



# FISH PASSAGE CENTER

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## MEMORANDUM

To: Fish Passage Advisory Committee (FPAC)

From: FPC Staff

Date: February 24, 2017

Subject: Action Notes from February 21, 2017, FPAC meeting

On February 21, 2017, FPAC met at the Fish Passage Center office in Portland, Oregon for its monthly face-to-face meeting. The following people participated in the meeting:

Paul Wagner (FPAC Co-Chair NOAA)	Dave Swank (USFWS)
Tom Lorz (FPAC Co-Chair CRITFC)	Jay Hesse (Nez Perce Tribe, via phone)
Margaret Filardo (FPC)	Tom Iverson (Yakama Nation, via phone)
Brandon Chockley (FPC)	Trevor Conder (NOAA, via phone)
Charlie Morrill (WDFW, via phone)	

## AGENDA ITEMS

### ***Approval of Outstanding Notes from Prior Meetings***

- FPAC approved notes from February 14, 2017 meeting with revision. Notes will be revised and posted as final.
  - Revision: Bonneville site visit on February 16<sup>th</sup> was requested by NOAA, CRITFC, and USFWS and organized by USACE.

### ***Water Supply and Reservoir Status***

- 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.
- Water supply memo had a typo of for Dworshak operations. Should read that DWOR reached peak inflows of 13.9 Kcfs on February 17, 2017 not February 10, 2017.

### ***Weather Update and Climate Forecast***

- Kyle Dittmer (CRITFC) provided precipitation report and 6-day QPF graphics. See attached.
- NOAA – ENSO Neutral conditions expected to remain in place.

### ***Dworshak Water Supply, Reservoir Status, and Operation***

- FPAC Agenda provided links to 4-10 day and 45-120 day forecasts for Dworshak <https://www.nwrfc.noaa.gov/river/station/flowplot/flowplot.cgi?lid=DWRI1>  
<https://www.nwrfc.noaa.gov/stp/station/stpplot/stpplot.cgi?DWRI1>
- Tom Lorz (CRITFC) reminded FPAC that the COE is currently compiling data from recent snow flight. COE will share results when completed.
- No new data modeling scenarios were provided on the TMT site. FPC Water Supply memo had same modeling scenarios for DWOR as were presented last week.
- FPAC recommendation is to maintain ~8.3 Kcfs outflows for the next week.
  - It is unclear why outflows at DWOR have been reduced to ~8.0 over the last several days.

### ***Sort by Code Request***

- FPAC received request from Brett Bowersox (IDFG) to use sort by code at Lower Granite Dam adult trap to capture wild steelhead adults originating from the Lochsa River. <http://www.ptagis.org/services/separation-by-code/RequestDetail/1536/>
- USFWS voiced concern over using gastric tags in steelhead adults because of the potential for these tags to affect kelting. However, USFWS does not object to sort by code request.
- There were no objections to IDFG sort by code request
- Paul Wagner (NOAA) will approve request.

### ***Discussion of Draft Fall Chinook Transport Report***

- Paul Wagner (NOAA) informed FPAC that there is a new Draft Fall Chinook report for review. Review comments are due February 28, 2017
- FPAC requested that Paul circulate the draft. Jay Hesse (Nez Perce Tribe) forwarded a copy to FPC for distribution to FPAC. Since many FPAC members were unaware of the report, Jay will also request an extension to the comment period.
- Jay discussed that, as part of this project, there was a commitment to highlight the differences between the methodologies used in this report and those used by the CSS. Jay and others are currently compiling this information and will provide this information

at the Fall Chinook Symposium in Clarkson, WA in May.

- In light of this report, Charlie Morrill (WDFW) reminded FPAC that WDFW will likely be looking for input on whether we should transport fall Chinook in September and/or October.
- FPAC was reminded that, due to the construction at LGR, transportation from this project will not be possible after early August 2017. Spill will be provided during the period that the bypass system is out of service.

### ***Initial Thoughts Discussion of Draft Fall Chinook Transport Report***

- Paul Wagner (NOAA) reminded FPAC that, with the spring migration approaching, it is time to start thinking about transportation operations. When should transport start this year?
  - NOAA still has a desire to collect some data on transportation prior to May 1<sup>st</sup>. Paul Wagner suggested every-other-day transportation from LGR, beginning ~April 25<sup>th</sup> and asked FPAC members to think about it for future discussions.
  - Tom Lorz (CRTIFC) was curious as to why NOAA transportation presentations at RIOG and TMT did not have data points for once-per-week barges in 2014. Pretty sure some fish were transported in April under this study so why no data in presentations?
  - NOAA Science Center believes that start of transport should be managed to variation (e.g., run timing, ocean conditions, etc.) and that a single date may cause something to be missed. Margaret Filardo (FPC) reminded FPAC that managing to variation should work both ways, could lead to earlier start of transport or later start of transport.
  - Paul Wagner (NOAA) mentioned that NOAA Science Center is likely going to prepare a summary of transportation of spring migrants. Paul will check with science center to see if this summary report will be available before spring migration begins.
- With news of Fall Chinook symposium in May, decisions about transport of fall Chinook can wait until after symposium.

### ***Ocean Conditions and NMFS Adult Forecast for 2017***

- Paul Wagner (NOAA) circulated a link to NOAA Ocean Conditions and Adult Return Forecast website (<https://www.nwfsc.noaa.gov/research/divisions/fe/estuarine/oeip/g-forecast.cfm>).
- Ocean conditions in 2015 and 2016 were among lowest for most of the indices used.
- NOAA forecasts for spring Chinook and fall Chinook are low.

### ***Other***

- Tom Lorz (CRITFC) asked for an update after the visit to Bonneville Dam to inspect new entrances to the Lamprey Passage Structures at Washington shore ladders. Dave Swank (USFWS) provided an overview of the site visit:
  - Modifications Included:

- Installed new entrance ramps to the existing LPS, each of which have PIT-tag antenna and rest box.
- Cut orifice holes about two inches high in the bottom of the weirs next to the viewing windows, each of which can be closed off with a simple gate
- During the tour, NOAA requested a couple modifications, including rounding the edges of bolts and grinding sharp edges on steel plates.
- Video and Infrared video systems will be installed
- Rest boxes were installed in area just before serpentine section of ladder
- Brandon Chockley (FPC) reminded FPAC that FPC would like an official response to January 19, 2017 memo regarding inflated collection estimates at LGR in 2016.
  - Paul Wagner (NOAA) will send FPAC response to FPC. FPC will append FPAC response to original memo for future reference.
- Tom Lorz (CRITFC) informed FPAC that a new MOC for The Dalles Adult Passage System will soon be circulated throughout FPOM. Auxillary Water Supply work on the East Ladder may cause ladder outage. If this occurs, the TDA will only have one functioning ladder (North Side). CRITFC and NOAA have already requested that, if outage lasts for more than three days, spill should be provided at TDA in order to attract adults to the North ladder.

