

TECHNICAL MANAGEMENT TEAM

BOR: Tony Norris / John Roache

BPA: John Wellschlager / Nic Lane

NOAA-F: Paul Wagner

USFWS: David Wills / Steve Haeseker

OR: Ron Boyce

WA: Cindy LeFleur

ID: Russ Kiefer

MT: Jim Litchfield

COE: Cindy Henriksen / Cathy Hlebechuk

TMT MEETING

Wednesday July 6, 2005 0900 - 1200 hours
1125 N.W. Couch Street, Suite 4A34
Portland, Oregon 97208
Conference call line: 503-808-5190

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

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

AGENDA

1. Libby / Hungry Horse summer operations - data sharing.
 - [\[Updated Libby & Hungry Horse Operations for July through September - SOR 2005-MT-1 Final v2 - July 06, 2005\]](#) 
 - [Simpas comparison of the BIOP operation vs. Montana's proposal for late season reservoir drafting.](#) 
 - [Cathy Hlebechuk - Simpass data file](#) 
2. Dworshak Water Temperature.
 - [Clearwater River at Peck \(1979, 1994, 1995, 1998 weather\) - Snake at Lower Granite Dam \(1979, 1994, 1995, 1998 weather\)](#) 
 - [Dworshak Operations - SOR 2005-17 - July 05, 2005](#) 
3. Treaty Fishing [\[SOR 2005-C1 - June 30, 2005\]](#) 
4. Feedback on [Emergency Protocols](#) 
5. McNary "Spill Action Shots" July 01, 2005
 - [MVC-001S](#)
 - [MVC-002V](#)
 - [MVC-003V](#)
 - [MVC-004V](#)
 - [MVC-005V](#)
 - [MVC-006V](#)
6. Water Quality
 - [\[Snake Summer Spill Ops 2005\]](#) 
 - [\[Spill Information 2005\]](#)
7. Other

- Set agenda for next meeting - [\[Reference Calendar\]](#) 

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

Hlebechuk
30-Jun-05

NUMBERS FOR USE IN SIMPASS

Average monthly outflows in kcfs

Project	July	Aug	Sep	Oct	Nov	Dec
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Scenerio 1

Libby drafts to 2439' August 31

LWG	35	28	22	17	17	19
MCN	163	145	112	102	118	132

Scenerio 2

Libby drafts to 2439' September 30

LWG	35	28	22	17	17	19
MCN	158	139	117	102	118	132

NOTE:

The July - Sep monthly averages were based on the 6/28 STP inflows. We assumed Kootenay Lake maintained about 1744' at the end of September in both scenerios.

The Oct - Dec monthly averages were based on actual average monthly outflows in 2002 - 2004, years during which Dworshak reached 1520' in September (not the end of August) which is expected operation in 2005.

List from 2005 Water Management Plan Appendix 1 – Emergency Protocols

This is not a prioritized list.

Request 1 foot more of tailwater at BON (90 Mw's)

Spill at MCN if available during the day

Generate at MCN above minimum powerhouse at night

Increase generation at DWR to 10 kcfs

Increase generation at MCN to operation outside 1%

Reduce spill at BON to 0kcfs (337 Mw)

Reduce spill at JDA to 0 kcfs (225 – 450 Mw's)

Shut spill bays 1 & 2 at TDA's (66 Mw's)

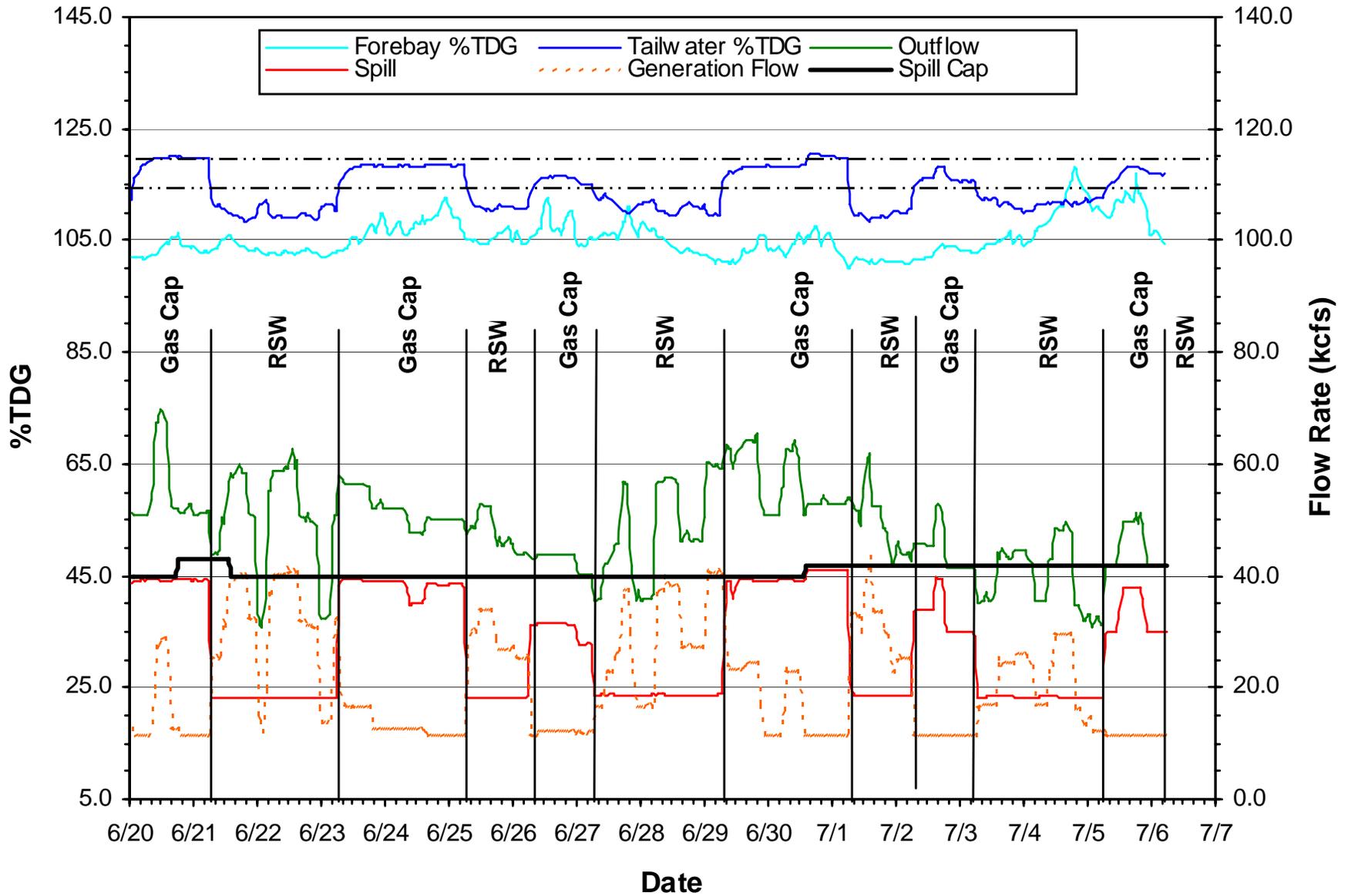
Reduce spill at IHR to 0 kcfs

Reduce spill at LMN to 0 kcfs

Reduce spill at LGS to 0 kcfs

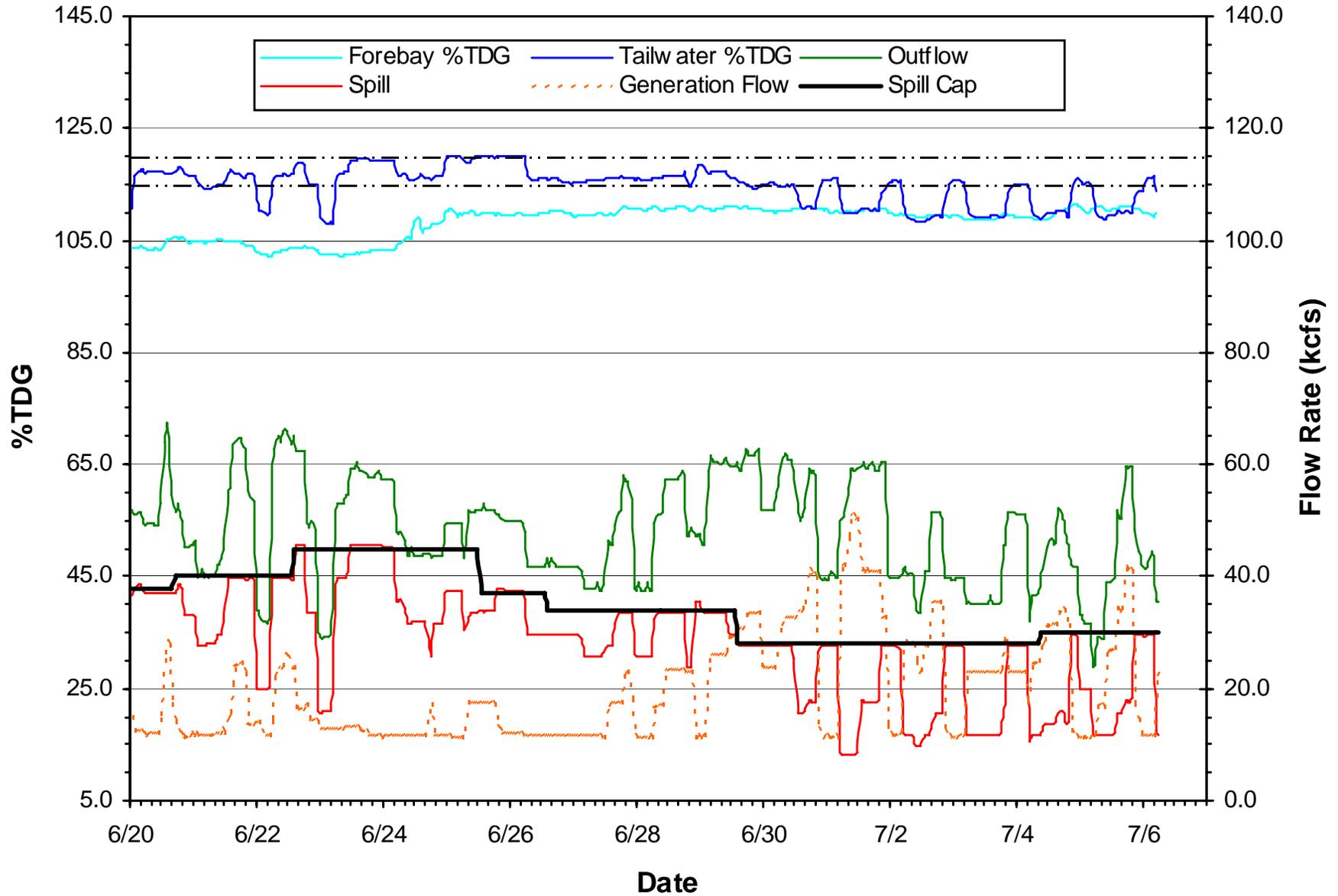
Reduce spill at LWG to 0 kcfs

Lower Granite Summer Operations



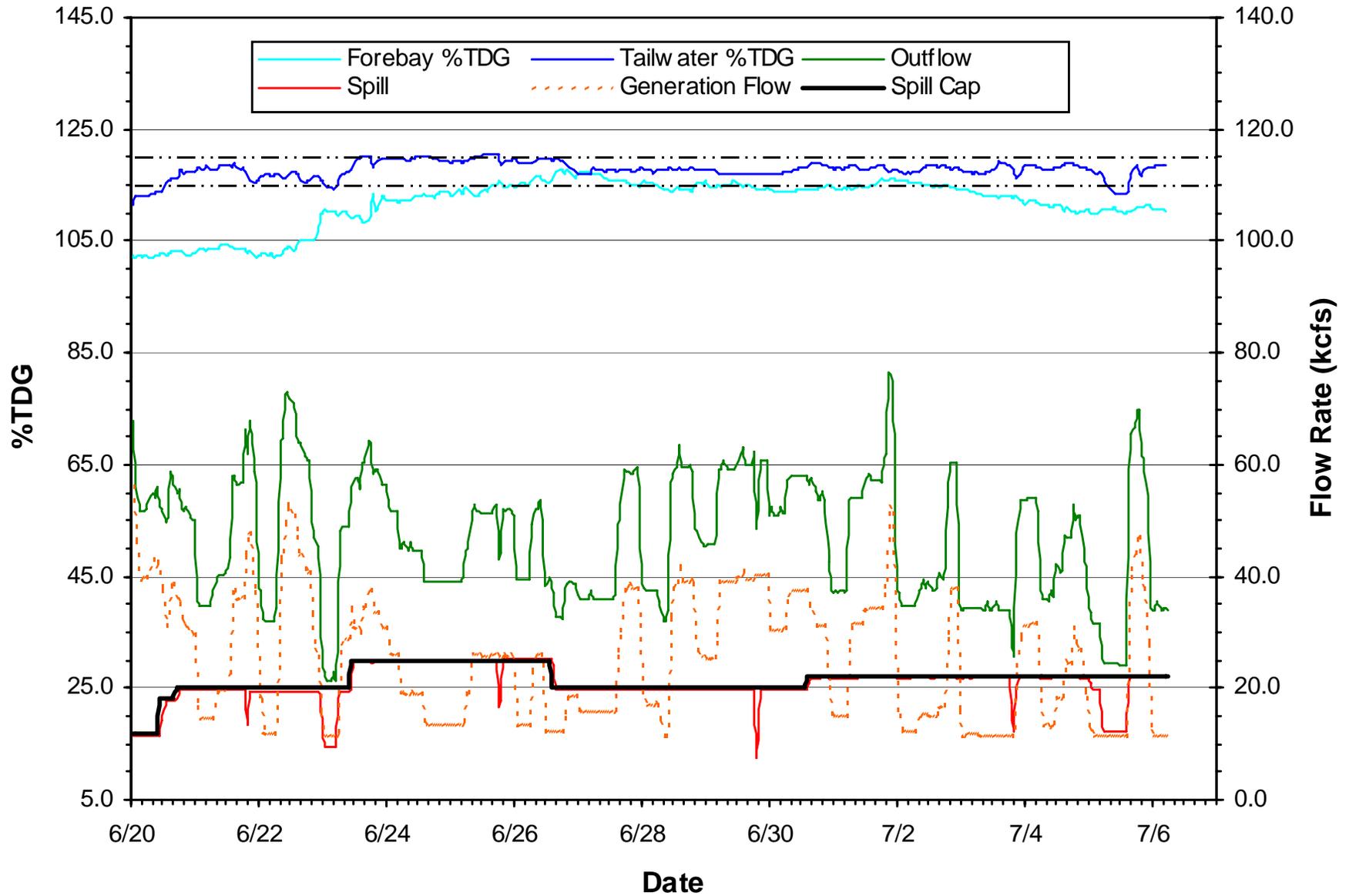
(As of 0600 hrs 6 July 2005)

Little Goose Summer Operations



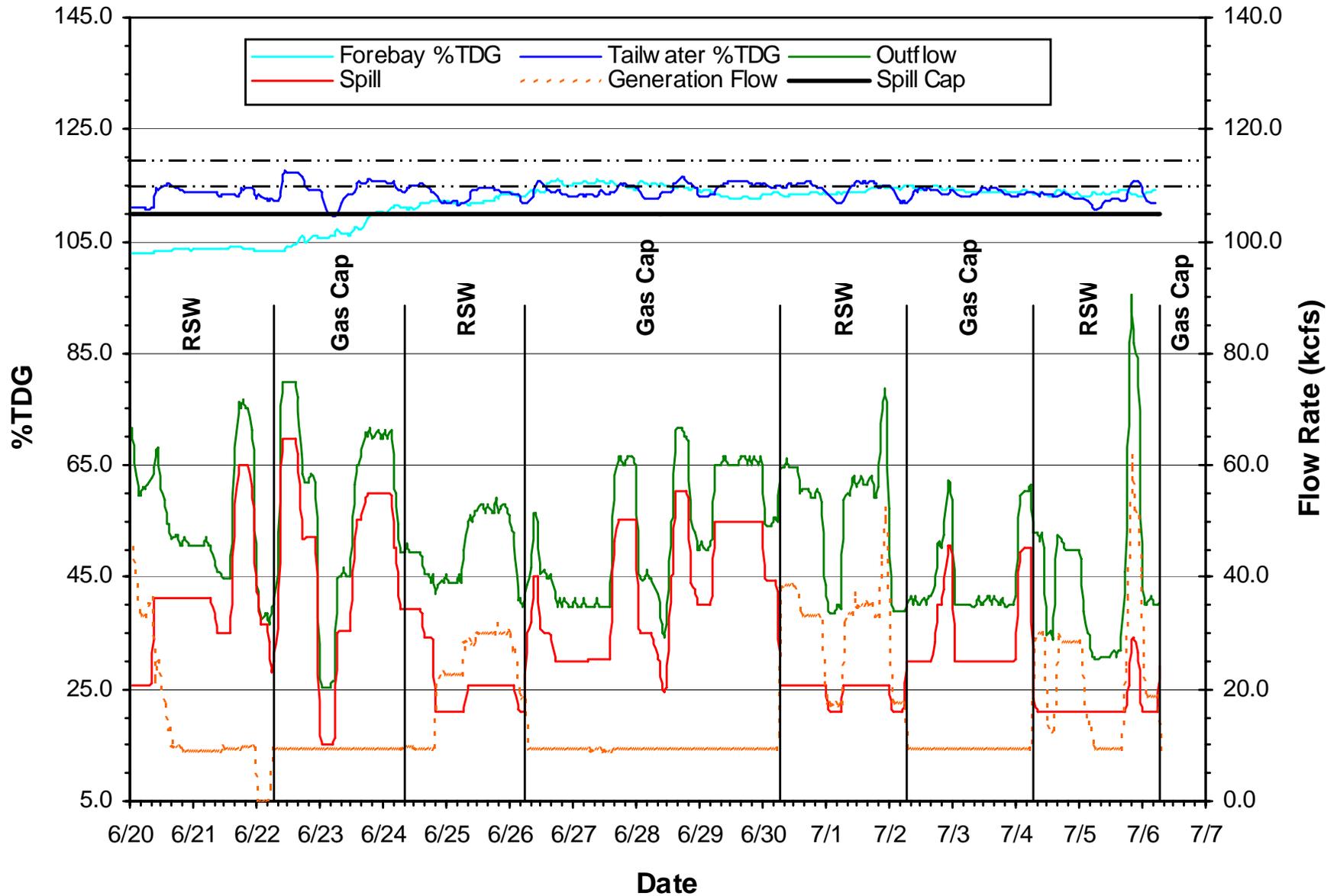
(As of 0600 hrs 6 July 2005)

Lower Monumental Summer Operations



(As of 0600 hrs 6 July 2005)

Ice Harbor Summer Operations



(As of 0600 hrs 6 July 2005)

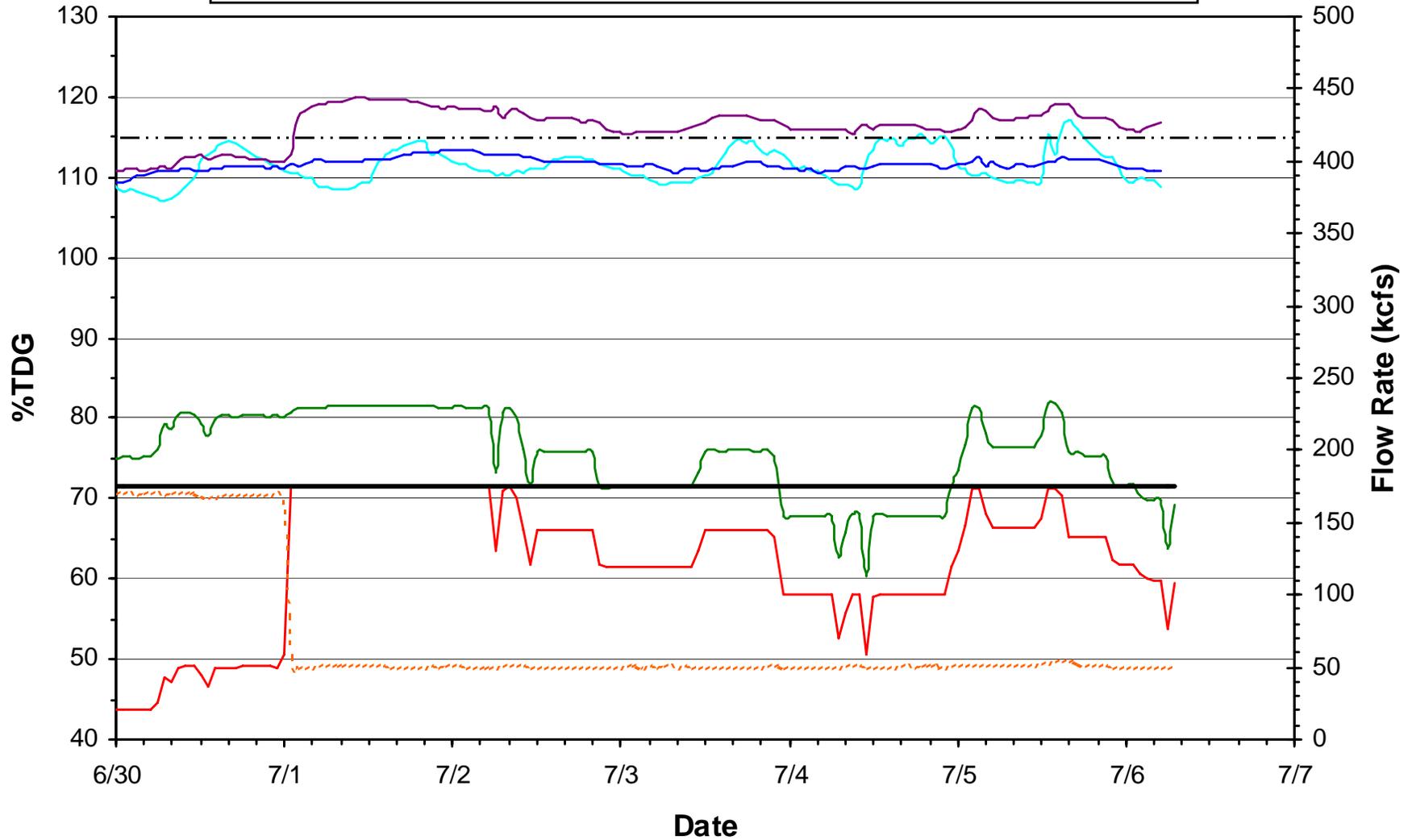
Snake River

%TDG Hours of Exceedance

Project	Forebay		Tailwater	
	Hrs	% Hrs	Hrs	% Hrs
Lower Granite	6	1.5%	9	2.3%
Little Goose	0	0.0%	9	2.3%
Lower Monumental	83	21.3%	15	3.9%
Ice Harbor	36	9.3%	0	0.0%

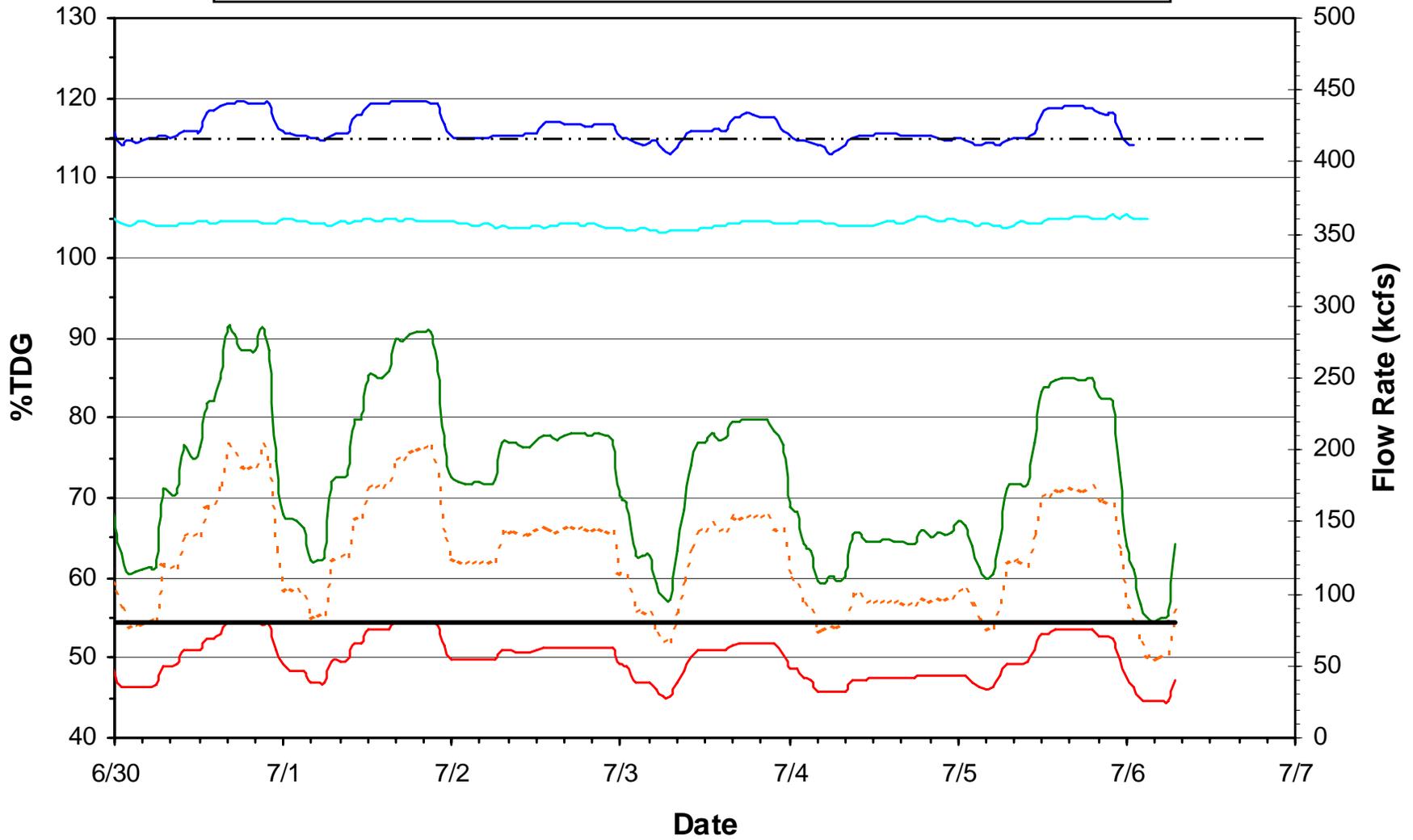
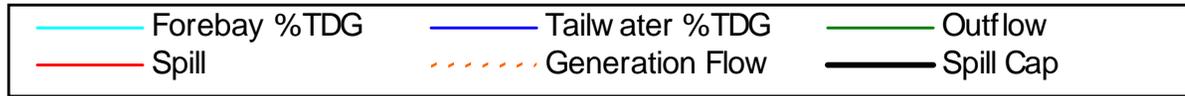
Time Period: 20 June @ 0000 hrs - 6 July @ 0600 hrs (389 hrs total)

McNary Summer Operations



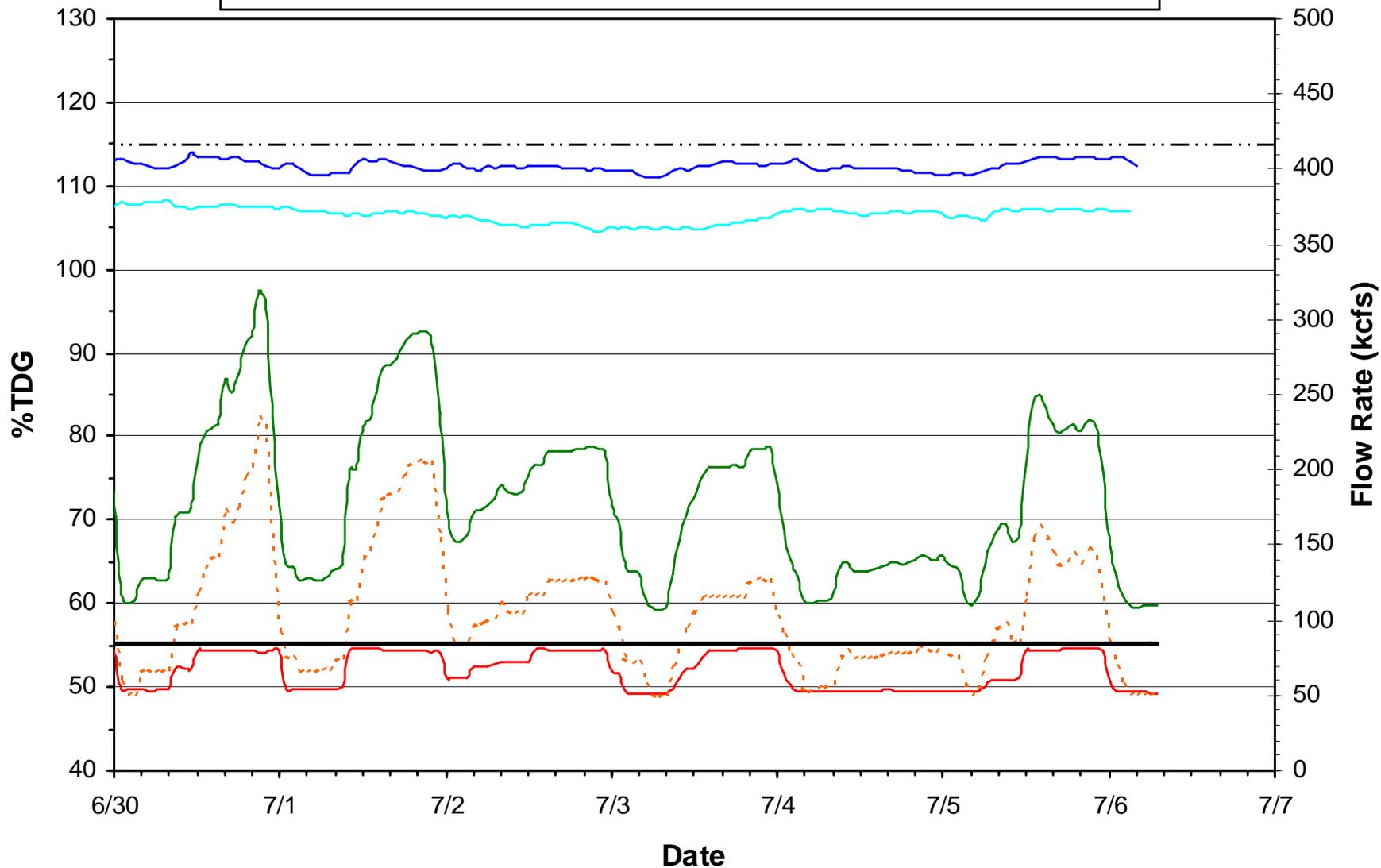
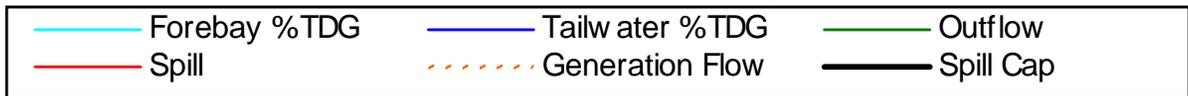
(As of 6 July 2005 @ 0600 hrs)

John Day Summer Operations



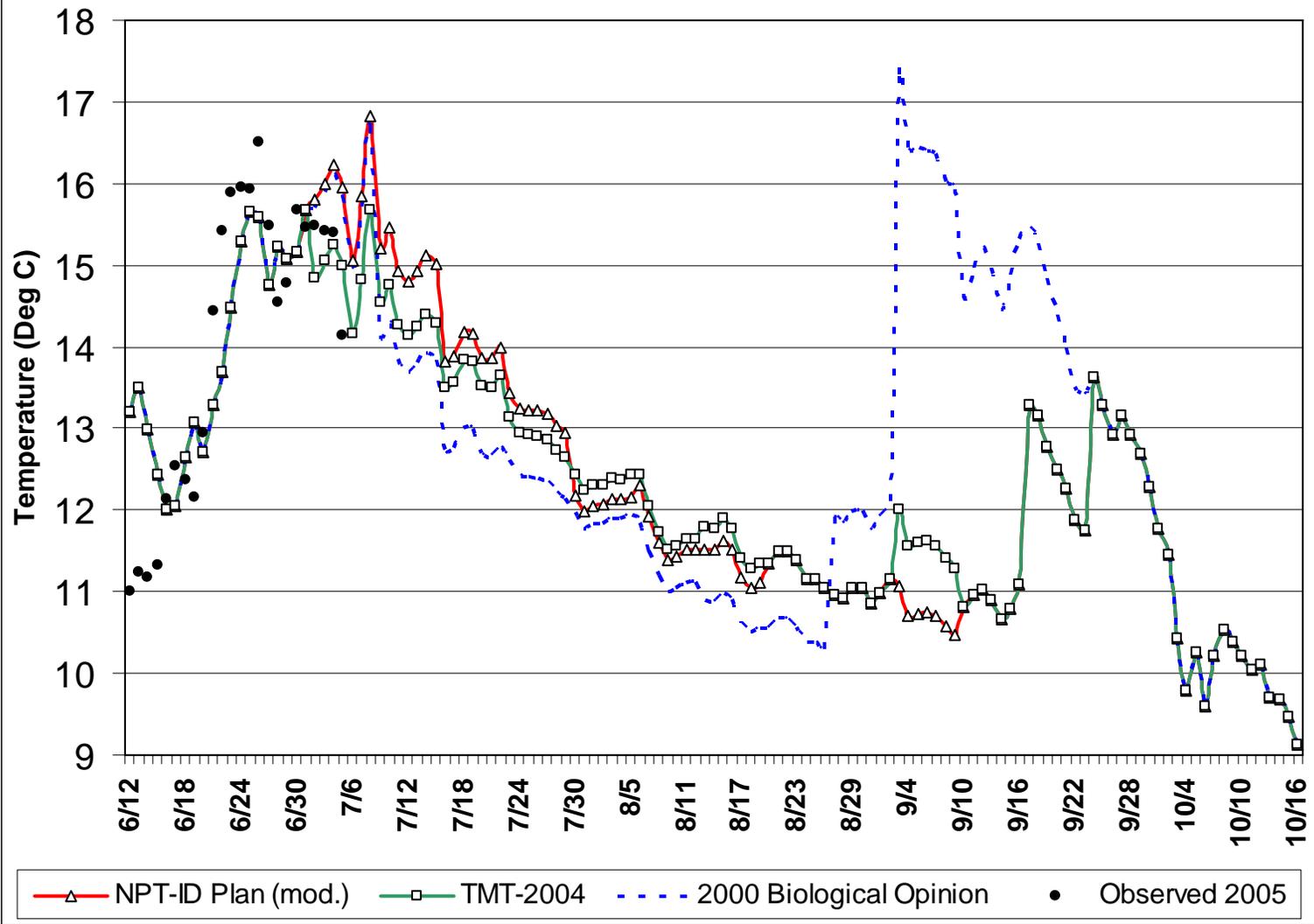
(As of 6 July 2005 @ 0600 hrs)

The Dalles Summer Operations

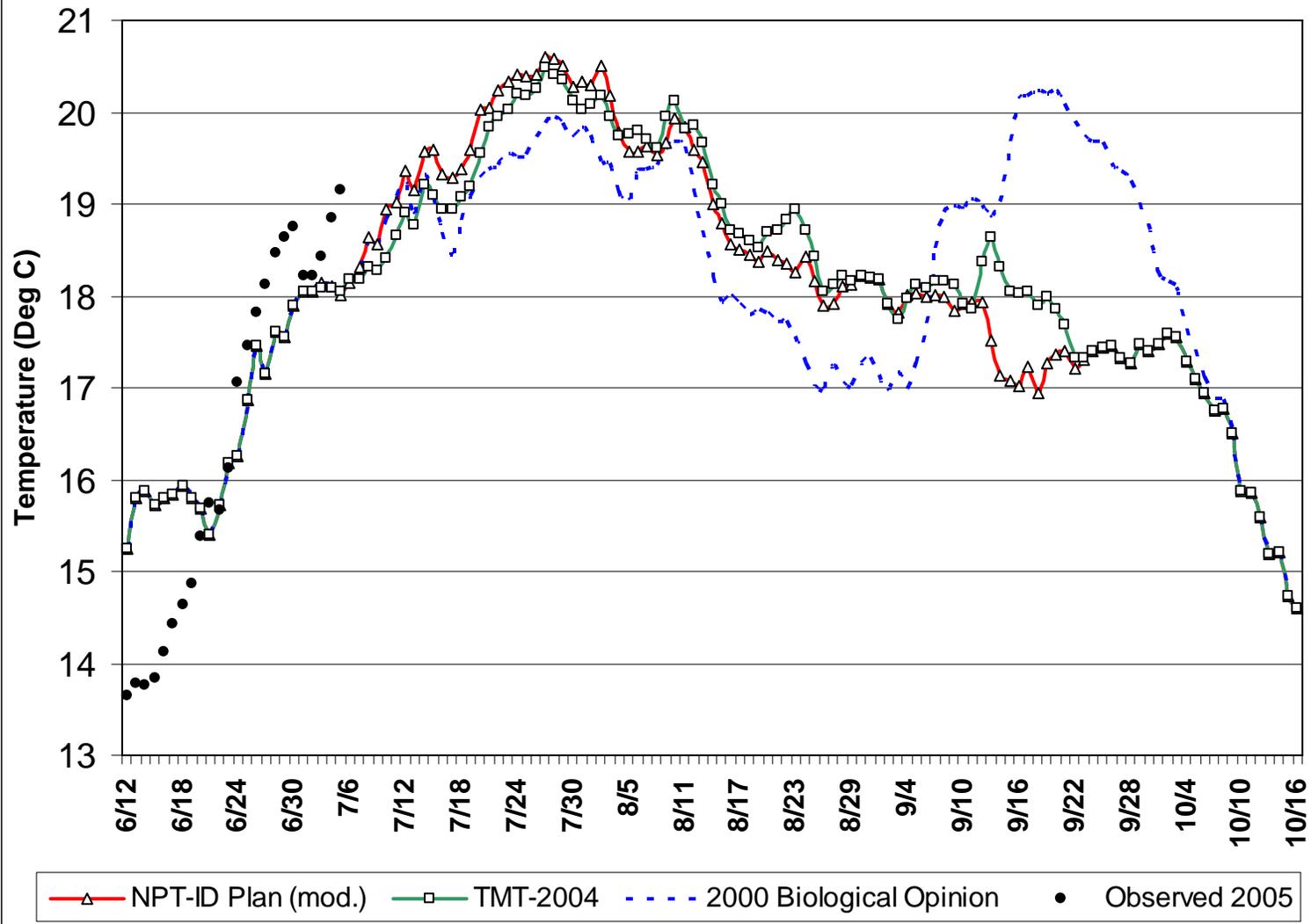


(As of 6 July 2005 @ 0600 hrs)

Clearwater River at Peck (1979, 1994, 1995, 1998 weather)



Snake at Lower Granite Dam (1979, 1994, 1995, 1998 weather)



Simpas comparison of the BIOP operation vs. Montana's proposal for late season reservoir drafting. Flows based on average for July and August . A negative relative difference means that the BIOP operation results in better survival.								Seasonal Weighting Based On % Fish Migrating	
Scenario	Simpas Output Parameter	BIOP		Montana Proposal		Relative Difference (Proposed-BIOP/BIOP)			
		D=0.18	D=0.41	D=0.18	D=0.41	D=0.18	D=0.41		
Max Transport - no Spill	Total Survival w/D	7.76%	17.33%	7.76%	17.32%	0.00%	-0.06%	90%	
	Total Survival w/o D	41.87%	41.87%	41.86%	41.86%	-0.02%	-0.02%		
	InRiver Survival	0.27%	0.27%	0.27%	0.27%	0.00%	0.00%		
	InRiver Survival w/o transport	8.17%	8.17%	8.07%	8.07%	-1.22%	-1.22%		
	Percent Transported	42.40%	42.40%	42.40%	42.40%	0.00%	0.00%		
Max Transport w/o L.Col. Flow Survival Relationship	Total Survival w/D	7.76%	17.33%	7.76%	17.33%	0.00%	0.00%		
	Total Survival w/o D	41.87%	41.87%	41.87%	41.87%	0.00%	0.00%		
	InRiver Survival	0.28%	0.28%	0.28%	0.28%	0.00%	0.00%		
	InRiver Survival w/o transport	8.19%	8.19%	8.20%	8.20%	0.12%	0.12%		
	Percent Transported	42.40%	42.40%	42.40%	42.40%	0.00%	0.00%		
Court Ordered Spill	Total Survival w/D	9.12%	12.44%	9.01%	12.35%	-1.21%	-0.72%		
	Total Survival w/o D	20.96%	20.96%	20.93%	20.93%	-0.14%	-0.14%		
	InRiver Survival	6.52%	6.52%	6.39%	6.39%	-1.99%	-1.99%		
	InRiver Survival w/o transport	10.43%	10.43%	10.29%	10.29%	-1.34%	-1.34%		
	Percent Transported	14.70%	14.70%	14.80%	14.80%	0.68%	0.68%		
Court Ordered Spill w/o L.Col. Flow Survival Relationship	Total Survival w/D	9.14%	12.46%	9.11%	12.46%	-0.33%	0.00%		
	Total Survival w/o D	20.98%	20.98%	21.04%	21.04%	0.29%	0.29%		
	InRiver Survival	6.54%	6.54%	6.49%	6.49%	-0.76%	-0.76%		
	InRiver Survival w/o transport	10.46%	10.46%	10.45%	10.45%	-0.10%	-0.10%		
	Percent Transported	14.70%	14.70%	14.80%	14.80%	0.68%	0.68%		

Simpas comparison of the BIOP operation vs. Montana's proposal for late season reservoir drafting. Flows for September (no spill). A negative relative difference means that the BIOP operation results in better survival.								Seasonal Weighting Based On % Fish Migrating	
Scenario	Simpas Parameter	BIOP		Montana Proposal		Relative Difference (Proposed-BIOP/BIOP)			
		D=0.18	D=0.41	D=0.18	D=0.41	D=0.18	D=0.41		
Max Transport - no Spill	Total Survival w/D	4.23%	9.62%	4.23%	9.62%	0.00%	0.00%	10%	
	Total Survival w/o D	23.44%	23.44%	23.45%	23.45%	0.04%	0.04%		
	InRiver Survival	0.01%	0.01%	0.01%	0.01%	0.00%	0.00%		
	InRiver Survival w/o transport	0.29%	0.29%	0.30%	0.30%	3.45%	3.45%		
	Percent Transported	23.90%	23.90%	23.90%	23.90%	0.00%	0.00%		
Max Transport w/o L.Col. Flow Survival Relationship	Total Survival w/D	4.23%	9.62%	4.23%	9.62%	0.00%	0.00%		
	Total Survival w/o D	23.44%	23.44%	23.44%	23.44%	0.00%	0.00%		
	InRiver Survival	0.01%	0.01%	0.01%	0.01%	0.00%	0.00%		
	InRiver Survival w/o transport	0.29%	0.29%	0.29%	0.29%	0.00%	0.00%		
	Percent Transported	23.90%	23.90%	23.90%	23.90%	0.00%	0.00%		

Combined output for both seasons weighted by seasonal fish passage.

Scenario	Simpas Output Parameter	Relative Difference (Proposed-BIOP/BIOP)	
		D=0.18	D=0.41
Max Transport - no Spill	Total Survival w/D	0.00%	-0.05%
	Total Survival w/o D	-0.02%	-0.02%
	InRiver Survival	0.00%	0.00%
	InRiver Survival w/o transport	-0.76%	-0.76%
	Percent Transported	0.00%	0.00%
Max Transport w/o L.Col. Flow Survival Relationship	Total Survival w/D	0.00%	0.00%
	Total Survival w/o D	0.00%	0.00%
	InRiver Survival	0.00%	0.00%
	InRiver Survival w/o transport	0.11%	0.11%
	Percent Transported	0.00%	0.00%
Court Ordered Spill	Total Survival w/D	-1.09%	-0.65%
	Total Survival w/o D	-0.12%	-0.12%
	InRiver Survival	-1.79%	-1.79%
	InRiver Survival w/o transport	-0.86%	-0.86%
	Percent Transported	0.61%	0.61%
Court Ordered Spill w/o L.Col. Flow Survival Relationship	Total Survival w/D	-0.30%	0.00%
	Total Survival w/o D	0.26%	0.26%
	InRiver Survival	-0.69%	-0.69%
	InRiver Survival w/o transport	-0.09%	-0.09%
	Percent Transported	0.61%	0.61%

Technical Management Team Meeting Notes

July 6, 2005

1. Greetings and Introductions.

The July 6 Technical Management Team meeting was chaired by Cindy Henriksen and facilitated by Geoff Huntington. The following is a summary (not a verbatim transcript) of the topics discussed and decisions made at that meeting. Anyone with questions or concerns about these minutes should contact Henriksen at 503/808-3945.

2. Libby/Hungry Horse Summer Operations.

Jim Litchfield said he has submitted a revised Montana SOR, which now includes the support of the Kootenai Tribe of Idaho and the Salish/Kootenai Tribe. I also tried to respond to Cindy LeFleur's concerns about Grand Coulee refill – I changed the September refill to no higher than 1285, he said. The lower range also seemed to be a concern; it is very unlikely that the reservoir will be refilled only to 1282, and I hope that responds to Washington's concerns. I also made changes to the graph on page 8, in response to a request from Russ Kiefer, Litchfield said; Montana Fish, Wildlife and Parks provided some information on the change in wetted perimeter in the Kootenai River at various rates of outflow. A second graph, on page 9, shows the results of an analysis of preferred habitat for adults and juveniles at various rates of outflow – 6 Kcfs, 13 Kcfs and 20 Kcfs.

What area are we talking about? Ron Boyce asked. Two sections of the Kootenai River where MFWP monitors below Libby – from Libby to Kootenai Falls, and from Kootenai Falls to the Idaho border, replied Greg Hoffman.

What this doesn't show is the fact that, under the BiOp operation, we would wet this perimeter up to the 20 Kcfs level, then abruptly drop flow to 6 Kcfs, desiccating much of the habitat, Litchfield said. The goal of this operation is to keep more habitat wetted and productive through the end of September, he said. Is there more adult usage of either of the two sections? Henriksen asked. The study was based on observations; we sampled adult and juvenile habitat locations equally in both sections, Hoffman replied. Primarily, the adults are found in higher density in section 1, closer to the dam, while the juveniles are found farther downstream.

The concern I have is that I have yet to see anything that would make me believe that we're more likely to see more benefit for bull trout and sturgeon than detrimental

impacts to anadromous fish, said Russ Kiefer. I agree that what you're proposing would be beneficial for resident fish, but I'm not convinced that those benefits would outweigh the detriments for anadromous fish, he said. Certainly keeping the stream perimeter wetted through the season will yield greater production, but you haven't quantified the resulting increase in bull trout production, or the impacts on anadromous fish, so I can't make an informed technical decision. I don't see the data that would convince me that the benefits of this operation for resident fish will outweigh the detriments to anadromous fish, he said.

This operation is about production for resident fish, Litchfield replied – as you know, it is very difficult to quantify such benefits in terms of numerical production. The full 20-foot BiOp draft will still come out – it will just come out over a longer period. The ISAB concluded, after two days of deliberations, that the impacts on anadromous fish are small under this operation, while the benefits to resident fish in Montana are significant. From a common-sense perspective, the change in downriver flow is very small – at McNary, 5 to 10 Kcfs from a flow of, say, 150 Kcfs.

Sue Ireland said the Kootenai Tribe strongly supports the Montana SOR. We have species on the brink here – Westslope cutthroat, burbot, kokanee – in addition to bull trout and sturgeon. We strongly oppose having flows of 20 Kcf through the summer, followed by an abrupt drop to 6 Kcfs on September 1. We have a short growing season to begin with, and we need all the help we can get.

Paul Wagner said he had run the Montana proposal past the NMFS administrator, and explained that there are two competing proposals. His read of the judge's order is that we have to stay with the base case operation as outlined in the BiOp, unless the Montana operation is agreed to by all parties in the region, Wagner said. Our read is that the 20-foot draft by August 31 would be the plaintiff's preference, he said; from a policy perspective, NMFS cannot support the Montana SOR.

We recognize the complexity of 2005 operations, given Judge Redden's intervention, said Litchfield. Montana's hope is that all parties could agree to a more sensible way to operate the Montana reservoirs, as we have proposed. That's what NMFS believes is needed, said Wagner. On the technical side of things, I said NMFS would use SIMPAS to analyze the Montana operation, said Wagner; to do that, we divided things into two seasons: July and August, and September. This analysis is available via hot-link from today's agenda on the TMT homepage. Wagner emphasized that this is a first cut; the analysis will be refined further after today's meeting.

Wagner explained that SIMPAS is used to estimate the differences between two operations – fish passage, dam operations and survival. We analyzed a base case of maximum transport with no spill; we also analyzed the Montana proposal. System survival is driven by a range of "D" values – the post-Bonneville survival of transported fish. We don't have a good feel for what the "D" value is for fall chinook, because of their differential life-history, Wagner explained; hence the use of a range of "D" values.

Wagner spent a few minutes describing the NMFS analysis, including methodology and results. Using SIMPAS, the impacts of the proposed Montana operation depend on the assumed “D” value, he said. Ron Boyce observed that the “D” value NMFS assumed in the base case – 0.22 – is somewhat more optimistic than the 0.18 assumed in the 2004 BiOp.

The bottom line is that, under the BiOp vs the Montana proposal, we saw a slight decrease in survival under the Montana operation, compared to the base case – on the order of a 2% decrease, said Wagner. I would observe that, looking at this analysis, it would appear that the court-ordered spill operation could have a greater detrimental effect than the Montana proposal, said John Wellschlager. It all depends on what your assumption is regarding the “D” value, Wagner replied.

For September, what we did was a guess – we assumed that 90% of the fish pass in July and August, said Wagner – that’s probably a little low, and it is likely that a higher percentage passes prior to September 1. During September, the Montana proposal would yield an increase in survival of 0.29% to 3%. Overall, according to our analysis, the Montana proposal would decrease survival by about 1.75%, Wagner said. On the other hand, the Montana proposal would increase the survival of late-migrating fish, he added. Litchfield observed that the Montana SOR included the ISAB’s conclusions about what the SIMPAS modeling shows for Lower Columbia, Upper Columbia and Snake River fall chinook. The bottom line is that we’re dealing with resolution well below the confidence limits these models can produce, he said – the impacts of the Montana proposal amount to background noise.

Kyle Martin observed that any water released from Libby after August 31 will be trapped in the Canadian storage projects. Henriksen replied that the Corps has talked with Canada, and the volume of water that would not be passed through is small, given the 2005 water year.

Wagner added that NMFS has also analyzed the potential impacts of the Montana proposal on water temperatures and velocities at McNary; the model shows that water temperature would likely increase by a tenth of a degree C. Results are not yet available from the water velocity model.

Did you want a decision on the Montana SOR today? David Wills asked. Yes, Litchfield replied. I’ve just seen this technical analysis, said Wills; I can’t make a decision today. Kiefer said that, from Idaho’s perspective, nothing that was presented today convinced him that the benefits from Montana’s proposed operation for resident fish would be significant, while the negative impact to anadromous fish would be negligible. I don’t hear anyone saying that we will be able to measure the increase in survival for resident fish, he said. Montana’s concerns are valid, but as a technical manager, I haven’t seen any information that will give me comfort that resident fish survival will improve enough to justify the detrimental impact on anadromous fish. This

is clearly a policy decision, he added – we can't resolve this here. At this point, Idaho cannot support the Montana SOR, Kiefer said; it should be elevated to the policy level for resolution.

Boyce said Oregon has no position on the Montana proposal, but would like an opportunity to look more closely at the available analyses. We will engage in future discussions on this issue, however, he said. Wills said the Fish and Wildlife Service is not yet convinced that a deviation from the base case is justified. Wellschlager said BPA supports the mainstem amendments, but given the court-ordered spill operation in 2005, BPA is neutral on the Montana proposal, at least for now. If you can come to agreement at TMT, BPA would not block the Montana proposal, he said. Norris said USBR cannot move forward with the implementation of the Montana SOR without approval from NMFS, but added that he is sympathetic to Montana's argument regarding the benefits of Montana's proposed operation on resident fish. We also need to look at the impacts of drafting Hungry Horse 20 feet this summer, Norris added, because those impacts are significant.

Wagner reiterated that, barring TMT consensus, NMFS cannot entertain a deviation from the base case operation at this time. Henriksen said that, from the Corps' perspective, we continue to operate to the 2004 BiOp, which offers the option for adaptive management of the system. Consensus is necessary for any change in operation. Until that consensus is achieved, we will continue to operate to the 2004 UPA and the court-ordered summer spill program, she said. Martin added that CRITFC opposes the Montana SOR.

Litchfield said Montana will elevate this issue for resolution at the July 14 IT meeting; we would like to see the Montana SOR implemented as written, he said. We would ask the IT to review the SOR and make a decision, Litchfield said. It was agreed that the other TMT participants will brief their IT members on their individual agency positions.

3. Dworshak Water Temperatures.

We have an SOR – 2005-17 – on this issue, as well as some information from Kyle Martin, said Henriksen. The SOR, supported by USFWS, IDFG, WDFW, NMFS, the Nez Perce Tribe, the Shoshone-Bannock Tribes and CRITFC, requests the following specific operations:

- Continue outflows of 7 Kcfs at Dworshak through July 10; however, after July 7, increase outflows at Dworshak to 10 Kcfs if temperatures at Lower Granite exceed 67 degrees F on a 24-hour rolling average. On July 11, increase Dworshak outflow to 10 Kcfs until further notice. Continue to target 46-48-degree F outflow temperature over the specified time.

By 10 Kcfs, I assume you mean full powerhouse capacity, which is actually

closer to 9.5 Kcfs? Henriksen asked. Correct, Wills replied.

Martin provided some modeling information about water temperatures in the Clearwater at Peck, and at Lower Granite; observed temperatures at Lower Granite are running about 1 degree higher than modeled, he said. The temperature at the Lower Granite tailwater is hovering around 66 degrees F, currently, Henriksen added. A cold front is expected to keep temperatures moderate on the east side over the next few days, added Martin.

Henriksen noted that it would be helpful if the action agencies could have as much lead time as possible, with respect to changes in Dworshak operations. After a brief discussion, it was agreed that any change to Dworshak operations will be based on the 24-hour rolling average temperature at the Lower Granite tailrace, not on hourly readings. We'll coordinate closely between now and the 11th, said Wills. Dave Statler requested that the action agencies notify the TMT participants of any changes in Dworshak operations by email; Henriksen agreed to do so. She said this SOR will be implemented.

4. Treaty Fishing.

On July 5, the action agencies received SOR 2005 C-1. This SOR, supported by CRITFC, requests the following specific operations:

July 5th, 2005, 6 am, Tuesday, through 6 pm, July 7th, 2005, Thursday.

Bonneville Pool: Operate the pool within a 1.0 foot band.

The Dalles (Celilo) Pool: Operate the pool within a 1.0 foot band.

John Day Pool: Operate the pool within a 1.0 foot band.

Martin noted that this SOR is constructed slightly different from previous treaty fishing SORs, in that, while it does request that the Zone 6 pools be operated within a 1-foot operating range, it does not specify an elevation, because of the special circumstances pertaining to the court-ordered spill program. He added that CRITFC will be sponsoring a series of "net flights" beginning today, to provide weekly information to the Corps regarding the number of nets in each pool.

Henriksen said the action agencies are already beginning to implement the operations requested in this SOR. Bonneville is the most problematic pool because it has the largest operating range; we have issued instructions to the project operators to impose a hard constraint of 1.5 feet on the Bonneville operating range, with a soft constraint of 1 foot. Wellschlager added the proviso that operational flexibility is extremely tight this year; while Bonneville will do its best to implement this SOR, circumstances could arise that will cause a given project to go out of compliance.

5. Feedback on Emergency Protocols.

Henriksen said the salmon managers had agreed to provide their feedback on the first draft of the 2005 emergency protocols. Wills said that, while this topic was discussed at yesterday's FPAC meeting, not all of the salmon managers were able to attend. We would like to defer submitting our comments until all of the salmon managers have had a chance to sign off on them, with the understanding that the current protocol list is in force. Boyce said he is the only salmon manager who was unable to attend yesterday's FPAC meeting, but said he has no problem with submitting FPAC's comments at today's meeting. Wills said he will email the salmon managers' comments to Henriksen. We will revisit the list at the July 13 TMT meeting, Henriksen said.

6. McNary Spill "Action Shots."

The Corps showed a series of videos, showing spill operations at McNary

7. Water Quality.

Henriksen noted that the water quality information related to the court-ordered spill program is being regularly updated on the TMT homepage; she said the spill caps at each project are being changed as needed to keep TDG levels within the state waiver limits. The spill cap at Lower Granite, for example, is now 42 Kcfs; Little Goose is now spilling 30% of total river flow during daylight hours to facilitate adult passage. As a result of that change, a large number of adults have passed upstream; about 1,600 on the first day the change was made. We'll be interested to see whether the increased passage persists, said Wagner.

8. Next TMT Meeting Date.

The next meeting of the Technical Management Team was set for Wednesday, July 13. Meeting summary prepared by Jeff Kuechle, BPA contractor.

TMT Participant List

July 6, 2005

Name	Affiliation
Cindy Henriksen	COE
Ron Boyce	ODFW
Jim Litchfield	Montana
John Wellschlager	BPA
Tony Norris	USBR

Paul Wagner	NMFS
David Wills	USFWS
Ray Gonzales	COE
Larry Beck	COE
Jim Adams	COE
Laura Hamilton	COE
Tina Lundell	COE
Tom Haymaker	PNGC
Lee Corum	PNUCC
Tim Heizenrater	PPM
Dan Spear	BPA
Nic Lane	BPA
Kyle Martin	CRITFC
Russ George	WMCI
Margaret Filardo	FPC
Dave Benner	FPC
Mike Files	BPA
Dan Bedbury	EWEB
Kevin Nordt	Mic-Cs
Bruce MacKay	Consultant
Ruth Burris	PGE
Brenda Anderson	BPA
Greg Hoffman	COE
Glenn Traeger	AVISTA
Russ Kiefer	IDFG
Tom Le	PSE
Sue Ireland	Kootenai Tribe
Cathy Hlebechuk	COE

Dave Statler	NPT
Jeff Huntington	COE

TECHNICAL MANAGEMENT TEAM

BOR: Tony Norris / John Roache

BPA: John Wellschlager / Nic Lane

NOAA-F: Paul Wagner

USFWS: David Wills / Steve Haeseker

OR: Ron Boyce

WA: Cindy LeFleur

ID: Russ Kiefer

MT: Jim Litchfield

COE: Cindy Henriksen / Cathy Hlebechuk

TMT MEETING

Wednesday July 13, 2005 0900 - 1200 hours
1125 N.W. Couch Street, Suite 4A34
Portland, Oregon 97208
Conference call line: 503-808-5190

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

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

AGENDA

1. Welcome and introductions.
2. Review of Notes -
[\[Minutes - July 06, 2005\]](#) 
3. USGS study results of winter 04/05 study to determine the influence of high flows on chum spawning behavior at Ives Island - Ken Tiffan
 1. [\[The Effects of Elevated Flows on Chum Salmon Spawning Behavior Below Bonneville Dam - Power Point\]](#)
 2. [i \[Pretest Swimming\]](#)
 3. [\[Test 3 Max Swim\]](#)
 4. [\[Test 3 Preswim\]](#)
 5. [\[Max Flow Swimming\]](#)
4. Dworshak summer operations (water temperature and flow)
 1. [\[SOR 2005-18 - July 12, 2005\]](#)

 2. [\[Clearwater River at Peck \(1979, 1994, 1995, 1998 weather\) & Snake at Lower Granite Dam \(1979, 1994, 1995, 1998 weather\)\]](#)

5. Libby summer operations -
 1. [\[Bruce Measure - July 09, 2005\]](#) 
 2. [\[Kootenai River nutrient experiment\]](#)
6. Treaty Fishing - [\[SOR 2005-C2 - July 08, 2005\]](#) 
7. Status of Summer Operations as a Result of Recent Court Ruling.
8. NOAA-F HEC RAS model results for John Day Pool - [\[John Day Flow Modeling - June 10, 2005\]](#) 
9. Feedback on Emergency Protocols
10. Operations Review

- a. Reservoirs
 - b. Fish
 - c. Power System
 - d. Water Quality -
 - i. [\[Dworshak Outflows and Lower Snake River Tailwater Temperatures in 2005 \(as of 13 July @ 0500 hrs\) & Lower Granite Inflows and Temperatures in 2005 \(as of 13 July @ 0500 hrs\) \]](#)

 - ii. [\[Snake Summer Spill Ops 2005\]](#)

 - iii. [\[Spill Information 2005\]](#)

11. Other
- Set agenda for next meeting - [\[Reference Calendar\]](#) 

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

9 July 2005

Bruce Measure
Northwest Power and Conservation Council
Old Board of Health Building
Box 200805
Helena, MT 59620

Dear Council Member Measure:

Montana Trout Unlimited, a state affiliate of Trout Unlimited national, represents 3,200 conservation-minded anglers organized in 12 volunteer chapters around the state. Our members, especially those in our chapter in Lincoln County, the Kootenai Valley Trout Club, have long been concerned about how the federal hydroelectric system in western Montana affects coldwater habitats and fisheries. Most prominently, we are concerned with how operations and water management at the Hungry Horse and Libby projects can be better balanced to accommodate flood control, reservoir recreation, ecosystem health, resident and listed fish species in Montana, power production and demands for conservation and recovery of troubled salmon and steelhead stocks in the Columbia River system. In our evaluation of this balance, we have looked at some of the available science, ESA-related biological opinions, recent judicial decisions, historical operations and economic demands on the power system. In addition, in order to better understand the complex scientific, economic and political landscape surrounding operation of the federal system, we have discussed Montana concerns with TU colleagues elsewhere in the Northwest as well as with federal and state agency staff, and the last three state administrations in Montana.

Based on this background, and our personal familiarity with the Kootenai and Flathead River systems, we support the Systems Operations Request Montana recently submitted to guide water management this year at the Libby and Hungry Horse projects.

These measures were essentially incorporated in the Mainstem Amendments adopted in 2004 for the Power and Conservation Council's Fish and Wildlife Plan. Importantly, understand that our national organization, which is one of a number of plaintiffs in litigation challenging the 2000 and 2004 biological opinions for Columbia River salmon, supports the views of its Montana membership. This support was evident when the plaintiffs in their injunction request to Judge Redden in the recent BiOp litigation specifically excluded augmentation flows from Montana in their request for relief.

It is our view that the proposed operational model, especially at the Libby project -- flat flows through August and September, with a gentle ramp down into fall culminating in a draft 20 feet below full pool – can provide measurable benefits to the aquatic communities of the river and reservoir, including listed Kootenai white sturgeon and bull trout; candidate species westslope cutthroat and burbot; and recreationally important wild populations of river-dwelling rainbow and reservoir populations of introduced kokanee. We also believe, indeed we can document, that the proposed operations in the Montana SOR would benefit the nascent and sustainable river-related business that is emerging in economically troubled Lincoln County.

Though we support Montana's SOR, we do not reject the notion that a positive relationship exists between survival for outmigrating Snake River and upper Columbia salmon and steelhead and increased travel time with lower water temperatures in mainstem reservoirs. Still, we have come to conclude that the small amount of water Montana's reservoirs can realistically contribute for flow augmentation has at best a nominal and nearly impossible-to-measure effect on fish movement that occurs hundreds of miles downstream below several other large upper Columbia reservoirs. Certainly any positive contribution Montana's reservoirs can contribute, if it's even measurable, is outweighed by the harm augmentation schemes incur on our state's resident fisheries. Notably, our primary concern stems from discharges that include dramatic, unnatural double-peaks in the August hydrograph. These have been followed by abrupt September ramp-downs that occur when the biological production in our northwest Montana rivers is still significant.

We acknowledge and are supportive of fishery conservation interests on the Snake and mainstem Columbia Rivers. And thus we encourage the State of Montana to take a fresh and objective look at region-wide, measurable and systemic improvements in the Columbia Basin hydro system that can better benefit both salmon and Montana's resident fish. We'd be willing to discuss these in greater depth with Gov. Schweitzer and the Power and Conservation Council.

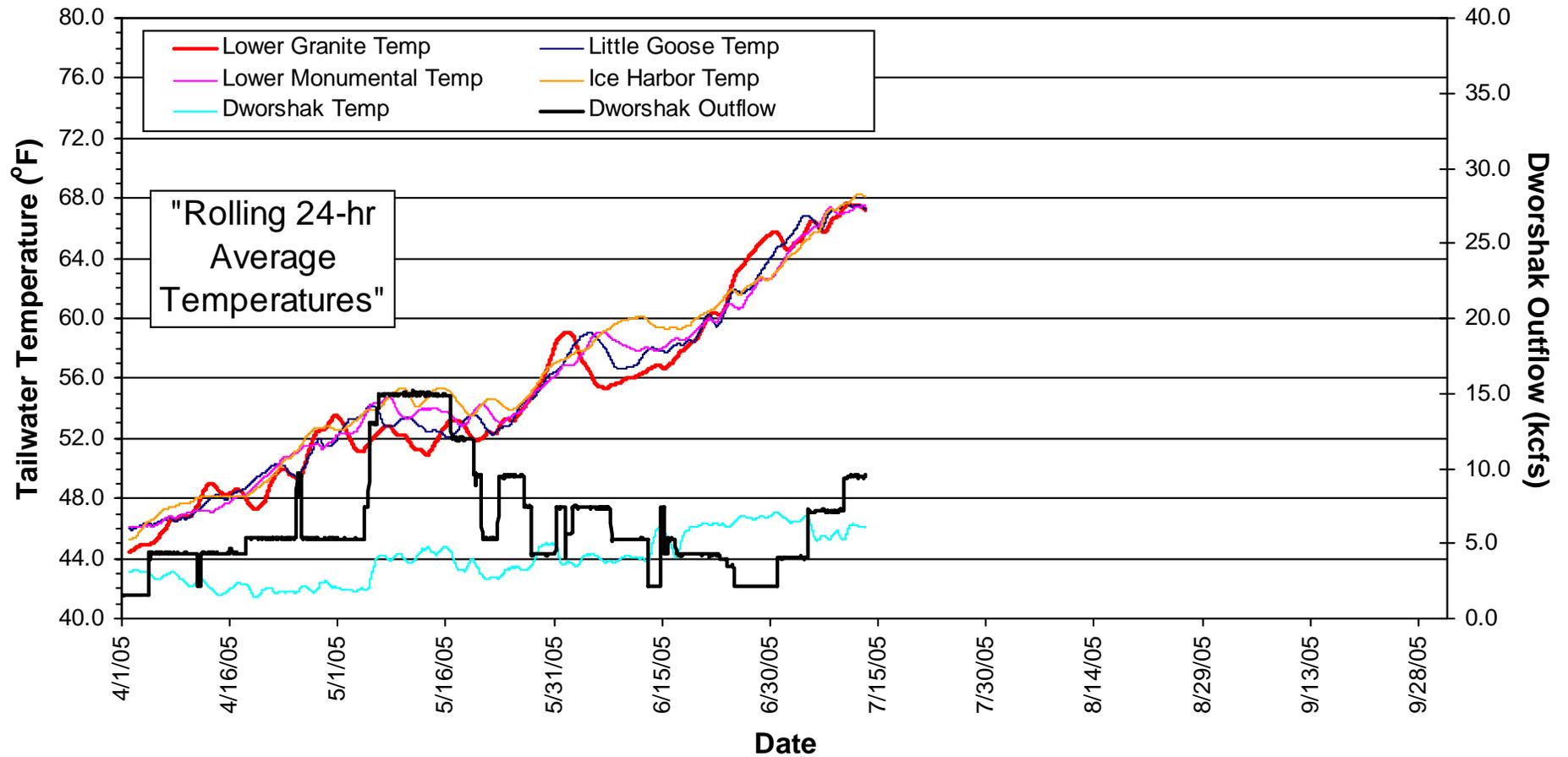
Montana TU is also ready to assist in any effort that leads to improved diplomacy and more agreement on solutions.

Sincerely,

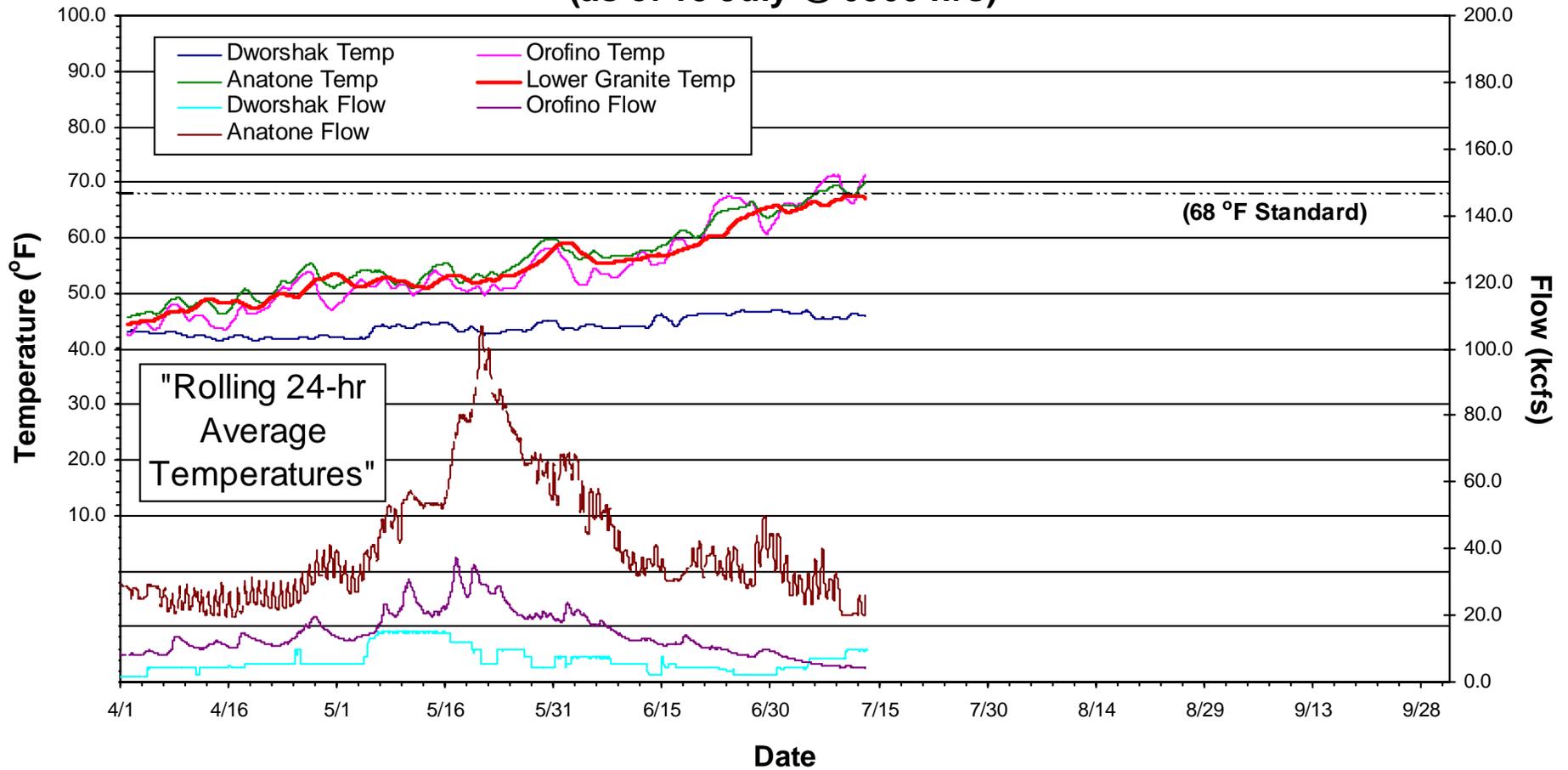
Bruce Farling
Executive Director

cc. Rhonda Whiting
Hal Harper
Jeff Curtis
Tim Linehan
Tom France

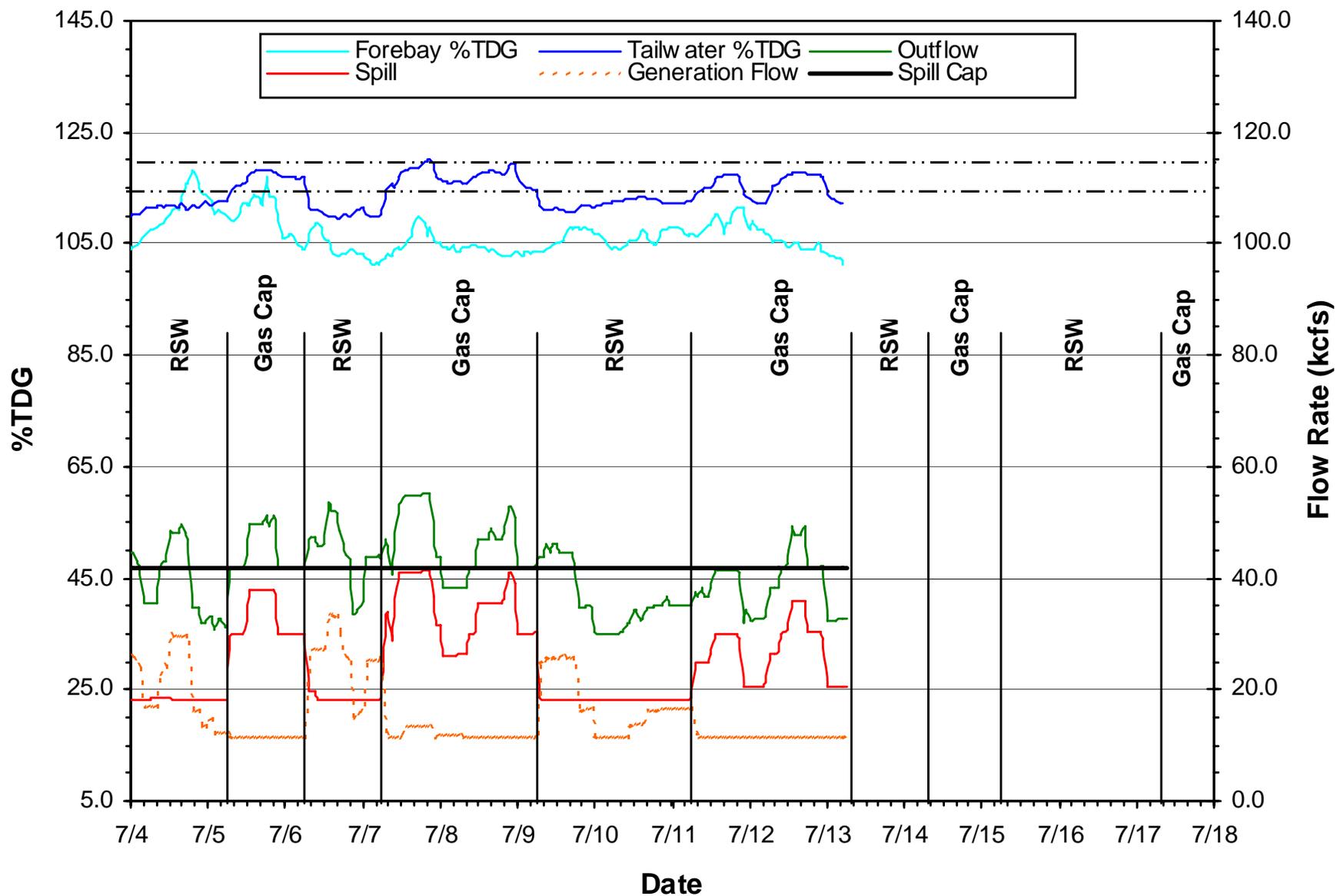
Dworshak Outflows and Lower Snake River Tailwater Temperatures in 2005 (as of 13 July @ 0500 hrs)



Lower Granite Inflows and Temperatures in 2005 (as of 13 July @ 0500 hrs)

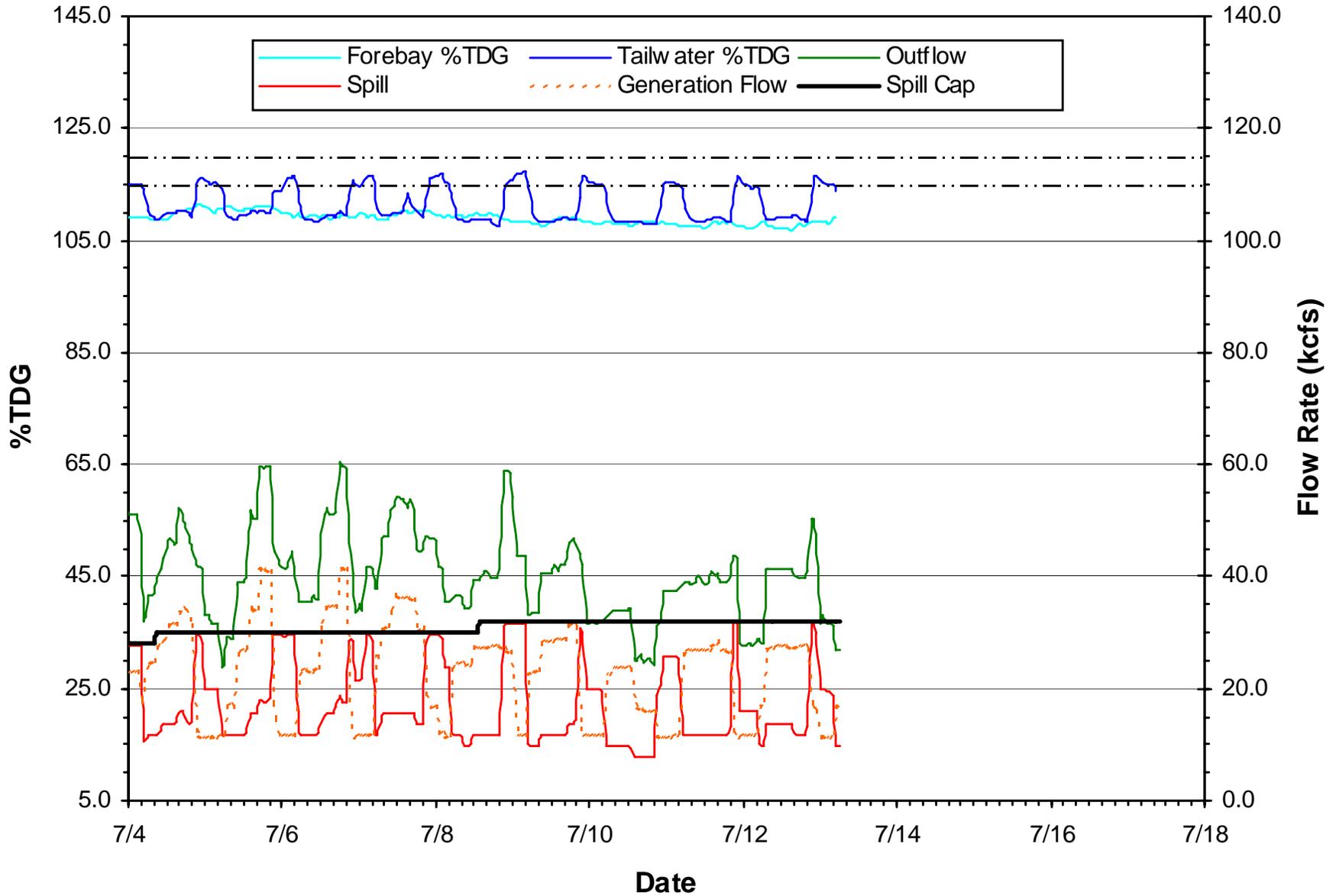


Lower Granite Summer Operations



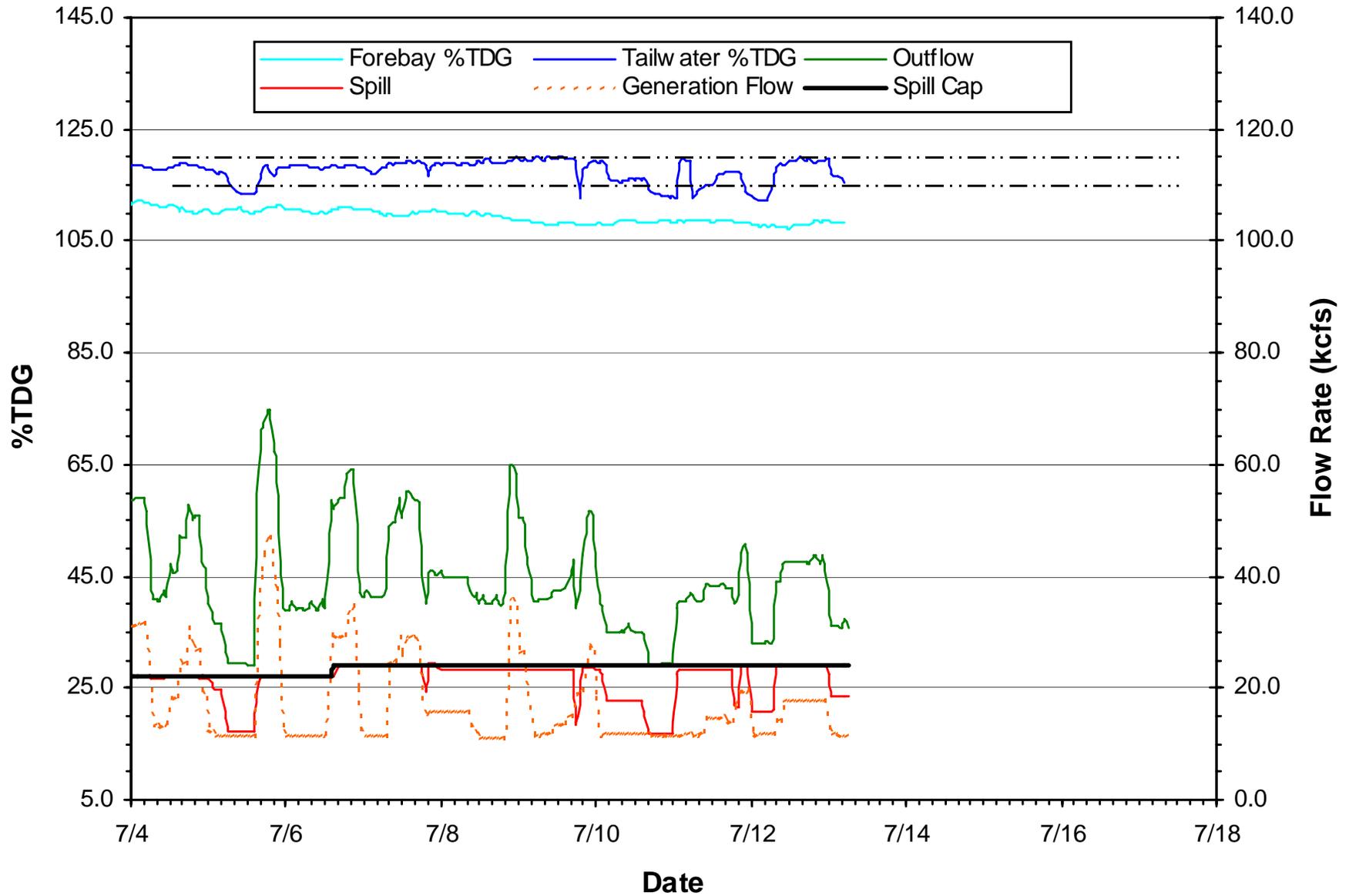
(As of 0600 hrs, 13 July 2005)

Little Goose Summer Operations



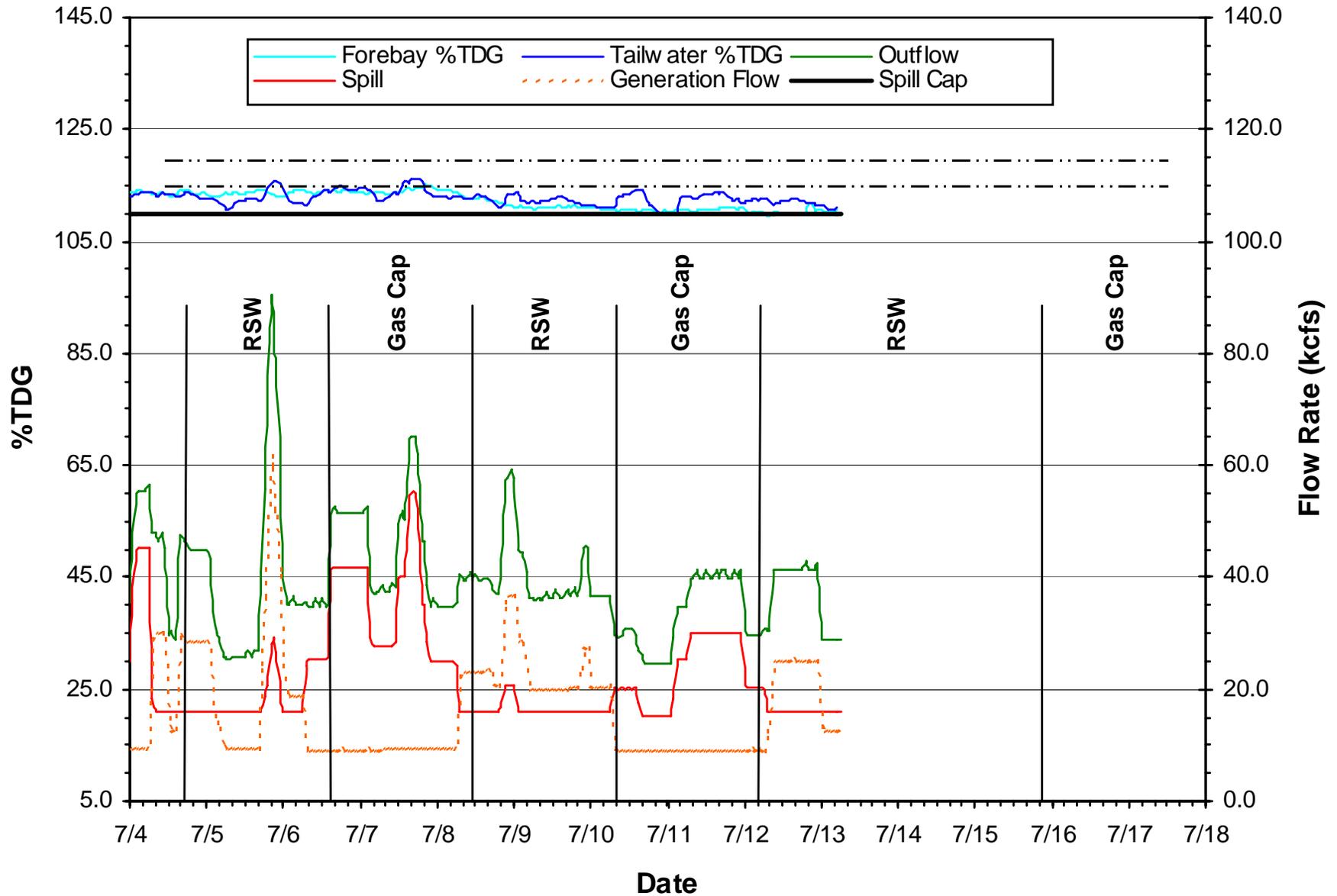
(As of 0600 hrs, 13 July 2005)

Lower Monumental Summer Operations



(As of 0600 hrs, 13 July 2005)

Ice Harbor Summer Operations



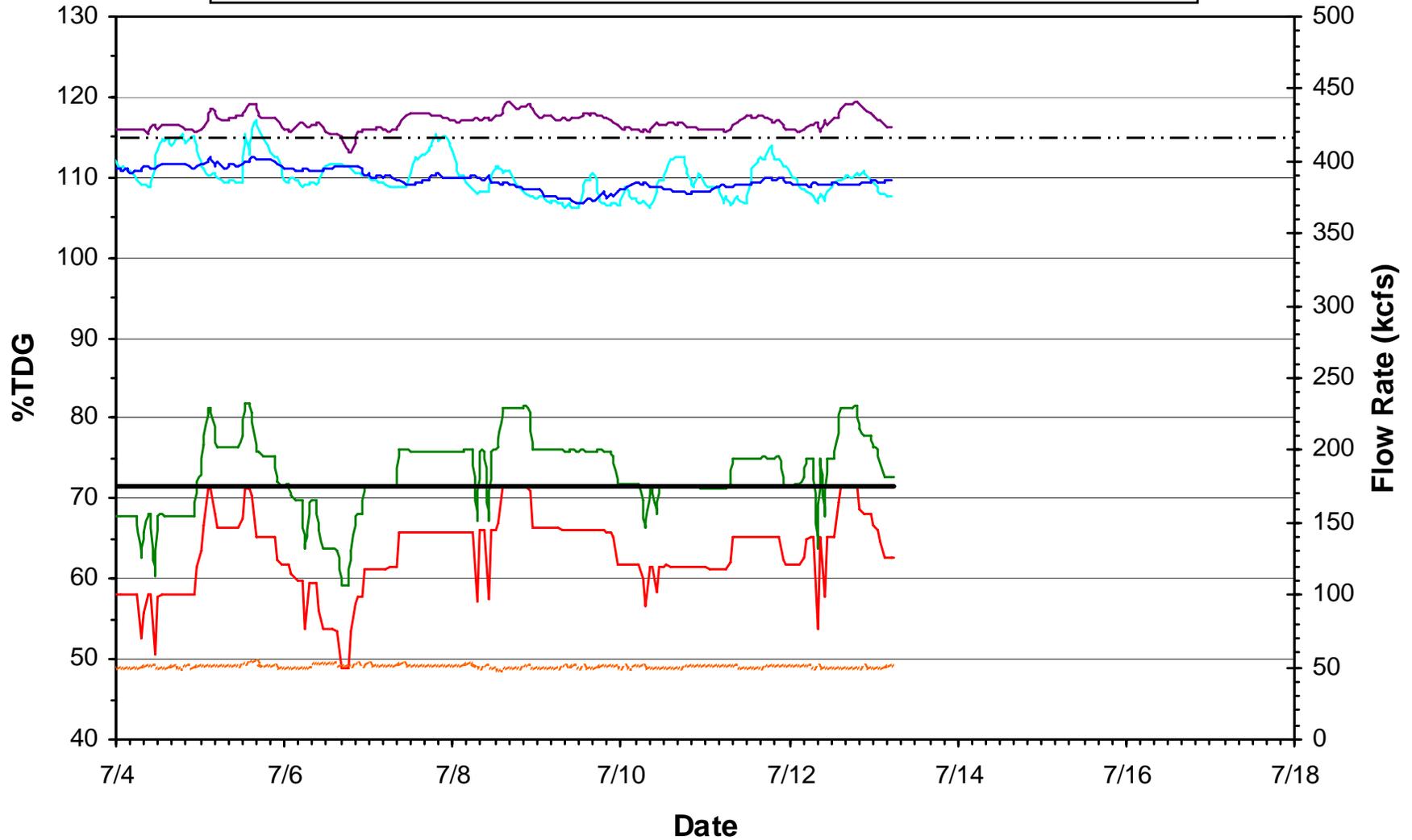
(As of 0600 hrs, 13 July 2005)

%TDG Hours of Exceedance

Project	Forebay		Tailwater	
	Hrs	% Hrs	Hrs	% Hrs
Lower Granite	6	1.1%	9	1.6%
Little Goose	0	0.0%	9	1.6%
Lower Monumental	83	14.9%	17	3.0%
Ice Harbor	37	6.6%	0	0.0%

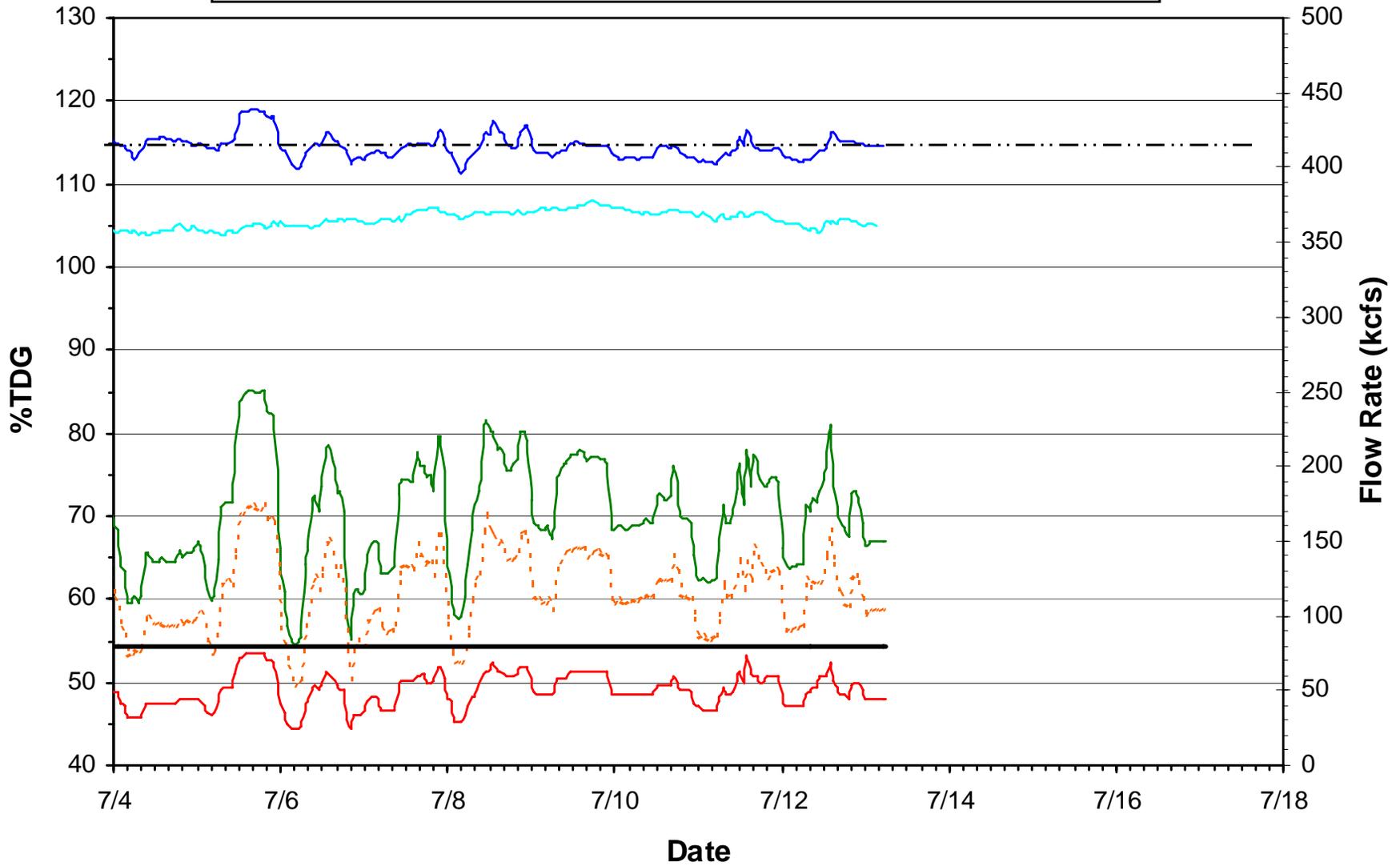
Time Period: 20 June @ 0000 hrs - 13 July @ 0600 hrs (563 hrs total)

McNary Summer Operations



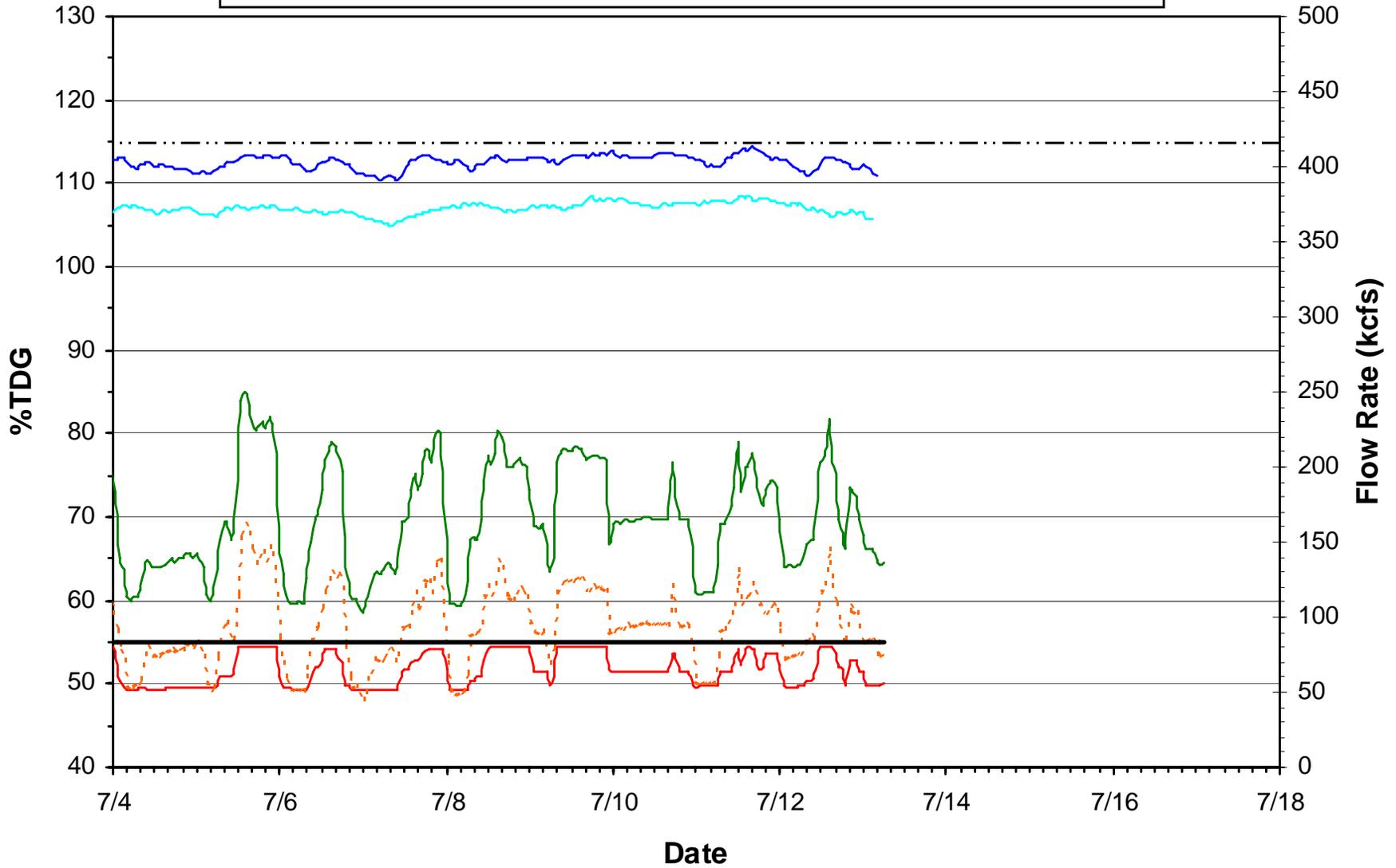
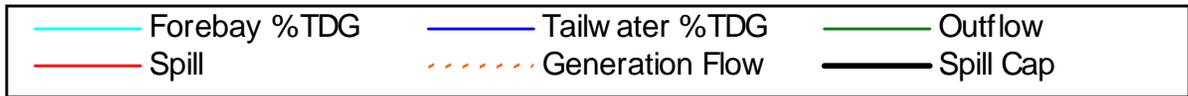
(As of 0600 hrs, 13 July 2005)

John Day Summer Operations



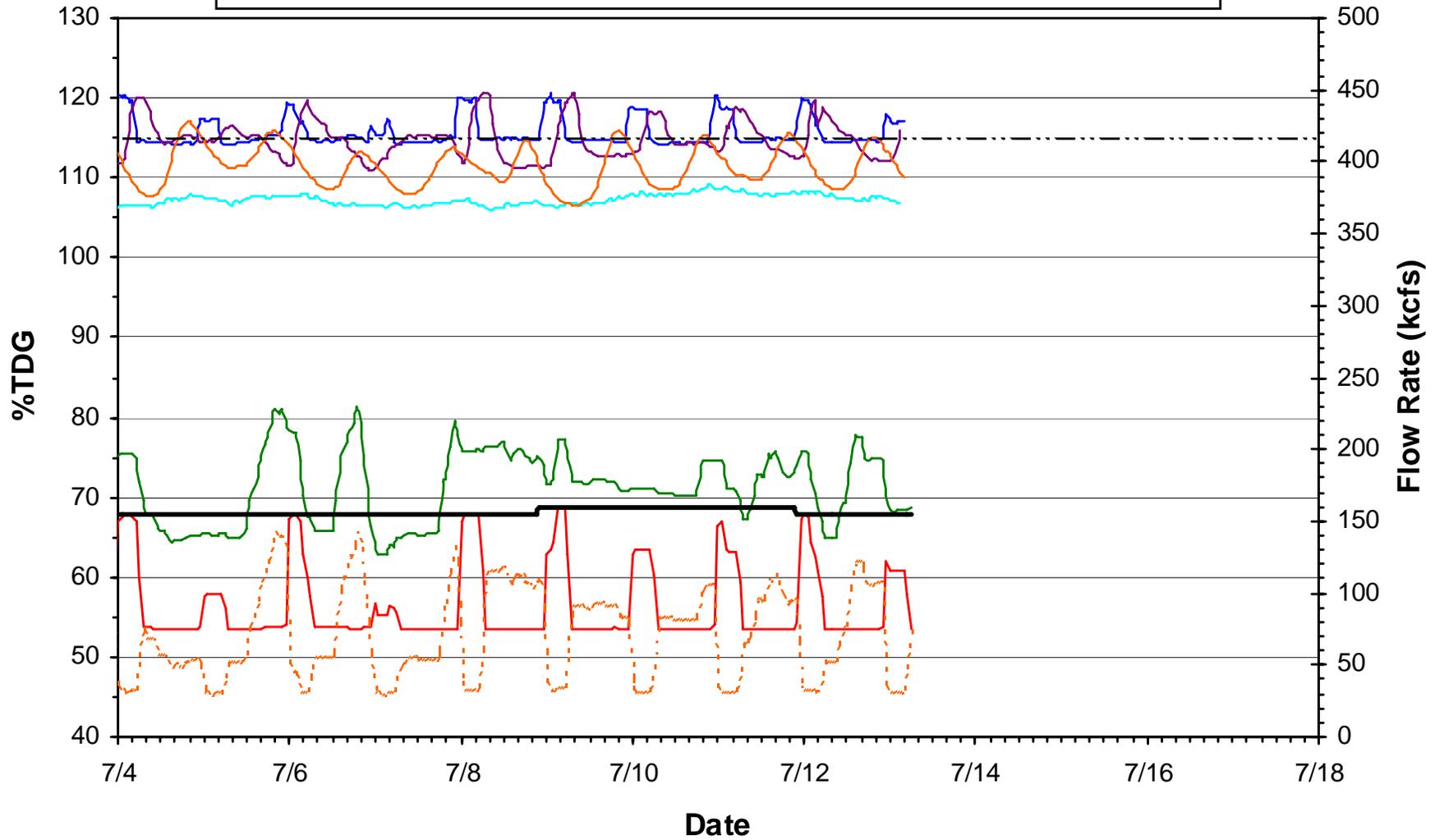
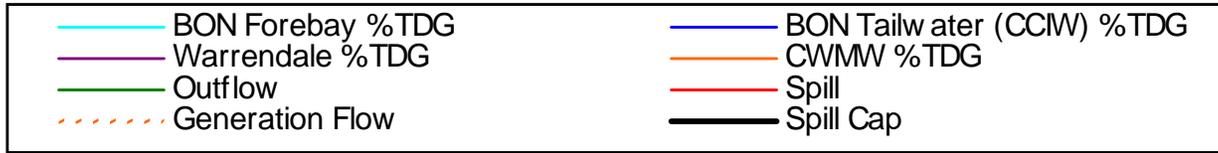
(As of 0600 hrs, 13 July 2005)

The Dalles Summer Operations



(As of 0600 hrs, 13 July 2005)

Bonneville Summer Operations



(As of 0600 hrs, 13 July 2005)

Percentage Spill

	Little Goose		
Date	Daytime Spill	John Day	The Dalles
	0400-2000 hrs	24 hrs	24 hrs
1-Jul	22.4	30.1	35.7
2-Jul	29.0	29.8	36.7
3-Jul	33.7	29.9	40.2
4-Jul	30.6	29.7	40.5
5-Jul	34.4	30.2	38.4
6-Jul	31.7	29.5	40.2
7-Jul	30.5	29.3	41.0
8-Jul	29.8	29.7	40.7
9-Jul	29.0	30.0	39.7
10-Jul	29.9	29.9	38.9
11-Jul	30.0	30.2	40.4
12-Jul	32.3	30.1	39.8
Ave:	30.3	29.9	39.4

MEMORANDUM FOR RECORD

SUBJECT: John Day Flow Modeling

CENWP-EC-HY was asked to quantify the hydraulic variations along the Columbia River from the McNary Dam tailrace to the John Day Dam forebay (Lake Umatilla). The hydraulic variations were quantified by determining the average velocities and average travel times over the total range of river flows through the length of the lake. The range of flows varied from 100,000 cfs to 325,000 cfs. The John Day Dam forebay elevation was set to 262.5 feet for all profile runs. The average velocities and travel times were also determined at five pre-selected cross sections, RM 291.92, RM 290.31, RM 252.81, RM 219.66, and RM 217.01 as requested by NOAA.

An HEC-RAS model of this stretch of the Columbia River was developed during a previous investigation of the drawdown options at the John Day Dam. The original model was developed using HEC-RAS River Analysis System, version 3.1.2, April 2004. This model was modified to determine the hydraulic variations along the Columbia. HEC-RAS is a 1-D model and provides a general feel for the impact of changing river flows. It does not get into the detail of small nuances that exist in an actual river.

On April 11, 2003, Acoustic Doppler Current Profiler (ADCP) and point velocity data were collected in the John Day Dam forebay at River Mile 217.2 by ENSR International for the Corps of Engineers. The results from this study are documented in **Acoustic Doppler Current Profiler and Point Velocity Measurement Field Data Collection, Lower Columbia River Projects**, dated July 9, 2003. The data from this study was compared to the data from the HEC-RAS model at cross section RM 217.01 (the closest cross section in the model to RM 217.2). The elevation of the river bottom was found by subtracting the total depth at the station from the water surface elevation on the day the data was collected. The ADCP cross section had the same general shape as the HEC-RAS cross section but lacked the details of the HEC-RAS cross section because there were only twelve ADCP stations compared to 36 stations in the HEC-RAS cross section. The ADCP and HEC-RAS cross sections are shown in Figure 1.

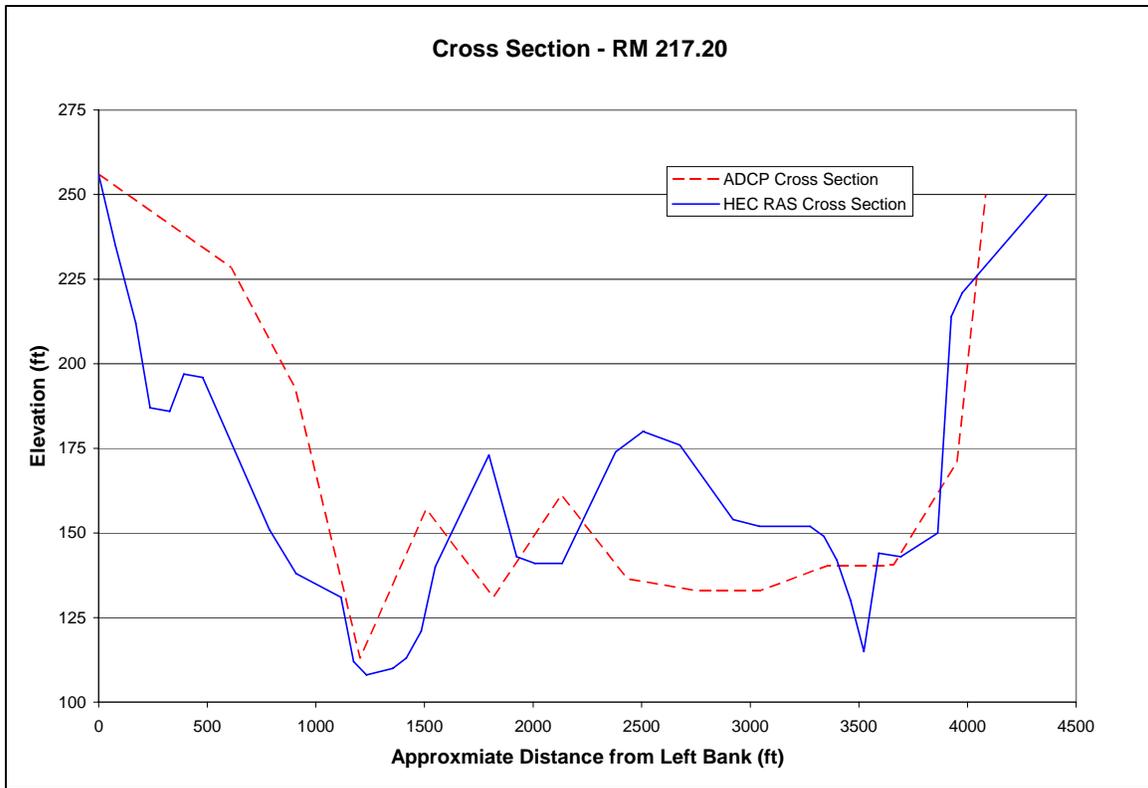


Figure 1: ADCP & HEC RAS Cross Sections at River Mile 217.20.

During the ADCP study, the velocities were taken at various depths at each station. Since HEC-RAS is a 1-D model it does not provide velocities at different depths. To be able to compare the velocities across the cross section, all of the velocities collected at each station during the ADCP study were averaged to provide one velocity for the station. The HEC-RAS model provided the velocities in five sections across the channel. The velocities collected during the ADCP study and those computed by HEC-RAS are shown below on Figure 2.

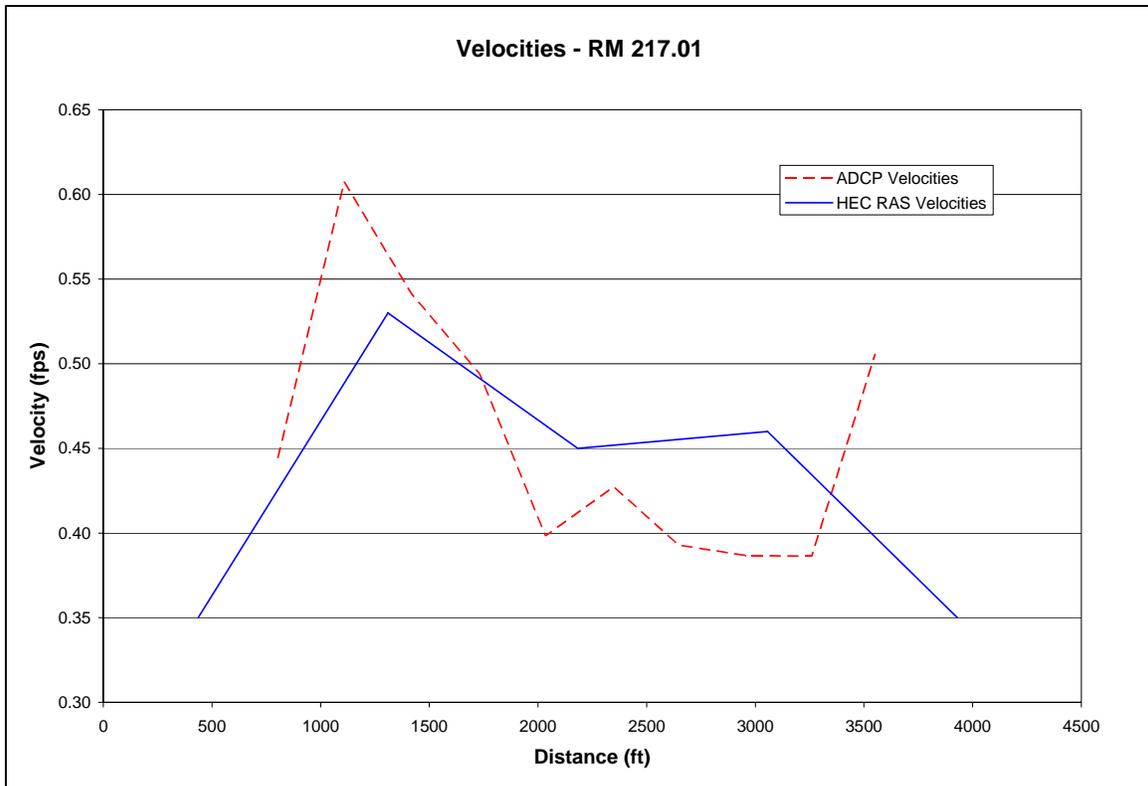


Figure 2: ADCP & HEC RAS Velocities at River Mile 217.20.

The velocities computed by HEC-RAS were 0.08 fps lower on the left side of the channel, almost the same in the middle of the channel, and 0.07 fps higher on the right side of the channel. The average velocity from the ADCP study for cross section RM 217.2 is 0.46 fps. The average velocity computed by the HEC-RAS model for cross section RM 217.01 is 0.44 fps.

Twelve different flow profiles were used in the HEC-RAS model. These profiles are shown in Table 1. The velocities at each cross section and travel times were computed for each flow. Since HEC-RAS provides an average cross section velocity at each cross section, the velocities were averaged from all cross sections to obtain the average velocity for each flow profile. The travel time is an estimate of time required for water particles to travel from McNary Dam to John Day Dam through the entire Lake Umatilla.

Table 1: Hydraulic Characteristics

Total River Flow (cfs)	Travel Times (hrs)	Average Velocity (fps)
100,000	278	0.57
115,000	242	0.65
133,000	209	0.75
140,000	199	0.79
150,000	186	0.84
163,000	171	0.91
170,000	164	0.95
189,500	147	1.05
200,000	140	1.11
225,000	124	1.24
275,000	102	1.49
325,000	87	1.73

The velocities listed above are an average over the length of Lake Umatilla (76 miles). The velocity at any given cross section can vary considerably from the average. Therefore, the velocities for the different river flows at five different cross sections were investigated. The average and maximum velocities for cross sections RM 291.92, RM 290.31, RM 252.81, RM 219.66, and RM 217.01 are shown in Tables 2 and 3, respectively. The velocity plots are shown in Figure 3.

Table 2: Average Velocity at Selected Cross Sections

Total Flow (cfs)	Average Velocity at RM 291.92 (ft/s)	Average Velocity at RM 290.31 (ft/s)	Average Velocity at RM 252.81 (ft/s)	Average Velocity at RM 219.66 (ft/s)	Average Velocity at RM 217.01 (ft/s)
100000	1.39	1.89	0.41	0.26	0.23
115000	1.58	2.16	0.47	0.30	0.27
133000	1.81	2.47	0.54	0.35	0.31
140000	1.89	2.58	0.57	0.37	0.33
150000	2.01	2.75	0.61	0.39	0.35
163000	2.17	2.96	0.66	0.43	0.38
170000	2.25	3.07	0.69	0.44	0.40
189500	2.46	3.37	0.77	0.50	0.44
200000	2.58	3.53	0.81	0.52	0.47
225000	2.83	3.89	0.91	0.59	0.53
275000	3.31	4.53	1.11	0.72	0.64
325000	3.74	5.09	1.31	0.85	0.76

Table 3: Maximum Velocity at Selected Cross Sections

Total Flow (cfs)	Maximum Velocity at RM 291.92 (ft/s)	Maximum Velocity at RM 290.31 (ft/s)	Maximum Velocity at RM 252.81 (ft/s)	Maximum Velocity at RM 219.66 (ft/s)	Maximum Velocity at RM 217.01 (ft/s)
100000	1.40	2.04	0.49	0.32	0.28
115000	1.60	2.33	0.56	0.36	0.32
133000	1.83	2.67	0.65	0.42	0.37
140000	1.91	2.80	0.68	0.44	0.39
150000	2.03	2.98	0.73	0.47	0.42
163000	2.19	3.20	0.79	0.51	0.46
170000	2.27	3.32	0.83	0.54	0.48
189500	2.49	3.65	0.92	0.60	0.53
200000	2.60	3.82	0.97	0.63	0.56
225000	2.87	4.23	1.09	0.71	0.63
275000	3.35	4.95	1.33	0.87	0.77
325000	3.79	5.59	1.57	1.03	0.91

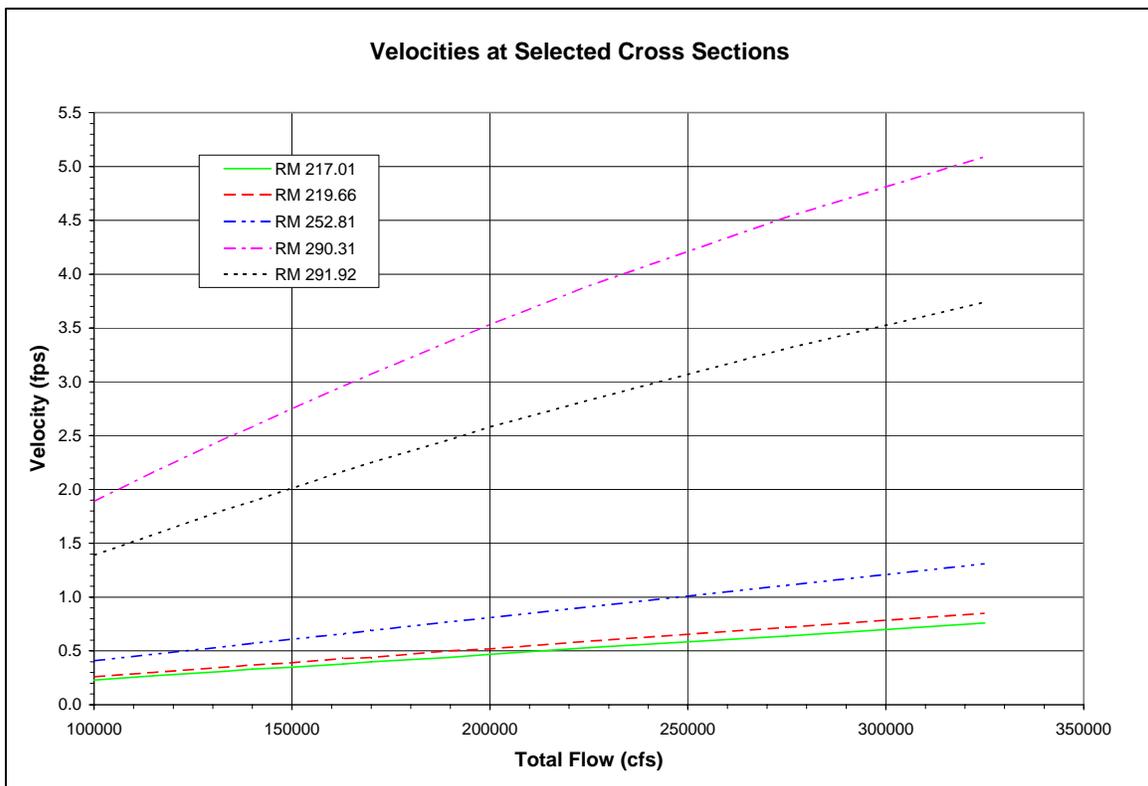


Figure 3: Velocity Plot for RM 291.92, RM 290.31, RM 252.81, RM 219.66, & RM 217.01.

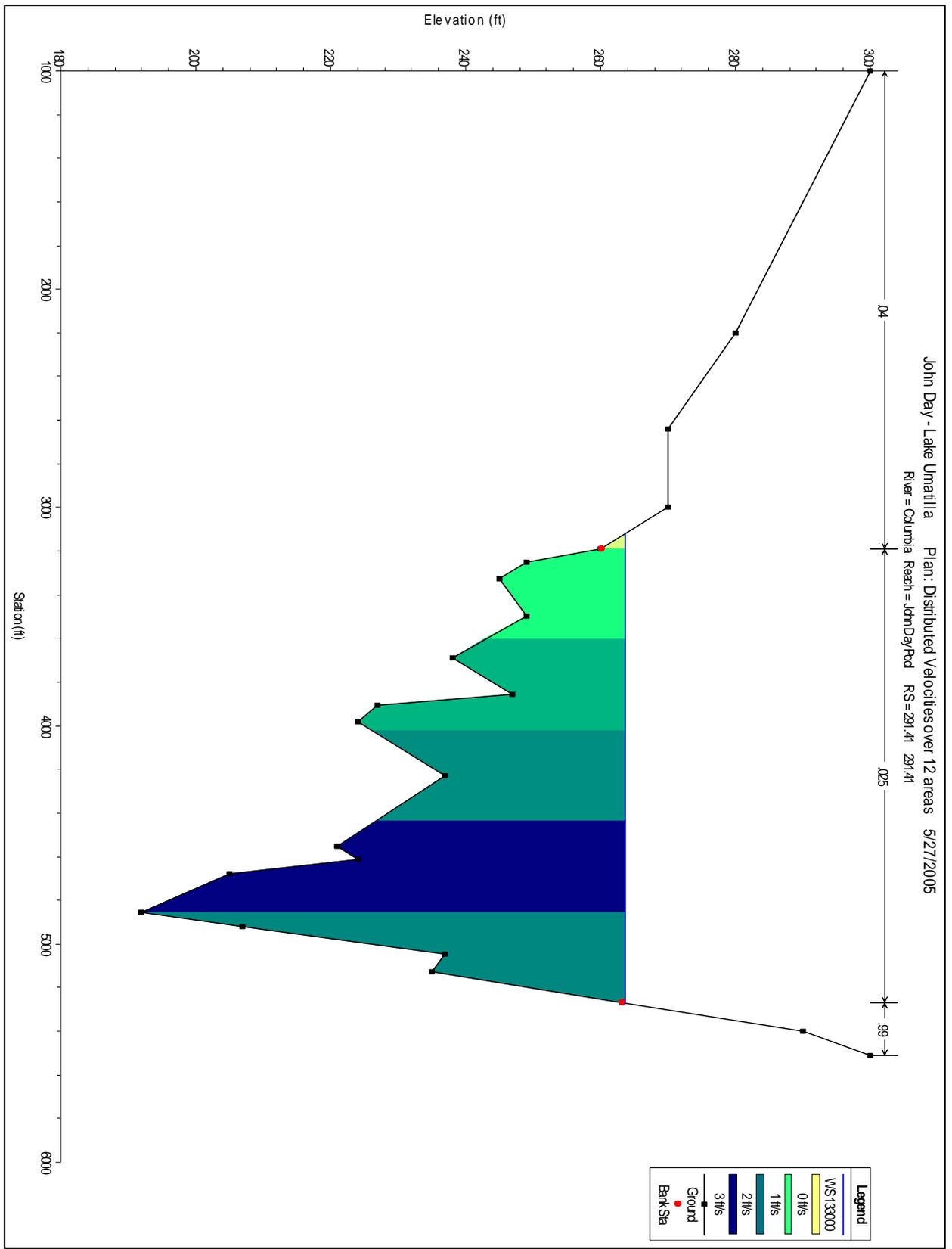
As can be seen from the table and plot, the velocity is much higher near the upper end of Lake Umatilla compared to the middle or lower end of reach.

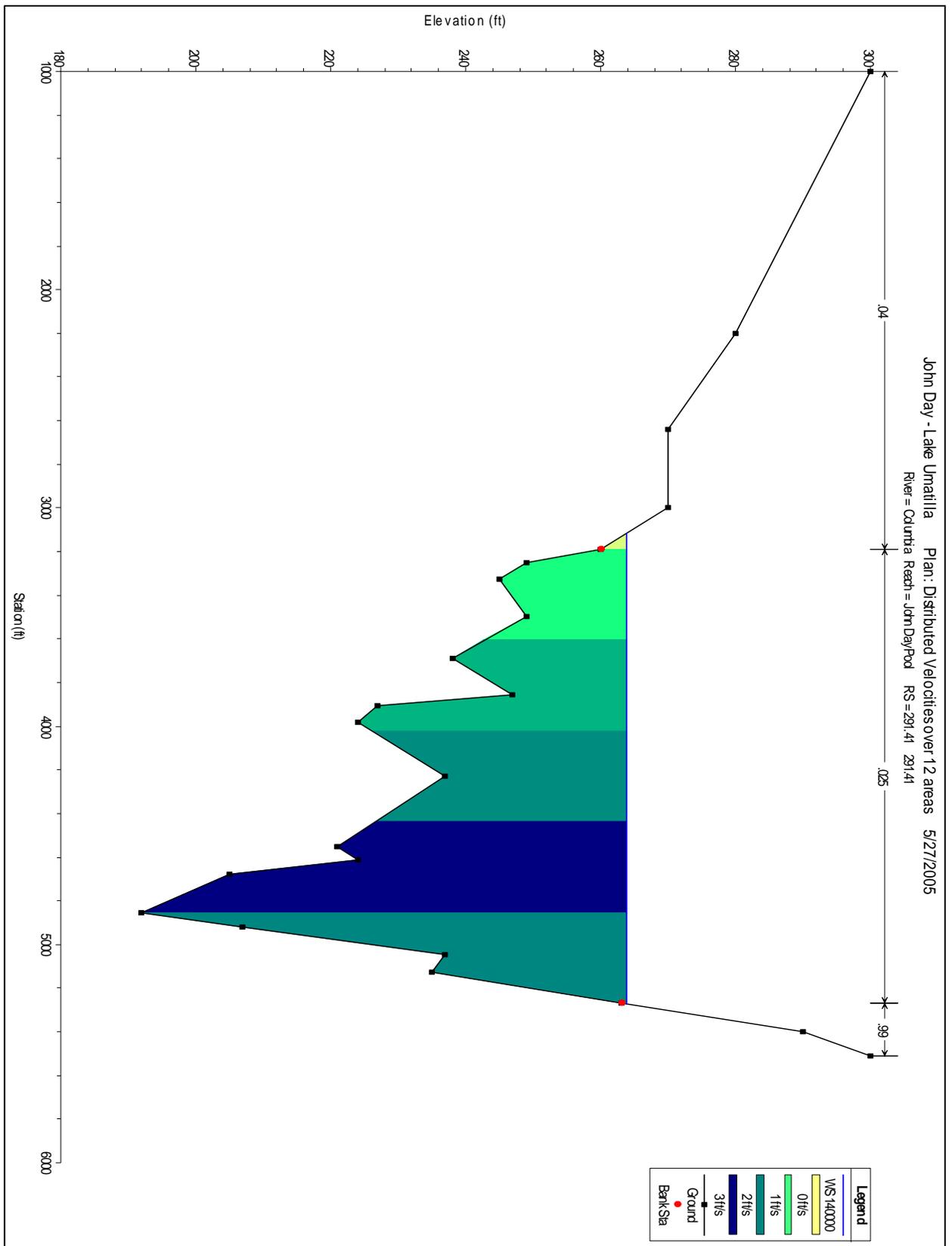
The difference between the average velocity and the maximum velocity can be used to estimate the variability of the velocity in the cross section. The smaller the difference, the less variability in the cross section. The difference between the average and maximum velocities for cross sections RM 291.92, RM 290.31, RM 252.81, RM 219.66, and RM 217.01 are shown in Table 4.

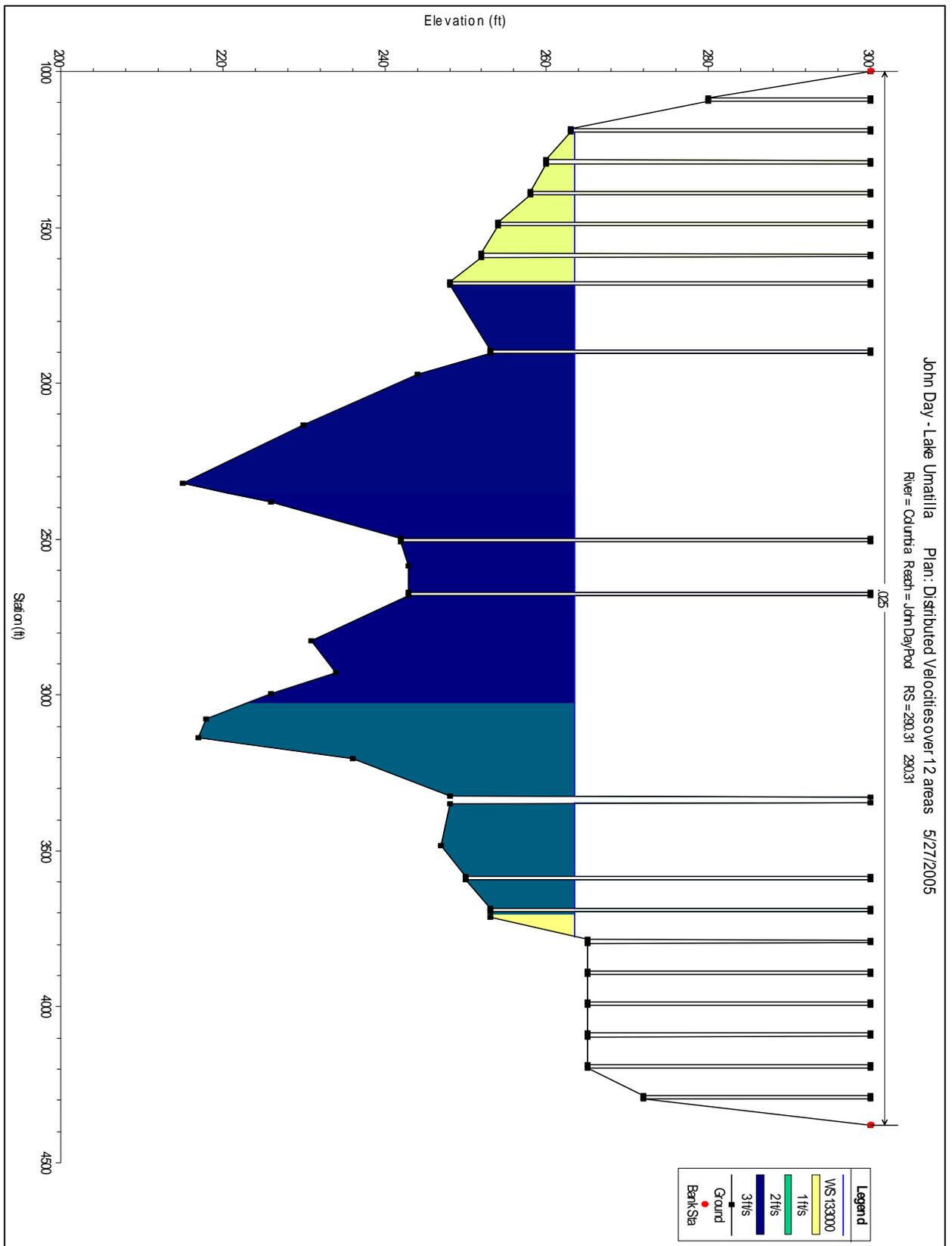
Table 4: Difference Between Average and Maximum Velocities at Selected Cross Sections

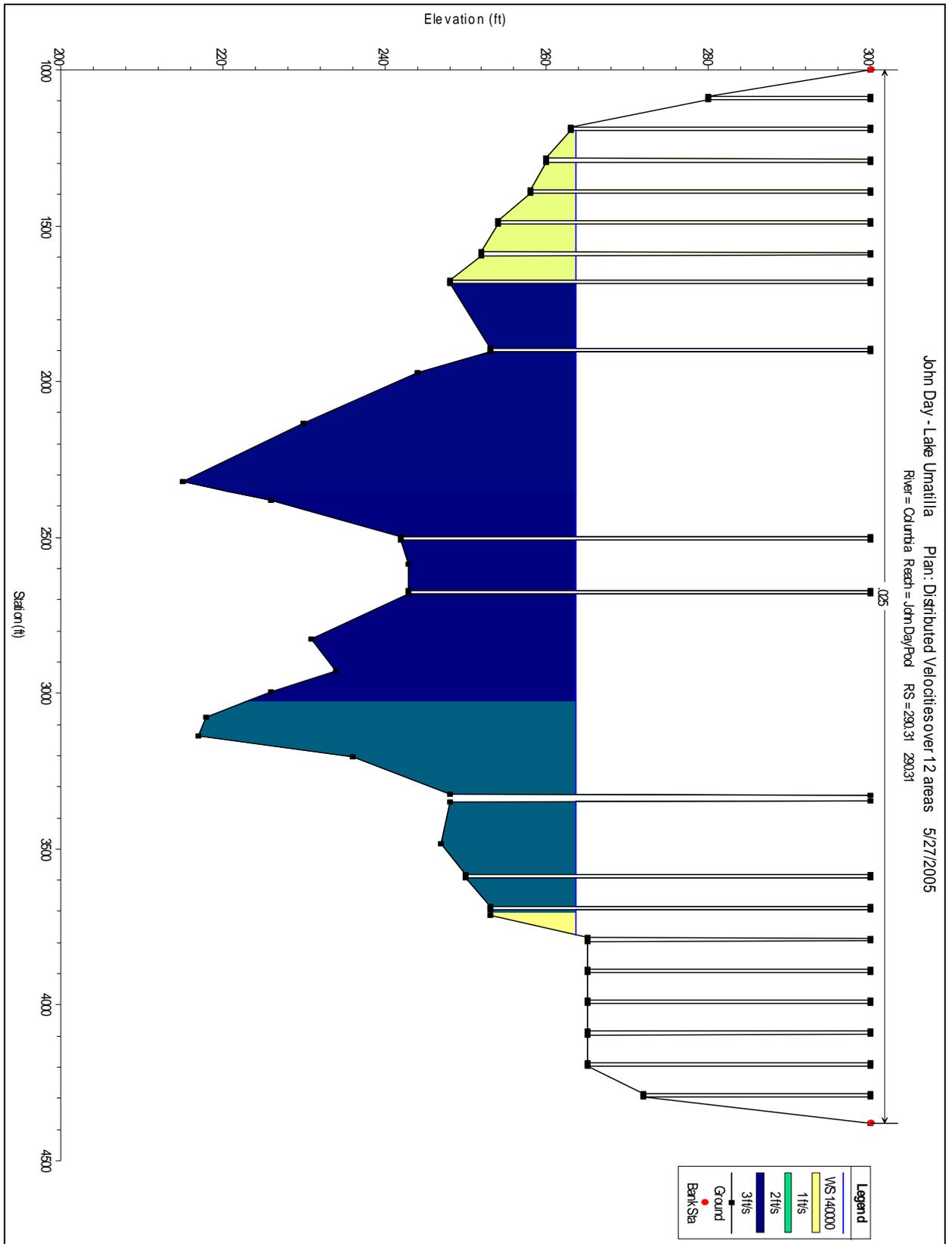
Total Flow (cfs)	Difference Between Average & Maximum Velocities at RM 291.92 (ft/s)	Difference Between Average & Maximum Velocities at RM 290.31 (ft/s)	Difference Between Average & Maximum Velocities at RM 252.81 (ft/s)	Difference Between Average & Maximum Velocities at RM 219.66 (ft/s)	Difference Between Average & Maximum Velocities at RM 217.01 (ft/s)
100000	0.01	0.15	0.08	0.06	0.05
115000	0.02	0.17	0.09	0.06	0.05
133000	0.02	0.20	0.11	0.07	0.06
140000	0.02	0.22	0.11	0.07	0.06
150000	0.02	0.23	0.12	0.08	0.07
163000	0.02	0.24	0.13	0.08	0.08
170000	0.02	0.25	0.14	0.10	0.08
189500	0.03	0.28	0.15	0.10	0.09
200000	0.02	0.29	0.16	0.11	0.09
225000	0.04	0.34	0.18	0.12	0.10
275000	0.04	0.42	0.22	0.15	0.13
325000	0.05	0.50	0.26	0.18	0.15

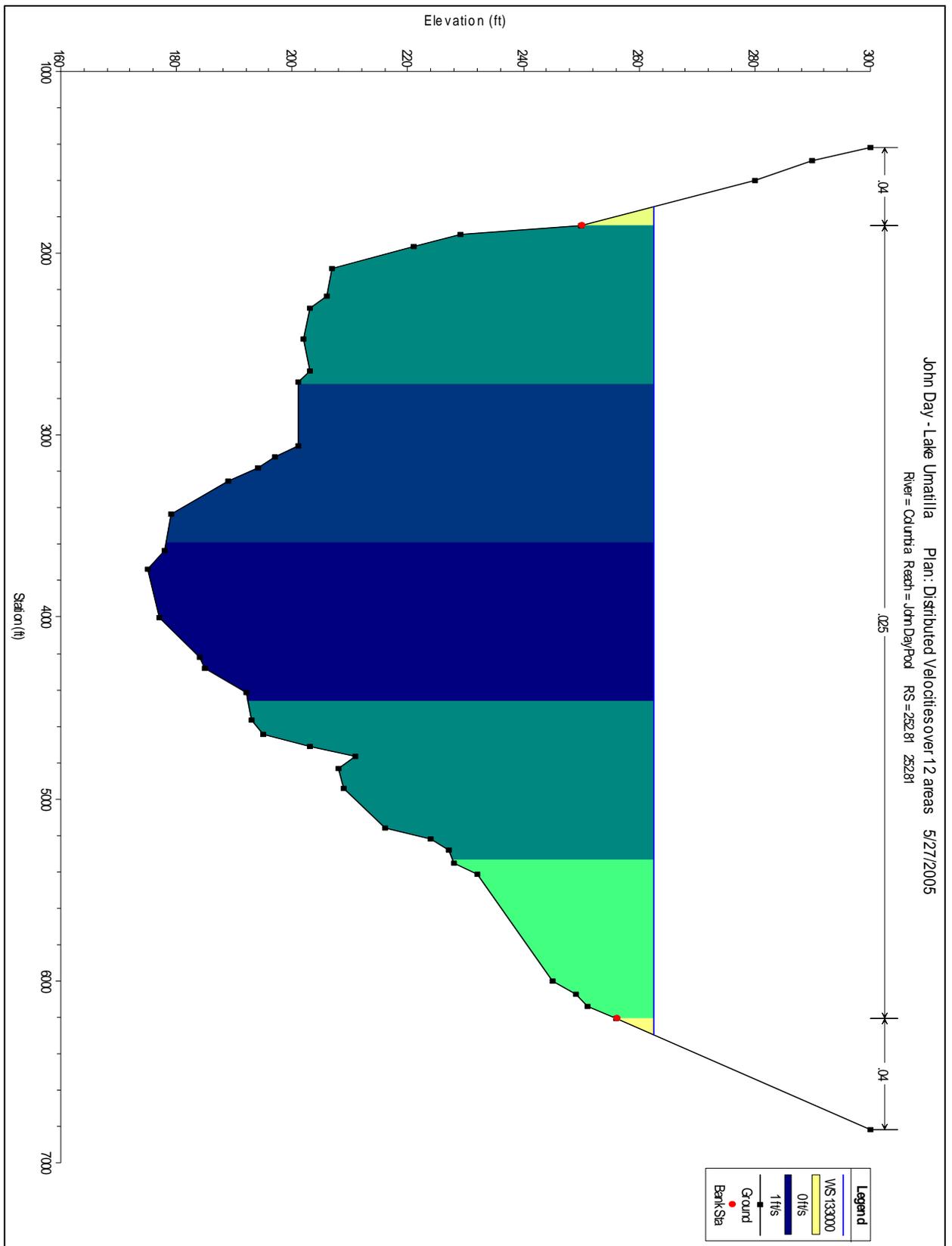
HEC-RAS can estimate the flow distribution at each cross section. The flow distribution plots for four of the five selected cross sections with a total river flow of 133,000 cfs and 140,000 cfs are attached. The flow distribution plot for the cross section at RM 291.92 was not included because it was a cross section of the McNary Dam forebay and did not provide any useful information. The flow distribution for the cross section at RM 291.41 (the next cross section downstream) was included instead. Based on these plots, there is no noticeable difference between the flow distribution at 133,000 cfs and 140,000 cfs.

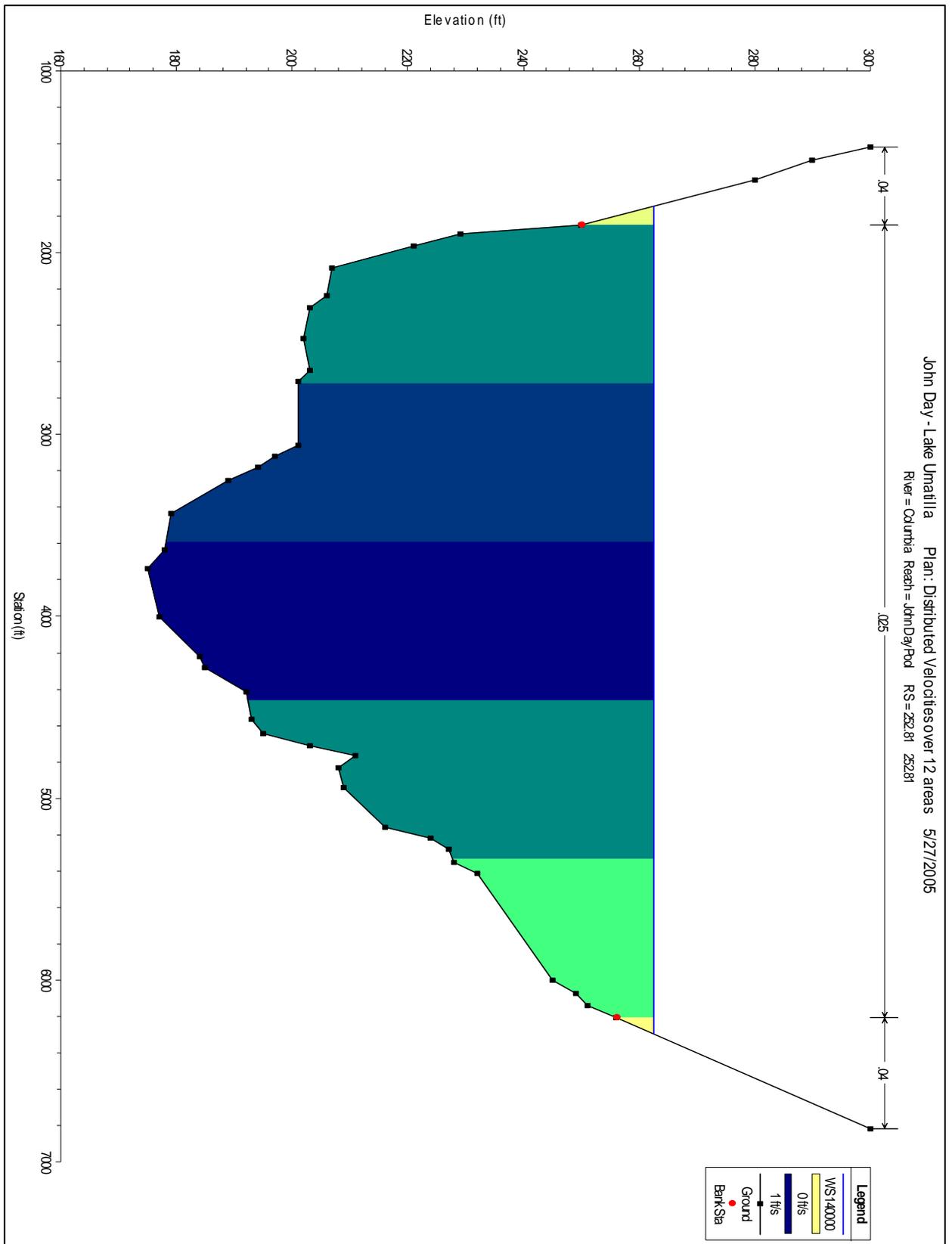


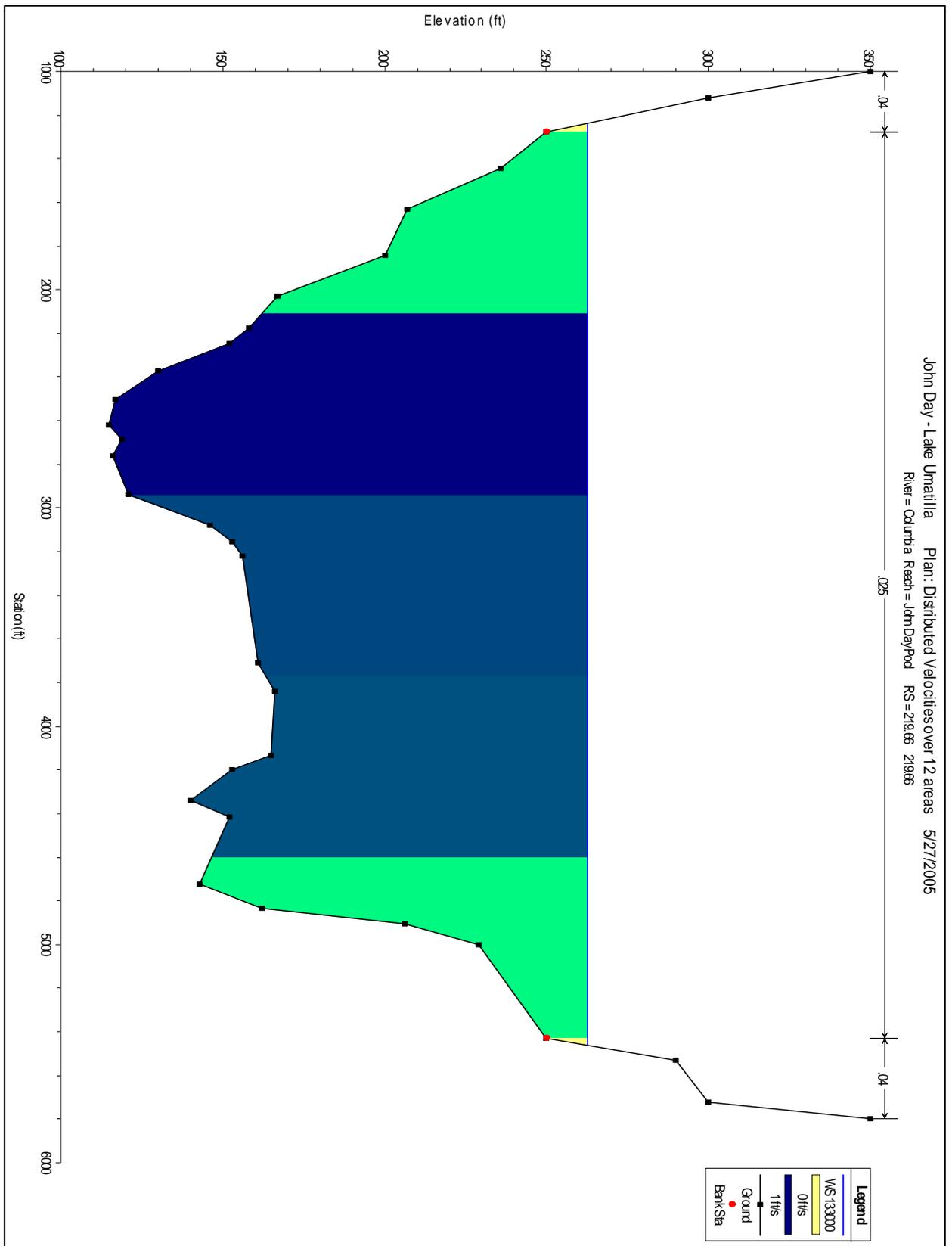


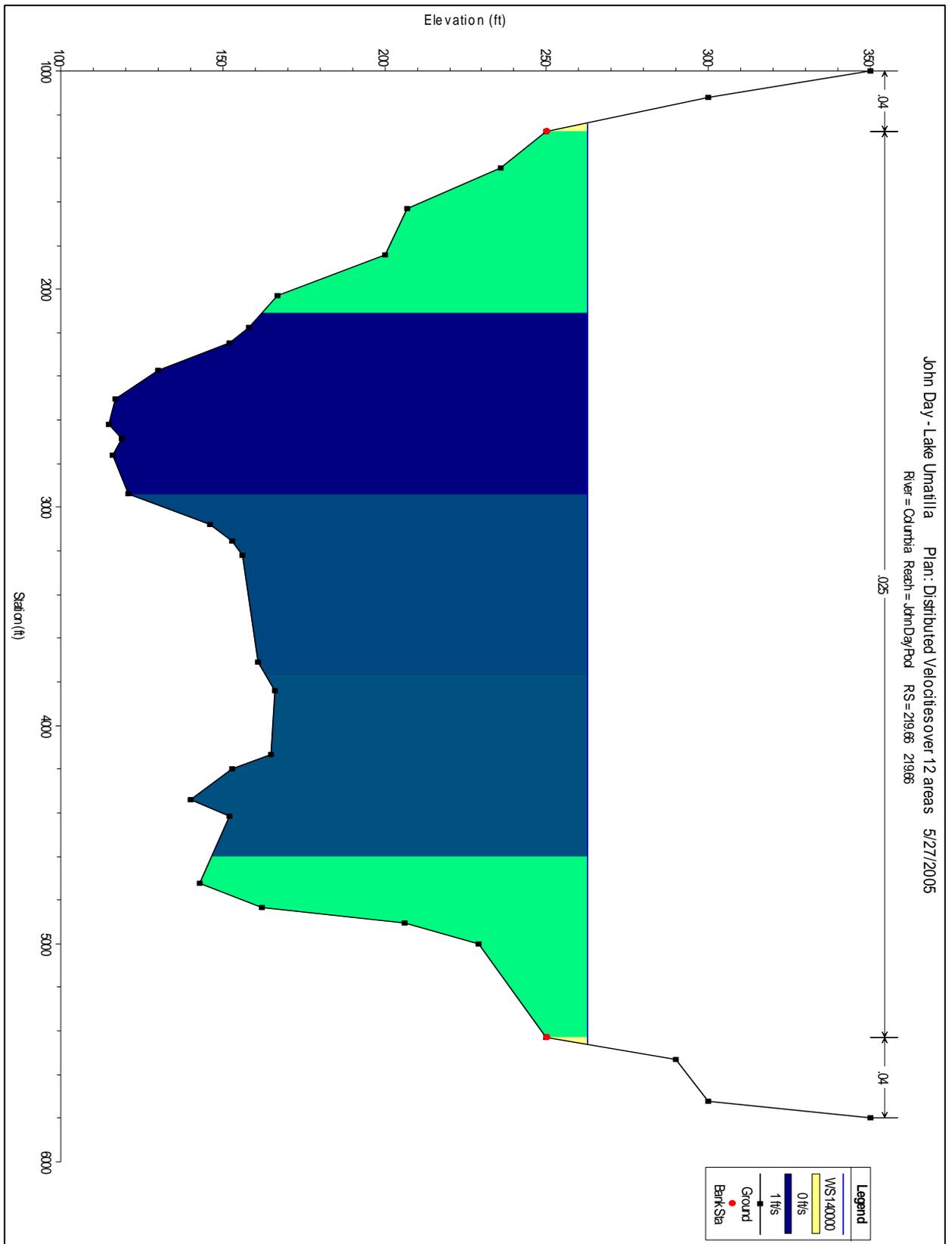


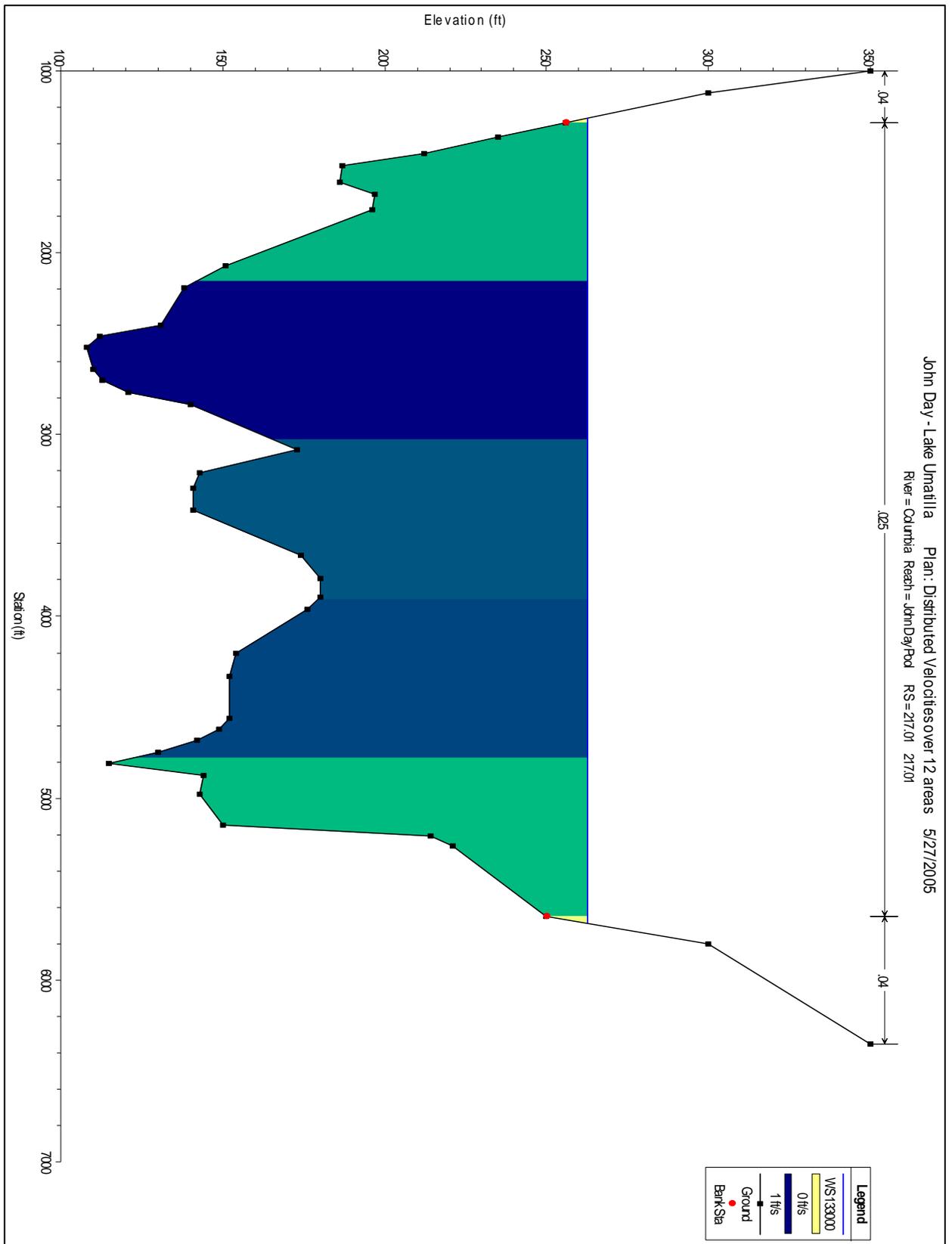


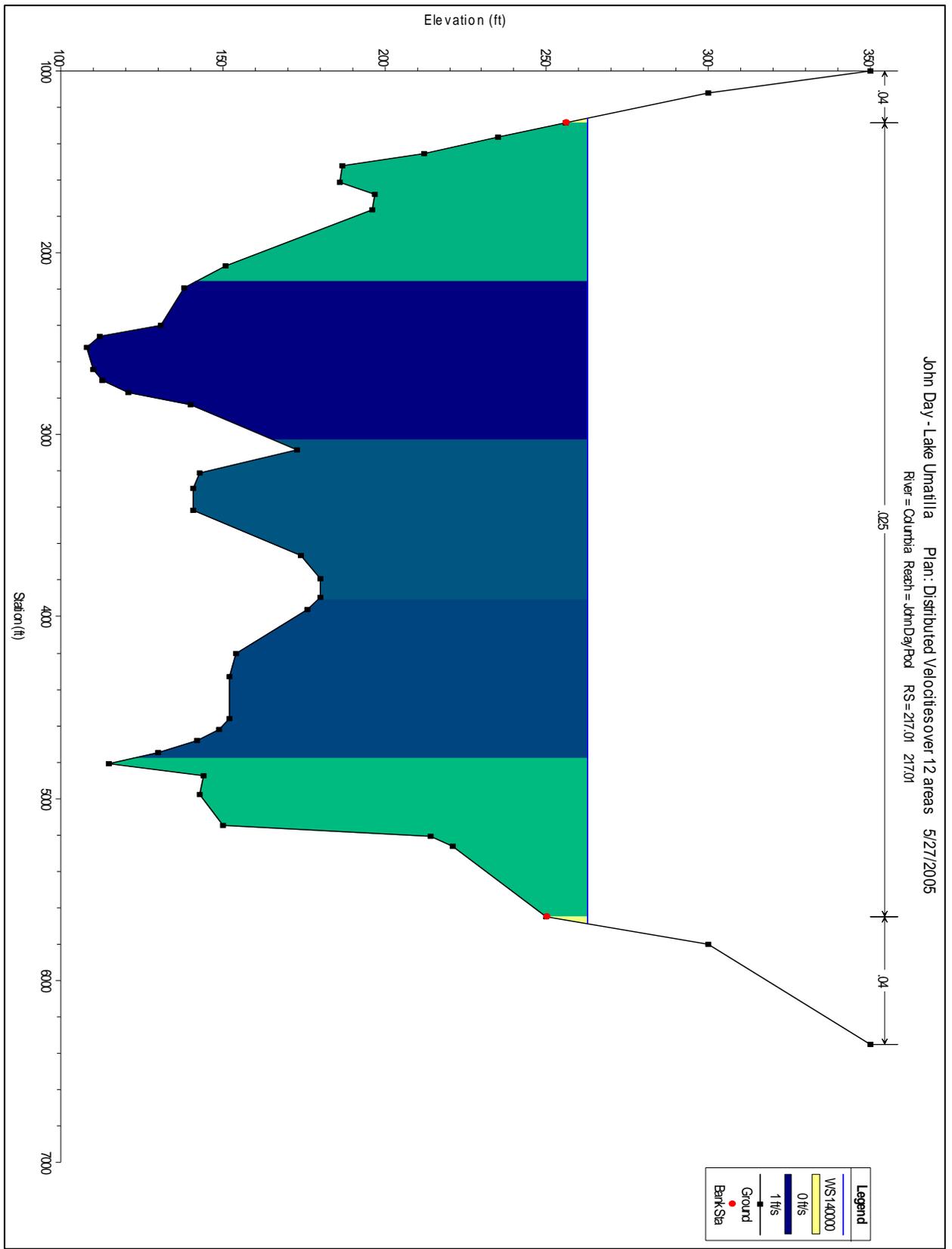




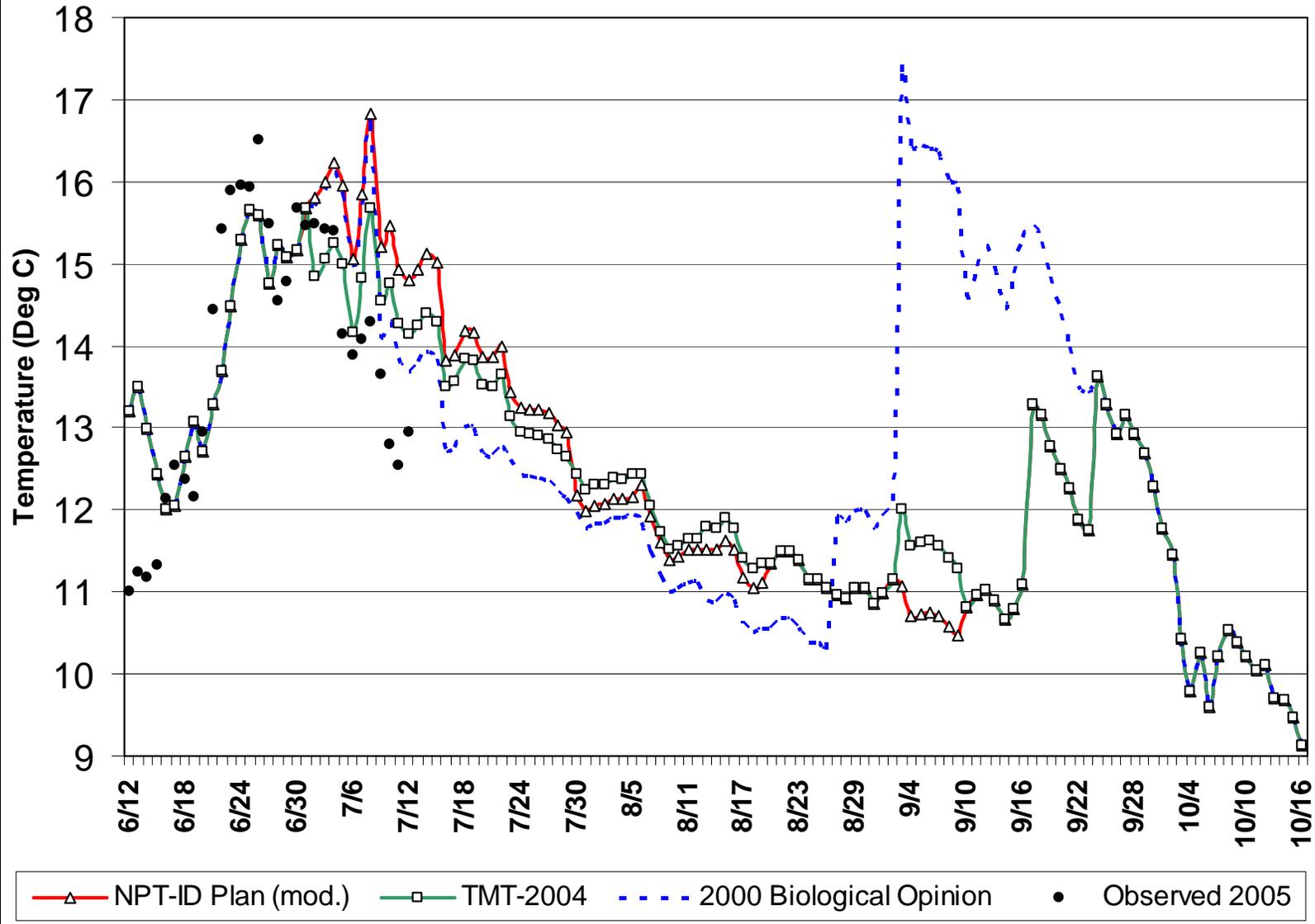




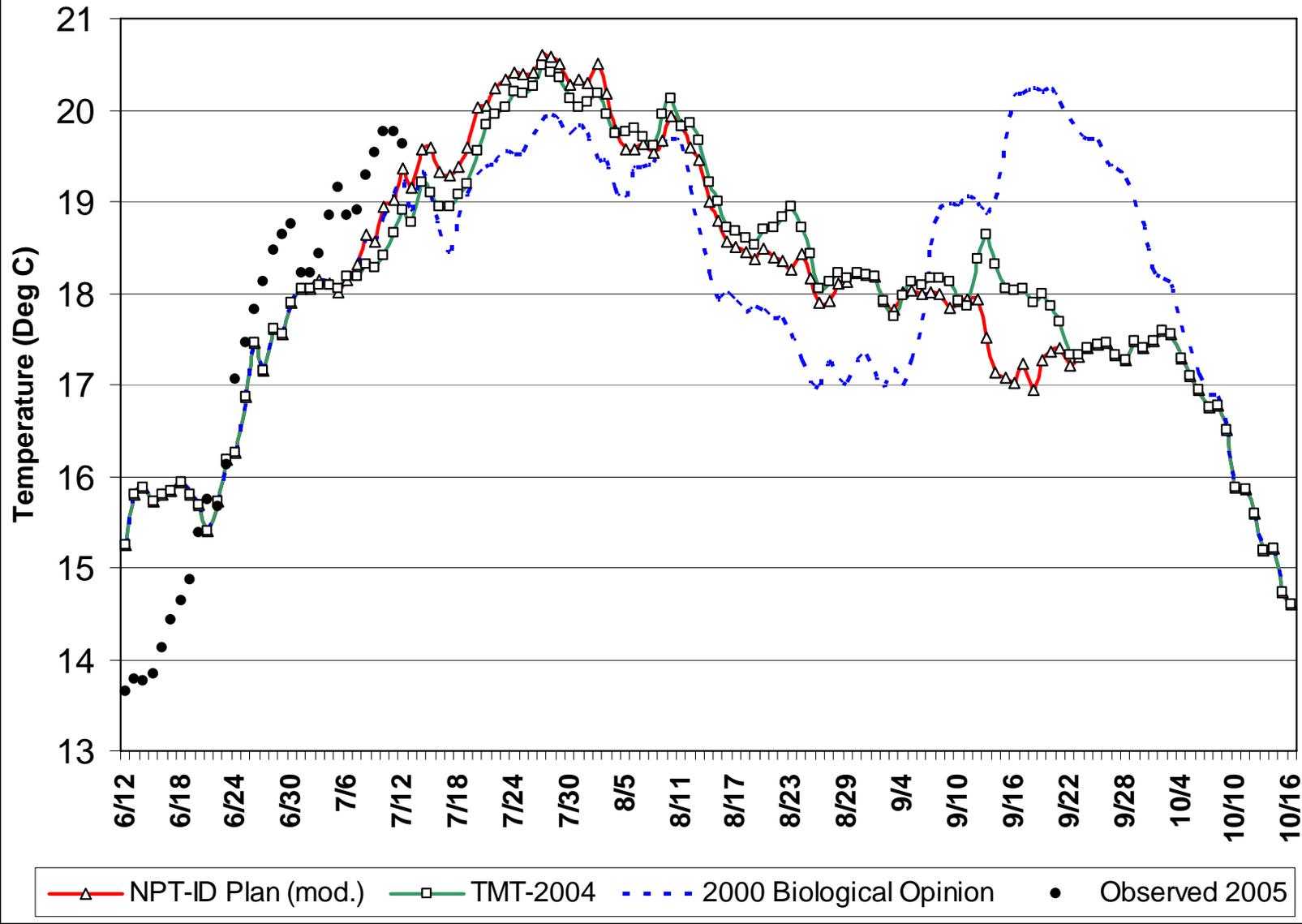




Clearwater River at Peck (1979, 1994, 1995, 1998 weather)



Snake at Lower Granite Dam (1979, 1994, 1995, 1998 weather)



The Effects of Elevated Flows on Chum Salmon Spawning Behavior Below Bonneville Dam



**Kenneth F. Tiffan
U.S. Geological Survey
Western Fisheries Research Center
Cook, Washington**

2004 Objectives

1. Determine the flow and tailwater elevation at which chum salmon spawning behavior is altered.
2. Determine where fish go in response to high flows and when they return to their redds.
3. Determine if normal spawning behavior resumes after a flow-induced change in behavior.
4. Determine if fish will spawn at higher riverbed elevations as higher flows inundate these areas.



