

# IDWR State Water Supply Meeting

January 15, 2016

Measuring Mores Creek Summit

Dec 30, 2015

150% of Median



Natural Resources Conservation Service

## Idaho Water Supply Outlook Report January 1, 2016

To better understand what is driving our weather in Idaho, check out the article below which explains this year's dominant weather pattern with quotes from our USDA Meteorologist.

January 4, 2016 News Headlines: ENSO summary from PBS NewsHour Science page

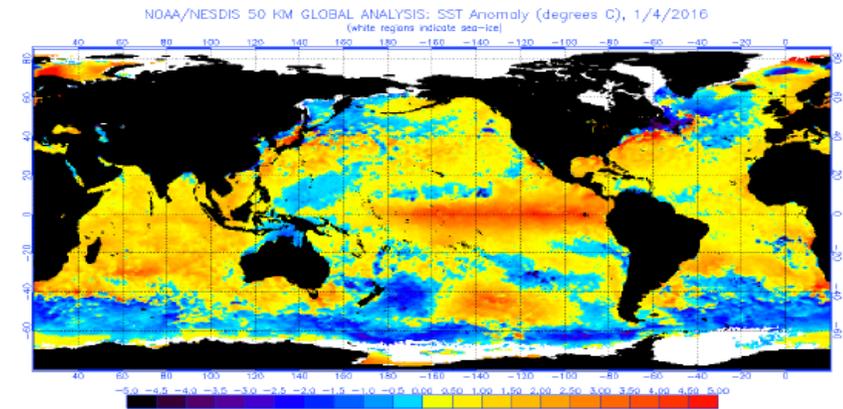
"Think El Niño is weird now? Just wait for this summer"

See link for full article:

<http://www.pbs.org/newshour/updates/think-el-nino-is-weird-now-just-wait-for-this-summer/>

The El Niño Southern Oscillation (ENSO) is a patch of warmer-than-normal water in the eastern and central Pacific Ocean that develops around the equator. Picture it as a spoon stirring a cup of coffee, said Brad Rippey, a meteorologist with the U.S. Department of Agriculture.

The heat acts like the spoon bowl, pushing huge currents around the Pacific. But then some of this warmth seeps upward from the moving water, like an invisible spoon handle, and begins stirring the air. "Eventually everything is moving in tandem," Rippey said, and that's when things get weird for the planet's weather.



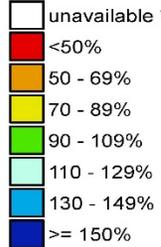
Ron Abramovich  
Water Supply Specialist  
Snow Survey  
Boise, Idaho



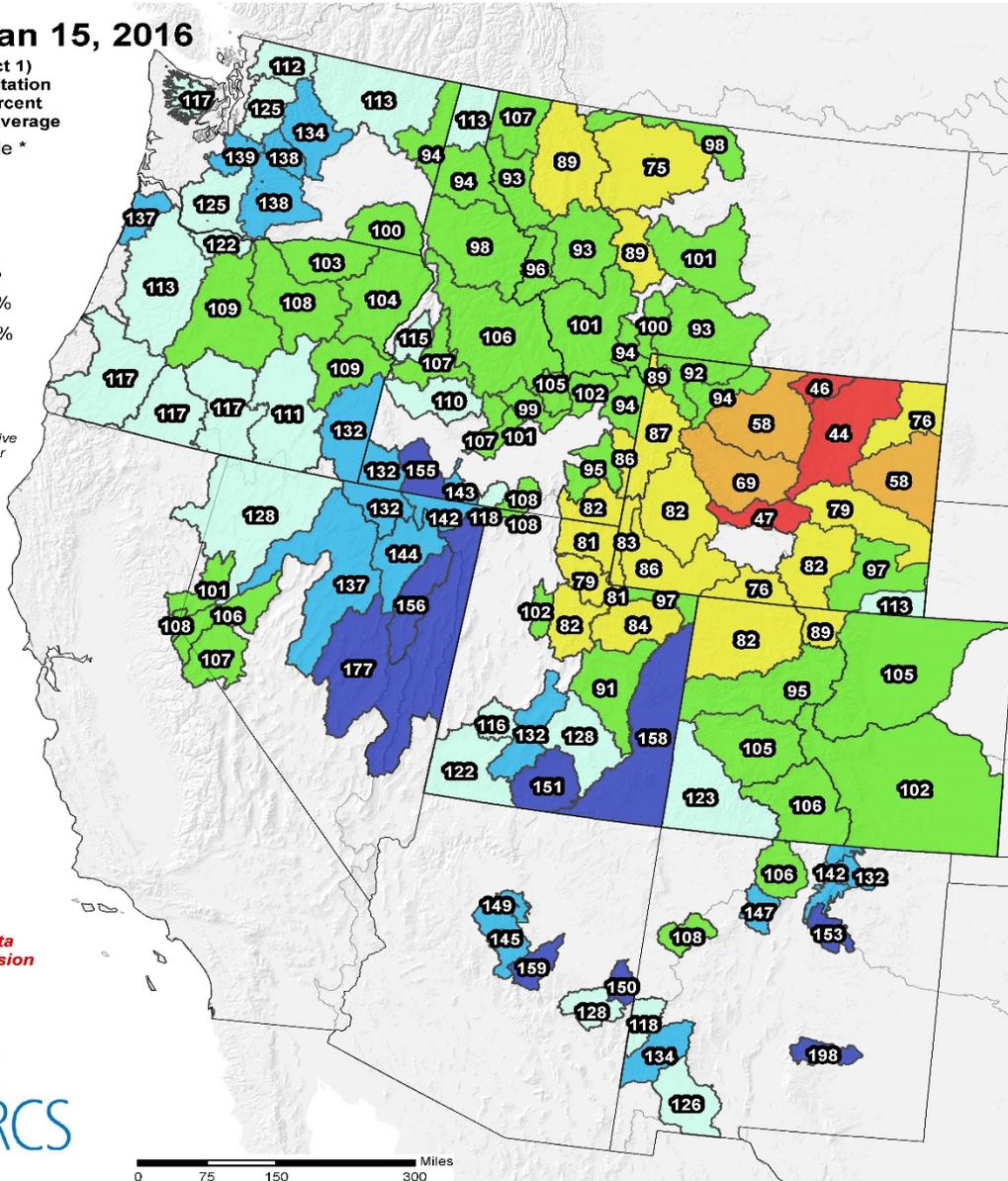
# Westwide SNOTEL Water Year (Oct 1) to Date Precipitation % of Normal

Jan 15, 2016

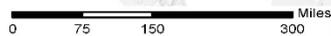
Water Year (Oct 1) to Date Precipitation Basin-wide Percent of 1981-2010 Average



\* Data unavailable at time of posting or measurement is not representative at this time of year



Provisional data subject to revision



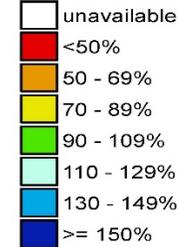
The water year to date precipitation percent of normal represents the accumulated precipitation found at selected SNOTEL sites in or near the basin compared to the average value for those sites on this day. Data based on the first reading of the day (typically 00:00).

Prepared by:  
USDA/NRCS National Water and Climate Center  
Portland, Oregon  
<http://www.wcc.nrcs.usda.gov>

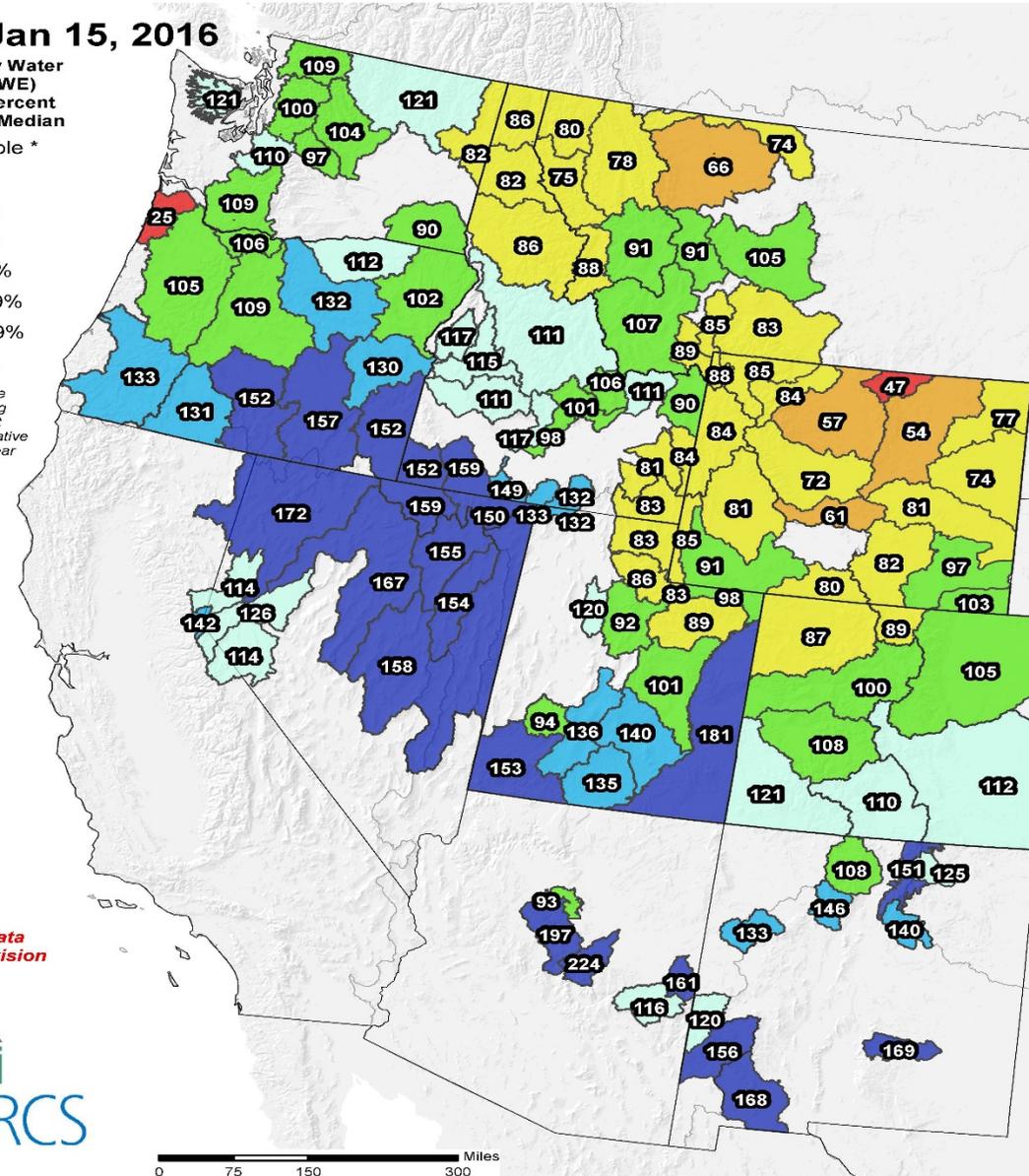
# Westwide SNOTEL Current Snow Water Equivalent (SWE) % of Normal

