3. Define issues for further investigation/deliberation by a technical committee, the Independent Scientific Advisory Board, or IT ad hoc subcommittees.

##### c) Planning

1. Provide a forum for participants and the public to address new and ongoing policy initiatives related to the operation, configuration, and water quality of the hydro system.
2. Provide review, input and policy guidance related to the development and implementation of hydro-related actions in the Federal Action Agencies 5-year and annual BiOp implementation plans.
3. Facilitate adaptive management by sponsoring a post-season evaluation of the efficacy of the Action Agencies' 5-Year and Annual Plans and related progress reports.

## VII. Conduct of Meetings

- a) The meetings of the Executive Committee and IT will be chaired by the designated representative or alternate of the National Marine Fisheries Service. Meetings will be facilitated by an impartial facilitator to allow all representatives full participation in discussions and to assure that all members have an equal opportunity to participate. The meetings of the technical teams will be chaired by a member or members selected by the IT.
- b) Only designated representatives or their alternates may register objection, concurrence or abstention on a decision or request that a decision be elevated to the next level. The Chair or a designated representative or alternate may call upon others to participate in discussions or make proposals. As appropriate, only designated representatives or their alternates, identified at the start of the meeting, will be seated at the table.
- c) When decisions are proposed for adoption by one of the Regional Forum teams, the chair will identify, and the meeting notes will reflect, the member making the proposal. If an issue is to be decided, the chair will poll the members for their concurrence, objection or abstention and the basis for their position. If an issue is to be postponed or is otherwise resolved, the Chair will identify the further action or the resolution. The meeting notes will reflect the above information.
- d) Meeting agendas will be developed by the meeting chair and IT Coordinator, with member input, and distributed to the members at least one week prior to the meeting. Members wishing to include an issue for decision on the agenda should provide a statement of the issue to be distributed with the agenda. Materials to be handed out at the meeting will be faxed to members participating by phone before the meeting starts. The agenda will clearly identify decision items.
- e) Meeting notes will be taken at all meetings. The notes will be provided to members along with the agenda and materials for the next meeting, and approved at that next meeting. Meeting notes will be available for inspection and copying at the NMFS' office in Portland and posted on Regional Forum team websites.

f) Meetings of the Regional Forum will be open to the public. The chair may call for public comment as appropriate during the meetings. Time will be reserved at the end of each meeting for members of the public to comment.

#### VIII. Reporting and Oversight

a) The Executive Committee will oversee the work of the IT, which will report on its activities at Executive Committee meetings.

b) The IT will oversee the work of the various technical teams and workgroups, which will report on their activities at IT meetings.

c) All bodies of the Regional Forum will operate under the same rules of procedure, except that technical teams may propose special rules to address unique circumstances. The IT will review and approve any special rules of the technical teams.

#### IX. Frequency of Meetings

a) The Executive Committee will be convened when deemed necessary by any of the participating members and no less frequently than annually. The Committee may be convened by teleconference call, if appropriate, to consider in-season management disputes (described in XI(f) below) elevated by the IT.

b) The IT will meet monthly. IT may also meet by teleconference call, as necessary to resolve any disputes elevated by the technical teams.

c) The technical teams will meet as often as necessary to complete their work, or as requested by the IT.

d) At the request of a majority of the members, as demonstrated by the proponents of the meeting, any of the bodies of the Forum may meet or conduct meetings in addition to those regularly scheduled.

#### X. Decision-Making and Dispute Resolution

a) Any member of any team of the Regional Forum may make a technical proposal for decision by that team. Member representatives will make all reasonable efforts to negotiate and resolve technical proposals in the appropriate technical team to allow for the technical issues to be fully developed. If the technical team is unable to resolve an issue, the members will frame the issue in dispute prior to raising it to the IT. The IT or the Executive Committee may decline to entertain a technical proposal or issue that has not been fully developed and considered by the appropriate technical team.

b) Any member of any team of the Regional Forum may make a policy proposal for decision by that team. Members will make all reasonable efforts to ensure that technical issues related to the policy issue have first been fully aired in the appropriate technical team and/or the IT. Members will make all reasonable efforts not to elevate policy issues that have already been decided at the level to which it is being elevated.

c) At the January IT meeting, IT will identify those implementation issues that can reasonably be decided in advance of the salmon and steelhead migration season. IT will assign technical issues as appropriate to technical teams for advice or additional information. IT will seek to decide as many implementation issues as possible in advance of the migration season and to elevate those issues that cannot be decided to an Executive Committee meeting. Members will make all reasonable efforts during the migration season not to raise issues that were decided in advance of the migration season. The IT may decline to entertain such an issue.

d) The goal of the Regional Forum is to reach consensus on technical and policy issues whenever possible. Consensus is defined as the lack of strong objection. Participation in a consensus process implies that all members are actively participating in good faith and are searching for an accommodation of those interests represented at the table. The members will make all reasonable efforts to achieve consensus. When consensus cannot be achieved in one of the technical teams or workgroups, the objecting member(s) may request that the issue be elevated to the IT or Executive Committee as follows:

1. When consensus cannot be achieved in a technical team or workgroup, the federal agencies will state how they intend to proceed. A member objecting to the proposed action may ask that the issue be raised to the IT for resolution. The technical team will formulate a written description of the disagreement. When disputed issues are raised, any member may make presentations to help clarify the issues.
2. When consensus cannot be reached at the IT, the agency with authority to proceed will state how they intend to proceed. If the decision relates to weekly in-season management, the member with authority to make the decision will make the final decision. If the decision is other than a weekly in-season management decision, a member objecting to a proposed federal action may request that the issue be elevated to the Executive Committee. The IT will formulate a written description of the disagreement. When disputed issues are raised, any member may make presentations to help clarify the issues.
3. Members will make all reasonable efforts to present an issue for decision by the IT or Executive Committee *in writing* at least one week prior to the meeting at which they request that the issue be addressed. The Executive Committee or IT may decline to entertain an issue that is not sufficiently well defined to allow a decision.

4. When all efforts to achieve consensus have been made, the member or agency with authority will make the final decision and explain the rationale for that decision in writing before the next regularly scheduled meeting. Nothing in these rules alters the legal authorities of any of the parties.

e) Decisions will be made by those designated representatives or their alternates present and registering consent, objection, or abstention to a decision made at a noticed meeting or conference call.

f) Each member is responsible for having a designated representative or alternate present at the meeting (in person or by conference call) to register consent, objection, or abstention on a decision. Every effort will be made to ensure that those members who feel strongly about an issue can be present at the meeting at which the issue will be discussed.

#### XI. Annual Review of Procedures

a) IT shall review these procedures annually and make changes based on a consensus decision of the group.

*Consensus on these procedures was achieved at the November 7, 2002 IT meeting.  
Facilitator: Donna Silverberg*

**TECHNICAL MANAGEMENT TEAM  
MEETING NOTES  
December 4, 2002  
CORPS OF ENGINEERS NORTHWESTERN DIVISION OFFICES – CUSTOM  
HOUSE  
PORTLAND, OREGON**

FACILITATOR’S SUMMARY NOTES ON FUTURE ACTIONS

Facilitator: Donna Silverberg

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

**Vernita Bar:**

The Vernita Bar protection level for this year is 70 kcfs. 638 redds have been counted. A survey report will be posted on the TMT website.

**CRITFC Review of 2002:**

Kyle Martin said that revisions are being made to the CRITFC review and will be presented at the Dec. 18<sup>th</sup> meeting. Kyle distributed a monthly forecast and asked that the BOR and COE minimize drafting at projects until the Jan. 1 forecast is out.

**TDG Level Variations: Criteria for Modifications to Spill:**

Dick Cassidy, COE, distributed handouts and explained the COE’s 14 criteria used to guide spill changes at the Columbia and Snake River projects. He then explained the process for using the criteria: daily, 3-4 individuals evaluate the projects and then together they develop a recommendation for spill modifications. The information used to make decisions can be found on the “spill log” link on the TMT home page. Beginning next year, changes will be logged and posted daily for easier access to real-time data. The COE has been working to make just one spill change per day. The Salmon Managers requested clarification on why, when adjustments are made, spill levels are not raised closer to BiOp. levels sooner. A suggestion was made for TMT to take a “field trip” to observe the spill modification process in mid-May to late June to understand the sensitivity around decision-making. TMT members thanked Dick for the presentation and said that it was very helpful.

**ACTION:** TMT members will review the information from today’s presentation and raise further questions at the next TMT meeting.

**IT Guidelines:**

The IT Guidelines were approved at the November 7<sup>th</sup> IT meeting. TMT members are asked to review the IT and TMT guidelines and come prepared to discuss them at the next TMT meeting, December 18<sup>th</sup>.

**Lake Roosevelt Forum Spring Conference:**

TMT has been invited to attend the April 21-23 conference in Spokane, and has been requested to hold its meeting on April 23 for conference attendees to observe. Most TMT members agreed that there is added value to meeting in Spokane during the conference. Shane Scott, Washington, will negotiate cost issues with the Director of the Forum.

**2003 Water Management Plan Fall/Winter Update:**

A few edits were made to the Fall/Winter update. The COE would like to finalize and post the document on the website as soon as possible. Suggestions were made to append comments to the document, include an approximate date for the end of emergence for chum, and include October and November as a light precipitation forecast. A change will be made that the Action Agencies plan to “request to” modify the November 1 start date for chum operations.

**ACTION:** Paul Wagner will provide alternative language to describe the decision making process used this year for November chum operations. The next (final?) draft of the Fall/Winter update will be circulated on Friday, December 6<sup>th</sup>.

**Chum Flow Alternatives:**

Suzanne Cooper gave a follow-up presentation on possible alternatives to hydro measures. BPA modeled two alternatives, using the 2000 BiOp. as the driving force and chum as the priority operation. She requested that TMT review this new information and be prepared to discuss it at the next TMT meeting. The information can also be found on the TMT website.

**Question to TMT:** What are the biological effects of the alternative operations proposed? What is the preferred or acceptable alternative operation? The COE, NPPC and others have information that may be useful as well.

**Review Current System Conditions:**

*Fish:* Oregon, Washington and USFWS reported on fish migration status. Record numbers of chum have been seen. A preliminary count estimated 30,000 to 40,000 chum!

*Reservoir Operations/Power/Water Supply:* Projects are being operated at minimum outflows. The latest water supply forecast should be available in the next few days. The COE has requested RFC and NRCS to present forecasting information to TMT at the next meeting.

*Zero Nighttime Flow at Lower Snake Dams:* Scott Bettin, BPA, requested flexibility for zero flow beyond a midnight-6 am time period for the next three months. TMT agreed to extend “nighttime” hours to 6 pm-6 am, during which BPA has the flexibility for zero flow at the Snake River dams.

*Libby Ramp Rates:* The burbot operation suggests a two-day ramp down rate to 7.3 kcfs, a rate that is quicker than allowed in the USFWS Biological Opinion. Bob Hallock, USFWS, said he recognized the potential for an effect on bull trout, and agreed to the

quicker ramp-down operation this year. USFWS has coordinated with Montana on this issue.

A line problem could potentially call for a decrease in Libby generation. Attempts will be made to wait until after flows are down to fix the line problem, but if it cannot be delayed, BPA proposed the operation be done this Saturday. BPA will work with USFWS on this issue.

### **Next Meeting, December 18:**

#### *Agenda Items:*

- NRCS/RFC Forecast Presentations
- NPPC Chum Flow Analyses – John Fazio
- Chum Alternative Flows Discussion
- Final WMP Fall/Winter Update
- TMT Guideline Revisions
- CRITFC 2002 Review

\*The first 2003 TMT meeting is scheduled for January 8<sup>th</sup>, three weeks from December 18<sup>th</sup>.

### ***1. Greeting and Introductions***

The December 4 Technical Management Team meeting was chaired by Cindy Henriksen of the Corps and facilitated by Donna Silverberg. The following is a distillation, not a verbatim transcript, of items discussed at the meeting and actions taken. Anyone with questions or comments about these minutes should call Henriksen at 503/808-3945.

### ***2. Vernita Bar.***

Scott Bettin reported that this year's Vernita Bar protection level has been set at 70 Kcfs, adding that Rudd Turner has posted the elevations of the 638 fall chinook redds counted during the most recent Vernita Bar survey on the TMT website. That's either a record or a tie for the record for the highest Vernita Bar redd count, said Bettin – there are lots of redds in there this year.

I thought that Grant PUD was hoping to operate to a lower level, Henriksen said. Grant was shooting for 60 Kcfs, but because of the large number of redds, it was necessary to set the protection level at 70 Kcfs, Bettin replied. So if people want to see where those redds are, they should look on the TMT website? Silverberg asked. That's correct, Bettin replied.

### ***3. CRITFC Review of 2002.***

Kyle Martin said that CRITFC's review will be presented at the December 18 TMT meeting; it is still being reviewed in-house. As a consolation prize, however, we have the latest CRITFC water supply forecast, Martin said; it looks like we're going to be

below-average precipitation month in December. If there is any flexibility in the flood control operation, Martin said, we would ask that the project operators exercise it, to avoid unnecessarily releasing water early in the season that we will need later.

#### ***4. TDG Level Variations: Criteria for Modifications to Spill.***

Dick Cassidy led this presentation; he began by distributing a handout summarizing the Corps' spill change guidance for the Snake and Columbia Rivers. Essentially, these are the guidelines we use to direct our day-to-day spill operations, Cassidy said. He spent a few minutes going through the specifics of this document (the full text of which is available via the TMT website – please refer to this document for full details of the Corps' spill change guidance parameters), touching on the following major factors:

1. BiOp guidance, Table 9.6-3 on p. 9-89
2. Oregon variance and Washington rule change (115% forebay, 120% tailwater)
3. Firm generation commitments
4. Project-by-project guidance, 60% DGAS report; project performance graphs
5. Travel time guidance (table provided)
6. Basic adjustment guidance – Snake projects, Columbia projects, SYSTDG guidance for Bonneville Dam
7. Weekend Guidance
8. Monday guidance
9. Holiday guidance
10. Degassing guidance
11. Air temperature guidance
12. Spill passage test schedule influence
13. Maintenance and repairs
14. Physical spillway designs

Again, please refer to Cassidy's handout (linked to on the TMT homepage under "RCC WQP") for full details of each of these guidance factors.

In response to a question from Bettin, with respect to Factor 6, Cassidy said that, currently, the Corps has SYSTDG-generated TDG production nomographs for Bonneville only. However, the Corps is working with Mark Schneider and Mike Schneider to develop nomographs for all of the Lower Columbia projects in time for use in the 2003 spill season.

When the Water Quality Team first asked us to list the factors we use to set daily spill levels at the Corps projects, it was surprising how long the list became, Cassidy said. With respect to the process for using these factors, he said, it would be easy for a person looking at this list on a daily basis to overlook a factor or interpret one or more of them incorrectly. For that reason, the Corps has a three-person team that looks at these factors daily and develops a recommendation as to whether spill at each project should be increased, decreased or stay unchanged.

The most difficult hurdle is the environmental factors, Cassidy said – sometimes the forecasts are right on, but more often they are off by some degree one way or another. Sometimes we just make mistakes, he said. However, I didn't want you to think it was just a single person at each project making these daily decisions – it is a composite recommendation, Cassidy said. He illustrated the challenges inherent in setting the daily spill operation by using an analogy from his days in the high school cafeteria, in which he and his friends would try to shove a quarter as close to the edge of the table as possible without it falling off.

We generally try to make only one change to the spill operation at each project per day, Cassidy added. We do our analyses in the morning, wait until after 1 p.m. internal meetings to get the latest information, then send out the instruction for the next day's operation about 2 p.m., Cassidy said. Paul Wagner and Ron Boyce requested that the Corps add a daily log of the RCC's spill change decisions to the TMT homepage in 2003. Details about the drivers and constraints behind each day's decision would be very helpful, particularly in cases where a given project is below the BiOp spill level for several consecutive days, Boyce said. It should be possible to at least list the factors – Factor 7, Factor 3 etc. – driving each day's decision, Bettin said. Cassidy added that Scott Boyd has developed a graphic representation of the daily spill change information that might be also helpful.

Henriksen noted that, as the TMT has just seen, there are 14 factors the Corps looks at in each day's decision; in addition, we're dealing with variable weather and streamflow forecast information and different characteristics at each project. In other words, she said, it is an extremely complex decision-making process. Bear in mind, as well, that the state waiver levels are an upper limit – it isn't some fuzzy average or approximation, we are expected to stay within that upper TDG boundary, she said.

My concern is that it seems as though we are very quick to make the adjustments to get below the waiver limits, but slower in making adjustments to bring the projects back up to the waiver limits, so that we get the full BiOp spill program, Boyce said. We don't want you to exceed the waiver limits, but we are concerned that you're not making those upward adjustments to get us as close as possible to the waiver limits in a timely fashion, he said. Boyce cited the example of the June 11-24 spill operation at The Dalles, in which spill levels were significantly below both the 40% spill level and the relevant 115% standard in the Bonneville forebay during one of the most critical periods of the juvenile migration. So you want to keep the spill levels as close to the BiOp level as possible, without exceeding them? Silverberg asked. Correct, Boyce replied.

The group discussed the June 15 operation; Henriksen noted that this was a Saturday, a day on which total river flow was expected to recede. Instead, she said, it increased from 268 Kcfs at The Dalles to 287 Kcfs, on a day when we had set spill at 80 Kcfs, down from 86 Kcfs the day before. In other words, Henriksen said, we expected river flow to go down; instead, it went up, and as a result TDG levels went down. Silverberg suggested that a field trip to see exactly how this process works might be beneficial to the TMT's understanding of this issue; it was so agreed. Henriksen said that any time between mid-May and late June would be a good time for this field trip. The field trip will involve having TMT members come to the Corps and see the spill decisions

being made, participate in the daily activities, and gain a better understanding of the variables that are included in this complex daily decision. So we will explore this topic further, and discuss it again at a future TMT meeting, Boyce said. Wagner thanked the Corps for a very informative presentation.

#### ***5. IT Guidelines.***

Silverberg said that, at the November 7 IT meeting, these guidelines were approved. That's the first time we've had an official, approved set of IT guidelines since the Regional Forum was created in 1995, she said; we thought it would be useful for you to review these, particularly because of Section VIII c. This section says that "All bodies of the Regional Forum will operate under the same rules of procedure, except that technical teams may propose special rules to address unique circumstances. The IT will review and approve any special rules of the technical teams." The TMT does have its own set of guidelines (available under the Water Management Plan section of the TMT homepage), Silverberg said; my question is, do we need to set aside a portion of an upcoming meeting, before the 2003 in-season management period, to review and update the TMT guidelines? After a brief discussion, it was agreed that this might be beneficial. We'll check in on this again at the next meeting, at which point everyone will have had an opportunity to review both the Regional Forum and TMT Guidelines, Silverberg said.

#### ***6. Invitation to Lake Roosevelt Forum Spring Conference, April 2003.***

Shane Scott said the Lake Roosevelt Forum, a group involved in economic development in the Lake Roosevelt area, has asked the TMT to meet at Lake Roosevelt next April, in conjunction with the Forum's April 21-23 conference. Basically, said Scott, the Forum would simply like us to expose ourselves to those who live and work around Lake Roosevelt, and the issues they face. Silverberg noted that, according to the October 21 letter from Andy Dunau to Scott, the only requirement is that all TMT participants would be required to attend either two or three days of the conference, at a cost of \$120-\$150. That may be negotiable, however, she said.

Boyce noted that ODFW is under a severe travel constraint, currently; it is unlikely that he will be unable to attend, but that he will participate via phone. After a few minutes of discussion, the TMT agreed that there would be value in attending the Lake Roosevelt Forum's April conference. Scott said he will ask Dunau about the conference registration requirement; Bettin said he will check to see what sort of travel assistance BPA might be able to provide to TMT participants with travel budget restrictions.