Possible Behavioral Effects of Elevated Flows on Chum Salmon

- No effect
- Temporary displacement, but return to spawn when flows return to normal
- Displacement with spawning elsewhere
- Displacement without continued spawning



Requested Water Release Pattern



Hydrophone Setup at Ives Island - 2004



0 25 50 100 150 Meters

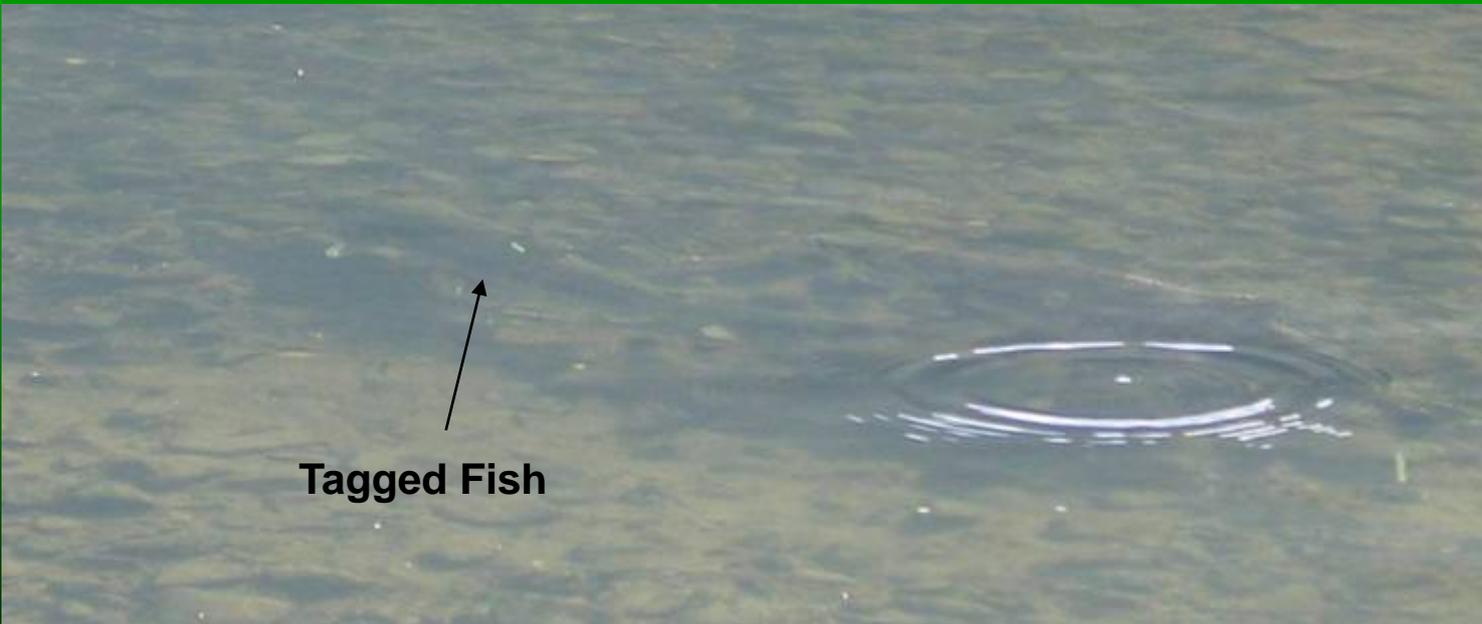
Acoustic Array





Fish Collection and Tagging





Tagged Fish



Base flow



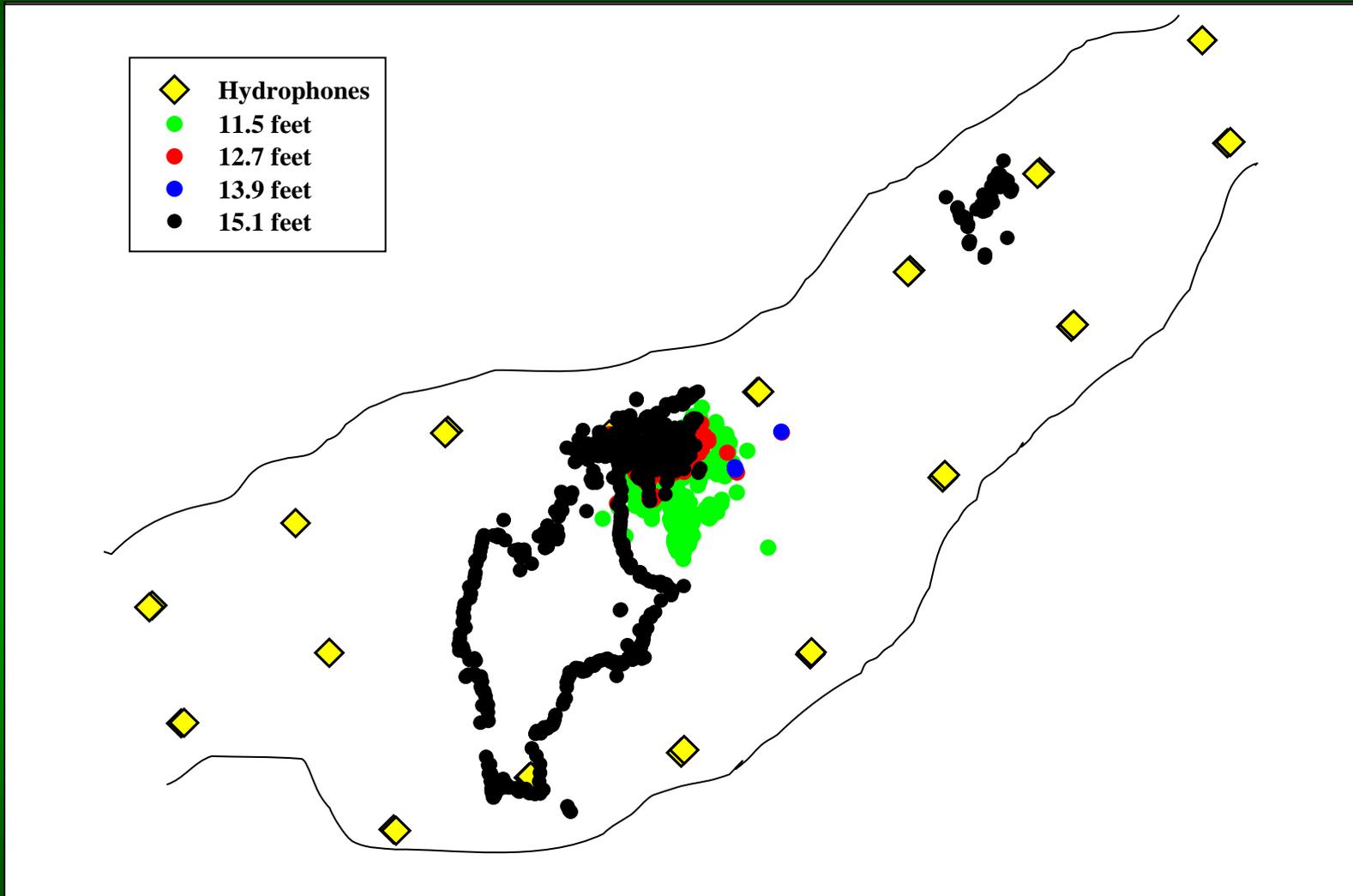
High flow



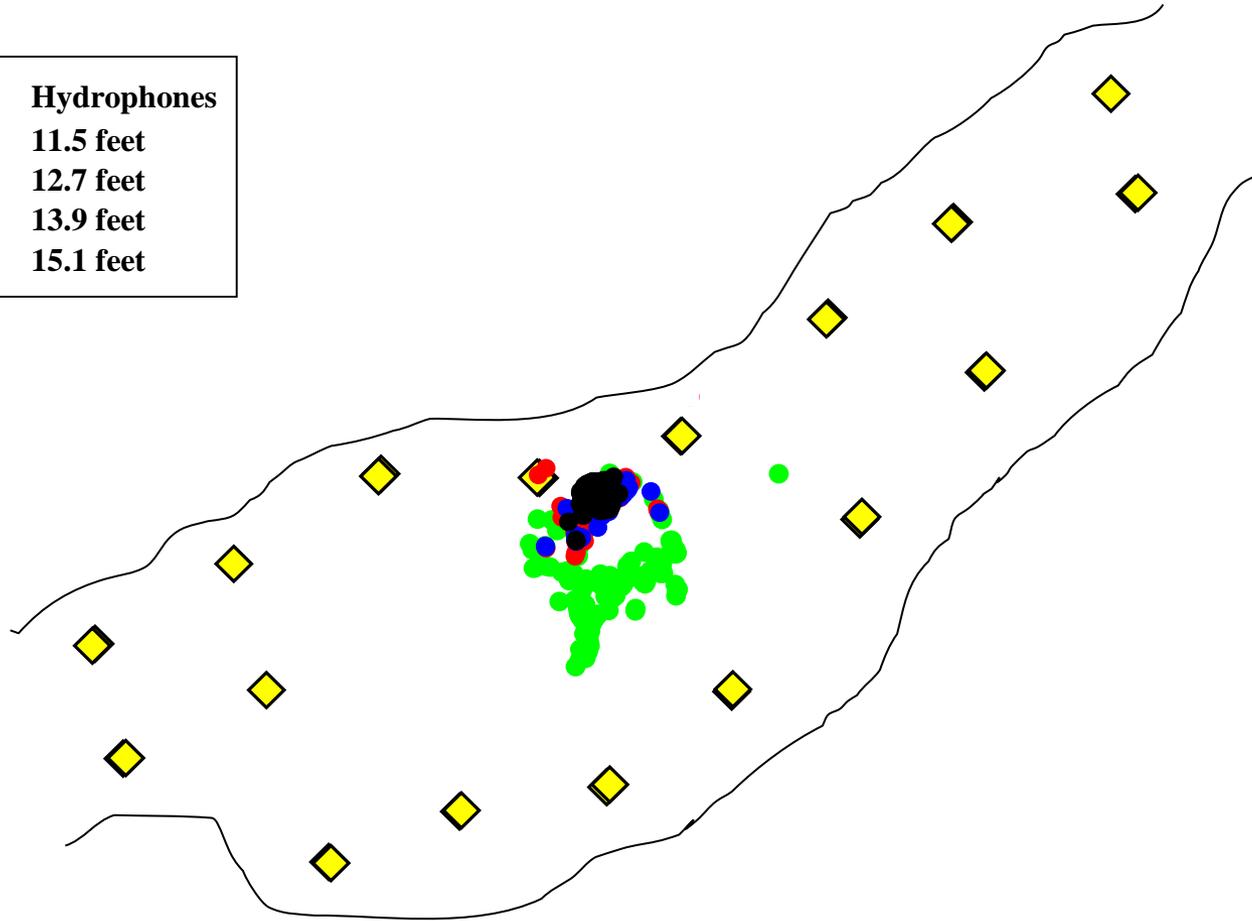
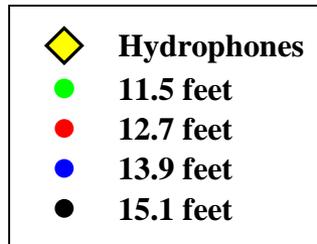
Chum redd constructed during a daytime high-flow test, which was subsequently dewatered



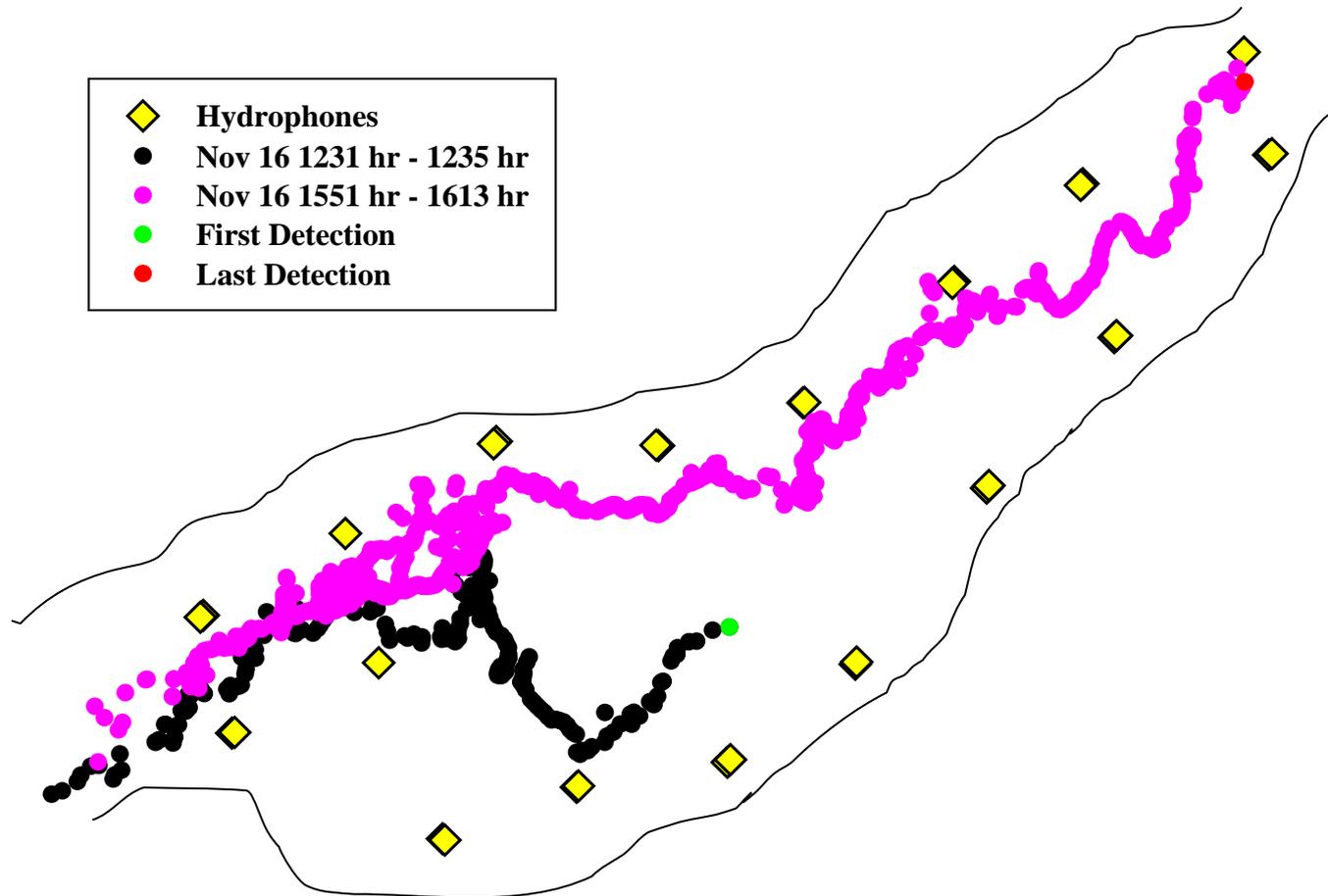
Daytime test – November 17, 2004



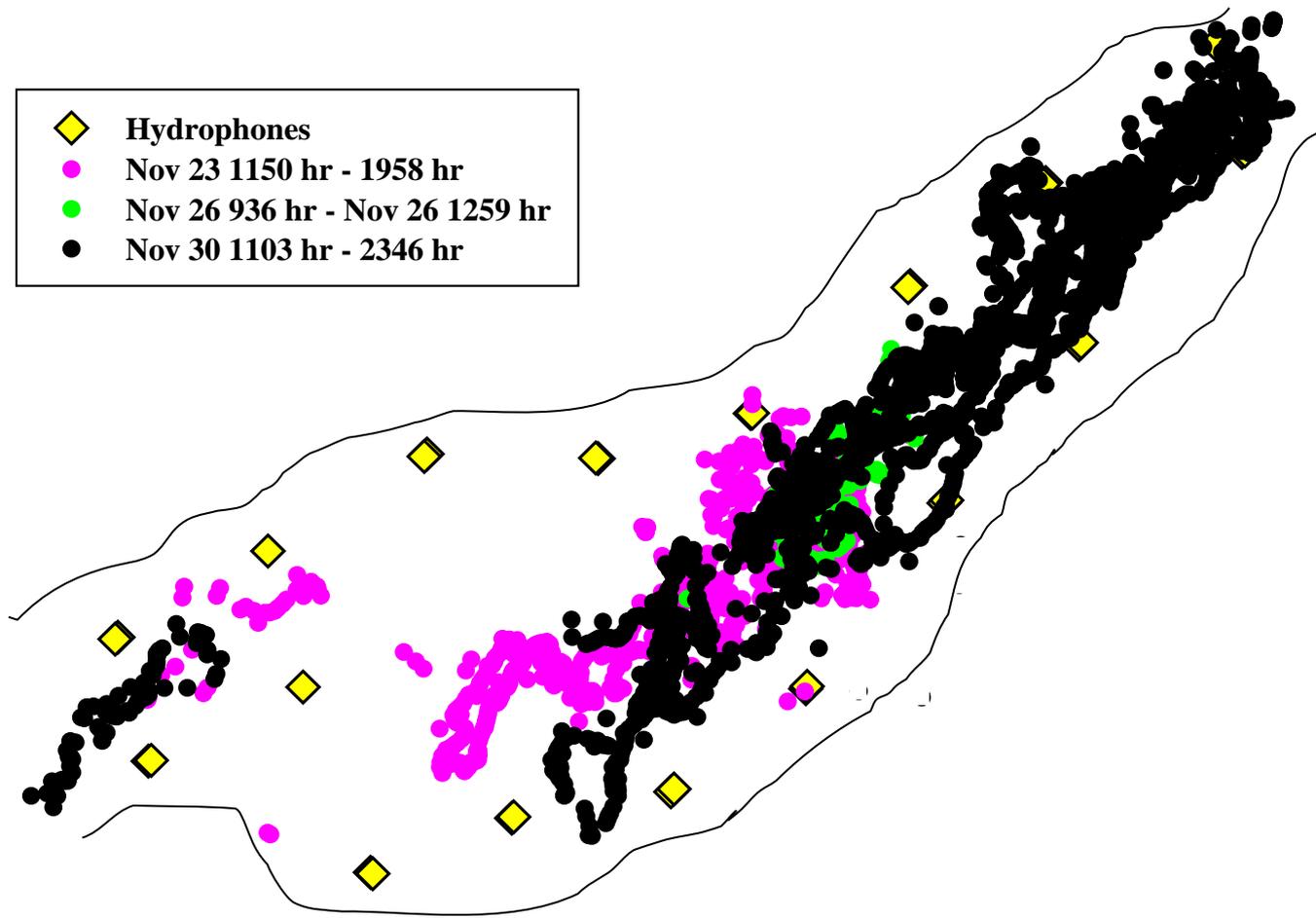
Nighttime test – November 18-19, 2004



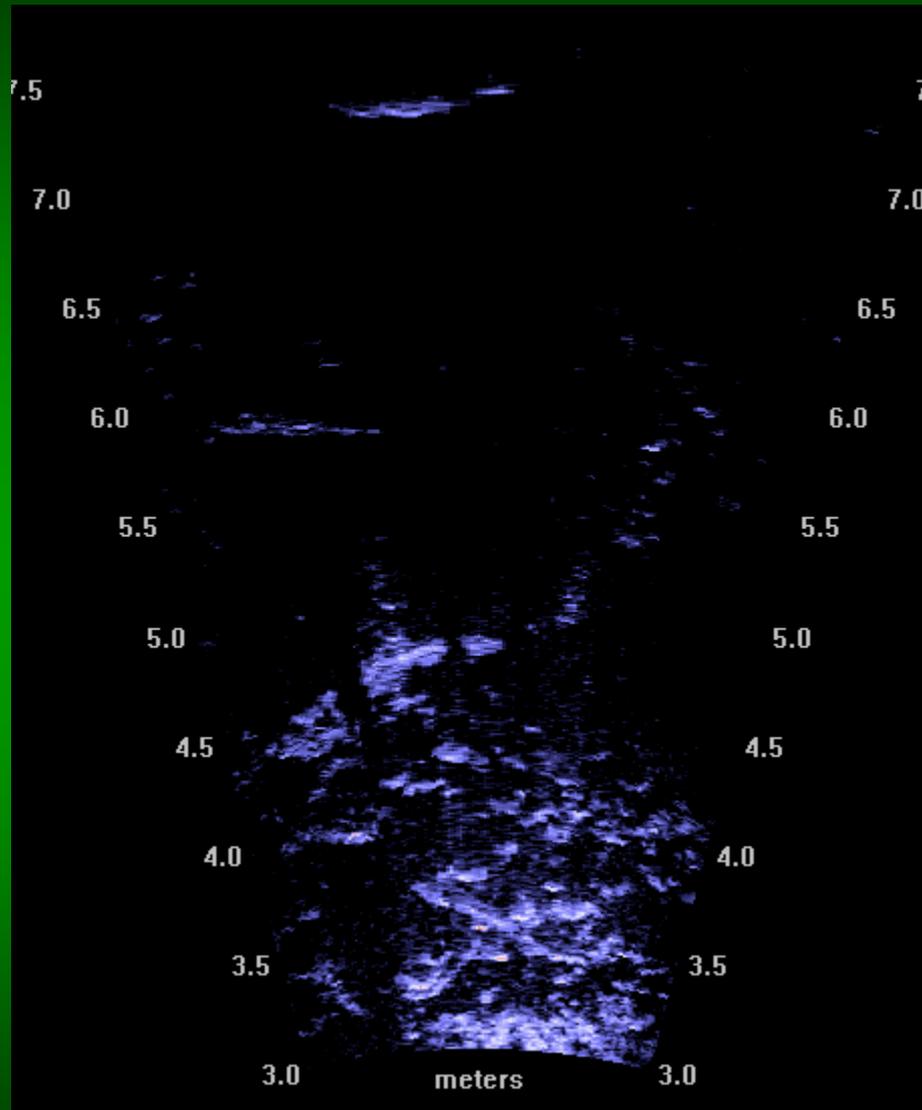
Fish Leaves Array - November 16, 2004



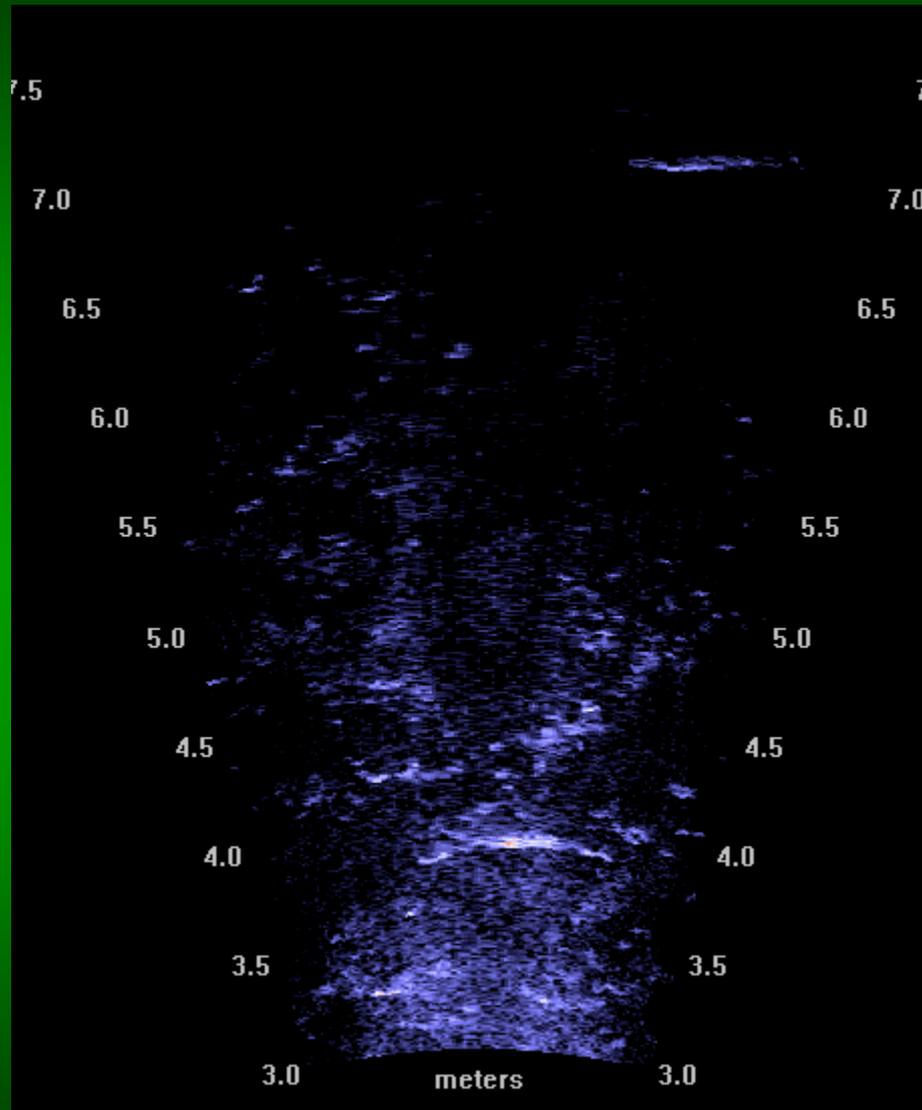
Fish Without a Redd?



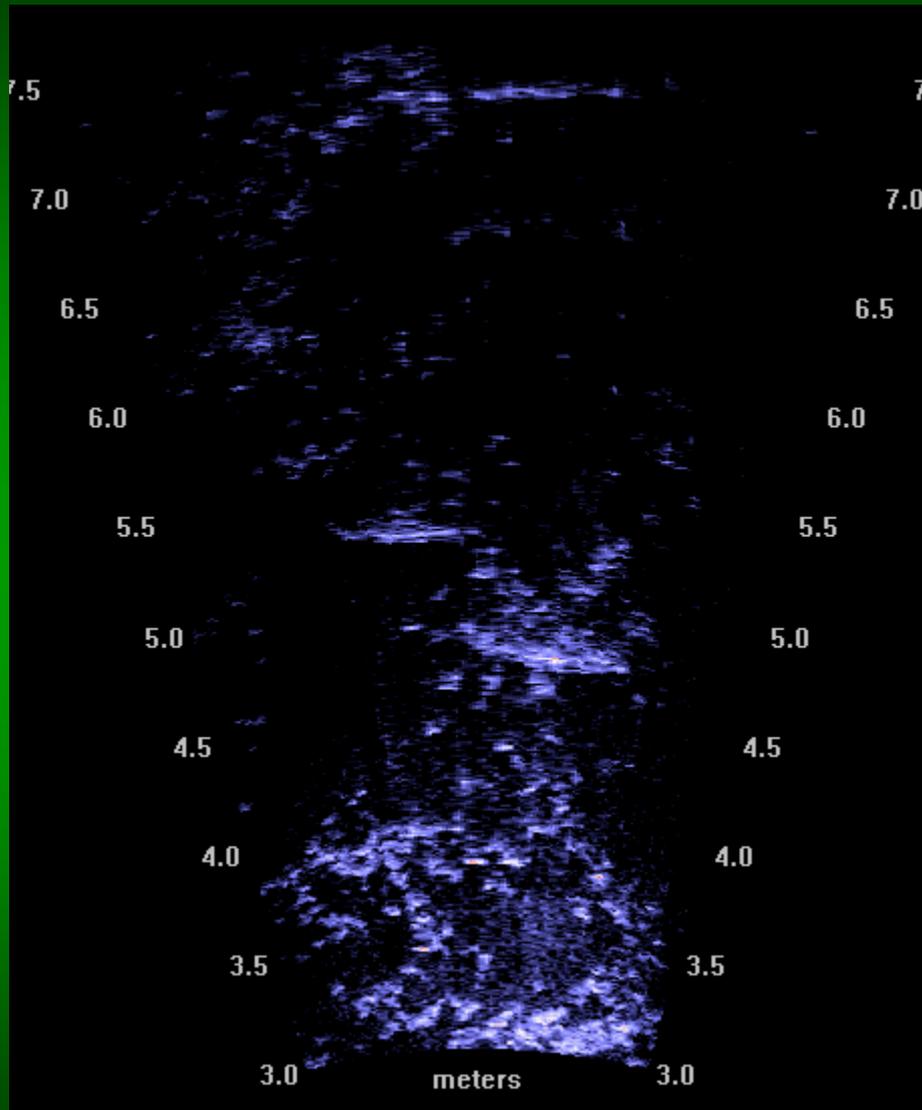
Pre-test Swimming



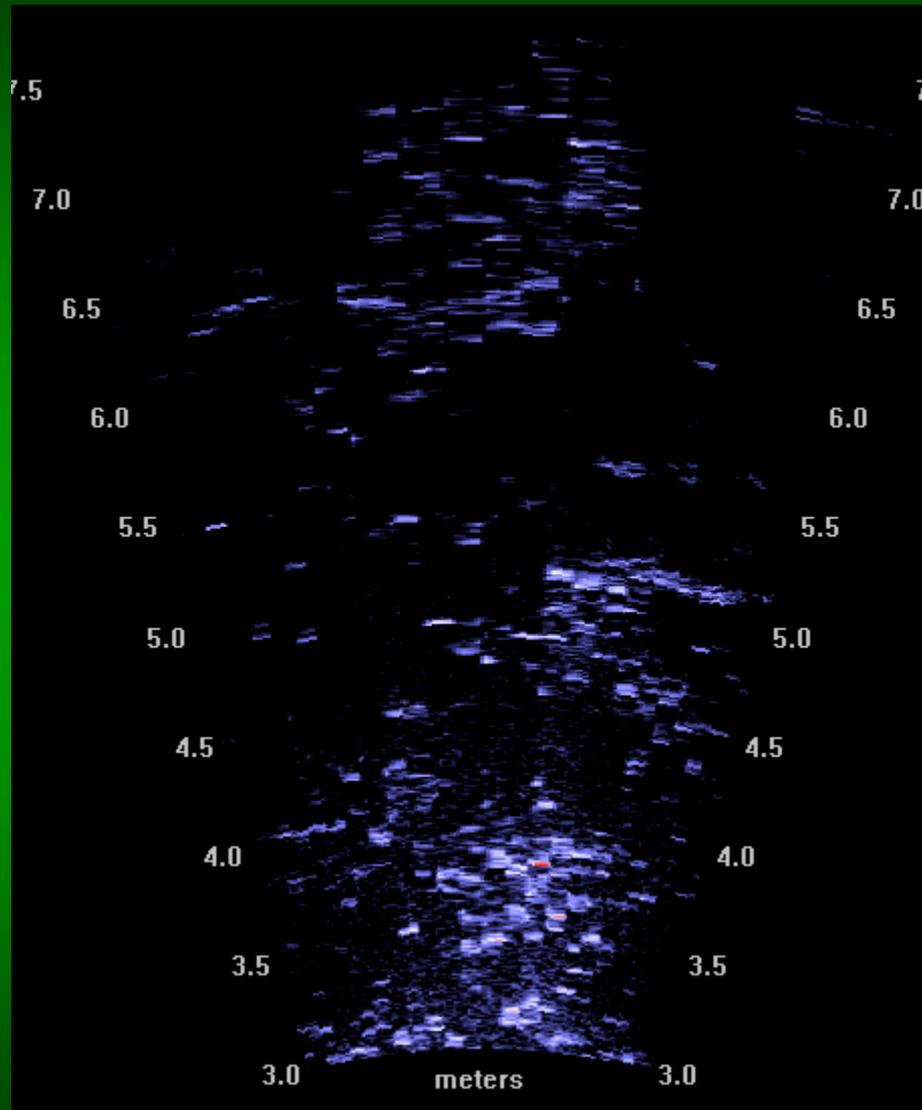
Maximum Flow Swimming



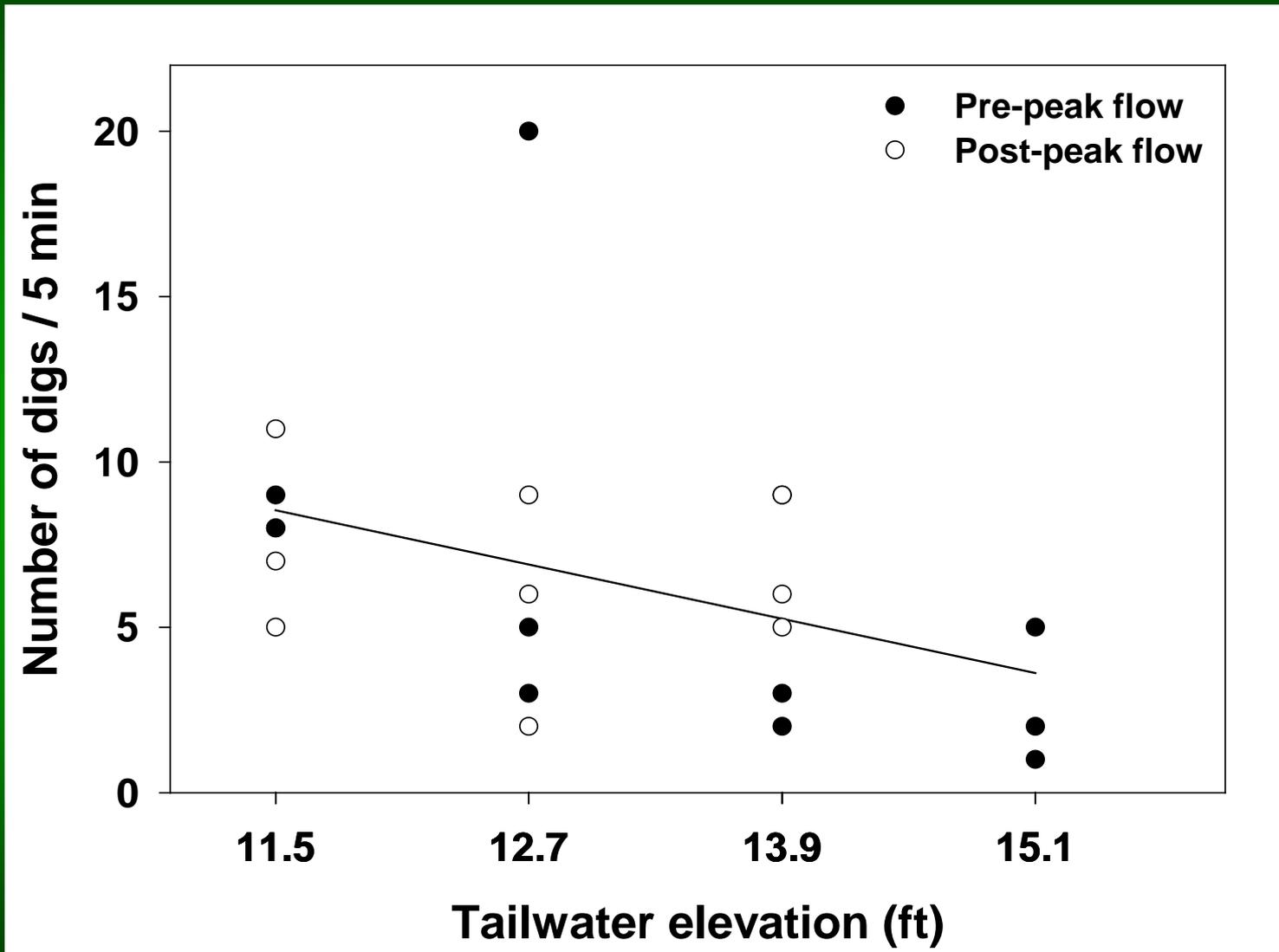
Pre-test Swimming

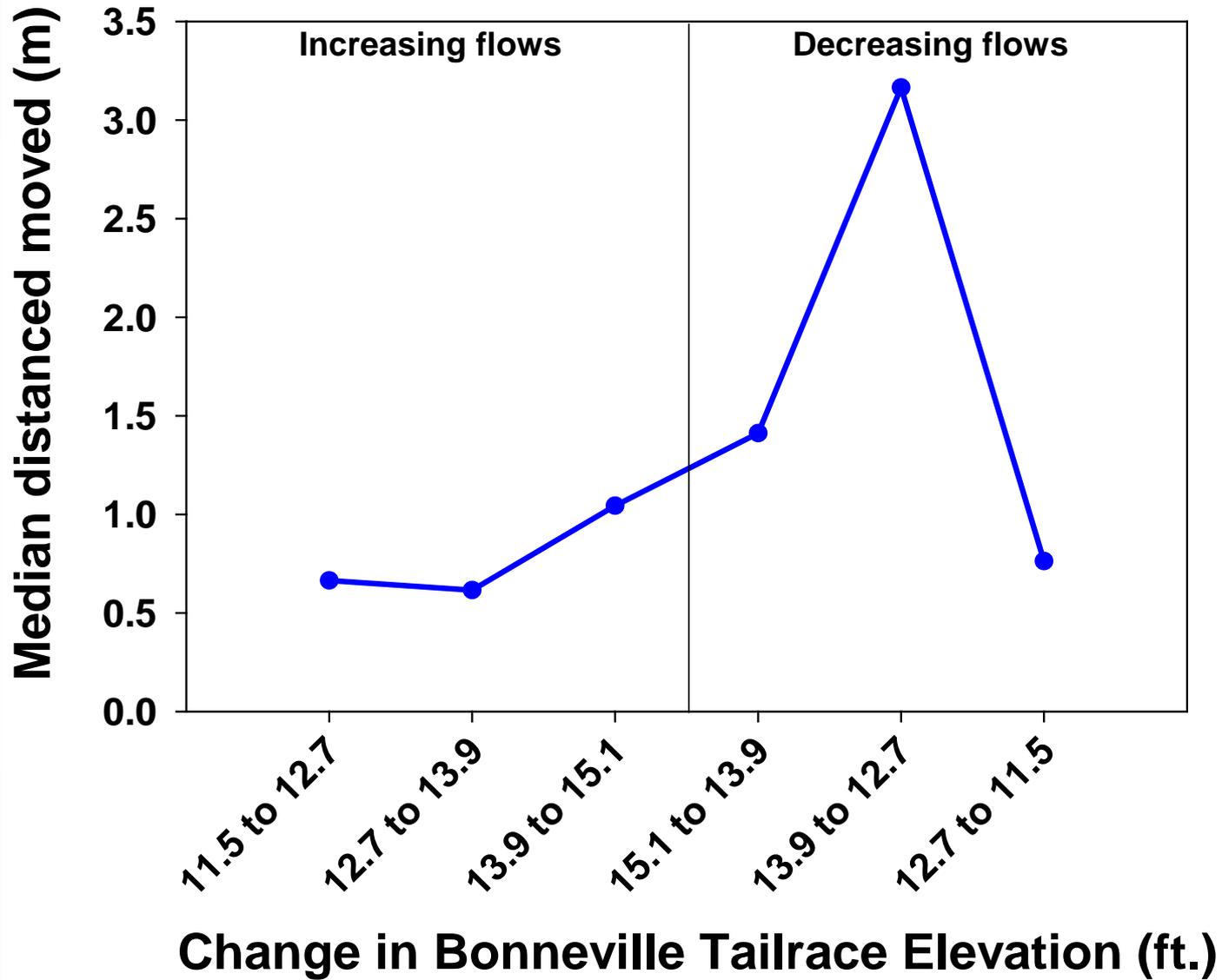


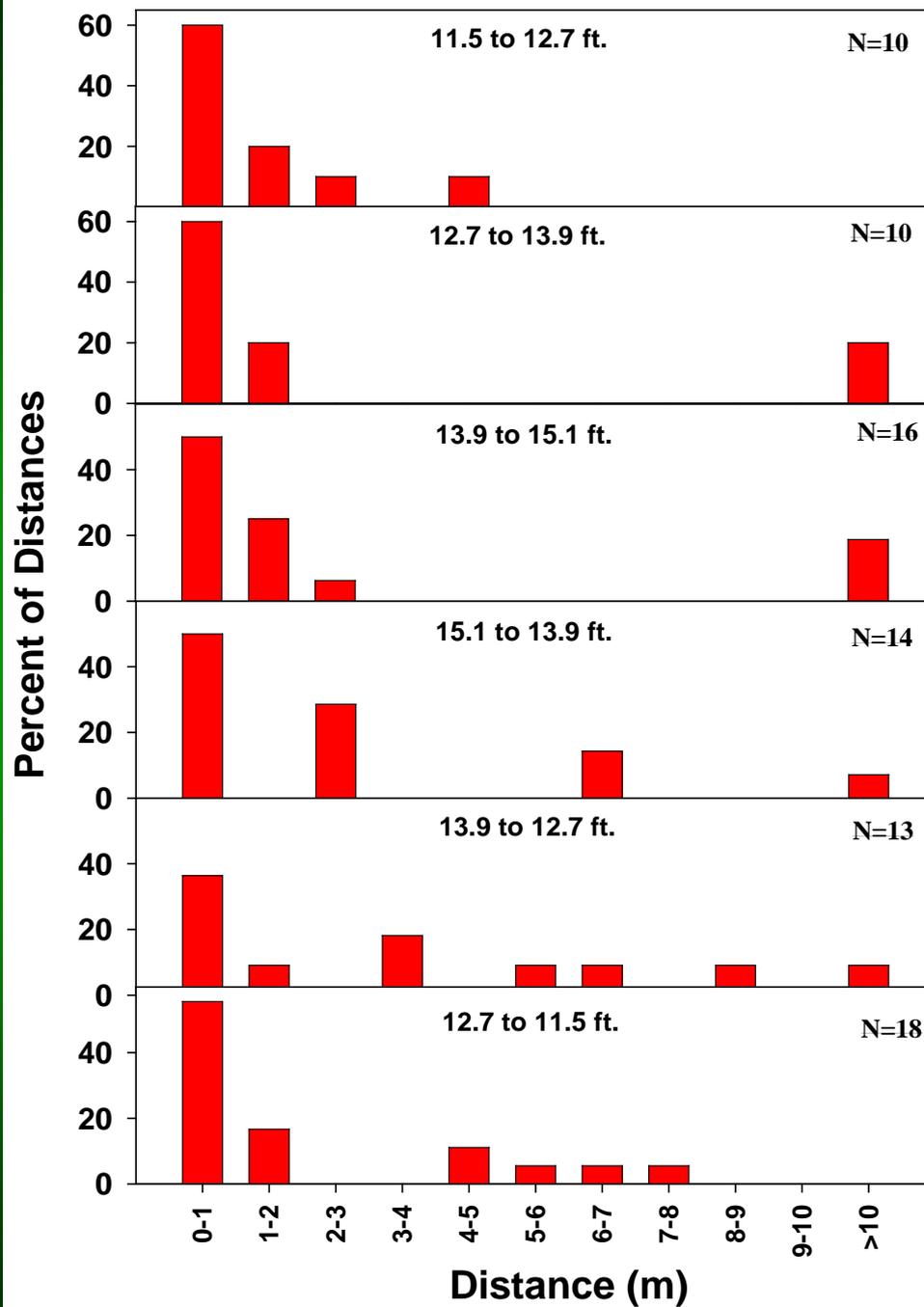
Maximum Flow Swimming



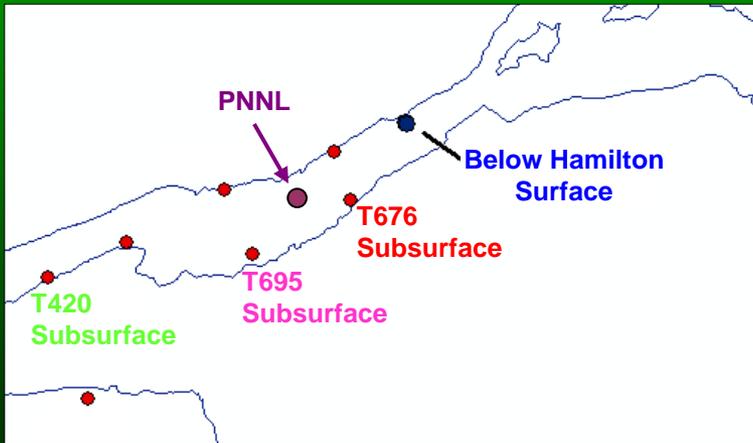
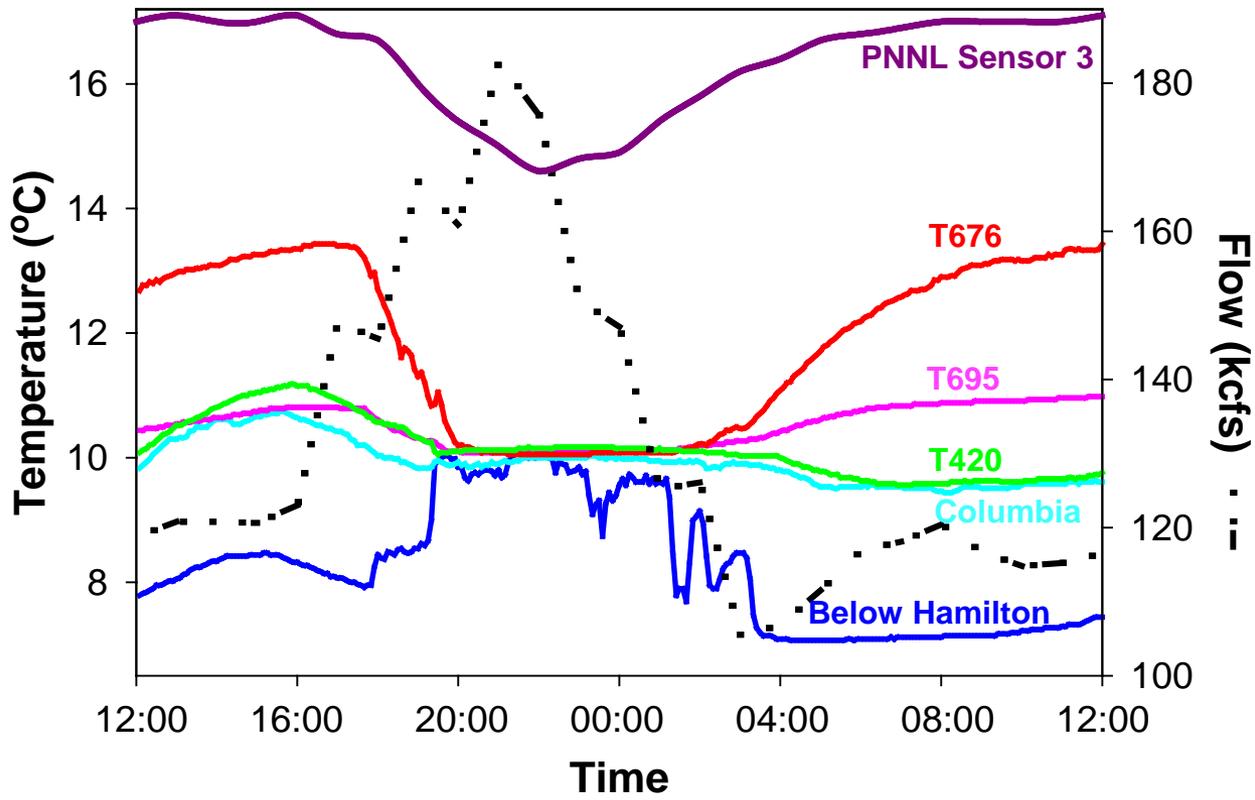
Effect of High-flow on chum salmon digging activity, 2004

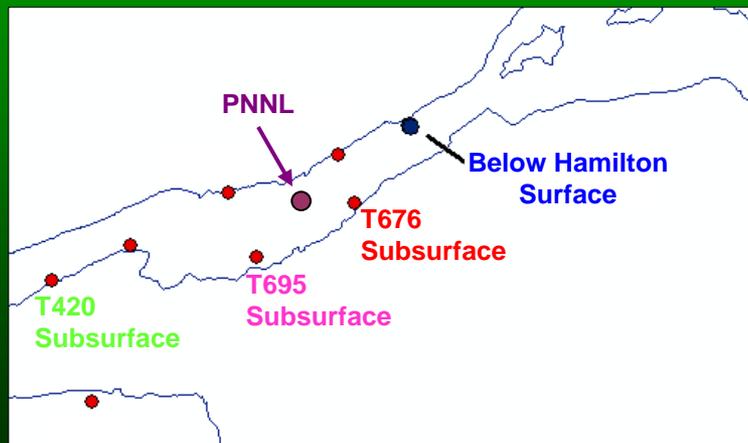
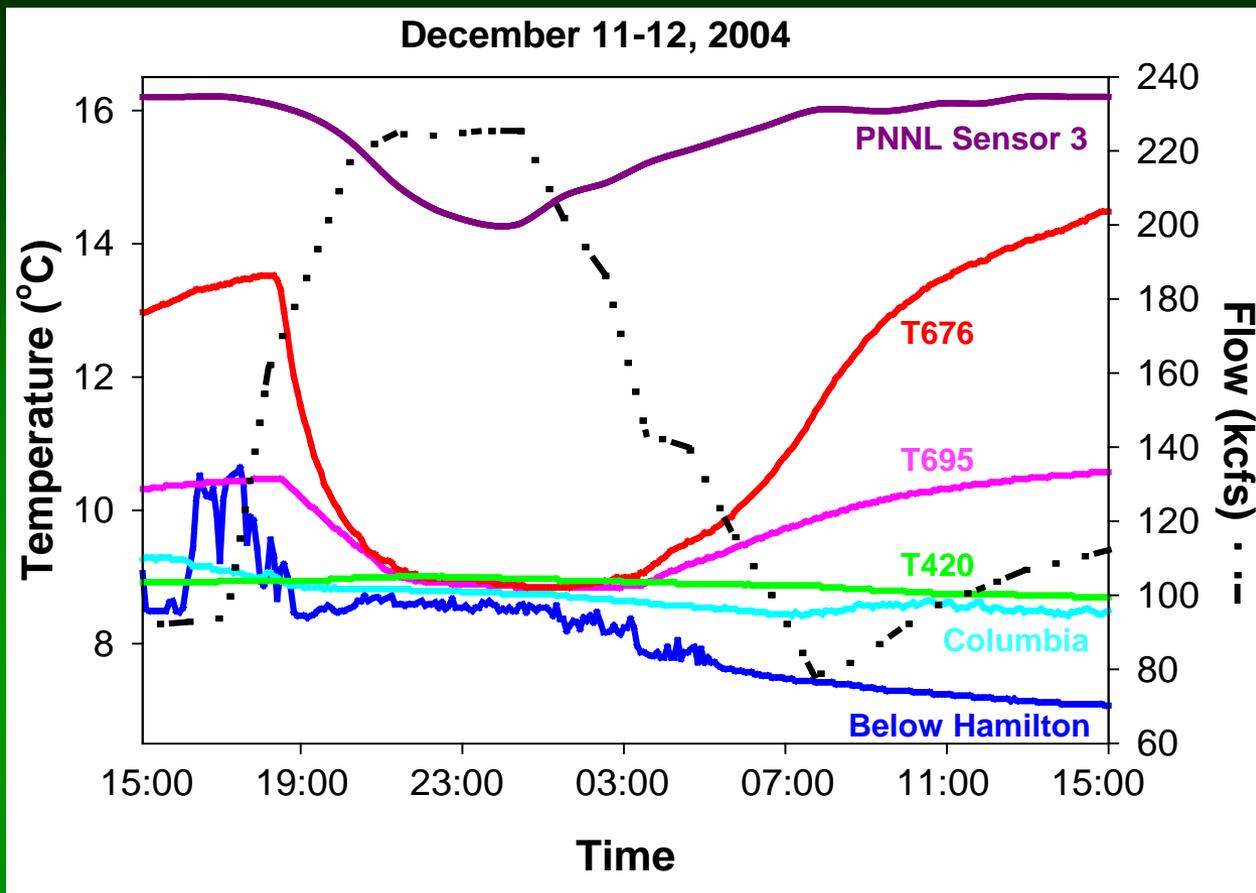






November 26-27, 2004





**Study Ended Prematurely Dec. 9th
following flows of 243 kcfs**



Conclusions

- **Elevated flow events may have temporary effects on spawning behavior and subsurface bed temperatures**
- **Acoustic noise issues need to be resolved and hydrophone deployment can be improved**
- **Relatively low spawner density in 2004 may have affected the apparent lack of spawning activity at higher riverbed elevations**
- **Study should be repeated in 2005**

COLUMBIA RIVER REGIONAL FORUM

TECHNICAL MANAGEMENT TEAM

July 13, 2005

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.

Comments on Notes

IDFG has been without internet access so Russ Kiefer was unable to review the notes – if he or anyone else has comments on the July 6 meeting minutes, send them to Cindy Henriksen, COE.

USGS Study Results

Ken Tiffan, USGS, presented information from a study conducted in 2004 that looked at the effects of elevated flows on chum. His presentation is available on the TMT web page, linked to today's meeting agenda. Ken went through the details of the study, noting that 2004 was a low fish density year and that the study was designed to look at actual flows, not making assumptions about higher flows. The researchers looked at behavior of the fish and extracted velocity data from camera images. (A TMT member expressed interest in understanding the threshold of velocity at which chum will no longer spawn.)

Ken concluded:

- Increased flows may have temperature effects on spawning behavior and subsurface bed temperatures;
- Acoustic noise issues need to be resolved and hydrophone deployment can be improved;
- Low spawner density may have affected the apparent lack of spawning activity at higher riverbed elevations;
- The USGS is hoping to conduct the study again in 2005.

ACTION: Ken thanked the TMT for supporting the work last year and requested that the group support further studies this year, with timely feedback to allow researchers to set up the study sooner than last year. TMT will keep this issue on future agendas and provide input and feedback to researchers in September. In response to a question, Ken noted that the USGS is developing a 'manuscript' relative to habitat mapping, and is proposing to work with Battell on habitat and temperature data collection this year – they will keep FPAC and TMT informed of developments.

Dworshak Operations: SOR 2005-18

The salmon managers presented SOR 2005-18, recommending an increase in flows to 14 kcfs and targeting 46-48° outflow water temperatures at DWR through July 19 to stay ahead of higher temperatures at Lower Granite. They requested a TMT conference call to look at current

information and make further recommendations on July 20. It was noted that the primary drive for the request is temperature and that added flow also provides a benefit to fish.

Dave Statler, Nez Perce Tribe, recommended an alternative operation proposal: 12 kcfs outflows and colder water (43-45°) out of the project. The Nez Perce assumes that by mid-July many of the juvenile fall chinook in the Clearwater have actively migrated out of the system, so the proposed operation is an acceptable trade-off.

ACTION: After further discussion and a check-in with the hatchery at Dworshak, the salmon managers and action agencies agreed that Dave Statler's proposed alternative operation, 12 kcfs at 43-45° out of Dworshak over the next week, was acceptable to meet temperature needs at Lower Granite. The agreed-upon threshold temperature at Lower Granite was 67.5°, and anything higher would prompt the COE to increase outflows at Dworshak to 14 kcfs – no change would be made until Monday, July 18, 6AM, to allow particle travel time from Dworshak to Lower Granite. CRITFC also expressed agreement with the proposed operation. TMT will have a conference call on Wednesday, July 20, to look at current temperatures and make decisions about future Dworshak operations.

Modeling Results for John Day Pool

Jim Burton, Portland District COE, reported on results of modeling to show the effects of flow changes on the John Day pool. The results showed a slight change in average velocity with changes in flow, ranging from .02-.11, depending on where in the reservoir the measurement was taken.

ACTION: The COE agreed to check with Lauri Ebner, Portland District, on whether any 3-D modeling was available for velocity at John Day. (Update: The COE sent an email to TMT following the meeting, saying that this information is not available.)

Libby Summer Operations

Jim Litchfield, Montana, provided a letter from Montana Trout Unlimited to NPCC, clarifying TU's support for the Montana proposal for Libby/Hungry Horse summer operations, saying this is the best operation for river and reservoir fish. Jim also reported that the Kootenai Tribe has expressed concern if Montana's proposal is NOT implemented, as it would affect an ongoing nutrient study relative to endangered white sturgeon.

Cathy Hlebechuk, COE, reported that Libby was at elevation 2458.37' on July 10 and began releasing full powerhouse, 24 kcfs, which will continue until inflows recede. The COE plans to reduce outflows to about 17 kcfs, targeting end of August elevation 2439' (2004 BiOp operations), unless/until the region agrees on an alternative operation. Jim Litchfield raised the concern that the longer we wait to go to flat flows, the higher risk to meeting Montana's objectives through September.

Per discussions at TMT on July 6, the issue was elevated for discussion at an IT meeting on Thursday, July 14.

(UPDATE: IT met and agreed to give Montana an additional week to engage in discussions outside the Regional Forum. Montana will give a status report to TMT at the July 20 conference call, and if consensus cannot be reached then, IT has reserved a meeting for Thursday, July 21 at 9:30 AM to discuss the Montana proposal.)

Treaty Fishing: SOR 2005-C-2

Kyle Martin, CRITFC, presented this SOR for a two-week fishery, July 11-14 and July 18-22, with stable 1' elevations (not specific elevations) at Bonneville, The Dalles and John Day. The net fly count to date was 229 nets, most of which were at John Day.

The COE responded that they will provide a 1.5' range as a hard constraint, and 1' soft constraint. CRITFC expressed frustration that they continue to try to work with the COE on meeting the request and every year the COE goes back to an agreement made in 1998 between the COE and CRITFC.

ACTION: A teletype will be issued in the next day specifying the COE's intended operations relative to the request.

Cindy LeFleur, WDFW, reported that 2,000 summer chinook were caught last week during the tribal fishery; the allocation is 14,250 until August 1.

Status of Summer Operations

Jim Adams, COE, shared graphs and reported that Lower Granite is spilling to the gas cap, at one unit; Little Goose to 30% during the day and gas cap at night; Lower Monumental 24-hour to the gas cap; Ice Harbor switching between RSW and gas cap; and McNary to the gas cap (as of July 1).

Feedback on Emergency Protocols

The salmon managers have been discussing the action agencies' emergency protocols list at FPAC and will provide something when an agreed-upon list is available. In the meantime, the salmon managers recommended that the action agencies continue to use the living document as it is. These lists will be available on the TMT web page.

Operations Review

Reservoirs – Albeni Falls is at 2062-2062.5'. Dworshak is drafting .8-.9' per day. Grand Coulee is at 1289.3'. Hungry Horse is at 3558' and drafting 4.8 kcfs. Tony Norris, BOR, said there is no specific plan laid out for drafting Grand Coulee to 1278' at this time. A request was made to check in on Grand Coulee operations during the TMT call next week.

Fish – Juveniles: Subyearlings are passing the projects, at about 2,000 per day at Lower Granite and Little Goose. Numbers dropped at McNary on July 1 when the spill operation began.

Adults: The actual summer chinook run is close to the projected number, around 60,000 counted at the mouth of the Columbia. Sockeye also are coming in close to their expected, at 71,000. Sport, non-tribal and tribal fisheries are on-going. Cindy LeFleur will provide an update on the Fall chinook run forecast at the July 27 TMT meeting.

Power system – The CGS is back on line.

Next Meeting, July 20 Conference Call, 9:00 am: Agenda items include:

- Libby/Hungry Horse Operations
- Dworshak Temperatures/Operations
- Grand Coulee Summer Operations

1. Greetings and Introductions.

The July 13 meeting of the Technical Management Team was chaired by Cathy Hlebechuk and facilitated by Robin Harkless. The following is a summary (not a verbatim transcript) of the topics discussed and decisions made at this meeting. Anyone with questions or comments about these minutes should contact Cindy Henriksen at 503/808-3945.

2. Results from USGS Study of the Influence of Elevated Flows on Chum Spawning Behavior at Ives Island.

Ken Tiffan led this presentation, titled “The Effects of Elevated Flows on Chum Salmon Spawning Behavior Below Bonneville. He touched on the following major topics:

- 2004 objectives – determine the flow and tailwater elevation at which chum salmon spawning behavior is altered, etc.
- Possible behavioral effects of elevated flows on chum salmon
- Requested water release pattern
- Hydrophone setup at Ives Island, 2004
- Typical acoustic array
- Fish collection and tagging
- Water elevations – base flow vs. high flow (photo)
- Chum redd constructed during a daytime high-flow test, which was subsequently dewatered (only one found)
- Daytime test – November 17, 2004 (map of fish movement)
- Nighttime test – November 18-19, 2004 (map of fish movement)
- Fish leaves array – November 16, 2004 (map of fish movement)
- Fish without a redd? (map of fish movement)
- Pre-test swimming (video clip from acoustic camera)
- Maximum flow swimming (video clip from acoustic camera)
- Change in water velocity at Ives Island spawning area – up to 1 meter per second at maximum flow, about 0.3 mps at base flow
- Effect of high flow on chum salmon digging activity, 2004 (graph) – saw a slight decline in digging behavior at highest flows
- Change in Bonneville tailrace elevation vs. median distance moved (graph)
- Percent of distances vs. distance (graph) – most fish are not moving far, although larger flows produce greater movement
- Flow and temperature over time, November 26-27 (graph)
- Flow and temperature over time, December 11-12 (graph)
- Study ended prematurely on December 9 following flows of 243 Kcfs
- Conclusions: elevated flow events may have temporary effects on spawning behaviors and subsurface bed temperatures; acoustic noise issues need to be resolved and hydrophone deployment can be improved; relatively low spawner density in 2004 may have affected the apparent lack of spawning activity at higher riverbed elevations; study should be repeated in 2005.

What was the advantage of the acoustic tags over radio tags? Paul Wagner asked. The acoustic tags give us two-dimensional data, Tiffan replied – it's a powerful tool in an area this size. Did you lose equipment when flows came up? Ron Boyce asked. No, but some of our equipment was damaged, Tiffan replied. Boyce suggested that the 2005 study include higher-flow tests, if possible; Tiffan agreed that that would be optimal. In response to a question from Nic Lane, Tiffan said this is a BPA-funded study. In response to another question, Tiffan said USGS now has four years of GPS chum redd location data.

3. Dworshak Summer Operations.

On July 12, the action agencies received SOR 2005-18. This SOR, supported by USFWS, IDFG, WDFW, ODFW, NMFS, the Shoshone-Bannock Tribes and CRITFC, requests the following specific operations:

- Increase Dworshak outflows to 14 Kcfs immediately and continue for a period of one week (until July 19). Continue target of 46-48 degree F. outflow water temperature over the specified time.

Wills went briefly through the contents of this SOR, the full text of which is available via hot-link from today's agenda on the TMT homepage.

Wills noted that Lower Granite water temperatures are now exceeding 19 degrees C; given expected air temperatures over the next week, it is the salmon managers' recommendation that Dworshak outflow be increased at this time, to help us stay ahead of the water temperature curve. The primary driver for this SOR is temperature, although the increased flow will also be beneficial, he added. We can then revisit this operation at a conference call next week, said Wills.

Did you consider reducing outflow temperature, as an alternative to increasing flow? Jim Adams asked. We did, but the Nez Perce Tribe has expressed concerns about colder temperatures in the Clearwater River, Wills replied. Adams noted that the Corps is concerned about running out of water in the middle thermocline; the Corps would prefer to extract colder water to preserve some of the available water in the 45-48-degree F band. It's just a consideration for you to think about, Adams said.

Dave Statler said that, typically, July 15 is the target date at which Dworshak outflow temperatures would be decreased. Given how close we are to that date, I would offer an alternative, he said – select colder water from Dworshak (43 degrees F) and release a lesser volume – 12 Kcfs. I think that would provide as much cooling at Lower Granite as a higher volume of warmer water, Statler said. Kyle Martin noted that Lower Granite water temperatures are currently running about 1 degree C warmer than the temperature model has been predicting.

Boyce noted that Lower Snake flows are also a concern; they are currently below 40 Kcfs at Lower Granite. Any additional flow we can get right now would also be beneficial to fish, he said. Hlebechuk noted that the current inflow forecast shows a need to release an average of about 11 Kcfs from Dworshak between now and August 31 in order to preserve 200 kaf of storage for use during September. As always, it's a balancing act, she said.

After a brief discussion, it was agreed that the action agencies will implement Statler's proposed operation, and will release 12 Kcfs of 43-45-degree F water from Dworshak, effective today. Russ Kiefer added that, if water

temperature rises above 67.5 degrees F at Lower Granite tailwater between now and next Wednesday's conference call, he would recommend that Dworshak outflow be increased to 14 Kcfs. No objections were raised to this suggestion.

Nic Lane noted that it will take at least three days to see the full effects of the colder Dworshak releases at Lower Granite. Hlebechuk said water particle travel time is 3-5 days between Dworshak and the Lower Granite tailrace. Based on that, Adams said that, in his opinion, it will take four days before the full effect of the colder releases from Dworshak is seen in the Lower Granite tailrace. It was agreed that the Corps will not deviate from the 12 Kcfs, 43-degree operation before this Monday morning, at which point the colder Dworshak water should have reached Lower Granite. Wills said Dworshak Hatchery personnel have told him that 43 degrees is the minimum workable release temperature from Dworshak.

4. Libby Summer Operations.

At last week's meeting, it was decided to elevate Montana's requested Libby summer operation to the IT for resolution, Harkless observed. Jim Litchfield distributed a letter, dated July 9, from Bruce Farling, executive director of Trout Unlimited, to Bruce Measure of the Northwest Power Planning & Conservation Council, expressing Trout Unlimited's support for Montana's proposed Libby operation. Litchfield added that he has also spoken to Sue Ireland, who said the Kootenai Tribe of Idaho is very concerned about the impacts of a sudden drop in Libby flow on September 1 on the tribe's ongoing nutrient study; they strongly support the Montana SOR. He added that the Montana SOR will be discussed and, hopefully, resolved, at tomorrow's Implementation Team meeting.

In response to a question, Litchfield said it is his understanding that Montana's planned monitoring program has now been staffed and funded, and is ready to get underway. Hlebechuk said Libby elevation peaked at 2458.37 on July 10. Inflows were above 40 Kcfs for part of June; the project released full powerhouse capacity until July 5, at which point Libby discharge was reduced to 19 Kcfs. There was rain, and inflows picked up to 30 Kcfs; we then went to full powerhouse capacity (24 Kcfs) last Sunday, and the project continues to release that volume. The Corps will continue to release full powerhouse capacity until the threat of fill-and-spill at Libby has passed. In response to a question, Hlebechuk said that, if the BiOp operation is implemented, a flat flow of about 17 Kcfs would be needed in order to draft Libby 20 feet by August 31. Outflows under the Montana SOR would, as previously stated, be about 5 Kcfs lower.

Harkless said the TMT will revisit this topic at next week's conference call.

5. Treaty Fishing.

On July 8, the action agencies received SOR 2005 C-2. This SOR, submitted by CRITFC, requests the following specific operations in support of the summer treaty fishery:

- From July 11 through July 14, and from July 18 through July 22, operate Bonneville, The Dalles (Celilo) and John Day pools within a 1.0 foot band.

Martin went briefly through the contents of this SOR, the full text of which is available via hotlink from today's agenda on the TMT homepage. He noted that 229 nets were observed in the Zone 6 pools during last week's net flight; the majority were located in John Day pool. Hlebechuk said the Corps has requested a 1.5-foot operating range in Bonneville pool, as per the 1998 agreement between Col. Mogren and Ted Strong. Martin replied that, as far as CRITFC is concerned, that agreement no longer exists; he expressed frustration that the Corps continues to ignore CRITFC's treaty fishery operational requests on that basis.

Norris noted that, at last week's TMT meeting, the Corps had agreed to implement a 1.5-foot hard constraint and a 1-foot soft constraint at the three Zone 6 pools. How well did the Corps do last week? Norris asked. Martin replied that he has not yet had an opportunity to review last week's data. To be clear, he said, the Corps intends to operate according to the Ted Strong letter? Correct, Hlebechuk replied, except that, as per your SOR, we are not specifying an elevation. In response to a question, Martin said another net flight is scheduled for today.

Cindy LeFleur noted that, last week, tribal fishers caught about 2,000 summer chinook; their total allocation is 14,250 out of a run of 60,000. The summer chinook management period ends on July 31, at which point the fall chinook management period will begin. Martin added that, in all likelihood, CRITFC will be submitting one more treaty fishery SOR covering the last week in the month.

6. Status of Summer Operations as a Result of Recent Court Ruling.

Hlebechuk said the Snake River projects continue to operate one unit within 1%, and to spill the remainder of river flow up to the state TDG waiver limits. The current spill cap at Lower Granite is just over 40 Kcfs; because total river flow is less than 40 Kcfs, the project is not spilling to the gas cap. Lower Granite is also shifting between RSW and spill cap operations. Little Goose is spilling 30% of total river flow during the day and up to the gas cap at night. The spill cap at Little Goose is about 32 Kcfs. Larry Beck said it does appear that lowering Little Goose spill to 30% during the day has had a positive impact on adult passage. At Lower Monumental, the current gas cap is 24 Kcfs of spill; the project is spilling up to the gas cap 24 hours a day, whenever total river flow allows. At Ice Harbor, the project is shifting between RSW and gas cap spill,

currently, said Adams. At McNary, we are generating at the low end of 1% peak efficiency and spilling the remainder of total river flow. The McNary operation started July 1, added Hlebechuk.

7. NOAA Fisheries HEC RAS Model Results for John Day Pool.

Wagner noted that the purpose of this agenda item and modeling exercise was to determine the effects of Montana's proposed summer operations at Libby and Hungry Horse might have on water velocities through John Day pool. The Corps' Jim Burton led this presentation, touching on the following topics:

- Velocities increased from about 1 foot per second to 3.75 feet per second across the various flow scenarios.
- Average velocities at selected cross sections at flows ranging from 100 Kcfs to 325 Kcfs (table). The difference in velocity between 133 Kcfs and 140 Kcfs at river mile 291.92 (the head of the John Day pool) was 1.81 feet per second vs. 1.89 feet per second, a difference of 0.08 feet per second.
- At river-mile 217.01, just above John Day Dam, the difference between the two flow levels is 0.31 feet per second vs. 0.33 feet per second.

Litchfield noted that the 7 Kcfs difference in flow between 133 and 140 Kcfs is probably somewhat higher than the actual reduction in average flow he would expect to result from Montana's proposed operations. In response to a question, Tony Norris said that, based on actual (acoustic Doppler current profiler) data, the HEC RAS model results are pretty accurate.

The bottom line is that while the change in water velocity that would result from the 5-7 Kcfs reduction in lower river flow if the Montana proposal is implemented is small, it is real, said Wagner. In response to a question, Norris said this reduction in flow would likely add about 10 hours to the 200-hour water particle travel time through John Day pool.

8. Feedback on Emergency Protocols.

Wills said the emergency protocol list was discussed at yesterday's FPAC meeting, and there are still some disagreements among the salmon managers. We are continuing to try to develop a consensus agreement on the list from the salmon managers, he said; in the interim, we recommend that the action agencies continue to operate using the existing list. We'll give you our feedback as soon as we're able to reach agreement, he said.

9. Operations Review.

Albeni Falls is operating between 2062-2062.5 feet, its summer operating range, said Hlebechuk. At full load, Dworshak is drafting 0.8-0.9 feet per day. The

current Grand Coulee elevation is 1289.3 feet; Hungry Horse is at 3558 feet, releasing 4.8 Kcfs

Wagner said that, with respect to fish, subyearling chinook continue to pass the projects in significant numbers – about 2,000 fish per day at Lower Granite and Little Goose. Subyearling numbers have decreased at McNary, from more than 100,000 to about 30,000 – it appears that the peak of the subyearling outmigration has passed at McNary. LeFleur said that, currently, the summer chinook run is tracking to about 60,000 fish at the mouth of the Columbia, very close to the preseason prediction of 62,000. Sport and commercial fisheries are ongoing throughout the lower river. The summer steelhead run is tracking very close to the 10-year average, added Larry Beck.

Lane said CGS is back on-line; there are no significant power system issues to report.

10. Next TMT Meeting Date.

The next face-to-face meeting of the Technical Management Team was set for Wednesday, July 27. Meeting summary prepared by Jeff Kuechle, BPA contractor.

TMT Participant List

July 13, 2005

Name	Affiliation
Ray Gonzales	COE
Tony Norris	USBR
Paul Wagner	NMFS
Nic Lane	BPA
Ron Boyce	ODFW
Tim Heizenrater	PPM
Kevin Nordt	Mid-Cs
Ruth Burris	PGE
Cathy Hlebechuk	COE
Robin Harkless	Facilitation Team
Russ George	WMCI

Kyle Martin	CRITFC
Dave Statler	NPT
Tom Haymaker	PNGC
Russ Kiefer	IDFG
David Wills	USFWS
Cindy LeFleur	WDFW
Larry Beck	COE
Ken Tiffan	USGS
Brenda Anderson	BPA
Tina Lundell	COE
Jennifer Miller	Enchanted Rock
Chad Modini	COE
Dan Spear	BPA
Dave Benner	FPC
Margaret Filardo	FPC
Tom Le	PSE
Tom Lorz	CRITFC
Lee Corum	PNUCC
Bruce MacKay	Consultant
Jim Litchfield	Montana
Jim Adams	COE
Jeff Loughley	COE
Mike Buchko	Powerex

TECHNICAL MANAGEMENT TEAM

BOR: Tony Norris / John Roache

BPA: John Wellschlager / Nic Lane

NOAA-F: Paul Wagner

USFWS: David Wills / Steve Haeseker

OR: Ron Boyce

WA: Cindy LeFleur

ID: Russ Kiefer

MT: Jim Litchfield

COE: Cindy Henriksen / Cathy Hlebechuk

TMT EMERGENCY CALL

Monday July 18, 2005 1200 - 1400 hours

1125 N.W. Couch Street, Suite 4A34

Portland, Oregon 97208

Conference call line: 1-517-308-1734

Passcode: 1937733

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

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

AGENDA

1. Emergency Power Declaration
2. [Operational Recommendations](#)

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

COLUMBIA RIVER REGIONAL FORUM

TECHNICAL MANAGEMENT TEAM EMERGENCY CONFERENCE CALL

July 18, 2005

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.

Emergency Protocols

The action agencies convened an emergency TMT call to discuss the list of emergency protocols from the 2005 Water Management Plan, in the event there is a power emergency. Rick Pendegrass, BPA, explained that earlier in the morning, due to warmer weather, BPA experienced a shortage of about 500 mw of power from 3:00-8:00 AM. BPA attempted to purchase power at higher than market price but there were no offers. More energy became available as the day continued, resulting in enough power for today. However, in the event that a future stress to the transmission system were to occur (e.g. lightning strikes, an outing of CGS), BPA would like the flexibility to keep generation up, and wanted to be sure the emergency protocol list was up to date and prioritized per recommendations from TMT.

The salmon managers responded that they had not yet reached consensus on a revised list. Dave Wills, USFWS, offered that at the July 13 TMT meeting, the salmon managers recommended that the action agencies operate from the list as it is currently written, in the interim, until more feedback could be provided. It was noted that the current list is not prioritized, and the action agencies would like to have a prioritized list.

Other comments from TMT members:

- Will the issue today continue to arise throughout the season? Isn't this typical for summer? Yes, due to the heat, but this year is unique in that there is less capacity with the court-ordered spill in the Lower Snake.
- Without understanding the need before it arises, the salmon managers cannot provide guidance. The operators should be in control of the decision – it is their call during an emergency.
- A clear characterization of the problem from BPA would be helpful for the salmon managers in the future.
- It seems like the current problem is more long-term than what the salmon managers had been thinking when discussing the emergency protocols. What is the time frame for emergency operations? BPA responded that these would be short-term, no longer than a few hours in duration.
- The list we are looking at is different from what is written in the WMP, which includes language to the effect that BPA will use all purchasing power, including bidding above

market rates, before implementing any of the operations on the emergency list. Is this different than what is being discussed today?

- **ACTION**: The action agencies will add language to the emergency protocols list that clarifies that BPA will only resort to the emergency list after all other power marketing options have been explored.

Cindy Henriksen, COE, went through the list and ruled out those actions that are not possible this year with the court order, current operations and conditions. The following list is reflective of the potential actions that could be taken in case of a power system emergency:

- Additional 1' of tailwater at Bonneville – it was noted that this could be implemented without necessarily impacting the tribal fishery.
- Reduce Bonneville spill to 50 kcfs, then to 0 kcfs.
- Reduce John Day to 0 kcfs daytime spill.
- Shut spill bays 1 and 2 at The Dalles.
- Obtain megawatts from the Willamette Basin.
- Ramp up Hungry Horse – the BOR is looking into how much could be done here, and Montana offered support for this.

ACTION: The salmon managers planned to caucus immediately following the conference call, to discuss the above revised list and offer a prioritized list to the action agencies as soon as possible today (preferably by 2:00 pm). TMT will check-in on this issue at the TMT conference call on Wednesday, July 20.

Technical Management Team Conference Call Notes

July 18, 2005

1. Greetings and Introductions.

Today's Technical Management Team emergency conference call was chaired by Cindy Henriksen and facilitated by Robin Harkless. The following is a summary (not a verbatim transcript) of the topics discussed and decisions made at today's meeting. Anyone with questions or comments about these notes should contact Henriksen at 503/808-3945.

1. Power System Emergency.

Henriksen said the purpose of today's call was to discuss the current power system situation and the TMT's emergency protocols. Rick Pendergrass said that this morning at 8 am, in looking at the streamflow, weather and load situation, BPA determined that a shortage of 600-800 MW could occur from 2-9 p.m. today. BPA went to the real-time power market and tendered an offer 50 mills over the current market price, but found no takers. Later, around noon, some additional power became

available, and BPA was able to purchase enough capacity across the evening peak to manage the system today. The continuing concern is that a lightning strike could take out Libby and/or Hungry Horse, or a problem could occur at CGS, which has experienced several outages in the last three weeks. We wanted to revisit the emergency protocol list to be sure that any actions we take if problem occur have been coordinated with TMT, said Pendergrass.

Henriksen noted that the action agencies had asked the salmon managers for their feedback on the draft emergency protocols list several weeks ago, but their feedback has not yet been received. I need a clarification, said Dave Wills – the list refers to transmission system instabilities, but isn't this a capacity issue? It could be either, said Henriksen – the purpose of this call is to talk about the situation at hand, and any actions that may need to be taken to respond to any further problems that could occur. Pendergrass noted that, when temperatures are as high as they are, currently, that imposes additional stress on the transmission system, and additional problems are more likely to occur.

Wills said the salmon managers still have not reached consensus on the draft list of emergency actions. We stated at the last TMT meeting that the original list that was put out would be used in the interim, until the salmon managers are able to reach consensus, he said. It's difficult to make choices at this point in the season, from a fish perspective, because both listed and non-listed fish are moving past all projects in both directions. I'm not sure how we would make up 500-600 MW, he said – it's a bit confusing, and I'm not sure we can give you a recommendation at this point.

So is it acceptable, for the salmon managers, for us to continue to use the original list? Pendergrass asked. I can't speak for the other salmon managers, said Wills, but I'm not completely comfortable with the list as it stands. Henriksen noted that BPA appears to have been able to purchase enough power to defuse today's emergency, but if that's not the case, TMT needs to decide how to prioritize what additional actions may need to be taken outside the UPA.

In response to a question from Cindy LeFleur, Pendergrass explained that there is an hourly real-time market for power purchases. When we noticed that we had a load shortfall for this afternoon, we put out a bid that was 50 mils over the current price. We didn't get any takers at 8 am, but later, some additional power came on the market, and we were able to get the power we needed for today. And how is this year different from other years? LeFleur asked. It's a pretty typical year, in terms of streamflows and temperatures, but we have lost a significant amount of capacity because of the court-ordered spill at the Snake River projects and McNary, Pendergrass replied.

So neither the draft list put together by the salmon managers or the original list developed by the action agencies are prioritized, said Paul Wagner. Without knowing what the situation may be, and how much energy is needed, it's really the operator's choice as to what are the appropriate steps to be taken – what measure or mix of

measures are needed to alleviate the problem. At the end of the day, we would prefer to have a prioritized list, Pendergrass replied. We can have that for you by Wednesday, said Wagner. We need it by 1 pm today, said Henriksen. We have heard today that this afternoon's crisis has been averted, said Wagner – FPAC has a meeting scheduled for tomorrow, and we will discuss it at that time. The problem with that is that additional problems could occur at any time, said Pendergrass. I'm looking at the list from the 2005 Water Management Plan, said Pendergrass; I understand that you are willing to allow us to continue to use that list, but any additional guidance you can give us would be helpful.

In response to a question, Henriksen said both Grand Coulee and Chief Joseph are already running at full powerhouse capacity. Would it be helpful to step through the list and identify which items might be applicable? Harkless asked. It would be helpful to have something in writing, describing the situation at hand in some detail, so that we could better understand exactly what the problem is and where generation is needed, said Ron Boyce – in the future, I would look to Bonneville to provide that. You're asking us to offer up an opinion when we don't fully understand what the problem is, he said.

I agree that once we get through this situation, a little retro would be helpful, Pendergrass replied. I would observe that you've been spilling for three weeks, and this type of situation – high temperatures throughout the region while spill is occurring at the Lower Snake projects and McNary – must have been on BPA's planning horizon, said Boyce. We're still trying to get our arms around Judge Redden's decision, and how to manage the river, Pendergrass replied. Why is this not going to be a daily issue between now and mid-September? LeFleur asked. It may be, Pendergrass replied – one thing we're doing is trying to lock up more energy supply. The system is becoming more constrained on the generation end; we need to fix the situation today, and then work on whatever fixes may be necessary through the end of the summer period.

Any of the actions taken under the emergency protocol list don't just happen, said Henriksen – there is notification from Bonneville, and we then convene an emergency call to discuss which actions on the list should be taken in response to the situation. As we look at the list, there are several actions that aren't necessarily applicable. We have talked to our biologists about what possible actions might get us some megawatts at the least impact to fish. Options they suggested include the possibility of reducing Bonneville daytime spill to 50 Kcfs, or the reduction of John Day spill to zero; there may also be an opportunity to find a few megawatts in the Willamette Basin.

Again, we don't know what you're trying to protect against, said Boyce. The main contingencies are possible lightning strikes in the Libby or Hungry Horse area, or an outage at the CGS, said Pendergrass. We're at 170 MW at Hungry Horse, and could go to 290 MW today if necessary, under a stepped outflow increase regime, said Tony Norris. Dworshak and Libby are already at full powerhouse capacity, added Henriksen. It's a system condition, said Pendergrass – if problems occur, generation anywhere in

the system would be useful.

LeFleur noted that, from the salmon managers' perspective, the current list is intended to apply to short-term problems – a few minutes, maybe an hour. It isn't intended to cover longer-term emergencies. In our view, this is short-term – it's just a few hours, said Pendergrass. We're not looking at this as a multi-day or multi-week list, he said.

The problem is that, because of the spill requirement at the Snake projects and McNary, this could be a chronic problem through the summer, said LeFleur. True, but most of the problems that would occur would be short-term, said Pendergrass.

The group then devoted a few minutes of discussion to the list of emergency actions, in an attempt to decide which actions are and are not available for use at this time. The actions discussed include:

- An additional 1 foot of tailwater at Bonneville (90 MW of additional generation) – at this time, Bonneville is operating for a Zone 6 fishery, so forebay elevation is limited. If this step is taken, CRITFC will probably need to agree.
- Spill at McNary during the day, if available – no longer applicable. With Grand Coulee and Chief Joseph already at maximum generation, and McNary constrained by Judge Redden's order, that option is either already underway or not applicable.
- Increase McNary nighttime generation – again, McNary is constrained to 50 Kcfs generation around the clock, so this option is not available.
- Increase Dworshak generation – Not available because Dworshak is already at powerhouse capacity
- Increase McNary generation to an operation outside 1% peak efficiency – again, this action would conflict with Judge Redden's order, so is either not on or is far down the list.
- Reduce spill at Bonneville Dam to zero – the action agencies have proposed that reducing spill at Bonneville to 50 Kcfs daytime (100 MW) – might be considered. We could also reduce Bonneville spill to zero for several hours, said Henriksen. This would pick up 200 MW.
- Reduce spill at John Day to zero (additional generation: 300 MW). It may also be possible to take an interim step, and go to 20% or 10% spill, rather than zero spill, said Henriksen. It may also be possible to go to zero spill during the day, and 60% spill at night, said Larry Beck. That would be a positive step, from a fish perspective, said Wagner.
- Shut spill bays 1 and 2 at The Dalles (would free up an additional 4 Kcfs for generation)
- Reduce spill at the Lower Snake projects – again, this would conflict with the current court order. The action agencies recommended that this measure either not be on the list or be placed at the bottom of the priority list.

In response to a question, Pendergrass said BPA is maintaining its required

reserve margin at this time. Can the BPA reserves be used for these types of emergencies? Bob Heinith asked. We are required to maintain reserves at all times, replied another BPA participant – if a facility trips off, those reserves kick on within seconds, but have to be replaced – we are required to maintain those reserves at all times. Can the California reserves be used to alleviate problems here in the Northwest? Heinith asked. Each control area has to maintain its own level of reserves, and we're in a different control area, Pendergrass replied. We can certainly purchase power from the Southwest if power is available, but I'm not sure how the reserves might be used. This is about having the physical generating resources needed to meet all emergency situations the instant they occur, he said.

It looks as though the one-foot tailwater increase at Bonneville, reduced spill at Bonneville or John Day, and stopping spill at Bays 1 and 2 at The Dalles are still on the list, said Henriksen. We may also be able to pick up a few megawatts at Willamette projects. It sounds as though it may also be possible to increase generation at Hungry Horse, said Pendergrass. Do these actions sound appropriate, as an interim list, until TMT can meet on Wednesday? he asked.

Heinith said he would like the salmon managers to caucus before signing off on this list; they will then report their recommendations to the action agencies later this afternoon. But is this acceptable as an interim list, until that occurs? Pendergrass asked. The action agencies are going to do what they're going to do, said Heinith – I can't sign off on the list until I confer with others in my office and the other salmon managers. We need a little bit of time. We should be able to get back to you by 3 pm today. Henriksen said that, in that case, the action agencies will use this list – one foot of additional tailwater at Bonneville, decreased spill at Bonneville, zero daytime spill at John Day, stopping spill at Bays 1 and 2 at The Dalles, increased generation at the Willamette projects and/or Hungry Horse – at least until they hear back from CRITFC and the other salmon managers.

Rob Lothrop noted that the list of emergency actions in the Water Management Plan also includes a number of power marketing actions, including seeking additional power in the marketplace and curtailing non-firm load. I'm not sure why those dropped off the list, but Bonneville is committed to taking those power marketing actions prior to implementing any of the operational actions we've been discussing, Pendergrass replied. It sounds as though it would be helpful to add those actions to the list, for the sake of clarity, said Harkless. Sure, said Pendergrass. Jim Litchfield said the proposal to increase Hungry Horse generation is acceptable to Montana.

It was agreed that the salmon managers will convene a conference call and attempt to reach consensus on the list of emergency actions, and that they will then communicate their recommendations directly to the action agencies.

TECHNICAL MANAGEMENT TEAM

BOR: Tony Norris / John Roache

BPA: John Wellschlager / Nic Lane

NOAA-F: Paul Wagner

USFWS: David Wills / Steve Haeseker

OR: Ron Boyce

WA: Cindy LeFleur

ID: Russ Kiefer

MT: Jim Litchfield

COE: Cindy Henriksen / Cathy Hlebechuk

TMT CONFERENCE CALL

Wednesday July 20, 2005 0900 - 1200 hours

1125 N.W. Couch Street, Suite 4A34

Portland, Oregon 97208

Conference call line: 503-808-5190

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

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

Agenda

1. Welcome and introductions.
2. Grand Coulee - shape of water of draft to 1278'
3. Libby summer operation
 - o [\[LIBBY - 2005 BIOP - Shaped - Case #1\]](#)

 - o [\[LIBBY - 2005 BIOP - Shaped - Case #2\]](#)

4. Dworshak Water Temperature.
 - o [\[Clearwater River at Peck \(1979, 1994, 1995, 1998 weather\) and Snake at Lower Granite Dam \(1979, 1994, 1995, 1998 weather\)\]](#)

 - o [\[James Adams - Power point \]](#)
5. Water Quality
 - o [\[Daily Water Temperature Reports\]](#)
6. Summer Operations as a Result of Recent Court Ruling.
 - o [\[Lower Granite, McNary, Little Goose, John Day, Lower Monumental, The Dalles, Ice Harbor, Bonneville, Summer Operations\]](#)

7. Feedback on Emergency Protocols
 - o [\[Emergency Protocol\]](#)

8. Other
 - Set agenda for next meeting - [\[Reference Calendar\]](#) 

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

Posted July-20-2005

Invoked Only Upon Formal Emergency Declaration
Notification to TMT as outlined in:
2005 Water Management Plan – Appendix 1 Emergency Protocols

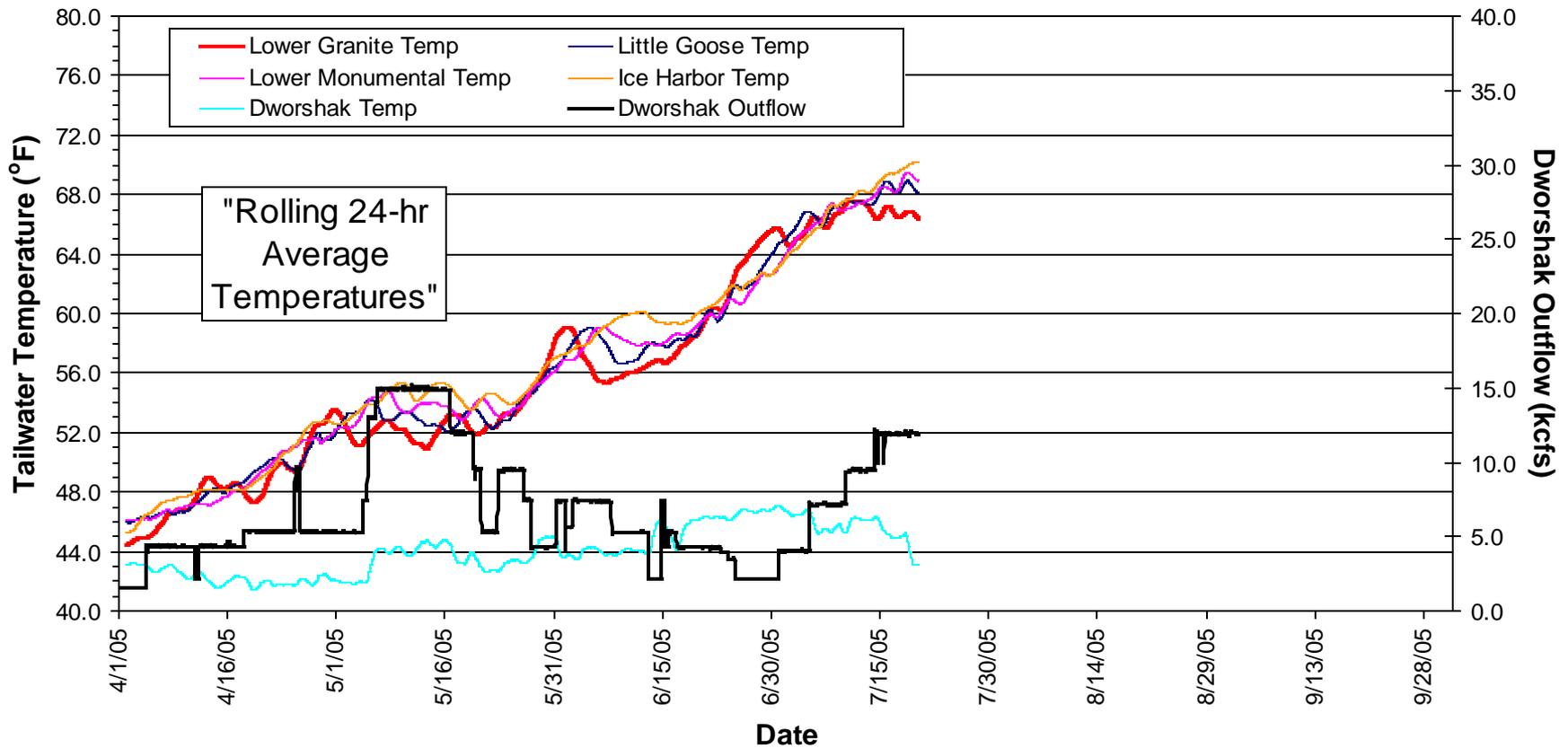
Group 1 (first taken)

Return all units to service by canceling or postponing scheduled outages
Put into service all possible generators (e.g., Grand Coulee pump-generators, Hungry Horse, Willamette basin)
Increase flows at specific projects to meet peak generation need without impacting spill programs;
Buy energy/capacity at market prices
Reduce or eliminate BPA non-firm contracts
Exceed daily draft limits

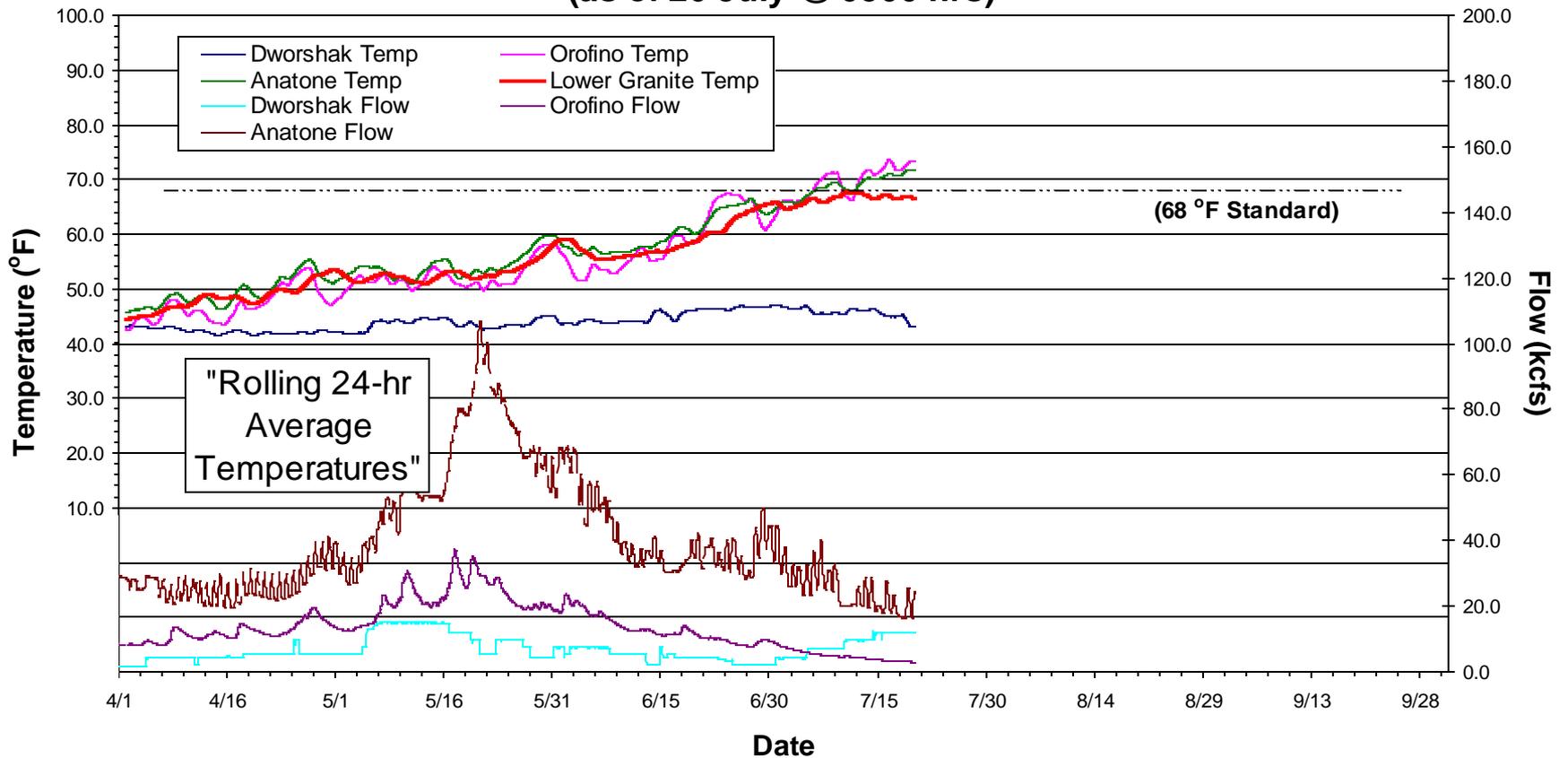
Group 2 (second taken)

Operate projects outside of minimum operating pool ranges
Adjust flows outside of planned targets or as preset by TMT
Restrict intertie capacity reducing import or export
Shed other non-BPA non-firm contracts
Reduce firm loads
Violate flood control or other first priority non-power requirements
Buy energy/capacity at any price

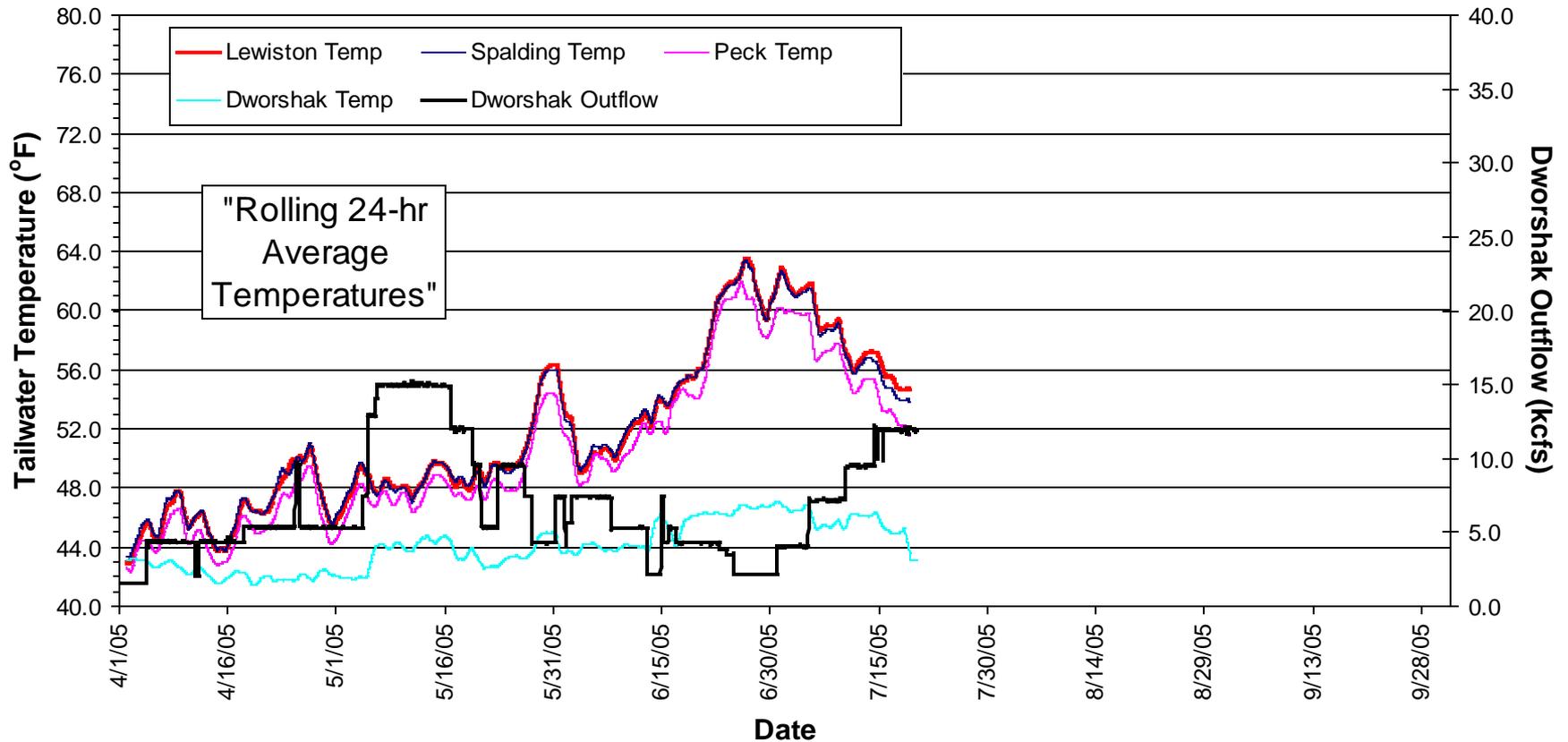
Dworshak Outflows and Lower Snake River Tailwater Temperatures in 2005 (as of 20 July @ 0500 hrs)

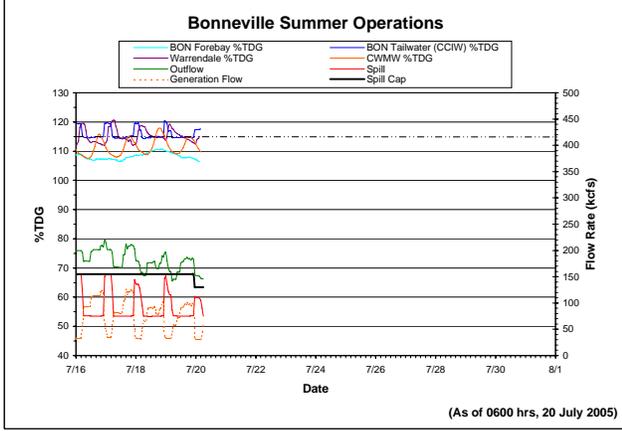
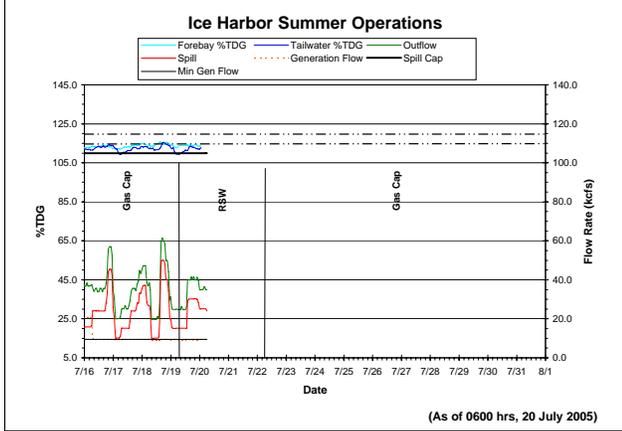
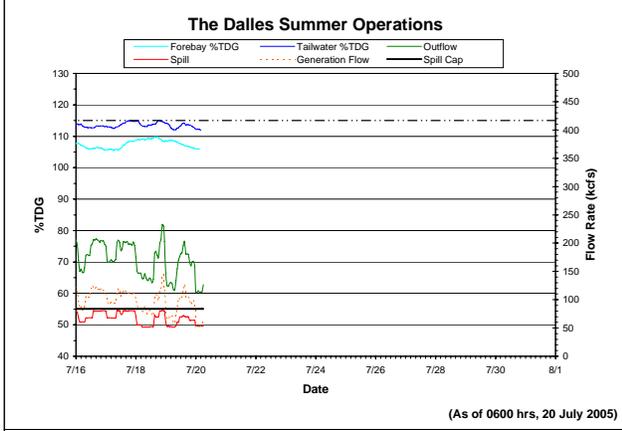
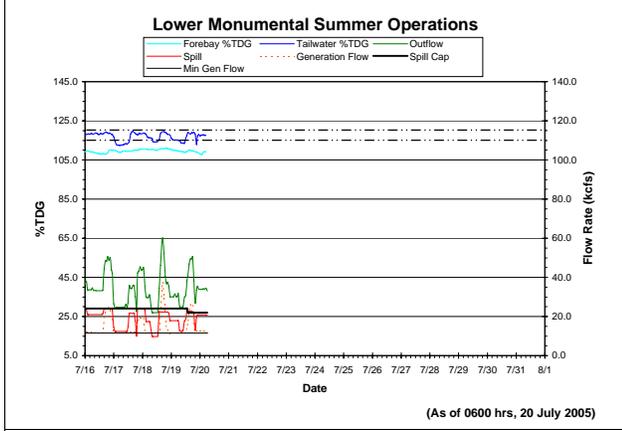
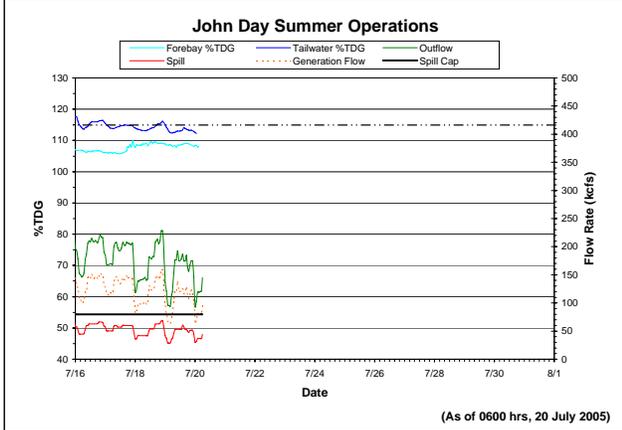
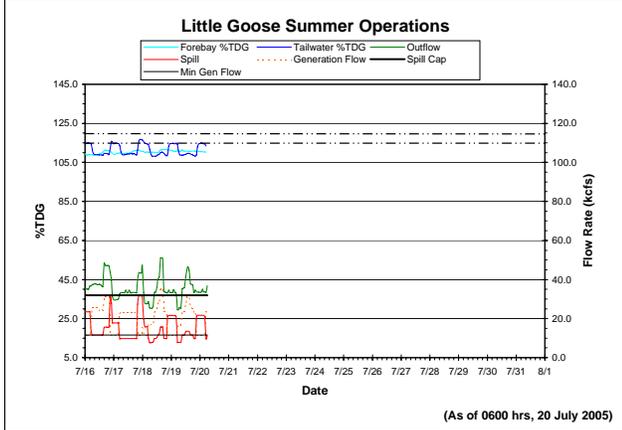
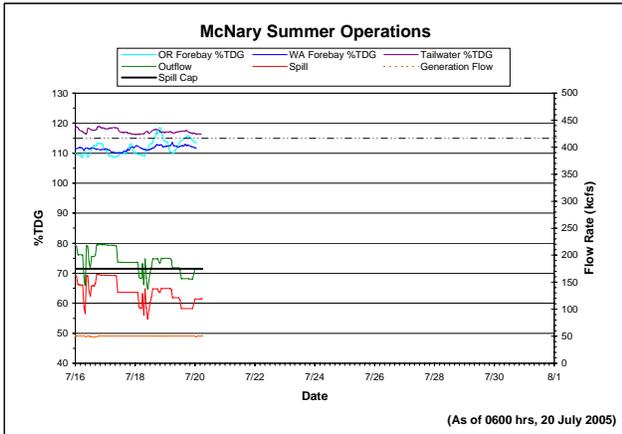
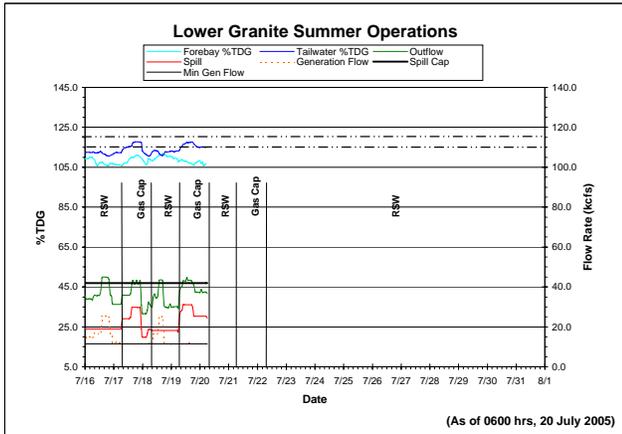


Lower Granite Inflows and Temperatures in 2005 (as of 20 July @ 0500 hrs)

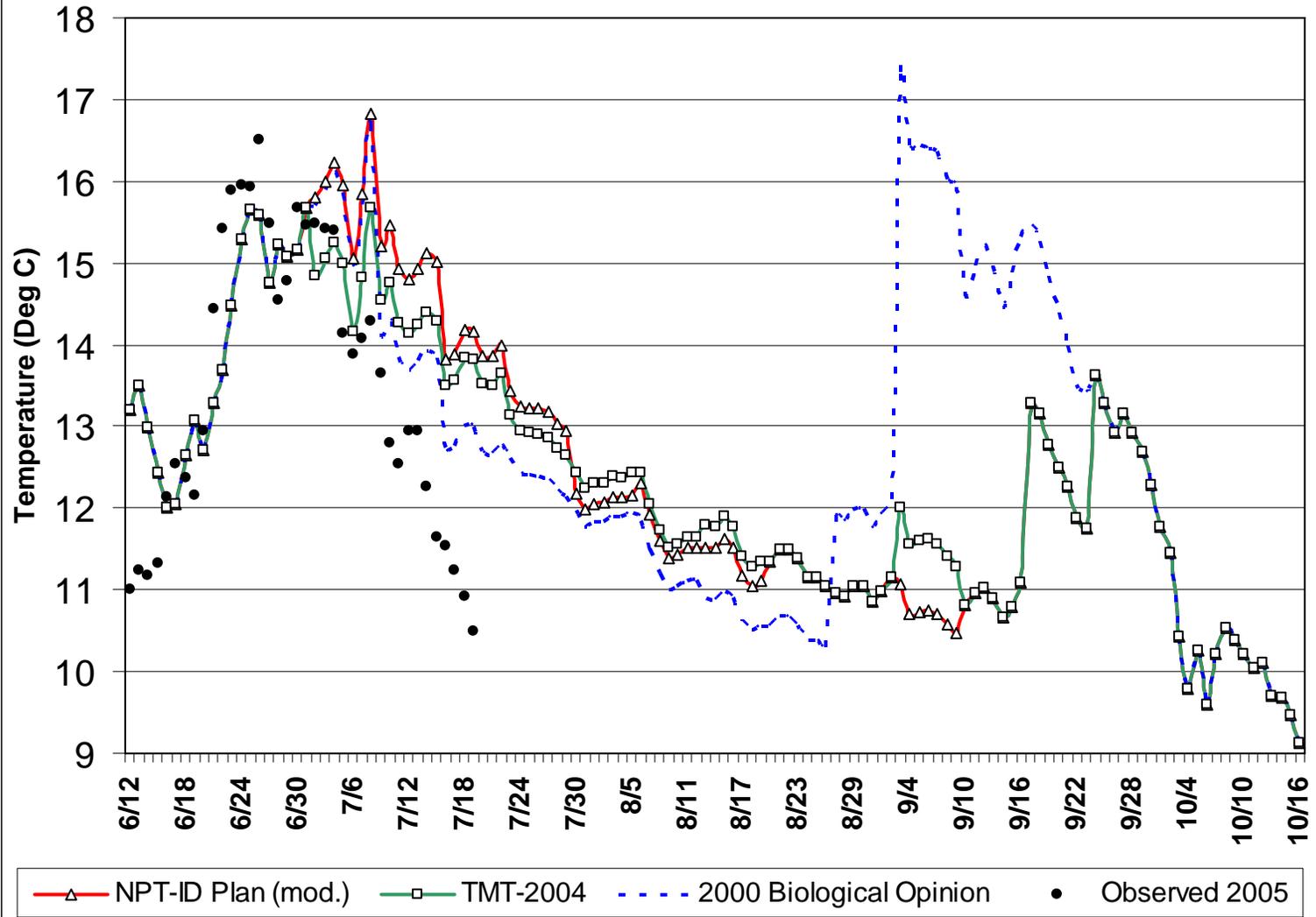


Dworshak Outflows and Clearwater River Temperatures in 2005 (as of 20 July @ 0500 hrs)

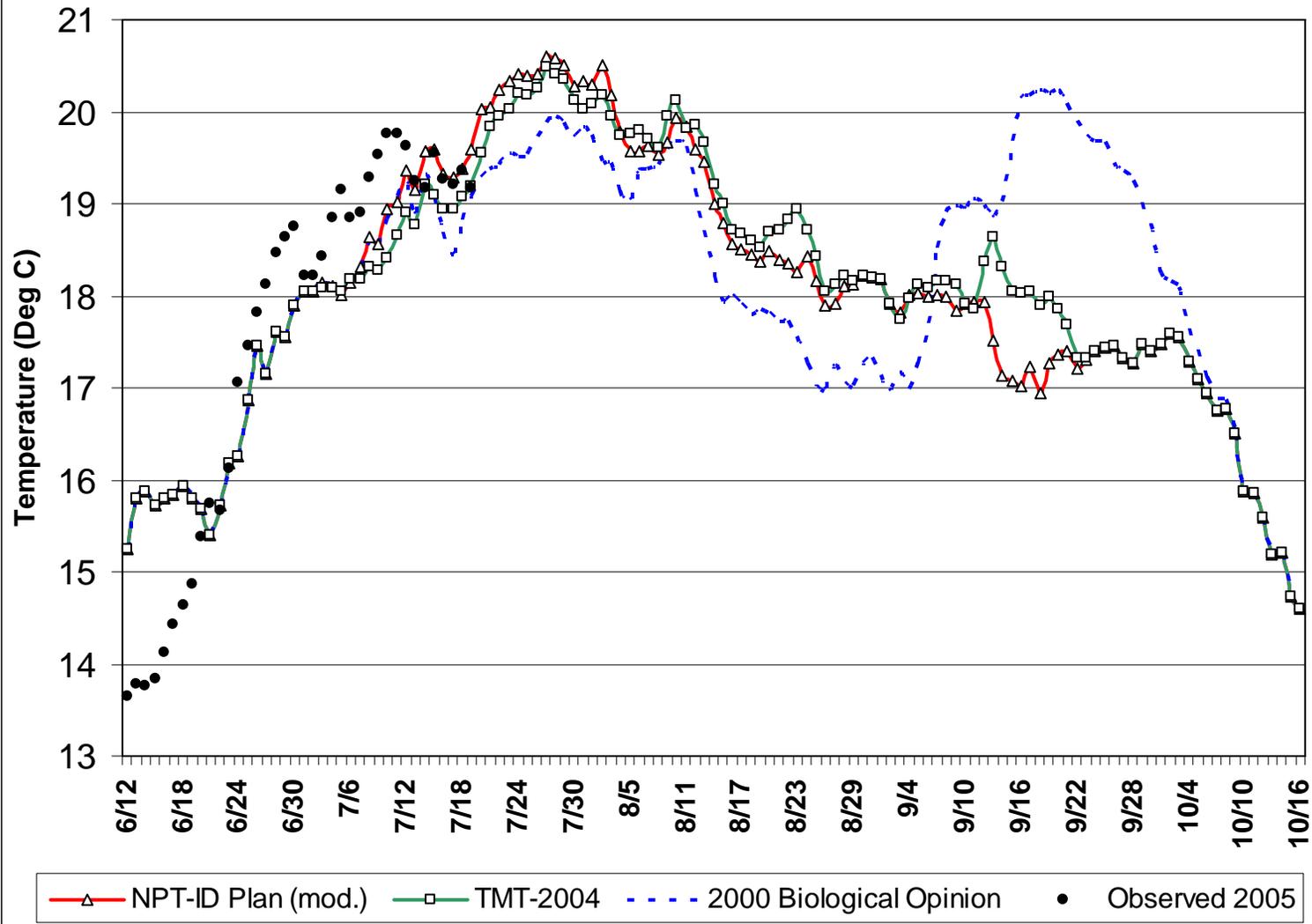




Clearwater River at Peck (1979, 1994, 1995, 1998 weather)



Snake at Lower Granite Dam (1979, 1994, 1995, 1998 weather)

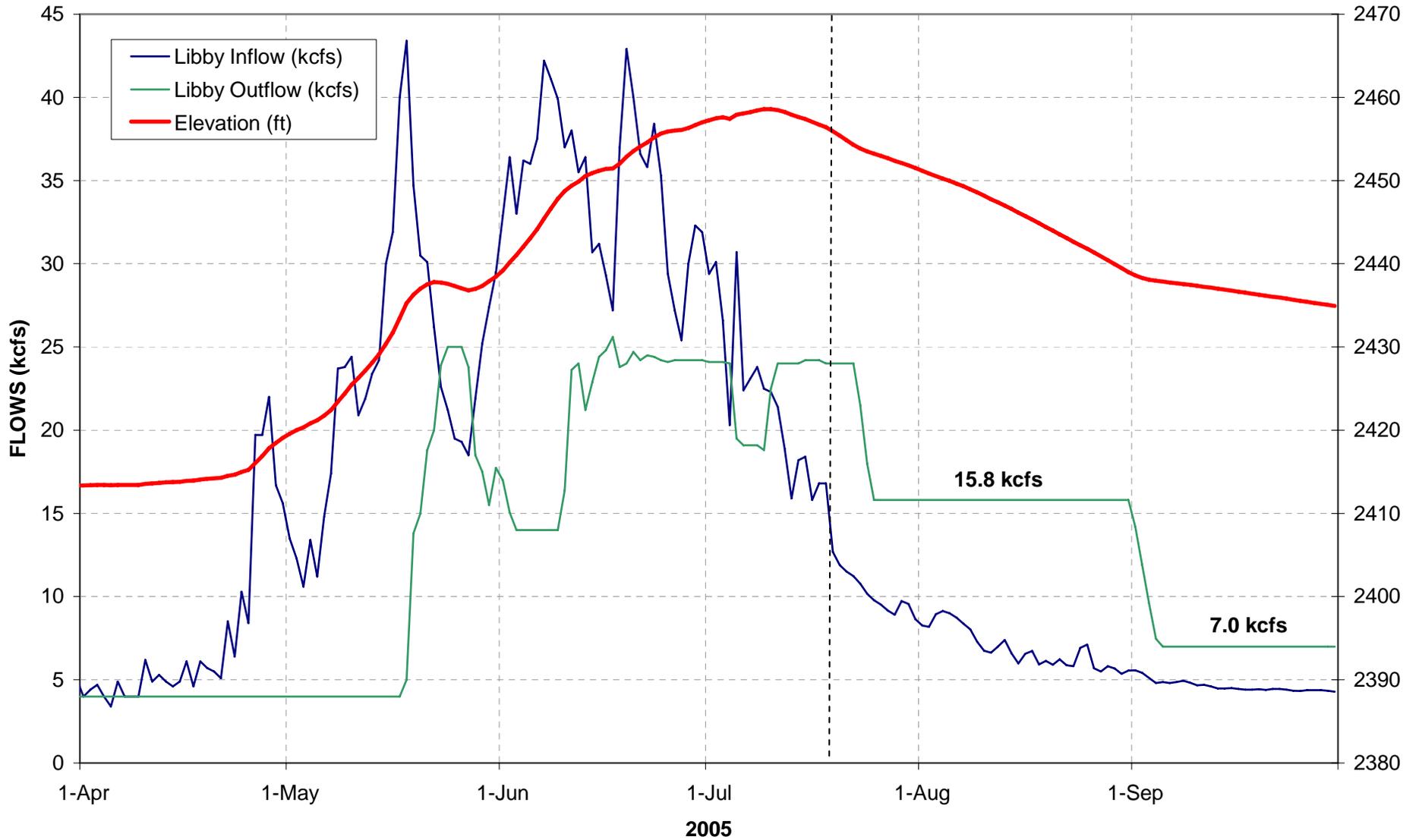


STP (7/19/05) INFLOWS USED STARTING 7/19/05

LIBBY

APR-AUG VOLUME=5.432 MAF

2005 BIOP - Flat - Without USGS Work

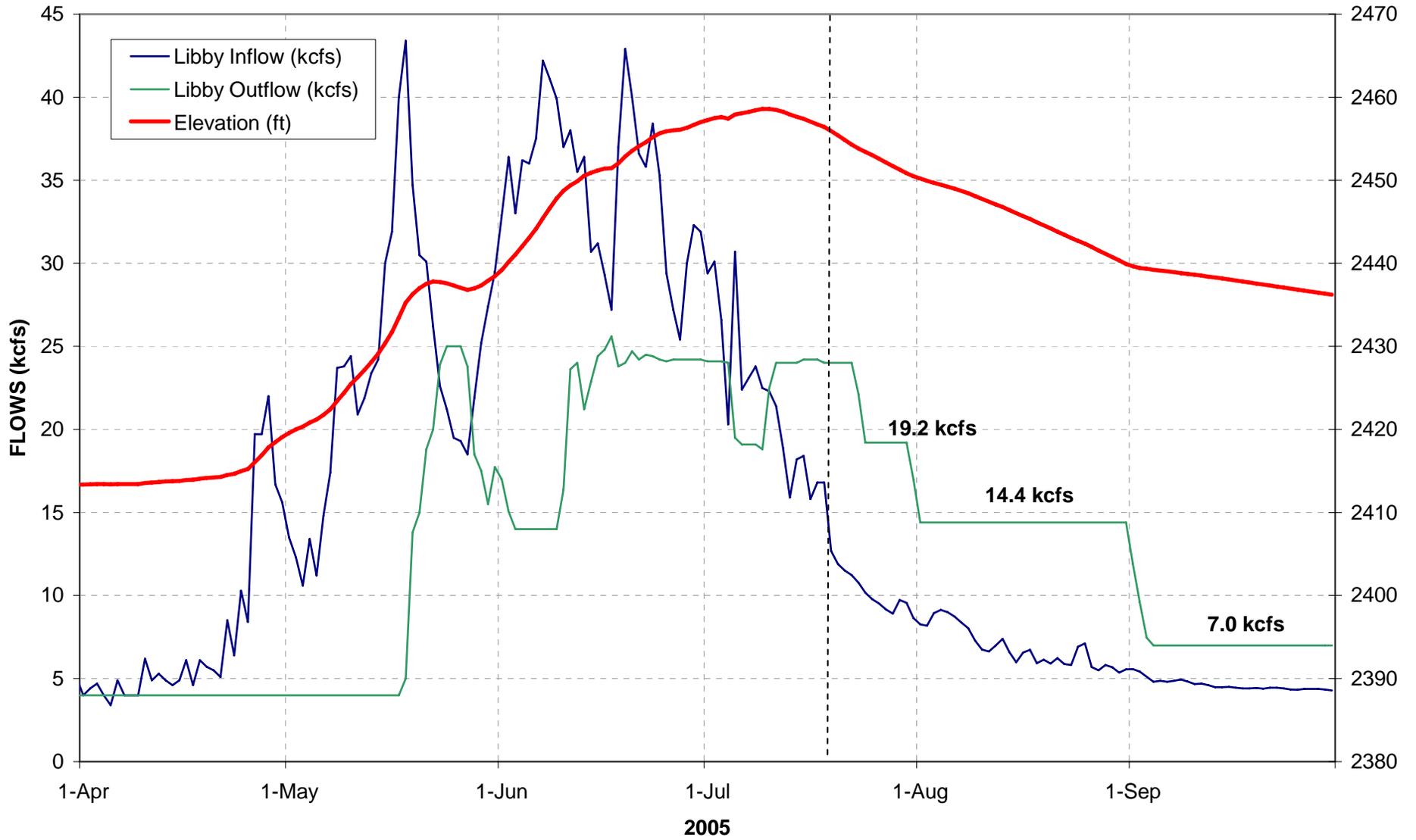


STP (7/19/05) INFLOWS USED STARTING 7/19/05

LIBBY

APR-AUG VOLUME=5.432 MAF

2005 BIOP - Flat - With USGS Work

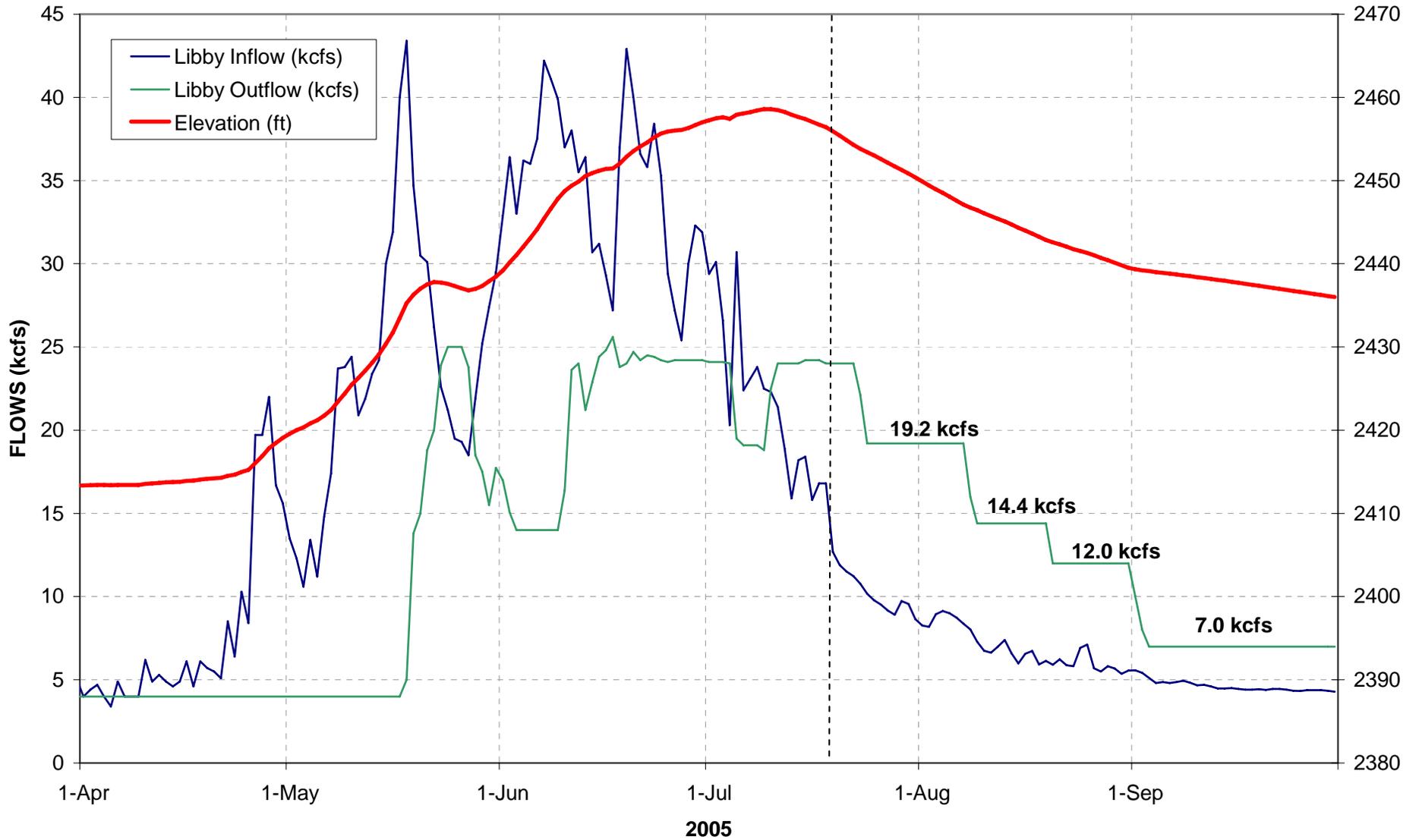


STP (7/19/05) INFLOWS USED STARTING 7/19/05

LIBBY

APR-AUG VOLUME=5.432 MAF

2005 BIOP - Shaped - Case #1

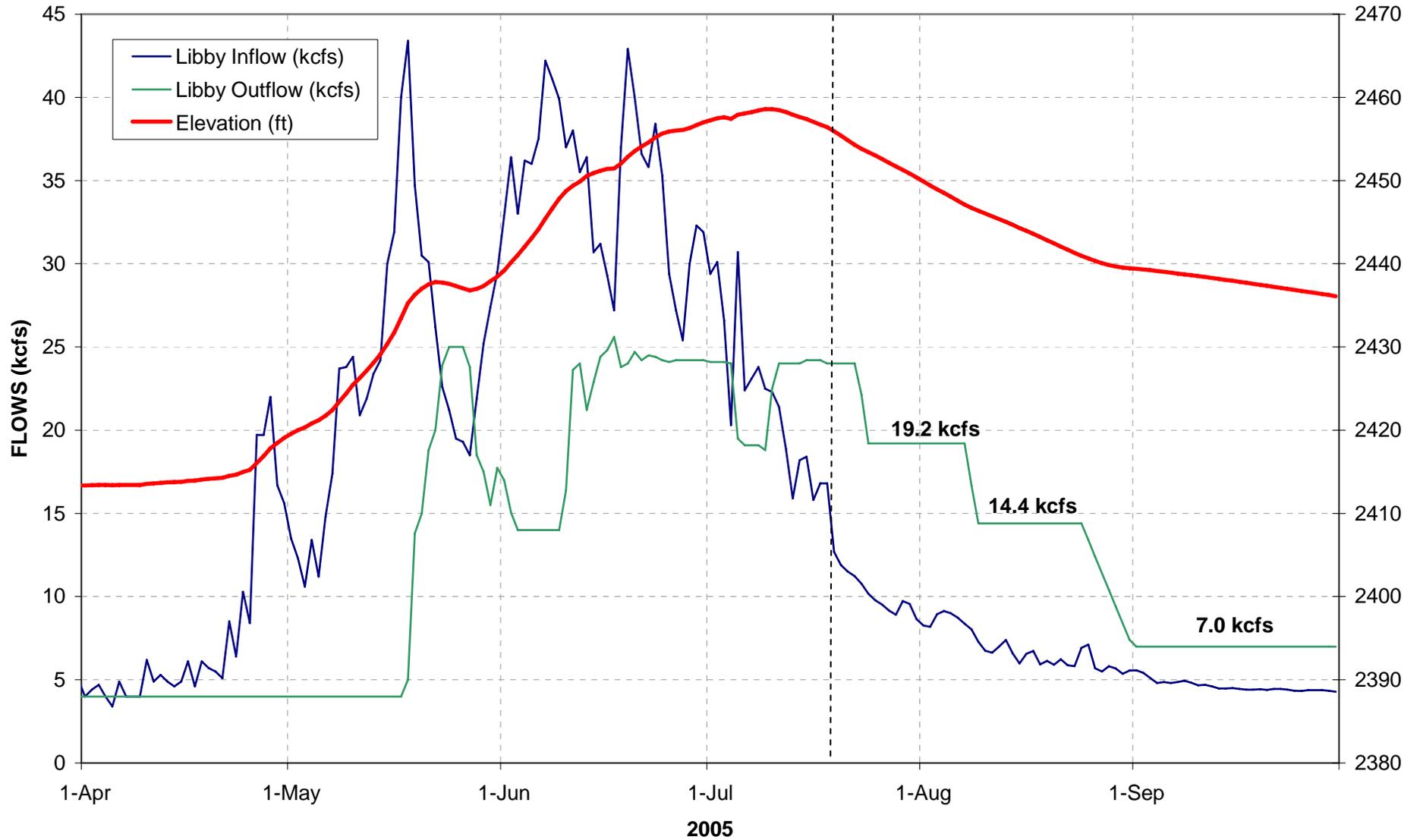


STP (7/19/05) INFLOWS USED STARTING 7/19/05

LIBBY

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2005 BIOP - Shaped - Case #2

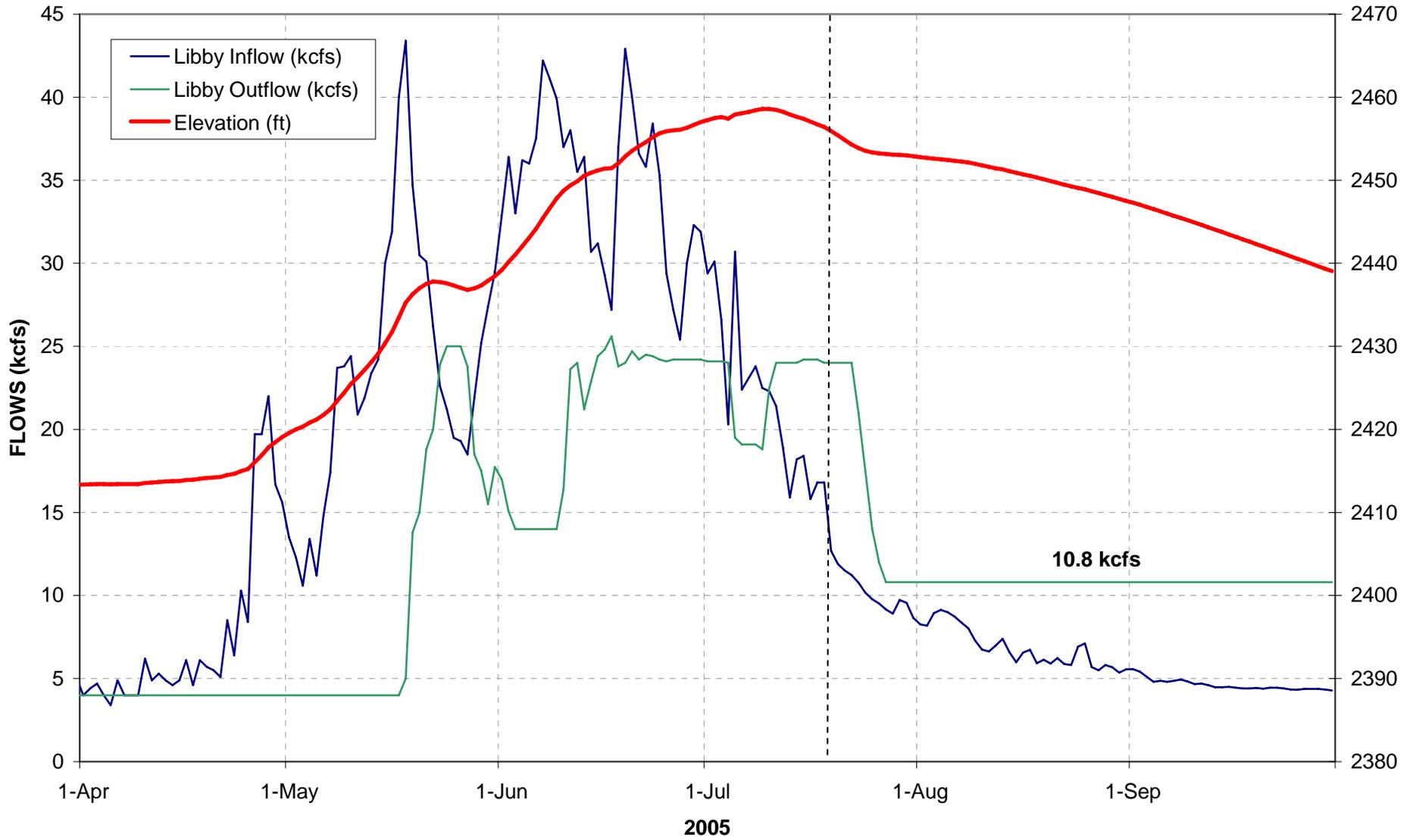


STP (7/19/05) INFLOWS USED STARTING 7/19/05

LIBBY

APR-AUG VOLUME=5.432 MAF

Montana Proposal



COLUMBIA RIVER REGIONAL FORUM

TECHNICAL MANAGEMENT TEAM CONFERENCE CALL

July 20, 2005

FACILITATOR'S SUMMARY NOTES ON FUTURE ACTIONS

Facilitator: Donna Silverberg

Notes: 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.

Grand Coulee Operations

The action agencies are currently operating to stay above 1285' by the end of July; the current elevation at Grand Coulee is 1287.6'. From a discussion at FPAC, the salmon managers recommend doing what is possible to meet the 200 kcfs BiOp flow targets at McNary and reach 1285' at Grand Coulee by the end of the month. Between July 15th and today, flows at McNary receded from 250 kcfs to 170 kcfs. The salmon managers recommended that, over the next week, the action agencies work to keep flows higher this week and avoid any dramatic drops in flows to support in-river migrating fish. The action agencies appreciated this guidance and offered that outflows will not likely fluctuate much; this was acceptable to the salmon managers.

Libby Summer Operations

Montana SOR: Jim Litchfield, MT, reported that discussions are on-going in the region on whether or not to implement Montana's SOR this year.

Questions:

- What is the possibility of the COE working with Canada to get water through Kootenai Lake this year? Cindy Henriksen responded that the COE is currently discussing this possibility with Canada, who is aware of Montana's request and is looking at how there could be a mutual benefit, as well as considering alternatives. If the region agrees to the Montana proposal, there will be more active discussions on this issue.
- Could additional water be taken out of Grand Coulee in August and then backfill the volume in September with Libby? The BOR has a draft limit and is not willing to exceed the limit; also Montana does not want to impact Grand Coulee with the proposed operation.

TMT members offered responses to the Montana request:

- Washington—Discussions are happening at a higher level than the TMT representative, so nothing more to add at this time.
- Idaho – Has heard nothing new since July 6; no new technical information or input.
- Oregon – Neutral on the SOR.

- USFWS – Not supportive of the SOR from a technical standpoint – still supports the USFWS/CRITFC SOR.
- NOAA – Will support ONLY if all parties agree.
- CRITFC – Does not support the Montana SOR.
- Montana – Disappointed, with all work with the Council and others, that this could not be resolved at the technical level.

Alternative Operational Scenarios: Given the lack of consensus on the SOR's, the COE offered alternative operations for the group to consider. Libby is currently still releasing full powerhouse of 24 kcfs. Given an expected low of 6-7 kcfs out in September, the COE ran two scenarios to shape the flow that would support habitat conditions. Greg Hoffman, COE, said that the main difference between options #1 and #2 is that there is a more gradual ramp-down with option #1. The ramp-down scenarios for August were set up to address local issues such as the Kootenai Tribe's ongoing nutrient study and local river use-ability. Both scenarios fall within the parameters of the BiOp operation. Greg suggested that, next to the Montana proposal, case #1 would be the best operation to support local biological needs.

A question was asked about whether spill could be implemented to flatten ramp rates even further. Greg responded that, because there are no restrictions on hourly ramp rates, a more gradual ramp down could occur without spill. The chosen ramp rates come from the WMP and were coordinated with USFWS, Montana and the COE.

TMT members commented on the two scenarios, which are linked to today's TMT agenda:

- USFWS – Case #1 is acceptable; it meets the end of August elevation target and an early higher draft is positive.
- Oregon—Case #1 appears to be consistent with the BiOp and is a good back-up choice for Montana and the BOR.
- Idaho – Supports an operation that would be best for the nutrient study and allows obligations through the BiOp litigation to be met, which would be case #1.
- Washington – There is not much difference between the two options, so supports #1 as it gets closer to meeting Montana's needs.
- NOAA – Case #1 is preferred, as there is less disparity in the full ramp down.
- CRITFC – Case #1 is acceptable, with a more gradual ramp-down rate.
- BPA/BOR/COE – Case #1 is acceptable. The COE added that this scenario sets up an operation that would allow implementation of the Montana SOR if an agreement were reached. The COE is poised to ramp down to 19.1 kcfs to allow completion of USGS study work in the next week; then will ramp down to ~14 kcfs. The COE will continue to update the graphs with new and current data, which will likely change the flow numbers slightly, but not the overall conceptual operation.
- Nez Perce – Case #1 is acceptable.
- Montana – Supports the Montana SOR. As a fall-back operation, prefers case #1 over case #2.

With no consensus at TMT, the issue of whether to implement the Montana SOR was elevated to IT for a policy discussion. A question was raised about whether all the technical information had been distributed supporting the Montana SOR. Most TMT members agreed, as they did at a previous TMT meeting, that the issue this year is a policy call, given this year's BiOp litigation and resulting court-ordered spill. IT planned to hold a conference call at 9:30 on July 21 to discuss the Montana SOR.

Dworshak Water Temperature/Operations

Last week, the action agencies operated Dworshak at 12 kcfs outflow at 43-45°. The COE expressed appreciation for the salmon managers' efforts in reaching a consensus on the recommended operation. Dworshak was currently at elevation 1586' and drafting. The tailwater temperature at Lower Granite remained just below 67° with the operation. As next steps, the salmon managers recommended continuing with the current operation, with the caveat that 67.5° for a 24-hour period is the threshold to trigger increasing flows to 14 kcfs (rather than decreasing temperatures below 43°). Use the colder water only if needed – and be mindful of the affect on hatchery fish.

Howard Birch, USFWS, asked how long the temperatures were expected to be held at 43-45°? From the hatchery perspective, any temperature below 45° is a concern for the fish, especially if for longer than one-two weeks. Kyle Martin, CRITFC, commented that it appeared that a ramp down from 12 kcfs after one more week would suffice in keeping the temperatures at Lower Granite down.

Dave Statler, Nez Perce Tribe, recommended that TMT closely track the amount of water being used now, to avoid dropping below 10 kcfs in late August in order to address temperature issues then. Russ Kiefer, Idaho, agreed with the need to consider late August migrants, which historically have high adult return rates. For this, and in consideration of hatchery temperature needs, he suggested that if the temperatures are enough below the 67.5° threshold at Lower Granite, instead of operating at 12 kcfs and 43° for another week, decrease the flows or increase temperatures sooner. It was noted that historically temperatures go above the threshold temperature during this time, and it would be difficult to reduce temperatures once they go up. Also, it was noted that the temperature at Dworshak reached 43° just two days in the last week, and otherwise was closer to 45°.

ACTION: The COE will prepare a graph of Dworshak forebay elevations and relative temperatures (the raw temperature data is available as a link, item #5, on today's agenda). The salmon managers will continue discussions about alternative operations. For now, the COE will operate to 12 kcfs and 43-45° at Dworshak, and the TMT will re-visit the issue at the July 27 TMT meeting. The group will monitor the water levels to avoid dropping below 10 kcfs in late August.

Summer Operations as a Result of the Court Ruling

Lower Granite is operating an RSW test which will end on July 22nd, followed by spill to the gas cap (and continued use of the RSW as part of the spill pattern). Little Goose is spilling 30% daytime and to the gas cap at night. Lower Monumental is operating one unit and spill to the gas cap. Ice Harbor is alternating between an RSW test and spilling to

the gas cap. When the RSW test ends on July 22nd, the project will spill to the gas cap. McNary is generating 50 kcfs and spill to the gas cap. All information on summer operations, including at other projects, can be found as links to this agenda item.

Feedback on Emergency Protocols

Following Monday's emergency TMT call, the salmon managers provided the action agencies with a draft prioritized emergency protocols list, and are still engaged in discussions to address some disagreement over a final list. The action agencies said the draft list was helpful in moving toward updating the list and clarifying the process. A couple items no longer apply, including eliminating BPA non-firm contracts (BPA no longer holds these contracts) and decreasing firm load. They will update those practice changes. The salmon managers said the need remains to understand/characterize Monday's problem and suggested that the action agencies formalize it in writing.

ACTION: The draft list will be posted to the TMT web page, as will the final list when available. The action agencies will take the updated list, add to it and try to finalize for use as a tool during future emergencies.

August 10 Meeting in Idaho

Russ Kiefer has offered to host the August 10 TMT meeting, as a piggy-back to the redd count training on the South Fork Salmon River. TMT members will check with their agencies and the group will make a decision at the July 29 meeting.

Next Meeting, July 27, 9am-noon

An agenda has been posted to the TMT web page. Agenda items include:

- Fall Chinook Run Forecast
- Treaty Fishing
- Summer Operations as a Result of the Recent Court Ruling
- Operations Review
- August 10 TMT Meeting Check-In

1. Greetings and Introductions.

The July 20 meeting of the Technical Management Team was chaired by Cindy Henriksen and facilitated by Donna Silverberg. The following is a summary (not a verbatim transcript) of the topics discussed and decisions made at that meeting. Anyone with questions or comments about these notes should contact Henriksen at 503/808-3545.

2. Grand Coulee – Shape of Water to Draft to Elevation 1278.

David Wills asked what the projected Grand Coulee elevation is at the end of the month, given the current rate of discharge. As a rule of thumb, we try to manage the project to be at or above elevation 1285 on July 31, Tony Norris replied; the current elevation is 1287.6 Kcfs. Inflows are really starting to drop off,

said John Wellschlager – if the salmon managers have specific flow requests or concerns at McNary or Priest Rapids, now would be a good time to hear them.

We discussed this yesterday, said Wills, and if you could meet 200 Kcfs at McNary, that would be ideal. Obviously we're constrained as to the amount of water we have this year, and if you could draft steadily to achieve elevation 1285 by July 31, that would probably be the best operation at this point. Once flows recede to 150-160 Kcfs, we will be reducing the opening at Bays 3 through 6 at The Dalles from 8 feet to 6 feet, said Henriksen. Flows are definitely receding, she said; will you be developing a methodology to decide what flows you want to see once McNary flows drop below 200 Kcfs? It all depends on what volume is available, Wills replied – we will be looking at current and projected flows and trying to determine the best operation through the summer.

Mainly, I wanted to know what the flow projections are for the next couple of weeks, said Ron Boyce. Do you see inflows dropping off sharply in the immediate future? Flows are receding, Henriksen replied. I'd like to see no dramatic drops in flow right now; we're seeing large numbers of fish in the Lower Columbia, Boyce said. Flows are a lot higher than I expected for this time of year; I would request that there be no dramatic drops in flow over the next week. That makes great sense – that's very helpful, said Norris.

Given that, what flows can we expect to see through next week? Boyce asked – can you maintain 170 Kcfs through next week at McNary? Grand Coulee has been discharging 130-140 Kcfs over the past week, just over inflow, Norris replied; we're drafting at a typical rate for this time of year. The 1285 elevation target is just a rule of thumb; the intent is to save some water for August once inflows really start to dry up. So do you think you can maintain 170 Kcfs at McNary and still hit the 1285 target on July 31? Boyce asked. We'll do our best, Norris replied. That would be fine with NMFS, said Paul Wagner. It seems like a reasonable approach, said Russ Kiefer. Washington has no problem with that, said Cindy LeFleur. Seems like a good approach, added Jim Litchfield.

3. Libby Summer Operation.

Henriksen said while the action agencies are waiting to see whether there have been additional developments on the Montana SORs, we have attached several potential operational scenarios attached to today's agenda. Litchfield said that, while the two scenarios the Corps has modeled are fine as a fallback, they are not ideal, from Montana's perspective.

Discussions on the Montana SOR have been ongoing since last TMT met, said Litchfield. Many parties in Montana have been working hard to try to get the SOR implemented. Our hope is that people will realize that this does not represent a big change in Lower river flows during July and August, and would increase flows in September. Obviously the power emergency we discussed on

Monday could have an impact. Montana continues to support a flat flow that will leave a volume in Libby and Hungry Horse for use in September.

Any update on the negotiations with Canada to pass the water through Kootenai Lake? Bob Heinith asked. We have been discussing this operation with Canada, Henriksen replied; Canada is aware of the SOR and the fact that a pass-through request may be coming their way. Until we have agreement on the SOR, however, there will be no agreement with Canada – it's a chicken-and-egg thing. The next step, in terms of reaching an agreement with Canada, would not involve money – it would typically be an agreement between the US and Canada as to how to shape flow and find mutual benefit in the operation. Canada is considering what they may find beneficial if the SOR is adopted.

One other issue, said Heinith: is there a possibility of getting some extra water out of Grand Coulee in August, and backfill with Libby volumes in September? No, Norris replied – we have a draft limit at Grand Coulee and intend to maintain it. Also, Montana has no desire to transfer the impacts of its requested Libby operation to Grand Coulee, added Litchfield.

Litchfield asked the other TMT parties to state their current positions on the Montana SOR. Is there any chance we're going to get agreement on the SOR? he asked. If not, we can discuss the alternative scenarios. LeFleur said the discussions have been taking place at a higher level than her office; I really haven't been involved, she said. I would ask, however, how different the Montana SOR is from the scenarios that have been modeled, LeFleur said. The Montana SOR would produce a flat flow of about 11.1 Kcfs from this weekend through the end of September, Greg Hoffman replied. In other words, said Henriksen, the current operation does not preclude the implementation of the Montana SOR.

Russ Kiefer said he has heard nothing new since TMT addressed this issue on July 6. We have seen no new technical information, so it's hard for us to change our technical position, he said. Boyce said Oregon continues to be neutral on the Montana SOR. Wills said the Fish and Wildlife Service does not support the SOR. Paul Wagner said NMFS is willing to entertain the Montana SOR, but would not agree to implement it unless all parties agree. Kyle Martin said CRITFC does not support the Montana SOR, and continues to support the original CRITFC/USFWS SOR. That's unfortunate, said Litchfield – the Montana Council members have worked hard to reach agreement this year. I'll check on the status of the higher-level negotiations, and will pass the conversation at today's meeting along as well.

Moving on to the alternative scenarios the Corps has modeled, Henriksen said inflows have been greater than expected. Libby continues to release full powerhouse capacity; the project is at elevation 2456 and drafting. The objective of the scenarios modeled was to slowly ramp down the flow, rather than abruptly dropping it on September 1, to achieve better habitat conditions in September,

she explained. Hoffman said that, while the Montana SOR would produce the maximum biological benefit in Montana, the worst operation would be to release a flat flow through the end of August, followed by an abrupt drop in flow. We have tried to model a more gradual rampdown, to ease some of those biological impacts. We will need to drop from five units to four this weekend, he said, for the GDACS computer insulation effort. The ongoing nutrient study and river usability are also concerns, Hoffman said.

From our perspective, Case 1 would have the softest impact, biologically, said Hoffman. Litchfield said he would prefer Case 1, because of its more gradual stepdown structure, from full powerhouse capacity to 19.2 Kcfs to 14.4 Kcfs to 12 Kcfs to 7 Kcfs. Both Case 1 and Case 2 are hot-linked to today's agenda on the TMT homepage. In response to a question from Heinith, Hoffman said a reduction of 5 Kcfs (one unit) in Libby outflow will result in a drop in river stage of 1.5 feet. Any possibility that spill could be used to feather down some of those ramp-down rates? Heinith asked. It isn't the turbines that are driving the ramp-down rates, said Litchfield – it's the Biological Opinion. Those ramp-down rates were negotiated with the Fish and Wildlife Service for the 2000 BiOp, and are among the most restrictive in the FCRPS, Henriksen added.

In response to a question from Boyce, Henriksen said that, under these two scenarios, the rampdown to 19.2 Kcfs outflow could begin as early as this Friday, July 22.

It sounds, then, as though there is no TMT agreement on the Montana SOR, said Silverberg. The Corps has developed a couple of alternative operational scenarios; it sounds as though Case 1 would be preferable to most of the folks at TMT. It also sounds as though the Montana SOR will be elevated to IT tomorrow.

Wills said the Fish and Wildlife Service would prefer Case 1. Boyce said Oregon also supports Case 1. Kiefer said he would like to check with the Kootenai Tribe and with IDFG personnel in northern Idaho as to which scenario would be preferable; it sounds as though both scenarios are consistent with the BiOp, he said. This has been coordinated with those parties, said Hoffman – they support Case 1. In that case, I would support Case 1, Kiefer said. LeFleur said that, given the relatively small difference between the two scenarios, and given the fact that Case 1 seems to meet Montana's needs better, Washington is willing to support it. Wagner said Case 1 is fine with NMFS. Martin said Case 1 would also be acceptable to CRITFC. Dave Statler said the Nez Perce Tribe also supports Case 1. Litchfield said Montana would agree that Case 1 would be preferable to Case 2. Wellschlager said Bonneville is OK with Case 1. Norris said Reclamation agrees. Henriksen said the Corps is poised to implement Case 1, perhaps starting as soon as tomorrow. If the IT goes along with Montana tomorrow, we are also poised to implement the Montana SOR, she added.

Does this mean that the Corps is accepting the CRITFC/USFWS SOR? Heinith asked. I think there is a dispute over the two SORs, and we will be taking that dispute to the IT tomorrow, said Litchfield, adding that, if the IT declines to recommend implementation of the Montana SOR, the two Montana Council members are considering requesting a meeting of the regional executives.

4. Dworshak Water Temperature.

Henriksen said the intent of this agenda item is to provide a weekly check-in on Dworshak operations. Last week, as agreed at TMT, we increased Dworshak outflow to 12 Kcfs and lowered the release temperature to 43 degrees F. The current elevation at Dworshak is about 1586 feet and drafting. We continue to release 12 Kcfs at 43 degrees; the tailwater temperature at Lower Granite has been just below 67 degrees and holding pretty nicely, she said. Is there any desire to change the current Dworshak operation? Henriksen asked.

We discussed Dworshak operations yesterday, Wills said; our recommendation was to continue with the current operation, with the same caveat that if 67.5 degrees is exceeded on a 24-hour rolling average in the Lower Granite tailrace, Dworshak outflow will be increased. Do you know how long the 43-degree outflow temperature will continue? asked Howard Burge.

In response to a question from Kiefer, Burge said there are three steelhead rearing systems at Dworshak National Fish Hatchery; System 1 already has fish in it, and System 2 will have fish soon. System 3 will be used in August. The fish in System 3 will be impacted the most by these low water temperatures. If we see a month at 43 degrees, we will lose about 10 mm of growth, which could cause problems this winter, until we go on reuse (heated water). SARs decrease dramatically for smaller fish, he added. The unclipped steelhead we raise for US v. Oregon are also in System 3, and would be affected, he added. The bottom line is that we can live with 43-degree water for a week or two, but if it goes on for a month, that's really going to impact us, said Burge. We would prefer that the Dworshak release temperature not fall below 45 degrees, unless absolutely necessary.

I guess we'll have to keep an eye on things at Lower Granite, and use the 43-degree water only when absolutely necessary, observed Wagner. Are you planning to reduce Dworshak outflows within a week or so? Statler asked. That's part of what we're discussing today, said Henriksen – we've been running at 43 degrees only for the last two days. If we do see temperature problems, I would prefer to see us maintain higher flows – 12 Kcfs, for the time being – rather than reducing the outflow volume and continuing at 43 degrees, said Wills. Statler requested that the TMT closely monitor the remaining volume in Dworshak to ensure that it is not necessary to reduce Dworshak outflow below 10 Kcfs prior to August 31.

The group devoted a few minutes of discussion to the question of how to balance the need to maintain the current temperature regime and the need to save as much cold water as possible for use later in the summer. Kiefer suggested that the action agencies maintain the 12 Kcfs outflow, but increase the outflow temperature to 45 degrees. Ultimately, it was agreed that the current operation at Dworshak – 12 Kcfs outflow at 43 degrees F – will continue at least until next Wednesday’s TMT meeting, unless temperatures in the Lower Granite tailwater exceed 67.5 degrees F. on a 24-hour rolling average.

5. Summer Operations as a Result of Recent Court Ruling.

Henriksen said summer operations continue per the court ruling. RSW testing continues until July 22 at Lower Granite, after which the project will spill total river flow up to the gas cap, with the RSW in the spill pattern, over the 11.5 Kcfs station service minimum. Spill also continues at Little Goose, Lower Monumental, Ice Harbor and McNary. RSW testing at Ice Harbor will also end at 6 am on July 22; after that, Ice Harbor will be spilling to the gas cap. Detailed spill and flow data for each project is available via hot-link from today’s agenda on the TMT homepage.

6. Feedback on Emergency Protocols.

Wills said the salmon managers have continued to discuss the protocols; beyond what we submitted to the action agencies following Monday’s emergency TMT call, there is nothing to add. We still have some difference of opinion as to what the best approach should be, he said. Henriksen said the salmon managers’ list will be posted to the TMT homepage soon. Wellschlager said the action agencies will be working with the salmon managers to tweak the emergency protocol list; for example, BPA no longer does non-firm contracts. Also, the list refers to “reduce firm loads;” that refers to interruptible DSI contracts, which, again, Bonneville no longer enters into, Wellschlager said.

It was agreed that the salmon managers will continue to work to achieve consensus; in the interim, the action agencies will continue to use the current list. Boyce suggested that it would be prudent to revisit Appendix 1 to the Water Management Plan, in order to clarify and update both the appropriate emergency actions and the process by which they are implemented. Henriksen agreed, reiterating that the action agencies will continue to discuss the list provided by the salmon managers on Monday.

Was an emergency declared on Monday? Statler asked. No, Wellschlager replied.

7. Next TMT Meeting Date.

The next face-to-face meeting of the Technical Management Team was set for Wednesday, July 27. Meeting summary prepared by Jeff Kuechle, BPA contractor.