***Coordination for Other Scheduled Meetings***

- Next FPAC conference call is Tuesday, February 28<sup>th</sup> at 8:00 am
- TMT Tomorrow (Feb. 22<sup>nd</sup>)
- Walla Walls FFDRWG on Thursday, Feb. 23<sup>rd</sup>.
- Avian Workshop on March 2<sup>nd</sup> at The Dalles Dam

<p>These minutes have been reviewed and approved by the Fish Passage Advisory Committee.</p>
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**FPAC Agenda for Tuesday February 21, 2017**  
**Meeting time: 1:00 PM**  
**Meeting Location: Fish Passage Center Conference Room**

1. Approval of outstanding notes February 14 meeting.
2. Water supply and Reservoir status
3. Weather update and climate forecast
4. Dworshak water supply reservoir status, and operation:  
<https://www.nwrfc.noaa.gov/river/station/flowplot/flowplot.cgi?lid=DWRI1>  
<https://www.nwrfc.noaa.gov/stp/station/stpplot/stpplot.cgi?DWRI1>
5. Sort by code request: <http://www.ptagis.org/services/separation-by-code/RequestDetail/1536/>
6. Discussion of draft fall chinook transport report
7. Initial thoughts on juvenile transport for 2017 season
8. Ocean Conditions and NMFS adult forecast for 2017:  
<https://www.nwfsc.noaa.gov/research/divisions/fe/estuarine/oeip/g-forecast.cfm>
9. Other
10. Coordination for other schedule meetings



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## MEMORANDUM

TO: FPAC

FROM: David Benner, FPC

DATE: February 21, 2017

RE: Reservoir Operations/Water Supply/Snowpack/Bonneville TW/Dworshak Scenarios.

Grand Coulee Reservoir is at 1,274.5 feet (2-20-17) and drafted 4.8 feet over the last week. Outflows at Grand Coulee have ranged between 101.6 Kcfs and 118.3 Kcfs over the last week. The end of February FC Elevation at Grand Coulee is 1,290.0 feet.

The Libby Reservoir is currently at elevation 2,395.3 feet (2-20-17) and has maintained elevation over the past week. Daily average outflows at Libby Dam have been 4.0 Kcfs. The end of February FC Elevation at Libby is 2,433.7 feet.

Hungry Horse is currently at an elevation of 3,541.4 feet (2-20-17) and has filled 0.4 feet last week. Outflows at Hungry Horse have been 1.7-2.8 Kcfs over the last week. The end of February FC Elevation at Hungry Horse is 3,549.0 feet.

Dworshak is currently at an elevation of 1,523.2 feet (2-20-17) and has refilled 2.3 feet over the last week. Inflows to Dworshak reached a peak last week of 13.9 Kcfs on February 10, 2017. Dworshak outflows were reduced from 8.2 Kcfs to 8.0 Kcfs over the last week. The end of February FC Elevation is 1,532.2 feet.

The Brownlee Reservoir was at an elevation of 2059.9 feet on February 20, 2017, and drafted 2.9 feet last week. Outflows at Hells Canyon have ranged between 28.3 and 34.4 Kcfs over the last four days. The minimum flow at Hells Canyon is 8.5 Kcfs. Inflows to Brownlee have ranged between 20.6 Kcfs and 39.1 Kcfs. The end of February FC Elevation at Brownlee is 2,048.3 feet.

Location	February 20, 2017 5-day QPF ESP	
	% Average (1981-2010)	Runoff Volume (Kaf)
The Dalles (Apr-Aug)	99	86819
Grand Coulee (Apr-Aug)	96	54261
Libby Res. Inflow, MT (Apr-Aug)	102 95*	5994 5,583*
Hungry Horse Res. Inflow, MT (Apr-Aug)	99	1916
Lower Granite Res. Inflow (Apr- July)	111	22037
Brownlee Res. Inflow (Apr-July)	111	6059
Dworshak Res. Inflow (Apr-July)	104 104*	2513 2541

\*COE February Forecast

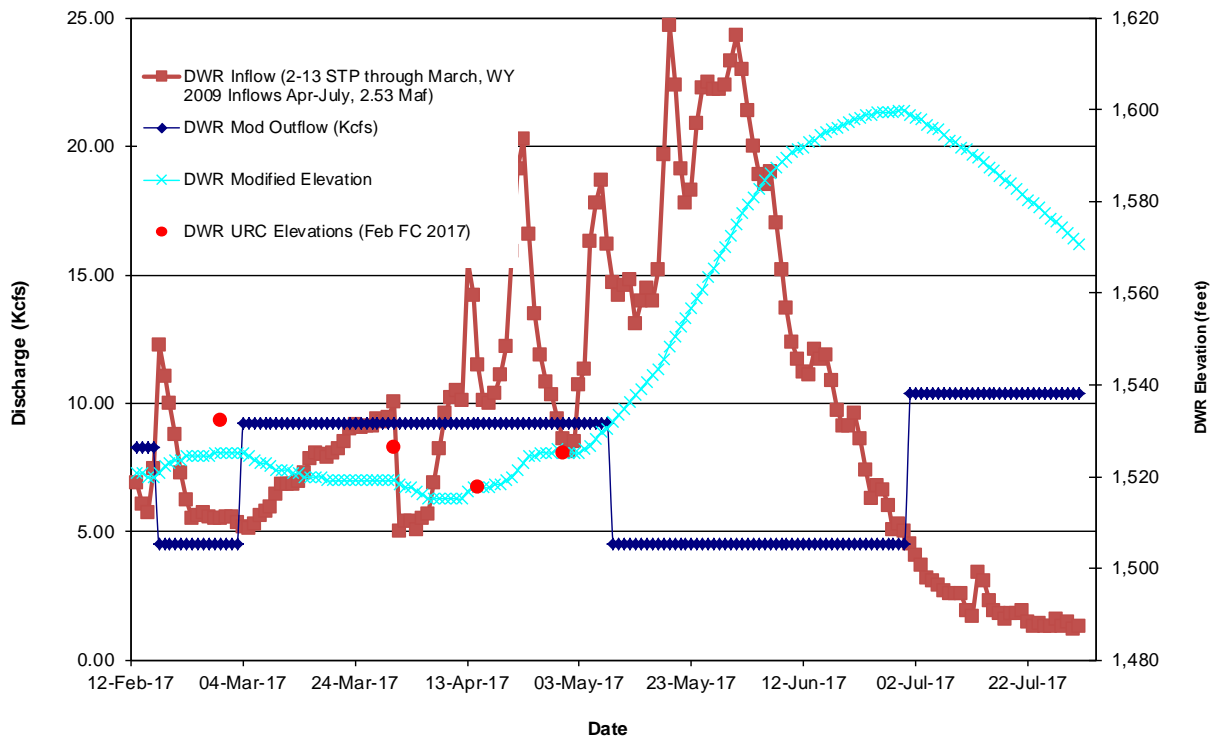
	BON Ave TW (ft)	BON Min TW (ft)	BON Max TW (ft)
2/6	16.4	15.8	17.0
2/7	16.4	16.1	17.0
2/8	16.8	15.8	17.6
2/9	17.2	15.6	19.1
2/10	20.0	18.9	20.8
2/11	20.7	20.4	21.0
2/12	21.7	20.6	22.8
2/13	19.9		
2/14	19.2	18.2	20.3
2/15	18.3	17.8	18.8
2/16	18.7	17.9	19.2
2/17	19.6	19.1	20.4
2/18	20.0	19.6	20.3
2/19	21.4	20.1	23.5
2/20	21.2	19.8	23.6