#### ***7. 2003 Water Management Plan – Fall/Winter Update.***

Boyd said this document is now close to final; however, the Corps has made a few edits that others at TMT have not yet seen. We'll get the revised draft posted to the TMT website as soon as possible, he said. Boyd asked that anyone with serious issues with the draft convey those to him asap, because the deadline for finalizing this document is very close. Boyce said he has some problems with the wording of the chum section of the fall/winter update, in particular, whether the TMT recommended the stepwise

operation that was implemented, or whether that decision was made by the action agencies and handed down to the TMT. Oregon would like to see the action agencies stick with the BiOp language here, Boyce said.

Various TMT participants weighed in on this issue, offering a few clarifying comments, questions and suggested wordings. Wagner said he will send appropriately-worded chum language to Boyd for insertion into the draft fall/winter update; it was so agreed. Boyd added that he will post all written comments received along with the draft update. And won't the chum operation be addressed in the NMFS findings letter for 2002? Tony Norris asked. Yes, Wagner replied. Suzanne Cooper added that this issue will be addressed more specifically in the 2004 Water Management Plan and the 2004-2008 Implementation Plan; bear in mind that this is only an update, she said. David Wills observed that, once the NMFS chum recovery plan is issued, many of these questions will also be clarified.

Boyce added that according to the spring/summer update, the action agencies do not plan to provide any spill in support of the 2003 Spring Creek Hatchery release; however, that issue is currently under discussion among the U.S. v. Oregon parties, Bonneville, the Fish and Wildlife Service and others. We're working on it, said Bettin. And we will look for this item once again on the December 18 TMT agenda, Silverberg said.

Henriksen added that, between now and the next TMT meeting, any additional comments on the fall/winter update need to be submitted as soon as possible (today), so that the revised update can be posted to the website as final. If there needs to be any additional discussion of the fall/winter update at the December 18 TMT meeting, Silverberg said, it will be on the agenda.

## ***8. Chum Flow Alternatives.***

Cooper reminded the TMT that, she had presented information about the hydro alternatives the action agencies have been working on with NMFS and USFWS at a previous TMT meeting. We asked the Regional Forum groups to provide input on a variety of structural and operational alternatives, one of which had to do with chum, she said; that's what I wanted to talk about today

BPA modeled two alternatives – the base case or BiOp operation (27C), and a chum priority operation (52), Cooper said. She spent a few minutes explaining what these model runs show. Under the chum priority alternative, we were trying to attain a 95% confidence of refilling the projects by June 30, as well as a 125 Kcfs Bonneville minimum, Cooper explained. Flood control, of course, is an overriding driver (meeting the April 10 upper rule curve elevations). The bottom line is that there are about six more years under the chum priority operation in which we would not meet a minimum flow of 125 Kcfs in January, Cooper said. Also, in general, we would be drafting the projects deeper than normal under the chum priority operation, which will have an impact on the volumes available for spring flow augmentation. Cooper asked the other TMT participants to weigh the potential biological impacts of the chum priority operation outside of today's meeting.

Henriksen said the Corps has also done some modeling of the chum priority operation, noting that there are a number of years in the historic record when it would not be possible to meet the 125 Kcfs minimum Bonneville flow, given this set of operational priorities. The takeaway message is simple, she said: in low-water years, there is a good possibility that decisions will have to be made, in terms of the priorities under which we operate the system. If there are some additional model runs you would like us to do, we would be happy to do so, Henriksen said. And we'll have some additional conversation about chum flow alternatives at our December 18 meeting, Silverberg said.

Wagner noted that CRITFC has requested that other parties' analysis of chum flow alternatives be added into the TMT mix, in particular, John Fazio's analysis. It was agreed to discuss these additional analyses at the TMT's December 18 meeting as well. Again, said Cooper, if there are any additional pieces anyone needs in order to provide their input, please let me know as soon as possible.

### ***9. Current System Conditions.***

With respect to the status of the chum migration, Boyce distributed a handout summarizing the most recent (Tuesday) mainstem spawning ground survey information. There are still large numbers of chum spawning, he said, while chinook numbers have begun to decline somewhat – 783 live chum and 421 chum redds. The count of 1,043 live chum on November 26 was the largest single-day count recorded in the five years of study surveys below Bonneville. With respect to Hamilton Springs, the most recent count was 300+ live chum, said Wills; at the confluence of Hardy Creek and the channel leading to the springs, there were an additional 100 adult chum observed during our most recent field survey. Counts in those areas are expected to peak this week, he added.

Shane Scott said WDFW staff has been surveying tributaries and mainstem habitat below the Ives Island complex; we've been seeing chum in several new drainages where there is no record of chum since the 1940s. The population has peaked at 15,000-20,000 in the Greys River, and is now on the decline. A very preliminary estimate is 30,000 chum in the total run, Scott said – three times the 2001 count.

Moving on, Henriksen said there isn't much to say regarding reservoir operations. Dworshak continues to release minimum outflow and is currently at elevation 1516 feet. Libby is releasing 24 Kcfs with the goal of reaching its end-of-December flood control point of 2411 feet. Norris reported that Hungry Horse is currently at elevation 3525; Grand Coulee, at elevation 1283. With respect to the most recent water supply information, Henriksen said the fall and winter water supply forecasts are available via the TMT homepage for Dworshak (76% of average, currently) and Libby (81% of average). I have asked the RFC and the NRCS to attend the next TMT meeting to provide their perspective on water supply and snowpack forecasts, she added.

Have you heard when Idaho Power plans to resume normal load following operations, rather than a flat, steady flow for fall chinook spawning? Steve Pettit asked. If there is water, and Brownlee Reservoir is full, we generally expect them to resume load

following in mid-December, Henriksen replied. However, Brownlee is currently 20 feet from full, she said.

Moving on, Bettin said he had sent out a letter regarding zero nighttime flow at the Lower Snake dams; we would like to reserve the flexibility to have that occur at any hour of the day or night, if it becomes necessary, recognizing that the possibility that we would have to use it is remote, Bettin said. Henriksen said the current instruction to the dams says the projects can use zero nighttime flow only from midnight to 6 a.m.; we need some clarification about what peoples' expectation is, so that there are no surprises, she said. Any concerns about going to around-the-clock zero flow if needed? Bettin asked.

What are some of the factors that might result in zero nighttime flow during the day? Boyce asked. If we had a full powerhouse outage and decided to pond the water rather than spill it, for example, Bettin replied. It will most likely occur at night, but we would prefer to have the flexibility to do this at any hour without convening a conference call; frankly, he said, the reason we're making this request is to help Bonneville maximize the value of the water available this year. After a brief discussion, the TMT recommended that such zero-flow period occur only at night. We would, however, be supportive of expanding the nighttime hours under which a zero-flow operation could occur, said Boyce – say, 6 p.m. to 6 a.m. It was so agreed. And this is for the winter period only, through the end of February? Boyce asked. Correct, Bettin replied. It was agreed to re-evaluate this operation at a February meeting.

The final topic under this agenda item was Libby ramp rates; Henriksen said the issue is ramp rates as Libby nears elevation 2411 at the end of December. The proposal, currently, is to ramp down from full powerhouse capacity over two days, somewhat faster than the rate specified in the BiOp, she said – is that a concern, from a bull trout perspective?

Bob Hallock replied that, from the Fish and Wildlife Service's perspective, the impacts to bull trout would be acceptable, because the steeper ramp-down will provide three additional days of 7.3 Kcfs Kootenai River flows to assist the burbot migration, with the understanding that this is for this year only. Bettin noted that a line outage repair problem may impact Libby outflow later this month; he said he hopes to achieve that repair either this Saturday, or delay it until after the burbot operation concludes. In other words, Bettin said, it may be a problem and it may not – we don't have enough information, at this point, to say for sure. We're more concerned about what happens when we're below 10 Kcfs than what happens above 10 Kcfs, Hallock said – we certainly wouldn't like to see any zeros out of Libby. We'll talk to Bob directly if the necessity arises, Bettin said.

#### ***10. New System Operational Requests.***

No new SORs were submitted at today's meeting.

#### ***11. Recommended Operations.***

Recommended operations were summarized during a previous agenda item.

**12. Next TMT Meeting Date.**

The next face-to-face TMT meeting was set for Wednesday, December 18.  
Meeting summary prepared by Jeff Kuechle, BPA contractor.

**TMT ATTENDANCE LIST**

**DECEMBER 4, 2002**

<b>Name</b>	<b>Affiliation</b>
Scott Bettin	BPA
Ron Boyce	ODFW
Paul Wagner	NMFS
David Wills	USFWS
Shane Scott	WDFW
Cindy Henriksen	COE
Tony Norris	Reclamation
Dick Cassidy	COE
Patti Etzel	COE
Greg Bowers	COE
David Benner	FPC
Russ George	WMCI
Mike O'Bryant	Columbia Basin Bulletin
Tim Heizenrater	
Scott Boyd	COE
Kyle Martin	CRITFC
Steven Wallace	PacifiCorp
Robin Harkless	Facilitation Team
Jacqueline Abel	Facilitation Team
Chris Ross	NMFS
Rudd Turner	COE
Tina Lundell	COE

Donna Silverberg	Facilitation Team
Suzanne Cooper	BPA
Ian Bird	BPA
Ruth Burris	PGE
Colin Beam	PPM
Laura Hamilton	COE
Steve Pettit	IDFG

# TECHNICAL MANAGEMENT TEAM

**BOR:** Tony Norris / Lori Postlethwait

**BPA:** Scott Bettin / Steve Kerns

**NMFS:** Paul Wagner / Chris Ross

**USFWS:** David Wills / Howard Schaller

**OR:** Ron Boyce

**WA:** Shane Scott

**ID:** Steve Pettit

**MT:** Jim Litchfield

**COE:** Cindy Henriksen / Rudd Turner

## TMT MEETING

**18 December 2002      0900 - 1200 hours**

**Custom House      Room 118  
Portland, Oregon  
Conference call line: 503-808-5190**

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

## AGENDA

1. NRCS/RFC Forecast Presentations
2. Winter reliability analysis. (NPPC) [\[Presentation\]](#)
3. Chum alternative flows discussion. (BPA, NPPC) [\[Chum Analysis\]](#) [\[Hydro Studies\]](#)
4. Final [WMP](#) Fall/Winter Update
5. TMT Guideline Revisions
6. [CRITFC 2002 Review](#)
7. Review current system conditions.
  - fish migration status (NMFS, USFWS) [\[2003 fall chinook and coho forecast \(WDFW\)\]](#)
  - reservoir operation, power system, water supply forecast, (COE, BOR, BPA)
8. Review operations requests.
9. Develop recommended operations.
10. Other.
  - Set agenda for next meeting

*Questions about the meeting may be referred to Cindy Henriksen at (503) 808-3945, or Rudd Turner at (503) 808-3935.*

XXXX Flow is greater than 125 kcf/s

XXXX Resulting flow is driven by the Vermita Bark minimum flow

Bonneville		00FSH27C: 2000BO					Vbar Min	IHR+Vbar Min+PRDtoBON Incr			
Outflows in KCFS		NOV	DEC	JAN	FEB	MAR		API	JAN	FEB	MAR
1929	106	125	128	100	111	110	55	93	88	111	110
1930	114	121	86	121	106	120	60	86	121	106	120
1931	112	118	94	90	105	152	60	94	90	105	152
1932	107	109	100	92	157	246	60	100	92	157	196
1933	130	147	175	157	164	198	60	112	99	119	150
1934	139	286	354	236	197	326	70	179	140	147	191
1935	120	136	163	187	153	159	55	100	103	102	130
1936	115	125	130	92	122	129	60	106	92	122	129
1937	114	121	105	90	108	119	60	87	90	108	119
1938	117	139	179	160	203	233	60	118	111	147	189
1939	111	129	139	130	139	172	55	96	91	121	145
1940	117	132	135	142	186	168	60	100	115	148	158
1941	120	137	139	102	112	159	55	103	99	110	118
1942	126	165	184	156	110	146	55	111	114	110	143
1943	119	148	194	208	197	332	60	141	156	162	255
1944	112	136	124	94	96	122	55	93	89	94	112
1945	111	114	100	108	107	122	60	100	108	107	122
1946	116	134	175	160	203	219	55	129	115	148	166
1947	119	190	215	202	204	212	55	122	141	128	148
1948	136	165	219	162	174	185	70	151	139	140	161
1949	117	135	151	157	242	237	60	102	126	181	185
1950	121	155	154	215	250	276	60	106	138	173	218
1951	140	234	258	263	239	297	65	153	178	165	208
1952	129	160	195	191	182	314	70	125	150	139	255
1953	109	127	159	234	140	168	55	139	144	118	133
1954	121	155	181	196	192	236	60	121	139	128	169
1955	136	152	112	111	104	171	70	112	103	104	142
1956	136	228	275	193	247	306	65	169	144	183	212
1957	116	153	167	146	174	293	60	103	113	158	219
1958	109	145	159	210	181	212	55	111	147	125	161
1959	136	168	256	198	199	250	60	150	128	132	160
1960	148	205	203	149	172	346	70	115	129	145	201
1961	129	132	167	223	206	238	60	105	154	145	148
1962	107	136	153	156	122	291	60	110	117	118	201
1963	136	167	188	206	126	152	65	115	159	120	139
1964	111	130	163	134	122	244	60	109	103	111	185
1965	123	225	288	263	234	239	70	189	206	168	180
1966	125	146	181	147	127	259	60	117	99	121	164
1967	114	154	185	211	168	190	60	118	130	106	133
1968	123	150	184	204	193	123	60	120	151	124	112
1969	136	162	241	207	208	305	70	159	146	159	209
1970	110	135	187	209	142	157	60	152	150	123	124
1971	108	154	219	276	226	244	50	160	174	146	184
1972	121	151	210	238	372	349	55	148	163	256	183
1973	115	152	204	107	109	109	60	132	100	109	110
1974	119	199	319	277	265	303	50	183	149	164	206
1975	116	146	174	185	208	188	55	125	122	140	153
1976	136	263	259	182	219	300	65	163	136	160	217
1977	107	134	132	95	94	117	65	104	95	94	109
1978	113	154	151	174	207	240	55	127	135	139	156
Average	120	156	180	171	172	216		123	126	135	164

Bonneville		00FSH52: Chum Priority					Vbar Min	IHR+Vbar Min+PRDtoBON Incr				
Outflows in KCFS		NOV	DEC	JAN	FEB	MAR		API	JAN	FEB	MAR	API
1929	106	125	125	125	93	116	115	60	98	93	116	115
1930	113	123	120	122	106	124	70	96	132	116	134	
1931	112	121	118	91	105	152	65	98	96	110	157	
1932	108	110	125	93	154	259	60	97	94	157	196	
1933	125	125	169	149	193	218	65	121	103	121	151	
1934	140	267	337	234	231	339	70	179	140	147	191	
1935	120	125	140	181	173	197	65	110	114	111	134	
1936	115	125	125	122	125	150	65	108	97	127	134	
1937	114	123	110	96	122	118	70	97	102	117	129	
1938	116	125	161	152	237	245	65	127	114	149	194	
1939	111	125	125	125	158	220	60	101	96	128	153	
1940	117	125	125	125	215	249	65	105	120	157	165	
1941	118	125	125	125	118	159	65	113	109	120	128	
1942	125	147	168	150	145	150	60	117	119	115	149	
1943	119	129	176	199	242	332	60	140	155	162	255	
1944	112	125	118	91	96	159	60	97	95	100	117	
1945	112	114	125	110	111	143	65	105	113	112	127	
1946	117	125	149	150	240	232	65	141	126	154	176	
1947	119	171	198	191	245	241	60	127	146	133	153	
1948	125	157	201	154	198	225	70	150	139	140	161	
1949	118	125	125	153	278	265	65	107	135	183	190	
1950	121	125	150	207	289	290	65	113	140	178	223	
1951	139	215	244	261	272	304	60	148	173	160	203	
1952	125	145	178	185	221	327	70	125	153	139	255	
1953	109	125	141	209	173	190	65	149	153	128	143	
1954	121	125	176	190	232	238	65	126	142	133	174	
1955	125	134	131	125	125	196	65	107	98	99	136	
1956	129	215	258	201	276	306	60	164	139	178	207	
1957	116	134	150	137	211	313	60	103	113	160	219	
1958	109	125	144	206	216	230	60	116	154	128	166	
1959	125	159	239	195	237	252	60	150	128	132	160	
1960	148	189	188	157	203	340	70	116	131	145	195	
1961	125	125	144	211	241	260	65	112	156	150	153	
1962	107	125	132	148	161	297	60	114	116	118	201	
1963	125	159	173	198	169	182	65	117	159	120	140	
1964	111	125	134	129	156	259	65	116	109	115	190	
1965	124	207	271	275	255	256	70	189	206	168	180	
1966	125	125	165	142	171	262	70	127	111	134	168	
1967	115	125	181	195	209	201	65	127	130	111	138	
1968	123	125	173	198	220	192	70	131	160	134	122	
1969	125	154	225	213	232	318	60	149	136	149	199	
1970	110	125	161	196	174	209	65	157	154	129	130	
1971	108	125	211	277	254	261	55	165	179	151	189	
1972	121	125	199	231	412	356	60	153	168	261	188	
1973	115	132	187	125	129	127	60	132	102	110	109	
1974	119	181	302	305	275	303	50	182	149	164	206	
1975	116	125	160	174	248	203	60	131	125	145	158	
1976	131	248	242	179	250	315	65	163	136	160	217	
1977	109	125	125	95	94	158	60	99	90	89	104	
1978	114	149	125	163	246	255	60	132	140	144	161	
Average	119	143	169	169	199	234		127	130	138	167	