Jan 15, 2016

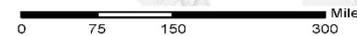
Current Snow Water Equivalent (SWE) Basin-wide Percent of 1981-2010 Median



\* Data unavailable at time of posting or measurement is not representative at this time of year



Provisional data subject to revision



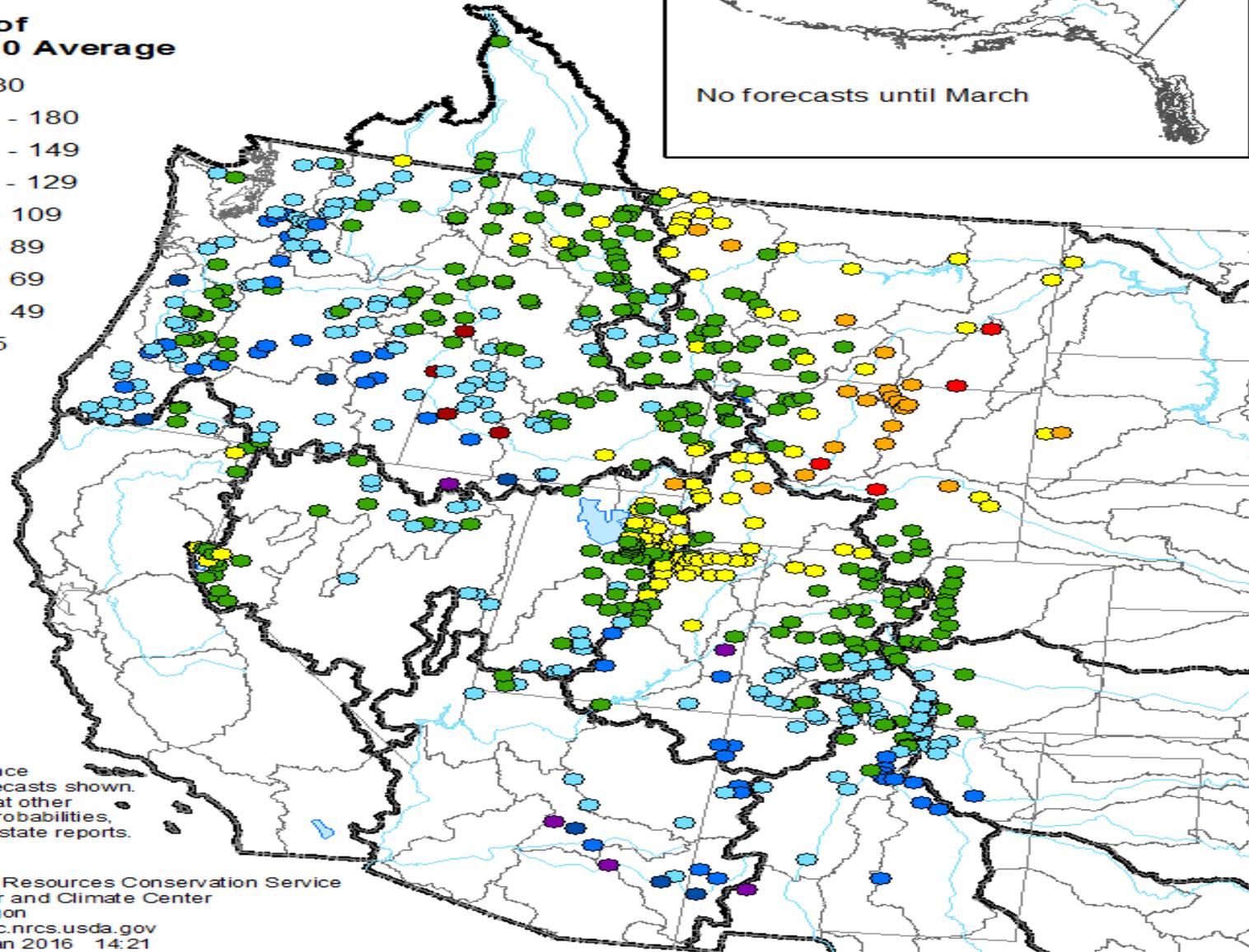
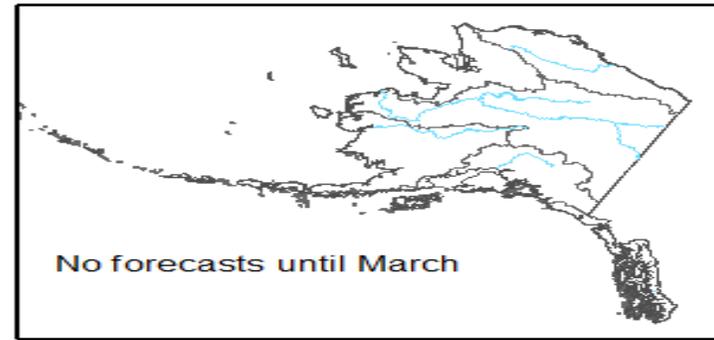
The snow water equivalent percent of normal represents the current snow water equivalent found at selected SNOTEL sites in or near the basin compared to the average value for those sites on this day. Data based on the first reading of the day (typically 00:00).

Prepared by:  
USDA/NRCS National Water and Climate Center  
Portland, Oregon  
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# Spring and Summer Streamflow Forecasts as of January 1, 2016