TMT Participant List

July 20, 2005

Name	Affiliation
Cindy Henriksen	COE
John Wellschlager	BPA
Tony Norris	USBR
Nic Lane	BPA
Tim Heizenrater	PPM
Larry Beck	COE
Laura Hamilton	COE
Kyle Martin	CRITFC
Donna Silverberg	Facilitation Team
Ray Gonzales	COE
Cathy Hlebechuk	COE
Paul Wagner	NMFS
Paul Koskie	COE
Todd Cook	PPM
Dan Spear	BPA
Russ Kiefer	IDFG
Barry Espenson	CBB
Jim Litchfield	Montana
Ron Boyce	ODFW
Cindy LeFleur	WDFW
Lance Eilas	PPL
Greg Hoffman	COE

Ruth Burris	PGE
Richelle Beck	D. Rohr & Associates
Lee Corum	PNUCC
Tom Le	PSE
Victoria Watkins	Pyra Energy Group
Howard Burge	USFWS
David Wills	USFWS
Bob Heinith	CRITFC
Dave Statler	NPT

TECHNICAL MANAGEMENT TEAM

BOR: Tony Norris / John Roache

BPA: John Wellschlager / Nic Lane

NOAA-F: Paul Wagner

USFWS: David Wills / Steve Haeseker

OR: Ron Boyce

WA: Cindy LeFleur

ID: Russ Kiefer

MT: Jim Litchfield

COE: Cindy Henriksen / Cathy Hlebechuk

TMT MEETING

Wednesday July 27, 2005 0900 - 1200 hours
1125 N.W. Couch Street, Suite 4A34
Portland, Oregon 97208
Conference call line: 503-808-5190

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

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

AGENDA

1. Welcome and introductions.
2. Libby summer plan
3. Review of Notes - [\[Minutes - 2005\]](#) 
4. Fall Chinook run forecast - (Cindy Lefleur)
 - i. [\[Columbia River Fall Chinook Forecast - 2005 \(PPS\)\]](#)
5. Treaty Fishing - [\[SOR 2005-C3 - July 22, 2005\]](#) 
6. Emergency Protocols Actions
7. Summer Operations as a Result of Recent Court Ruling.
 - o [\[Lower Granite, McNary, Little Goose, John Day, Lower Monumental, The Dalles, Ice Harbor, Bonneville, Summer Operations - \(PPS\)\]](#)
8. Operations Review
 - a. Reservoirs
 - b. Fish
 - c. Power System
 - d. Water Quality
 - i. [\[Spill Information 2005\]](#) 
 - ii. [\[Lower Granite Inflows and Temperatures in 2005 and Dworshak Outflows and Lower Snake River Tailwater Temperatures in 2005 \(July-27-2005 @ 0400 hrs \)\]](#) 
 - iii. [\[Dworshak Water Temperature Profile\]](#) 
 - iv. [\[Daily Water Temperature Reports\]](#)
 - v. [\[Dworshak Thermocline \(27 July 2005 @ 0600 hrs\)\]](#) 
 - vi. [\[Clearwater River at Peck \(1979, 1994, 1995, 1998 weather\) & Snake at Lower Granite Dam \(1979, 1994, 1995, 1998 weather\)\]](#)



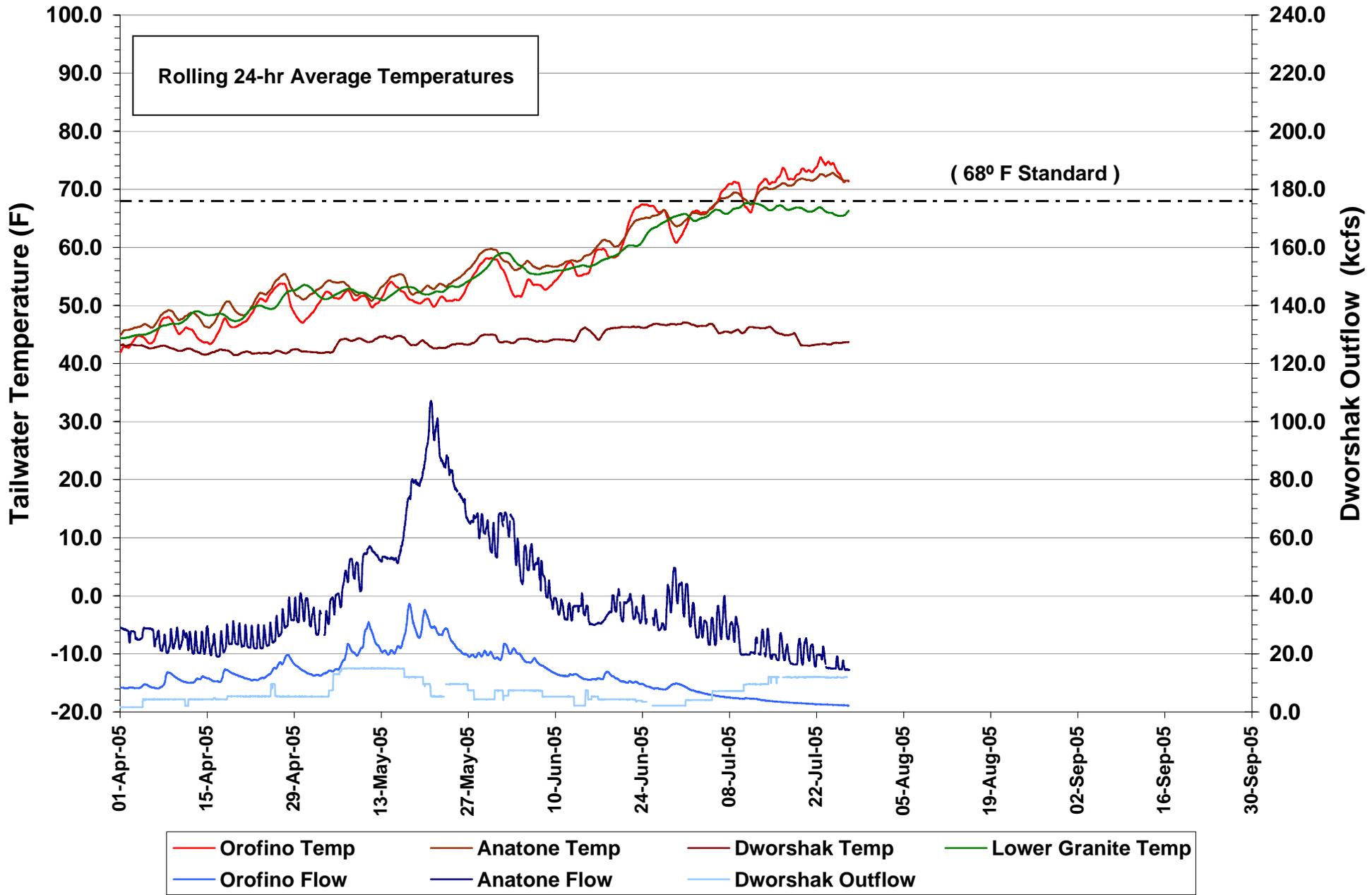
9. August 10 TMT Meeting Check-In

10. Other

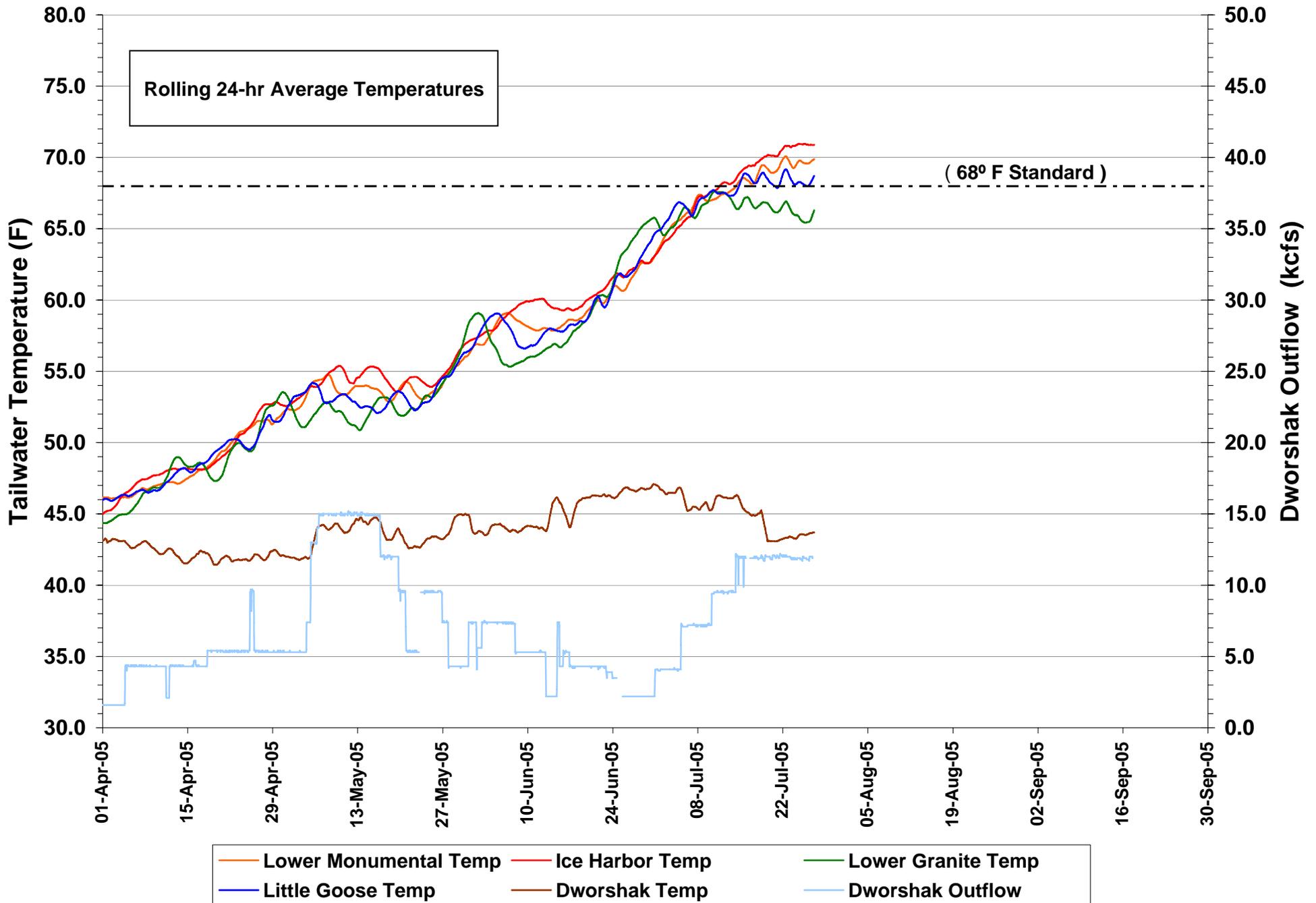
- Set agenda for next meeting - [\[Reference Calendar\]](#) 

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

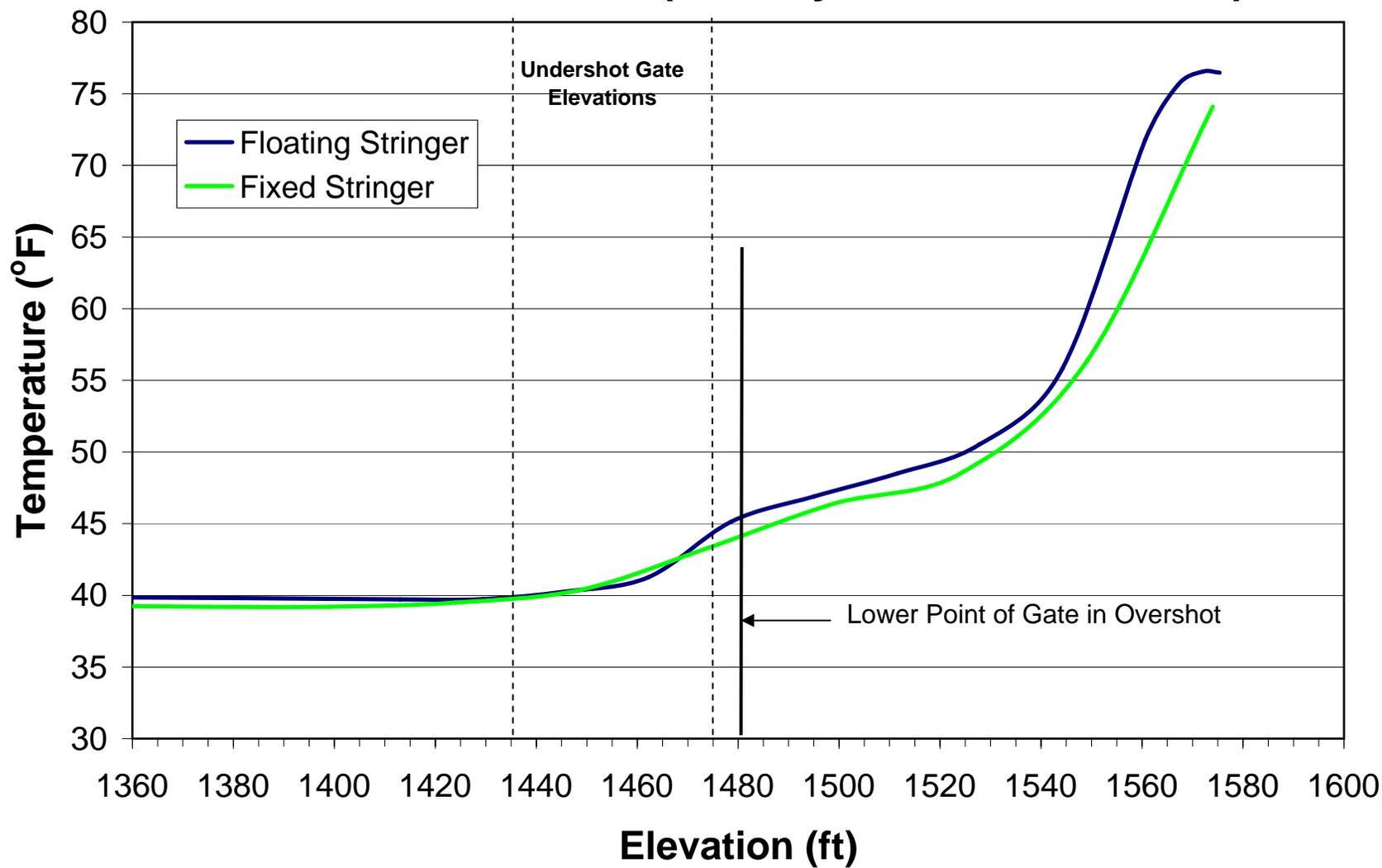
Lower Granite Inflows and Temperatures in 2005 (July-27-2005 @ 0400 hrs)



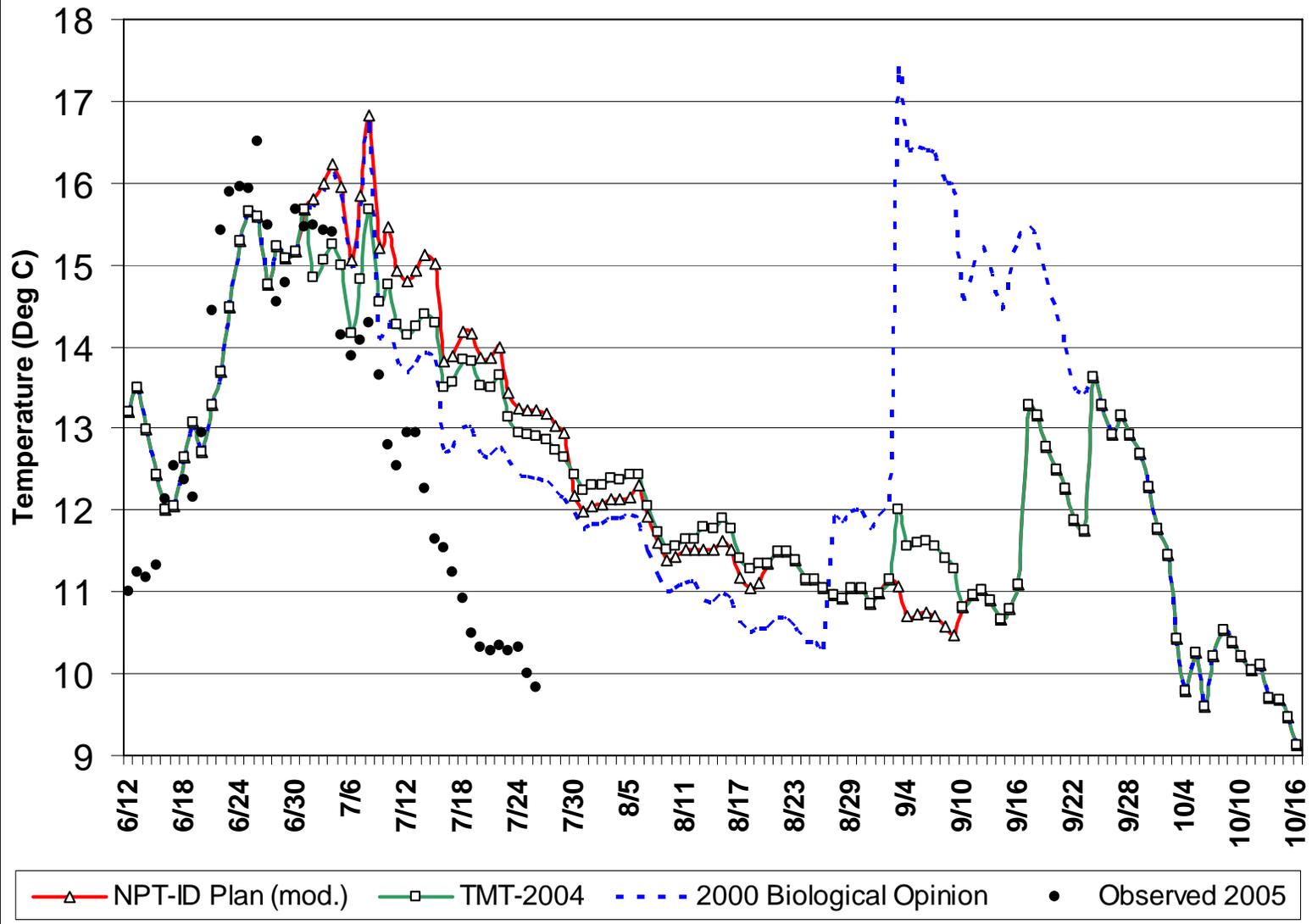
Dworshak Outflows and Lower Snake River Tailwater Temperatures in 2005 (July-27-2005 @ 0400 hrs)



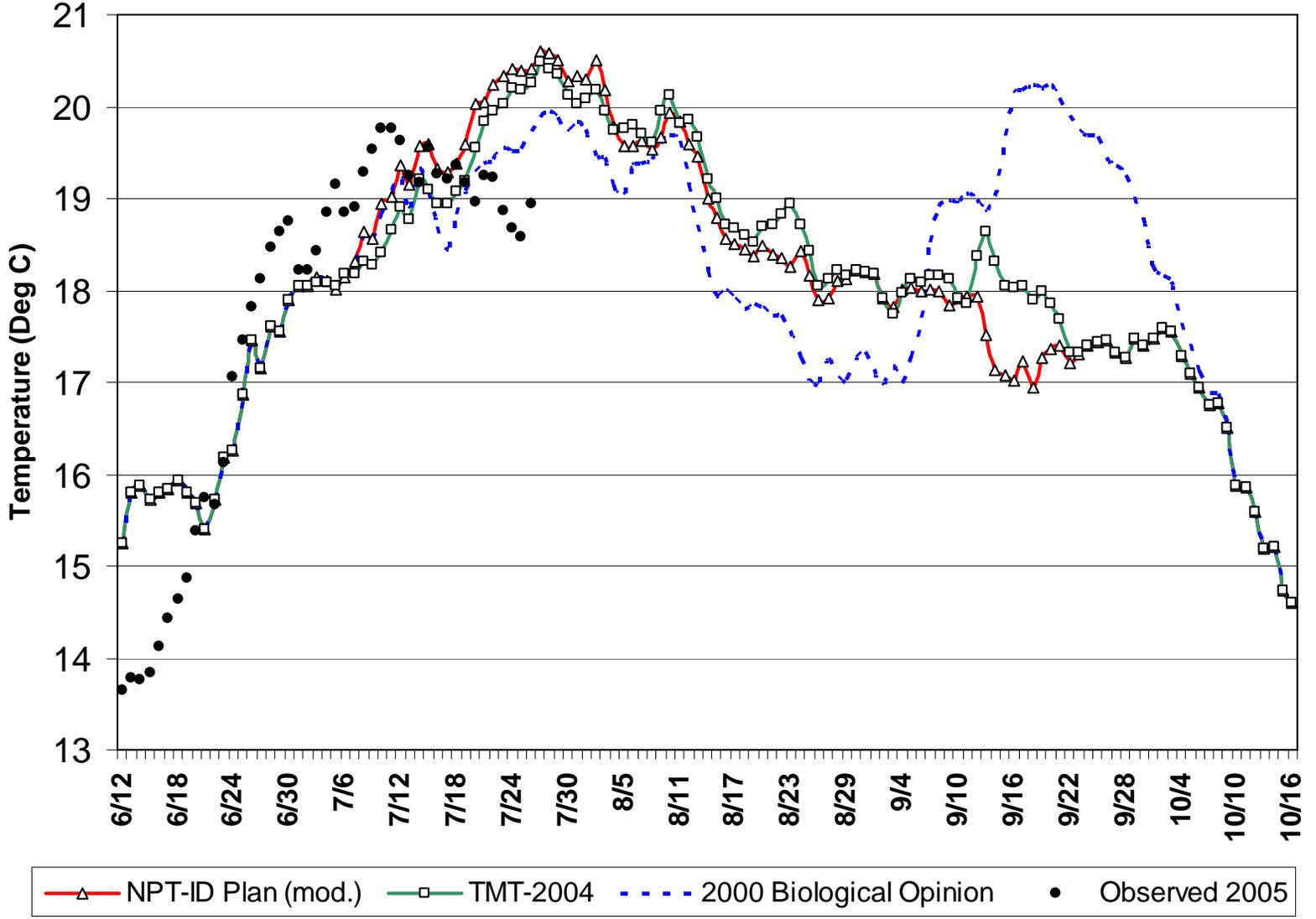
Dworshak Thermocline (27 July 2005 @ 0600 hrs)



Clearwater River at Peck (1979, 1994, 1995, 1998 weather)



Snake at Lower Granite Dam (1979, 1994, 1995, 1998 weather)



COLUMBIA RIVER REGIONAL FORUM

TECHNICAL MANAGEMENT TEAM

July 27, 2005

FACILITATOR'S SUMMARY NOTES ON FUTURE ACTIONS

Facilitator: Donna Silverberg

Notes: 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.

Libby Summer Plan

Per TMT and IT discussions last week, a decision was made to operate Libby to 2439' by the end of August. The COE provided two scenarios for meeting this target to TMT last week, and the group reached consensus on option #1, which provided a more gradual ramp-down. Libby is currently releasing 19.2 kcfs and is expected to continue through the first week of August given continuing higher flows. The COE plans to ramp the project down to about 14 kcfs around August 13.

Review Notes

No comments on the meeting minutes or facilitator notes were offered today.

Fall Chinook Run

Cindy LeFleur, WDFW, provided a handout of Columbia River Fall Chinook Forecasts for 2005. The forecast for upriver brights is 354,600; 89,700 for Mid-Columbia brights, and 115,800 for Bonneville pool hatchery fish. All are down slightly from 2003, but still strong forecasts. The total forecast for Columbia River fall chinook is strong at 671,400; this number includes stocks that spawn above Bonneville dam. Cindy also provided information about timing and limits on recreational, commercial and treaty fall fisheries. It was noted that there is some variability in the forecasted vs. the actual numbers of fish. (For details of the presentation, see the Power Point attached to the agenda.)

Treaty Fishery: SOR 2005 C-3

Kyle Dittmer (formerly Martin), CRITFC, presented this SOR for July 25-29, requesting that Bonneville, The Dalles and John Day be operated within a 1' operating pool. 212 nets were in the river on 7/19, and today the number dropped to 163. It was noted that John Day is the preferred pool for summer net fisheries. The Fall fishery is expected to begin around the week of August 22, and CRITFC will coordinate with the action agencies on this.

A comment was made that the TMT web page link is missing dispositions for some SOR's, including the fishery requests. It was suggested that these be included on the web.

ACTION: The COE plans to operate Bonneville and John Day at a 1.5' hard constraint and 1' soft constraint. The COE expects that Bonneville and John Day may operate within 1', but due to limitations with fixed pendants at The Dalles, more fluctuations might occur at this project.

ACTION: Per request, Kyle will provide information on ghost nets at the next TMT meeting.

Emergency Protocols Actions

The salmon managers provided an updated draft emergency protocol list to the action agencies following discussions last week, and a few changes were made by BPA (actions that no longer apply or are not feasible were removed), but this list has not yet been prioritized. The COE requested that the salmon managers provide any guidance they can on priorities for actions. In the absence of a consensus of the salmon managers, they recommended that the COE continue to operate with the working list as it is.

Summer Operations as a Result of the Recent Court Hearing

The COE posted updated graphics of summer operations for the Lower Snake projects, McNary and Bonneville. The RSW test was completed at Lower Granite on July 22, and the project is now spilling to the gas cap. Little Goose is operating 30% spill during the day, and one unit to the gas cap at night. Lower Monumental is spilling 24 hours to the gas cap. Ice Harbor has been spilling to the gas cap since the end of the RSW test on July 22 – the RSW is not being used in the current spill regime. McNary is operating with 50 kcfs through the powerhouse plus spill to the gas cap. John Day is spilling 24 hours at 30%, and The Dalles is spilling 24 hours at 40%. Graphs are updated every other day, and the COE will continue to post them on the TMT web page on Wednesday.

Operations Review

Reservoirs – Grand Coulee is slightly above 1287'; Hungry Horse is at 2553.4' and drafting 5 kcfs out. Libby is below 2454' and drafting to 2439' by the end of August. McNary expected flows are around 140 kcfs for the end of August, and next week expected to be in the 160's kcfs range. Lower Granite flows are dropping below 30 kcfs. Dworshak is operating 12.5 kcfs out at about 44°, and is near elevation 1577'.

Fish – The salmon managers will provide a packet of information about remaining migrant percentages in the Lower Snake, including cumulative passage, historical patterns, etc. TMT will invite Billy Connor to give a presentation to the group about migration timing at the August 10 TMT meeting.

Power – Outages are scheduled at Little Goose from 8/22-26 daytime and Lower Granite from 8/29-31, for double testing on transformers. John Wellschlager, BPA, requested that TMT consider whether they prefer increasing spill at Little Goose or removing MOP constraints to accommodate the annual outage. TMT members will respond to this question at the August 10 TMT meeting.

Water quality – Lower Granite temperatures remain below 68° with 12.5 kcfs outflows from Dworshak at about 44°. Jim Adams, COE, walked TMT through a number of graphs of Dworshak and Lower Granite current temperature data, and requested input on next steps for operations. Dave Wills, USFWS, recommended that, considering the extremely warm weather forecasted in the area and after talking with Howard Burge at the Dworshak hatchery, the action agencies continue with the current operation until the higher temperatures moderate (with the caveat that if temperatures at Lower Granite exceed 67.5°, flows from Dworshak increase to 14 kcfs).

ACTION: The COE will check on whether a different mix of warm and cool water at Dworshak could be used to produce the same temperature and conserve some of the cold water for later, and will continue to operate to meet the temperature and flow specifications as last week. The most current forecast predicts that there will be available water to implement 12 kcfs out of Dworshak until August 9.

Next Meeting, August 10, 1:00 pm: NOTE NEW TIME AND PLACE

TMT will hold their next face to face TMT meeting in Stanley, Idaho following a inter-agency redd count training. Details on this meeting, including specific time and call-in number, will be made available in the next two weeks. Russ Kiefer, Idaho, will work with the facilitation team to coordinate the field trip and meeting.

Agenda Items include:

- Billy Connor presentation on migration timing in Lower Snake River
- Review of summer treaty fishing
- Update on ghost net retrieval information
- Salmon manager response on MOP variance at Little Goose for double testing outage
- Lake Pend Oreille Lake level affects on kokanee
- Salmon manager response on Emergency Protocol priorities

1. Greetings and Introductions.

TMT Chair Cindy Henriksen welcomed everyone to today's meeting, held July 27, 2005 at the Reservoir Control Center in downtown Portland, OR. The meeting was facilitated by Donna Silverberg. The following is a summary (not a verbatim transcript) of the topics discussed and decisions made at this meeting. Anyone with questions or comments about these notes should contact Henriksen at 503/808-3945.

2. Libby Summer Plan.

Henriksen said that, as most participants are aware, the TMT has been discussing Libby summer operations and the Montana SOR. At the last TMT meeting, the Corps presented two potential Libby operational scenarios that would achieve elevation 2439 at Libby on August 31. At that meeting, TMT members agreed unanimously to gradually ramp down Libby outflow through the month of August, Henriksen said.

Since that meeting, said Henriksen, Libby has been releasing 19.2 Kcfs. Inflows have remained surprisingly high, which means that the Corps expects to continue to release 19.2 Kcfs from Libby through the first two weeks in August. Our plan is to reduce Libby outflow to about 14 Kcfs around August 13, she said, followed by further ramp-downs on a weekly basis. If we change Libby outflow in the interim, we will let you know, Henriksen added.

3. Fall Chinook Run Forecast.

Cindy LeFleur provided a Powerpoint presentation titled “Columbia River Fall Chinook Forecasts – 2005.” She touched on the following topics:

- Upriver bright chinook (URB) – mostly wild fish destined for the Hanford Reach and the Snake, Yakima and Deschutes Rivers, plus Priest Rapids and Lions Ferry hatchery fish. The Snake River fish are ESA-listed; fall chinook spawning peaks in November
- Upriver bright fall chinook returns – 1980-2005 (graph): estimated 2005 return of 354,600 fish among the highest on record
- Mid-Columbia River bright chinook (MCB) – originated from upriver brights; includes two components: PUB (from hatcheries above Bonneville Dam) and BUB (from Bonneville Hatchery).
- Mid-Columbia bright returns, 1980-2005 (graph) – 2005 forecast of 89,700 among the highest on record
- Bonneville Pool Hatchery (BPH) – this component, called tules, is destined primarily for Spring Creek Hatchery. Natural production occurs in Bonneville pool tributaries; spawning occurs in September and October
- Bonneville Pool Hatchery returns, 1980-2005 (graph): the 2005 forecast of 115,800 is among the highest on record
- Columbia River fall chinook, all stocks, returns 1980-2005 (graph) – the 2005 forecast of 671,400 is very strong, the sixth-highest in the last 26 years.
- 2005 fall fisheries – recreational: opens August 1 at Buoy 10, in the Columbia below Bonneville and in the Columbia above Bonneville. Fishing expected to peak in late August through mid-September.
- 2005 fall fisheries – commercial: will begin in early August in the lower river and will continue through October
- 2005 fall fisheries – treaty Indian: likely to begin at the end of August, will have weekly periods throughout September; may continue into October, targeting both fall chinook and significant numbers of steelhead.

The group devoted a few minutes of discussion to forecast methodologies; in response to a question, LeFleur said WDFW’s fall chinook forecasting tends to be significantly more accurate than its spring and summer chinook forecasting.

4. Treaty Fishing SOR.

On July 22, the CRITFC tribes submitted SOR 2005 C-3 to the action agencies. This SOR requested the following specific operations:

- Implement the following operations as a hard constraint from 6 am Monday, July 25 through 6 pm Friday, July 29:
- Bonneville, The Dalles (Celilo) and John Day pools – operate these pools within a 1.0-foot band.

Kyle Dittmer (formerly Martin) provided an overview of this SOR, noting that this will be the last summer fishery SOR of 2005, as well as recent results from CRITFC's aerial net surveys. Today's survey showed 163 nets in the river, down from 212 on July 19. In response to a request, Dittmer said he will provide information on the number of "ghost" nets in the river at the next TMT meeting on August 24.

In response to SRO 2005 C-3, Henriksen said the Corps has been and plans to continue to operate Bonneville and John Day pools within a 1.5-foot operating range as a hard constraint, and will instruct project personnel to operate these pools within 1 foot as a soft constraint. Due to limitations associated with the fixed spill gate openings at The Dalles, more fluctuations may occur at this project.

5. Emergency Protocols Actions.

David Wills said the salmon managers have been discussing this topic, but have nothing new to add. Henriksen reminded the group that, on July 18, there was an emergency TMT call to discuss the prioritization of the actions on the emergency protocols list. An emergency was not declared on that occasion; however, as a planning tool, it is helpful to have consensus on a list of actions to be implemented if needed, she said. We did receive a list from Dave Wills following that call; it included a group of actions that could be taken in advance of an emergency. Many of these actions have to do with putting units back on-line, increasing flow at various headwater projects, or BPA purchasing power.

John Wellschlager noted that there are a number of actions that could be eliminated from this list – for example, the elimination of non-firm contracts. BPA hasn't carried non-firm contracts for nearly 7 years, he said. Reducing firm loads is another dinosaur, he said; I believe this action dates back to the time when BPA had interruptible DSI contracts, which we no longer have. That, too, could be removed from the list, Wellschlager said.

At our July 18 meeting, we also discussed actions that could be taken in the event of a short-term emergency, Henriksen said; some of the actions we discussed included increased Hungry Horse, Libby and Dworshak outflow; as you're aware, both Libby and Hungry Horse were already at full powerhouse capacity last week. We also talked about increasing flow at Grand Coulee and

Chief Joseph, but again, both projects were already releasing full powerhouse capacity. We also discussed increasing flow at Bonneville Dam and at the Willamette projects, as well as reductions in spill at lower Columbia and lower Snake river plants. Those were the kinds of actions we would like to get some feedback on from the salmon managers, Henriksen said; any guidance you can give us as to which of those actions would be preferable would be helpful. We have discussed all of those actions, Wills replied; there are a variety of opinions, and to date we have been unable to reach a salmon managers' consensus.

The action agencies reiterated that they would like guidance from the salmon managers regarding short-term emergency action priorities as soon as possible. In the meantime, said another participant, absent any direction from the salmon managers, are the action agencies prohibited from changing operations at the projects that are spilling by the judge's order? We don't know the answer to that; it depends how big the problem is, Wellschlager replied. We're trying to work that out right now, and can't comment until that process is complete. At the moment, we would start with projects such as Bonneville and John Day, which are outside the judge's order, added Henriksen. It was agreed that further discussions on this topic will continue outside the TMT forum.

6. Summer Operations As A Result of Recent Court Ruling.

Henriksen said the Corps has prepared various graphs showing summer operations at the eight FCRPS projects, Lower Granite through Bonneville – total river flow vs. spill and powerhouse discharge, as well as resulting TDG levels, from July 16 through today. This information packet also provided information on hours of TDG exceedence at the Lower Snake projects (83 hours at the Lower Monumental forebay station, 42 hours at the Ice Harbor forebay station, few exceedences at Little Goose or Lower Granite since June 20). The packet also touched on percent spill at Little Goose, John Day and The Dalles, as well as the status of the Dworshak thermocline.

Henriksen reported that the Lower Granite RSW test ended on July 22; the project is now spilling to the gas cap as an upper limit. Little Goose is spilling 30% of total river flow during the day and up to the gas cap at night when flow is high enough, with one unit operating for station service. Lower Monumental is spilling up to the gas cap 24 hours a day when flow is available. The Ice Harbor RSW test also ended on July 22; the project is now spilling up to the gas cap when flow is available. McNary is passing a minimum of 50 Kcfs through the powerhouse, and spilling up to the gas cap when available. John Day is spilling 30% of total river flow 24 hours a day. The Dalles is spilling 40% of total river flow 24 hours a day.

Henriksen noted that these graphs are updated every other day, and will be posted to the TMT homepage every through August 31.

7. Operations Review.

Tony Norris reported that Grand Coulee elevation is currently just over 1287 feet; Hungry Horse is at elevation 2553.4 and drafting, with 5 Kcfs outflow. Henriksen said Libby is just below elevation 2454, releasing 19.2 Kcfs and drafting toward elevation 2439 by August 31. McNary flows are forecast to be in the 160 Kcfs range next week, declining into the 140 Kcfs range by the end of August. Dworshak is releasing 12.4 Kcfs at a discharge temperature of about 44 degrees F; the current project elevation is 1577.

With respect to fish passage, it was agreed that the salmon managers will report back on the remaining Lower Snake juvenile run percentage, as compared to the historic run percentage average for this point in the season, at the August 10 TMT meeting. It was also agreed to invite Billy Connor to brief the TMT on 2005 migration timing at that meeting.

On the power front, Henriksen said double testing outages are scheduled at Little Goose and Lower Granite for August 22-26 (daytime) and August 29-31, respectively. Wellschlager asked the salmon managers to consider whether they would prefer to increase spill at Little Goose or to remove MOP constraints in order to offset this annual maintenance operation. It was agreed that the salmon managers will provide their response at the August 10 TMT meeting.

8. Next TMT Meeting Date.

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

TMT Participant List July 27, 2005

Name	Affiliation
Donna Silverberg	Facilitation Team
Kyle Dittmer	COE
Ron Boyce	ODFW
Tony Norris	USBR
Russ Kiefer	IDFG
Cindy LeFleur	WDFW
Ray Gonzales	COE
Dave Wills	USFWS

Cindy Henriksen	COE
John Wellschlager	BPA
Robin Harkless	Facilitation Team
Jim Adams	COE
Larry Beck	COE
Tina Lundell	COE
Tim Heizenrater	PPM
Todd Cook	PPM
Laura Hamilton	COE
Kevin Nordt	Mid-Cs
Dan Spear	BPA
Nic Lane	BPA
Dave Statler	NPT
Ruth Burris	PGE
Mike Buchko	Powerex
Lance Elias	PPL
Glenn Traeger	Avista
Bruce MacKay	Consultant
Russ George	WMCI
Rudd Turner	COE
Rich Domingue	NMFS

TECHNICAL MANAGEMENT TEAM

BOR: Tony Norris / John Roache

BPA: John Wellschlager / Nic Lane

NOAA-F: Paul Wagner

USFWS: David Wills / Steve Haeseker

OR: Ron Boyce

WA: Cindy LeFleur

ID: Russ Kiefer

MT: Jim Litchfield

COE: Cindy Henriksen / Cathy Hlebechuk

TMT MEETING

Wednesday August 10, 2005 0900 - 1200 hours
1125 N.W. Couch Street, Suite 4A34
Portland, Oregon 97208
Conference call line: 503-808-5190

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

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

AGENDA

1. Welcome and introductions.
2. Review of Notes - [\[Minutes - 2005\]](#) 
3. Presentation on migration timing in the Lower Snake River: Jay Hesse (Nez Perce), Billy Connor (USFWS), Jerry McCann (FPC).
 - i. [\[Passage Update for Natural-Origin Fall Chinook Salmon Subyearlings at Lower Granite, Little Goose and McNary Dams in 2005 - Power Point Slide\]](#)
 - ii. [\[Update on the status of Snake River Subyearling Chinook Migration - Power Point Slide\]](#)
4. Review of summer treaty fishing.
 - i. [\[Impact of Pool Fluctuations on the 2005 Summer Treaty Fishery\]](#)
5. Salmon manager response to MOP variance at Little Goose for double testing outage.
6. Lake Pend Oreille Lake affects on kokanee.
 - i. [\[Importance of Water Level Management to Kokanee and Bull Trout in Lake Pend Orielle-Power Point Slide\]](#)
7. Salmon manager response on Emergency Protocol priorities.
8. Status of Summer Operations as a Result of Recent Court Ruling.
 - i. [\[Lower Columbia and Snake Rivers Summer Spill Operations 2005 - Power Point Slide\]](#)
9. End of MOP Operations on Lower Snake.
10. Operations Review
 - a. Reservoirs
 - b. Fish
 - c. Power System
 - d. Water Quality
 - i. [\[Spill Information 2005\]](#) 
 - ii. [\[Daily Water Temperature Reports\]](#)
 - iii. [\[2005 - CHANGES IN WATER TEMPERATURE OVER TIME DWORSHAK RESERVOIR\]](#)



iv. [\[Dworshak Flow Augmentation - Summer Operations 2005\]](#)



11. Other

- Set agenda for next meeting - [\[Reference Calendar\]](#) 

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



COLUMBIA RIVER INTER-TRIBAL FISH COMMISSION

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

Telephone (503) 238-0667

Fax (503) 235-4228

www.critfc.org

TO: Technical Management Team (TMT)
 FROM: Kyle Dittmer, *Hydrologist-Meteorologist*, CRITFC Hydro Program
 DATE: August 10, 2005
 SUBJECT: Impact of Pool Fluctuations on the 2005 Summer Treaty Fishery

CRITFC submitted three System Operation Requests (2005-C1 through 2005-C3) via the NMFS' TMT forum to support summer treaty fishing. The CRITFC requests asked for (1) one-foot elevation bands and (2) stable pool elevations during each week of treaty fishing.

Criterion #1 asked to operate the pools as a hard constraint within a one-foot elevation range. The Corps replied with a commitment as a hard constraint to a 1.5-foot range, or 1-foot as a soft constraint, as they have done so since 1996, but only for the Bonneville pool, based on the Corps' interpretation of the 1998 "Ted Strong Agreement."

The table shows the hourly compliance of CRITFC's 1-foot elevation band criteria and the Corps' 1.5-foot criteria during the treaty fishery. Averages from the four-week 2004 summer season are also shown.

2005	Bonneville Pool	The Dalles Pool	John Day pool
1 foot range (CRITFC):			
JULY 5 - JULY 7	85%	64%	85%
JULY 11 - JULY 14	90%	96%	92%
JULY 18 - JULY 22	53%	61%	90%
JULY 25 - JULY 29	83%	77%	89%
average:	78%	75%	89%
2004 average:	71%	58%	17%
1.5 foot range (COE):			
JULY 5 - JULY 7	97%	77%	90%
JULY 11 - JULY 14	100%	100%	100%
JULY 18 - JULY 22	84%	75%	100%
JULY 25 - JULY 29	99%	87%	98%
average:	95%	85%	97%
2004 average:	88%	84%	85%

Pool elevation data is a good objective measure as to the absolute pool fluctuations (Criterion #2) as shown in Figures 1 through 12. Bonneville pool saw 0.4 – 2.4 foot swings (compared to 0.3 – 0.7/1.3 foot swings in summer 2004). The Dalles pool saw 0.8 – 2.5 foot swings (compared to 0.5 – 2.0 foot swings in summer 2004). John Day pool saw 0.5 – 1.3 foot swings (compared to 0.4 – 0.6/0.8 foot swings in summer 2004).

cc: CRITFC Hydro Program (Heinith, Lorz) and Fish Management Division (Ellis, Matylewich)

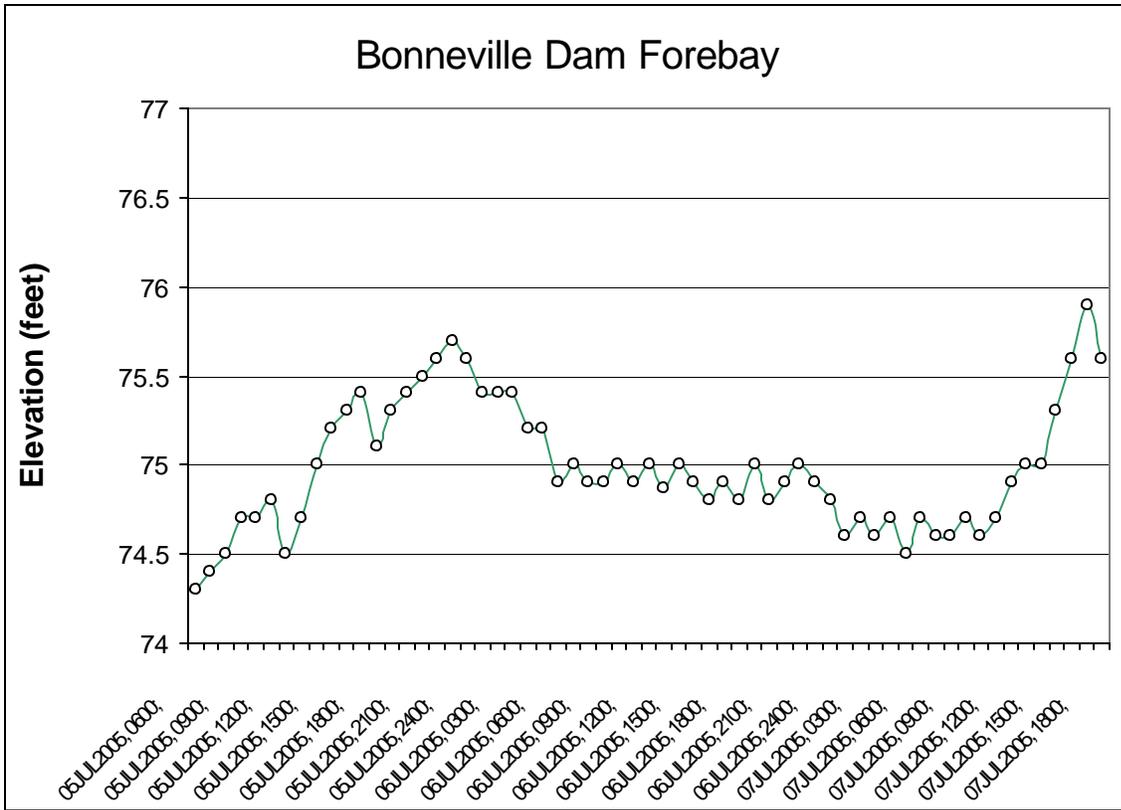


Figure 1. Observed BON pool elevations during July 5-7, 2005 summer treaty fishing.

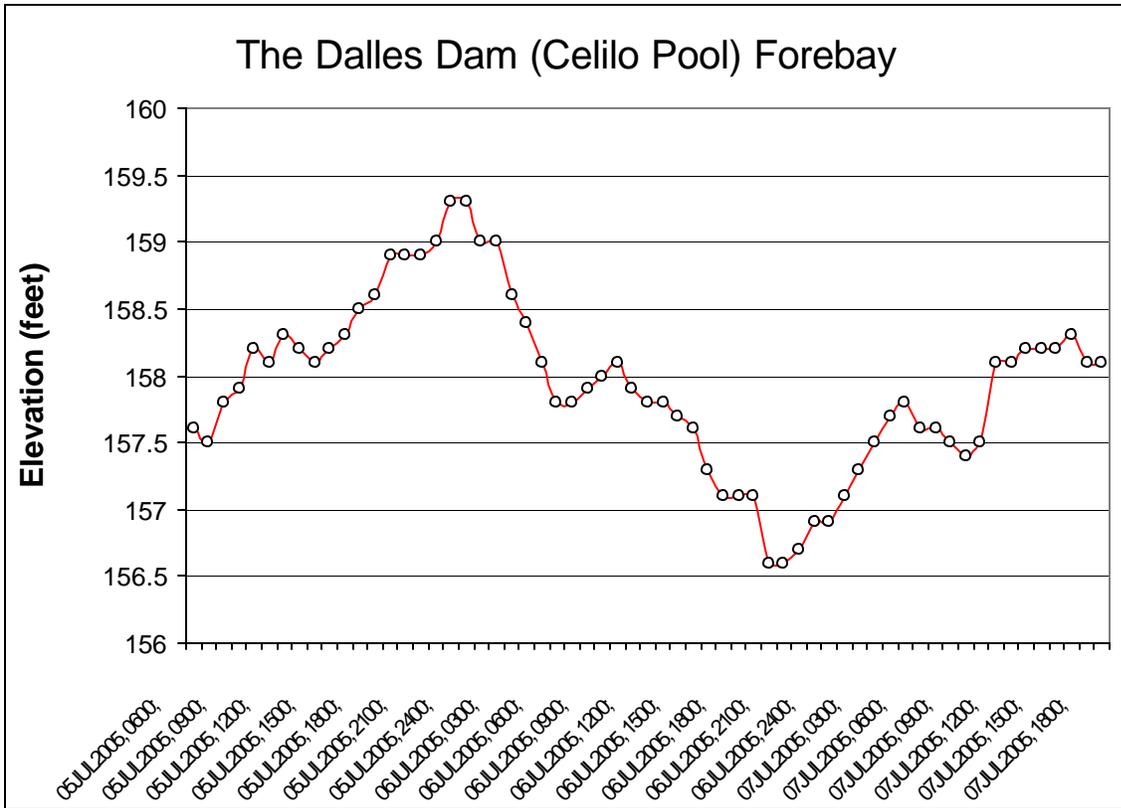


Figure 2. Observed TDA pool elevations during July 5-7, 2005 summer treaty fishing.

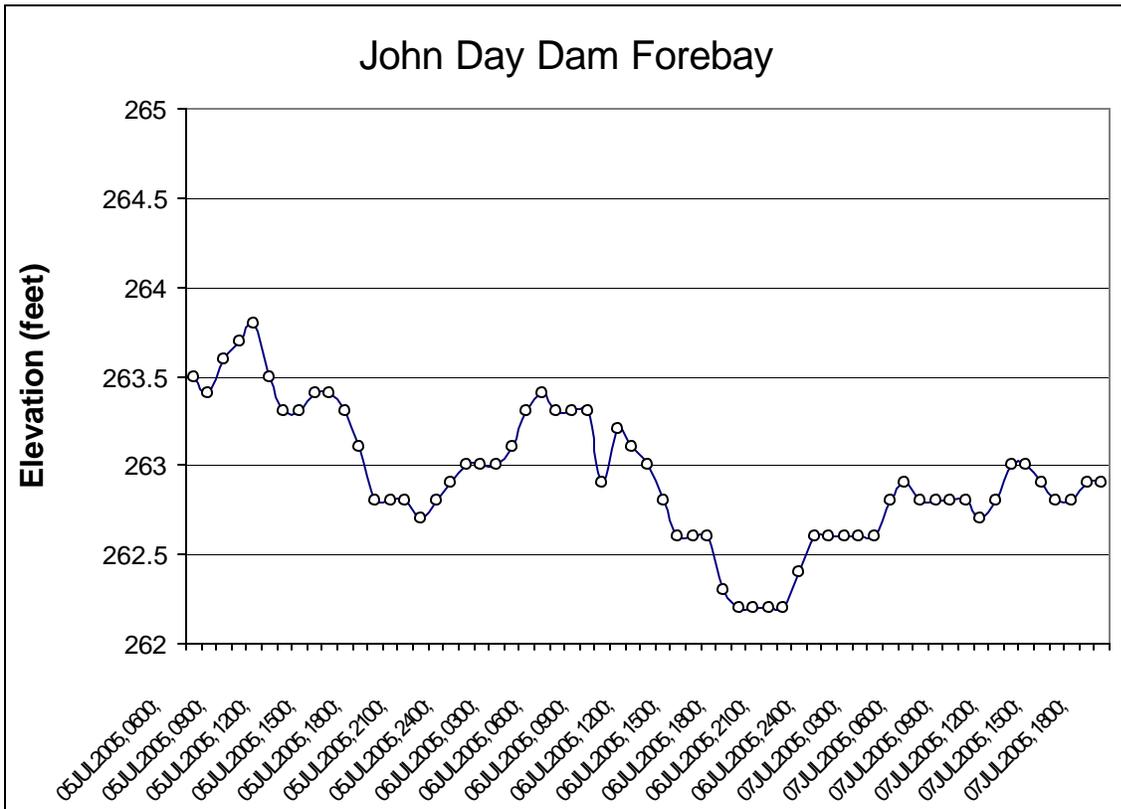


Figure 3. Observed JDA pool elevations during July 5-7, 2005 summer treaty fishing.

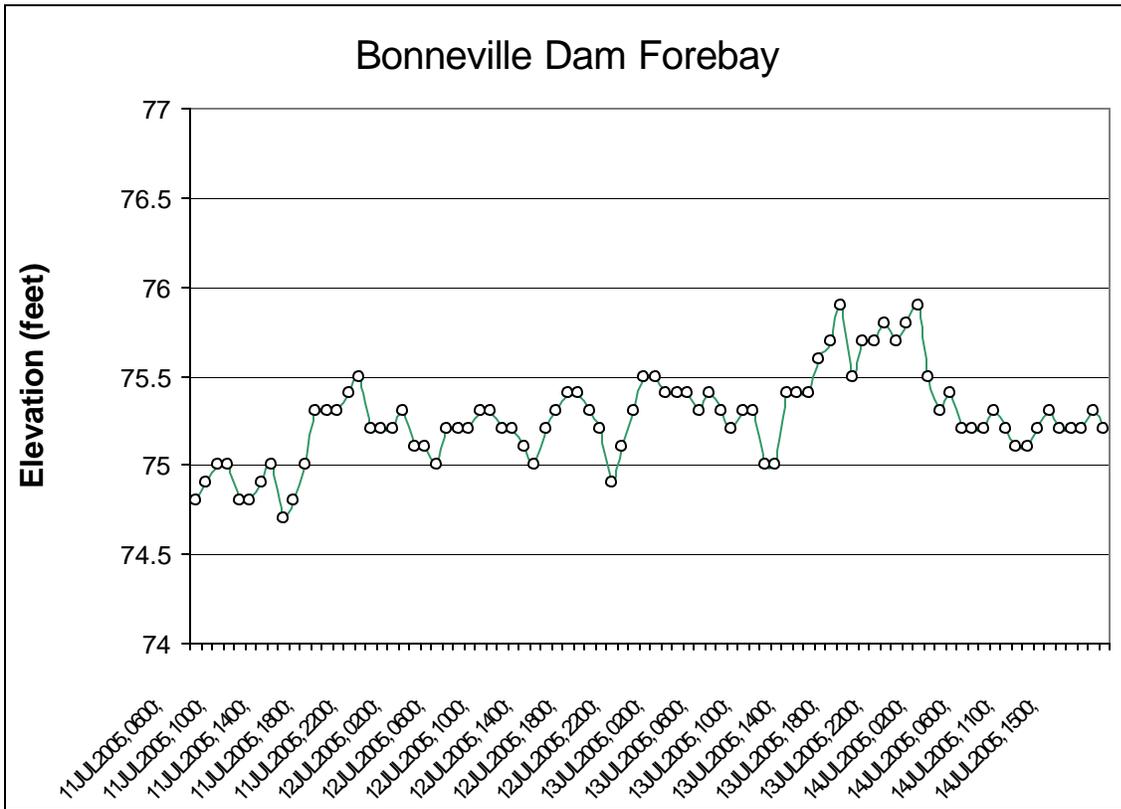


Figure 4. Observed BON pool elevations during July 11-14, 2005 summer treaty fishing.

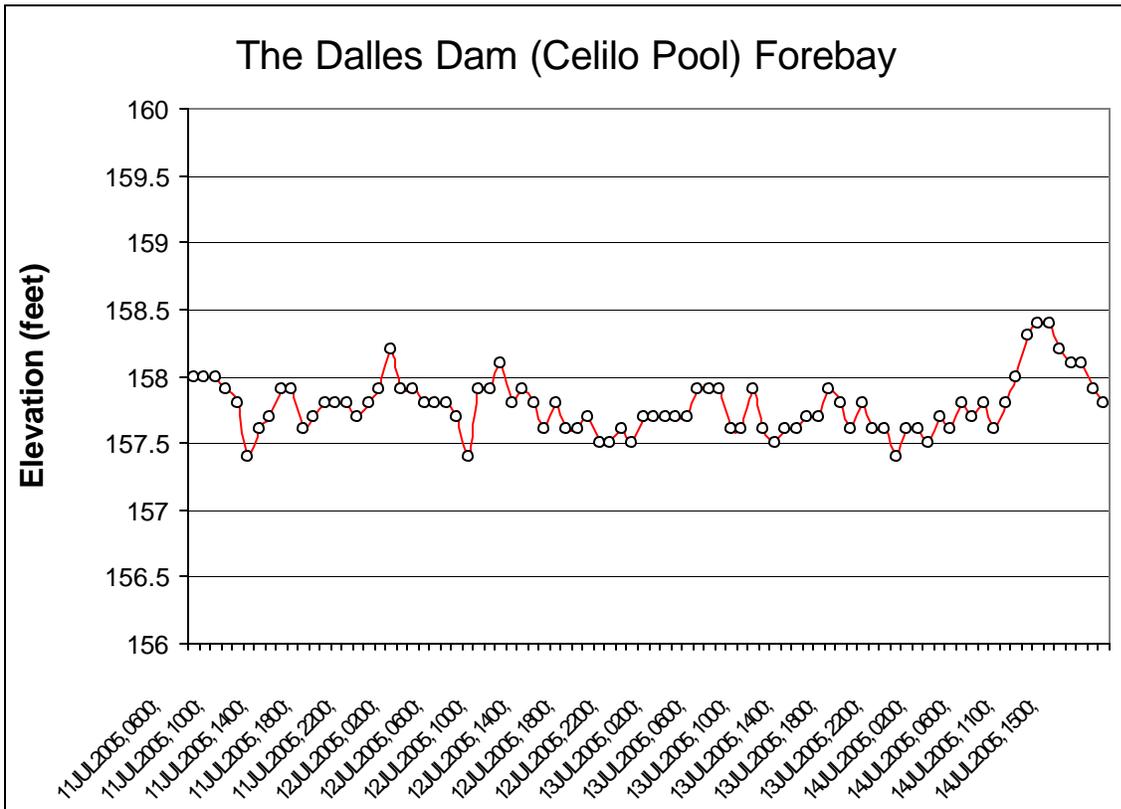


Figure 5. Observed TDA pool elevations during July 11-14, 2005 summer treaty fishing.

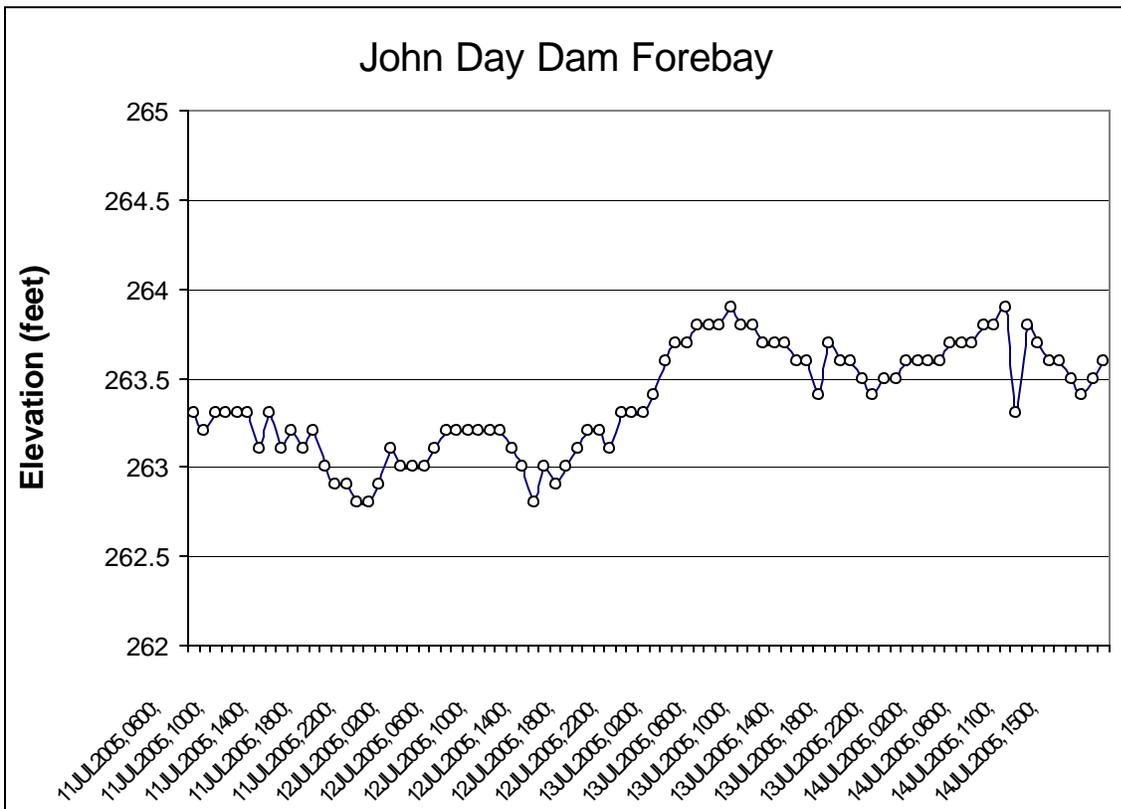


Figure 6. Observed JDA pool elevations during July 11-14, 2005 summer treaty fishing.

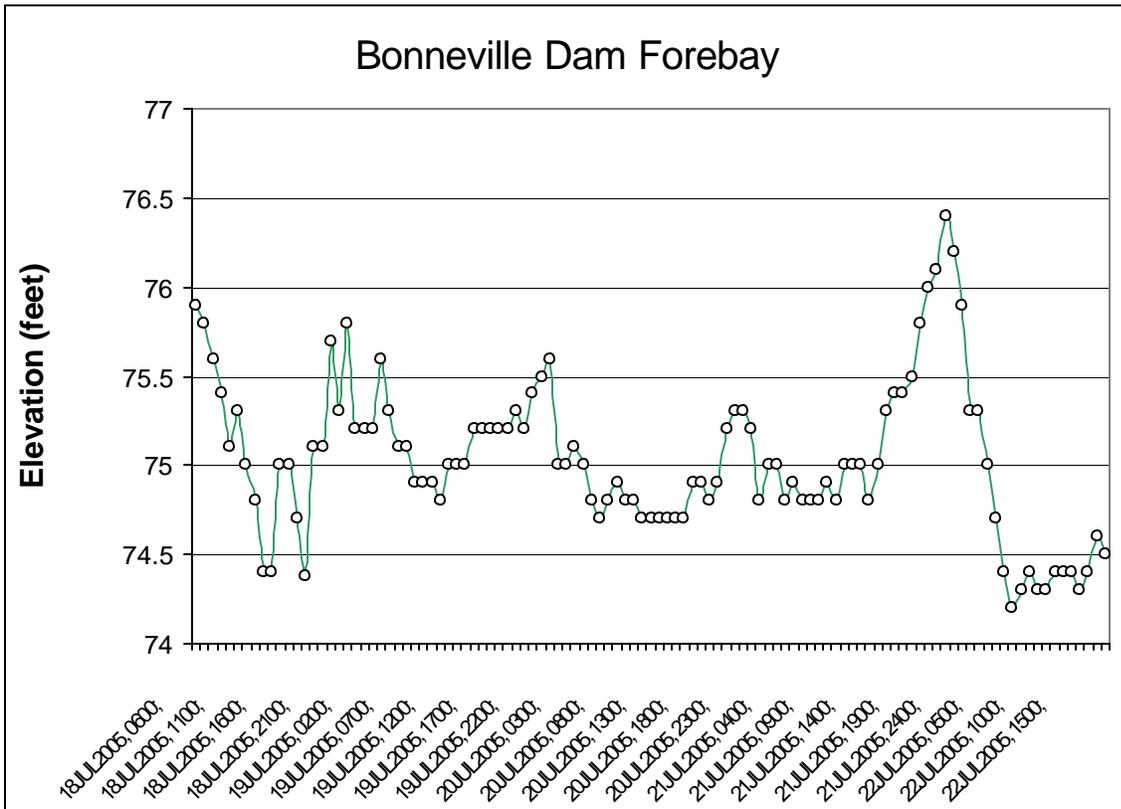


Figure 7. Observed BON pool elevations during July 18-22, 2005 summer treaty fishing.

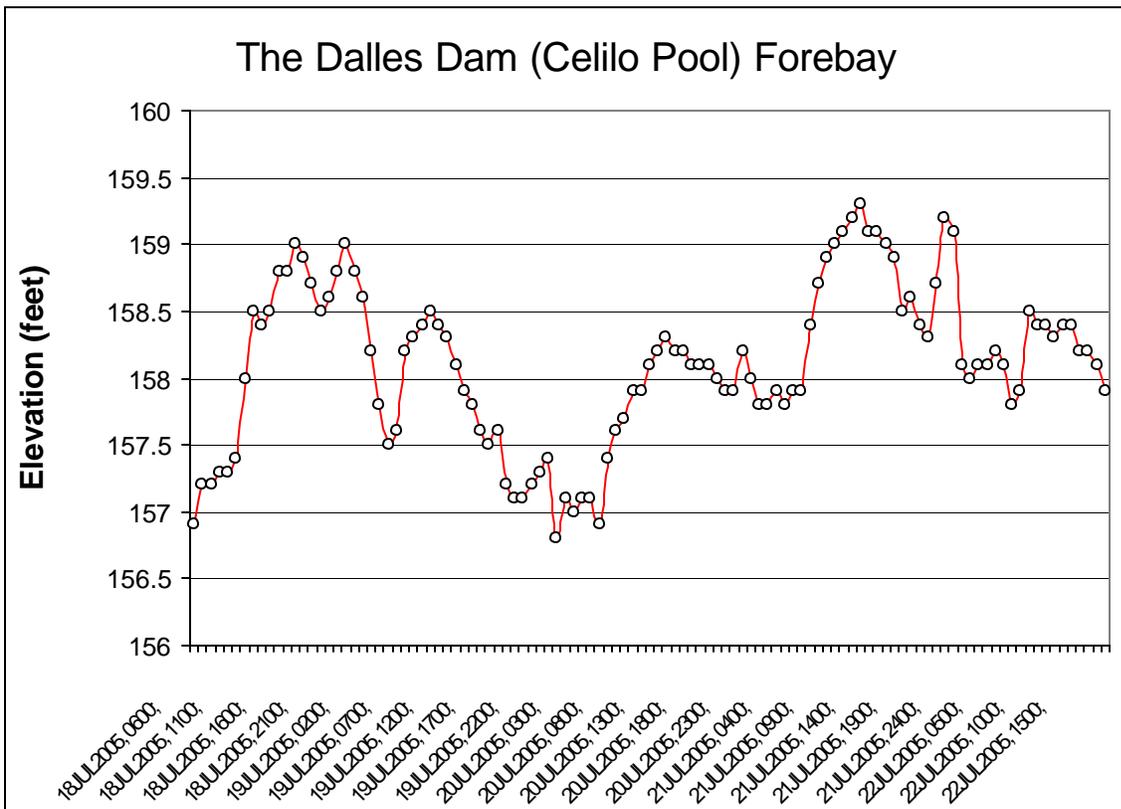


Figure 8. Observed TDA pool elevations during July 18-22, 2005 summer treaty fishing.

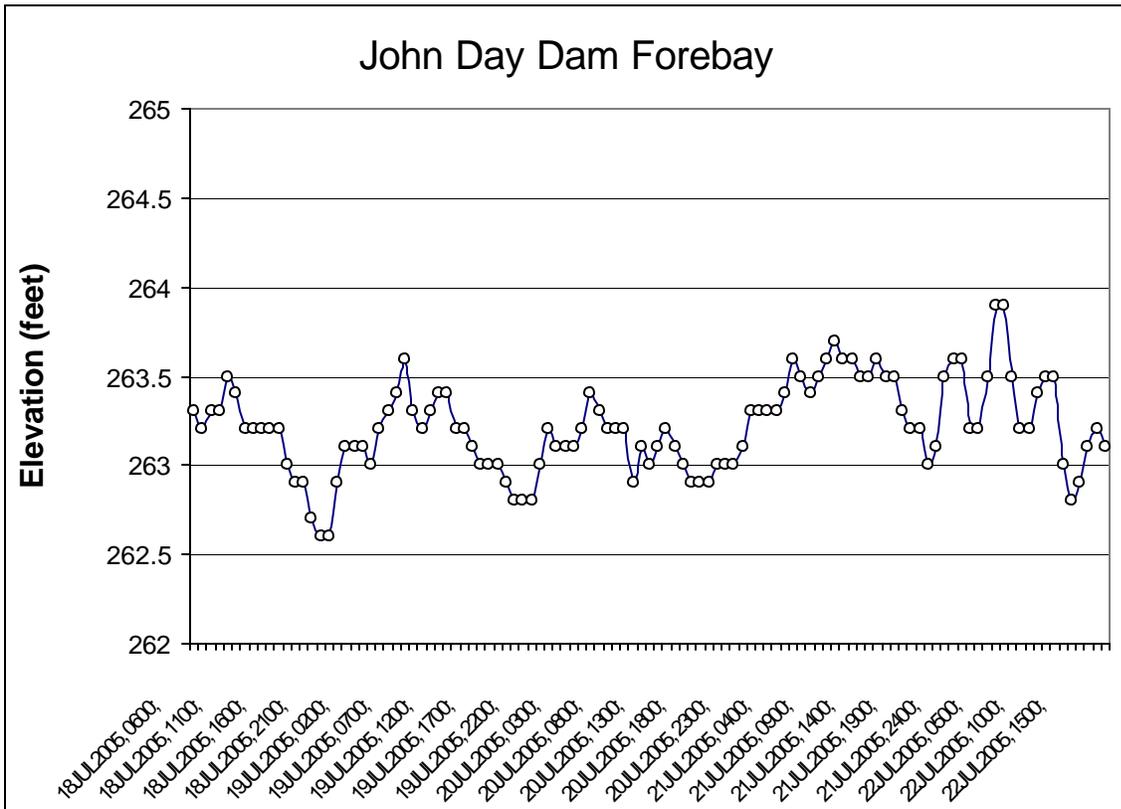


Figure 9. Observed JDA pool elevations during July 18-22, 2005 summer treaty fishing.

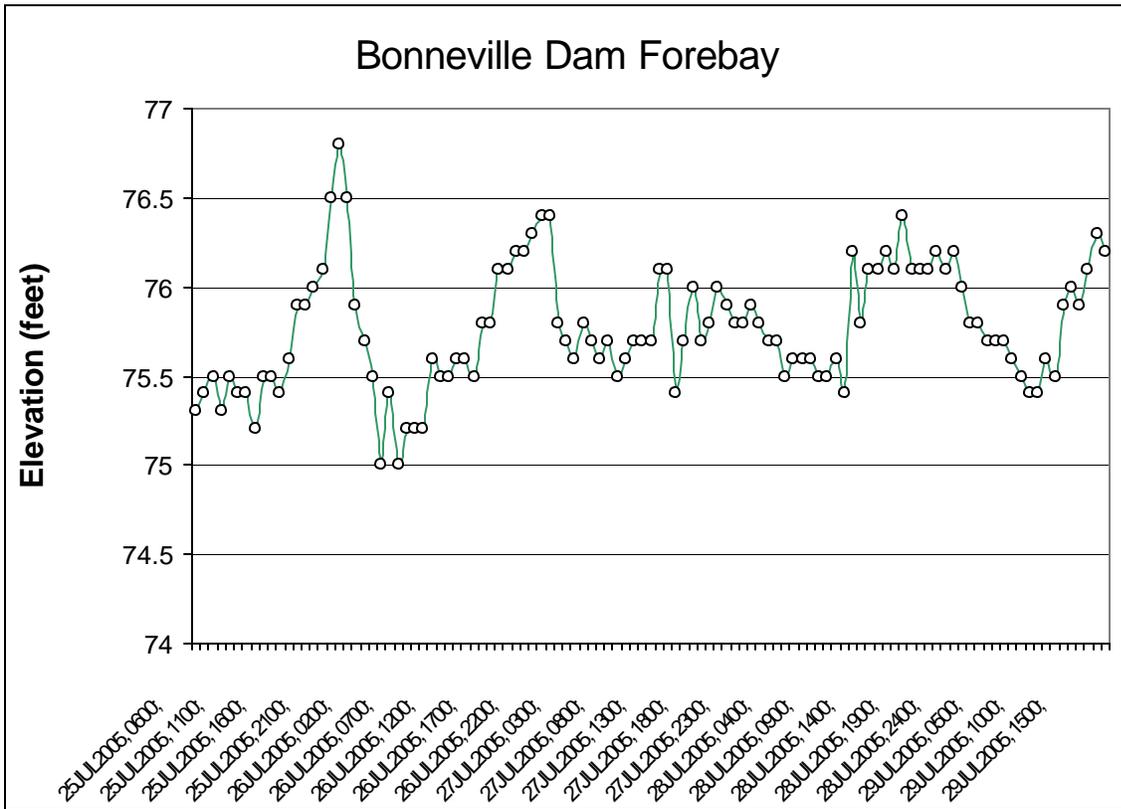


Figure 10. Observed BON pool elevations during July 25-29, 2005 summer treaty fishing.

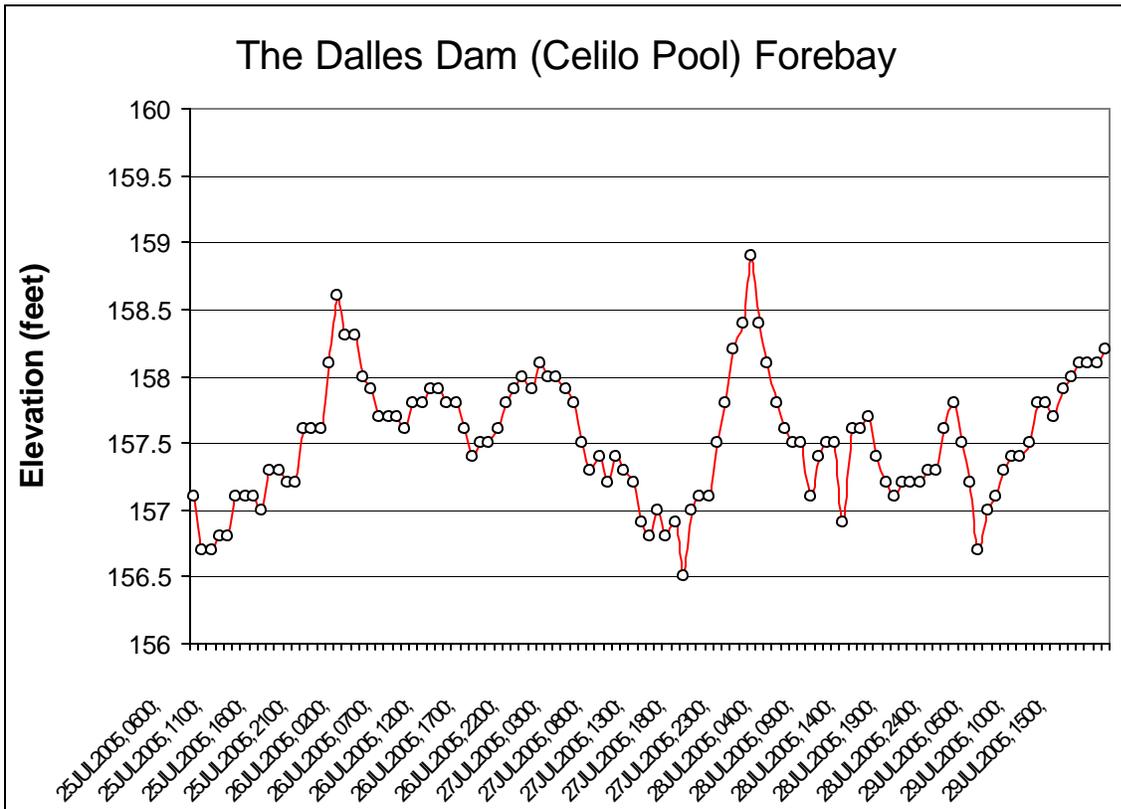


Figure 11. Observed TDA pool elevations during July 25-29, 2005 summer treaty fishing.

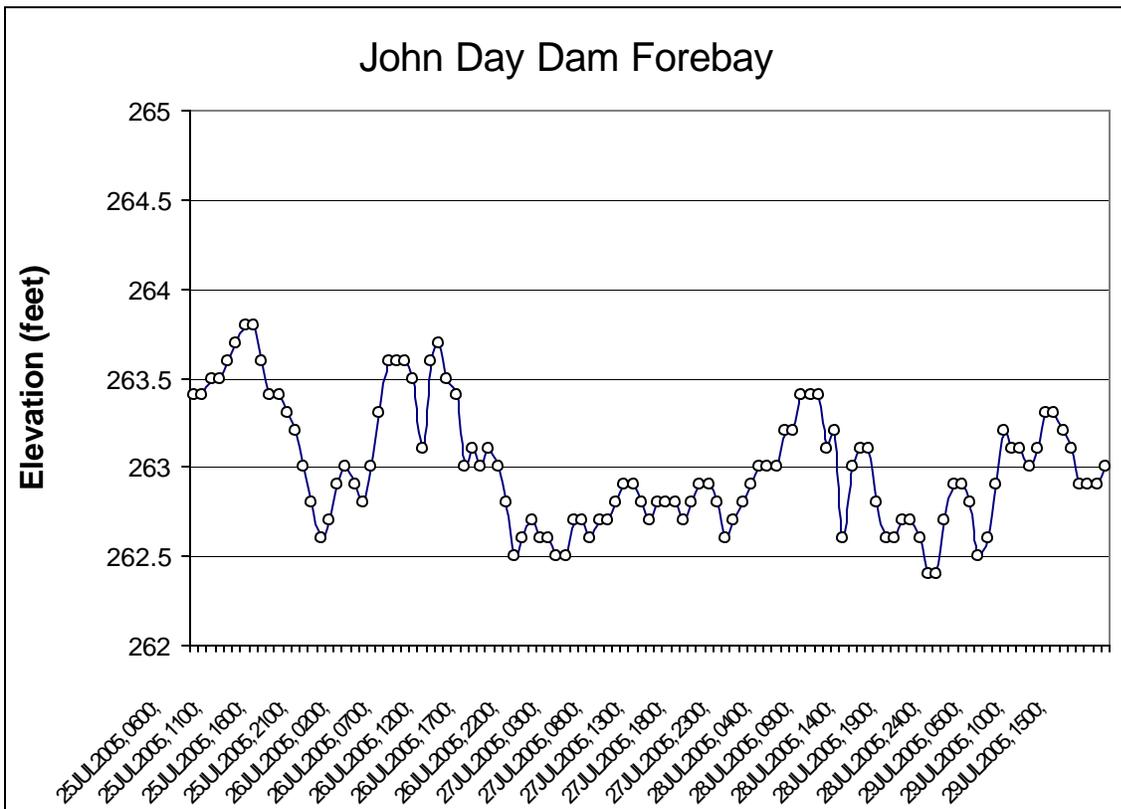


Figure 12. Observed JDA pool elevations during July 25-29, 2005 summer treaty fishing.

COLUMBIA RIVER REGIONAL FORUM

TECHNICAL MANAGEMENT TEAM CONFERENCE CALL

August 10, 2005

FACILITATOR'S SUMMARY NOTES ON FUTURE ACTIONS

Facilitator: Donna Silverberg

Notes: 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.

Chum Operations

Ron Boyce, ODFW, reported that there will be a meeting with Ives Island researchers on Tuesday, August 16, to discuss chum issues, and 30 minutes has been set aside to allow TMT members to talk about operational flexibility and fish issues, from 1-1:30 pm. The meeting will be held at ODFW in Clackamas, and the call-in number is 503-808-5198/password 3295. An update from this discussion will be provided at the August 24th meeting.

Review of Notes

No changes to the TMT facilitator notes or official minutes were suggested at this time.

Migration Timing in the Lower Snake

Jay Hesse (Nez Perce), Billy Connor (USFWS) and Jerry McCann (FPC) provided a passage update for natural origin Snake River and Clearwater fall chinook. Their power point slides are attached to today's agenda on the TMT web page. Jay acknowledged the USFWS and Nez Perce researchers for their work, and funding from NPCC, BPA and the COE. Billy Connor presented data on passage of Snake subyearlings, which he noted makes up 75% of the total basin population while the other 25% is a sub-aggregate in the Clearwater. The Snake River samplings in 2005 saw an unusually large number of small fish migrating early; researchers believe it is a result of high velocities and the fish are too small to do anything but move with the flow. As the data was reviewed, Billy cautioned the group that the numbers and research are on passage data over Lower Granite and Little Goose dams. Conclusions about survival are not supported by the data reviewed to date. There are too many unknowns and passage variability below these projects (e.g. many are targeted for transport) to make any judgments about survival.

Jay Hess presented information on the Clearwater sub-aggregate population, noting that this group moved 1-1.5 months later than the Snake River stocks. 1,918 were pit-tagged, similar to last year. They are currently in the middle of their migration, where as the

Snake stock migration appears to be done or nearly done. 11-45% of the run are still to come. Data shows detections through the fall into spring.

Conclusions:

- Both groups under-represent early small fish;
- Estimates indicate that passage is nearly complete for the Snake River fish;
- Natural fall chinook from the Clearwater are still migrating and will potentially continue into next year (due to over-wintering).

Remaining critical uncertainties include:

- Movement during non-detection period
- Response to spill conditions
- Lack of collaborative M&E and research plan to be applied across multiple policy/management forums, leading to a need for collaborative forums to guide decisions, through
 - Pre-labeled decisions
 - Defined data quality/risk thresholds
 - Standardized performance measures

The COE offered that they have been holding policy discussions and are pushing to address the RM&E concerns. BPA is also working on these issues with NPCC and through the Pacific Northwest Aquatic Monitoring Partnership.

Jerry McCann explained the methods used by the Fish Passage Center to calculate distribution and migration patterns, and their application to current and historical Snake and Clearwater fish migration. Over the past ten years, supplementation of the fish has occurred earlier and earlier and has resulted in a difference in run timing.

A need was identified to have discussions about the effect of watering up projects on the migration. Russ Kiefer, IDFG, responded that at first, there does not appear to be much of an effect for a couple of weeks.

In summary, there is considerable year to year variability in subyearling and yearling migration patterns for Snake and Clearwater fish. There is a need for a future coordinated study before scientists will be comfortable providing numbers for percentages of the run passed.

Lake Pend Oreille Effects on Kokanee

Russ Kiefer, IDFG, provided a power point on impacts to kokanee populations in Lake Pend Oreille with yearly deep draw-downs as compared to pre-project construction. His presentation can be found as a link to today's agenda on the TMT web page. Kokanee are a major food source for listed bull trout (60%-80% of their diet); without a healthy kokanee population there would be more direct competition between lake and bull trout for a limited food supply. Consistent deep lake draw-downs have occurred since 1966, and kokanee abundance has dropped. Researchers believe this is because the draw-downs effect gravel levels and do not allow for cleaning of the spawning grounds. A 9-year

study of egg to fry survival of kokanee and lake level management impacts showed a 2.4 fold increase in egg to fry survival with an elevated lake level. It is believed that a varied winter water level will likely have a positive effect on habitat. To support the health of endangered bull trout, and to achieve a healthy sport fishery of kokanee, IDFG recommended a decision tree for years that would best support a lower/higher elevation level to improve the spawning habitat. It includes:

- Varying the winter lake level by 4 ft. in different years;
- Maintaining a higher winter pool level for 3 years, then lowering the lake to replenish the gravel; and
- Timing a full drawdown to coincide with years when kokanee numbers are low.

A first draft of a decision tree to address the above objectives was provided, with a request for feedback from TMT members and a decision in the next four-six weeks for winter operations. The decision tree seeks to balance needs for water levels, chum, power and resident fish. Ron Boyce, Oregon, cautioned the group to be mindful of the requirements in the BiOp for listed chum, and asked them to consider this when discussing whether there is discretion this year with operations.

ACTION: The salmon managers will discuss the recommendation and ‘success’ of chum for input into the decision tree. TMT will follow-up with a discussion at the August 24th TMT meeting. IDFG was asked to consider what level of kokanee is desired, and what level is acceptable, to add to the discussions.

Review of Summer Treaty Fishing

Kyle Dittmer, CRITFC, provided a handout summary of the summer tribal treaty fishery for 2005. Three SOR’s were submitted this year, requesting that a 1’ tailwater be maintained at Bonneville, John Day and The Dalles. The COE operated a 1.5’ hard and 1’ soft constraint at Bonneville this year, and was mindful of the tribes’ request while operating each of the projects. On July 22, two nets went missing, and again on July 26, one net was missing. The COE acknowledged that some miscommunications occurred this year that led to fluctuations; they will work to tighten the operation up in the future. Kyle noted that there was an improvement at John Day this year, which has become the most important of the three dams to the tribes for the summery fishery.

Salmon Managers’ Response to MOP at Little Goose

A discussion at FPAC led to a consensus from the salmon managers to operate outside MOP during the day and spill the balance at night at Little Goose, in order to have the least impact on migrating adults during double testing at the project. This is scheduled to begin on August 22; the timing for the test was selected by the action agencies during the least intrusive time for adult migration.

Salmon Managers’ Response on Emergency Protocols Priorities

Bob Heinith, CRITFC, reported that the plaintiffs to the court case, DOJ and project operators are in discussions about Group 1 and 2 of the emergency protocols in the WMP. BPA will be sharing something with that group, for discussion and input. Until

then, they will advise their operators to use the current living document in the event that a short-term emergency occurs.

Status of Summer Operations as a Result of the Court Ruling

Updated graphs of operations of the Lower Snake and McNary dams is posted on the TMT web page. The dams are being implemented per the court order.

End of MOP on the Lower Snake

This agenda item was included today to give the salmon managers a heads up to discuss it at FPAC and come prepared to have a fuller discussion and decision at the August 24th TMT meeting.

Operations Review

Reservoirs – Libby is releasing 18.9 kcfs out and is expected to decrease flows to 16.5 on August 17th. The operational goal is a gradual ramp-down to elevation 2439’ by the end of August. Hungry Horse is at elevation 3548’ and operating to reach 3540’ by the end of August. Grand Coulee is at 1284’ and operating to reach 1278’ by the end of August.

Dworshak – The project is currently releasing 12 kcfs out and temperatures of 45-47°, and expected to reach elevation 1535’ by the end of August. The Nez Perce has requested that there be enough water to release 10 kcfs in early September, and avoid a ‘double peak’. To meet these objectives, flows would need to be reduced now. Participating members at FPAC on Tuesday agreed to maintain temperatures and reduce flows to powerhouse capacity (~9.6 kcfs). Dave Statler, Nez Perce, also agreed with this recommendation. Dave Wills, USFWS, noted that the hatchery fish responded positively to the 3° increase in temperatures over the last two weeks. The salmon managers would like to maintain a caveat that 67.5° is the threshold temperature at Lower Granite, and will pursue further discussions about whether this would trigger operating at 12 kcfs or lowering temperatures.

ACTION: Cindy Henriksen, COE, will send Dave Statler, Nez Perce, the STP run for Dworshak and follow up with the Dworshak Board and Dave on an operational strategy. This will be added to the August 24th TMT agenda.

Power system – A Bonneville line outage has been scheduled for August 15-17th, which will require units 15-18 to be out from 0700-1800 hours. FPOM is/will discuss this issue.

Water quality – Updated water quality information is posted on the TMT web page.

Next Meeting, August 24, 9am-noon

Agenda items include:

- Report on 8/16 Chum Discussion with Ives Researchers
- Lake Pend Oreille/Chum Discussion
- Dworshak Operations
- Emergency Protocols
- MOP Issues

- End of MOP on Lower Snake
- Lower Granite double testing
- Fall Treaty Fishery

1. Greetings and Introductions.

Facilitator Donna Silverberg welcomed everyone to today's Technical Management Team meeting, chaired by Cindy Henriksen. The following is a summary (not a verbatim transcript) of the topics discussed and decisions made at this meeting. Anyone with questions or comments about these notes should contact Henriksen at 503/808-3945.

Ron Boyce said that chum researchers, looking at the Multnomah Creek and I-205 Bridge sites, will be holding their quarterly coordination meeting next Tuesday, August 16. They have asked for a half-hour time-slot for TMT members visit with them and discuss operational issues, particularly what operational flexibility may be available during daytime hours, as well as the potential consequences of chum operations on refill. The meeting is scheduled for 1 pm, and a phone bridge will be available, said Boyce; I would particularly like to give the action agencies an opportunity to discuss operational concerns and opportunities.

2. Migration Timing in the Lower Snake River.

Jay Hesse of the Nez Perce Tribe, Billy Connor of USFWS and Jerry McCann of the Fish Passage Center led this presentation. Hesse noted that the goal of this presentation would be to update the TMT on the status of the Snake River fall chinook emigration through the lower river; this information is derived from data and fish observations for PIT-tagged fish from both the Clearwater and Snake Rivers. The presenters touched on the following major topics:

- Funding sources: BPA and the Corps.
- The geographic scope of ESU status within the monitoring area – includes the Snake River basin (Snake River and Clearwater ESUs, which have very different life-history characteristics), as well as smaller production areas.
- Percent of the total outmigration from the Snake and Clearwater rivers – the percentage from the Snake appears to be growing
- Emigration life-history
- Description of the Snake River life-history – earlier
- Description of Clearwater life-history (later)
- How natural subyearling fall chinook are sampled (beach seining, begins in March)
- 2005 sampling success – sampling peaked in late May; heavy rains and flooding caused catch to drop dramatically; fork lengths averaged 49 mm;

minimum size required for PIT-tagging: 60 mm. The 2005 sampling may therefore under-represent some migratory components.

- Last 2005 sample fish captured in the first week in July.
- Mean size at PIT-tagging is decreasing for the Snake River fish in recent years; particularly for those fish originating in the Upper Snake, where quality rearing habitat is rarer, this may be an indication of density-dependent effects.
- Distribution over time of tagged fish – 9,301 wild/natural subyearlings tagged in 2005, the largest sample size ever. More than 121,000 hatchery surrogates also PIT-tagged in 2005.
- 2005 Snake River wild fall chinook outmigration peaked around June 20; it is now virtually zero, which means that the 2005 outmigration is now nearly complete.
- In 2005, researchers saw roughly 38% PIT-tagged wild Snake River fall chinook survival from the release point to Lower Granite Dam, somewhat lower than the multi-year average of about 47%; some of these fish may choose to overwinter, so the percentage may rise. Ron Boyce noted that the summer spill program at the Lower Snake projects means that all of the usual survival metrics are out the window in 2005.
- Clearwater fall chinook PIT-tagging – peak occurred in mid-June, about a month later than the Snake outmigration. Researchers continued to catch fish into late July. A total of 3,605 wild Clearwater fall chinook were captured in 2005, 1,918 were PIT-tagged. A total of more than 45,000 Clearwater surrogates were tagged and released over a two-week period.
- Timing of downstream observations sporadic and prolonged, compared to Snake River fall chinook. Clearwater fish are still moving down through the system, currently.
- Less than 3% of the Clearwater surrogates have passed Lower Granite to date, and less than 1% of the Clearwater surrogates have passed McNary to date, indicating that almost all of these fish are still passing through the system.
- Key critical uncertainty, in terms of making survival estimates, include non-detection periods and violations of the assumptions within the SURF model. These factors create major uncertainty in terms of researchers' understanding of fish movement and emigration patterns for the Clearwater fish.
- Both Snake and Clearwater fall chinook are often still passing Little Goose in November, and have been documented as late as the spring of the year following outmigration. The same is true of McNary.

The presenters offered the following conclusions:

- Neither the Snake nor the Clearwater PIT-tagged fish fully represent the earlier, smaller outmigrants moving through the system. Looking at the estimates of survival to Lower Granite, passage of the natural Snake River fall chinook is probably nearly complete. However, the natural fall chinook

outmigration from the Clearwater is probably just starting; looking at historical passage data, researchers expect the Clearwater outmigration to continue all the way through next spring.

- Critical uncertainties associated with these stocks include major challenges associated with fish movement through the system during the winter, when PIT-tag detection facilities are not operated by the Corps. That non-detection window inhibits researchers' ability to develop sound survival estimates for Snake and Clearwater fall chinook; it also hampers the researchers' ability to do SAR survival for the non-detected or in-river components in a transportation/in-river/bypass-type study. It is problematic because fish are migrating during periods of spill, as well as periods of non-detection. The non-detection period also weakens researchers' ability to provide estimates of representative population SARs, because they cannot establish a common starting point for juvenile production out of the system. The winter non-detection period also severely masks in-river rearing distribution.
- Another key uncertainty: because this is the first year of summer spill at all four Lower Snake projects, researchers are uncertain whether those conditions will stimulate additional movement of fish that otherwise might have elected to check up and delay outmigration if no spill had been provided.
- Finally, a challenge for the TMT: one factor that inhibits progress in fall chinook research is the lack of an agreed-to, collaborative effort for monitoring performance, or guiding the analyses to be undertaken in support of decision-making, not just at TMT, but across multiple forums that discuss similar topics. The technical information arrives piecemeal, and the full picture is not presented consistently to these groups. A consistent plan – not a study design – is needed. The individual groups need to define and develop pre-labeled decisions on which the TMT could reach agreement, which will guide processes. Second, assigning the risk associated with those decisions and the level of data quality needed to guide them needs to be clearly defined and understood – i.e., the confidence intervals. Finally, once those confidence intervals are defined, it will be possible to develop standardized performance measures that will guide those evaluations. Let us, as biologists, put those caveats up – that the SARs for spring smolts are not the same as those for summer smolts. Let us develop a common unit currency, in other words, said Hesse. This is up-front work that, in my opinion, is not being done in the basin, he said; I challenge this group to get that process rolling, as I will be challenging other groups.

Paul Ocker said efforts are underway to craft a policy regarding fall chinook in the basin; we have been having meetings, he said, but with everything going on in the basin, currently, it has been very difficult to get those meetings going. We're continuing to push on this issue, however, to get some policy direction as to where we need to go. A Bonneville representative noted that BPA

is very involved with many of these RM&E efforts; we're working with the Council on focusing our program on certain aspects of RM&E; we're working with the Pacific Northwest Aquatic Monitoring Program to develop standardized performance measures. We're not standing still, in other words, she said.

Jerry McCann provided an overview of the nuts and bolts of the fall chinook collection efficiency estimates, as well as the historic timing data of various PIT-tagged groups and the timing of the run at large passing Lower Granite Dam. Key points of his presentation included:

- Summary of Lower Granite detections (natural and surrogate), 2005
- Methods of estimating population size and passage at Lower Granite
- The FPC method: broken down into two periods – prior to the onset of spill on June 20, and after the onset of spill.
- Estimates of the percentage of the PIT-tagged Snake River wild fall chinook population that has passed Lower Granite to date – ranging between 29 percent and 54 percent. This compares to Billy Connor's estimate of 38 percent.
- The FPC's estimate of the percentage of PIT-tagged wild Clearwater fall chinook passage at Lower Granite is 3 percent to 6 percent to date; for the Clearwater surrogates, the range is 1-3 percent, based on expanded detections.
- Detailed collection efficiency information – detected fish to total fish passing the dam.
- According to the Cormack-Jolley-Sieber methodology, roughly 41 percent of total detections have passed Lower Granite to date. The two FPC approaches, which are similar to the Sanford and Smith methodology, show a range of 29-47 percent. The spill expansion method shows the highest estimated passage to date, 52 percent.
- 2005 daily passage indices at Lower Granite, run-at-large population, vs. historic daily passage indices. Compared to cumulative passage distributions 1991-2004, 2005 data shows a similar pattern to recent years – earlier migration timing.

Is it necessarily a bad thing that we're seeing earlier outmigration timing in recent years? asked John Wellschlager. I think that's an open question, McCann replied – the evaluation of that impact is an important issue. At this point, I can't tell you whether that's a good thing or a bad thing.

Boyce noted that management of flow and spill under the BiOp is obviously a crucial consideration; with respect to the migration timing of yearlings, it may make sense to water up the facilities when those fish are there, to water up the bypass facilities and start to do detection. I think how to better protect those fish is an issue that deserves further discussion, Boyce said. Actually, what I've seen, in looking back at 2004 and other years, is that, after those facilities are watered up, there is usually a period when we don't see any

fish, Russ Kiefer observed. My concern is that the early spring migrants are the big overwinter fish, and that they are very high-value fish, Boyce said – they are high contributors to adult returns, and I want to be sure we're taking the best possible care of them operationally.

You have drawn a conclusion that the fish that overwinter have the highest adult returns, said Wellschlager – I thought I heard Jay say earlier that you can't conclude that. We don't know what percentage of the fish that overwinter survive to outmigrate, so you're not comparing apples to apples. You're characterizing performance measures, Hesse replied, and with respect to one SAR vs. another, we can't say that we have apples to apples to compare. Looking at Billy Connor's scale pattern analysis, the contribution of the yearling life-history trait has averaged 41 percent. That is an average, Hesse cautioned; it has been highly variable, from the teens up to 60+ percent. It is important that we protect those fish, but whether that reflects the actual equal percentage of juvenile performance that would pertain if in-river conditions were equal, I don't know, Hesse said. Another cautionary note is that the yearling life-history component, which is based on scale pattern analysis, doesn't necessarily depict overwintering above Lower Granite – those fish could be anywhere from the spawning grounds down to the estuary, in terms of how that analysis is done.

Still, we need to take a close look at those yearling migrants, given their high value as returning adults, and do the best possible job of protecting them, Boyce said. And that includes not only starting sooner, but continuing monitoring through the winter, to get at some of the critical uncertainties we've identified today, said Hesse. I need a better understanding of what you're asking for, said another meeting participant – are you talking about our water-up procedures, or about whether we're routing the fish in the appropriate way once they get there? I just want to make sure that the bypass systems are being operated in a manner that will best protect the yearling migrants, said Boyce.

Silverberg summarized this morning's discussion by saying that, despite intensive study over the past five to 10 years, there is still a great deal of year-to-year variability in migration timing. We have also heard that there is considerable variability in when the Snake River fish outmigrate vs. when the Clearwater fish outmigrate, she said. Obviously, there is also a real need to continue to collaborate and coordinate on the studies designed to gather data on this issue, Silverberg added.

3. Review of Summer Treaty Fishery.

Kyle Dittmer distributed a handout summarizing the outcome of the summer tribal treaty fishery. He noted that CRITFC submitted three SORs requesting operations in support of the 2005 summer treaty fishery in the Zone 6 pools; in each SOR, the tribes requested that the Corps operate Bonneville, The Dalles (Celilo) and John Day pools within a 1-foot operating range. The Corps

agreed to operate Bonneville pool within a 1.5-foot range as a hard constraint, with 1 foot as a soft constraint, and was mindful of the tribes' requested operation at the other pools. Dittmer noted that this year, for the first time, CRITFC did not request a specific elevation target at the pools, but instead requested a specific operating range.

Dittmer said the Corps' 2005 compliance with the requested summer treaty fishing elevation range was 78 percent in Bonneville pool, which compares to a summer 2004 compliance rate of 71 percent. In The Dalles pool, the 2005 compliance figure was 75 percent, compared to 58 percent last year. In John Day pool, the figure was 89 percent, compared to 17 percent in 2004. However, there were higher fluctuations in all three pools in 2005 compared to 2004.

There were two incidents I wanted to pass along, from the CRITFC law enforcement office dispatch logs, Dittmer continued. On July 22, one of the Yakima Tribal fisheries monitors was informed by a tribal fisher that he was missing two nets, each 300 feet in length. The nets were missing from the area of the Chamberlain Lake rest area in Bonneville pool. The second incident happened on July 26; a tribal fisher reported that he was missing a net from the Preacher's Eddy area on the Washington side of the river. That net was 260 feet in length, and was not recovered.

You noted greater pool variability, said Wellschlager; in my opinion, that was a result of adjusting the system to deal with load fluctuations resulting from spill at the Lower Snake projects and McNary. When flexibility is removed, the need to follow load doesn't go away, Wellschlager said; it is simply imposed on a smaller number of projects. In other words, it's not the Corps' fault; it is probably us having to lean on the system for excursions, and to follow load. There were also a miscommunication on our part to Bonneville Dam one week, Henriksen said, the operating range was not extended through the last day one week.

4. Salmon Manager Response to MOP Variance at Little Goose for Doble Testing Outage.

Wills said that, at yesterday's FPAC meeting, there was general consensus that, in the context of a 3-5-day operation, the salmon managers would prefer to keep adult passage viable at Little Goose. That translates into a salmon managers' preference to spill less during the day and more at night, said Paul Wagner. We would prefer that you go outside of MOP during the day, while the Doble testing is occurring, then spill at night to draft the pool to its desired elevation. It was noted that the Doble testing, which is essentially a health check on the transformers, will begin August 22; during this test period, there will be no generation during the day. Lower Snake flows are about 30 Kcfs, currently.

After a brief discussion, it was agreed that, during the Doble testing period, the Corps will pass 5 Kcfs through speed-no-load during the day at Little

Goose, ponding the bulk of total river flow for release during nighttime hours through one unit of generation and spill. It was noted that Doble testing also needs to be conducted at Lower Granite this year.

5. Lake Pend Oreille Effects on Kokanee.

Russ Kiefer said he would be presenting some of the results of the research from IDFG's North Idaho Large Lakes/Reservoirs group. What we want to talk about today is our research into lake level management which leads us to believe that the lake level at Lake Pend Oreille is important for our kokanee and bull trout populations in that system, Kiefer said. Kiefer noted that Lake Pend Oreille is a natural lake, but Albeni Falls Dam has been build across the outlet to the Pend Oreille River. There is also Cabinet Gorge Dam on the Clark Fork River, the inlet to Lake Pend Oreille, Kiefer explained. Because of Cabinet Gorge, there aren't many major tributaries to Lake Pend Oreille, Kiefer said, so that pretty much confines the kokanee population to shoreline spawning in the lake itself.

Moving through his presentation (hot-linked to today's agenda on the TMT homepage), Kiefer touched on the following topics:

- Measurements of the natural lake elevations, pre-facility
- Current lake elevation measurements – higher than natural during the summer, negatively impacting kokanee spawning habitat.
- Why are kokanee important to bull trout? Because kokanee are 68 percent of the diet of the bull trout inhabiting this system. The Fish and Wildlife Service has concluded that, if the kokanee in Lake Pend Oreille fail to survive, the bull trout will likely fail to survive.
- Lake trout competition is one of the main threats to bull trout survival, particularly if the kokanee population disappears.
- Estimated adult kokanee abundance, 1922-present – sport anglers harvested an average of 1 million kokanee/year from 1952-1966 from Lake Pend Oreille, but the population was stable until, in 1966, the reservoir started to be consistently drawn down to elevation 2051 each winter. Since then, the kokanee population has dribbled along at a fairly depressed level.
- Spawning habitat is the limiting factor for kokanee in this reservoir, because, at elevation 2051, wave action stirs up the fines, cleaning the gravel below that level. This means that the kokanee have to be right at that level in order to spawn, said Kiefer – they can no longer spawn right at the lake surface, because the gravel there is no longer being cleaned.
- Jeff Laufle noted that the Corps has looked for suitable spawning gravels at lower lake levels, but has not found it at those deeper elevations – we're trying to figure out why, he said. Right now, we're keeping the lake levels as they are because the wave action seems to be doing something at the higher lake elevations.
- Prior to dam construction, there was a substantial run of kokanee up the

Clark Fork River. The majority of the kokanee, however, spawned along the lakeshore.

- Because the modified system has existed for so long, the best spawning gravel now exists at the upper lake elevations. If a lower lake elevation were to be chosen, operationally, it would be difficult for the kokanee to spawn in the larger substrate. It could take up to a decade for more gravel to be deposited in the lower area, although there is some evidence that this process would occur more quickly.
- IDFG has been investigating whether it would be possible to improve kokanee survival through winter lake level management. Since 1997, IDFG has been requesting varying lake levels each winter; some years the lake has been drawn down to elevation 2051, and some years it has been kept up to elevation 2055. The agency has also been attempting to develop estimates of naturally-produced kokanee vs. hatchery kokanee, and using hydroacoustic and trawl surveys to estimate the number of mature female spawners each fall. Fry nets are used to estimate fry population abundance.
- Wild egg-to-fry survival estimates at lower lake elevations; the more females available, the more depressed the egg-to-fry survival, at least at the lower lake elevation.
- The Lake Pend Oreille kokanee are significantly more productive when the winter elevation is held at 2055 following a period when the lake elevation is held at 2051, because wave action cleans the spawning gravels at elevation 2051, providing good spawning conditions for the subsequent year's spawners at elevation 2055. Point estimates over the nine-year study period show a 2.4-fold egg-to-fry survival at the raised lake level.

Kiefer said IDFG recommends the following operations for Lake Pend Oreille resident fish:

- Hold the lake at its higher elevation (2055) for three out of four years
- During the fourth year, maintain a winter elevation of 2051 to clean the gravel the kokanee will then spawn in during subsequent years.
- Time the single low-elevation year for a time when adult kokanee abundance is at a lower level, if possible, to yield less competition for redd sites and less redd superimposition

Kiefer reiterated that, during the 1950s and '60s, sport anglers were catching in excess of 1 million kokanee each year in Lake Pend Oreille; in 2000, IDFG was forced to halt sport harvest of kokanee in the lake. We have lost a very significant recreational fishery in our efforts to protect the bull trout, he said, and our goal now is to rebuild it to the point that we have both a healthy bull trout population and a healthy kokanee sport fishery.

Kiefer emphasized that these recommendations are merely an initial take on a management solution; we realize that some of this water is used to support

chum spawning, and we do not want to adversely impact chum while focusing solely on resident fish in Idaho. What we want is a good understanding of the relative benefits of that water for resident fish and chum, so that we can develop a decision tree that will allow us to make this decision on a more logical basis.

Kiefer distributed a draft of such a decision tree, emphasizing that it is intended only to stimulate discussion – it is not a final document. We understand, for example, that if there is a power emergency, we will use available water from Lake Pend Oreille to generate electricity. Also, he said, if the previous year's operations adversely impacted chum, we would then give more weight in the decision tree to operations the following year to benefit chum. We need the chum experts to give us an idea of what might constitute a significant impact on chum, he said. We also need to talk, by mid-September or so, about the long-range forecast – if 2006 is likely to be another low water year, then we will have a higher probability of going to elevation 2051 over the winter. Also, if the estimates show that less than 70,000 female kokanee will spawn – an extremely depressed estimate, given the fact that we used to see 2 million+ female kokanee spawners – that's the next point on the decision tree.

Running all of these factors through the past history, said Kiefer, it basically works out that a little over 2:1, rather than our preferred 3:1, ratio will result, under this decision tree, on average, in two years up and one year down. The up years will hopefully coincide with wetter years and higher spawner abundance, while the lower years will hopefully coincide with dryer years and lower abundance.

I know we've been alternating up and down winter elevations for the past decade, but from this point forward, isn't it correct that there is no official direction? Wellschlager asked. That's right, Kiefer replied – from this point forward, we need to make decisions at Lake Pend Oreille based on the available research, and based on the information from chum salmon, starting this winter. We will need to make the decision about this winter's elevation within the next six weeks or so, he said, so I wanted people to start thinking about this issue.

Boyce noted that the Lower Columbia chum are ESA-listed, and there are specific operations for those fish in the Biop. We don't have a lot of operational discretion when it comes to chum, he said; this group doesn't have much discretion to negotiate on Lake Pend Oreille elevations.

It was agreed that the salmon managers will discuss Lake Pend Oreille kokanee operations in the context of chum needs, and will provide their input on IDFG's strawman decision tree. It was further agreed that IDFG will provide their input as to the desired Lake Pend Oreille kokanee population to be achieved through winter lake elevation manipulation, and that the TMT will revisit this topic at its August 24 meeting.

6. Salmon Managers' Response on Emergency Protocol Priorities.

Bob Heinith said there was a phone discussion on this topic about three weeks ago between the plaintiffs in the court case, the Department of Justice and the action agencies. Tribal reps were invited to listen in to the call; there was agreement from DOJ and the project operators that they would get back to the salmon managers about the first two tiers that the salmon managers sent to the operators. It was our understanding that the action agencies were going to get back to us within a few days with an explanation of what was meant by some of the items in the first two tiers, Heinith said; that has yet to happen. My understanding is that the court is the venue through which we're working this process, said Heinith; we continue to expect a response from the project operators.

I think you can expect a response soon, said Wellschlager; the difficulty has been building in legal language that is only going to apply to the next 30 days, in terms of Appendix 1 to the Water Management Plan. There are three different agencies commenting on what those protocols mean, he said, so it's just taking some time. Wellschlager noted, however, that there is a difference between tiers 1 and 2, and the protocols he has been seeking the salmon managers' feedback on, which essentially cover the actions that schedulers will take in response to a sudden, short-term emergency.

I guess there is something of a disconnect, then, because there are issues in the first two tiers that still need to be resolved, Heinith said. We're not talking about the first two tiers, Tony Norris replied – what we're after is the salmon managers' feedback on the actions the operators have to take within 4 seconds of a sudden emergency. We have presented this to TMT several times, seeking the salmon managers' input as to how those sudden emergency actions should be prioritized, Norris said. We're talking about the actions that would be taken if lightning strikes Chief Joseph, and we have only a few seconds to make up 900 MW of generation from the lower river projects, said Wellschlager. Currently, the last projects we would lean on, in the event of an emergency, are the court-ordered projects – if you guys don't like that idea, then tell me. We are seeking input on what you would prefer to see us do, when we take action in real time.

Boyce replied that there is still considerable confusion, for the salmon managers, as to what emergency actions are available to the action agencies short of operations that would negatively impact fish. It sounds as though there is a serious miscommunication on this issue, and that there is a real need to improve that communication, sooner, rather than later, said Silverberg. There are attorneys working on this, and we can let them figure it out, Wellschlager said. You should receive something from them in the next couple of days, and I think you'll be satisfied, although you may have a couple of questions. In the meantime, said Norris, this is the emergency protocols list the operators are

using, and if the salmon managers have additional guidance, we'd like to hear it. We will always consult with TMT on an emergency if time allows, added Wellschlager; the reality, however, is that time doesn't always allow us to do so.

7. Status of Summer Operations as a Result of Recent Court Rulings.

Henriksen reported that court-ordered spill is ongoing at the four Lower Snake projects and McNary, and will continue through August 31.

8. End of MOP Operations at the Lower Snake Projects.

It was agreed that the end of MOP operations at the Lower Snake projects will be discussed at the next TMT meeting on August 24.

9. Current Operations Review.

Henriksen said Libby continues to release 18.9 Kcfs; the project will be stepping down to either 14 Kcfs or 16.5 Kcfs outflow by August 17, to achieve a gradual draft to elevation 2439 by August 31. Norris reported that Hungry Horse is at elevation 3548 and drafting toward elevation 3540 by August 31; Grand Coulee is at elevation 1284, heading toward 1278 by Aug. 31.

Henriksen reported that Dworshak continues to release 12 Kcfs; the objective is to reach 1535 by Aug. 31. Our concern is that the Nez Perce Tribe would like to be at 10 Kcfs Dworshak outflow at the beginning of September without a double peak, she said. If we continue to release 12 Kcfs for much longer, Dworshak will likely be releasing far less than 10 Kcfs out by the end of August, in order to avoid going below elevation 1535. We may want to reduce Dworshak to full powerhouse (about 9.6 Kcfs) now, Henriksen said.

That was what FPAC felt would be prudent as well, said Kiefer. Statler said the Nez Perce Tribe would concur with that operation. Wills said he had spoken to Howard Burge at Dworshak National Hatchery; Burge told him that the feeding of the hatchery fish increased dramatically in response to the increase in Dworshak outflow temperature to 46 degrees F. He noted that Hells Canyon discharge has increased, so maintaining the current Dworshak outflow temperature profile is important. If we see temperatures rise above 67.5 degrees F at the Lower Granite tailrace, the salmon managers would like to see Dworshak outflow increased to 12 Kcfs at the same outflow temperature currently in place. It was agreed to go to full powerhouse capacity at Dworshak beginning today, and hold that operation as long as possible. Hlebechuk noted that, at full powerhouse capacity, the 15 feet of September storage would last only about 11 days before it would be necessary to go to minimum outflow.

Hlebechuk said that, on August 15, units 15-18 at Bonneville will be taken out of service from 7 am to 6 pm due to a breaker replacement.

10. Next TMT Meeting Date.

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

**TMT Meeting Participants
August 10, 2005**

Name	Affiliation
Donna Silverberg	Facilitation Team
Ron Boyce	ODFW
Jay Hesse	NPT
John Wellschlager	BPA
Cindy Henriksen	COE
Tony Norris	USBR
David Wills	USFWS
Paul Wagner	NMFS
Ray Gonzales	COE
Russ Kiefer	IDFG
Billy Connor	USGS
Jerry McCann	FPC
Margaret Filardo	FPC
Dave Benner	FPC
Jim Admas	COE
Larry Beck	COE
Laura Hamilton	COE
Tom Haymaker	PNGC
Dan Spear	BPA
Steve Haeseker	USFWS
Bob Heinith	CRITFC
Kyle Dittmer	CRITFC

Ruth Burris	PGE
Dave Statler	NPT
Kevin Nordt	Mid-Cs
Tim Heizenrater	PPM
Bill Crampton	CBB
Glenn Traeger	Avista
Mike Buchko	Powerex
Bruce MacKay	Consultant
Richelle Beck	D. Rohr & Associates
Tom Le	PSE

TECHNICAL MANAGEMENT TEAM

BOR: Tony Norris / John Roache

BPA: John Wellschlager / Nic Lane

NOAA-F: Paul Wagner

USFWS: David Wills / Steve Haeseker

OR: Ron Boyce

WA: Cindy LeFleur

ID: Russ Kiefer

MT: Jim Litchfield

COE: Cindy Henriksen / Cathy Hlebechuk

TMT MEETING

Wednesday August 24, 2005 0900 - 1200 hours
1125 N.W. Couch Street, Suite 4A34
Portland, Oregon 97208
Conference call line: 210-406-6523
Pass Code : 3162598

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

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

AGENDA

1. Welcome and introductions.
2. Review of Notes - [\[Minutes - 2005\]](#) 
3. Report on 8/16 Chum Discussion with Ives Researchers - [\[Chum Research Questions developed 16 August 05\]](#)

4. Lake Pend Oreille/Chum Discussion
5. Dworshak Operations - [\[Dworshak Forebay Thermocline 2005 and Dworshak Forebay Thermocline 2004\]](#) 
6. Emergency Protocols
7. MOP Issues
 - a. End of MOP on Lower Snake
 - b. Lower Granite double testing
8. Fall Treaty Fishing - [\[SOR 2005-C4 - August 19, 2005\]](#) 
9. Summer Spill Operations - [\[Lower Columbia and Snake Rivers 2005\]](#) 
10. Other
 - Set agenda for next meeting - [\[Reference Calendar\]](#) 

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

Posted August 24, 2005 RG

Chum Research Questions developed 16 August 05

Questions and Agencies Responsible for Providing Responses

Question 1. What is the maximum fluctuation in daytime Bonneville tailwater elevations that can be tolerated without impacting chum spawning? (Chum Researchers)

Background: the current TW operation for chum is 11.3-11.7 ft or about 125 kcfs depending on backwater effect during daytime hrs; the Action Agencies would like to know if there is flexibility in exceeding this operational range for short times (2 hr) during the day for unexpected increases in flow.

Question 2. What is the maximum nighttime flows that can be tolerated without impacting chum spawning? (Chum Researchers)

Background: during high flow events, high discharges (up to 250 kcfs) have been provided at night to maintain daytime flows within 11.3-11.7 ft. USGS conducted a study this year to evaluate effects of high day and night flows, and although no effect was found for flow blocks up to 175 kcfs this did not include higher flows observed in recent years. Study results also indicates that responses are dependent on whether chum have established a redd site.

Question 3. What are the implications to other BiOp requirements (Apr 10 RCs, spring flows, etc) and the Vernita Bar Agreement of maintaining TWs above the current 11.5 ft throughout spawning, incubation, and emergence? (Action Agencies)

Background: Whether intentional or not, TWs have exceeded the 11.5 ft minimum requirement. Given the storage conditions likely to exist beginning November 1, TMT members would like to know what are the effects of meeting the BiOp requirements and VB by maintaining TWs at higher elevations (ex: 12.0, 12.5, 13.0 ft etc). At TMT, it was discussed the Corps or BPA HydroReg models could be used to assess risks to these requirements using a 50 year period of record in the analysis.

Question 4. If TWs are increased to provide additional spawning habitat and reduce superimposition in the Hamilton Creek area, when would the best time to do this and to what TW to provide the greatest benefits to chum? (Chum Researchers)

Background: Chum researchers have noted high spawning densities and expressed concerns with potential superimposition of chum spawning in the Hamilton Slough area below Hamilton Creek. One strategy to reduce densities and superimposition is to start with a 11.5 ft TW operation early in the spawning cycle but then increase to a higher (ex: 12.5 ft) later in the run (ex: November 15) to allow access to other spawning habitat and "spread out the spawners".

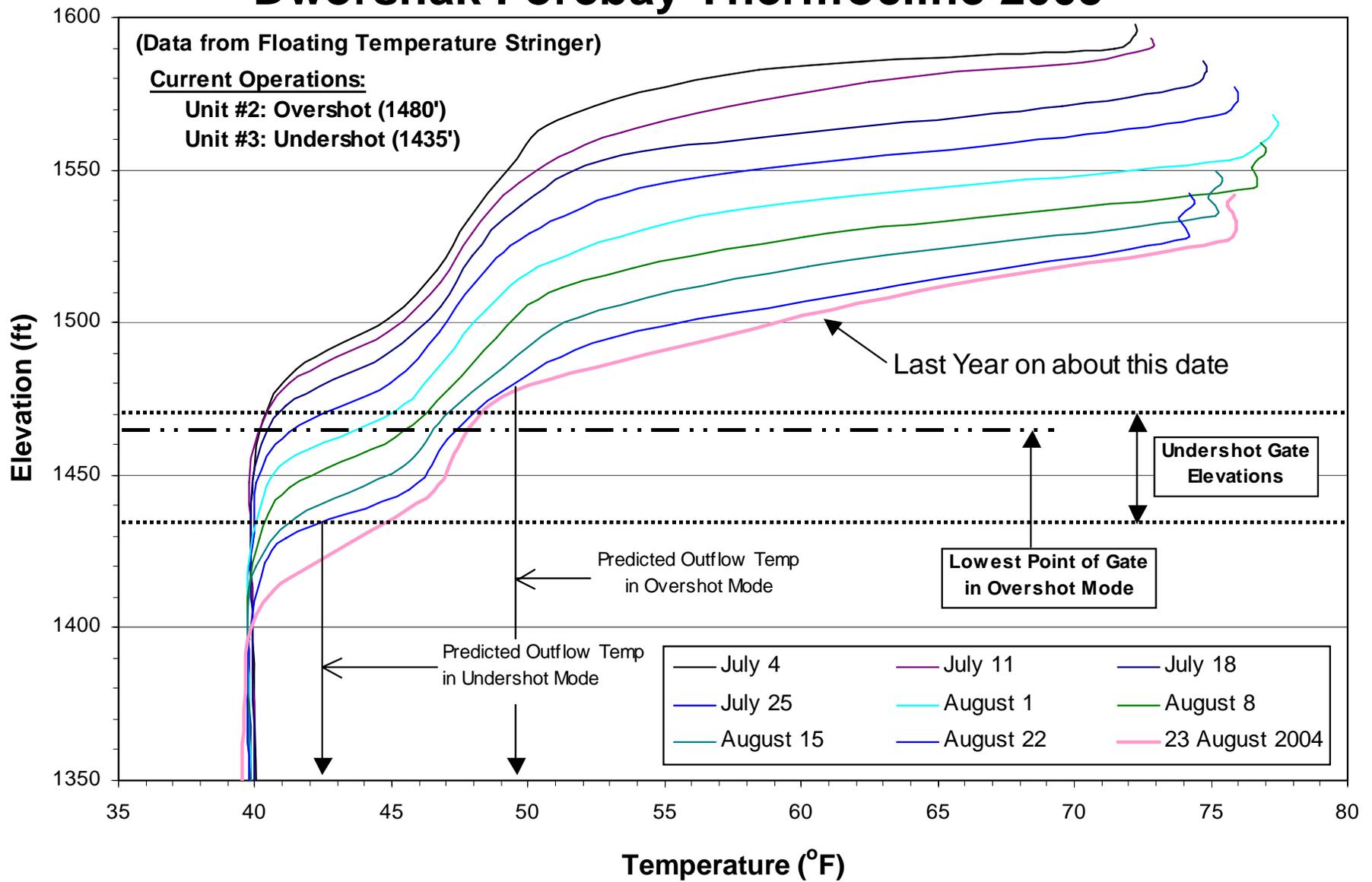
Question 5. What is our best estimate for the number of chum expected to spawn in each of the mainstem areas (Ives Island, Multnomah, I-205) this year as well as tributaries (Hardy, Hamilton, Grays Harbor, etc)? (Chum Researchers)

Background: Chum escapements in each of the spawning areas have declined in recent years; if possible, TMT members would like to know for planning purposes how many chum are forecasted for this year recognizing that forecast tools for chum have not been developed.

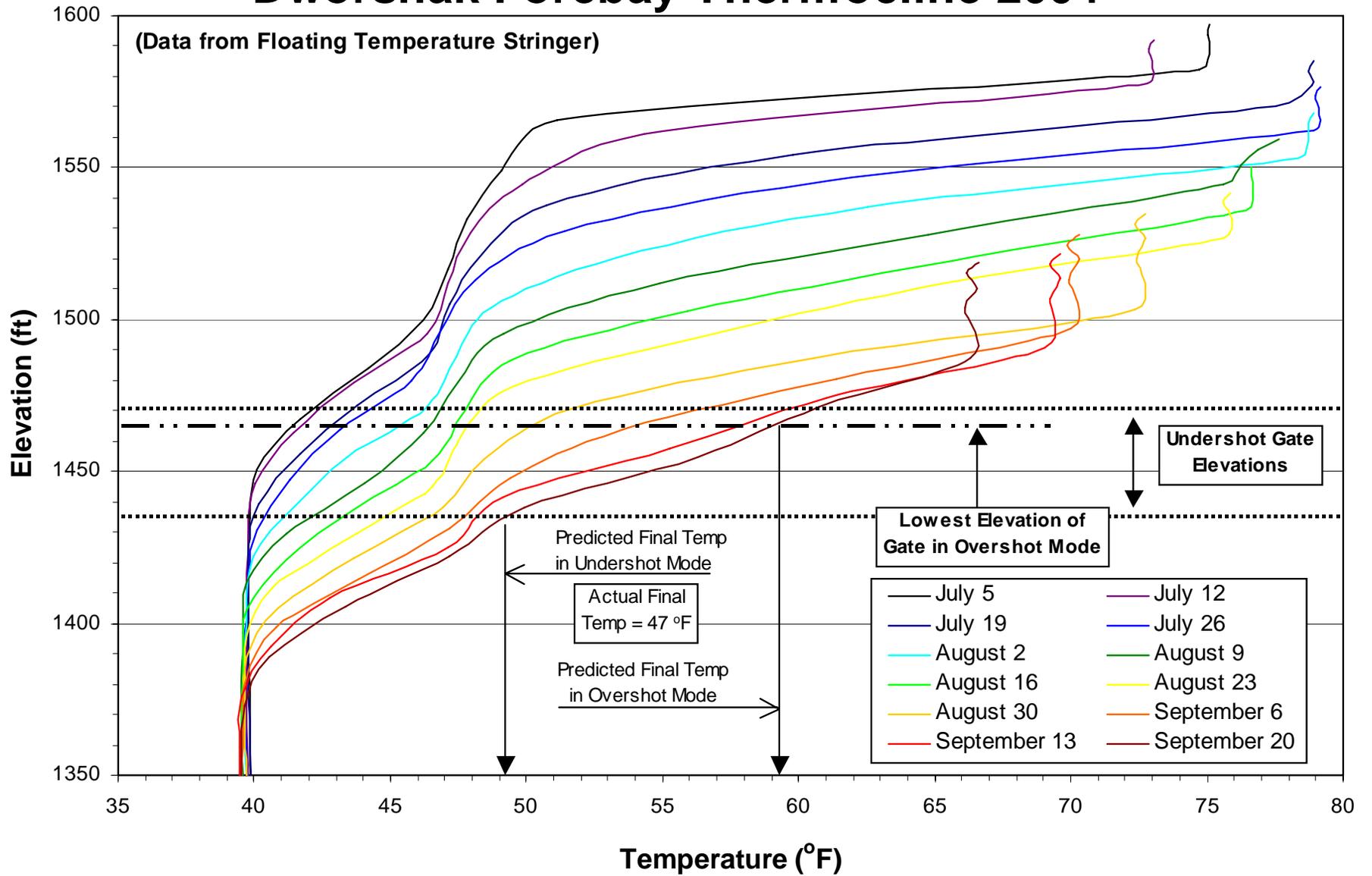
Question 6. What are the effects on Bonneville TWs and biological benefits to chum by drafting 4 ft (2055 to 2051 ft) from Lake Pend Oreille? (Action Agencies and Chum Researchers)

Background: Under the BiOp, a four ft draft from Lake Pend Oreille is identified to provide chum spawning flows. Ongoing Lake Pend Oreille research is evaluating the effects of maintaining higher elevations for kokanee spawning (an important food source for listed bull trout) and a request has been made to maintain elevation 2055 ft this year to gain additional data at this higher elevation if the water is not needed for chum flows.

Dworshak Forebay Thermocline 2005

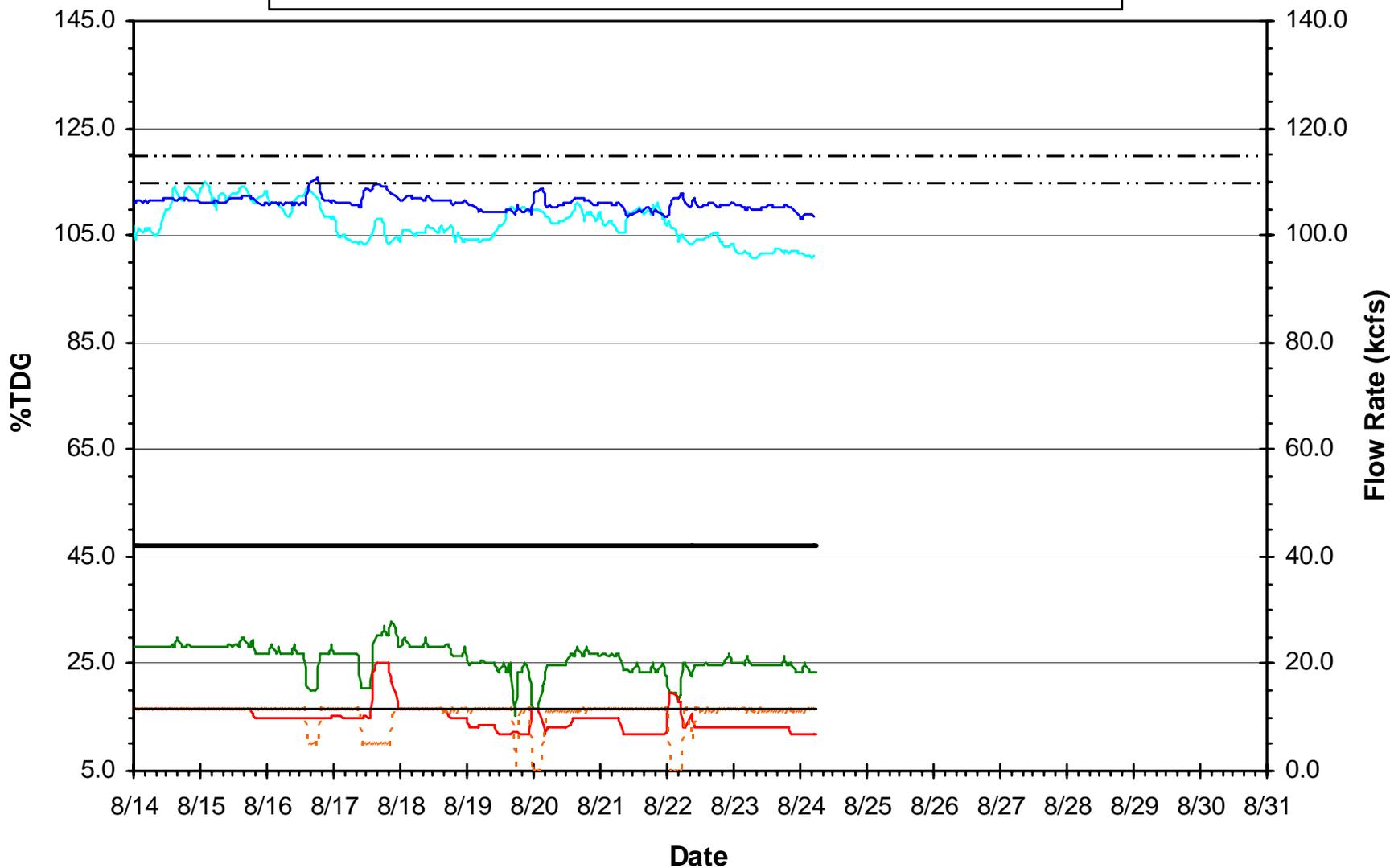
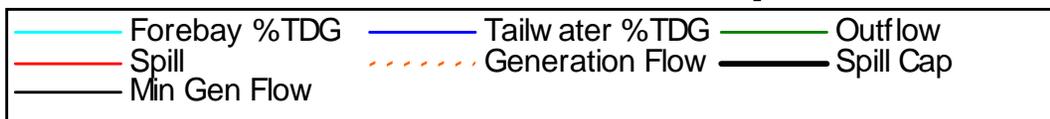


Dworshak Forebay Thermocline 2004



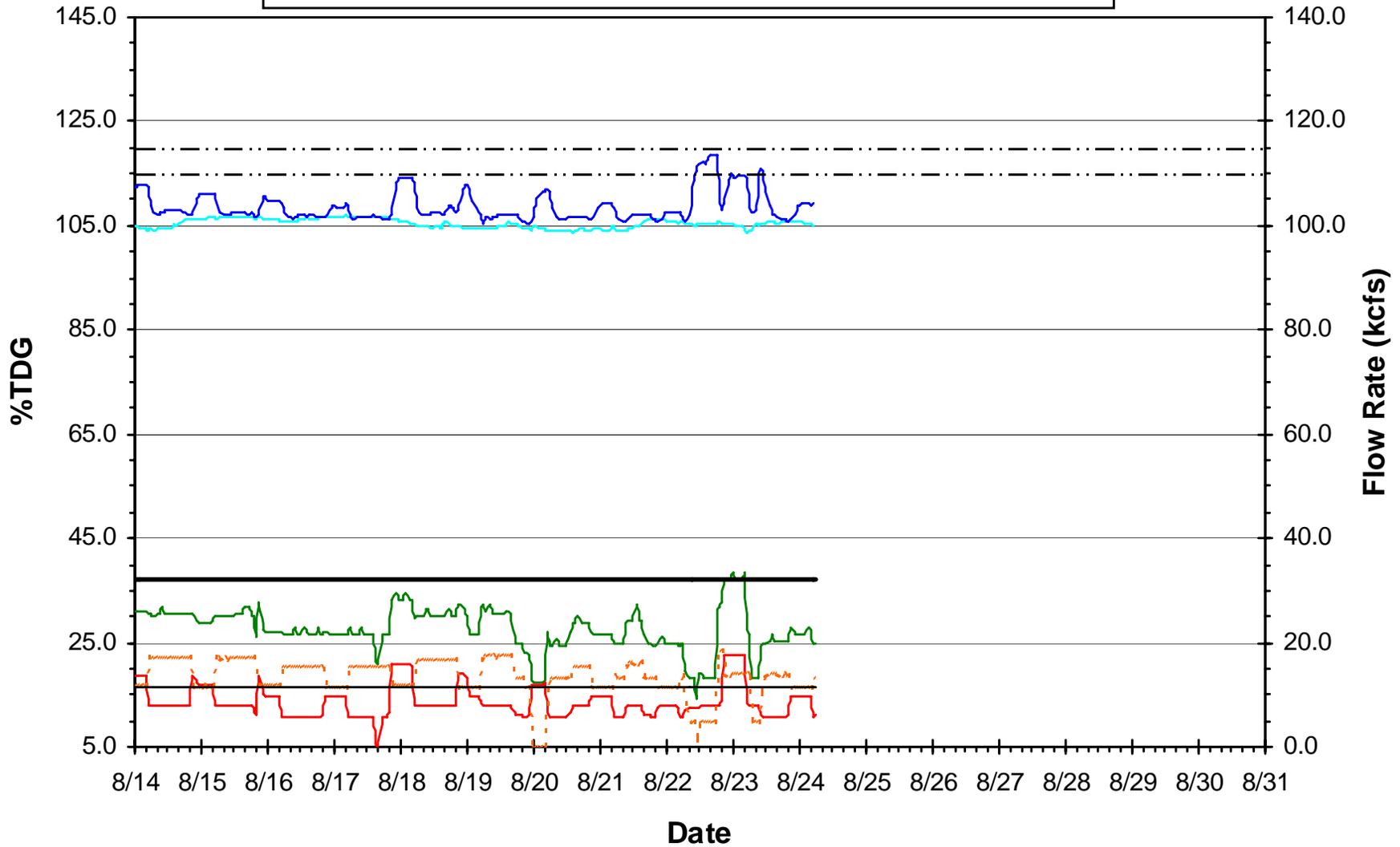
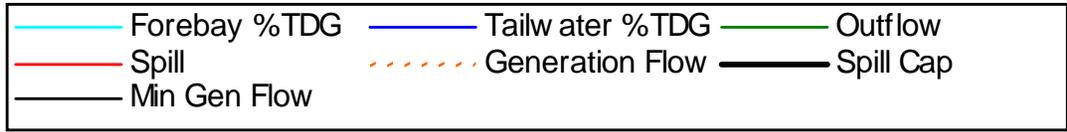
*Lower Columbia and Snake Rivers
Summer Spill Operations
2005*

Lower Granite Summer Operations



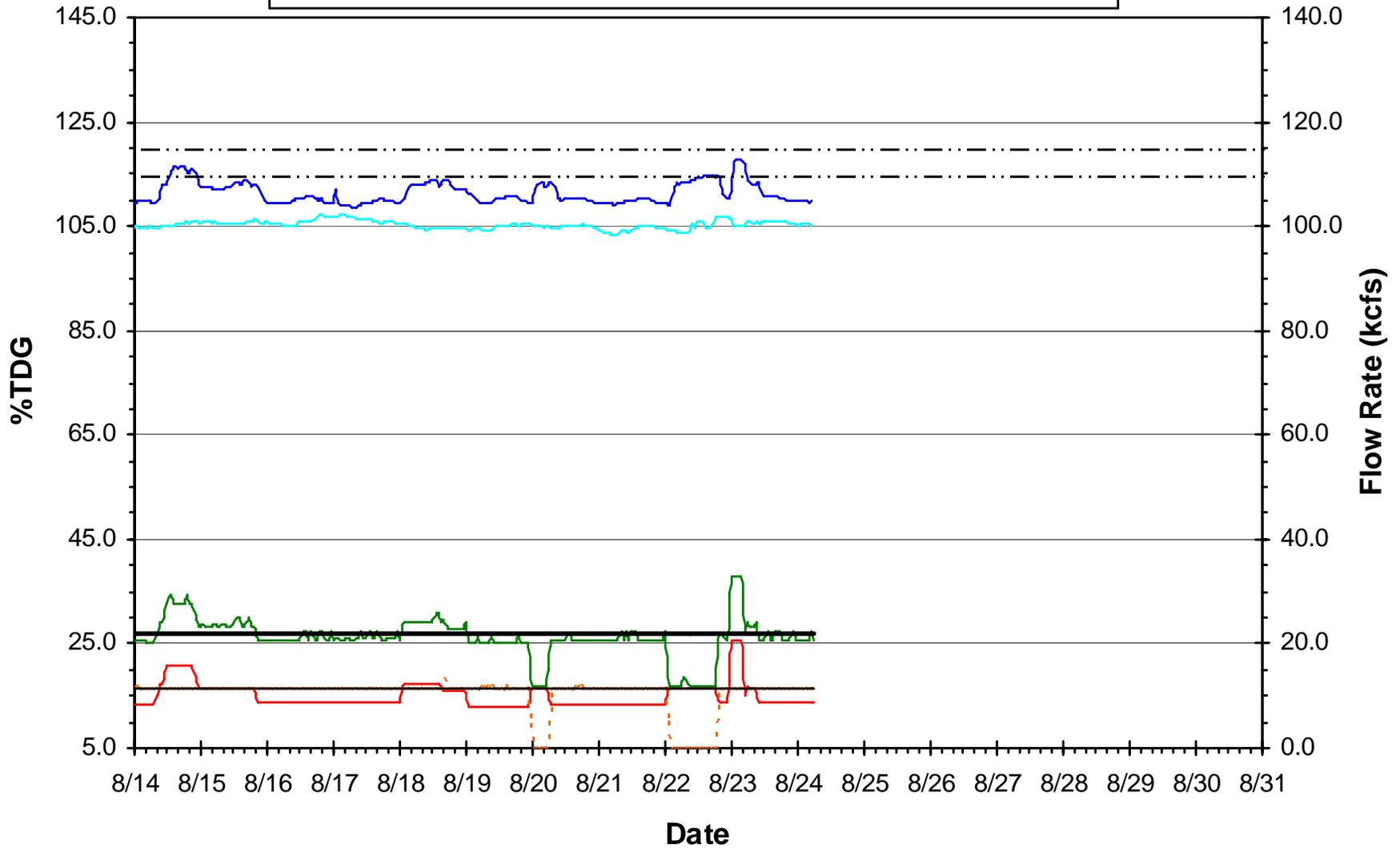
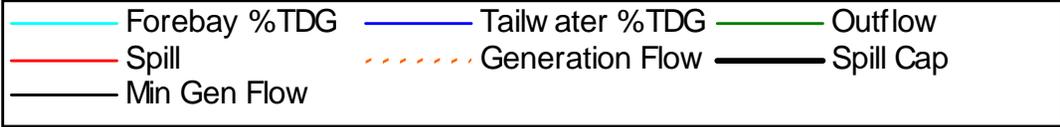
(As of 0600 hrs, 24 August 2005)

Little Goose Summer Operations



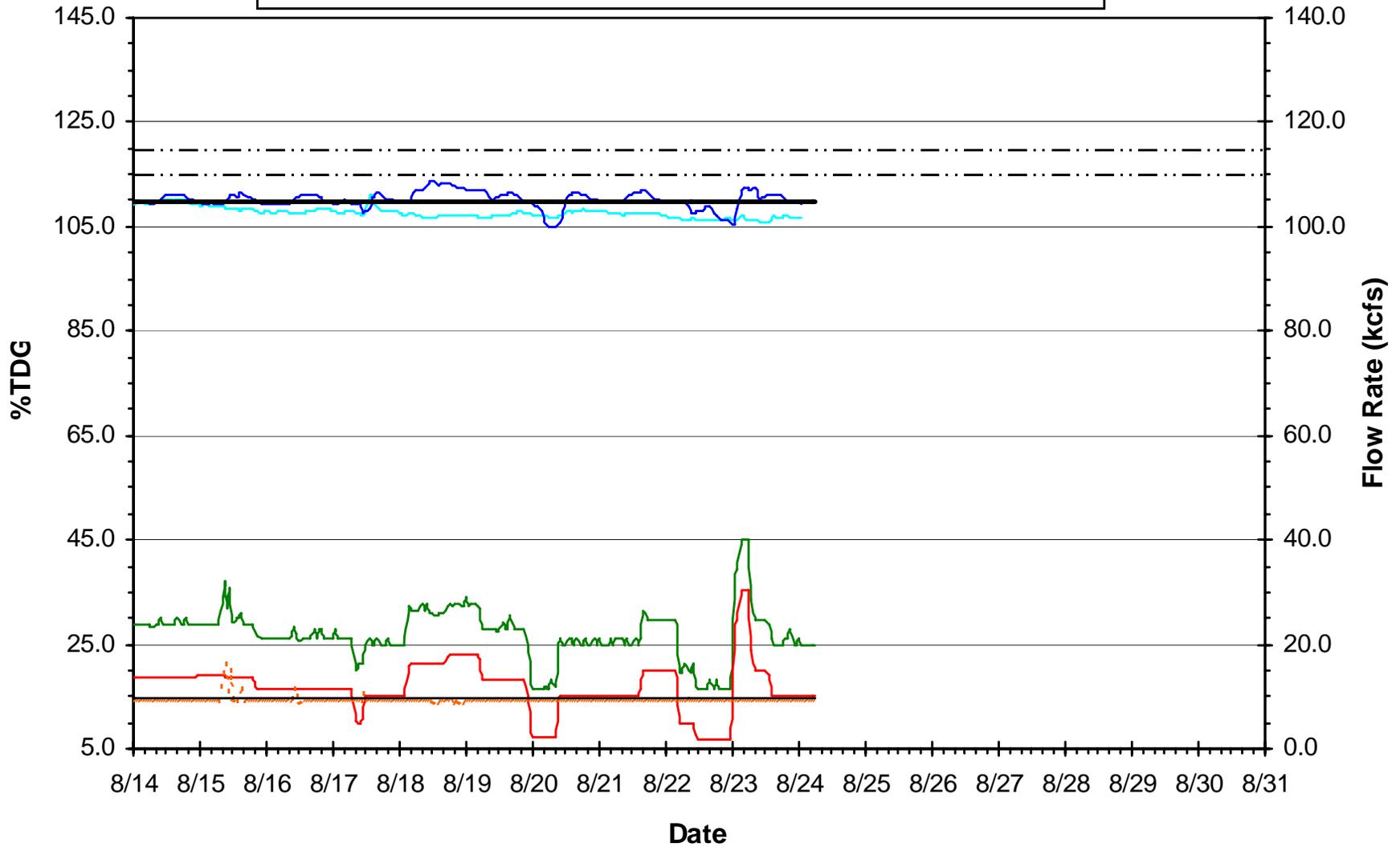
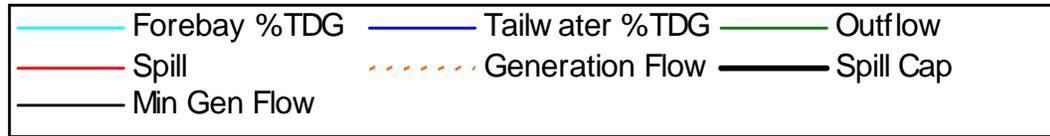
(As of 0600 hrs, 24 August 2005)

Lower Monumental Summer Operations



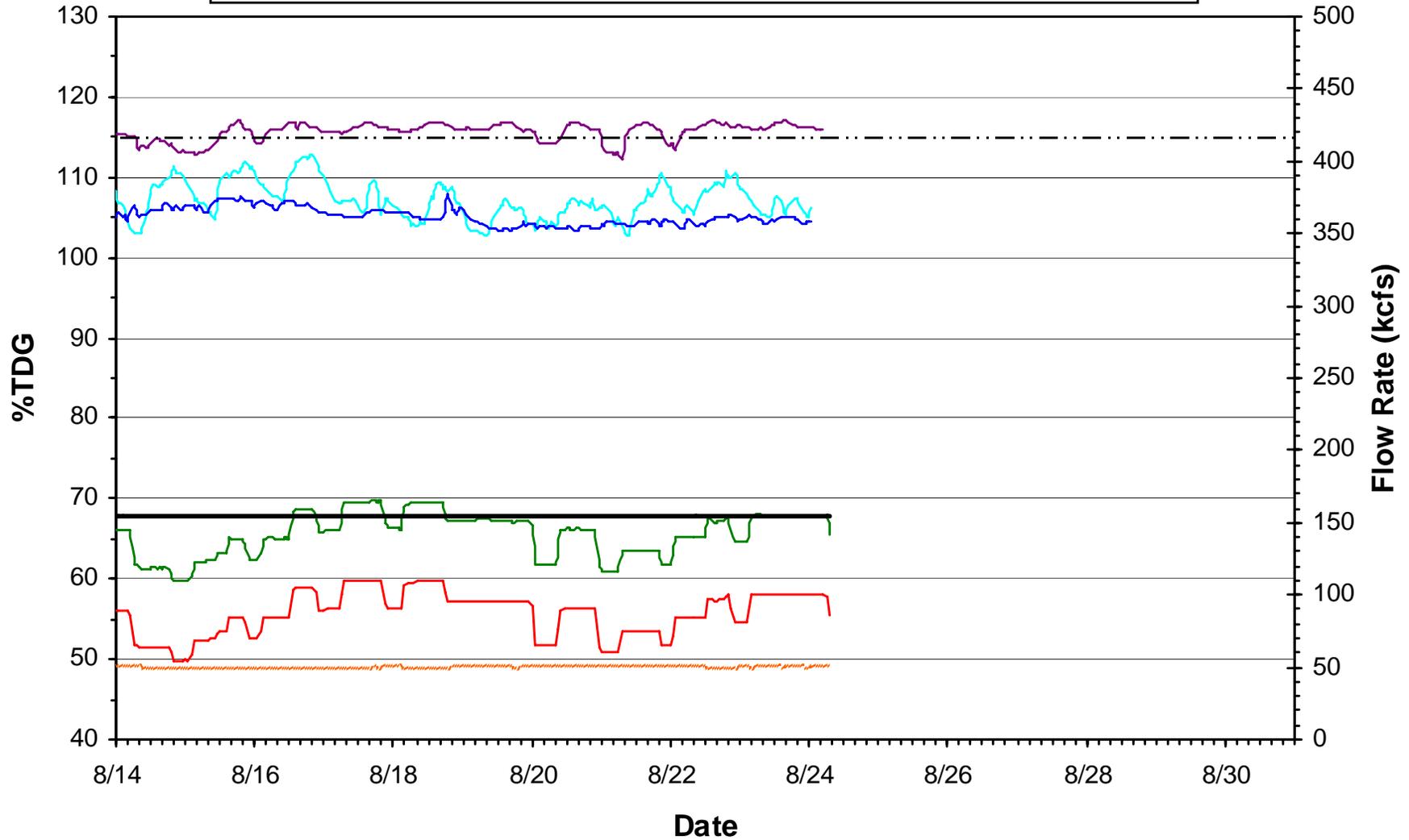
(As of 0600 hrs, 24 August 2005)

Ice Harbor Summer Operations



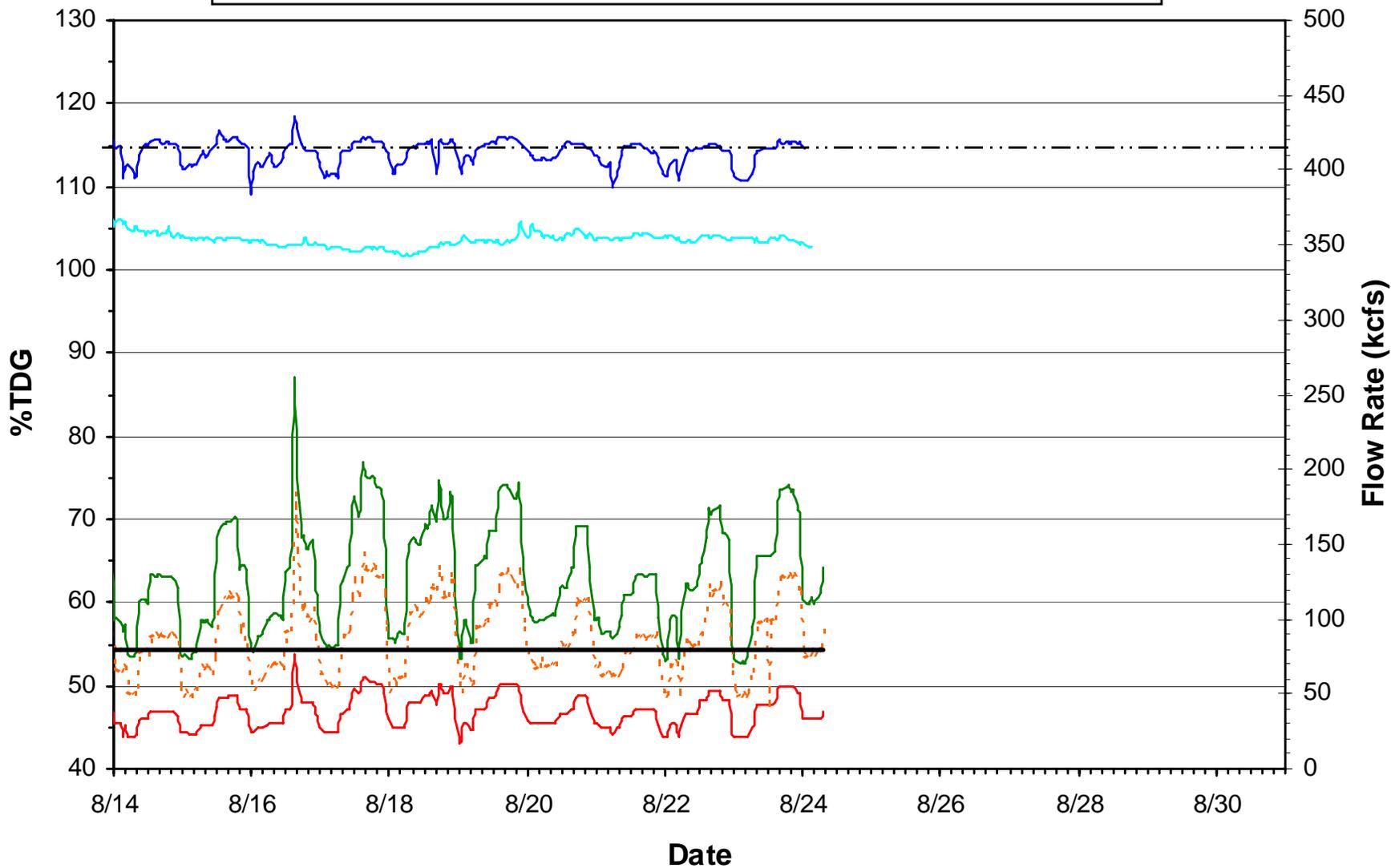
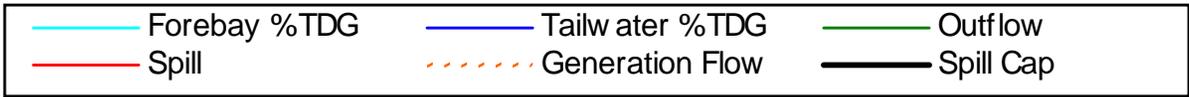
(As of 0600 hrs, 24 August 2005)

McNary Summer Operations



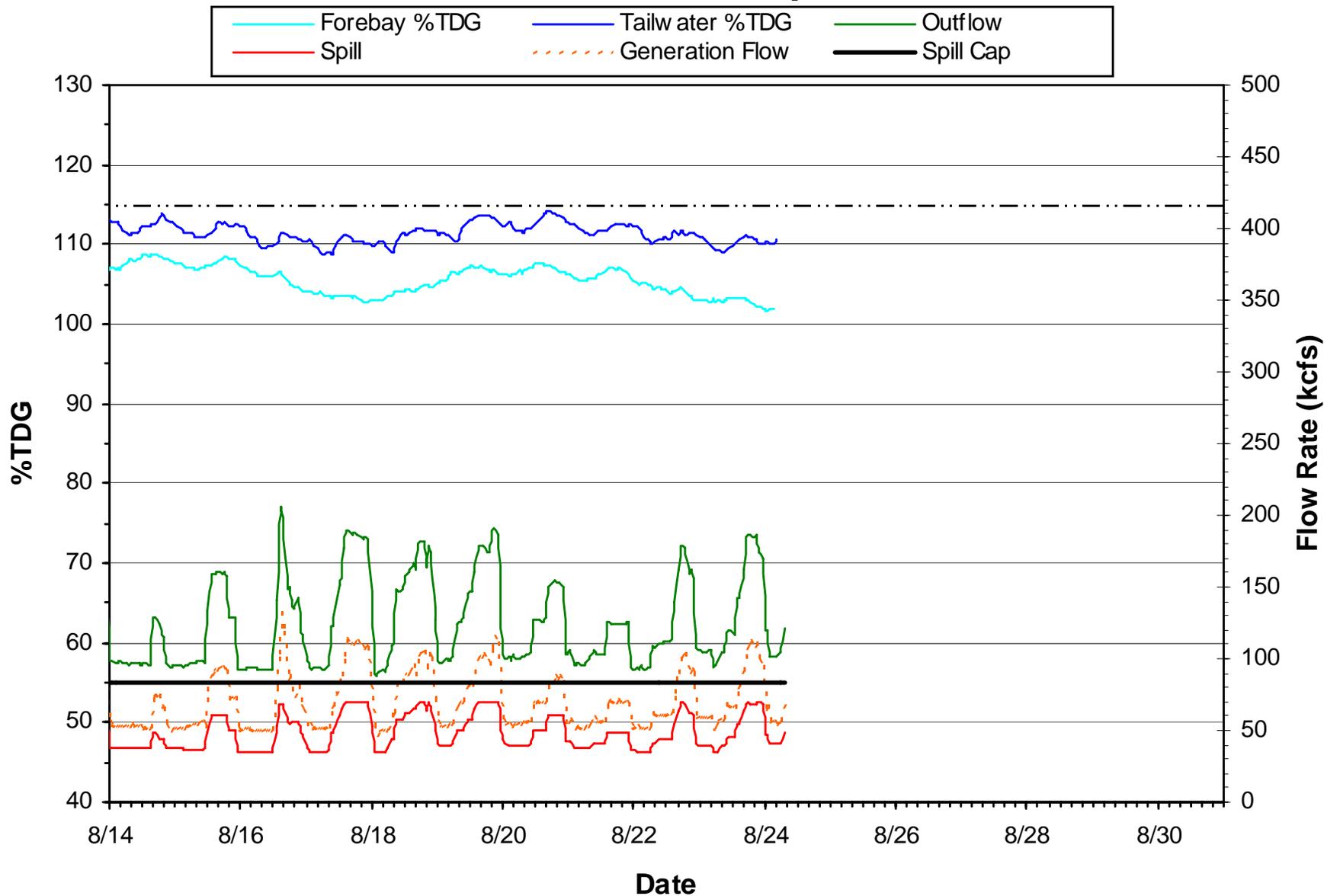
(As of 0600 hrs, 24 August 2005)

John Day Summer Operations



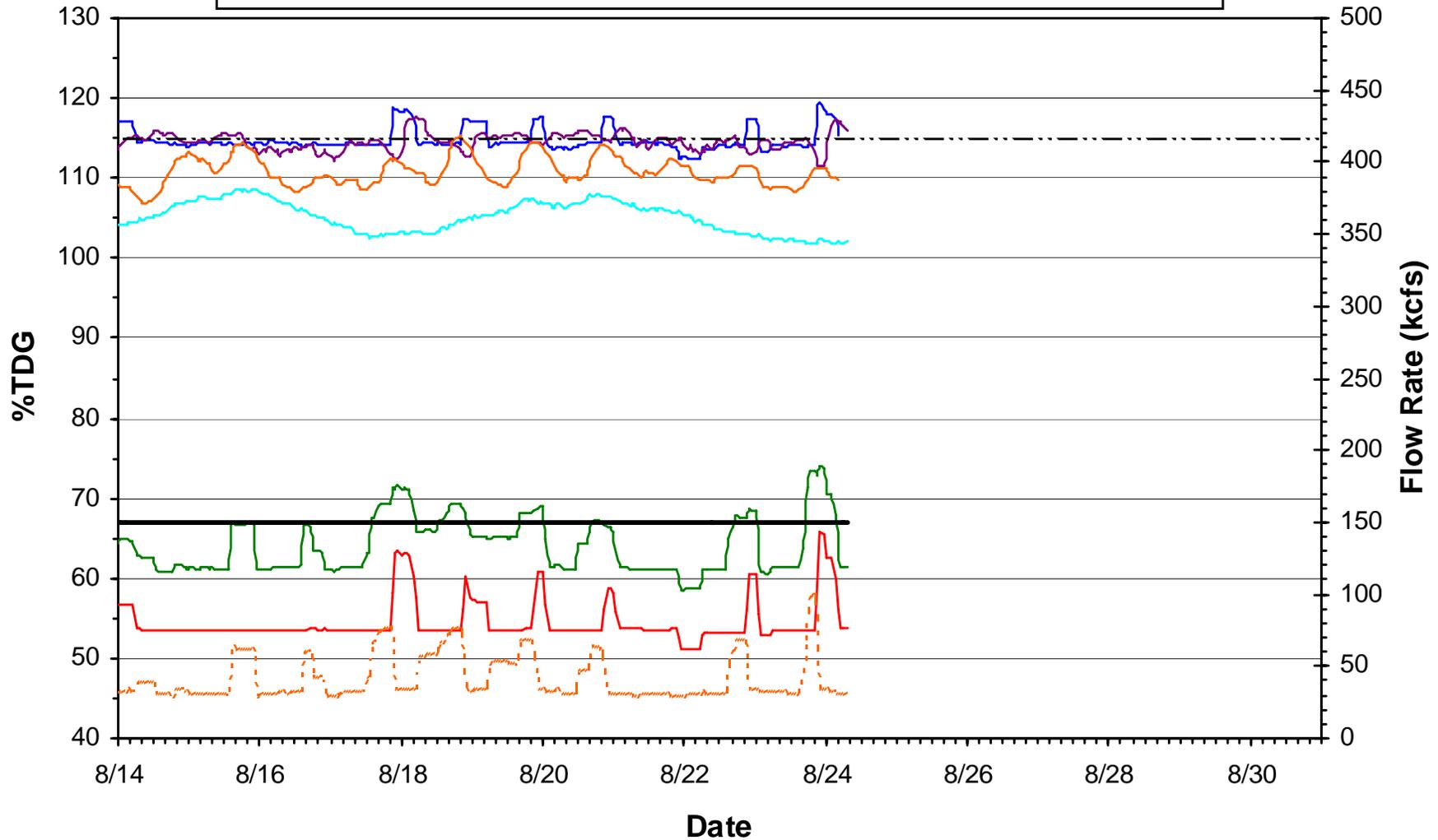
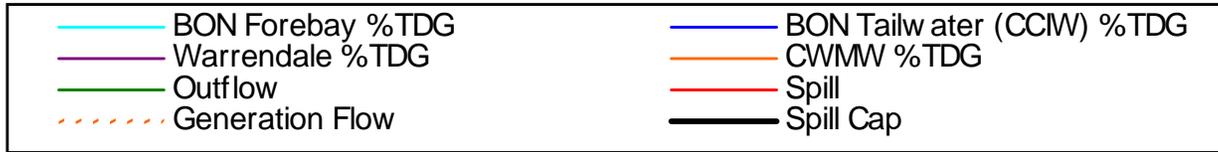
(As of 0600 hrs, 24 August 2005)

The Dalles Summer Operations



(As of 0600 hrs, 24 August 2005)

Bonneville Summer Operations



(As of 0600 hrs, 24 August 2005)

Percentage Spill			
Date	Little Goose Daytime Spill 0400 - 2000 hrs	John Day (24 hrs)	The Dalles (24 hrs)
10-Aug	42.0	29.9	39.6
11-Aug	40.4	29.8	37.4
12-Aug	37.7	30.5	39.3
13-Aug	36.1	30.6	38.9
14-Aug	39.0	29.6	38.8
15-Aug	40.0	30	38.3
16-Aug	54.8	29.9	37.9
17-Aug	38.9	29.7	38.5
18-Aug	34.7	30.2	38.7
19-Aug	56.2	29.7	39.5
20-Aug	36.9	29.8	39.4
21-Aug	0.0	30.1	38.6
22-Aug	0.0	30.1	38.6
23-Aug	0.0	29.6	37.9
Ave:	32.6	30.0	38.7

COLUMBIA RIVER REGIONAL FORUM

TECHNICAL MANAGEMENT TEAM CONFERENCE CALL

August 24, 2005

FACILITATOR'S SUMMARY NOTES ON FUTURE ACTIONS

Facilitator: Donna Silverberg

Notes: 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.

Review of Notes

July 27 minutes and notes are posted on the web, as are facilitator notes for the August 10 meeting. Comments to the August 10 notes were provided:

- Under 'Operations Review', clarify that it was a 3° temperature *increase* at Dworshak.
- Under the Lake Pend Oreille discussion, bull trout are *listed*, not endangered, and kokanee are 60-80% of bull trout diet, not 60%. Also, the bullets identifying specific operations is Idaho Fish and Game's 'preferred operation', which is different from the decision tree discussed in the following paragraph.
 - **ACTION**: Russ Kiefer, Idaho, will provide specific language to the facilitation team to clarify this portion of the notes.

Report on 8/16 Chum Discussion

Ives Island researchers and TMT members met on 8/16 and developed a set of questions about chum research below Bonneville. Ron Boyce, Oregon, provided a draft handout of those questions which also identified who should respond. Ron asked that TMT review the questions and provide any comments/revisions to the questions to DS Consulting or Ron Boyce by Monday, 8/29. Ron and Donna Silverberg will combine the changes to the questions and send them out. The research is expected to be completed by September 28, after which there will be a follow-up discussion at TMT (in October).

Lake Pend Oreille/Chum

At the August 10 TMT meeting, Russ Kiefer, Idaho, provided information on research and a decision tree for kokanee/bull trout operations. The salmon managers are in continuing discussions about the issue relative to chum needs below Bonneville, and hope to have clearer resolution/understanding in the next 3-4 weeks. Additional information that will be helpful to the discussion (e.g. adult kokanee abundance report, criteria for chum spawning, long term weather forecast) is forthcoming. The salmon managers will report back to TMT in September.

Dworshak Operations

Dworshak is operating to reach elevation 1535' by the end of August, and releasing 45-47° water. At this point, the action agencies expect the operation to continue through mid-September, with 7.1 kcfs releases, per Nez Perce/Dworshak Board discussions. Graphs linked to today's TMT agenda showed that this year's thermocline is very similar to 2004, indicating that there should be no problem continuing with the current operation. It was noted that a cooling trend is continuing in the river, even with a slight increase in temperature releases from Dworshak.

Emergency Protocols

There was no new input offered from the salmon managers on the Emergency Protocols list. Attorneys in the lawsuit are continuing discussions and the agencies have been working to provide questions and comments to them as they arise.

MOP Issues

End of MOP on the Lower Snake – The salmon managers discussed end of MOP operations and, though concerns were expressed by some, recommended that MOP continue on the lower three projects until the Dworshak augmentation operation ends. At Lower Granite, they recommended ending MOP based on natural cooling of the system. The salmon managers have an interest in supporting Clearwater juveniles, who typically migrate later in the season.

BPA recommended that MOP operations end now or no later than August 31, based on the criteria in the Water Management Plan to end when small numbers of juvenile fish are passing – the graphs show that 97-100% of the fish have passed the projects at this point (although this may not include Clearwater migrants who pass later in the season or over-winter, according to current research). BPA also noted that spill in the Lower Snake is costing ratepayers about \$1 million/day.

The COE suggested that the salmon managers also consider that flow in the Snake could recede to 15 kcfs later in the summer, and this raises concerns for refill, overwintering juveniles, and returning adult migrants. The action agencies have an interest in developing a plan for refilling pools to support operational flexibility and economic interests, as well as returning adults.

ACTION: After a caucus, TMT was not able to reach consensus on how to proceed with end of MOP in the Lower Snake. Because Washington, Idaho and Nez Perce were not available for the caucus discussion, TMT agreed to re-visit the issue during a conference call next **Wednesday, August 31, at 10:00 AM**. Everyone agreed to weigh all factors, including juveniles, adults, and refill and flow. If consensus is not reached, any TMT member will have the option of elevating the issue to IT for discussion/resolution at the September 1st IT meeting.

Lower Granite double testing – A double test at Lower Granite is scheduled for August 29-31, which will require speed no load and spill at the project during the day. A similar test at Little Goose began this week but due to station service issues, operators had to

abandon the test. The test will need to be completed at a later date. Oregon requested that future double testing occur outside the fish migration season, if possible.

Fall Treaty Fishery: SOR 2005 C-4

Kyle Dittmer, CRITFC, presented a request for a fall treaty fishery, with the following specifications:

- 8/22-26 and 8/29-31 (during summer spill operations): 1' pool band at Bonneville, The Dalles and John Day, elevation determined by the action agencies.
- 9/1-2 and 9/6-10: 1' band at specified elevations at each pool.

The COE responded that filling the John Day pool to the top 1' on September 1-2 would require a decrease in flow in the lower river. Kyle acknowledged this and suggested the appropriate elevation should be determined by the action agencies. The COE expressed appreciation for the advance notice on the SOR and added that meeting the request this year will be particularly challenging with summer operations.

The COE agreed to the following operation:

- 1.5' hard and 1' soft constraint at Bonneville;
- 1.5' range at John Day, from 262.5-264' (elevation not as high as requested, but generally the pool stays within 1');
- The most fluctuations will likely occur at The Dalles due to operations and fixed spillway openings.