<b>Basin</b>	<b>2-21-17 Snow Water Equivalent (% Med.)</b>
<b>Columbia above the Snake River Confluence</b>	
Kootenai River in Montana	95
Flathead River	98
Upper Clark Fork River	90
Bitterroot	96
Lower Clark Fork River	93
Idaho Panhandle Region	83
Columbia above Methow	107
Chelan, Entiat, Wenatchee	103
Yakima, Ahtanum	96
<i>Average</i> *	<b>96</b>
<b>Snake River</b>	
Snake above Palisades	162
Henry Fork, Teton, Willow, Blackfoot, Portneuf	131
Big and Little Wood	185
Big and Little Lost	177
Raft, Goose, Salmon Falls, Bruneau	127
Weiser, Payette, Boise	121
Owyhee Malheur	121
Grande Ronde, Powder, Burnt, Imnaha	112
Clearwater and Salmon	112
<i>Average</i> *	<b>139</b>
<b>Lower Columbia between Bonneville and McNary</b>	
Umatilla, Walla Walla, Willow	114
Deschutes, Crooked, John Day	131
Lower Columbia, Hood River	126
<i>Average</i> *	<b>124</b>

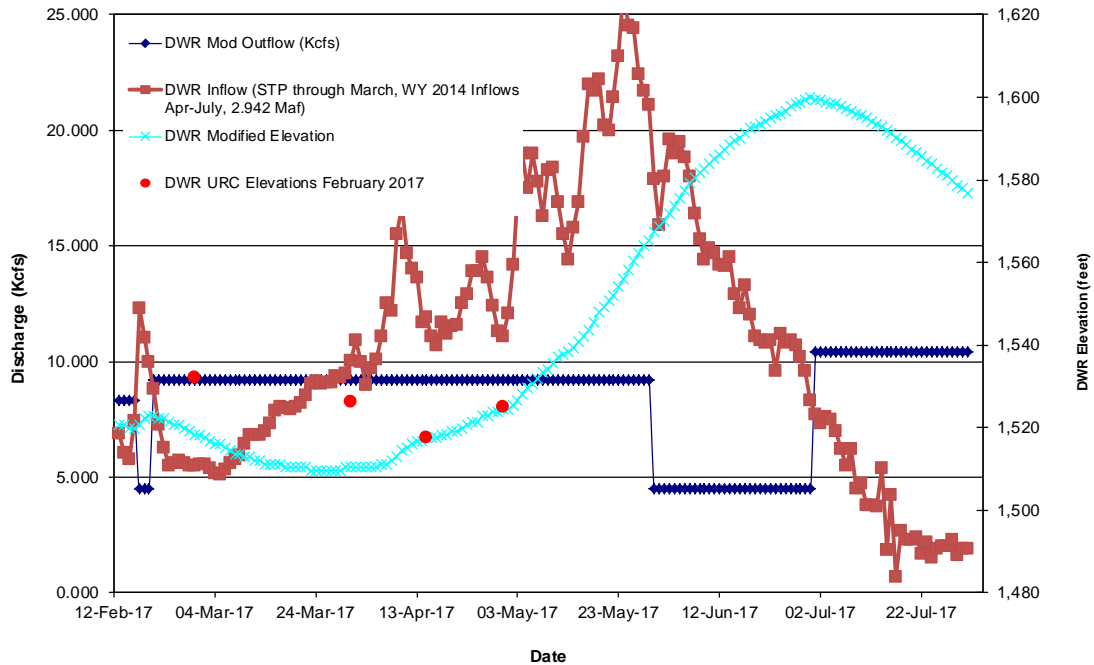


## Dworshak Information

**Plot 1:** Flood Control Elevations were taken from current February 2017 FC (DWR had 2.541 Maf Forecast), Plot uses 2-13-17 STP Inflows for Dworshak from February through March, from April through July, actual Inflows from WY 2009 were used (2.531 Apr-July Runoff Volume).



**Plot 2:** Flood Control Elevations were taken from current February 2017 FC (DWR had 2.541 Maf Forecast), Plot uses 2-13-17 STP Inflows for Dworshak from February through March, from April through July, actual Inflows from WY 2014 were used (2.942 Apr-July Runoff Volume).



Elevation	Storage (Kaf)	Loss of Spring Flow if DWR is at Elevation	Percentage of Flow Loss if Operated to Elevation under various Spring Flow Averages			
		(w/ respect to 1520.5 ft), Kcfs over 72 days	Flow Ave = 65 Kcfs	Flow Ave = 85 Kcfs	Flow Ave = 105 Kcfs	Flow Ave = 125 Kcfs
1520.5	792.6	0.0	0.0	0.0	0.0	0.0
1515.5	728.1	0.5	0.7	0.5	0.4	0.4
1510.5	665.8	0.9	1.4	1.0	0.8	0.7
1505.5	605.6	1.3	2.0	1.5	1.2	1.0
1500.5	547.5	1.7	2.6	2.0	1.6	1.4
1490.5	437.3	2.5	3.8	2.9	2.4	2.0
1480.5	334.9	3.2	4.9	3.8	3.1	2.6
1470.5	237.8	3.9	6.0	4.6	3.7	3.1