488 MCNARY		00FSH52													XXXX Spring flows are less than 220 kcfs.	
OUTFLO	Year	AUG1	AUG2	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR1	APR2	MAY	JUN	JUL	
68	29	181	128	86	111	97	118	120	87	103	104	157	173	194	129	
70	30	128	122	81	110	106	114	117	105	95	111	107	193	197	126	
64	31	140	110	81	109	105	116	112	84	93	134	103	182	165	135	
106	32	148	119	87	105	99	104	116	81	127	241	230	291	263	200	
108	33	172	159	95	113	113	113	156	140	178	202	194	245	366	279	
111	34	200	200	106	135	129	221	294	211	206	318	333	328	198	142	
91	35	130	110	84	108	107	110	124	165	159	187	196	219	207	200	
89	36	200	134	91	111	107	119	112	114	110	142	204	308	212	150	
69	37	167	127	88	110	107	117	108	89	110	106	120	170	214	129	
106	38	153	112	87	112	103	106	141	138	213	229	223	318	248	190	
81	39	159	129	93	117	102	116	116	115	143	204	155	220	205	133	
81	40	145	128	88	114	110	114	117	107	191	232	150	213	219	126	
70	41	142	114	84	113	109	115	114	114	104	144	198	217	192	119	
91	42	151	125	93	118	115	123	156	133	133	136	196	240	231	195	
117	43	165	146	98	117	106	111	159	178	222	304	320	316	280	232	
60	44	200	163	93	111	103	117	112	83	88	148	156	203	179	111	
82	45	127	103	81	108	104	109	115	96	99	132	110	193	235	168	
111	46	145	139	92	110	107	110	130	137	220	217	256	364	238	204	
106	47	200	149	102	115	107	144	183	171	226	226	220	306	248	191	
131	48	181	139	95	157	112	143	180	137	184	212	253	394	530	267	
102	49	200	197	116	123	107	113	118	134	254	249	266	332	251	150	
124	50	136	105	84	110	110	112	138	187	262	270	259	287	395	261	
125	51	200	193	106	132	122	191	219	228	250	279	316	372	245	214	
113	52	200	171	105	152	112	129	169	164	205	300	325	369	250	178	
106	53	186	139	87	109	101	117	111	184	157	173	189	265	317	229	
118	54	197	160	97	119	111	107	160	168	213	223	253	337	335	262	
96	55	229	200	149	134	115	124	120	115	116	183	141	219	360	298	
140	56	200	180	97	128	111	184	226	184	254	284	380	453	394	239	
112	57	200	165	99	124	107	118	140	125	182	288	268	424	324	161	
107	58	161	122	88	112	99	109	126	173	196	213	247	336	294	140	
118	59	156	133	90	118	111	143	218	179	221	238	237	305	344	227	
102	60	200	159	144	188	138	175	180	137	185	318	281	243	258	200	
111	61	200	125	94	115	108	111	126	173	214	246	206	301	390	164	
97	62	161	138	86	114	95	107	116	133	143	278	298	242	218	198	
94	63	181	146	90	126	111	142	161	174	156	168	160	244	247	200	
107	64	187	153	100	110	99	114	116	115	143	248	215	242	390	277	
126	65	200	170	111	136	114	162	244	245	240	246	319	334	317	200	
90	66	200	169	97	122	116	116	149	131	153	241	200	238	208	184	
113	67	189	134	88	110	104	108	164	178	200	190	163	288	358	263	
95	68	200	159	100	120	115	113	160	172	209	185	146	219	279	211	
122	69	200	164	126	138	111	142	207	200	217	298	314	405	264	195	
96	70	160	125	87	118	102	115	127	173	156	199	167	246	296	167	
139	71	154	129	84	108	99	112	178	258	241	244	278	439	373	258	
152	72	203	186	101	114	108	110	173	204	377	345	257	439	429	308	
71	73	217	200	101	123	104	117	173	116	117	118	128	223	213	123	
156	74	131	103	70	107	99	149	267	287	255	285	349	394	475	317	
111	75	205	200	105	111	105	112	137	157	228	189	201	294	352	279	
122	76	161	149	101	129	117	225	217	162	231	300	300	415	260	233	
54	77	245	229	167	125	100	115	116	89	87	148	155	190	156	110	
105	78	140	111	80	103	100	115	107	146	231	245	220	285	238	214	
Average		177	147	97	120	108	127	153	152	182	218	222	289	281	198	

1160 PRIEST		00FSH52		XXXX Spring flows are less than 135 kcfs.											
OUTFLO	Year	AUG1	AUG2	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR1	APR2	MAY	JUN	JUL
68	29	152	99	70	86	77	92	87	60	60	60	108	106	128	80
70	30	98	97	65	90	90	89	95	60	60	60	60	135	157	89
64	31	110	90	66	82	86	94	86	60	60	60	60	127	140	101
106	32	122	102	74	82	78	81	88	59	57	124	126	169	171	133
108	33	129	120	68	85	84	86	113	112	137	132	117	158	223	223
111	34	151	154	78	107	94	159	227	164	154	218	263	278	166	95
91	35	94	83	64	86	81	83	95	132	127	128	131	151	144	150
89	36	154	99	69	88	87	97	82	89	63	80	69	189	143	97
69	37	126	95	63	86	89	95	83	64	74	60	60	96	159	75
106	38	112	82	65	87	82	69	99	103	154	116	120	201	133	124
81	39	109	85	67	86	78	85	84	89	90	127	81	142	158	80
81	40	102	97	63	90	89	92	85	70	123	149	72	129	168	76
70	41	102	85	59	83	79	82	77	81	62	96	152	148	119	65
91	42	110	94	62	84	80	80	111	90	90	62	103	153	137	137
117	43	119	100	69	91	80	68	96	103	140	137	154	209	165	149
60	44	147	110	64	84	80	82	81	56	56	101	110	144	126	60
82	45	93	78	62	84	84	88	85	61	64	81	56	93	148	111
111	46	104	100	69	84	84	72	73	89	151	120	138	256	154	145
106	47	154	112	73	79	79	81	131	105	171	147	138	190	166	134
131	48	134	98	70	127	79	102	121	86	128	133	153	240	328	200
102	49	155	156	88	93	82	83	83	83	160	140	161	188	162	100
124	50	99	73	62	82	87	79	101	132	176	131	141	190	262	175
125	51	147	150	78	99	78	127	155	148	172	162	201	262	150	160
113	52	156	127	77	117	87	82	123	102	151	142	156	220	145	120
106	53	142	98	62	83	81	91	57	121	110	112	102	172	179	163
118	54	148	120	72	90	88	72	115	113	164	129	124	233	246	204
96	55	186	157	122	106	89	99	89	92	91	125	70	126	259	246
140	56	160	145	76	99	79	116	154	122	159	159	216	288	238	179
112	57	153	125	72	90	79	73	107	84	111	153	151	248	196	104
107	58	121	91	63	81	76	75	87	112	147	124	120	190	191	86
118	59	117	98	66	88	78	92	149	127	165	151	157	218	231	171
102	60	159	120	116	142	96	132	142	96	128	215	185	159	167	153
111	61	162	93	71	88	83	87	97	120	156	172	131	215	284	121
97	62	129	112	64	86	71	80	78	92	103	156	195	153	125	145
94	63	140	108	65	89	81	95	121	104	114	107	100	145	142	147
107	64	143	109	74	83	76	89	83	85	106	134	131	141	227	221
126	65	158	129	85	107	89	85	153	139	157	145	168	195	166	129
90	66	154	122	65	88	91	77	108	101	107	164	138	167	154	139
113	67	154	107	67	83	82	79	119	131	163	129	103	186	236	205
95	68	158	122	78	88	89	76	112	108	156	140	93	142	187	157
122	69	161	125	95	102	78	103	136	137	144	179	187	260	177	138
96	70	126	96	64	89	81	87	69	107	110	145	108	128	150	106
139	71	112	93	54	76	73	66	101	152	158	127	157	259	205	180
152	72	159	145	71	81	78	69	107	123	212	228	157	272	271	245
71	73	178	159	73	93	77	69	115	83	79	79	86	152	161	77
156	74	99	79	48	81	65	92	170	206	160	147	189	236	267	233
111	75	160	157	80	83	81	74	89	109	162	105	106	169	177	187
122	76	113	103	71	93	80	137	144	108	155	163	179	251	141	172
54	77	197	180	135	96	78	81	86	65	65	113	119	145	114	73
105	78	108	90	58	76	73	57	53	83	162	154	128	173	132	147
Average		177	147	97	120	108	127	153	152	182	218	222	289	281	198

## COLUMBIA RIVER FALL CHINOOK AND COHO

### 2002 PRELIMINARY RETURNS AND OUTLOOK FOR 2003

#### Lower River Hatchery Stock - LRH

- ❖ 2002 return of over 130,000 is best since the 1988 return of 310,000
- ❖ Average return of jacks in 2002
- ❖ 2003 return should be above average (recent 10 year average is 55,000)

#### Lower River Wild Stock - LRW

- ❖ 2002 return best since the 1991 return of 20,000
- ❖ Average return of jacks in 2002
- ❖ 2003 return should be similar to the returns of early to mid 1990's which averaged about 13,000

#### Bonneville Pool Hatchery Stock - BPH

- ❖ 2002 return exceeded 160,000 - largest return since 1976
- ❖ Jacks are about half of the record high return in 2001
- ❖ 2003 return similar to large return in 2002

#### Upriver Bright Stock - URB

- ❖ 2002 return of 285,000 best since the 1988 return of 340,000
- ❖ Average return of jacks in 2002
- ❖ 2003 return above average of 142,000 but likely less than 2002

## Mid-Columbia Bright Stock – MCB

- ❖ 2002 return of near 100,000 was largest on record
- ❖ 2003 return should be average

## Total Columbia River Fall Chinook

- ❖ 2002 return of over 700,000 is third largest return since 1948
- ❖ 2003 return should be above recent year average of 335,000

## Coho

- ❖ 2002 return just under ½ million
- ❖ Columbia River jack returns are nearly double the 2001 returns
- ❖ 2003 return should be greater than 2002 but less than 2001

December 4, 2002  
Washington Department of Fish and Wildlife  
Oregon Department of Fish and Wildlife

50 YEAR CONTINUOUS STUDY RESULTS - See Study Documentation for Description of Measures

2000 Biological Opinion Base Case Study

Study: DISK2:[NPR.FISHOPS.OY00.00FSH27C.OPER]

9-NOV-00

**Flow Target Met (w/in 1 kcfs) or Exceeded**

	Apr1-15 (85-100 kcfs)	Apr16-30 (85-100 kcfs)	May (85-100 kcfs)	June (85-100 kcfs)	Apr16-Jun 30 (85-100 kcfs)	July (50-55 kcfs)	August (50-55 kcfs)	Jul1-Aug31 (50-55 kcfs)
<b>Lower Granite</b>	19	21	32	34	35	35	0	7
<b>Priest Rapids</b>	Apr1-15 (135 kcfs) 35	Apr16-30 (135 kcfs) 24	May (135 kcfs) 44	June (135 kcfs) 44	Apr1-Jun 30 (135 kcfs) 44			
<b>McNary</b>	Apr16-30 (220-260 kcfs) 25	May (220-260 kcfs) 35	June (220-260 kcfs) 28	Apr16-Jun30 (220-260 kcfs) 44	July (200 kcfs) 28	August (200 kcfs) 6	Jul1-Aug31 (200 kcfs) 17	
<b>Bonneville</b>	Nov (125 kcfs) 15	December (125 kcfs) 45	January (125 kcfs) 44	February (125 kcfs) 38	March (125 kcfs) 36	Oct1-Mar31 (125 kcfs) 40	Nov1 - March31 (125 kcfs) 39	

**Average Flows (kcfs)**

	Apr1-15	Apr16-30	May	June	Apr16-Jun 30	July	August	Jul1-Aug31
<b>Lower Granite</b>								
50 yr avg.	78	90	107	100	101	54	35	44
Ave. of 53.5-70.9 MAF years (8)	41	45	67	57	59	44	28	36
Ave. of 80.8-96.9 MAF years (12)	61	75	94	85	86	49	33	41
Ave. of 101.8-117.9 MAF years (20)	90	101	112	107	108	57	36	46
Ave. of 121.8-156.1 MAF years (10)	106	123	144	138	138	62	41	52
<b>Priest Rapids</b>	Apr1-15	Apr16-30	May	June	Apr1-Jun 30			
50 yr avg.	112	139	185	180	174			
Ave. of 53.5-70.9 MAF years (8)	66	99	139	139	131			
Ave. of 80.8-96.9 MAF years (12)	88	124	144	161	147			
Ave. of 101.8-117.9 MAF years (20)	128	145	197	188	183			
Ave. of 121.8-156.1 MAF years (10)	145	175	245	222	222			
<b>McNary</b>	Apr16-30	May	June	May1-Jun30	July	August	Jul1-Aug31	
50 yr avg.	231	290	282	286	203	159	181	
Ave. of 53.5-70.9 MAF years (8)	145	201	190	196	131	120	126	
Ave. of 80.8-96.9 MAF years (12)	202	235	244	239	193	153	173	
Ave. of 101.8-117.9 MAF years (20)	247	309	297	303	213	161	187	
Ave. of 121.8-156.1 MAF years (10)	302	393	370	381	251	193	222	
<b>Bonneville</b>	Oct	Nov	December	January	February	March	Oct1-Mar31	Nov1 - March31
50 yr avg.	124	120	156	180	171	172	154	160
Ave. of 53.5-70.9 MAF years (8)	118	112	130	126	100	105	116	115
Ave. of 80.8-96.9 MAF years (12)	122	120	141	155	154	136	138	141
Ave. of 101.8-117.9 MAF years (20)	125	121	156	185	181	186	159	166
Ave. of 121.8-156.1 MAF years (10)	131	127	194	244	228	243	194	207

**Reservoir Effects**

	At URC on April 10 (Tolerance of 5 ksfd)	At URC on June 30 (Tolerance of 1/2 foot)	At Full on August 31 (Tolerance of 1/2 foot)
Libby	20	32	3 times at 2459.0 ft.
Hungry Horse	29	34	3 times at 3560.0 ft.
Albeni Falls	N/A	N/A	50 times at 2062.5 ft.
Grand Coulee	48	50	1 times at 1290 ft.
Dworshak	33	50	0 times at 1600 ft.

**50 YEAR CONTINUOUS STUDY RESULTS - See Study Documentation for Description of Measures**

*NOTE: This modeling scenario is provided for study purposes only. This scenario is not currently under discussion in the Regional Forum.*

**June Refill Priority w/o April 10 URC Requirement**

**Study: DISK2:[NPR.FISHOPS.OY00.FSH51.OPER]**

**7-AUG-02**

**Flow Target Met (w/in 1 kcfs) or Exceeded**

	Apr1-15 (85-100 kcfs)	Apr16-30 (85-100 kcfs)	May (85-100 kcfs)	June (85-100 kcfs)	Apr16-Jun 30 (85-100 kcfs)	July (50-55 kcfs)	August (50-55 kcfs)	Jul1-Aug31 (50-55 kcfs)
<b>Lower Granite</b>	18	20	32	34	34	35	0	7
<b>Priest Rapids</b>	Apr1-15 (135 kcfs) 33	Apr16-30 (135 kcfs) 17	May (135 kcfs) 42	June (135 kcfs) 43	Apr1-Jun 30 (135 kcfs) 35			
<b>McNary</b>	Apr16-30 (220-260 kcfs) 19	May (220-260 kcfs) 31	June (220-260 kcfs) 28	Apr16-Jun30 (220-260 kcfs) 39	July (200 kcfs) 25	August (200 kcfs) 5	Jul1-Aug31 (200 kcfs) 16	
<b>Bonneville</b>	Nov (125 kcfs) 15	December (125 kcfs) 45	January (125 kcfs) 46	February (125 kcfs) 40	March (125 kcfs) 40	Oct1-Mar31 (125 kcfs) 41	Nov1 - March31 (125 kcfs) 42	

**Average Flows (kcfs)**

	Apr1-15	Apr16-30	May	June	Apr16-Jun 30	July	August	Jul1-Aug31
<b>Lower Granite</b>								
50 yr avg.	78	89	107	100	101	54	35	44
Ave. of 53.5-70.9 MAF years (8)	41	45	67	56	58	44	27	36
Ave. of 80.8-96.9 MAF years (12)	61	72	93	85	86	49	33	41
Ave. of 101.8-117.9 MAF years (20)	89	100	112	107	108	57	36	46
Ave. of 121.8-156.1 MAF years (10)	106	123	144	138	138	62	41	52
<b>Priest Rapids</b>								
50 yr avg.	108	115	180	177	166			
Ave. of 53.5-70.9 MAF years (8)	74	89	130	138	125			
Ave. of 80.8-96.9 MAF years (12)	83	71	135	157	131			
Ave. of 101.8-117.9 MAF years (20)	113	124	194	185	177			
Ave. of 121.8-156.1 MAF years (10)	153	172	245	220	220			
<b>McNary</b>								
50 yr avg.	Apr16-30 207	May 285	June 279	May1-Jun30 282	July 197	August 161	Jul1-Aug31 179	
Ave. of 53.5-70.9 MAF years (8)	135	192	188	190	122	126	124	
Ave. of 80.8-96.9 MAF years (12)	146	225	240	233	186	156	171	
Ave. of 101.8-117.9 MAF years (20)	225	305	294	300	209	163	186	
Ave. of 121.8-156.1 MAF years (10)	300	393	367	380	249	193	221	
<b>Bonneville</b>								
50 yr avg.	Oct 125	Nov 119	December 143	January 198	February 176	March 190	Oct1-Mar31 158	Nov1 - March31 165
Ave. of 53.5-70.9 MAF years (8)	119	112	125	135	108	109	118	118
Ave. of 80.8-96.9 MAF years (12)	123	118	130	188	159	158	146	150
Ave. of 101.8-117.9 MAF years (20)	125	120	141	207	185	204	164	171
Ave. of 121.8-156.1 MAF years (10)	131	124	175	242	231	264	194	207

**Reservoir Effects**

	At URC on April 10 (Tolerance of 5 ksfd)	At URC on June 30	At Full on August 31 (Tolerance of 1/2 foot)
Libby	20	17	2 times at 2459.0 ft.
Hungry Horse	13	18	3 times at 3560.0 ft.
Albeni Falls	N/A	N/A	50 times at 2062.5 ft.
Grand Coulee	36	50	1 times at 1290 ft.
Dworshak	31	48	0 times at 1600 ft.

**50 YEAR CONTINUOUS STUDY RESULTS - See Study Documentation for Description of Measures**

NOTE: This modeling scenario is provided for study purposes only. This scenario is currently being discussed by the Technical Management Team of the Regional Forum.

**Chum Priority Study**

Study: DISK2:[NPR.FISHOPS.OY00.00FSH52.OPER]

3 1-J UL-02

**Flow Target Met (w/in 1 kcfs) or Exceeded**

	Apr1-15 (85-100 kcfs)	Apr16-30 (85-100 kcfs)	May (85-100 kcfs)	June (85-100 kcfs)	Apr16-Jun 30 (85-100 kcfs)	July (50-55 kcfs)	August (50-55 kcfs)	Jul1-Aug31 (50-55 kcfs)
<b>Lower Granite</b>	19	20	32	34	34	35	0	7
<b>Priest Rapids</b>	Apr1-15 (135 kcfs) 42	Apr16-30 (135 kcfs) 22	May (135 kcfs) 43	June (135 kcfs) 43	Apr1-Jun 30 (135 kcfs) 41			
<b>McNary</b>	Apr16-30 (220-260 kcfs) 23	May (220-260 kcfs) 34	June (220-260 kcfs) 28	Apr16-Jun30 (220-260 kcfs) 43	July (200 kcfs) 25	August (200 kcfs) 5	Jul1-Aug31 (200 kcfs) 16	
<b>Bonneville</b>	Nov (125 kcfs) 15	December (125 kcfs) 45	January (125 kcfs) 46	February (125 kcfs) 41	March (125 kcfs) 42	Oct1-Mar31 (125 kcfs) 40	Nov1 - March31 (125 kcfs) 40	

**Average Flows (kcfs)**

	Apr1-15	Apr16-30	May	June	Apr16-Jun 30	July	August	Jul1-Aug31
<b>Lower Granite</b>								
50 yr avg.	78	90	107	100	101	54	35	44
Ave. of 53.5-70.9 MAF years (8)	41	45	67	56	58	44	27	36
Ave. of 80.8-96.9 MAF years (12)	61	73	93	85	86	49	33	41
Ave. of 101.8-117.9 MAF years (20)	90	101	112	107	108	57	36	46
Ave. of 121.8-156.1 MAF years (10)	106	123	144	138	138	62	41	52
<b>Priest Rapids</b>	Apr1-15	Apr16-30	May	June	Apr1-Jun 30			
50 yr avg.	130	131	184	180	172			
Ave. of 53.5-70.9 MAF years (8)	79	94	132	138	127			
Ave. of 80.8-96.9 MAF years (12)	122	101	143	160	141			
Ave. of 101.8-117.9 MAF years (20)	143	141	199	188	183			
Ave. of 121.8-156.1 MAF years (10)	158	175	245	220	222			
<b>McNary</b>	Apr16-30	May	June	May1-Jun30	July	August	Jul1-Aug31	
50 yr avg.	222	289	281	285	198	162	180	
Ave. of 53.5-70.9 MAF years (8)	140	194	189	191	123	126	124	
Ave. of 80.8-96.9 MAF years (12)	177	233	243	238	186	156	171	
Ave. of 101.8-117.9 MAF years (20)	242	309	297	303	209	163	186	
Ave. of 121.8-156.1 MAF years (10)	303	393	368	381	249	193	221	
<b>Bonneville</b>	Oct	Nov	December	January	February	March	Oct1-Mar31	Nov1 - March31
50 yr avg.	125	119	143	169	169	199	154	160
Ave. of 53.5-70.9 MAF years (8)	119	112	125	129	105	111	117	116
Ave. of 80.8-96.9 MAF years (12)	123	118	130	145	152	162	138	141
Ave. of 101.8-117.9 MAF years (20)	125	120	141	170	174	221	158	165
Ave. of 121.8-156.1 MAF years (10)	131	124	175	230	230	271	194	206

**Reservoir Effects**

	At URC on April 10 (Tolerance of 5 ksf)	At URC on June 30 (Tolerance of 5 ksf)	At Full on August 31 (Tolerance of 1/2 foot)
Libby	20	17	2 times at 2459.0 ft.
Hungry Horse	30	26	3 times at 3560.0 ft.
Albeni Falls	N/A	N/A	50 times at 2062.5 ft.
Grand Coulee	45	50	1 times at 1290 ft.
Dworshak	31	48	0 times at 1600 ft.