Kyle reported that fish sales begin next week at CRITFC through September, and if anyone is interested in putting in an order to contact him.

Summer Spill Operations

Graphs for summer spill operations were updated as of 8/24 and were posted to the web. Spill operations are expected to end on 8/31 at midnight. (Cindy Henriksen, COE, sent an email to the group after the meeting clarifying that the B2 corner collector will also close on 8/31.)

Status of Operations

Grand Coulee is targeting 1278' by the end of August. Libby is releasing 16.5 kcfs out and expected to reduce to ~12 kcfs on Friday, reaching 2439' by the end of August. Hungry Horse is releasing 5.2 kcfs and targeting 3540' by the end of August. Grand Coulee will begin filling over Labor Day weekend. Dworshak is releasing 7.1 kcfs out, targeting 1535' by the end of August; the project will continue at 7.1 kcfs until around 9/15, reduce to 4 kcfs to reach 1520', and then reduce to minimum outflow. This is the default operation for Dworshak. If inflows are low, there will be an alternative operation.

Next Meeting, Conference Call: August 31, 10:00AM

- End of MOP on Lower Snake

Next Face to Face Meeting, Wednesday, September 7, 9am-noon

- Lake Pend Oreille/Chum Discussion

- Dworshak Operations
- Emergency Protocols
- MOP Issues
 - End of MOP on Lower Snake
 - Lower Granite double testing
- Fall Treaty Fishery

1. Greetings and Introductions.

Today's Technical Management Team meeting was chaired by Cindy Henriksen and facilitated by Donna Silverberg. The following is a summary (not a verbatim transcript) of the topics discussed and decisions made at this meeting. Anyone with questions or comments about these notes should contact Henriksen at 503/808-3945.

2. Report on August 16 Chum Discussion.

Ron Boyce said the August 16 discussion involved TMT members, FPAC and lower river chum researchers; we wanted to discuss operational questions we wanted the researchers to look at, in terms of what flexibility might be available. We wanted to set out a series of questions for various parties to respond to, he said; I have drafted those questions, and would like to hear responses by August 29, he said. Basically, I would like FPAC, TMT and the researchers to look at these questions, and provide any comments they may have. We can then discuss the outcome of this process at a TMT meeting in early October, said Boyce. He asked that any comments be submitted to him or to Silverberg. The answers provided to these questions will then be provided by September 28, Silverberg added.

One question we want to look at is the implications of operating at a higher tailwater elevation, added Boyce; other questions have to do with the impact of nighttime flows, Bonneville tailwater elevation fluctuations, optimum timing of tailwater elevation increases, what the expected population of chum spawners may be in 2005, and the biological benefits and effects on Bonneville tailwater elevations of drafting Lake Pend Oreille to elevation 2051.

3. Lake Pend Oreille Kokanee/Chum Discussion.

Dave Wills said, that at the last TMT meeting, Russ Kiefer presented a summary of the results from IDFG's kokanee research in Lake Pend Oreille, as well as a recommended Lake Pend Oreille operation and a decision tree for making decisions about kokanee/chum operations. The salmon managers discussed this information at yesterday's FPAC meeting, he said; no resolution was reached, but discussions are ongoing, and we will report back to TMT as further information comes forward.

Kiefer noted that on August 29, IDFG will complete its 2005 kokanee abundance estimate; this is a key piece of information with respect to Lake Pend Oreille operations, as is the Climate Impact Group's long-term weather forecast, which will be available in a similar time-frame. Once we have those two pieces of information, said Kiefer, we will be able to provide an update to TMT, hopefully including recommendations as to the preferred winter operations at Lake Pend Oreille this year. The TMT can likely expect an SOR on this topic some time in mid-September, added Jeff Laufle.

4. Dworshak Operations.

Henriksen said Dworshak is drafting toward elevation 1535 by August 31; release temperatures are currently 45-47 degrees F. The plan is to continue the August 31 outflow of about 7 Kcfs from Dworshak into mid-September; the goal is to then ramp down once to minimum outflow as the project reaches elevation 1520. Jim Adams has put together some data on the estimated volumes of cold water at Dworshak (hot-linked to today's agenda on the TMT homepage), she added.

This year, the thermocline is very similar to last year's, said Adams. The graph is steepening in the 45-50-degree range, because we're drafting that water out. However, I don't see any problem continuing with the current operation, Adams said; we'll probably need to have a discussion about preferred outflow temperature once Dworshak goes to minimum outflow.

It's somewhat surprising that the volume of available cold water is tracking so similarly to last year, considering the efforts we made to reduce the volume of cold water we've been using in 2005, observed Paul Wagner. Adams explained the hydrodynamic and operational reasons for this apparent paradox. Adams added that temperatures in the Lower Granite tailwater are now under 65 degrees F.; he noted that temperatures at upstream gauges such as Orofino have dropped significantly in recent days, reflecting a basinwide cooling trend, despite the fact that Dworshak outflow has now been reduced to 7 Kcfs. Brownlee releases have also fallen recently, and temperatures have moderated, particularly at night, Kiefer added.

5. Emergency Protocols.

Wills said the salmon managers have no new input on this topic; we're still waiting for some response, based on the discussion at the last TMT meeting, he said. The Department of Justice has had the action agencies' comments for over a week, and the attorneys are talking, John Wellschlager replied. The agencies have been working diligently to provide our comments to DOJ, but as you know, once the lawyers become involved, the process slows down, he said.

6. MOP Issues – End of MOP at the Lower Snake Projects/Lower Granite Doble Testing

The salmon managers discussed this topic at yesterday's FPAC meeting, said Wills; the majority opinion was to recommend continuing MOP operations at the Lower Snake projects until the end of flow augmentation at Dworshak – essentially, until Dworshak goes to minimum outflow in mid-September. That's for the lower three Snake River projects, added Wills; at Lower Granite, we expect MOP operations to continue into October, once natural cooling occurs.

According to the WMP, the Lower Snake projects will operate at MOP until small numbers of juvenile migrants are present, typically in late August, noted Wellschlagler. At his request, the TMT spent a few minutes reviewing current FPC passage index information for the Lower Snake projects. At Lower Granite, indices have been running just over 100 per day for the past several days.

Wagner noted that this is typically a transition time, in terms of juvenile vs. adult operations at the Lower Snake projects. When we're at MOP, typically the adult ladders are not in criteria, he said. The larger the "window" at the lower end of the ladders, the easier it is for adults to find them, Wagner said – that's another factor we have to take into account. Adult steelhead are passing at a rate of about 500 per day at Ice Harbor; the farther you go upriver, the fewer fish you see, he said; at Lower Monumental, for example, about 200 fish per day are passing. We're near the tipping point, in other words, Wagner said.

We don't have clear information as to whether the additional 2 feet we'll gain at the ladder entrances if we refill the pools above MOP will significantly improve adult passage, noted Ron Boyce. We also don't have clear information that holding the pools at MOP significantly increases smolt passage this time of year, Wellschlagler replied – many of those fish may choose to overwinter.

The group looked at the DART data on the percentage of the run that has passed to date; Wellschlagler noted that the percentage of the wild Snake River subyearling chinook run that has passed Lower Granite to date is now 100%, +/- 5%. However, that calculation does not include the later-migrating Clearwater fish, Wagner observed. At Little Goose, and Lower Monumental, 97% of the wild Snake River subyearling run has passed the project to date, according to the DART estimate.

Dave Statler said the Nez Perce Tribe supports extending MOP operations at the lower three pools until flow augmentation ends from Dworshak.

According to the Water Management Plan criteria we go by, given the small numbers of juveniles now moving through the system, the indications are that MOP should end, said Wellschlagler. The action agencies would prefer to see MOP end no later than the end of August, he said. Because I also represent

ratepayers, he said, I should mention that the Lower Snake spill is costing ratepayers \$1 million per day, and the run is essentially over. The costs are staying pretty much in line with our estimates, made before the operation began, but we needed to put that on the table, Wellschlager said. There isn't anyone here who can do anything about that, said Boyce; it is court-ordered spill. I understand, said Wellschlager, but there is a larger audience monitoring TMT discussions.

Henriksen said current flows in the Lower Snake are about 20 Kcfs, and could go as low as 15 Kcfs soon. Have the salmon managers thought about when and how to refill the Snake River projects? she asked. We have heard that the juvenile outmigration is nearly complete, and adult migration is increasing; we would prefer to improve passage conditions for the adults if we can. If the salmon managers want to stay at MOP for now, what's your recommendations as to when and how refill should be accomplished. In response to a question, Henriksen said 30-35 ksf will be required, total, to refill the three lower pools above MOP. Given the fact that flows will soon be in the 15 Kcfs range, that represents a significant reduction in Lower Snake flow, Henriksen said.

After a few minutes of additional discussion, Henriksen said the action agencies' interest is to improve adult passage conditions, to refill the Lower Snake pools while Snake River flows are higher, and to increase operational flexibility, given the fact that this has been a difficult summer for ratepayers. Boyce replied that the salmon managers do not want to see Dworshak flow augmentation water used to refill the Lower Snake pools. Wellschlager replied that there is a preponderance of evidence that September 1 is the tipping point at which the majority of smolts choose to overwinter, rather than outmigrate. I agree that keeping the pools at MOP speeds travel time through the pools, but there is no evidence that many smolts are taking advantage of that opportunity, Wellschlager said. The cooler water from Dworshak will actually help those smolts that choose to overwinter. Next, we know that the number of adults moving up through the system is increasing, and the operation we propose will benefit them. Finally, if we're going to extend the period of MOP operations through the end of the Dworshak flow augmentation period, that's a policy change, and it needs to go to our policy folks, he said.

Ultimately, following a caucus break, Wills said that, while the salmon managers had a good discussion, the discussion was incomplete. We would therefore request a deferral of this decision until Tuesday or Wednesday of next week, he said. It was agreed to convene a TMT conference call next Wednesday in an effort to resolve this issue; if consensus cannot be reached, we will then have an opportunity to elevate this issue at next Thursday's IT meeting, said Henriksen.

The group also discussed the Lower Granite double testing issue; beginning August 29, through August 31, the entire river will be spilled for double

testing at Lower Granite. Henriksen said one additional day of Little Goose double testing will also be needed due to an equipment problem. Adams noted that, while Little Goose was running 5 Kcfs at speed-no-load, TDG levels below the project increased to 117-119%.

Given the fact that there is no adult passage issue at Lower Granite, as there is at Little Goose, it was agreed that Lower Granite will spill total river flow during the test period, with the entire powerhouse off-line. The minimum Snake River flow of 11.5 Kcfs will be maintained. Boyce said he would prefer, in the future, that double testing take place outside of the fish passage season, if possible, given the fact that the high gas levels generated by the testing could hamper adult passage. We understand your concerns, but it really isn't possible to do the testing earlier or later, Wellschlager replied.

7. Fall Treaty Fishery (SOR 2005 C-4).

On August 19, the action agencies received SOR 2005 C-4, covering the first two fall tribal fisheries. This SOR requests the following specific operations.

- From 6 am on August 22 through 6 pm on August 26, from 6 am August 29 through 6 pm August 31, operate Bonneville, The Dalles (Celilo) and John Day pools within a 1.0 foot band. From 6 am September 1 through 6 pm on September 2, and from 6 am September 6 through 6 pm September 10, operate Bonneville pool between elevations 76.5-75.5, The Dalles pool between 159.5-158.5, and John Day pool between 264.5-263.5.

Kyle Dittmer provided a brief overview of this SOR. Henriksen said the Corps is concerned about the request to fill John Day pool by 1.5 feet overnight; that would likely result in a reduction of about 25 Kcfs in total river flow. We'll leave it up to the action agencies to decide what it is possible to do, Dittmer replied; we have avoided specifying elevations so far this year because we recognize that, given Judge Redden's order, it has been a difficult operational year for the action agencies.. He added that CRITFC will be sponsoring net flights each Tuesday, starting August 23, to count the number of nets in each Zone 6 pool.

Henriksen said the Corps appreciates the advance notice on this operation – that has been very helpful, she said. Henriksen said the Corps will be operating Bonneville and John Day pools within a 1.5-foot operating range, with 1 foot as a soft constraint, although the actual elevations will likely not be as high as CRITFC is requesting. The Dalles pool elevation has been fluctuating a fair amount, she said; it has been difficult to maintain a 1-foot operating range given the load following requirements at that project.

Dittmer noted that CRITFC fishers will be selling salmon in the CRITFC parking lot starting next week; the price is averaging \$2 per pound. The parking lot sales do require a pre-order, he added (tel. 503/238-0667).

8. Summer Spill Operations.

The court-ordered summer spill program is ongoing at the Lower Snake projects and McNary, said Henriksen; updated water quality information is available via the TMT homepage. Spill will end next Wednesday, August 31, at midnight. Also, she said, the crew at Bonneville will be closing the B2 corner collector on Thursday, September 1.

9. Current Operations Update.

Wellschlager said Grand Coulee will reach elevation 1278 by next Wednesday; he reminded the salmon managers that it is very tricky to achieve an exact elevation target at that project. Libby continues to release 16.5 Kcfs, and will reduce outflow to 12 Kcfs some time today or tomorrow, with the goal of achieving elevation 2439 by August 31. Hungry Horse is releasing 5.6 Kcfs and will be at 3540 on August 31. Dworshak is releasing 7.1 Kcfs outflow and will be at 1535 on August 31. We plan to hold that rate of outflow until about September 15, said Henriksen, at which point outflow will be reduced to about 4 Kcfs, until elevation 1520 is achieved about two days later. Dworshak outflow will be reduced to minimum once that elevation is achieved. Grand Coulee will begin filling over Labor Day weekend.

Wellschlager said there are no significant power system problems to report.

10. Next TMT Meeting Date.

It was agreed to convene a TMT conference call on Wednesday, August 31 at 10 am. The next face-to-face Technical Management Team meeting was set for Wednesday, September 7. Meeting summary prepared by Jeff Kuechle, BPA contractor.

TMT Meeting Participants August 24, 2005

Name	Affiliation
Cindy Henriksen	COE
Donna Silverberg	Facilitation Team
Robin Harkless	Facilitation Team

John Wellschlager	BPA
Paul Wagner	NMFS
Ron Boyce	OSFW
Ray Gonzales	COE
Barry Espenson	CBB
Jim Adams	COE
Margaret Filardo	FPC
Dave Benner	FPC
Kyle Dittmer	CRITFC
Russ George	WMCI
Nic Lane	BPA
Dan Spear	BPA
Laura Hamilton	COE
Kevin Nordt	Mic-Cs
Tim Heizenrater	PPM
David Wills	USFWS
Larry Beck	COE
Todd Cook	PPM
Jeff Laufle	COE
Russ Kiefer	IDFG
John Roche	COE
Don Faulkner	COE
Tom Le	PSE
Richelle Beck	D. Rohr & Associates
Bill Rudolph	NW Fish Letter

TECHNICAL MANAGEMENT TEAM

BOR: Tony Norris / John Roache

BPA: John Wellschlager / Nic Lane

NOAA-F: Paul Wagner

USFWS: David Wills / Steve Haeseker

OR: Ron Boyce

WA: Cindy LeFleur

ID: Russ Kiefer

MT: Jim Litchfield

COE: Cindy Henriksen / Cathy Hlebechuk

TMT CONFERENCE CALL

Wednesday August 31, 2005 1000 - 1200 hours
1125 N.W. Couch Street, Suite 4A34
Portland, Oregon 97208
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@cmm.net or call her at (503) 248-4703.*

Agenda

1. Welcome and introductions.
2. End of MOP Operations.
3. Other
 - Set agenda for next meeting - [\[Reference Calendar\]](#) 

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

TECHNICAL MANAGEMENT TEAM

BOR: Tony Norris / John Roache

BPA: John Wellschlager / Nic Lane

NOAA-F: Paul Wagner

USFWS: David Wills / Steve Haeseker

OR: Ron Boyce

WA: Cindy LeFleur

ID: Russ Kiefer

MT: Jim Litchfield

COE: Cindy Henriksen / Cathy Hlebechuk

TMT MEETING

Wednesday September 07, 2005 0900 - 1200 hours
1125 N.W. Couch Street, Suite 4A34
Portland, Oregon 97208
Conference call line: 503-808-5190

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Please e-mail her at dsilverberg@cmm.net or call her at (503) 248-4703.*

AGENDA

1. Welcome and introductions.
2. Lake Pend Oreille/Chum Discussion
3. Dworshak Operations
4. First Draft of the 2006 Water Management Plan - [\[1st Draft August 15, 2005\]](#) 
5. Fall Treaty Fishing
6. Other
 - Set agenda for next meeting - [\[Reference Calendar\]](#) 

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

COLUMBIA RIVER REGIONAL FORUM

TECHNICAL MANAGEMENT TEAM

September 7, 2005

FACILITATOR'S SUMMARY NOTES ON FUTURE ACTIONS

Facilitator: Donna Silverberg

Notes: 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.

Lake Pend Oreille/Chum Discussion

Paul Wagner, NOAA, and Russ Kiefer, IDFG, reported that information on the number of expected kokanee spawners this year is being gathered and analyzed, and that this information will be helpful to the discussions and decisions about operations this year.

The salmon managers are also engaged in on-going discussions about the IDFG 'decision tree' for kokanee/bull trout operations. There is an important link between Lake Pend Oreille operations and chum. Because of this, they are not sure how this tool will be used to make operational recommendations/decisions. The COE would like feedback for decisions for THIS year's winter operations by mid-September.

Additional chum information will be available for the 9/21TMT meeting. A chum research proposal is being reviewed through the AFEP process, and focuses mostly on the Ives Island area. It was noted that there may also be a need to monitor/gather data at Multnomah Falls for management purposes. The WQT will be looking at monitoring needs in the lower river, and will be asked to report their findings at a future TMT meeting.

The final set of agreed-upon chum questions has been sent to the action agencies and researchers, with a request for a response by 9/28. Ron Boyce, ODFW, and the facilitation team will compile the responses and send them to TMT, followed by a discussion at the 10/12 TMT meeting. (NOTE: The meeting date was re-scheduled from 10/5).

ACTION: Preliminary discussions and movement toward a decision about Lake Pend Oreille and chum operations will occur at the 9/21 TMT meeting.

Dworshak Operations

Dworshak is continuing to release 7.1 kcfs and is on track to reach elevation 1522' on September 15. At that time, flows will be reduced for a few days, and then further reduced around September 19 to minimum flow.

Temperatures are expected to remain at 45-48° until September 15.

ACTION: Dave Wills, USFWS, will share this information with the Dworshak hatchery.

2006 Water Management Plan

A draft (8/15) WMP has been posted to the TMT web page. It is very similar to last year's plan and is consistent with the 2004 BiOp. Cindy Henriksen, COE, noted two key operational differences for 2006: There will be dredging in the Lower Columbia and there will be no drum gate work at Grand Coulee. The action agencies requested comments on the plan before the end of September.

Fall Treaty Fishing

Fall tribal fishing is in its third week and conditions have been good. Kyle Dittmer, CRITFC, said the tribes will submit weekly SOR's depending on catch data and in-river fish numbers. The COE noted that The Dalles has been operating at a slightly lower elevation than requested for the fishery, and will continue to do so through September.

Comments on Notes

No comments were made to the 8/24 facilitator notes. The meeting minutes will be posted ASAP.

System Operations

Reservoirs – Libby reached elevation 2439' on 8/31 and is currently releasing 10 kcfs. Project flows will be reduced to 8 kcfs sometime next week. Grand Coulee reached 1278' on 8/31 and is now at about 1280'. Hungry Horse reached 3540' on 8/31 and is currently releasing minimum flow. Lower Granite is releasing about 20 kcfs. McNary has been releasing 80-85 kcfs.

Fish – Juvenile numbers are decreasing, with daily counts under 100 at the Lower Snake projects. Adult fall chinook at Bonneville reached their highest number to date of 23,508 over Labor Day weekend. Steelhead numbers are strong as well; many are currently passing The Dalles and some have reached the Lower Snake projects.

Next Meeting, September 21, 9:00-noon

Agenda items include:

- Kokanee update/presentation
- Ghost nets presentation
- Fall treaty fishing
- Comments on the 2006 WMP
- System Updates
- Comments on 8/24 and 9/7 notes

1. Greetings and Introductions.

Today's meeting of the Technical Management Team was chaired by Cindy Henriksen and facilitated by Donna Silverberg. The following is a summary (not a verbatim transcript) of the topics discussed and decisions made at this meeting. Anyone with questions or comments about these notes should contact Henriksen at 503/808-3945.

2. Lake Pend Oreille/Chum Discussion.

Paul Wagner said one of the factors in the Lake Pend Oreille winter elevation decision process is the number of kokanee spawners anticipated for this year. That information is being developed right now, he said – it is done by hydroacoustic survey in the lake when the moon is absent, as it is now. The data will then be analyzed, and we are awaiting those results – we should see them some time next week, Wagner said. We'll put that on the agenda for next meeting, Silverberg said.

Have the salmon managers discussed the decision tree? Henriksen asked. We have begun those discussions, but at this point, they're still ongoing, Dave Wills replied. The general consensus is that the decision tree will be an important tool, but not the only tool, in the process, added Wagner. Henriksen reminded the group that the Corps hopes to have the salmon managers' input on this decision by mid-September; Wagner reiterated that, once the data is in on the 2005 kokanee survey in Lake Pend Oreille, the salmon managers will be in a better position to provide their input.

Ron Boyce asked what the driver is for making this decision by next week. Henriksen replied that the action agencies need to make decisions about winter

operations soon. Boyce noted that there is also ongoing data-gathering in association with chum operations this year; it's all interrelated, and personally, I see all of that coming together some time in early October, he said.

Larry Beck asked whether an updated version of the chum spawning requirements is available; for example, any new information you may have on temperature requirements around the redds would be helpful. Gravel size, water velocity, what we know, in short, said Beck. Again, we're putting all of that information together, Boyce replied.

One issue, in my mind, said Wills – last week, there was a review of the 2006 AFEP projects; in the review of the chum research proposal, it was noted that Battelle plans to focus their monitoring efforts primarily on the Ives Island area. They were asked, what about the Multnomah Creek area? Their response was that it's easier to use the existing temperature probe array, said Wills. That's a data gap, because we still need temperature, TDG and water elevation data at the Multnomah Creek spawning area, he said. Last year we asked whether the Corps had equipment they could deploy in the Multnomah Creek area; that need still exists, and I would like to give the Corps a heads-up that we would like to collect data at the Multnomah Creek site this year. It would be helpful to have some baseline data, so that we can see whether we're meeting the water quality standards, Wills said. The Multnomah site is very important, from a management perspective, he added.

That in-season monitoring capability at Multnomah Creek would be very useful, said Boyce – last year, we had ODFW crews out there with hand-held instruments, taking grab samples. It would be extremely useful to have a monitoring station there, because Multnomah Creek is the key management site during chum operations. Henriksen replied that, from a management perspective, the action agencies' options are limited at Multnomah Creek – it is tidal influences that have the major effect at that site, not Bonneville operations, she said. The Corps would prefer to use the surrogate site that we used last year to manage TDG. Wellschlager noted that, last year, the salmon managers had challenged the action agencies to show that the readings at that site were not a valid surrogate for actual conditions at the Multnomah Creek site; we discovered that Bonneville operations had far less effect than tidal influences, he said.

Ultimately, it was agreed to request a report from the Water Quality Team, which is also working on the Multnomah Creek monitoring issue, at the next TMT meeting.

With respect to chum issues, Boyce said no further feedback has been received on the chum research and operational questions discussed at the last TMT meeting; these, then, will be the questions we'll be looking for answers for by the end of September. Due to scheduling conflicts, he added, we would like to move the chum discussion (and the TMT meeting) to October 12; we realize that that is getting close to the 2005 chum management season, he said, but that was the best we could do. We should be able to make a decision on Lake Pend Oreille winter operations at that

meeting, Boyce said. Kyle Dittmer said the University of Washington's long-term climate forecast will be available by that time, which should help inform those discussions. Wellschlager said that, with all due respect, October is too early to make a meaningful prediction of water supply in the coming year. Dittmer respectfully disagreed, noting that the new forecasting tools that have come on-line in recent years have begun to develop a solid track record.

In response to the Corps' concerns, Wills said it might be possible to make a decision on the Lake Pend Oreille winter operation at the September 21 TMT meeting; the redd survey/kokanee abundance information will be available then. One option we've been discussing is a system operational request that would cover winter operations at Lake Pend Oreille for one or two years, Russ Kiefer added.

3. Dworshak Operations.

Henriksen said Dworshak continues to release 7.1 Kcfs; the current elevation is just below 1530. The project will be near elevation 1522 by September 15, at which point outflow will be ramped down to 3-4 Kcfs until elevation 1520 is achieved. Current inflows are less than 700 cfs, and we anticipate that Dworshak will be at minimum outflow by September 19, she said. In response to a question, Tina Lundell said the Dworshak release temperature has been running slightly above 47 degrees F.; the salmon managers said that temperature is fine. We do need to decide whether the single unit we'll be operating once we hit elevation 1520 is running in overshoot or undershoot mode, Henriksen said. That means a release temperature of either 40 or 52 degrees F., she added. Wills said he will contact Dworshak Hatchery personnel and inquire as to their preferences.

4. First Draft of 2006 Water Management Plan.

Silverberg noted that the first draft of the 2006 Water Management Plan is now available (via hot-link from today's agenda on the TMT homepage). We are hopeful that there will be dredging in the Lower Snake this winter, which will mean MOP, rather than MOP+1, operations, she said – that, and the fact that the drum gate repairs at Grand Coulee are now complete, are the main differences between the 2005 and 2006 WMPs. Henriksen noted that the 2006 WMP is scheduled to be finalized by the end of September; she asked that any TMT comments on the 2006 plan be submitted by September 28, sooner, if possible. No comments were provided at today's meeting.

5. Fall Treaty Fishing.

We are entering our third week of fall treaty fishing, said Dittmer; compliance so far is meeting or exceeding the statistics for this period last year. The tribes are considering another week of fishing next week, and will consult with our federal partners, he added. At this point, you can expect weekly SORs – we're working a week at a time, Dittmer said. Henriksen noted that John Day pool will be operating at a lower

elevation range than that requested by the tribe through the end of September. Dittmer added that fresh salmon is available in the CRITFC parking lot, via pre-order only.

6. Current System Status.

Henriksen said Libby elevation reached 2439 on August 31. The project released 12 Kcfs through September 5. It is now releasing 10 Kcfs, an operation that will continue through next week, when outflow will be reduced to 8 Kcfs. So Montana's concerns are being addressed to some extent? Wagner asked. Yes, Henriksen replied. In response to a question from Russ Kiefer, Henriksen said Libby operations will be re-evaluated after next week.

Grand Coulee hit 1278 on August 31, and has subsequently filled about two feet, said John Roche. Hungry Horse hit 3540 on August 31, and is now releasing about 1.6 Kcfs. That operation will continue for the rest of the year. Roche added that Reclamation plans to gradually refill Grand Coulee to elevation 1283 by September 30 – that is the minimum September 30 elevation.

Lower Granite is currently passing about 20 Kcfs, said Henriksen; project outflow has been as low as 17 Kcfs, and could fall as low as 13 Kcfs once Dworshak goes to minimum outflow. McNary is currently passing 80-85 Kcfs; flows there have fallen as low as 70 Kcfs in recent days, and will likely fall further as Grand Coulee continues to refill. In response to a question, Henriksen said that, at this time of year, 80 Kcfs is the minimum flow at Bonneville, although it can fall as low as 70 Kcfs on an hourly basis. Yesterday's average flow was 86 Kcfs at Bonneville.

Wellschlager said there are no power system problems to report.

With respect to fish, Wagner said subyearling chinook indices have been running in the double digits at Lower Granite for the last 7 days; at Little Goose, there was a little bump yesterday, but in general, at all four Lower Snake projects, the indices are trailing off into the single digits.

Adults is where the main action is at the moment, said Wagner; they have finally shown up. At Bonneville, the high daily count for the season, 23,508, occurred over the weekend. The pre-season forecast was 660,000 fish to the river mouth, said Boyce, but so far, actual counts are tracking below pre-season expectations. Wagner added that steelhead counts at Bonneville have been decent, similar to the 10-year average. In other words, he said, 2005 adult steelhead counts are not a major disappointment, as were the 2005 spring chinook counts. In response to a question from Larry Beck, Boyce said the Columbia coho run is expected to be poor this year. It is odd that steelhead and summer chinook did well this year, while spring chinook and coho did poorly, said Boyce – it may have something to do with where they go in the ocean. Wagner added that adult steelhead numbers have recently increased at the Lower Snake projects, with

1,000+ per day passing Lower Granite, currently.

7. Next TMT Meeting Date.

The next meeting of the Technical Management Team was set for Wednesday, , September 21. Meeting summary prepared by Jeff Kuechle, BPA contractor.

**TMT Participant List
September 7, 2005**

Name	Affiliation
Cindy Henriksen	COE
John Roche	USBR
Ray Gonzales	COE
David Wills	USFWS
John Wellschlager	BPA
Ron Boyce	ODFW
Larry Beck	COE
Barry Espenson	CBB
Paul Wagner	NMFS
Tine Lundell	COE
Margaret Filardo	FPC
Ruth Burris	PGE
Kevin Nordt	Mid-Cs
Tom Haymeker	PNGC
Dan Spear	BPA
Bruce MacKay	Consultant
Robin Harkless	Facilitation Team
Kyle Dittmer	CRITFC
Mike Buchko	Powerex
Richelle Beck	D. Rohr & Associates
Cathy Hlebechuk	COE

Russ Kiefer	IDFG
Russ George	WMCI

TECHNICAL MANAGEMENT TEAM

BOR: Tony Norris / John Roache

BPA: John Wellschlager / Nic Lane

NOAA-F: Paul Wagner

USFWS: David Wills / Steve Haeseker

OR: Ron Boyce

WA: Cindy LeFleur

ID: Russ Kiefer

MT: Jim Litchfield

COE: Cindy Henriksen / Cathy Hlebechuk

TMT EMERGENCY CALL

Wednesday September 14, 2005 1015 - 1200 hours
1125 N.W. Couch Street, Suite 4A34
Portland, Oregon 97208
Conference call line: 503-808-5190

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

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

AGENDA

1. Welcome and introductions.
2. Dworshak Operations - [\[Dworshak Forebay Thermocline 2004 and Dworshak Forebay Thermocline 2005\]](#) 
3. Lower Granite operation -
 - i. [\[DRAFT SOR 2005-19 - September 12, 2005\]](#) 
 - ii. [\[Letter from WA Senator and Representatives\]](#) 
 - iii. [\[Lower Granite, Anatone and Orofino Water Temperatures\]](#) 
 - iv. August 2004 surveyy -

Note: As indicated, areas in red indicate depths below 14 feet based on MOP water surface elevations and August 2004 surveys.

Note: Channel Depth is designed at 14 feet below minimum operating pool elevation of 733 feet.
The data represented in Red indicates material build-up above the designed channel depth.

 - a. [\[Port of Clarkston\]](#) 
 - b. [\[Port of Lewiston\]](#) 
4. Other
 - Set agenda for next meeting - [\[Reference Calendar\]](#) 

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

Senator Mark Schoesler, 9th District
Representative Don Cox, 9th District
Representative David Buri, 9th District

September 12, 2005

To Whom It May Concern,

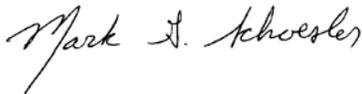
We would like to add our letter to the voices you are hearing today requesting that the pool behind the Lower Granite dam be raised to its navigable level of 738 feet from its current level of 734 feet.

The current lowered level is not sufficient to allow the efficient and safe transport of people and produce to their needed destinations. Just recently, a tourist-carrying riverboat struck bottom, ruined an engine and caused unneeded concern and delay.

We understand that the other lower Snake River dam pools are operating at their full navigable levels and request the same for the important pool that services the Lewiston / Clarkston valley.

Please feel free to call our offices if you have any additional questions.

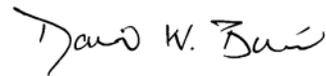
Sincerely,



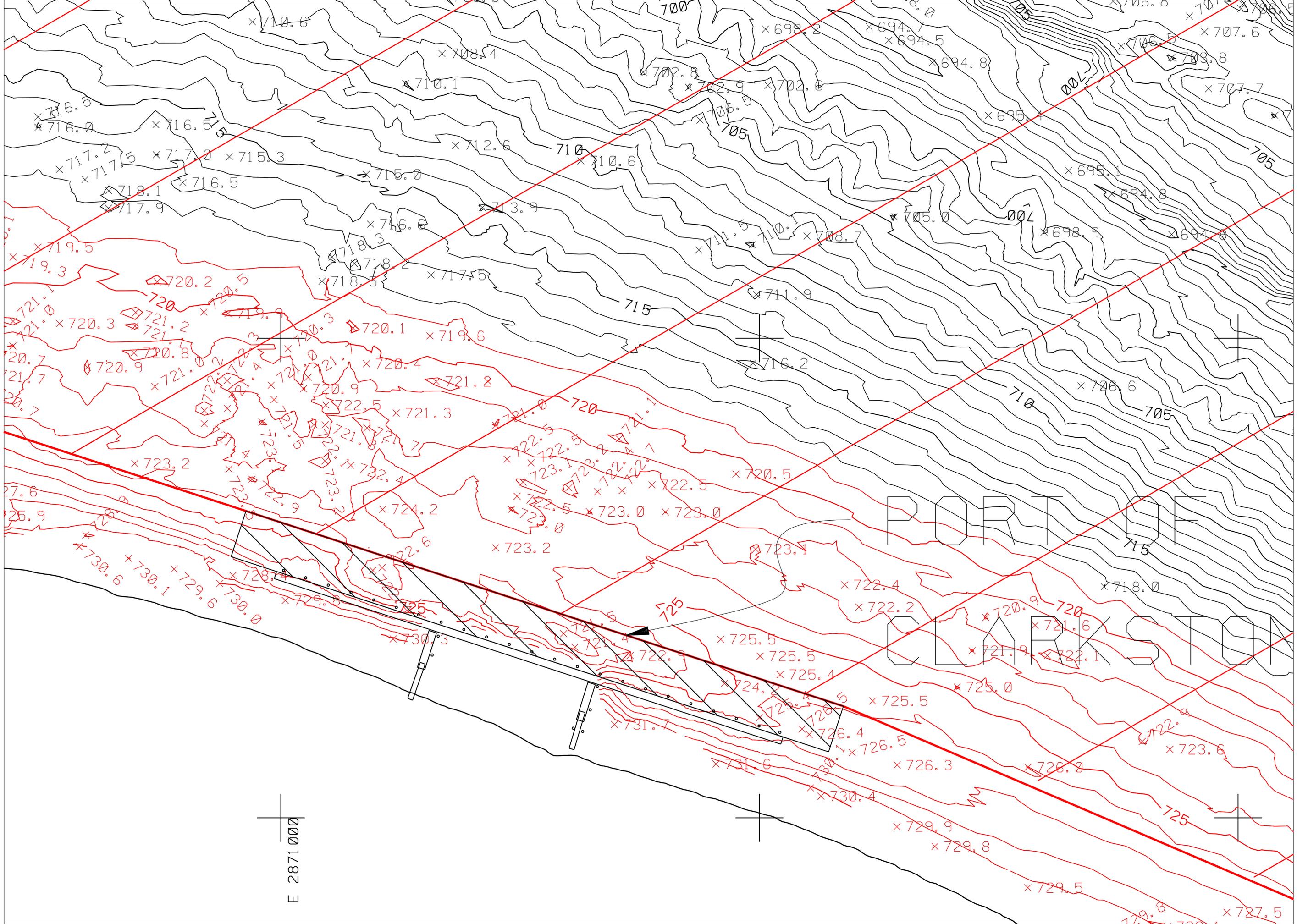
Senator Mark Schoesler



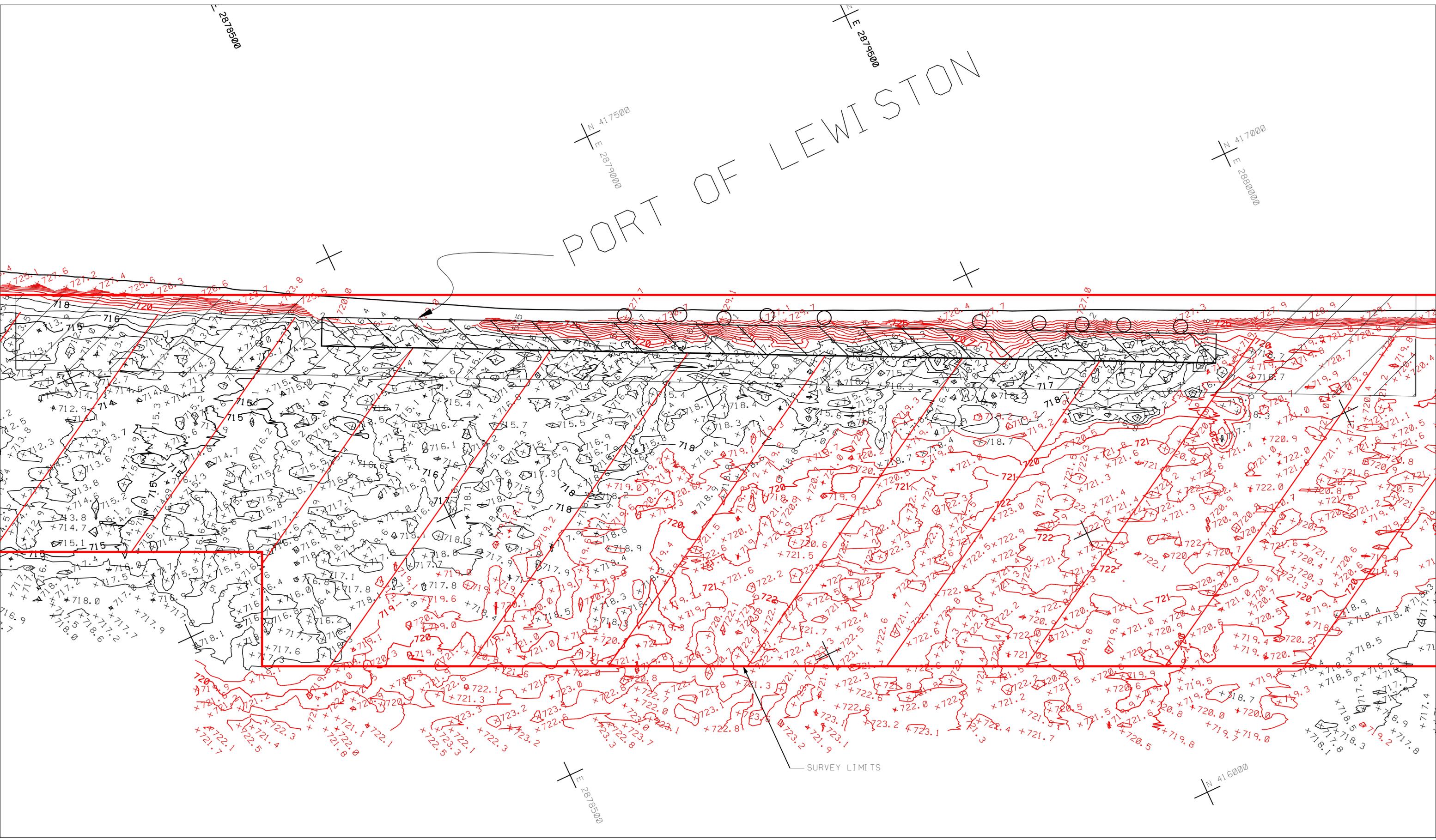
Representative Don Cox



Representative David Buri

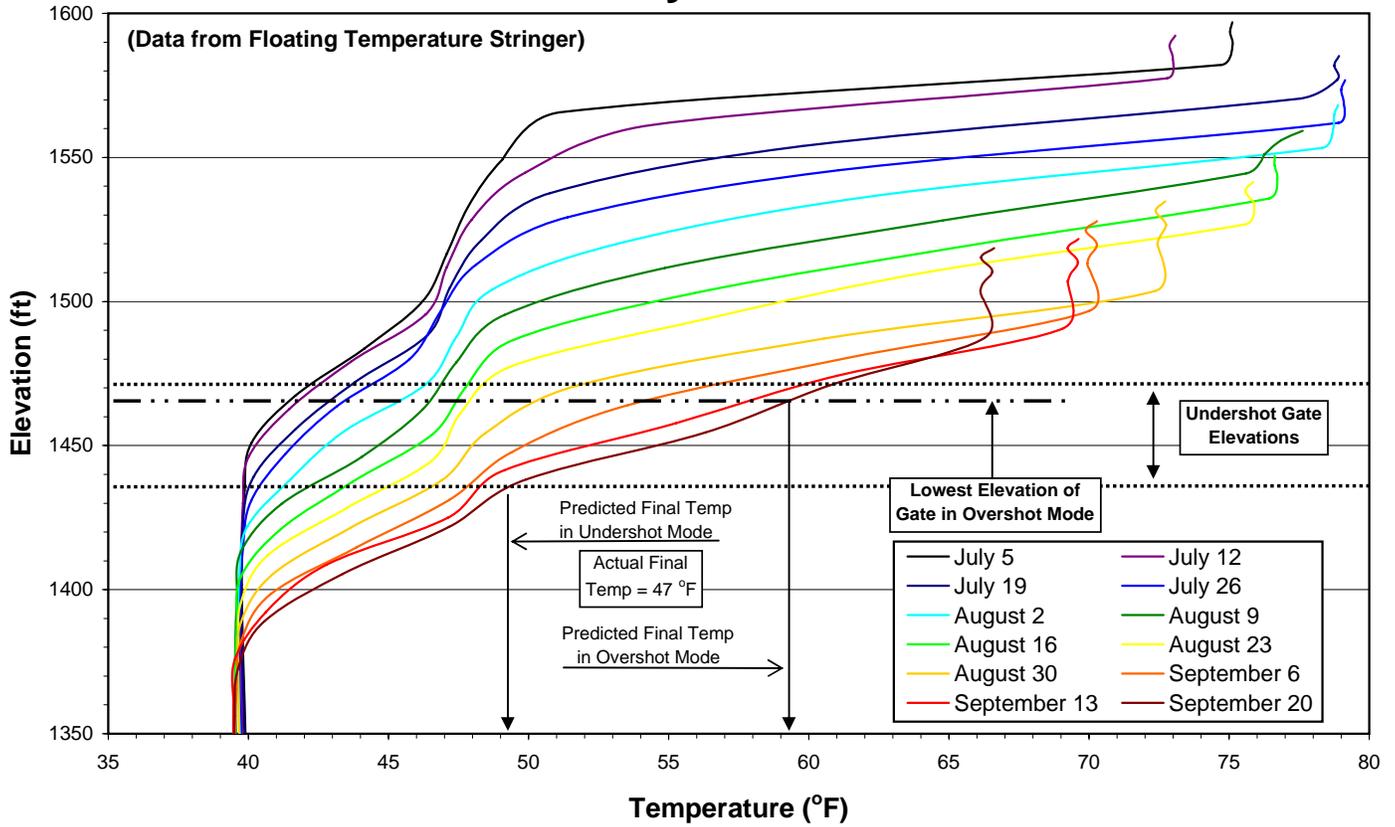


PORT OF LEWISTON

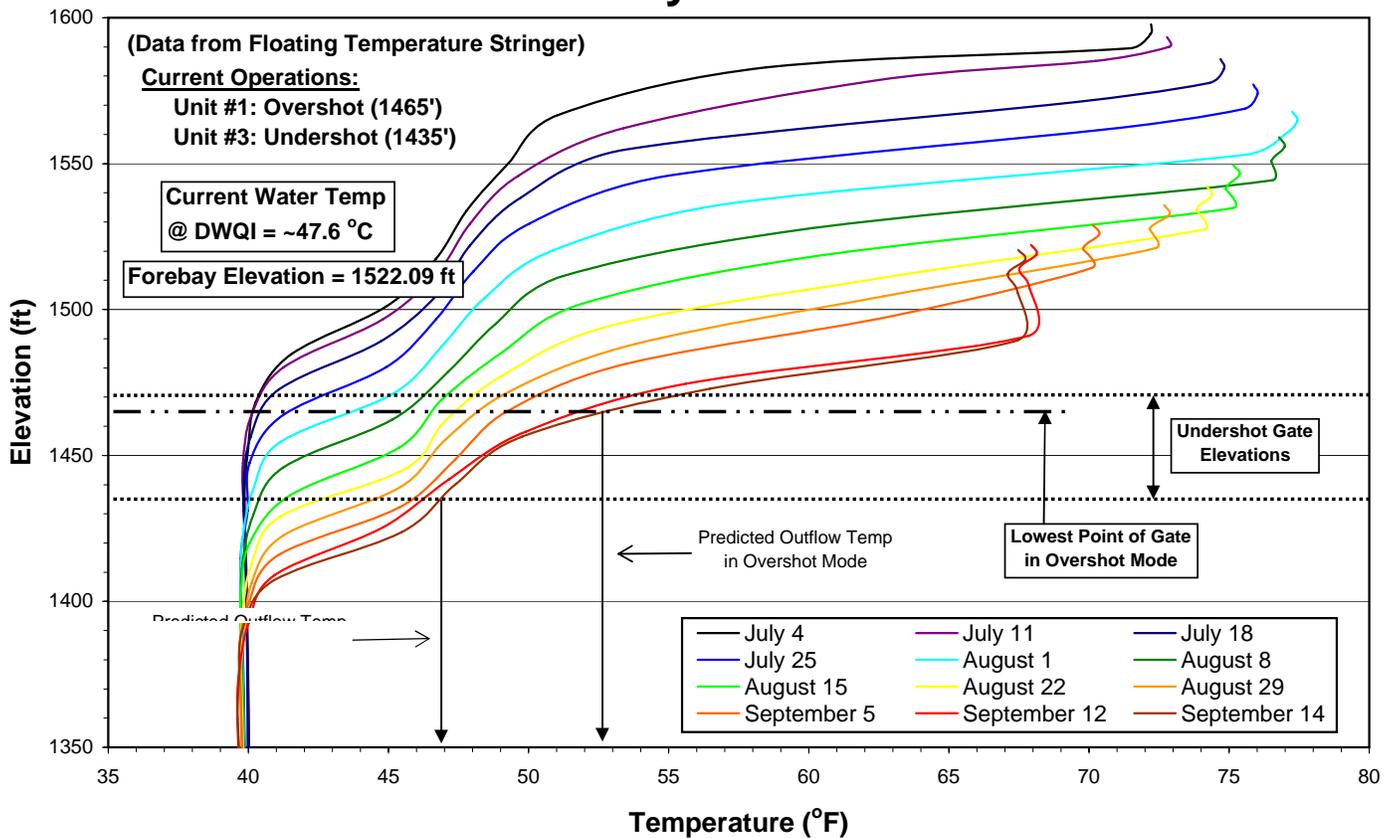


— SURVEY LIMITS

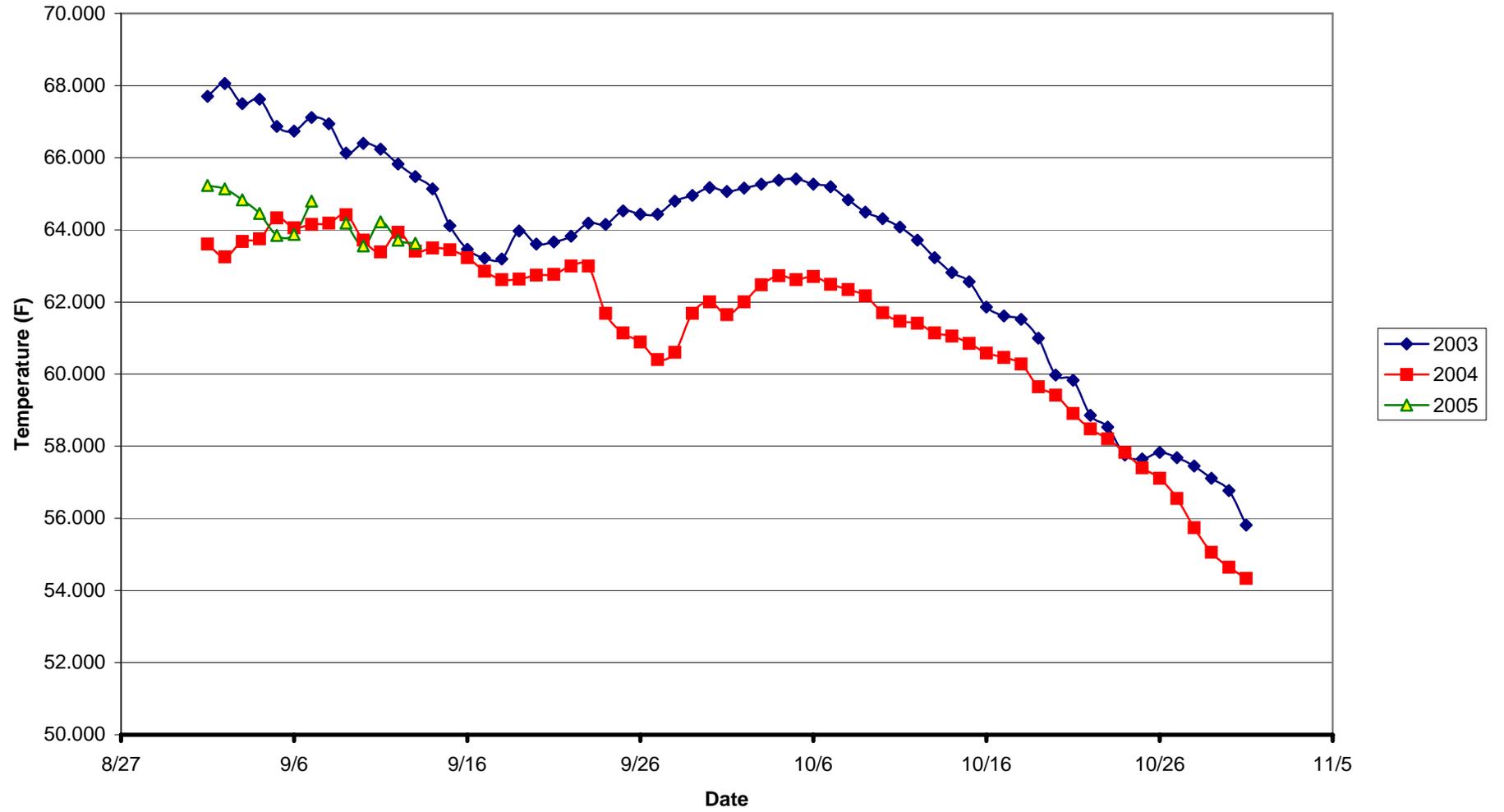
Dworshak Forebay Thermocline 2004



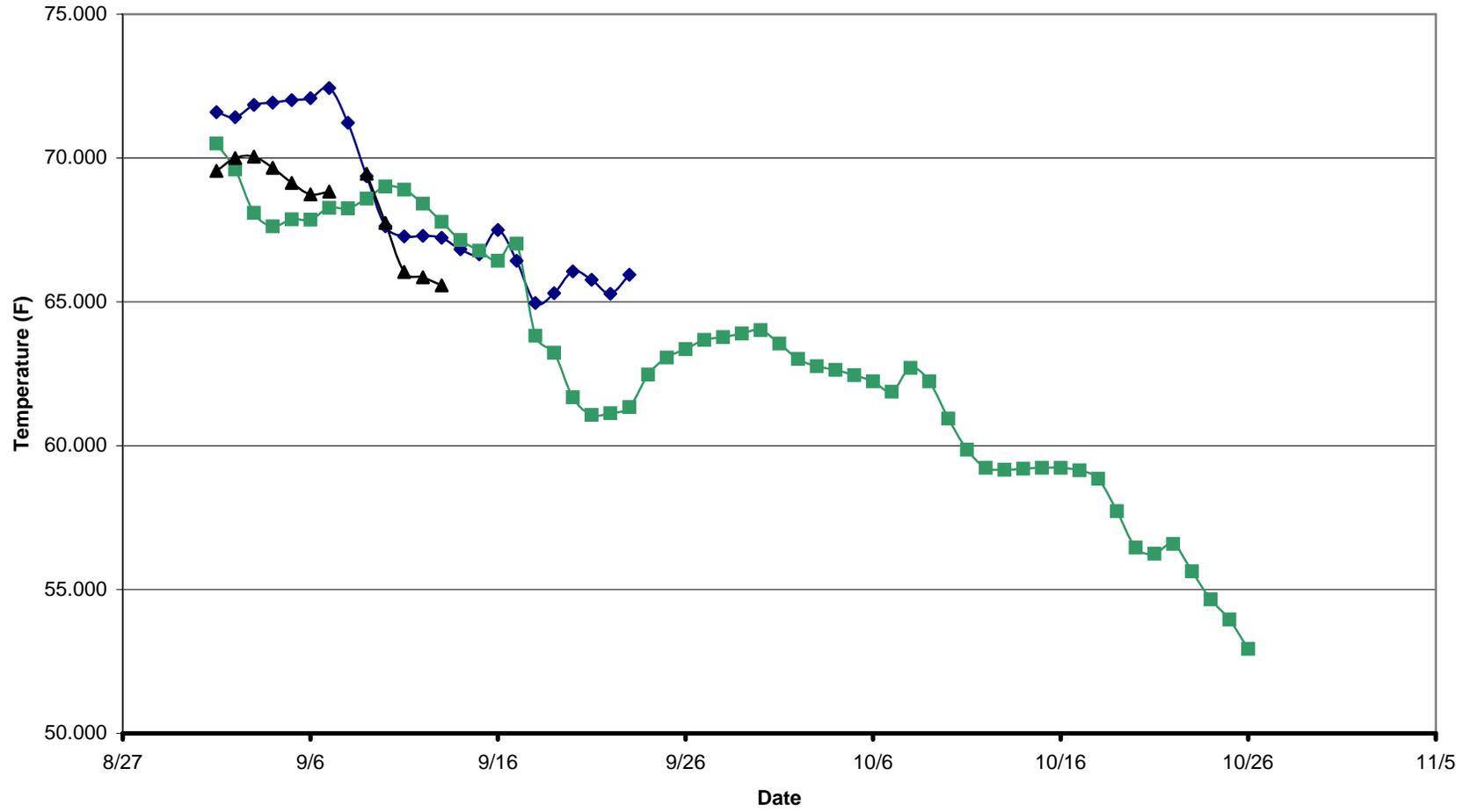
Dworshak Forebay Thermocline 2005



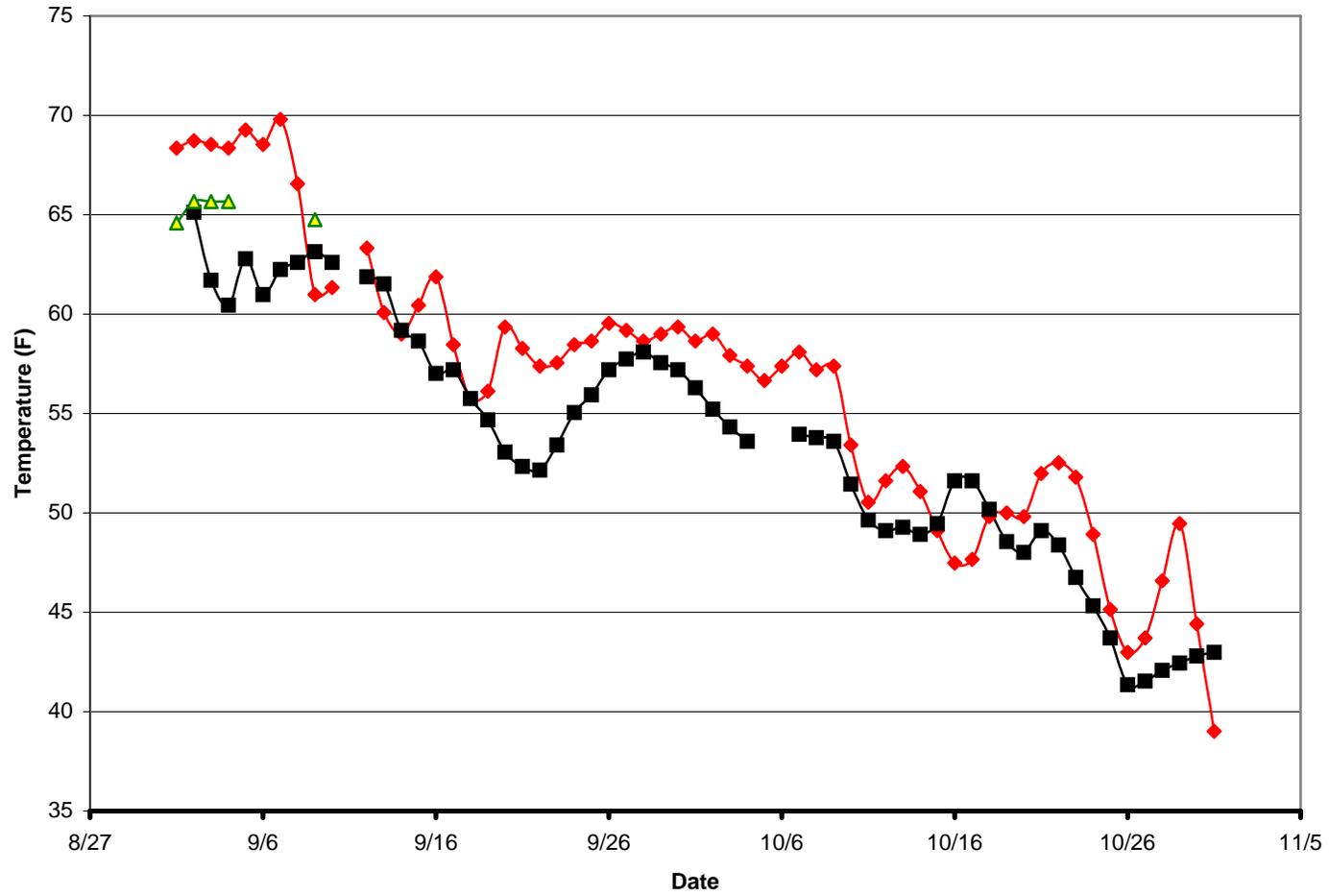
Lower Granite Tailwater Temperatures



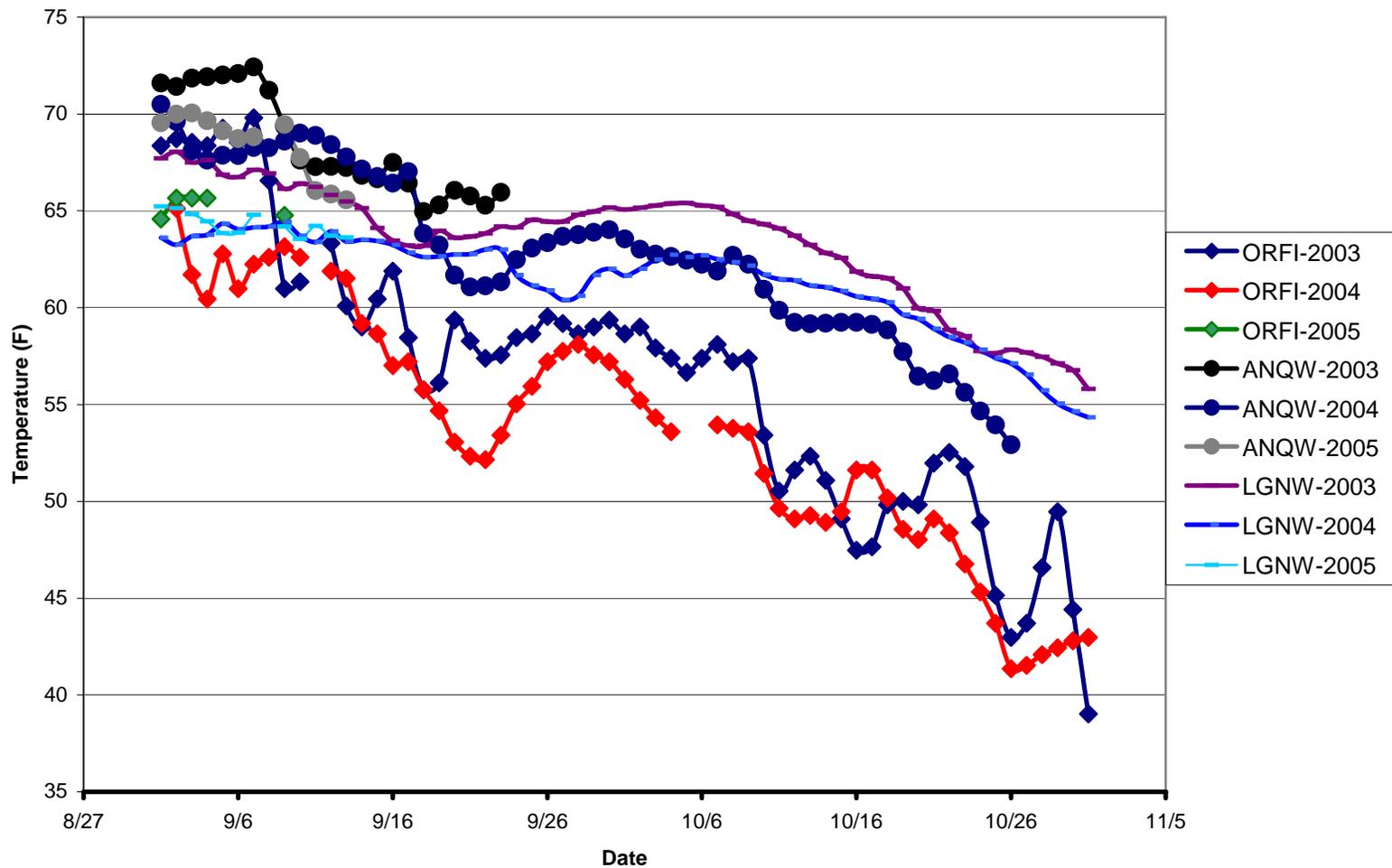
Anatone Tailwater Temperatures



Orofino Temperatures



Orifino, Anatone and Lower Granite Tailwater
Temperatures from 2003 - 2005



COLUMBIA RIVER REGIONAL FORUM

TECHNICAL MANAGEMENT TEAM CONFERENCE CALL

September 14, 2005

FACILITATOR'S SUMMARY NOTES ON FUTURE ACTIONS

Facilitator: Donna Silverberg

Notes: 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.

Dworshak Operations

The COE reported that Dworshak was currently releasing 7.1 kcfs, releasing temperatures of 47-48°. The project was planned to reduce to 3.5 kcfs later this evening (9/14), and further reduce to minimum flows on Saturday, 9/17. The COE asked for feedback from TMT on their preference for how to operate the project until Saturday, to get at the appropriate temperatures. The salmon managers and Nez Perce Tribe, with no objection from the rest of TMT, recommended that the project be operated at two units in undershot mode, which would produce temperatures of about 47°.

Lower Granite Operations

Rick Davis, Port Manager of the Port of Clarkston, spoke on behalf of SOR 2005-19 sent to the COE from the Towboat Association, which requested that Lower Granite be operated at a minimum elevation of 738' as soon as possible to address safety concerns for cruise and tow boats passing in and out of the Lewiston and Clarkston ports over the next few weeks. Following Rick's in-depth description of the problems (see Meeting Minutes for details), TMT asked a number of questions to clarify the situation.

The salmon managers said that from a fish perspective, they would not normally recommend going to a full pool at this time because of uncertainty around temperature and flow issues. However, given the serious safety concerns this year, they deferred to the COE, BPA and operators to determine the best operation from a safety perspective.

Bob Heinith, CRITFC, offered the tribes perspective: The project is already at MOP+2 and if the pool is filled now, it will cause problems for fish in terms of temperature and flow. They would prefer to stay the course for fish until the end of September.

ACTION: Walla Walla COE did not have information from this year's surveys of navigation channels, and said it would be available at the end of September or early October. Without this information, the COE recommended operating the project at 736-737' with an operating range of MOP +3 or MOP +4, until the surveys were available. The COE also wanted to monitor cooling for fish concerns. They anticipate using a full

operating range in October if possible, when cooling occurs. If the surveys show a problem that supports a safety emergency, the requested operation can continue.

Rick Davis objected to the recommendation, to go any lower than 737'. He agreed to follow-up directly with the Chief at the Walla Walla COE to discuss whether his request could be met.

UPDATE: Cathy Hlebechuk, COE, sent the following message to TMT following the conference call:

'The project, currently being operated 734' - 735', is expected to fill to 736.5' - 737.5' in the next 2 - 4 days and will operate in this new range until the surveys come in.'

1. Greetings and Introductions.

Today's Technical Management Team conference call was chaired by Cathy Hlebechuk and facilitated by Donna Silverberg. The following is a summary (not a verbatim transcript) of the topics discussed and decisions made at today's meeting. Anyone with questions or comments about today's meeting should contact Cindy Henriksen at 503-808-3945.

2. Dworshak Operations.

Hlebechuk said Dworshak is currently releasing 7.1 Kcfs, with temperatures in the 47 degree F range. Tonight, the project will be reducing to 4.7 Kcfs; on Saturday night, it will drop to minimum outflow. With respect to temperatures, said Jim Adams, Unit 2 is in overshot mode, and Unit 1 is in undershot mode, resulting in temperatures of 47-48 degrees. Between now and Saturday, once we go to minimum outflow, we'll have the option of a range of 47 degrees to 53 degrees, in terms of release temperature. Dave Wills said Dworshak Hatchery would prefer temperatures of closer to 47 degrees, with the units in undershot mode. Kyle Dittmer said the Nez Perce Tribe concurs. We'll put both units in undershot mode, said Adams.

3. Lower Granite Operations.

On September 12, the action agencies received SOR 2005-19. This SOR, supported by the Columbia River Towboat Association and the ports of Clarkston and Lewiston, requested the following operations:

- A special operation of Lower Granite Reservoir that would terminate operations to accommodate outmigrating salmonids earlier than normal, and would increase reservoir elevation to the upper foot of normal pool range to address navigation concerns. Operation of Lower Granite reservoir in the upper foot of the pool would restore the 14-foot authorized depth in most parts of the channel.

Rick Davis from the Port of Clarkston said he had requested this meeting because of safety issues. Dworshak outflow is being reduced, but a lot of silt has already been pushed down the river from that project. It has become a real hazard at the Port of Lewiston – they're sticking barges all the time. Container movement is also a problem – the barges have to back out to where the water is deep enough. Shoaling is a real problem. September and October are the worst months, in terms of the cruise boats, which draft about 8 feet. The Columbia Queen left our dock a couple of weeks ago and encountered a shoal, said Davis; they hit the shoal and took in a lot of sand, and burnt out their engine. That's a real problem. They leave at 2 pm; what happens is that from noon to about 4 pm, the pool fluctuates about two feet. The pool is supposed to be held at 734 +1, and it makes it very difficult for our boats. The Empress of the North drafts 12 feet, and it can't come in here. What we're going to end up doing is getting one of our boats hung up, and we're not going to be able to get it out, Davis said.

That's not good, Davis said – we need to be sure our boats have enough draft to operate. We don't want a hole punched in the bottom of a barge; there is a lot of grain going out of this area right now. The water is low, and the silt is coming up. We've asked you to raise the pool to elevation 738, even though that may not be possible. We need some help – we're only asking for this operation this year, because we're going to be dredged later this year. But we have boats getting stuck every day. I'm asking for your help in bringing the pool elevation up, before we have a serious accident with a barge or a cruise boat. We've been safe up to now, and while I share your concerns about fish, I'm also very concerned about safety, said Davis.

What I hear you saying is that the pool fluctuations aren't allowing for safe passage, said Silverberg – you're asking for a stable pool elevation in the top foot of the operating range. I had one question, said Hlebechuk – you mentioned a large variation in pool elevations during the day. That's right, said Davis – it seems that once they really start generating power, the pool elevation drops. I looked at the hourly Lewiston elevations for August 31, when you said one of the problems occurred, said Hlebechuk; it looked like there was no significant variation between the 734-foot elevation in the morning and the evening. The boats come in at 6.5 feet of draft, but by the time they're loaded, they draft 8 feet +, Davis replied. They come in light and leave heavy. Sometimes, they draft as much as 13-14 feet.

John Wellschlager said that BPA understands that the salmon managers' objective is to stay at MOP +1, but given these problems, I wonder whether we could go to at least MOP + 2. Dave Wills said the salmon managers discussed this topic yesterday, and from a fish

perspective, they would prefer to keep the pools at MOP + 1. However, this is purely a safety issue, and we're certainly not going to object to the action agencies going to whatever Lower Granite pool elevation they feel is appropriate, said Wills. In a normal year, because of temperature uncertainties, this would not be the salmon managers' recommendation. However, safety issues are the Corps' responsibility, and we're not going to elevate this to IT, he said – it is appropriate for the action agencies to determine the best operation under these circumstances.

Is this shoaling something that developed last winter? Ron Boyce asked. What is different this year, compared to past years? We've been having this problem for the last 4-5 years, Davis replied. In talking with others in this area, their feeling is that it is sand from Dworshak and the Clearwater that is causing this problem. When that sediment comes down, there is only one place for it to go – the Port of Lewiston. The shoal area is directly out from the dock area? Boyce asked. It is 200-250 feet straight out – north – from our dock, Davis replied. So it isn't possible for the boats and barges to avoid those shallow areas? Boyce asked. No, Davis replied.

Do you know what draft the boats are encountering problems at? Boyce asked. Everything is at least 8-9 feet, Davis replied; fully-loaded barges go down to 13.5 feet. At Clarkston, the barges are loaded to 11 feet. It sounds like there is about a 4-foot difference, said Boyce – is 737-738 absolutely required? My concern is that, to fill the Lower Granite pool by four feet, that will reduce flows downstream, which is not good for fish. Would it be possible to pick up flows elsewhere to offset that impact? Dworshak will be going to minimum outflow on Saturday, Hlebechuk reiterated. Isn't the main issue cooling? Wellschlager asked. The current temperature in the Lower Granite tailrace is 63 degrees, so we're in good shape there. Temperature is the primary concern, but flow augmentation is also important, from a biological perspective, said Boyce.

We're not stuck on elevation 738, said Davis, but for the next two months, it is imperative that we get the water elevation up. Could the shoal areas be marked with buoys? Hlebechuk asked. The Coast Guard did put in buoys, but they were gone within a day, Davis replied. Would you agree with the statement that, since Dworshak augmentation is basically over, there will be no more sediment headed downstream? Hlebechuk asked. True, but the real issue is the sediment that is already there, another participant replied.

Bob Heinith said that, from a tribal perspective, given the fact that the pool is already nearly at MOP +2, and Dworshak outflow will be reduced to minimum this weekend, the CRITFC tribes would prefer to continue with the current operation, in order to facilitate the outmigration of the Clearwater fish. For the record, the tribes do not support filling the

pools until October 1, Heinith said; hopefully, the dredging scheduled for this winter will alleviate this problem. In response to a question, Heinith said the tribes will not be elevating this issue to the IT. Wills reiterated that, while it is not the salmon managers' preference to fill Lower Granite pool at this point, they understand that this is a safety issue, and it lies within the Corps' authority to decide how best to respond to this situation.

Wellschlager suggested that it might be possible to agree on some intermediate pool elevation, to try to split the difference between the boaters' and the salmon managers' concerns. A Port of Lewiston representative said 737 is the minimum elevation that will allow safe boat and barge ingress and egress.

What would the refill rate be? Boyce asked. It wouldn't be any different than what we've done in the past, Hlebechuk replied; it would likely take place over a couple of days.

Hlebechuk requested a caucus break to allow her to confer with Walla Walla District, because of the lack of recent channel surveys. When the meeting resumed, Anne Glassley of the Corps Walla Walla District said she had talked with her chief at Walla Walla District and the decision was to go to an elevation of 736-737 in Lower Granite pool. Is the problem within the federal channel? Hlebechuk asked. It is clearly within the responsibility of the federal navigation channel, Davis replied. The most recent survey, from last year, shows the tracks the barges have plowed through the mud on their way to and from the Clarkston chip facility – the situation is more dangerous this year than last, and barges are plowing through the mud to reach the Lewiston grain facility, said another port representative. In response to a question, another representative said the barges at the Lewiston/Clarkston facility are being light-loaded.

Ultimately, Hlebechuk said the Corps is willing to operate in a 1-foot range, from 736-737 feet, through the end of September. After that date, more flexibility will be needed for power operations; most likely, 734 feet will be the minimum, and whatever the top range is will be the top range. In other words, for now, we will go to MOP +3 to MOP +4, she said. In October, we will return to the full operating range at Lower Granite.

If the survey shows that the problem exists, I assume that the Corps will accede to an operating range of 737-738 feet? Davis asked. Assuming that the Corps agrees with the results of the survey, we will operate in a range of 734-738 feet, Hlebechuk replied. And is the current court activity a concern for the Corps? Silverberg asked. Yes, Hlebechuk replied.

Davis observed that, in his opinion, safety should be the priority here – if someone gets hurt, or a barge-load of goods sinks, it isn't the Port or the boat operators that will be hurt – it is the action agencies. We need to get the water up somehow, he said. We have to get our heads out of the sand and make a decision on the safety factor, said Davis. That is a great point, said Silverberg – does a range of 736-737 satisfy your concerns? Davis replied that, in his opinion, 737 feet is the minimum safe operating elevation required.

Where does that leave us? Silverberg asked. Hlebechuk requested another caucus break. When the meeting resumed, it was agreed that the chief of Walla Walla District will confer with Davis directly. Hlebechuk said that, with respect to refill rate, a 2.5 Kcfs reduction in Lower Granite outflow will fill Lower Granite pool by half a foot per day; if the desire is to refill the pool three feet in one day, that will reduce Lower Granite outflow to zero. We won't stand in the Corps' way, Wills replied, although that would certainly not be the salmon managers' preference. It was agreed that Hlebechuk will inform the other TMT members via email of the outcome of today's discussion.

4. Next TMT Meeting Date.

The next face-to-face meeting of the Technical Management Team was set for Wednesday, September 21. Meeting summary prepared by Jeff Kuechle, BPA contractor.

Ghost Nets in the Columbia River: How Scary are They?



Blaine L. Parker, Sturgeon Biologist
Columbia River Inter-Tribal Fish Commission
Kevin Kappenman (formerly of CRITFC, now USFWS)
Presented to the TMT, September 21, 2005

Are Ghost Nets Real? We Have Proof They Exist!



History and Recognizing a Problem



- Commercial gillnets since the mid 1860's
- Thousands of gillnet sets each year
- 50 diver gillnets reported lost or stolen from 1995 – 2000 (CRITFE)

Science

- Early gillnets - natural fiber materials degraded relatively quickly if lost.
- Monofilament adopted 1960's.
- Synthetic material does not degrade - can capture fish for years (Way 1977, DeGange and Newby 1980).
- Tangled net masses 3 years old actively fish with reduction in efficiency (Carr and Cooper 1987; Way 1977).
- Nets fish at 15 % effectiveness up to eight years (NRC, 1990).

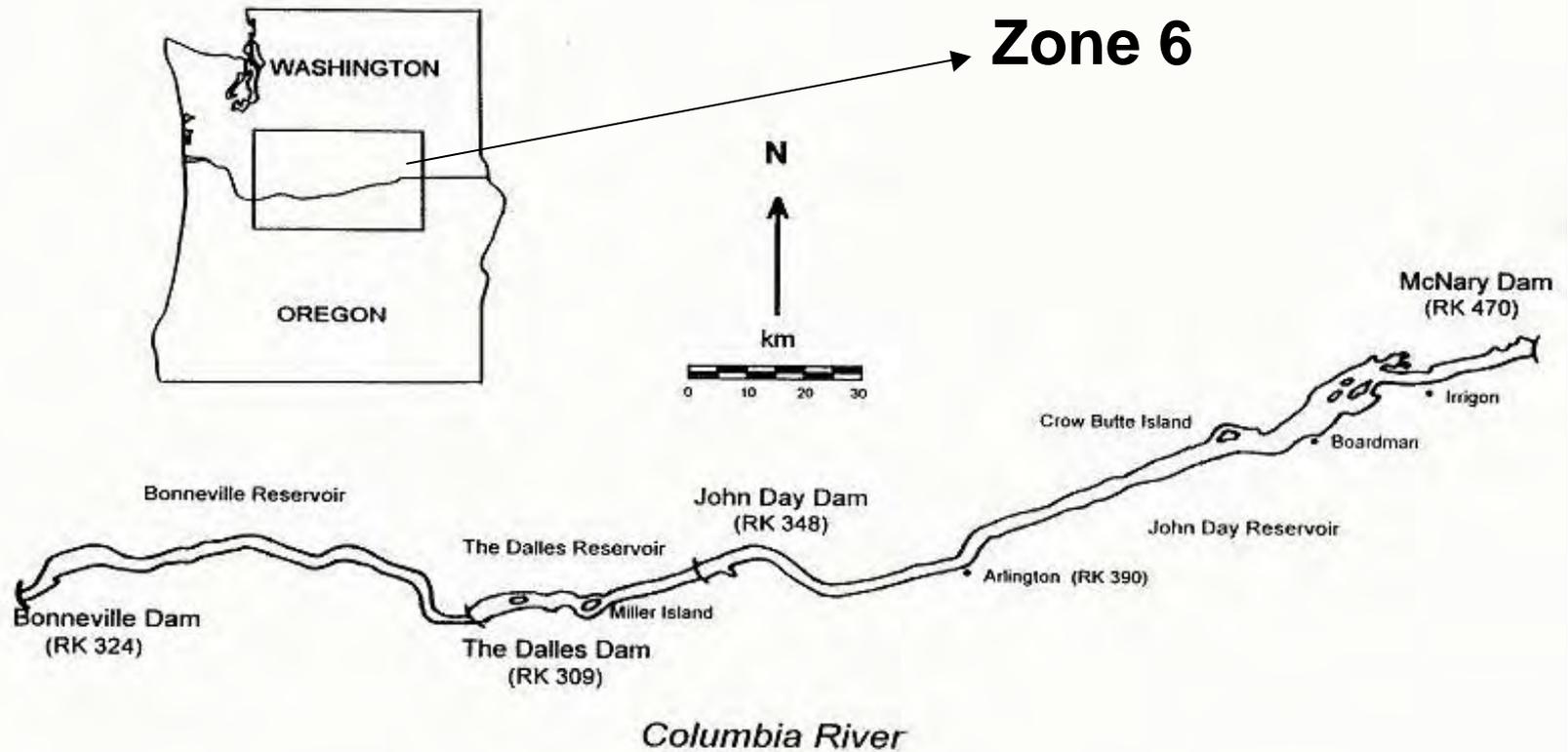


Goals of Ghost Net Project

A woman with long dark hair, wearing a black long-sleeved shirt, is standing in a hallway. She is holding a small, white, fluffy dog. The hallway has a carpeted floor and walls with a patterned wallpaper. There are door frames visible on both sides of the hallway. The lighting is somewhat dim, with a bright light source visible in the distance.

1. Remove Lost Nets.
2. Test efficacy of Side Scan Sonar to locate nets.
3. Document net characteristics, fishes trapped, and number and impact of lost nets.

Zone 6 and The Columbia River

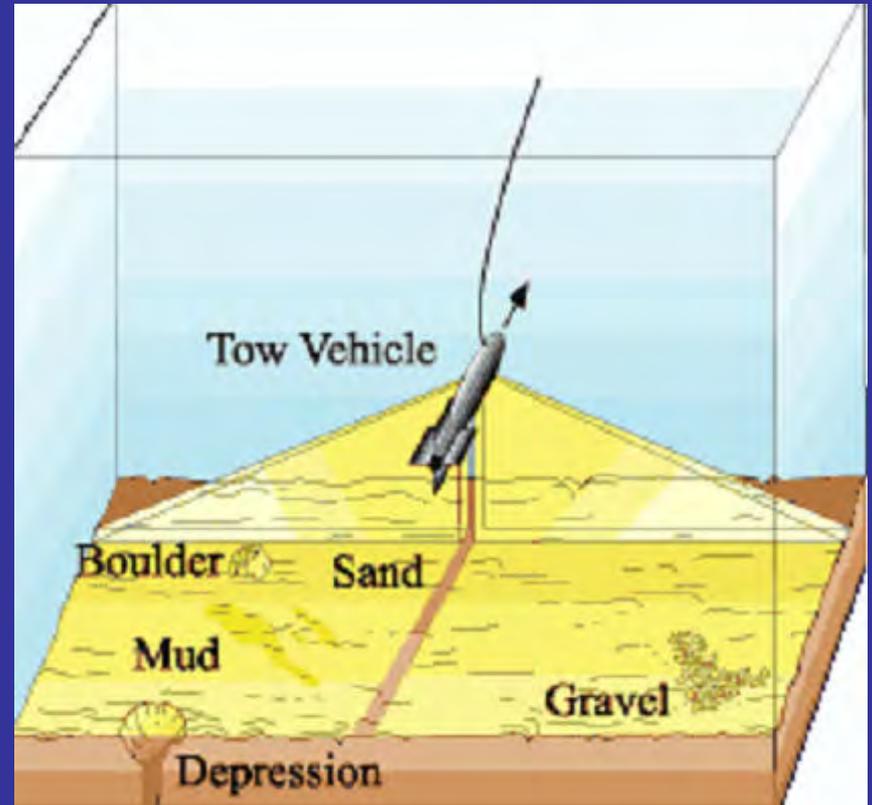


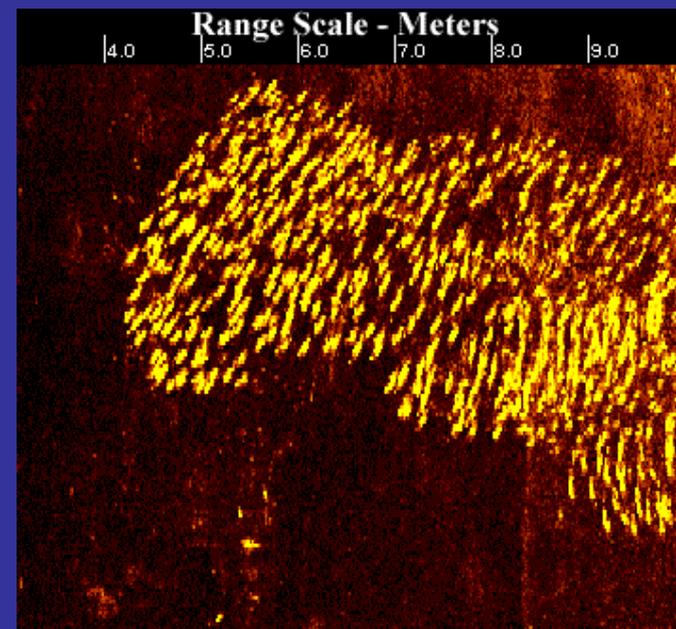
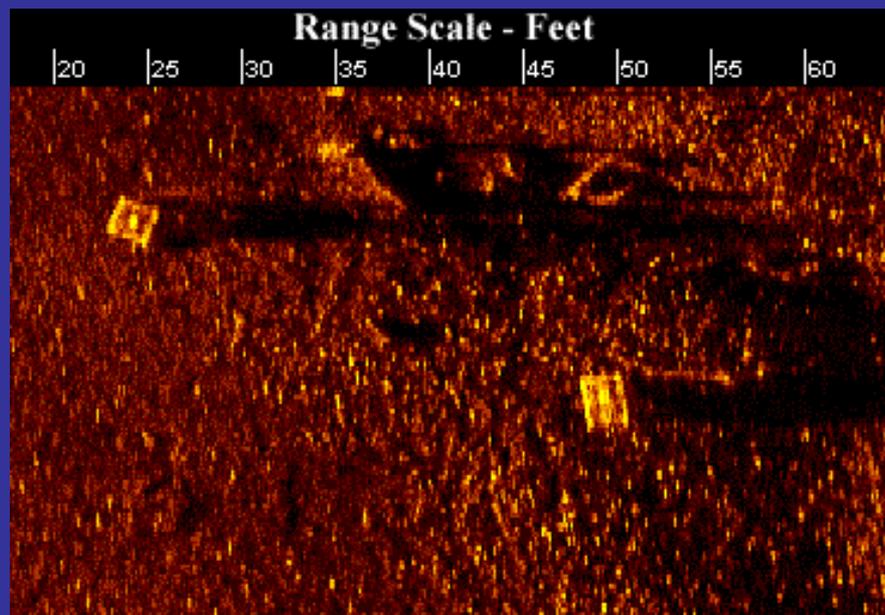
How Do We Locate Lost Nets?

- Enforcement records of Lost Nets
- Local Knowledge – interview tribal fishers and on water tours
- Side Scan Sonar
- Bottom Drag Fishing Areas



Side Scan Sonar





Side Scan Sonar Methods

- Survey identified areas w/multiple transects (40 m swath), depths of 5 – 20 m
- Mark (GPS) and Rank all sites (high-low)

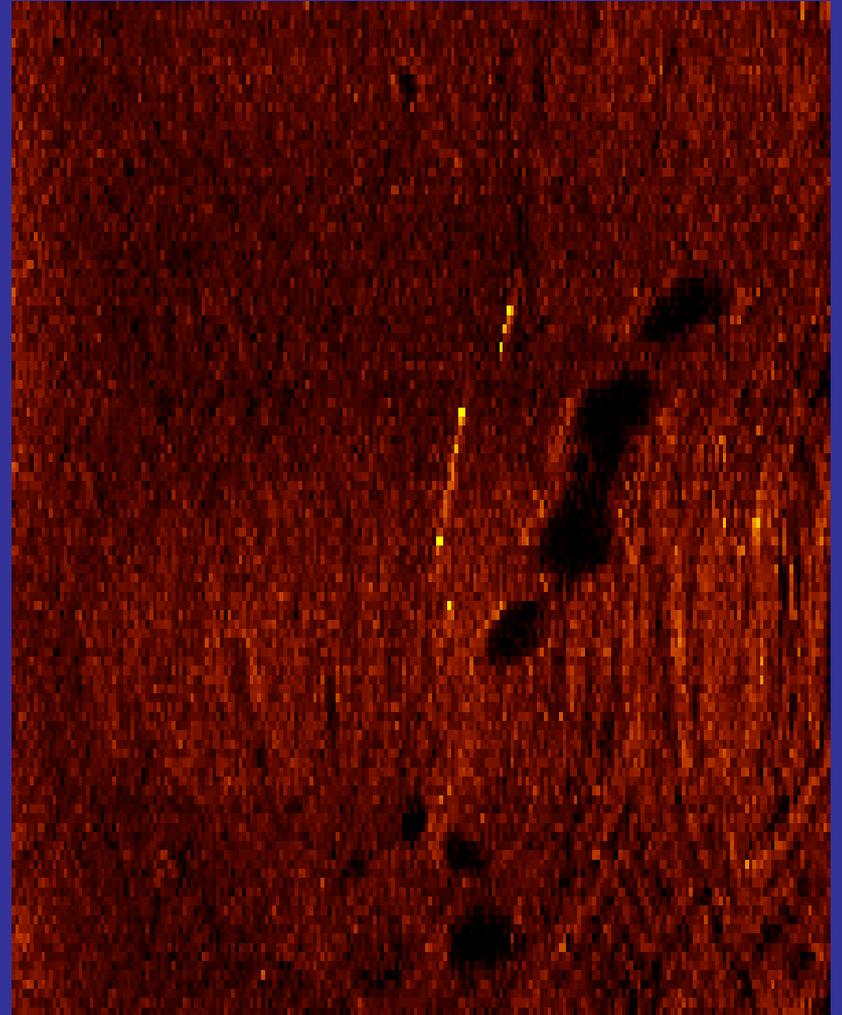
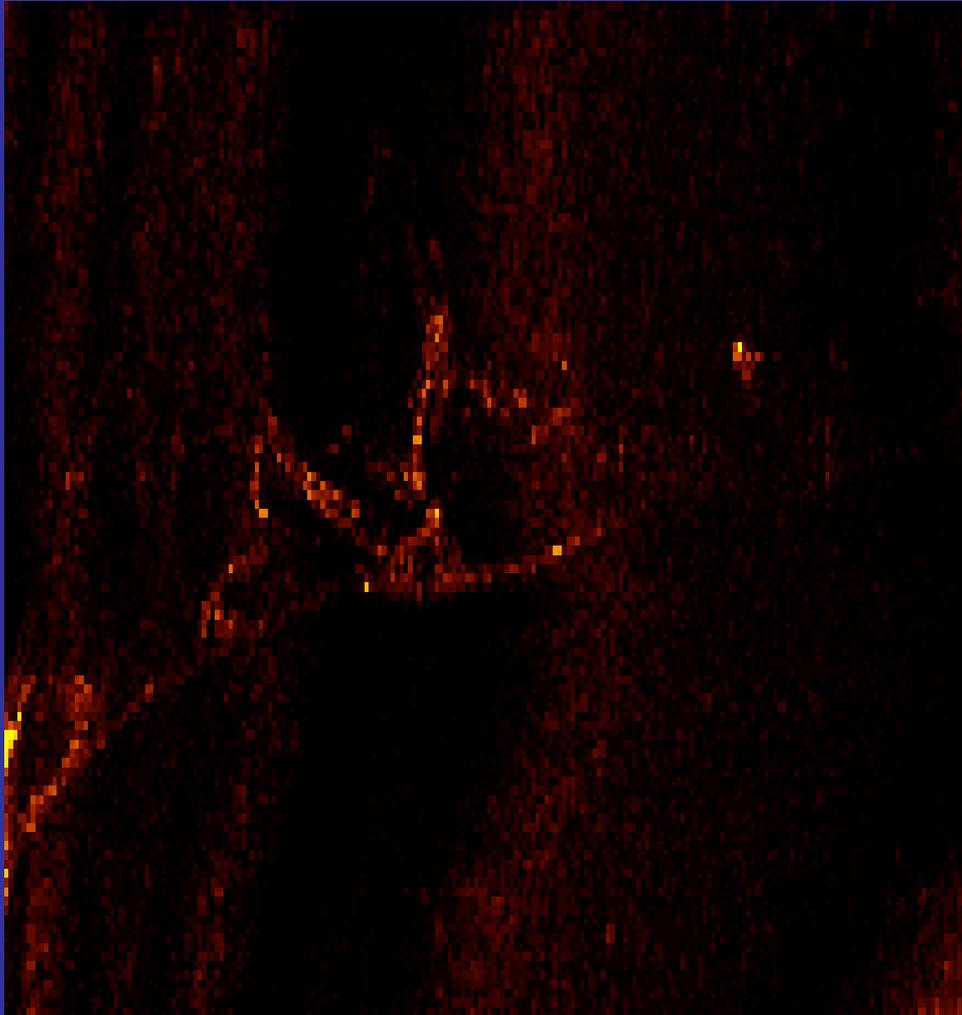


Side Scan Sonar Effort

- 13 days searching w/ SSS
- 2 crewmembers
- Survey suspect/ fishing areas
- Mark suspicious targets and rank



Our Imaging Results



Side Scan Sonar Results

- We marked 173 targets.
- 148 low ranking, 18 medium, and 7 high.
- Based on two recoveries, we were able to positively identify lost nets using SSS.

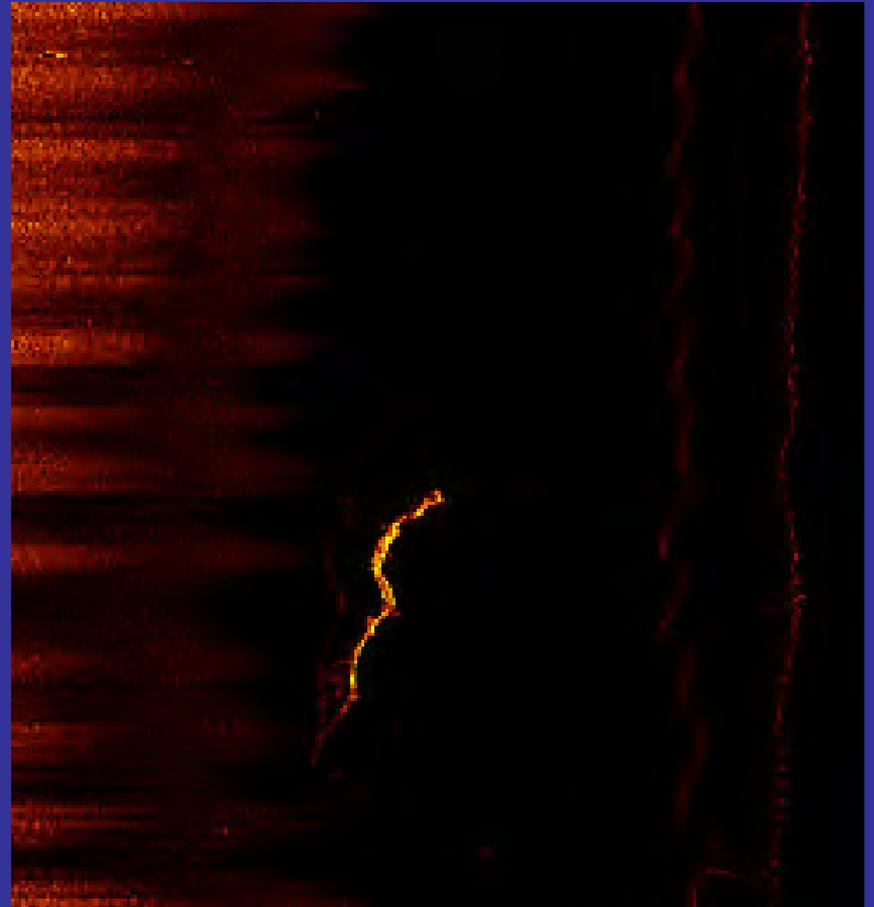
Conclusion of Side Scan Sonar Effort

Cons:

- Time consuming/requires near perfect weather.
- Images are difficult to interpret.
- Nets are difficult targets.
- Confounding factors.

Pros:

- Less impact to sensitive habitat.



Net Recovery Methods

Two Efforts

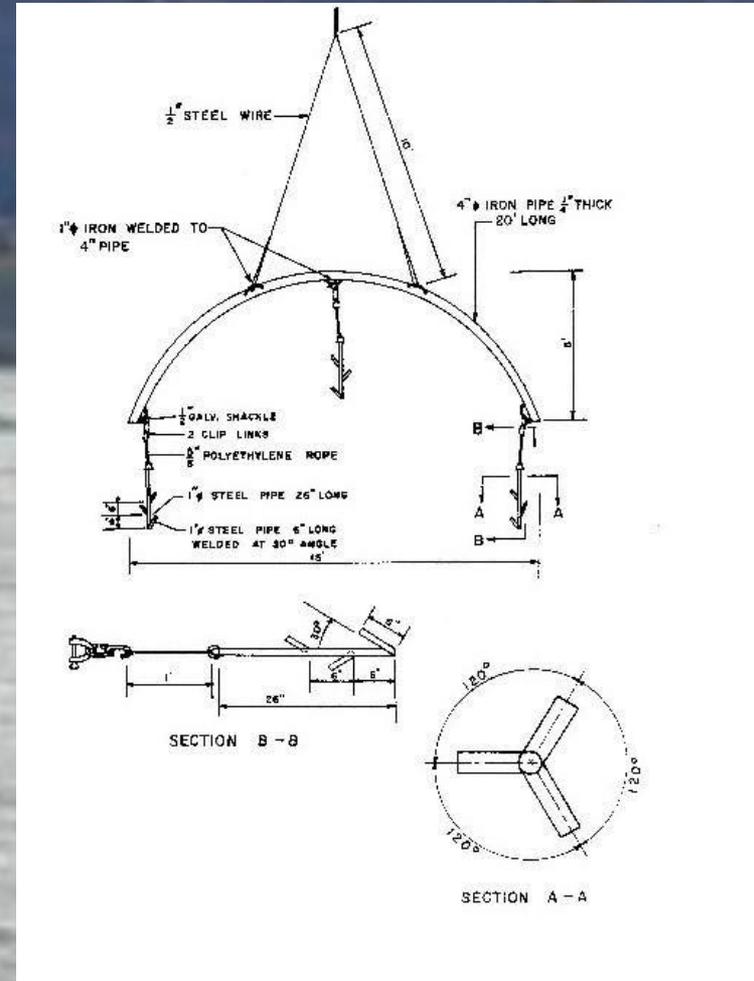
1. 2003 – Large 70' trawler outfitted for bottom trawling
2. 2004 – Tribal fishers and a 26' vessel



2003 Go Big - Big Vessel Effort



- Safe.
- Work in any weather -large drag equipment.
- Cons: poor maneuverability, uneven bottom, rock pinnacles.



Trawling Gear Effort

Effort

- Nine working days.
- Gear testing.
- 55 Tows ranging from 10 to 95 minutes.
- Approximately 30 hours of time in water towing.



The “Sweet” Smell of Success

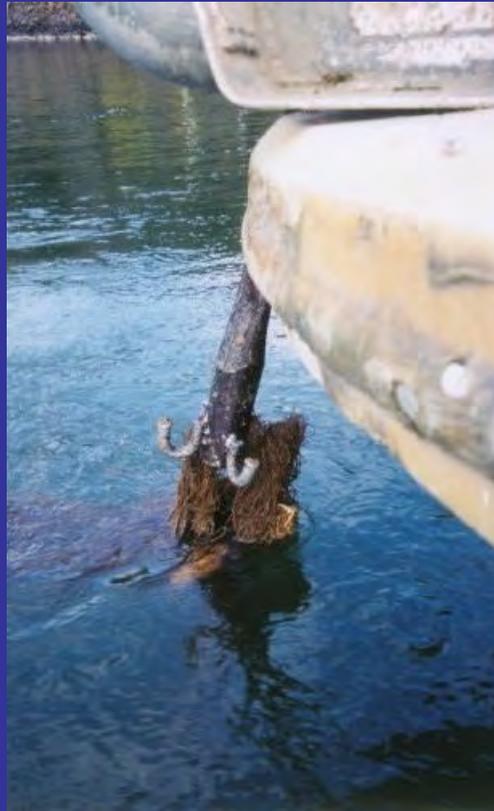


The Results - How Scary Is It ?

- Eight Nets.
- Total 80 white sturgeon (carcasses & notochords).
- No other fish species were found.

2004 Tribal Effort

- Maneuverable
- Knowledge and support of tribal fishing community
- 13 days effort
- Less impact



Results

- 25 nets removed.
- 41 dead white sturgeon in nets, 5 live (released).
- White sturgeon were only species found in nets.

Recovered Treasure – Net Characteristics and Observations



Estimated Impact – Mostly Speculation

- How significant compared to sport & commercial catches, as well as other loss vectors.
- Sturgeon lost to a variety of sources including dam operations, illegal fishing, delayed mortality from sportfishing, etc.
- Yearly impact – decreasing as we remove older nets.
- Management Implications.

Ghost Net Busting



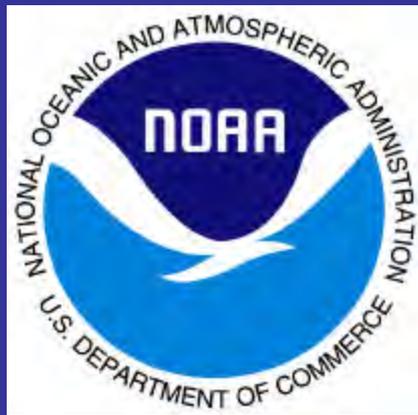
Increased awareness - outreach for commercial fishers, sportfishers, and commercial river users.

Use of telemetry equipment to radio tag individual nets.

Continue project to remove lost nets.

Projects Sponsored by:

- 2003 – Bonneville Power Administration
- 2004 – NOAA and Ocean Trust



- Thanks go to Clifford Alexander, James Kiona and Charles Gardee of the Yakama Nation.
- Appreciation to Columbia Pictures and Warner Bros. for the use of “ghostly” images.

TECHNICAL MANAGEMENT TEAM

BOR: Tony Norris / John Roache

BPA: John Wellschlager / Nic Lane

NOAA-F: Paul Wagner

USFWS: David Wills / Steve Haeseker

OR: Ron Boyce

WA: Cindy LeFleur

ID: Russ Kiefer

MT: Jim Litchfield

COE: Cindy Henriksen / Cathy Hlebechuk

TMT MEETING

Wednesday September 21, 2005 0900 - 1200 hours
1125 N.W. Couch Street, Suite 4A34
Portland, Oregon 97208
Conference call line: 503-808-5190

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

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

AGENDA

1. Welcome and introductions.
2. Review of Notes - [\[Minutes - 2005\]](#) 
3. Kokanee update/presentation.
4. Status of discussions on 2005-2006 Lake Pend Oreille winter elevation.
5. Winter Temperature Operation of Libby Dam for burbot.
 - i. [\[SOR 2005-FWS-3 - September 20, 2005\]](#) 
6. Ghost nets presentation.
 - i. [\[Are Ghost Nets Real? We Have Proof They Exist!\]](#) 
7. Fall Treaty Fishing.
 - i. [\[SOR 2005-C5 - September 09, 2005\]](#) 
 - ii. [\[SOR 2005-C6 - September 16, 2005\]](#) 
8. Comments on the 2006 WMP
 - i. [\[1st Draft Aug. 15, 2005 - 2006 Water Management Plan\]](#) 
 - ii. [\[2nd Draft Sept. 16, 2005 - 2006 Water Management Plan\]](#) 
9. Operations Review
 - a. Reservoirs
 - b. Fish
 - i. [\[Fish Passage Center Homepage\]](#) 
 - c. Power System
 - d. Water Quality
 - i. [\[Spill Information 2005\]](#) 
 - ii. [\[Daily Water Temperature Reports\]](#)
10. Other
 - o Set agenda for next meeting - [\[Reference Calendar\]](#) 

- COLUMBIA RIVER REGIONAL FORUM - Technical Management Team - Annual Review of Lessons Learned: 2005
November 02, 2005 - 8:00 am - 5:00 pm
Robert Duncan Plaza - 333 SW. First Ave - Portland, Oregon 97204-3440
3rd floor - H&J room
Must check in with Security on ground floor be sure to bring your ID.

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

September 21, 2005

1. Greetings and Introductions.

The September 21 Technical Management Team meeting was chaired by Cindy Henriksen. The following is a summary (not a verbatim transcript) of the topics discussed and decisions made at today's meeting. Anyone with questions or comments about these notes should contact Henriksen at 503/808-3945.

2. Kokanee Update.

Russ Kiefer said IDFG has completed its adult kokanee surveys; the estimate is 96,000-116,000 adult female kokanee available for spawning this year, well above the 70,000-female threshold. We have been working on an SOR, Kiefer said, but in yesterday's FPAC discussion, what we moved toward was a decision tree that will guide decisions over multiple years, rather than an SOR covering this year only. We are making progress on the decision tree, but meanwhile, my fellow salmon managers have requested that we operate according to the decision tree this fall, Kiefer said.

What we're considering is that, since we have over 70,000 females available, and the lake was down two years ago, this year, we would like to hold the lake up for kokanee spawning, he said. We also realize that flow augmentation from Lake Pend Oreille can provide critical flow improvements for chum spawners below Bonneville. If conditions remain dry, we would like to be able to provide at least some flow augmentation, if needed, from Lake Pend Oreille. We're working out those details, and will report back as soon as the decision tree is available, Kiefer said.

What we're thinking about, in the decision tree, is that the target elevation would be 2055 at Lake Pend Oreille by October 31, said Kiefer. If it is beneficial to provide flow for chum, and to clean the gravel for future spawning years, we can then draft Lake Pend Oreille, preferably without spill. The flow augmentation would only be provided in dry years. We think the decision tree is the best way to manage risk and provide maximum biological benefit, he said. Tony Norris suggested that the decision tree be keyed to precipitation, rather than water year forecasts. We understand, Kiefer replied – the mid-range forecast would be only one tool we would use, in conjunction with base flow, Grand Coulee elevation and weather forecast information. John Wellschlager said he likes the idea of the decision tree, which would provide guidance for operations over multiple years.

In response to a question from Henriksen, Kiefer said the salmon managers would prefer to wait until the end of October in order to inform the decision with the best available meteorological and forecast information. If this information shows that base flows and reservoir elevations are high, and precipitation is in the forecast, then we would hold Lake Pend Oreille up, he explained. We would also like some additional information as to how the Lake Pend Oreille flow augmentation water would benefit chum, said Kiefer. Idaho's preference would be to say, if we get these conditions, we'll hold the lake up; however, other salmon managers want to wait until all the available information is in before making that decision, Kiefer said.

In response to a question from Bob Hallock, Henriksen said the the action agencies are attempting to model the difference in chum flows this winter if flow augmentation is or is not provided from Lake Pend Oreille. BPA is doing the model runs. It sounds like there may be some flexibility in the timing of the Lake Pend Oreille decision, said Hallock, which is helpful, from our perspective. There is limited time, Henriksen noted. Making a recommendation as soon as possible is desirable, so we can notify our stakeholders. The winter operation must be decided by October 31, said Henriksen.

Have you discussed the impact of flows on the success of chum spawning? Jeff Laufle asked. The salmon managers have discussed that, and should have something to show you in the next couple of weeks, Paul Wagner replied.

3. Status of Discussions on 2005-2006 Lake Pend Oreille Winter Elevation.

See previous agenda item.

4. Winter Temperature Operation of Libby Dam for Burbot.

On September 20, the action agencies received SOR 2005-FWS 3. This SOR, covering winter water temperature releases from Libby Dam for burbot. This SOR requests the following specific operations:

- Use the selective withdrawal system at Libby Dam to release the coolest possible water in November and December.

The full text of this SOR is available via hot-link from today's agenda on the TMT homepage; please refer to this document for full details. Hallock directed the TMT's attention to Figure 3 ("Kootenai River Temperatures Pre- and Post-Libby Dam") in the justification section of the SOR; what this shows is that the area between the two sets of lines is what the Fish and Wildlife Service and Kootenai Valley Resource Initiative are trying to get at, he explained. Depending on what occurs during the water year, we may be coming back to you with a supplemental SOR covering flows, Hallock added, noting that this SOR has been coordinated with Montana FWP. In response to a question,

Hallock said that, according to USFWS research, water temperatures in excess of 6 degrees C are lethal to incubating burbot eggs, hence this request.

Obviously we can't totally control temperatures to their historic levels, said Hallock; however, we think this is the best we can do, given the existing system, so that's what we're asking for. In response to another question, Hallock said the spawning population of burbot in the Kootenai may be as low as 50 fish.

Henriksen said she has spoken to Libby Dam personnel about implementing this SOR; they are well aware of this request, and are looking at what can be done, and when. I think we're in pretty good shape to implement this SOR to the greatest extent feasible, she said. If the weather is extremely cold and wet, it might make it difficult to get some of the gates out; they are also talking about which units to go to first, second and third. In other words, it's mainly logistical challenges, Henriksen said.

It sounds like we will be having more information on this topic over time, said Henriksen; we'll discuss it further at the next TMT meeting.

5. Ghost Nets Presentation.

Blaine Parker of CRITFC led this presentation. He touched on the following topics:

- Are ghost nets real? Yes. "Ghost" refers to fishing gear that is lost, but continues to fish. Sturgeon are particularly susceptible to entanglement in ghost nets, because they are olfactory-based feeders.
- History and recognizing a problem – commercial gillnetting has occurred in the Columbia since the 1860s; thousands of gillnets are set every year; 50 diver gillnets were reported lost or stolen from 1995-2000.
- Science – early nets made of natural fibers, which degraded fairly quickly when lost; monofilament became common in the 1960s, and this manmade material does not biodegrade.
- Goals of the ghost net project – remove lost nets, test efficacy of side-scan sonar to locate nets, document net location etc.
- the geographic scope of the project
- How do we locate lost nets? enforcement records of lost nets, local knowledge, side-scan sonar, bottom drag fishing areas
- Side-scan sonar – how it works
- Sample side-scan sonar images
- Side-scan sonar methods – survey identified areas using multiple transects; sites marked by GPS and ranked
- Side scan sonar effort – 13 days of surveying with two crew members; survey focused on suspect/fishing areas; marked and ranked suspicious targets
- Imaging results (sample images)
- Side scan sonar results – marked 173 targets, 148 ranked low, 18 medium and 7

high. Based on two recoveries, were able to positively identify lost nets using SSS

- Conclusion of side scan sonar effort: cons – time-consuming, requires near-perfect weather; images are difficult to determine; nets are difficult targets; confounding factors. Pros: less impact to sensitive habitat
- Net recovery methods – 2003: large 70-foot trawler outfitted for bottom trawling; 2004 – tribal fishers and a 26-foot vessel
- 2003 big vessel effort – pros: safe; can work in any weather; large drag equipment. Cons: poor maneuverability, uneven bottom, rock pinnacles caused problems
- Trawling gear effort – 9 working days, did 55 tows ranging from 10 to 95 minutes; had some success retrieving nets
- Results – how scary is it? recovered 8 nets, containing a total of 80 white sturgeon; no other species found
- 2004 tribal effort: pros – maneuverable; knowledge and support of tribal fishing community; 13 days effort; less impact.
- Results: 25 nets removed; 41 dead white sturgeon found; 5 live fish released.
- Estimated impact – mostly speculation: how significant compared to sport and commercial catches, as well as other loss vectors? Sturgeon lost to a variety of sources, including dam operations, illegal fishing, delayed mortality from sport fishing. Yearly impact is decreasing as nets are removed. Management impacts.
- Ghost net busting – increased awareness – outreach for commercial fishers, sportfishers and commercial river users; use telemetry equipment to radio-tag individual nets; continue project to remove lost nets.
- 10-25 nets estimated to be lost each year, not including illegal nets; a total of 120 nets have been recovered since 2002.
- Project sponsored by NOAA and the Ocean Trust

Parker noted that he has applied for funding from NOAA and the Ocean Trust – about \$30,000 annually – to continue this project in 2006.

You said you were working mainly in Bonneville and The Dalles pools – have you removed any nets from John Day pool? Larry Beck asked. We haven't had a lot of success removing nets from John Day pool, because the bathymetry is different, Parker replied. And once a net is lost, how far does it tend to drift? Norris asked. It depends on where it's lost, Parker replied – in some cases, nets can "walk" a considerable distance. And is there other technology that might be helpful to you? Nic Lane asked. Yes – underwater video, for instance, Parker replied. However, cost is a concern with some technologies. Is it reasonable to require some sort of sonic tag on the winter sturgeon nets? Kiefer asked. We could, but again, it's a cost issue, Parker replied – if we're able to continue to get annual funding, we should be able to continue to make a pretty good dent in the nets lost each year.

6. Fall Treaty Fishing.

Kyle Dittmer said CRITFC had submitted two recent treaty fishing SORs, one dated September 9 and one dated September 16. We requested our usual stable pool elevations, he said; most of the fishing effort has been concentrated in John Day pool. A total of 236 of 450 nets in the September 7 net flight; yesterday, there were 439 nets total, 238 in John Day pool.

There may or may not be a treaty fishing season next week, said Dittmer; the main concern at this point in the season is impacts to wild steelhead. The Tribes will make a decision by tomorrow, and I should be able to give the Corps an answer one way or another by late this afternoon, he said.

Henriksen said the Corps has been sending out teletypes to keep Bonneville pool within a 1.5-foot range as a hard constraint, and one foot as a soft constraint. No specific instruction has been issued for The Dalles, but that pool is no longer fluctuating as much since the spill season has ended and the project is no longer constrained by the fixed spillway openings. John Day pool is operating within 1.5 feet as a hard constraint and has been mainly operating in the upper end of that range. That is appreciated by the tribal fishers, Dittmer said. Overall, I think it's been a pretty good season for coordination, Henriksen said.

7. Comments on 2006 WMP.

Henriksen said the most recent version of the 2006 Water management Plan, dated September 16, is now available via hot-link from today's agenda on the TMT homepage. She went briefly through the changes that were made to this document, including the fact that the Grand Coulee operation for drum gate work is not included in the 2006 plan, and the fact that dredging is anticipated in the Lower Snake in 2006. Henriksen asked that any additional comments on the 2006 plan be submitted as soon as possible to Larry Beck or Cathy Hlebechuk. We would like to have all comments by the end of September, if possible, she added; the BiOp recommends that we complete the plan by September 30. After that, we'll start thinking about the fall/winter update, she added. Kiefer said IDFG will be providing comments on the 2006 plan as soon as possible; he said he will be providing his comments to IDFG management and the Idaho Governor's office for review by the end of this week.

Wellschlager asked whether the TMT's emergency protocols will be updated this year; Henriksen replied that this is likely, even with the ongoing BiOp litigation. The action agencies will take a cut at that, and will post it to the TMT homepage, she said.

8. Operations Review.

Henriksen reported that Libby is releasing 8 Kcfs, which will continue through the end of September. The pool is at 2437 and drafting slightly. Hungry Horse is at 3538, said Norris; the project is drafting to meet the Columbia Falls minimum, and is releasing 849 cfs currently. Grand Coulee is at elevation 1283.3 and filling whenever possible.

Henriksen said Dworshak has been releasing 7.1 Kcfs; on September 14 outflow was reduced to the interim level, 3.5 Kcfs. Once elevation 1520 was achieved on September 18, the project went to minimum outflow, 1.6 Kcfs. The current flow at Lower Granite is 13-14 Kcfs; the Lower Snake pools are all operating in their full range, except Lower Granite pool, which is operating in a one-foot range to facilitate boat and barge passage to and from the ports of Lewiston and Clarkston.

Moving on to fish, Wagner said the smolt migration is now essentially over at Lower Granite, Little Goose and Lower Monumental. At McNary, shad were overwhelming what few migrants there were, so fish collection has been stopped. There are still juveniles migrating through the Lower Columbia projects.

Moving on to adults, Wagner said the fall chinook run has peaked and is now beginning to decline – from 17,000+ on September 15 to 7,323 yesterday. The total fall chinook run to date is about 350,000 fish, somewhat below the pre-season forecast. Steelhead are on the decline as well, with just over 3,200 steelhead per day passing Bonneville, currently. In response to a question, Beck said the 2005 fall chinook run is just above the 10-year average. What has the timing been like for the fall chinook run? Henriksen asked. I believe it was about a week late this year, in terms of the peak of the run, Wagner replied.

Wellschlager said the second tropical storm coming into the Gulf has had an impact on energy prices. Beck said there will be a line outage at Libby, which will limit the powerhouse to three units, in November. Henriksen added that, unless there is a significant precipitation event, the outage, which will last for 10 days, should not impact Libby operations.

Wagner said he had heard that, at The Dalles, the ice and trash sluiceway may become an issue. We're still working on that, Henriksen replied; historically, it operates for 12 hours during the day and is opened and closed using power from turbine unit 1. Beck noted that because turbine unit 1 is under repair, the ice/trash sluiceway is operated at untie 2 and can not be operated remotely and must be opened and closed manually. A crane crew is needed to open and close the stop logs twice each day, seven days a week during the unit 1 outage. I believe there is a proposal to operate the ice/trash sluiceway 24 hours a day, seven days a week, to benefit migrating juveniles. Because there is no screen system at The Dalles, that is really the only means of juvenile passage at that project, said Wagner; as I mentioned earlier, there are still small but significant numbers of juvenile migrants moving through the lower river.

I have to bring this up, because there is a cost to ratepayers – almost \$500,000 if the ice/trash sluiceway is operated for another 76 days, Wellschlager said. We are aware that this issue is being worked through FPOM, and the Corps is working to craft a solution that works for everyone, said Henriksen. In response to a question from Wellschlager, Beck said that, at turbine unit 2, the gate must be raised and lowered by

crane, which requires the presence of a crane crew; if the ice/trash sluiceway is operated only part of each day, it has to be raised and lowered, which also represents a cost. In response to another question, Beck said the next scheduled FPOM meeting is October 13. There will be more to come on this issue, Henriksen said.

On the water quality front, Jim Adams said that, once Dworshak went to minimum outflow, the Corps put unit 1 in undershot mode, which yielded a release temperature of about 45 degrees. After consulting with Dworshak National Hatchery personnel, the Corps shut down unit 1 and put unit 2 in overshot mode, resulting in an outflow temperature of 61 degrees F for several hours. The hatchery decided that was too high; Dworshak outflow has now returned to undershot mode, and the release temperature is back down to 45-46 degrees F. Lower Granite tailrace temperatures are running about 62 degrees F.

9. Next TMT Meeting Date.

The next Technical Management Team meeting was set for Wednesday, October 12. The TMT’s annual year-end review will be held on November 2 in the H&J room on the third floor of the Robert Duncan Plaza, 333 SW 1st Ave., in downtown Portland. Meeting summary prepared by Jeff Kuechle, BPA contractor.

**List of TMT Meeting Participants
September 21, 2005**

Name	Affiliation
Cindy Henriksen	COE
John Wellschlager	BPA
Russ Kiefer	IDFG
Tony Norris	USBR
Steve Haeseker	USFWS
Ray Gonzales	COE
Laura Hamilton	COE
Nic Lane	BPA
Kyle Dittmer	CRITFC
Julie Ammann	COE
Dan Spear	BPA
Larry Beck	COE
Jim Adams	COE

Karl Kanbergs	COE
Paul Wagner	NMFS
Tracy Hicks	BPA
Linda Jackson	BPA
Dave Benner	FPC
Jeff Laufle	COE
Margaret Filardo	FPC
Tom Haymaker	PNGC
Tom Le	PSE
Richelle Beck	D. Rohr & Associates
Bob Hallock	USFWS
Eric Brown	COE

TECHNICAL MANAGEMENT TEAM

BOR: Tony Norris / John Roache

BPA: John Wellschlager / Nic Lane

NOAA-F: Paul Wagner

USFWS: David Wills / Steve Haeseker

OR: Ron Boyce

WA: Cindy LeFleur

ID: Russ Kiefer

MT: Jim Litchfield

COE: Cindy Henriksen / Cathy Hlebechuk

TMT MEETING

Wednesday October 12, 2005 0900 - 1200 hours
1125 N.W. Couch Street, Suite 4A34
Portland, Oregon 97208
Conference call line: 503-808-5190

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Please e-mail her at dsilverberg@cmm.net or call her at (503) 248-4703.*

AGENDA

1. Welcome and introductions.
2. Chum Discussion
 - i. [\[Chum Research Questions developed 16 August 05\]](#) 
 - ii. [\[Chum Flow Alternatives Analysis - October 11, 2005\]](#) 
 - iii. [\[Summarized responses for chum salmon questions - September 28, 2005\]](#) 
3. Review of Autumn Treaty Fishing
 - i. [\[Impact of Pool Fluctuations on the 2005 Autumn Treaty Fishery\]](#) 
4. Operations Review
 - a. Reservoirs
 - b. Fish
 - i. [\[Fish Passage Center Homepage\]](#) 
 - c. Power System
 - d. Water Quality
 - i. [\[Spill Information 2005\]](#) 
 - ii. [\[Daily Water Temperature Reports\]](#)
5. Other
 - Set agenda for next meeting - [\[Reference Calendar\]](#) 

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

**Columbia River Regional Forum
Technical Management Team**

Summarized responses for chum salmon questions – September 28, 2005

Question 1. What is the maximum fluctuation in daytime Bonneville tailwater elevations that can be tolerated without impacting chum spawning? (Chum Researchers)

Background: the current TW operation for chum is 11.3-11.7 ft or about 125 kcfs depending on backwater effect during daytime hrs; the Action Agencies would like to know if there is flexibility in exceeding this operational range for short times (2 hr) during the day for unexpected increases in flow.

Response (USFWS – Joe Skalicky): A definitive answer to this question is simply not known and has only recently been investigated and only at one of the three main spawning areas. A fluctuation or daily delta (maximum - minimum instantaneous flow) is one metric or method to characterize spawning conditions but other important factors including the duration of a fluctuation need to be considered. In late 2004 researchers from our chum project (USGS) evaluated increased Bonneville tailwater elevations up to a maximum elevation of 15.1 from 11.5 feet. Tailwater elevations were increased for only 2 hours and some negative effects were observed at 15.1. Operations between 11.5 and 15.1 did not appear to exclude or push chum off of redds for the 2 hr of increased flows. Other more subtle effects regarding spawning and spawning success were not examined and would require a very sensitive and detailed study operating at various temporal and spatial scales. I do not believe that 2 hr of an increased tailwater of 1.0 feet is long enough to negatively impact spawning. Likewise, nighttime stage should be decreased correspondingly from X to (X – 1.0) for 2 hr which would be the biological justification for increasing daytime flows. There is no concrete justification to support increases of more than 1.0 feet for any length of time.

Response (USGS – Ken Tiffan): There are two considerations for this question: duration and magnitude. It is my opinion that a duration of 2 h is not long enough for chum to respond by digging a redd at a higher elevation (one potential response) or by experiencing altered spawning behavior (e.g., reduced digging or courtship behavior; another potential response). The maximum acceptable fluctuation to chum is more difficult to determine. See response to question 2.

Response (WDFW – Todd Hillson): To be completely safe you wouldn't want to increase tailwater to such a degree that if a chum decided to use the newly inundated area for spawning it's redd would be un-watered at 11.5. This is not to say that the redd will be under a lot of water, but enough to maintain flow above egg pocket depth through emergence. Evidence from the Duncan Creek spawning channels (fall 2003) proved that just because a redd is dry at the surface does not mean it's lost.

You would need to look at Ken Tiffins (USGS) work for what increases in velocity due to higher discharge levels do to already spawning chum.

Personally, I don't think a two hour increase of tailwater is enough time for a female to establish and begin a redd in a newly watered up area. I would worry if the increase were big enough to water up new areas that might cause entrapment of adults if the level was brought down too quickly.

Question 2. What is the maximum nighttime flows that can be tolerated without impacting chum spawning? (Chum Researchers)

Background: during high flow events, high discharges (up to 250 kcfs) have been provided at night to maintain daytime flows within 11.3-11.7 ft. USGS conducted a study this year to evaluate effects of high day and night flows, and although no effect was found for flow blocks up to 175 kcfs this did not include higher flows observed in recent years. Study results also indicates that responses are dependent on whether chum have established a redd site.

Response (USFWS – Joe Skalicky): In 2003 and 2004 extreme reverse load following was implemented to manage to the daytime chum operation at 11.5 which is the minimum operation providing spawning habitat. While the daytime flow is appropriate, conditions at night have greatly exceeded the velocity threshold for spawning chum salmon in the Ives/Hamilton area. GIS analysis conducted by the USFWS have shown how operations in 2003 excluded chum from the Ives/Hamilton area and created downstream spawning habitat near I-205 at higher elevations. The artificial increase in elevation are a result of the 11.5 daytime tailwater and the much higher nighttime tailwater culminating 28 miles downstream into a sustained 24 hr stage that is higher than just a 11.5 flat tailwater at Bonneville. These elevations were not maintained through emergence and redds in I-205 spawning areas were likely dewatered 2003.

With the data we have so far it is very difficult to estimate or derive a maximum nighttime operation. Since we know they spawn 24 hr/day and because populations have decreased by 1/3 for last three years, I would be hesitant to guess. Since the research conducted by our project (USGS) measured negative effects of a 15.1 ft tailwater and that research only attempts to measure gross physical responses, I would say the maximum operation should be less than the 15 foot tailwater, perhaps near 13.5 feet.

Response (USGS – Ken Tiffan): The research we conducted in 2004 only examined tailwater increases up to 15.1 ft. (flows of ~175-185). Although we did not see any major effects on behavior at the 15.1 ft, the trend was toward reduced digging activity at higher flows. Velocities measured at 15.1 ft were up to 1.5 m/s, which is well above the preferred velocity (0.2-1.0 m/s) of chum. I believe we were starting to see some effects at 15.1 ft, which would probably be amplified at higher flows. Changes in behavior may also have been more evident if the maximum 15.1 TW was maintained longer than 2 h. A TW of 15.1 ft resulted in watering up the channel on the north side of Ives Island where chum spawned in 1998 and 1999 at higher flows. If a TW of 15.1 ft was

maintained for longer periods of time (days?), I don't think new chum would select the higher velocities that would present in the channel below the mouth of Hamilton Cr., but would move over to the north side of Ives Island, or elsewhere, to spawn. In 2005, examining higher flows would be beneficial in determining the flow and TW at which behavior is altered to determine the "maximum" nighttime flow.

Response (WDFW – Todd Hillson): Looks like all we have is data for up to 175kcfs. I would again worry about the possibility of stranding adults if flows were ramped down quickly. Ken did his work in 2004 when there were very few chum using the "pocket area" near Ives Island (past years have seen heavy use in this area). If a lot of chum were in this area and they brought flows up there is definitely the chance that adults could be stranded at the upper end of this area.

Question 3. What are the implications to other BiOp requirements (Apr 10 RCs, spring flows, etc) and the Vernita Bar Agreement of maintaining TWs above the current 11.5 ft throughout spawning, incubation, and emergence? (Action Agencies)

Background: Whether intentional or not, TWs have exceeded the 11.5 ft minimum requirement. Given the storage conditions likely to exist beginning November 1, TMT members would like to know what are the effects of meeting the BiOp requirements and VB by maintaining TWs at higher elevations (ex: 12.0, 12.5, 13.0 ft etc). At TMT, it was discussed the Corps or BPA HydroReg models could be used to assess risks to these requirements using a 50 year period of record in the analysis.

Action Agencies response.

Question 4. If TWs are increased to provide additional spawning habitat and reduce superimposition in the Hamilton Creek area, when would the best time to do this and to what TW to provide the greatest benefits to chum? (Chum Researchers)

Background: Chum researchers have noted high spawning densities and expressed concerns with potential superimposition of chum spawning in the Hamilton Slough area below Hamilton Creek. One strategy to reduce densities and superimposition is to start with a 11.5 ft TW operation early in the spawning cycle but then increase to a higher (ex: 12.5 ft) later in the run (ex: November 15) to allow access to other spawning habitat and "spread out the spawners".

Response (USFWS – Joe Skalicky): This also is a difficult question to answer because no research has been specifically conducted to profile redd superimposition. The protracted arrival of adult spawners and spawning complicates this task further. If we knew the explicit carrying capacity of the Ives Island area at the 11.5 operation, we could increment to the next operation once that number was counted. The current chum model we developed cannot calculate the carrying capacity at a level of accuracy sufficient for this exercise. As a surrogate, however, we could use the weekly counts coupled with a GIS analysis to determine at which week redds start to superimpose. At

that point, we could operate up to the next operation that would preclude fish from spawning at the 11.5 operation and provide a new spatial distribution habitat. Based on our past modeling efforts and on site knowledge of the area, a tailwater operation of 13.5 should work. Even if the some of the redds associated with the 13.5 operation are subsequently dewatered, the net effect should be increased overall production.

Response (USGS – Ken Tiffan): One of the assumptions here is that spreading the fish out will decrease redd superimposition and therefore increase production. We currently do not have any estimates of how many redds can be supported in the Ives area and if the different spawning sites have equal productive capacity. This is an important area of future research for a number of reasons. First, if we knew for example that the main spawning channel could only support 100 redds and that the area was seeded by Dec. 1, then continued restriction of the tailwater after that date would only result in redd superimposition and you may still only have 100 redds at the end of the season. If, however, you increased the tailwater, you might increase the number of redds in the area by the number that are constructed at higher elevations. The risk of course is subsequent dewatering if flows cannot be maintained. However, we really wouldn't know if the loss of any production at higher elevations would be any different than loss through redd superimposition. In other words, if we knew the redd capacity and the date at which it was reached each year, then it may be easier to take the risk of increasing tailwater and allowing fish to spawn at higher elevations. Assuming that fish will spread out if given the habitat, I estimated that increasing flow to 13.5 ft would provide water to the channel on the north side of Ives Island. I arrived at this by regressing tailwater on flow for Nov-Dec, 2004 to develop a regression equation (Tailwater= $5.45+0.0541*\text{flow}$; $r^2=0.49$). I then plugged in 150 kcfs (the flow we predicted to provide water to this area from our past modeling efforts) to get 13.5 ft. When to provide the flow would depend on when the State's surveys suggested that a maximum redd density had been achieved in the main spawning channel.

Response (WDFW – Todd Hillson): I don't believe that we have to data to say anything about what tailwater level above 11.5 is best. We have no physical sampling of gravel composition and percent fines for this area, or how the vertical hydraulic gradients that these chum key in on change as tailwater elevation moves. It's very possible that a one foot increase could water up several hundred square meters of spawning area that is substandard and we get less production than if we left them in a small area.

This is definitely something that needs to be looked at and modeled for future years use in water level management.

Using live and dead counts in combination with the carcass tagging results from work that Below The Dams (BTD) has done in the Ives area, mean arrival dates for spawners in this area using maximum likelihood equations for 2003 and 04 were 11/28 and 11/21. Given that chum arrive and spawn in a relative short and compact time span (7-10 days), you would want to have tailwater up before they arrive, November 15 sounds good to me. If you try and use in-season counts to pick the day it would likely be to late, we don't see the fish to count in the Ives area until most are already spawning.

Question 5. What is our best estimate for the number of chum expected to spawn in each of the mainstem areas (Ives Island, Multnomah, I-205) this year as well as tributaries (Hardy, Hamilton, Grays Harbor, etc)? (Chum Researchers)

Background: Chum escapements in each of the spawning areas have declined in recent years; if possible, TMT members would like to know for planning purposes how many chum are forecasted for this year recognizing that forecast tools for chum have not been developed.

Response (WDFW – Todd Hillson): Not much information on this one. The trend has been declining populations since 2001. Here's what I have from mark/recapture efforts under the Duncan Creek project.

	2004		2003		2002	
	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI
Ives Area*	1,041	870 - 1,212	1,899	946 - 2,851	3,179	2,886 - 3,472
Horsetail	102	73 - 131	no data		no data	
Multnomah	652	584 - 720	1,024	947 - 1,101	1,267	846 - 1,642
St Cloud	107	89 - 125	167	149 - 186	no data	
I-205	1,836	1,573 - 2,098	2,864	2,724 - 3,003	3,928	2,274 - 5,581
Hamilton Cr.	346	417 - 275	500	440 - 560	no data	

* The estimate for Ives area includes tributary spawners since those fish pass through this area and the estimate is numbers at time of tagging. To get an estimate for only Ives, use BTDC carcass tagging estimate.

Question 6. What are the effects on Bonneville TWs and biological benefits to chum by drafting 4 ft (2055 to 2051 ft) from Lake Pend Oreille? (Action Agencies and Chum Researchers)

Background: Under the BiOp, a four ft draft from Lake Pend Oreille is identified to provide chum spawning flows. Ongoing Lake Pend Oreille research is evaluating the effects of maintaining higher elevations for kokanee spawning (an important food source for listed bull trout) and a request has been made to maintain elevation 2055 ft this year to gain additional data at this higher elevation if the water is not needed for chum flows.

Action Agencies response.

Chum Flow Alternatives Analysis

	Base Case	Minimum Tailwater Elevation			
		11.5 Ft.	12.0 Ft.	12.5 Ft.	13.0 Ft.
Frequency of Meeting November-March Chum Flow		# of times out of 50			
NOV	42	50	50	50	50
DEC	40	50	50	50	50
JAN	44	50	50	50	50
FEB	39	50	50	50	50
MAR	40	50	50	50	50
Frequency of Meeting or Exceeding Vernita Bar Protection Flow Level		# of times out of 50			
DEC	50	50	50	50	50
JAN	50	50	50	50	50
FEB	50	50	50	49	45
MAR	50	50	50	47	44
Grand Coulee Effects					
Average March 31					
Elevation - ft.	1257	1253	1250	1247	1244
range	1226 - 1283	1226 - 1283	1209 - 1283	1208 - 1283	1208 - 1283
		# of times out of 50			
at mid-April URC	38	35	34	32	32
		# of times out of 50			
at Full or URC on June 30	50	50	50	50	50
Priest Rapids Flows - kcfs					
Apr16-Jun30 50Yr Ave.	172	170	169	168	167
range	90 - 265	82 - 265	76 - 265	71 - 265	69 - 265
		# of times out of 50			
Apr16-Jun30 misses (<135 kcfs)	10	10	11	11	11
McNary Flows - kcfs					
May-June 50Yr Ave.	290	288	287	286	285
range	150 - 474	133 - 474	128 - 474	124 - 474	116 - 474
		# of times out of 50			
Apr16-Jun30 misses (<220 kcfs)	11	11	11	11	12

Flow Equivalent to TW elevation (kcfs)

	Base Case	11.5 ft	12 ft	12.5 ft	13 ft
Nov	122.5	121	128	134	140
Dec	122.5	108	116	124	131
Jan	115	110	117	124	131
Feb	115	115	122	129	136
Mar	115	111	118	125	133

Albeni Falls Draft to 2051 feet vs. 2055 feet in November

4 feet = 180 ksfd = 6,000 cfs for 30 days

refill from 2051 ft to 2055 ft mostly occurs in April

FCRPS energy production increases in November, decreases in April

Energy market values in November are greater than in April

Potential BPA revenue effect is a gain of \$5 million annually (50yr average)
- (range of \$1 - 13 M)

Modeling Assumptions:

Base Case - Use draft at GCL, LIB and HGH as needed to meet minimum Chum flows but limit drafts to specified levels established by COE and BOR in November and December. Limit drafts to Variable Draft Limits according to BiOp for Jan-Mar.

Alternatives - Use as much draft at GCL as needed to meet Chum flows for November through March. LIB and HGH operation is the same as in the Base Case.



COLUMBIA RIVER INTER-TRIBAL FISH COMMISSION

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TO: Technical Management Team (TMT)
 FROM: Kyle Dittmer, *Hydrologist-Meteorologist*, CRITFC Hydro Program
 DATE: October 12, 2005

SUBJECT: Impact of Pool Fluctuations on the 2005 Autumn Treaty Fishery

CRITFC submitted four System Operation Requests (2005-C4 through 2005-C7) via the NMFS' TMT forum to support autumn treaty fishing. The CRITFC requests asked for (1) one-foot elevation bands and (2) stable pool elevations during each week of treaty fishing.

Criterion #1 asked to operate the pools as a hard constraint within a one-foot elevation range for BON, TDA, and JDA pools. The Corps replied with their 1996 policy: 1.5-foot range, hard constraint, only for Bonneville pool, and no constraints at The Dalles or John Day pools.

The table shows the hourly compliance of CRITFC's 1-foot elevation band criteria and the Corps' 1.5-foot criteria during the treaty fishery. Averages from the eight-week 2004 autumn season are also shown.

2005	Bonneville Pool	The Dalles Pool	John Day pool
1 foot range (CRITFC):	75.5 - 76.5 ft	158.5 -159.5 ft	263.5 - 264.5 ft
AUGUST 22 - 26	100%	63%	94%
AUGUST 29 - SEPT 2	100%	72%	100%
SEPTEMBER 6 - 10	100%	72%	48%
SEPTEMBER 12 - 16	100%	99%	58%
SEPTEMBER 19 - 23	100%	94%	29%
SEPTEMBER 28 - 30	100%	92%	93%
average:	100%	82%	70%
2004 average:	81%	72%	51%
			Aug-Sep: 262.5 - 264 ft
1.5 foot range (COE):	75 - 76.5 ft	158 -159.5 ft	Oct: 263.5 - 265 ft
AUGUST 22 - 26	100%	91%	100%
AUGUST 29 - SEPT 2	100%	84%	100%
SEPTEMBER 6 - 10	100%	90%	100%
SEPTEMBER 12 - 16	100%	100%	100%
SEPTEMBER 19 - 23	100%	100%	100%
SEPTEMBER 28 - 30	100%	100%	100%
average:	100%	94%	100%
2004 average:	93%	96%	100%

For pool fluctuations (Criterion #2), shown in Figures 1 through 18, Bonneville pool saw 0.3 – 0.8 foot swings (compared to 0.3 - 1.3 foot swings in autumn 2004). The Dalles pool saw 0.3 – 1.2 foot swings (compared to 0.3 – 1.7 foot swings in autumn 2004). John Day pool saw 0.3 – 0.9 foot swings (compared to 0.3 – 1.2 foot swings in autumn 2004).

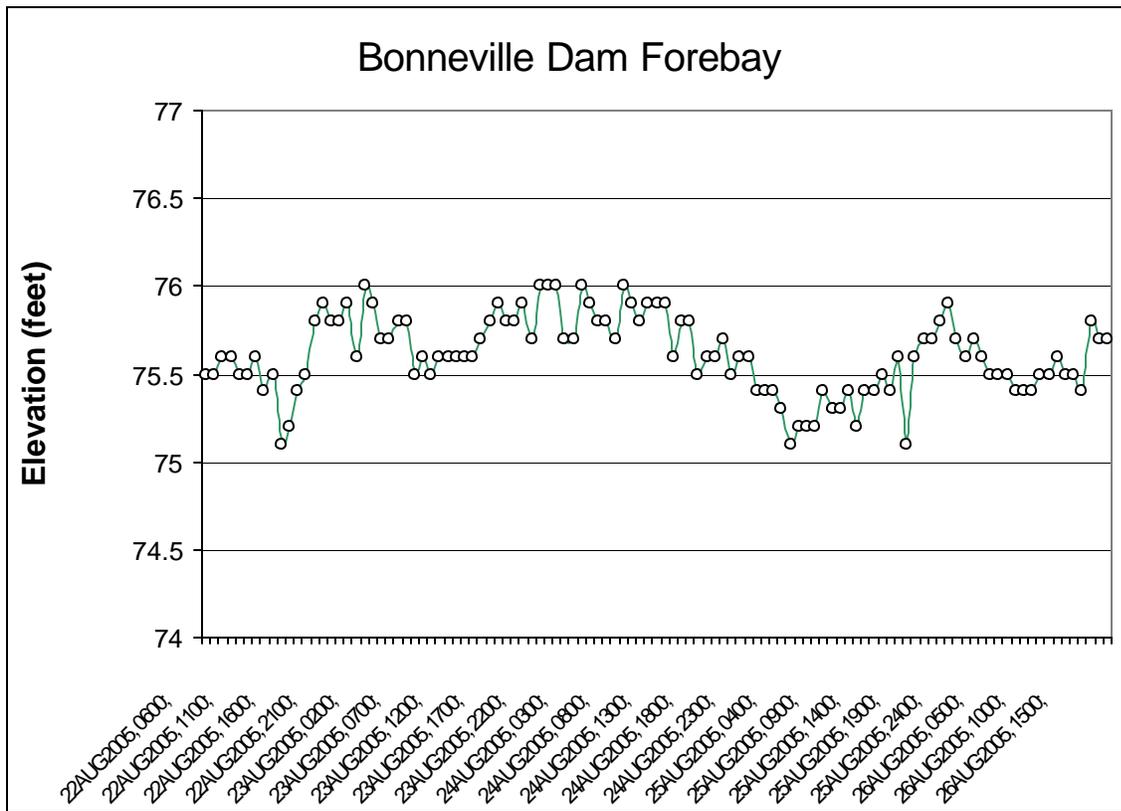


Figure 1. Observed BON pool elevations during August 22-26, 2005 autumn treaty fishing.

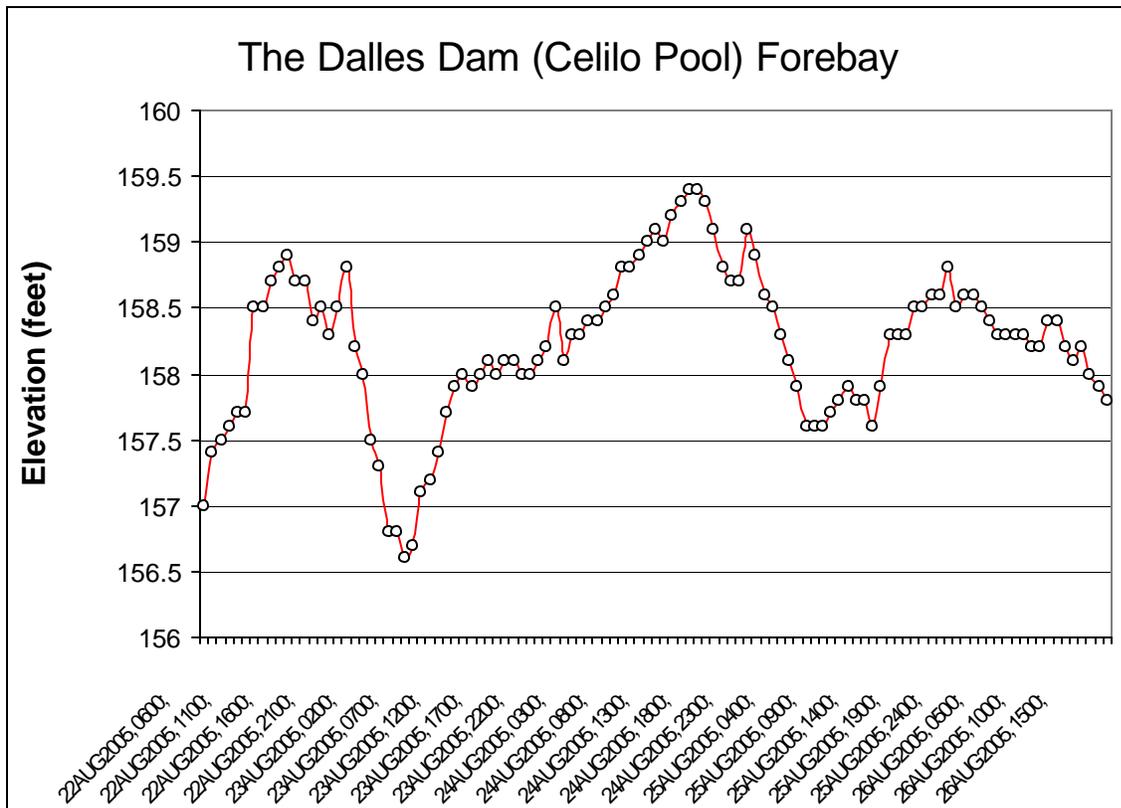


Figure 2. Observed TDA pool elevations during August 22-26, 2005 autumn treaty fishing.

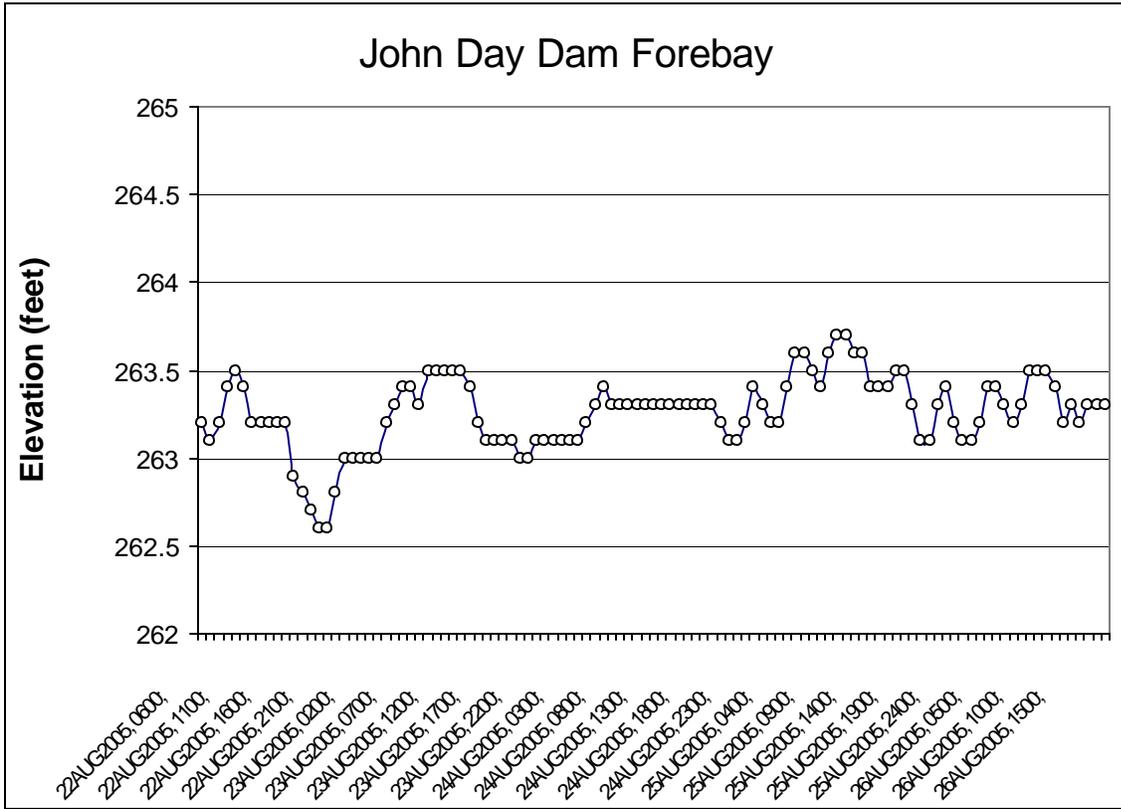


Figure 3. Observed JDA pool elevations during August 22-26, 2005 autumn treaty fishing.

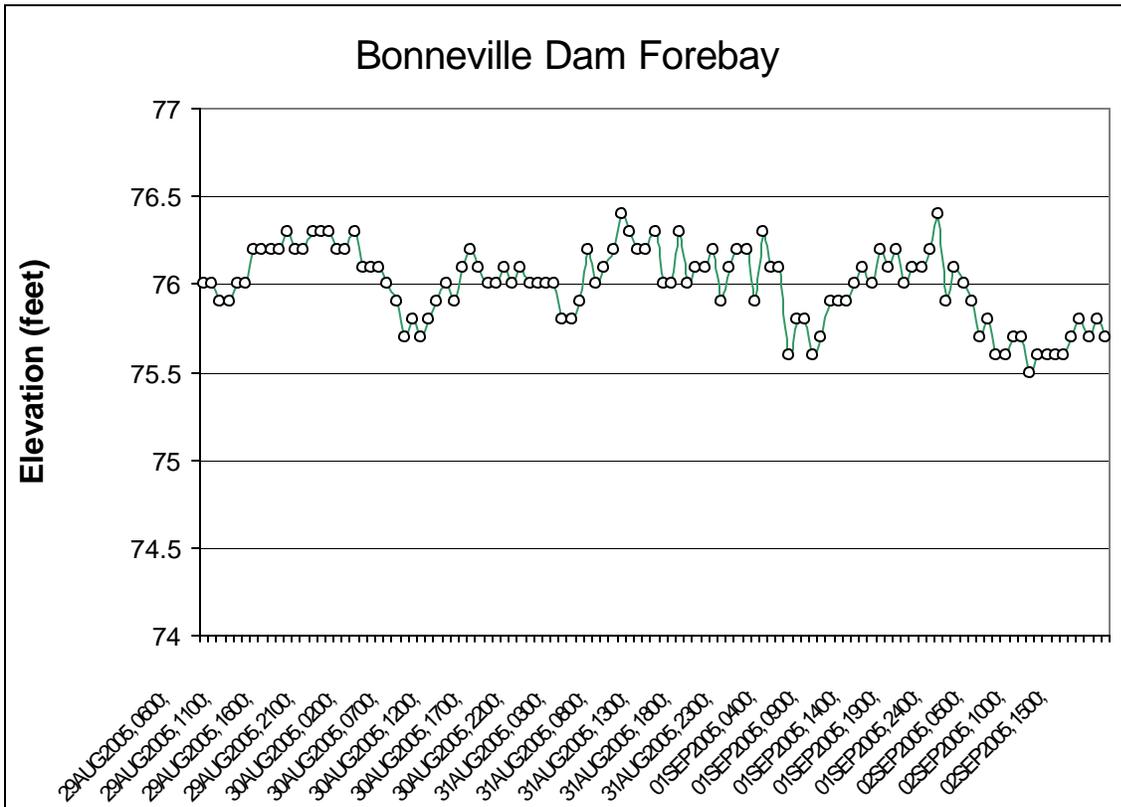


Figure 4. Observed BON pool elevations during August 29-Sept. 2, 2005 autumn treaty fishing.

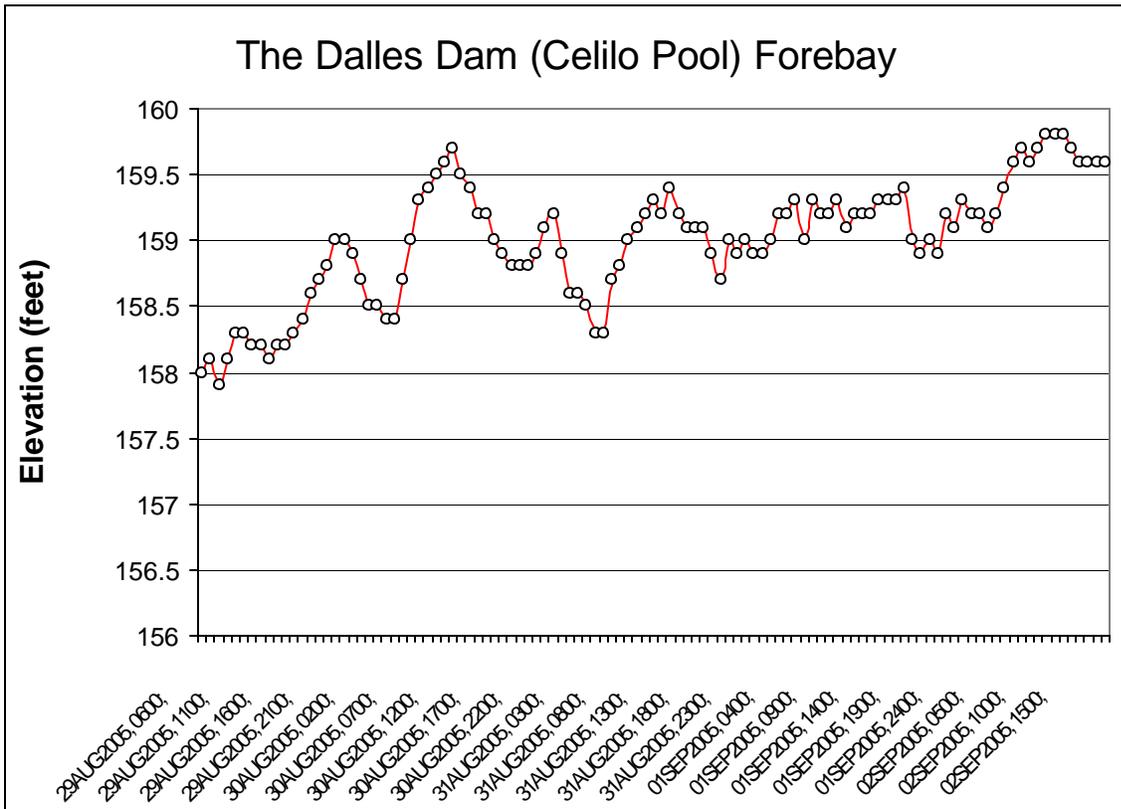


Figure 5. Observed TDA pool elevations during August 29-Sept. 2, 2005 autumn treaty fishing.

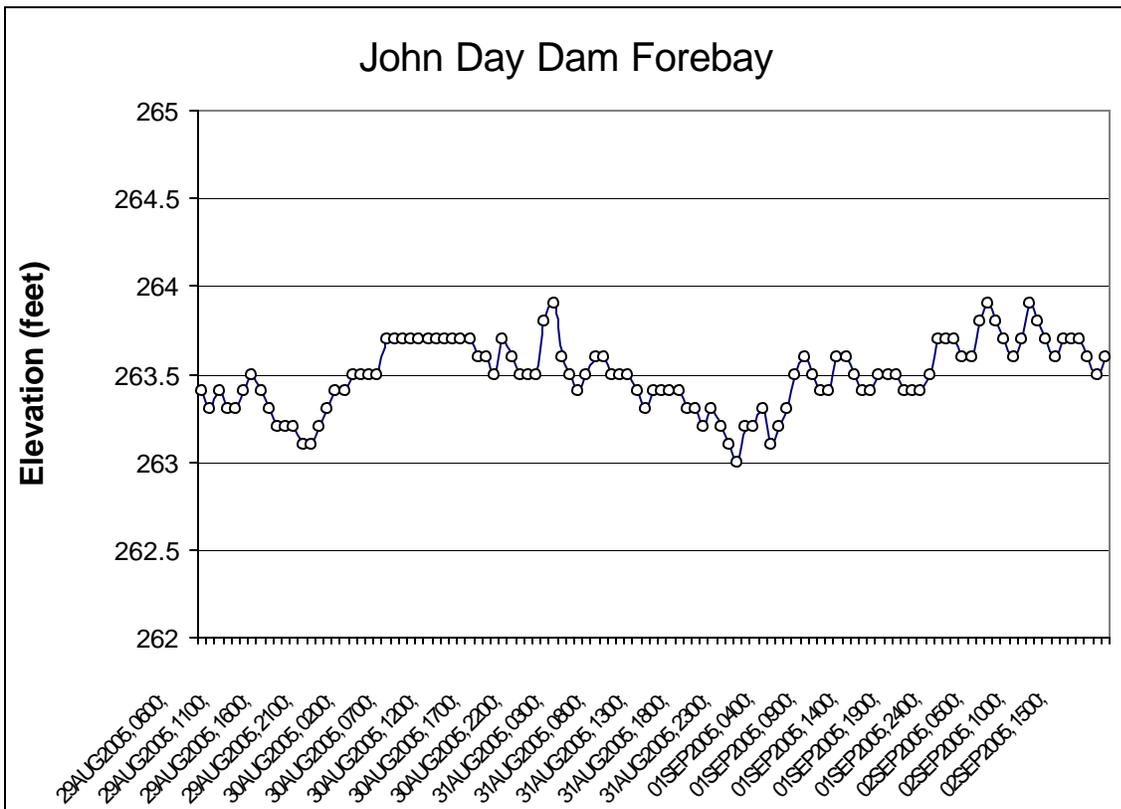


Figure 6. Observed JDA pool elevations during August 29-Sept. 2, 2005 autumn treaty fishing.

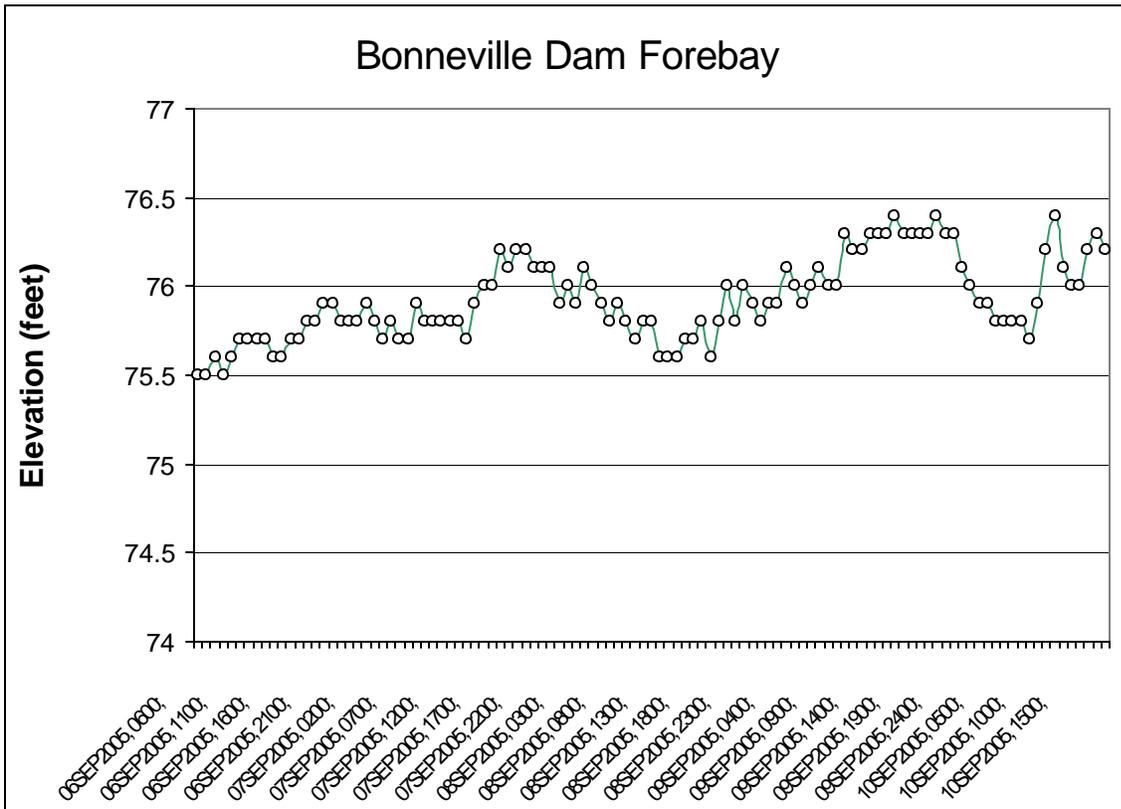


Figure 7. Observed BON pool elevations during September 6-10, 2005 autumn treaty fishing.

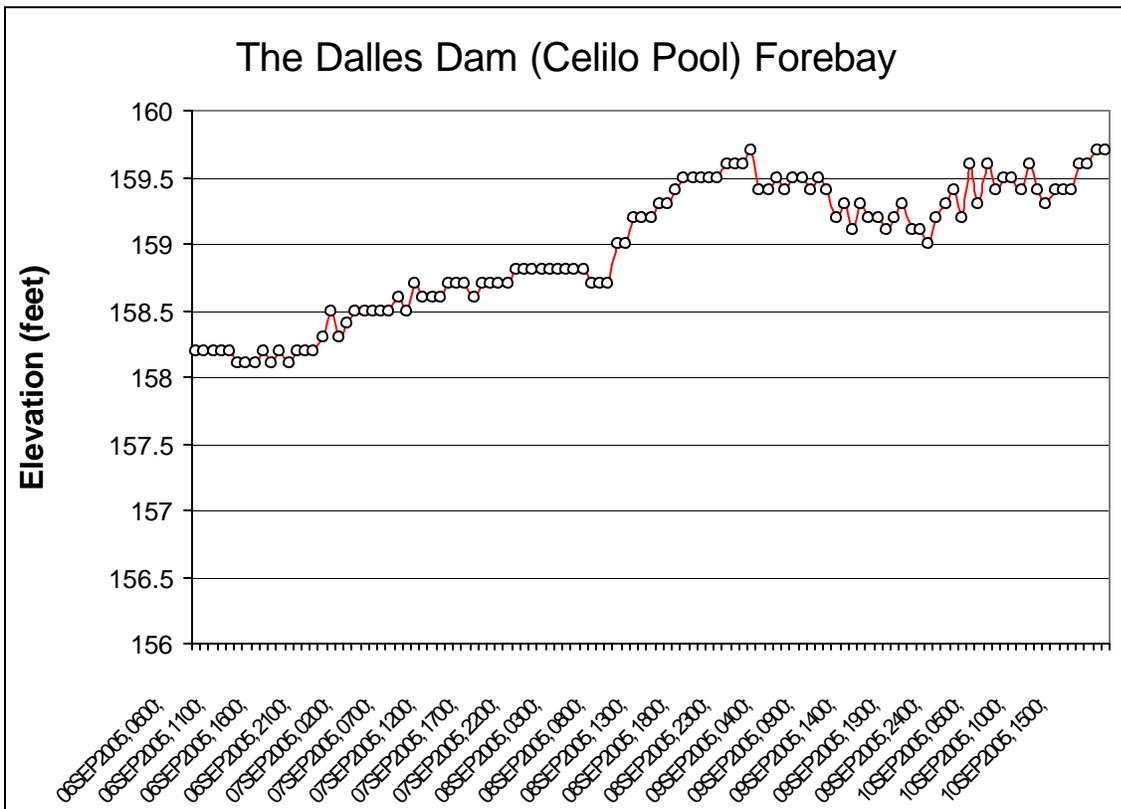


Figure 8. Observed TDA pool elevations during September 6-10, 2005 autumn treaty fishing.

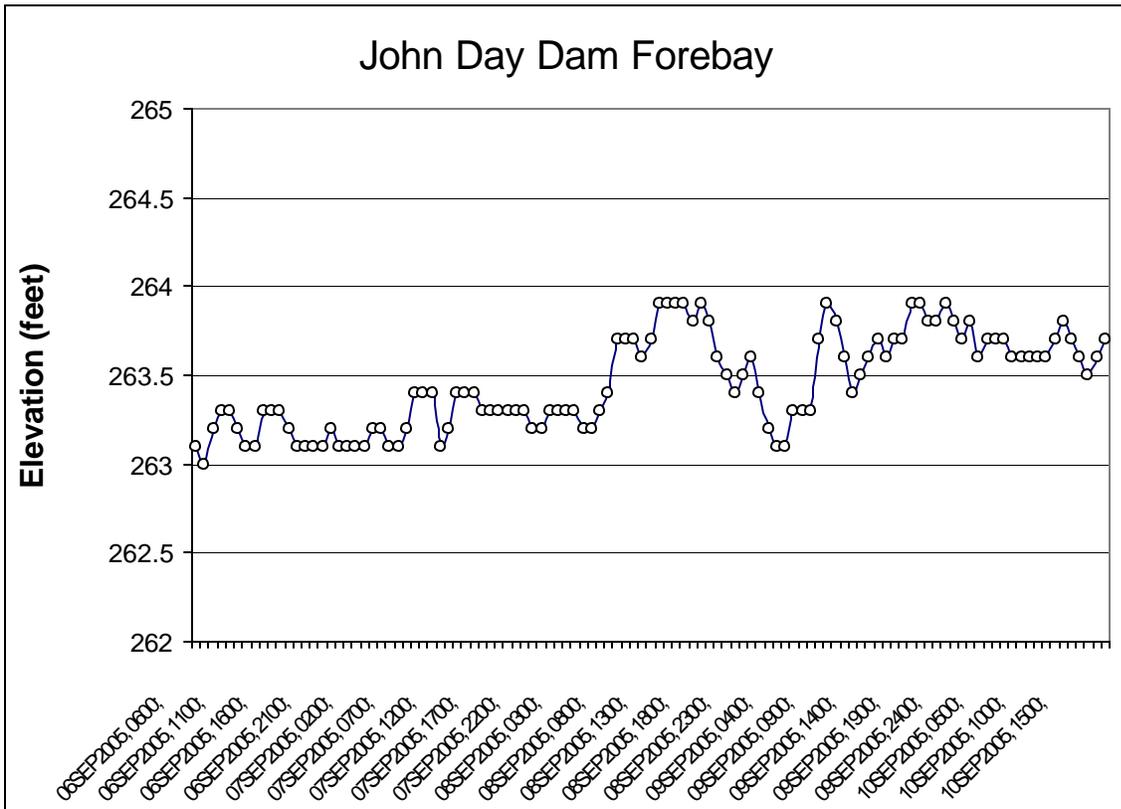


Figure 9. Observed JDA pool elevations during September 6-10, 2005 autumn treaty fishing.