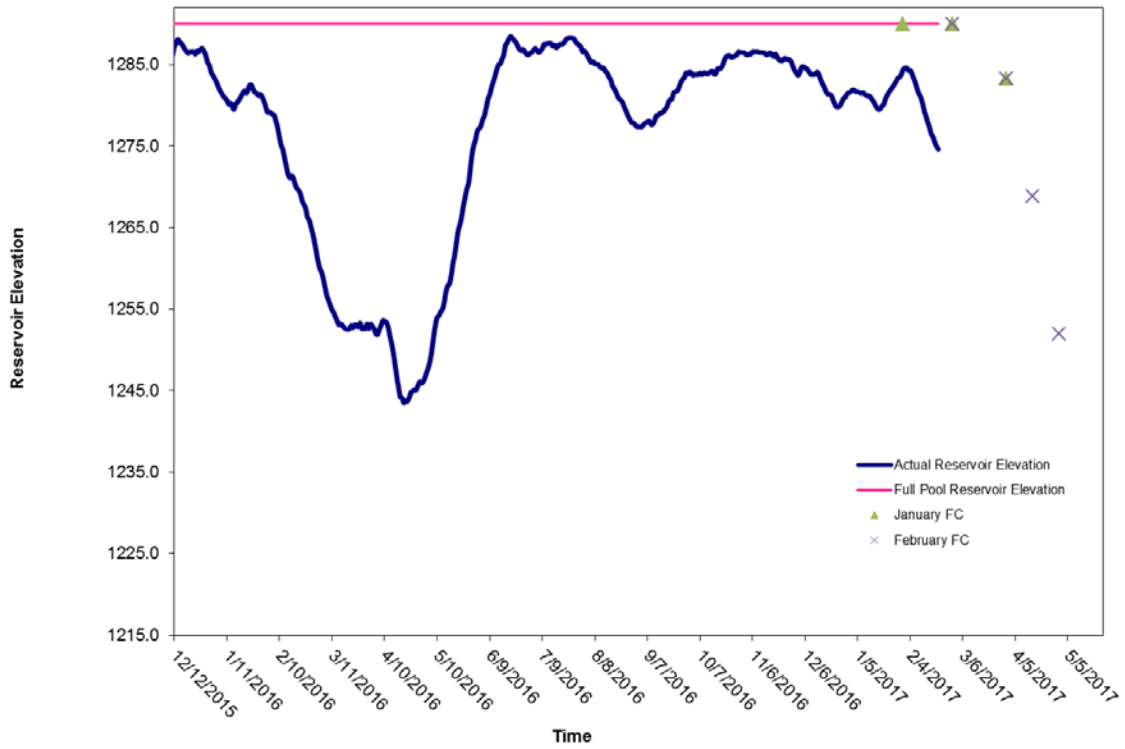


Figure 1. Grand Coulee

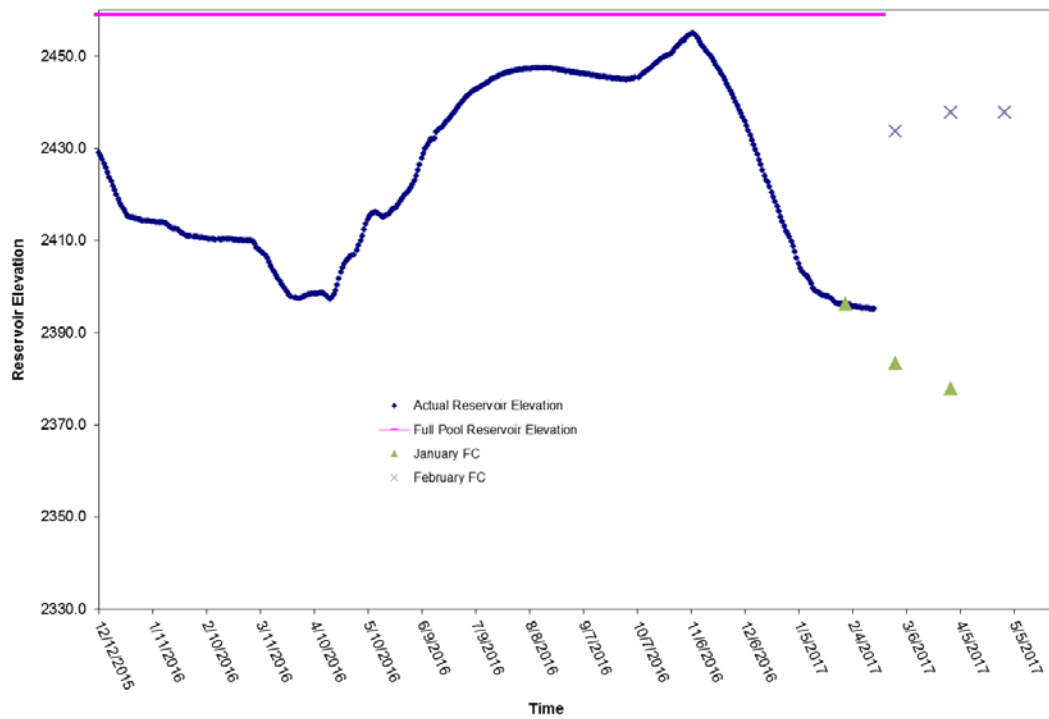


Figure 2. Libby

