FISH PASSAGE CENTER

847 NE 19th Avenue, #250, Portland, OR 97232
Phone: (503) 833-3900 Fax: (503) 232-1259
www.fpc.org/
e-mail us at fpcstaff@fpc.org

MEMORANDUM

To: Fish Passage Advisory Committee (FPAC)

From: FPC Staff

Date: February 16, 2016

Subject: Action Notes from February 16, 2016, FPAC meeting

On February 16, 2016, FPAC met at the Fish Passage Center for its monthly face-to-face meeting. The following people participated in the meeting:

Paul Wagner (FPAC Co-Chair NOAA)
Tom Lorz (FPAC Co-Chair CRITFC)
Charlie Morrill (WDFW)
Dave Statler (Nez Perce Tribe)
Erick Van Dyke (ODFW)
Erin Cooper (FPC)
Kyle Dittmer (CRITFC)
Margaret Filardo (FPC)
Russ Kiefer (IDFG)
Sheri Sears (Colville Tribe, via phone)
Tom Skiles (CRITFC)
Tommy Garrison (FPC)
Dave Swank (USFW, via phone)
Trevor Condor (NOAA, via phone)

AGENDA ITEMS

Approval of Notes

- Paul Wagner (NOAA) suggested changes to notes from January 12 regarding the section titled *Chum Operations/Coulee Operations*. He pointed out that the COE does provide qualitative descriptions of Coulee operations, just not quantitative descriptions. Since there is a wide definition of "qualitative," FPAC discussed whether these descriptions were sufficient. The language in this section will be revised for FPAC review at the next meeting.

Water Supply/Flood Control

- Margaret Filardo (FPC) provided a summary of the current reservoir operations and water supply forecasts, snowpack estimates, and ESP runoff volumes. See the attached document.

Weather

- Kyle Dittmer (CRITFC) provided a summary of weather conditions and water year status. See the attached.

Impact of Grand Coulee Drum Gate Maintenance on Chum Operations

- Margaret Filardo (FPC) presented a graph (see attached) of forecasted Grand Coulee operations and Bonneville tailwater elevations through April under the Coulee draft required for drum gate maintenance. The graph also shows possible operations that would have occurred if GCL was not being drafted for drum gate maintenance.
- Under the current forecasts, drafting Coulee to flood-control elevation by March 15 may result in low tailwater elevations at Bonneville in mid-March. The volume and shape of the runoff will determine the spring and summer flows, when drum gate maintenance is completed (6 to 8 weeks after March 15). However, it is highly likely that fisheries managers will be asked to decide between maintaining spring flows or refilling the Grand Coulee reservoir for summer flows. The FPC was asked to model potential scenarios for spring/summer flows under a range of runoff shapes.
- Tom Lorz (CRITFC) told Paul Wagner (NOAA) that he hopes that the 2018 Biological Opinion will require the Bureau of Reclamation to partake in more advanced planning, preventative maintenance, and utilization of outside contractors for future drum gate maintenance to avoid endangering fish migration in the future.

Gosselin Proposal

- The FPC distributed a memo regarding the Anderson/Gosselin proposal discussed by FPAC in October. The memo outlines potential impacts to CSS and SMP research, as well as the lack of potential management implications for study results.
- Oregon, Washington, and NOAA have received permit applications for sampling for this proposal.
- Erick Van Dyke (ODFW) stated concerns that the standard permit application process had not been followed in this case. Collection permits should first come from NOAA, and then applications submitted to state agencies.
- FPAC members expressed concern that the proposal does not seem to have gone through a formal review process through either BPA or SRWG, yet has received funding from the NOAA Science Center.
- NOAA will be discussing the permit application on Friday, after which Paul Wagner (NOAA) will update FPAC on the status of the permit application. Paul Wagner will also distribute the response to comments to FPAC.

Sampling frequency at Little Goose and Lower Monumental Dams

- In 2015, there was SMP sampling every other day at Lower Monumental and Little Goose dams prior to the start of transportation. However, at FPOM a change form was submitted to change sampling to twice/week with no more than 3 days between samples.
- Margaret Filardo (FPC) pointed out that in 2014 FPAC participated in a thorough process of reviewing sampling frequency for the SMP. FPAC members at that time recognized that condition monitoring every day would be ideal, but that every other day sampling would still help to identify potential passage issues (see FPAC notes from September 16, 2014, meeting).
- After discussion regarding the Fishery Managers' needs and the COE concerns regarding personnel and training, FPAC recommended that the change order be submitted to reflect every-other-day sampling at Little Goose Dam from the start of operations on April 1, to the start of transportation. At Lower Monumental Dam the recommended operation is twice a week sampling for the first two weeks of April (to address the COE's concerns) and then every-other-day sampling until the initiation of transportation.

Condition monitoring: Feedback on weights request

- FPC reviewed the NOAA request to add weight collection to SMP sampling at Bonneville and John Day dams (see attached).
- Weights are collected at transportation sites for barge loading; it is not collected to measure fish condition.
- Given the large number of hatchery fish released into the Bonneville pool, the sample at Bonneville is likely to be overwhelmingly locally released hatchery fish, and will not provide data on smolt condition of upriver migrants.
- Given that McNary Dam is no longer a transportation site, the SMP collection of weights at that location may be reevaluated.

Coordination

- TMT face-to-face Wednesday, February 17.
- FPAC conference call on Tuesday, February 23 at 9:00 AM.
- Columbia River Forecast group will meet on Thursday, February 18. Please send any agenda request to Kyle Dittmer (CRITFC).

These minutes have been reviewed and approved by the Fish Passage Advisory Committee.

FPAC Agenda for Tuesday February 16, 2016
Meeting time: 10:00 AM
Meeting Location: FPC Conference Room

1. Approval of notes from February 9th meeting
2. Water supply and reservoir status
3. Weather update and climate forecast
4. Potential effect of Grand Coulee Drum Gate Maintenance on Ives Chum
5. Gosselin proposal
6. LGS and LMN smolt monitoring frequency prior to transport
7. Condition monitoring – feedback on weights request
8. Transport COP comments
9. Other
10. Coordination for other schedule meetings

FISH PASSAGE CENTER

847 NE 19th Avenue, #250, Portland, OR 97232
Phone: (503) 833-3900 Fax: (503) 232-1259
www.fpc.org/
e-mail us at fpcstaff@fpc.org

MEMORANDUM

TO: FPAC

FROM: David Benner

DATE: February 16, 2016

RE: Reservoir Operations/Water Supply/Snowpack/ BON TW

Grand Coulee Reservoir is at 1271.5 feet (2-15-16) and has drafted 7.3 feet over the last week. Outflows at Grand Coulee have ranged between 91.1 and 100.0 Kcfs over the last week.