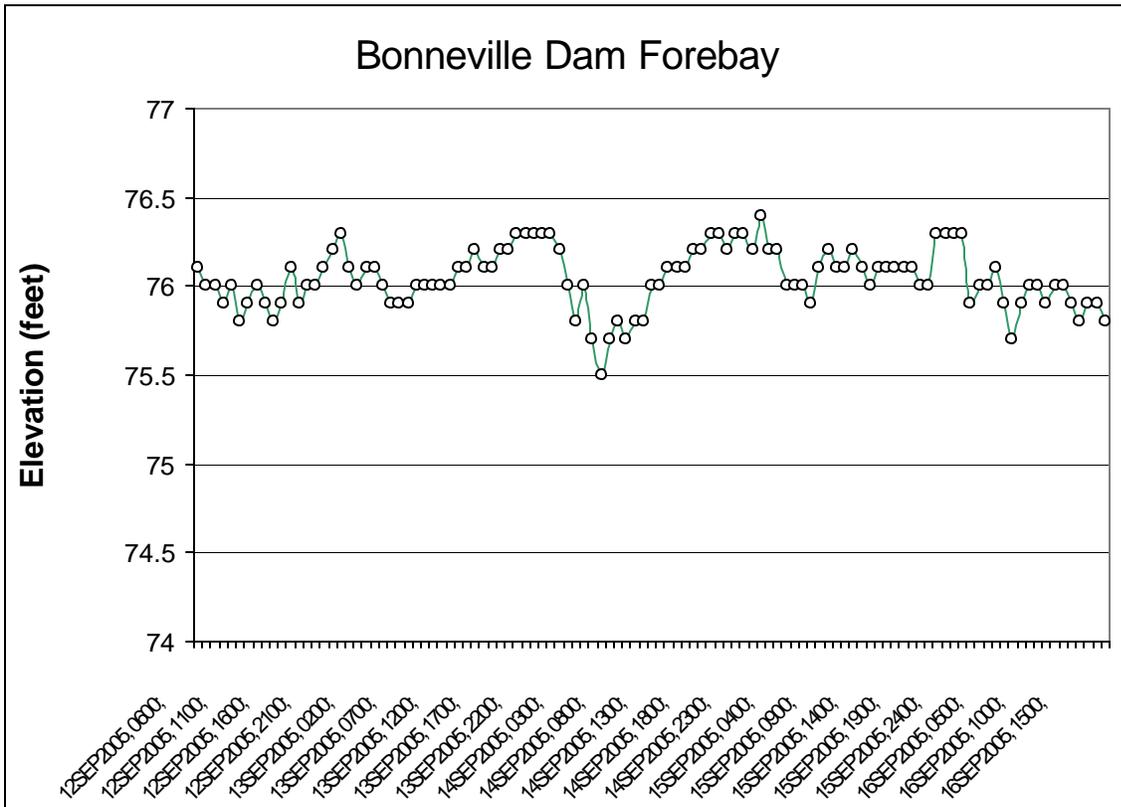


Figure 10. Observed BON pool elevations during September 12-16, 2005 autumn treaty fishing.

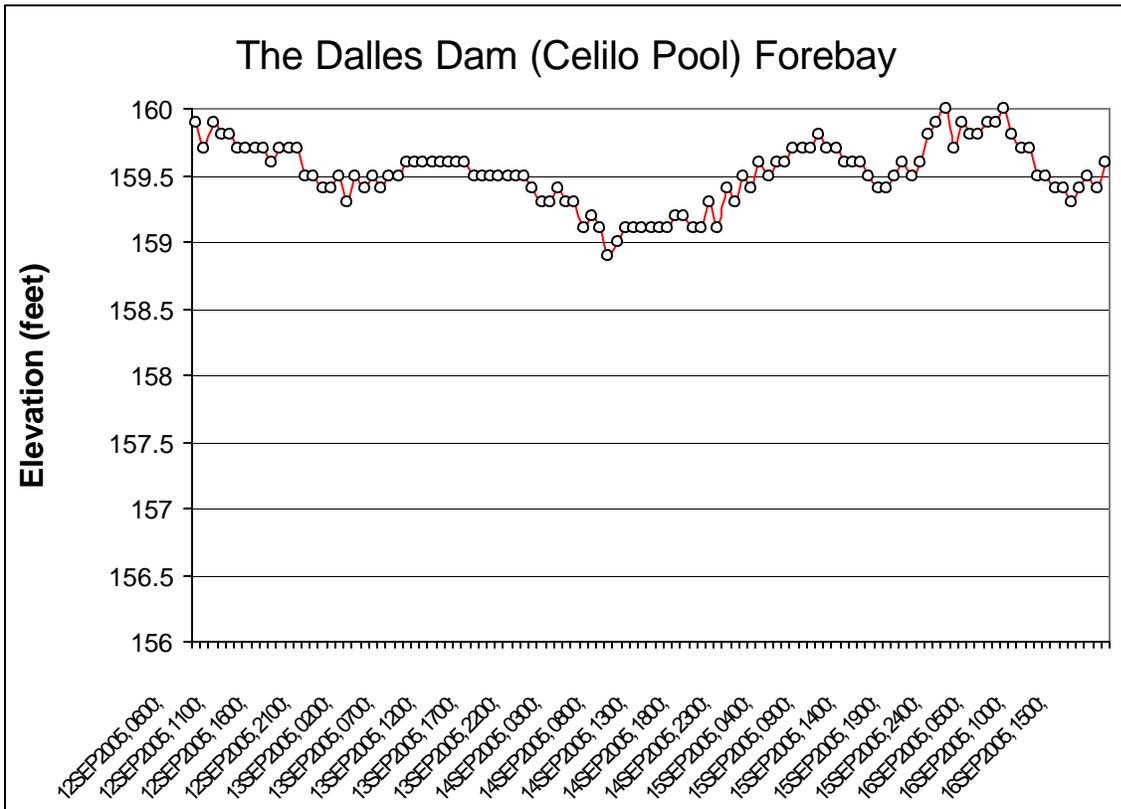


Figure 11. Observed TDA pool elevations during September 12-16, 2005 autumn treaty fishing.

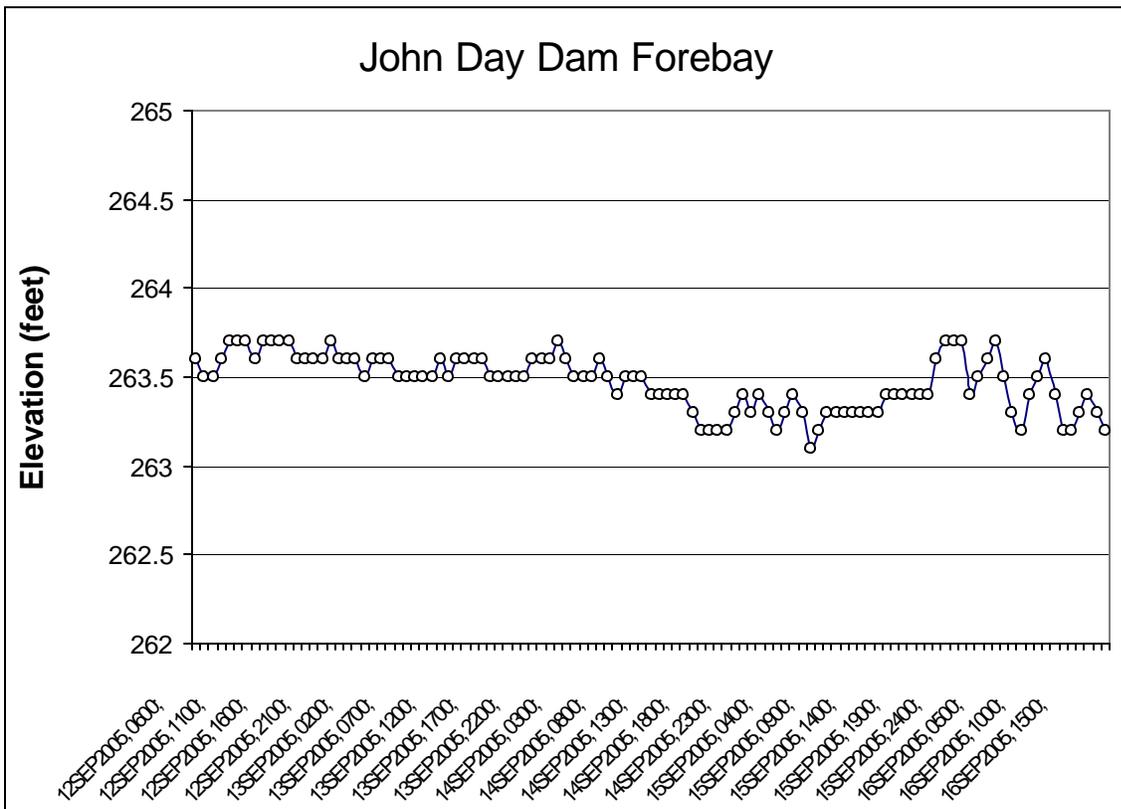


Figure 12. Observed JDA pool elevations during September 12-16, 2005 autumn treaty fishing.

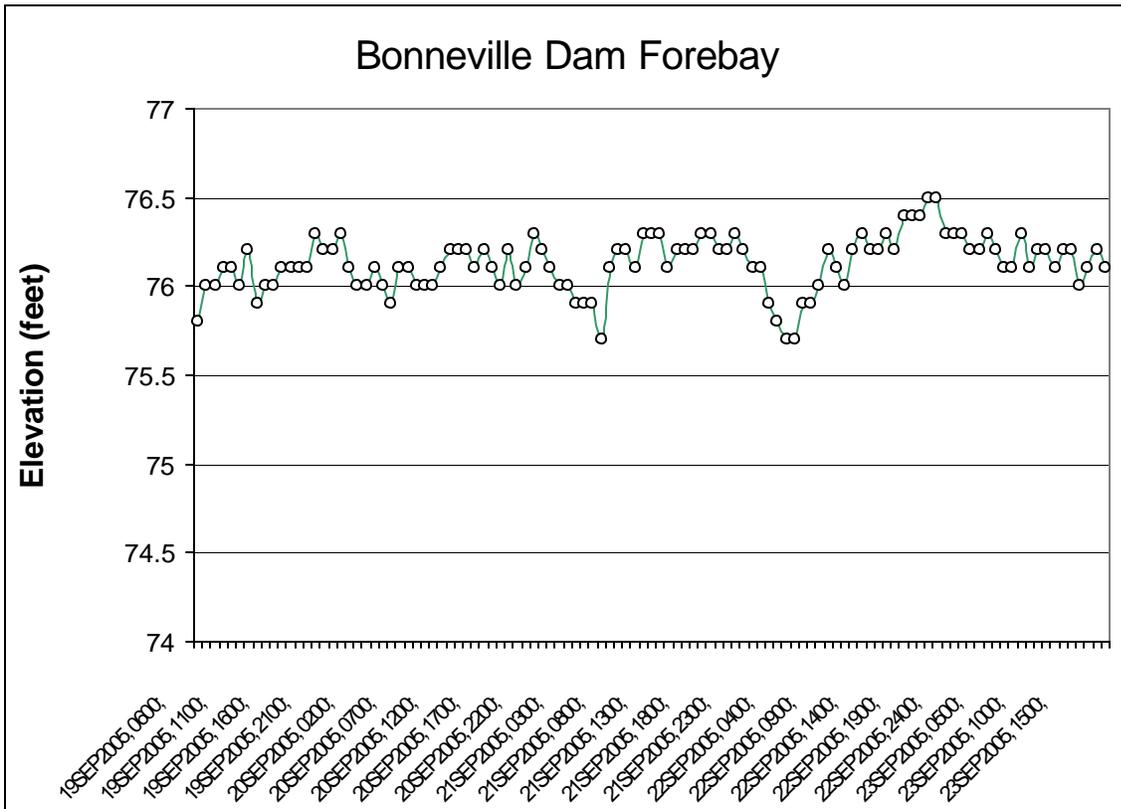


Figure 13. Observed BON pool elevations during September 19-23, 2005 autumn treaty fishing.

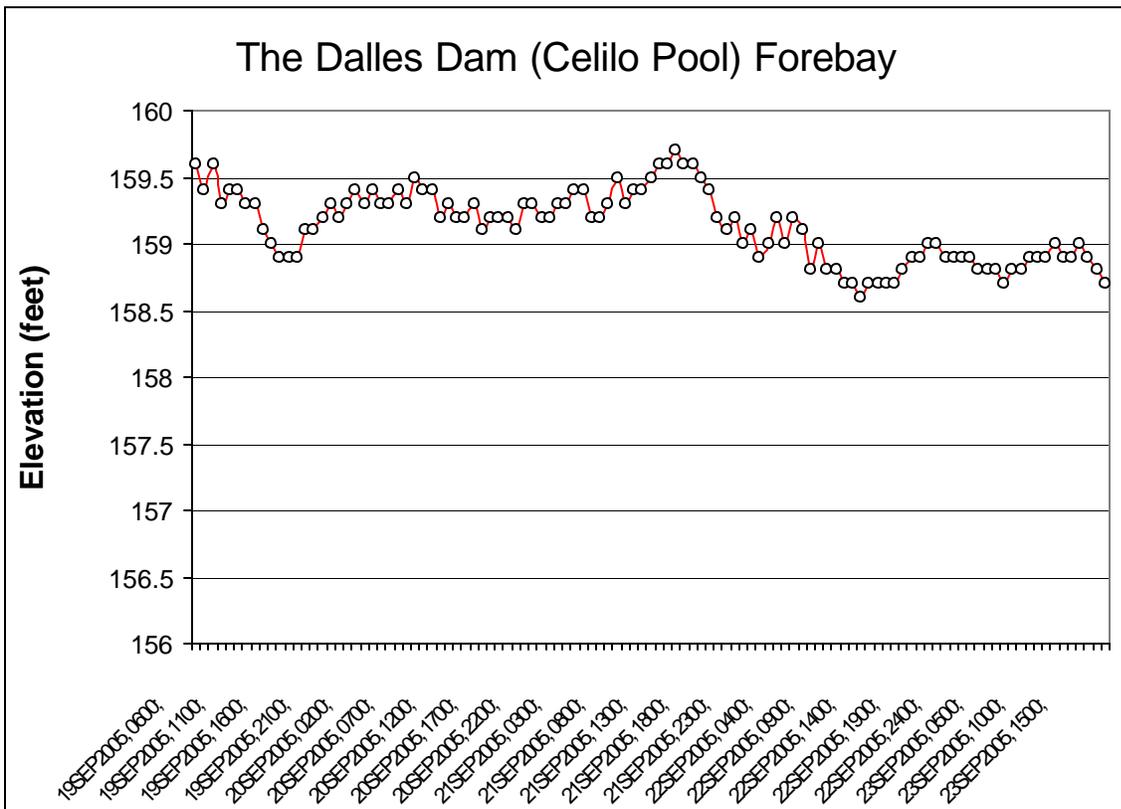


Figure 14. Observed TDA pool elevations during September 19-23, 2005 autumn treaty fishing.

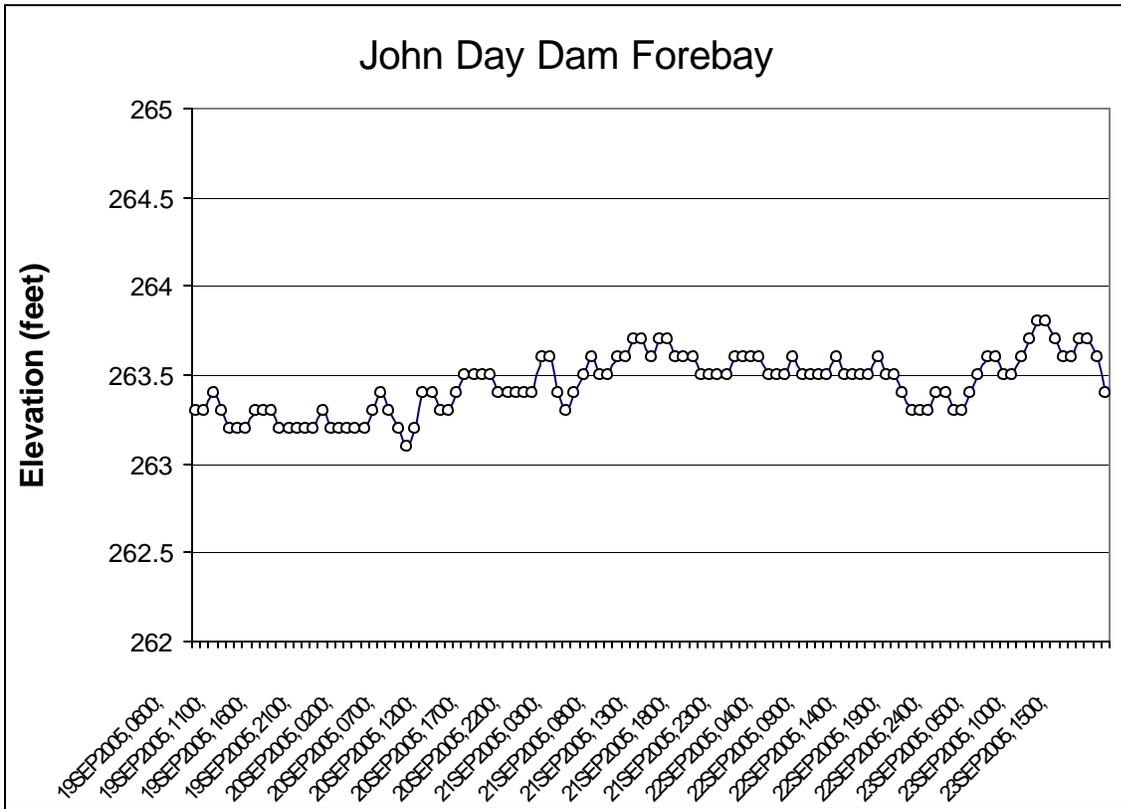


Figure 15. Observed JDA pool elevations during September 19-23, 2005 autumn treaty fishing.

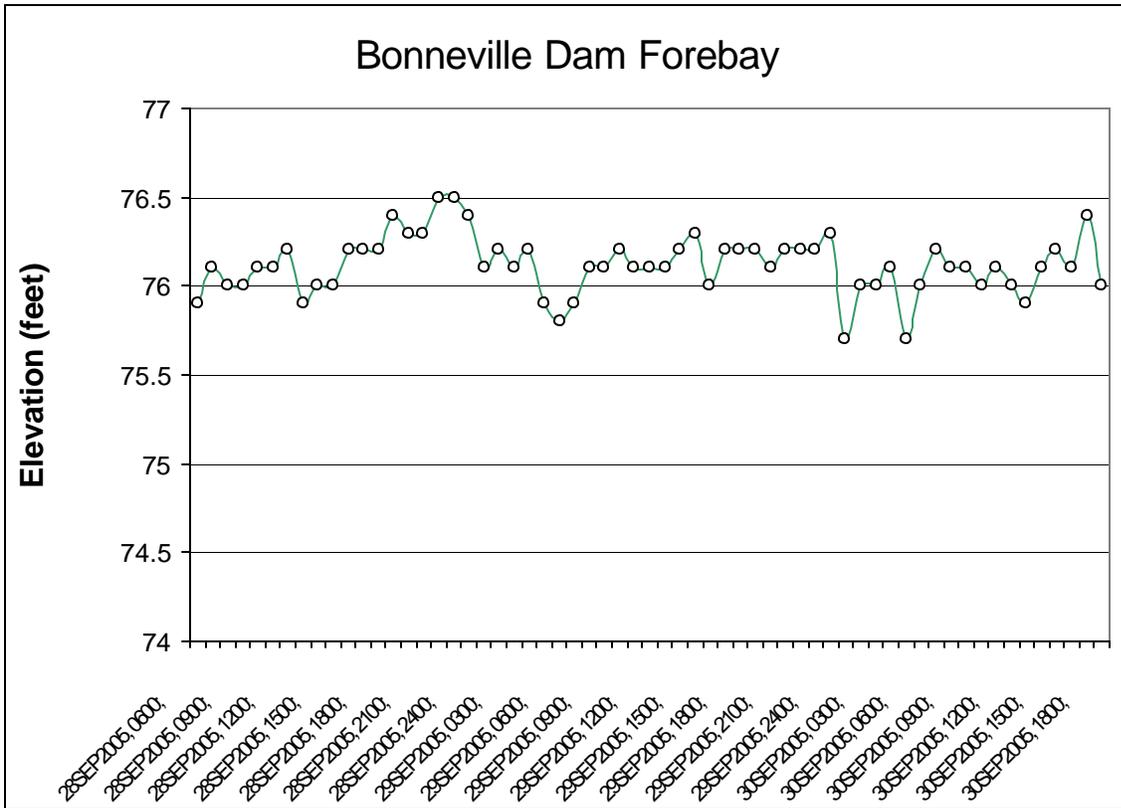


Figure 16. Observed BON pool elevations during September 28-30, 2005 autumn treaty fishing.

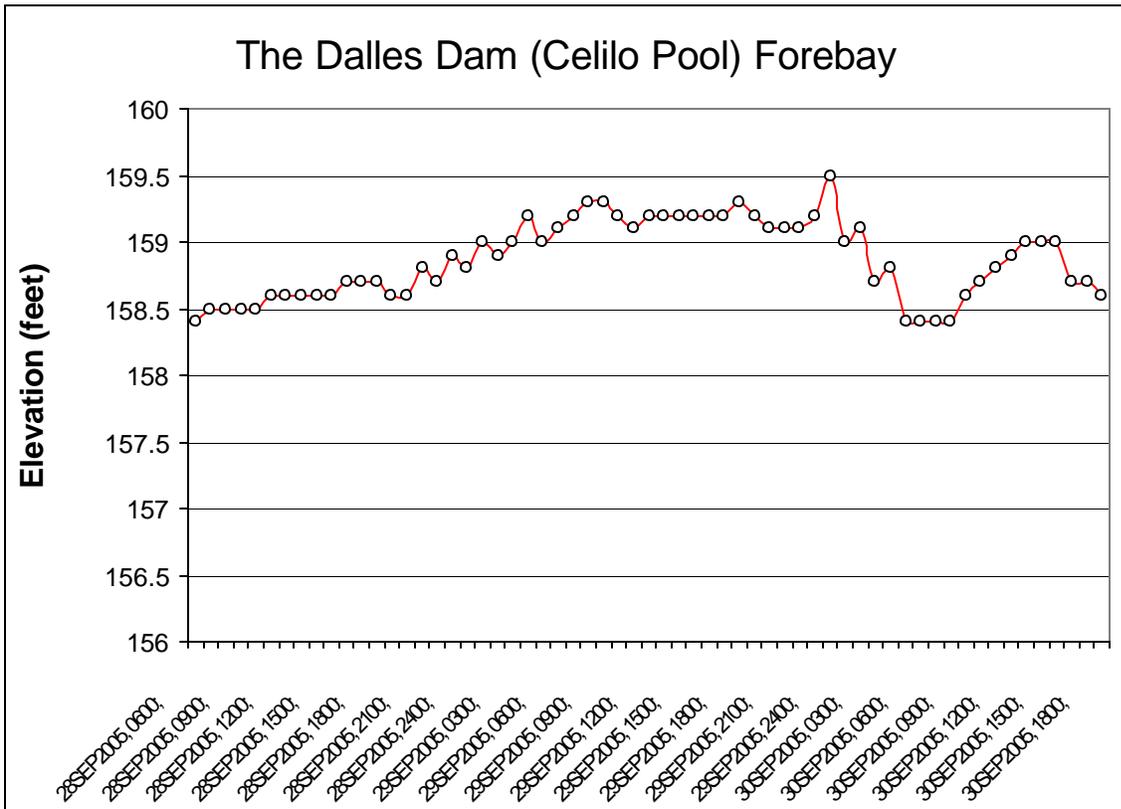


Figure 17. Observed TDA pool elevations during September 28-30, 2005 autumn treaty fishing.

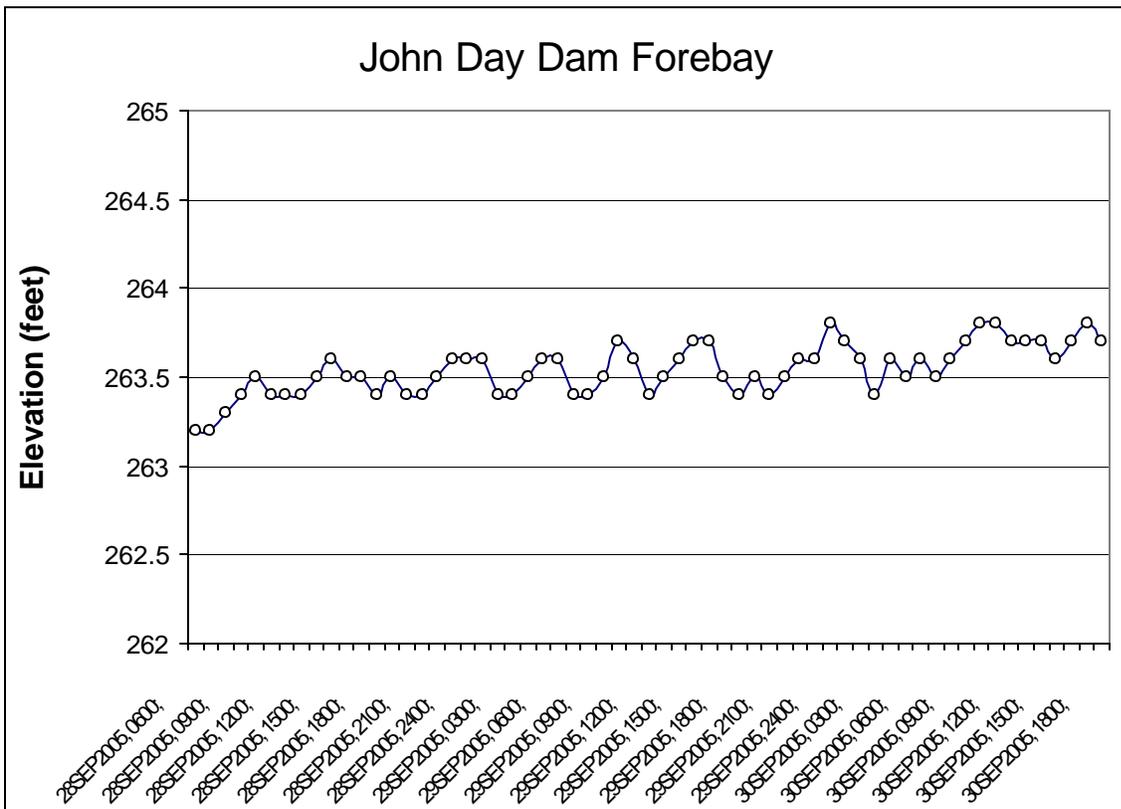


Figure 18. Observed JDA pool elevations during September 28-30, 2005 autumn treaty fishing.

COLUMBIA RIVER REGIONAL FORUM

TECHNICAL MANAGEMENT TEAM

October 12, 2005

FACILITATOR'S SUMMARY NOTES ON FUTURE ACTIONS

Facilitator: Donna Silverberg

Notes: 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.

Chum Discussion

A handout was provided with questions, background and responses about chum from regional chum researchers. Today's discussion was focused on those questions and is summarized below. (The written responses can be found in the document 'Summarized Responses for chum salmon questions' attached to today's agenda.)

- What is the maximum fluctuation in daytime Bonneville tailwater elevations that can be tolerated without impacting chum spawning? (Is there flexibility in exceeding the current 11.3-11.7' range for short, 2-hour, periods during the day?)

Responses:

- For starters, the question is hard to answer because we have not studied the known effects since all prior flow increases have occurred at night.
 - The chum seem to be more impacted by whether conditions are favorable to dig redds – we have not explicitly studied the impacts of temporal and spatial variations so it is difficult to answer what fluctuations and time periods would be tolerable. However, a two hour period probably is not enough to impact spawning behaviors and success.
 - With increases in flows, it is possible that fish new to the area might go elsewhere to spawn (e.g. at higher elevations). Providing a steady flow is best for the chum. However, some pulse during the day that serves to even out evening pulses would be an improvement to last year's operations.
 - There is not enough current data to answer the question.
-
- What is the maximum nighttime flow that can be tolerated without impacting chum spawning?

Responses:

- 13.5' is the maximum. If any higher, we would likely see new chum spawning areas. If this happens, the focus of the research will need to change.
- We know they can tolerate 15.1' without major changes in behavior. This level, however, will water up new areas. It is uncertain whether chum can collect redd sites at night and whether they select partners and spawn at night. All need study.

- Concerned that adults will get stranded if flows are up for prolonged periods of time.
- What are the implications to other BiOp requirements (April 10 rule curve, spring flows) and the Vernita Bar agreement of maintaining tailwaters above the current 11.5'?
 - Responses:
 - BPA provided a separate table and handout that can be found attached to today's agenda, 'Chum Flow Alternative Analysis', looking at data from 50 historical years. Using a base case, and assuming Grand Coulee has no draft limit, 11.5', 12', 12.5' and 13' tailwater elevations can be met all 50 times, but the Vernita Bar protection flow levels at higher elevations are missed. Priest Rapids and McNary flow objectives are missed more often when higher tailwater elevations were modeled. Grand Coulee also missed April 10 refill probability more often and had to draft deeper when a higher tailwater elevation was modeled.
 - The table does not show what the April 10 refill probability would be; it is based on real time modeling which you do not have until the operation begins. That said, generally there is an increased risk of not meeting refill if flows are above 11.5' (85% probability of refill drops).
- If tailwaters are increased to provide additional spawning habitat and reduce superimposition in the Hamilton Creek area, when would be the best time to do this and to what tailwater to provide the greatest benefit to chum?
 - Responses:
 - To 13.5'; *When* is more difficult to answer – need on the ground monitoring to get at this question.
 - It remains uncertain whether or not superimposition is negative for the fish. We also do not know if fish would spread out with higher flows. Again, this needs further study. Off the cuff, December might be a good time to increase tailwater elevations.
 - An increase in tailwater for an extended period of time would be required- if you bring it up, you'll need to leave it up to establish conditions for spawning.
 - December might be too late – mid to end of November might be better.
- What is our best estimate for the number of chum expected to spawn in each of the mainstem areas this year as well as tributaries?
 - Responses:
 - See the numbers in the handout for a direct answer to this question
 - The overall population trend has been declining since 2001.
 - Need age class data to get a more complete picture.
 - Which population should be tracked to study impacts of ocean productivity? The objective would be to distinguish between effects we can control (spawning habitat) and those we cannot (ocean conditions). Suggest looking at hatchery production.

- The balance between superimposition and dewatering redds needs to be further studied – it may be that dewatering some redds would benefit a larger number of redds/chum in the long run.
- What are the effects on Bonneville tailwaters and biological benefits to chum by drafting 4' from Lake Pend Oreille?

Responses:

- BPA's potential revenue effect is a gain of \$5 million annually, about 6 kcfs for 30 days.
- The biological impacts, generally, would potentially provide a benefit – the salmon managers will have more discussion on this.

Ultimately, the action agencies would like feedback from the salmon managers about what maximum nighttime flow is acceptable before becoming detrimental to the fish – a threshold question. This will greatly aid in making daytime operational decisions. Then, provide guidance on when and what shape flows should be to move excess water during daytime hours.

Next Steps:

- The action agencies will add narrative to the table they provided to assist with their explanation for future discussions.
- The salmon managers will look at night flow maximums and daytime variations for flow (how much and how often) and give feedback to the action agencies.
- Discussions will continue at the next TMT meeting, October 19.
- There will likely be an SOR drafted for operations this year, and, if consensus is reached, changes to operations/protocols might be formalized in a future WMP/ Fall/Winter Update.

Review of Autumn Treaty Fishing

Kyle Dittmer, CRITFC, provided handouts of his summary of the six-week tribal fishing season this year, from August 22-September 30. They are linked to the agenda. The tribes' request was met 100% of the time at Bonneville, 82% at The Dalles and 70% at John Day – an increase in 'compliance' at all pools from last year. Kyle thanked the action agencies for meeting the request so often and for being successful at holding stable flows. The final SOR for treaty fishing this year removed language explicitly requesting a maximum tailwater elevation, and just said 'no lower than x elevation'. This language will be used in future SOR's. Kyle was not aware of any net incidents this year.

Operations Review

Reservoirs – Libby was at 2439.2' and releasing 4700 cfs out. Albeni Falls was at 2059.7' with 19 kcfs out. Dworshak was at 1518.9', releasing 1.6', with slightly lower inflows. Hungry Horse was at 3538.7' and operating to meet Columbia Falls. Grand Coulee was at 1287.2'. The Lower Granite tailwater elevation was increased to 738'.

Fish – Smolts: Paul Wagner, NOAA reported that yearling numbers increased at Lower Granite recently, and subyearlings increased at Lower Granite, Little Goose and Bonneville.

Adults: Cindy LeFleur, WDFW, has a power point presentation on adult passage numbers, which will be posted to the TMT web page. She noted that the Fall Chinook run is coming to a close. Upriver brights were predicted at 354,000 and 293,000 were observed. Upriver summer steelhead were predicted to reach 296,000 and were close to the forecast. Bonneville hatchery fish were estimated at 115,000 and reached 102,000. The sport fishery season has closed. Commercial fishing is ongoing. The total treaty harvest reached around 113,000 chinook. Fall chinook jack numbers are low compared to 2004 and the 10-year average.

Power system – Nothing to report at this time.

Water quality – The rivers are cooling – 59-60° in the Snake, 60-61° in the Lower Columbia, and in the 40's and 50's in the Clearwater.

Next Meeting, Wednesday, October 19:

Agenda items include:

- Chum Discussions
- Lake Pend Oreille SOR
- System Operations Review

TMT Year End Review, November 2, Portland District COE:

An agenda is attached with the potential for some presenter names changing – the meeting will be held from 9am-3pm at the COE's Portland District building, 333 SW 1st, on the 3rd Floor. Security is tight, so anyone that plans to attend should notify Cathy Hlebechuk at the COE, 503-808-3942. The facilitation team will invite Dr. Howard Horton to attend, as requested by the TMT members. Also, lunch will be provided for those that want it (charge is \$6.00) – RSVP to the facilitation team whether you plan to attend and if you want lunch: ehalton@cnnw.net or call 503-248-4703 no later than October 27.

Technical Management Team Meeting Notes

October 12, 2005

1. Greetings and Introductions.

Today's Technical Management Team meeting was chaired by Cathy Hlebechuk and facilitated by Donna Silverberg. The following is a summary (not a verbatim transcript) of the topics discussed and decisions made at this meeting. Anyone with questions or comments about these notes should contact Hlevbechuk at 503/808-3942.

2. Chum Discussion.

[I arrive 20 minutes or so into the meeting. When I arrive...]

One other point to make, in regard to chum, we've seen the chum numbers go down by about 20% per year since 2002, said Skalicki. It sounds, then, as though you're arguing for that 13.5 elevation, said Silverberg. And what flow is required to maintain 13.5 feet? Dittmer asked. About 145 Kcfs – there's no way you can maintain that 24/7, said Wellschlager. Could you provide 13.5 feet as a day-average, with some load shaping? LeFleur asked. To the extent that you have the ability to push water into the day, you would be able to shave off those peaks.

The last three water years have been below normal, correct? asked one participant. Correct, said Wellschlager. It sounds as if this might be a normal or wetter-than-normal water year, said the participant. We don't know that yet, said Wellschlager – I wouldn't bank on that. Norris noted that, historically, an 11.5-foot tailwater elevation cannot be correlated to a specific velocity regime below Bonneville. That is absolutely correct, said Tiffan.

The discussion then moved on to question 3: "What are the implications to other BiOp requirements (April 10 rule curves, spring flows etc.) and the Vernita Bar agreement or maintaining tailwaters above the current 11.5 feet throughout spawning, incubation and emergence? Wellschlager said Bonneville had done a study, based on 50 historic water years, of the outcome of this operation; he noted, however, that it does not apply to this water year (study assumptions and results are available via hot-link from today's agenda on the TMT homepage).

What are the outcomes? You can meet the Vernita Bar operation providing you can draft Grand Coulee to the bottom, said Wellschlager. However, at the higher tailwater elevations, you start to get some misses on the Vernita Bar target, because the tailwater elevation is at the bottom of the system. You would miss those flow targets in 5 of the 50 years? LeFleur asked. Correct, Wellschlager replied.

With respect to Grand Coulee, said Wellschlager, the higher the tailwater elevation, the lower Grand Coulee elevations go – for example, the average Grand Coulee elevation on March 31 was 1244 if a 13.5-foot tailwater elevation is maintained. In some years, Grand Coulee would bottom out at 1208, the lowest it could go. However, in 50 out of 50 years, Grand Coulee would have refilled by June 30, Wellschlager said.

If you're meeting the chum flows, what does that do to your spring flows at Priest Rapids and McNary? Wellschlager continued. At Priest Rapids, it looks as though average flows don't go down that much at Priest Rapids for the April 16-June 30 period. However, the bookends are wide. Norris noted that this is a monthly 14-timestep model; actual flows vary considerably in their timing. If

Grand Coulee is drafted to the bottom, and you have another week to wait until the freshet arrives, you could strand the entire Vernita Bar reach for a week.

One other point, said Wellschlager: in a perfect world, you would vary flows for each particular water year. In a high water year, when Willamette and Sandy River flows are high, you would need less water from the headwater projects. In a drier year, more water will be needed from the headwater projects. However, we weren't able to include that parameter in the model, because there is no historic record of Bonneville tailwater elevations. It's basically a complete crap-shoot, as to how much you'll need to draft from the headwater projects in a given year to maintain a given tailwater elevation below Bonneville, Norris observed. Probabilities of refill are based on real-time information, not on the historic record.

The short answer to this question, then is that if you go above 11.5 feet below Bonneville, you impact your ability to meet spring refill targets, said Wellschlager. If the TMT decides to do that, that's fine, but the group will need to acknowledge that risk, he said.

The discussion then moved on to Question 4: "If tailwaters are increased to provide additional spawning habitat and reduce superimposition in the Hamilton Creek area, when would be the best time to do this and to what tailwater to provide the greatest benefit to chum?"

Skalicki noted that the first part of the question, what elevation would be optimal, is relatively simple to answer – 13.5 feet. The question of when that should be achieved is more problematic. Answering that question will require on-the-ground monitoring, to determine when spawning begins.

Tiffan said that, in a nutshell, the researchers are assuming that superimposition is a bad thing, and spreading the redds out would be a good thing. We haven't really looked at that, however – we don't have data that shows that redd superimposition is bad, and that a higher tailwater elevation would encourage the spawners to spread out. Off the cuff, he said, I would say that you would want to ramp the tailwater elevation up around December 1. Tiffan added that chum spawners seek warmer bed temperatures in choosing where to spawn, so simply opening up more spawning areas may or may not encourage chum spawners to spread out, rather than spawning on top of existing redds. Skalicki added that the date of the spawning peak varies from year to year; if you can determine when the peak is occurring, that would be the time to increase the tailwater elevation.

The discussion then moved on to Question 5: "What is our best estimate of the number of chum expected to spawn in each of the mainstem areas (Ives Island, Multnomah, the 205 Bridge) this year as well as tributaries (Hardy, Hamilton, Grays Harbor etc.)?"

The researchers provided a table showing a declining population trend from 2002 to 2003 to 2004 for each of the three primary mainstem chum spawning areas: Ives Island, Multnomah and I-205. At the Ives Island area, for example, the 2002 population estimate was 3,179; in 2003, it was 1,899; in 2004, 1,041. LeFleur noted that age data on the spawners for each year would be a critical component in estimating the number of returning spawners in 2005.

Skalicki noted that the tributary spawning areas are extremely susceptible to sudden high flow events; in one year, the Greys River spawning channel blew out, and the entire year-class was lost. He added that researchers have identified at least three genetically-distinct chum populations in the lower river.

Russ Kiefer asked about the impacts of ocean productivity on chum populations, vs. the impacts of river operations. He noted that various Snake River populations have shown a similar decline in the last three years. That's a good point, said Skalicki; however, we don't have any control over ocean conditions – all we can do is try to provide the best in-river conditions we can. Still, said Kiefer, unless we look at this, there is no way to separate out the effects of our management actions on chum and other spawners – perhaps we could choose a tributary or hatchery population that is not affected by river operations, and track their status from year to year. That might be one way to get a handle on the effect of ocean conditions, he said.

The group discussed the impact of tidal effects, as well Willamette River discharge, on Bonneville tailwater elevations, particularly at spawning sites that are farther from Bonneville, such as I-205. There are times when you could be running a perfect operation at Bonneville, but because of tidal and Willamette River effects, the I-205 redds can be left high and dry. In response to a question, he noted that there really doesn't appear to be a beneficial intermediate tailwater elevation between 11.5 feet and 13.5 feet. There is a balance between dewatered redds at various elevations and redd superimposition is probably one you should be paying more attention to, one researcher observed.

I think one thing we haven't been willing to do, in previous years, is to say, let's start out at 11.5 feet, then bump up to 12.5 feet once spawning begins to peak, then drop back down to 11.5 feet if it looks as though refill is in jeopardy, Wellschlager observed. I have a problem with that, because no one is willing to drop the tailwater elevation, potentially dewatering chum redds, based on the January forecast, said Norris. It's not an easy decision, but it is one we made in 2001, Paul Wagner replied.

The group devoted a few minutes of discussion to within-day operations; in particular, the question of what peak nighttime flow the salmon managers would prefer that the action agencies not exceed. If you could give us a top flow which, if it looks as though that's going to be exceeded, you would prefer to see

us move some of that flow into the day, that would be very helpful, Wellschlager said. The group also discussed what magnitude and duration of daytime flow fluctuations might be tolerable to chum. It was agreed that the salmon managers will discuss these questions and will try to give the action agencies an answer at the next TMT meeting.

In response to a question from Filardo, Wellschlager said that, even when the market price of energy is very high, Bonneville would not implement a major power draft during the winter if it meant going below 85% probability of refill. There is a saying on our trading floor, Wellschlager said – “Pigs get fat, but hogs get slaughtered.” In other words, he said, Bonneville is obligated to take a very conservative approach to both power sales and their impacts on refill probability, said Wellschlager.

The discussion then moved on to Question 6: “What are the effects on Bonneville tailwater and biological benefits to chum by drafting 4 feet (from elevation 2055 to 2051) from Lake Pend Oreille?”

Wellschlager provided a brief overview of Bonneville’s analysis of this question, noting that 4 feet at Albeni Falls is equal to 180 ksf, or 6 Kcfs over a 30-day period. That means energy production would increase during November, and a decrease during April. Since power prices are higher in November than they are in April, that would be financially beneficial to Bonneville, a gain on the order of \$1 million-\$13 million, depending on the price of power. The other side of the question, of course, is what the biological benefits of such an operation would be for chum, Wellschlager said. After a brief discussion, it was agreed that the answer to this question is not known at this time.

This has been a very useful conversation, said Silverberg, I really appreciate the work everyone has done on this issue. This is the first year in which we’ve had this conversation in advance of the chum management season, and hopefully, that will yield some benefits once November arrives. It was agreed that, between now and the next TMT meeting, the salmon managers will attempt to draft an SOR describing their view of how daytime/nighttime Bonneville flow fluctuations should be managed to avoid harming chum.

3. Review of Autumn Treaty Fishing.

Dittmer said CRITFC submitted four SORs covering operations during the 8-week 2005 autumn treaty fishery. Each of these SORs requested a stable 1-foot operating range at the three Zone 6 pools (Bonneville, The Dalles and John Day). He noted that the Corps agreed to operate Bonneville pool within a hard 1.5-foot range, but imposed no hard constraints on the operation of The Dalles or John Day pools. The Corps did agree to hold the elevation of The Dalles and John Day pools within 1.5 feet as a soft constraint, however. He provided a table showing 2005 hourly compliance with CRITFC’s requested 1-foot elevation band criteria, and with the Corps’ 1.5-foot operating range.

Dittmer noted that, in 2005, Bonneville elevation was within the 1-foot elevation range 100% of the time, the first time that has ever happened. this compares to 81% compliance in 2004. At The Dalles pool, compliance was 82%, up from 72% in 2004. At John Day pool, compliance was 70%, up from 51% in 2004. Compliance with the Corps' 1.5-foot range at Bonneville, The Dalles and John Day pool was 100%, 94% and 100%, respectively. In all, it was a very good fishing season, Dittmer said.

Dittmer said he has not yet contacted the CRITFC Law Enforcement office to see whether any significant incidents occurred during the autumn treaty fishery; he said, however, that he is not aware of any. In general, he said, I think we're getting closer to the operation we'd like to see, from a treaty fishing perspective.

4. Operations Review.

Hlebechuk said Libby 2439.2 feet and filled 2.6 feet since September 29 – high inflows from the rainstorms. The project is releasing 4.7 Kcfs. Albeni Falls: 2059.7 feet, releasing 19 Kcfs. Dworshak: 1518.9 feet, releasing 1.6 Kcfs minimum outflow. Inflows are currently below 1.6 Kcfs. HH: 3538.7 feet, operating to meet the Columbia Falls minimum. Grand Coulee is at elevation 1287 feet. Hlebechuk said Lower Granite has experienced a significant amount of natural cooling, so the project is now operating up to elevation 738, up half a foot. This operation was coordinated with the Salmon Managers

Wagner said both yearling and subyearling chinook passage has unexpectedly nosed upward at the Lower Snake projects, with 200-300 fish now passing Lower Granite daily. These are likely spring/summer fish, he said. Subyearling passage has also increased recently at Bonneville, with daily counts in the low three digits.

With respect to adult passage, LeFleur said the fall chinook run is now at its tail end. The upriver bright fall chinook run was predicted at 354,000, pre-season; the actual run estimate is now 293,000 at the river mouth. For Spring Creek Hatchery fish, we predicted 115,000, and right now, the total is about 102,000. Upriver summer steelhead totaled 296,000, about 2,000 fish over the number forecast, similar to the 10-year average. With respect to sport fisheries, harvest is about 27,000 chinook so far in 2005, for the area below McNary. Commercial fisheries are ongoing; the harvest to date is about 26,000 chinook. the treaty fishery took 113,000 chinook this year. Currently, the commercial fishery is focused on sturgeon harvest, although there may be some more chinook and coho fishing next week. The commercial season will close at the end of this month.

It sounds as though the summer and fall returns were pretty much in-line with your pre-season predictions, unlike the spring chinook, said Wellschlager –

any thoughts as to why? They're completely different stocks, and go to different places in the ocean, LeFleur replied. Obviously there was a problem with our spring forecast; WDFW will be preparing a report for the US v. Oregon parties, who will be examining the question of what happened with the spring run. In response to a question from Wagner, LeFleur said 2005 fall chinook jack counts are significantly below the 10-year average. However, that only gives you information about next year's three-year-old returns, she said; there are five fall chinook age classes in all. Bear in mind, too, that we've seen record returns in recent years; it wasn't long ago that an escapement of 40,000 upriver brights, rather than the 300,000 we've been seeing lately, was the norm.

Wellschlager said there is nothing significant to report, with respect to the power system. Moving on to water quality, Laura Hamilton said there is little of significance to report, other than the fact that both the Snake and the Columbia are cooling down.

5. Next TMT Meeting Date.

The next Technical Management Team meeting was set for Wednesday, October 19. Meeting summary prepared by Jeff Kuechle.

**TMT Participant List
October 12, 2005**

Name	Affiliation
Russ Kiefer	IDFG
Cathy Hlebechuk	COE
John Wellschlager	BPA
David Wills	USFWS
Donna Silverberg	Facilitation Team
Cindy LeFleur	WDFW
Tony Norris	USBR
Paul Wagner	NMFS
Kyle Dittmer	CRITFC
Robin Harkless	Facilitation Team
Dan Spear	BPA
Nic Lane	BPA
Margaret Filardo	FPC

Dave Benner	FPC
Larry Beck	COE
Tina Lundell	COE
Tim Heizenrater	PPM
Ken Tiffan	USGS
JoeSkalicki	USFWS

TECHNICAL MANAGEMENT TEAM

BOR: Tony Norris / John Roache

BPA: John Wellschlager / Nic Lane

NOAA-F: Paul Wagner

USFWS: David Wills / Steve Haeseker

OR: Ron Boyce

WA: Cindy LeFleur

ID: Russ Kiefer

MT: Jim Litchfield

COE: Cindy Henriksen / Cathy Hlebechuk

TMT MEETING

Wednesday October 19, 2005 0900 - 1200 hours
1125 N.W. Couch Street, Suite 4A34
Portland, Oregon 97208
Conference call line: 503-808-5190

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

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

AGENDA

1. Welcome and introductions.
2. Continuation of Chum Discussion
 - i. [\[Chum Research Questions developed 16 August 05\]](#) 
 - ii. [\[Chum Flow Alternatives Analysis - October 11, 2005\]](#) 
 - iii. [\[Summarized responses for chum salmon questions - September 28, 2005\]](#) 
3. Chum Sor
 - i. [\[SOR 2005-19amended - October 18, 2005\]](#) 
4. Lake Pend Orielle operations
 - i. [\[SOR 2005-FWS/IDFG-2 - October 17, 2005\]](#) 
5. Operations Review
 - a. Reservoirs
 - b. Fish
 - i. [\[Fish Passage Center Homepage\]](#) 
 - ii. [\[Northwest Power and Conservation Council\]](#) 
 - c. Power System
 - d. Water Quality
 - i. [\[Daily Water Temperature Reports\]](#)
6. Other
 - Set agenda for next meeting - [\[Reference Calendar\]](#) 

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

COLUMBIA RIVER REGIONAL FORUM

TECHNICAL MANAGEMENT TEAM

October 19, 2005

FACILITATOR'S SUMMARY NOTES ON FUTURE ACTIONS

Facilitator: Donna Silverberg

Notes: 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.

Chum Discussion

The salmon managers submitted SOR 2005-19, requesting a similar operation to last year: when chum are observed, operate to a minimum tailwater elevation of 11.5' at Bonneville with average daily flows not expected to exceed 125 kcfs. The action agencies agreed to the operation, and clarified that there would need to be an operating range. The participating TMT members agreed on 11.3-11.7'.

ACTION: Under the 'To': The salmon managers will add John Wellschlager's name and Greg Delwiche will be replaced by Steve Oliver.

The salmon managers are still in discussions about next step operations, recognizing the challenges of balancing all needs in the system. ODFW takes surveys on Tuesdays and Thursdays; to date no chum have been observed. In the past, the chum have arrived in early November. When they are observed, surveyors will notify Russ Kiefer, as the new FPAC chair, and TMT. Cindy LeFleur, WDFW, will track the Grays River and keep TMT informed as chum are observed there. The action agencies expressed appreciation to the salmon managers for putting forth the SOR well in advance of the operation. Cathy Hlebechuk said the Corps is preparing a slide to show how, when daytime flows are low and nighttime outflows are over 200,000 cfs, this impacts tailwater directly below the project but has negligible effect at Vancouver and therefore negligible effect on I-205 and Multnomah Falls spawning conditions. She said during a December 2004 event, the stage difference at Vancouver was only 1.2' and the Bonneville tailwater difference was 8'.

Lake Pend Oreille Operations

IDFG and the USFWS submitted SOR 2005-FWS/IDFG-2. Russ Kiefer said the SOR attempts to describe the agency's needs and to provide the action agencies with operating flexibility, e.g. specification #2: Hold Lake Pend Oreille as high as possible through October 31, and minimize the need to spill in order to reach elevation 2055' by mid-November. This type of language might be incorporated into a decision tree to be used for future years.

Idaho acknowledged that while the proposed operation will not work every year, conditions were good to request implementing it this year. It was noted that a potential burden is placed on ratepayers, and the decision tree will work to address that concern for future years. The BOR, COE, and BPA agreed to the operation and asked to hear from the salmon managers. Oregon and NOAA agreed, and since Washington had not been involved in discussions leading up to this point, chose to offer no comment. Montana was not represented at the meeting. The operation will be implemented this year, holding Lake Pend Oreille as high as possible until 31 October and drawing it down to no lower than 2055' by 20 November, preferably by 15 November. Again, the group acknowledged the good work that went into laying the foundation to make the operation happen this year. Editors note: after TMT, Cathy Hlebechuk sent this note to TMT members: At TMT I mentioned how drafting Lake Pend Oreille in the winter may or may not enhance listed Chum Salmon spawning conditions below Bonneville Dam. I failed to state that contrary to the third paragraph under Justification in SOR 2005 FWS/IDFG-2, Lake Pend Oreille is drafted in the winter for power and flood control, not for chum salmon. The draft may or may not benefit chum salmon but they are not the reason for the winter draft. Please call me if you have any concerns. No responses were received.

Operations Review

Reservoirs – Grand Coulee was at elevation 1287.3'. Hungry Horse was at 3537.7' and operating to meet Columbia Falls (Tony Norris, BOR, noted some difficulty in doing this). Libby was at elevation 2440.9' and filling; inflows were at 17.7 kcfs. Albeni Falls was at elevation 2058.8' and releasing 17 kcfs.

Fish – Smolts: Paul Wagner, NOAA reported that sub-yearling numbers increased at Lower Granite and Little Goose.

Adults: Seven adult chum were observed at Bonneville. An error in the counting system incorrectly identified 200+ adults observed at The Dalles; the error has been corrected. Cindy LeFleur, WDFW, noted that additional adult information can be found on the Northwest Power and Conservation Council (NPCC) website – the link is attached to today's agenda.

Power system – Nothing to report at this time.

Water quality – Temperatures at Dworshak are at 45-47°.

TMT Year End Review, November 2, Portland District COE:

An agenda is attached with the potential for some presenter names changing – the meeting will be held from 9am-3pm at the COE's Portland District building, 333 SW 1st, on the 3rd Floor. Security is tight, so anyone that plans to attend should notify Cathy Hlebechuk at the COE, 503-808-3942. Lunch will be provided for those that want it (charge is \$6.00) – RSVP to the facilitation team whether you plan to attend and if you want lunch: ehalton@cnw.net or call 503-248-4703 no later than October 27.

Technical Management Team Meeting Notes

October 19, 2005

1. Greetings and Introductions.

Today's meeting of the Technical Management Team was chaired by Cathy Hlebechuk and facilitated by Donna Silverberg. The following is a summary (not a verbatim transcript) of the topics discussed and decisions made at this meeting. Anyone with questions or comments about these notes should contact Hlebechuk at 503-808-3936. Silverberg congratulated Russ Kiefer on his ascension to the post of FPAC Chair.

2. 2005/2006 Chum Operations.

I believe there was a little bit of follow-up that was supposed to happen on this topic following our last meeting, said Silverberg – did the action agencies add some narrative? I apologize – I didn't get to that, John Wellschlager replied. I believe the salmon managers were also going to look at nighttime flows and daytime variations, and bring their recommendations back to the action agencies, said Silverberg. Was there an SOR?

What we agreed to was to submit an SOR to the action agencies regarding the start of the chum operation, even as discussions have been ongoing, Russ Kiefer replied – we appreciate the cooperation of the action agencies while those discussions have continued. Today, we wanted to put forward an SOR that would set the stage, so to speak, outlining everyone's agreement – SOR 2005-19. At yesterday's FPAC meeting, we basically reached consensus on an SOR that was roughly equivalent to last year's starting operation. We talked about waiting a week to do it, but after talking with the action agencies, decided that we would be OK with a similar operation to last year's, Kiefer said. We updated last year's language; the specifications and justification – an instantaneous tailwater elevation of 11.5 feet at Bonneville, with an average flow of 125 Kcfs – are the same as last year's SOR.

Actually, I believe that the agreement last year was that we would maintain a range of tailwater elevations at Bonneville – 11.3-11.7 feet, while targeting 11.5 feet as an average, said Wellschlager. After a few minutes of additional discussion, it was agreed that this would be an acceptable operation. Wellschlager noted that Steve Oliver should replace Greg Delwiche, who is no longer with BPA, on the TMT letterhead; my name should also be on there, Wellschlager said. In response to a question from Tony Norris, Kiefer said the salmon managers are not yet ready to put forward on a consensus operation for chum through the end of December.

Ron Boyce added that ODFW has done four chum surveys to date at the Ives/Pierce Island spawning grounds, and have found no chum so far, which is not unexpected for this date. The next survey is scheduled for tomorrow. We will notify the TMT, the FPAC chair and the action agencies as soon as chum are sighted on the spawning grounds, Boyce said. In response to a question, Cindy LeFleur said the most recent WDFW estimate is that there will be about 12,000 Lower Columbia River chum spawners in 2005.

Both Hlebechuk and Wellschlager thanked the salmon managers for coordinating this SOR ahead of time; Wellschlager said that, in his experience, no SOR has been agreed to more quickly.

3. Lake Pend Oreille Operations.

Kiefer noted that, in a similar vein, there has been extensive coordination on the Lake Pend Oreille SOR; it may not be what everyone wants to see, he said, but hopefully it will meet everyone's needs. He thanked the other TMT participants for their willingness to think outside the box with respect to Lake Pend Oreille operations; hopefully the result will be an operation that meets everyone's needs, Kiefer said. He noted that the salmon managers had tried to be as specific as possible in describing the operation they wanted to see, while still giving the action agencies the flexibility they need to conduct an efficient operation.

Kiefer described the specific operation described in this SOR, the full text of which is available via hot-link from today's agenda on the TMT homepage. The goal of the SOR is to hold Lake Pend Oreille at elevation as close as possible to 2059' through 31 October, after which the project will be drafted to 2055' for chum by no later than 20 November. . Editors note: after TMT, Cathy Hlebechuk sent this note to TMT members: At TMT I mentioned how drafting Lake Pend Oreille in the winter may or may not enhance listed Chum Salmon spawning conditions below Bonneville Dam. I failed to state that contrary to the third paragraph under Justification in SOR 2005 FWS/IDFG-2, Lake Pend Oreille is drafted in the winter for power and flood control, not for chum salmon. The draft may or may not benefit chum salmon but they are not the reason for the winter draft. Please call me if you have any concerns. No responses were received. Wellschlager said Bonneville has no problems with the Lake Pend Oreille operation requested in this SOR; he noted that, in about 80 percent of water years, any water released from Lake Pend Oreille during this period is passed through Grand Coulee during November and December. The only thing I would add is that, while this operation works for this specific year, it may not work for every year, Kiefer said. We would like to continue to develop a long-term decision tree that will guide Lake Pend Oreille operations in future years, Kiefer said. No additional TMT objections were raised to the proposed Lake Pend Oreille operation.

4. Operations Review.

Norris said Grand Coulee is currently at elevation 1287.3 feet; Hungry Horse is at elevation 3537.7 feet and struggling to keep up with the Columbia Falls minimum flow requirement due to flashy rain events in recent days. Hlebechuk said the current Libby elevation is 2440.9 feet; yesterday's average inflow was 17.7 Kcfs, more than double the average of the day before, so the project is filling. Libby is releasing 4.7Kcfs. Dworshak is at elevation 1518.2 feet and releasing minimum outflow. Albeni Falls is at 2058.8 feet and releasing 17 Kcfs. Implementation of the Lake Pend Oreille SOR will begin this afternoon.

Wagner said that, with respect to smolts, as he reported last week, yearling chinook passage increased at Lower Granite. Apparently there was a hatchery release of those yearling fish from an Idaho facility, he said; I'm not sure why. The more consistent numbers have come from the subyearlings at Lower Granite, many of which are Clearwater-origin fish. They were a surrogate group tagged by NOAA Fisheries to look at run timing. These fish are starting to show up now; we haven't seen very many wild fish to date. That's pretty much it for smolts, Wagner said.

With respect to adult passage, in looking at the dam counts for chum, there have been some discrepancies, Wagner said – the count to date at Bonneville is seven fish, while the count to date at The Dalles is 273 fish. This would indicate that something is amiss. Margaret Filardo noted that the Corps' database contained one entry showing 275 fish on September 13; this was obviously an error, she said, so we have deleted it from the Fish Passage Center database.

Cindy LeFleur said there is little further to report on the subject of adult passage, beyond the fact that there is now a link, on the Northwest Power Planning Council homepage, to the presentation WDFW gave to the Council at that group's October meeting. We're continuing to give them monthly updates, she added.

Wellschlager said there are no power system issues to report at this time. With respect to water quality, Hlebechuk said Dworshak release temperatures continue in the 45-47-degree range.

5. Next TMT Meeting Date.

The next meeting of the Technical Management Team, the group's annual year-end review, was set for November 2. Meeting summary prepared by Jeff Kuechle, BPA contractor.

Technical Management Team Meeting Participants

October 19, 2005

Name	Affiliation
Donna Silverberg	Facilitation Team

Filardo
Benner
Le
Jim Shield, Pend Oreille PUD

TECHNICAL MANAGEMENT TEAM

BOR: Tony Norris / John Roache

BPA: John Wellschlager / Nic Lane

NMFS: Paul Wagner

USFWS: David Wills / Steve Haeseker

OR: Ron Boyce

WA: Cindy LeFleur

ID: Russ Kiefer

MT: Jim Litchfield

COE: Cindy Henriksen / Cathy Hlebechuk

COLUMBIA RIVER REGIONAL FORUM

Technical Management Team

Annual Review of Lessons Learned: 2005

Wednesday November 02, 2005
09:00 am - 3:00 pm

Robert Duncan Plaza
3rd floor - H&J Room
333 SW. First Ave
Portland, Oregon 97204-3440
Conference call line: 503-808-5190

Must check in with Security on ground floor be sure to bring your ID

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

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

AGENDA

1. Welcome and introductions.

- 2005 Water and Runoff Patterns-Comparison to Previous Years. Cathy Hlebechuk, COE

- [\[COMPARISON OF WY 01, 02, 03, 04 AND 05 ACTUAL FLOWS AND OBJECTIVES\]](#) 
- [\[OBSERVED 2003, 2004 AND 2005 VOLUME RUNOFF IN MILLION ACRE FEET\]](#) 
- [\[Libby Reservoir 2005\]](#) 
- [\[Hungry Horse Reservoir 2005\]](#) 
- [\[Grand Coulee Reservoir 2005\]](#) 
- [\[Priest Rapids 2005\]](#)  [\[Priest Rapids 2004\]](#) 
[\[Priest Rapids 2003\]](#) 
- [\[Dworshak Reservoir 2005\]](#) 
- [\[Lower Granite 2005\]](#)  [\[Lower Granite 2004\]](#)  [\[Lower Granite 2003\]](#) 
- [\[McNary 2005\]](#) 

[McNary 2004]  [McNary 2003] 

- Temperature/TDG Level Variations - Jim Adams, COE
 - i. [\[Technical Management Team 2005 Year End Review - PowerPoint\]](#) [\[PDF File Version\]](#) 
- Adult Fish Runs/Fisheries Review: Forecasts and Techniques - Cindy LeFleur, WDFW
 - i. [\[Preliminary Review of 2005 Columbia River Fish Runs and Fisheries - PowerPoint\]](#) [\[PDF File Version\]](#) 
- Fish Passage - Jerry McCann, Fish Passage Center
 - i. [\[Smolt Migration 2005 \(preliminary results\) Fish Passage Center - PowerPoint\]](#) [\[PDF File Version\]](#) 
- Weather - Kyle Dittmer, CRITFC
 - i. [\[Summary of Water Year 2005 Weather\]](#) 
 - ii. [\[Winter 2005-2006 Climate Forecast\]](#) 
 - iii. [\[WINTER WEATHER 2005 - 2006 FORECAST\]](#) 
- Spring Chinook - Paul Wagner, NOAA Fisheries
 - i. [\[Preliminary survival estimates for passage during the spring migration of juvenile salmonids through Snake and Columbia River reservoirs and dams, 2005 - November 1, 2005\]](#) 
 - ii. [\[Low returns of spring Chinook salmon to the Columbia River in 2005 - 26-May-2005\]](#) 
- 2. Snake River Review
 - Fall Chinook Summer Spill Passage. Paul Ocker, COE
 - i. [\[2005 Preliminary Summer Spill Data - Fall Chinook Radiotelemetry Studies - PowerPoint\]](#) [\[PDF File Version\]](#) 
 - EPA Water Temperature Modeling - Kyle Dittmer, CRITFC
 - i. [\[Clearwater River at Peck \(1979, 1994, 1995, 1998 weather\) & Snake at Lower Granite Dam \(1979, 1994, 1995, 1998 weather\)\]](#) 
 - Fall Chinook Survival Studies - Billy Connor, USFWS
 - i. [\[Post-release attributes of Lyons Ferry Hatchery fall Chinook salmon subyearlings released into the Snake River as surrogates for wild fall Chinook salmon subyearlings - PowerPoint\]](#) [\[PDF File Version\]](#) 
 - Snake River Review - Ken Tiffan, USGS
 - i. [\[Snake River fall Chinook salmon summer travel time and winter passage - PowerPoint\]](#) [\[PDF File Version\]](#) 
- 3. 2005 Study Information That Might Impact 2006 Operations
 - Ice Harbor RSW Results
 - i. [\[2005 Preliminary RSW Data for Ice Harbor Dam - PowerPoint\]](#) [\[PDF File Version\]](#) 
- 4. Other Lessons Learned
- 5. TMT 2005 chum testing discussion - Ken Tiffan, USGS
 - i. [\[2005 USGS Chum Tests - 10-26-05\]](#) 

NOTE:

Lunch will be brought in for all participating in or attending the meeting.

RSVP date was 27 Oct.. A \$6 contribution is encouraged and RSVP required to guarantee enough food for everyone!

Please call the facilitation team (503-248-4703) or Email: Facilitation Team - ehalton@cnw.net

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

COMPARISON OF WY 01, 02, 03, 04 AND 05 ACTUAL FLOWS AND OBJECTIVES

M McNary Actual Avg Outflow and Flow Objectives

April 10 to June 30	<u>2001</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>
Actual Avg Flow	124	269	231	203	196
Objective	220	246	220	220	220

July 01 to Aug 31	<u>2001</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>
Actual Avg Flow	92	189	135	134	165
Objective	200	200	200	200	200

Lower Granite Actual Avg Outflow and Flow Objectives

April 03 to June 20	<u>2001</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>
Actual Avg Flow	47.5	83	90	70	66
Objective	85	97	87	85	85

June 21 to Aug 31	<u>2001</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>
Actual Avg Flow	26	41	32	33	33
Objective	50	51	50	50	50

Priest Rapids Actual Avg Outflow and Flow Objectives

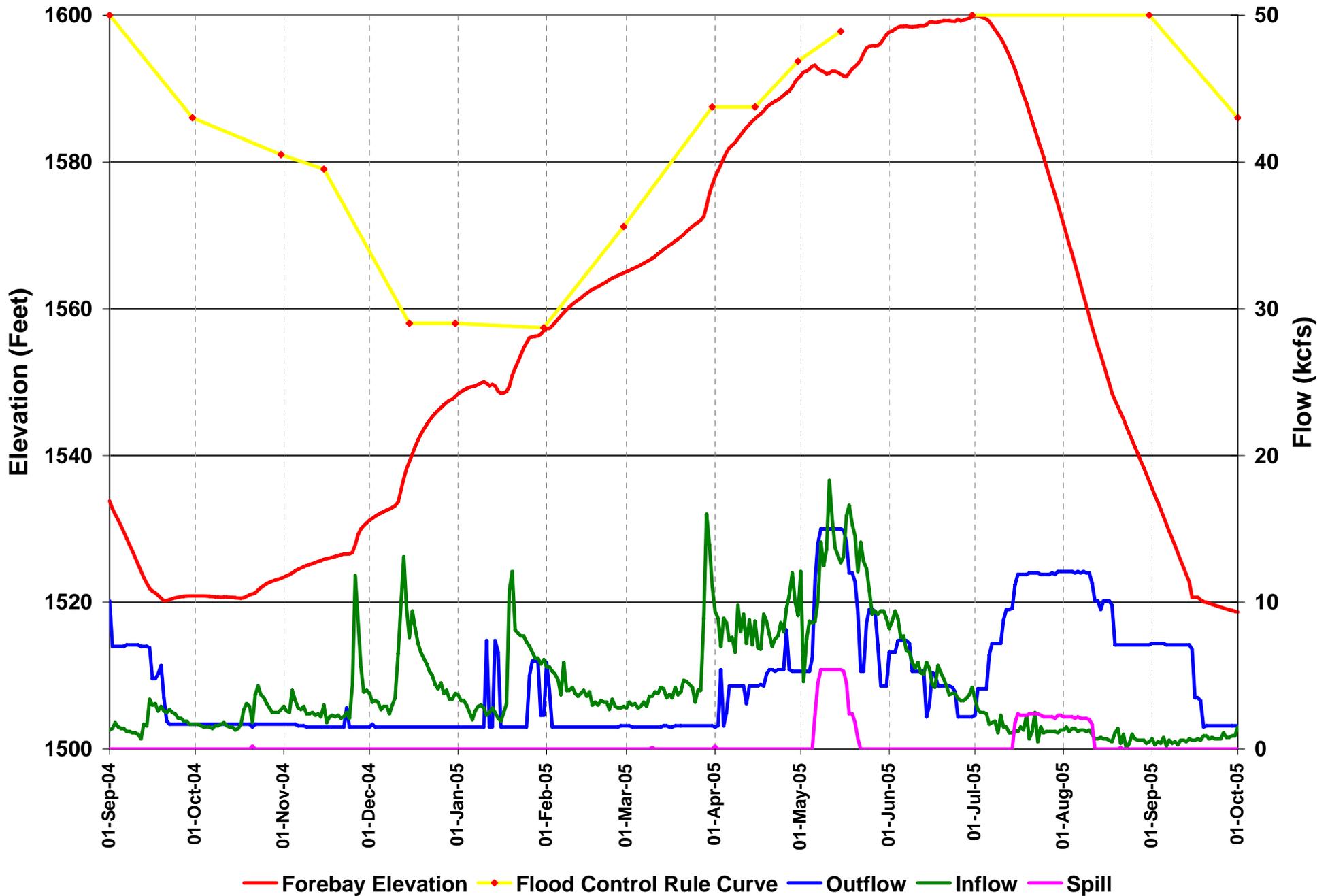
April 10 to Jun 30	<u>2001</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>
Actual Avg Flow	77	181	141	125	123
Objective	135	135	135	135	135

OBSERVED 2003, 2004 AND 2005 VOLUME RUNOFF IN MILLION ACRE FEET

<u>PROJECT</u>	<u>JAN-JUL 03</u>		<u>JAN-JUL 04</u>		<u>JAN-JUL 05</u>		<u>APR-AUG 03</u>		<u>APR-AUG 04</u>		<u>APR-AUG 05</u>	
	<u>OBS</u>	<u>%</u>										
HUNGRY HORSE	1.82	82	1.9	85	1.79	80	1.66	80	1.78	86	1.48	71
LIBBY	5.19	82	4.6	73	5.92	94	5.08	81	4.68	75	5.56	89
ALBENI FALLS	12	78	11.6	76	11.9	78	10.05	75	10.4	77	9.57	71
GRAND COULEE	54.18	86	50.3	80	54.4	86	50.24	83	49.3	82	48.8	81
DWORSHAK	3.56	100	3.04	86	2.46	69	2.35	66	2.5	91	1.7	62
LOWER GRANITE	23.81	79	20.7	69	18.1	60	17.65	77	16.1	70	14.4	63
THE DALLES	87.69	82	83	77	81.3	76	73.77	79	73	78	68.5	74

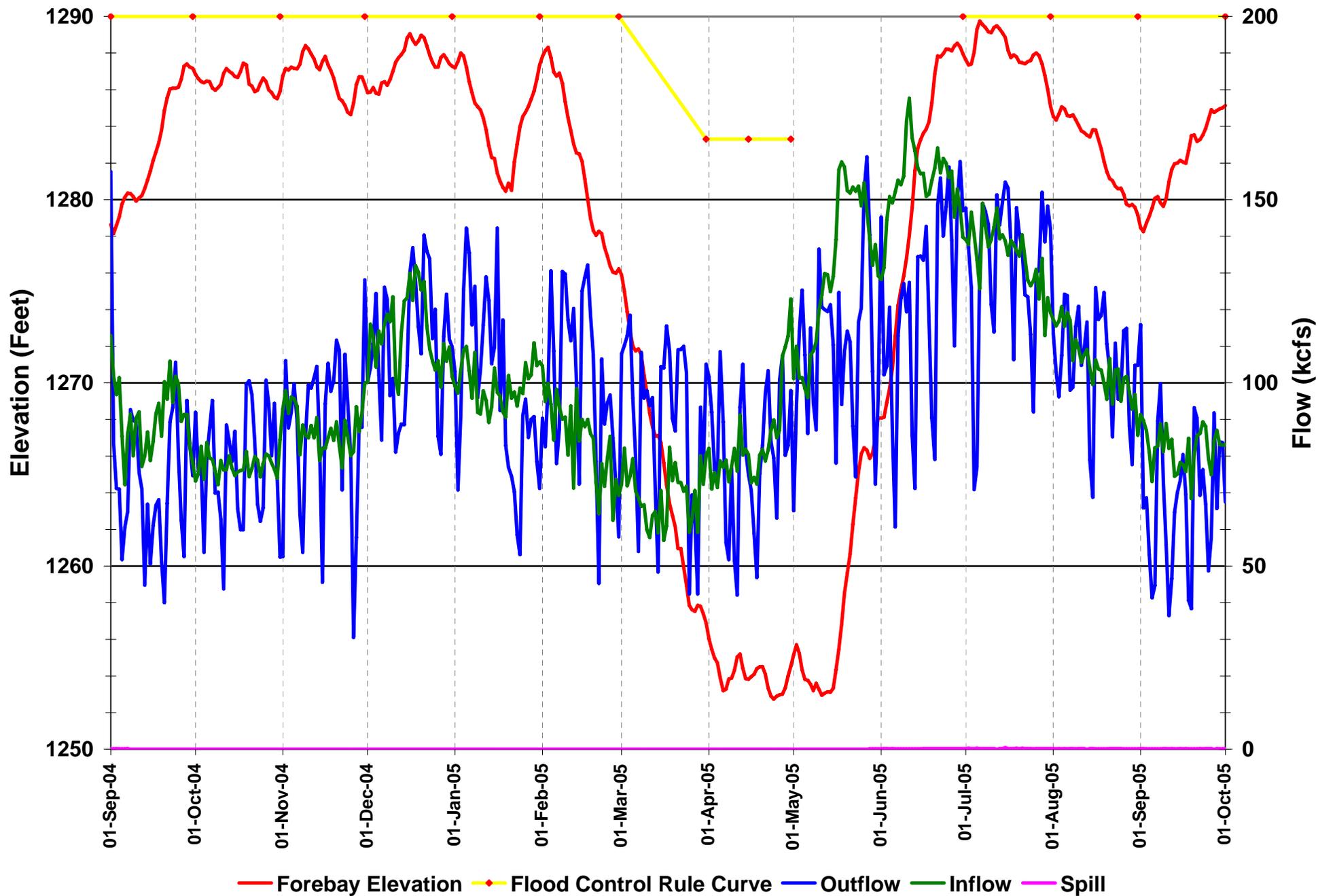
Dworshak

Sept. 01, 2004 to Oct. 01, 2005



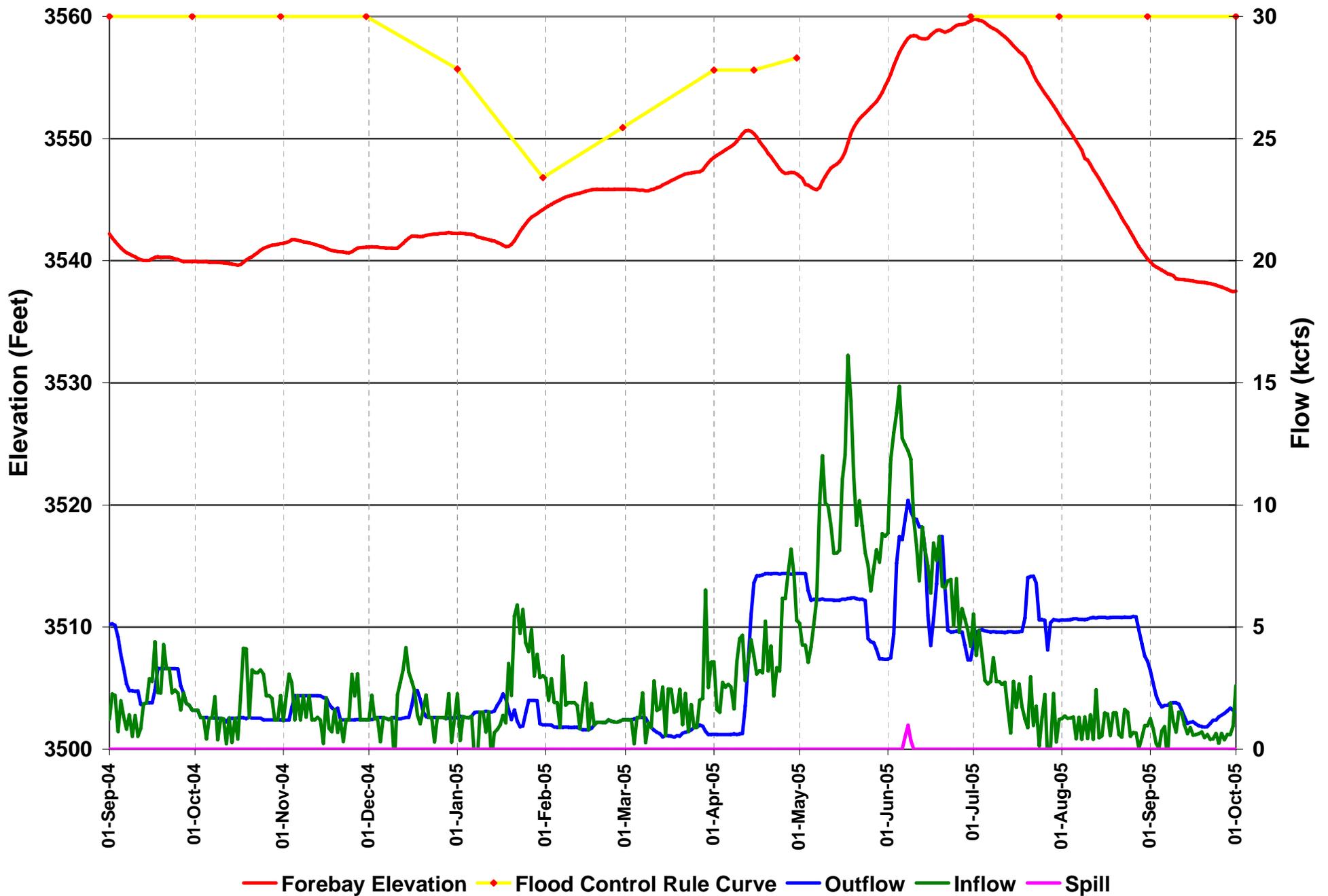
Grand Coulee

Sept. 01, 2004 to Oct. 01, 2005



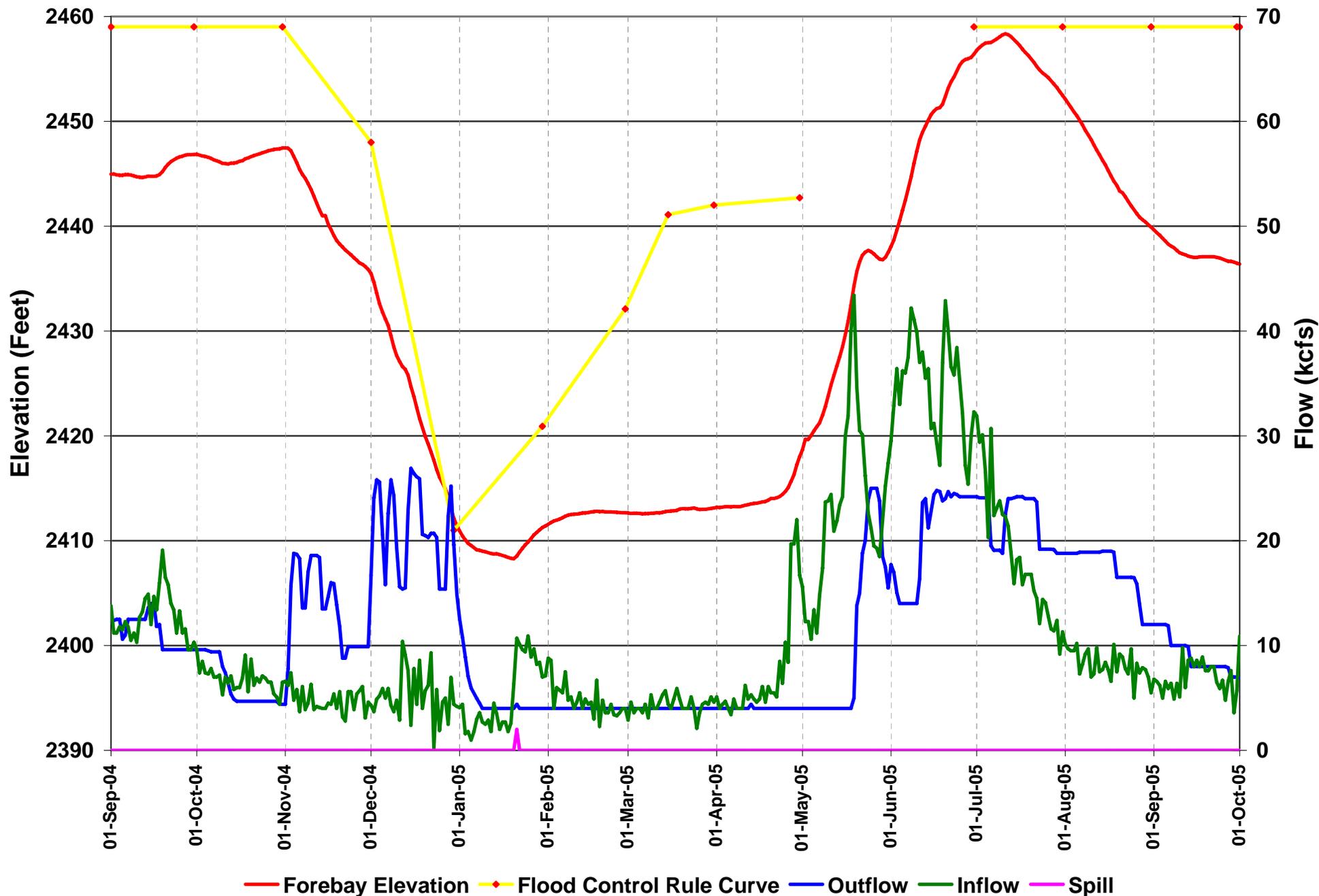
Hungry Horse

Sept. 01, 2004 to Oct. 01, 2005



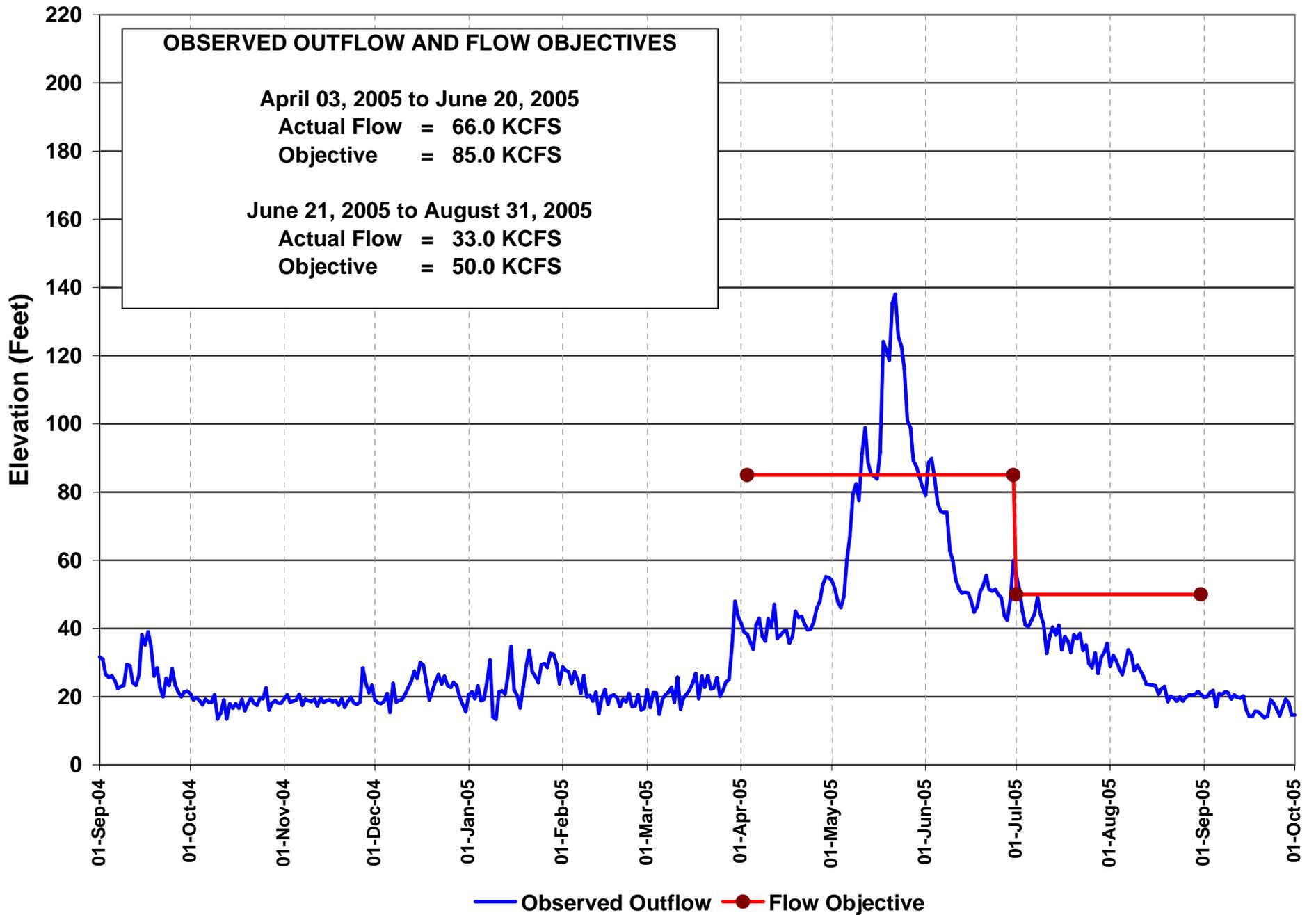
Libby

Sept. 01, 2004 to Oct. 01, 2005



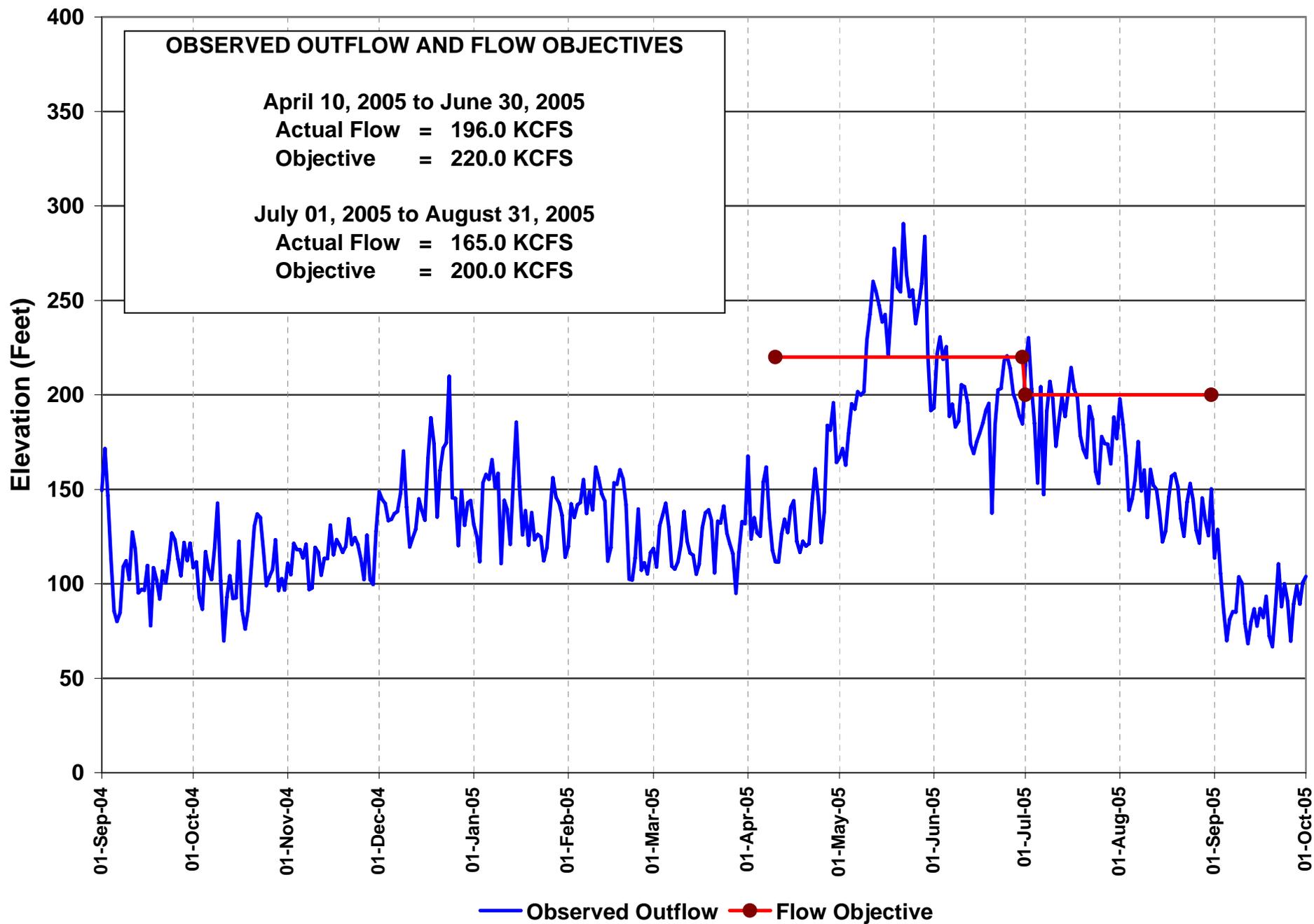
Lower Granite

Sept. 01, 2004 to Oct. 01, 2005



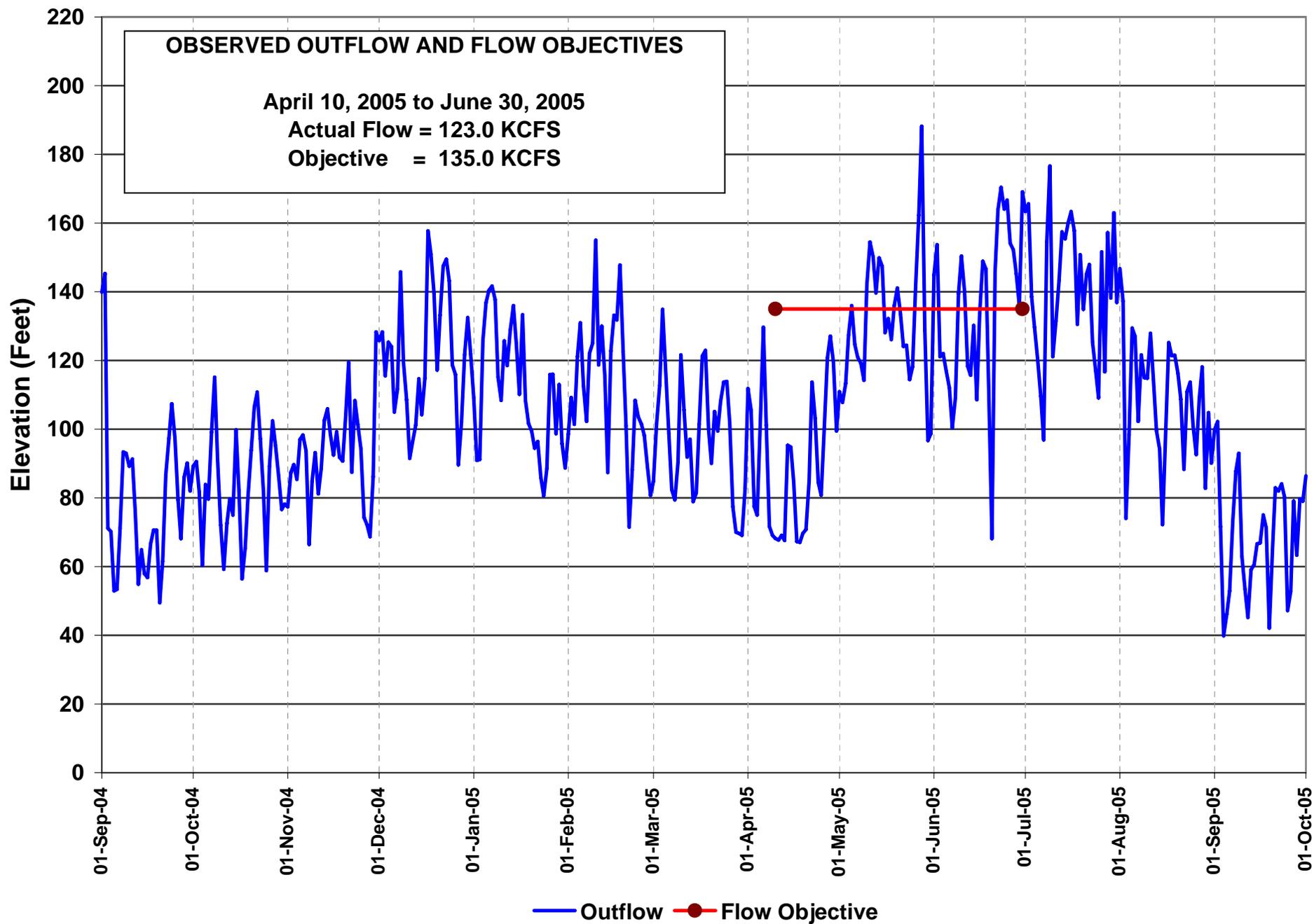
McNary

Sept. 01, 2004 to Oct. 01, 2005



Priest Rapids

Sept. 01, 2004 to Oct. 01, 2005



2005 Preliminary Summer Spill Data

Fall Chinook Radiotelemetry Studies
Performed by

USGS – BRD, NOAA – NWFSC

For the USACE

Anadromous Fish Evaluation Program

Important Considerations

- These estimates do not address transport vs. in-river survival nor adult return issues
- This information is very preliminary and the specific numbers are likely to change
- This is the first look at subyearling passage at most of these projects including RSW's
- These survival estimates are relative survival estimates compared to a tailrace reference (except at Little Goose)

Legend

Passage Metrics

% of fish
passing a dam
via a specific
route

% of Fish
Passing
a dam via
an RSW

Survival Metrics

% of fish
surviving a dam
or specific
dam passage
route

% of fish
surviving RSW
passage
route

Passage Route



Lower Granite Background Information

- Study
 - Radio Telemetry – Paired Release (2200 fish released)
 - June 20 – July 22
- Operations
 - RSW on Total Avg Q = 41kcfs
 - RSW on Spill Avg Q = 18.5kcfs (46.7%)
 - RSW off Total Q = 43.4kcfs
 - RSW off Spill Avg Q = 30.5kcfs (69.6%)

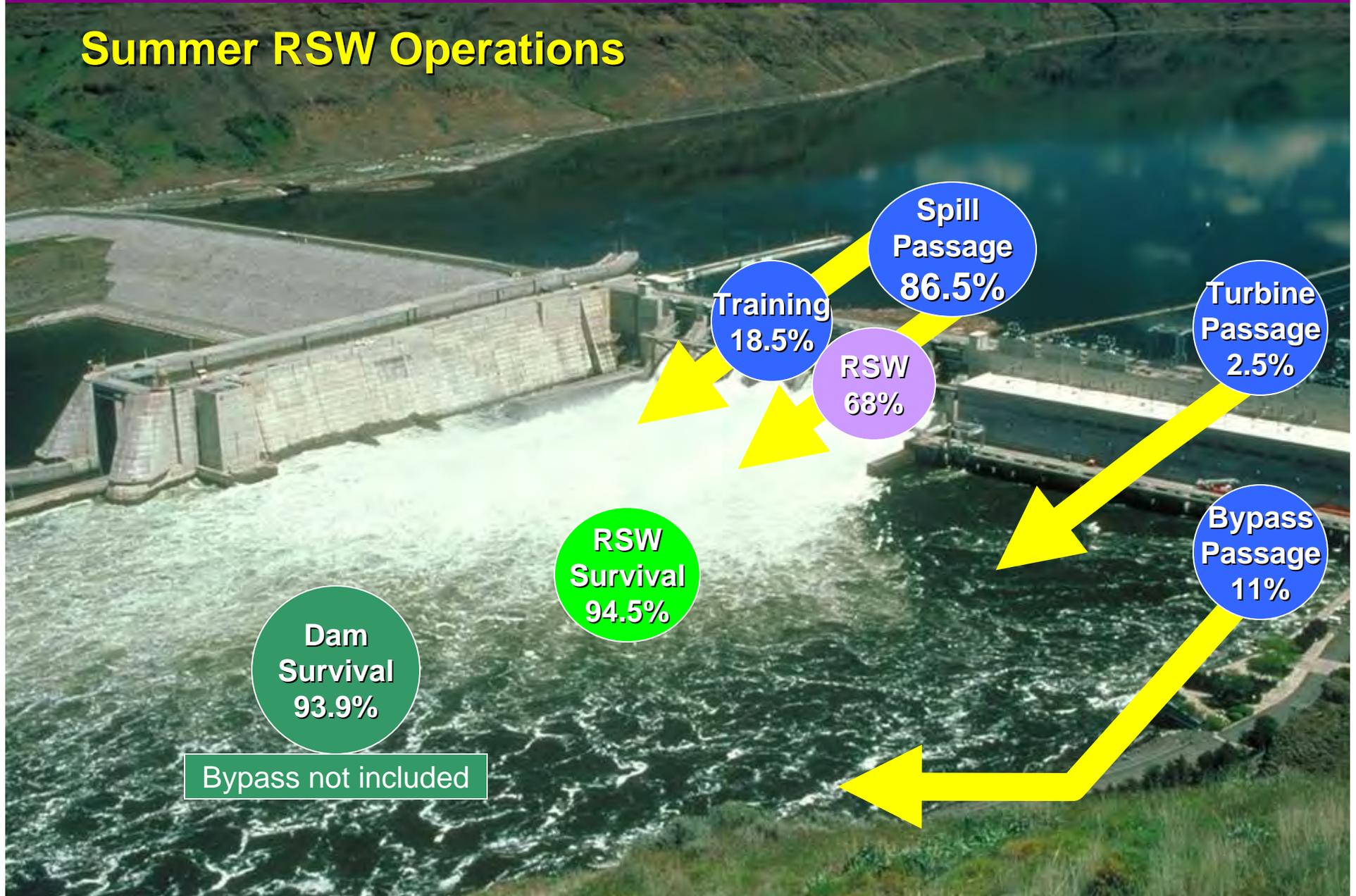
Lower Granite Dam

Summer Non-RSW Operations



Lower Granite Dam

Summer RSW Operations



Little Goose

Background Information

- Study

- Radio Telemetry – Single Release
- Used the ~2000 fish released at LGR
- June 21 – July 28

- Operations

- Total Avg Q = 39.6kcfs
- Spill Avg Q = 17.9kcfs (44%)*
 - Spill changed during the study due to adult passage issues
 - Spill limited to 30% daytime

Little Goose Dam

Summer Non-RSW Operations

Spill
Passage
84%

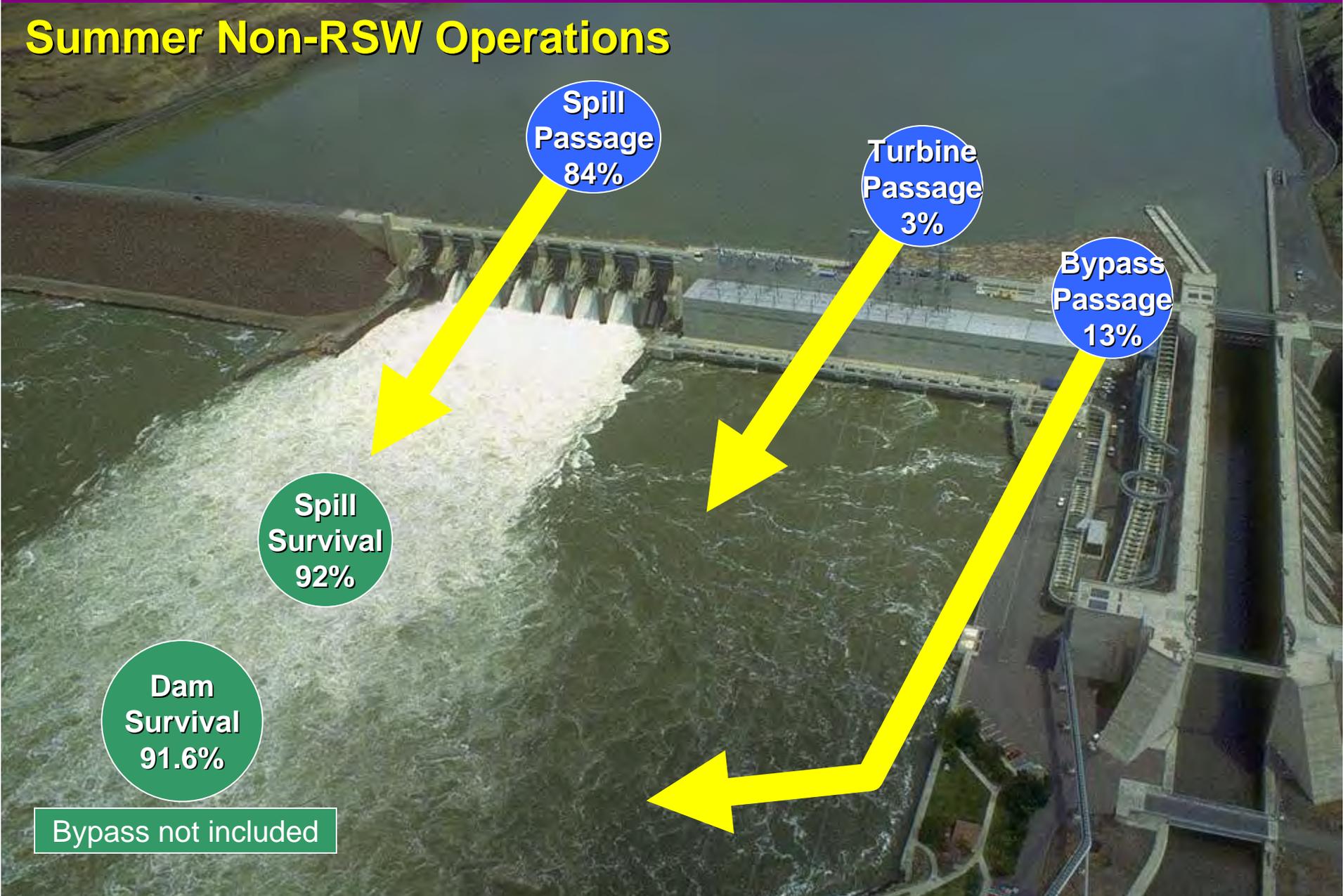
Turbine
Passage
3%

Bypass
Passage
13%

Spill
Survival
92%

Dam
Survival
91.6%

Bypass not included



Lower Monumental Background Information

■ Study

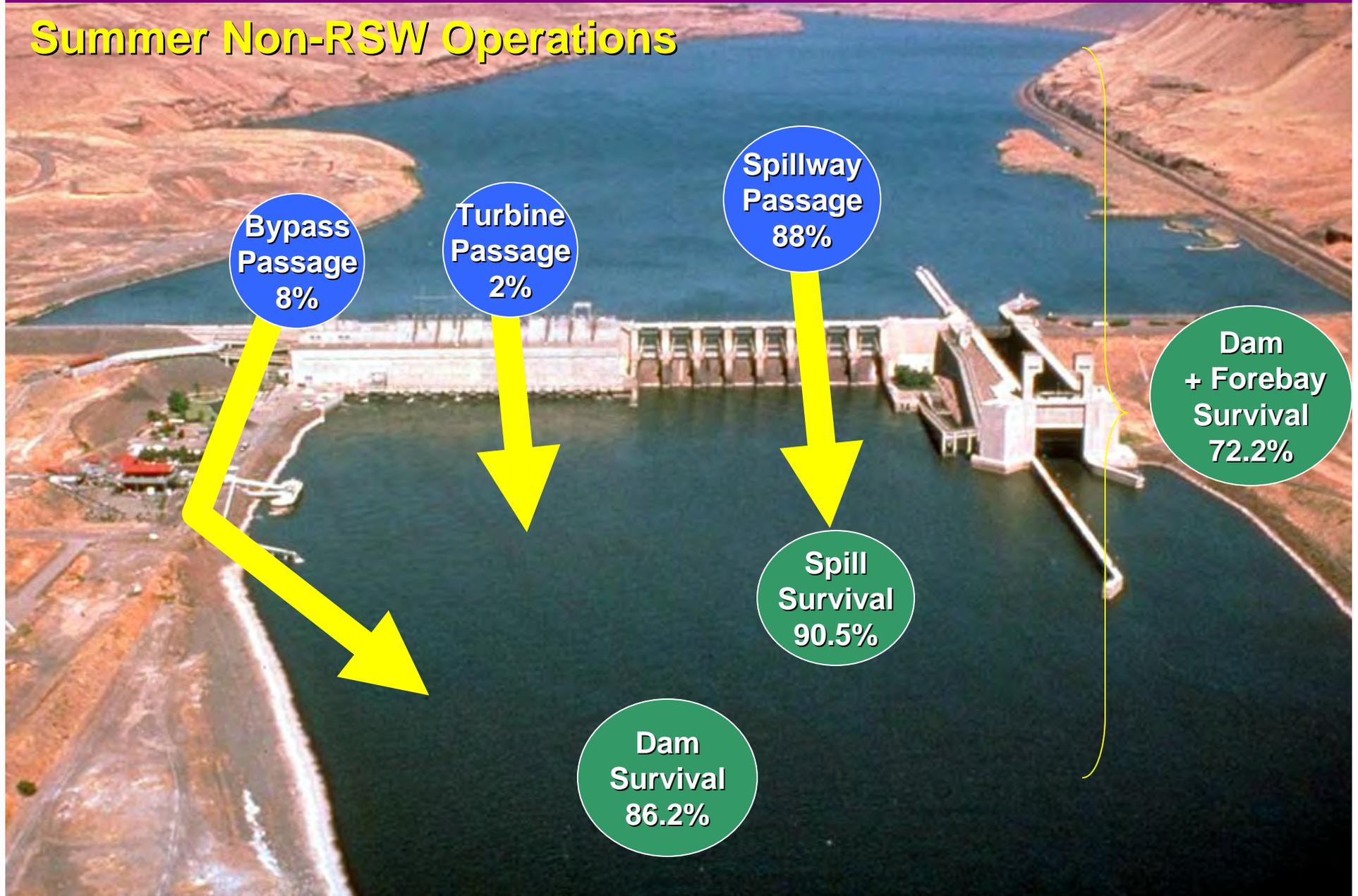
- Radio Telemetry and PIT – Paired Release
- Approximately 2200 fish released
- *July 6 – July 16

■ Operations

- Total Avg Q = 36kcfs
- Spill Avg Q = 21kcfs (59%)

Lower Monumental Dam *

Summer Non-RSW Operations



Ice Harbor

Background Information

- Study
 - Radio Telemetry and PIT – Paired Release
 - Approximately 4200 fish released
 - June 10 – July 1
- Operations
 - RSW on Total Avg Q = 50kcfs
 - RSW on Spill Avg Q = 23kcfs (46%)
 - RSW off Total Avg Q = 49kcfs
 - RSW off Spill Avg Q = 41kcfs (84%)

Ice Harbor Dam

Summer Non-RSW Operations

Spillway
Passage
98%

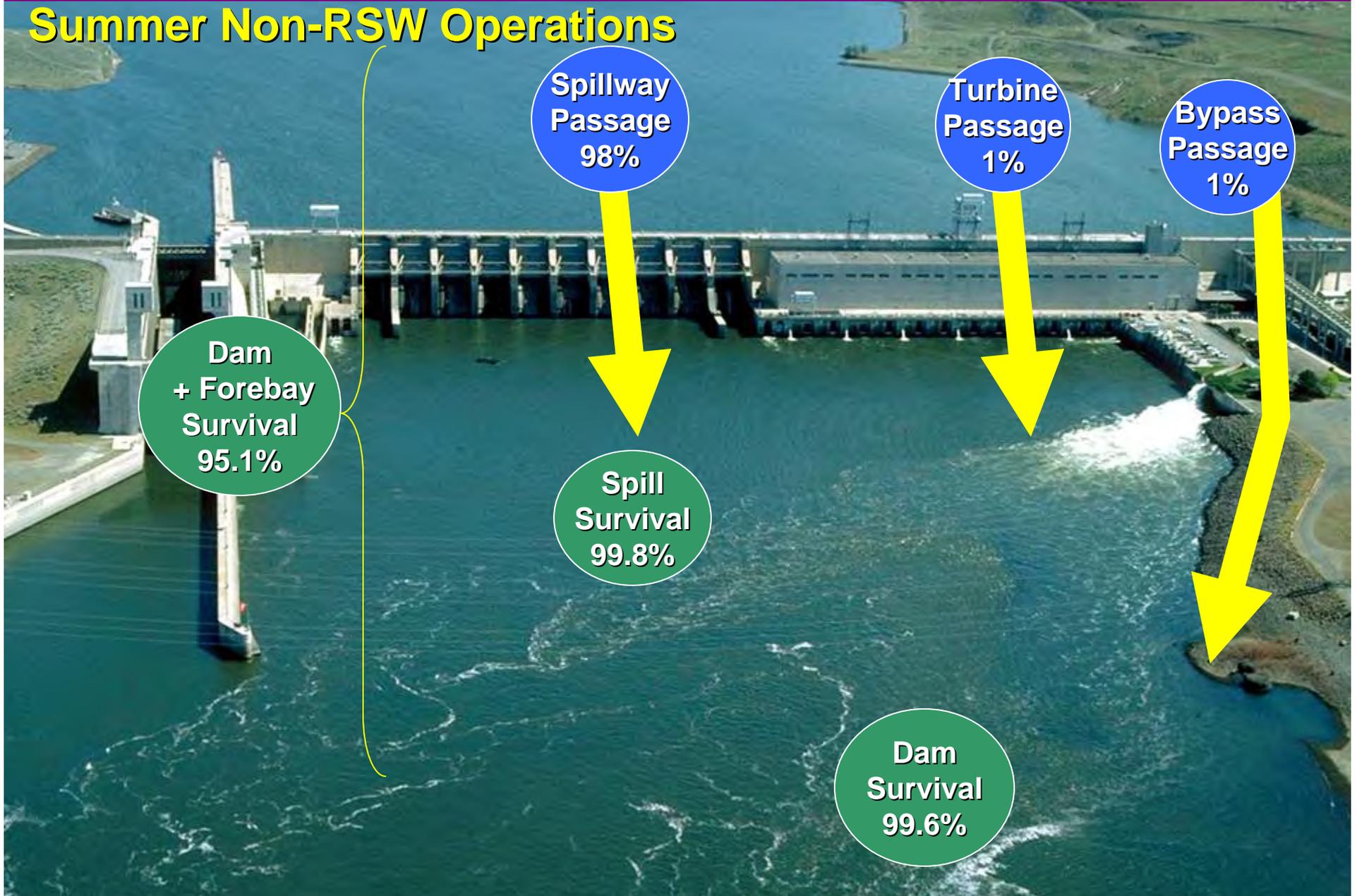
Turbine
Passage
1%

Bypass
Passage
1%

Dam
+ Forebay
Survival
95.1%

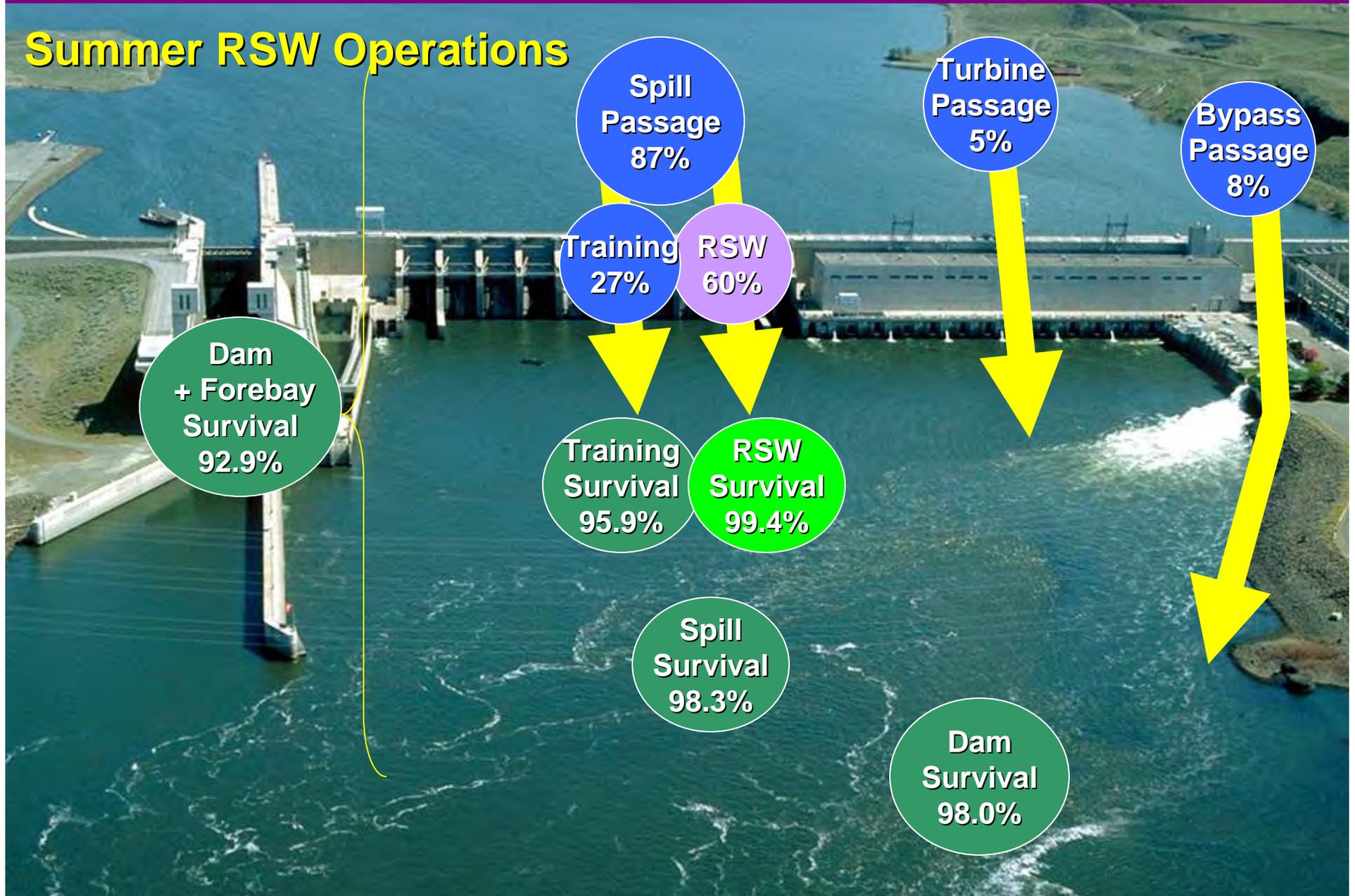
Spill
Survival
99.8%

Dam
Survival
99.6%



Ice Harbor Dam

Summer RSW Operations



McNary

Background Information

- Study
 - Radio Telemetry - Paired Release
 - Approximately 2700 fish released
 - June 22 – July 31
- Operations
 - Total Avg Q = 171kcfs
 - Spill Avg Q = 104kcfs (60%)

McNary Dam

Summer RSW Operations



Key Overall Takeaways from R/T Studies

- The results suggest generally high subyearling survival through the projects
- Fish Passage Efficiency (FPE, the percent of fish passing via non-turbine routes) at all projects was relatively high ranging from 81 to 100%.

Key takeaways (cont.)

- Spill Effectiveness (percent of fish passing through the spillway divided by the percent of water passing through the spillway) was higher than we anticipated for Snake River Projects and was 2-3 times higher for RSW's than spillways.
- Dam passage with RSW had higher survival at LGR and Lower at Ice Harbor yet neither were likely statistically significant.

Passage Metrics

	RSW Operations		Non-RSW Operations	
	Passage %	CI	Passage %	CI
McNary				
Spill			63.8%	(61.0-66.6)
Turbine			18.8%	(16.3-21.3)
Bypass			17.4%	(15.5-19.5)
FGE			48.2%	(43.5-53.0)
FPE			81.2%	(78.7-83.7)
Spill Effect			1.06	
Ice Harbor				
Spill	87		98	
Turbine	5		1	
Bypass	8		1	
RSW	60		-	
FGE	61.5	(46.4-76.7)	62.5	(24-101.1)
FPE	95.2	(88.8-101.6)	99.6	(98.6-100.5)
RSW Effect.	3.4		-	
Spill Effect.	1.9		1.17	(1.12-1.23)
Lower Mon*				
Spill			88	
Turbine			2	
Bypass			8	
FGE			80	
FPE			96	
Spill Effect			1.49	

Passage Metrics

	RSW Operations		Non-RSW Operations	
	Passage %	CI	Passage %	CI
Little Goose				
Spill			84%	(2.4)
Turbine			2.7%	(1.0)
Bypass			13.3%	(2.2)
FGE			82.9%	(7.2)
FPE			97.3%	(1.0)
Spill Effect.			1.9	
Lower Granite				
Spill	18.5	(4.2)	93.9	(2.6)
Turbine	2.5	(1.6)	2	(1.6)
Bypass	11.2	(3.4)	4	(2.1)
RSW	67.7	(5.0)	-	-
FGE	81.6	(11.2)	66.7	(21)
FPE	97.5	(1.6)	98	1.6
RSW Effect.	3.96			
Spill Effect.			1.35	

Relative Survival Estimates

		RSW Operations		Non-RSW Operations	
		Survival %	CI	Survival %	CI
McNary	Dam			96.3	93.5-99.2
	Spillway			102	99.2-104.6
	Turbine			86.4	78.5-93.5
	bypass			86.5	80.5-92.0
Ice Harbor	Dam+Fore	92.9	90.0-95.9	95.1	92.4-97.8
	Dam	98	95.3-100.7	99.6	97.1-102.1
	Spillway	98.3	95.5-101.1	99.8	97.3-102.2
	RSW	99.4	96.3-102.4		
	Training	95.9	90.2-100.5		
	JBS	98.8	91.6-106.1		
Lower Mon	Dam+ Fore			72.2	66.8-78
	Dam			86.2	75.2-98.8
	Spillway			90.5	76-107.7
Little Goose	Spillway			92	4.6
	Dam			91.6	4.4
Lower Gran	Dam	93.9	10.6	89.5	9.9
	Spill			90.2	7.5
	RSW	94.5	5.5		



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Fisheries Science Center
2725 Montlake Boulevard East
Seattle, WA 98112-2097

26 May 2005

MEMORANDUM FOR: F/NWR - Robert Lohn

FROM: F/NWC - Usha Varanasi

SUBJECT: Low returns of spring Chinook salmon to the
Columbia River in 2005

In response to your recent e-mail regarding the much lower than expected returns of spring Chinook salmon this year to the Columbia River, we evaluated a number of variables that may have affected the returns. These include the number of juveniles migrating downstream, their survival through the hydropower system, SARs, coastal ocean conditions at the time of ocean entry, several physical indices for the North Pacific Ocean, and the accuracy of jack counts and TAC predictions of returns based on the jack counts. Our conclusion based on this initial review is that no single variable, by itself, appears responsible for the observed low return. A more detailed discussion of our review, specific answers to your questions, and additional factors that might have contributed to the low return are provided below.

Question 1. In-river survival: What do we know about the numbers and survival during the in-river migration of the juveniles which resulted in this year's adult returns? I assume that this year's return migrated out in the spring of 2002 and 2003, and my general understanding is that the number of juvenile migrants during those two periods was good, and that the survival through the dams was good. Is this correct? It will be very important for us to state clearly whether or not a respectable number of these fish, as juveniles, made it through the hydro system successfully.

It would be useful to compare in-river numbers and survival for the 2002 and 2003 juvenile migrants with the juvenile migrants that resulted in the recent large runs, such as the huge returns of 2001.

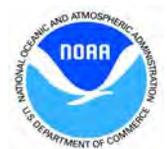
Answer: Yes, the adults returning in 2005 migrated out primarily in the spring of 2003, while some migrated during the spring of 2002. The number of juvenile migrants during those two periods was good, and survival through the dams was good.

A table of data from the 2000 through 2003 juvenile outmigrations of Snake River spring/summer Chinook salmon is provided below. These include numbers of juveniles that arrived at Lower Granite Dam, survival to Bonneville Dam (same survival estimates were used for hatchery and wild fish; transported + non-transported fish were combined), percentage of the population that arrived alive below Bonneville Dam as a result of transportation, total adult returns to date from the outmigration (hatchery and wild combined) and an estimated SAR (hatchery and wild combined). We used the SIMPAS model to estimate the survival of the population as a whole that arrived alive below Bonneville Dam (which are nearly the same as a cursory estimate of the percentage of live fish arriving below Bonneville Dam based on data from survival studies).

Some points to keep in mind with respect to the table: 1) as most fish were transported, most adult returns came from transported fish; 2) on average, transported wild fish have had the same SAR as non-transported fish arriving below Bonneville Dam and transported hatchery fish had SARs approximately 25% higher than non-transported fish; and 3) the percentage of fish that return as 3-ocean fish has varied for both wild (range 12-58%, median 22%) and hatchery (range 5-38%, median 7%) fish over the last 7 years, making it difficult to predict the percentage of 3-ocean returns we would expect this year (prediction bounds are very wide).

Out-migration year	Juvenile hatchery chinook at LGR (millions)	Juvenile wild chinook at LGR (millions)	Survival to Bonneville (transport + non-transport) (%)	Percentage of survivors from transportation	Adult returns to LGR (+ estimated catch)	SAR to date (%)
2000	6.89	1.28	78	93	164,149	2.00
2001	2.03	0.48	96	~100	43,980	1.75
2002	6.35	.097	82	86	103,725	1.40*
2003	6.51	1.32	78	78	~7000	

*doesn't include adult returns in 2005



We show the total number surviving to below Bonneville Dam because that is the important number in terms of SARs. However, your question was also about estimated in-river survival during these years. For Snake River spring/summer Chinook salmon, survival from Lower Granite to Bonneville Dam was 49, 28, 58, and 53% in 2000, 2001, 2002, and 2003, respectively.

Based on these data we can say that in 2002 and 2003 the number of juveniles outmigrating and their survival to below Bonneville Dam was high, and similar to 2000. In 2001 there were fewer outmigrats and they had a lower in-river survival.

Question 2. Jack counts and abundance estimates: A brief review of the accuracy of the jack counts (Were the jacks correct and correctly attributed to the appropriate brood years?) would be helpful just to make sure the data relied upon in the predictions was accurate.

Answer: Yes. We believe that fish counters make relatively accurate counts of jacks on an annual basis.

In addition, a review of the methodology used to extrapolate from jack counts to a predicted run size would be valuable. Was the process done correctly? Should we be looking at some way to improve it?

Answer: We have not reviewed the methods TAC used. We independently derived an estimate of returns to the Snake River in 2005, and found the discrepancy between our prediction and the actual count, to date, was similar to the discrepancy between the TAC estimate to the mouth of the Columbia River and the actual Bonneville Dam count.

We have talked with Peter Dygert about the methodology used by TAC to make adult predictions to the mouth of the Columbia River, but have not actually seen it directly nor have we reviewed it in the past. It appears that TAC uses a regression of 3-year old fish (jacks) to 4-year old (2-ocean) fish, and a regression of 4-year old to 5-year old fish for several river basins, and then adds the results together.

In the absence of TAC data and detailed information on their methods, we used our extensive Snake River data base to construct an analysis with hatchery fish to estimate total



returns from the 2003 outmigration (it produced last year's jacks). Though TAC's methods predicted the 2005 run of spring Chinook salmon to the mouth of the Columbia River, we would expect the trend in hatchery fish in the Snake River basin to mirror the overall TAC estimate, as it represents a large proportion of the Columbia River run each year. We conducted a simple linear regression on 44 years of Snake River hatchery jacks compared to combined 2- and 3-ocean returns. Based on more than 6,300 hatchery jacks returning in 2004, we predicted a mean total return of approximately 80,000, with prediction bounds of approximately 64,000 to 94,000 fish (Figure 1).

Ratio of jack to adult returns for hatchery Snake River spring-summer chinook salmon for brood years 1966-1999 (without 1997 and 1998)

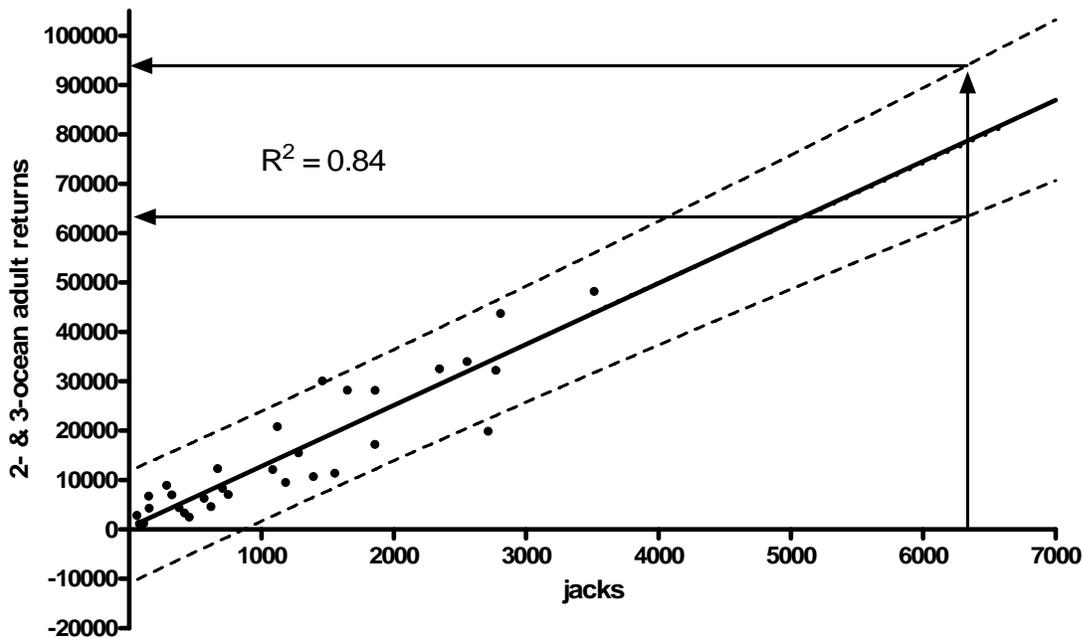
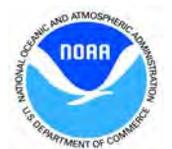


Figure 1. Linear regression of total 2- and 3-ocean adult returns vs. jack returns for Snake River hatchery Chinook salmon 1966-1999 (excluding the high returns from the 1997 and 1998 brood years), with the range of estimated total adult returns (2- and 3-ocean fish) within the 95% prediction interval for fish from brood year 2001 (outmigration 2003, which produced an estimated 6300 jacks to the Snake River in 2004).



This total return will include adult fish returning in 2006 as well as 2005. However, to date only 17,876 fish (not expanded for any downstream catch and includes wild fish) have passed Ice Harbor Dam and some of these were 3-ocean fish from the 2002 outmigration. The discrepancy between our prediction of returns to the Snake River and actual counts are similar to the discrepancy in the TAC estimate to the mouth of the Columbia River and the Bonneville Dam count. We do not know if the TAC estimate included prediction bounds.

Question 3. Ocean conditions and interceptions: My understanding is that, while we have from time to time marked a number of these fish, we have little or no data on where they go in the ocean. This is unlike the Willamette and Lower Columbia Spring Chinook, where we have a number of interceptions documented. About all we seem to be able to say is that the Upper Columbia fish don't seem to go where the Lower Columbia fish go, or they would have been noted. At any rate, any information you can provide about potential ocean conditions effects would be useful, and if you have any thoughts on further, future research, they would welcome as well.

Answer: Conditions in the coastal ocean environment were less favorable for salmon in 2003 than in recent years. Yes, you are correct, we do not know where the Upper Columbia River fish feed in the ocean because for the most part they are not intercepted by the fisheries.

We conduct extensive sampling in our coastal waters, and during 2003, the ocean off Oregon and Washington was experiencing a 'prolonged but weak El Nino' event. This was reflected, in part, by the Pacific Decadal Oscillation Index (PDO) switching from a reading that favors salmon production in the Pacific Northwest (from 1999-2002) to a reading that is less favorable for salmon. In addition, we monitor two additional biological indices of the coastal environment. The northern copepod index is a measure of the amount of copepods associated with cooler sub-Artic marine habitats, and during 2003 it switched indicating that copepod numbers were lower than normal. In addition, our index of the piscine predator abundance off the mouth of the Columbia River in 2003 was higher than we have seen since 1999. These indices collectively pointed to a coastal marine environment for juvenile salmon that was less favorable than the previous 4 to 5 years (1998-2002). Although lower, the indices did not indicate to us that 2003 was an extremely anomalous year compared to other years. Thus, we did not expect



to see the extremely low level of returns that have occurred thus far in 2005.

Smolt-to-adult survival rates are largely set during the first year at sea; primarily during the first summer and winter of ocean life. We have not observed in the past a large mortality of fish once they have spent one year in the ocean. As a matter of fact, nearly all modeling efforts to estimate life-cycle productivity of salmon, (using Ricker, Beverton-Holt, or Matrix models) have used a presumption of 80% survival between adult age classes. However, this does not preclude the possibility of significant mortality occurring later in their ocean existence by some unexplored and unexplained variable. We do not currently evaluate ocean conditions in the area occupied by subadult and adult spring Chinook salmon, largely because we do not know what area of the ocean they inhabit during this life stage. It remains possible that the low returns this year resulted from significant mortality in an area of the ocean that we are currently not evaluating.

[I note that some of the Northern Alaska runs, including the Yukon and adjacent rivers, are down dramatically. Does this give us a hint that the Upper Columbia fish are feeding in the same location?](#)

Answer: We do not know where the Upper Columbia River fish feed in the ocean. It is premature to speculate that they are located in areas similar to Northern Alaska runs. However, we are discussing the status of spring Chinook runs in Alaska with colleagues at the Auk Bay laboratory to determine whether they have the same trends as Columbia River runs.

[Also, Jim Balsiger happened to mention that the bycatch of salmon in the pollock fishery was especially high this year. I know they are working on categorizing the salmon. Could you check with Alaska to see what effect the interceptions may be having on our stocks?](#)

Answer: We reviewed a 20-year data set of CWT recoveries of Chinook salmon from bycatches in Gulf of Alaska fisheries. Of 210 CWT-tagged Chinook salmon recovered from the Columbia River basin, only 10 had an interior Columbia River basin spring Chinook lineage, and most were caught as juveniles in their first summer at sea; only 1 was an adult. In contrast, for the remaining 200 Columbia River basin fish from other genetic lineages all but 14 were captured after their first winter at sea. Bering Sea CWT recoveries contained no interior Columbia



River basin spring Chinook salmon. These data together indicate that upper Columbia River spring Chinook salmon adults are not caught in the ocean.

Question 4. If, the facts do indeed point to ocean conditions, I would like to talk with you about doing a collaborative effort with other parts of NOAA to see what more we can say about such conditions, both historically and in the future. I think there would be strong support at the VADM level about such an effort, which would demonstrate the power of matrixed capability and showcase NOAA's strengths.

Answer: Yes, we are very interested in discussing a broader collaboration with you.

Variations in ocean productivity have a large influence on recruitment and return rates, as discussed above. In general, this contribution has largely been overlooked by regional salmon managers. We have been conducting extensive sampling of the coastal Oregon and Washington waters measuring the underlying productivity to understand how ocean conditions affect resources. We have continuous (biweekly) data as far back as ten years for some of our sample lines. Recognizing the importance of these data, this past year we developed a "Summit to the Sea" climate and ecosystems initiative that uses salmon as integrators to look at the effects of climate across freshwater, migration corridor, and ocean ecosystems. It presents the start of an integrated "One NOAA" approach to the effects of climate and climate variability on the resources that we manage by collaborating with several other line offices. Secondly, we are working closely with the NMFS Office of Science and Technology on a proposal under the NOAA Climate Goal for a demonstration project along our coast where we develop means to incorporate climate variability and ecosystem observations into the stock assessment process. In this project krill (euphausiids), sardines, and hake responses would be targeted. We would very much like to brief you on both of these initiatives and discuss ways in which we could collaborate with others within NOAA and our academic partners to meet both your needs and those of the Pacific Fishery Management Council. As indicated above, we also need to have a better understanding of ocean conditions beyond those found off the Pacific coast. Spring Chinook salmon are only found on the coasts during their early entry to seawater, and the unexpectedly low returns this year suggest adverse conditions in the ocean beyond areas where we have measurements. Some researchers have used broad indices,



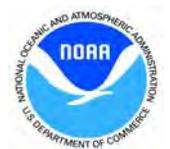
such as the Pacific Decadal Oscillation and location of the Aleutian Low, to link changes in salmon stock productivity to broad patterns in ocean changes. We see a need to have a better resolution on where and when physical factors change in smaller areas of the ocean. Potentially, we could work with OAR and NESDIS to obtain this information.

In summary, no single variable or factor that we examined appears responsible for the observed low return. Probably a combination of factors played a role. These could include factors discussed here as well as additional factors, and we pose several of them, as follows:

a. Fish from the 2003 outmigration will return at the high end (or higher) of the historical distribution of percentage of 3-ocean fish seen in past years. They may not have returned as 2-ocean fish this year because of poor growth during their second year in the ocean and thus a higher proportion than normal have stayed another year in the ocean to grow before maturation. However, the return will not reach our lower prediction bound for Snake River fish unless 60-70% of the hatchery fish return as 3-ocean fish, and this percentage would far exceed any historic values.

b. Marine mammals in the lower Columbia River have had a greater than average affect on the upriver run in 2005. We do not know if sea lion predation has changed, but we have seen a higher level of marine mammal scars on spring Chinook salmon sampled at Lower Granite Dam this year. These scars are on fish that survived to reach Lower Granite Dam, and our staff believes most are caused by harbor seals, based on sizes of teeth marks and the assumption that sea lions are successful predators and do not leave scarred fish.

Year	Descaled (%)	Flesh wound (%)
2005	28.1	13.9
2002	11.3	8.8
2001	12.7	8.2
2000	14.3	4.5
1999	14.8	6.5
1998	19.7	8.9
1997	9.9	5.9
1996	10.4	6.0



1995	12.4	5.4
1994	14.8	10.7
1993	12.5	5.8

c. Ocean conditions (as noted above) may have affected adult fish that remained after their first year in the ocean. We did evaluate 5 ocean-climate indices for the North Pacific Ocean (Aleutian Low Pressure, El Niño/Southern Oscillation, North Pacific, Pacific Decadal Oscillation, and Northern Oscillation Index). These are indices that measure various couplings between the atmosphere and North Pacific Ocean that drive productivity in the North Pacific marine ecosystem. Based on these indices, marine survival conditions were generally poor through the mid-1990s with subsequently low adult returns. In 1998-99 the NE Pacific underwent a regime shift toward conditions more favorable to Columbia River salmon; in 2001, returns of wild Snake River spring/summer Chinook exceeded the previous 5 years by nearly an order of magnitude and these were largely 2-ocean fish that went to sea in 1999. The trend of high returns continued for another two years (adults going to sea through 2001). However, beginning in 2002, we observed a switch in 3 of the indicators toward a negative direction for salmon, with one (Alaskan Low Pressure) being the second largest value observed in the past 45 years. Later in 2002-2003, a fourth index switched direction toward the less favorable state. Therefore, these conditions may have lead to less favorable returns of Columbia River stocks, at least compared to those of the previous 3 years.

d. Recently we have been conducting surveys of predators along our coastline to evaluate their role in juvenile salmon survival. In March of the past three years as part of this work, we observed killer whales feeding in the Columbia River plume near the mouth. We believe that the Columbia River plume may serve as part of the winter feeding grounds for killer whales. We plan to continue these surveys to build a longer time series to better understand the sightings and variability among years and their possible feeding on salmon during this period.

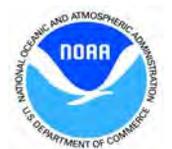
e. Salmon may be more sensitive to changes in physical changes in the ocean than suggested by our ocean indices. This may entail developing additional biological metrics of ocean



conditions that reflect more accurately the biological response to changing ocean conditions.

f. The forecast by TAC was much too high, as was a simple estimate we derived from our Snake River data base. Even if TAC had provided prediction bounds, we believe they would not have correctly forecasted this year's return. We could work with TAC, if you would like, to review the methods they used. But we think we should only do so as part of TAC's own review, not an independent review, and only after this was carefully coordinated with TAC through Peter Dygert.

cc: F/NWC - Stein
F/NWC - Iwamoto
F/NWC3 - Ferguson
F/NWC3 - Williams
F/NWC3 - Casillas
F/NWR - Toole



Post-release attributes of Lyons Ferry Hatchery fall Chinook salmon subyearlings released into the Snake River as surrogates for wild fall Chinook salmon subyearlings

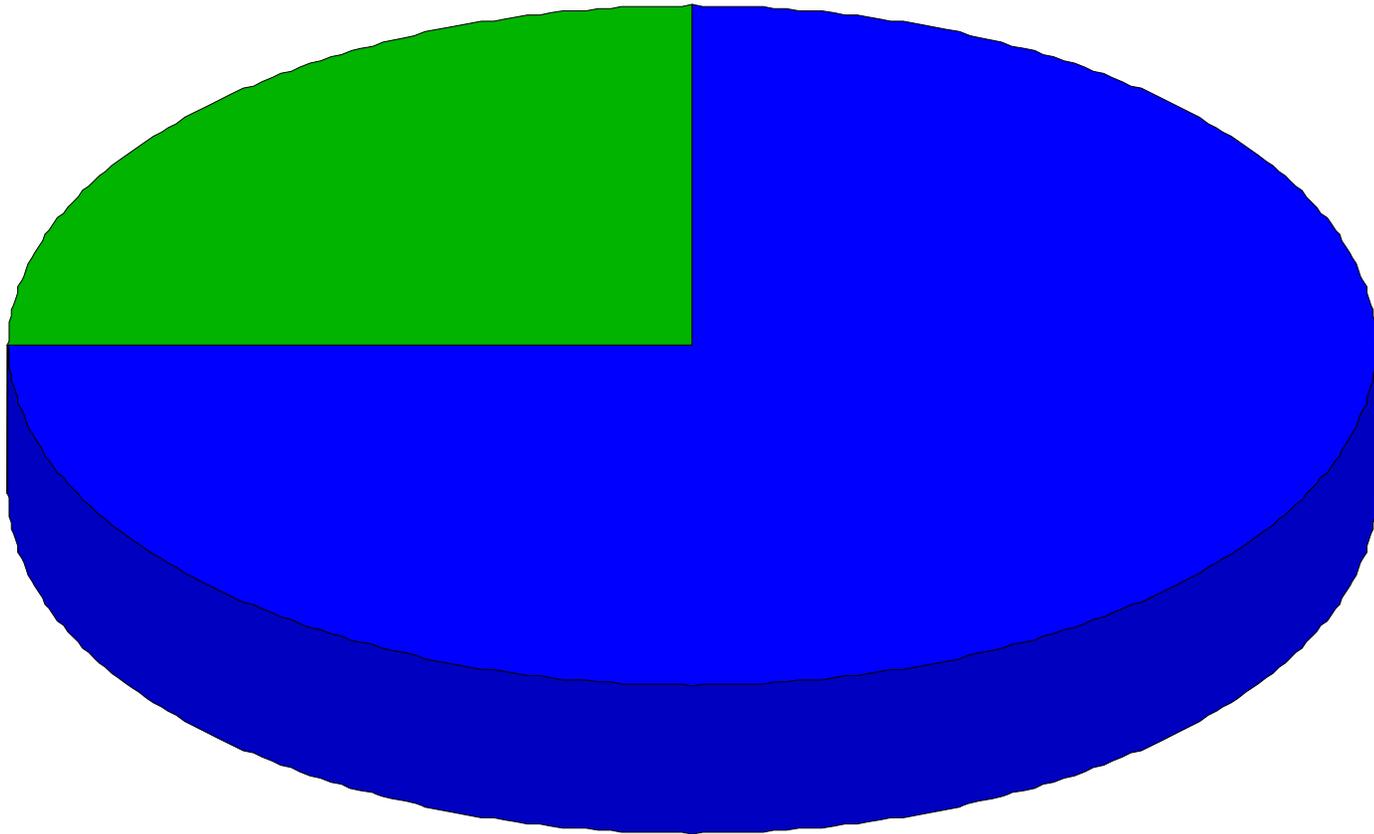


A study to compare SARs of Snake River fall Chinook salmon under alternative transportation and dam operational strategies



Basin-wide Readd Distribution (2004)

Clearwater, n = 631, 25%



Snake, n = 1926, 75%

Groups of PIT-tagged fall Chinook salmon subyearlings that provided data for comparing post-release attributes for this presentation.

Origin	Group	Release site	Number tagged	Release dates	
				Min	Max
Wild	Wild	Snake	9,301	14-April	05-July
Hatchery	Surrogates	Snake	124,448	16-May	27-May
Hatchery	Production	Hells Canyon Dam	9,972	28-April	28-April
		Pittsburg Landing	2,492	26-May	26-May
		Captain John Rapids	3,494	25-May	30-May
		Couse Creek	3,465	26-May	26-May
		Big Canyon Creek	2,498	31-May	31-May

Mean fork length at PIT tagging



Wild $N = 9,300$ 68 ± 7 mm



Surrogate $N = 123,380$ 76 ± 8 mm



Production $N = 12,918$ 86 ± 9 mm

Attributes compared among groups

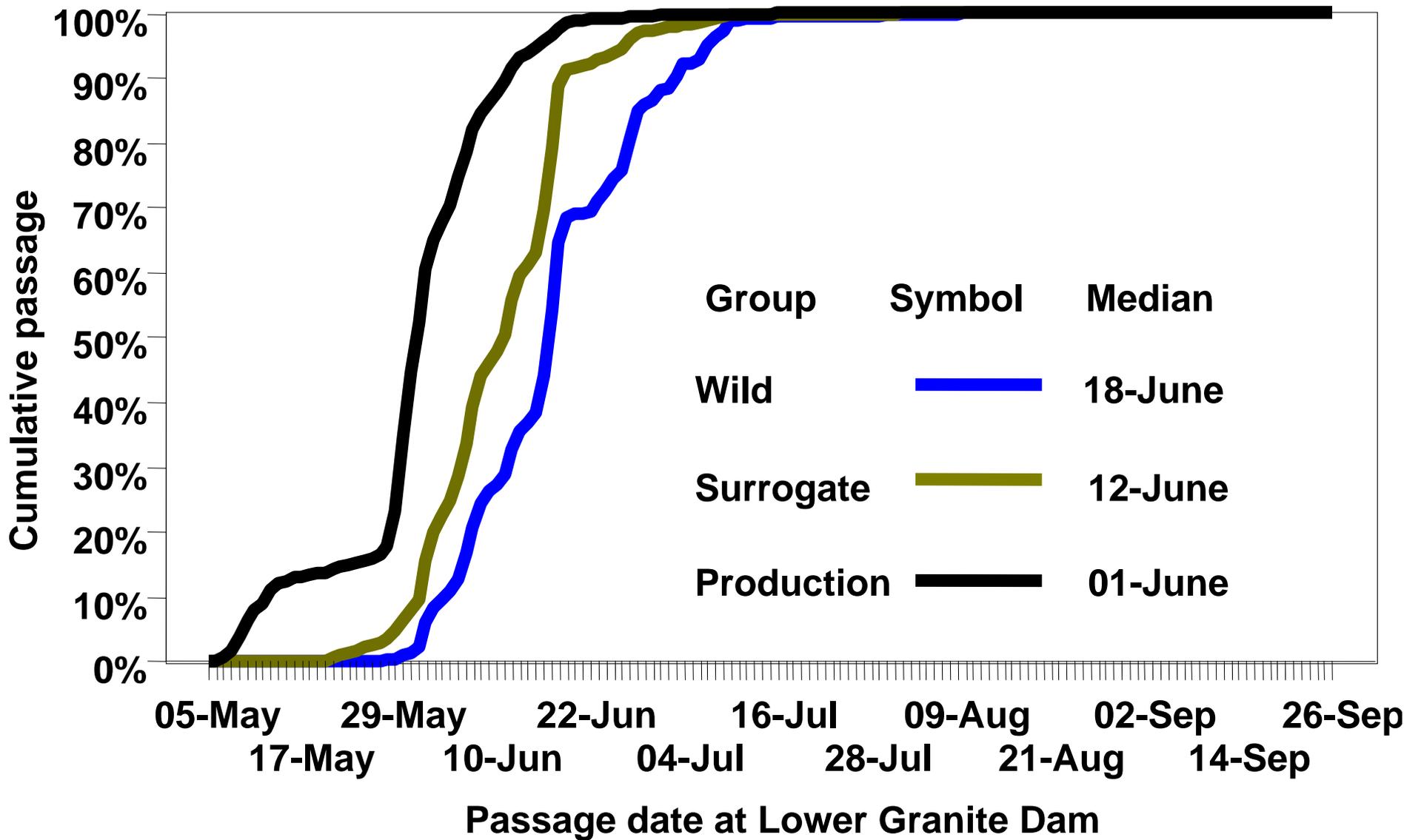
- **Passage timing at the first three lower Snake River dams**
- **Level of exposure to spill at the first three lower Snake River dams**
- **Travel time to Lower Monumental Dam**
- **Joint probability of actively migrating and surviving to pass Lower Monumental Dam**

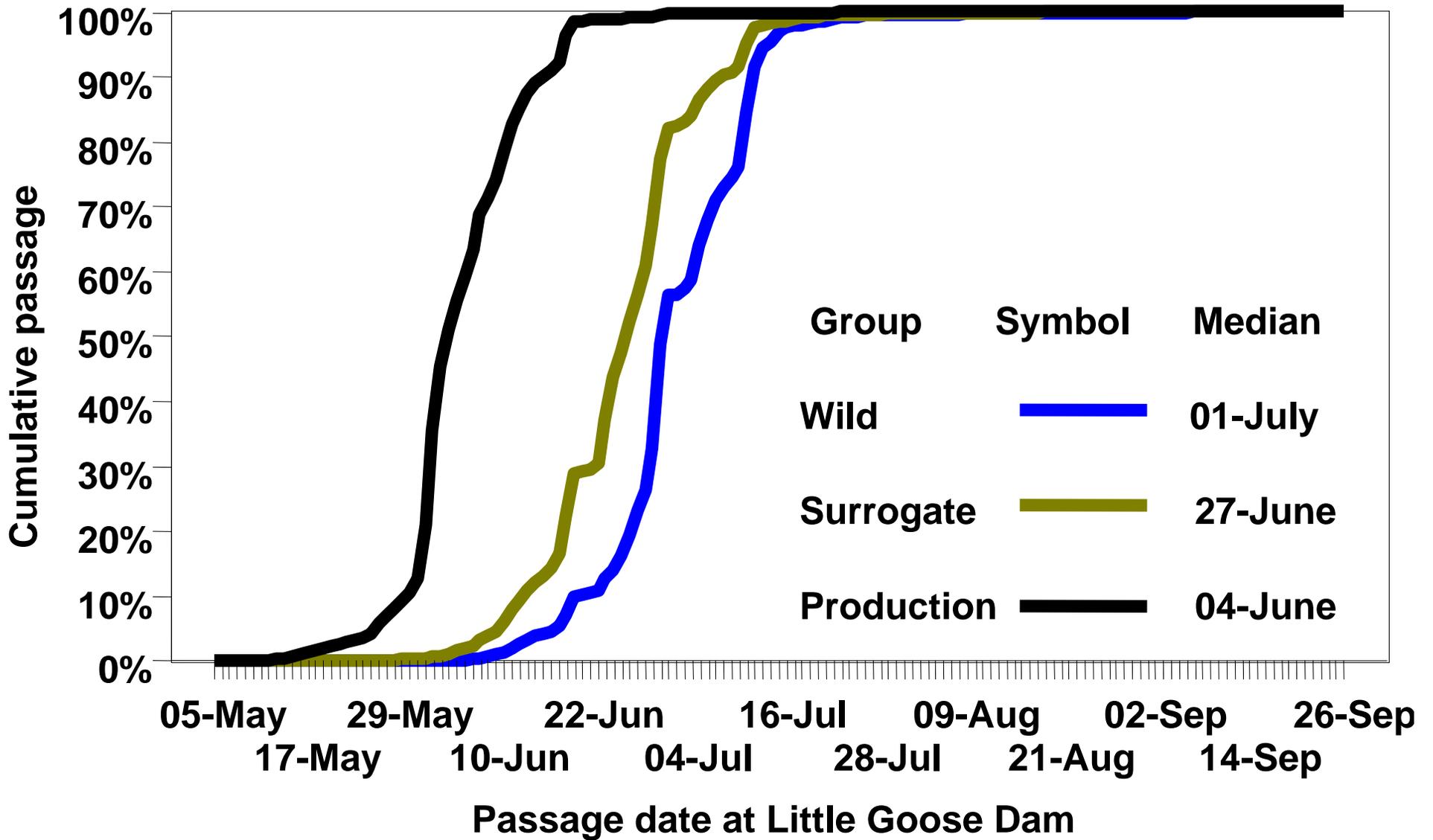
Use of the Sandford and Smith (2002) Method to Estimate Daily Passage:

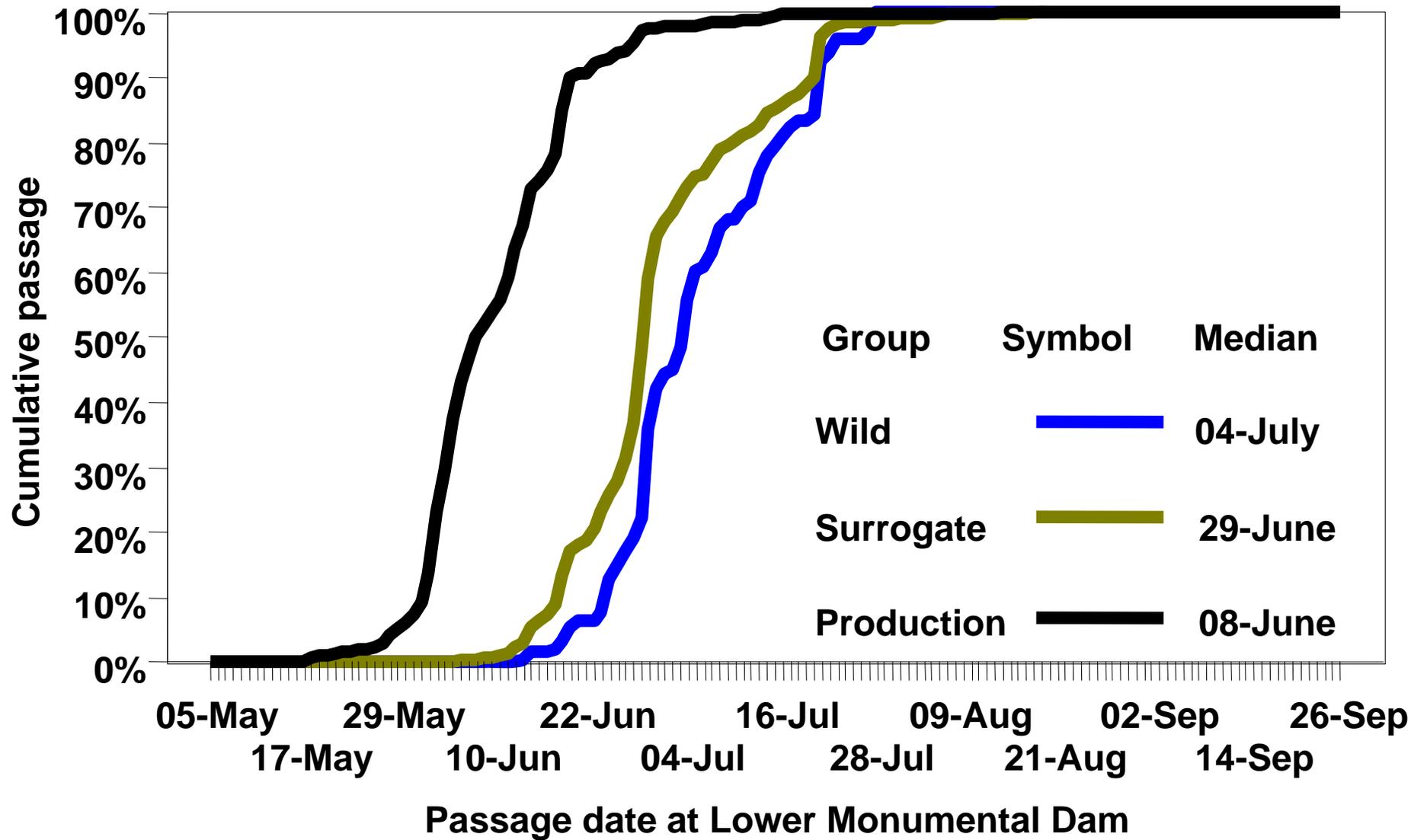
$$n^{\wedge} = n / \wedge P;$$

where n = observed PIT-tag detections

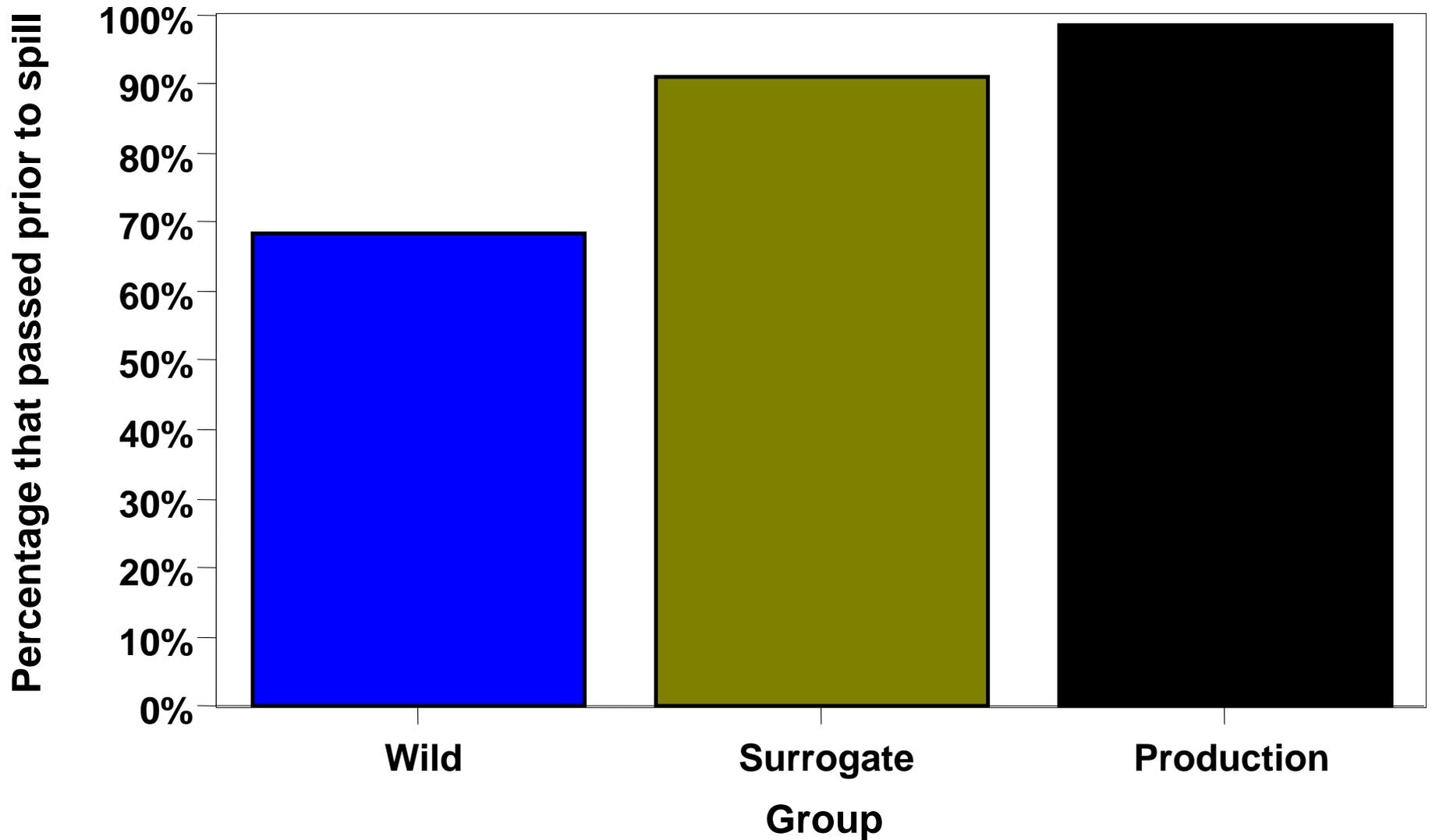
and $\wedge P$ = estimated detection probability.