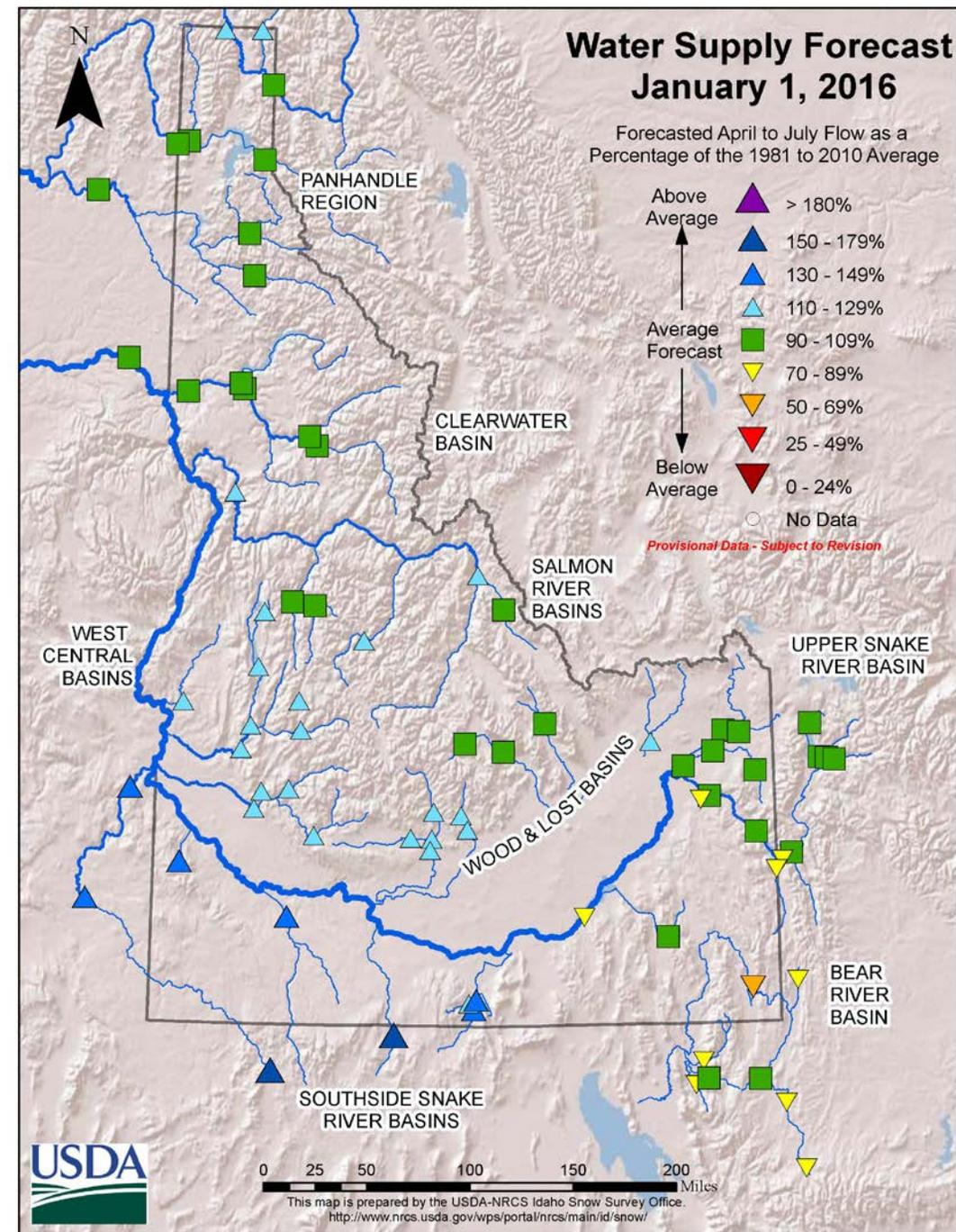
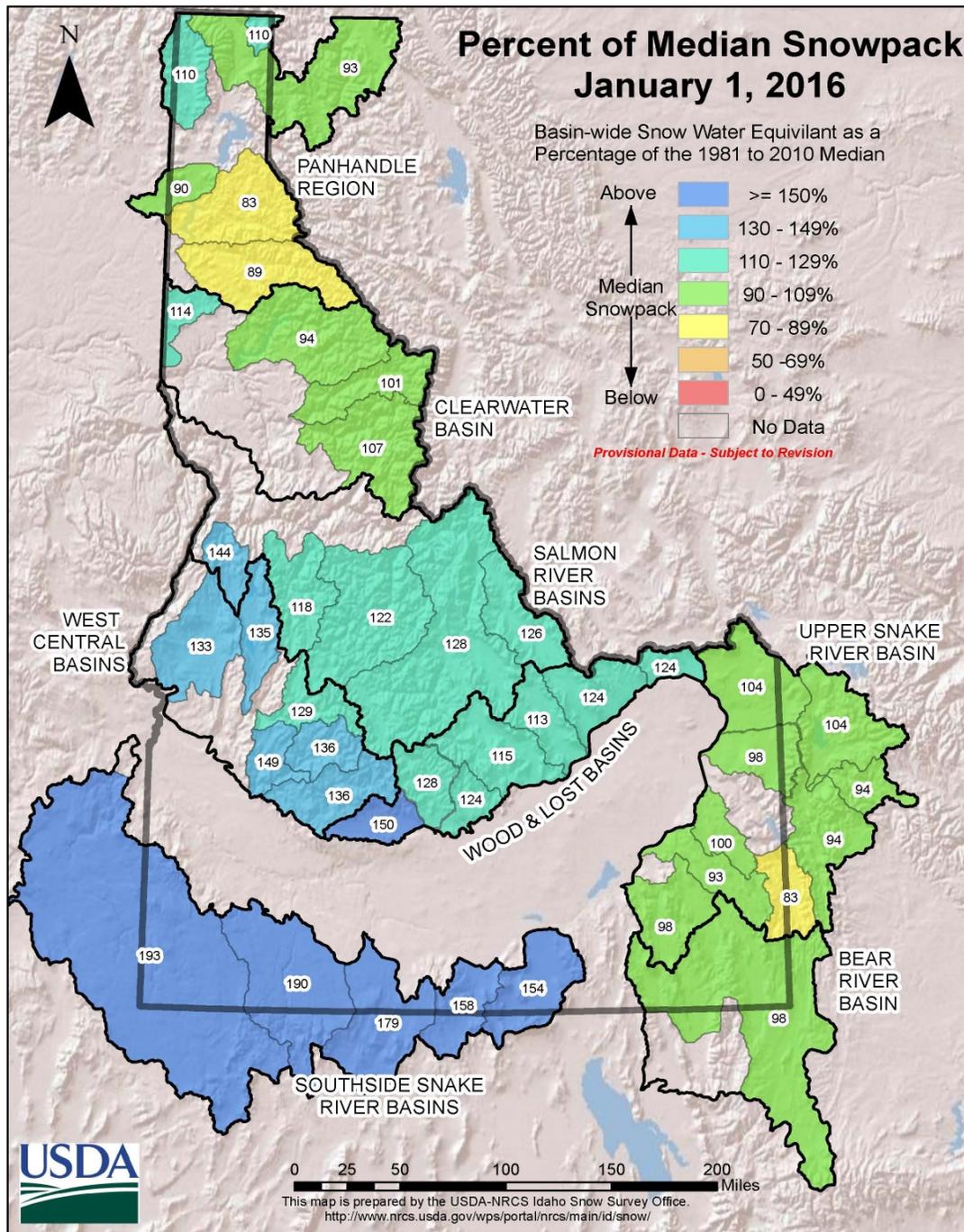
Percent of  
1981-2010 Average

- > 180
- 150 - 180
- 130 - 149
- 110 - 129
- 90 - 109
- 70 - 89
- 50 - 69
- 25 - 49
- < 25



50% exceedance  
probability forecasts shown.  
For forecasts at other  
exceedance probabilities,  
see individual state reports.

Prepared by:  
USDA Natural Resources Conservation Service  
National Water and Climate Center  
Portland, Oregon  
<http://www.wcc.nrcs.usda.gov>  
Created: 7 Jan 2016 14:21

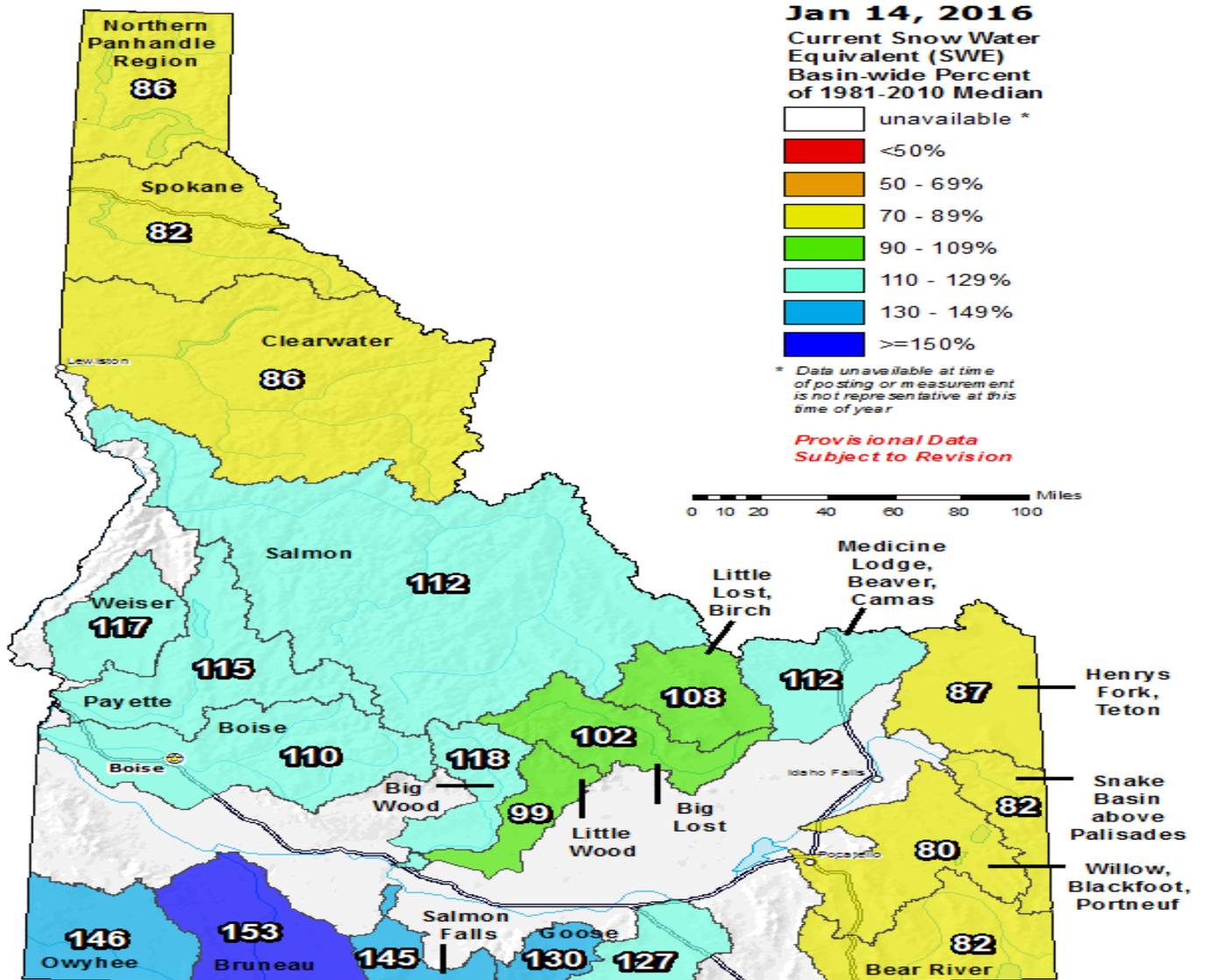




With minimal precipitation, the 1<sup>st</sup> half of January, snowpack %'s were dropping 1-2 percentage points a day.