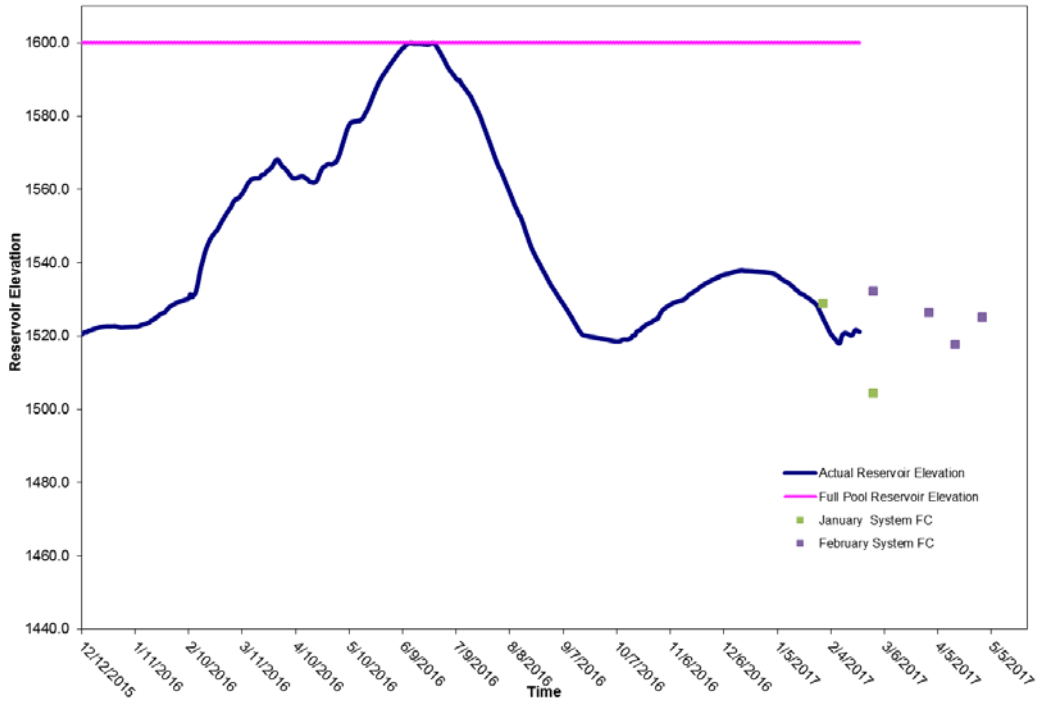


Figure 3. Dworshak

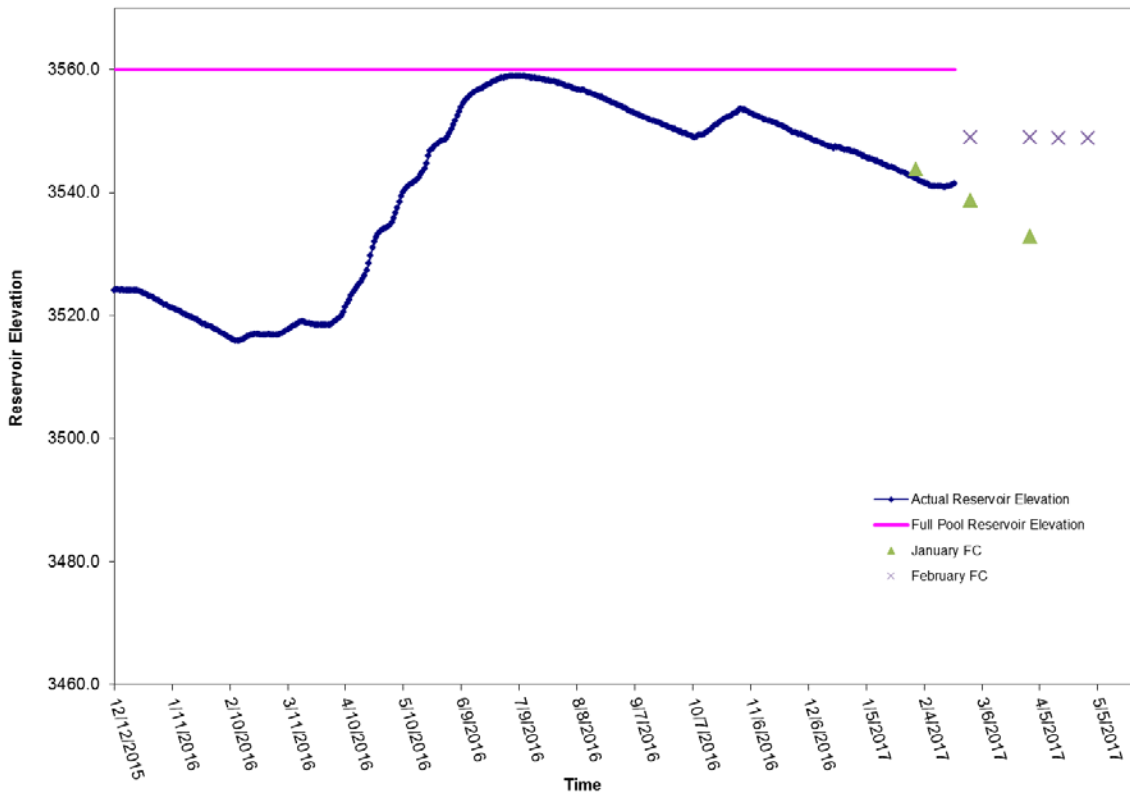
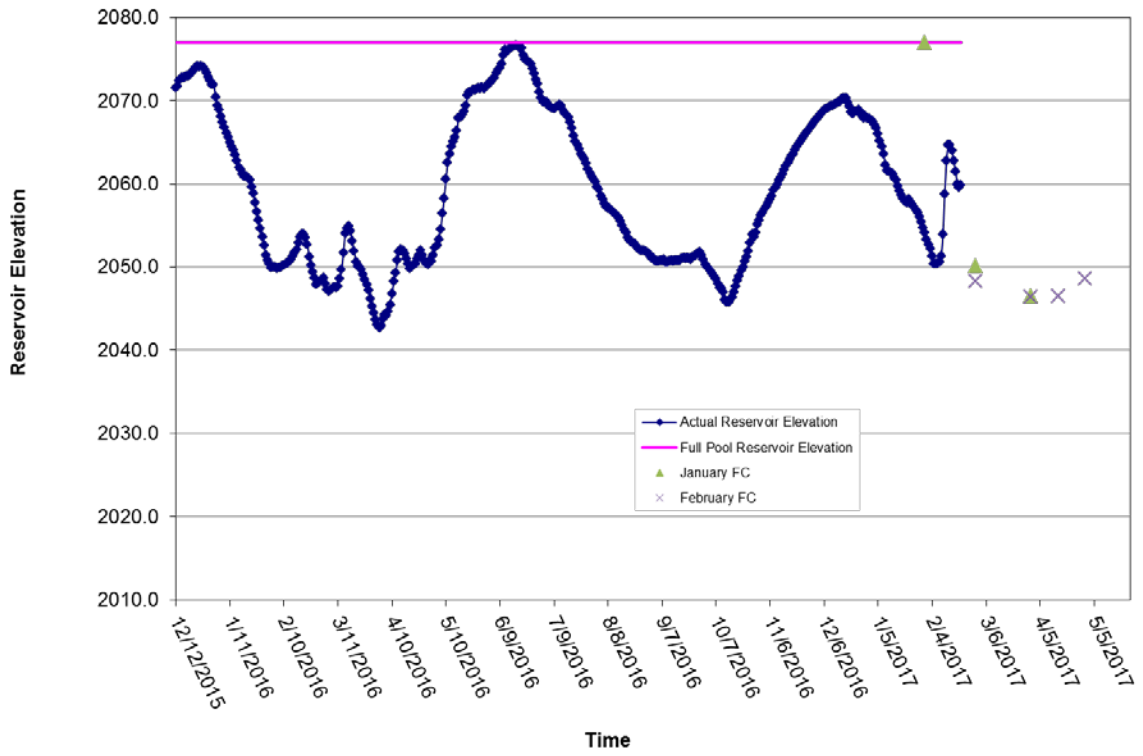