The Libby Reservoir is currently at elevation 2410.25 feet (2-15-16) and has drafted 0.75 feet over the previous week. Daily average outflows at Libby Dam have been 4.0 to 4.1 Kcfs over the last week.

Hungry Horse is currently at an elevation of 3515.8 feet (2-15-16) and drafted 1.2 feet over the last week. Outflows at Hungry Horse have been 2.2–2.6 Kcfs over the last week.

Dworshak is currently at an elevation of 1533.9 feet (2-15-16) and has refilled 4.1 feet over the last week. Outflows have been 1.6 Kcfs over the last week.

The Brownlee Reservoir was at an elevation of 2051.3 feet on February 15, 2016, and has refilled 1.4 feet over the last week. Hells Canyon outflows have ranged between 9.5 and 17.5 Kcfs over the last four days with the minimum outflow now set at 9.6 Kcfs, according to Idaho Power Website.

Location	February 8, 2016 5-day QPF ESP		February 15, 2016 5-day QPF ESP	
	% Average (1981-2010)	Runoff Volume (Kaf)	% Average (1981-2010)	Runoff Volume (Kaf)
The Dalles (Apr-Aug)	93	81,586	98	85,755
Grand Coulee (Apr-Aug)	95	53,693	97	55,281
Libby Res. Inflow, MT (Apr-Aug)	90 107**	5,296 6,318**	92 107**	5,441 6,318**
Hungry Horse Res. Inflow, MT (Apr-Aug)	84	1,632	88	1,700
Lower Granite Res. Inflow (Apr-July)	94	18,634	92	18,220
Brownlee Res. Inflow (Apr-July)	85	4,626	85	4,658
Dworshak Res. Inflow (Apr-July)	94 82**	2,263 1,986**	91 82**	2,208 1,986**

* COE January Forecast

** COE February Forecast

Basin	2-8-16 Snow Water Equivalent (% Avg.)	2-15-16 Snow Water Equivalent (% Avg.)
Columbia above the Snake River Confluence		
Kootenai River in Montana	90	111
Flathead River	91	97
Upper Clark Fork River	96	95
Bitterroot	95	100
Lower Clark Fork River	85	98
Idaho Panhandle Region	90	106
Columbia above Methow	126	117
Chelan, Entiat, Wenatchee	119	137
Yakima, Ahtanum	113	139
Average*	***101***	***111***
Snake River		
Snake above Palisades	93	93
Henry Fork, Teton, Willow, Blackfoot, Portneuf	97	100
Big and Little Wood	114	104
Big and Little Lost	104	97
Raft, Goose, Salmon Falls, Bruneau	146	152
Weiser, Payette, Boise	118	110
Owyhee Malheur	133	121
Grande Ronde, Powder, Burnt, Imnaha	117	109
Clearwater and Salmon	105	104
Average*	***114***	***110***
Lower Columbia between Bonneville and McNary		
Umatilla, Walla Walla, Willow	117	108
Deschutes, Crooked, John Day	129	110
Lower Columbia, Hood River	113	123
Average*	**120**	**114**

Date	Ave BON TW	Min	Max
2/9/2016	14.1	13.5	14.4
2/10/2016	14.2	12.5	15.7
2/11/2016	15.3	14.6	16.3
2/12/2016	16.2	15.5	16.9
2/13/2016	16.3	15.4	17.5
2/14/2016	15.2	14.8	16.4
2/15/2016	15.7	14.9	17.3