Today's snowpacks are 40 – 80% of their seasonal peaks that occur in early April.

### Idaho SNOTEL Current Snow Water Equivalent (SWE) % of Normal



The snow water equivalent percent of normal represents the current snow water equivalent found at selected SNOTEL sites in or near the basin compared to the average value for those sites on this day. Data based on the first reading of the day (typically 00:00).

Prepared by:  
 USDA/NRCS National Water and Climate Center  
 Portland, Oregon  
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## IDAHO SURFACE WATER SUPPLY INDEX (SWSI) January 1, 2016

The Surface Water Supply Index (SWSI) is a predictive indicator of surface water availability within a watershed for the spring and summer water use season. The index is calculated by combining pre-runoff reservoir storage (carryover) with forecasts of spring and summer streamflow. SWSI values are scaled from +4.0 (abundant supply) to -4.0 (extremely dry), with a value of zero indicating a median water supply as compared to historical occurrences. The SWSI analysis period is from 1981 to present.

SWSI values provide a more comprehensive outlook of water availability by combining streamflow forecasts and reservoir storage where appropriate. The SWSI index allows comparison of water availability between basins for drought or flood severity analysis. Threshold SWSI values have been determined for some basins to indicate the potential for agricultural irrigation water shortages.

<i>BASIN or REGION</i>	<i>SWSI Value</i>	<i>Most Recent Year With Similar SWSI Value</i>	<i>Agricultural Water Supply Shortage May Occur When SWSI is Less Than</i>
Spokane	-0.3	2013	NA
Clearwater	0.8	2006	NA
Salmon	0.6	2010	NA
Weiser	1.5	2010	NA
Payette	1.0	2008	NA
Boise	1.5	2012	-1.4
<b>Big Wood</b>	<b>0.8</b>	<b>2012</b>	<b>0.7</b>
Little Wood	1.3	2012	-1.2
<b>Big Lost</b>	<b>0.8</b>	<b>2010</b>	<b>0.7</b>
<b>Little Lost</b>	<b>0.8</b>	<b>2006</b>	<b>1.3</b>
Teton	0.3	2010	-3.9
Henrys Fork	-0.3	2012	-3.5
Snake (Heise)	-0.3	2010	-1.6
Oakley	1.3	2005	0.7
Salmon Falls	1.7	1993	-0.5
Bruneau	3.1	2006	NA
Owyhee	1.0	2005	-3.0
Bear River	-0.8	2015	-3.7

Updated Jan 11, 2016 to verify projected storage levels

Summary Table: Amount of streamflow needed in 2016 for adequate surface irrigation supplies.

Fall reservoir carryover storage are used to project spring storage levels. Then, by knowing the adequate irrigation water supply needed in your basin, spring reservoir volumes are subtracted from the adequate irrigation supply to determine the volume of streamflow to marginally meet adequate surface irrigation supplies in 2016.

Column 2 - Column 3 = Column 4 Col4/Col5 X 100=Col 5

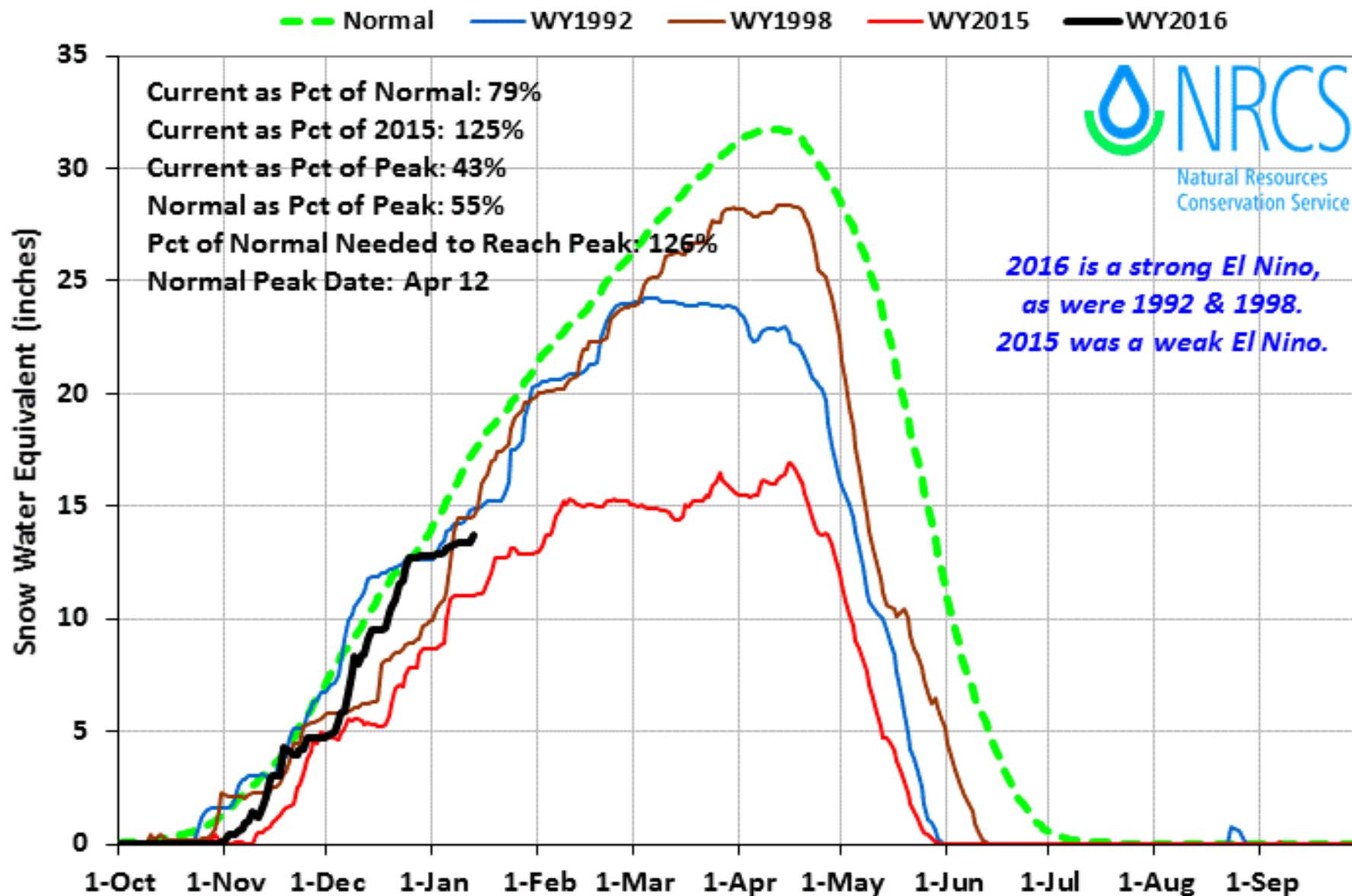
1 Basin	2 Adequate irrigation water supply KAF	3 Projected end of Mar, Feb, or Jan reservoir storage KAF	4 2016 Streamflow volume needed for adequate water supply KAF	5 % of average streamflow needed to meet an adequate irrigation supply in 2016 KAF	6 1981-2010 Streamflow average KAF	7 Streamflow period used in analysis	9 2015 Streamflow % of average KAF %
Boise	1500	625	875	64%	1360	apr-sep	750 55%
Big Wood	275	70	205	77%	265	apr-sep	80 30%
Little Wood	60	17	43	47%	92	mar-sep	31 33%
Big Lost	180	33	147	98%	150	apr-sep	88 59%
Little Lost	40	—	40	118%	34	apr-sep	24 71%
Teton	85	—	85	44%	193	apr-sep	160 83%
Snake (Halse)	4,400	1450	2950	78%	3,780	apr-sep	3200 85%
Oakley	50	17	33	106%	31	mar-sep	13 51%
Salmon Falls	110	25	85	100%	85	mar-sep	42 49%
Owyhee	450	110	340	51%	665	feb-sep	180 27%
Bear River	280	500	0	0%	205	apr-sep	89 42%

Projected change in reservoir storage from Fall 2015 to target levels in Spring 2016 when the streamflow forecast and runoff period starts.