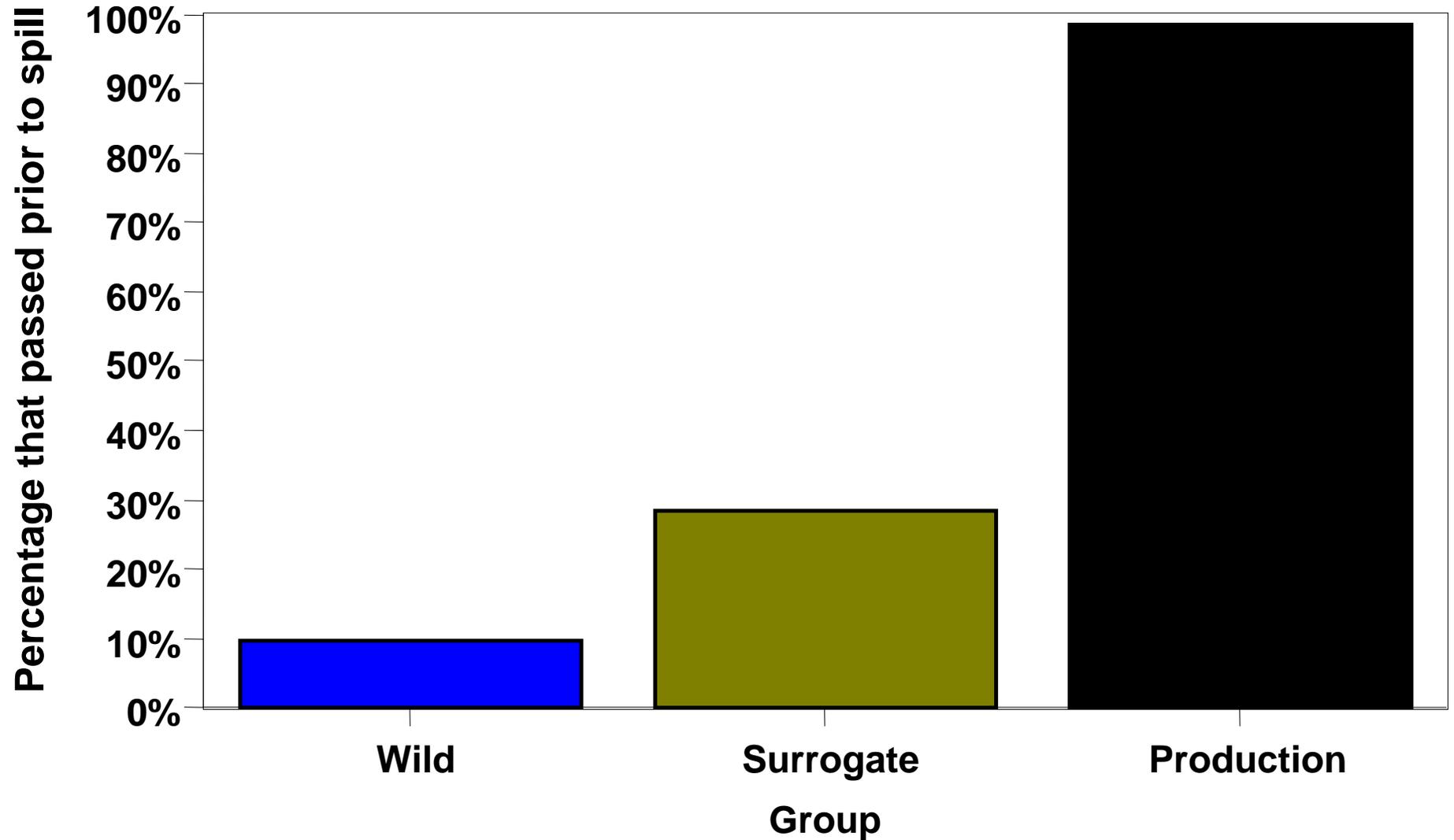




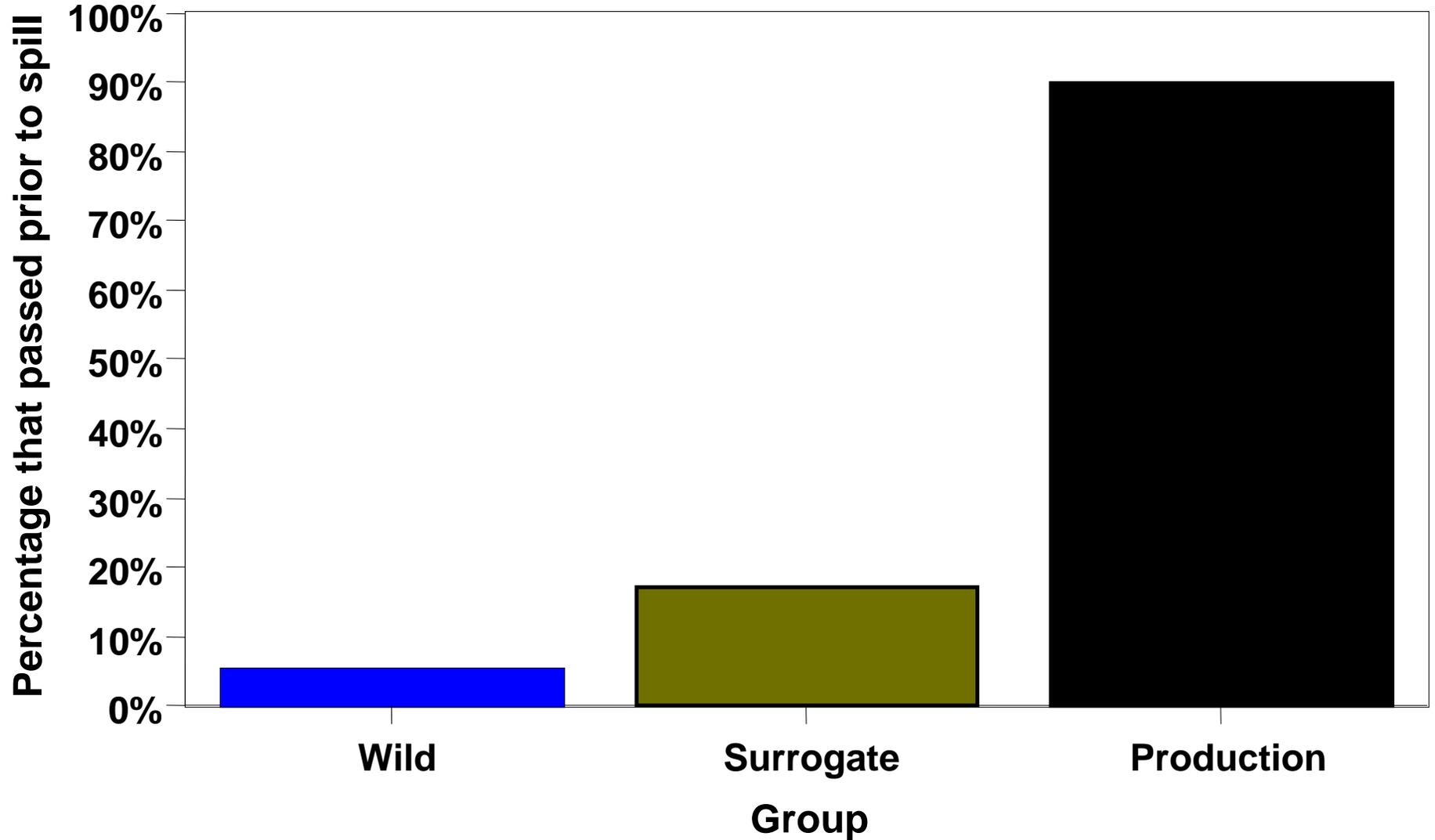
Lower Granite Dam



Little Goose Dam



Lower Monumental Dam



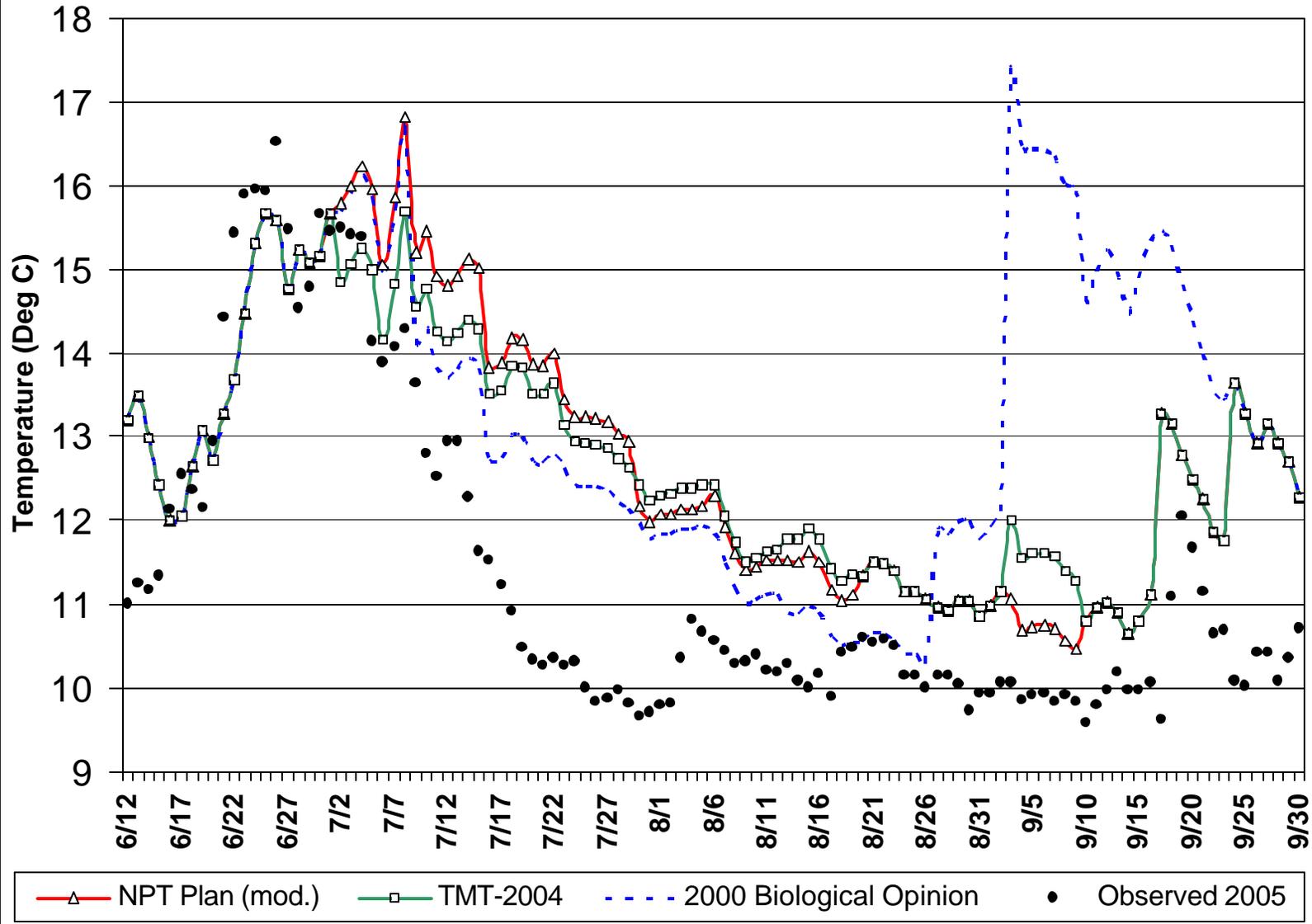
Group	<i>N</i>	Travel time to Lower Monumental Dam
Wild	2,135	45 ± 0.2
Surrogate	18,608	41 ± 0.1
Production	10,853	28 ± 0.1

Group	<i>n</i>	Joint probability of migrating and surviving to the tailrace of Lower Monumental Dam
Wild	2	26 ± 11
Surrogate	2	16 ± 0
Production	5	52 ± 8

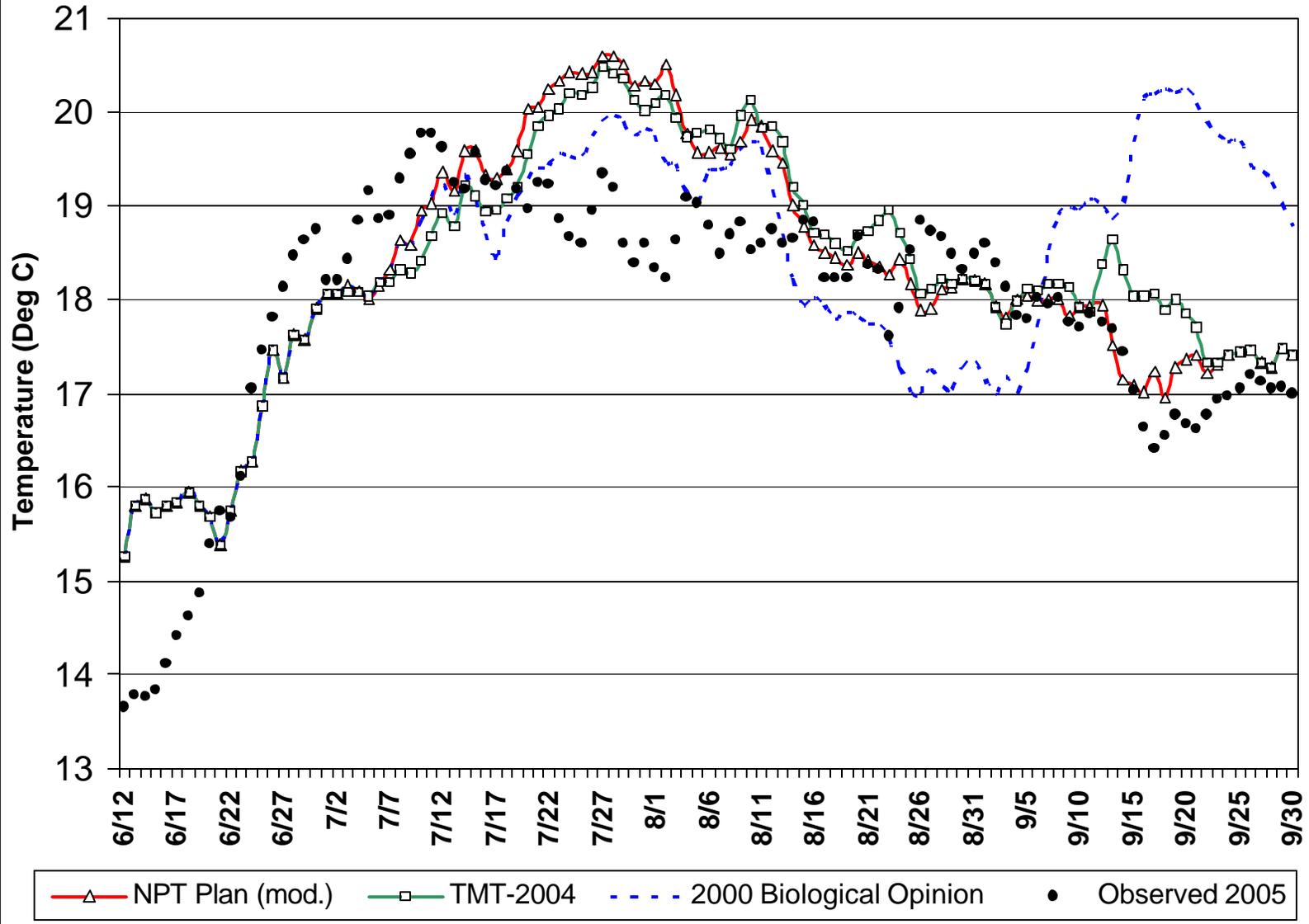
Summary of 2005 findings

- **The post-release attributes of wild Snake River subyearlings and the Snake River surrogates were not identical, but there were general similarities in passage timing, level of exposure to spill, travel time, and the joint probability of migrating and surviving.**
- **Releasing Snake River surrogates over a three-week period in 2006 might reduce the differences observed in post-release attributes between wild Snake River subyearlings and the Snake River surrogates.**
- **Compared to wild Snake River subyearlings; production subyearlings passed downstream much earlier, were exposed to very little summer spill, moved seaward rapidly, and had a much higher probability of migrating and surviving.**
- **Plans are presently being made to represent production fish in the 2006 hydrosystem operation study.**

Clearwater River at Peck (1979, 1994, 1995, 1998 weather)



Snake at Lower Granite Dam (1979, 1994, 1995, 1998 weather)



2005 Preliminary RSW Data for Ice Harbor Dam

Yearling Chinook and Steelhead
Radiotelemetry Studies

Performed by: NOAA – NWFSC
For the USACE
Anadromous Fish Evaluation Program

Important Considerations

- This information is very preliminary and the specific numbers are likely to change
- This is the first look at RSW passage at Ice Harbor
- These survival estimates are relative survival estimates compared to a tailrace reference

Legend

Passage Metrics

% of fish
passing a dam
via a specific
route

% of Fish
Passing
a dam via
an RSW

Survival Metrics

% of fish
surviving a dam
or specific
dam passage
route

% of fish
surviving RSW
passage
route

Passage Route



Ice Harbor 2005 Yearling Chinook Research Background Information

■ Study

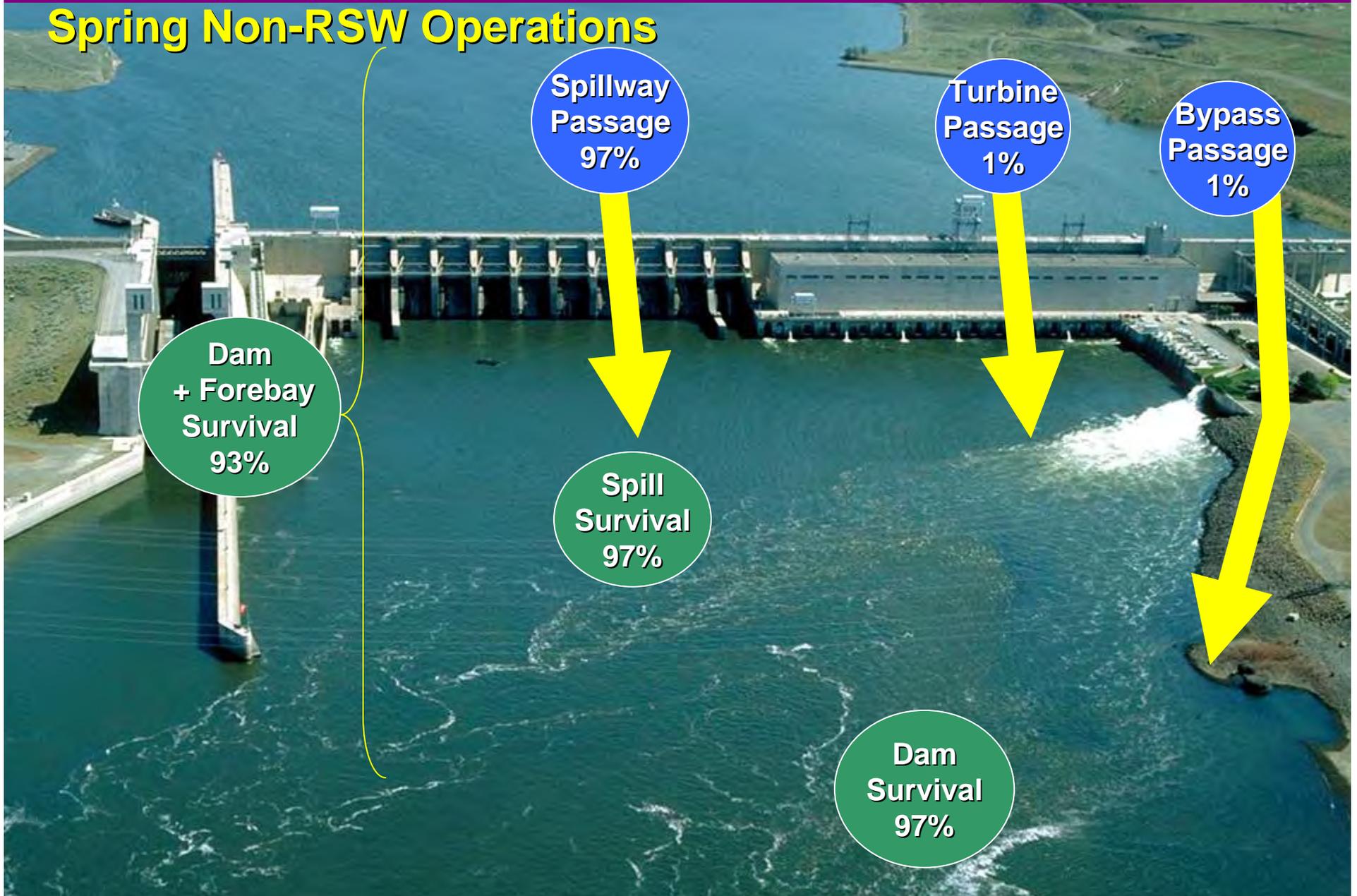
- Radio Telemetry and PIT – Paired Release
- Approximately 4800 fish released
- May 3 – May 29

■ Operations

- RSW on Total Avg Q = 96kcfs
- RSW on Spill Avg Q = 33kcfs (34%)
- RSW off Total Avg Q = 105kcfs
- RSW off Spill Avg Q = 86kcfs (82%)

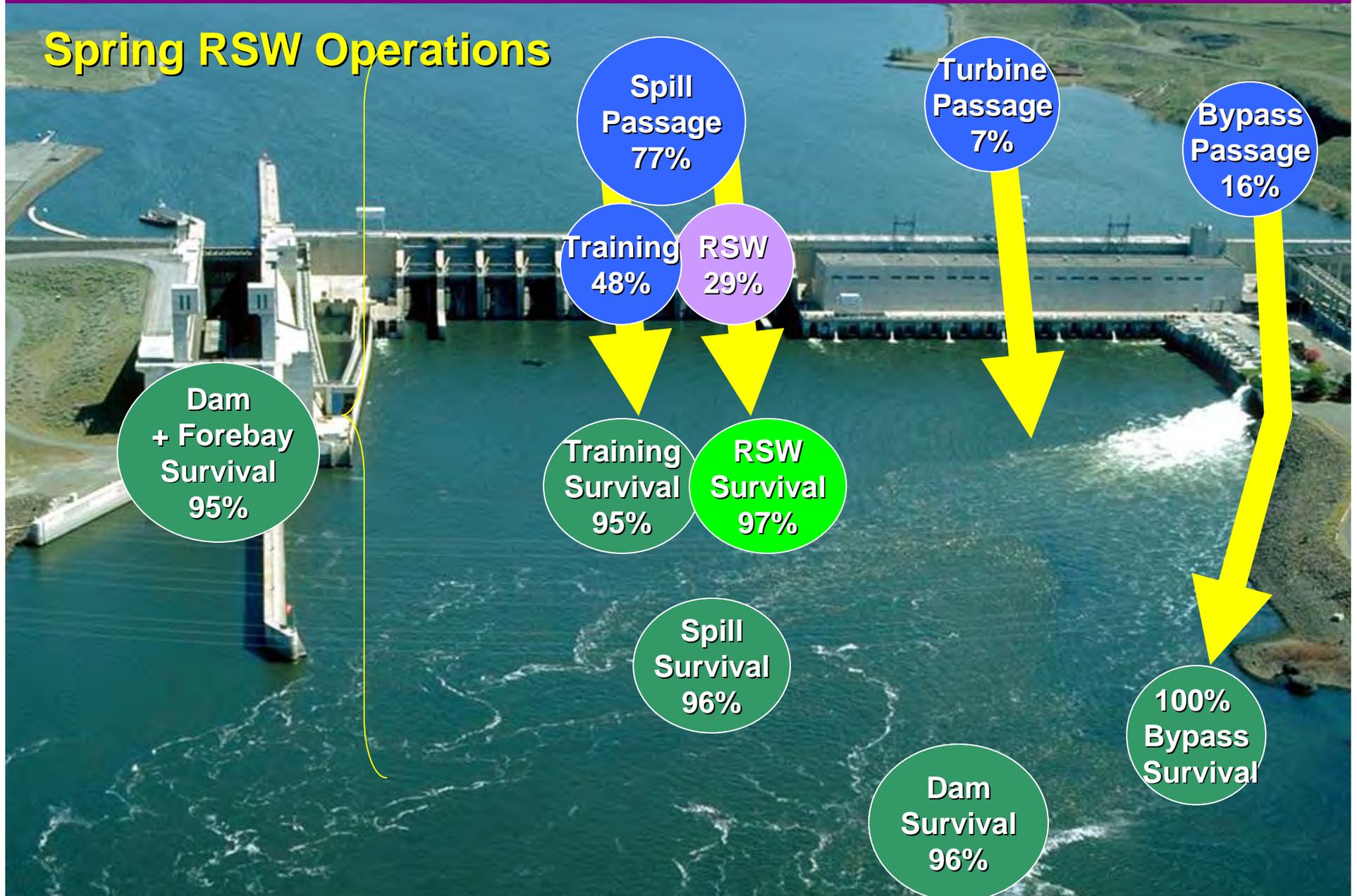
Ice Harbor Dam – Yearling Chinook

Spring Non-RSW Operations



Ice Harbor Dam – Yearling Chinook

Spring RSW Operations



Key Takeaways from ICH Yearling Chinook R/T Studies

- More fish went through turbines and bypass during RSW operations versus Non RSW
- More fish appeared to go through training spill than through the RSW. This may be due to spill volume or spill pattern.
- Project Survival was not likely statistically different between RSW (95%) and Non RSW (93%) Operations (34% vs 82% spill)
- Concrete Survival was not likely statistically different between RSW (96%) and Non RSW (97%) Operations (34% vs 82% spill)
- There may be room for improvement with RSW operations if we look closely at training spill and forebay delay

Ice Harbor Steelhead Research Background Information

■ Study

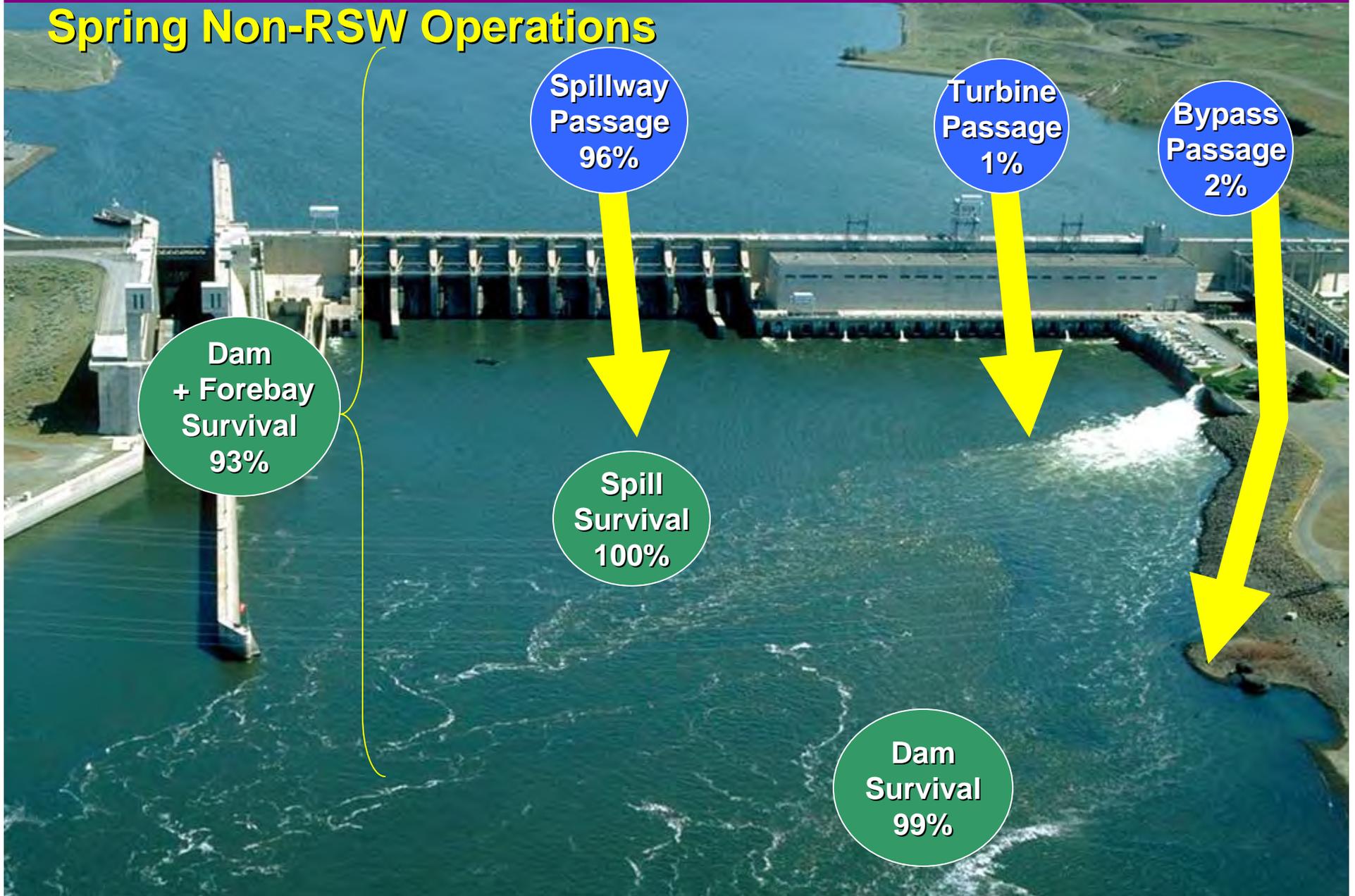
- Radio Telemetry and PIT – Paired Release
- Approximately 3200 fish released
- May 3 – May 29

■ Operations

- RSW on Total Avg Q = 96kcfs
- RSW on Spill Avg Q = 33kcfs (34%)
- RSW off Total Avg Q = 105kcfs
- RSW off Spill Avg Q = 86kcfs (82%)

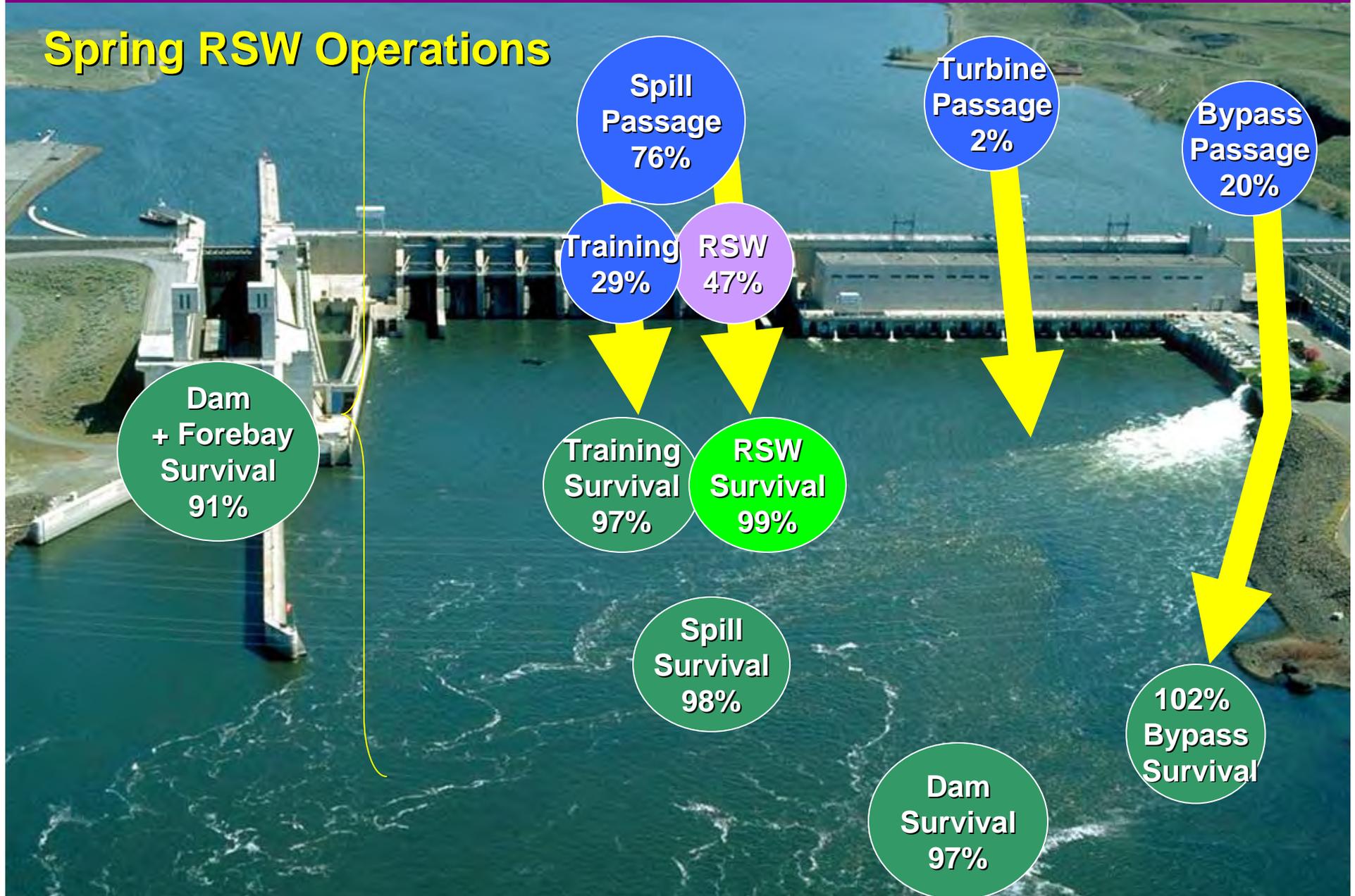
Ice Harbor Dam – Steelhead

Spring Non-RSW Operations



Ice Harbor Dam – Steelhead

Spring RSW Operations



Key Takeaways from ICH Steelhead R/T Studies

- More fish went through the bypass during RSW operations versus Non RSW
- Project Survival was not likely statistically different between RSW (91%) and Non RSW (93%) Operations (34% vs 82% spill)
- Concrete Survival was not likely statistically different between RSW (97%) and Non RSW (99%) Operations (34% vs 82% spill)
- There may be room for improvement with RSW operations if we look closely at training spill

2005 Preliminary Relative Survival and Passage Estimates for Yearling Chinook

		RSW Operations		Non-RSW Operations	
		Survival %	CI	Survival %	CI
Ice Harbor	Dam+Fore	94.5	92.5-96.5	92.8	90.7-95.0
	Dam	98	94.2-98.1	96.8	94.9-98.8
	Spillway	95.8	93.7-97.9	97.1	95.2-99.0
	RSW	97.0	94.2-99.9		
	Training	95.1	92.6-97.6		
	JBS	99.7	96.8-102.7		
Ice Harbor		Passage %	CI	Passage %	CI
	Spill	77		97	
	Turbine	7		1	
	Bypass	16		1	
	RSW	29		-	
	FGE	70.0		72.2	
	FPE	92.3		98.4	
	RSW Effect.	3.15		-	

2005 Preliminary Relative Survival and Passage Estimates for Steelhead

		RSW Operations		Non-RSW Operations	
		Survival %	CI	Survival %	CI
Ice Harbor	Dam+Fore	90.8	87.7-93.9	93.2	90.0-96.4
	Dam	97.3	94.6-100.1	99.3	96.5-102.1
	Spillway	98.0	95.1-101.0	100	97.2-102.7
	RSW	98.5	95.0-102.0		
	Training	97.3	92.9-101.6		
	JBS	101.5	97.6-105.5		
Ice Harbor		Passage %	CI	Passage %	CI
	Spill	76		96	
	Turbine	2		1	
	Bypass	20		2	
	RSW	29		-	
	FGE	89.9		73.7	
	FPE	96.6		98.2	
	RSW Effect.	5.09		-	



COLUMBIA RIVER INTER-TRIBAL FISH COMMISSION

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www.critfc.org

WINTER WEATHER 2005 - 2006 FORECAST

Oregon Chapter-American Meteorological Society Meeting, November 4th, 2005

Kyle Dittmer, *Hydrologist- Meteorologist*

Climate prediction tools used:

1. Australian Bureau of Meteorology—ENSO guide (<http://www.bom.gov.au/climate/enso/>).
2. Assume “**ENSO-neutral conditions**” plus cold & warm phase Pacific Decadal Oscillation.
3. Analog Water Years (October 1 through September 30): 1929, 1933, 1935, 1936, 1937, 1946, 1947, 1948, 1949, 1953, 1954, 1957, 1960, 1961, 1962, 1967, 1979, 1981, 1982, 1990, 1991, 1993, 1994, 2002, 2004 and 2005.
4. Multi-variable ENSO Index: (<http://www.cdc.noaa.gov/people/klaus.wolter/MEI/>)
5. Sea Surface Temperature departure forecasts: (http://www.cpc.ncep.noaa.gov/products/people/wwang/cfs_fcst/images/glbSSTMonMask.gif)
6. Dr. Landscheidt’s Solar Cycle Model: (<http://www.john-daly.com/theodor/new-enso.htm>)
Sunspot data: (ftp://ftp.ngdc.noaa.gov/STP/SOLAR_DATA/SUNSPOT_NUMBERS/MONTHLY)

Winter 2005 - 2006 Climate Forecast for Portland:

Month:	Temperature (mean monthly):	"Hedge"	Precipitation (% normal):	"Hedge"
November	Near Normal (-1.8 to + 1.8 degF)	-0.8	Below Normal (70 - 90%)	86%
December	Near Normal (-1.8 to + 1.8 degF)	-0.1	Near Normal (90 - 110%)	94%
January	Near Normal (-1.8 to + 1.8 degF)	-0.4	Below Normal (70 - 90%)	86%
February	Near Normal (-1.8 to + 1.8 degF)	-0.6	Near Normal (90 - 110%)	97%
March	Near Normal (-1.8 to + 1.8 degF)	-0.1	Near Normal (90 - 110%)	98%

Snow (% probability): November 30%, December 65%, January 81%, February 77%, March 77%.

Snow (inch): Nov. 0.2 (+/- 0.6), Dec. 1.1 (+/- 1.4), Jan. 4.7 (+/- 5.0), Feb. 3.5 (+/- 4.2), March 0.5.

Water Supply Forecast (Columbia River at The Dalles), January - July 2006, Million-Acre-Feet:

Multi-variable ENSO Index (regressed vs. Col. R. at The Dalles WSF): **99 MaF** or 92% of normal.

UW-CIG VIC Hydro model (run through regression): **106 - 107 MaF** or 99 - 100% of normal.

Winter 2004 – 2005, Kyle’s Climate Forecast vs. Observed Data for Portland:

Month:	Temperature (mean monthly):	"Hedge"	Observed	Precipitation (% normal):	"Hedge"	Observed
November	Near Normal (-1.8 to + 1.8 degF)	0.4	0	Below Normal (70 - 90%)	75%	42%
December	Near Normal (-1.8 to + 1.8 degF)	0.3	2.9	Near Normal (90 - 110%)	97%	68%
January	Near Normal (-1.8 to + 1.8 degF)	0.7	1.8	Near Normal (90 - 110%)	100%	39%
February	Above Normal (> +1.8 degF)	2	0.4	Near Normal (90 - 110%)	89%	31%
March	Above Normal (> +1.8 degF)	1.3	2.8	Near Normal (90 - 110%)	89%	102%
	average:	0.9	1.6	average:	90%	56%

WY 2005 Water Resources Forecast: predicted 94 MaF vs. the observed, unregulated, 81 MaF.

Winter 2005-2006 Climate Forecast



Kyle Dittmer

Hydrologist-Meteorologist

November 2nd, 2005

TMT Year-end Review Meeting, Portland

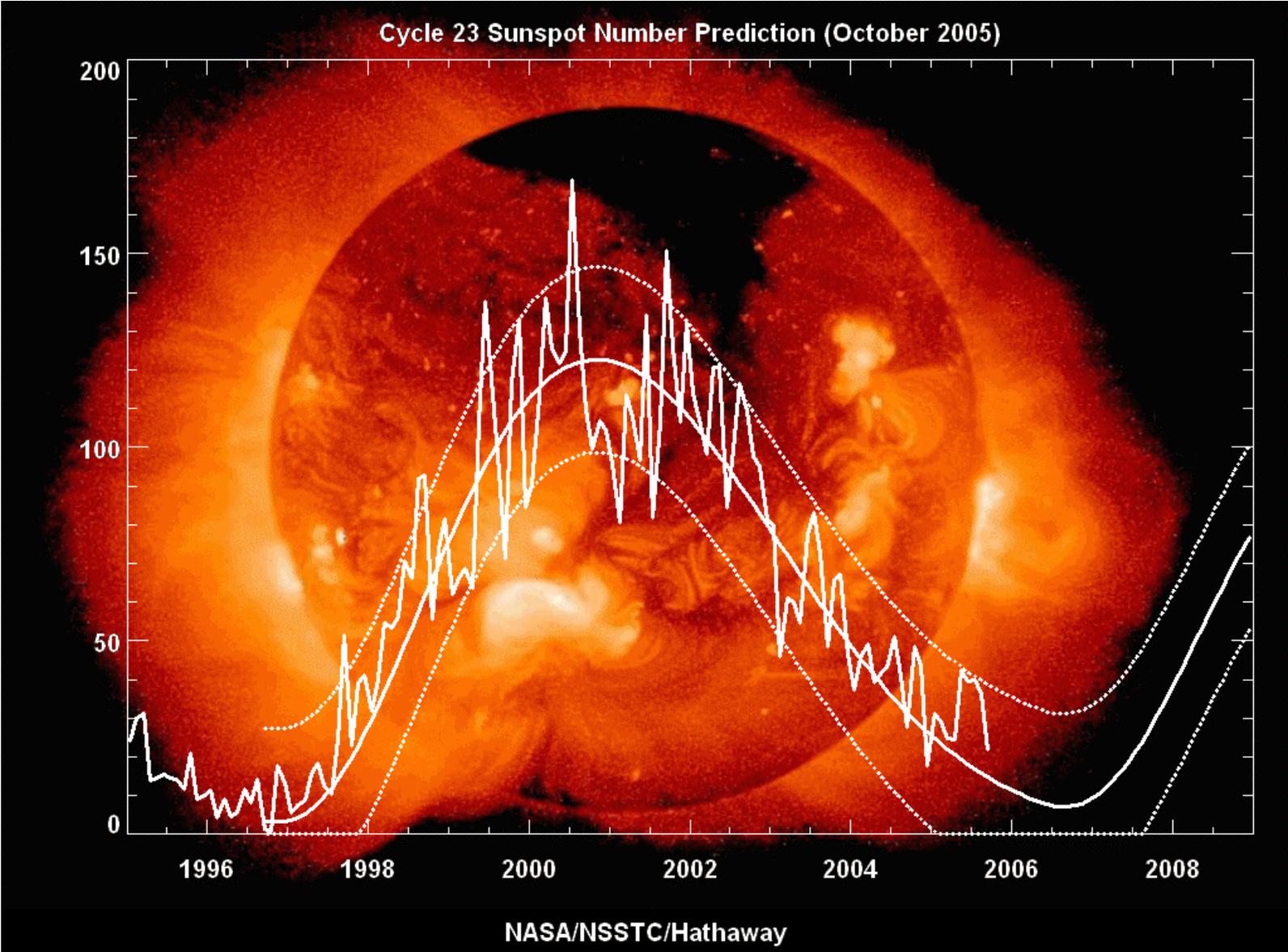
Columbia River Inter-Tribal Fish
Commission, Portland, Oregon

Introduction



- Forecast uses the Tribal approach-- holistic.
- Big-picture: Solar-Forcing (e.g., sunspot cycles) does influence our global weather patterns.
In memoriam: Dr. Landscheidt, 1922 – 2004.
- Track ENSO with the Multi-variable ENSO Index.
- Sea-Surface Temperature Departure Forecasts.
- Hydro-Climate approach: analog years give a 2006 water year volume forecast (Multi-variable ENSO Index vs. historic runoff-Columbia at The Dalles).

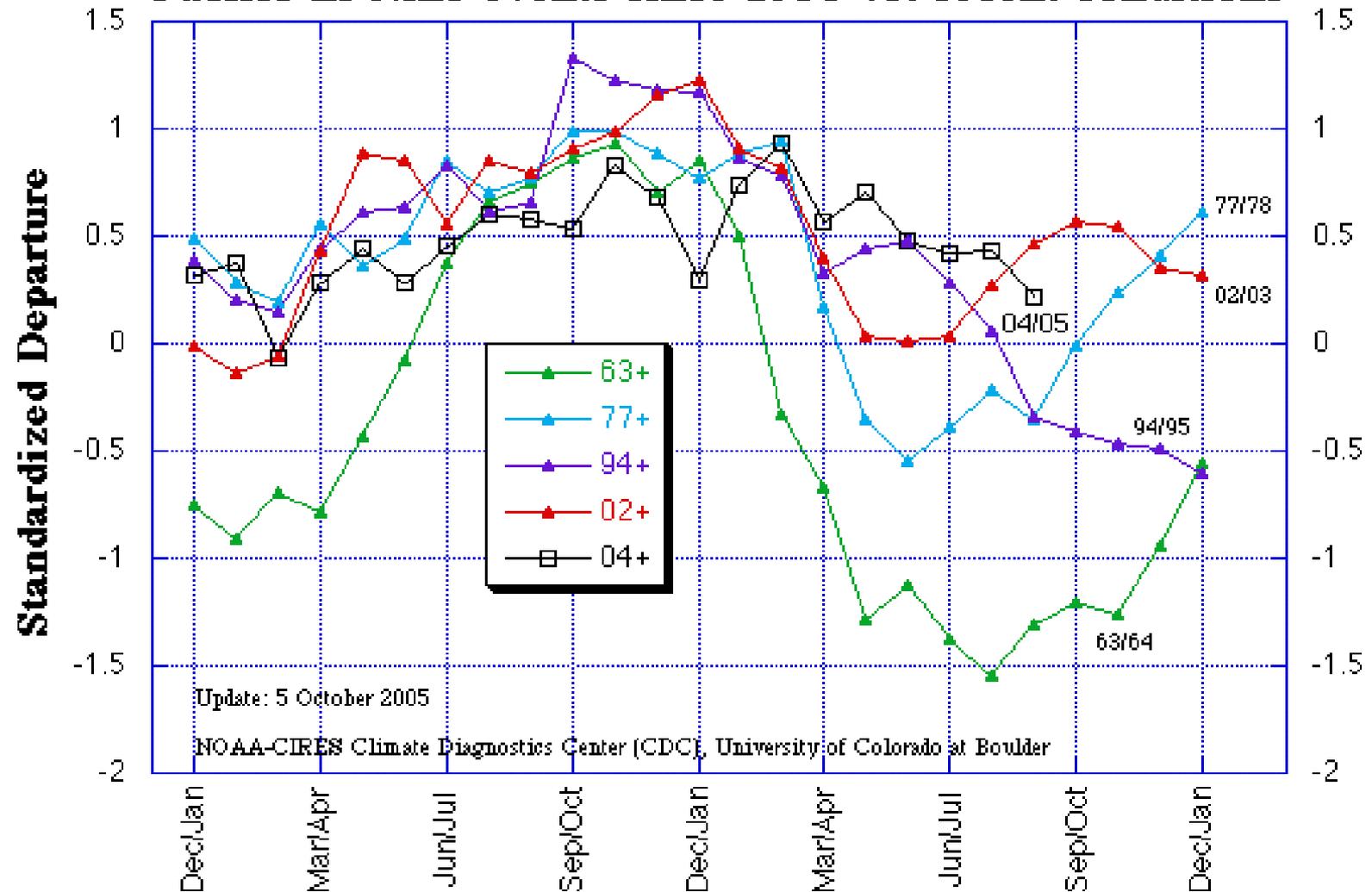
SUNSPOT COUNTS SUGGEST "NEAR NORMAL" WINTER WEATHER



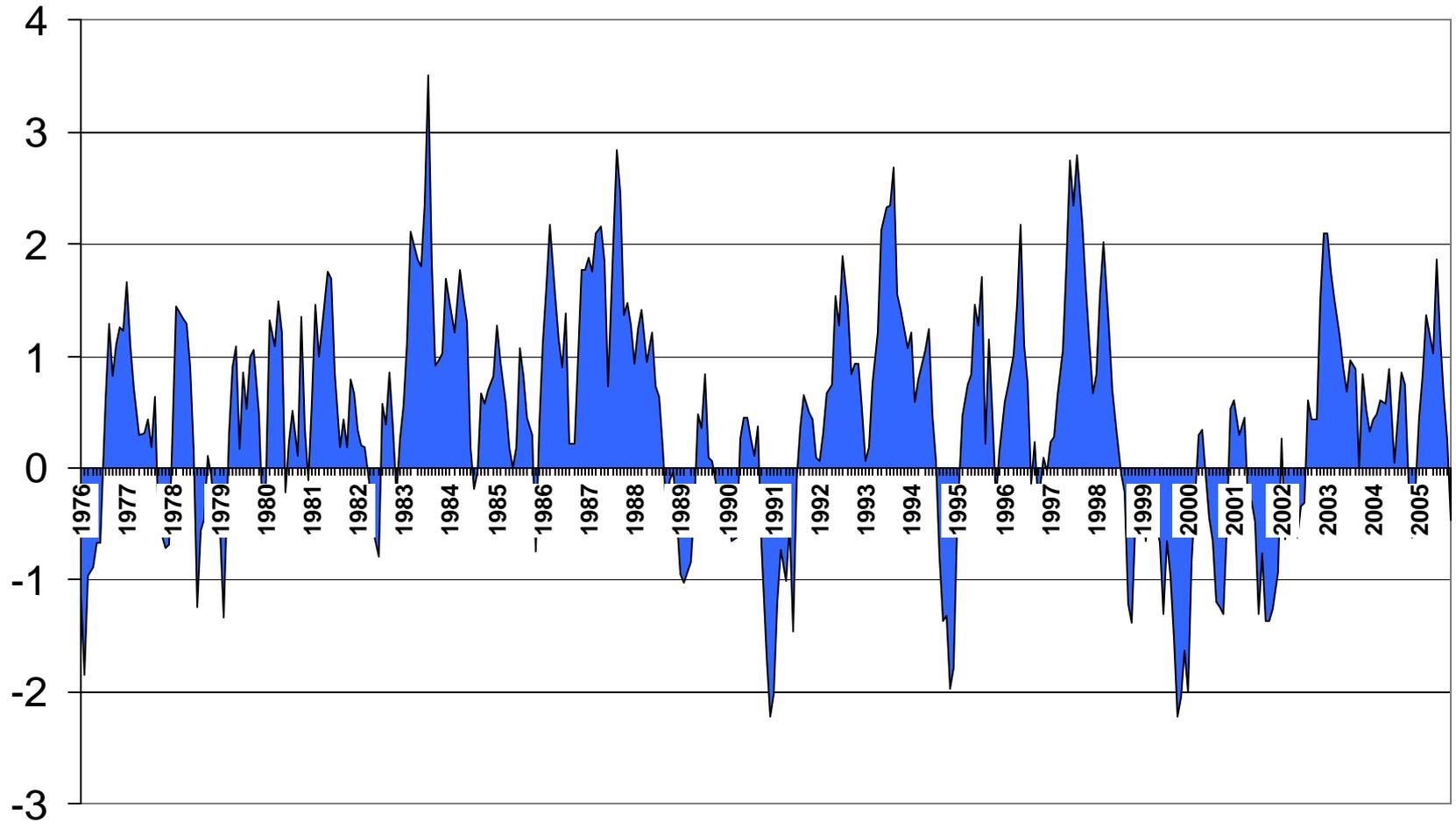
http://science.msfc.nasa.gov/ssl/pad/solar/images/ssn_predict_1.gif

MEI-- MULTI-VARIABLE EL NINO INDEX

Multivariate ENSO Index (MEI) for 4 weak-moderate Central Pacific El Niño events since 1950 vs. recent conditions



PACIFIC DECADAL OSCILLATION (PDO)



Source: UW-Climate Impacts Group

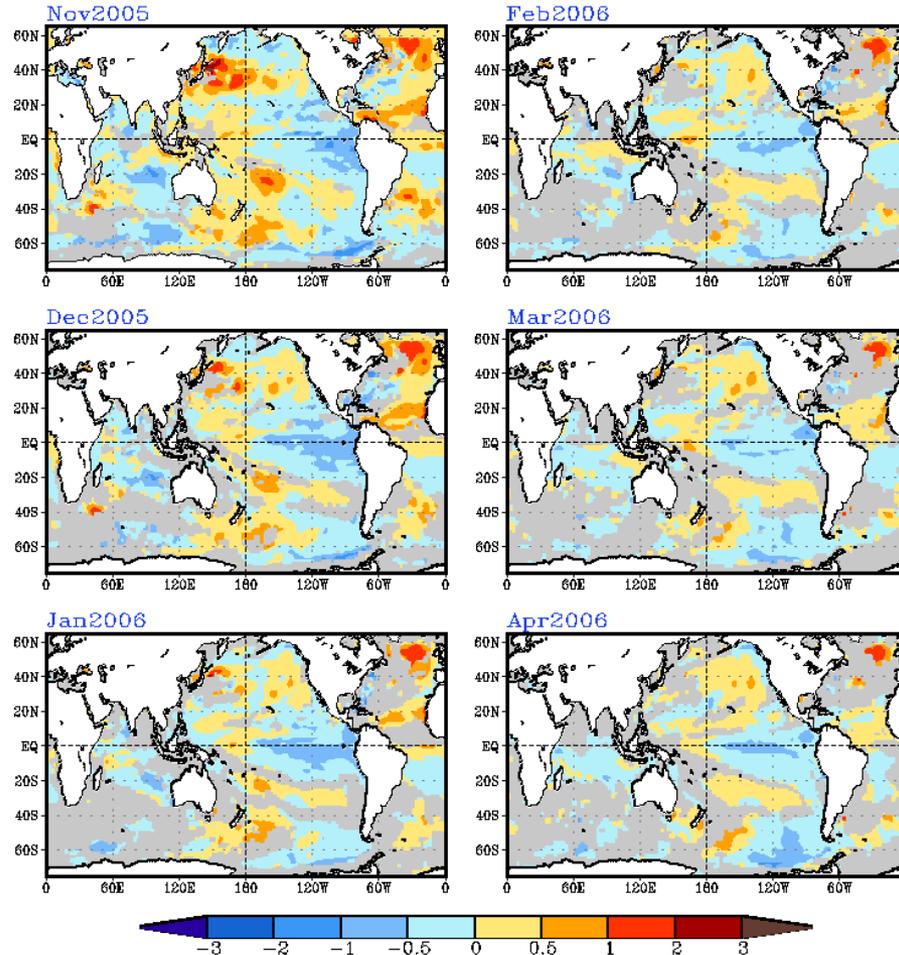
SEA SURFACE TEMPERATURE DEPARTURE FORECAST



NWS/NCEP

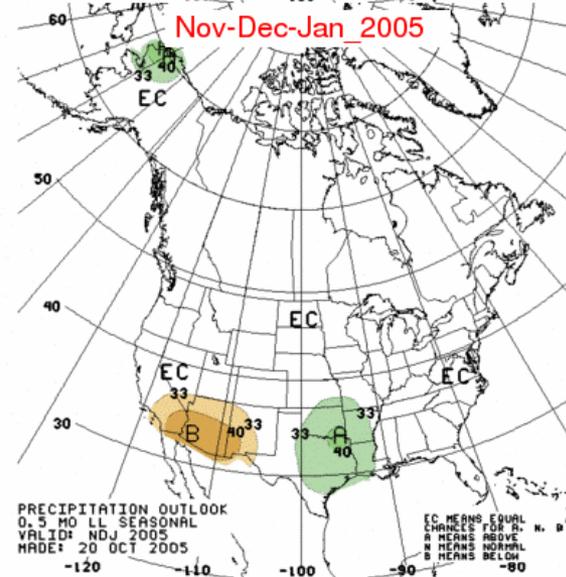
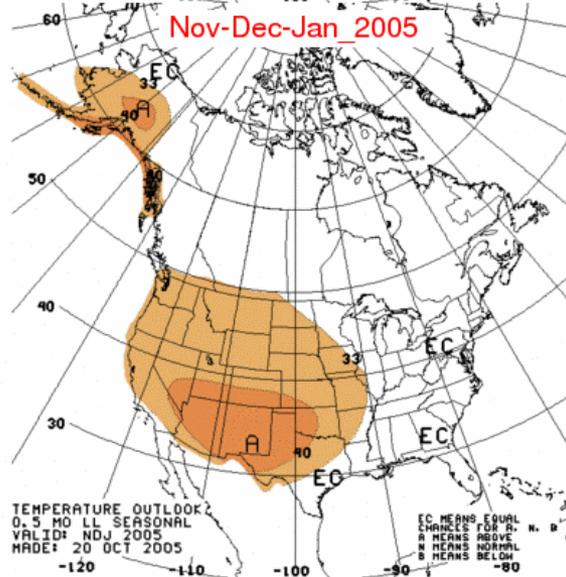
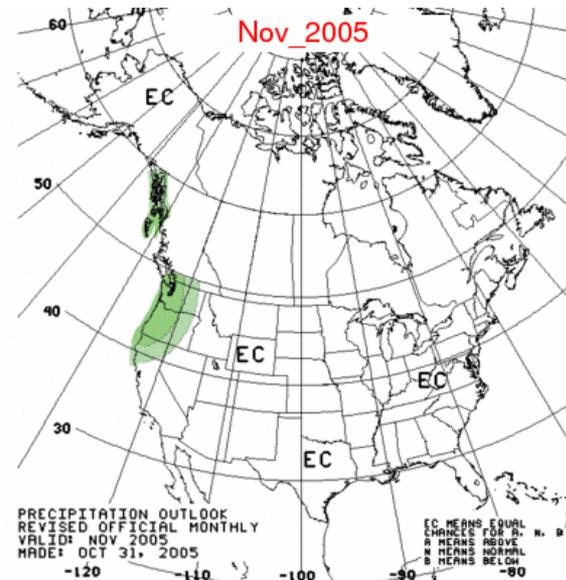
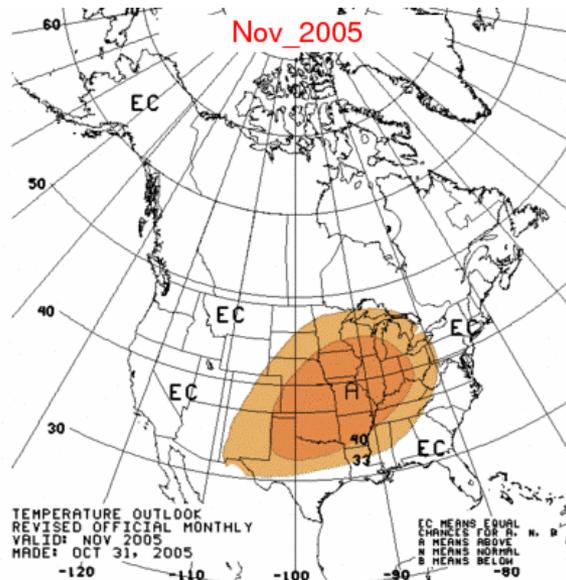
Last update: Tue Nov 1 2005
Initial conditions: 5Oct2005-24Oct2005

CFS monthly SST forecast (K)



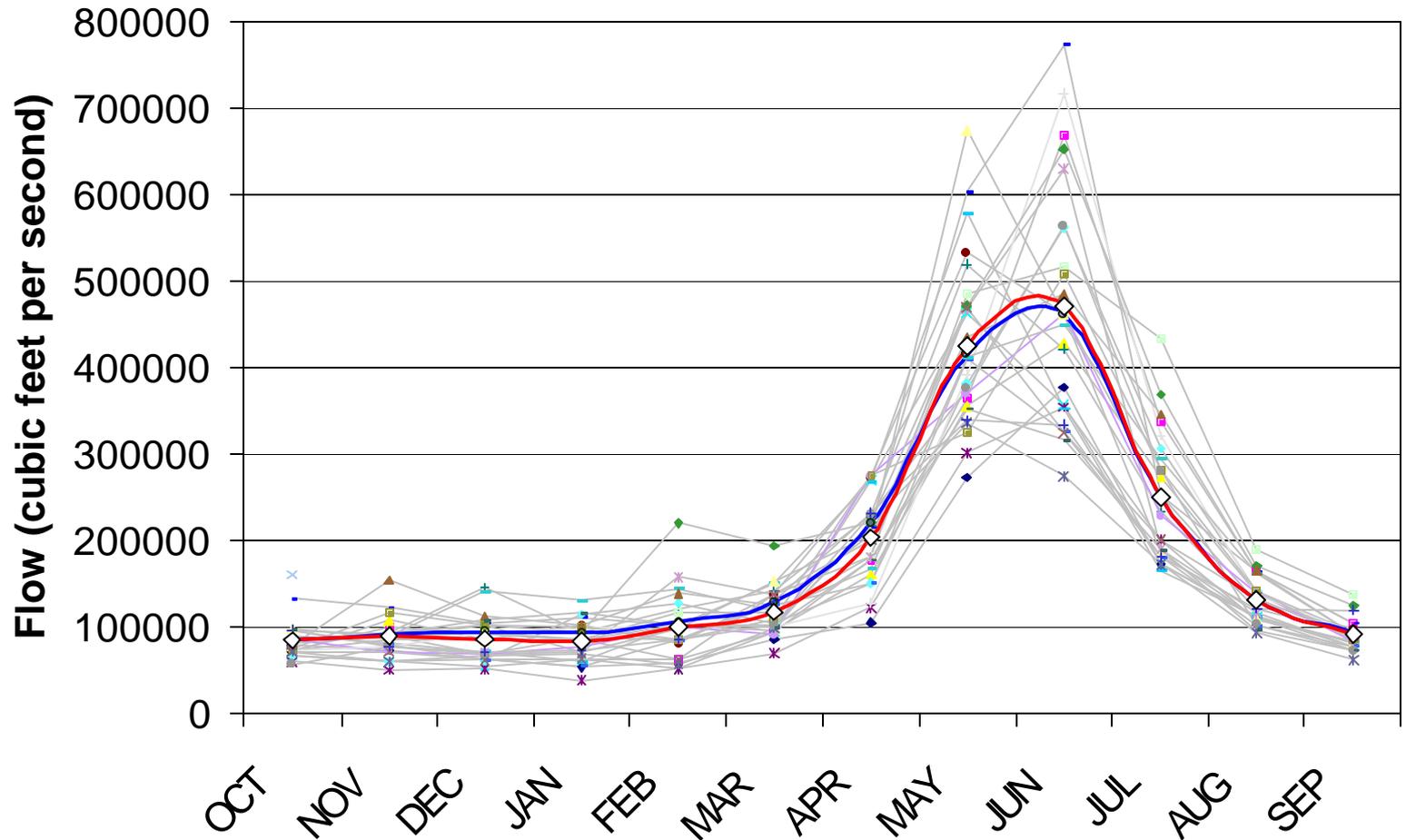
Ensemble average of 40 members from initial conditions of 5Oct2005 to 24Oct2005.
Base period for climatology is 1982-2003. Base period for bias correction is 1982-2003.
Forecast skill in grey areas is less than 0.3.

NOAA - NCEP's LONG-RANGE PROBABILITY FORECAST



ENSEMBLE STREAMFLOW FORECAST- COLUMBIA AT THE DALLES

Columbia River at The Dalles (unregulated flow)



Blue line = long-term average (WY 1929-2005); Red line = Water Year 2006 forecast

Summary: The Forecast



Month:	Temperature (mean monthly):	"Hedge"	Precipitation (% normal):	"Hedge"
November	Near Normal (-1.8 to + 1.8 degF)	-0.8	Below Normal (70 - 90%)	86%
December	Near Normal (-1.8 to + 1.8 degF)	-0.1	Near Normal (90 - 110%)	94%
January	Near Normal (-1.8 to + 1.8 degF)	-0.4	Below Normal (70 - 90%)	86%
February	Near Normal (-1.8 to + 1.8 degF)	-0.6	Near Normal (90 - 110%)	97%
March	Near Normal (-1.8 to + 1.8 degF)	-0.1	Near Normal (90 - 110%)	98%

...but what about snow events?!

Smolt Migration 2005

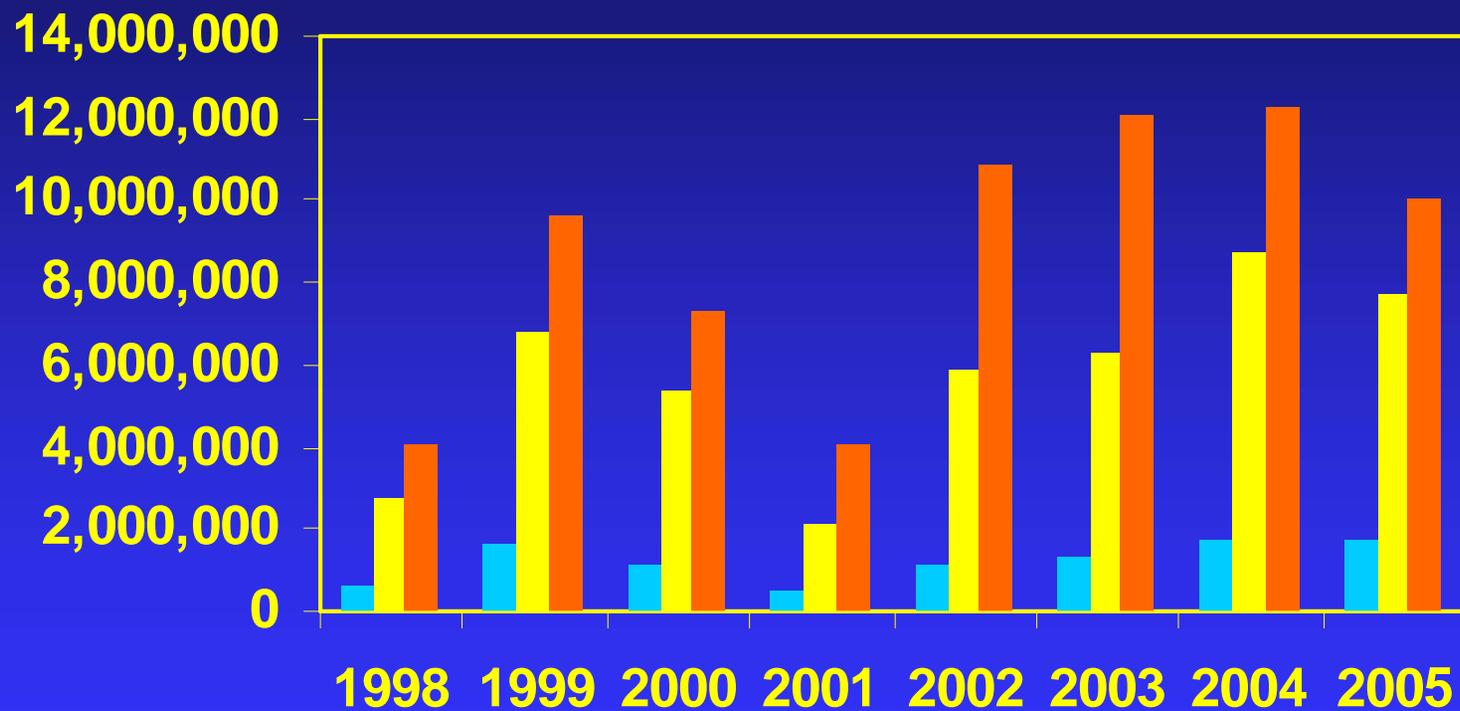
(preliminary results)

Fish Passage Center

Review of 2005 Smolt Migration

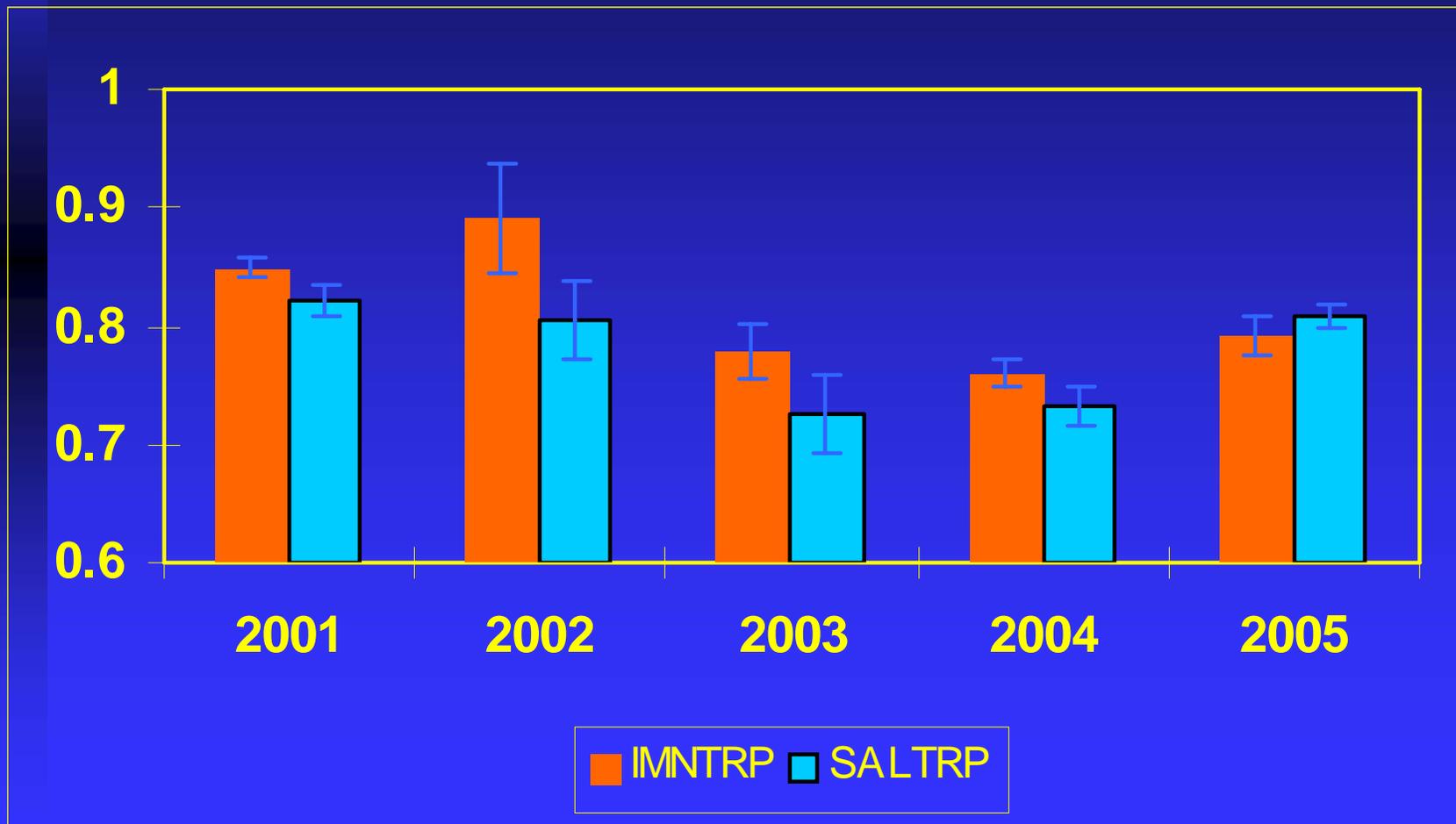
- Run Size
- Timing
- Travel Time
- Survival

Yearling Chinook Population Index at Lower Granite and Hatchery Releases

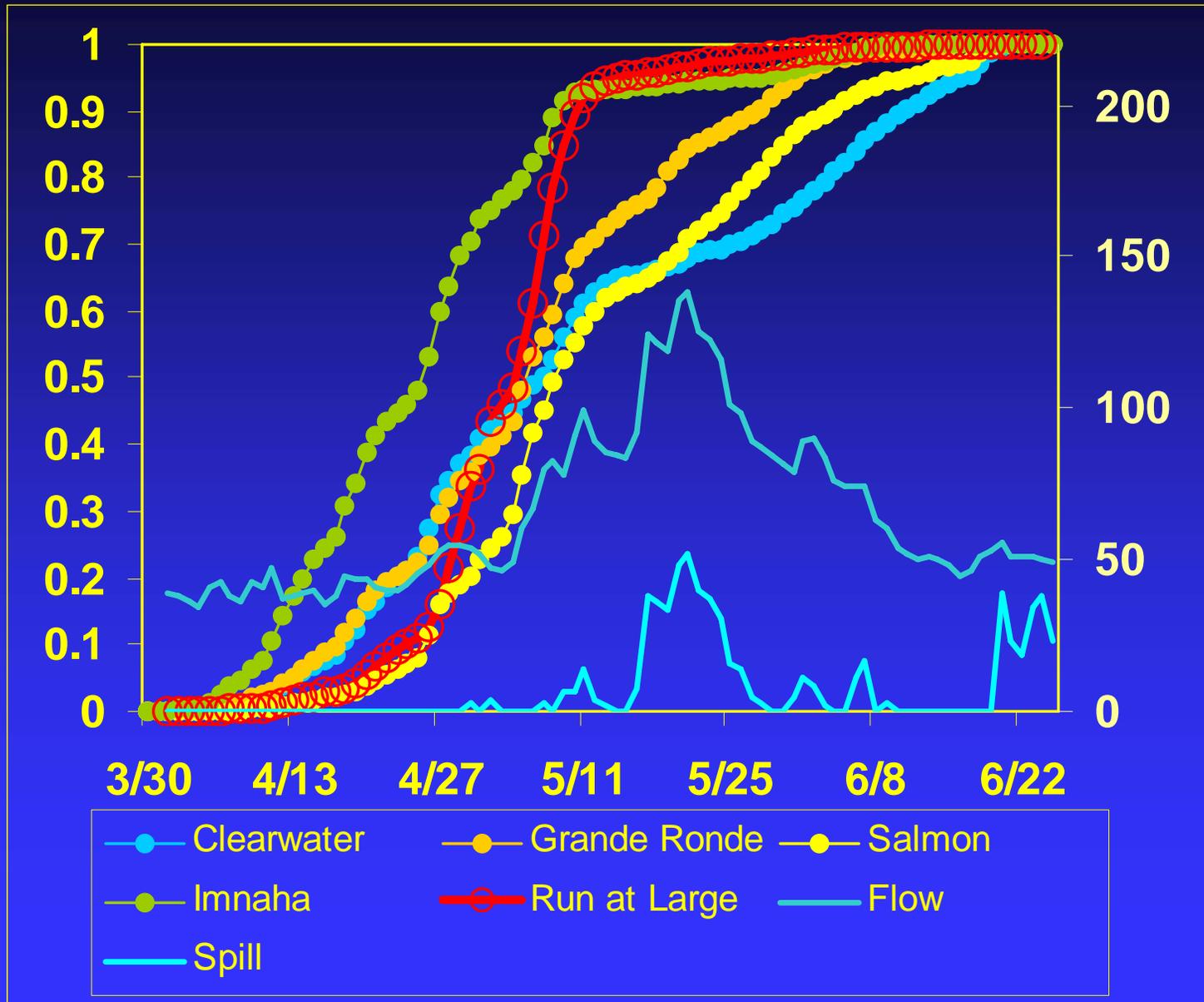


■ Wild CH1 LGR Pop Est ■ CH1 H LGR Pop Est ■ Hatchery Release

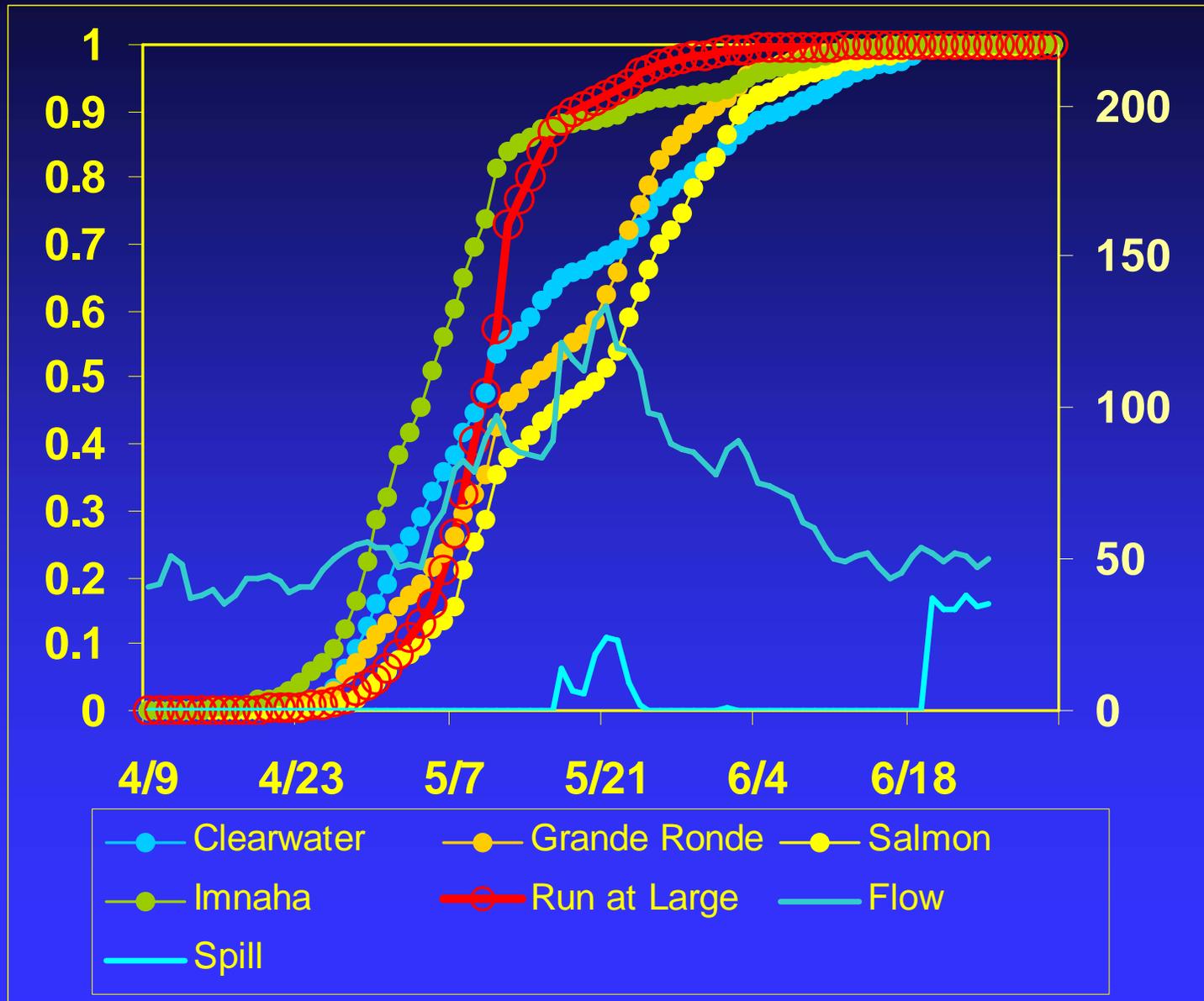
Survival of Wild Yearling Chinook from Traps to LGR



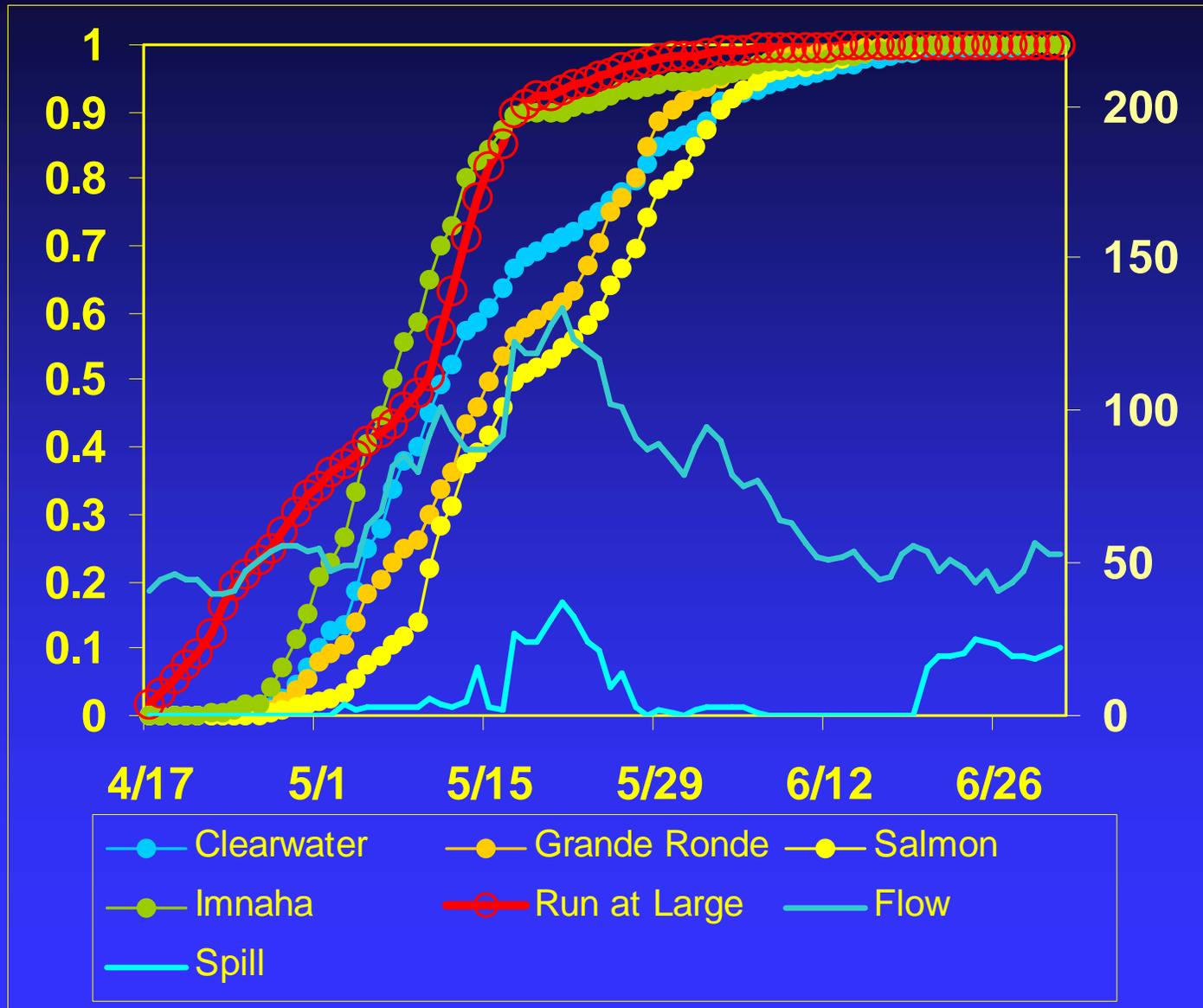
Yearling Chinook Timing at LGR



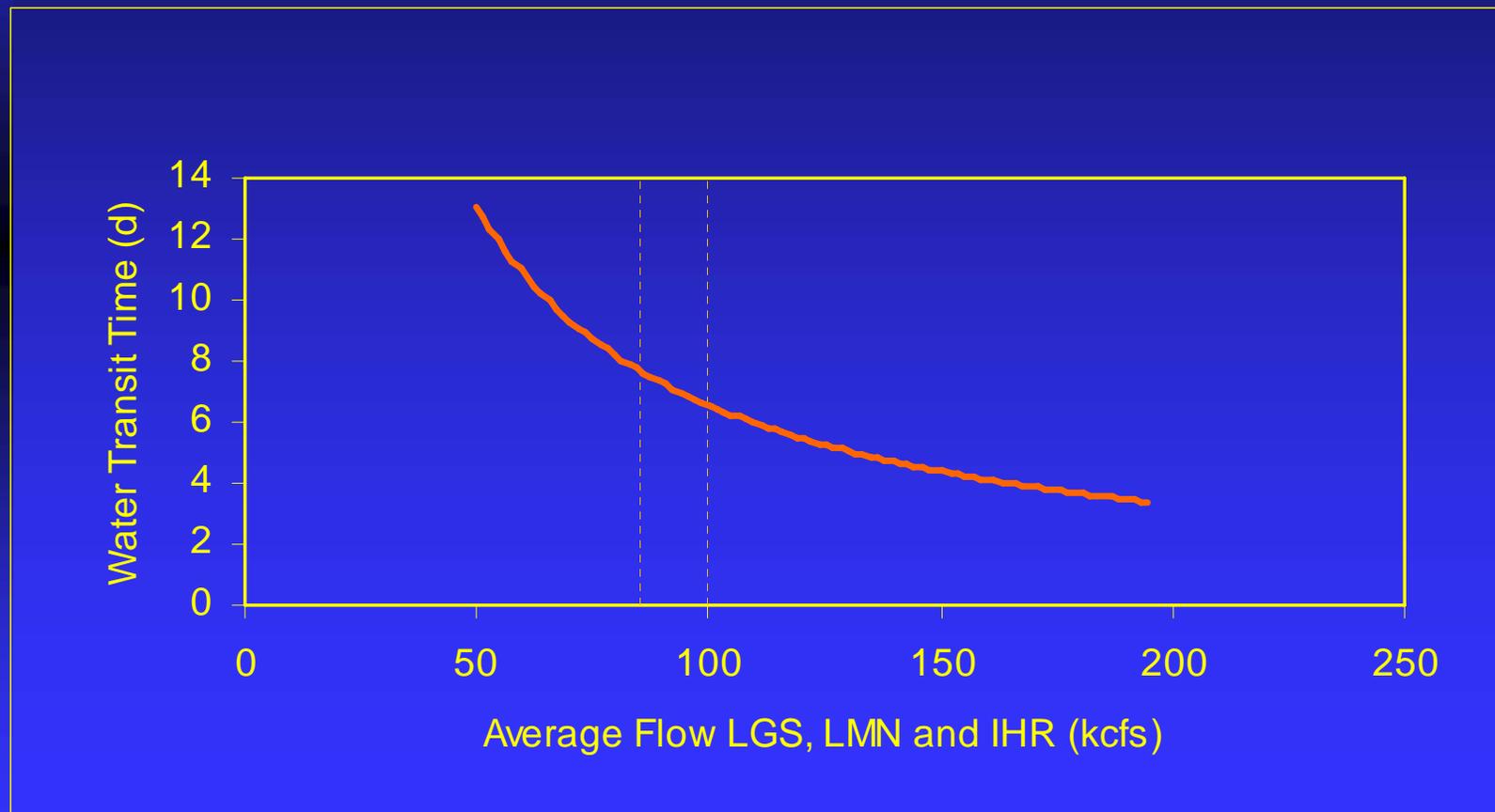
Yearling Chinook Timing at LGS



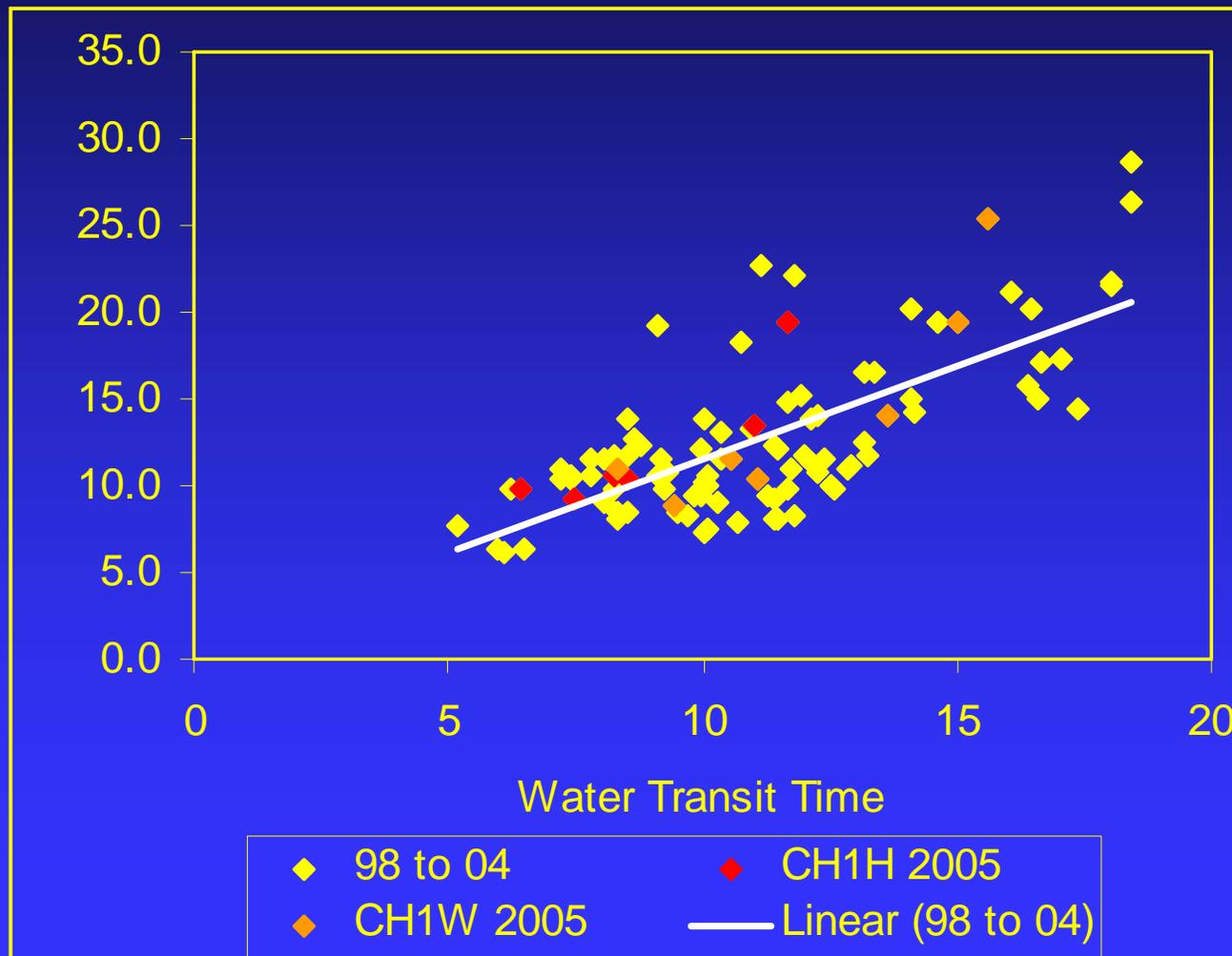
Yearling Chinook Timing at LMN



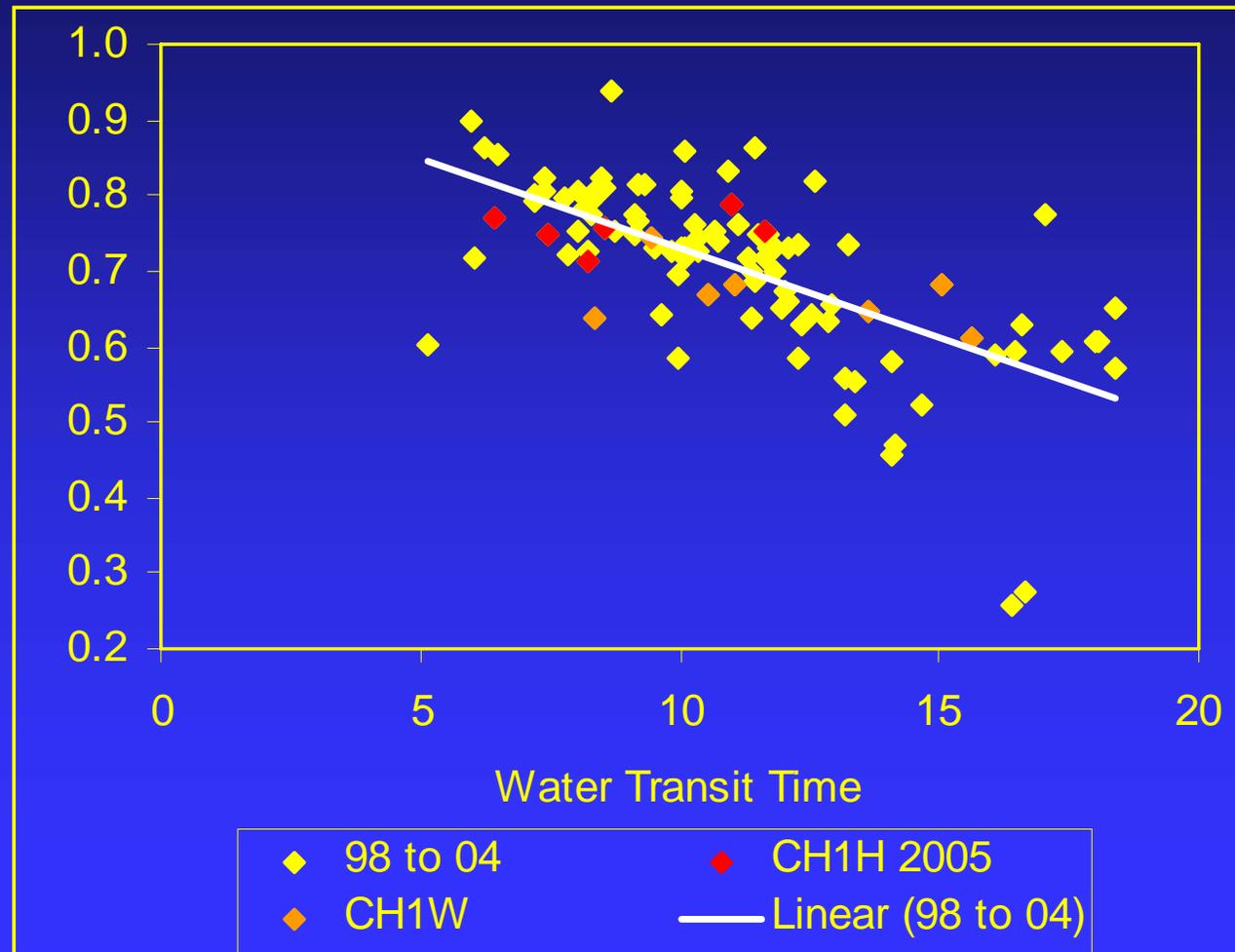
Water Transit Time Lower Granite to Tailwater Ice Harbor Dam versus average flow at LGS, LMN and IHR dams



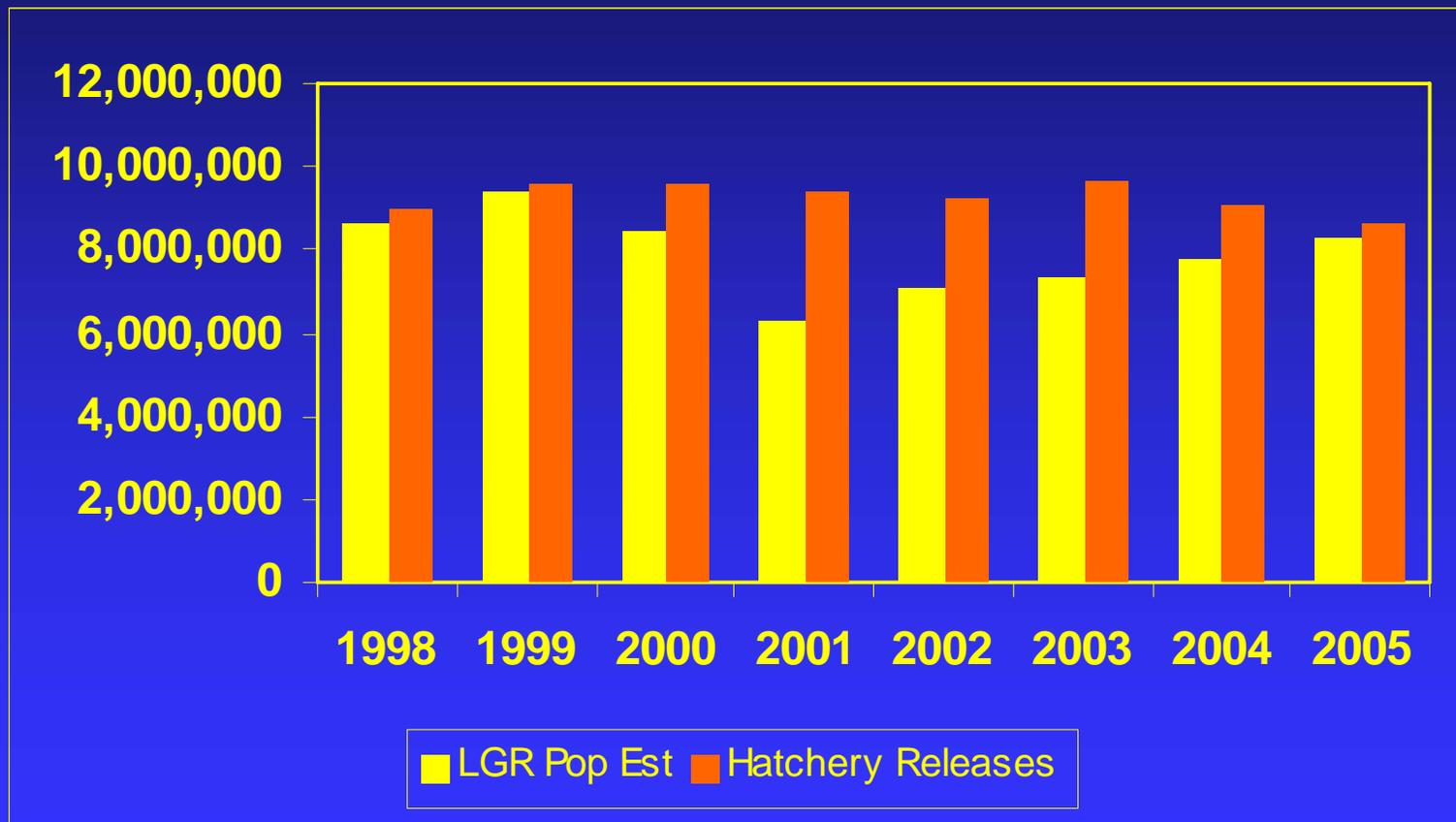
Travel Time LGR to MCN for Hatchery and Wild Yearling Chinook '98 to '04 and 2005



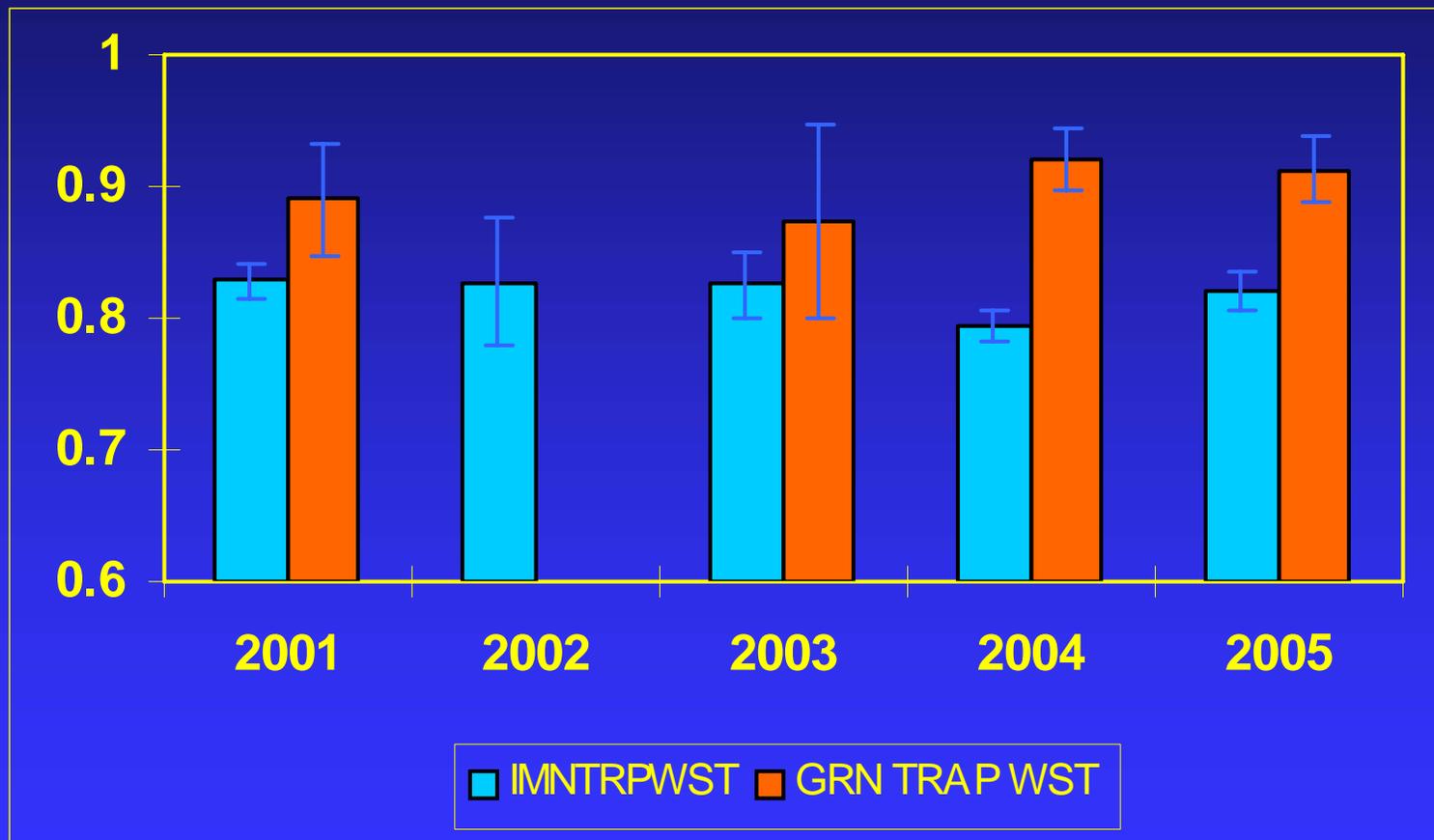
Survival LGR to MCN for Hatchery and Wild Yearling Chinook '98 to '05 and 2005



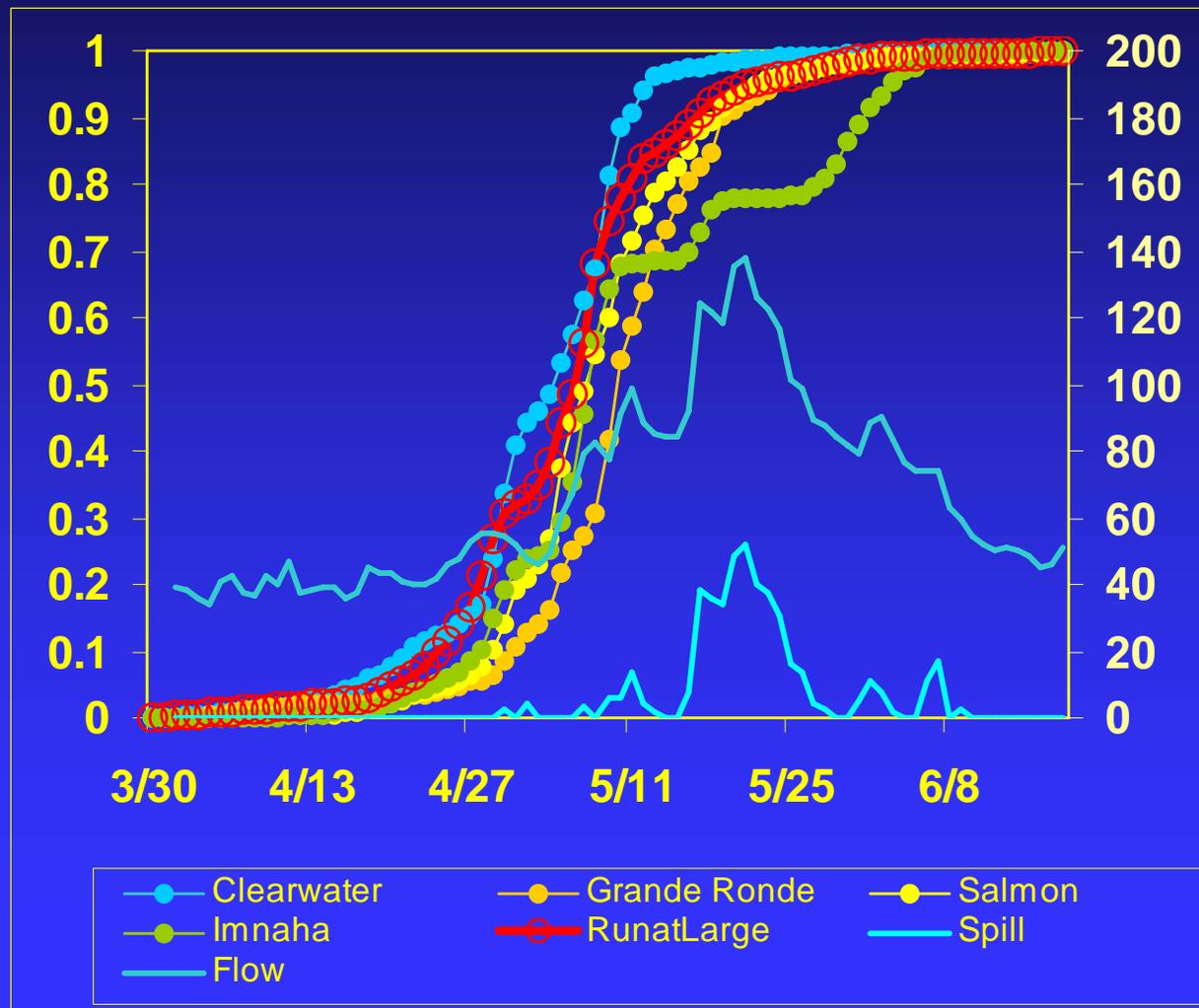
Combined H&W Steelhead Population at Lower Granite and Hatchery Releases



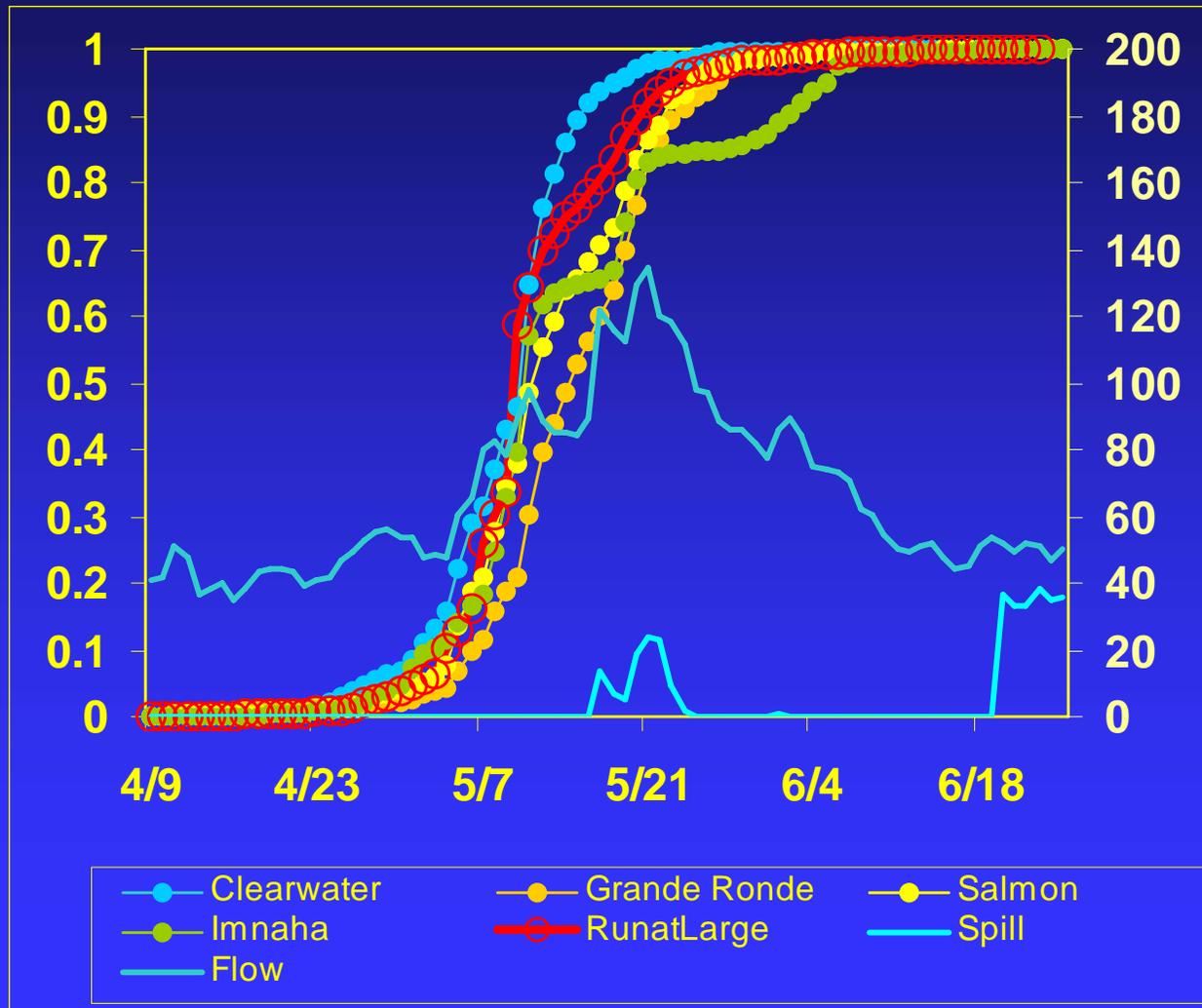
Survival of Wild Steelhead from Traps to LGR



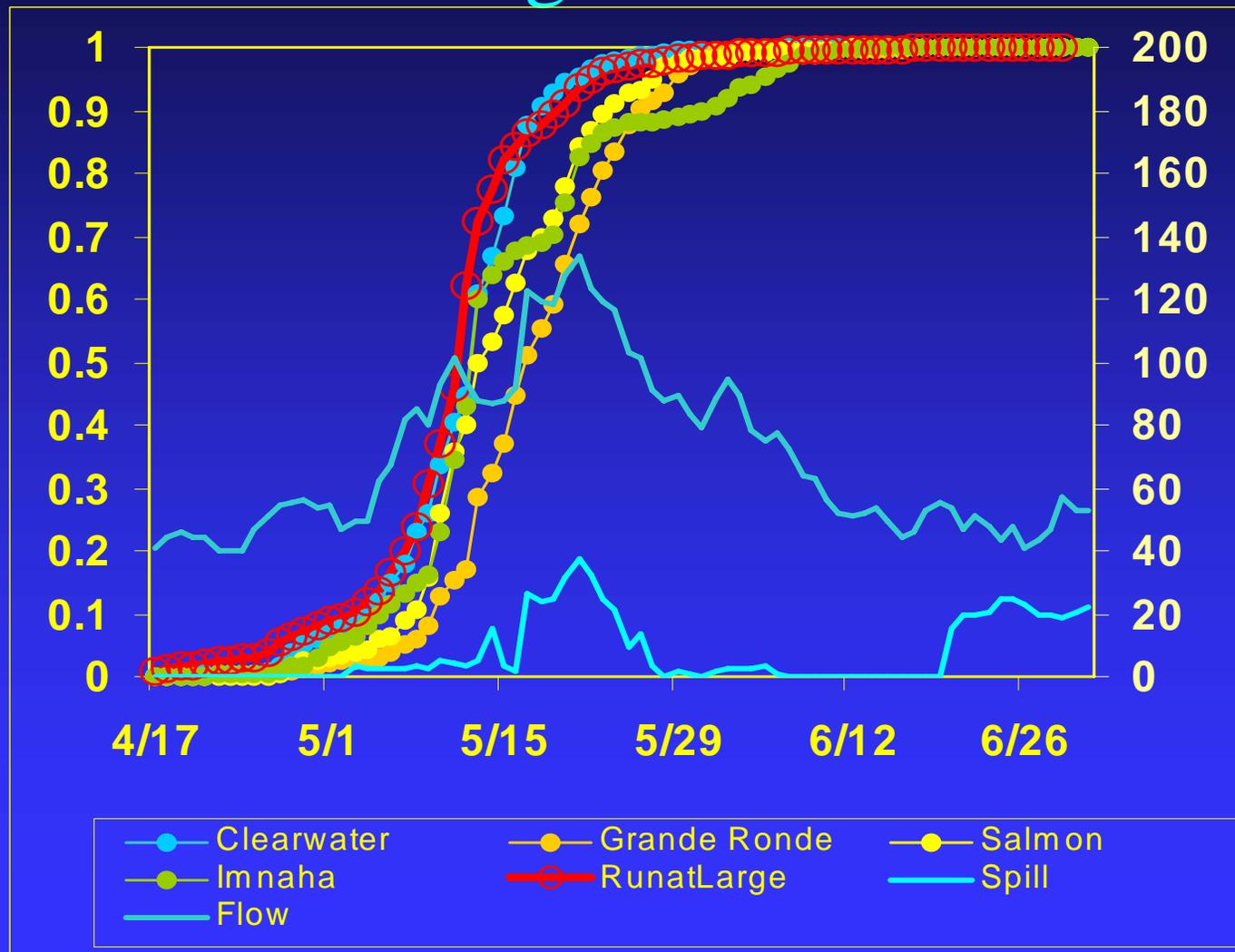
Steelhead Timing at Lower Granite



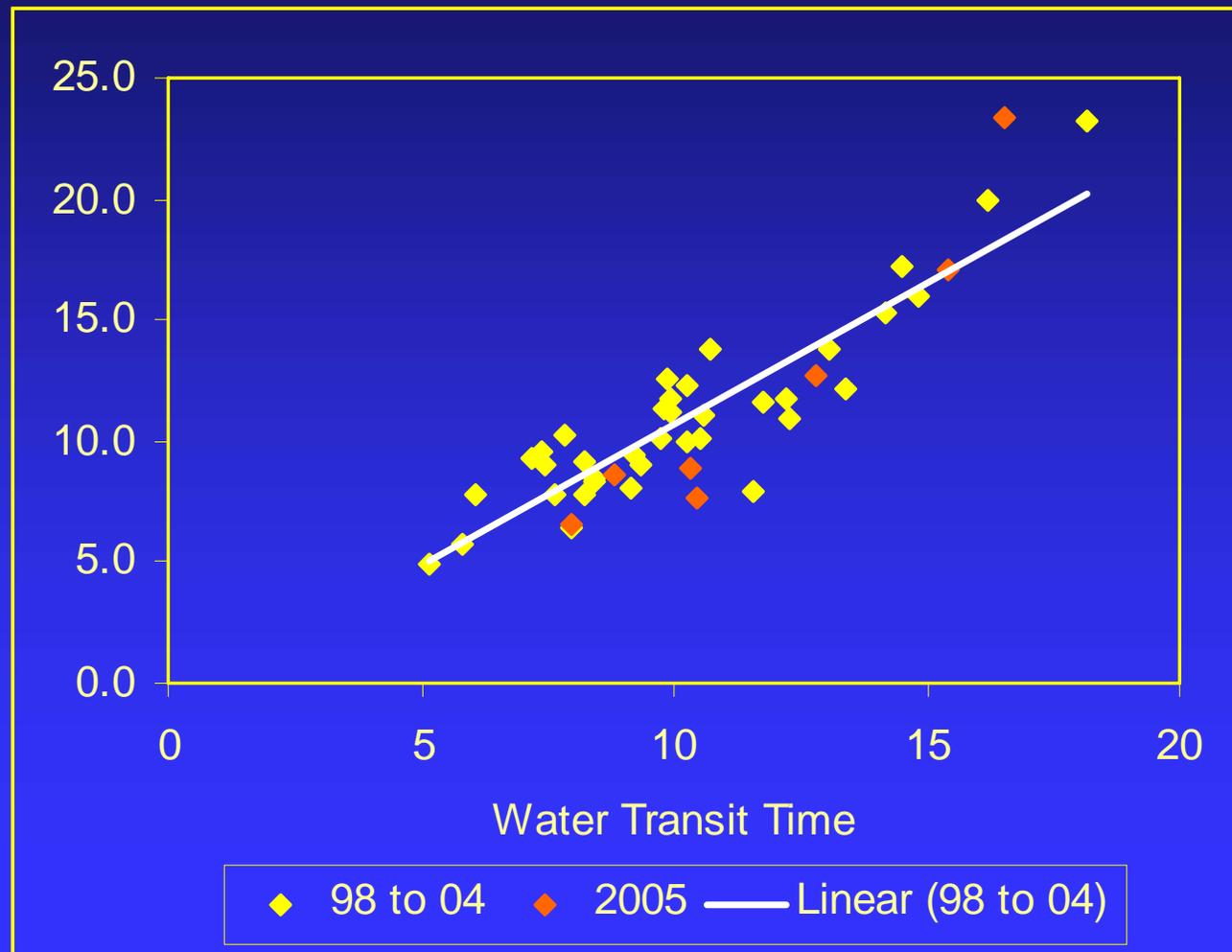
Steelhead Timing at Little Goose



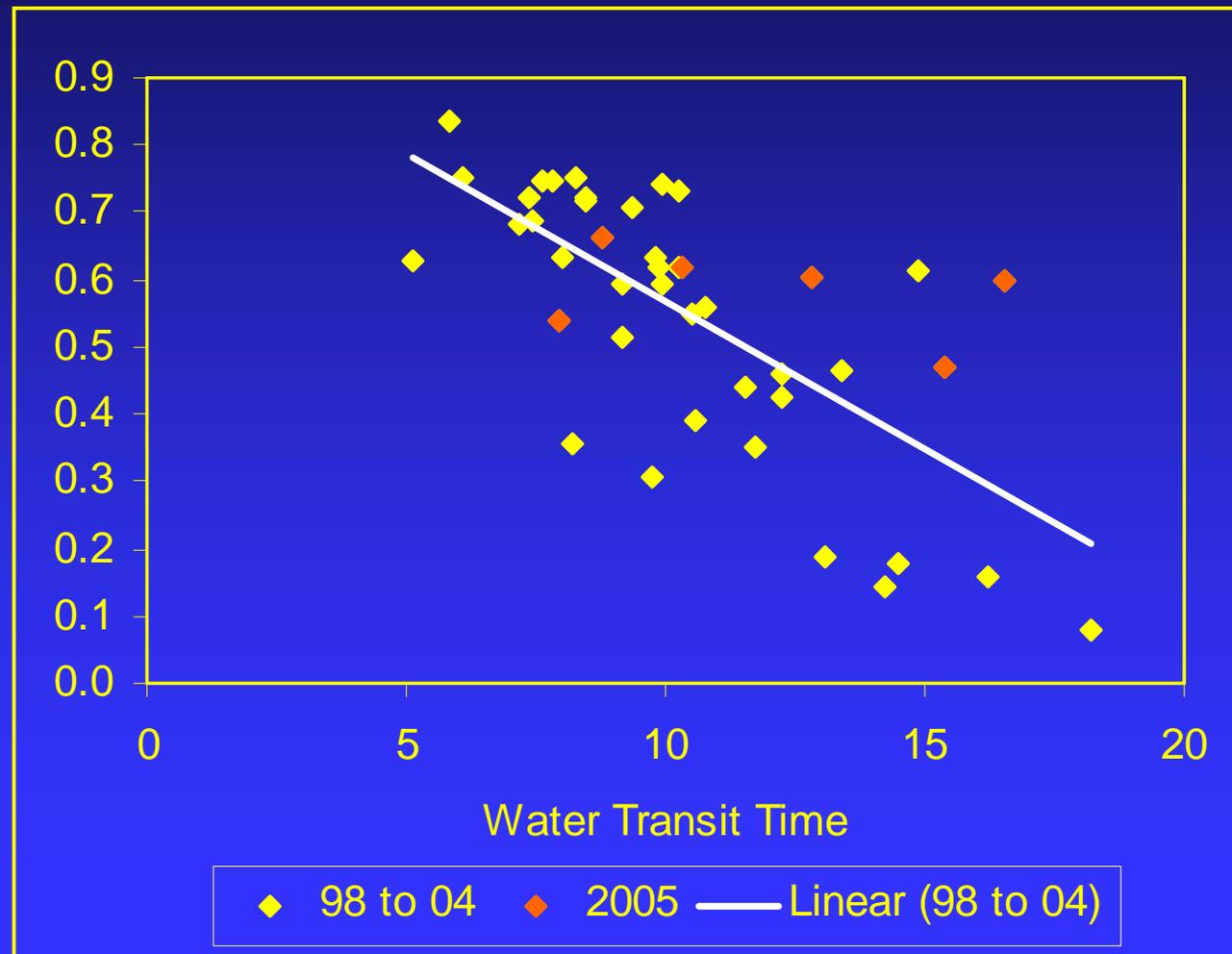
Steelhead Timing at Lower Monumental



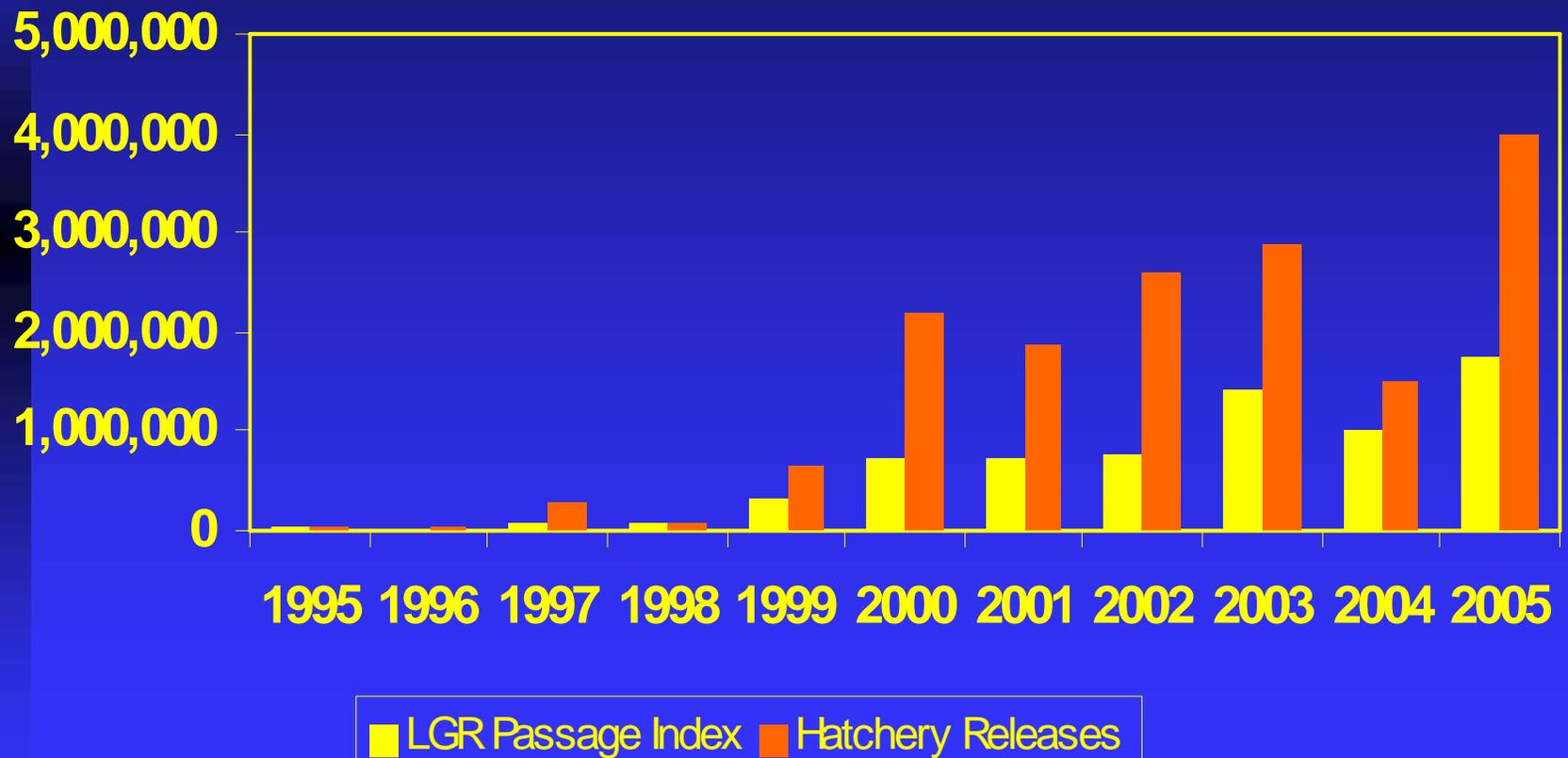
Travel Time LGR to MCN for Steelhead '98 to '04 and 2005



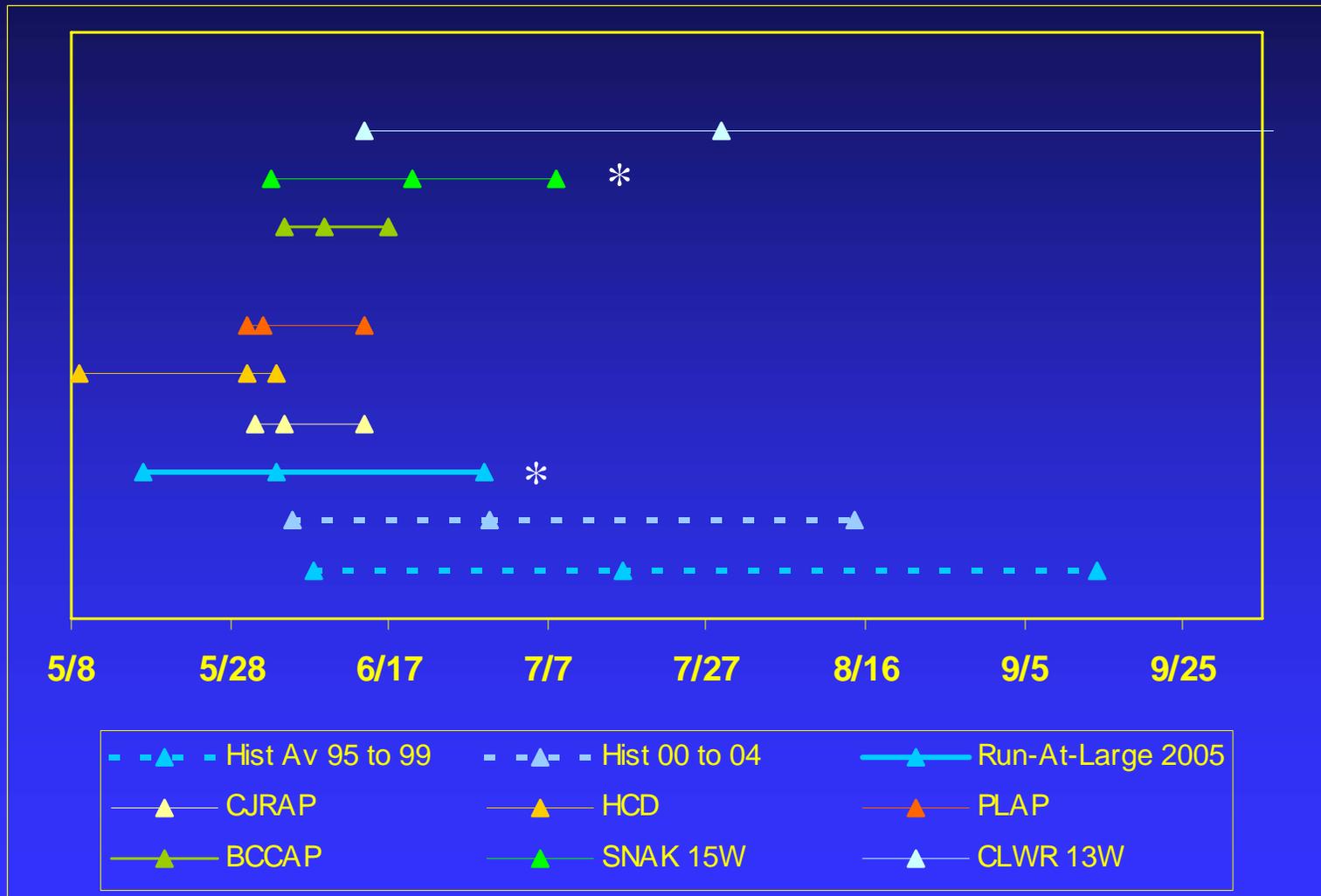
Survival LGR to MCN for Steelhead '98 to '04 and 2005



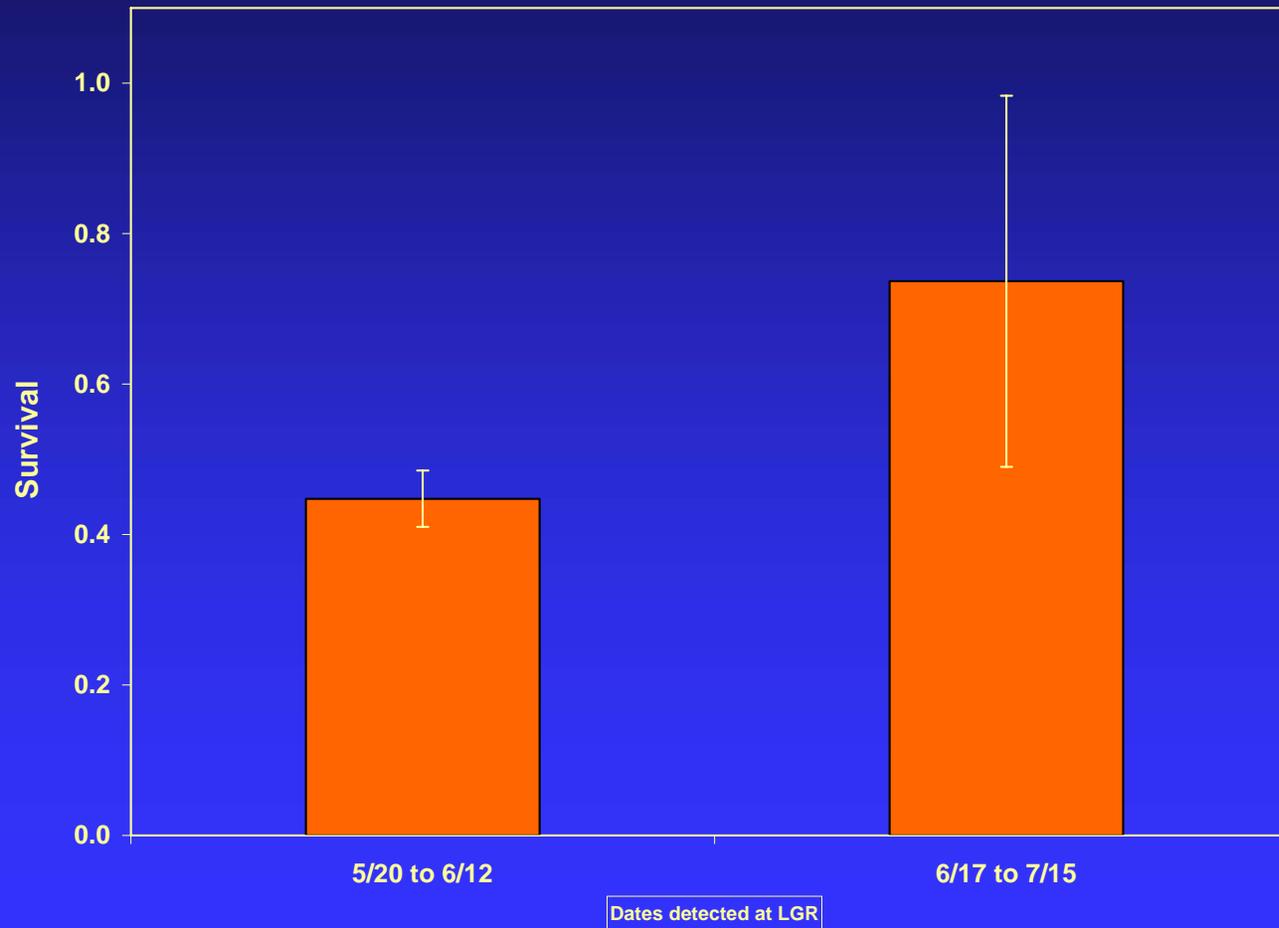
Hatchery/Supplementation Releases of Subyearling Chinook above LGR



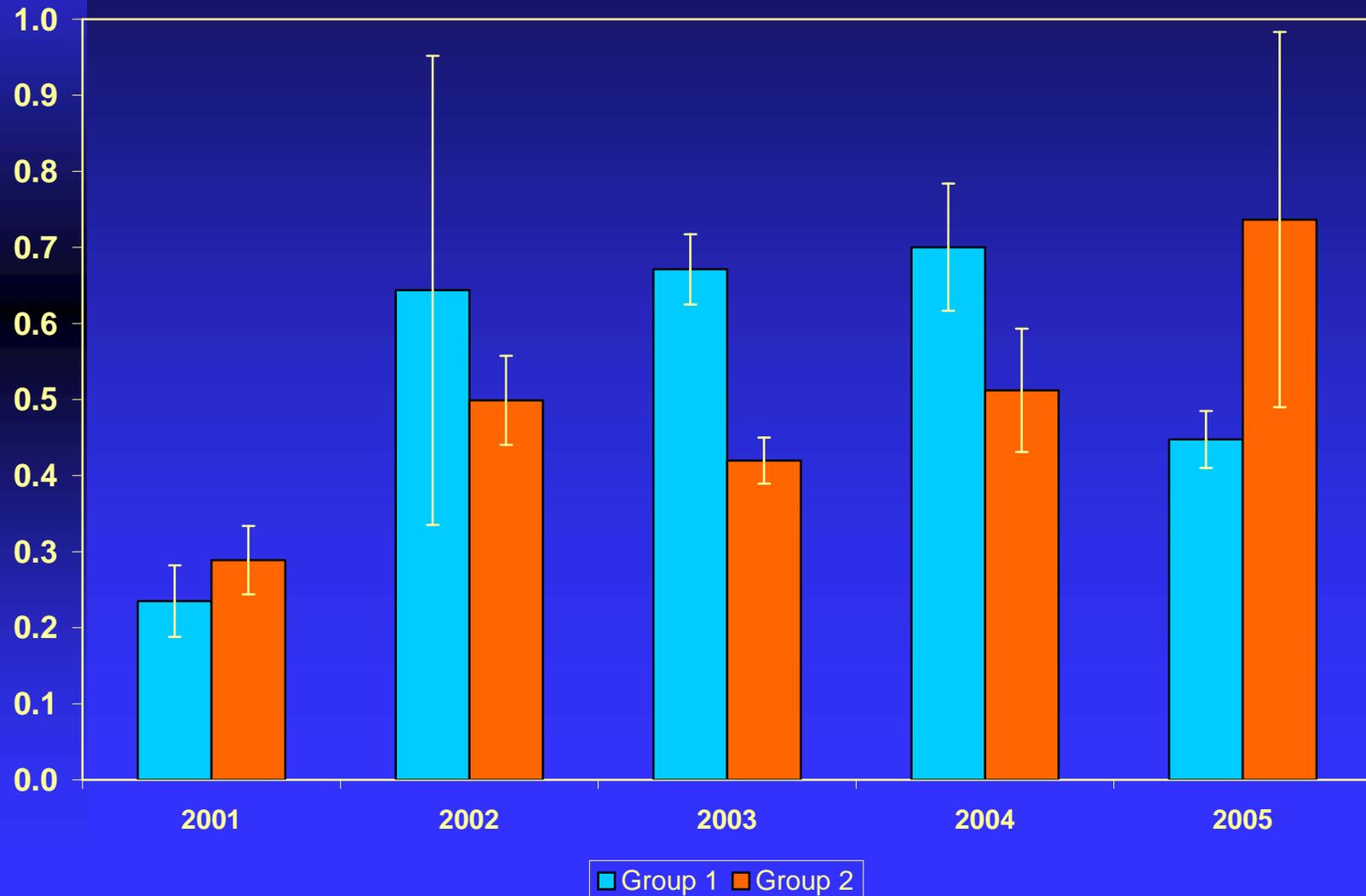
Subyearling Chinook Timing at LGR



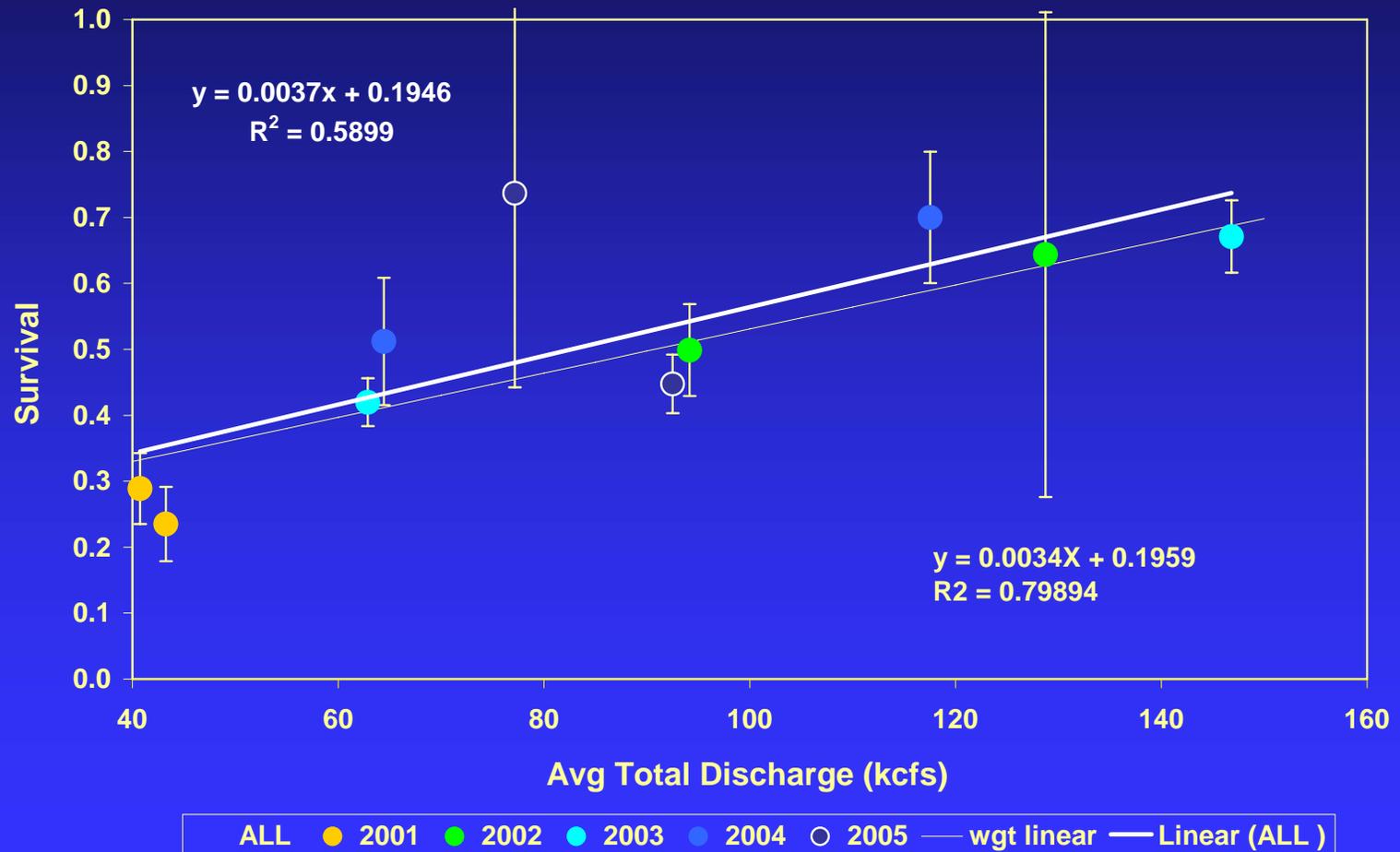
Survival LGR to McN for Subyearling Chinook before and during summer spill in 2005 with 90% CI's



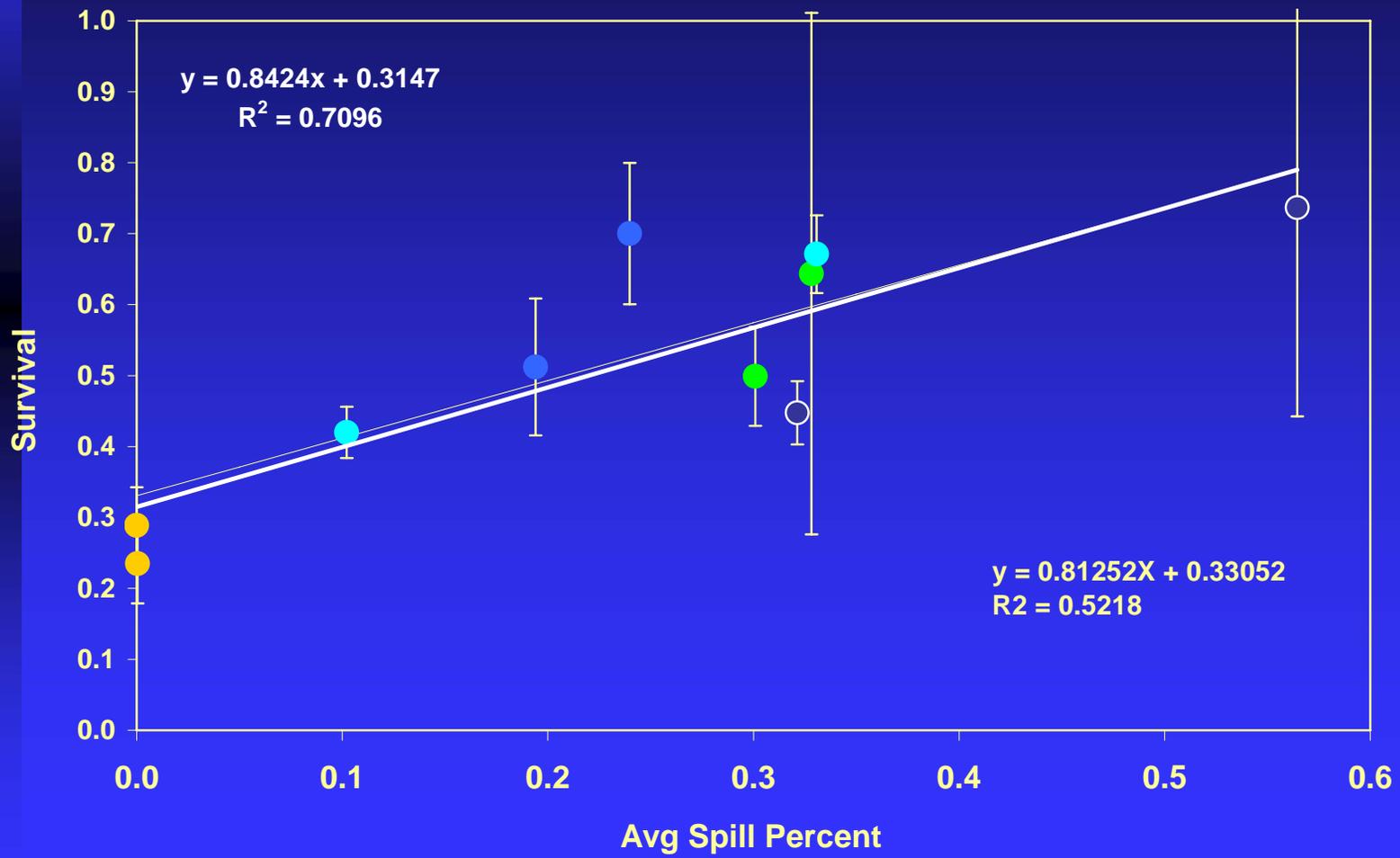
Survival for Subyearling Chinook LGR to McN 2001 to 2005 with 90% CI's



Subyearling Chinook Survival vs Avg Total Q LGS, LMN, IHR, McN



Subyearling Chinook Survival vs Avg Spill Pct LGS, LMN, IHR, McN



ALL ● 2001 ● 2002 ● 2003 ● 2004 ○ 2005 — wgted linear — Linear (ALL)

Northwest Fisheries Science Center
Fish Ecology Division
2725 Montlake Boulevard East
Seattle, Washington 98112-2097

November 1, 2005

MEMORANDUM FOR: F/NWR5 - Chris Toole

FROM: F/NWC3 - John W. Ferguson

SUBJECT: Preliminary survival estimates for passage during the spring migration of juvenile salmonids through Snake and Columbia River reservoirs and dams, 2005

This memorandum summarizes estimated survival of PIT-tagged juvenile salmonids passing through Snake and Columbia River reservoirs and dams during the 2005 migration. Very few additional detections of yearling Chinook salmon and steelhead will occur, so these survival estimates are essentially final. Our completed detailed analyses and report for spring migrants will be available in December, 2005.

Summary of Research

For survival studies funded by BPA in 2005, NOAA Fisheries PIT tagged nearly 18,000 river-run hatchery steelhead, over 5,000 wild steelhead, and about 6,700 wild yearling Chinook salmon for release in the tailrace of Lower Granite Dam. From studies funded by the USACE, we used about 479,000 steelhead PIT tagged at hatcheries for release at various sites in the Upper Columbia River for evaluation of transportation at McNary Dam. Survival estimates provided in this memorandum are based on data from those fish PIT tagged by or for the Fish Ecology Division, as described above, as well as from fish PIT tagged by others for other purposes within the Columbia River Basin.

Survival in 2005 for yearling Chinook salmon from Snake River Basin hatcheries to Lower Granite Dam tailrace were similar to past years for most hatcheries (Table 1). The mean survival of 68% for index groups (release groups that most represent production releases from hatcheries that we've tracked from multiple years—Dworshak, Kooskia, Lookingglass/Imnaha Weir, Rapid River, and McCall/Knox Bridge) was slightly less than the 70% average for the previous 5 years, 2000-2004.

Estimated survival for Snake River yearling Chinook salmon (hatchery and wild combined) in 2005 was lower in some reaches than the average in recent years, and higher than average in

other reaches (Table 2, Figures 1 and 2). In particular, mean estimated survival from Lower Monumental Dam to McNary Dam was the highest of the last 5 years. Mean estimated survival for yearling Chinook salmon from Lower Granite Dam tailrace to McNary Dam tailrace was 73.2%, the second highest in the last five years. Mean estimated survival for yearling Chinook salmon from Lower Granite Dam tailrace to Bonneville Dam tailrace was 52.6% in 2005, slightly lower than in 2002 and 2003; considerably higher than in 2004; and nearly twice that in 2001.

For Snake River steelhead (hatchery and wild combined), estimated survival in 2005 was also lower through some reaches than the average in recent years and higher in others (Table 3, Figures 1 and 2). Also as for yearling Chinook salmon, mean estimated survival for steelhead from Lower Monumental Dam to McNary Dam was the highest of the last 5 years. However, for steelhead, the estimated survival for this reach in 2005 remained below the average of the 1995 through 2000 estimates (Figures 1 and 2).

Because of low detection rates of PIT-tagged steelhead at Bonneville Dam, caused by operation of the new corner collector at the Second Powerhouse, we were unable to estimate survival through the final reach, John Day Dam tailrace to Bonneville Dam tailrace. Consequently, we have no estimate of steelhead survival through the combined reach from Lower Granite Dam tailrace to Bonneville Dam tailrace in 2005. From Lower Granite Dam tailrace to McNary Dam tailrace, estimated steelhead survival (59.4%) was nearly equal to the five-year high observed in 2003 (59.7%). In the farthest downstream reach for which we could estimate survival for steelhead in 2005, from McNary Dam tailrace to John Day Dam tailrace, estimated survival was intermediate between the lower estimates in 2001 and 2004 and the higher ones in 2002 and 2003.

For PIT-tagged yearling Chinook salmon originating from the upper Columbia River in 2005, data were not sufficient to estimate survival from McNary Dam tailrace to Bonneville Dam tailrace. Estimated survival from McNary Dam tailrace to John Day Dam tailrace was 80.1%; higher than in 2004, but lower than in 2002 and 2003 (Table 4). The estimate for the same reach for yearling Chinook salmon originating in the Snake River Basin was almost identical (79.1%).

For PIT-tagged steelhead originating from the upper Columbia River in 2005, estimated survival from McNary Dam tailrace to Bonneville Dam tailrace was 53.3%; higher than in 2004, but lower than in 2003 (Table 5). Estimated survival for steelhead migrating from McNary Dam tailrace to John Day Dam tailrace was higher for migrants from the upper Columbia River (74.9%) than for those from the Snake River (62.3%). For fish released from upper Columbia River hatcheries, we cannot estimate survival in reaches within the hydropower system above McNary Dam (other than the overall reach from release to McNary Dam tailrace)

because of limited PIT-tag detection capabilities at Mid-Columbia River PUD dams.

Discussion

Following a year of depressed survival for Snake River yearling Chinook salmon in 2004, estimated survival through the entire hydropower system (including Lower Granite Dam reservoir) was higher in 2005, at 48.3%. This was only slightly lower than the average for the years 1995-2004, excluding the low-flow years of 2001 and 2004 (50.1%). For Snake River steelhead, survival remained lower than the 1995-2004 average as far downstream as we could measure it (all but through the last reach), though higher than in 2001 and 2004.

During April 2005, Snake River flows were about half-way between those in the low-flow years of 2001 and 2004 (Figure 3). Flow in 2005 increased rapidly beginning the first week of May. By 8 May average flow was the highest for that date in the last 5 years, and remained the highest of 2001-2005 until 24 May. Spill was not provided in substantial amounts at Snake River collector dams in 2005 until 17 May, and then only for 10 days. Spill occurred throughout the season at Ice Harbor Dam.

Estimated survival for daily groups of yearling Chinook salmon from Lower Granite Dam to McNary Dam was lowest during April, averaging around 63% (Figure 4). It was highest during the first week of May, as flow was increasing, reaching a peak of about 80%. This period of higher survival corresponding with the peak of the passage index. By the time flow reached its peak and spill began in mid-May, the passage index had declined considerably, and survival returned to about 65-70%.

Survival for steelhead remained particularly depressed in the Lower Monumental Dam tailrace to McNary Dam tailrace, as it has been since 2001, likely due to avian predation, primarily by Caspian terns. In 2001, about 21% of the PIT tagged steelhead passing Lower Monumental Dam were later detected on McNary pool bird colonies. Losses of PIT-tagged steelhead to avian predators in this reach were lower in 2002 through 2004, but still substantial. McNary pool bird colonies were just recently surveyed for PIT tags from the 2005 migration and data are not yet available.

With little or no spill provided at Snake River Dams for most juvenile salmonid migrants, detection rates (i.e., collection rates) were sufficiently high that almost all non-tagged smolts were collected and transported. Our preliminary estimates are that 96% of non-tagged spring-summer Chinook salmon smolts and 98.5% of non-tagged steelhead smolts that arrived at Lower Granite Dam were subsequently transported, either from Lower Granite Dam from one of the downstream collector dams. Survival estimates presented here are based on PIT-tagged fish that remained in the river. These fish either passed through turbines

or spillways (very few fish), or were intentionally returned to the river after detection in bypass systems. Therefore, these estimates are applicable only to that minority of non-tagged smolts that remained in river.

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

Table 1. Mean estimated survival and standard error (s.e.) for yearling Chinook salmon released at Snake River Basin and Upper Columbia River hatcheries to Lower Granite Dam tailrace (LGR) and McNary Dam tailrace (MCN), 2003 through 2005.

Hatchery	2003		2004		2005	
	Survival to LGR (s.e.)	Survival to MCN (s.e.)	Survival to LGR (s.e.)	Survival to MCN (s.e.)	Survival to LGR (s.e.)	Survival to MCN (s.e.)
Dworshak	0.720 (0.008)	0.581 (0.009)	0.821 (0.003)	0.611 (0.015)	0.832 (0.003)	0.661 (0.016)
Kooskia	0.560 (0.043)	0.293 (0.026)	0.769 (0.017)	0.598 (0.065)	0.702 (0.021)	0.405 (0.051)
Lookingglass (Catherine Cr.)	0.347 (0.028)	0.316 (0.009)	0.254 (0.003)	0.204 (0.015)	0.233 (0.003)	0.194 (0.013)
Lookingglass (Grande Ronde)	0.438 (0.046)	0.347 (0.016)	0.514 (0.025)	0.449 (0.130)	0.150 (0.013)	0.096 (0.025) ??
Lookingglass (Imnaha River)	0.715 (0.012)	0.531 (0.015)	0.613 (0.004)	0.449 (0.201)	0.534 (0.004)	0.443 (0.022)
Lookingglass (Lostine River)	0.574 (0.030)	0.405 (0.012)	0.494 (0.004)	0.362 (0.016)	0.403 (0.005)	0.316 (0.018)
McCall (Johnson Cr.)	0.244 (0.009)	0.205 (0.015)	0.278 (0.004)	0.139 (0.018)	0.348 (0.006)	0.219 (0.023)
McCall (Knox Bridge)	0.573 (0.006)	0.488 (0.009)	0.559 (0.002)	0.397 (0.013)	0.603 (0.003)	0.479 (0.013)
Rapid River	0.691 (0.007)	0.534 (0.010)	0.694 (0.003)	0.462 (0.012)	0.735 (0.002)	0.572 (0.014)
Entiat	---	0.655 (0.010)	---	0.569 (0.010)	---	---
Winthrop	---	0.553 (0.014)	---	0.492 (0.022)	---	---
Leavenworth	---	0.637 (0.003)	---	0.493 (0.022)	---	---
Methow	---	0.508 (0.014)	---	0.484 (0.005)	---	---

Table 2.

Mean estimated survival and standard error (s.e.) through various reaches of the Snake and Columbia River hydropower system for yearling Chinook salmon originating in the Snake River, 2001 through 2005. Hatchery and wild fish combined.

Reach	2001	2002	2003	2004	2005
LGR-LGO	0.945 (0.004)	0.949 (0.006)	0.946 (0.005)	0.923 (0.004)	0.919 (0.004)
LGO-LMO	0.830 (0.006)	0.980 (0.008)	0.916 (0.011)	0.875 (0.012)	0.879 (0.006)
LMO-MCN	0.708 (0.007)	0.837 (0.013)	0.905 (0.017)	0.818 (0.018)	0.909 (0.013)
MCN-JD	0.758 (0.024)	0.907 (0.014)	0.893 (0.017)	0.809 (0.028)	0.791 (0.019)
JD-BON	0.645 (0.034)	0.840 (0.079)	0.818 (0.036)	0.735 (0.092)	0.922 (0.075)
LGR-MCN	0.556 (0.009)	0.757 (0.009)	0.731 (0.010)	0.666 (0.011)	0.732 (0.011)
MCN-BON	0.501 (0.027)	0.763 (0.079)	0.728 (0.030)	0.594 (0.074)	0.719 (0.046)
LGR-BON	0.279 (0.016)	0.578 (0.060)	0.532 (0.023)	0.395 (0.050)	0.526 (0.035)

Table 3.

Mean estimated survival and standard error (s.e.) through various reaches of the Snake and Columbia River hydropower system steelhead originating in the Snake River, 2001 through 2005. Hatchery and wild fish combined.

Reach	2001	2002	2003	2004	2005
LGR-LGO	0.801 (0.010)	0.882 (0.011)	0.947 (0.005)	0.860 (0.006)	0.939 (0.004)
LGO-LMO	0.709 (0.008)	0.882 (0.018)	0.898 (0.012)	0.820 (0.014)	0.868 (0.009)
LMO-MCN	0.296 (0.010)	0.652 (0.031)	0.708 (0.018)	0.519 (0.035)	0.722 (0.023)
MCN-JD	0.337 (0.025)	0.844 (0.063)	0.879 (0.032)	0.465 (0.078)	0.623 (0.034)
JD-BON	0.753 (0.063)	0.612 (0.098)	0.630 (0.066)	-----	-----
LGR-MCN	0.168 (0.006)	0.536 (0.025)	0.597 (0.013)	0.379 (0.023)	0.594 (0.018)
MCN-BON	0.250 (0.016)	0.488 (0.090)	0.518 (0.015)	-----	-----
LGR-BON	0.042 (0.003)	0.262 (0.050)	0.309 (0.011)	-----	-----

Table 4. Mean estimated survival and standard error (s.e.) through reaches of the lower Columbia River hydropower system for yearling Chinook salmon originating in the upper Columbia River, 2002 through 2005. Hatchery fish only (no wild fish tagged).

Reach	2002	2003	2004	2005
Release-MCN	0.540 (0.020) ^a	0.579 (0.029) ^b	0.511 (0.022) ^c	NA
MCN-JD	0.856 (0.012)	0.902 (0.025)	0.741 (0.038)	0.801 (0.056)
JD-BON	0.867 (0.079)	0.848 (0.091)	0.840 (0.111)	NA
MCN-BON	0.745 (0.069)	0.767 (0.069)	0.622 (0.063)	NA

- a. mean of estimates for fish released at Entiat, Winthrop, and Leavenworth hatcheries
- b. mean of estimates for fish released at Entiat and Winthrop hatcheries, and fish from Methow hatchery released in Twisp and Chewuch acclimation ponds.
- c. mean of estimates for fish released at Entiat, Winthrop, Leavenworth, and Methow hatcheries, and fish from Methow hatchery released in Chewuch acclimation pond.

Table 5. Mean estimated survival and standard error (s.e.) through reaches of the lower Columbia River hydropower system for steelhead originating in the upper Columbia River, 2003 through 2005. Hatchery fish only (no wild fish tagged).

Reach	2002	2003	2004	2005
Release-MCN	NA	0.475 (0.020) ^a	0.383 (0.018) ^b	0.449 (0.080) ^b
MCN-JD	NA	0.954 (0.047)	0.786 (0.059)	0.749 (0.047)
JD-BON	NA	0.786 (0.119)	0.623 (0.168)	0.755 (0.167)
MCN-BON	NA	0.695 (0.108)	0.496 (0.124)	0.533 (0.119)

- a. mean of estimates for fish from Chelan, East Bank, Entiat, Leavenworth, Methow, Wells, and Winthrop hatcheries released on various dates at numerous release sites.
- b. mean of estimates for fish from Chelan, East Bank, Ringold, Wells, and Winthrop hatcheries released at various locations.

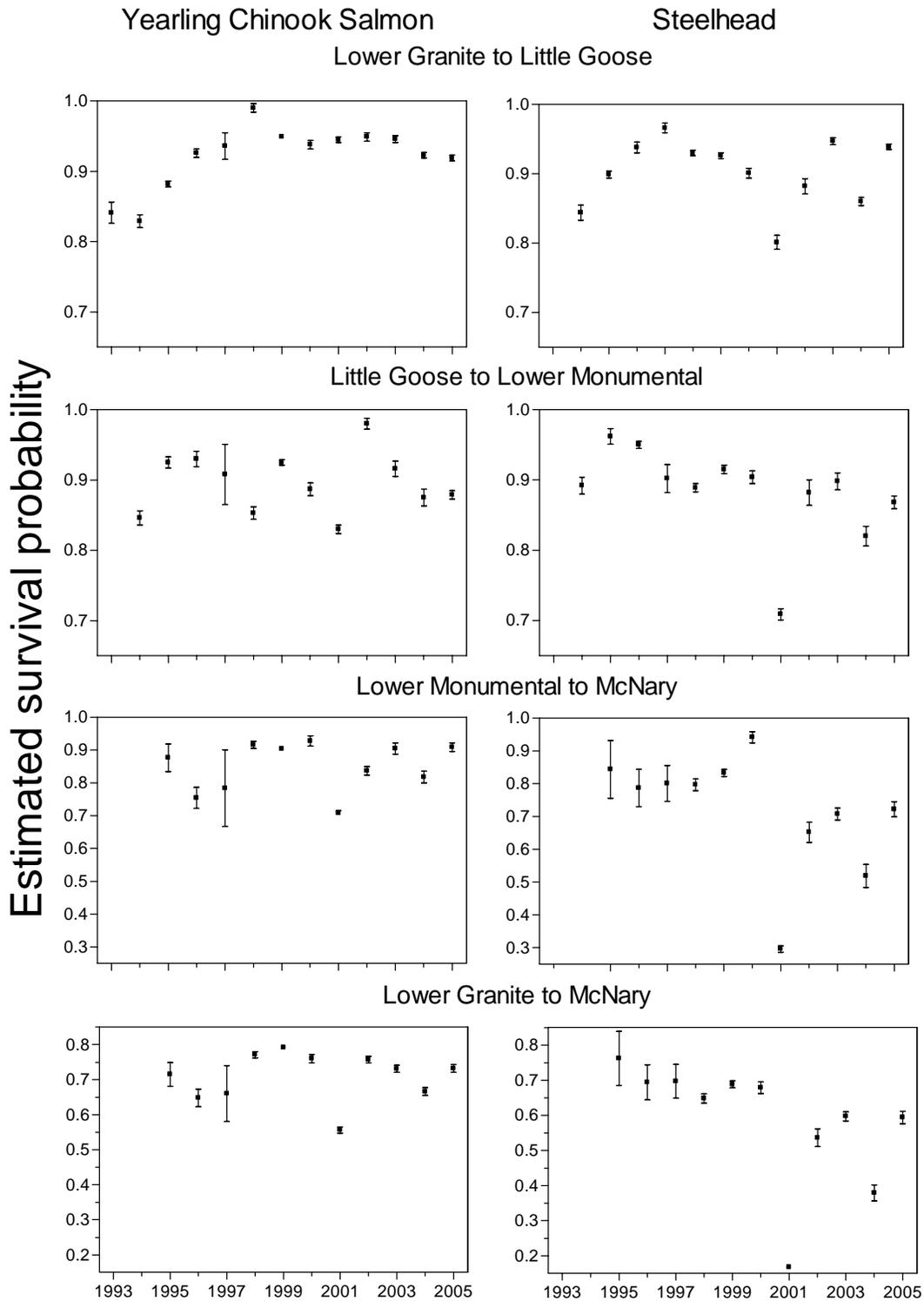


Figure 1. Annual average survival estimates for PIT-tagged yearling Chinook salmon and steelhead, hatchery and wild fish combined. Vertical bars represent plus/minus one standard error.

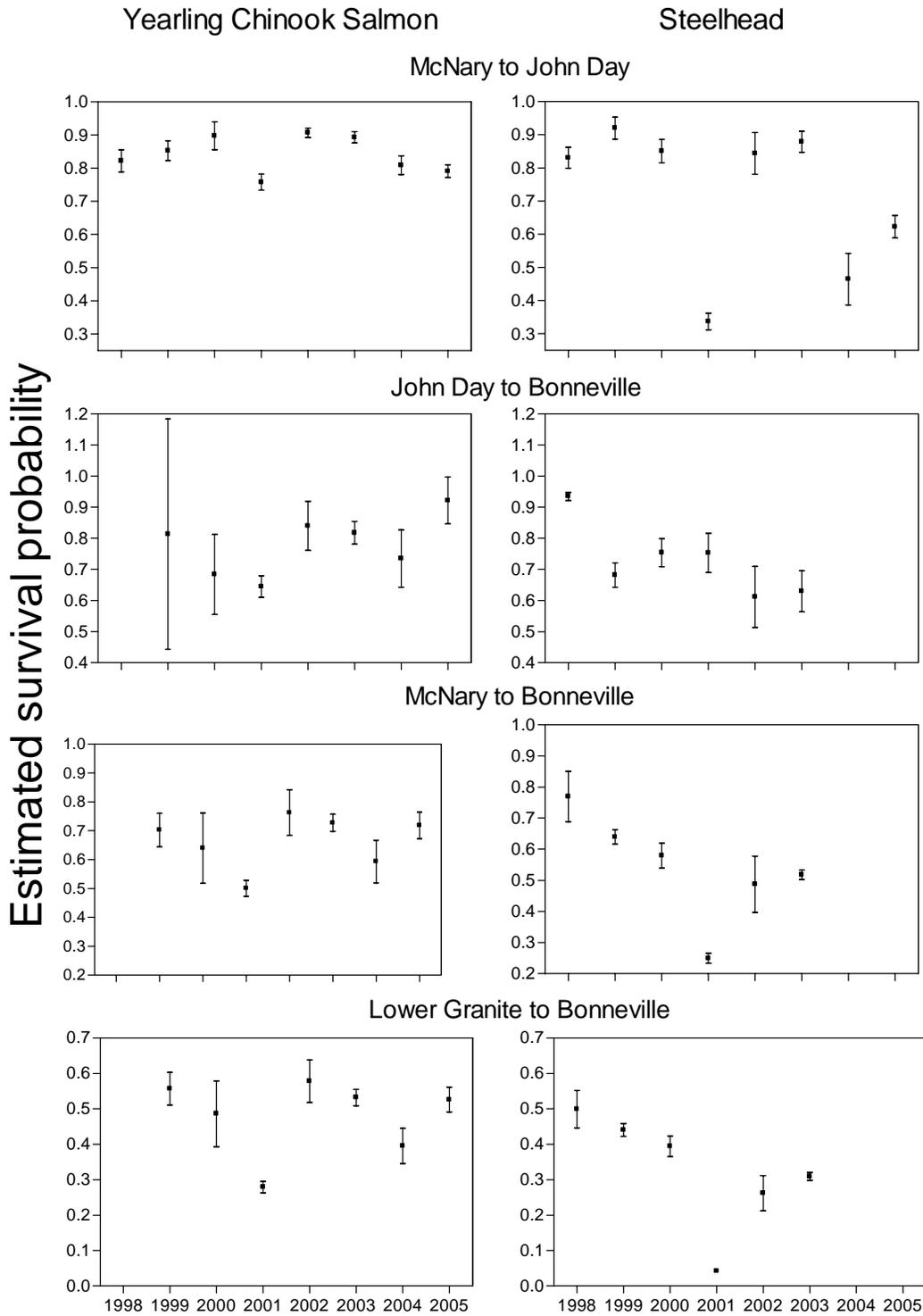


Figure 2. Annual average survival estimates for PIT-tagged yearling Chinook salmon and steelhead, hatchery and wild fish combined. Vertical bars represent plus/minus one standard error.