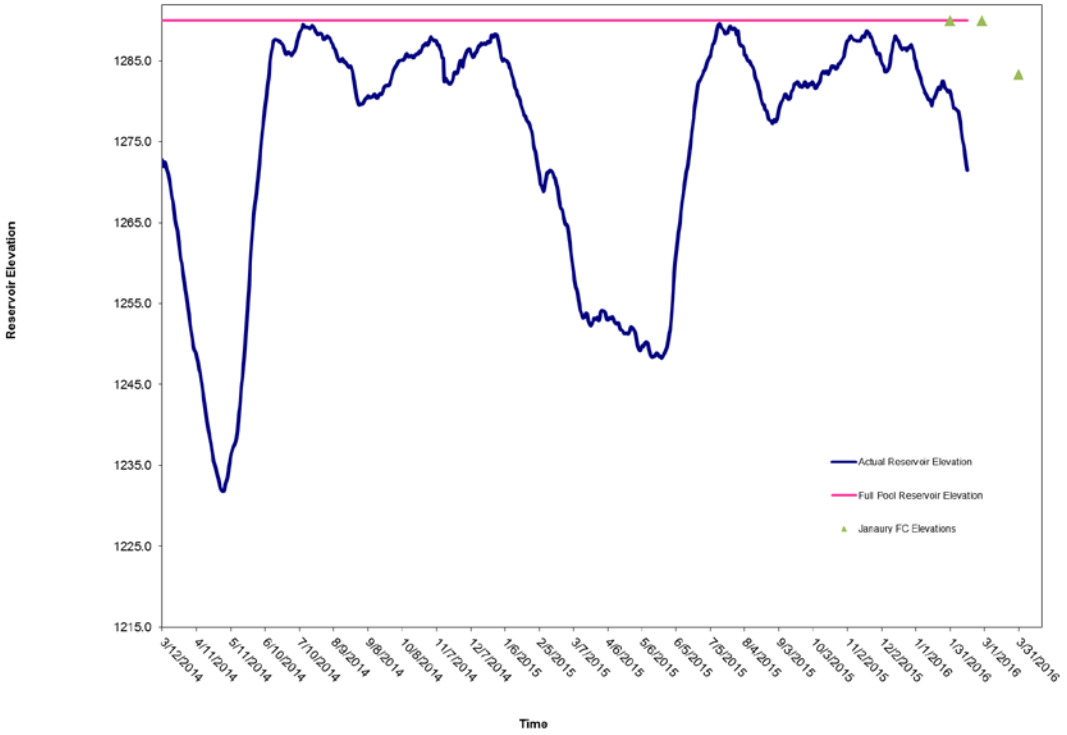


Figure 1. Grand Coulee

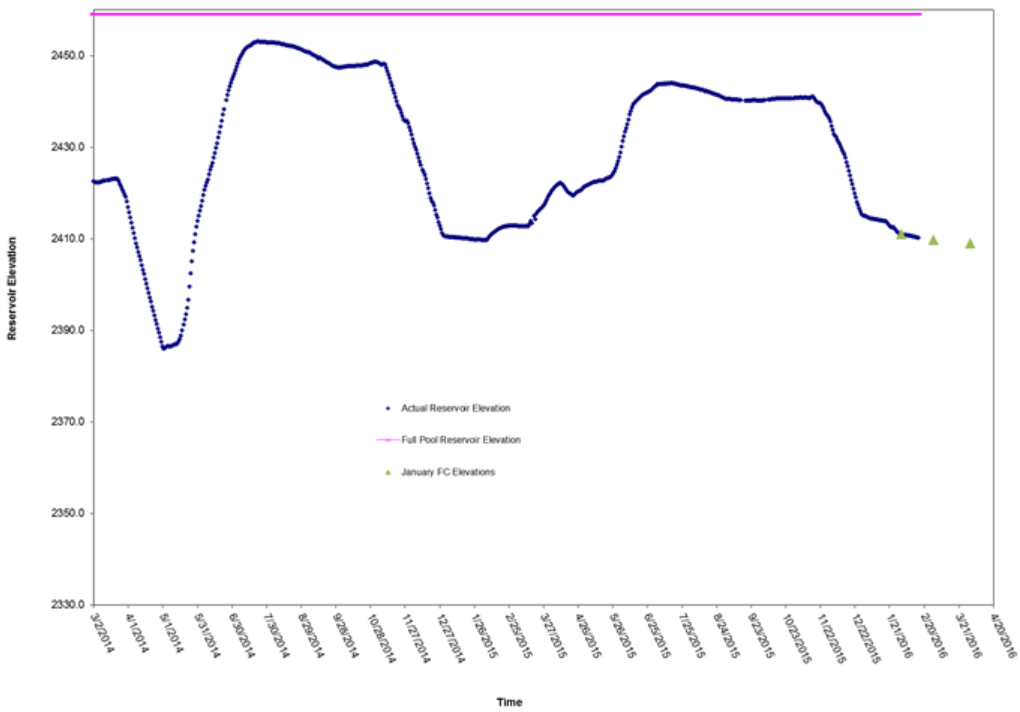


Figure 2. Libby

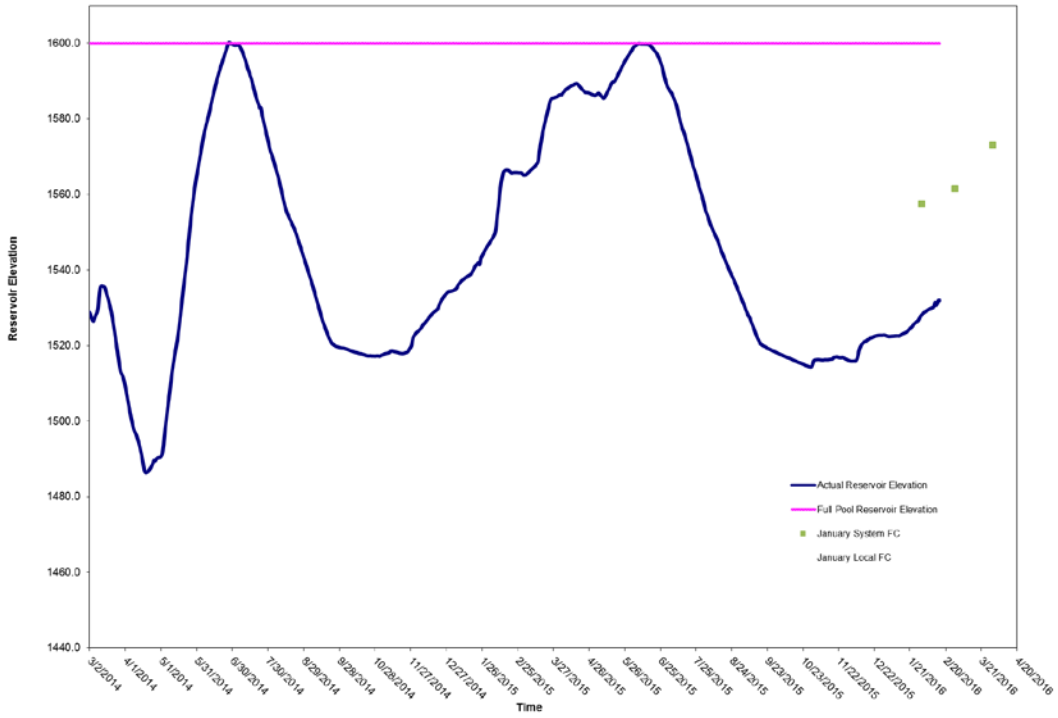