00FSH27C minus 00FSH51

2000BO minus June Refill Priority w/o April 10 URC Requirement

**Average Flows (kcfs)****Lower Granite**

	<u>Apr1-15</u>	<u>Apr16-30</u>	<u>May</u>	<u>June</u>	<u>Apr16-Jun 30</u>	<u>July</u>	<u>August</u>	<u>Jul1-Aug31</u>
50 yr avg.	0	1	0	0	0	0	0	0
Ave. of 53.5-70.9 MAF years (8)	-1	0	0	1	1	0	0	0
Ave. of 80.8-96.9 MAF years (12)	0	2	1	0	1	0	0	0
Ave. of 101.8-117.9 MAF years (20)	1	1	0	0	0	0	0	0
Ave. of 121.8-156.1 MAF years (10)	0	0	0	0	0	0	0	0

**Priest Rapids**

	<u>Apr1-15</u>	<u>Apr16-30</u>	<u>May</u>	<u>June</u>	<u>Apr1-Jun 30</u>
50 yr avg.	4	23	5	3	8
Ave. of 53.5-70.9 MAF years (8)	-8	11	9	1	6
Ave. of 80.8-96.9 MAF years (12)	5	53	8	4	15
Ave. of 101.8-117.9 MAF years (20)	15	21	3	3	7
Ave. of 121.8-156.1 MAF years (10)	-9	2	0	2	1

**McNary**

	<u>Apr16-30</u>	<u>May</u>	<u>June</u>	<u>May1-Jun30</u>	<u>July</u>	<u>August</u>	<u>Jul1-Aug31</u>
50 yr avg.	24	5	3	4	6	-2	2
Ave. of 53.5-70.9 MAF years (8)	10	10	2	6	9	-6	1
Ave. of 80.8-96.9 MAF years (12)	56	9	4	7	7	-3	2
Ave. of 101.8-117.9 MAF years (20)	22	4	3	3	5	-1	2
Ave. of 121.8-156.1 MAF years (10)	2	0	2	1	2	0	1

**Bonneville**

	<u>Oct</u>	<u>Nov</u>	<u>December</u>	<u>January</u>	<u>February</u>	<u>March</u>	<u>Oct1-Mar31</u>	<u>Nov1 - March31</u>
50 yr avg.	-1	2	13	-17	-5	-17	-4	-5
Ave. of 53.5-70.9 MAF years (8)	-1	0	6	-9	-8	-4	-3	-3
Ave. of 80.8-96.9 MAF years (12)	-1	2	11	-33	-5	-22	-8	-10
Ave. of 101.8-117.9 MAF years (20)	0	1	14	-21	-4	-18	-5	-6
Ave. of 121.8-156.1 MAF years (10)	0	3	18	2	-3	-20	0	0

00FSH27C minus 00FSH52

2000BO minus Ch um Priority

**Average Flows (kcfs)****Lower Granite**

	<u>Apr1-15</u>	<u>Apr16-30</u>	<u>May</u>	<u>June</u>	<u>Apr16-Jun 30</u>	<u>July</u>	<u>August</u>	<u>Jul1-Aug31</u>
50 yr avg.	0	1	0	0	0	0	0	0
Ave. of 53.5-70.9 MAF years (8)	-1	0	0	1	1	0	0	0
Ave. of 80.8-96.9 MAF years (12)	0	2	1	0	1	0	0	0
Ave. of 101.8-117.9 MAF years (20)	0	1	0	0	0	0	0	0
Ave. of 121.8-156.1 MAF years (10)	0	0	0	0	0	0	0	0

**Priest Rapids**

	<u>Apr1-15</u>	<u>Apr16-30</u>	<u>May</u>	<u>June</u>	<u>Apr1-Jun 30</u>
50 yr avg.	-18	8	1	1	2
Ave. of 53.5-70.9 MAF years (8)	-13	5	7	0	4
Ave. of 80.8-96.9 MAF years (12)	-34	23	1	1	5
Ave. of 101.8-117.9 MAF years (20)	-14	4	-1	0	0
Ave. of 121.8-156.1 MAF years (10)	-13	0	-1	1	0

**McNary**

	<u>Apr16-30</u>	<u>May</u>	<u>June</u>	<u>May1-Jun30</u>	<u>July</u>	<u>August</u>	<u>Jul1-Aug31</u>
50 yr avg.	9	1	1	1	5	-2	1
Ave. of 53.5-70.9 MAF years (8)	5	8	2	5	8	-6	1
Ave. of 80.8-96.9 MAF years (12)	25	1	1	1	7	-3	2
Ave. of 101.8-117.9 MAF years (20)	5	-1	0	0	4	-2	1
Ave. of 121.8-156.1 MAF years (10)	0	-1	1	0	2	0	1

**Bonneville**

	<u>Oct</u>	<u>Nov</u>	<u>December</u>	<u>January</u>	<u>February</u>	<u>March</u>	<u>Oct1-Mar31</u>	<u>Nov1 - March31</u>
50 yr avg.	-1	1	13	11	2	-27	0	0
Ave. of 53.5-70.9 MAF years (8)	-1	0	6	-2	-5	-6	-1	-1
Ave. of 80.8-96.9 MAF years (12)	-1	2	11	9	2	-26	-1	0
Ave. of 101.8-117.9 MAF years (20)	0	1	14	15	7	-35	0	1
Ave. of 121.8-156.1 MAF years (10)	0	3	18	14	-3	-28	1	1

An illustration of various electrical power plugs and a wall outlet. The background shows a white wall outlet with two vertical slots and a ground hole. In the foreground, several power plugs of different colors and shapes are scattered. Some are labeled with letters: 'A', 'N', 'O', 'R', 'E', 'L', 'I', 'V'. The plugs are in shades of grey, white, brown, and yellow. The text is overlaid on this illustration.

# **Power Supply Outlook Winter Seasons 2003-06**

**Northwest Power Planning Council  
December 10, 2002**

The Dark Ages... they  
said it couldn't happen  
again.



# Reliability is a function of

**Supply**

**Demand**

**Renewables**

**Imports**

**Thermal**

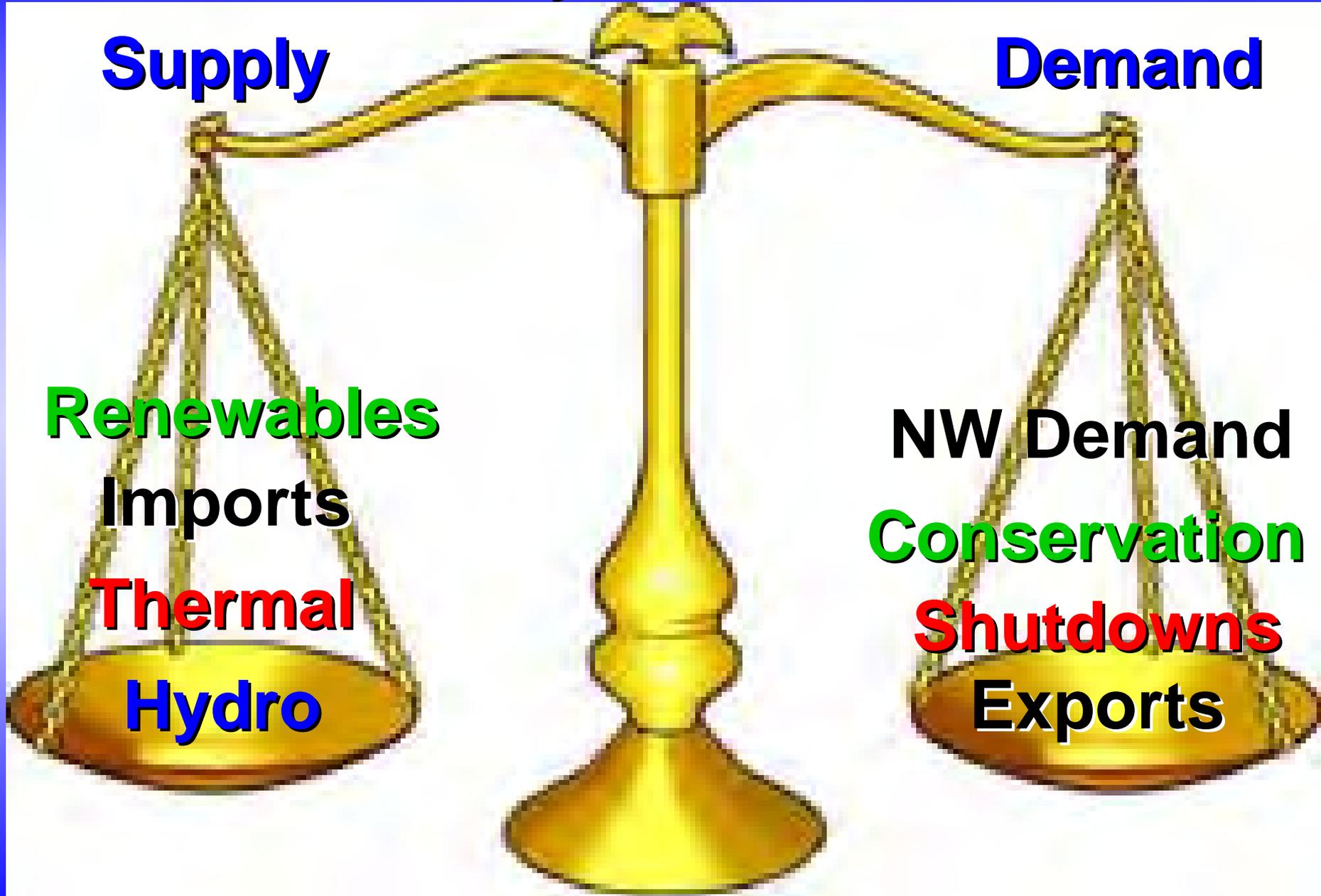
**Hydro**

**NW Demand**

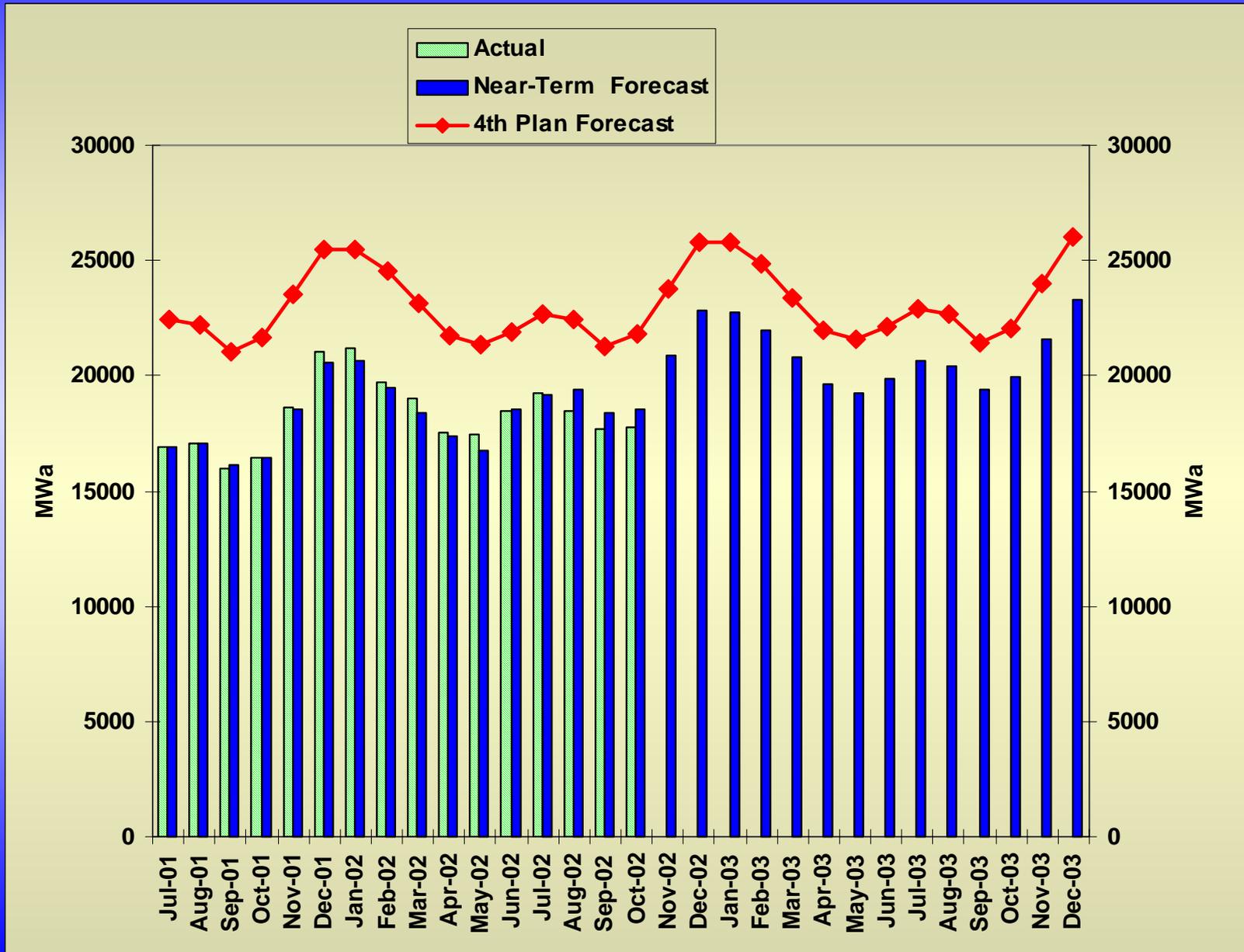
**Conservation**

**Shutdowns**

**Exports**

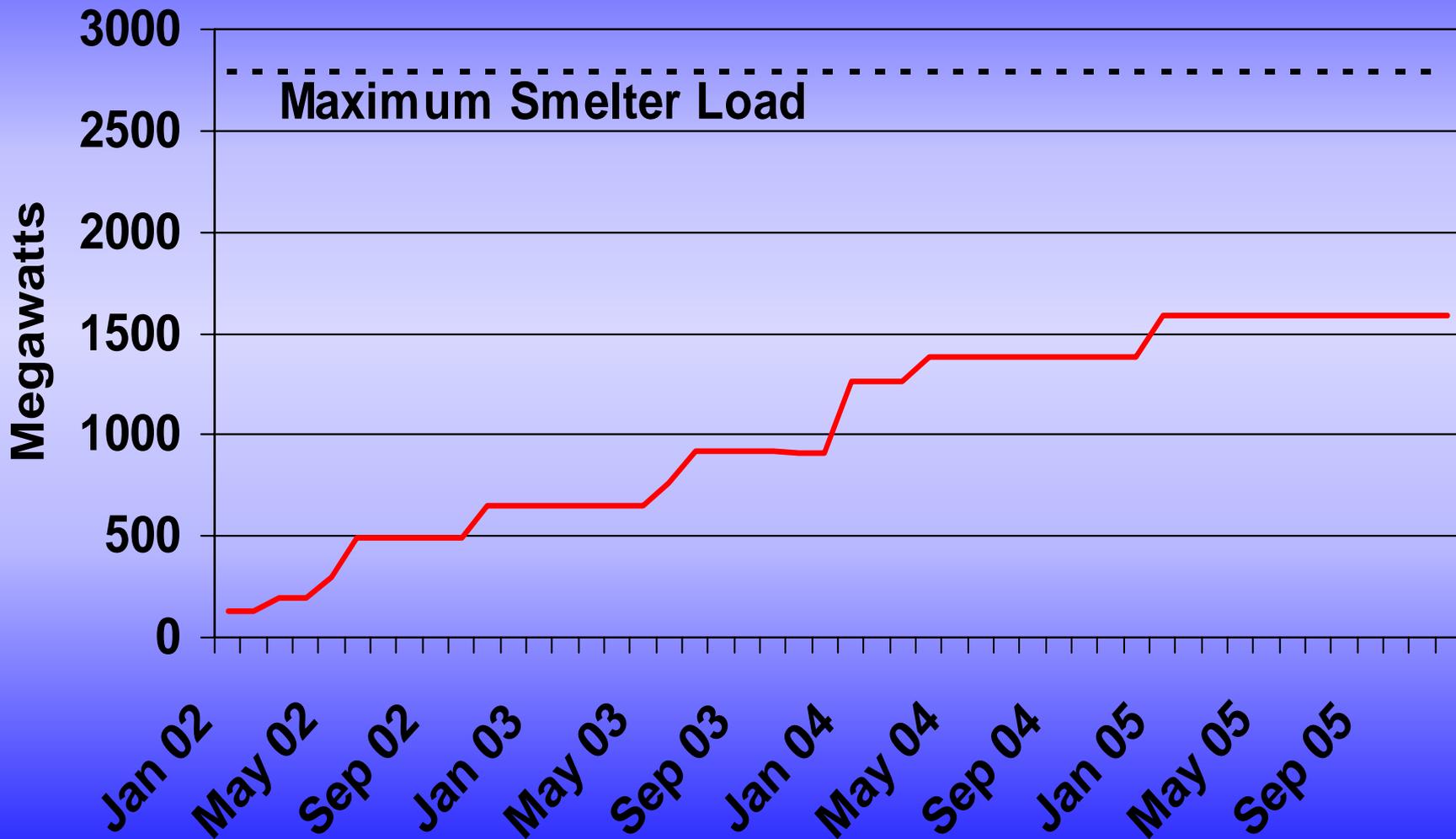


# Regional Demand vs. Forecast



# DSI Loads

## Current Draft Forecast



# Miscellaneous Assumptions

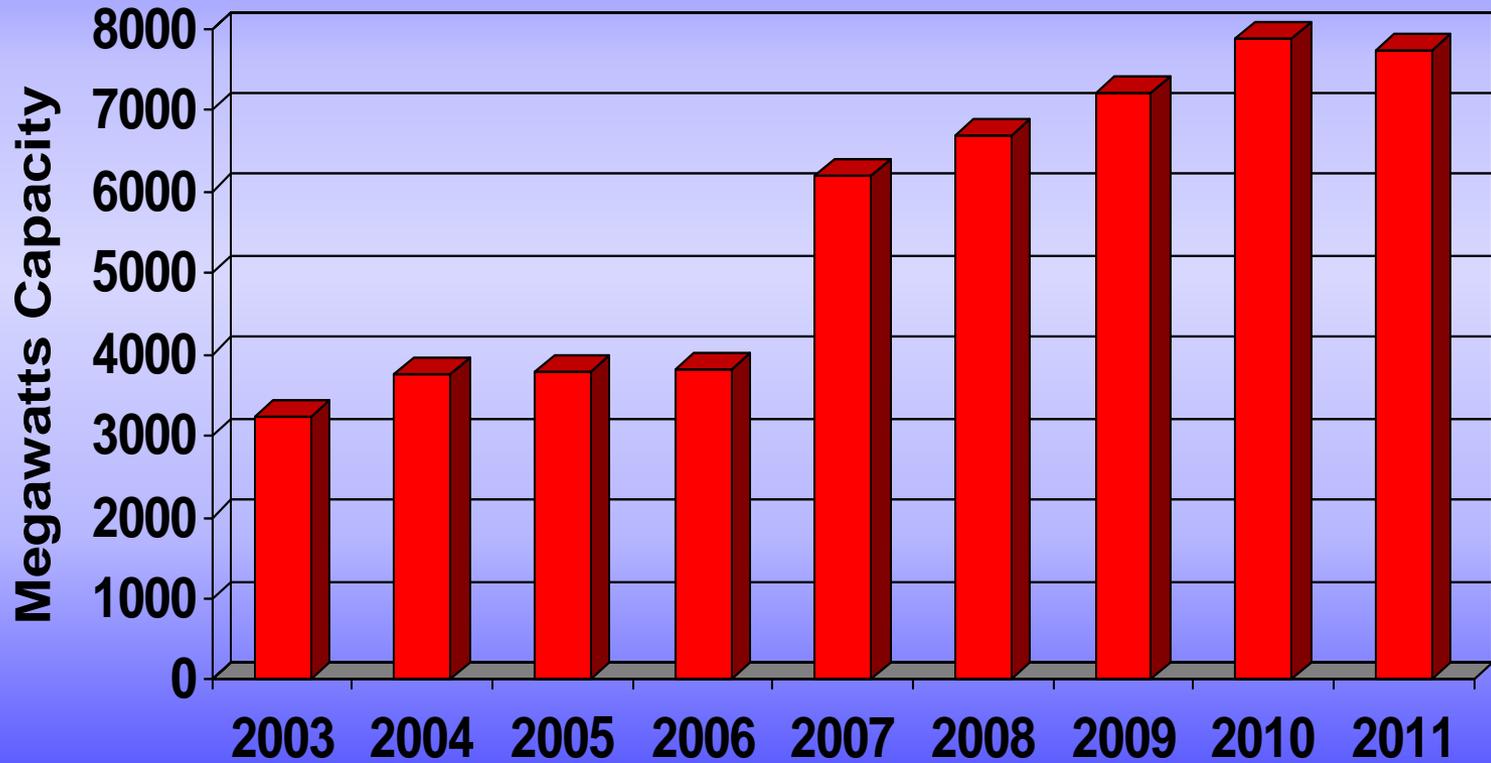
- DSI load is currently at about 22% of its fully operational level and is forecast to reach about 57% of that value by 2005
- Non-DSI loads increase modestly and return to forecast levels by 2004
- Conservation is a small contributor, growing from 100 aMW in 2004 to 180 aMW in 2006
- Demand reduction programs were not modeled in this analysis