Little Goose Dam

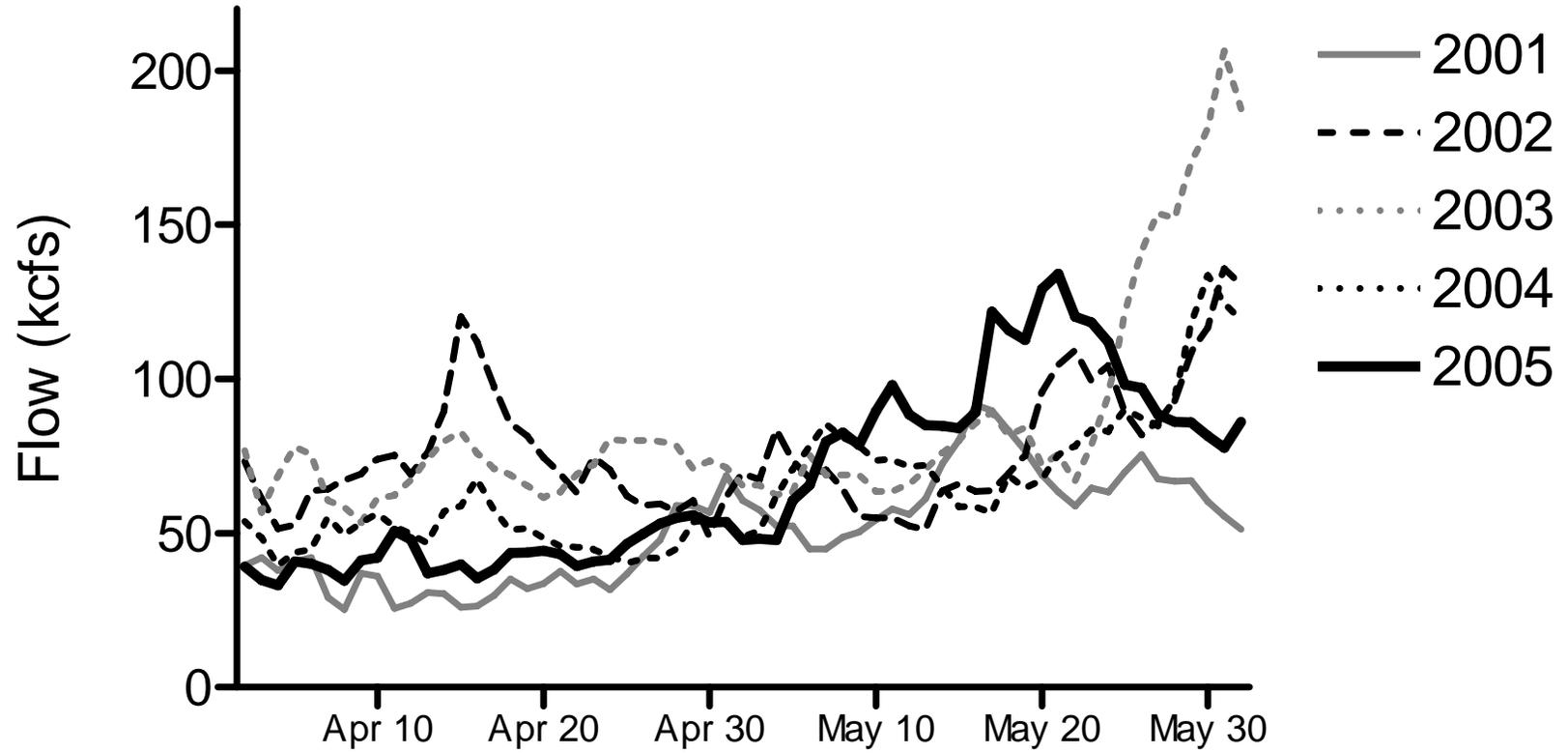


Figure 3. Snake River flow (kcfs) measured at Little Goose Dam during April and May, 2001-2005.

Survival, Flow, Passage Index

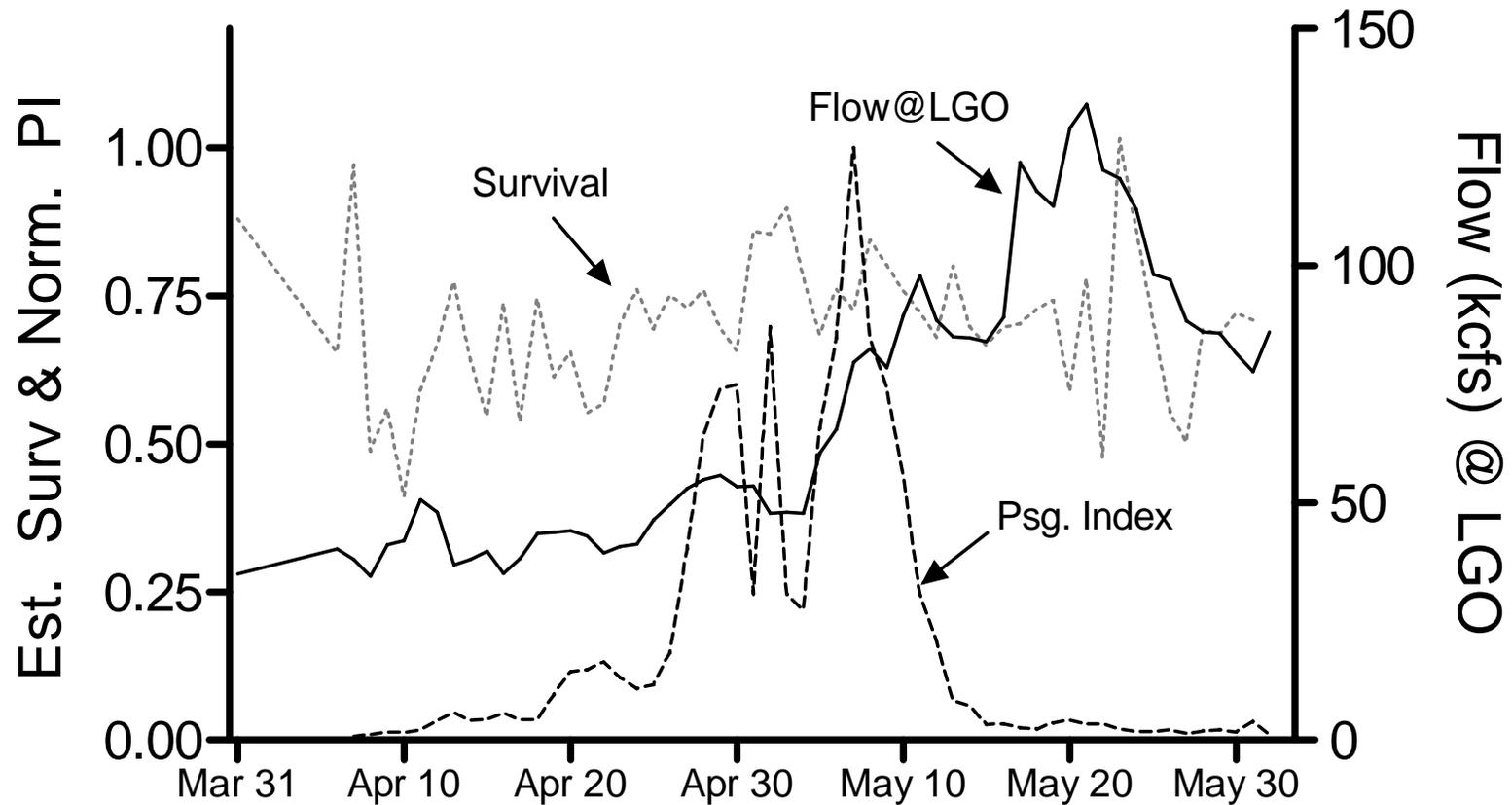
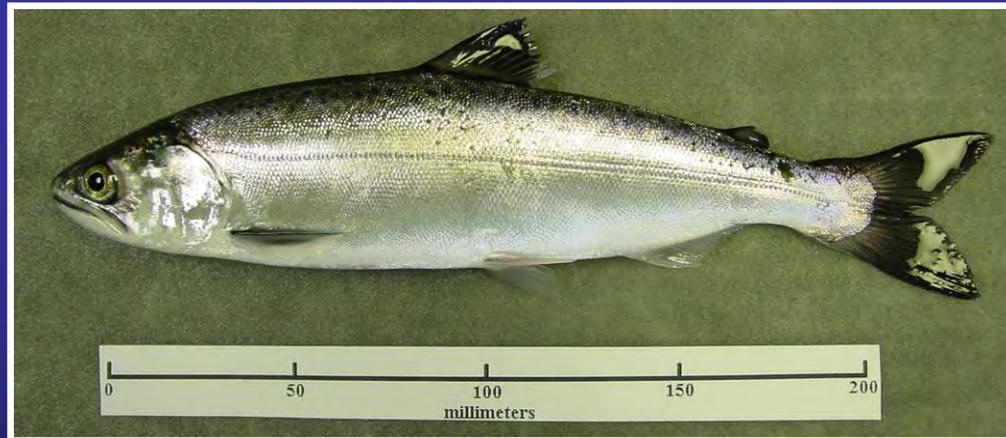
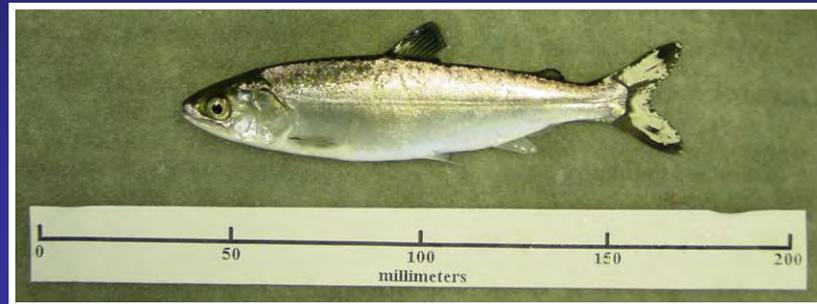


Figure 4. Estimated survival probability for yearling Chinook salmon from Lower Granite Dam to McNary Dam, flow volume at Little Goose Dam, and passage index at Lower Granite Dam (normalized: peak day = 1.0) by day of year, 2005. A curve showing a spline smooth of estimated survival is included.

Snake River fall Chinook salmon summer travel time and winter passage

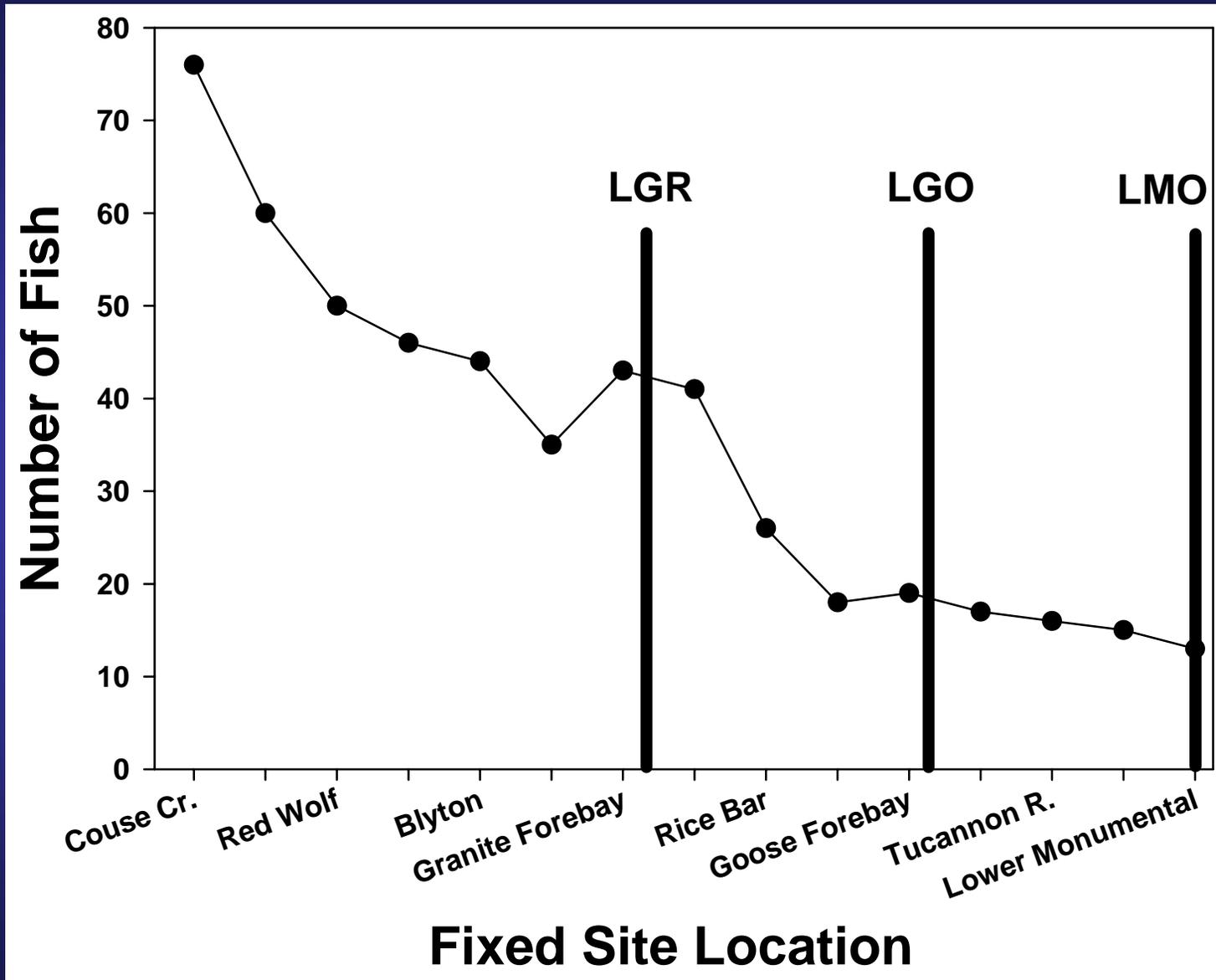
BPA Projects 1991029 and 2002032



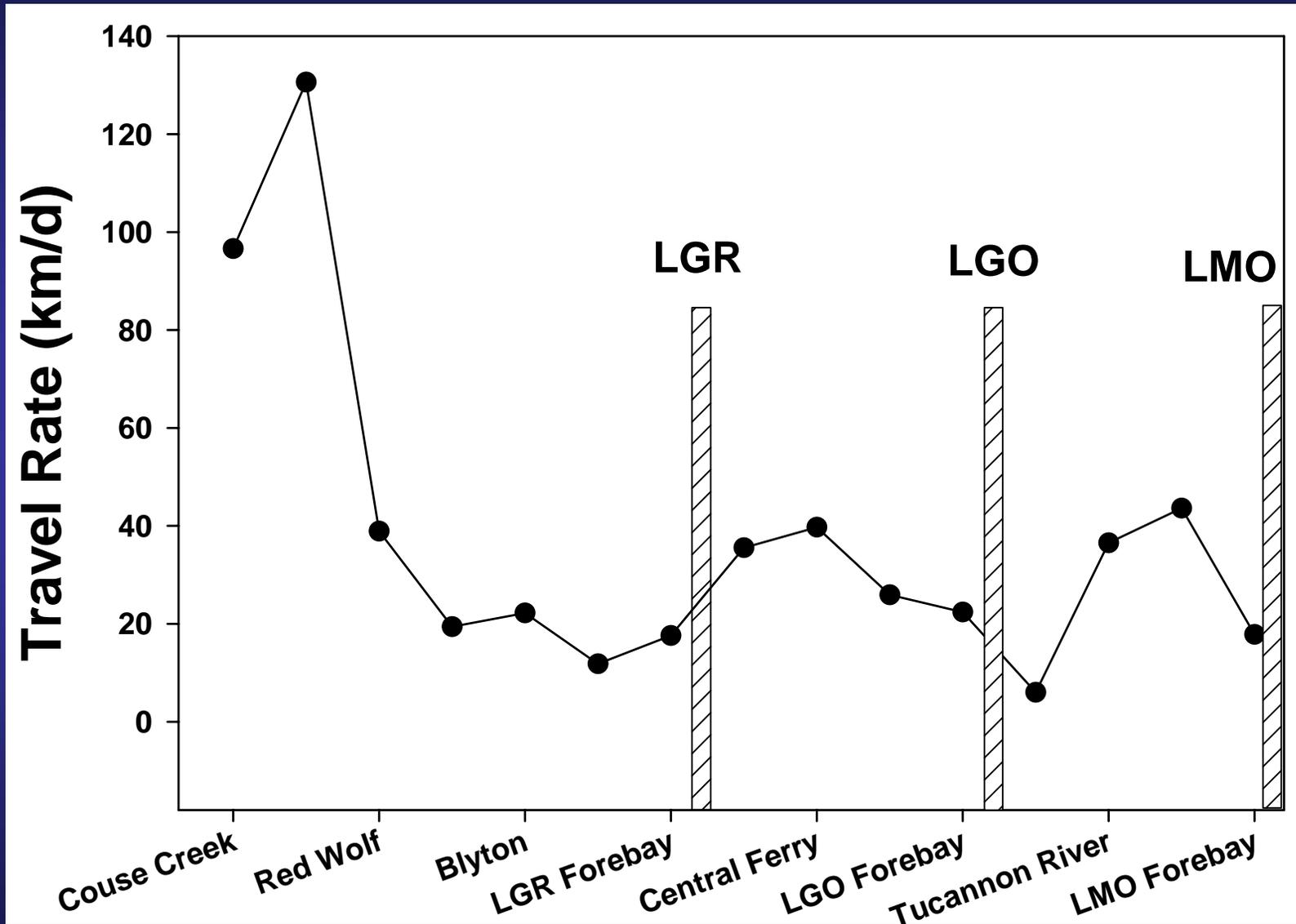
Kenneth F. Tiffan
U.S. Geological Survey
Cook, Washington

William P. Connor
U.S. Fish and Wildlife Service
Ahsahka, Idaho

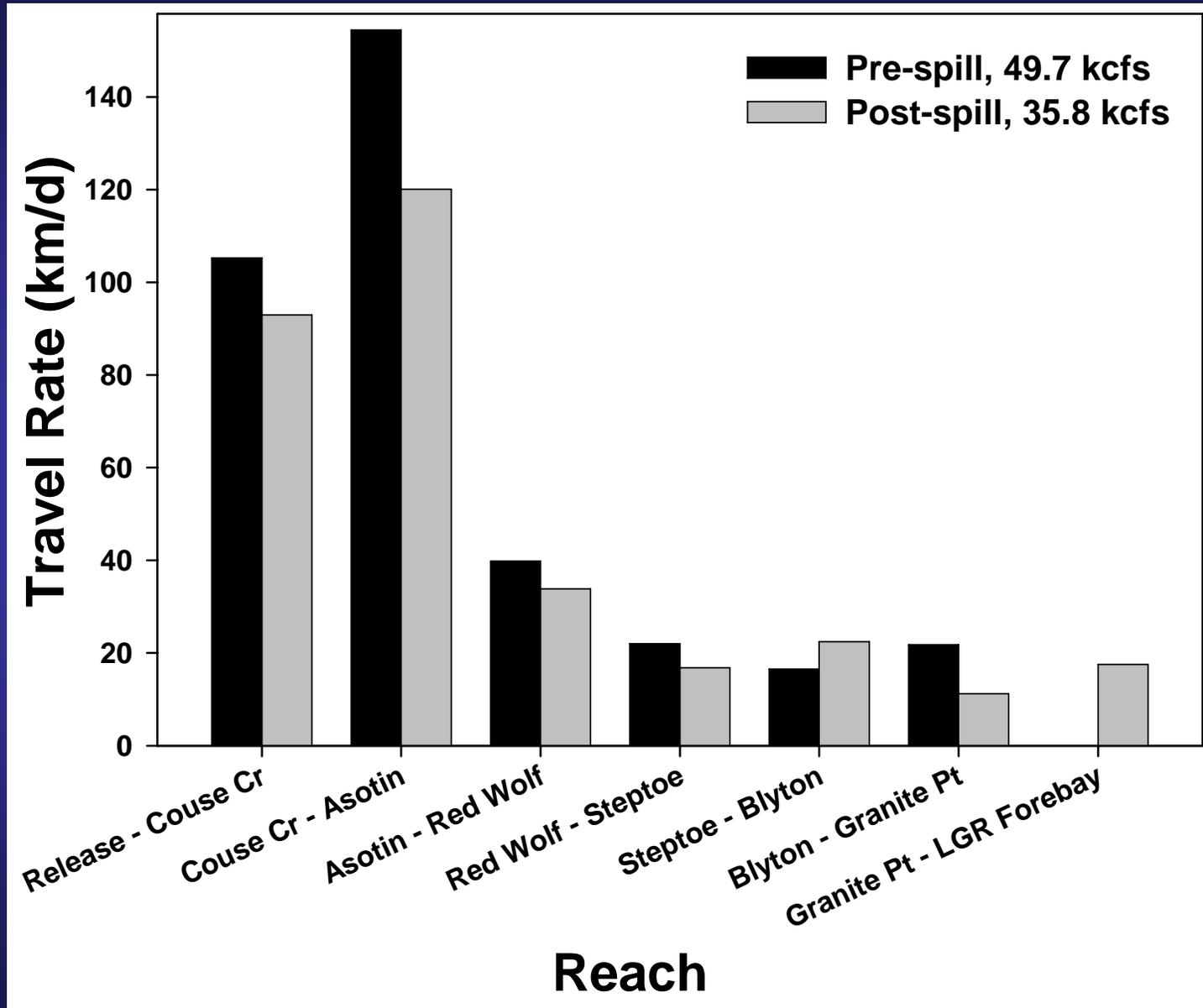
Detections, 2005



Travel rate vs Location

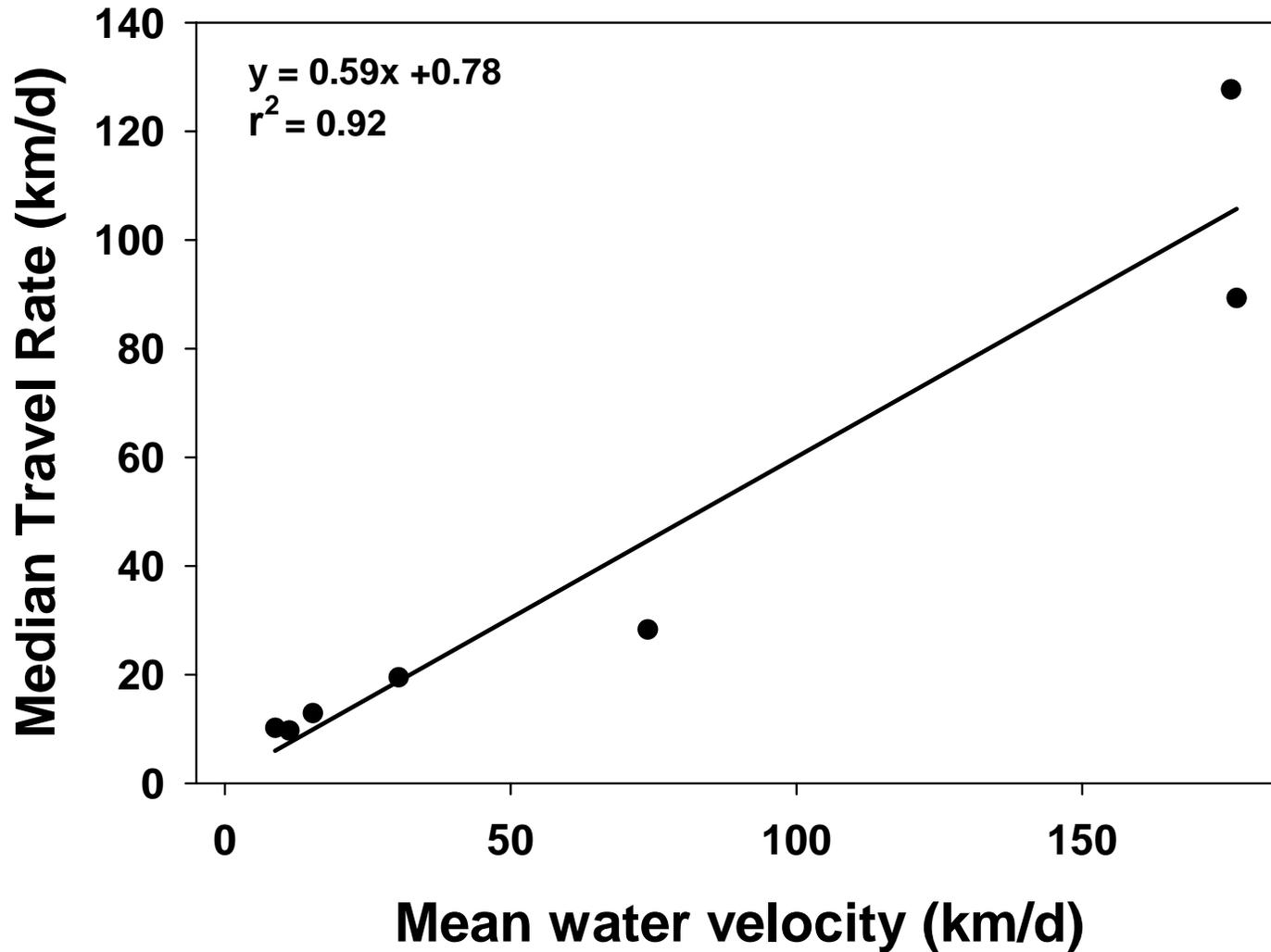


Travel Rate and Spill



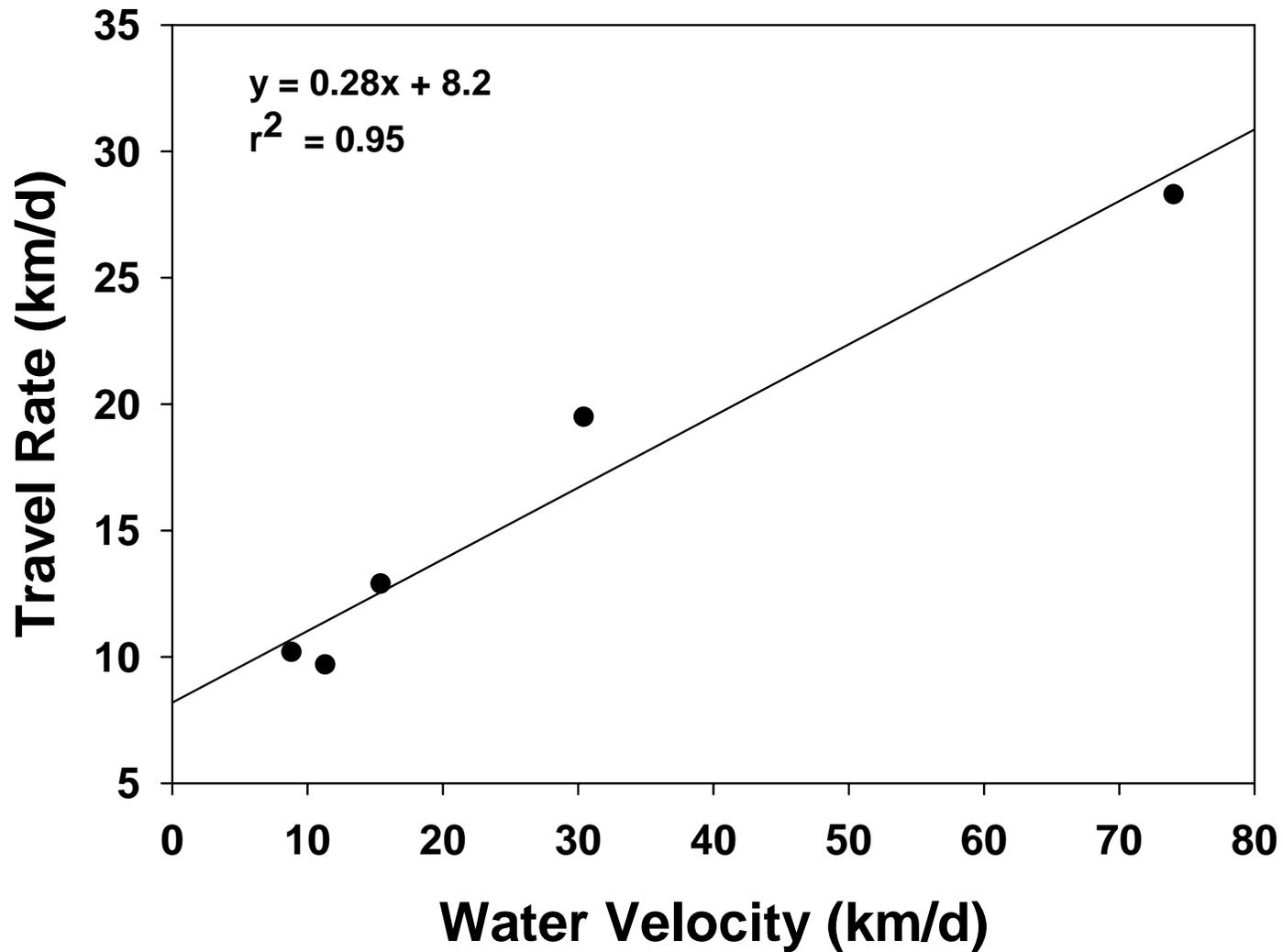
Fish Travel Rate vs Water Velocity, 2005

Billy Creek to Lower Granite Dam



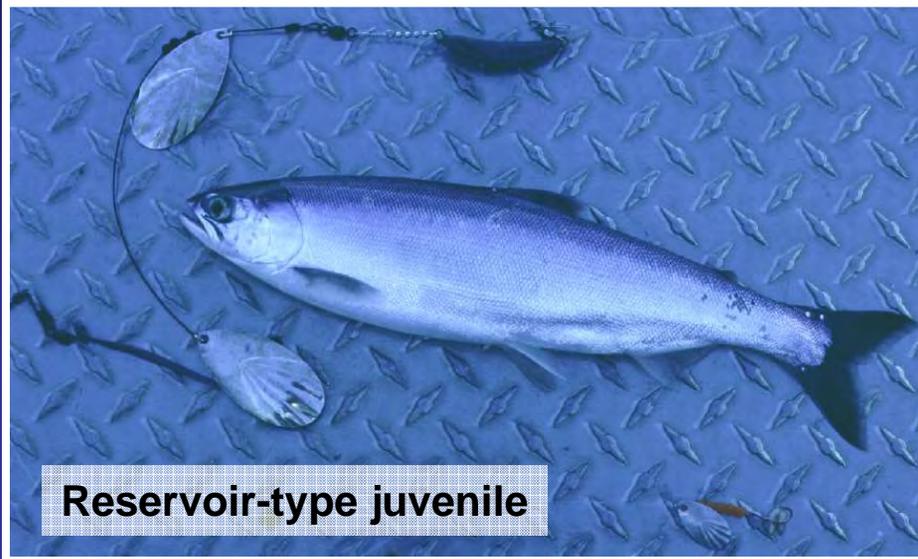
Fish Travel Rate vs Water Velocity, 2005

Lower Granite Reservoir Only



Winter Passage

When do reservoir-type juveniles pass dams?



Tagged 104 fish from November to February

Monitored forebay and tailrace of each Snake River dam through beginning of May

Compiled detection and passage timing information

Total Detections

LGR forebay	LGR tailrace	LGO forebay	LGO tailrace	LMO forebay	LMO tailrace	ICH forebay	ICH tailrace
102 (98%)	88 (85%)	41 (39%)	33 (32%)	23 (22%)	17 (16%)	14 (13%)	6 (6%)

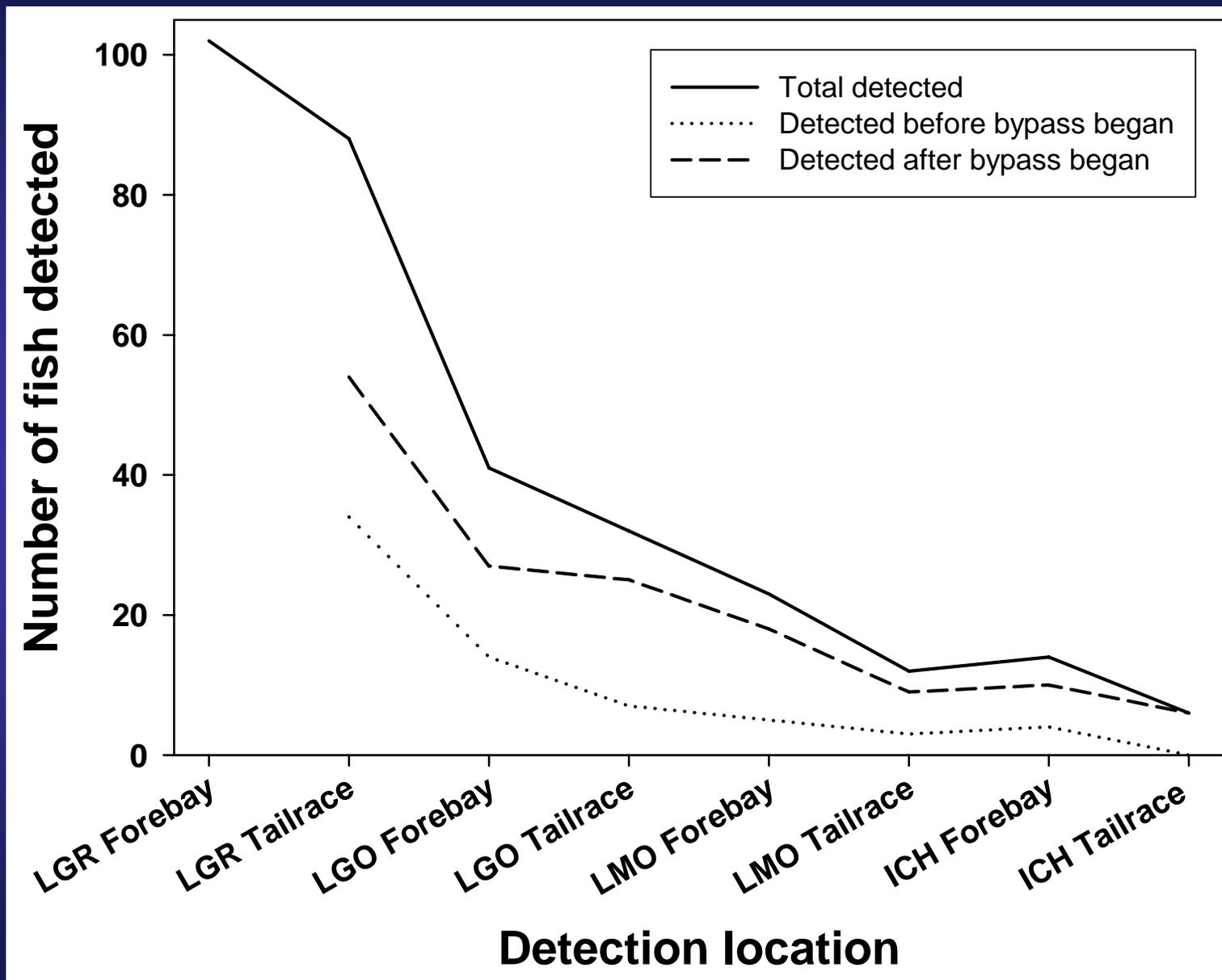
Detections Before Bypass

LGR forebay	LGR tailrace	LGO forebay	LGO tailrace	LMO forebay	LMO tailrace	ICH forebay	ICH tailrace
57 (56%)	48 (55%)	15 (37%)	13 (39%)	6 (26%)	4 (24%)	14	6

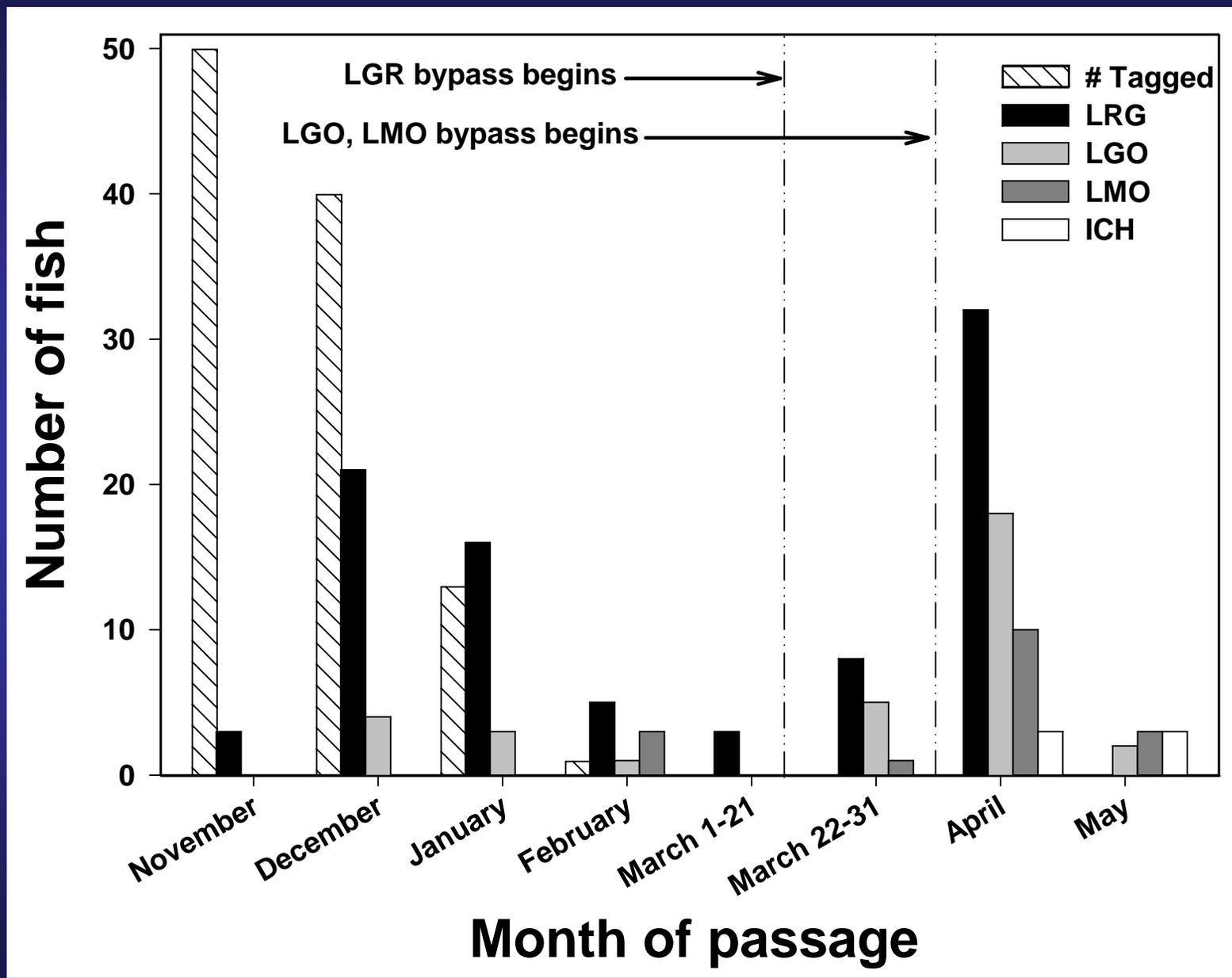
Detections After Bypass

LGR forebay	LGR tailrace	LGO forebay	LGO tailrace	LMO forebay	LMO tailrace	ICH forebay	ICH tailrace
45 (44%)	40 (45%)	26 (63%)	20 (61%)	17 (74%)	13 (76%)	0	0

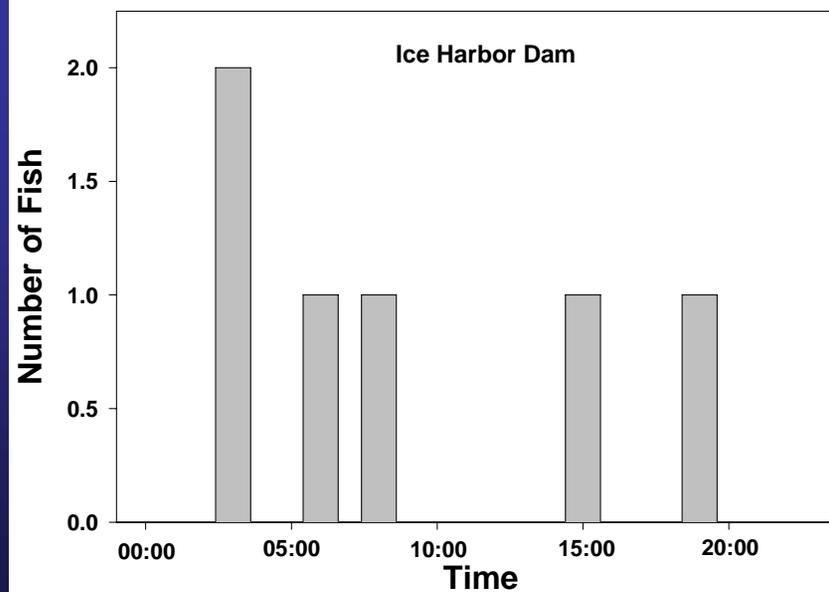
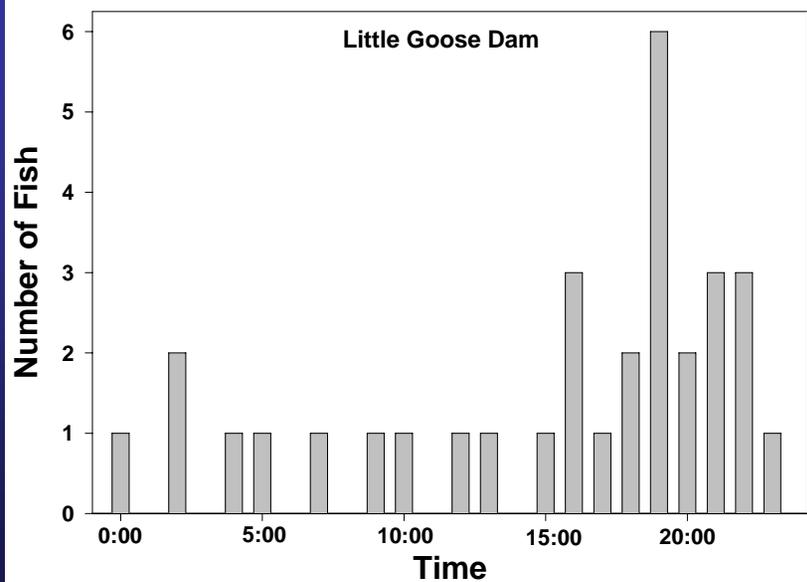
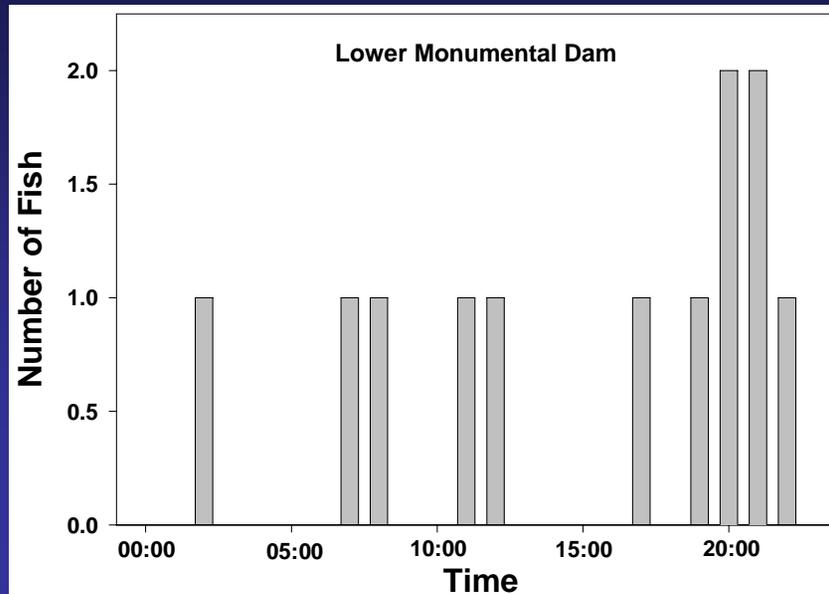
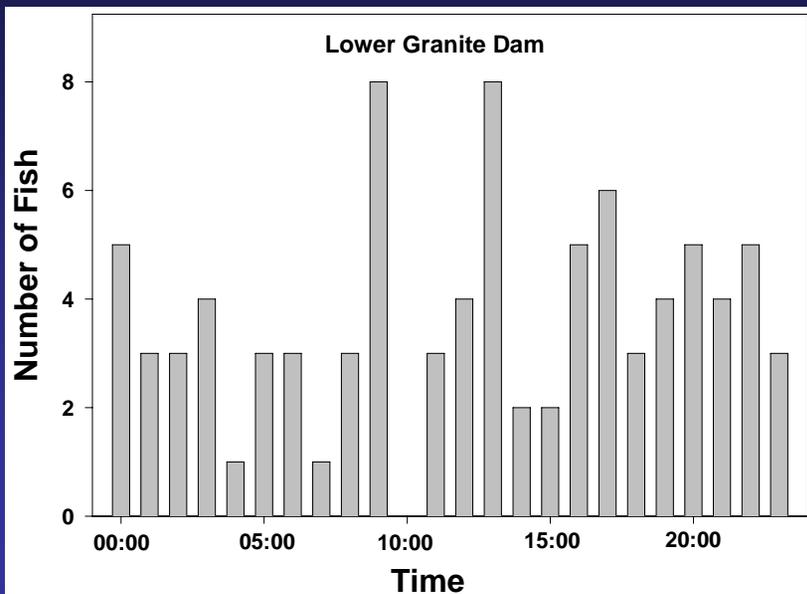
Detections by Location



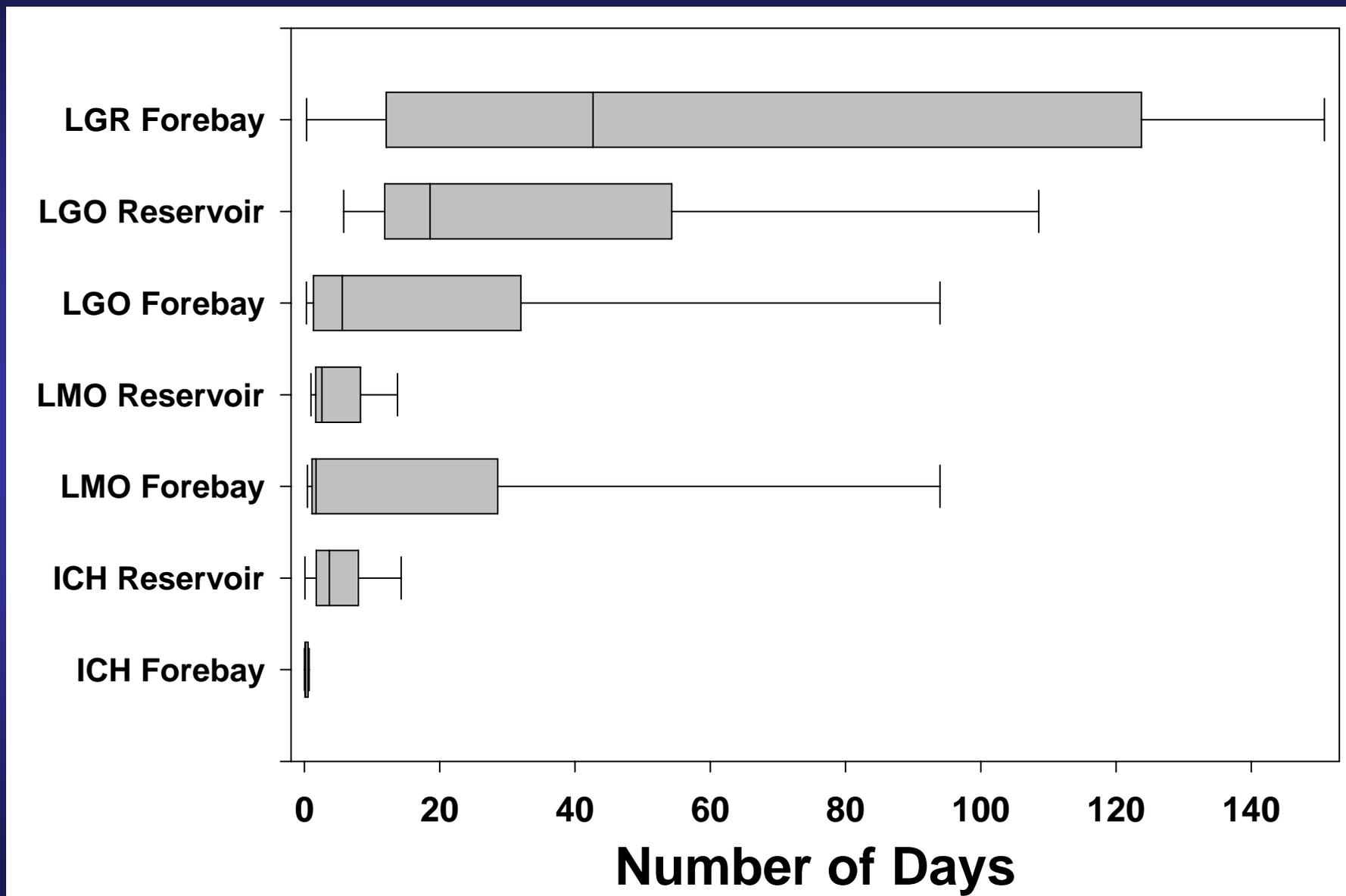
Monthly Passage



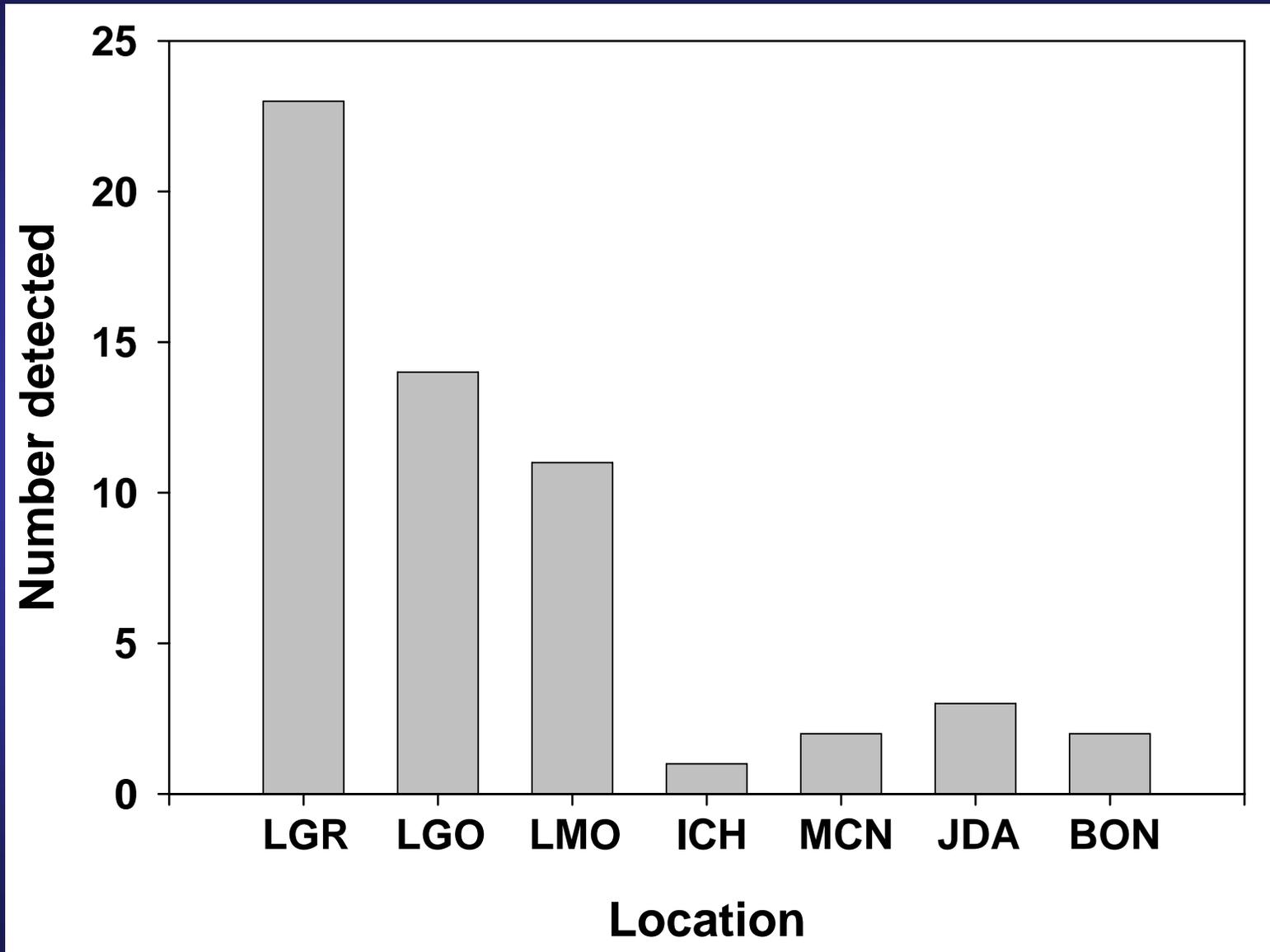
Hourly Passage



Residence Times



Detections of PIT-tagged Holdovers



Determining the influence of high flows of the spawning behavior of chum salmon at Ives Island

Project 1999003

Ken Tiffan
U.S. Geological Survey

10-26-05

This document is a plan for proposed experimental flows from Bonneville Dam to examine the effects of elevated flows on chum salmon spawning behavior at Ives Island. This study is being funded by BPA under project 1999003 and will take place during from November 1 through mid December, 2005. This plan is preliminary and I welcome input from the FPAC, TMT, COE, and BPA to keep this study relevant to the needs of the fishery managers.

Background and rationale

In 2004, we conducted experimental flow tests by increasing tailwater elevations from 11.5 ft to 15.1 ft and back down to 11.5 ft. Acoustically tagged fish that had a redd generally remained at the redd during a flow test. Although fish were not displaced by the flows we evaluated, we began to see increases in swimming activity by fish to maintain their position in the current and decreases in nest digging activity as tailwaters and velocities increased. However, our tailwater elevation steps were only 2 h in duration. It is possible that if these tailwaters were maintained for longer periods of time, chum salmon spawning behavior may be further altered. In 2005, I would like to examine fish responses to tailwaters that are elevated for longer periods (8 h). This will provide insight as to how long flows could be elevated if water needed to be moved into the daytime to reduce nighttime peaks. In addition, I would like to evaluate a higher tailwater elevation more typical of those that have occurred at night in recent years. I am proposing to focus the majority of our testing and effort on evaluating tailwater elevations of 13.5 ft and 15.5 ft. The elevation of 13.5 ft was selected because this is the tailwater elevation that will be requested in a SOR should the need arise to provide additional spawning habitat when fish densities are high. In addition, this is also the tailwater elevation that provides flow to the channel on the north side of Ives Island where fish were observed spawning in 1998 and 1999 under higher flows. The elevation of 15.5 ft was selected because this is near the point where fish behavior was being impacted in 2004. At this elevation, water velocities were up to 1.5 m/s in the main spawning area, which is outside the range of suitability for chum salmon. Conducting longer-duration tests at this elevation will help us determine if fish can maintain spawning behavior for an extended time at this level. Finally, it represents a conservative upper limit of a tailwater elevation not to exceed based on 2004 results. The upper limit of 17.5 ft was selected by first examining the hourly flows at Bonneville Dam for November and December for the last 10 years. Ninety percent of the hourly flows were less than 215 kcfs, which I selected as the upper flow bound. I then calculated the mean Bonneville tailwater elevation for this flow to arrive at 17.5 ft. I propose to conduct only

a few tests at this elevation toward the end of the spawning season when more water would hopefully be available.

Approach

At a minimum, I propose to conduct 5 tests at 13.5 ft, 5 tests at 15.5 ft, and 2 tests at 17.5 ft. More tests would be better, but this depends on BPA’s flexibility in providing flows for tests on weekends, for example. Because by early December (last year) it was difficult to obtain sufficient numbers of fish for tagging, I would like to conduct more tests during November when we are more likely to collect fish. This would entail conducting tests on Saturday and/or Sunday if possible. In 2005, I will assume no diel effect during testing and request day and night tests in order to complete the requisite number of tests. Each test would be 8 h in duration. The ramp rates and times for tests are shown in Table 1. During each test, we will monitor the locations of acoustically tagged fish in our telemetry array, monitor changes in spawning behavior with acoustic and underwater video cameras, measure changes in water velocities, and search newly inundated areas for spawning activity and redds. We will also be monitoring changes in riverbed temperatures in cooperation with PNNL.

Table 1. Proposed ramp rates and times for 2005 flow tests.

Target tailwater	Time	Tailwater elevation
Daytime		
13.5 ft	07:00	11.5 ft
	08:00	13.5 ft
	16:00	11.5 ft
Nighttime		
13.5 ft	16:00	11.5 ft
	17:00	13.5 ft
	01:00	11.5 ft
Daytime		
15.5 ft	06:00	11.5 ft
	07:00	13.5 ft
	08:00	15.5 ft
	16:00	13.5 ft
	17:00	11.5 ft
Nighttime		
15.5 ft	15:00	11.5 ft
	16:00	13.5 ft
	17:00	15.5 ft
	01:00	13.5 ft
	02:00	11.5 ft
Daytime		
17.5 ft	06:00	11.5 ft
	07:00	14.5 ft
	08:00	17.5 ft
	16:00	14.5 ft

	17:00	11.5 ft
Nighttime		
17.5 ft	15:00	11.5 ft
	16:00	14.5 ft
	17:00	17.5 ft
	01:00	14.5 ft
	02:00	11.5 ft

In 2004, we scheduled daytime tests on Wednesdays and nighttime tests on Thursdays so as not to conflict with the work of other cooperators in the area. We request these same days for testing in 2005, which would require 5 weeks for testing. However, I would like to compress this schedule by working with BPA to schedule additional tests in November when fish are more abundant. Testing will begin when there are sufficient numbers of chum at Ives, hopefully by the second week in November.

Requested Actions

I would like input from FPAC, TMT, COE, and BPA concerning 1) the proposed ramp rates and maximum tailwater elevation for testing, and 2) the scheduling of 5 weeks of testing (Wednesday [day], Thursday [night]) versus a compressed schedule for testing (Wednesday [day], Thursday [night], and Saturday and/or Sunday tests [depending on COE, BPA flexibility])



COLUMBIA RIVER INTER-TRIBAL FISH COMMISSION

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Fax (503) 235-4228

www.critfc.org

TO: Technical Management Team (TMT)
FROM: Kyle Dittmer, *Hydrologist-Meteorologist*, CRITFC Hydro Program
DATE: November 2nd, 2005

SUBJECT: **Summary of Water Year 2005 Weather**

At the request of the TMT, this memo summarizes monthly weather events that impacted basin flows and fish migrations during Water Year 2005 (October 2004 - September 2005). WY 2005 was noted for extreme variability in precipitation and temperature patterns (Figures 1 and 2).

Autumn started wet then turned dry with above normal temperatures. October set new high records in the 81 to 88 °F range. December set the highest average basin departure for WY 2005. Such warmth hindered initial snow pack development.

Winter stayed very dry and warm. Mid-winter record highs ranged 60-65 °F. March set many new daily high temperature records in the 70 to 75 °F range. The extended dry spell ended in late March. Snow-packs suffered until then.

Spring was extreme. A “near normal” April quickly transitioned into a very warm, very wet May, especially in the Snake basin. One station reported a +17 °F departure in May. June was very wet across the basin. May produced new high records in the 80 to 95 °F range across the basin. Many stations set new daily precipitation records throughout all of spring.

Summer was also extreme. A dry summer was in-store for migrating salmon. A few record-breaking daily high temperatures were set in July and August. Strong storms broke the dry-spell on September 30th with 1-4 inch daily totals basin-wide and set new daily precipitation records.

Cumulative precipitation totals for Water Year 2005 for Columbia at The Dalles ended at 90%. The driest basins (Figure 3) were Southeast Washington (66%), Hood / Lower Deschutes (70%), and East slopes of the Washington Cascades (71%). The wettest basins were the Owyhee (117%), Snake River Plain (114%), and Flathead / Columbia above Castlegar (103%).

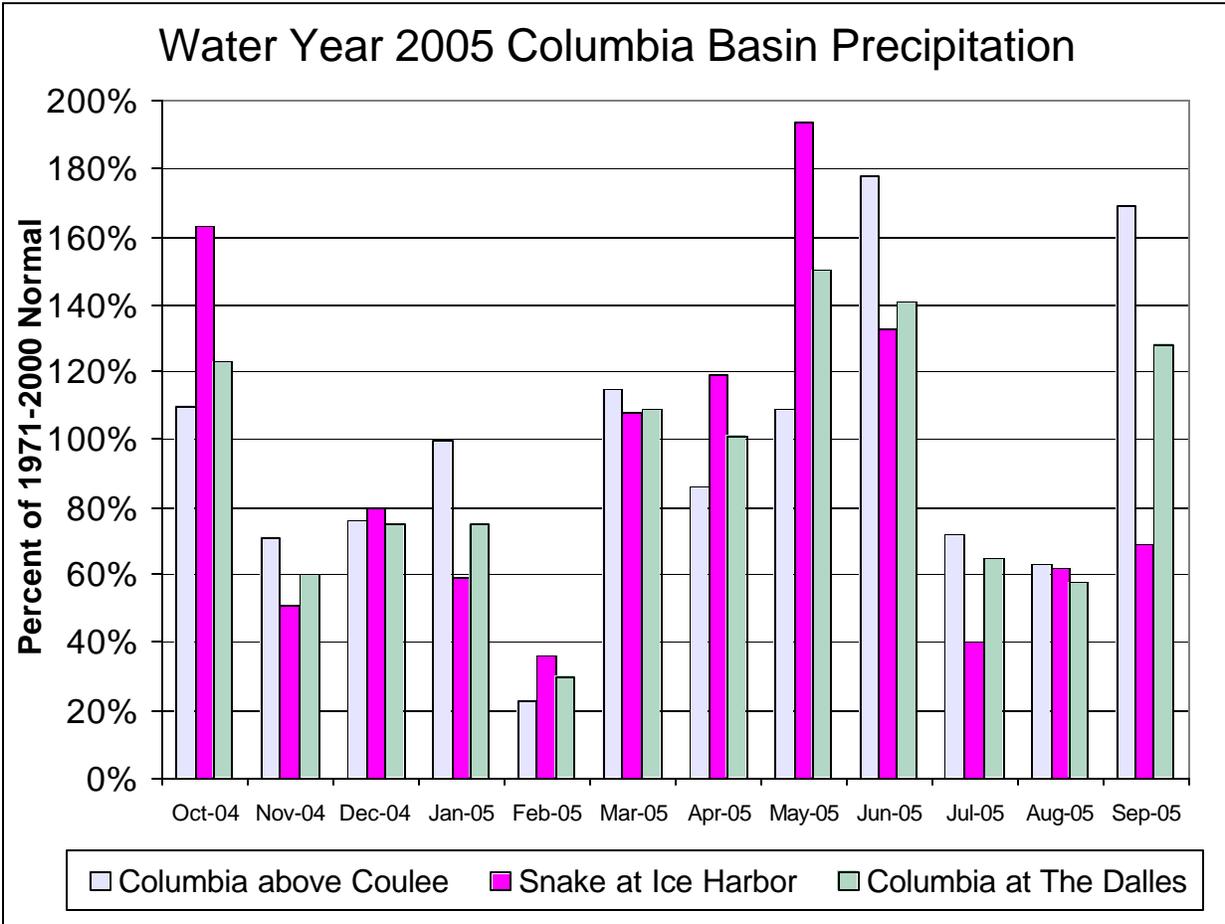


Figure 1. Water Year 2005 Division Precipitation Summary (NOAA-NWS-Portland data).

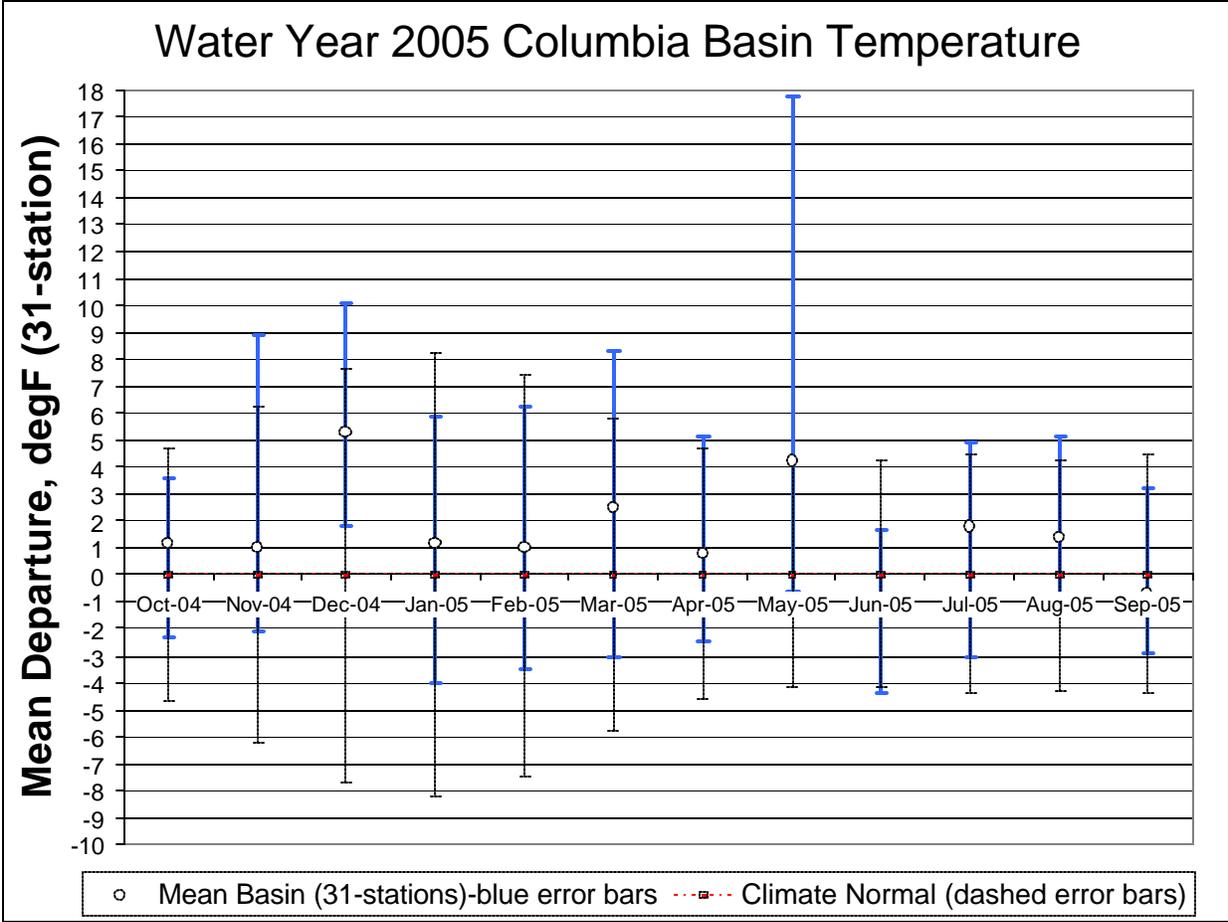


Figure 2. Water Year 2005 Temperature Departure Summary (NOAA-NWS-Portland data).

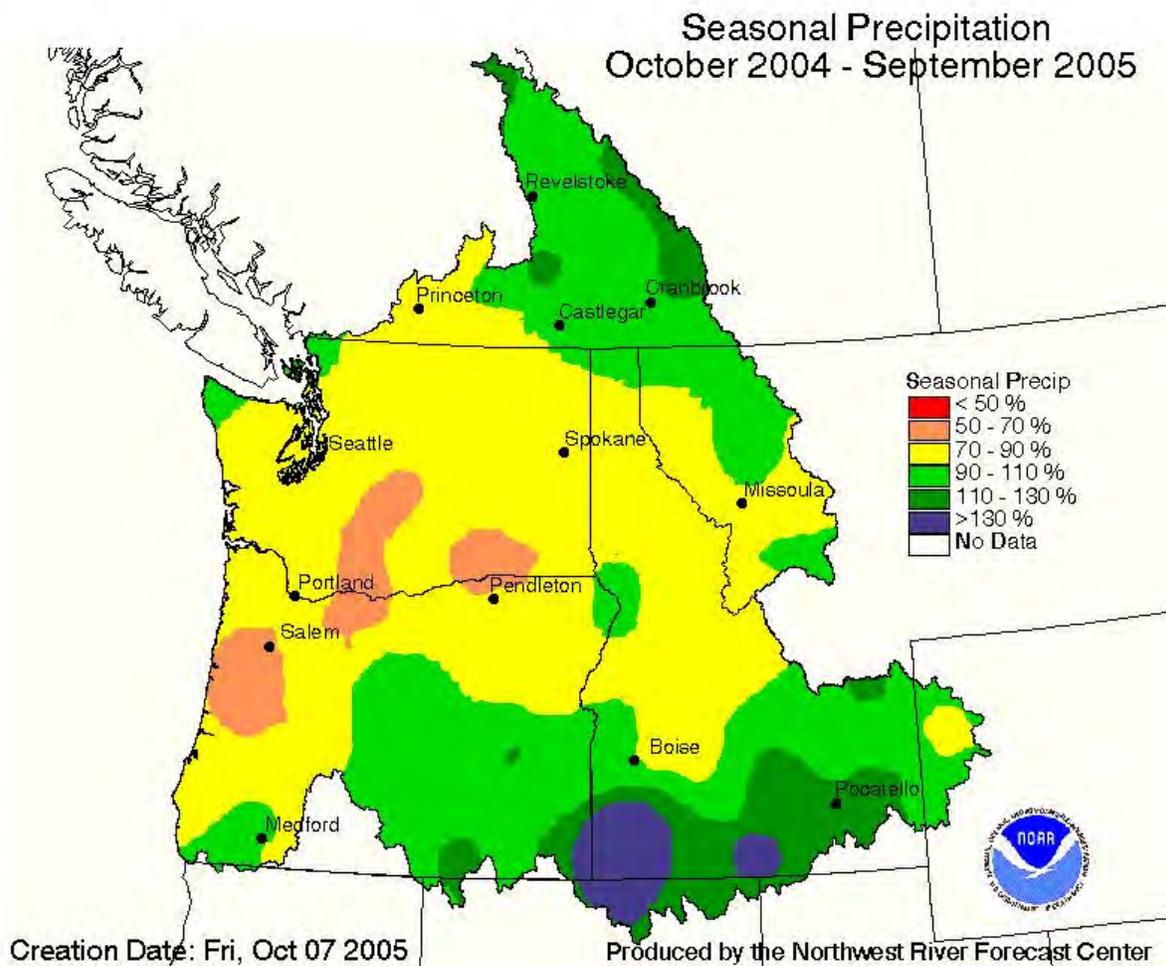


Figure 3. Water Year 2005 Columbia Basin Cumulative Seasonal Precipitation.



Technical Management Team 2005 Year End Review

Water Quality



Fixed Monitoring Stations



- Corps operated a total of 29 FMS's
 - ⇒ Portland District: 8 Stations
 - ⇒ Walla Walla District: 16 Stations
 - ⇒ Seattle District: 5 Stations
- Bureau of Reclamation Operated 4 FMS's
- Mid-C PUD's Operated 10 FMS's
- 5 New Stations in 2005
 - ⇒ Relocated Forebay Stations at LWG, LGS, LMN, IHR, and MCN (Washington Side).
- Data can be obtained at "Dataquery"
 - ⇒ <http://www.nwd-wc.usace.army.mil/perl/dataquery.pl>



Total Dissolved Gas



Project	Start of Spill	End of Spill	Days of Spill
Lower Granite	20 June	31 August	73 Days
Little Goose	20 June	31 August	73 Days
Lower Monumental	20 June	31 August	73 days
Ice Harbor	7 April	31 August	147 days
McNary	20 June	31 August	73 days
John Day	10 April	31 August	144 days
The Dalles	11 April	31 August	143 days
Bonneville	15 April	31 August	139 days



Total Dissolved Gas



Comparison of Exceedences with Previous Years

TDG Exceedences from High 12-hr Average in 24 hours

Year	Days in Spill Season	Number of Days Exceeded	Percent Exceeding TDG Standard (%)	Percent Consistent with TDG Standard (%)
2005	3020	69	2.3	97.7
2004	3020	71	2.4	97.6
2003	3020	243	8.0	92.0
2002	3020	490	16.2	83.8
2001	3020	13	0.4	99.6
2000	3020	252	8.3	91.7
1999	3020	411	13.6	86.4
Ave.	3020	247	8.17	91.8



Total Dissolved Gas



TYPES OF EXCEEDANCES FOR 2003 - 2005 SPILL SEASONS

2005	2004	2003	TYPE #	DEFINITION
11	4	68	1	Exceedance due to high runoff flows and flood control efforts.
0	0	0	2	Exceedance due to Intertie line outages.
0	0	0	3	Exceedance due to unit outages during repair or maintenance.
3	0	0	4	Exceedance due to BPA inability to handle load so water was spilled.
0	0	1	5	Exceedance due to a break down in communication. Teletype went out but no change occurred or Project operator interpreted teletype differently than what was intended.
32	16	106	6	Exceedance due to uncertainties when using best professional judgment to apply the spill guidance criteria (travel time; degassing; water temperature effects; spill patterns).
15	0	18	7	Exceedance due to high TDG levels coming from the Mid Columbia River Dam (see Pasco FMS readings).
0	3	0	8	Exceedance due to high TDG levels coming from the Snake River projects (see Ice Harbor Dam FMS readings).
0	0	0	9	Exceedance due to a load rejection. The powerhouse was not working and the river was spilled.
1	6	7	10	Exceedance due to lack of information: the FMS gage malfunctioning and we had no information at the time of making spill change decisions.
0	0	9	11	Exceedance due to mechanical problems (gate was stuck open, passing debris etc.).
7	25	20	12	Exceedance due to sharp rise in water temperature (a 3 to 5 degree F. change in a day).
0	7	33	13	Exceedance due to bulk spill pattern being used which generated more TDG than expected.
0	10	0	12/7	Exceedance due to combination of exceedance type 12 and 7.
69	71	262		Totals



Total Dissolved Gas



AVERAGE HIGH 12 HR %TDG EXCEEDANCES AT FMS FROM 1999 - 2005

	2005	2004	2003	2002	2001	2000	1999	Totals
Water Quality Gages	Qty.	Qty.	Qty.	Qty.	Qty.	Qty.	Qty.	Qty.
Lower Granite Forebay *	0	0	0	0	5	2	0	7
Lower Granite Tailwater	0	0	15	17	0	4	15	51
Little Goose Forebay *	0	3	10	17	0	2	39	71
Little Goose Tailwater	0	0	6	6	0	9	6	27
Lower Monumental Forebay *	6	1	19	49	0	28	44	147
Lower Monumental Tailwater	7	1	10	6	0	12	26	62
Ice Harbor Forebay *	3	4	35	24	0	34	44	144
Ice Harbor Tailwater	3	2	4	6	0	4	12	31
McNary Forebay - Wa. *	8	10	24	43	1	14	22	122
McNary Forebay - Or.	11	23	32	45	5	22	19	157
McNary Tailwater	1	7	12	31	0	17	50	118
John Day Forebay	2	0	10	11	0	1	8	32
John Day Tailwater	3	0	0	29	0	12	43	87
The Dalles Forebay	6	5	11	18	0	5	1	46
The Dalles Tailwater	0	0	4	11	0	5	5	25
Bonneville Forebay	3	1	17	30	0	14	19	84
Cascade Island	0	---	---	---	---	---	---	0
Warrendale	---	0	1	19	0	6	2	28
Camas/Washougal	16	14	33	65	2	58	51	239
Total Number of Exceedances	69	71	243	427	13	249	406	1478

* New Forebay gages set at 15 m depth. Previous gage set at 5 m depth.



Lower Granite Spill Activities in 2005

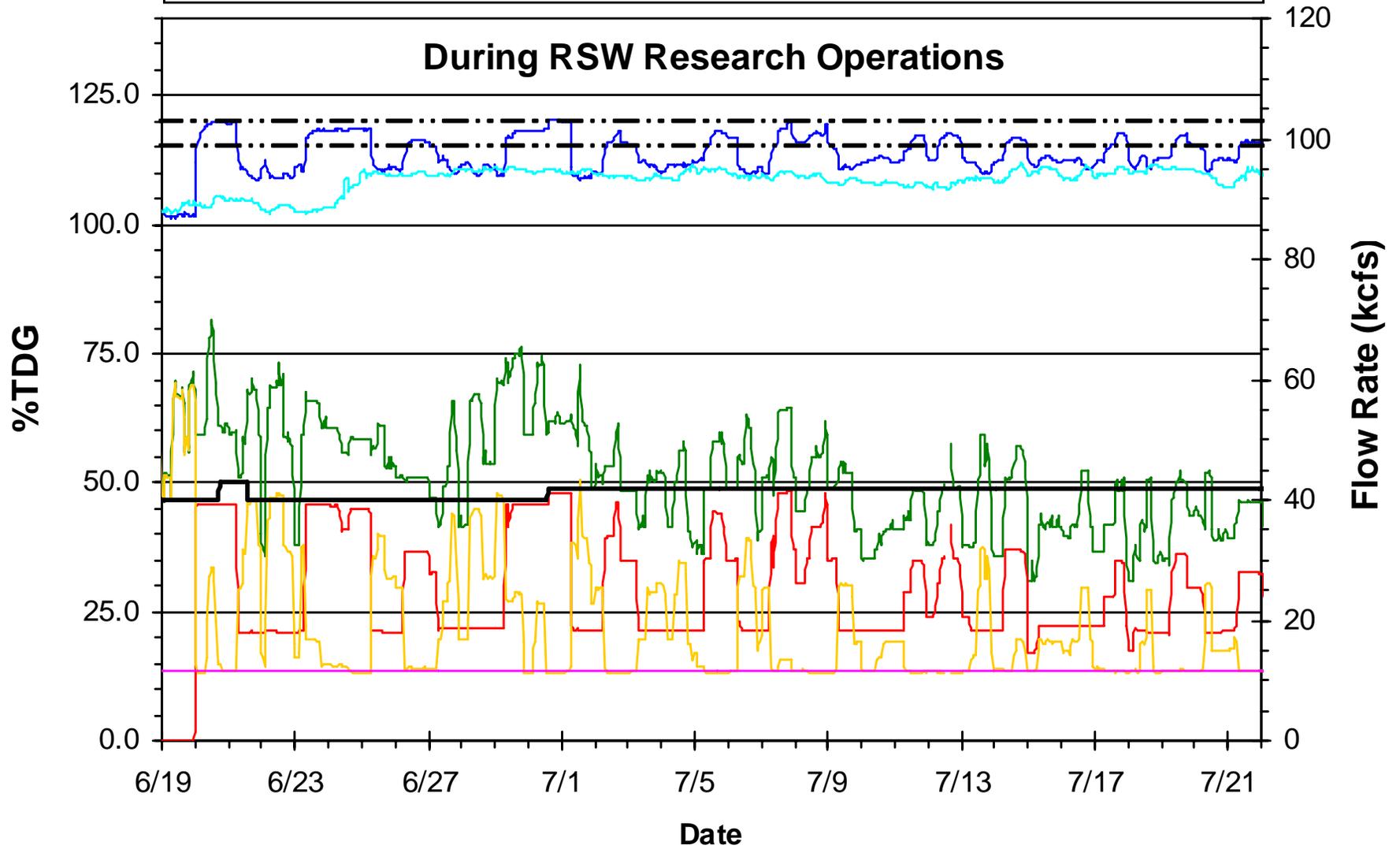


- No Spring Spill (3 April - 19 June)
 - Seasonal Average Regulated Inflow at LWG Forecasted < 70 kcfs (2004 BiOp).
- Court Ordered Summer Spill (20 June - 31 August)
 - Non-RSW Spill
 - Operate Turbine Unit 3 at the Low End of 1% of Peak Efficiency Range.
 - Spill Remaining Flow Up To Gas Cap 24-hrs per day.
 - Initial Gas Cap set at 40 kcfs.
 - RSW Spill
 - Operate Turbine Unit 3 at Low End of 1% Peak Efficiency Range.
 - Operate RSW on Spill Bay #1 with Distributed Spill on other spill bays.
 - Alternate RSW and Non-RSW Spill Operations.
 - Spill at least 1.7 kcfs
 - RSW Spill Ended 20 July.

Lower Granite Summer Operations



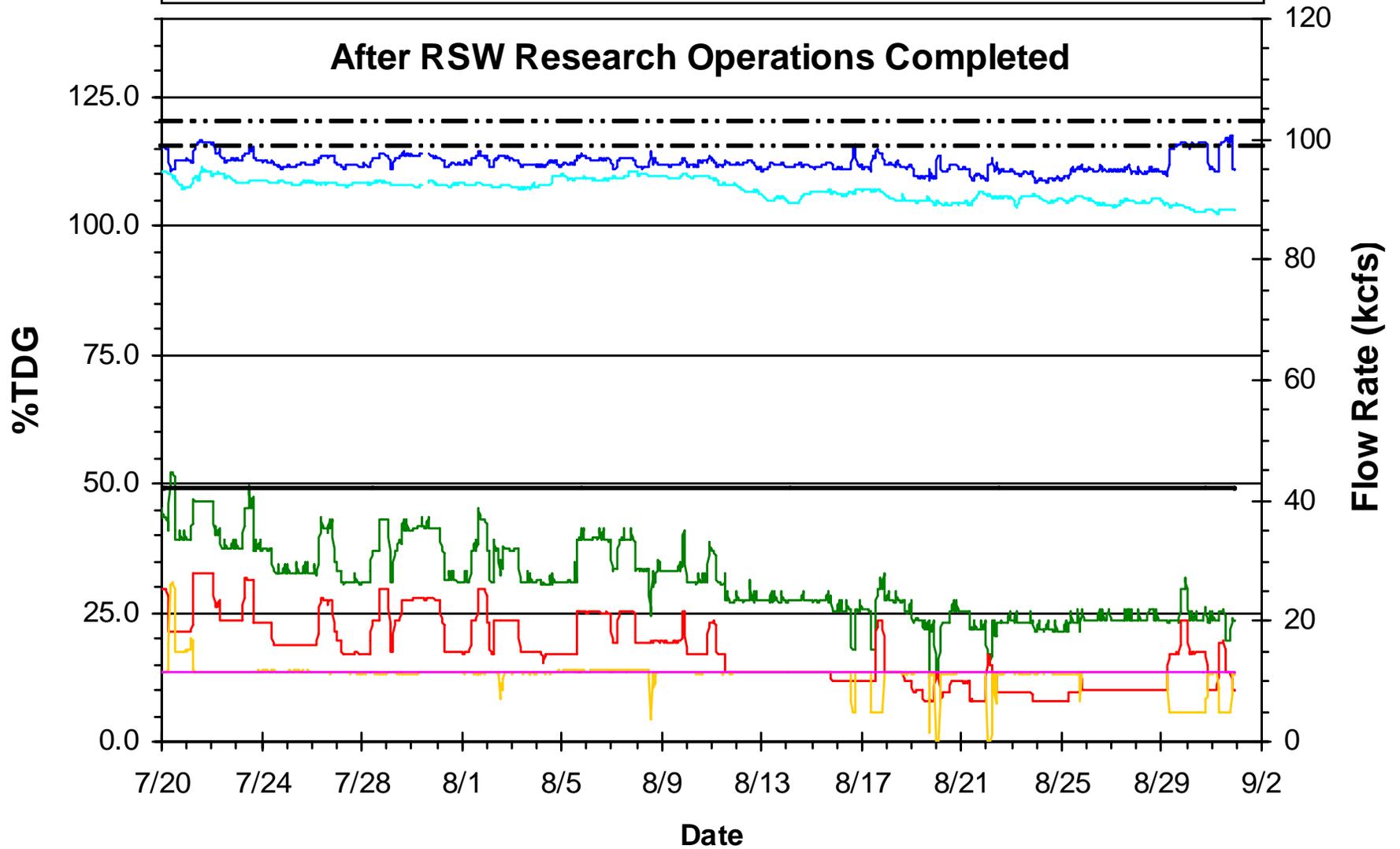
During RSW Research Operations



Lower Granite Summer Operations



After RSW Research Operations Completed





Lower Granite Spill Stats 2005



Parameter	Spring (1 Apr – 19 Jun)	Summer (20 Jun – 31 Aug)	Entire Season
Ave. Spill (kcfs)	5.7	19.3	12.2
Ave. Outflow (kcfs)	65.8	33.7	50.4
Ave. Gen Flow (kcfs)	59.6	13.9	37.8
Volume Spill (KAF)	904	2787	3690
# Hrs Spilled to Cap (hrs)	15	114	12994
% Hrs Spilled to Cap (%)	0.8	6.5	3.5
Ave. TW %TDG When Spill to Cap (%)	116.0	118.5	118.2
# Hrs Spilled Above Cap (hrs)	94	0	94
No. High 12-hr %TDG Exceedances			
Lower Granite Forebay (LWG)	0	0	0
Lower Granite Tailwater (LGNW)	0	0	0
Little Goose Forebay (LGSA)	0	0	0



Little Goose Spill Activities in 2005

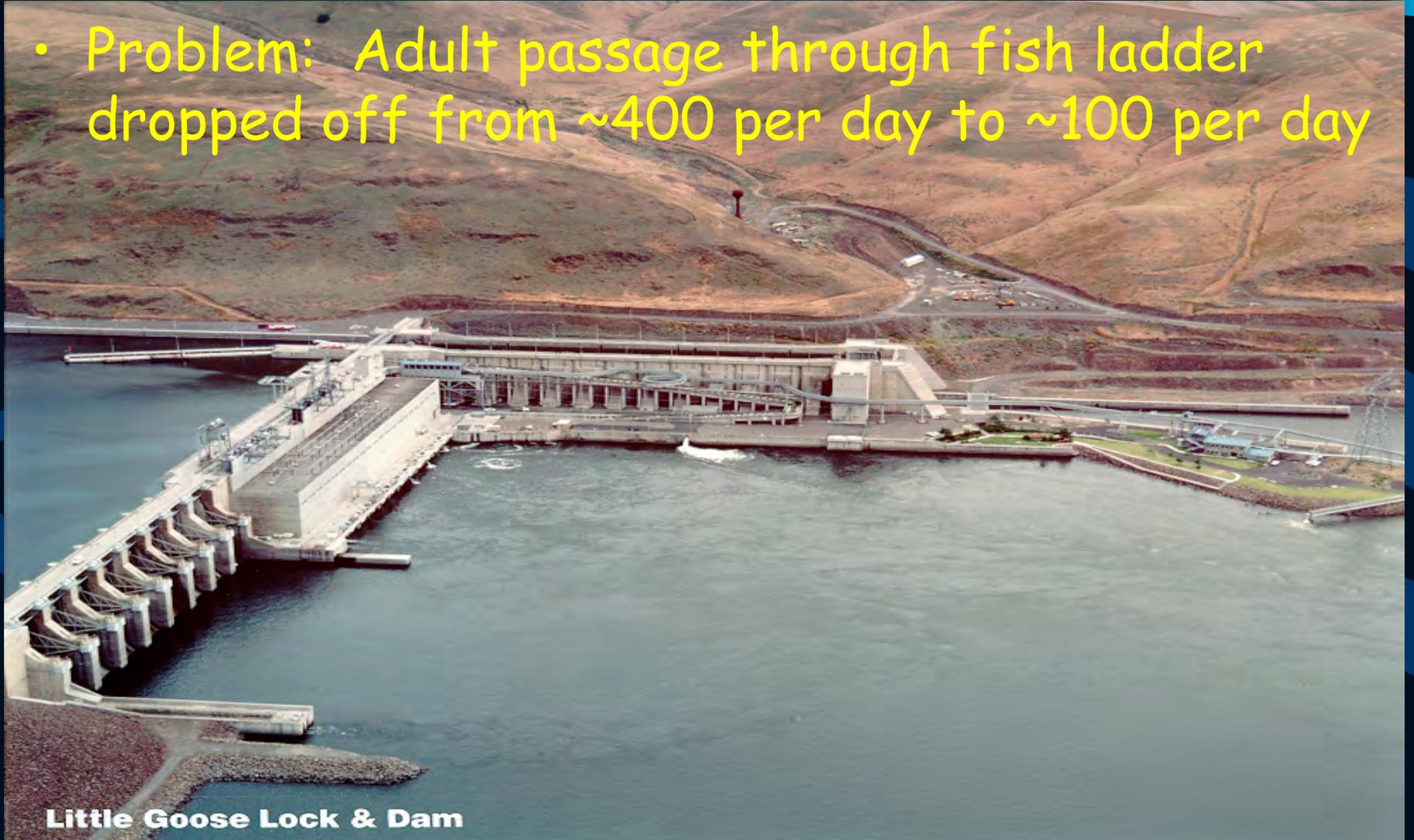
- No Spring Spill (3 April - 19 June)
 - Seasonal Average Regulated Inflow at LWG Forecasted < 70 kcfs (2004 BiOp).
- Court Ordered Summer Spill (20 June - 31 August)
 - Operate One Turbine Unit at the Low End of 1% of Peak Efficiency Range.
 - Spill Remaining Flow Up To Gas Cap 24-hrs per day.
 - Initial Gas Cap set at 40 kcfs.



Little Goose Spill Activities in 2005

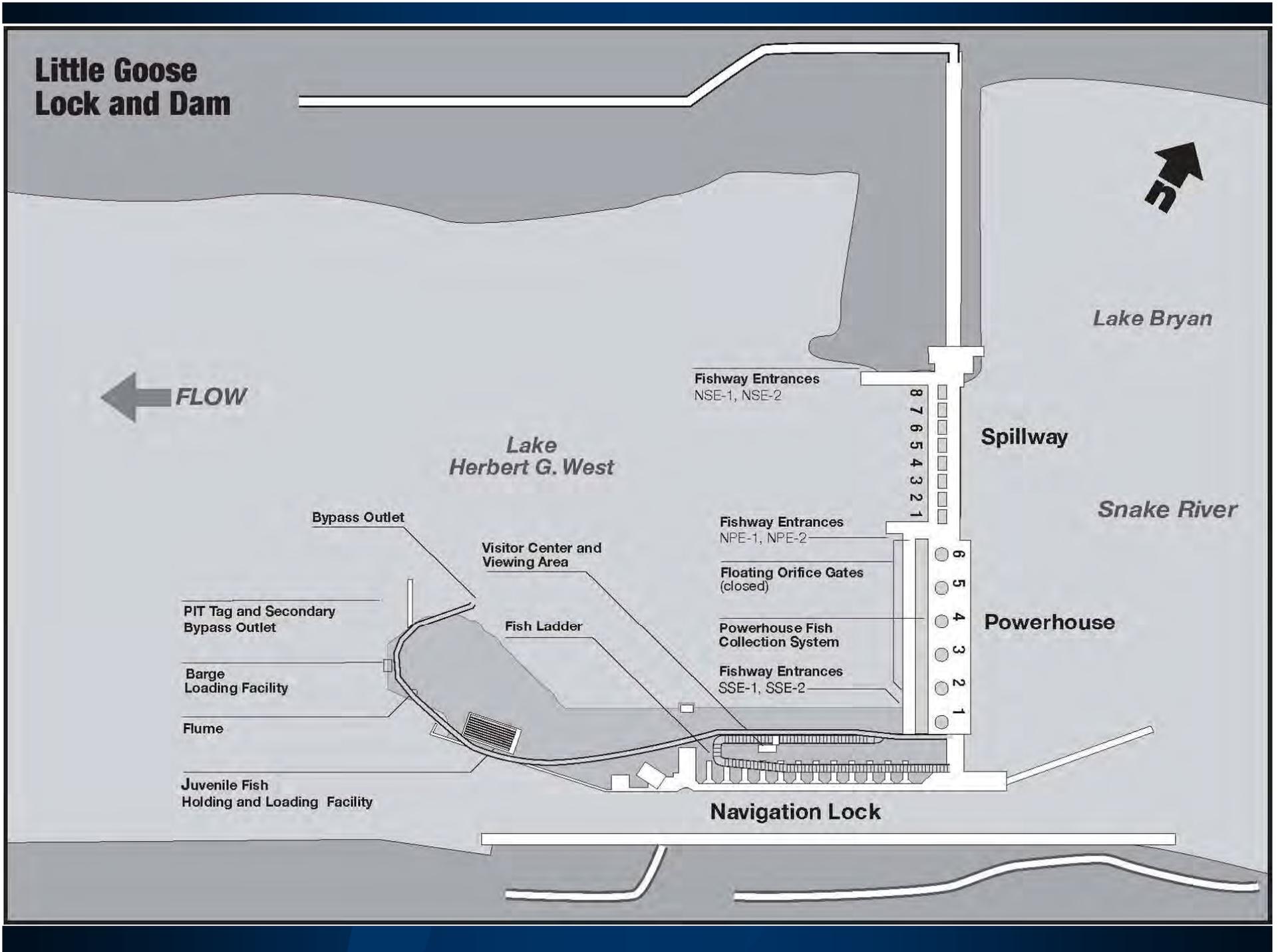


- Problem: Adult passage through fish ladder dropped off from ~400 per day to ~100 per day



Little Goose Lock & Dam

Little Goose Lock and Dam





Little Goose Spill Activities in 2005



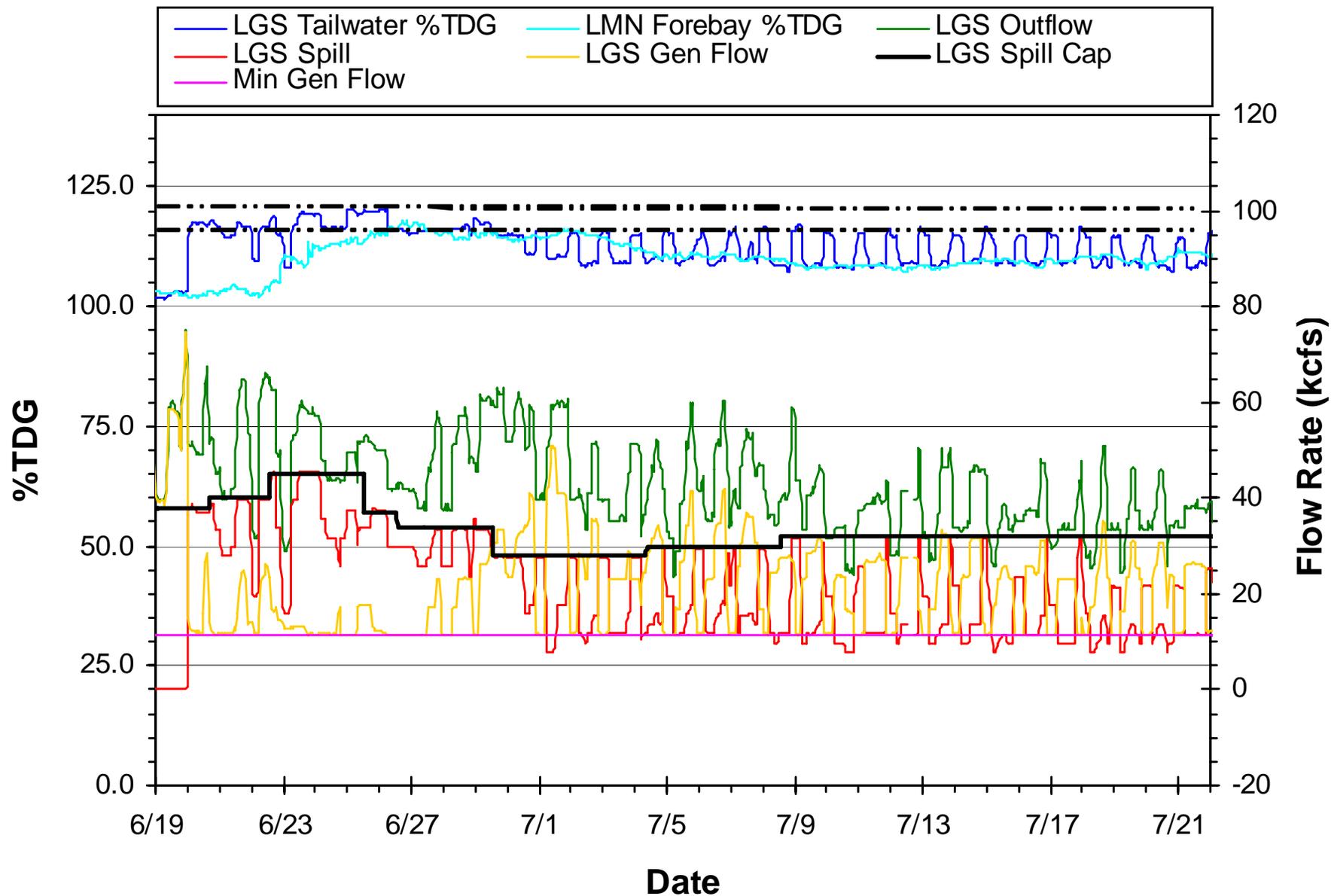
- Spill Modification #1: Daytime Spill (0600-1800 hrs) Operate Turbine Unit 2 at the High End of 1% of Peak Efficiency Range when flows > 43.4 kcfs, Spill Remaining Flow. Also, change "flat spill" to "crowned spill."
- Spill Modification #2: Daytime Spill (0500-2000 hrs) for flows < 35.5 kcfs, Operate Turbine Unit 2, 50% Spill/50% Generation, keep "crowned spill" pattern. For flows > 35.5 , operate two turbine units, 50% Spill/50% Generation, keep "crowned spill" pattern.



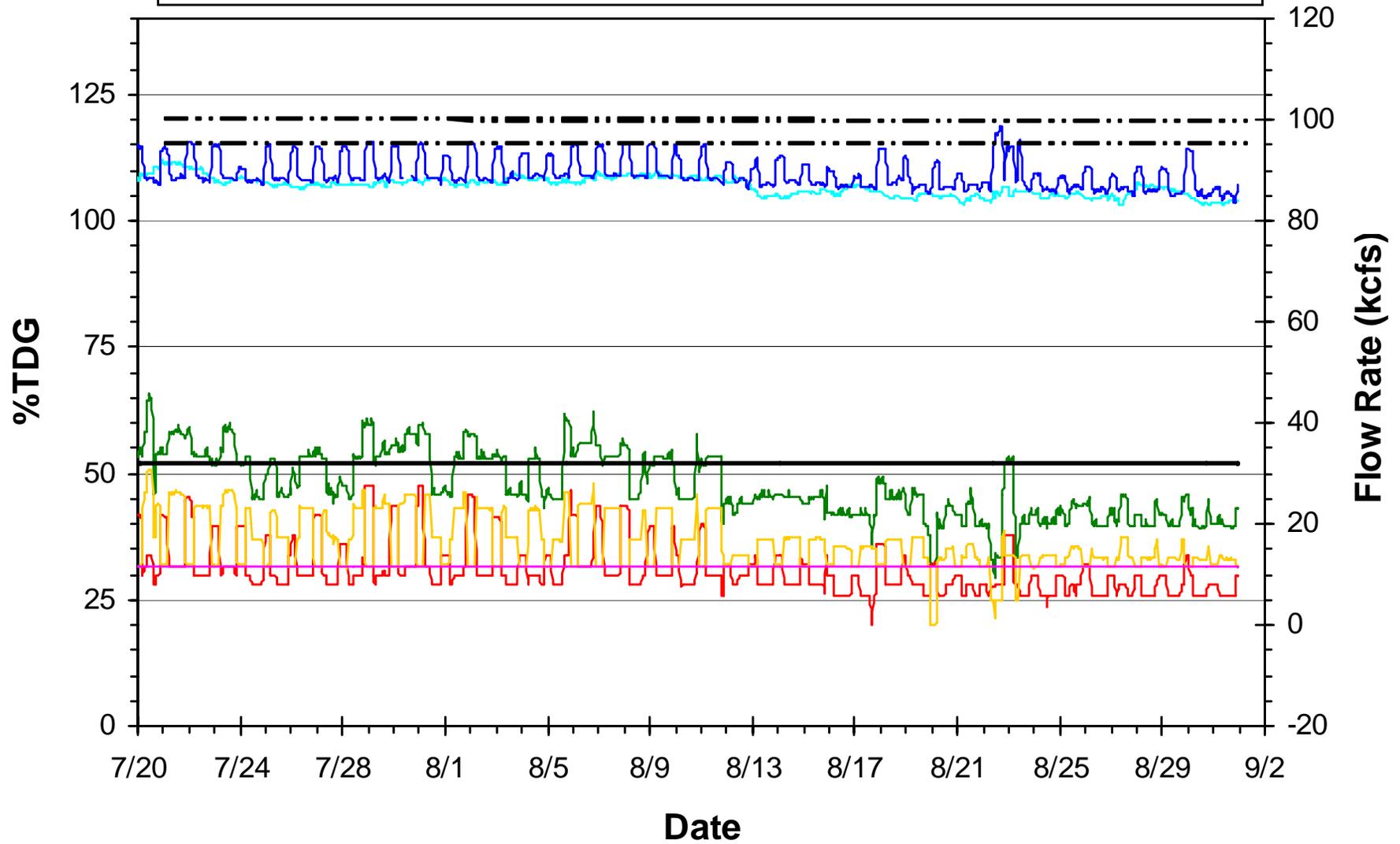
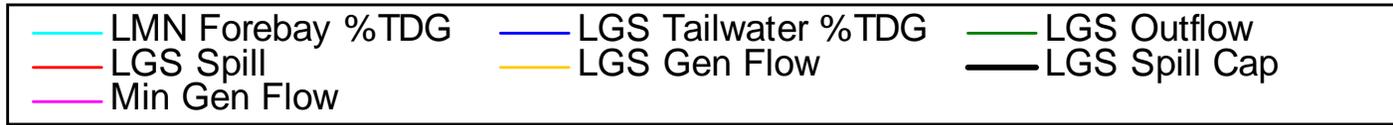
Little Goose Spill Activities in 2005

- Spill Modification #3: Daytime Spill (0500-2100 hrs, spill 30% of total outflow. Keep "crowned spill" pattern.
- Adult passage "spiked" on 30 June to ~1770.

Little Goose Summer Operations



Little Goose Summer Operations





Little Goose Spill Stats 2005



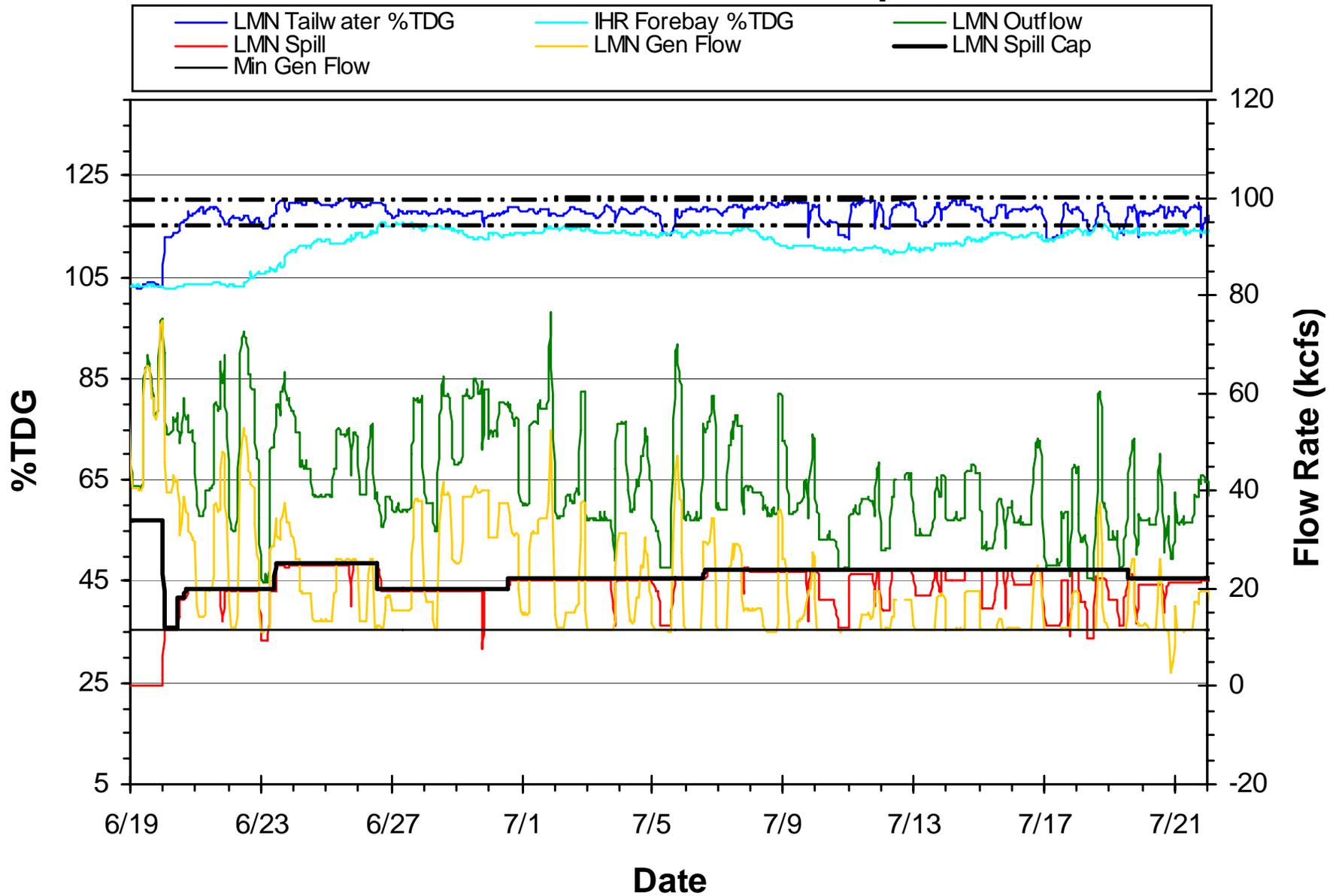
Parameter	Spring (1 Apr – 19 Jun)	Summer (20 Jun – 31 Aug)	Entire Season
Ave. Spill (kcfs)	1.3	15.5	8.1
Ave. Outflow (kcfs)	65.1	34.1	50.3
Ave. Gen Flow (kcfs)	63.1	18.0	41.6
Volume Spill (KAF)	206.4	2,244	2,451
# Hrs Spilled to Cap (hrs)	10	193	203
% Hrs Spilled to Cap (%)	0.5	11.0	5.5
Ave. TW %TDG When Spill to Cap (%)	116.2	116.4	116.4
# Hrs Spilled Above Cap (hrs)	0	4	4
No. High 12-hr %TDG Exceedances			
Little Goose Forebay (LGSA)	0	0	0
Little Goose Tailwater (LGSW)	0	0	0
Lower Monumental Forebay (LMNA)	0	6	6



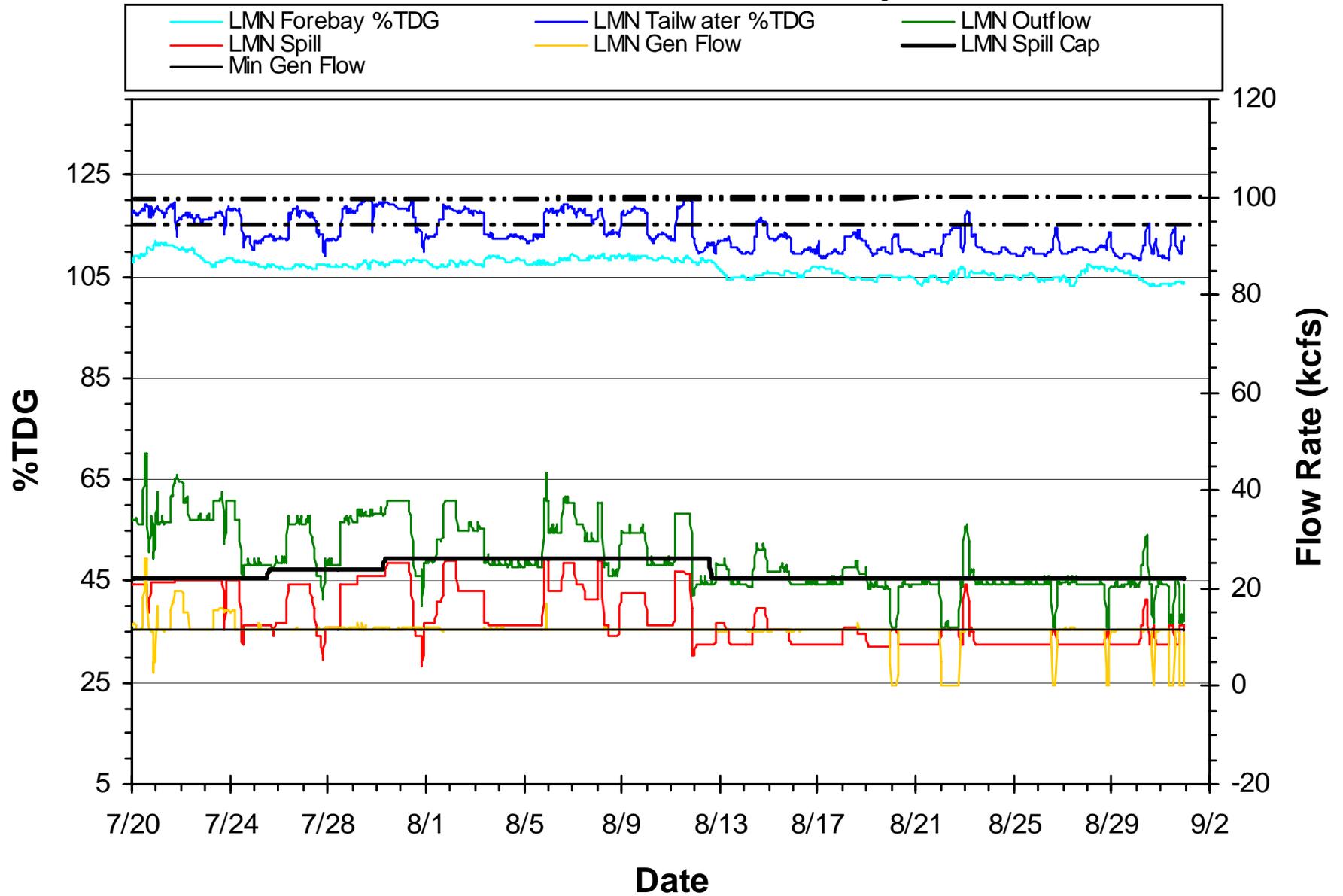
Lower Monumental Spill Activities in 2005

- No Spring Spill (3 April - 19 June)
 - Seasonal Average Regulated Inflow at LWG Forecasted < 70 kcfs (2004 BiOp).
- Court Ordered Summer Spill (20 June - 31 August)
 - Operate One Turbine Unit at the Low End of 1% of Peak Efficiency Range.
 - Spill Remaining Flow Up To Gas Cap 24-hrs per day.
 - Initial Gas Cap set at 12 kcfs.
 - In response to requests by plaintiffs, spill cap increased to 18, then to 20 kcfs on 20 June and to 25 kcfs on 23 June.

Lower Monumental Summer Operations



Lower Monumental Summer Operations





Lower Monumental Spill Stats 2005

Parameter	Spring (1 Apr – 19 Jun)	Summer (20 Jun – 31 Aug)	Entire Season
Ave. Spill (kcfs)	4.0	16.8	10.1
Ave. Outflow (kcfs)	67.0	32.8	50.7
Ave. Gen Flow (kcfs)	62.2	15.1	39.7
Volume Spill (KAF)	638	2,436	3,074
# Hrs Spilled to Cap (hrs)	31	651	682
% Hrs Spilled to Cap (%)	1.6	37.2	18.6
Ave. TW %TDG When Spill to Cap (%)	121	118.3	118.4
# Hrs Spilled Above Cap (hrs)	56	6	62
No. High 12-hr %TDG Exceedances			
Lower Monumental Forebay (LMNA)	0	6	6
Lower Monumental Tailwater (LMNW)	6	1	7
Lower Monumental Forebay (IHRA)	0	3	3

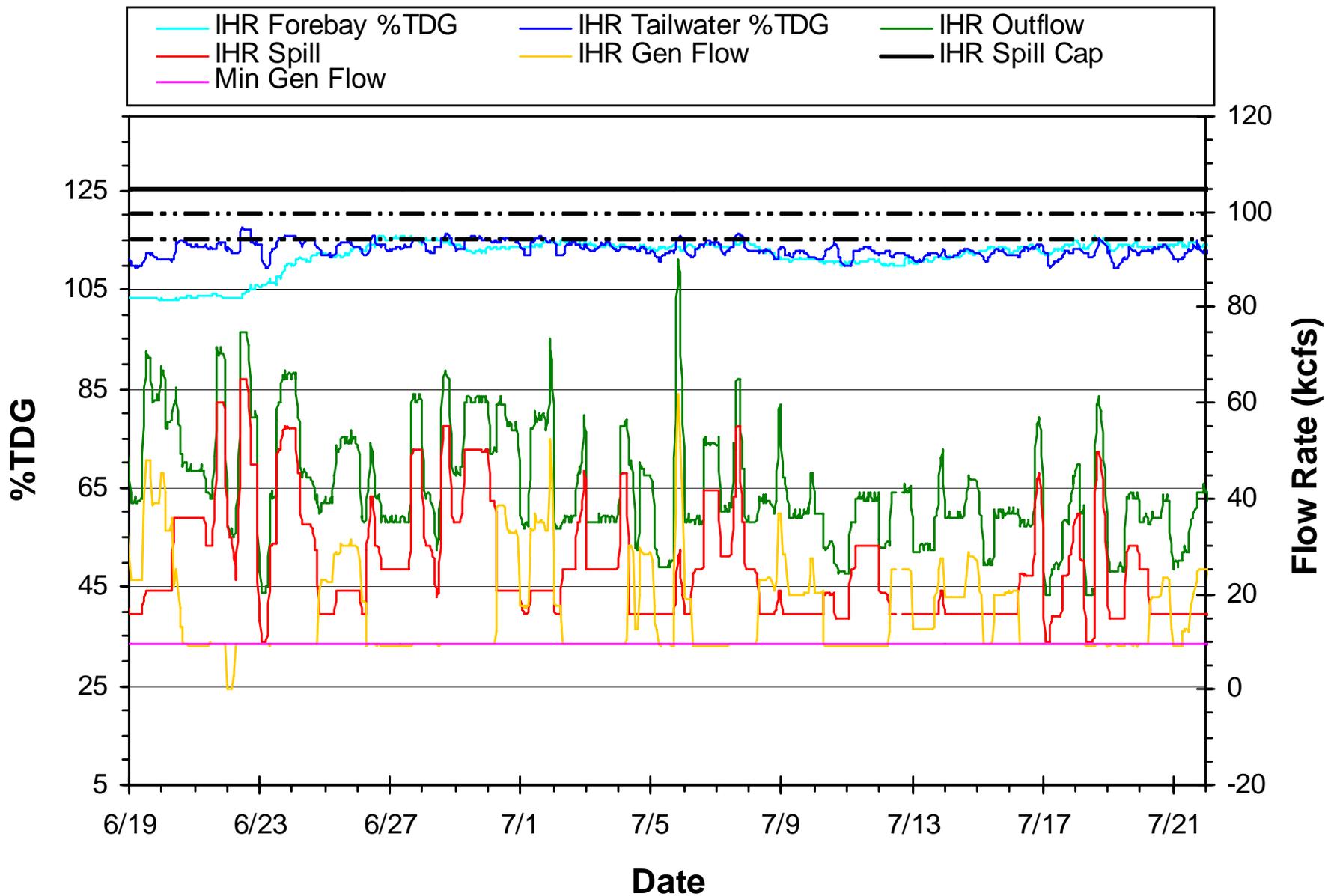


Ice Harbor

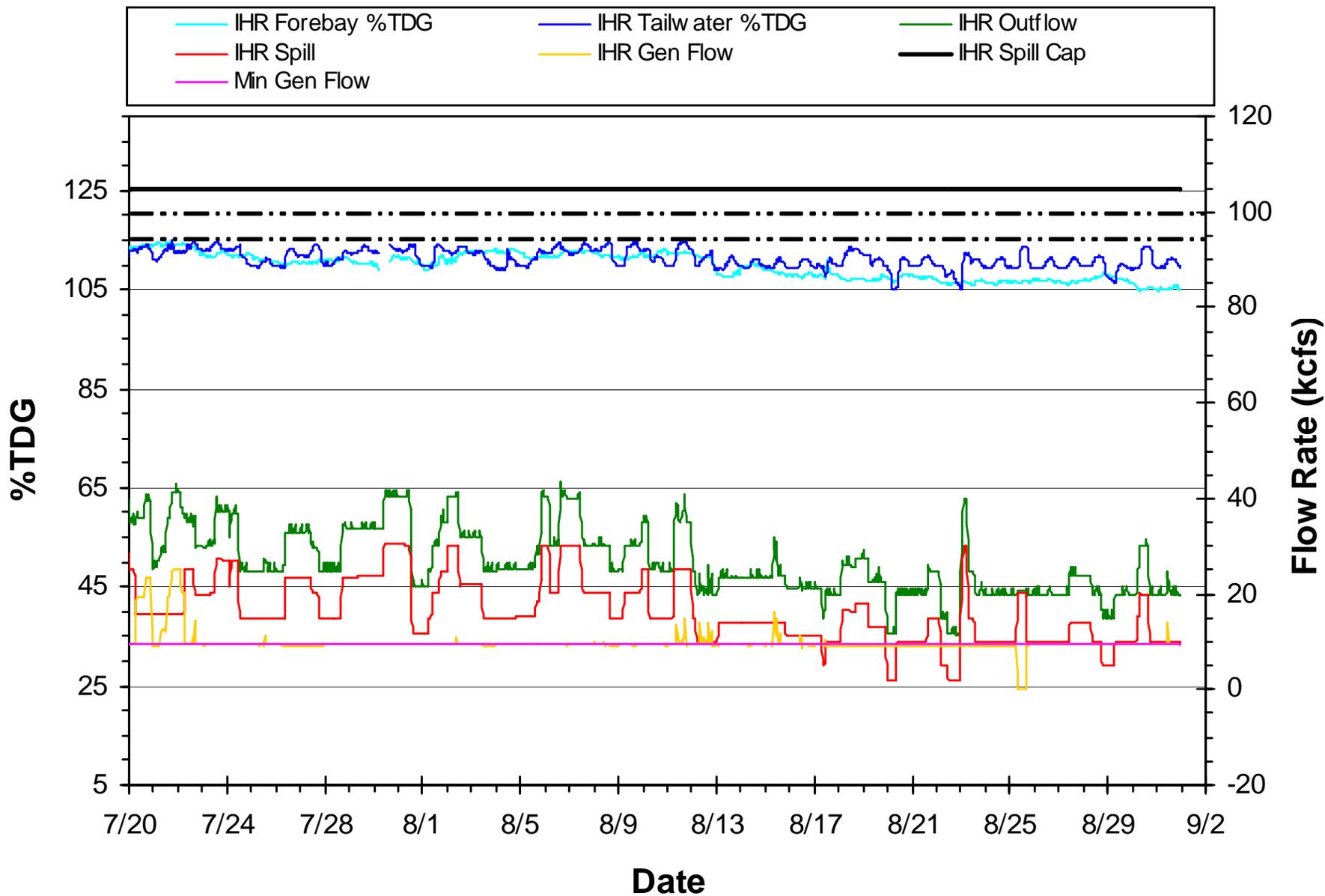
Spill Activities in 2005

- Spring Spill (2004 BiOp Criteria)
 - Daytime (0500-1800 hrs), spill 45 kcfs
 - Nighttime (1800-0500 hrs), Spill to Gas Cap.
- Court Ordered Summer Spill (20 June - 31 August)
 - Operate One Turbine Unit at the Low End of 1% of Peak Efficiency Range.
 - Spill Remaining Flow Up To Gas Cap 24-hrs per day.
 - Initial Gas Cap set at 105 kcfs.
 - Periodic RSW testing operations.

Ice Harbor Summer Operations



Ice Harbor Summer Operations





Ice Harbor Spill Stats 2005



Parameter	Spring (1 Apr – 19 Jun)	Summer (20 Jun – 31 Aug)	Entire Season
Ave. Spill (kcfs)	38.7	20.5	30.0
Ave. Outflow (kcfs)	68.1	33.3	51.5
Ave. Gen Flow (kcfs)	28.5	11.9	20.6
Volume Spill (KAF)	6,129	2,964	9,093
# Hrs Spilled to Cap (hrs)	216	0	216
% Hrs Spilled to Cap (%)	11.3	0.0	5.9
Ave. TW %TDG When Spill to Cap (%)	119.4	N/A	119.4
# Hrs Spilled Above Cap (hrs)	0	0	0
No. High 12-hr %TDG Exceedances			
Ice Harbor Forebay (IHRA)	0	3	3
Ice Harbor Tailwater (IDSW)	3	0	3

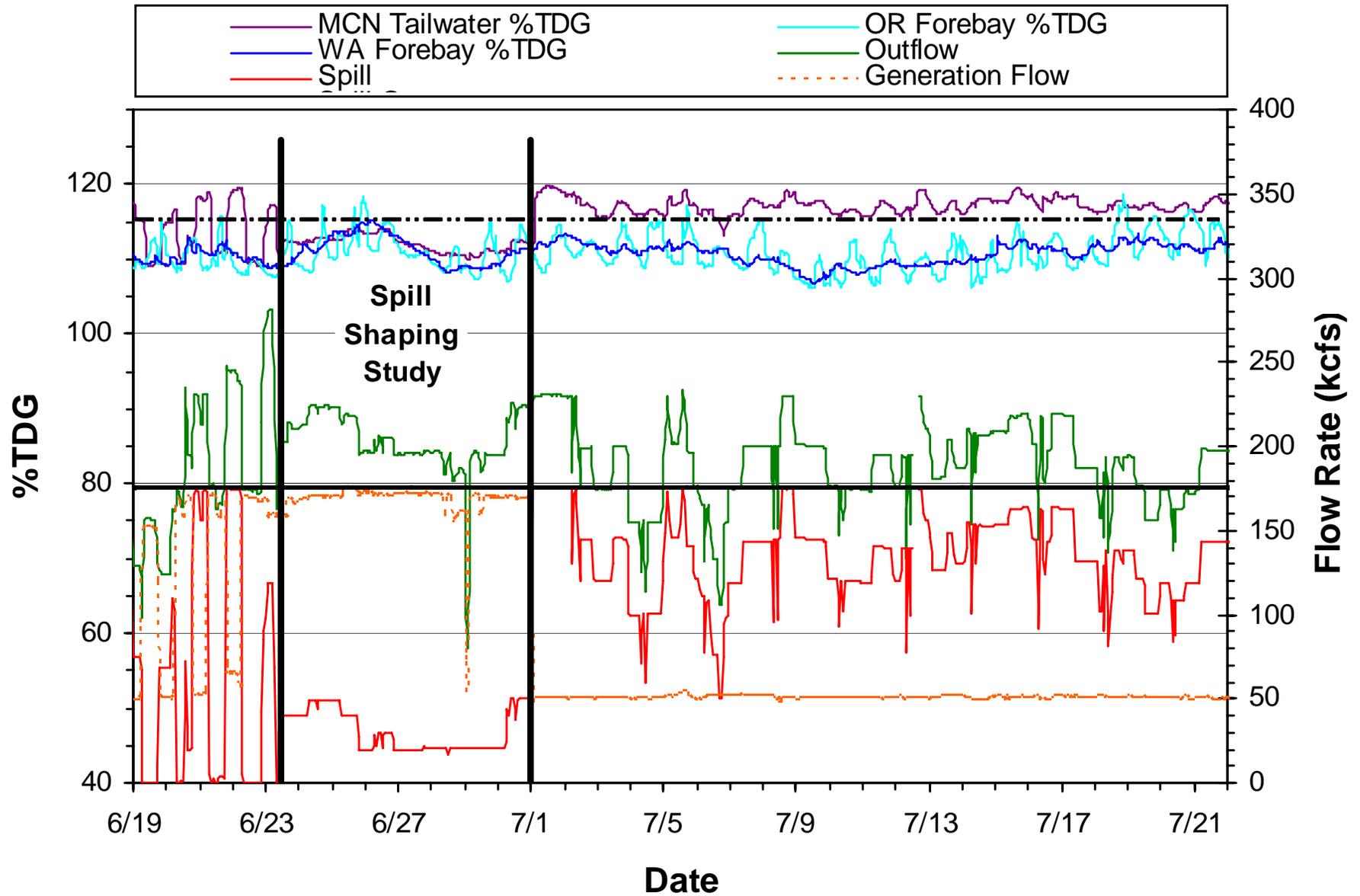


McNary

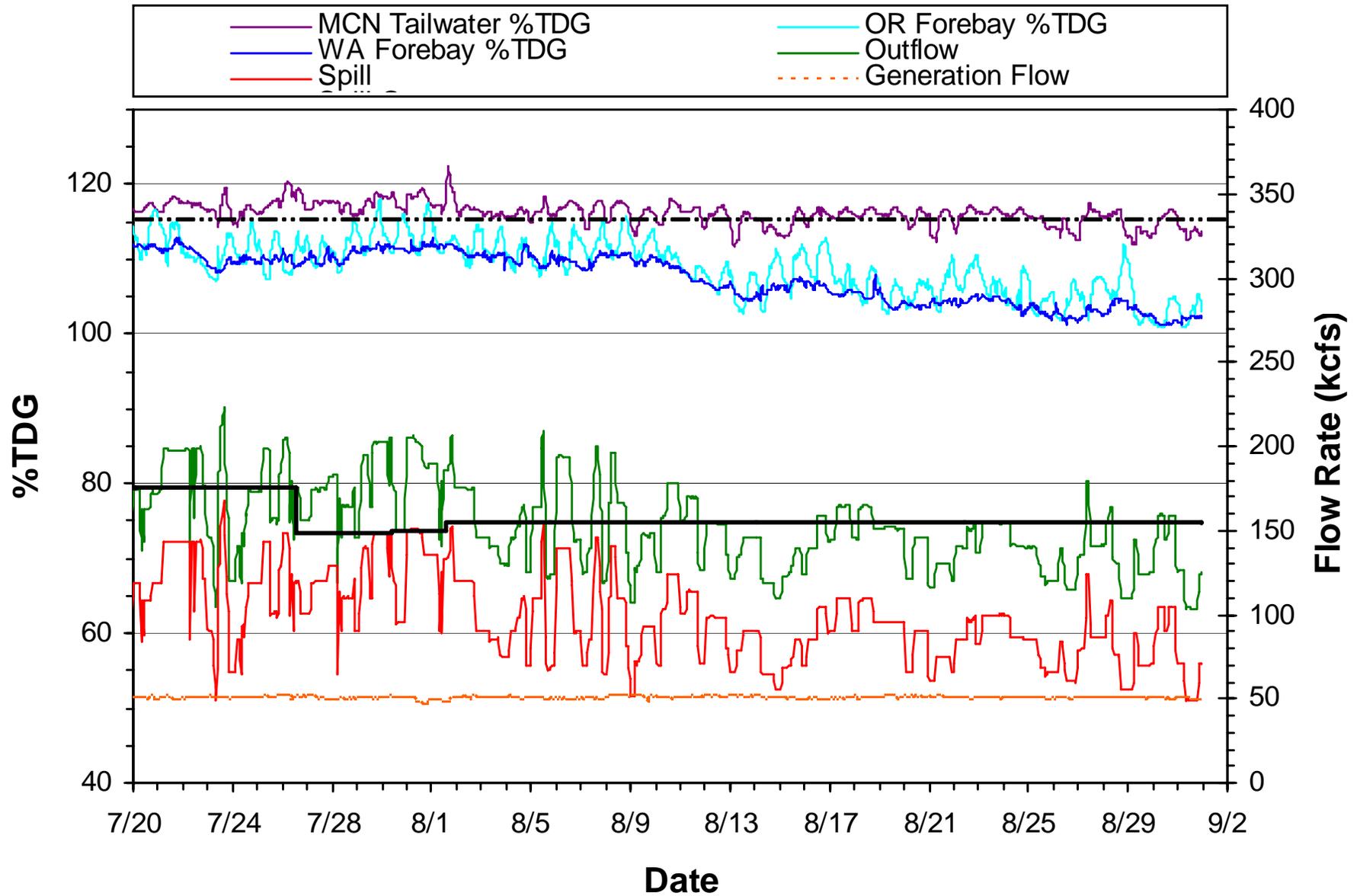
Spill Activities in 2005

- Spring Spill (2004 BiOp Criteria)
 - Daytime (0500-1800 hrs), No Spill
 - Nighttime (1800-0500 hrs), Spill to Gas Cap.
- Court Ordered Summer Spill (1 July - 31 August)
 - Operate One Turbine @ 50 kcfs at all times.
 - Spill Remaining Flow Up To Gas Cap 24-hrs per day.
 - Initial Gas Cap set at 175 kcfs.

McNary Summer Operations



McNary Summer Operations

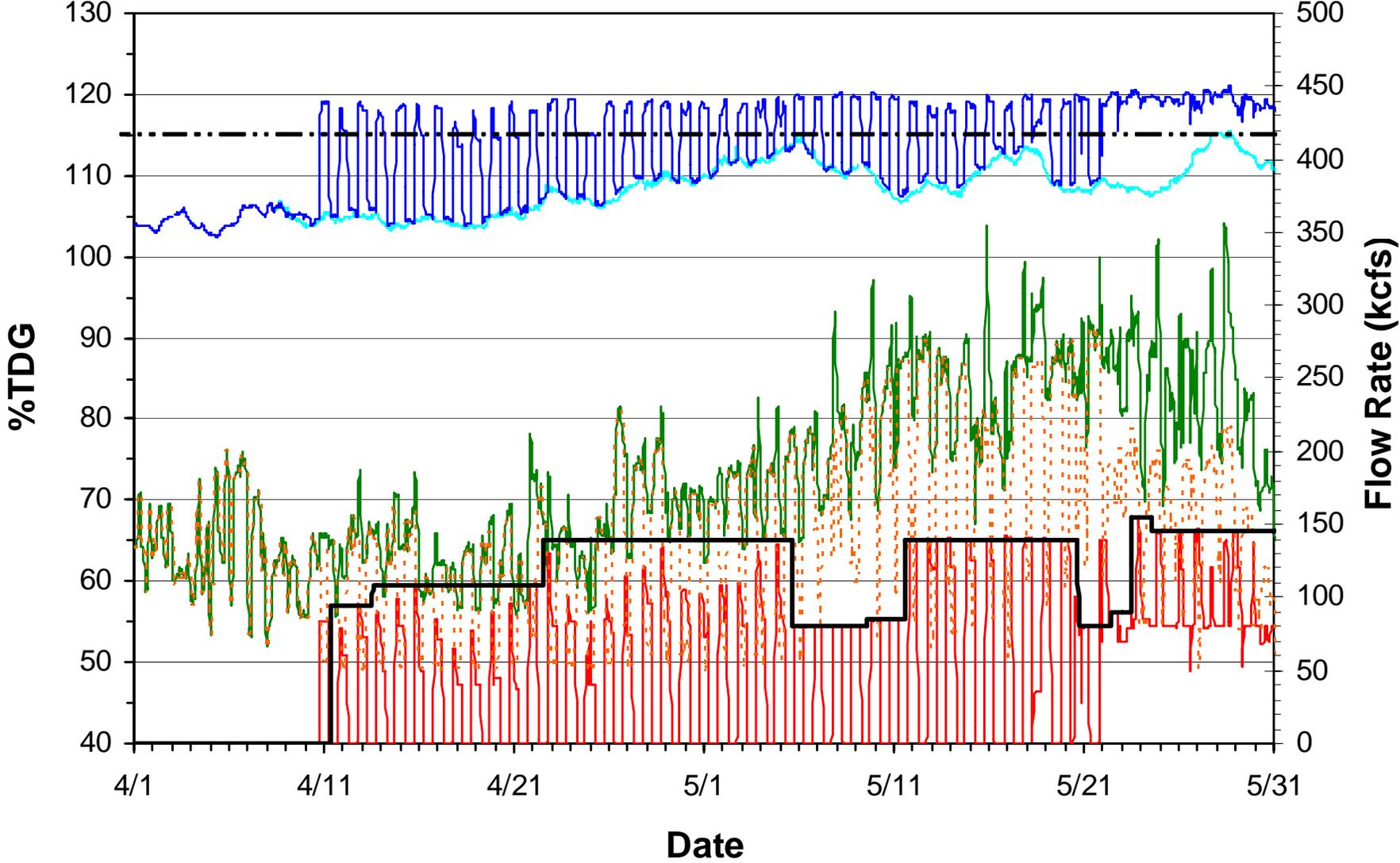




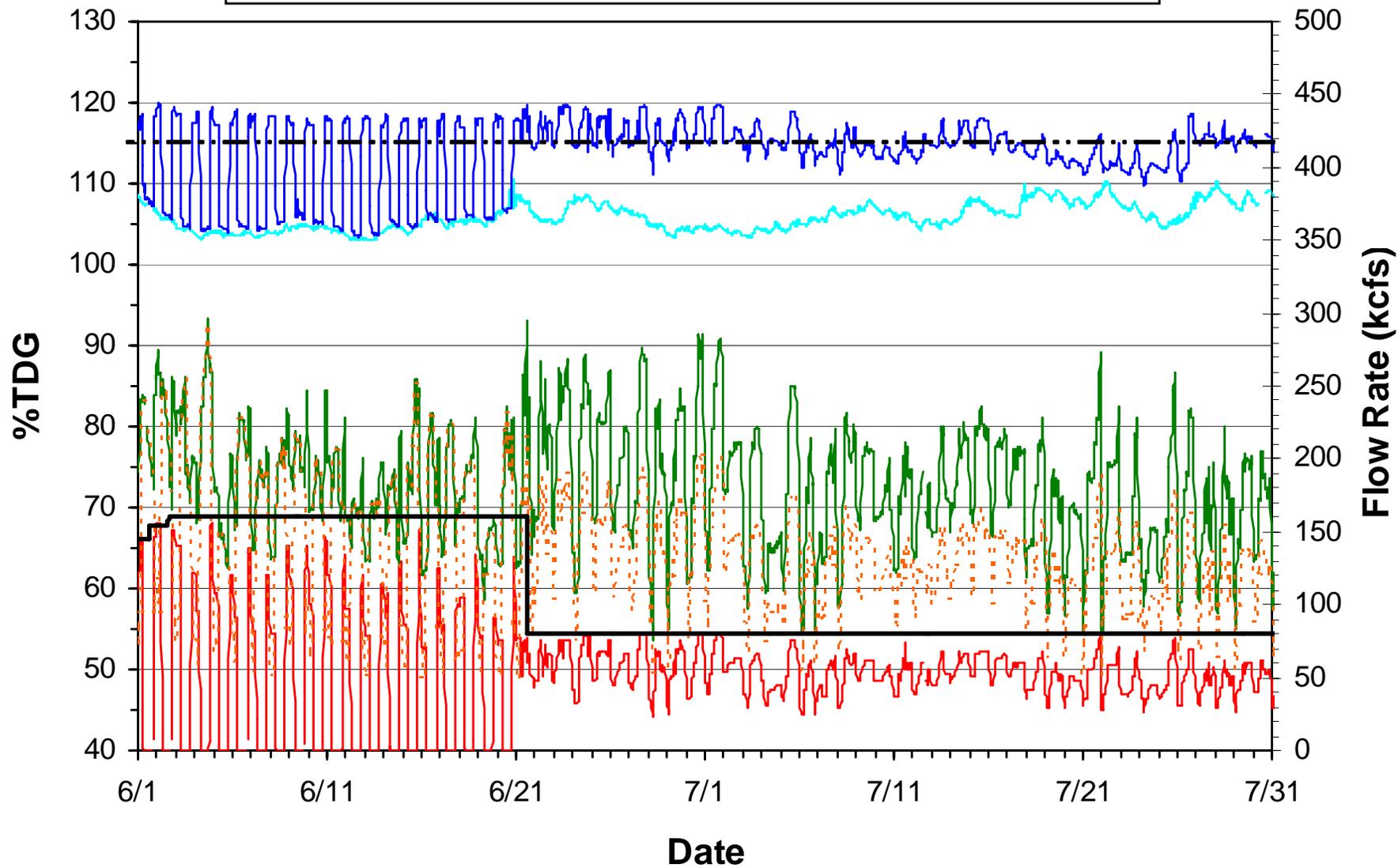
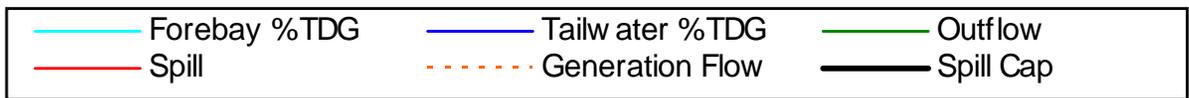
McNary Spill Stats 2005

Parameter	Spring (1 Apr – 19 Jun)	Summer (20 Jun – 31 Aug)	Entire Season
Ave. Spill (kcfs)	65.0	110.0	83.2
Ave. Outflow (kcfs)	189.5	165.0	179.5
Ave. Gen Flow (kcfs)	119.8	66.0	91.6
Volume Spill (KAF)	10,769.3	13,485.9	25,201.8
# Hrs Spilled to Cap (hrs)	240	91	331
% Hrs Spilled to Cap (%)	11.0	6.1	9.0
Ave. TW %TDG When Spill to Cap (%)	118.3	118.4	118.3
# Hrs Spilled Above Cap (hrs)	65	0	65
No. High 12-hr %TDG Exceedances			
McNary Forebay (MCNA)	8	0	8
McNary Forebay (MCQO)	6	5	11
McNary Tailwater (MCPW)	1	0	1

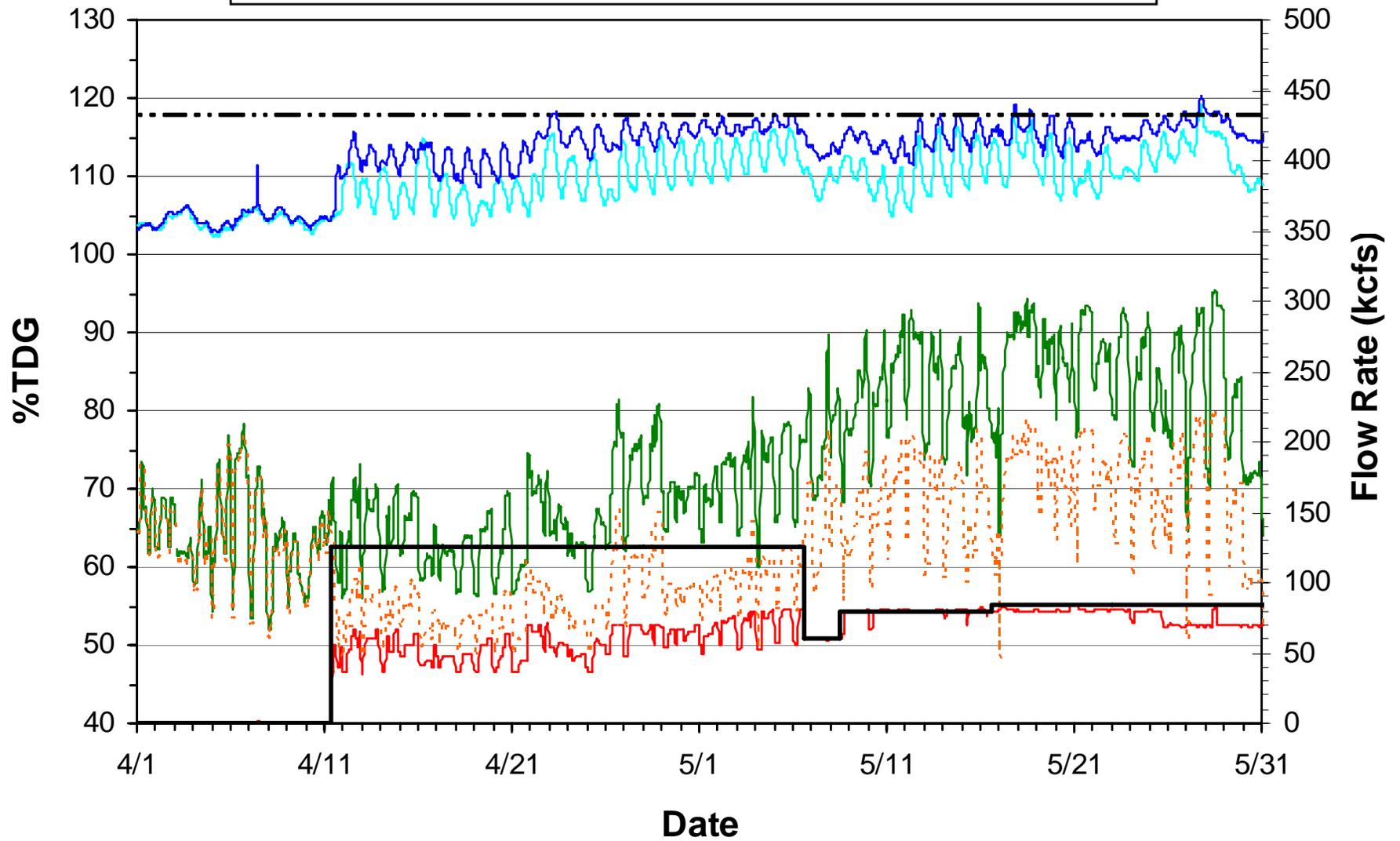
John Day Spill Season Operations



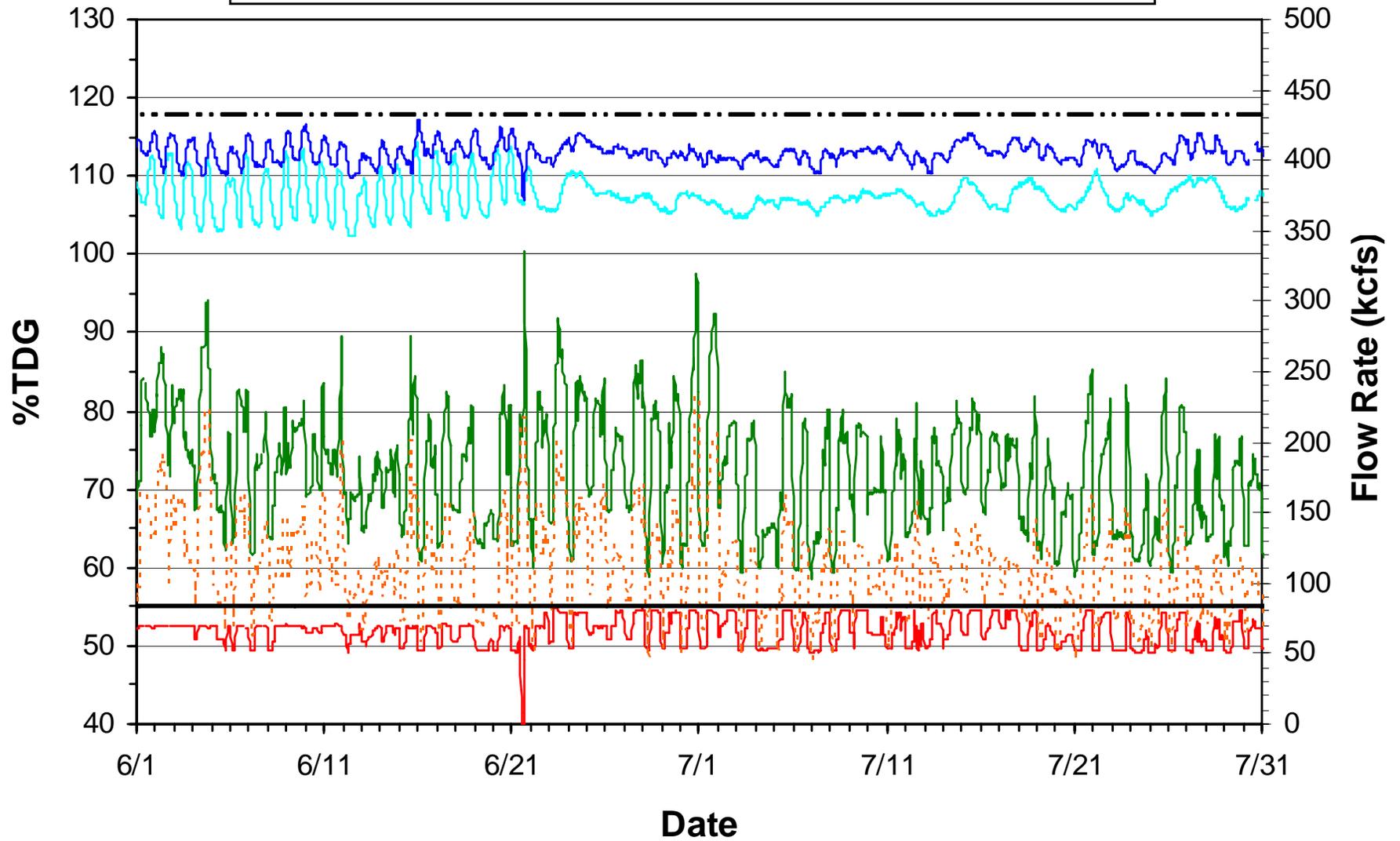
John Day Spill Season Operations



The Dalles Spill Season Operations



The Dalles Spill Season Operations





Dworshak Summer Operations



Lower Granite Dam Tailwater



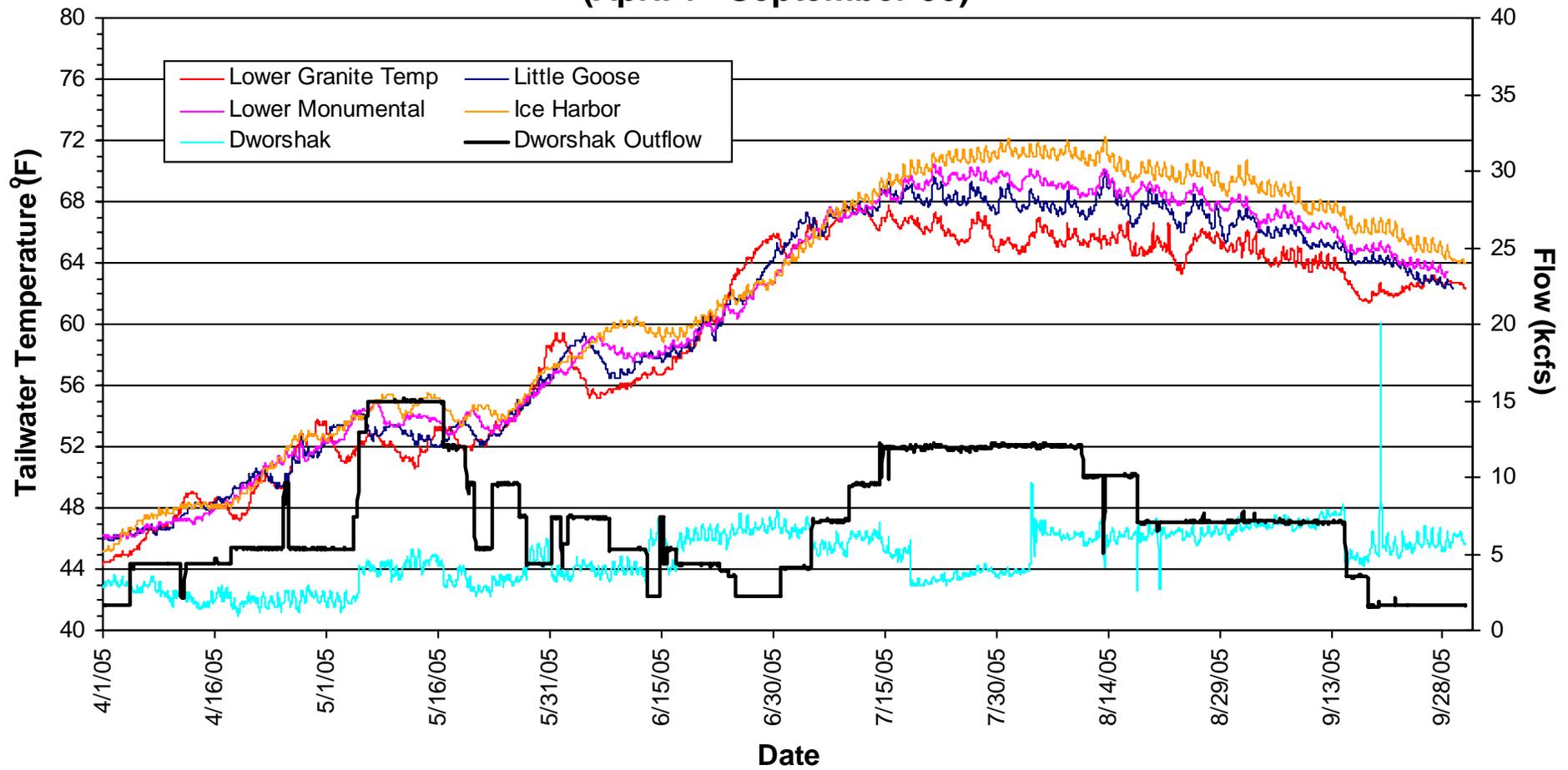
Dworshak Dam



Dworshak Summer Operations



**Dworshak Outflows and Lower Snake River Tailwater Temperatures in 2005
(April 1 - September 30)**

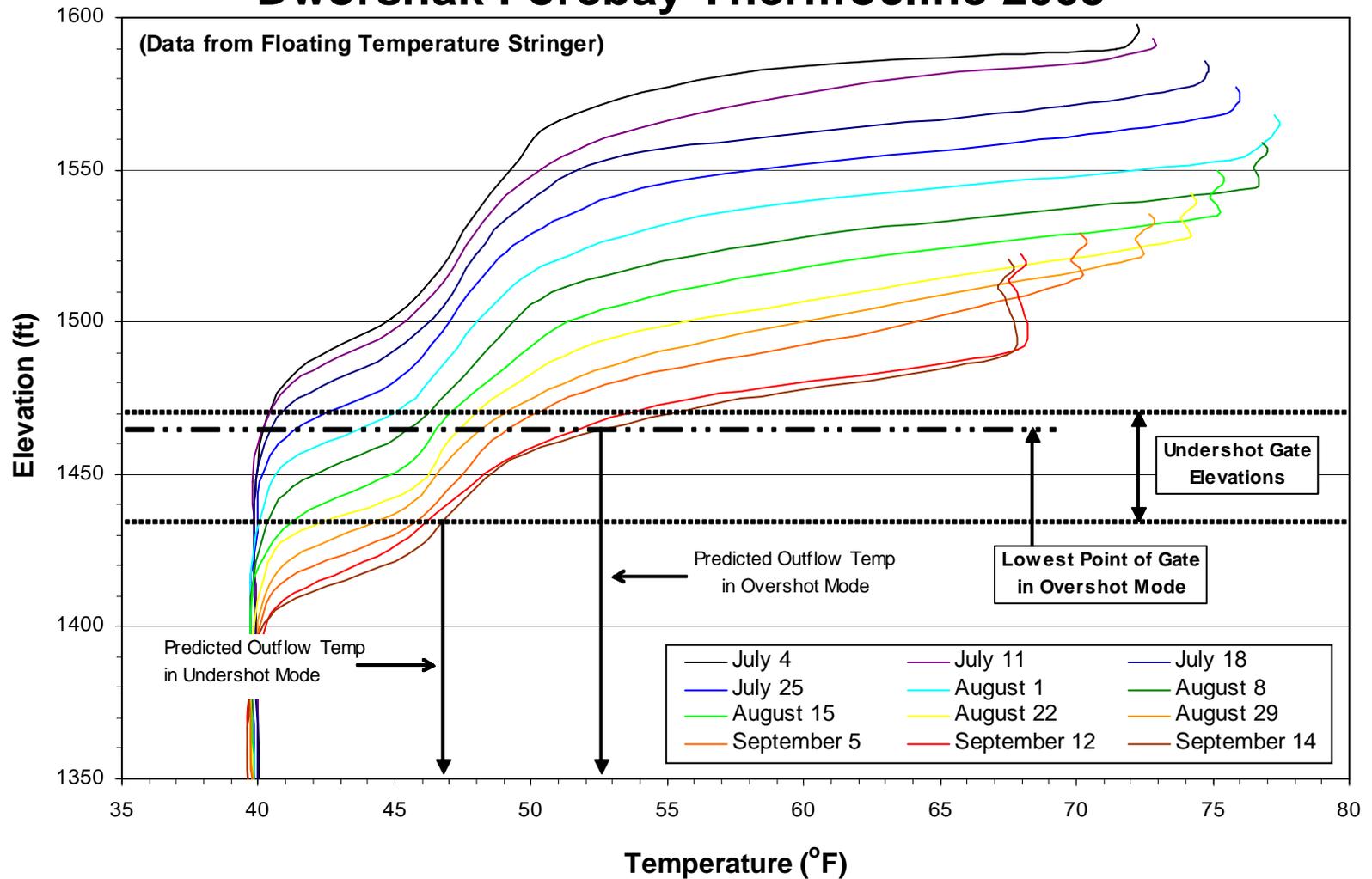




Dworshak Summer Operations



Dworshak Forebay Thermocline 2005

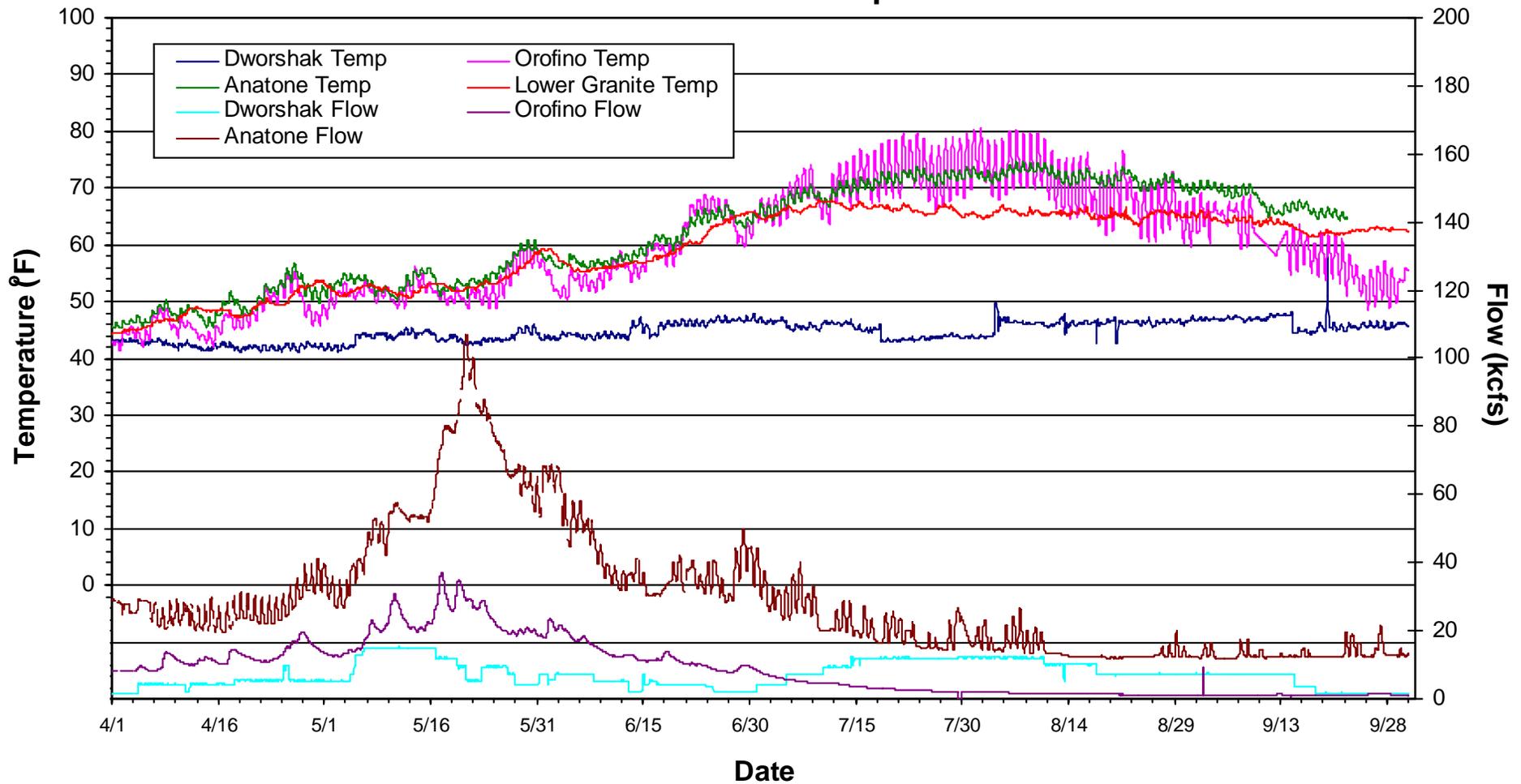




Dworshak Summer Operations



Lower Granite Inflows and Temperatures in 2005

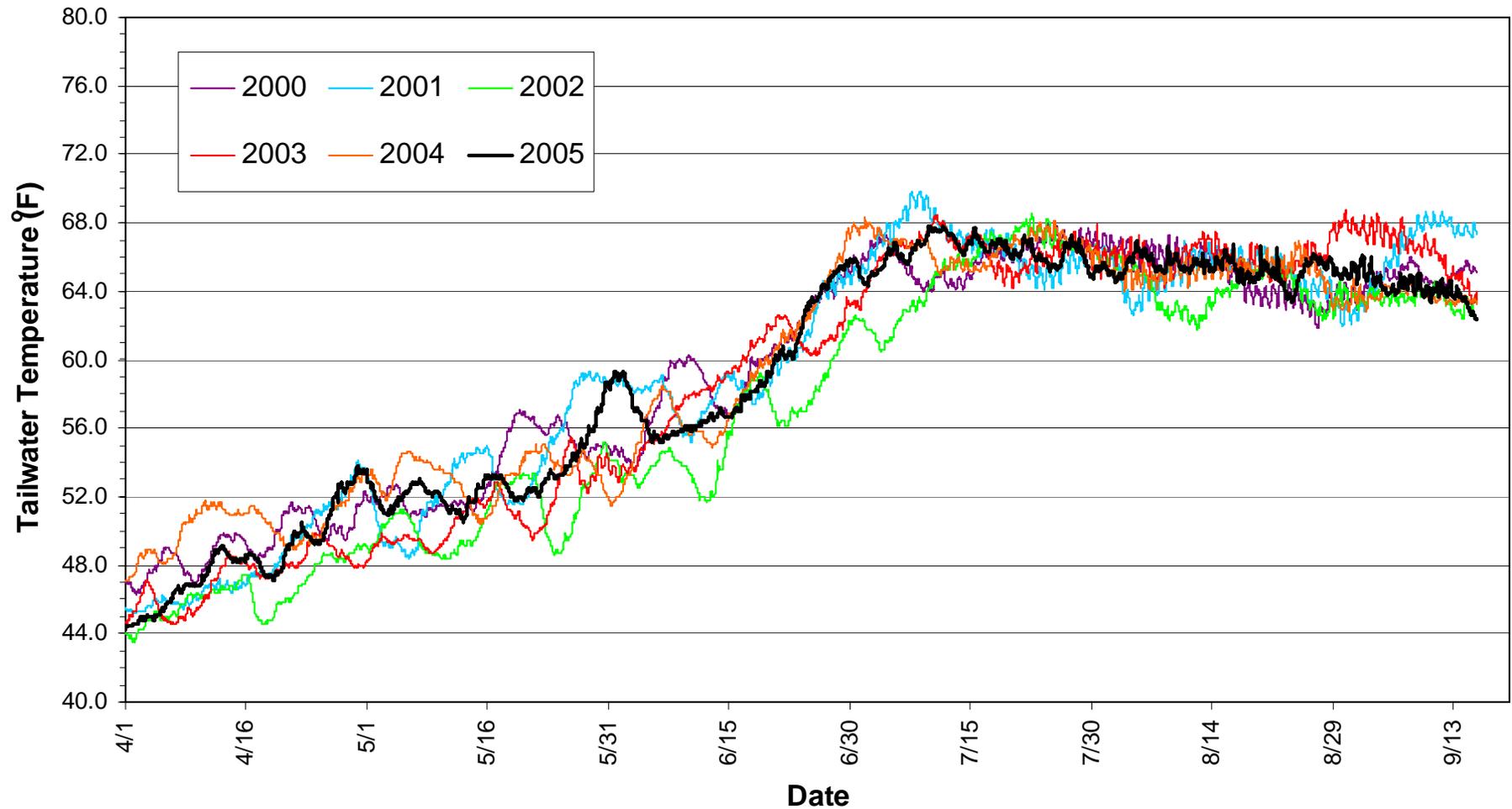




Dworshak Summer Operations



Lower Granite Tailwater Temperatures 2000-2005





Dworshak Summer Operations



Year	Hours of Exceedance	Cumulative Magnitude of Exceedance
2005	0	0
2004	7	1
2003	63	8
2002	17	2
2001	172	68
2000	0	0
1999	23	4
1998	981	956
1997	137	31
1996	526	341
1995	593	201

11-Year Statistics

Hours of Exceedance	
Range:	Average:
High: 981 hrs (1998)	11-Yr Ave: 229 hrs
Low: 0 hrs (2000, 2005)	1995-1999: 452 hrs
	2000-2005: 43

Cumulative Magnitude of Exceedance	
Range:	Average:
High: 1,721 deg-hrs (1998)	11-Yr Ave: 264 deg-hrs
Low: 0 deg-hrs (2000, 2005)	1995-1999: 552 deg-hrs
	2000-2005: 24 deg-hrs