Figure 3. Dworshak

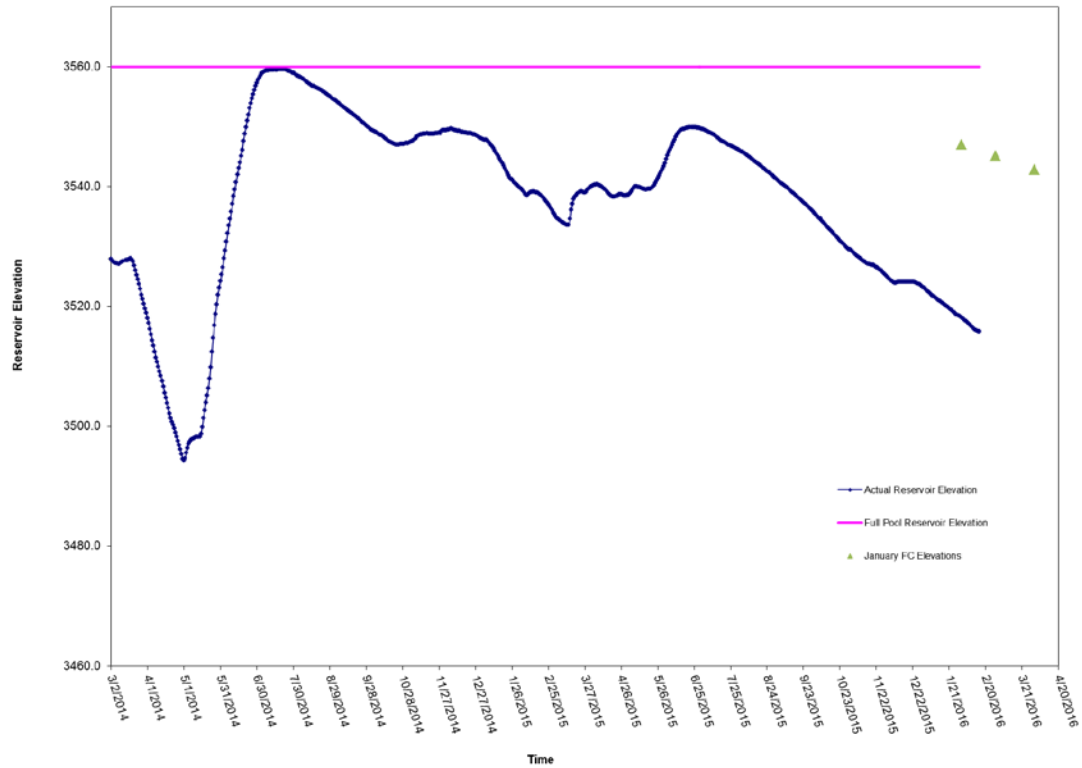


Figure 4. Hungry Horse

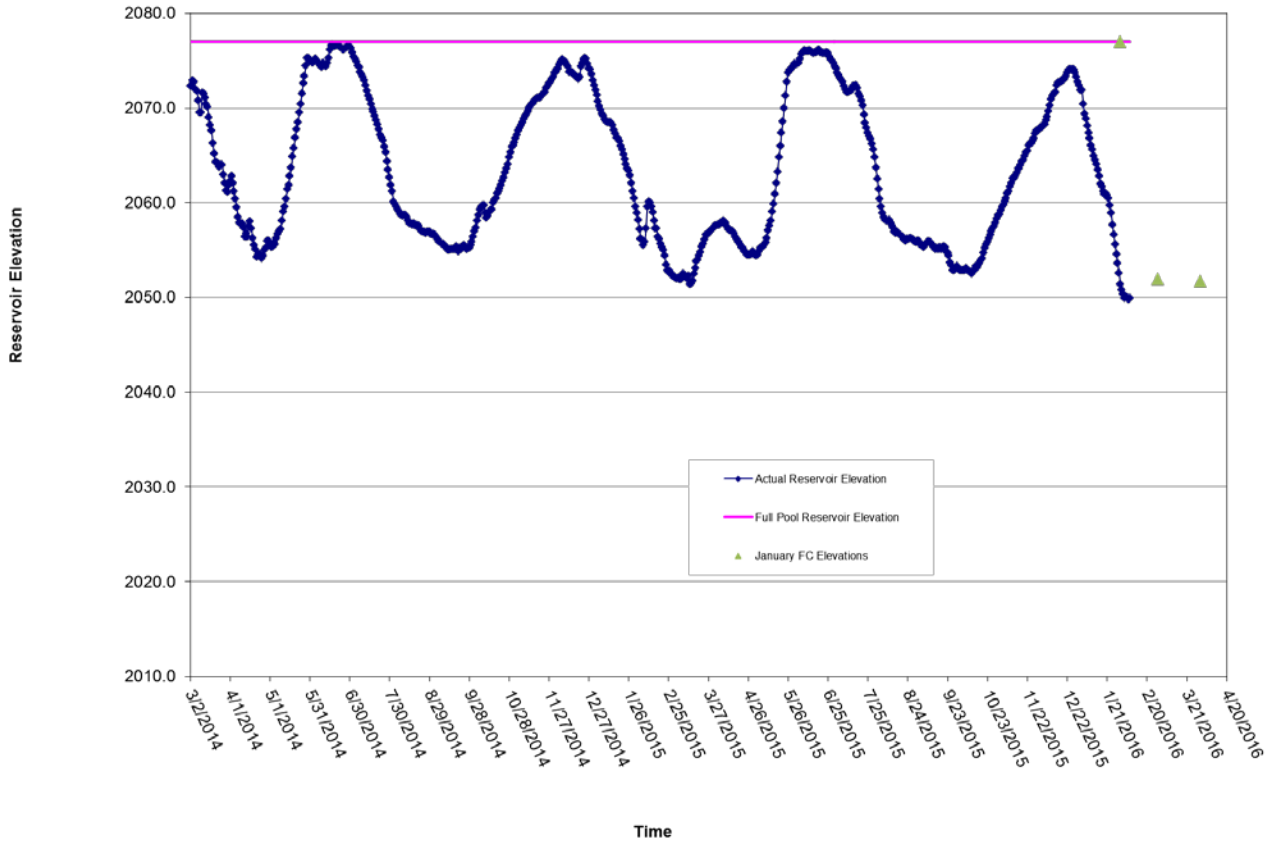
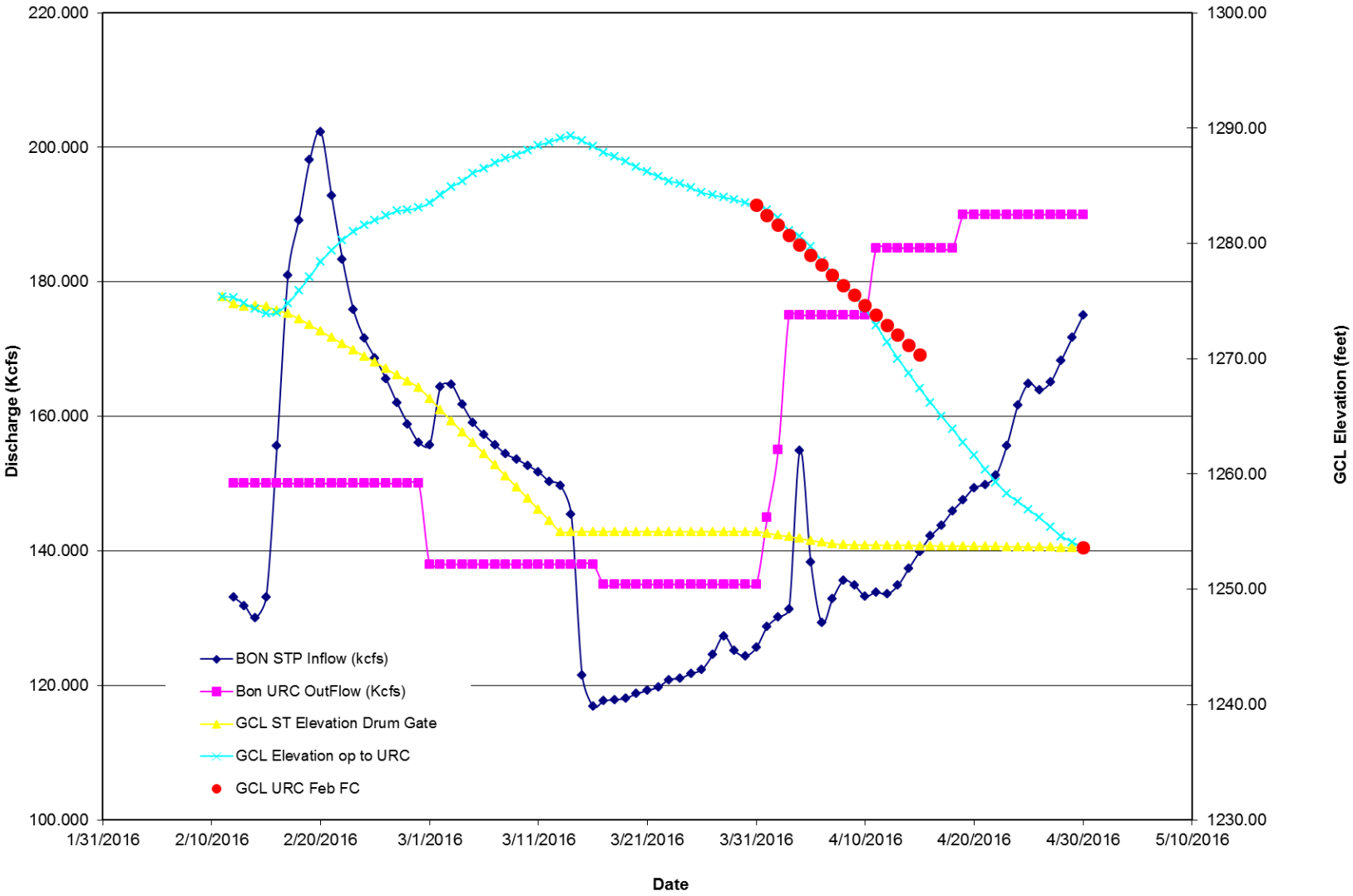