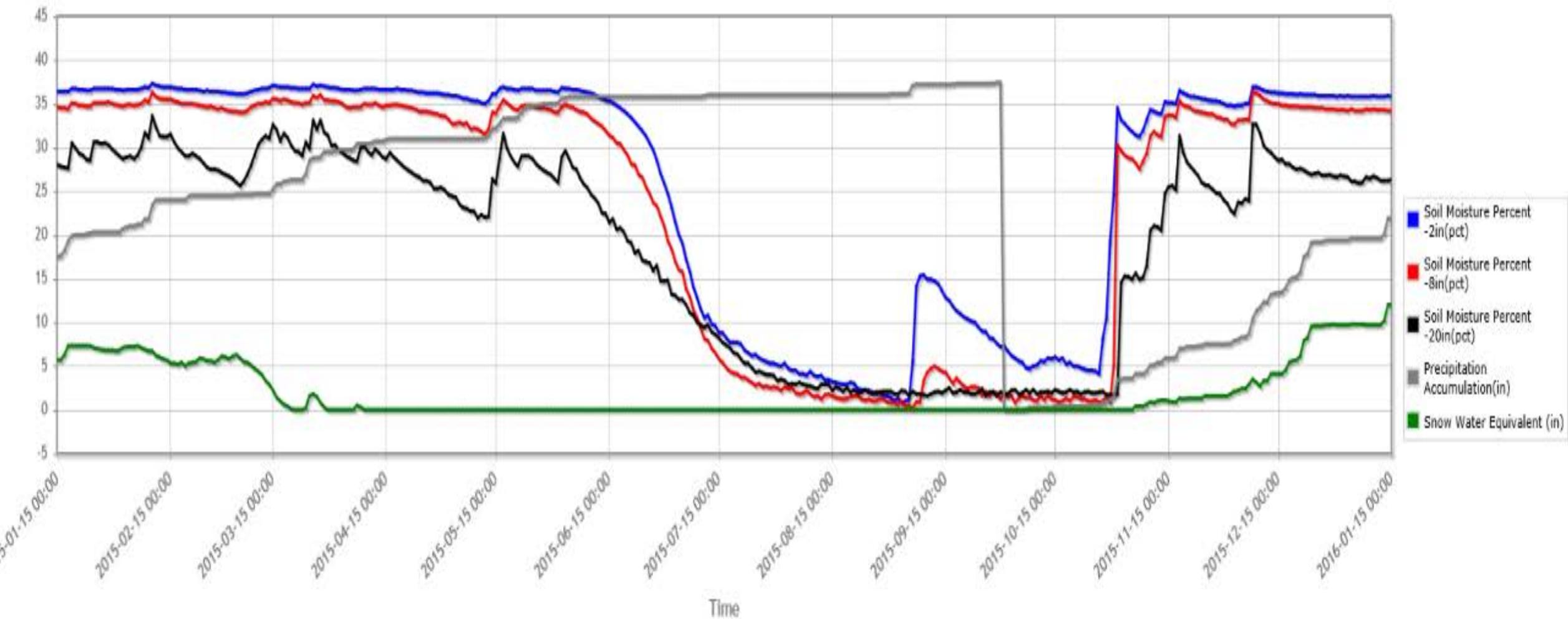
	Oct 31 Storage (KAF)	Nov 30 Storage (KAF)	Dec 31 Storage (KAF)	Jan 31 Storage (KAF)	Feb 28 Storage (KAF)	Projected Mar 31 (KAF)	Estimated Change in Storage (KAF)
Boise Reservoir System	396.2	423.8	470.9	not est	not est	625	201
Magic Reservoir	19.1	25.8	29.8	not est	not est	70	44
Little Wood Reservoir	4.2	6.5	9	not est	17	not est	10
Mackay Reservoir	5.0	17.2	23.3	not est	not est	33	16
Jackson & Pallsades	1046.8	1158.0	1260	not est	not est	1450	292
Oakley Reservoir	7.9	10.1	11.9	not est	17	not est	7
Salmon Falls Reservoir	11.2	13.4	16.2	not est	25	not est	12
Lake Owyhee	26.4	43.1	69.5	110	not est	not est	67
Bear Lake	467.7	453.3	460.4	not est	not est	500	47

# Northern Panhandle Region 2016 Snowpack Comparison Graph (8 sites)

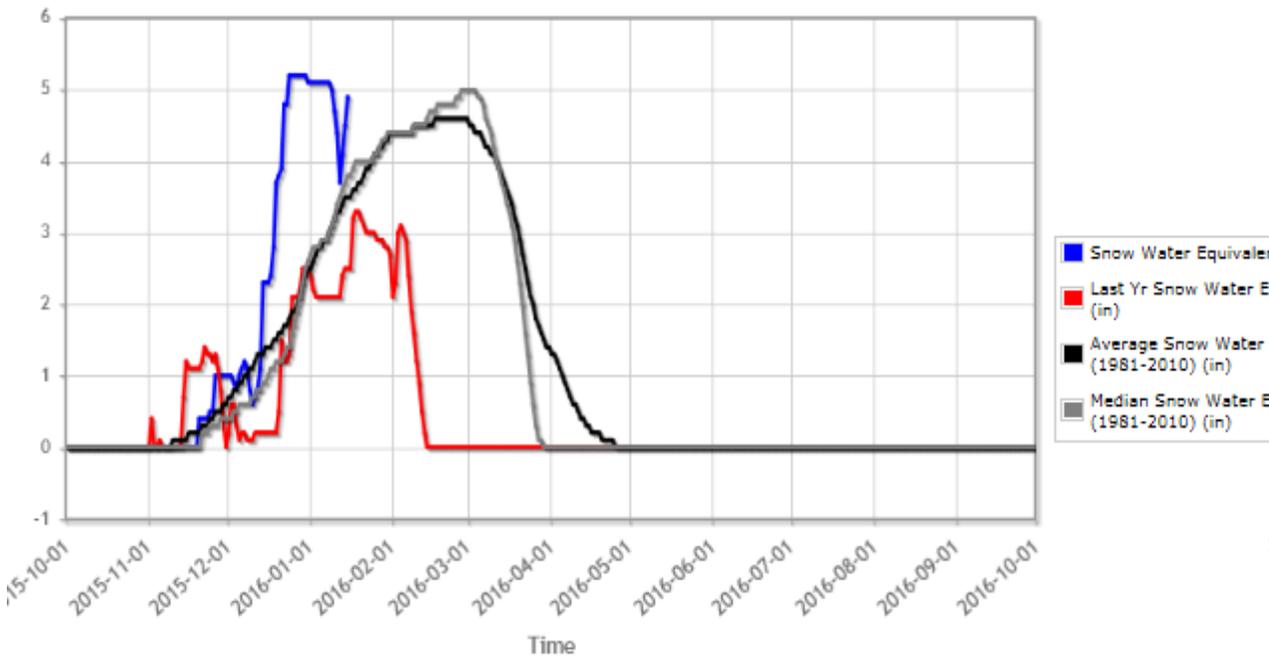
Based on Provisional SNOTEL data as of Jan 13, 2016



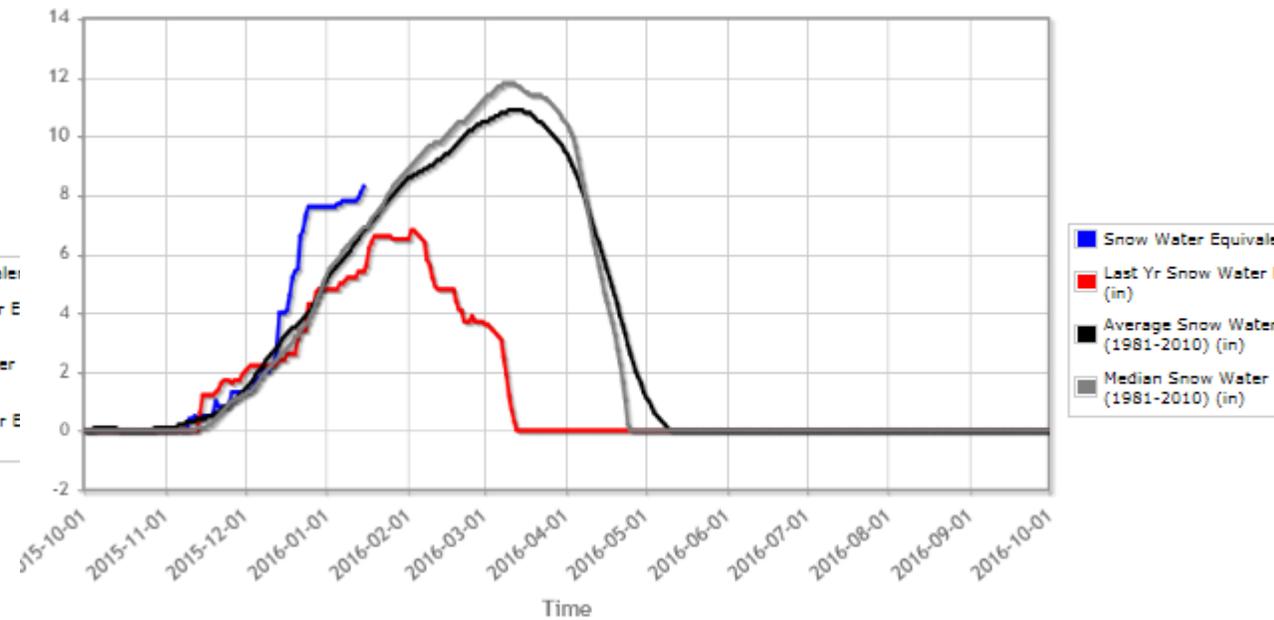
# Moscow Mountain (989) Idaho SNOTEL Site - 4700 ft