# Resource Assumptions

- **Suspended Construction:**
  - About 1,200 MW by 2004
- **Retirements:**
  - About 600 MW
- **New resources projected to be completed:**
  - Just under 3,800 MW by 2004 (since 2001)
  - 1,200 MW fewer than our July 2002 estimate
  - Market-driven capacity additions beyond 2004 not available until 2007 (AURORA)

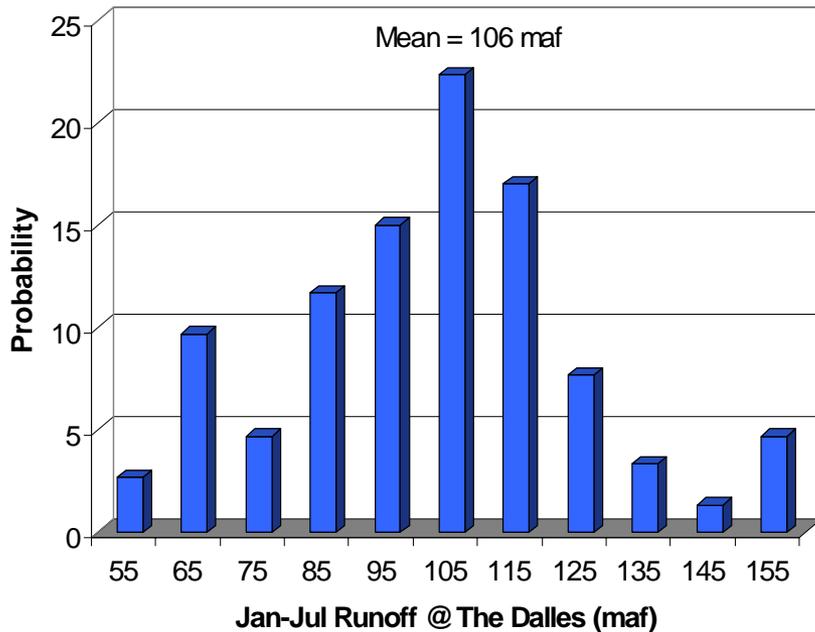


# Capacity Additions for the Northwest

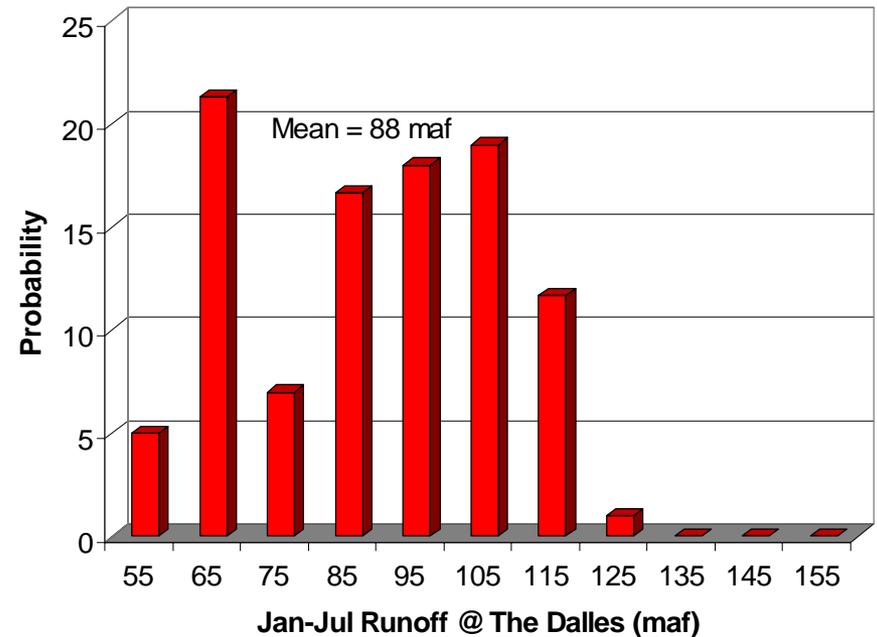


# Forecast Runoff Distribution for 2003

## Historical Runoff Distribution

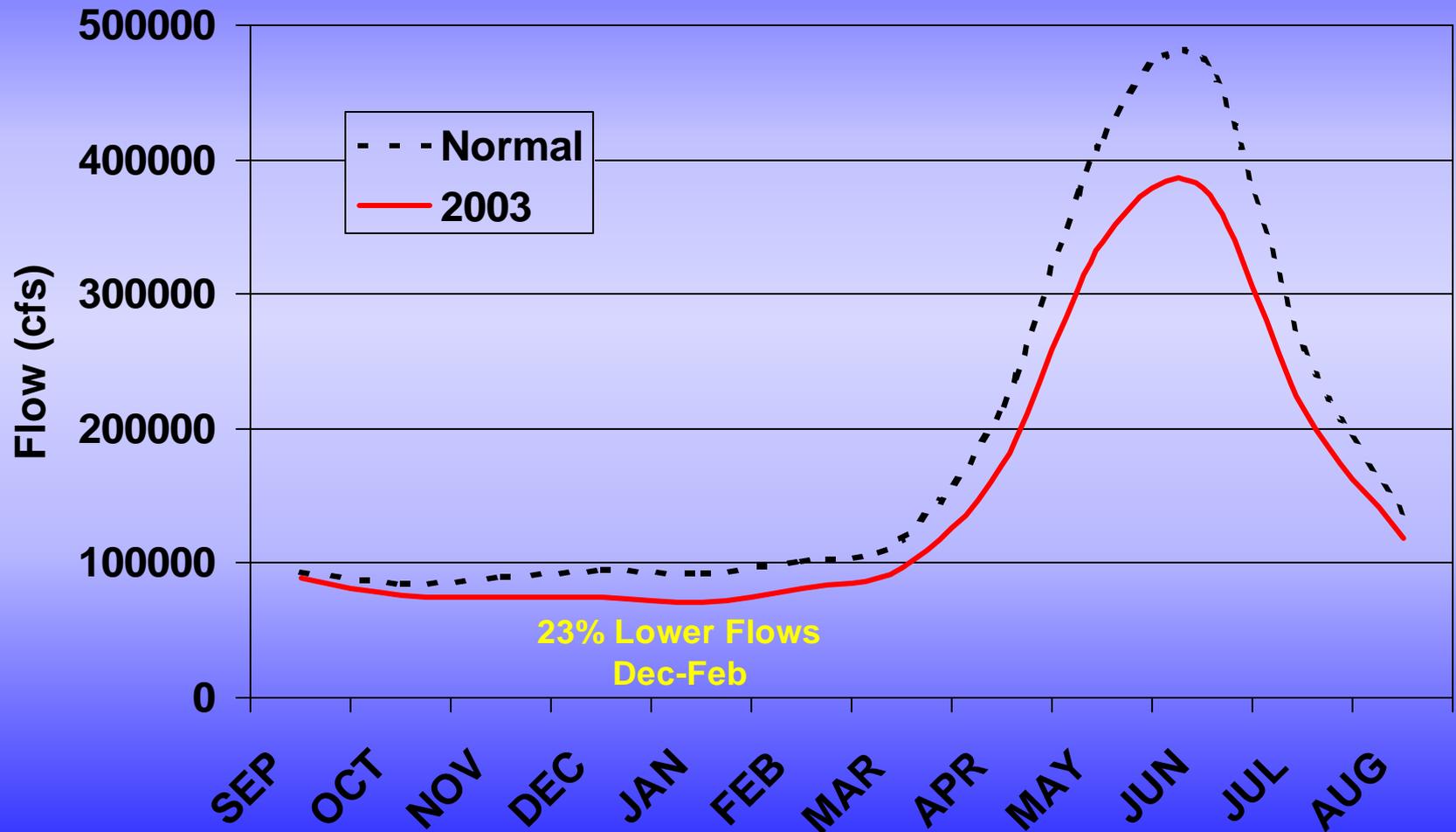


## 2003 Forecast Runoff Distribution



# Water Supply for 2003

(82% of Average ?)

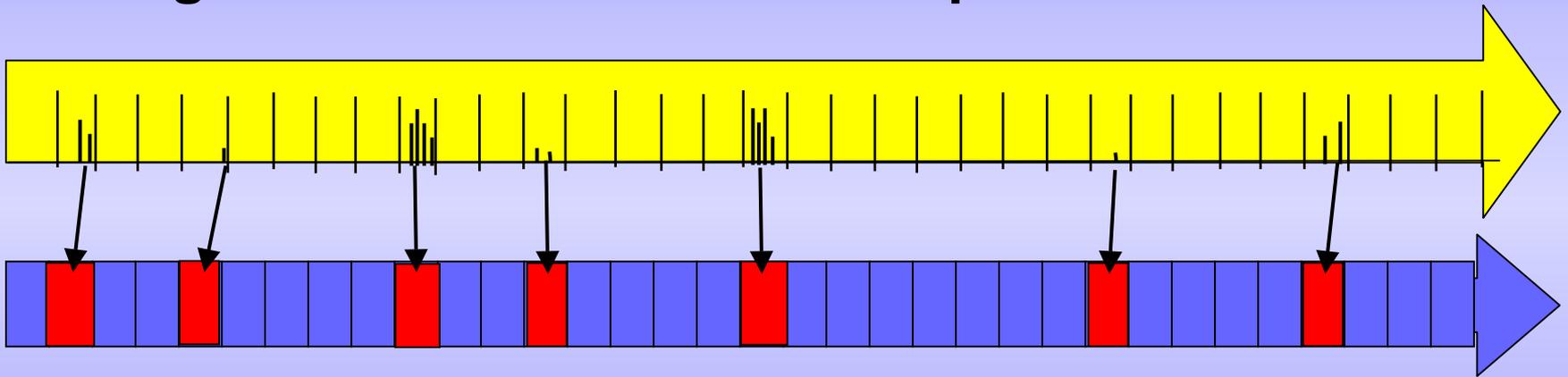


# GENESYS Program

- Simulates the operation of generating resources over many potential futures.
- Varies temperature, demand, water condition and resource performance.
- Models transactions with other regions and transmission limitations.
- Calculates reserve violations and failures to meet demand.

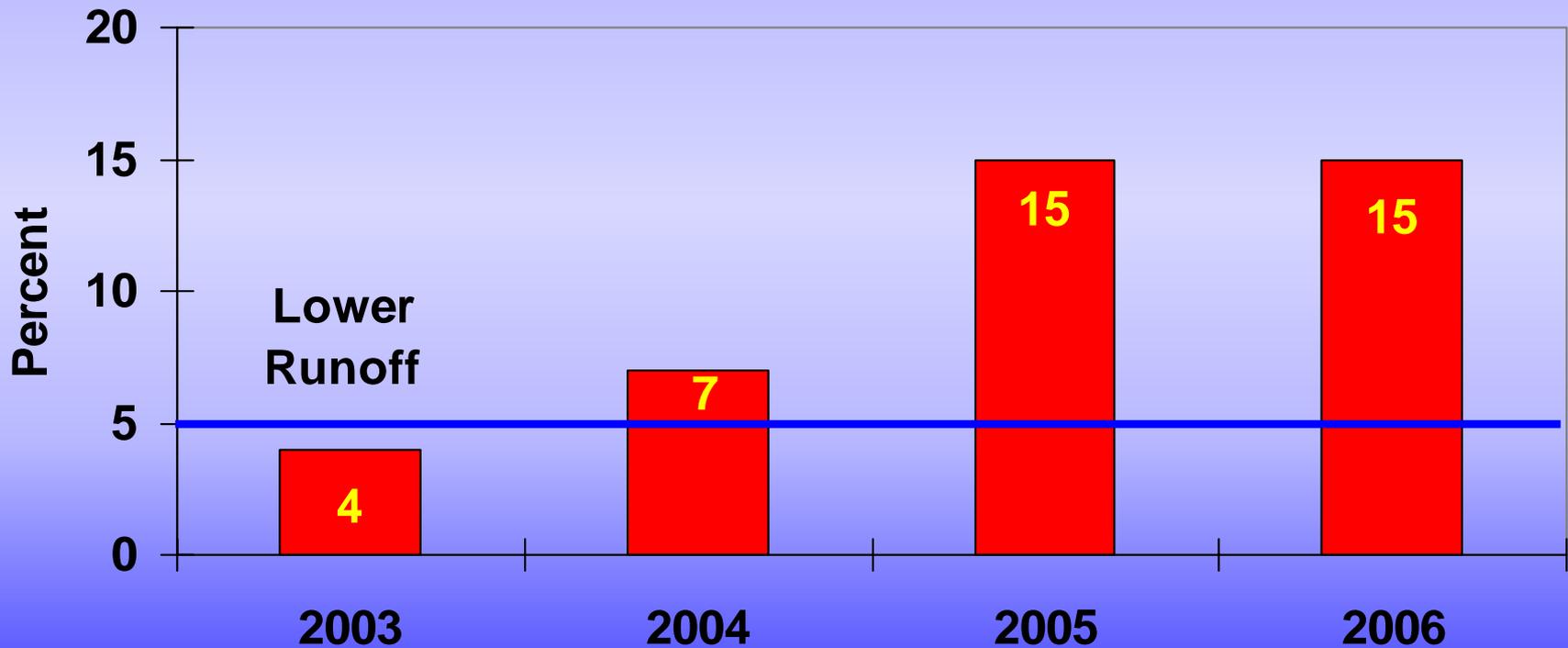
# Loss of Load Probability

Simulated winter (Dec-Mar) operations  
for each of the next four years (2003-06)  
using 300 random water and temperature conditions

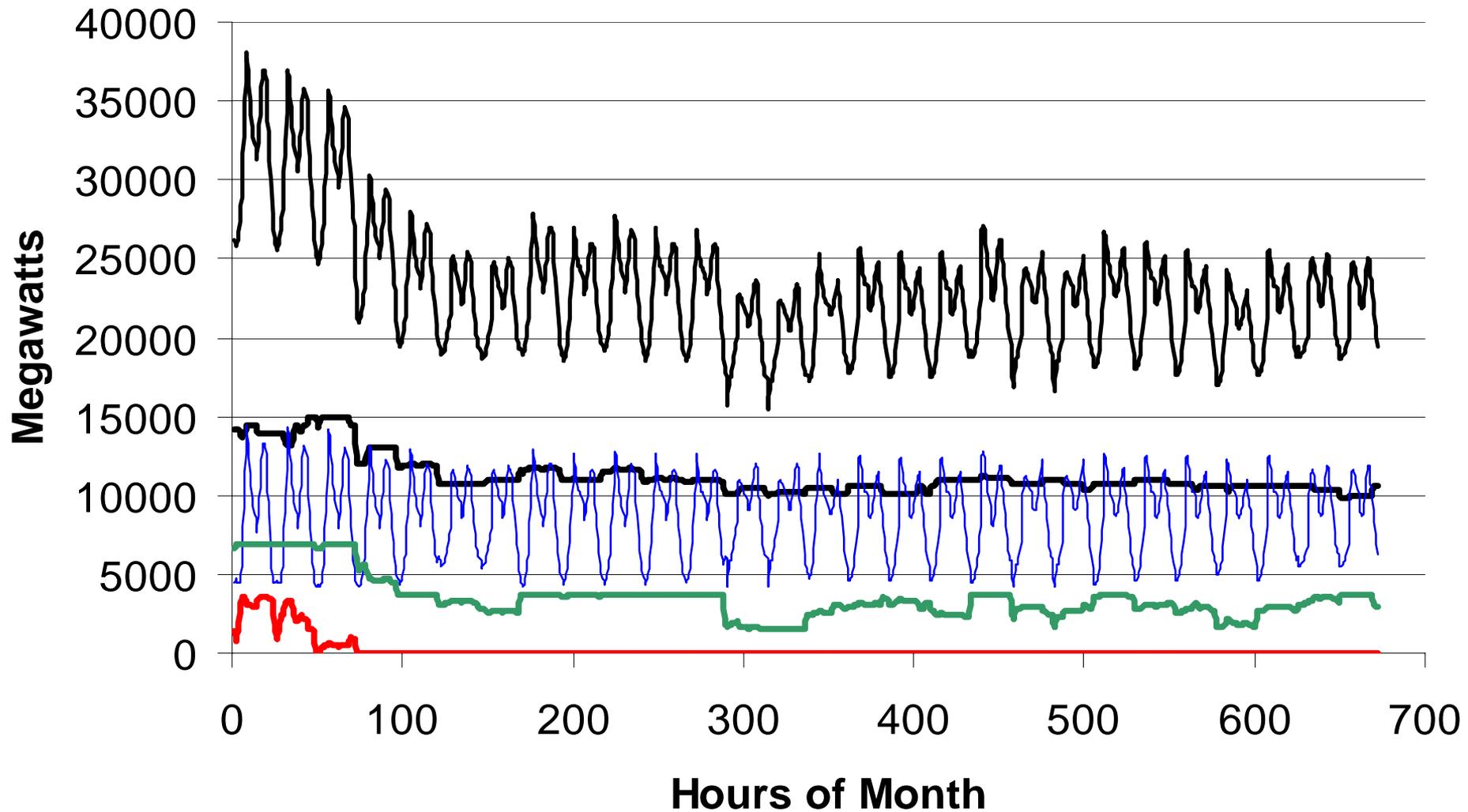


In 2003-04, for example, out of 300 simulations,  
27 had an average curtailment greater than 10 MW-seasons,  
thus the Loss of Load Probability (LOLP) =  $27/300 = 9$  percent

# Loss of Load Probability (Work in Progress)



# Impacts of Dry - Cold Weather February 2003



— Net Demand    — NW Thermal    — NW Hydro    — Unserved    — Net Imports

# Conclusions

- Acceptable risk for this winter
- There may be a 3 year gap in resource development (2004-2006)
  - During this period market incentives may not be sufficient to stimulate additional resource development
  - Will expose the NW to higher than desired risk of curtailment (and high electricity prices)
- Do we need to do anything? If so, what?