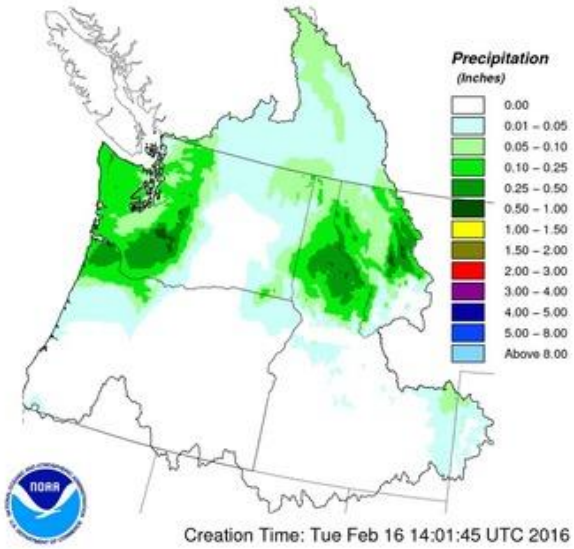
Figure 5. Brownlee


220.000
200.000
180.000
160.000
140.000
120.000
100.000
Discharge (Kcfs)
1300.00
1290.00
1280.00
1270.00
1260.00
1250.00
1240.00
1230.00
GCL Elevation (feet)
1/31/2016
2/10/2016
2/20/2016
3/1/2016
3/11/2016
3/21/2016
3/31/2016
4/10/2016
4/20/2016
4/30/2016
5/10/2016
Date
BON STP Inflow (kcfs)
Bon URC OutFlow (Kcfs)
GCL ST Elevation Drum Gate
GCL Elevation op to URC
GCL URC Feb FC

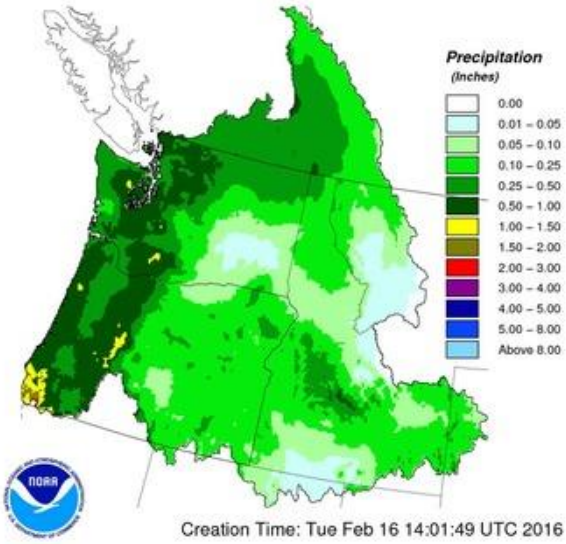
Water Year 2016 Clim Norm 1981-2010	**Precipitation** Monthly Feb. 1 - 15	Seasonal (Oct. 1 - now)	Monthly Temp. (degF) (pro-rated)
Portland	85%	154%	6.2
UPPER-COLUMBIA:			
Kamloops	68%	106%	2.5
Revelstoke	32%	88%	4.9
Cranbrook	5%	120%	3.1
Creston	58%	86%	2.9
average:	41%	100%	3.3
Normal:	0.70	9.89	29.6
MIDDLE-COLUMBIA:			
Pendleton	114%	107%	4.6
Redmond	0%	117%	7.2
Yakima	49%	153%	6.2
Wenatchee AP	42%	141%	1.2
Omak	36%	105%	0.1
Spokane	61%	115%	4.8
average:	50%	123%	4.0
Normal:	0.55	5.84	35.3
LOWER SNAKE:			
Lewiston	85%	103%	5.7
Pullman	70%	142%	6
Stanley	18%	138%	5.2
Challis	0%	105%	-2.5
average:	43%	122%	3.6
Normal:	0.67	5.67	29.1
UPPER and MIDDLE SNAKE:			
McCall	100%	162%	3.9
Ontario	49%	114%	4.6
Boise	65%	102%	2.4
Twin Falls	36%	119%	1.9
Burley	33%	97%	3.2
Pocatello	10%	107%	-0.6
Idaho Falls	22%	93%	-3.3
average:	45%	114%	1.7
Normal:	0.51	5.20	31.0

Forecasted Daily Rain (in inches), BON dam area:	
16-Feb	0.12
17-Feb	0.67
18-Feb	0.75
19-Feb	0.75
20-Feb	0
21-Feb	0.15
22-Feb	0.15