Figure 4. Hungry Horse



**Figure 5.** Brownlee

Water Year 2017  
Clim Norm 1981-2010

**Precipitation**

Monthly  
Temp. (degF)  
(pro-rated)

	Monthly Feb. 1 - 20	Seasonal (Oct. 1 - now)	Monthly Temp. (degF) (pro-rated)
Portland	364%	155%	-3.4

**UPPER-COLUMBIA:**

Kamloops	191%	125%	-7.7
Revelstoke	65%	69%	-3.6
Cranbrook	417%	196%	-7.2
Creston	498%	134%	-2.7
average:	293%	131%	-5.3
Normal:	0.97	9.89	29.6

**MIDDLE-COLUMBIA:**

Pendleton	181%	138%	-2.9
Redmond	226%	153%	1.8
Yakima	368%	169%	-4.1
Wenatchee AP	273%	120%	-8
Omak	158%	130%	-5.6
Spokane	405%	176%	-2.1
average:	269%	148%	-3.5
Normal:	0.73	6.02	35.3

**LOWER SNAKE:**

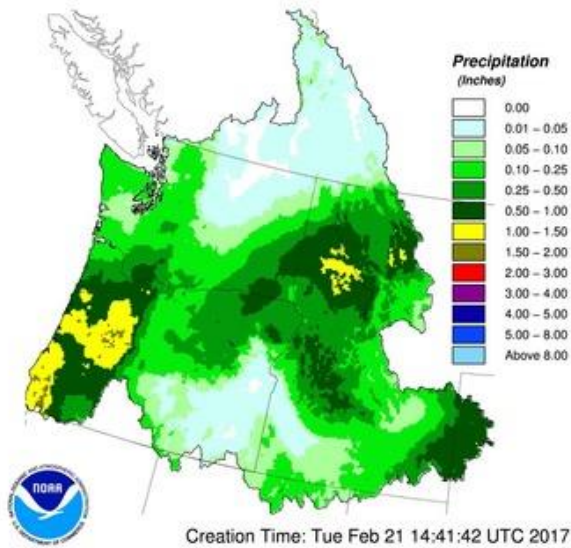
Lewiston	235%	147%	-0.1
Pullman	204%	150%	0.9
Stanley	467%	230%	10.2
Challis	188%	199%	4.7
average:	273%	182%	3.9
Normal:	0.84	5.85	29.1

**UPPER and MIDDLE SNAKE:**

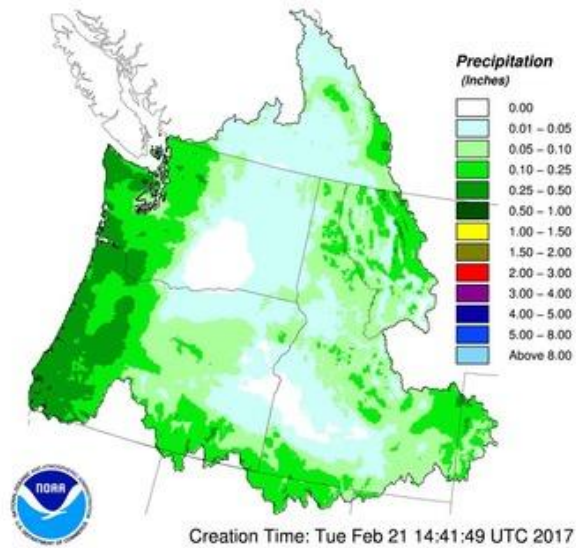
McCall	341%	174%	8.7
Ontario	267%	158%	0.1
Boise	164%	136%	3.8
Twin Falls	182%	147%	4.9
Burley	328%	201%	7.8
Pocatello	303%	234%	7.7
Idaho Falls	213%	165%	7.4
average:	257%	174%	5.8
Normal:	0.68	5.37	31.0

Forecasted Daily Rain (in inches), BON dam area:	
21-Feb	0.61
22-Feb	0.12
23-Feb	0.06
24-Feb	0
25-Feb	0
26-Feb	0.15
27-Feb	0

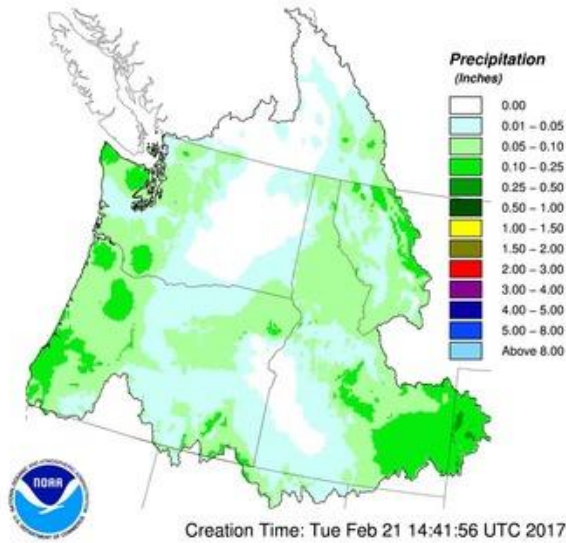
DAY 1 QPF, 24hr Period Ending 12Z, 02/22/2017



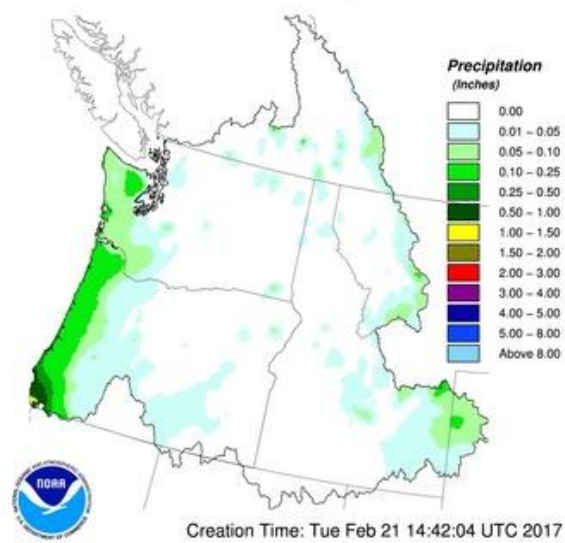
DAY 2 QPF, 24hr Period Ending 12Z, 02/23/2017