## COLUMBIA RIVER INTER-TRIBAL FISH COMMISSION

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

Telephone (503) 238-0667

Fax (503) 235-4228

www.critfc.org

TO: Technical Management Team (TMT)  
FROM: Kyle Martin, *Mainstem Hydrologist*, CRITFC Hydro Program  
DATE: December 18<sup>th</sup>, 2002

SUBJECT: **CRITFC's post-season review of 2002 FCRPS operations**

### General Comments

On March 14<sup>th</sup>, 2002, Columbia River Inter-Tribal Fish Commission (CRITFC) presented its *2002 River Operations Plan* to the federal operators<sup>1</sup> and NOAA Fisheries at TMT and requested formal review of the *Plan*. No written comments on the *Plan* were received from the federal agencies. A key purpose of the plan was CRITFC's intent to give the federal operators a Tribal perspective of how river operations could be carried out in 2002. As in 1999, 2000, and 2001, the majority of the CRITFC and tribal river operations requests, consistent with the *2002 Plan*, were not implemented.

The CRITFC *2002 River Operations Plan* addressed FCRPS operations and structural modifications for all basin anadromous fish stocks (including non-ESA listed stocks), including Pacific Lamprey. However, the TMT focused on implementation of the river operation components of the 2000 NOAA Fisheries (NMFS) FCRPS Biological Opinion. The subjective nature of the Government's interpretation of the Biological Opinion's Reasonable and Prudent Alternatives (RPAs) regarding river operations allows for substantial deviations in river operations, such as missing 2002 spring and summer target flows in a close to average runoff year. The anadromous fish resource suffers the consequences for these deviations from the RPAs. This approach to river operations and structural modifications continues to place unlisted stocks at risk and delays recovery of ESA-listed stocks.

Under several topics, river operations advocated by the *2002 River Operations Plan* and subsequent CRITFC system operations requests were not implemented in 2002. If these major principles of the Tribal plan had been implemented, stocks basin-wide would have benefited in increased survival and productivity. These topics include:

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1. The federal operators include the US Army Corps of Engineers (COE), Bonneville Power Administration, and the Bureau of Reclamation.

- Improved Flood Control Management.** In 2002, Corps' conservative flood control management forced the early excavation of reservoir storage that could have been used for spring salmon migrants (Figure 1). January-April system-wide drafts were 2 to 3 MaF greater than the Corps' flood control plan (see tables below) and 3 to 5 MaF greater than CRITFC's Altered Flood Control plan. This management style jeopardized the probability that summer flow goals would be met. The Tribal Plan would have excavated less water during winter using a GENESYS modeled altered flood control regime. Earlier refill in May and inflow passed in June would have created more of a natural peaking hydrograph and increasing the probability of meeting summer flow targets.

2002 FCRPS Flood Control Operations					
Upper Rule Curve	GCL	DWR	HGH	LIB	Net change
January Forecast (ft.)	1290.0	1536.0	3548.0	2389.8	
Observed Elev. (1-31)	1272.5	1532.5	3516.9	2392.8	
Difference (KaF)	-1354	-48	-669	93	-1,978
Upper Rule Curve	GCL	DWR	HGH	LIB	Net change
February Forecast (ft.)	1290.0	1513.7	3537.7	2375.6	
Observed Elev. (2-28)	1256.9	1514.0	3512.6	2376.1	
Difference (KaF)	-2445	3	-519	14	-2,947
Upper Rule Curve	GCL	DWR	HGH	LIB	Net change
March Forecast (ft.)	1279.8	1505.7	3531.6	2375.0	
Observed Elev. (3-31)	1261.8	1515.5	3509.2	2370.7	
Difference (KaF)	-1304	120	-455	-118	-1,757
Upper Rule Curve	GCL	DWR	HGH	LIB	Net change
April Forecast (ft.)	1244.9	1486.5	3516.2	2362.6	
Observed Elev. (4-30)	1245.7	1513.6	3515.2	2378.8	
Difference (KaF)	67	-48	-19	432	432
2002 CRITFC Altered Flood Control recommendations					
Upper Rule Curve	GCL	DWR	HGH	LIB	Net change
January CRITFC (ft.)	1290.0	1582.5	3544.1	2411.9	
Observed Elev. (1-31)	1272.5	1532.5	3516.9	2392.8	
Difference (KaF)	-1354	-748	-580	-641	-3,323
Upper Rule Curve	GCL	DWR	HGH	LIB	Net change
February CRITFC (ft.)	1290.0	1575.5	3537.3	2408.2	
Observed Elev. (2-28)	1256.9	1514.0	3512.6	2376.1	
Difference (KaF)	-2445	-866	-511	-992	-4,814
Upper Rule Curve	GCL	DWR	HGH	LIB	Net change
March CRITFC (ft.)	1287.6	1587.3	3531.5	2422.2	
Observed Elev. (3-31)	1261.8	1515.5	3509.2	2370.7	
Difference (KaF)	-1915	-1056	-453	-1663	-5,087
Upper Rule Curve	GCL	DWR	HGH	LIB	Net change
April CRITFC (ft.)	1272.5	1582.5	3523.9	2423.4	
Observed Elev. (4-30)	1245.7	1513.6	3515.2	2378.8	
Difference (KaF)	-1829	-996	-175	-1488	-4,488

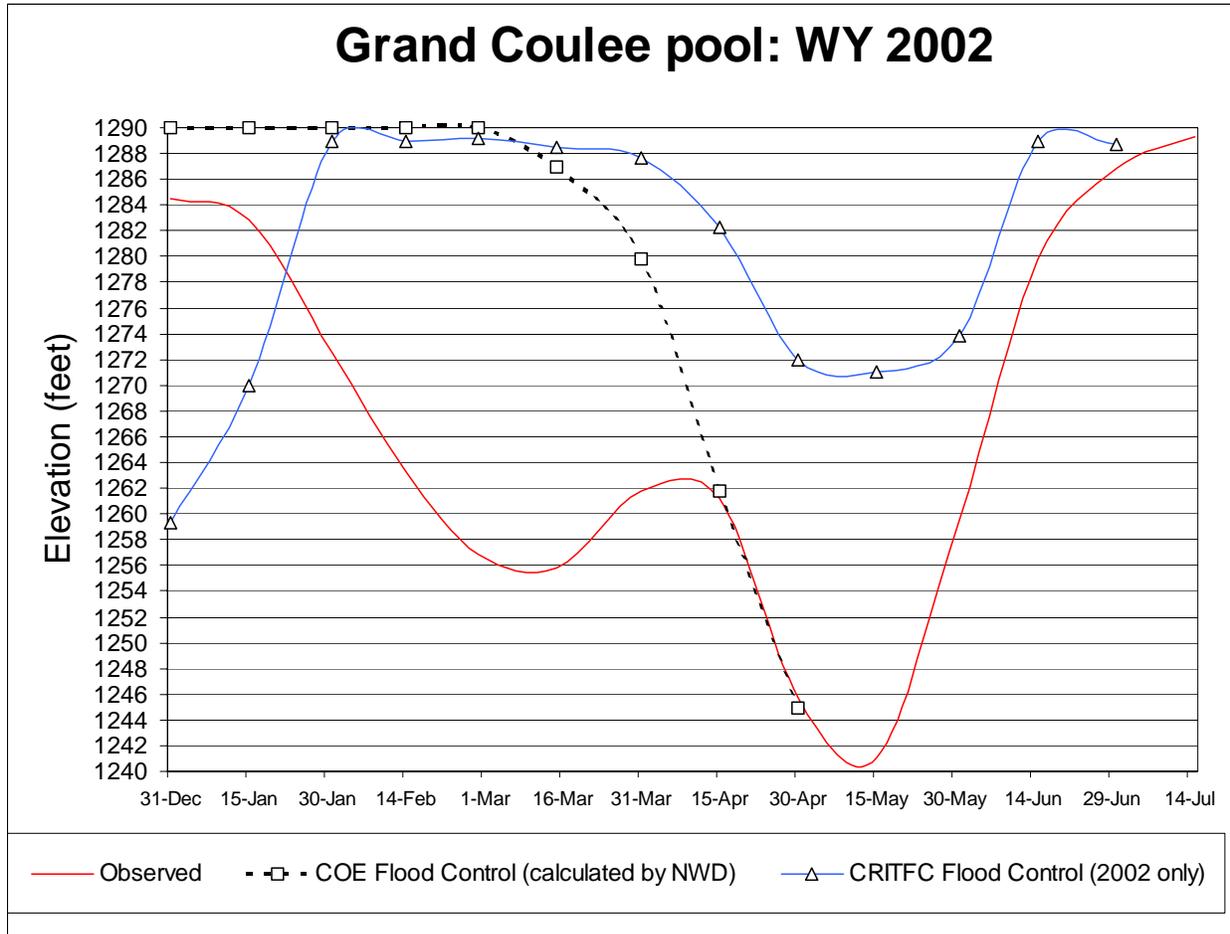


Figure 1. Effects of Corps flood control at Lake Roosevelt during Water Year 2002.

- Hanford Reach Spring Operations.** High flow fluctuations from Grand Coulee (Figure 2) hindered Grant County PUD's ability to operate Priest Rapids in a manner to provide smoother flows for juvenile rearing and migration. The Bureau of Reclamation chose to ignore recommended Hanford Reach operations in CRITFC's 2002 Plan. Lessons learned: Reduced flow fluctuations provide (1) more constant rearing conditions, and (2) reduction in stranding of juvenile salmon.

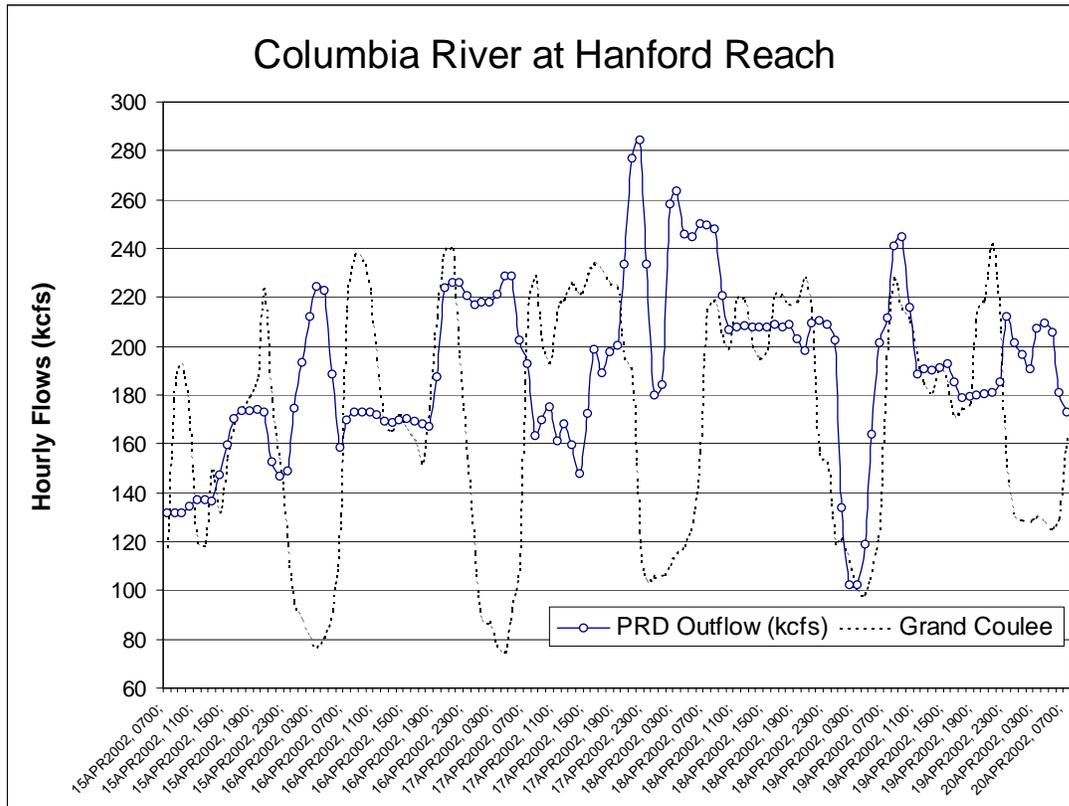


Figure 2. Hourly outflow data for Grand Coulee and Priest Rapids Dams.

- Dworshak summer operations.** In June 2002, the Nez Perce Tribe, State of Idaho, and CRITFC requested a balanced flow and temperature control management plan for Dworshak. The plan benefited both juveniles and adults by reserving 200 KcF of flow augmentation into September (Figure 3). Late spring and summer hydro-meteorological conditions plus a late spring flood control shift favored this operation. NOAA Fisheries and most Salmon Managers supported this proposed plan. Most of the NPT-ID plan was implemented including a test of 10 kcfs outflows from Dworshak during September 1-10.

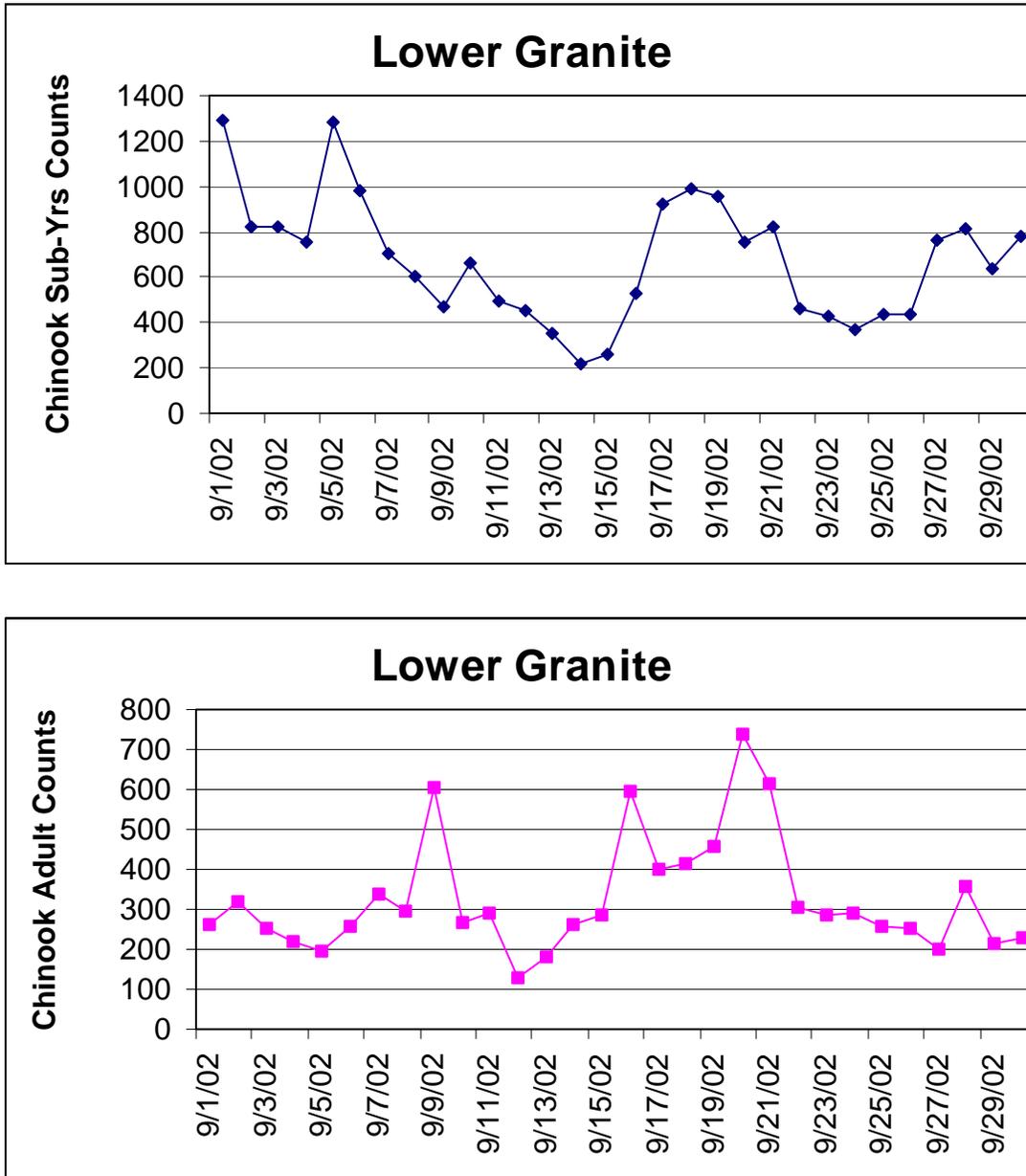


Figure 3. Effects of Nez Perce Tribe-State of Idaho Plan for fish during September 1-10, 2002.

- **Spill Summary.** The COE only provided 3 days of spill ranging from 47 to 100 kcfs for the March Spring Creek Release. The CRITFC operation requested 10 days starting at 75 kcfs spill at a minimum depending on Total Dissolved Gas levels measured downstream.
- The CRITFC plan had recommended summer spill for Lower Granite, Little Goose and McNary dams for the 2002 season. The COE did not provide summer spill and does not plan for an evaluation until 2004, at the earliest, depending on transmission line upgrades.
- The CRITFC plan recommended providing daytime spill at John Day, McNary, and the Lower Snake dams.
  - 1) Lower Granite had three study blocks for spill: BiOp night-time only spill to the gas cap and two 24 hour blocks of spill at either ~14 kcfs or 22 kcfs, depending on the amount a training spill that was used in conjunction with the RSW.
  - 2) Little Goose only had night-time spill to the Gas Cap.
  - 3) Lower Monumental had no spill other than forced spill due to concerns about potential increase in erosion in the stilling basin. CRITFC had requested spill be provided under a monitoring plan to provide spill without impacting and increasing the erosion in the stilling basin.
  - 4) Daytime spill was provided 24 hours a day at Ice Harbor with 40 kcfs during the day and ~100 kcfs at night.
  - 5) McNary only provide day spill during times of forced spill from flows over hydraulic capacity, and spill from lack of generation.
  - 6) John Day had one spill block of zero daytime spill with ~50 kcfs night-time spill versus, 30 kcfs, 24 hours a day.

An issue concerns specific project operations meeting the spill targets and maintaining the Total Dissolved Gas (TDG) Standard at the designated monitoring sites. Due to atmospheric conditions in conjunction with temperature effects, which would greatly influence the monitoring sites, spill levels were ramped up and down, depending on the TDG monitoring sites. The issue is that these changes in spill levels were made and then left for several hours and then they would have to be readjusted since they were either exceeding the standard or were significantly under the standard and thus not providing the amount spill volumes planned upon in the 2000 BiOp. Discussions in the in the Water Quality group have been raised to deal with this issue. CRITFC believes that this in-season management tool to ramp the spill levels up and down is impacting the passage goals. The total dissolved gas levels at Bonneville's tailwater location can have large fluctuations, which impact the spill operations of not only Bonneville but at The Dalles dam and to a lesser degree even John Day. These reductions can reduce the number of migrants using the spillway and force them to use other less beneficial routes of passage at these projects. Recent risk analyses indicate that TDG levels up to 125% are safe for salmon.