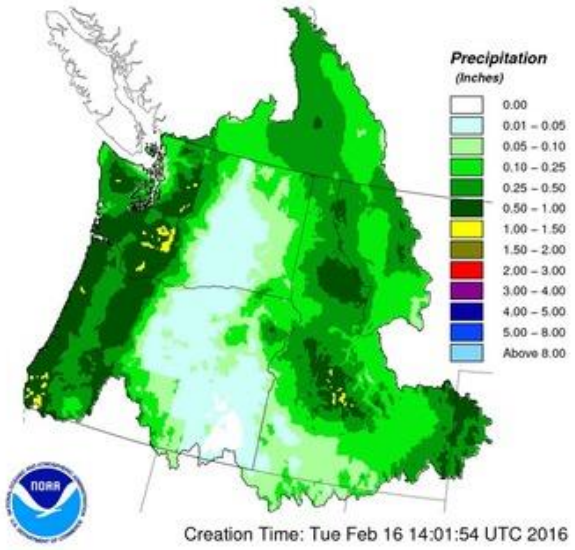
DAY 1 QPF, 24hr Period Ending 12Z, 02/17/2016



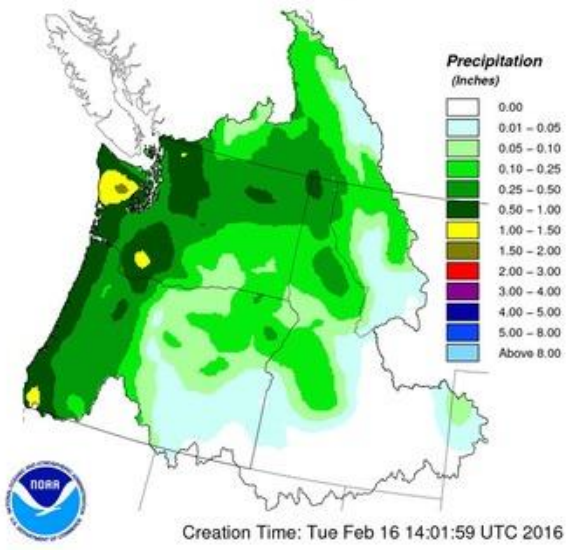
DAY 2 QPF, 24hr Period Ending 12Z, 02/18/2016



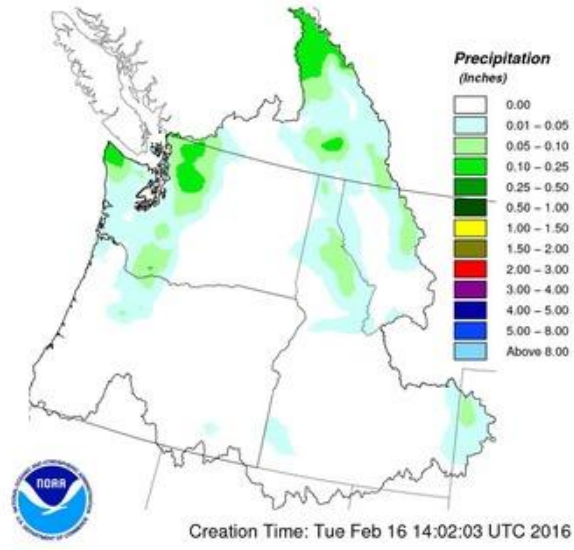
DAY 3 QPF, 24hr Period Ending 12Z, 02/19/2016



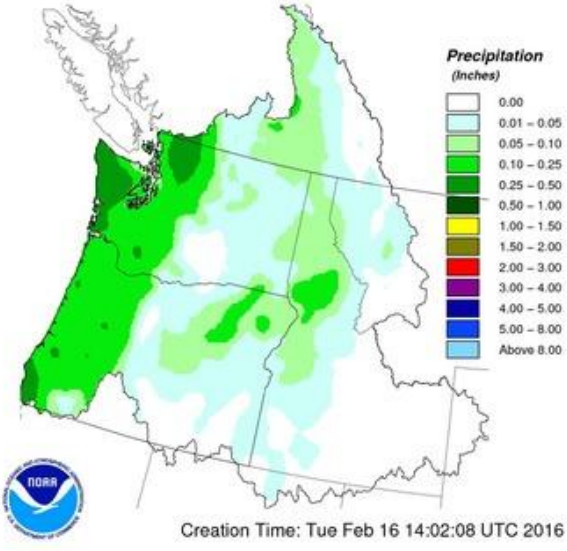
DAY 4 QPF, 24hr Period Ending 12Z, 02/20/2016