Prairie (704) Idaho SNOTEL Site - 4800 ft

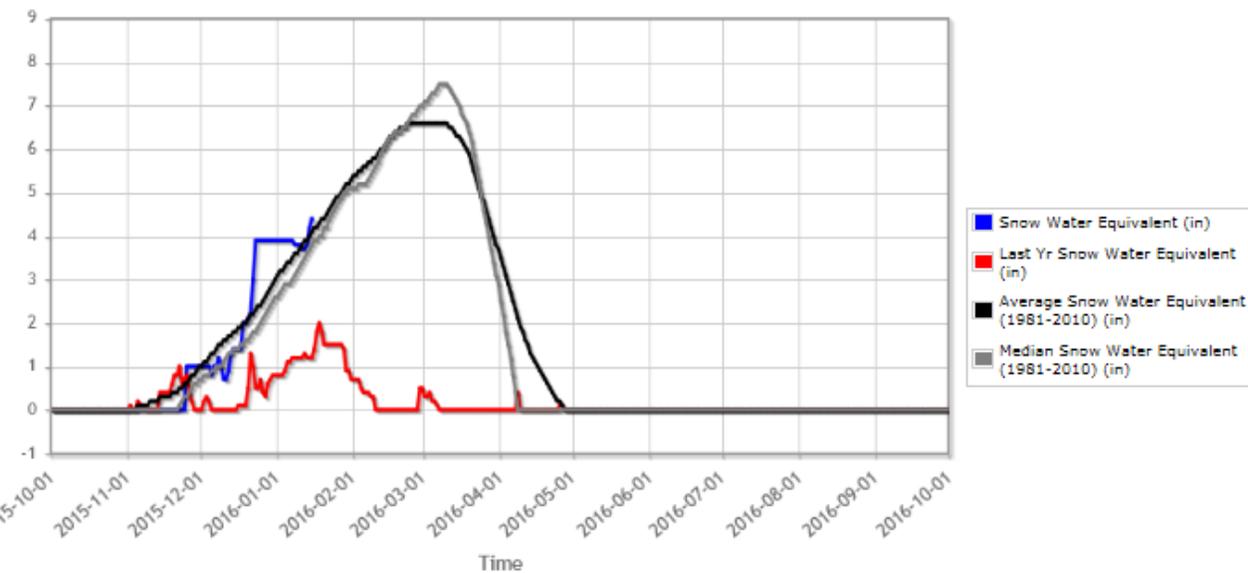


Camas Creek Divide (382) Idaho SNOTEL Site - 5710 ft

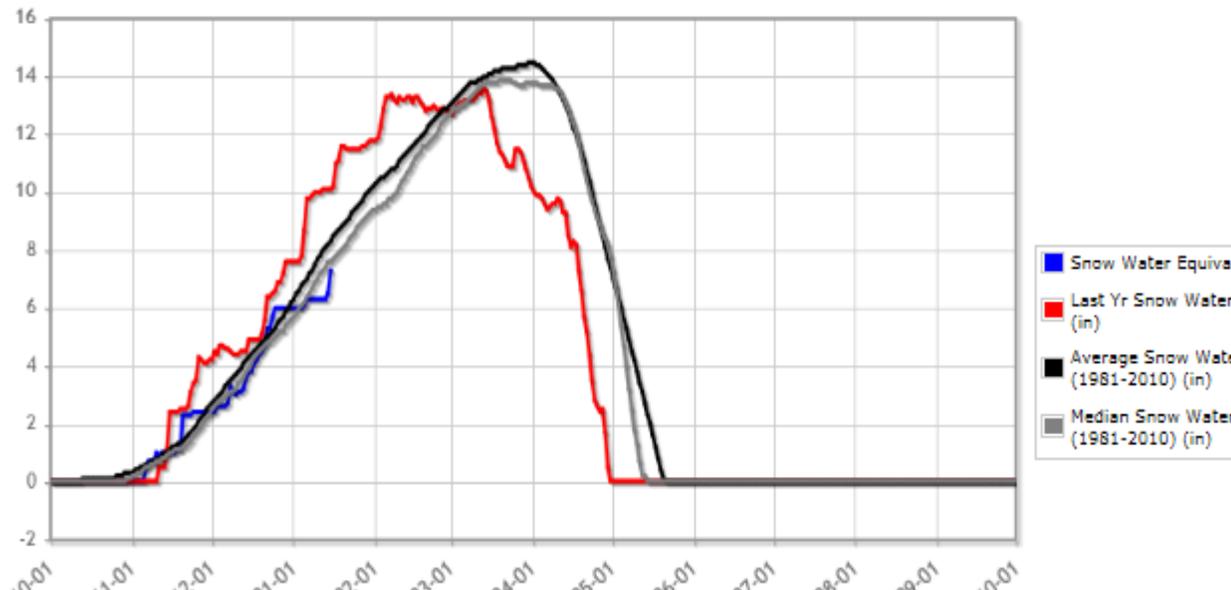


[Export Chart As Image](#)