A protocol has been set up for ramping down spill when monitoring sites are above the TDG standard. However, a protocol has not been created for ramping up spill when monitoring sites are under the TDG standard and the spill level is lower than intended in the BiOp. This is an

important project operational guideline that needs to be reviewed by the region to insure the best possible operation for juvenile migrants. We strongly encourage that this protocol be completed, discussed, and approved by the region, before implementation of hourly spill ramping.

- **Tribal fall fishery.** During August and September, CRITFC requested that the federal operators to keep Bonneville, The Dalles, and John Day reservoirs within one-foot of full pool and stable during the treaty fishing season. The CRITFC requests also asked for specific elevations to assist boat ramp access (criterion #1) and stable pool elevations to minimize damage to fishing gear (criterion #2).

Criterion #1 asked to operate the pools within a one-foot specified elevation range. The Corps countered with a commitment for a 1.5-foot range, and then only in Bonneville pool, as they have done so since 1996 (according to the Corps' interpretation of the "Ted Strong agreement"). The Corps identifies the top operating limit at the Bonneville pool as 76.5 feet, and not 77 feet (full pool) as outlined in the CRITFC request. The Corps will not exceed that upper limit except for an emergency. Figure 4 shows the hourly compliance of CRITFC's elevation range criteria during the fall treaty fishery. The Bonneville pool complied 8% of the time. The Celilo pool complied 61% of the time. The John Day pool complied 64% of the time.

Figure 5 shows the hourly compliance of the elevation criteria if the 75.5 to 76.5 foot range at Bonneville is used. The Bonneville pool complied 96% of the time. This result suggests that a much higher compliance by the Corps may result if the 76.5-foot limit is used, which coincides with the Corps normal operating range. Figure 6 shows compliance using the Corps' 1.5-foot criteria, generally 60% to 100%.

If Criterion #2 asked to limit fluctuations to one foot or less, irrespective to any absolute elevation criteria, then the Bonneville pool (which stayed to near 0.5 foot) complied 100% of the time. The Celilo pool complied 80% of the time. The John Day pool complied 100% of the time. The Corps seems to be reducing the absolute pool fluctuations, even if they are not in full compliance with the elevation criteria.

- **Tribal Spring Fishery.** CRITFC submitted four SORs in April and May 2002. Relative to the CRITFC one-foot criteria, the Bonneville pool was in compliance 63% of the time. The John Day pool was in compliance 44% of the time. The Celilo pool was in compliance 41% of the time. Compliance was highest in last two weeks of the fishery. Refer to the TMT May 22<sup>nd</sup> meeting notes for more details:  
(<http://www.nwd-wc.usace.army.mil/tmt/agendas/2002/0522critfc.pdf>)

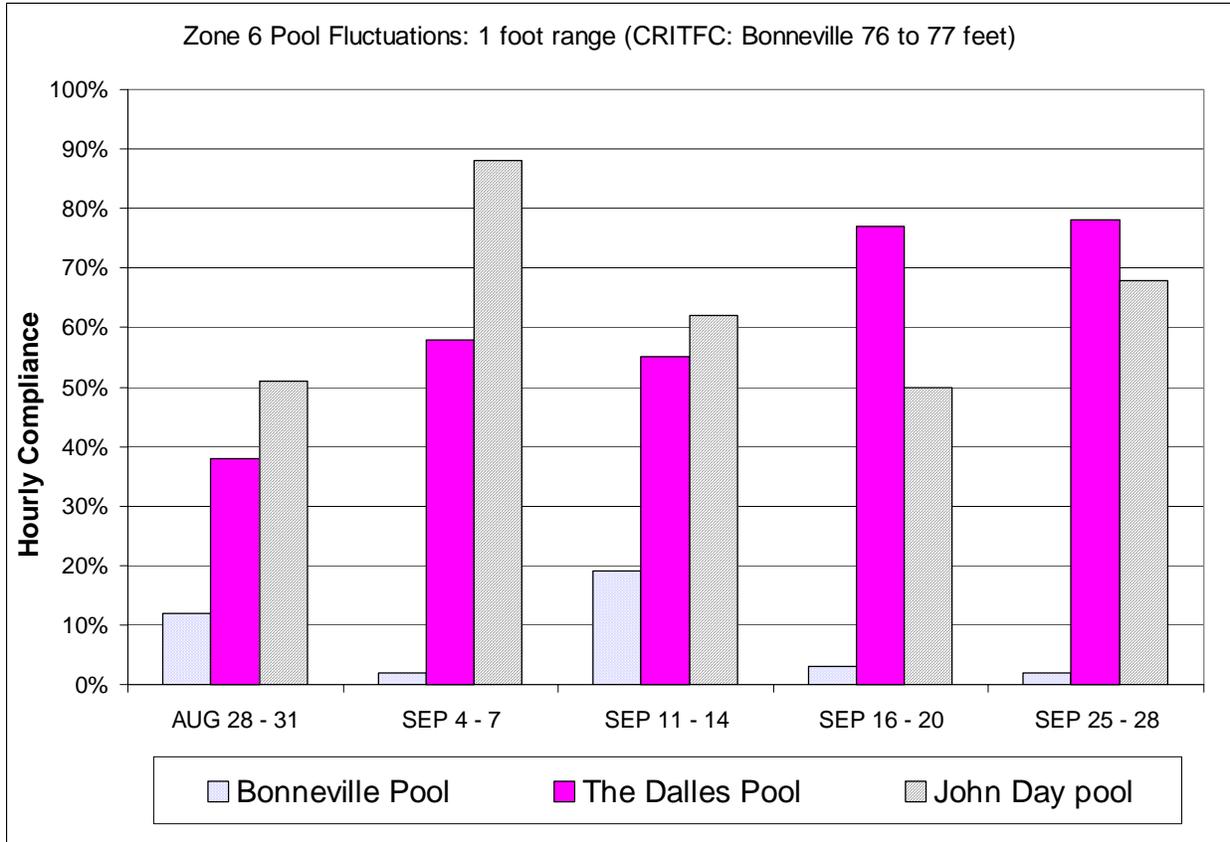


Figure 4. Compliance of Corps operation to fall treaty fishery, using CRITFC criteria (1-foot).

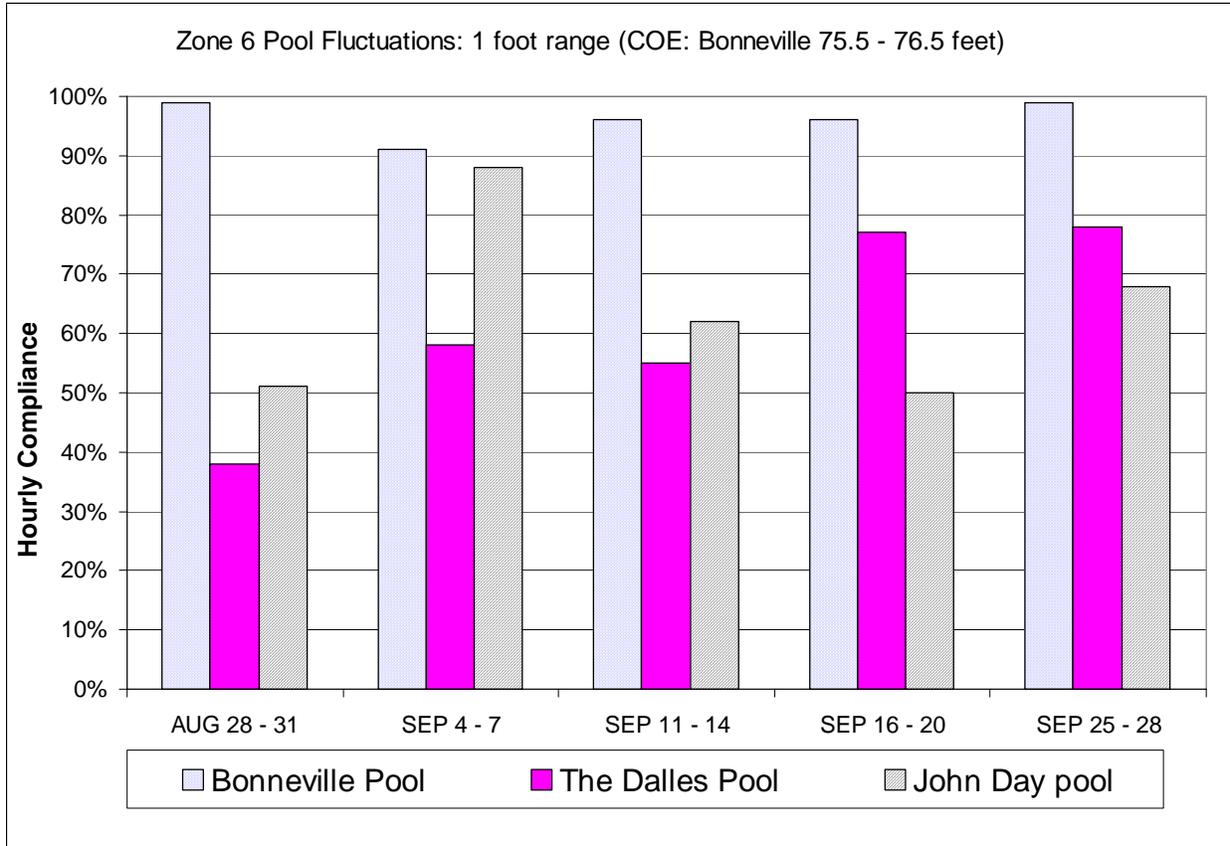


Figure 5. Compliance of Corps operation to fall treaty fishery, using CRITFC criteria, but using Corps definition of upper operating limit at Bonneville dam.

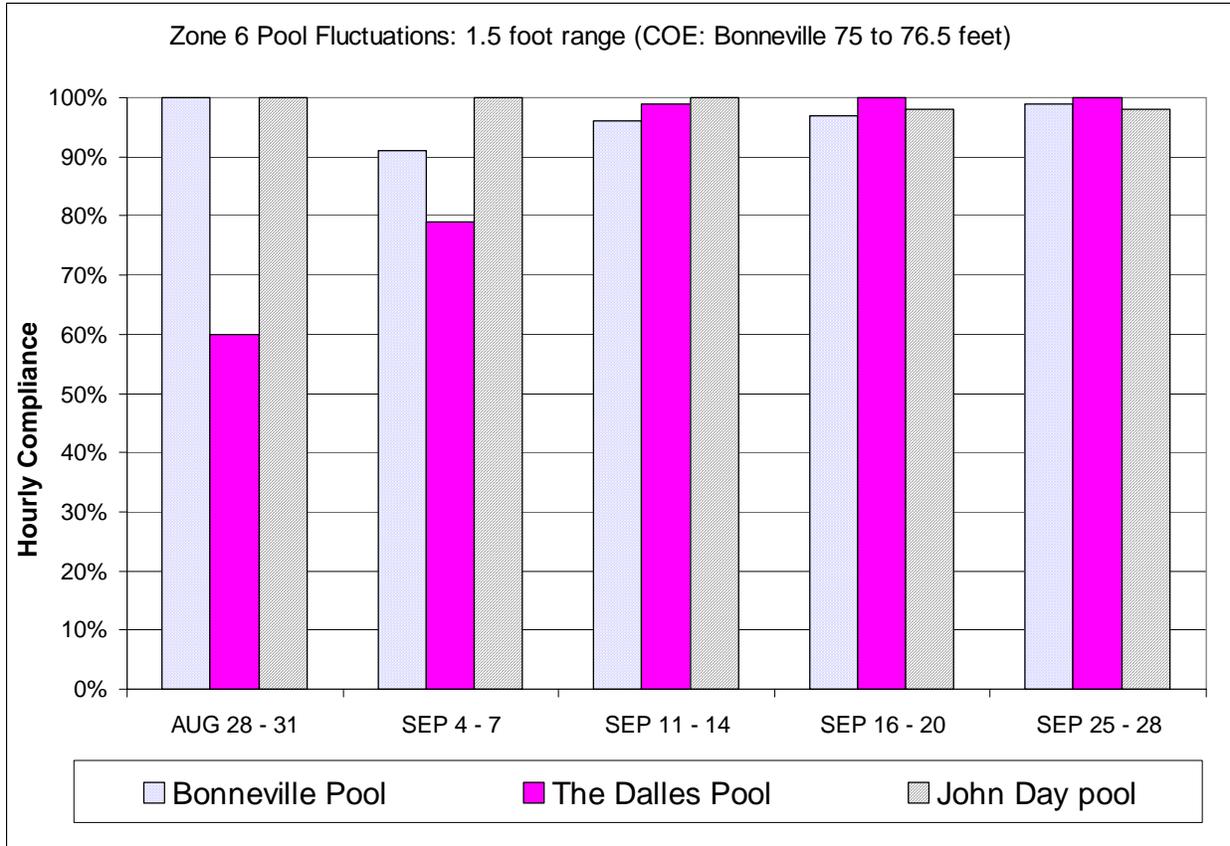


Figure 6. Compliance of Corps operation to fall treaty fishery, using Corps criteria.

## Summary and Recommendations

The TMT process is fundamentally flawed because there is no meaningful dispute resolution mechanism. Despite this major deficiency, the member tribes of CRITFC will continue to advocate for a process to adequately address differences and make technical recommendations for improved river operations to benefit all basin anadromous fish that must pass through the FCRPS. Specifically, we recommend that significant improvements be made for 2003 river operations as follows:

- CRITFC will produce its draft *2003 River Operations Plan* and release by January 2003. We will request formal review and comments by NOAA Fisheries, USFWS, and the federal operators. These actions are consistent with those required by the Secretarial Order and the President's April 29<sup>th</sup>, 1994 Memorandum for federal agencies interacting with Native American Tribal Governments.
- The Corps should consider using CRITFC's Altered Flood Control operation (modeled in GENESYS) to manage the FCRPS reservoirs, which results in more storage in upriver reservoirs while still providing reasonable flood control protection. The Corps should review flood control management to achieve flood control flexibility, which provides more storage to insure flows for spring and summer salmon migrations. The Corps should seek timely independent, scientific review of flood control management, as required in the 2000 NOAA Fisheries (NMFS) FCRPS Biological Opinion.
- The federal operators should incorporate monthly climate forecast information into long-term seasonal FCRPS operations. For example, CRITFC's new Water Supply Forecast Correction Curve procedure could help minimize the over-drafting of FCRPS reservoirs for flood control when the water supply forecast declines, as is expected in this lower than average runoff *El Nino* year. CRITFC projects 91 to 97 MaF for Water Year 2003 with 85% to 90% of normal precipitation basin-wide.
- The federal operators, NOAA Fisheries, and USFWS should consider implementation of the Nez Perce Tribe-State of Idaho Plan for summer 2003 Dworshak operations.
- The federal operators should meet the CRITFC requested pool operations criteria 100% of the time for the 2003 treaty fisheries. Meaningful policy discussions should be held with CRITFC and Corps managers to reach a common understanding of the operations necessary in order to meet Tribal needs during the fishing season.
- Mitigation from the federal operators should be implemented when river operations fail to meet FCRPS Biological Opinion requirements and other requirements for non-listed stocks. The appropriate mitigation should be developed collaboratively by the Tribes plus state and federal fisheries agencies.

## **COLUMBIA RIVER REGIONAL FORUM**

### **TECHNICAL MANAGEMENT TEAM MEETING NOTES**

**December 18, 2002**

**CORPS OF ENGINEERS NORTHWESTERN DIVISION OFFICES – CUSTOM HOUSE  
PORTLAND, OREGON**

**TMT Internet Homepage: <http://www.nwd-wc.usace.army.mil/TMT/index.html>**

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

Facilitator: Jacqueline Abel

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.

#### **NRCS/RFC Forecast Presentations**

Tom Perkins presented information about snow pack and precipitation forecasts, as well as information about soil moisture deficit measurements. A presentation by Harold Opitz also indicated that the deficit has been little affected by the recent precipitation, and there is a probability that it will be warm and dry through March. Graphs and data used in these presentations are available on the NWRFC website.

#### **Winter Reliability Analysis**

John Fazio of the NPPC gave TMT a power point presentation on the Council's “Power Supply Outlook Winter Seasons 2003-06”. Two key conclusions are that the council staff thinks there is little risk of a problem with power supply this winter, but the region is exposed to more risk than staff thinks is tolerable during the next three years. This paper is on the NPPC website and they are asking for comments on it. Questions can also be directed to John at 1-800-452-5161.

#### **Chum Flow Alternatives:**

Suzanne Cooper reminded TMT that BPA modeled two alternatives, using the 2000 BiOp as the driving force and chum as the priority operation. Information on this was presented at the December 4th meeting, and she sent out a follow-up email after that meeting. Subsequently, CRITFC asked that they present a third analysis done by BPA. This “Study 51” was part of a brainstorming process, but it didn't fit scoping requirements so was not included in ones considered by the Regional Forum. Roger Sheeley presented information on this third study and answered questions about it as well as the other alternatives modeled. It will be posted on the TMT website. Roger or Suzanne can also provide more details on the studies to anyone who wants them.

In response to questions, John Fazio indicated that “Study 51” does have some similarities to a proposal the Council is considering.

#### **Action:**

TMT members will study these different chum alternatives and their biological effects, and will include this item for discussion, and possible decision, at the January 8 TMT meeting.

**Action:**

A special work session on chum flow alternatives and models will be held from 1:30 to 3:30 on Jan. 6, 2003. John Fazio will host this session at the Northwest Power Planning Council offices in Portland.

**2003 Water Management Plan Fall/Winter Update:**

Final edits were made to the Fall/Winter update by the COE, based on TMT comments at the last meeting. The final version has been posted on the TMT website.

**TMT Guidelines:**

The IT Guidelines were approved at the November 7<sup>th</sup> IT meeting. TMT needs to review their guidelines to make sure they are consistent and it was agreed that it is timely to review TMT's internal processes in January.

**Action:**

After the January 22 TMT meeting, TMT members only will reconvene for this process discussion from 1 to 3 PM. No substantive issues will be discussed or decided at that meeting, only processes. Donna Silverberg is asked to set up an appropriate location for this meeting.

**CRITFC Review of 2002:**

Kyle Martin summarized the key points from the CRITFC's Post-Season Review of 2002 FCRPS operations, which was posted on the TMT website yesterday. A few of the key points were that CRITFC thinks the TMT process is flawed, and wants government to government process between tribes, states and federal agencies, yet they will continue to attend TMT because of good technical information being shared and to present their SORS. CRITFC will produce a 2002 River Operations Plan and asked for a formal review and written comments on it. Another issue discussed was the recurring request by CRITFC that federal operators comply with the requested pool operations criteria 100% of the time for Tribal fisheries. Rudd Turner indicated he does not understand the problem with the current operation, since there have not been any problems reported to the Corps and large numbers of fish have been caught.

Kyle requested that a separate one-on-one meeting happen between the COE and CRITFC about this issue take place this winter, with help from the facilitation team. Rudd agreed with this suggestion.

During questions about CRITFC's recommendation that NOAA and USFWS consider implementation of the Nez Perce Tribe-State of Idaho Plan for summer 2003 Dworshak operations, Steve Pettit indicated that the request would be the same this year as last. He asked that TMT hear a timely presentation by the University of Idaho about their data on adults, before that request happens.

**Action:**

Jacqueline Abel will talk with Donna Silverberg about the request for a meeting between CRITFC and the COE and next steps to be taken.

**Action:**

Rudd will contact Chris Perry at the University of Idaho about making a future presentation to TMT, and will report back to TMT about this at the Jan.8 meeting.

**Review Current System Conditions:**

*Fish:* USFWS and Washington reported on fish migration status. Some chum are still present and this is the last week for surveying them.

*End of chum operation.* Daytime operation will be 11.3 – 11.7 for chum, and BPA asked when this could be maintained around the clock. The Salmon Managers agreed to review the last survey information on Friday, and place a call by 3PM to discuss this with the Action Agencies.