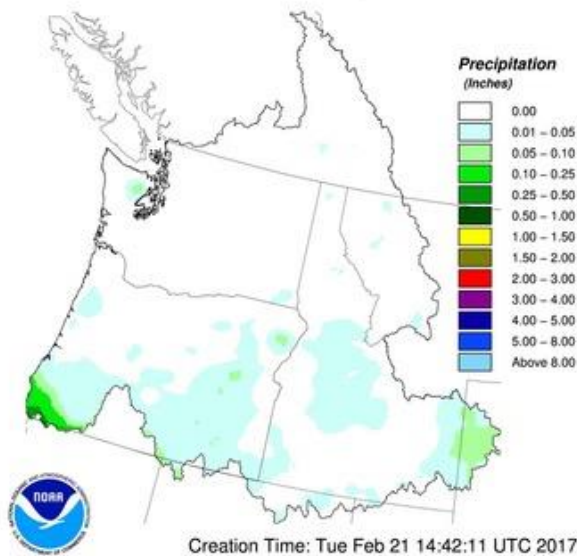
DAY 3 QPF, 24hr Period Ending 12Z, 02/24/2017



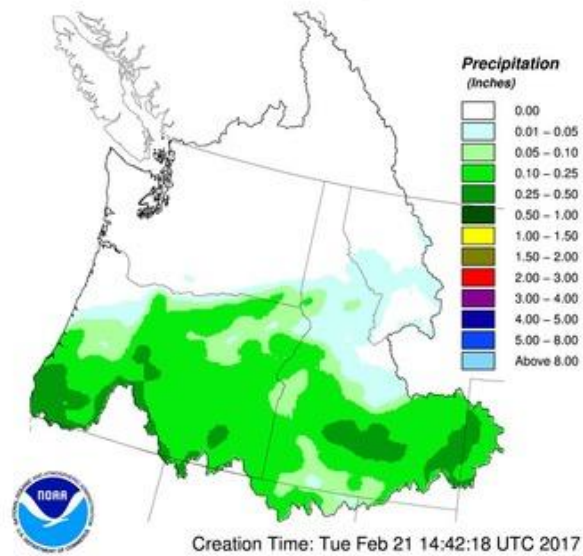
DAY 4 QPF, 24hr Period Ending 12Z, 02/25/2017



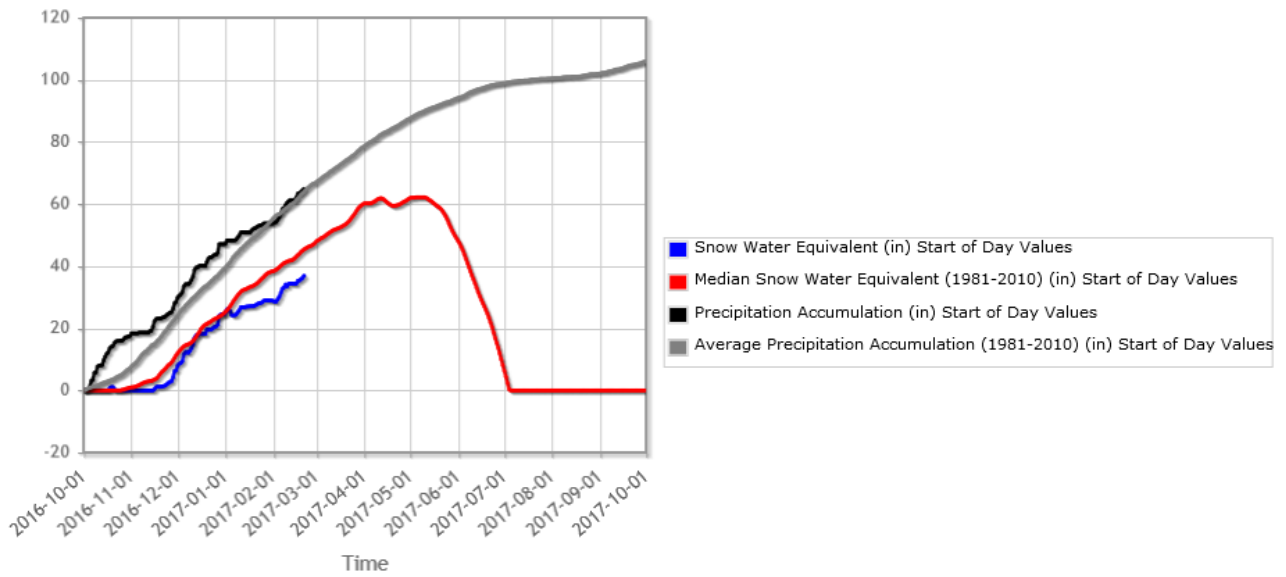
DAY 5 QPF, 24hr Period Ending 12Z, 02/26/2017



DAY 6 QPF, 24hr Period Ending 12Z, 02/27/2017

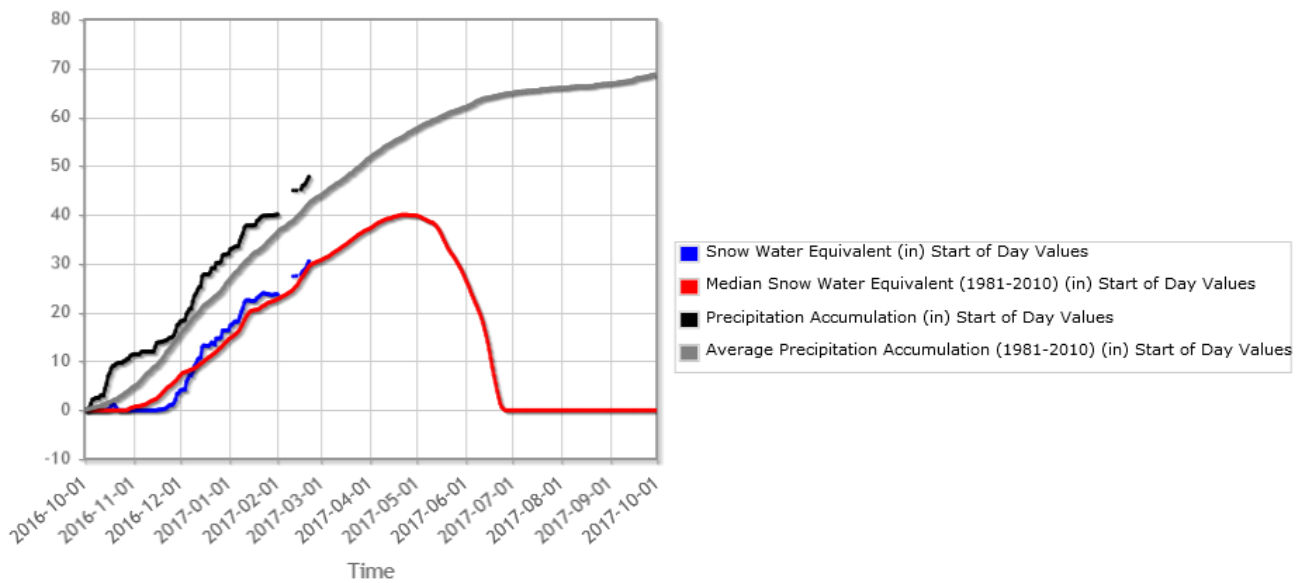


**Mt Hood Test Site (651) Oregon SNOTEL Site - 5370 ft** Reporting Frequency: Daily; Date Range: 2016-10-01 to 2017-09-30