Mud Flat (654) Idaho SNOTEL Site - 5730 ft

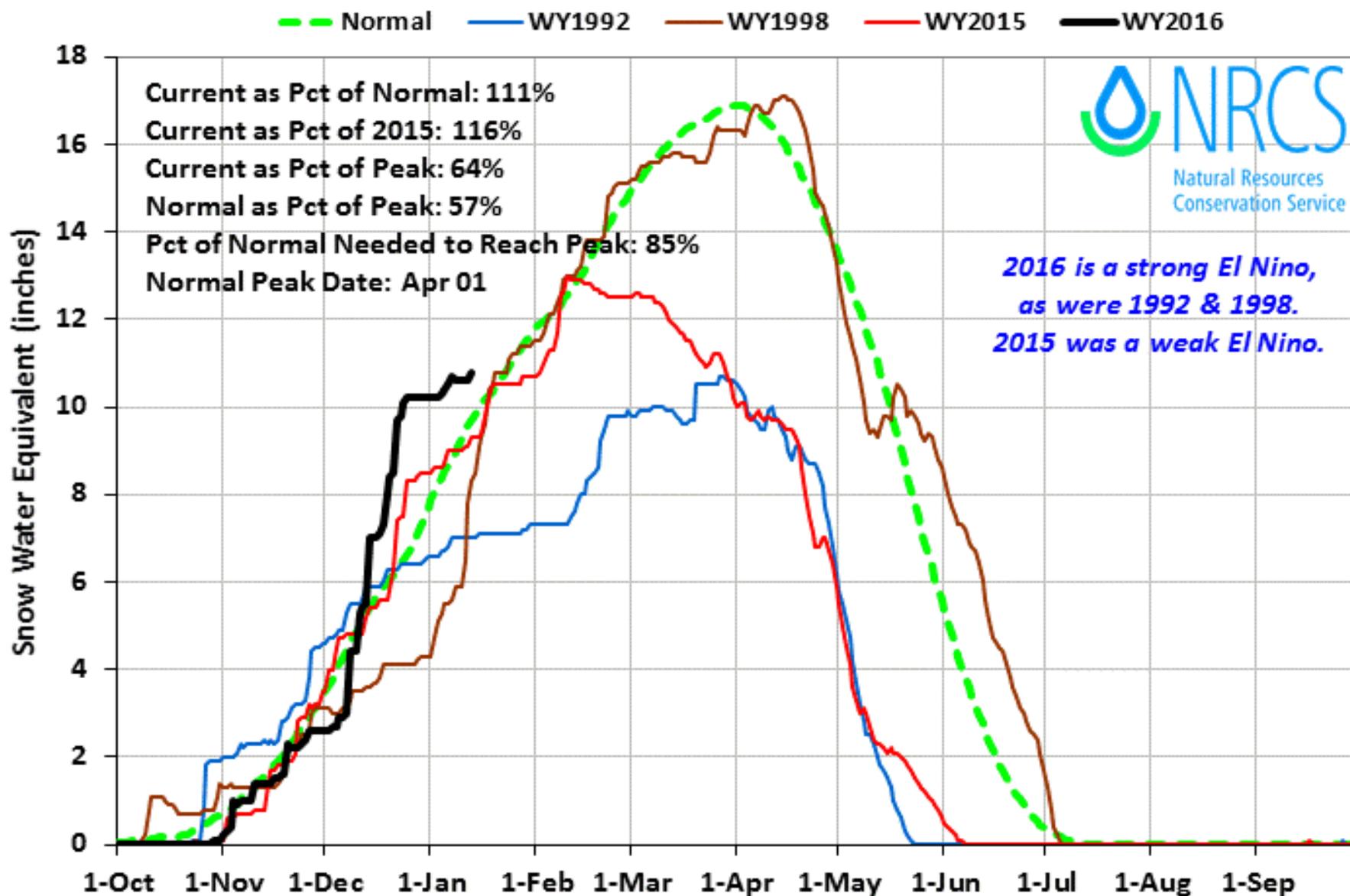


Pine Creek Pass (695) Idaho SNOTEL Site - 6720 ft



# Big Wood Basin 2016 Snowpack Comparison Graph (9 sites)

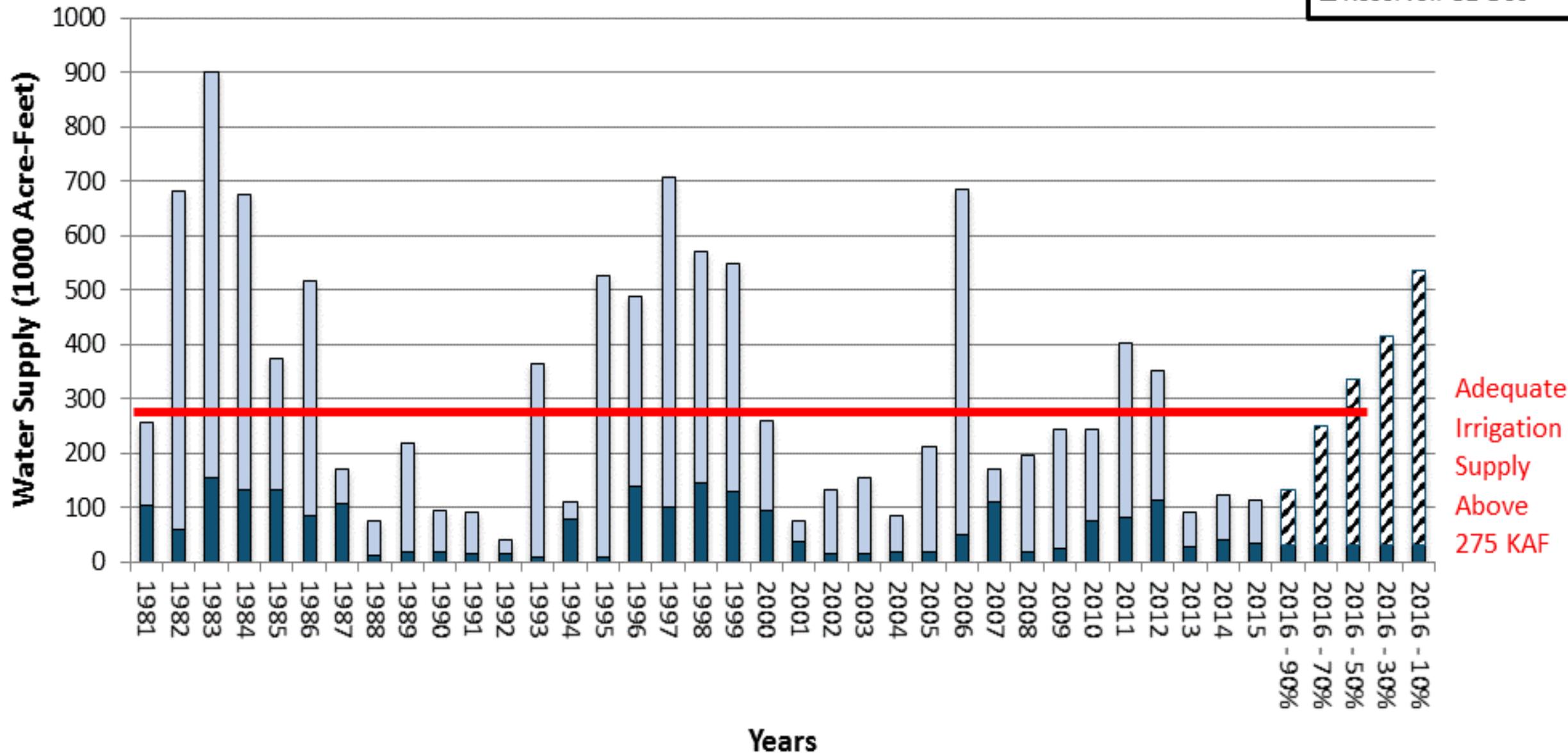
Based on Provisional SNOTEL data as of Jan 13, 2016



# Jan 1 Historic and Forecasted Surface Water Supply Big Wood River Basin

**Jan 2016 Streamflow  
Forecasts  
115% of Average**

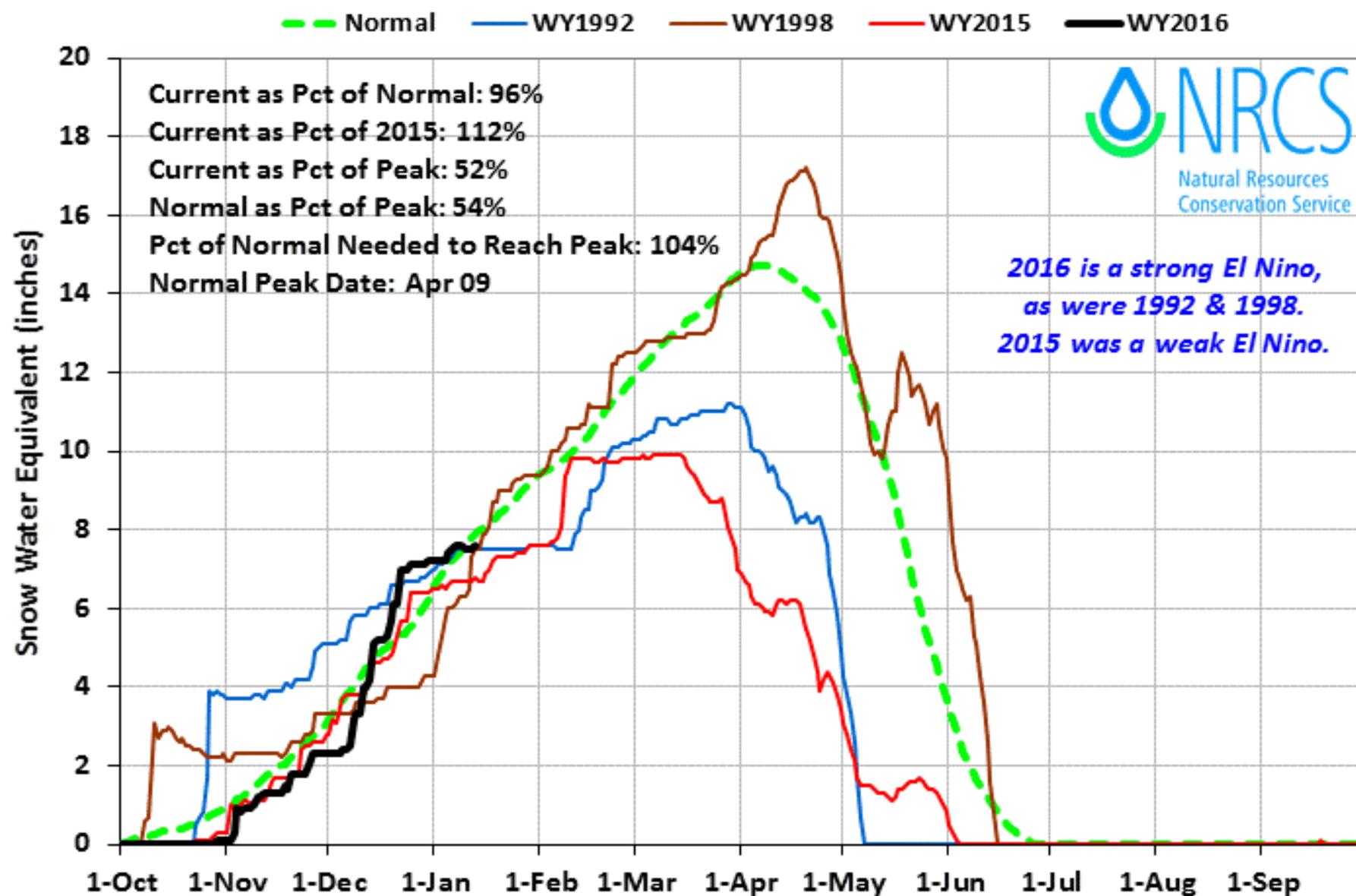
StreamFlow Apr-Sep  
Reservoir 31-Dec



Adequate  
Irrigation  
Supply  
Above  
275 KAF

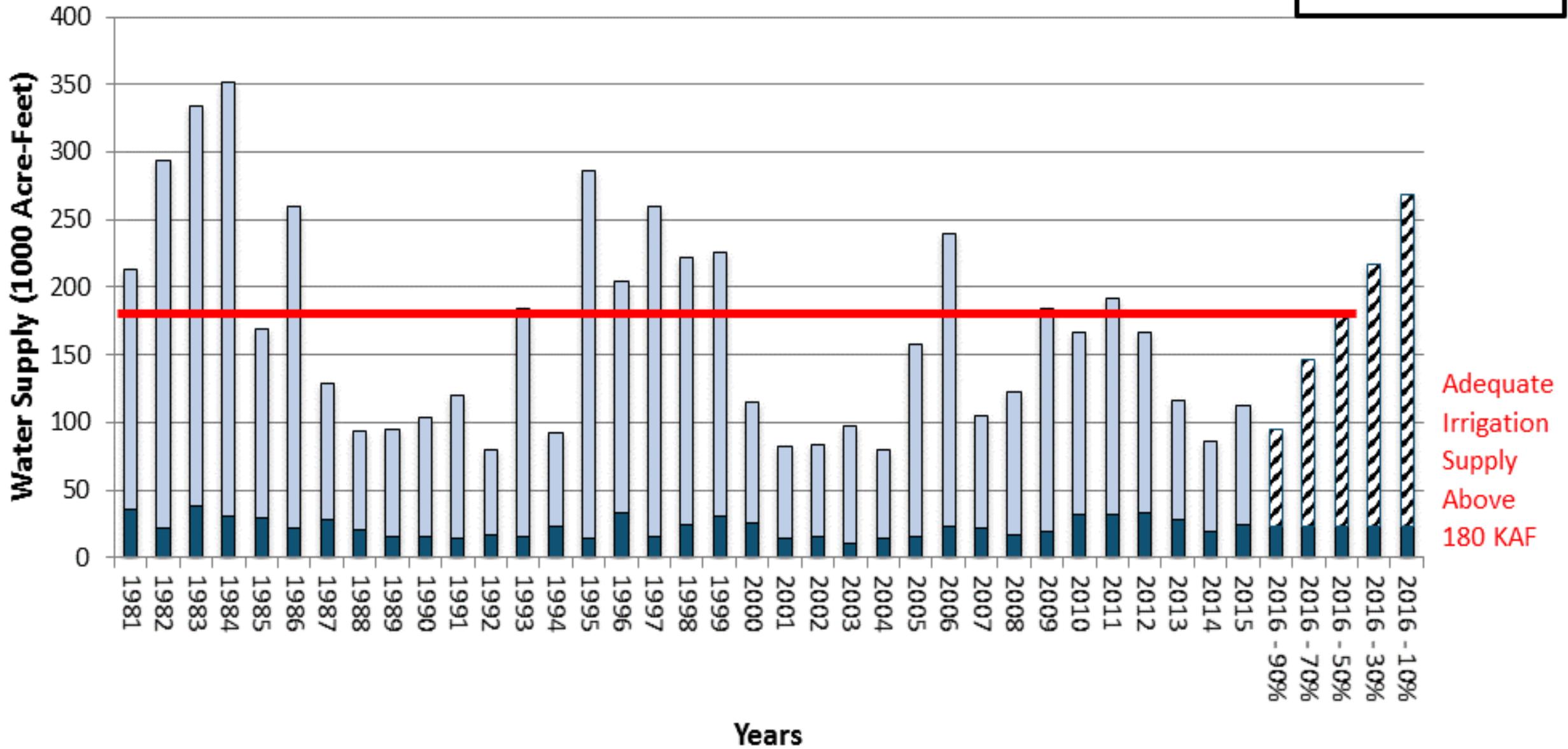
## Big Lost Basin 2016 Snowpack Comparison Graph (5 sites)