*Libby Ramp Rates:* The COE reported that they are attempting to do the burbot operation, if weather conditions allow. This will be in the 4,000 to 10,600 cfs range, but may drop lower or may go higher.

**Action:**

On Friday, December 20, the Salmon Managers will review the final survey information on chum, and then call the Action Agencies by 3PM to discuss the chum operation.

**Lake Roosevelt Forum Spring Conference:**

Shane Scott checked with the forum organizers, and it appears that the organizers will get something out next week allowing people to attend for a lower rate, possibly \$38. TMT has been invited to attend the April 21-23 conference in Spokane, and has been requested to hold its regular meeting on April 23 for conference attendees to observe. TMT members agreed that they would like to do so on April 23, and would start the meeting at 10AM to allow time for travel.

**Next TMT Meeting, January 8, will be a teleconference:**

*Agenda Items:*

- Chum Alternative Flows Discussion

**January 6 work session** on chum alternatives from 1:30-3:30 at NPPC office

**January 22 TMT Meeting will be in person.**

**January 22 from 1–3 PM**

TMT members only will meet to discuss process issues and their guidelines consistency with the new IT guidelines. Location is to be announced.

## **Meeting Minutes**

### ***1. Greeting and Introductions***

The December 18 Technical Management Team meeting was chaired by Rudd Turner of the Corps and facilitated by Jacqueline Abel. The following is a distillation, not a verbatim

transcript, of items discussed at the meeting and actions taken. Anyone with questions or comments about these minutes should call Turner at 503/808-3935.

## ***2. NRCS/RFC Forecast Presentations.***

Tom Perkins of Natural Resources Conservation Service began today's meeting with a report on Columbia Basin snowpack, as of December 17. He noted that the current snowpacks range between 17% and 95% of average, with most basins in the 40%-70% range. The bottom line is that current snowpack levels aren't great anywhere, he said, despite our recent precipitation events. The Oregon basins are particularly dry, said Perkins, and Washington isn't a whole lot better.

One bright spot, said Perkins, is the snowpack increase since December 9 – between 3% and 45%, depending on the basin you're looking at. Next, Perkins touched on snow water equivalent measurements throughout the Columbia Basin; again, he said, these are below-average throughout the basin. Perkins also provided information on year-to-date mountain precipitation; again, he said, it is below-average throughout the basin. One bright spot is the fact that percent-of-average mountain precipitation since December 1 has ranged between 34% and 173% of average. Mountain precipitation has climbed from 37% to 55% of average, overall, since December 1, Perkins said.

Over the next five days, he continued, precipitation is expected to slow down somewhat. The January-March precipitation outlook is somewhat below-normal, according to the latest forecast, he added. Perkins also provided information on soil moisture deficits at various sites in the basin, noting that, in his opinion, many areas have very dry soil due to the lack of precipitation in September and October; for that reason, runoff is likely to be less efficient than normal in 2003.

Finally, Perkins touched on the NRCS' current seasonal water supply analysis, showing the January-July water supply outlook in various basins in Oregon, Washington, Idaho, Montana and British Columbia. The bottom line is that the current forecast shows values ranging between 40% and 90% of average, with most basins in the 70%-80% range. He added that the models tend to creep closer to average as the season progresses, but at this point, the 2003 Columbia Basin water supply outlook is far from rosy.

Next up was Harold Opitz of the River Forecast Center, who began with an overhead labeled "Monthly Precipitation – November 2002." In general, precipitation throughout the Columbia Basin was less than 50% of average in November, Opitz said; things aren't looking real good. With respect to seasonal accumulated precipitation, the story is the same, Opitz said.

Opitz then moved on to "NWRFC December Water Supply – January-July, 2003." This is our mid-month forecast, he said, what it shows is 51.6 MAF at Grand Coulee, 82% of normal; at Lower Granite, 21.9 MAF, 73% of normal, at The Dalles, 82.6 MAF, 77% of normal, assuming normal subsequent precipitation. Bear in mind that, as Tom said, there is also considerable groundwater recharge that will need to occur this year, so even if we edge up closer to normal water supply, actual runoff will be less than forecast this year, Opitz said. Have you

calculated how much lower runoff might be? John Fazio asked. No, but I plan to do such an analysis toward the end of this month, Opitz said.

Opitz put up a graph showing the most recent 2003 forecast information for The Dalles. Next, he put up a graph showing what might happen if subsequent precipitation is only 75% of normal: 40.2 MAF (64% of average) at Grand Coulee, 13.9 MAF (46% of average) at Lower Granite and 59.7 MAF (56% of average) at The Dalles. I'm planning to do another run showing below-average precipitation through March, with normal precipitation after that, which would be more in-line with what the climatologists are currently forecasting for the 2003 weather pattern, Opitz said.

Opitz touched on the relationship between January-July runoff volumes at The Dalles and the Southern Oscillation Index (SOI); there is considerable variability in this data, he said, and while we don't use it in our forecasting, we do take a look at this information. With respect to the temperature outlook, he added, the current forecast is for slightly warmer than average temperatures throughout the basin.

### ***3. Winter Reliability Analysis.***

Fazio led this presentation, titled "Power Supply Outlook -- Winter Seasons 2003-2006"; working from a series of overheads, he touched on the following major topic areas:

- The functional relationship between energy supply and demand
- Regional demand vs. forecast, July 2001-December 2003 (graph)
- DSI loads (current draft forecast)
- Miscellaneous assumptions: DSI load is currently at about 22% of its fully operational level and is forecast to reach about 57% of that value by 2005; non-DSI loads increase modestly and return to forecast levels by 2004; conservation is a small contributor, growing from 100 aMW in 2004 to 180 aMW in 2006; demand reduction programs were not modeled in this analysis
- Resource assumptions – suspended construction, retirements, new resources projected to be completed
- Generating project development activity in the Northwest, by category (graph)
- Capacity additions for the Northwest (graph)
- Forecast runoff distribution for 2003 (graph)
- Water supply for 2003 (82% of average?)
- The GENESYS program – attributes and outputs
- Loss-of-load probability, simulated winter operations for each of the next four years using 300 random water and temperature conditions (in 2003, 27 of the 300 simulations showed an average curtailment of greater than 10 MW-seasons, or 9%). Fazio noted that 5% is the industry standard for tolerable loss-of-load probability.
- Impacts of dry-cold weather, February 2003 (graph)

Finally, Fazio offered the following conclusions:

- The curtailment risk for this winter (4%) is acceptable, as long as the water supply is at least 82% of average. If the water supply is lower, however, the 2003 loss-of-load probability will increase. In 2004, the risk (assuming normal water supply) rises to 7%; in 2005-6, the risk rises further, to the 15% range. Fazio emphasized, however, that this analysis is a work in progress; depending on what happens with the DSIs and demand-side programs, for example, these loss-of-load probabilities could come down.
- There may be a three-year gap in resource development (2004-2006) – during this period, market incentives may not be sufficient to stimulate additional resource development; will expose the Northwest to higher-than-desired risk of curtailment (and high electricity prices)
- Do we need to do anything? If so, what?

In response to question from Abel, Fazio said his presentation is available via the NWPPC website, or by calling him directly at 800/452-5161.

### ***3. Chum Flow Alternatives Discussion.***

Bonneville's Suzanne Cooper explained that there are two things going on with this agenda item. At the last meeting, she said, we presented the results of Bonneville's hydroregulation modeling of various chum flow alternatives, and asked that people come to today's meeting prepared to discuss the biological implications of those potential

operations. Subsequently, CRITFC asked that we present another analysis we had done with the Corps, Reclamation, NMFS and USFWS, looking at alternative operations that could sustain or enhance our progress toward meeting BiOp objectives, potentially at a lower cost, she said. We agreed to coordinate any alternatives that met our criteria through the Regional Forum process, Cooper said. This particular alternative, which Roger Schiewe is going to describe today, did not meet our criteria under that process, she said.

Schiewe distributed a handout titled “50-Year Continuous Study Results,” which summarized the outcome of Bonneville’s modeling of the various chum flow alternatives under consideration. The main alternative I’m going to be talking about today is 51, which eliminates the requirement to operate the storage projects (Libby, Hungry Horse, Grand Coulee) to meet their April 10 upper rule curve elevations, and instead operates them to a 95% confidence of refill by June 30, Schiewe explained.

What I’ve provided are summary results in terms of flows for the Biological Opinion alternative (27C), Alternative 51, and Alternative 52, the chum priority study, Schiewe explained. The last two pages of the handout show flow differences in the different modeling periods at Lower Granite, Priest Rapids, McNary and Bonneville under these three operational alternatives, he said. The bottom line is that a positive number means that the alternative produced a lower flow than the BiOp base case; a negative number means that flows would be greater under Alternative 51. At Bonneville, flows would be significantly higher under Alternative 51 than they would be under the BiOp case under low, average and high water years. Bonneville flows would also generally be higher under the chum priority operation than they would be under the BiOp operation.

Schiewe asked anyone interested in the details underlying these hydroreg summaries to call him directly at 503/230-5000. Scott Bettin added that the contents of Schiewe’s handout will be posted to the TMT homepage. In response to a question from Abel, Cooper said her sense is that today probably isn’t the appropriate meeting at which to discuss the biological implications of this information. Abel said she will place this discussion on the January 8 TMT agenda. It was further agreed that a workshop, at which more detailed discussion of the various chum flow alternatives could occur, would be a useful event; it was agreed that this workshop will take place on the afternoon of Monday, January 6 at the power Planning Council offices in Portland.

#### ***4. Final WMP Fall/Winter Update.***

Turner said the final draft of the fall/winter update is being distributed at today’s meeting; it has changed slightly since the last version the TMT saw, based on TMT comments, and is now available, he said.

#### ***5. TMT Guideline Revisions.***

At the last meeting, Donna Silverberg distributed these guidelines, Abel said; at that meeting, it was agreed that the TMT membership would review the TMT guidelines to ensure that the two documents are consistent. It was suggested that this topic be addressed at a process-oriented meeting some time in January, Abel said. We might be able to do it in the afternoon, following one of our regular meetings, suggested David Wills. It was agreed that the afternoon following the TMT's January 22 meeting might be an appropriate time for this discussion.

## **6. CRITFC 2002 Review.**

Kyle Martin led this presentation, working from a handout distributed at today's meeting. He began by noting that on March 14, CRITFC submitted its 2002 River Operations Plan to the federal operators and NOAA Fisheries; despite the fact that CRITFC requested formal comments on that plan, no written comments were received from any of the federal agencies.

With respect to 2002 operations, Martin said CRITFC has the following major concerns:

- **Improved flood control operations.** Martin noted that, in 2002, the Corps' conservative flood control management forced the early evacuation of reservoir storage that could have used for spring salmon migrants. January-April systemwide drafts were 2 MAF to 3 MAF greater than the Corps' flood control plan and 3 MAF to 5 MAF greater than CRITFC's altered flood control plan. This management style jeopardized the probability that summer flow goals would be met. The tribal plan would have evacuated less water during winter using a GENESYS modeled altered flood control regime. Earlier refill in May and inflow passed in June would have created more of a natural peaking hydrograph and increasing probability of meeting summer flow targets.
- **Hanford Reach spring operations.** High flow fluctuations from Grand Coulee hindered Grant County PUD's ability to operate Priest Rapids in a manner to provide smoother flows for juvenile rearing and migration. The Bureau of Reclamation chose to ignore recommended Hanford Reach operations in CRITFC's 2002 Plan. Lessons learned: reduced flow fluctuations provide 1) more consistent rearing conditions and 2) reduced stranding of juvenile salmon.
- **Dworshak summer operations.** In June 2002, the Nez Perce Tribe, State of Idaho and CRITFC requested a balanced flow and temperature control management plan for Dworshak. The plan benefited both juveniles and adults by reserving 200 kaf of flow augmentation into September. Late spring and summer hydro-meteorological conditions plus a late spring flood control shift favored this operation. NOAA fisheries and most of the salmon managers supported this proposed plan. Most of the NPT-ID plan was implemented including a test of 10 Kcfs outflows from Dworshak during September 1-10.
- **Spill summary.** Please refer to Martin's handout (available via the TMT homepage) for of CRITFC's detailed criticism of the 2002 spring and summer spill programs at the FCRPS projects.

- **Tribal spring fishery.** CRITFC submitted four SORs in April and May 2002. Relative to the CRITFC one-foot criteria, the Bonneville Pool was in compliance 63% of the time. The John Day pool was in compliance 44% of the time. The Celilo Pool was in compliance 41% of the time. Compliance was highest in the last two weeks of the fishery. Refer to the TMT's May 22 meeting notes for more details.
- **Tribal fall fishery.** During August and September, CRITFC requested that the federal operators keep Bonneville, The Dalles and John Day reservoirs within one foot of full pool and stable during the treaty fishing season. The CRITFC requests also asked for specific elevations to assist boat ramp access and stable pool elevations to minimize damage to fishing gear. The Corps countered with a commitment to a 1.5-foot operating range, with a maximum elevation at Bonneville of 76.5 feet, half a foot lower than CRITFC's requested maximum elevation. With respect to the actual operation implemented, Bonneville pool was in compliance with the CRITFC request 8% of the time, with the Corps' 1.5-foot operating range 96% of the time. The Celilo pool was in compliance with CRITFC's requested operation 61% of the time; John Day pool, 64% of the time.

Martin then provided the following summary and recommendations:

The TMT process is fundamentally flawed because there is no meaningful dispute resolution mechanism. Despite this major deficiency, the member tribes of CRITFC will continue to advocate for a process to adequately address differences and make technical recommendations for improved river operations to benefit all basin anadromous fish that must pass through the FCRPS. Specifically, we recommend that significant improvements be made for 2003 river operations as follows:

- CRITFC will produce its draft 2003 River Operations Plan and release by January 2003. We will request formal review and comments by NOAA Fisheries, USFWS, and the federal operators. These actions are consistent with those required by the Secretarial Order and the President's April 29, 1994 Memorandum for federal agencies interacting with Native American Tribal Governments.
- The Corps should consider using CRITFC's altered flood control operation (modeled in GENESYS) to manage the FCRPS reservoirs, which results in more storage in upriver reservoirs while still providing reasonable flood control protection. The Corps should review flood control management to achieve flood control flexibility which provides more storage to ensure flows for spring and summer salmon migrations. The Corps should seek timely independent, scientific review of flood control management, as required in the 2000 FCRPS BiOp.
- The federal operators should incorporate monthly climate forecast information into long-term seasonal FCRPS operations. For example, CRITFC's new water supply forecast correction curve procedure could help minimize over-drafting of FCRPS reservoirs for flood control when the water supply forecast declines, as is expected in this lower-than-average runoff El Nino year. CRITFC projects 91 MAF-97 MAF for Water Year 2003 with 85% to 90% of normal precipitation

basinwide.

- The federal operators, NOAA Fisheries and USFWS should consider implementation of the Nez Perce Tribe-State of Idaho Plan for summer 2003 Dworshak operations.
- The federal operators should meet with CRITFC requested pool operations criteria 100% of the time for the 2003 treaty fisheries. Meaningful policy discussions should be held with CRITFC and the Corps managers to reach a common understanding of the operational necessity in order to meet Tribal needs during the fishing season.
- Mitigation from the federal operators should be implemented when river operations fail to meet FCRPS BiOp requirements and other requirements for non-listed stocks. The appropriate mitigation should be developed collaboratively by the tribes plus state and federal fisheries agencies.

Various TMT participants offered clarifying questions and comments to CRITFC's list of concerns and suggested improvements. In response to a request from Martin, it was agreed that a separate meeting between CRITFC, NMFS, the Fish and Wildlife Service and the federal operators to discuss these items -- in particular, operations during the treaty fishery -- would be useful. Abel said she will ask Donna Silverberg to coordinate such a meeting. Steve Pettit further suggested that a presentation from Chris Perry of the University of Idaho on adult migration during August/September Dworshak operations, which is relevant to the Nez Perce/Idaho plan for Dworshak operations, should be scheduled for the next TMT meeting; it was so agreed.

Martin asked that any additional comments or concerns regarding the tribes' year-end review be communicated directly to him at 503/731-1314.

### ***7. Current System Conditions.***

David Wills reported that Lower Columbia River flows have increased because of the recent rains; chum counts have now passed their peak, but fish are still entering the system. Peak 2002 chum counts at Hamilton Springs were about triple the peak counts in 2001, he said. In Hardy Creek, peak count numbers were significantly lower than we saw in 2001, Wills said; this is primarily because the flow situation in November limited the ability of spawners to enter that system. Is chum spawning over? Turner asked. There is still some spawning occurring, Shane Scott replied; this is the last week of chum spawning surveys, however. In response to another question from Bettin, Scott said the state fishery managers, the Fish and Wildlife Service and NOAA fisheries will talk after Friday's final spawning survey to designate the official end of the chum spawning season, and will communicate their decision to the action agencies by late Friday afternoon. Bettin said the operating agencies would appreciate that, because it will allow additional operational flexibility. In the interim, it was agreed that the operating agencies will maintain the current 11.3-11.7-foot Bonneville tailwater elevation.

Scott also presented information on preliminary 2002 fall chinook and coho returns in the Lower Columbia, together with an outlook for 2003. He noted that this

information is available via the TMT homepage; in general, he said, it looks as though chinook returns will be lower in 2003 than they were in 2002, while coho returns are projected to be higher next year.

Moving on, Turner said Bonneville has been targeting 11.5 feet in the tailwater during the day, within a range of 11.3 – 11.7 feet; average project discharge was 121 Kcfs yesterday. Water temperature in the lower river is 46 degrees. The average flow at Lower Granite was 19 Kcfs yesterday. Dworshak elevation was 1516.8 feet as of midnight last night; the project is releasing minimum discharge, and has filled slightly since December 1. The end-of-December elevation target at that project is 1558 feet, Turner said. Libby elevation was 2419.5 as of midnight last night; the project is releasing 26 Kcfs, and is drafting about a foot per day. The December 31 elevation target at that project is 2411 feet. The Corps will ramp down Libby outflow this weekend to begin the burbot operation, Turner said; we plan to hold 7.3 Kcfs beginning Monday, December 23. The current Albeni Falls elevation is 2055.4 feet, Turner said; the project is releasing 19 Kcfs.

Turner reported that the SOI-based December forecast at Libby is 75% of normal, down from 82% in the November forecast; at Dworshak, the seasonal water supply forecast is now 2.2 MAF, according to the December forecast, also below normal. Wills said that data showing how the new models are working would be helpful; Turner replied that the Corps will provide this information when comparisons with existing models and actual volumes are available. Tony Norris reported that the current elevation at Grand Coulee is 1285.1 feet; at Hungry Horse, 3522 feet.

#### ***8. New System Operational Requests.***

No new SORs were submitted prior to today's meeting.

#### ***9. Recommended Operations.***

Between now and our next meeting, we will continue to target 11.3-11.7 feet at the Bonneville tailwater during the day, said Bettin; once we receive the call from the salmon managers regarding the end of chum spawning, we will switch to an operation targeting 11.3-11.7 feet around the clock. We will also be continuing to implement the burbot/power operation, Bettin said, and will do so unless a cold snap or flood control operation necessitates increased discharge from Libby. We will shoot for 7.3 Kcfs out of Libby, or less if inflows and weather conditions allow.

#### ***10. Next TMT Meeting Date.***

The next meeting of the Technical Management Team was set for Wednesday, January 8. Scott also reported that he had contacted the Lake Roosevelt Forum regarding the payment requirement at their April conference; Andy Dunau said the Forum is developing two options, one under which participants would pay \$38 for food and refreshments, another under which participants would be on their own for food. It was

agreed that the TMT will hold its April 23 meeting in conjunction with this conference in Spokane.

Meeting summary prepared by Jeff Kuechle, BPA contractor.