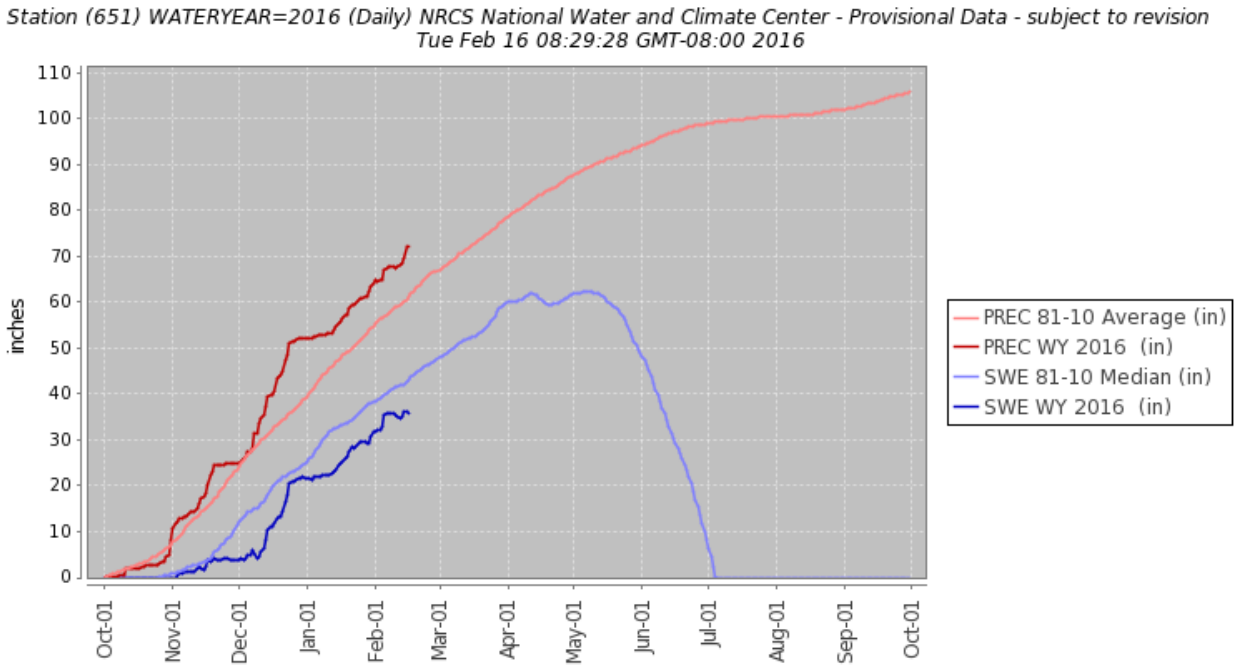


DAY 5 QPF, 24hr Period Ending 12Z, 02/21/2016

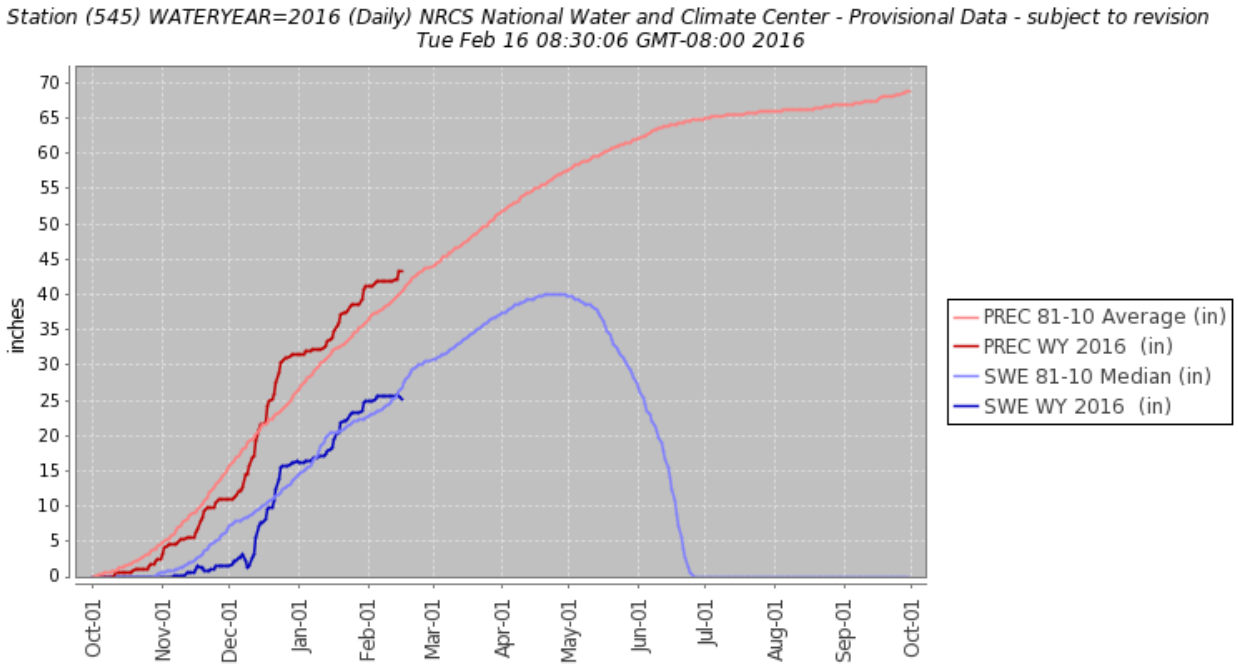


DAY 6 QPF, 24hr Period Ending 12Z, 02/22/2016

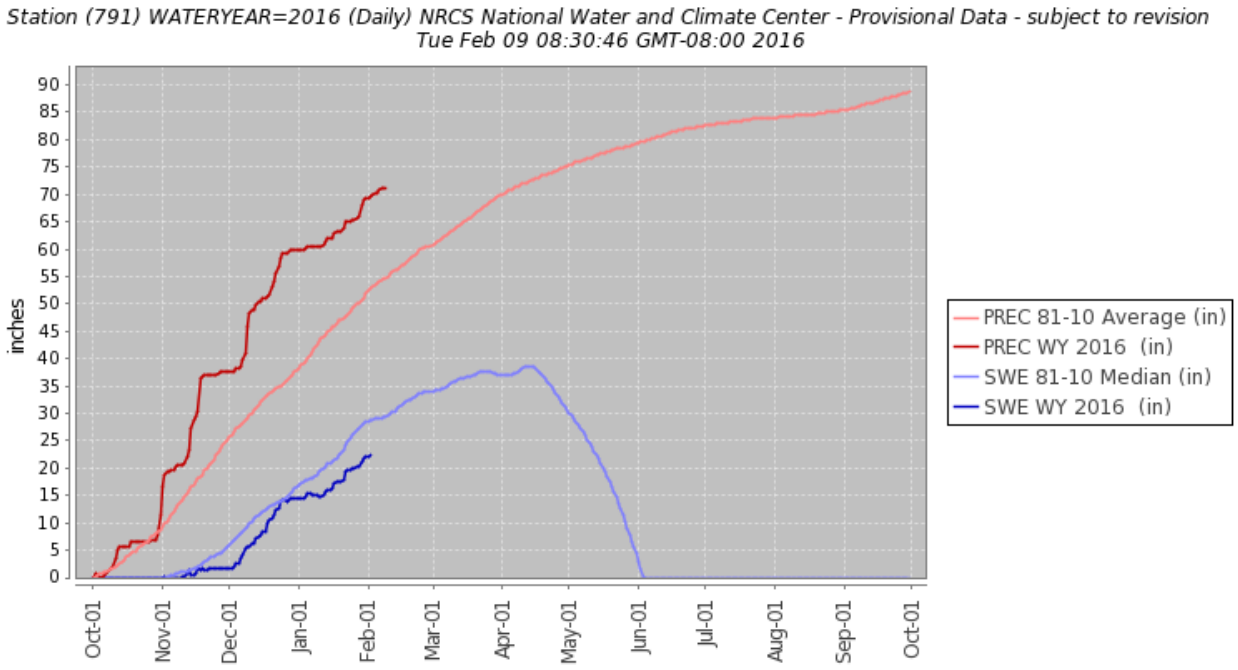




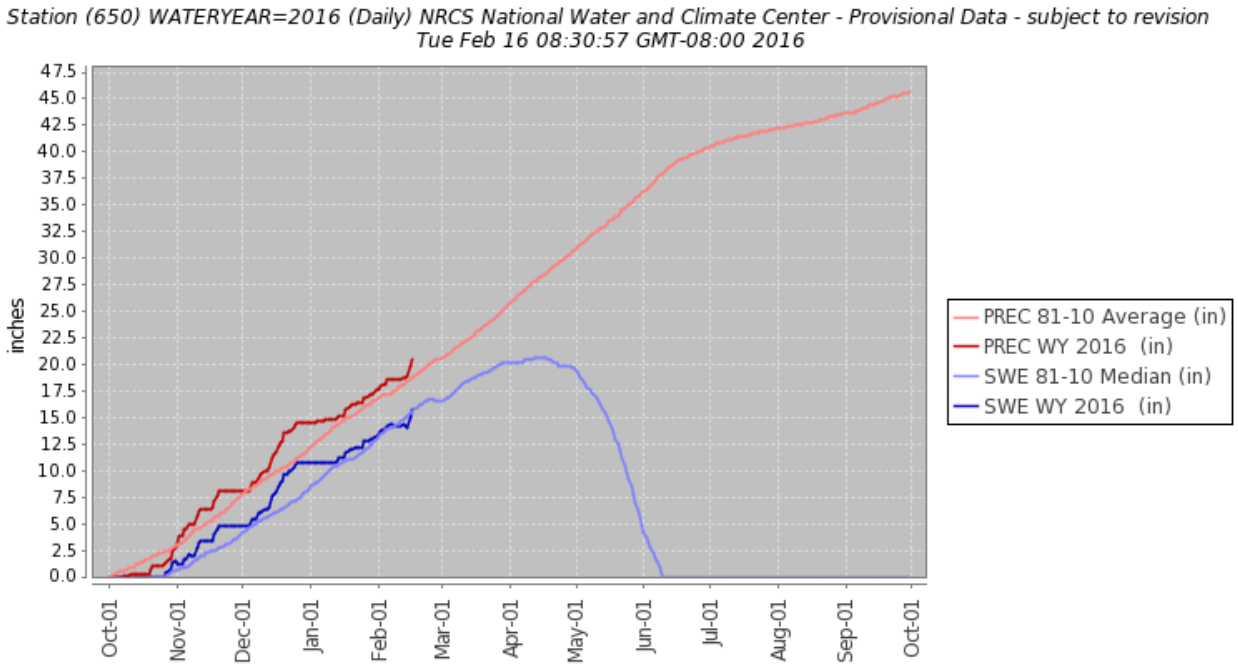
Mt. Hood Test Site, Oregon (north Oregon Cascades). Elevation 5370 feet.



Irish Taylor, Oregon (central Oregon Cascades). Elevation 5540 feet.



Stevens Pass, Washington (central Washington Cascades). Elevation 3950 feet.



Mountain Meadows, Idaho (Panhandle, Salmon River drainage). Elevation 6360 feet.

FISH PASSAGE CENTER

847 NE 19th Avenue, #250, Portland, OR 97232
Phone: (503) 833-3900 Fax: (503) 232-1259
www.fpc.org/
e-mail us at fpcstaff@fpc.org

MEMORANDUM

TO: FPAC

FROM: Michele DeHart

DATE: February 16, 2016

SUBJECT: Request to Collect Weight Data on SMP fish at Bonneville Dam and development of a Condition Factor

We have received your request to collect weight data on fish examined for condition at Bonneville Dam. The request was discussed at the January 19th, 2016 FPAC meeting and sent to the Fish Passage Center by Paul Wagner, on behalf of FPAC, on January 28th, 2016. In your request you also asked that we combine the weight data with the length data to calculate and report a "condition factor" for the Bonneville Dam fish.

At the FPAC meeting a need for this information was described citing the development of a condition index baseline for juveniles at Bonneville Dam. One application for the information, suggested at the meeting, was to compare the condition factor between McNary and Bonneville dams as a way to evaluate the availability of Siberian prawns as a food source in the system. If, Siberian prawns continue to increase in abundance, and are eaten proportionately, juvenile migrants should see an increase in the condition index concurrent with the increase in the prawn population.

At present, the collection of weight information is limited to the transportation collector sites. The weight data at those sites is used to determine loading densities in raceways, trucks, and barges.

> "Species composition and weight samples will be taken to determine loading densities for raceways, barges, and trucks." Each transport vehicle has a designated capacity in terms of pounds of fish on board.

(2015 Fish Passage Plan, see Appendix B "Transportation Plan" and Table B-1).