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

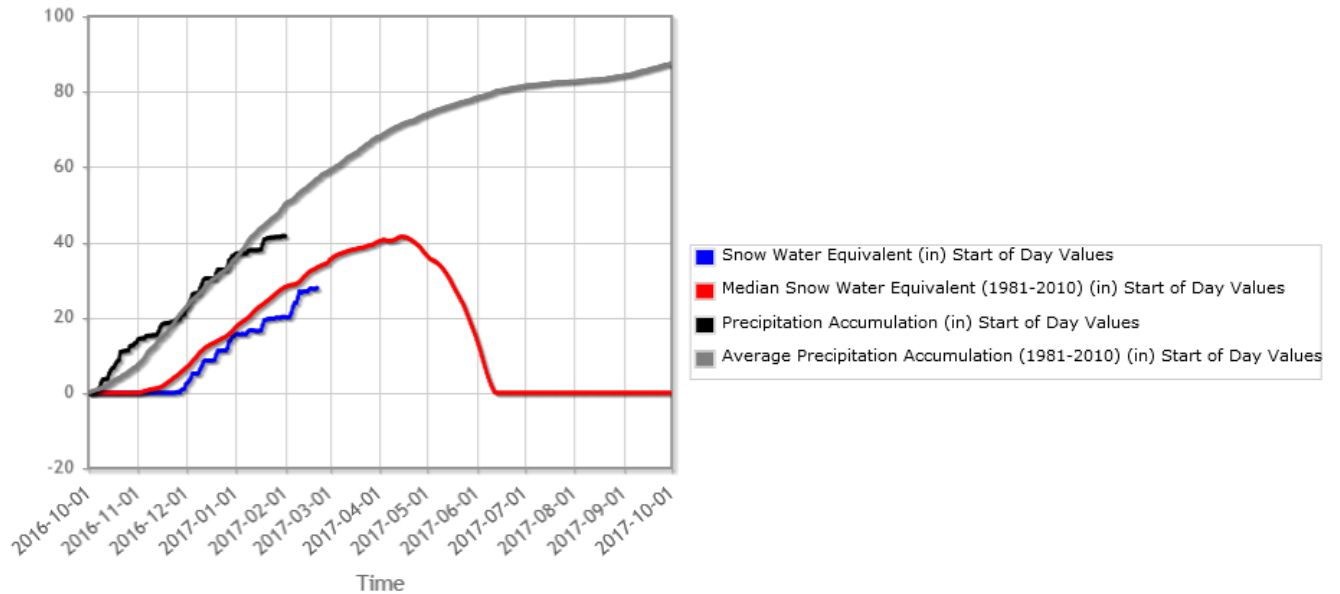
**Irish Taylor (545) Oregon SNOTEL Site - 5540 ft** Reporting Frequency: Daily; Date Range: 2016-10-01 to 2017-09-30



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

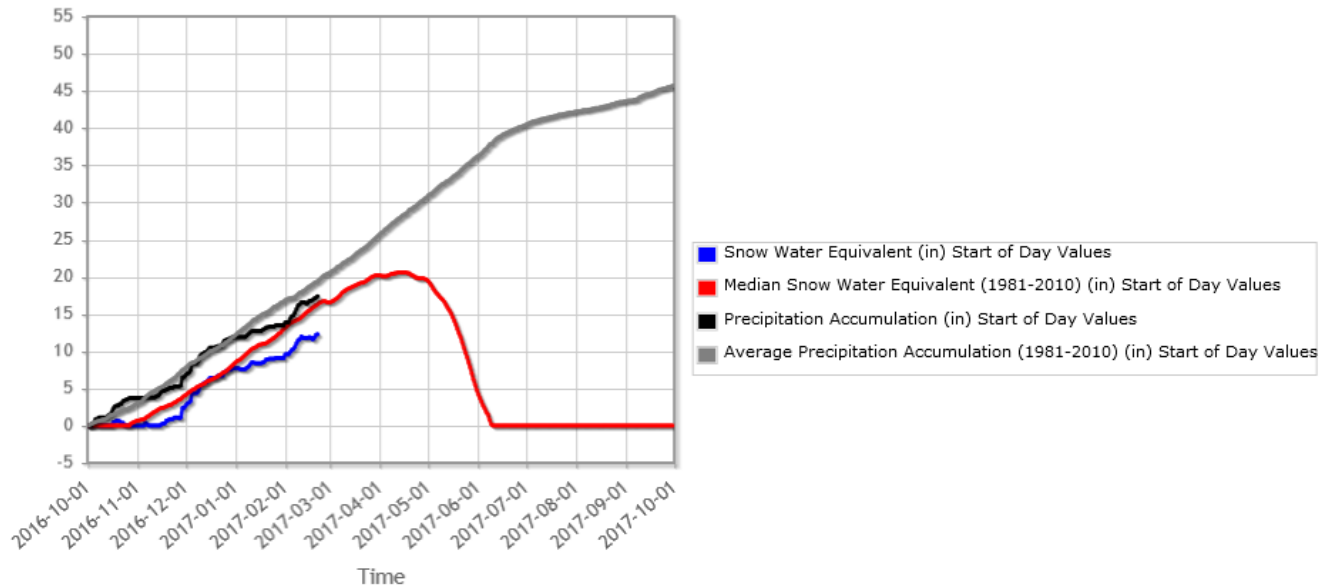


**Stampede Pass (788) Washington SNOTEL Site - 3850 ft Reporting Frequency: Daily; Date Range: 2016-10-01 to 2017-09**



Stampede Pass, Washington (central Washington Cascades). Elevation 3850 feet.

**Mountain Meadows (650) Idaho SNOTEL Site - 6360 ft Reporting Frequency: Daily; Date Range: 2016-10-01 to 2017-09-30**



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