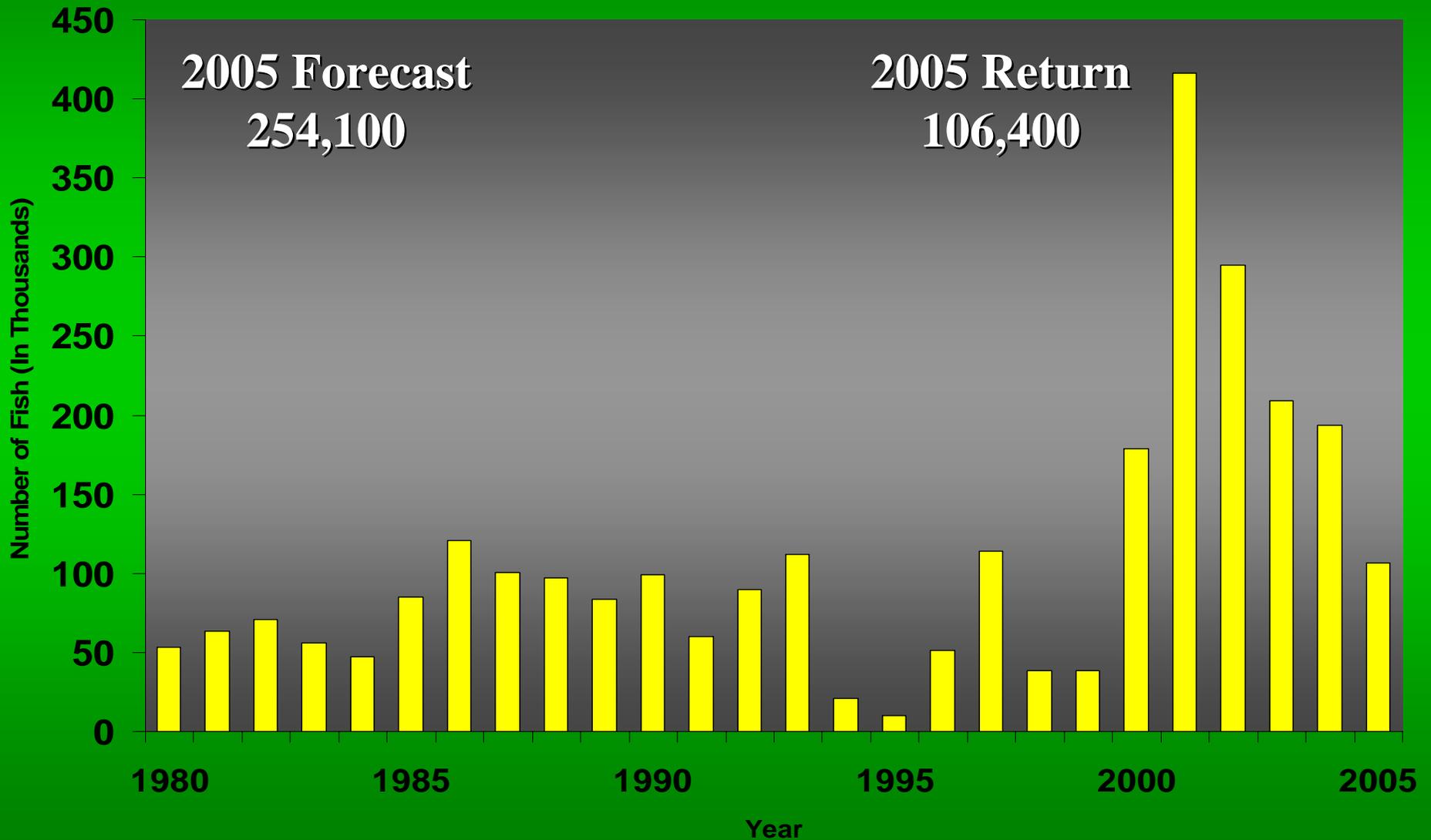
Cumulative Magnitude of Exceedance

\sum (# hours temp exceeds 68 °F standard) x (Number of degrees above 68 °F standard)

Preliminary Review of 2005 Columbia River Fish Runs and Fisheries

*Presented by Cindy LeFleur
Washington Department of Fish and Wildlife
November 2005*

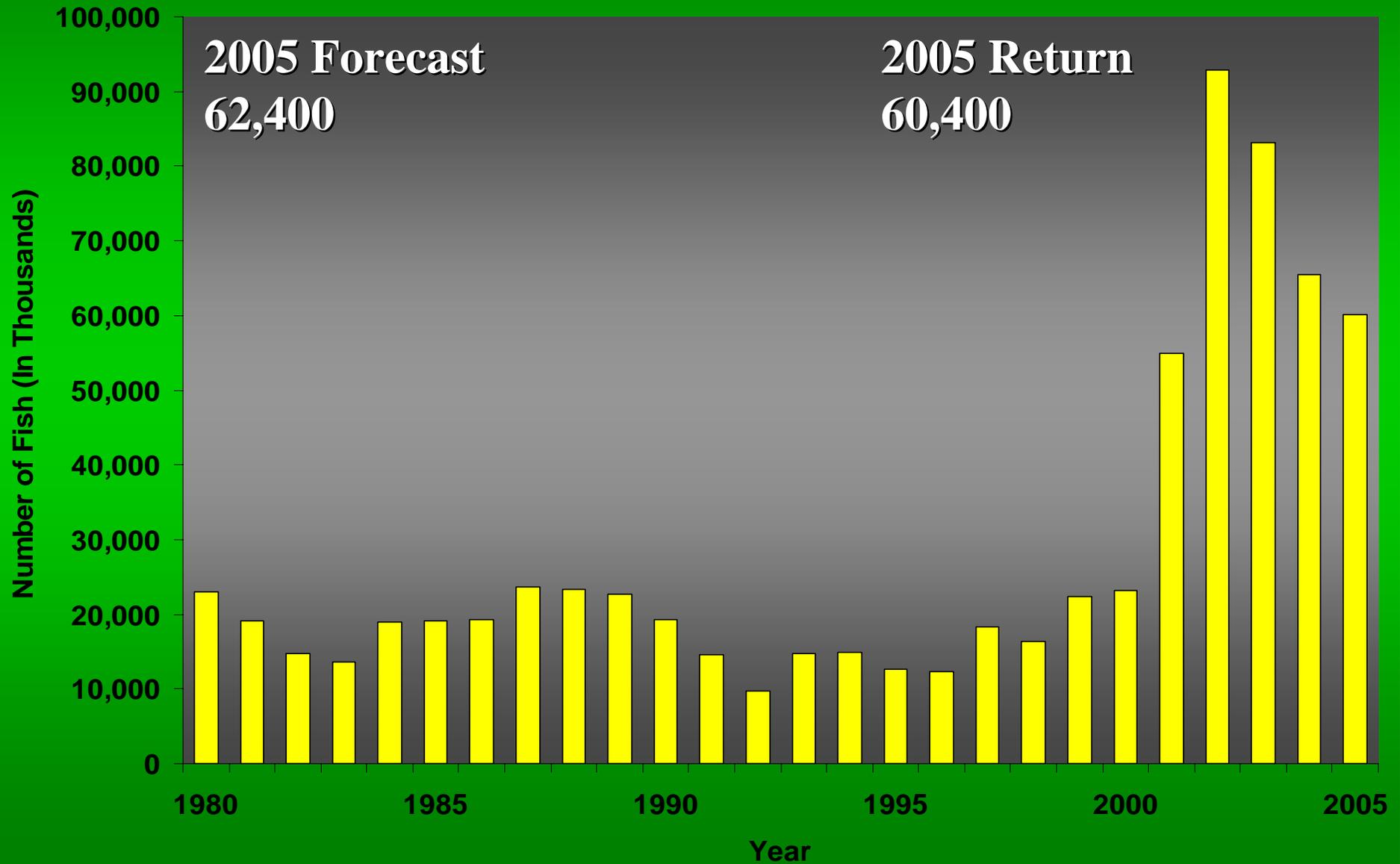
Upriver Spring Chinook Returns 1980-2005



Spring Chinook Fisheries 2005

- 108,000 angler trips
 - 10,600 spring Chinook kept
- Commercial harvest of 5,400 Chinook
 - ex-vessel price \$4.15 per pound
- SAFE commercial harvest of 2,300 Chinook
- Treaty harvest of 1 fish

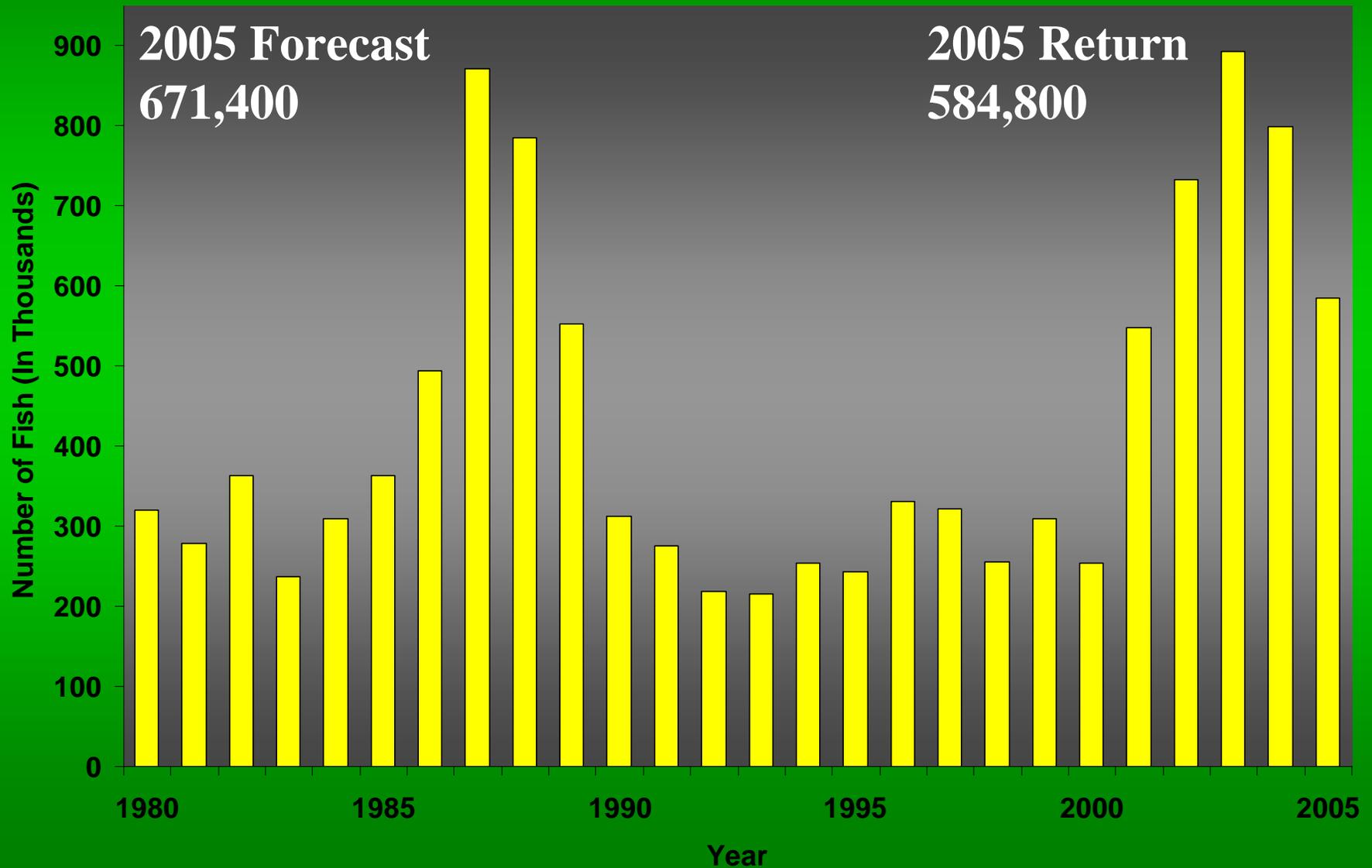
Upper Columbia Summer Chinook Returns 1980-2005



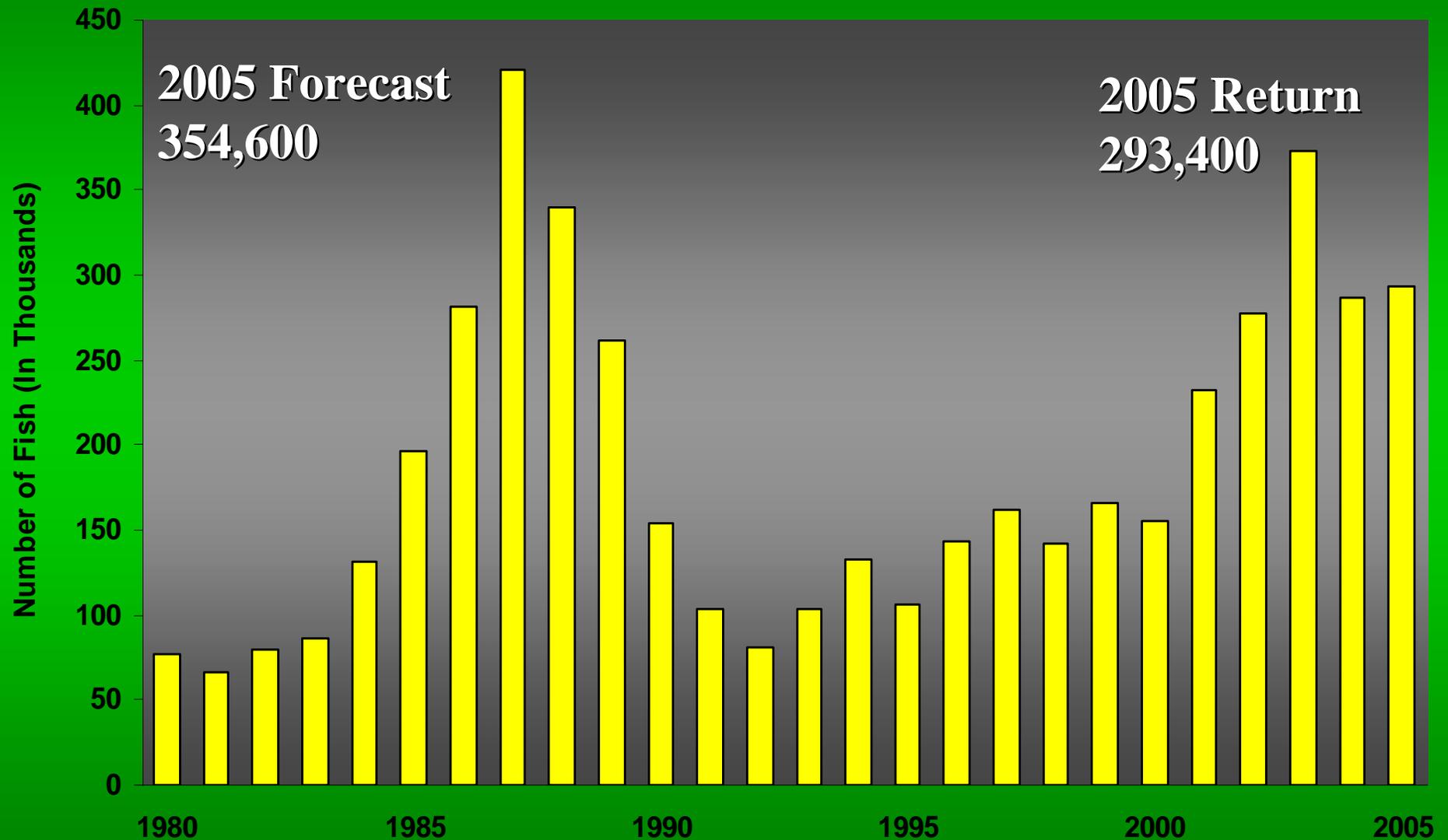
Summer Chinook Fisheries 2005

- 45,000 angler trips below Bonneville
 - 2,300 summer Chinook kept
- Commercial harvest of 2,800 Chinook
 - Ex vessel price per pound \$2.00
- SAFE commercial harvest- 1,000 Chinook
- Treaty harvest of 3,900 Chinook

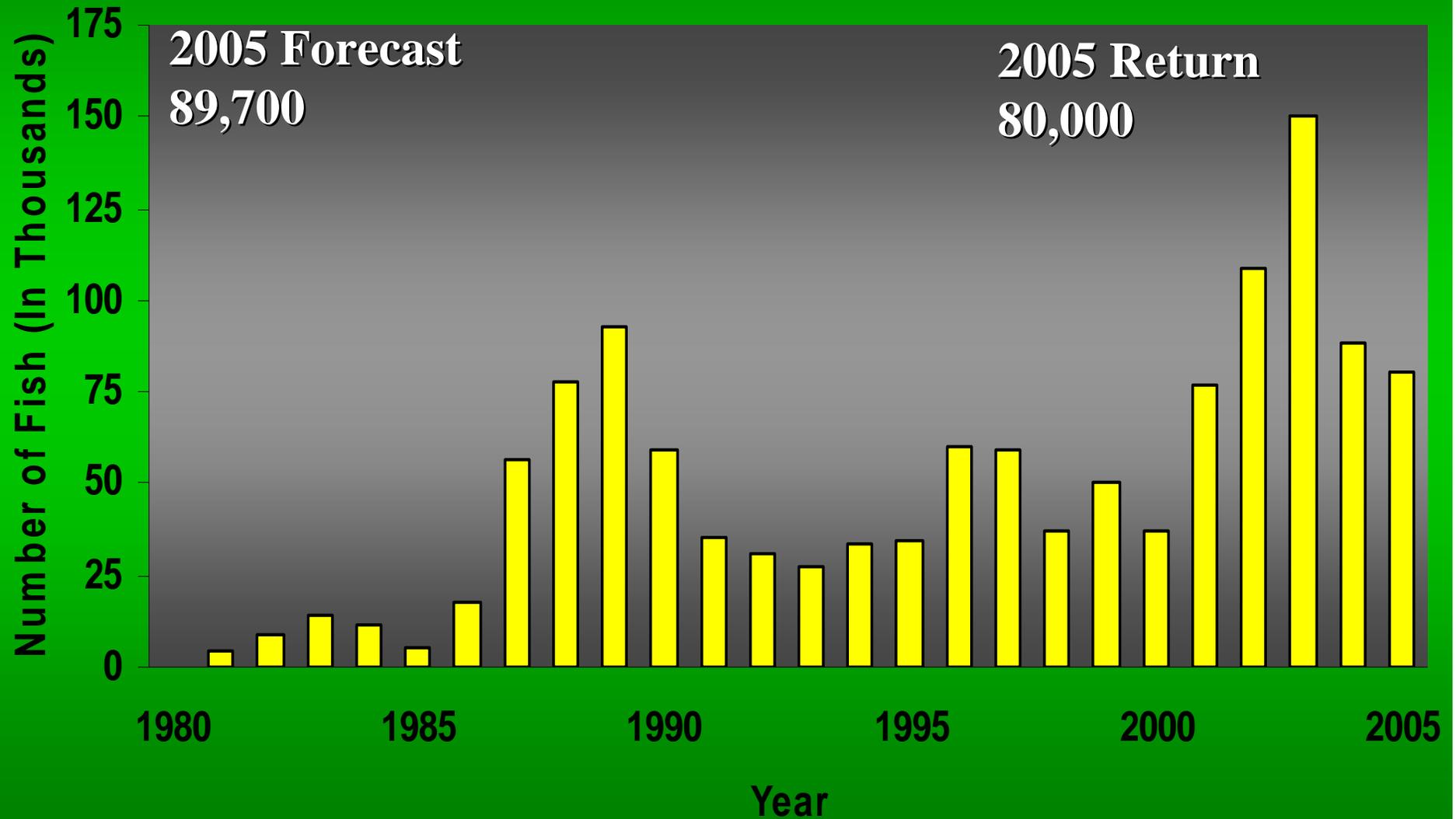
Columbia River Fall Chinook Returns 1980-2005



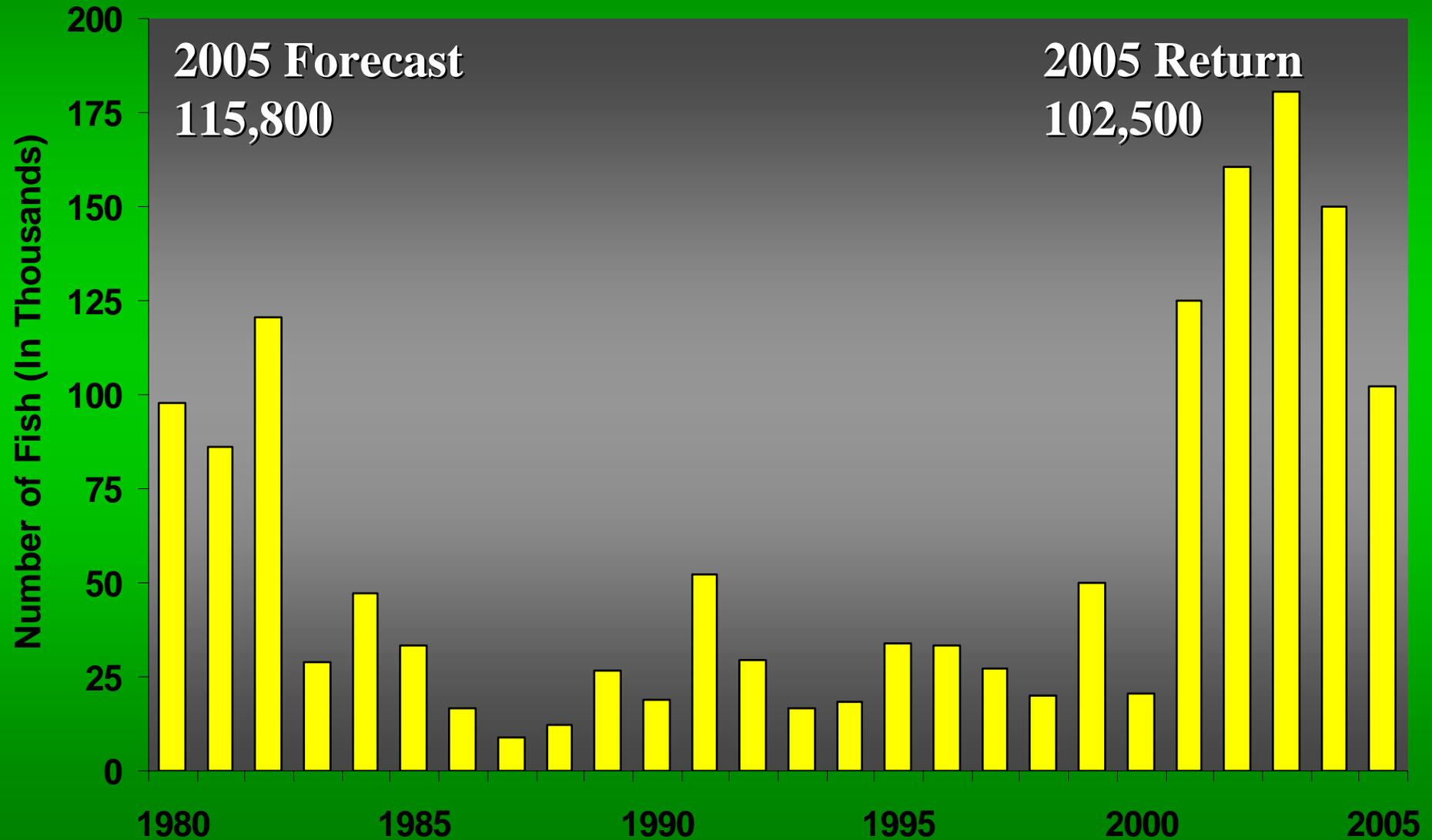
Upriver Bright Fall Chinook Returns 1980-2005



Mid-Columbia Bright Fall Chinook Returns 1980-2005



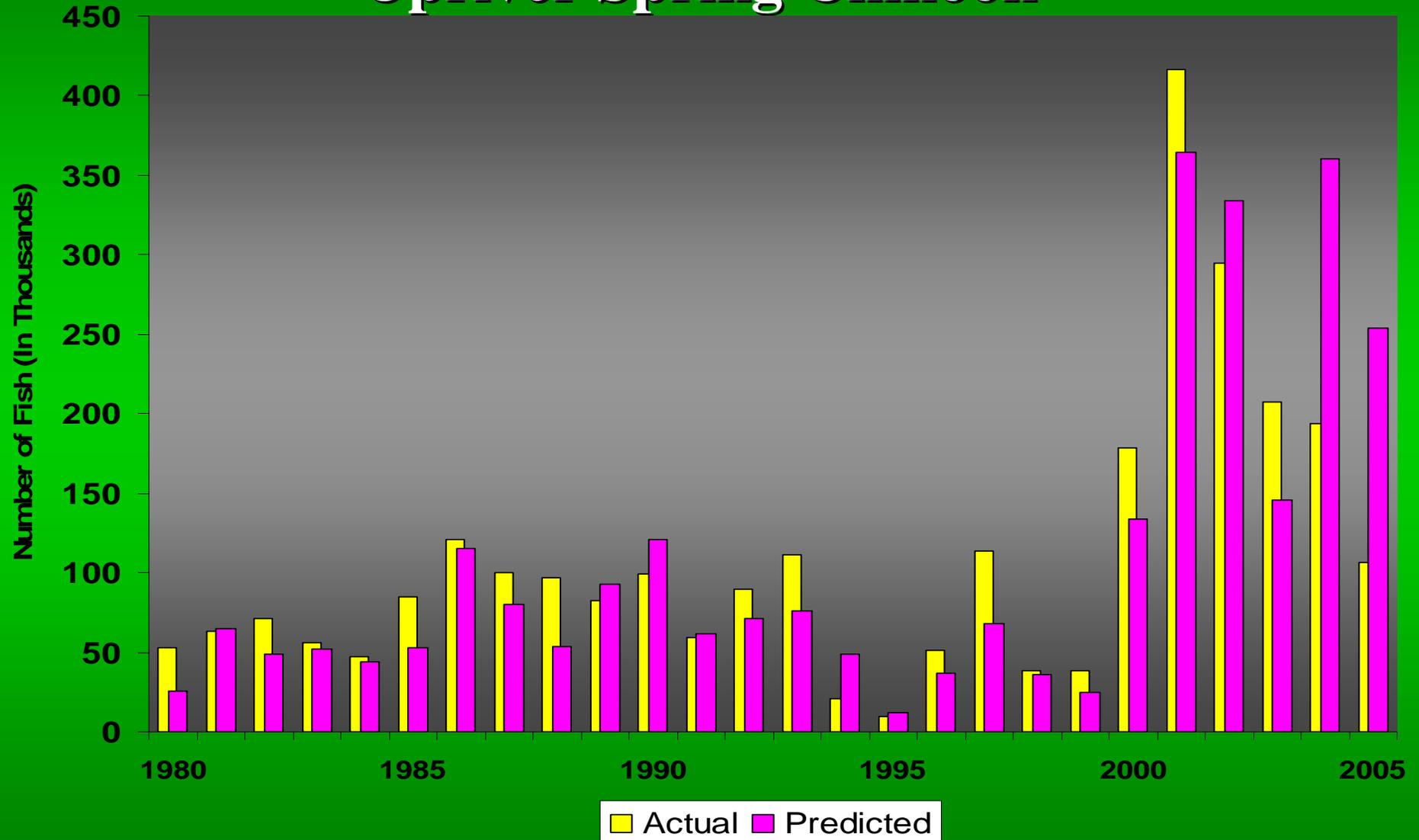
Bonneville Pool Hatchery Fall Chinook Returns 1980-2005



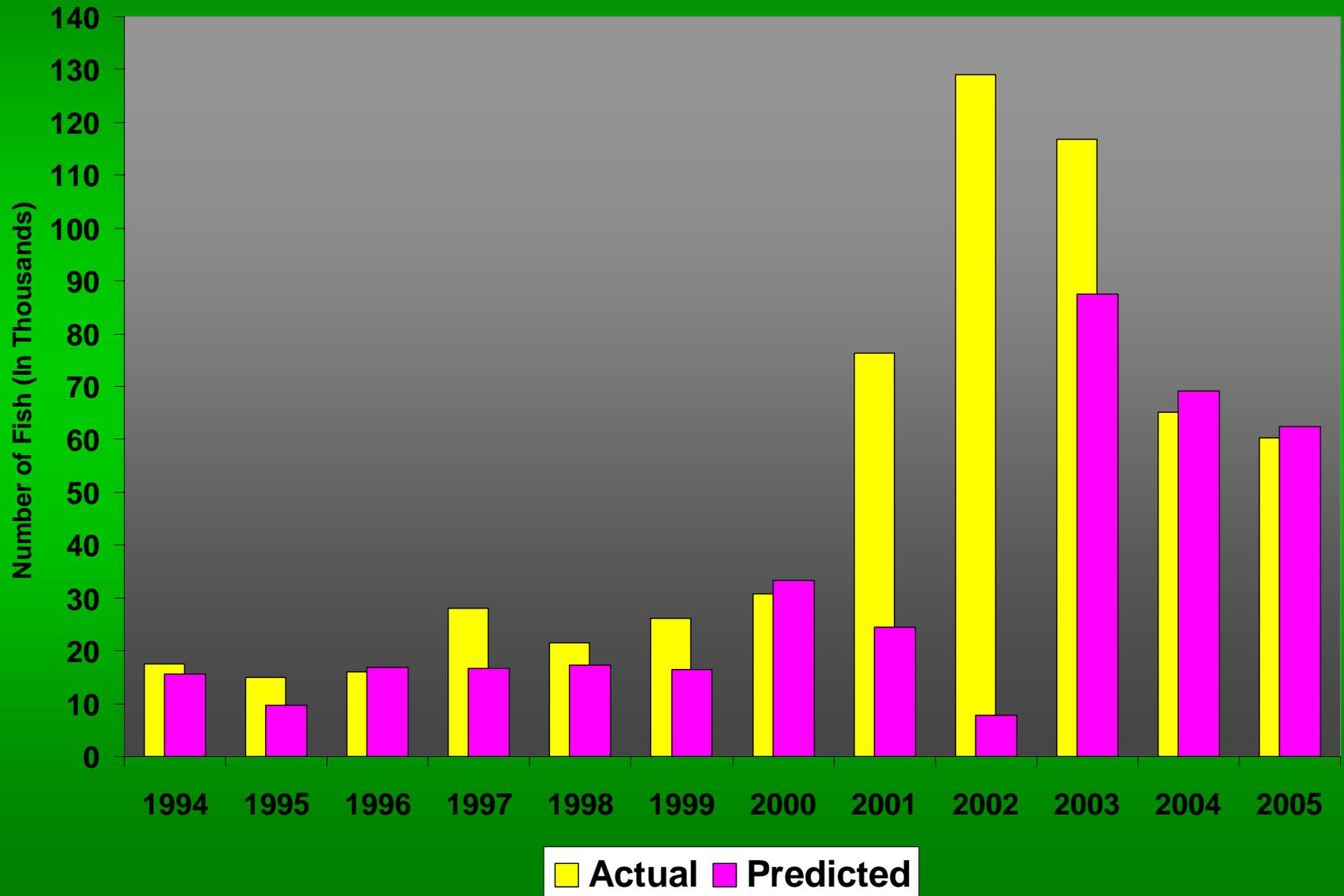
Fall Chinook Fisheries 2005

- 75,000 Angler trips
 - Chinook kept 27,800
- Commercial harvest of 27,200 Chinook
 - Ex- vessel price per pound \$2.00
- SAFE commercial harvest ~ 7,000 Chinook
- Treaty harvest of 115,100 Chinook

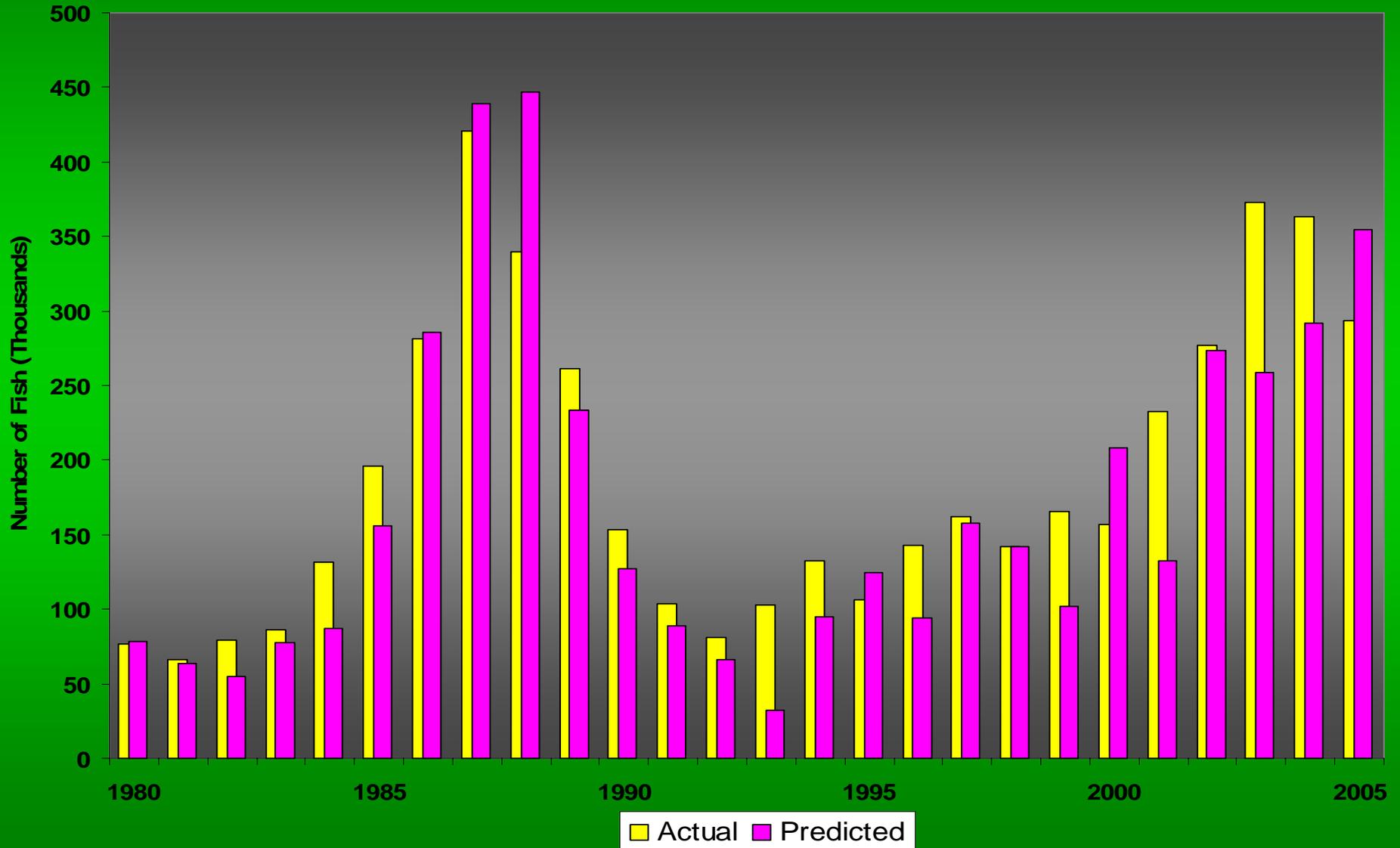
Forecast Accuracy Upriver Spring Chinook



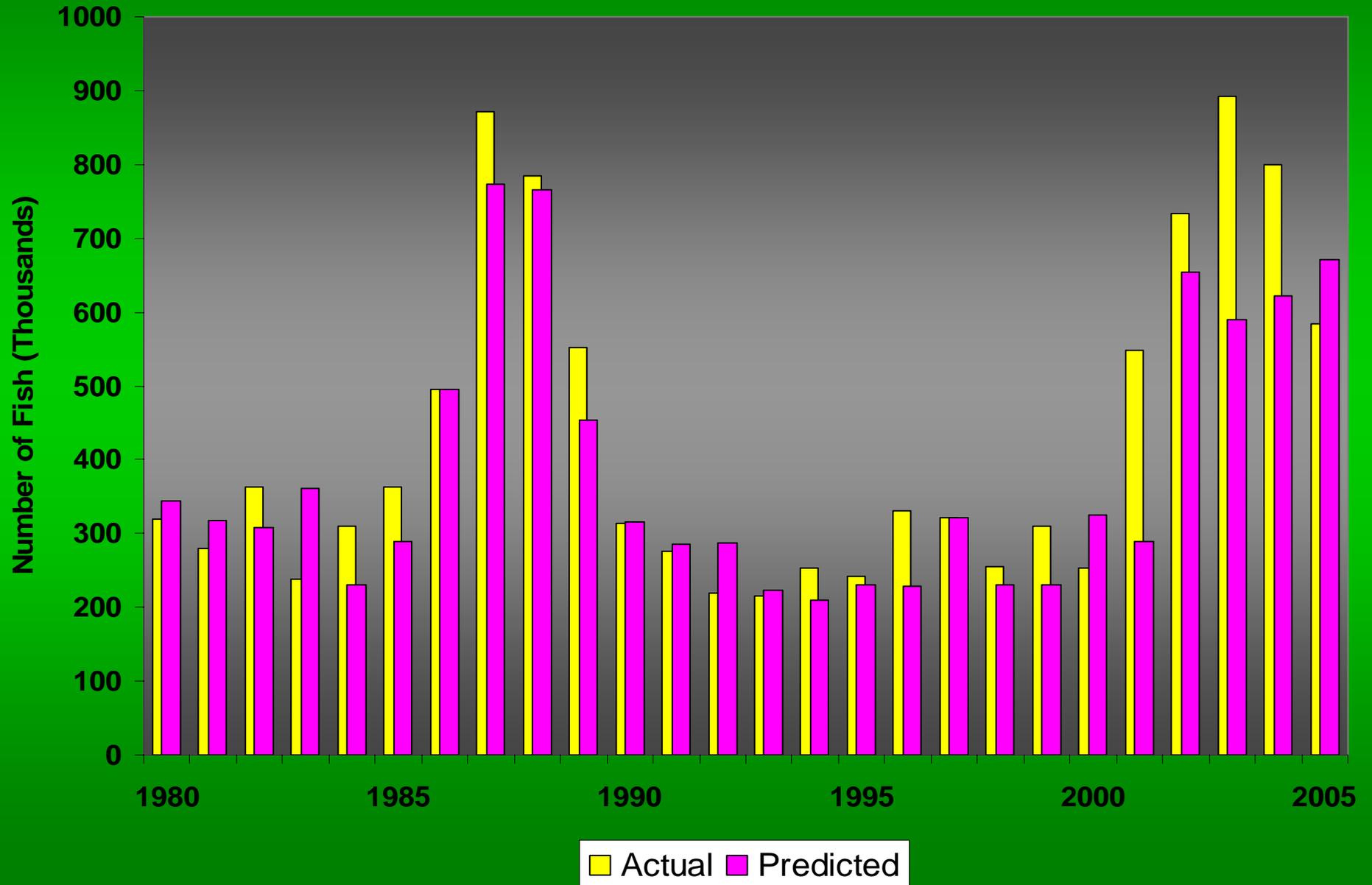
Forecast Accuracy Upriver Summer Chinook



Forecast Accuracy Upriver Bright Fall Chinook



Forecast Accuracy Fall Chinook



COLUMBIA RIVER REGIONAL FORUM

TECHNICAL MANAGEMENT TEAM

November 2, 2005

FACILITATOR'S SUMMARY NOTES ON FUTURE ACTIONS

Facilitator: Donna Silverberg

Notes: 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. Most presentations were accompanied by Power Point or other electronic information. Please go to the agenda on the TMT web page to see more detailed information.

2005 TMT YEAR END REVIEW

2005 Comparison to Previous Years

- *Water and Runoff Patterns:* Cathy Hlebechuk, COE, presented information on 2005 operations for each of the projects. 2005 was generally a dry year with below average runoff. Drum gate maintenance at Grand Coulee required a draft in February. Tony Norris, BOR, noted that maintenance will happen opportunistically every year, but several low water years pushed the work back until it became a necessity this year. The COE tries to shift Dworshak and Brownlee water if possible to support this maintenance operation. Priest Rapids received a lot of spring rain this year which helped meet targeted elevations later.
 - **LESSON LEARNED:**
 - Spring rains allowed for better than expected flows this year.
 - Look for opportunities for continued exploration on operations at Libby and Grand Coulee (drum gate maintenance).
- *TDG/Temperature:* Jim Adams, COE, reported on 2005 temperatures and total dissolved gas (TDG) exceedances. The forebay stations at Lower Granite, Little Goose, Lower Monumental, Ice Harbor and McNary were moved this year. There were 69 total exceedances; TDG stayed consistent with the standard 97.7% of the time. A suggestion was made for Jim to change his graph re: 3,020 potential spill days to actual spill days.
 - **LESSON LEARNED:** Beginning court-ordered spill posed some difficulties, but the action agencies managed to keep the system cool and minimize TDG exceedances.
- *Adult Fish Runs/Fisheries Update:* Cindy LeFleur, WDFW, reported on upriver spring chinook, upper Columbia summer chinook, Columbia River fall chinook and upriver bright fall chinook returns and fisheries. Her presentation can be found on the TMT web page. The preliminary results show that adult return numbers were generally strong this year.
 - **LESSON LEARNED:** In the past few years there have been some errors in predicting adult fish runs. The technical advisory committee (TAC) is looking into how forecasts are done; a report will be available soon, and Cindy will share it with TMT at a future meeting.

- *Fish Passage*: Jerry McCann, Fish Passage Center, reported on 2005 smolt migration: run size, timing, travel time, and survival.
 - Yearling chinook: The run at large showed similar numbers (8.4 million total) as compared to historical numbers. Jerry's timing graph showed a condensed migration of the fish – even more so this year than previous years.
 - Steelhead: Population estimates were similar to previous years, with numbers slightly up at Lower Granite. Jerry noted that the fish counted at Lower Granite were raw detections and that many fish were collected and passed over the spillway, and not counted.
 - Subyearling chinook: Subyearling preliminary data showed a later run and higher survival this year.
 - **LESSONS LEARNED**: A suggestion was made to look at the peak migration to understand how flow, temperature, run timing and other factors play into survival of the fish. Studies at this point show similar survival rates for in-river and transported fish, but the data is limited at this point. Jerry will attend a future TMT meeting when a more in-depth analysis of the 2005 smolt migration data has been completed. He will include comparisons to 1990's numbers.
- *Weather*: Kyle Dittmer, CRITFC, reported that a warm December 2004 impacted 2005 runoff. The season was warm and dry until March, at which time precipitation increased. Temperatures remained above normal, but not as extreme as the previous year. Kyle's 2006 forecast shows near normal ENSO conditions. NOAA's forecast shows near normal temperatures and above average precipitation in November, and above normal temperatures and near normal precipitation for 2006. Kyle predicted that the greatest chance for snow in the Portland area would be in January. He predicted a wet cold winter in 2006/2007.
 - **LESSONS LEARNED**: 2005 experienced some extreme weather, with an added benefit of rain in the spring. Kyle invited anyone interested to attend the 13th Annual "What will the Winter Be Like?" event, on Friday, November 4 at OMSI, at which regional forecasters made predictions about the upcoming winter.
- *Spring Chinook*: Paul Wagner, NOAA, and John Williams, NMFS Science Center, provided information on survival estimates for Snake and Columbia River juvenile salmonids. Survival of spring chinook was up from 40% in 2004 to 52% in 2005. Hatchery releases were similar to previous years. Lower Snake steelhead survival was similar to previous years, with increases seen from Lower Monumental to McNary and McNary to John Day. There is a need for additional tagging of steelhead, as they are an important fish to understand. Lower Columbia steelhead survival was similar to 2003, and higher than 2004.
 - **LESSON LEARNED**: Overall, in-river survival looked very good. Lower than expected returns of spring chinook to the Lower Columbia were not easily explained this year. There may have been increased predation combined with a change in ocean conditions.

Snake River Review:

- *Fall Chinook Summer Spill Passage*: Paul Ocker, COE, provided preliminary information on passage based on radio telemetry at Lower Granite, Little Goose, Lower Monumental, Ice Harbor and McNary. Overall, he noted that the preliminary results showed high subyearling survival, high fish passage efficiency and that spill effectiveness was increased with the RSW. A comment was made that the goal of installing RSW's should be to increase

survival, not to show similar survival at less cost. Paul agreed that effectiveness could be measured in a number of ways and that the COE will be presenting a more in-depth report at AFEP in Walla Walla later this month. Anyone that is interested should contact Paul at 503-808-3726.

- **LESSON LEARNED:** Preliminary data indicated that passage through dams in the Snake River is good, passage through turbines is effective and overall passage is up.
- **EPA Water Temperature Modeling:** Kyle Dittmer, CRITFC, reported that exceedances in temperature standards did not occur this year. EPA's tool was helpful in predicting temperatures and helping the salmon managers make recommendations on how to shape the water for cooling at Lower Granite.
 - **LESSON LEARNED:** Averaging multiple-year temperature data together was an effective tool for planning water releases to keep temperatures cool in the system.
- **Fall Chinook Survival Studies:** Billy Connor, USFWS, acknowledged all the researchers that collected data for the study, looking at the effect of hydrosystem operations on Snake River Fall chinook. Lyons Ferry hatchery fish were used as surrogates, and three groups were studied: wild, surrogates and production fish.
 - **LESSON LEARNED:** The smaller fish (wild) tend to move slower, have lower survival and are more inclined to have holdover/resident attributes.
 - **LESSON LEARNED:** Surrogates were not perfect but showed general similarities to wild fish. Releasing surrogates over a three-week period might reduce differences in attributes. SAR information is needed to better understand why life history differences occur between wild and surrogate fish.
 - **LESSON LEARNED:** Production fish, compared to wild fish, were exposed to little spill, moved quickly, and had a higher probability of migrating and surviving.
 - **LESSON LEARNED:** Many of the fish were too small to tag, which poses a logistical problem. How can we track more fish?
- **Snake River Review:** Ken Tiffan, USGS, looked at the effects of water velocity on fish travel rates. 100 fish were released for the study, and preliminary data indicates a strong relationship between velocity and travel time. He also looked at winter passage and asked the question: When do residence-type juveniles pass the dams? The tagged fish showed residence times up to 120+ days in the Lower Granite forebay, decreasing as they move downstream.
 - **LESSON LEARNED:** There was a big drop in detections from Lower Granite to Little Goose. Researchers want to look more closely at this.
 - **LESSON LEARNED:** IDFG releases fish in the fall, and caution was expressed that their arrival at Lower Granite could confound the current research.

2005 Study Information that Might Impact 2006 Operations

- **Ice Harbor Results:** Paul Ocker, COE, reported on preliminary results of smolt survival with the installation of the RSW at Ice Harbor. Note that there is still a need to look at adult returns to fully understand the impacts. Chinook survival with the RSW was at 95%, and 93% with dam and forebay. Steelhead survival was 91% with the RSW, and 93% with dam and forebay.

- **LESSON LEARNED:** Improvements to survival are likely if training spill is improved. Additional studies are planned for 2006.

Other Lessons Learned/Thoughts

- It would be helpful to summarize water temperature information systemwide. This will be added to a future Water Quality Team agenda.
- Throe group would like to see other tools that might help the COE's method for looking at December water supply (there are issues with the SOI index).
- The summer operation information (e.g. Ice Harbor, holdover fish) was very interesting and TMT needs to have further discussions about these issues.
- The established criteria for when to begin transporting spring migrants was off – could have put them in-river. TMT will need to revisit the decision making process, and look for opportunities to leave more fish in-river.
- It would be helpful if we could improve ocean predictions to help make system decisions, especially transport decisions. Need a more integrated approach and a broader strategy.
- Differences between needs and operations for chinook and steelhead require a balanced approach to management.
- McNary spill results are very encouraging.

TMT Business Meeting

Chum Study

Ken Tiffan, USGS, is hoping to continue a chum study this year, beginning with the arrival of chum. He presented his study plan to FPAC prior to today's meeting, to maintain a tailwater elevation during the day and spill any excess water at night. Specifically, he requested five tests at elevation 13.5' for eight hours, five at 15.5' for eight hours on Wednesday and Saturday days, and, if flows come up in December, continuing with a few additional tests at 17.5' for eight hours.

A concern was raised about the request for a longer duration for the tests this year, and that there would be more potential for the chum to establish redds at higher elevations. Ken responded that the 8-hour duration would allow stabilization of the water and better understanding of where and for how long fish are spawning. TMT members and other participants responded:

CRITFC – Suggested using John Day or something other than Grand Coulee storage to implement the study.

ODFW – Supports the study.

WDFW – Supports the study and asked about using nighttime water to support the daytime study. (Likely, yes.)

IDFG – Supports the study and believes resident folks will support it as well.

NOAA – Not anticipating redds being placed in higher elevations, so supports the study. If redds are placed, then we should not 'own' them.

USFWS – Supports the study.

BOR – Supports the study – this is important information to gather.

COE – Supports the study.

BPA – Supports the study.

ACTION: Ken will send an electronic copy of the study proposal to the COE for posting to the TMT web page.

ACTION: Ron Boyce, Oregon, reported that one chum had been observed at this point, and that surveyors would be out again on Friday (11/4) morning. Ron agreed to call the action agencies when chum are observed, at which time the study would be implemented.

TMT Meeting Schedule

The next TMT meetings were scheduled for November 7 and 23, at the usual meeting place at the COE.

Technical Management Team Year-End Review Meeting Notes

November 2, 2005

1. Greetings and Introductions.

Today's meeting was chaired by Cathy Hlebechuk and facilitated by Donna Silverberg. The following is a summary (not a verbatim transcript) of the topics discussed and decisions made at this meeting. Anyone with questions or comments about these notes should contact Hlebechuk at 503-808-3936.

2. 2005 Water and Runoff Patterns – Comparison to Previous Years.

Hlebechuk led this presentation; she began by providing a table showing actual average outflows vs. spring and summer flow objectives for McNary, Lower Granite and Priest Rapids Dams for the years 2001-2005. Hlebechuk noted that, in 2005, the actual average outflow for the April 10-June 30 period was 196 Kcfs at McNary (compared to a seasonal objective of 220 Kcfs) and 123 Kcfs at Priest Rapids (compared to a seasonal objective of 135 Kcfs). For the April 3 – June 20 period the actual average outflow was 66 Kcfs at Lower Granite (compared to a seasonal objective of 85 Kcfs). For the July 1-August 31 period, the actual average outflow was 165 Kcfs at McNary, less than the seasonal target of 200 Kcfs. At Lower Granite, for the June 21-August 31 summer

period, the actual average outflow was 33 Kcfs, less than the summer flow objective of 50 Kcfs.

Moving on to a table of observed volume runoffs, 2003-2005, Hlebechuk said that, at Hungry Horse, the 2005 volume runoff for the April-August period was 1.48 MAF, 71% of average. At Libby, the observed runoff volume was 5.56 MAF, 89% of average. At Albeni Falls, observed runoff was 9.57 MAF, 71% of average. At Grand Coulee, observed 2005 volume runoff was 48.8 MAF, 81% of average. At Dworshak, observed 2005 volume runoff was 1.7 MAF, 62% of average; at Lower Granite, 14.4 MAF, 63% of average; at The Dalles, 68.5 MAF, 74% of average.

Next, Helebchuk provided a series of graphs plotting forebay elevation, flood control rule curve elevations, outflow, inflow and spill volumes for the period September 1, 2004-October 1, 2005 for Libby, Hungry Horse, Grand Coulee, Priest Rapids, Dworshak, Lower Granite and McNary Dams. These graphs are available via hot-link from today's agenda on the TMT homepage; please refer to these documents for full details.

Hlebechuk noted that, in 2005, Libby filled much earlier than normal, and was drafted gradually through July, August and September. We will get the new flood control rule curve for that project in early December, she said; because of the amount of rain in the Libby Basin, the reservoir has actually filled slightly so far this fall. She said she expects the end of December rule curve elevation to be 2411'.

Going back to last December, there was a pretty big Libby draft in December, said Bob Heinith – what was the basis for that? The early forecast at Libby indicated a likely runoff volume of close to normal, Hlebechuk replied; that set the end of December flood control rule curve for Libby at elevation 2411'. I'm just wondering if there are other tools you can use to avoid that situation in the future, because that draft really set the reservoir back, said Heinith. That's why we've gone to the SOI-based forecast, Hlebechuk replied. The problem is that there is no magic tool that would give you any better information that early in the season, Tony Norris replied – prior to the actual arrival of the snowpack, the error bounds are simply too large. Heinith noted that the upriver tribes are concerned about impacts to cultural resources when Libby is drafted to elevation 2411 during the winter. Hlebechuk and Wellschlager noted they had not heard of any cultural resource issues in Lake Kookanusa. Wellschlager noted at the 2005 annual public meeting at Libby the tribal representative did not mention any cultural resource issues last winter.

The group also devoted a few minutes of discussion to 2005 operations at Grand Coulee, in particular, the drum gate maintenance operation that drafted Lake Roosevelt to near elevation 1253 from early April through mid-May. Much of the discussion focused on the fact with the low water years recently, drum gate maintenance had not been done. In WY 2004 BOR told TMT if drum gate maintenance wasn't done in WY 2004, it would be mandatory in WY 2005. Safety of drum gates is extremely important and scheduling it continues to be a live issue.

3. Temperature/TDG Level Variations.

Jim Adams provided an extensive briefing on the 2005 water quality monitoring season. He noted that the Corps operated 29 fixed monitoring stations in 2005; Reclamation, four FMS, the Mid-Columbia PUDs, 10. Five new stations were added in 2005; the Lower Granite, Little Goose, Lower Monumental, Ice Harbor and McNary (Washington side) FMS were relocated this year.

Moving on, Adams touched on the following topics:

- Start of spill, end of spill and total days of spill for the eight FCRPS projects in 2005
- TDG exceedences, 1999-2005 (there were 69 exceedences systemwide in 2005, compared to a seven-year average of 247 exceedences)
- Total dissolved gas – types of exceedences (table)
- Total dissolved gas – average high 12-hour percent TDG exceedences at fixed monitoring stations, 1999-2005 (table)
- Lower Granite spill activities, 2005
- Lower Granite summer operations, during and after RSW research operations, June 19-September 2, 2005 (graphs)
- Lower Granite spill stats, 2005 (table)
- Little Goose spill activities, 2005
- Little Goose summer operations, June 19-September 2, 2005 (graphs)
- Little Goose spill stats, 2005 (table)
- Lower Monumental spill activities, 2005
- Lower Monumental summer operations, June 19-September 2, 2005 (graphs)
- Lower Monumental spill stats, 2005 (table)
- Ice Harbor spill activities, 2005
- Ice Harbor summer operations, June 19-September 2, 2005 (graphs)
- Ice Harbor spill stats, 2005 (table)
- McNary spill activities, 2005
- McNary summer operations, June 19-September 2, 2005 (graphs)
- McNary spill stats, 2005 (table)
- John Day and The Dalles spill season operations, April 1-July 31, 2005 (graphs)
- Dworshak summer operations, April 1-September 30, 2005 (graphs and table).

Please note that all of these materials are available via hot-link from today's agenda on the TMT homepage; please refer to these documents for the full details of Adams' presentation.

In response to a question, Adams said that, prior to the start of the court-ordered spill program, the Corps modeled what it felt were appropriate spill caps for each project using SYSTDG. However, on the first day of the court-ordered spill program, a number of the plaintiffs asked the Corps to raise the spill caps at several projects, so that tailwater TDG levels approached 120% more closely. The Corps was concerned that, as that water moved downstream, it would cause exceedences of the 115% forebay

standard, and that is exactly what occurred, Adams said – in other words, I think we set the gap caps properly in the first place, and they should not have been changed.

4. Adult Fish Runs/Fisheries Review: Forecasts and techniques.

Cindy LeFleur provided a presentation titled “Preliminary Review of 2005 Columbia River Fish Runs and Fisheries.” LeFleur emphasized the fact that these results are still very preliminary. Among her topics:

- Upriver spring chinook returns, 1980-2005 (2005 forecast: 254,100; 2005 return: 106,400) (graph)
- Spring chinook fishery 2005: 108,000 angler trips, 10,600 spring chinook kept, commercial harvest of 5,400 chinook (ex-vessel price \$4.15/lb.); SAFE commercial harvest of 2,300 chinook; treaty harvest of one fish – essentially, there was no treaty fishery on spring chinook this year
- Upper Columbia summer chinook returns, 1980-2005 (2005 forecast: 62,400; 2005 return: 60,400) (graph)
- Summer chinook fisheries, 2005: 45,000 angler trips below Bonneville, 2,300 summer chinook kept, commercial harvest of 2,800 chinook, ex-vessel price per lb. \$2, SAFE commercial harvest of 1,000 chinook; treaty harvest of 3,900 chinook.
- Columbia River fall chinook returns, 1980-2005 (2005 forecast: 671,400; 2005 return: 584,800) (graph)
- Upriver bright fall chinook returns 1980-2005 (2005 forecast: 354,600; 2005 return, 293,400) (graph)
- Mid-Columbia bright fall chinook returns, 1980-2005 (2005 forecast 89,700; 2005 return 80,000) (graph)
- Bonneville Pool hatchery fall chinook returns, 1980-2005 (2005 forecast: 115,800; 2005 return: 102,500) (graph)
- Fall chinook fisheries, 2005: 75,000 angler trips, 27,800 chinook kept; commercial harvest of 27,200 chinook, ex-vessel price \$2 per lb.; SAFE commercial harvest of 7,000 chinook; treaty harvest of 115,100 chinook.
- Forecast accuracy, upriver spring chinook, 1980-2005 (graph) – forecast accuracy was much lower than normal in both 2004 and 2005.
- Forecast accuracy for upriver summer chinook – (graph) generally quite accurate, except in 2001 and 2002, when returns far exceeded the pre-season predictions
- Forecast accuracy, upriver bright fall chinook, 1980-2005 (graph) – generally quite good
- Forecast accuracy, fall chinook, 1980-2005 (graph) – generally quite good

Please note that the full text of LeFleur’s presentation is available via hot-link from today’s agenda on the TMT homepage; please refer to this document for further details.

What is the geographic area you’re referring to when you talk about Mid-Columbia fish? one participant asked. Bonneville to McNary, LeFleur replied. She added

that further analysis of the reasons for the discrepancy between the pre-season forecast and actual returns of 2005 spring chinook is ongoing; she will provide further TMT updates as more information becomes available.

5. 2005 Fish Passage.

Jerry McCann briefed the TMT on the 2005 smolt migration. Working from a series of PowerPoint slides, he touched on the following topics:

- Yearling chinook population index at Lower Granite and hatchery releases, 1998-2005 (graph)
- Survival of wild yearling chinook from traps to Lower Granite, 2001-2005 (graph)
- Yearling chinook timing at Lower Granite, March 30-June 30 (graph)
- Yearling chinook timing at Little Goose, April 9-June 30 (graph)
- Yearling chinook timing at Lower Monumental, April 17-June 30 (graph)
- Water transit time, Lower Granite to tailwater Ice Harbor Dam vs. average flow at Little Goose, Lower Monumental and Ice Harbor Dams (graph)
- Travel time, Lower Granite to McNary for hatchery and wild yearling chinook, 1998-2005 (graph)
- Survival, Lower Granite to McNary for hatchery and wild yearling chinook, 1998-2005 (graph)
- Combined hatchery and wild steelhead population at Lower Granite and hatchery releases, 1998-2005 (graph)
- Survival of wild steelhead from traps to Lower Granite, 2001-2005 (graph)
- Steelhead timing at Lower Granite (graph)
- Steelhead timing at Little Goose (draft)
- Steelhead timing at Lower Monumental (graph)
- Travel time, Lower Granite to McNary for steelhead, 1998-2005 (graph)
- Survival from Lower Granite to McNary for steelhead, 1998-2005 (graph)
- Hatchery/supplementation releases of subyearling chinook above Lower Granite, 1995-2005 (graph)
- Subyearling chinook timing at Lower Granite (graph)
- Survival, Lower Granite to McNary, for subyearling chinook before and during summer spill in 2005, with 90% Cis (graph)
- Survival for subyearling chinook, Lower Granite to McNary, 2001-2005, with 90% CIs (graph)
- Subyearling chinook survival vs. average total flow, Little Goose, Lower Monumental, Ice Harbor, McNary (graph)
- Subyearling chinook survival vs. average spill percentage, Little Goose, Lower Monumental, Ice Harbor, McNary (graph).

Please note that the full text of the Fish Passage Center presentation is available via hot-link from the TMT homepage; please refer to this document for further details.

McCann said that, overall, system survival appeared to be in the 60% range for in-river fish in 2005. There seems to be a real correlation, in terms of the flatness of the total survival data, said John Wellschlager – have you looked at other years to see if

similar correlations exist? Quite often there are, within a given year, McCann replied; often what you see is lower survival early in the year, higher survival through the middle part of the migration season, and then it sort of tails off toward the end of the spring migration. The highest survivals tend to be seen when flows are highest and water particle travel times are lowest, he explained.

Is there a graph that shows how total survival in 2005, including the survival of transported fish, compared to previous years? Wellschlager asked. I don't have that today, said McCann – what I've presented today shows only in-river survival. In 2005, about 80% of the total run originating above Lower Granite was transported; that compares to a more typical average of about 90%. The TMT asked that McCann return at a future meeting to provide a further update once the 2005 data has been more fully analyzed.

6. 2005 Weather.

Kyle Dittmer briefed the TMT on the monthly weather events that impacted basin flows and fish migration during water year 2005 (October 2004-September 2005). He noted that water year 2005 was noteworthy for extreme variability in precipitation and temperature patterns. Overall, said Dittmer, the autumn period started out wet, then turned very warm and dry; winter was also dry and warm, with below-normal snow-packs throughout the region. The spring period was also extreme, with near-normal conditions in April followed by a very warm, very wet May and June. The summer period was also extreme, warm and dry, with several record-breaking daily high temperatures recorded in July and August. Strong storms broke the dry spell in late September.

Dittmer said the cumulative precipitation totals, by basin, for water year 2005 were as follows:

- The Dalles: 90% of average
- Southeast Washington: 66% of average
- Hood/Lower Deschutes: 70%
- East slope Washington Cascades: 71%
- Owyhee: 117%
- Snake River Plain: 114%
- Flathead/Columbia above Castlegar: 103%.

One thing to note is that, for the May-June period, precipitation in all portions of the Snake River Basin was well above average in 2005, Dittmer said. From a temperature standpoint, average monthly temperatures across the Columbia basin were about 1.5 degrees C warmer than average in 2005, very similar to what we saw in 2004. If anyone is looking for evidence of global warming and climate change, he said, there's a piece of it right there.

With respect to his predictions for weather year 2006, Dittmer described the methodology and indices he uses in developing his long-term forecasts, including the 11-year sunspot cycle and the Southern Oscillation Index. Dittmer said current sunspot

data suggests a near-normal weather pattern in 2006; however, based on this data, he is already predicting that the winter of 2006-2007 is going to be extremely cold and snowy – it is shaping up as a strong La Niña year.

The multivariable ENSO index is near the zero line, currently, which means near-neutral ENSO conditions between now and next spring, which is good news, Dittmer said. Moving on, he said the Pacific Daily Oscillation index, which has been fairly strongly positive in the last two years – bad news for Pacific salmonids – has, just in the last month or so, slipped back into the negative range, which is good, if it stays negative. In addition, NOAA's National Center for Environmental Prediction sea surface temperature departure forecast is now showing near-normal Pacific surface temperatures over the next several months, which is also good news, Dittmer said.

Dittmer noted that, according to NOAA's forecast modelers, the Northwest will see normal temperatures and above-normal precipitation over the next month. NOAA's long-term forecast shows above-normal temperatures and near-normal precipitation for the rest of the winter period, he added.

Dittmer said that, for his long-range analysis, he had chosen 26 surrogate historic water years, all with near-neutral ENSO signals. He said he had averaged Columbia River runoff at The Dalles during these 26 water years; what this analysis shows is slightly below-normal runoff during the winter period, followed by a slightly above-normal peak during the spring. I looked at the weather patterns for each of those 26 years, and averaged them together to produce a forecast, he explained.

So what is the long-term forecast, based on this analysis? Dittmer asked. What this shows is temperatures across the region will be near-normal, but slightly on the coolish side, with temperature departures on the order of -0.1 to -0.8 degrees C. With respect to precipitation, he said, my analysis is predicting near-normal precipitation except the months of November and January, which look to be slightly below-normal. With respect to the chances for snow on the valley floor, Dittmer said that, anytime there are ENSO-neutral conditions, that is when there is the greatest potential for snow in the Portland area, the Willamette Valley and the Gorge, because there is no strong force directing the jet stream elsewhere, and you're more likely to see the alignment of conditions conducive to snow. Snow is most likely to occur during the December 15-February 15 period. Dittmer said he would go out on a limb and predict two moderate-sized – 3"-5" accumulation – snow events this year, most likely in January.

Finally, in terms of what kind of a water year to expect in 2006, my analysis shows about a 99 MAF runoff year at The Dalles, or about 92 percent of normal, Dittmer said. The University of Washington's Climate Impacts Group, which runs a couple of different models, is in pretty close agreement – they're predicting a water year on the 106-107 MAF scale at The Dalles, or 99-100% of normal. The most recent STP forecast from NOAA's River Forecast Center shows about 97 MAF at The Dalles in 2006, or about 90% of average, Dittmer said. In other words, he said, all of the forecasts that have been produced so far this year are pretty tightly clustered.

Dittmer added that his pre-season prediction before the 2005 runoff season was for a slightly warmer and drier than average winter period; as it turns out, it was warmer and drier than I expected, he said. In reviewing these results, it appears that, while the overall methodology was sound, the El Niño impacts were simply stronger than expected. At The Dalles, my pre-season prediction was for a 94 MAF runoff year; the University of Washington's Climate Impacts Group predicted 97-98 MAF, while the RFC predicted 106 MAF using ESP. My prediction was more than 10 MAF on the high side, Dittmer said; hopefully we'll see a little tighter convergence in 2006. Dittmer noted that the annual winter weather meeting, hosted by the Oregon Chapter of the American Meteorological Society, at which various meteorological gurus give their opinions on this topic, will be held this Friday, and everyone is welcome to attend.

7. 2005 Spring Chinook.

Paul Wagner briefed the TMT on the results of NOAA Fisheries investigation into the reasons for the low returns from the 2003 outmigration, and the reasons why 2005 spring chinook adult returns didn't meet the pre-season forecast. He provided copies of two NOAA Fisheries memos – one titled "Preliminary Survival Estimates for Passage During the Spring Migration of Juvenile Salmonids Through Snake and Columbia River Reservoirs and Dams, 2005;" the other titled "Low Returns of Spring Chinook Salmon to the Columbia River in 2005."

The first memo is based in PIT-tagged spring outmigrants from throughout the Snake and Columbia River basins, Wagner explained. Wild vs. hatchery survival is not broken out. The bottom line is that, in 2005, spring chinook survival was fairly high – 52%, on average, which, given the flows we experienced, which were on the low end of the scale, and the total absence of spill at the Snake projects, was better than expected, Wagner said.

Wagner provided the following results:

- 2005 survival results for hatchery fish (summarized in Table 1 of the first memo)
- Yearling chinook survival by reach from Lower Granite to Bonneville, 2001-2005 (summarized in Table 2 of the first memo)
- Snake River steelhead survival by reach from Lower Granite to Bonneville, 2001-2005 (Table 3 of the first memo)
- Upper Columbia yearling chinook survival by reach from their release point to Bonneville, 2002-2005 (Table 4 of the first memo)
- Upper Columbia steelhead survival by reach from their release point to Bonneville, 2002-2005 (Table 5 of the first memo)
- Estimated survival probability for PIT-tagged yearling chinook and steelhead, by reach, 2005 (graphs)
- Snake River flow at Little Goose Dam, April 1-May 31, 2001-2005 (graph)
- Survival, flow, passage index – the estimated survival probability for yearling chinook from Lower Granite to McNary, plotted against flow volume at Little Goose Dam and the passage index at Lower Granite Dam (graph)

Moving on to the second memo, the analysis of the possible reasons for the low returns of spring chinook to the Columbia in 2005, Wagner touched on the various questions surrounding this conundrum, including what is known about the in-river survival of the various outmigrant groups that would have contributed to 2005 adult spring chinook returns, the historical accuracy of the jack counts used to inform previous adult return forecasts, the validity of the methodology used to extrapolate from jack counts to a predicted run size, the potential effects of ocean conditions, potential correlations with the low 2005 returns of some northern Alaska runs, the role that the especially high rate of salmon bycatch in the 2005 pollack fishery may have played, and what further research may be warranted into the impacts of ocean conditions on adult spring chinook returns.

The memo concludes that no single variable or factor NOAA Fisheries examined appears responsible for the low 2005 adult spring chinook return, and that it is likely that a combination of factors played a role:

- Poor ocean conditions may have resulted in a higher-than-normal percentage of 3-ocean fish remaining in the ocean and waiting to return to spawn as four-ocean fish due to poor growth rate
- Marine mammals in the Lower Columbia River may have had a greater than average effect on the upriver run in 2005
- Ocean conditions may have affected adult fish that remained after their first year in the ocean
- Other predators, including killer whales observed feeding in the Columbia River plume, may have deterred the entrance of adult spring chinook this year
- Salmon may be more sensitive to physical changes in the ocean than suggested by NOAA's ocean indices
- The forecast by TAC was much too high, as was a simple estimate NOAA Fisheries derived from its Snake River database.

Please note that the full texts of Wagner's memos are available via hot-link from today's agenda on the TMT homepage; please refer to these documents for full details of his presentation.

8. Snake River Fall Chinook Summer Spill Passage.

The Corps' Paul Ocker led this presentation, titled "2005 Preliminary Summer Spill Data – Fall Chinook Radiotelemetry Studies." Ocker touched on the following topics:

- Important considerations: these estimates do not address transport vs. in-river survival nor adult return issues; this information is extremely preliminary and the specific numbers are likely to change; this is the first look at subyearling passage at most of these projects including RSWs; these survival estimates are relative survival estimates compared to a tailrace reference, except at Little Goose.
- Legend
- Lower Granite background information – study methodology, study period,

- number of fish released (2,200), a summary of Lower Granite operations during the test period.
- Lower Granite Dam – survival by passage route under non-RSW operations (94% of the fish passed the project via spill; spill survival 90.2%; overall dam survival 89.5%, not including bypass)
 - Lower Granite Dam – survival by passage route under summer RSW operations (86.5% of the fish passed the project via spill, including 68% via the RSW; RSW survival was 94.5%; overall dam survival, 93.9%.
 - Little Goose background information – study methodology, study period, number of fish studied (about 2,000 of the fish released at Lower Granite), a summary of project operations during the test period.
 - Little Goose Dam – survival by passage route under non-RSW operations (84% of the fish passed the project via spill; spill survival 92%; overall dam survival 91.6%, not including bypass)
 - Lower Monumental background information – study methodology, study period, number of fish released (2,200), a summary of project operations during the test period.
 - Lower Monumental Dam – survival by passage route under non-RSW operations (88% of the fish passed the project via spill; spill survival 90.5%; overall dam survival 86.2%
 - Ice Harbor background information – study methodology, study period, number of fish released (4,200), a summary of project operations during the test period.
 - Ice Harbor Dam – survival by passage route under non-RSW operations (98% of the fish passed the project via spill; spill survival 99.8%; overall dam survival 99.6%)
 - Ice Harbor Dam – survival by passage route under summer RSW operations (87% of the fish passed the project via spill, including 60% via the RSW; spill survival 98.3%; overall dam survival 98%.
 - McNary background information – study methodology, study period, number of fish released (2,700), a summary of project operations during the test period.
 - McNary survival by passage route under summer RSW operations (64% of the fish passed the project via spill; spill survival 102%; overall dam survival 96.3%)

Ocker then provided the following overall takeaways from the 2005 radiotelemetry studies:

- The results suggest generally high subyearling survival through the projects
- Fish passage efficiency (FPE, the percent of fish passing via non-turbine route) at all projects was relatively high, ranging from 81% to 100%.
- Spill effectiveness (the percent of fish passing through the spillway divided by the percent of total river flow passing through the spillway) was higher than anticipated for the Snake River projects, and was 2-3 times higher for RSWs than spillways.
- Dam passage with RSW had higher survival at Lower Granite and lower at Ice Harbor, yet neither were likely statistically significant.
- Passage metrics (tables)
- Relative survival estimates, by project (table)

In response to a question, Ocker said that, while the tagging and testing process is stressful for the test fish, the feeling in the scientific community is that RSWs generally provide a less-stressful route. In response to a question from Silverberg, Ocker said he will provide an updated presentation on this topic to TMT once the 2005 data have been finalized; a more detailed presentation will be provided at the AFEP annual review in two weeks.

9. Snake River EPA Temperature Modeling.

Dittmer distributed a pair of graphs; the first was titled “Clearwater River at Peck, 1979, 1994, 1995, 1998 Weather,” and charted water temperatures from June 12 through September 30 for each of these weather years vs. observed water temperatures in 2005. The second graph, titled “Snake at Lower Granite Dam, 1979, 1994, 1995 and 1998 Weather,” provided the same information for that project.

Dittmer noted that he had been asked to approach EPA in Seattle to do their annual water temperature modeling exercise on the release of cool water from Dworshak and its effects on temperatures in the Snake River. He described the study methodology, then went through the information contained in the graphs (available via hot-link from today’s agenda on the TMT homepage). The bottom line, said Dittmer, is that in 2005, water temperatures at Lower Granite never exceeded the 20-degree C standard in 2005, because of the effective use of Dworshak water and because the weather was relatively cooperative.

10. Snake River Fall Chinook Release Studies.

Billy Connor led this presentation, titled “Post-Release Attributes of Lyons Ferry Hatchery Fall Chinook Salmon Subyearlings Released into the Snake River as Surrogates for Wild Fall Chinook Salmon Subyearlings.” He began by acknowledging the contributions made by hundreds of IDFG, Idaho Power and WDFW employees in collecting data for this study.

Connor touched on the following topics:

- Objective: a study to compare the SARs of Snake River fall chinook salmon under alternative transportation and dam operational strategies.
- Basin-wide redd distribution (Clearwater vs. Snake), 2004 (pie chart)
- Groups of PIT-tagged fall chinook salmon subyearlings that provided data for comparing post-release attributes for this presentation (wild and hatchery groups, by facility of origin and number tagged)
- Mean fork length at PIT-tagging – wild (68 +/- 7 mm), surrogate (76 +/- 8 mm) and hatchery 86 +/- 9 mm)
- Attributes compared among groups – passage timing at the first three lower Snake River dams; level of exposure to spill at those three dams; travel time to Lower Monumental Dam; joint probability of actively migrating and surviving to

- pass Lower Monumental Dam.
- Use of the Sandford and Smith (2002) method to estimate daily passage
- Cumulative passage vs. passage date at Lower Granite Dam, 2005, wild, surrogate and production groups (median passage date by group: production, June 1; surrogate, June 12; wild, June 18)
- Cumulative passage vs. passage date at Little Goose Dam, 2005, wild, surrogate and production groups (median passage date by group: production, June 4; surrogate, June 27; wild, July 1)
- Cumulative passage vs. passage date at Lower Monumental Dam, 2005, wild, surrogate and production groups (median passage date by group: production, June 8; surrogate, June 29; wild, July 4)
- Percentage of each release group that passed Lower Granite prior to spill – wild, 69%; surrogate, 90%; hatchery, 98%)
- Percentage of each release group that passed Little Goose prior to spill – wild, 10%; surrogate, 28%; hatchery, 98%)
- Percentage of each release group that passed Lower Monumental prior to spill – wild, 5%; surrogate, 16%; hatchery, 90%)
- Travel time to Lower Monumental Dam (days): wild 45 +/- 0.2; surrogate, 41 +/- 0.1; production, 28 +/- 0.1.
- Joint probability of migrating and surviving to the tailrace of Lower Monumental Dam: wild, 26 +/- 11; surrogate, 16 +/- 0; hatchery, 52 +/- 8.

Connor then provided the following summary of 2005 findings:

- The post-release attributes of wild Snake River subyearlings and the Snake River surrogates were not identical, but there were general similarities in passage timing, level of exposure to spill, travel time and the joint probability of migrating and surviving.
- Releasing Snake River surrogates over a three-week period in 2006 might reduce the differences observed in post-release attributes between wild Snake River subyearlings and the Snake River surrogates.
- Compared to wild Snake River subyearlings, production subyearlings passed downstream much earlier, were exposed to very little summer spill, moved seaward rapidly, and had a much higher probability of migrating and surviving.
- Plans are presently being made to represent production fish in the 2006 hydrosystem operation study.

Connor noted that, essentially, the information he presented today is a sneak peak at how well the surrogates performed relative to wild fish – we won't actually know how well they performed until we get SAR information, age composition, life-history variation and other information. And are the hatchery fish exactly the same, genetically, as the wild fish? Wellschlager asked. Are the wild fish genetically predisposed to overwinter? As far as the life-history variation, I don't think we know that, Connor replied; genetically, the Lyons Ferry fall chinook and Snake River fall chinook are similar – the Lyons Ferry stock was developed from wild Snake River broodstock over time. However, I don't know whether there is a genetic link to life-history variation, Connor said.

You said you tagged about 9,600 wild fish, and they had to be 60 mm long, said LeFleur. Obviously you caught a lot more of those fish than that, and I'm wondering whether it might be worthwhile to coded-wire tag some of those fish, because the size limit for a CWT is smaller than the size limit for implanting a radio tag. Do you catch enough juveniles to coded-wire-tag, say, 100,000 of those wild fish? No – not at present, Connor replied. This year, we caught about 40,000 fish, total, and a high percentage of those fish were too small to accept a CWT.

Were the surrogates the only group that were not acclimated? Bob Heinith asked. Yes, Connor replied. That could have something to do with your survivals, said Heinith. It could, Connor agreed. Could you acclimate the surrogates in 2006? Heinith asked. The only way we could do that would be to get some room at the Nez Perce Tribal acclimation facility, Connor replied.

11. Snake River Review.

Ken Tiffan led this presentation, titled "Snake River Fall Chinook Salmon Summer Travel Time and Winter Passage." Emphasizing that the data he is presenting today is only preliminary, Tiffan touched on the following major topics:

- Detections, by fixed site locations, 2005 (graph)
- Travel rate vs. location (graph)
- Travel rate and spill (graph)
- Fish travel rate vs. water velocity, 2005, Billy Creek to Lower Granite Dam (graph)
- Fish travel rate vs. water velocity, 2005, Lower Granite reservoir only (graph)
- Winter passage: when do reservoir-type juvenile fall chinook pass the dams?
- Study parameters: collected fish from November-February last year, 104 fish radio-tagged in all, monitored forebay and tailrace of each Snake River Dam through the beginning of May
- Total detections, Lower Granite-Ice Harbor
- Detections before bypass
- Detections after bypass
- Detections by location (graph)
- Passage by month – passage high in December and January, drops off during February and March, and picks up again in April
- Hourly passage (graphs) – fish pass at all hours of the day; little relationship with flow and temperature
- Residence times – Lower Granite forebay through Ice Harbor forebay – up to 150 days in the Lower Granite forebay
- Detections of PIT-tagged holdovers – numbers detected at each site in 2005 (graph)

What conclusions do you draw from this? Silverberg asked. That fish do pass during the winter, and some radio-tagged fish pass through the system undetected, Tiffan replied. And of the 104 radio-tagged fish you released, how many did you account for? Wagner asked. We detected 102 of those fish in the forebay, and 88 of them eventually passed Lower Granite, Tiffan replied. In response to another question, Tiffan said his group's annual report will be provided to Bonneville very soon.

12. 2005 Study Results that Might Impact 2006 Operations.

A. Ice Harbor RSW Results. Paul Hackett led this presentation. He touched on the following topics:

- Important considerations
- Legend – passage metrics, survival metrics
- Ice Harbor 2005 yearling chinook research background information
- Ice Harbor Dam – spring non-RSW operations – yearling chinook passage and survival by route: spillway (97% of fish passed this route, 97% survived), turbine passage (1% passed by this route) bypass passage (1% passed by this route). Overall project survival: 97%
- Ice Harbor Dam spring RSW operations – yearling chinook: 77% passed

via spill (48% via training spill, 29% via RSW), 95% survived training spill passage, 97% survived RSW passage, 7% passed via the turbines, 16% passed via bypass; there was 100% bypass survival and 96% overall dam survival

Hackett offered the following key takeaways from the 2005 Ice Harbor yearling chinook studies:

- More fish went through turbines and bypass during RSW operations vs. non-RSW
- More fish appeared to go through training spill than through the RSW. This may be due to spill volume or spill pattern
- Project survival was not likely statistically different between RSW (95%) and non-RSW (97%) operations (34% vs. 82% spill)
- There may be room for improvement in RSW operations if we look closely at training spill and forebay delay.

Moving on, Hackett provided information on 2005 Ice Harbor steelhead research. He touched on the following topics:

- Study and operational parameters
- Ice Harbor dam steelhead – spring non-RSW vs. RSW operations: comparative passage routes and survivals

He offered the following key takeaways:

- More fish went through turbines and bypass during RSW operations vs. non-RSW
- Project survival was not likely statistically different between RSW (91%) and non-RSW (93%) operations (34% vs. 82% spill)
- Concrete survival was likely not statistically different between RSW (97%) and non-RSW (99%) operations.
- There may be room for improvement in RSW operations if we look closely at training spill

Boyce observed that, until adult return data is available, it is impossible to know how much of an impact RSW operation has on ultimate survival. There are obviously much-reduced spill levels while the RSW is operating, he said; some of the highest SARs we're seeing are from non-detected, non-transported fish.

13. Other Lessons Learned.

What, if anything, is the group taking away from the information that has been presented today? Silverberg asked. I think it would be helpful if someone could summarize the spring and summer water temperature information that was collected this year, said Heinith. Is there still a tri-level thermograph system in the Snake? I don't know, replied Filardo, – we haven't specifically looked at that at WQT.

One other thing we could look at is autumn operations at Libby in the context of the SOI index, said Dittmer – I'm not sure we're making the best possible use of the available tools. There's a lot of information to digest, said Boyce – much of it is very pertinent to next year's operations. We should continue to discuss today's presentations at TMT, and work them into our long-term planning. I thought the Ice Harbor information, and the information on the overwintering fall chinook, was particularly interesting, Boyce said.

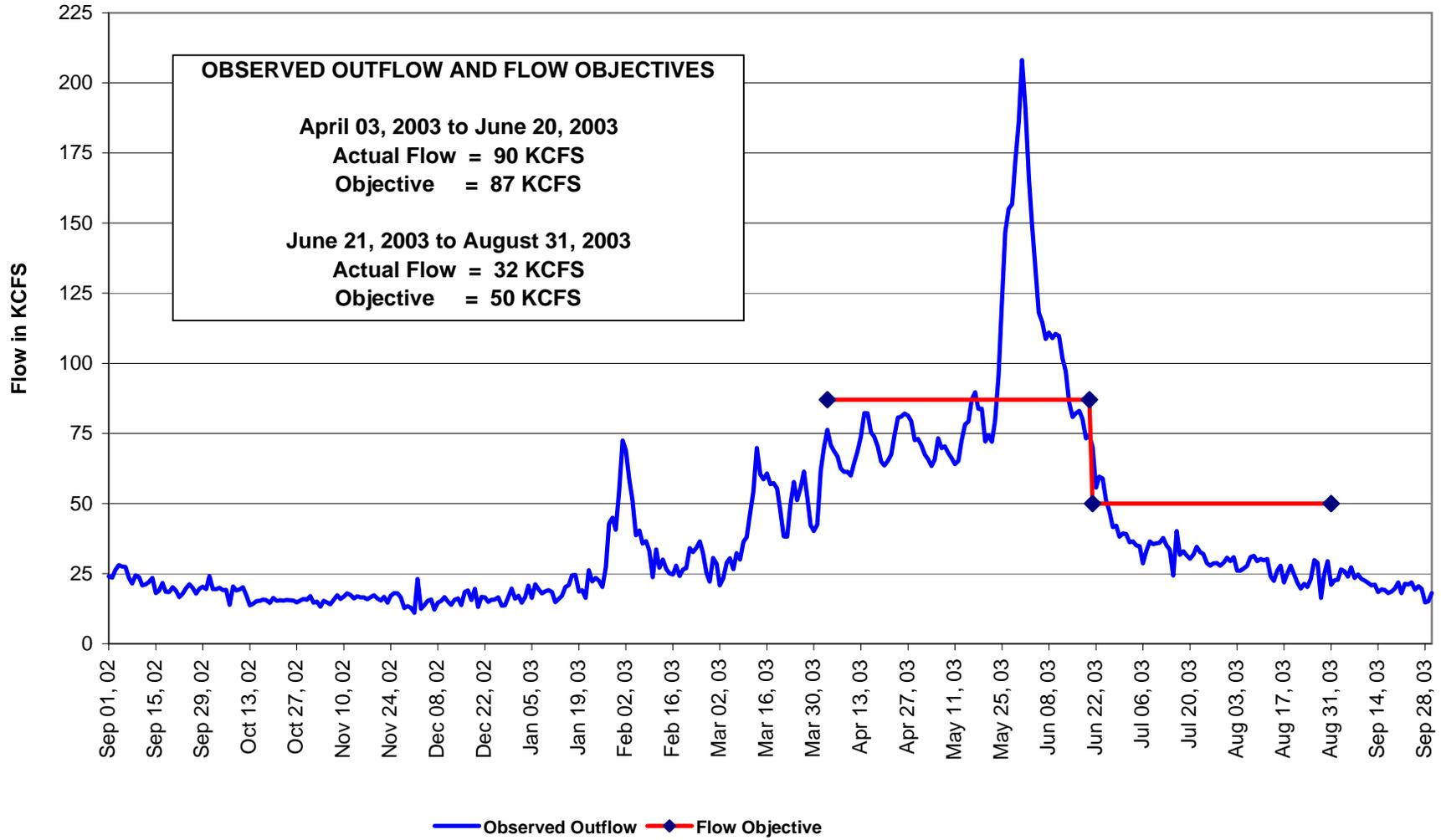
One thing that has concerned me is that, this year, the criteria we used to decide to maximize spring transport was disappointing, said Russ Kiefer – we probably need to step back and re-evaluate how we make that determination, because I believe we missed the boat in 2005, in terms of an opportunity to leave more fish in-river while maximizing in-river migratory conditions.

Larry Beck noted that one of the takeaway messages, for him, is that sometimes the benefits of a given operation disproportionately favor one species over another. I would add that, to me, the spill results for McNary are very encouraging, said Heinith; I think the region needs to look closely at continuing that operation. Again, however, while the survival through spill numbers were encouraging, we're going to need to see how the SARs play out before we can draw conclusions about the ultimate benefits of that operation, Hackett observed.

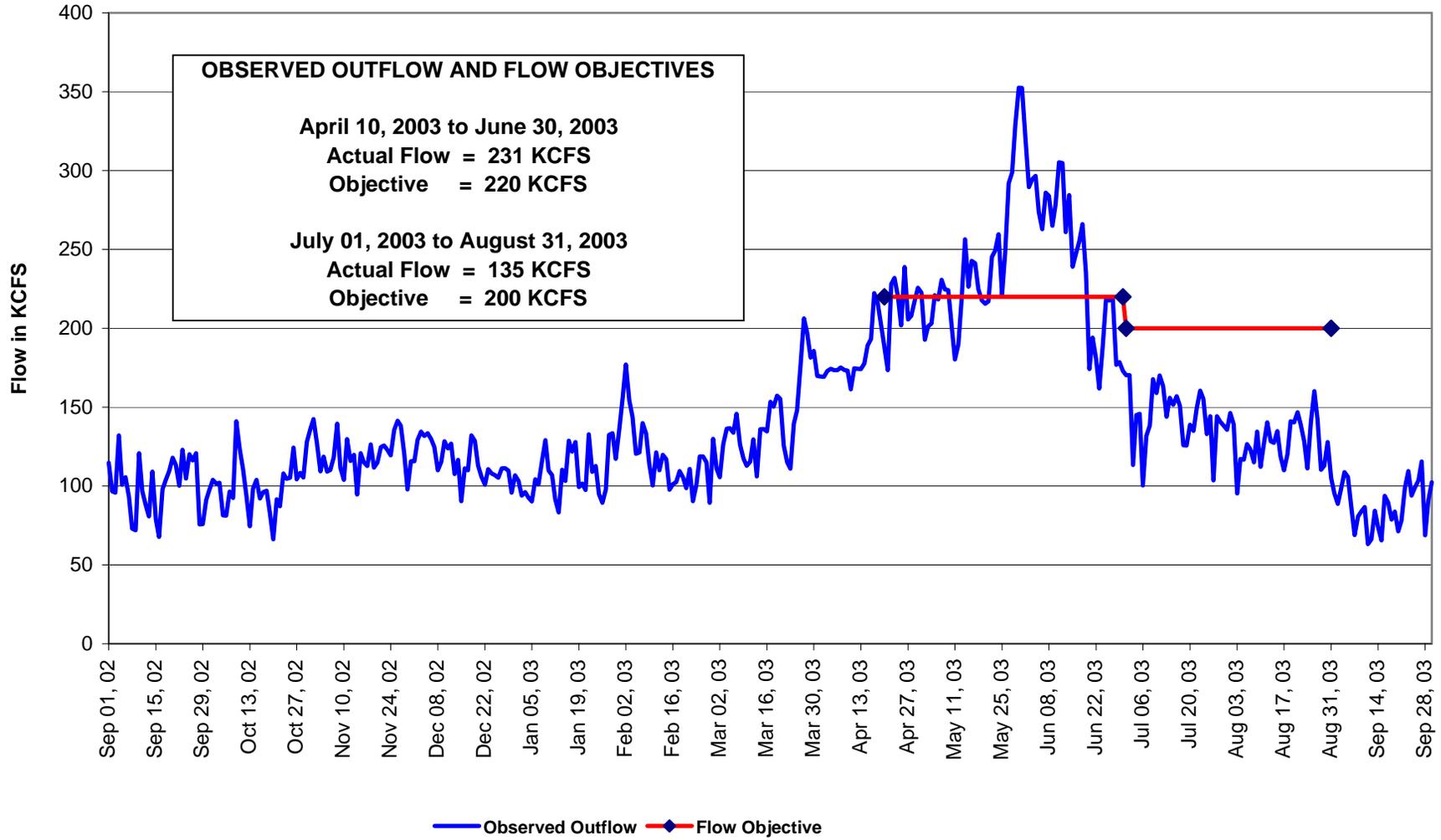
14. Next TMT Meeting Date.

The next Technical Management Team meeting was set for Wednesday, November 9. Meeting summary prepared by Jeff Kuechle, BPA contractor.

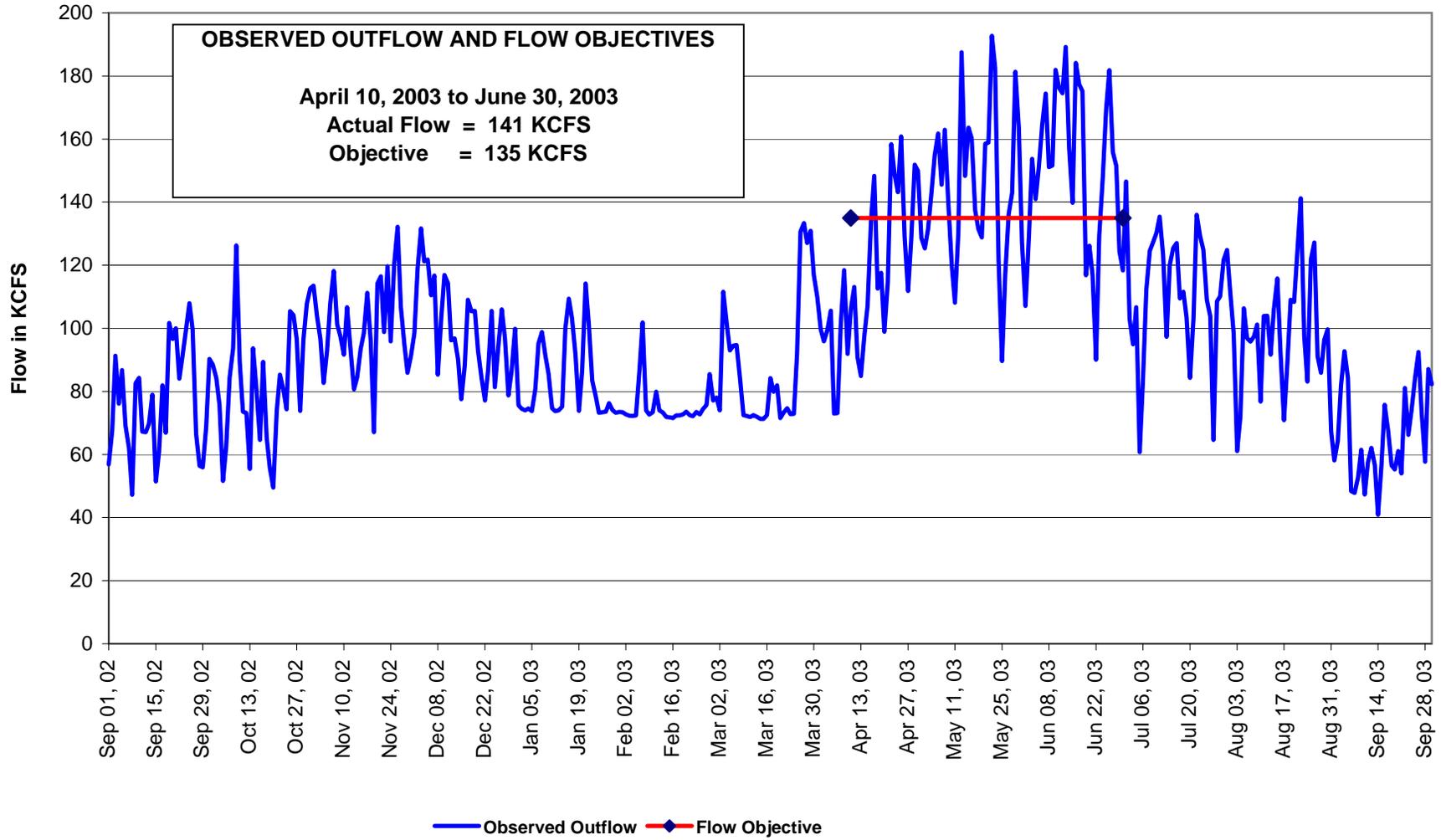
LOWER GRANITE RESERVOIR 2003



MCNARY RESERVOIR 2003



PRIEST RAPIDS RESERVOIR 2003



TECHNICAL MANAGEMENT TEAM

BOR: Tony Norris / John Roache

BPA: John Wellschlager / Nic Lane

NOAA-F: Paul Wagner

USFWS: David Wills / Steve Haeseker

OR: Ron Boyce

WA: Cindy LeFleur

ID: Russ Kiefer

MT: Jim Litchfield

COE: Cindy Henriksen / Cathy Hlebechuk

TMT MEETING

Wednesday November 09, 2005 0900 - 1200 hours
1125 N.W. Couch Street, Suite 4A34
Portland, Oregon 97208
Conference call line: 503-808-5190

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

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

AGENDA

1. Welcome and introductions.
2. Chum Operation
3. [SOR 2005-20](#) 
4. Operations Review
 - a. Reservoirs
 - b. Fish
 - i. [\[Fish Passage Center Homepage\]](#) 
 - c. Power System
 - d. Water Quality
 - i. [\[Spill Information 2005\]](#) 
 - ii. [\[Daily Water Temperature Reports\]](#)
5. Other
 - Set agenda for next meeting - [\[Reference Calendar\]](#) 

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

COLUMBIA RIVER REGIONAL FORUM

TECHNICAL MANAGEMENT TEAM

November 9, 2005

FACILITATOR'S SUMMARY NOTES ON FUTURE ACTIONS

Facilitator: Donna Silverberg

Notes: 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.

Chum Discussion

As of November 9, no chum had arrived at the Ives Island complex, 2 were observed at Multnomah and 90 were observed over the fish ladder at Bonneville. The next survey was scheduled for Thursday, November 10 (since Friday is a holiday).

ACTION: Ron Boyce, ODFW, will notify the action agencies when chum are observed, at which time the following operation will be implemented (per discussions at the business portion of the TMT year end review on November 2): 11.3-11.7' daytime tailwater, 11.3' minimum at night.

SOR 2005-20

The salmon managers (except NOAA) submitted a request to the action agencies to restart the Ice/Trash Sluiceway at The Dalles and operate it at 24 hours/day through November, to support passage of later migrating juveniles. While few migrants are still passing, research shows these fish tend to produce greater adult returns, and the sluiceway is the safest passage route for the fish. A question was raised about what estimate is used to determine this, as the USGS survival study (a summer study) of The Dalles notes 73.5% survival through the sluiceway and 72.9% turbine survival. NOAA's estimate, which is based on more than just summer numbers, is 83% through turbines and 93% through the sluiceway.

NOAA offered that the recommendation put forth is biologically sound, but did not sign on to the SOR because discussions at a policy level about making the change in the Fish Passage Plan (FPP) were happening and the issue had not yet moved forward on that end.

From BPA's perspective, the operation would not be cost-effective in that it would ultimately result in a small amount of returning fish at a significant cost to ratepayers. The COE responded that they planned to continue the current operation at The Dalles, without the use of the sluiceway.

The USFWS explained that they felt it was important to raise the issue for the record – language in the FPP is vague and regional discussions are needed. From a biological perspective, the USFWS believes that operating the sluiceway through November is the best operation. IDFG

echoed that this would be a prudent action to support the fish. Washington suggested more discussion is needed on the FPP. TMT members that signed on to the SOR did not feel the issue need to be elevated to IT.

NOAA suggested that the next step on this issue will be to comment on the Fish Passage Plan. The COE noted that there will be an FPOM meeting on November 22, at which the FPP will be reviewed.

Operations Review

Reservoirs – Grand Coulee was at elevation 1287.6', maintaining a higher elevation to meet chum needs. Hungry Horse was at 3539.2' with good inflows. Libby was at elevation 2445.66'. The November early bird showed a 111% April-August forecast, so Libby is targeting 2411' end of year elevation. Albeni Falls was at 2056.65' and is expected to reach 2055' around November 16. Dworshak was operating at minimum flows, with about 2 kcfs in, and at elevation 1518.7'.

Fish – Smolts: Paul Wagner, NOAA, reported that smolt monitoring has ended, and that there was an uptake in subyearling numbers in the Lower Snake in October; it was unknown whether the fish will continue to migrate through the system or will hold over. Russ Kiefer, IDFG, reported that 7 pit-tagged yearling chinook released from the hatchery were observed at Lower Granite.

Adults: 261 fall chinook and 93 redds were observed as of 11/8 at Ives Island.

Power system – The system is set up for a chum operation, once chum are observed.

Water quality – Temperatures at Dworshak were currently at 45.3°. Dave Wills, USFWS, committed to talking with the hatchery about a ponding operation for this year.

Next Meeting, November 23, 9am-noon

Agenda Items include:

- Chum operations and issues
- Temperature and hatchery impacts at Dworshak
- 2006 WMP
- Vernita Bar elevations expected for this season
- Snow pack review

Other

- The Fish Passage Evaluation Review will be held in Walla Walla on November 14-17. Contact Larry Beck, COE, for more information.
- Comments on the Year End Review: We will need to update what we have learned, as much of the data shared was preliminary information. BPA would like to do a post-season cost review of 2005. It was noted that the spill operation pushed transmission limitations, and the TBL could do a presentation on this at a future TMT meeting. Tony Norris and John Wellschlager will take the lead on this.

Technical Management Team Meeting Notes

November 9, 2005

1. Greetings and Introductions.

Today's Technical Management Team meeting was chaired by Cathy Hlebechuk and facilitated by Donna Silverberg. The following is a summary (not a verbatim transcript) of the topics discussed and decisions made at this meeting. Anyone with questions or comments about these notes should contact Hlebechuk at 503/808-3936.

2. Chum Operation.

Hlebechuk said the action agencies have not yet received a call from ODFW indicating that the chum have begun to arrive at the lower river spawning grounds. Ron Boyce said ODFW will be doing another survey this Friday; only two live chum have been observed so far this season. Once that call is received, the operation will be to hold a Bonneville tailwater elevation of 11.3-11.7 during daytime hours and a minimum of 11.3 feet at night, Hlebechuk said.

For the benefit of the visitors present at today's meeting, David Wills provided an overview of the standard chum operation, in particular, the influence of tailwater elevations on successful chum spawning at the Ives/Pierce Island complex just below the dam. Research has shown that a minimum tailwater elevation of 11.3 feet provides good spawning conditions; it is also an elevation that can generally be maintained through the following spring, to avoid dewatering chum redds prior to the end of the incubation and emergence periods. John Wellschlager noted that this can be a tricky operation, because Bonneville tailwater elevation is also affected by other factors, including flow from the Willamette and other tributaries and tidal influences. The other thing that makes it tricky is the fact that, at this point in the season, we don't have a reliable 2006 water supply forecast, Wellschlager said. We are also refilling the upstream storage reservoirs at this point in the season, added Hlebechuk, so there isn't an unlimited supply of water to support this operation.

Cindy LeFleur said only two live chum were seen during yesterday's survey of the Multnomah Creek area; no live chum were seen at Ives Island. There is considerable activity at the Greys River spawning grounds, with more than 400 live chum seen during the October 26 survey.

On November 8, the action agencies received SOR 2005-20. This SOR, supported by USFWS, IDFG, ODFW, WDFW, the Nez Perce Tribe, the Shoshone-Bannock Tribes and CRITFC, requests the following specific operations:

- Immediately re-start the ice/trash sluiceway at The Dalles Dam and continue operation through the end of November. Operate the ice/trash sluiceway at The Dalles 24 hours a day.

Russ Kiefer provided an overview of this SOR, the full text of which is available via hot-link from today's agenda on the TMT homepage. He noted that the purpose of this SOR is to facilitate the passage of late-migrating juvenile fall chinook, a component of the run that typically produces very high SARs. The cost to ratepayers is relatively low, he said; research has shown that, if it is operated, up to 40% of these late outmigrants will pass the project via the ice/trash sluiceway.

John Wellschlager noted that the latest indices he has seen indicate that only 20-50 juvenile fall chinook are passing The Dalles daily. Given that fact, Bonneville would have to take issue with your characterization that this is a cost-effective operation, he said – my estimates show that the cost of 24-hour ice/trash sluiceway operation would be \$1.7 million-\$3 million through November 30. Given an expected SAR of about 3-4%, that translates into just a handful of returning adults – fewer than 10, for an investment of more than \$1 million.

David Wills noted that the SOR does not mention cost effectiveness; our perspective is that the Fish Passage Plan was unclear on this point, and this is our interpretation of how this issue should be resolved, he said. My understanding was there was a 2004 agreement at FPOM to stop operating the ice/trash sluiceway at the end of October, said Hlebechuk – I don't think anything has changed. I believe that was to be a year-to-year decision, Wills replied.

Paul Wagner said NMFS did not sign on to this SOR because it had used other venues in an attempt to resolve this issue. Our recommendation the last two years was that operation of the ice/trash sluiceway should continue through the end of November, he said. The Corps has already made that policy call, by shutting off the sluiceway in spite of NMFS' recommendation. I thought it was important, however, for the salmon managers to be on the record as saying that the Fish Passage Plan is unclear on this point, and that needs to be resolved – we do feel the sluiceway should be operated through the end of November, Wills said.

Shane Scott said that, according to the draft July 2005 USGS survival report, on page 55, the last paragraph says ice/trash sluiceway survival was 73.5%, compared to 72.9% survival through the powerhouse. Where does the 80%/100% survival, respectively, through the turbines and the sluiceway, come from? Scott asked. NMFS assumed 83% survival through the turbines and 93% survival through the ice/trash sluiceway in developing its recommendations, Wagner replied; however, those are primarily summer estimates, made at a time when predators are numerous, active and congregating at the outfall of the

ice/trash sluiceway. Scott said that, in his view, the \$1 million would better be spent on predator removal.

Again, said Wellschlager, if you do the math, we're talking about an increase of fewer than 8 returning adults for an investment of at least \$1.7 million. And again, the primary purpose of this SOR was to bring the lack of clarity on this issue, and the difference of opinion around the table, to the TMT's attention, said Wills. Rudd Turner noted that there is an FPOM meeting scheduled for November 22, at which this issue will be discussed.

What is the action agencies' response to the SOR? Silverberg asked. We're planning to operate with the ice/trash sluiceway closed at The Dalles, said Hlebechuk. After a few minutes of further discussion, Wills said the salmon managers do not plan to elevate this issue to the IT at this time. Kiefer concurred, noting that Idaho's primary purpose was to get it on the record that operation of the ice/trash sluiceway at The Dalles through the end of November would be a prudent operation.

3. Operations Review.

Tony Norris reported that Grand Coulee is currently at elevation 1287.6; Hungry Horse is at elevation 3539.2. Inflows have been good at Hungry Horse; Grand Coulee is being operated to fill as much as possible while still meeting power and chum needs.

Hlebechuk said Libby is at elevation 2445.7; the November early-bird forecast for that project is 111% of average. The January 31 Libby elevation target is 2411. Albeni Falls is at elevation 2056.6 and drafting toward 2055; the current forecast shows that it should be possible to reach that elevation by November 15 or 16, despite the recent spike in inflows. Dworshak continues to release minimum outflow and is currently at elevation 1518.7 feet. Inflows to the project are running about 2 Kcfs, currently.

Moving on to fish, Wagner said whatever they're doing, they're doing it without our knowledge. There is no smolt monitoring going on currently, he said; we saw a bit of an uptick in juvenile passage out of the Snake at the end of October. With respect to adults, we're still waiting for the chum to arrive – only about 90 chum have passed Bonneville to date.

Are the late-migrating fall chinook still actively trying to get to the ocean, or are they now hanging out and preparing to overwinter? Turner asked. That's unknown, Wagner replied; those fish tend to move downstream a project at a time, and appear to be about as likely to continue to outmigrate as to call it a season, and remain in the system to outmigrate as yearlings. Wills noted that 263 live fall chinook and 93 fall chinook redds were seen at the Ives Island complex during the most recent spawning ground survey. Kiefer added that a

small number – 7 – of PIT-tagged pre-smolts from some of IDFG’s releases on the Lachsa and other systems have already been detected passing Lower Granite Dam. We’re confident those fish will overwinter somewhere in the system before continuing their outmigration this spring, Kiefer added.

Wellschlager said there is nothing significant to report with respect to the status of the power system; we’ve been doing what we can to prepare for the start of the chum operation, he said.

With respect to water quality, Hlebechuk said the current Dworshak release temperature is just over 45 degrees. Wills said he will discuss the status of the ponding effort at Dworshak National Fish Hatchery and will report back to TMT at a future meeting.

4. Other.

Hlebechuk asked whether all comments have been received on the 2006 Water Management Plan; various TMT participants said they have not yet submitted theirs. Hlebechuk asked that all comments be submitted to her as soon as possible.

Silverberg asked whether the TMT had any additional thoughts on last week’s TMT year-end review meeting. Larry Beck said it is important for the group to remember that most of the information presented was preliminary; there were a lot of caveats attached to most of the presentations. Wellschlager said he would have liked to have had more discussion of the cost-effectiveness of the court-ordered spill operation, which, according to BPA’s estimates, cost ratepayers \$1 million per day. That was a particular concern during the late August period, when very, very few smolts were passing the Lower Snake dams, he said. The spill operation also caused us to spend a shocking period of time exceeding the system reliability limits, Norris added.

5. Next TMT Meeting Date.

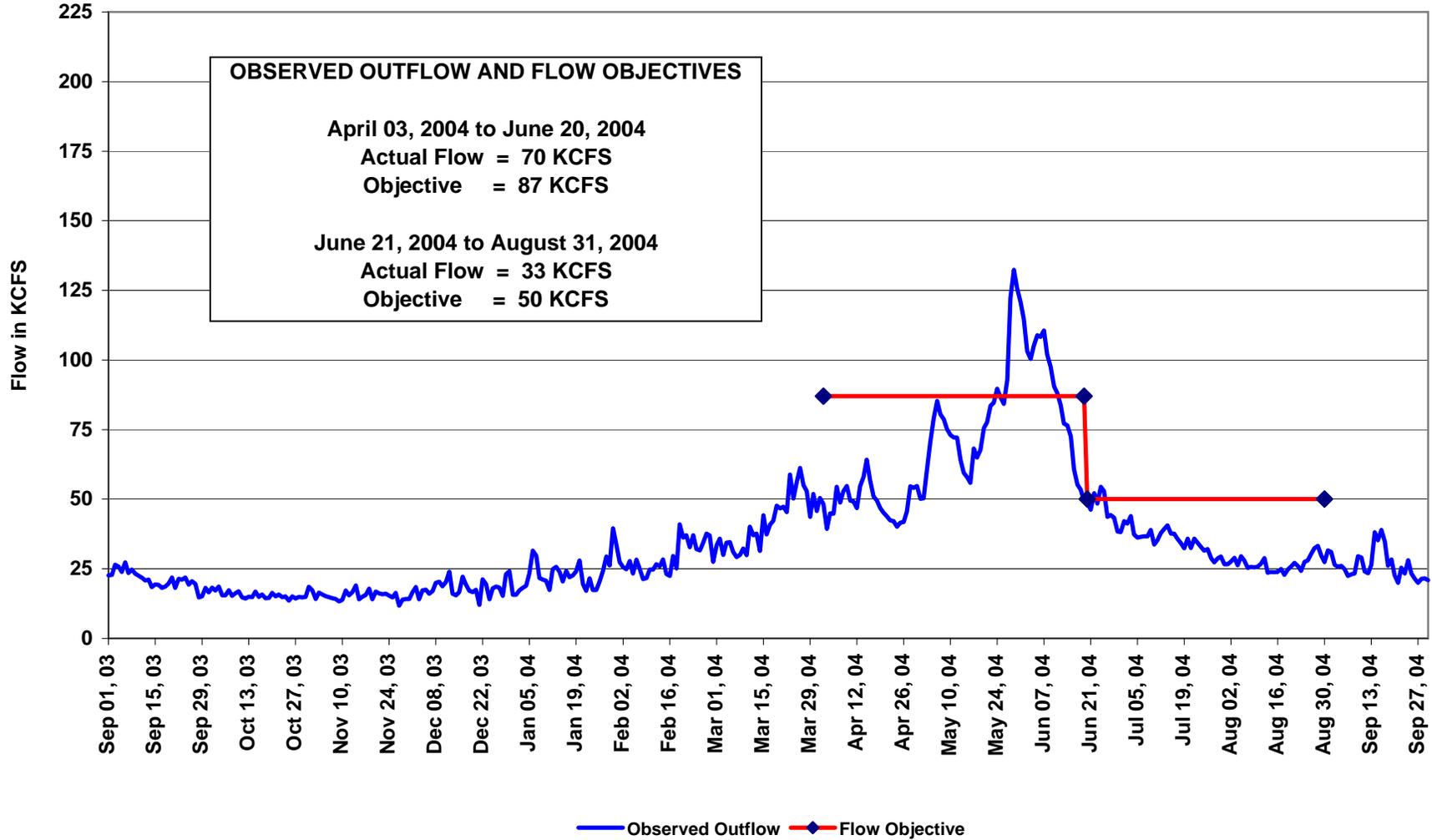
The next meeting of the Technical Management Team was set for Wednesday, November 23. Meeting summary prepared by Jeff Kuechle.

TMT Participant List November 9, 2005

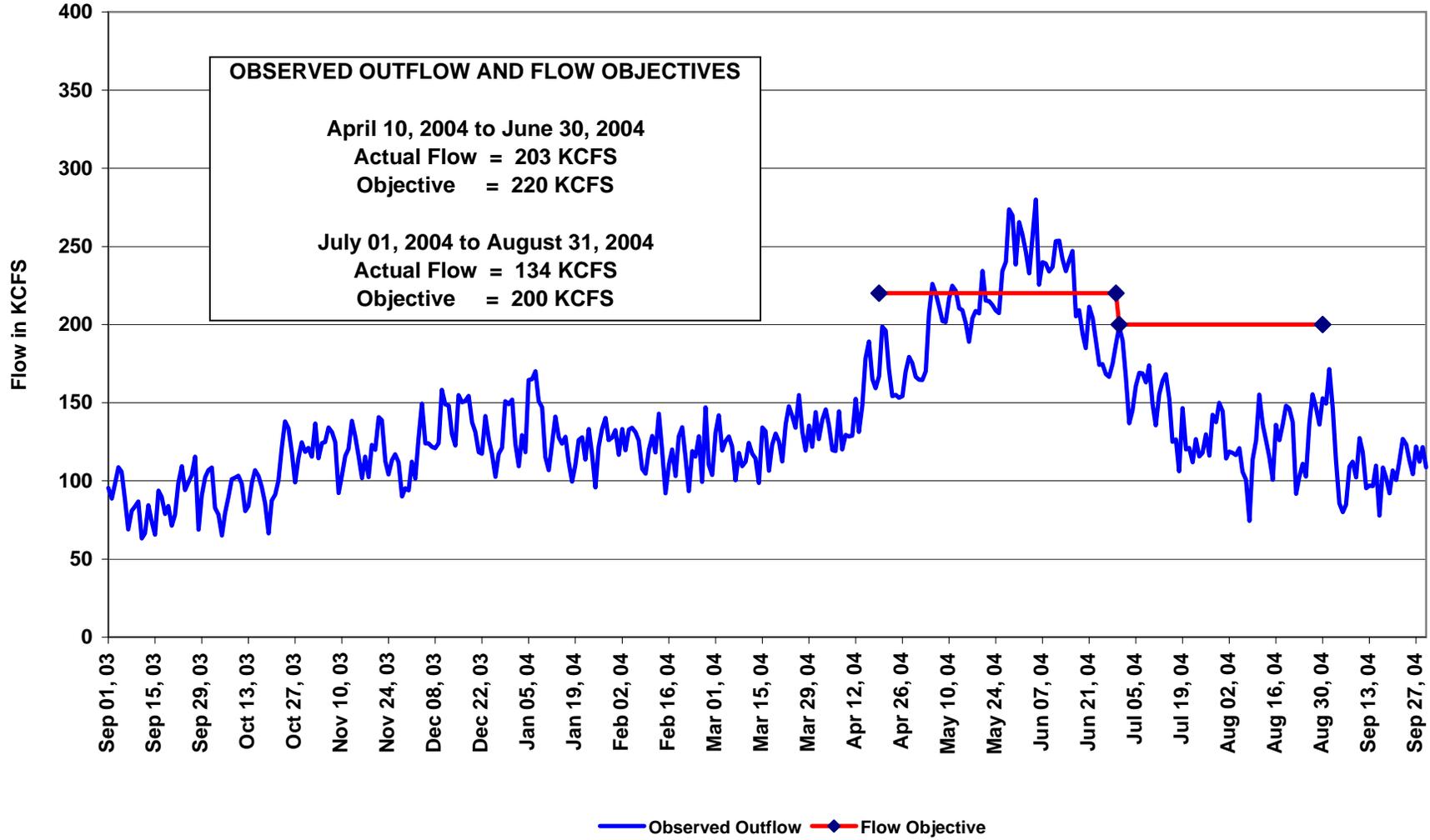
Name	Affiliation
Donna Silverberg	Facilitation Team
Cathy Hlebechuk	COE
Tony Norris	USBR

Robin Harkless	Facilitation Team
Tim Heizenrater	PPM
Rudd Turner	COE
Larry Beck	COE
Tom Le	PSE
Cindy LeFleur	WDFW
David Wills	USFWS
John Wellschlager	BPA
Russ Kiefer	IDFG
Dan Spear	BPA
Nic Lane	BPA
Kevin Nordt	Mid-Cs
Paul Wagner	NMFS
Russ George	WMCI
Paul Koski	COE
Todd Cook	PPM
Lance Helwig	COE
Matt Rabe	COE
Jim Buck	COE
Jim Van Nest	COE
Shane Scott	PPC
Richelle Beck	D. Rohr & Associates
Bruce MacKay	Consultant
Mike Buchko	Powerex
Kyle Dittmer	CRITFC

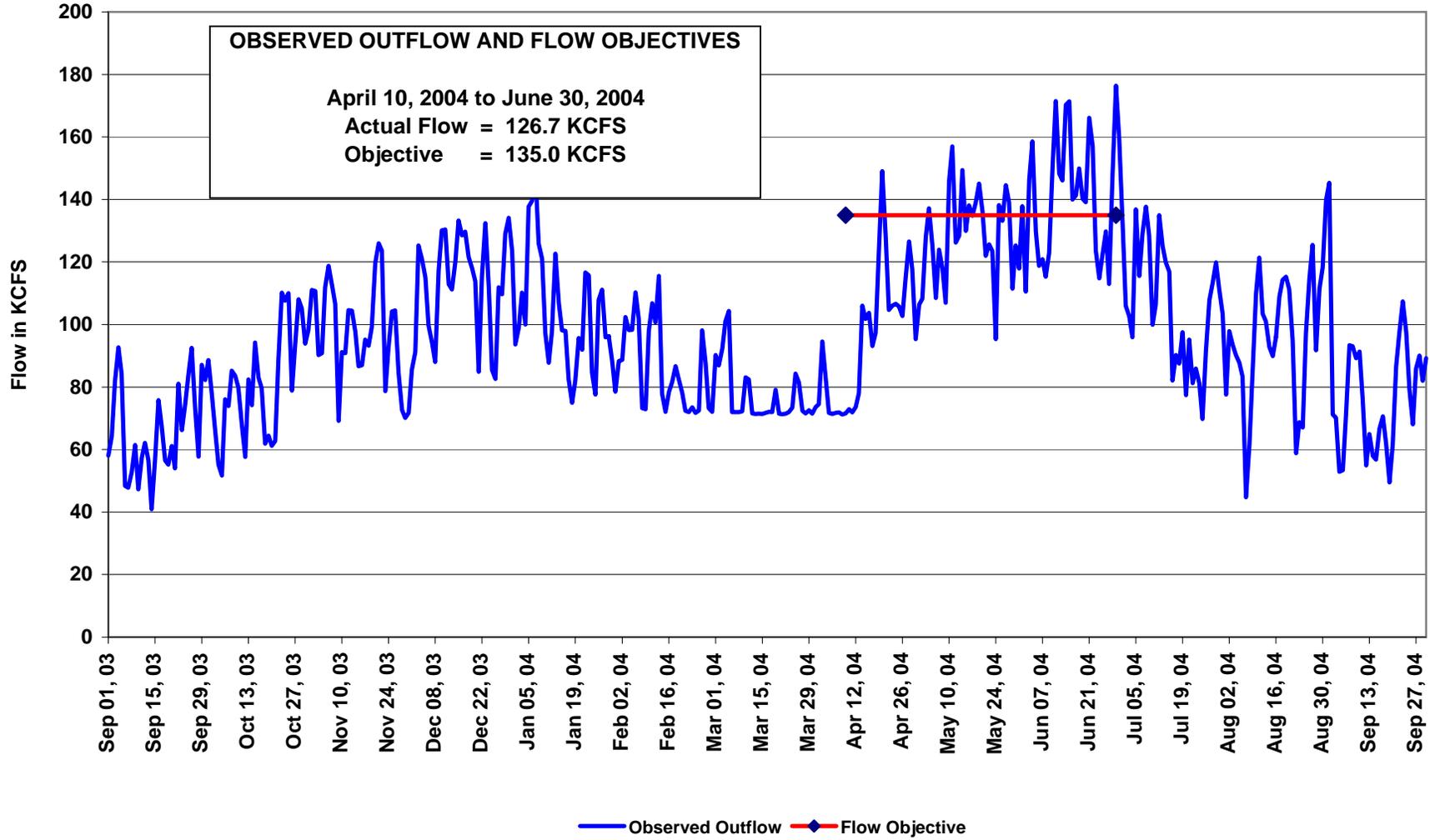
LOWER GRANITE RESERVOIR
Sept 01, 2003 to Sept 30, 2004



MCNARY RESERVOIR
Sept 01, 2003 to Sept 30, 2004



PRIEST RAPIDS RESERVOIR
Sept 01, 2003 to Sept 30, 2004



TECHNICAL MANAGEMENT TEAM

BOR: Tony Norris / John Roache

BPA: John Wellschlager / Nic Lane

NOAA-F: Paul Wagner

USFWS: David Wills / Steve Haeseker

OR: Ron Boyce

WA: Cindy LeFleur

ID: Russ Kiefer

MT: Jim Litchfield

COE: Cindy Henriksen / Cathy Hlebechuk

TMT MEETING

Wednesday November 23, 2005 0900 - 1200 hours
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Portland, Oregon 97208
Conference call line: 503-808-5190

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Please e-mail her at dsilverberg@cmm.net or call her at (503) 248-4703.*

AGENDA

1. Welcome and introductions.
2. Vernita Bar elevations expected for this season
 - i. [\[Vernita Bar Redd Survey, November 20, 2005\]](#) 
3. Chum operations and issues.
4. Temperature and hatchery impacts at Dworshak
5. 2006 WMP
 - i. [\[Water Management Plan - 2006\]](#) 
6. Snow pack review
 - i. [\[Water Supply Precipitation Summary - Weekly Divisional Precipitation Summary \(11/22/2005\)-out\]](#)
 - ii. [\[Water Supply Precipitation Summary - Weekly Divisional Precipitation Summary \(11/22/2005\)-in\]](#)
 - iii. [\[Current Snow Conditions-out\]](#)
 - iv. [\[Current Snow Conditions-in\]](#)
7. Operations Review
 - a. Reservoirs
 - b. Fish
 - c. Power System
 - d. Water Quality
8. Other
 - Set agenda for next meeting.
[\[Calendar 2005\]](#)  [\[Calendar 2006\]](#) 

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

MEMORANDUM

November 22, 2005

TO: Interested Parties
FROM: Chris Carlson, Senior Fisheries Biologist
SUBJECT: Vernita Bar Redd Survey, November 20, 2005

Discussion: On Sunday, November 20, 2005 the sixth and final Vernita Bar ground redd count was conducted to set the 2005-06 Critical Flow Elevation for the Hanford Reach. The monitoring team representatives consisted of Paul Hoffarth (WDFW) and Chris Carlson (GCPUD). The third Monitoring Team member, Paul Wagner (NMFS), was unable to attend the redd count but was contacted by phone and concurs with this memo. Flows from Priest Rapids Dam at Vernita Bar were about 40 kcfs. Results of this survey are provided in the table below.

<u>Transect</u>	----- Redd Count by Flow Level (kcfs) -----						<u>Total Number Of Redds</u>
	<u>(36 – 50)</u>	<u>(50 – 55)</u>	<u>(55 – 60)</u>	<u>(60 – 65)</u>	<u>(65 – 70)</u>	<u>(Above 70)</u>	
Above A	--	--	--	10	4	3	17
A – AB	--	--	--	23	8	8	39
AB – B	--	--	--	21	14	22	57
Below B	--	--	--	12	9	27	48
C	--	--	--	8	3	0	11
Totals	--	--	--	74	38	60	172

No redds were counted below the 60 kcfs elevation since the proceeding redd count indicated that the Critical Flow Elevation would be above the 60 kcfs elevation and that there was a concern that inflows would limit the amount of time for the redd count.

Based on the survey count and the Hanford Reach Fall Chinook Protection Program Agreement, the 2005–2006 Critical Flow Elevation is set at the 70 kcfs flow elevation (the agreement states, “If 31 or more redds are located above the 65 kcfs elevation, the Critical Flow Elevation will be the 70 kcfs elevation”). There were 98 redds identified above the 65 kcfs elevation.

The Vernita Bar Monitoring Team agreed that no redd count will be required next Sunday, November 27, 2005 since no spawning activity was observed during the redd count. Only a few female salmon were observed guarding their redd in the index area.

Based on these results above, reverse load factoring will end as of 0001 hours on November 21, 2005. A separate memo will be provided to Grant PUD Dispatchers outlining flow requirements to protect the Hanford Reach redds and fish.

During last year’s November 28 redd count, no redd count was taken between the 36-60 kcfs elevations, 55 redds were counted within the 60-65 kcfs elevations, 18 redds between 65-70 kcfs, and 6 redds above the 70 kcfs elevation. The 2004-05 Critical Flow Elevation was set at 65 kcfs.

This year’s Initiation on Spawning was set to be on October 26 for both zones below and above the 50 kcfs elevation during the October 30 redd count.

Priest Rapids Dam left the experimental spawning flow program and returned to Reverse Load Factoring on November 8, 2005 at 0600 hours. Daytime flows were targeted at 70 kcfs.

Please contact me if you have any questions.

(VBReddCountM.doc)

c: Linda Jones
Jeff Atkinson
Scott Bettin
Steve Brown
Scott Carlon
Dennis Dauble
Mike Erho
Gary Garnant
Paul Hoffarth
Lance Elias
Chuck Goligoski
Shane Bickford
Gary Donabauer
Bob Clubb
Don Anglin

Steve Hays
Leon Hoepner
Rick Klinge
John Muir
Rod Noteboom
Greg Lange
Russ George
Tom Lorz
Bill Berry
Geoffrey McMichael
Robert Mueller
Paul Wagner
Bill Tweit
Kevin Nordt

Bob Heinith
Cliff Sears
Lon Topaz
Rudd Turner
Dispatch
F WWQ Team
PRD Operators
Relicensing Library
WAN Operators
Kelly Harlan
Shane Scott
Greg Patton
Cathy Hlebechuk
Larry Beck

COLUMBIA RIVER REGIONAL FORUM

TECHNICAL MANAGEMENT TEAM

November 23, 2005

FACILITATOR'S SUMMARY NOTES ON FUTURE ACTIONS

Facilitator: Donna Silverberg

Notes: 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.

Vernita Bar

Russ Langshaw, Grant County PUD, provided information on observed chum redds in Hanford Reach. As of November 20, 74 redds were observed at 60-65 kcfs; 38 were observed at 65-70 kcfs; and 60 were observed above 70 kcfs. The 2005-06 critical flow elevation for the Hanford Reach was set at the 70 kcfs elevation. Reverse load factoring ended at midnight on 20 November. Thus, Vernita Bar was set at 70 kcfs. A question was asked about whether the experimental operation implemented this year would be pursued again in future years. Russ responded that the data still needs to be evaluated, and that likely the PUD would not pursue the same operation again next year. Russ will continue to provide updates to TMT on Hanford Reach operations.

Chum Discussion

On November 18, surveyors observed: 264 Fall chinook, 63 live chum, 6 coho, 179 chinook redds and 43 chum redds in the Ives Island area. The numbers are comparable to last year. Operations for chum began on 11/10. A test, at 15.5', is scheduled for Sunday, November 27. It was noted that unit outages and dry weather have posed challenges to meeting the chum tests. TMT will continue to track chum operations as the season continues.

Temperature/Hatchery Impacts at Dworshak

Dave Wills, USFWS, reported that a request was put forth for warmer temperatures out of Dworshak to accommodate the hatchery fish, and the COE provided a test operation with the lowest gate opening in overshot mode. This provided 50.5°, which was within the hatchery's requested temperature range. The operation will continue unless temperatures reach 53°, at which time operations would switch to undershot mode. Dave added that the fish are a little smaller than usual but that the hatchery folks were not overly concerned.

2006 Water Management Plan

While waiting for results of the BiOp litigation, the Action Agencies are using the WMP as guidance for operating the FCRPS. BPA has provided updates to the emergency protocols listed in the WMP. NOAA plans to comment on the WMP by next week, before a status update is provided at the next IT meeting, December 1. IDFG might

provide comments if time permits. WDFW will review the new information added to the protocols list.

Snow Pack Review

Information on precipitation and snow pack for November was linked to today's agenda. Precipitation for November is generally above average throughout the region, but not by a large percentage. Snow conditions are about average in the region, except for in southern Idaho, where conditions are below average. NOAA's longer term forecast shows uncertainty about what kind of year it will be. Kyle Dittmer's forecast shows a slightly below precipitation for November, and about average precipitation through December.

Operations Review

Reservoirs – Grand Coulee was at elevation 1283.2', drafting to meet chum flow. Hungry Horse was at 3539.5' and filling slightly. Libby was drafting 20 kcfs out and at elevation 2439.8'. The Libby forecast shows 111% of normal; there will be another check-in on the Libby forecast in early December to help determine an elevation target. Albeni Falls reached its target elevation of 2055' on 11/11 and operators will maintain that elevation. Dworshak was drafting slightly, at minimum flow, and at elevation 1518.6'.

Fish – Nothing to report at this time.

Power system – The system is operating to meet chum flows.

Water quality – Laura Hamilton, COE, reiterated what was discussed earlier about Dworshak temperatures (see above).

TMT Meeting Schedule

TMT will meet on the following dates:

- December 7,
- December 21,
- January 11, and
- January 25 (or 1/18, depending on the SRWG/SCT schedule).

Agendas will be developed and posted prior to the meetings. Someone from BPA's TBL group will provide a 2005 review of operation effects on the power system sometime in January.

Technical Management Team Meeting

November 23, 2005

1. Greetings and Introductions.

Today's meeting was chaired by Cathy Hlebechuk and facilitated by Donna Silverberg. The following is a summary (not a verbatim transcript) of the topics discussed and decisions made at this meeting. Anyone with questions or comments about these notes should contact Hlebechuk at 503/808-3936.

2. Vernita Bar Elevations Expected for This Season.

Russell Langshaw said field crews had counted 74 redds in the 60-65 Kcfs flow band; 38 in the 65-70 Kcfs flow band and 60 redds in the band above 70 Kcfs. Therefore, the critical Vernita Bar elevation will be set at 70 Kcfs throughout the winter.

This was an experimental operation this year, with the "double reverse" load following, said Paul Wagner – has Grant County PUD decided whether to implement this operation in the future? Not at all, Langshaw replied – we will be evaluating the data we collected this year, but will likely not duplicate the operation we did this year – there was lots of spawning at the higher elevations.

3. Chum Operations and Issues.

David Wills said that the last spawning survey took place on November 18; the crews are out again today. Last Friday's survey is available via the Fish Passage Center homepage. As of Friday, there were 63 live chum, 43 chum redds, 264 live chinook and 179 redds on the Ives Island spawning grounds. The counts are comparable to the 2004 counts for this date. We'll provide another update next meeting, said Wills.

The actual chum operation started November 11, added Hlebechuk. Testing is ongoing, but has been delayed because of milfoil, said John Wellschlager – the next test is scheduled for Saturday, November 26. They're planning to hit 15.5 feet this weekend. Another problem is that it has been so dry for the past two weeks; it takes a lot more flow to hit the target when things are this dry.

4. Temperature and Hatchery Impacts at Dworshak.

Wills said that, over the past week, the personnel at Dworshak National Fish Hatchery contacted the Corps to request a warmer outflow temperature from Dworshak. The bottom line was that the Corps tested the lowest gate opening in overshot mode, which produced a temperature of 50.5 degrees F. That was acceptable to the hatchery, and it looks like they will be able to run that for awhile, Wills said. All of the steelhead have been ponded, and they want to give them a couple more weeks to acclimate before turning on the re-use system about December 15. The fish are a little bit behind, growth-wise, this year because of the lower water temperatures; hatchery personnel hope to see the steelhead catch up once the re-use system comes on-line. However, the guys at the hatchery do not appear to be that concerned, Wills added – it looks like everything will likely work out.

5. 2006 Water Management Plan.

The most recent draft of the 2006 Water Management Plan is available via the TMT website, said Hlebechuk; there is also a draft of the fall/winter update on the TMT website. It is also attached to today's agenda on the TMT homepage. The updated emergency protocols are also available, but no comments have been received to date.

Everyone knows there is litigation going on, and no one knows how that's going to turn out, but we need to keep moving forward regardless, Wellschlager observed. Paul Wagner said he will provide NMFS's comments next week. Russ Kiefer said IDFG's comments have been in limbo due to the litigation; because I'm overwhelmed, I have moved on to other things, he said. Kiefer said he will discuss the 2006 WMP with his policy folks to see what comments Idaho may want to provide. Cindy LeFleur said that, in all likelihood, Washington will not be providing comments. She added, however, that she will review the plan and provide any comments she feels are necessary.

What do you want us to say to the IT next week? Hlebechuk asked. That NMFS will be submitting comments, and that Idaho and Washington will provide whatever comments they feel are appropriate, Silverberg replied.

6. Snow Pack Review.

With respect to precipitation for November to date, said Hlebechuk, it's a mixed bag, but in general, more above-average than below-average for November for the Columbia Basin. With respect to the snow pack, in general, it is close to normal throughout the basin, except in southern Idaho. One thing that has helped us lately is that, even though it's been dry, it's been cold, Wellschlager added. This time of year, however, all bets are off – if we have a dry December, the water year will be headed into the dumpster.

Kyle Dittmer said his forecast shows slightly colder, slightly-below-normal precipitation and temperatures; for the rest of the winter, he is predicting near-normal precipitation and slightly below-average temperatures. Thanksgiving, however, will be sunny and dry, he added.

7. Operations Review.

Hungry Horse is at elevation 3539.5 and filling slightly; inflows have been pretty strong, said Tony Norris. At Grand Coulee, we're at 1283.2 feet this morning and drafting to meet chum flows. Libby is at 2439.8 feet, releasing 28 Kcfs and drafting, said Hlebechuk. Albeni Falls hit elevation 2055-2055.5 on November 11. Dworshak is at elevation 1518.6 and drafting slightly at minimum outflow.

The STP run that came out yesterday – did that factor in the 70 Kcfs operation at Vernita Bar? Wills asked. the chum operation completely overpowers Vernita Bar, Wellschlager replied – if we're doing the chum operation, we won't have any trouble meeting the Vernita Bar minimum.

With respect to fish, Wagner said all of the action, currently, is in chum and fall chinook; smolt monitoring ceased on October 31. Wellschlager said there is nothing to report from the power system side. Laura Hamilton said Dworshak switched from undershot to overshot mode on November 21, resulting in a release temperature of 50.5 degrees.

8. Next TMT Meeting Date.

The next meeting of the Technical Management Team was set for Wednesday, December 7. Meeting summary produced by Jeff Kuechle, BPA contractor. Future meetings were set for December 21, January 11 and January 25.

**Technical Management Team Meeting Participants
November 23, 2005**

Name	Affiliation
Cindy LeFleur	WDFW
Polly Krantz	Sempra Energy Trading
Kyle Dittmer	CRITFC
Russell Langshaw	Grant PUD
Tim Heizenrater	PPM
Bruce MacKay	Consultant

Dave Benner	FPC
Margaret Filardo	FPC
Richelle Beck	D. Rohr & Associates
Cathy Hlebechuk	COE
Tom Le	PSE
Dave Wills	USFWS
John Wellschlager	BPA
Robin Harkless	Facilitation Team
Donna Silverberg	Facilitation Team
Paul Wagner	NMFS
Tony Norris	USBR
Nic Lane	BPA
Russ George	WMCI
Dan Spear	BPA
Shane Scott	PPC
Russ Kiefer	IDFG
Laura Hamilton	COE

TECHNICAL MANAGEMENT TEAM

BOR: Tony Norris / John Roache

BPA: John Wellschlager / Nic Lane

NOAA-F: Paul Wagner

USFWS: David Wills / Steve Haeseker

OR: Ron Boyce

WA: Cindy LeFleur

ID: Russ Kiefer

MT: Jim Litchfield

COE: Cindy Henriksen / Cathy Hlebechuk

TMT MEETING

Wednesday December 07, 2005 0900 - 1200 hours
1125 N.W. Couch Street, Suite 4A34
Portland, Oregon 97208
Conference call line: 503-808-5190

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

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

AGENDA

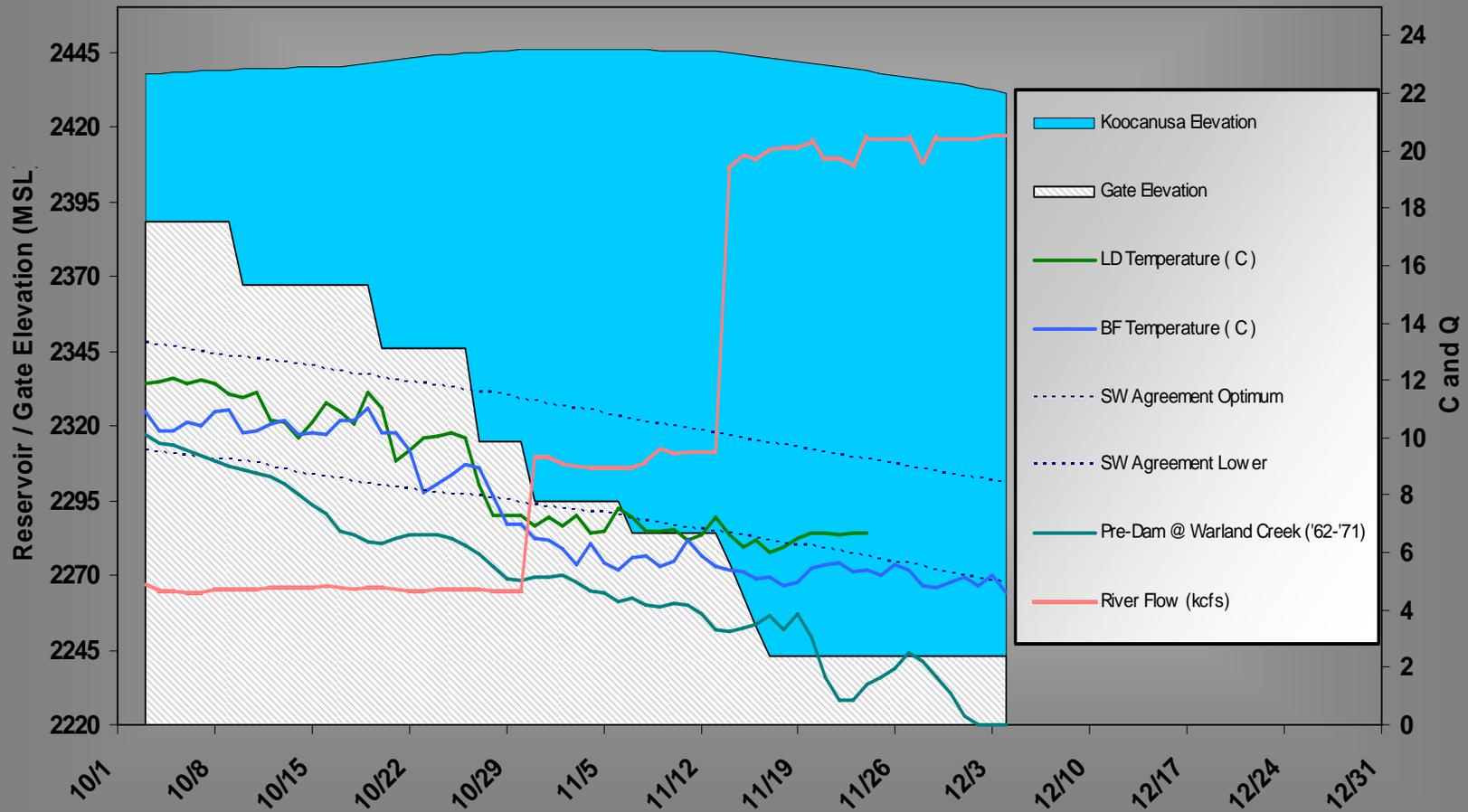
1. Welcome and introductions.
2. Review Minutes
 - i. [\[Minutes\]](#) 
3. Status of SOR 2005-FWS-3 Winter Temperature Operation of Libby Dam for Burbot.
 - i. [\[Kootenai River and Kooconusa Reservoir Temperatures 2005 Burbot SOR \(3 October - 31 December\) & Kooconusa Reservoir Temperatures 2005 Burbot SOR \(3 October - 31 December\)\]](#) 
4. Chum Discussion.
 - i. [\[SOR: #2005-21 December 6, 2005 - To provide the best spawning and incubation conditions possible below Bonneville Dam.\]](#) 
5. Lower Snake River projects annual winter operating flexibility.
 - i. [\[SOR: #2005-22 December 6, 2005 - Snake River Zero Nighttime and Weekend Flow.\]](#) 
6. Water Management Plan and Fall/Winter Update comments.
 - i. [\[Draft November 29, 2005\]](#) 
7. Operations Review
 - a. Reservoirs
 - b. Fish
 - c. Power System
 - d. Water Quality
8. Other
 - Set agenda for next meeting **December 21, 2005.**
[\[Calendar 2005\]](#)  [\[Calendar 2006\]](#) 

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



US Army Corps
of Engineers

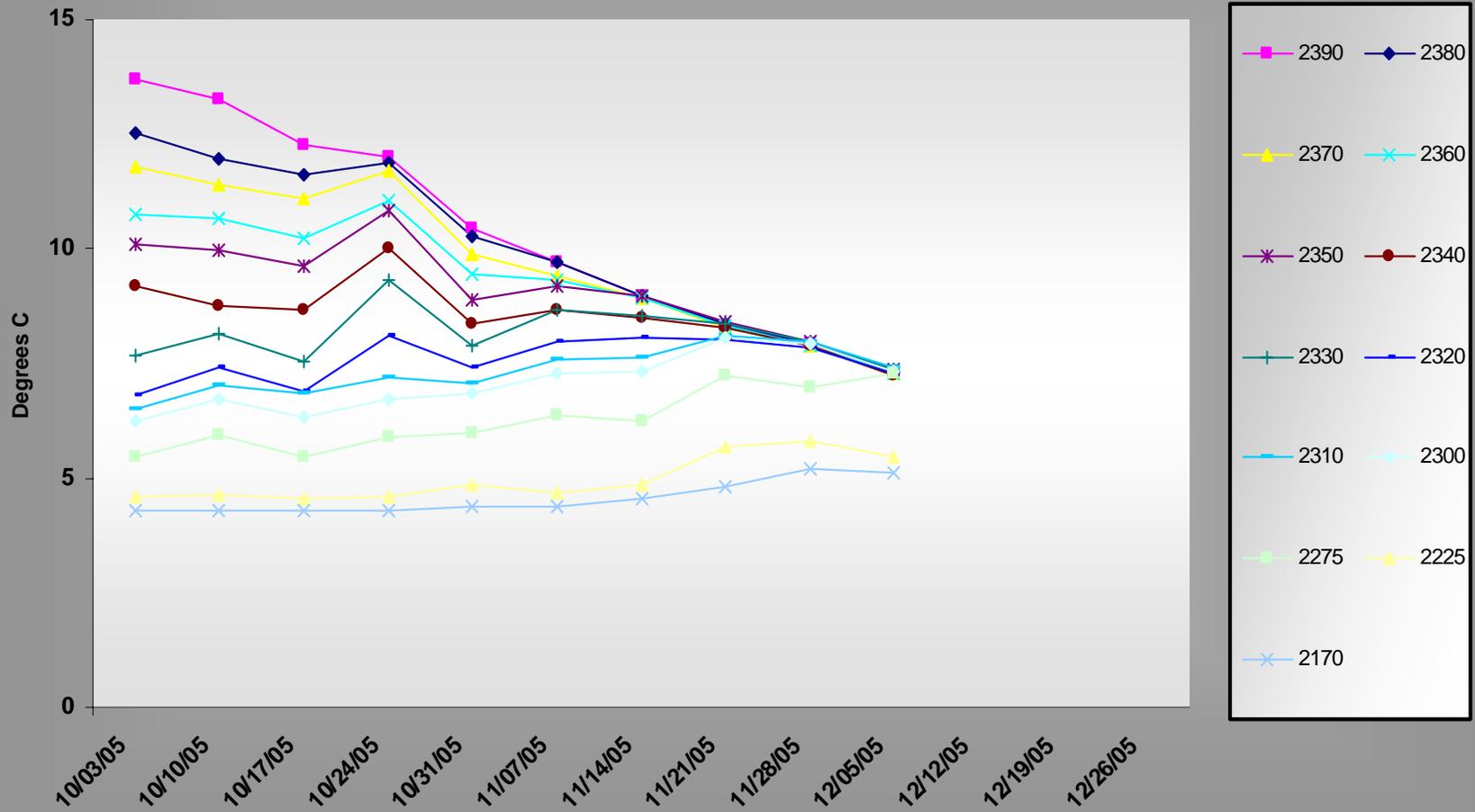
Kootenai River and Kooconusa Reservoir Temperatures 2005 Burbot SOR (3 October - 31 December)





US Army Corps
of Engineers

Koocanusa Reservoir Temperatures 2005 Burbot SOR (3 October - 31 December)



COLUMBIA RIVER REGIONAL FORUM

TECHNICAL MANAGEMENT TEAM

December 7, 2005

FACILITATOR'S SUMMARY NOTES ON FUTURE ACTIONS

Facilitator: Donna Silverberg

Notes: 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.

Review Minutes

No comments were provided on the minutes from the November 23 meeting.

Status of SOR 2005-FWS-3

Greg Hoffman, COE, reported that the original SOR for operations at Libby dam called for early December operations. The COE was not able to get all the gates out due to time and resource constraints, but were able to remove enough to see effects. However, the preferred monitoring of burbot for the study did not occur because only one burbot was observed and it was too small to tag. So, the test became a temperature test, and operators know they can provide temperatures they need with the planned operation. 144 of the 162 gates were removed. The COE will continue to monitor temperature for the rest of the year.

Chum Discussion: SOR 2005-21

Cathy Hlebechuk, COE, requested that TMT consider changing TMT meetings to Thursdays to be able to respond better to SOR's in the future. The salmon managers acknowledged the need for more lead time for operation requests, and offered to give a better heads up when requests are coming and a general overview of what the request will look like. The group may consider switching to Wednesday afternoon meetings.

The USFWS, Nez Perce Tribe, Shoshone-Bannock Tribes and CRITFC signed on to SOR 2005-21, requesting an increased tailwater elevation to 13.5' (13.2-13.7') at Bonneville to support chum spawning in the Ives Island complex, if superimposition occurs. The salmon managers would accept the need to drop back to 11.5' if the water ran out, and said that the risk for mortalities with superimposition was enough to risk the need to de-water redds later. It was also noted that it appears that superimposition is not likely to occur this year, but the salmon managers wanted to raise the issue for discussion.

BPA responded that they appreciated the effort by the salmon managers to share the responsibility but noted that in order for BPA to support the operation, Oregon and other salmon managers that were not signed on would need to agree. Also, an immediate increase from 11.5' to 13.5' would be a problem from BPA's perspective.

The question raised was how do you define the April 10 flood control rule curve: Using the March final? The April final? The BOR noted that following the April flood control is uncertain and risky. The salmon managers offered that, during normal or better water years, their recommendation as a concept might be fruitful. The salmon managers understand the recommendation would not likely work during a low water year.

BPA offered support for the concept, and said details of the proposal need work, e.g. specifics for when to lower the tailwater. Also, BPA needs agreement from NOAA and Oregon to move forward, and is willing to work toward details before reaching agreement. SOR 2005-21 states the purpose of the chum flows is to provide the best spawning and incubation conditions possible below Bonneville to protect the natural spawning chum and fall Chinook salmon at the Ives/Pierce Island complex, Multnomah Falls and to partly influence the conditions at the I-205 seeps. The Action Agencies reminded them the Multnomah Falls area is minimally affected and the I-205 area is not affected at all by Bonneville tailwater. Tidal influences are the biggest influence.

Idaho extended appreciation for the group's willingness to talk more, and said there needs to be some change to better protect chum.

Next steps: The combination of a low water year and low numbers of spawning chum make this issue less pressing this year, but all agreed to continue discussions during a process meeting in January.

It was noted that the tribes that signed on to the request have submitted an opposite operation request through the court process.

ACTION: TMT members present agreed to the following operation, which the COE will implement: Unless superimposition occurs between now and the end of the year, the 24 hour operational constraint will be a minimum of 11.5' starting at 00:00 on 1/01/06 consistent with prior years' operations. The FPAC chair will make sure there are no objections from salmon managers that were not in attendance for the discussion.

SOR 2005-22

Russ Keifer, IDFG, thanked the action agencies for giving a heads up that the issue of going to zero nighttime and weekend flow on the Snake River was imminent. After reviewing past notes on the issue, the salmon managers proposed (for the '03-04 winter) a definition for the operation ('few, if any, migrating adults'). This year, the salmon managers used the definition they had proposed and found that, as of today's meeting, adult numbers at Lower Granite were just above the criteria for going to zero nighttime flow, but the numbers were dropping. The salmon managers acknowledged that the numbers were very close to the criteria. The interest the salmon managers have is in providing a more normative river to support migrating adults – zero nighttime flow would not be considered 'normative'.

The COE offered that they are trying to balance biological and energy demands. It appears that the clarity in the definition is based on a number of fish and not on biological criteria. The salmon managers disagreed, saying that the Plan says to go to zero flow when few if any fish are

migrating. So, they tried to design criteria to get at the meaning of this, and develop a number that was biologically based.

The salmon managers expressed a need to get real closure on this issue. For this year, they did not support but would not elevate to IT the action agencies proposal to start the zero nighttime/weekend flow operation on Friday evening, December 9. The COE suggested that there be an experiment to show the biological significance of the operation to help move toward closure on the issue.

ACTION: There will be a single-topic TMT meeting in the near future to discuss development of an experiment, per the COE's suggestion.

ACTION: The COE will implement the following operation: On Friday, December 9, between 2200-0600 hours, operate for up to a six hour period a zero flow at Lower Monumental, Little Goose and Lower Granite. Ice Harbor will be operated at 65 megawatts during the same time period.

2006 WMP

'Level 3' was added to the Emergency Protocols in the WMP, and NOAA and others would like more discussion on this, at the January 11 TMT meeting. Idaho is waiting to see what occurs with the WMP via the litigation. If it is determined that the WMP will be used, Idaho will share comments. The Fall/Winter update has also been posted on the web and comments are being accepted.

Operations Review

Reservoirs – Grand Coulee was at 1279.4', and holding steady. Hungry Horse inflows were down; the BOR was drafting to meet Columbia Falls, and the elevation was 3539.6'. Libby was at 2439.3' and releasing full powerhouse. The December final water supply at Libby was 106% , so the COE will target 2411' end of December elevation. Dworshak was at 1518.03'; 1458' is the flood control elevation. The December final forecast showed Dworshak at 108%. Albeni Falls was at 2055.3'. There was a good 15.5' tailwater test for chum this year. One final test (at 13.5') was scheduled for 12/8.

Fish –One pinniped was seen at Tanner Creek, a similar occurrence to last year.

Power system – Nothing to report at this time.

Water quality – The Dworshak tailwater temperature was 46.5°, and dropping. There was no report from the hatchery on this.

Other

The Lake Roosevelt Forum is scheduled for April 16-17. The TMT will consider whether to join the forum and hold a business meeting there next year. Also, it was suggested the group might want to go to the Kootenai River/Libby dam/Albeni Falls area for a meeting sometime. TMT will discuss potential field trips at the January 12 TMT meeting.

TMT Meeting Schedule

There is a tentative conference call scheduled for December 21, and a full face to face meeting scheduled for January 12, 2006. January 12 agenda items include:

- Water supply/forecasts
- Review of chum situation
- Litigation update
- WMP Fall/Winter Update
- Adult attraction issues?
- 2005 Transmission issues overview (maybe at the January 25 meeting)

Technical Management Team Meeting Minutes

December 7, 2005

1. Greetings and Introductions.

Today's Technical Management Team meeting was chaired by Cathy Hlebechuk and facilitated by Donna Silverberg. The following is a summary (not a verbatim transcript) of the topics discussed and decisions made at this meeting. Anyone with questions or comments about these notes should contact Hlebechuk at 503-808-3942.

2. Status of SOR 2005-FWS-3.

Greg Hoffman said the original SOR called for reducing temperatures as much as possible by removing the selective withdrawal gates at Libby Dam. The goal of this SOR was to try to target pre-dam water temperatures during the early part of the burbot migration. We ran into some problems, said Hoffman some of our staff had to go down to Hurricane Katrina, and we lost one of our selective withdrawal cranes. There are 162 gates in the system, and it takes about half an hour each to remove them. We got the majority of them out this year, and you can see the results, in terms of water temperatures, on this graph. We might have been able to come close to the pre-dam temperatures if we had been able to get all of the gates out, Hoffman said.

We had to get Montana's permission for this operation, he continued; one of the caveats of that agreement was that Idaho monitor burbot movement. So far, Idaho has only been able to capture one burbot, which was too small to tag, so this has essentially become a temperature test, which has been successful – we now know we can achieve the temperatures these fish need. In response to a question, Hoffman said the Corps was able to remove 144 of the selective withdrawal gates at Libby; there are still 18 gates remaining.

3. Chum Operations – SOR 2005-21.

I know we've talked about this before, but would it be possible to move the TMT meetings to Thursday? Hlebechuk asked. The problem is the conflict with other Thursday meetings, such as IT and SCT, said Silverberg. It's a real problem to receive these SORs the afternoon before the TMT meeting, Hlebechuk said. Maybe we could consider having the TMT meeting on Wednesday afternoon, Silverberg said. If you could at least let us know you have an SOR coming, the earlier you can give us notice, the better, said Tony Norris. It was agreed that the TMT will consider moving to a Wednesday afternoon meeting in January.

Prior to today's meeting, the action agencies received SOR 2005-21. This SOR, supported by USFWS, the Nez Perce Tribe, the Shoshone-Bannock Tribes and CRITFC, requests the following specific operations:

- If the salmon managers determine that significant [redd] superimposition is occurring and that the population size of spawning chum at the Ives Island complex warrants additional spawning habitat based on ongoing field monitoring programs, and consideration of other salmon flow needs, beginning on or about December 1 (dependent on in-season field monitoring) increase instantaneous tailwater elevation up to 13.5 feet (range from 13.3-13.7 feet) at Bonneville Dam.
- If tailwater is increased to the 13.3-13.7 range in December, then beginning on or about January 1 (dependent on the cessation of spawning), provide a minimum instantaneous tailwater elevation of 13.0 feet (range 12.8-13.2) at Bonneville.
- Maintain Grand Coulee Dam at Upper Rule Curve elevations throughout the winter and spring, except as needed to achieve the Bonneville tailwater elevation described above, subject to the regular check-ins shown below.
- Check in regularly to review the present operations, the difference between observed flows and those needed to achieve the tailwater elevations determined above, and the probability of being at upper rule curve on April 10, 2006. It is the salmon managers' intention to maximize the probability of achieving spring flow targets by being at upper rule curve on April 10.

David Wills said the main intent of the SOR was to get ahead of the curve and get this issue on the table now. John Wellschlager said it is distressing, to him, that one of the primary agencies responsible for the chum, ODFW, has not signed on as supporting this SOR. Tony Norris noted that the forecasts available at this time are only guesses; he expressed concern that this SOR is relying on an approximation. To increase the tailwater elevation from 11.5 feet to 13.5 feet means an extra 10 Kcfs in flow at Bonneville; over a month, that equates to seven feet of Grand Coulee storage, Norris said.

The group discussed the likely impacts of the requested operation on water depths at the Multnomah Creek spawning area. Norris noted that this operation is essentially the opposite of that requested in the current FCRPS BiOp litigation injunction; I don't understand how CRITFC can support this, he said. We can have our lawyers explain it to you, Kyle Dittmer replied.

The combination of a low water year and low numbers of spawning chum make this issue less pressing this year, but all agreed to continue discussions during a process meeting in January.

It was noted that the tribes that signed on to the request have submitted an opposite operation request through the court process.

TMT members present agreed to the following operation, which the COE will implement: Unless superimposition occurs between now and the end of the

year, the 24 hour operational constraint will be a minimum of 11.5' starting at 00:00 on 1/01/06 consistent with prior years' operations. The FPAC chair will make sure there are no objections from salmon managers that were not in attendance for the discussion

4. SOR 2005-22: Lower Snake Operations.

Prior to today's meeting, the action agencies received SOR 2005-22. This SOR, supported by IDFG, USFWS, ODFW, WDFW, NOAA Fisheries, the Nez Perce Tribe, the Shoshone-Bannock Tribes and CRITFC, requests the following specific operations:

- The fishery agencies and tribes recommend following the guidelines they developed in 2003 regarding the implementation of zero flow at Snake River projects.

Kiefer said this SOR relates to the fact that the region is now entering the period when the system goes to zero nighttime flow in the Snake. He described the rationale behind this SOR, noting that its intent is to protect migrating adult steelhead. Wellschlager replied that the number of wild steelhead migrants moving through the Snake has now declined to the low double digits, although the number of hatchery adults is higher.

A lengthy discussion of SOR 2005-22 ensued; the action agencies expressed discomfort with the requested operation because of the low fish numbers and the need for additional operational flexibility as the region enters the cold-weather, high-load period. The point is to get the TMT to agreement on criteria that will be implemented as we approach the period when few or no fish are present, Kiefer said.

Wellschlager said that, in his view, fish numbers have now declined to the point that zero nighttime flow can be implemented. If the salmon managers want a couple of extra days, that would be acceptable to Bonneville, but I would like to set a date on which this operation will begin at today's meeting, he said. Unfortunately, I can't speak for Oregon and Washington, and they're not present at today's meeting, said Wills – I'm afraid we can't give you a date at today's meeting.

The group reviewed the adult counts for the last two days (since the SOR was written); it was noted that the trend is continuing downward. The discussion then moved on to the salmon managers' proposed criteria for the start of zero nighttime flow at the Snake projects, which include a three-day average of fewer than 20 wild fish, which has now been met. Kiefer said that, if the action agencies choose to go to zero nighttime flow in the Snake at this time, Idaho does not agree, but will not elevate that issue to the IT.

I don't think we're going to reach agreement on the definition of "few" fish at today's meeting, Hlebechuk observed. She also noted the lack of supporting biological information in the justification for this SOR. Wellschlager said that, in the spirit of cooperation, Bonneville is willing to wait until Friday night to implement this operation. We appreciate that, said Kiefer, and recognize that the action agencies could have implemented this operation a couple of days ago.

Following a caucus break, Kiefer said the salmon managers recognize that it will not be possible to reach agreement on the criteria at today's meeting; while the salmon managers do not support going to zero nighttime flow at this time, they will not elevate their objection to IT. We appreciate the action agencies' willingness to work with us on this issue, Kiefer said. We look forward to sitting down and discussing this topic further at a future TMT meeting, added Wills. It was agreed to schedule a more detailed discussion of the biological side of this issue at a future TMT meeting.

Hlebechuk said that, for up to six hours, from 10 pm to 6 am, Lower Granite, Little Goose, Lower Monumental and Ice Harbor may go to zero nighttime flow, starting this Friday night, December 9.

4. 2006 Water Management Plan.

Hlebechuk said comments on the 2006 WMP have now been received from the Fish and Wildlife Service; she asked whether anyone else plans to submit comments. Our only comment was whether or not this is the time to begin discussing level 3 emergency protocols, said Paul Wagner. The salmon managers have spent some time discussing this issue, and our feeling was that some further clarification is needed, particularly with respect to operations at The Dalles, said Wills. Our preference would be to keep this a living document, which we can revisit at a future meet, he said. Kiefer said he has read the WMP and has suggested comments to the policy-level staff at IDFG and at the Governor's office, but because of the ongoing litigation, those comments have not yet been submitted to the Corps.

Hlebechuk noted that the most recent draft of the fall/winter update is also available from the TMT homepage; the Corps is also seeking comments on that document.

5. Current Operations.

Norris said Grand Coulee is now at elevation 1279.4; inflows are picking up, but the project has been drafting to meet chum flows. Hungry Horse has filled slightly in November and December, but inflows have now dropped off again, so Hungry Horse is now drafting to meet the Columbia Falls minimum flow. The current Hungry Horse elevation is 3539.6 feet.

Hlebechuk said Libby is currently at elevation 2439.3 feet and releasing full powerhouse capacity. Libby's December final forecast was 106% of average, which puts its December 15 flood control rule curve elevation at 2411 feet. The December final forecast at Dworshak was for 108% of average; the project is at elevation 1518, currently. Albeni Falls continues to operate in the 2055-foot range. Hlebechuk noted that the chum test, with 13.5-15.5-foot tailwater elevations, went well.

Wellschlager said there are no significant power system issues to report at this time; power prices continue to be high. He added that Bonneville has been able to keep reverse load factoring to a minimum over the past two weeks, because the weather has been dry, for the most part; he noted, however, that once it starts to rain again, that will no longer be possible.

On the water quality front, Jim Adams said the Dworshak release temperature is now about 46 degrees. He added that a Corps report on TDG impacts on aquatic organisms in the estuary is now available; he invited TMT comments.

Norris noted that the 2006 meeting of the Lake Roosevelt Forum has been scheduled for April 6-7; he suggested that the TMT may want to consider holding one of its April meetings at Grand Coulee. Kiefer suggested that it may also be appropriate for the TMT to consider a meeting at Libby Dam some time this spring, to give local residents a chance to discuss their concerns. We'll discuss that at the first January TMT meeting, Silverberg said.

The group briefly discussed when the minimum operating constraint on Bonneville tailwater elevation will be reduced to 11.5 feet; it was agreed to begin this operation on December 31, consistent with prior years' operations, unless there are any objections from the salmon managers not present at today's meeting.

5. Next TMT Meeting Date.

The next Technical Management Team meeting, a conference call, was set for December 21, if needed. The first meeting of the new year was set for January 11. Meeting summary prepared by Jeff Kuechle, BPA contractor.

TMT Participant List December 7, 2005

Name	Affiliation
Donna Silverberg	Facilitator
John Wellschlager	BPA

Russ Kiefer	IDFG
Tony Norris	USBR
Paul Koskie	COE
Paul Wagner	NMFS
David Wills	USFWS
Cathy Hlebechuk	COE
Larry Beck	COE
Russ George	WMCI
Robin Harkless	Facilitation Team
Dan Spear	BPA
Nic Lane	BPA
Tim Heizenrater	PPM
Bill Crampton	CBB
Jeff Loughley	COE
John Coffey	Snohomish PUD
Greg Hoffman	COE
Kyle Dittmer	CRITFC
Mike Buchko	Powerex
Bruce MacKay	Consultant
Tom Le	PSE
Brenda Anderson	BPA
Jim Adams	COE

TECHNICAL MANAGEMENT TEAM

BOR: Tony Norris / John Roache

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OR: Ron Boyce

WA: Cindy LeFleur

ID: Russ Kiefer

MT: Jim Litchfield

COE: Cindy Henriksen / Cathy Hlebechuk

TMT CONFERENCE CALL PLACEHOLDER

Wednesday December 21, 2005 0900 - 1200 hours
1125 N.W. Couch Street, Suite 4A34
Portland, Oregon 97208
Conference call line: 503-808-5190

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Please MUTE your Phone**

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Please e-mail her at dsilverberg@cnnm.net or call her at (503) 248-4703.*

AGENDA

1. The 2006 chum operation was set at the 7 December TMT meeting. The operation agreed to is starting at 0000 hours on 1 January 2006, operate tailwater no lower than 11.5. 24 hours/day.
2. This conference call meeting is a place holder in case Salmon Managers want to request and discuss a different operation than this.
3. Other
 - Set agenda for next meeting **January 11, 2006.**

[\[Calendar 2005\]](#)  [\[Calendar 2006\]](#) 

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