The collection of weight data requires additional sampling time at a project. The request memo suggests that this sampling might require just several additional seconds to the sampling protocol for each fish. However, it must be recognized that any additional sampling and handling has potential consequences in affecting fish survival. The overall time required to process fish can be substantially longer than indicated by the wording "only several seconds per fish". This time added to sampling results from the number of fish sampled for weight, the required increase in anesthesia time, and the need to process smaller batches of fish.

We collect weight at the transport sites, but we do not calculate a condition factor at any of our projects. Condition factor is calculated as length ÷ weight and represents a measure of "plumpness" of fish. Condition factors are often applied when checking growth rate or determining the amount of food to be fed at fish hatcheries. We have used a "condition factor" in analyses where we believe it is appropriate. For example, in 2008 (http://www.fpc.org/documents/memos/03-08.pdf) we looked at the differences between the subyearling fall Chinook surrogates and wild/natural fall Chinook to determine if the surrogate fish could be used to make inferences about wild/natural fall Chinook. In this instance we found that the surrogates were not representative of the wild/natural fish. We compared length and weight data between surrogates and wild/natural fish that were marked or released at similar times. To ascertain the degree to which surrogates were leaner than wild/natural fish an analysis was performed to compare weights of surrogates and wild/natural fish where lengths overlapped. The results showed that the surrogates were significantly "leaner" than wild/natural fish tagged the same month (or when comparing with wild/natural fish of any month).

In order to compare the condition of McNary versus Bonneville Dam fish, a comparable population of fish would have to be sampled. With the input of the Bonneville Pool local hatchery fish just above the dam, particularly for yearling Chinook, coho, and subyearling Chinook, a comparable population of fish would not be obtained. Given this, any measures of condition factor would likely be more representative of the rearing practices at the close-by hatcheries than of fish that have migrated through the FCRPS. In order to compare populations among projects the sampling specific PIT tagged groups of fish would be needed to apply sort by code techniques, and that is beyond the scope of the SMP.

We suggest that FPAC reconsider their request to add weights to the Bonneville Dam sampling protocol given the lack of ability to collect meaningful data for management application and the potential increase mortality associated with this type of sampling.