Based on Provisional SNOTEL data as of Jan 13, 2016



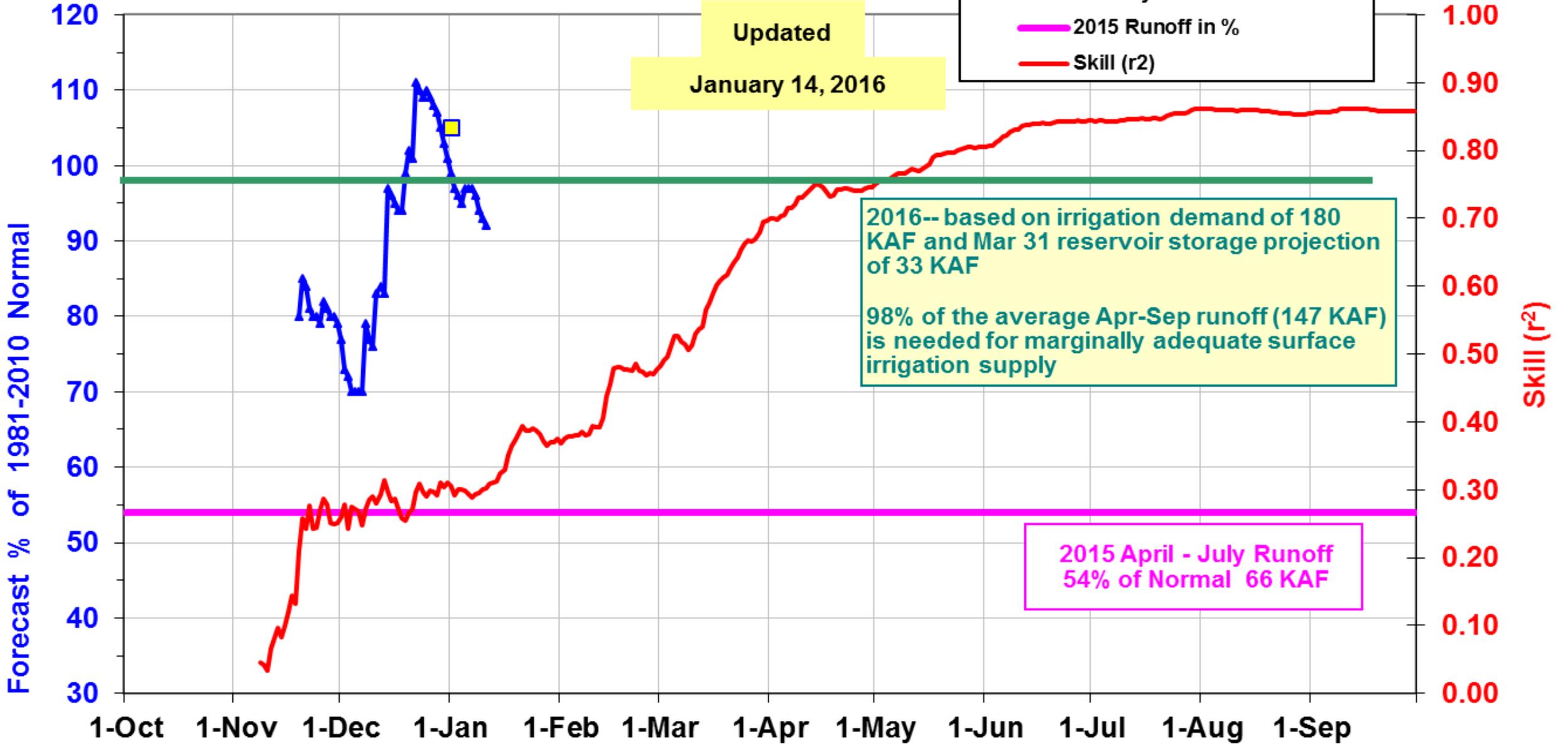
# Jan 1 Historic and Forecasted Surface Water Supply Big Lost River Basin

StreamFlow Apr-Sep  
 Reservoir 31-Dec



# 2016 Big Lost River below Mackay Resv: Apr-Jul Percent of Normal

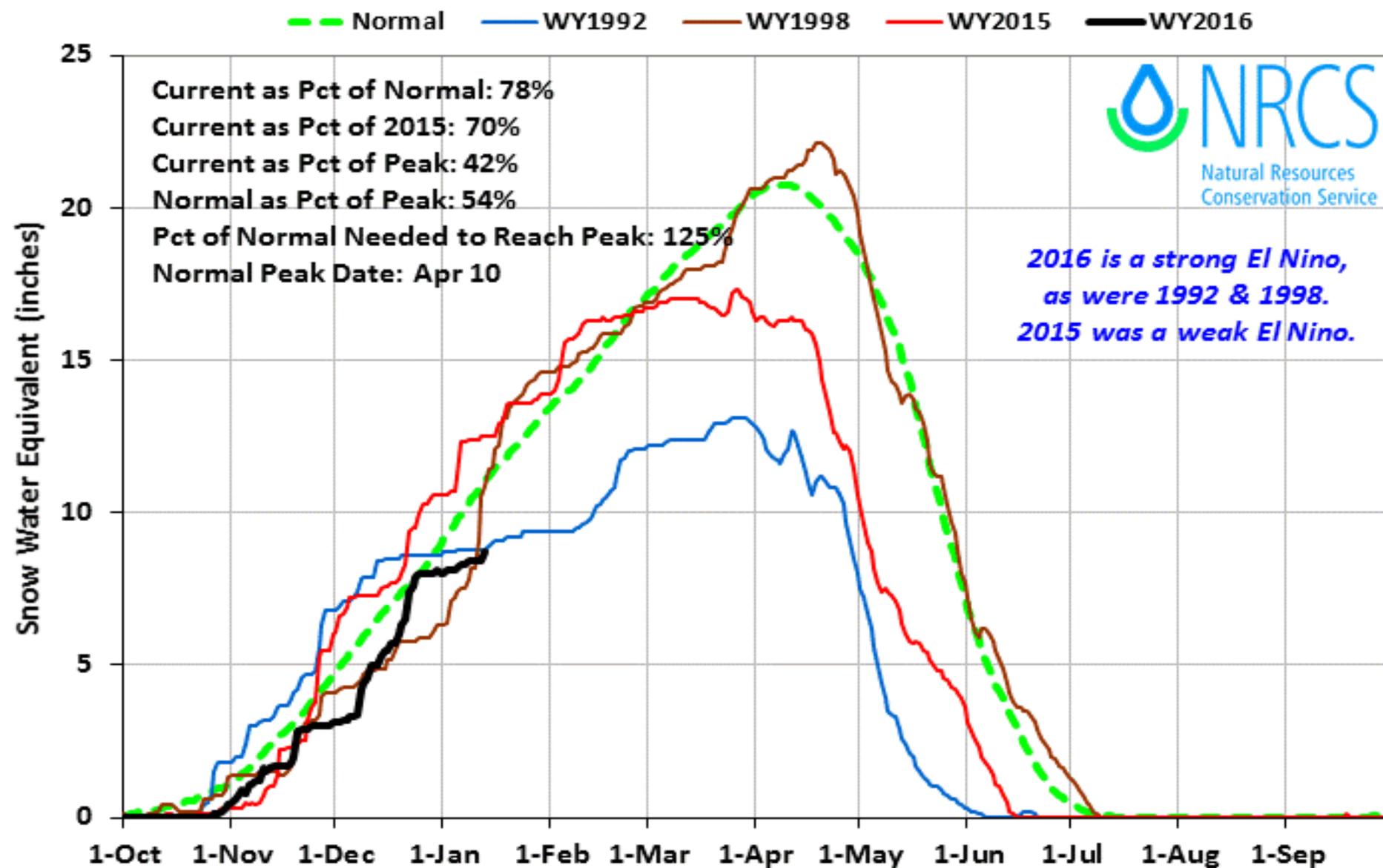
## NRCS Monthly Forecasts are Squares



SNOTEL Sites used: Bear Canyon, Garfield RS, Swede Peak, Hyndman, Lost-Wood Divide and Stickney Mill

# Snake Basin above Palisades 2016 Snowpack Comparison Graph (18 sites)

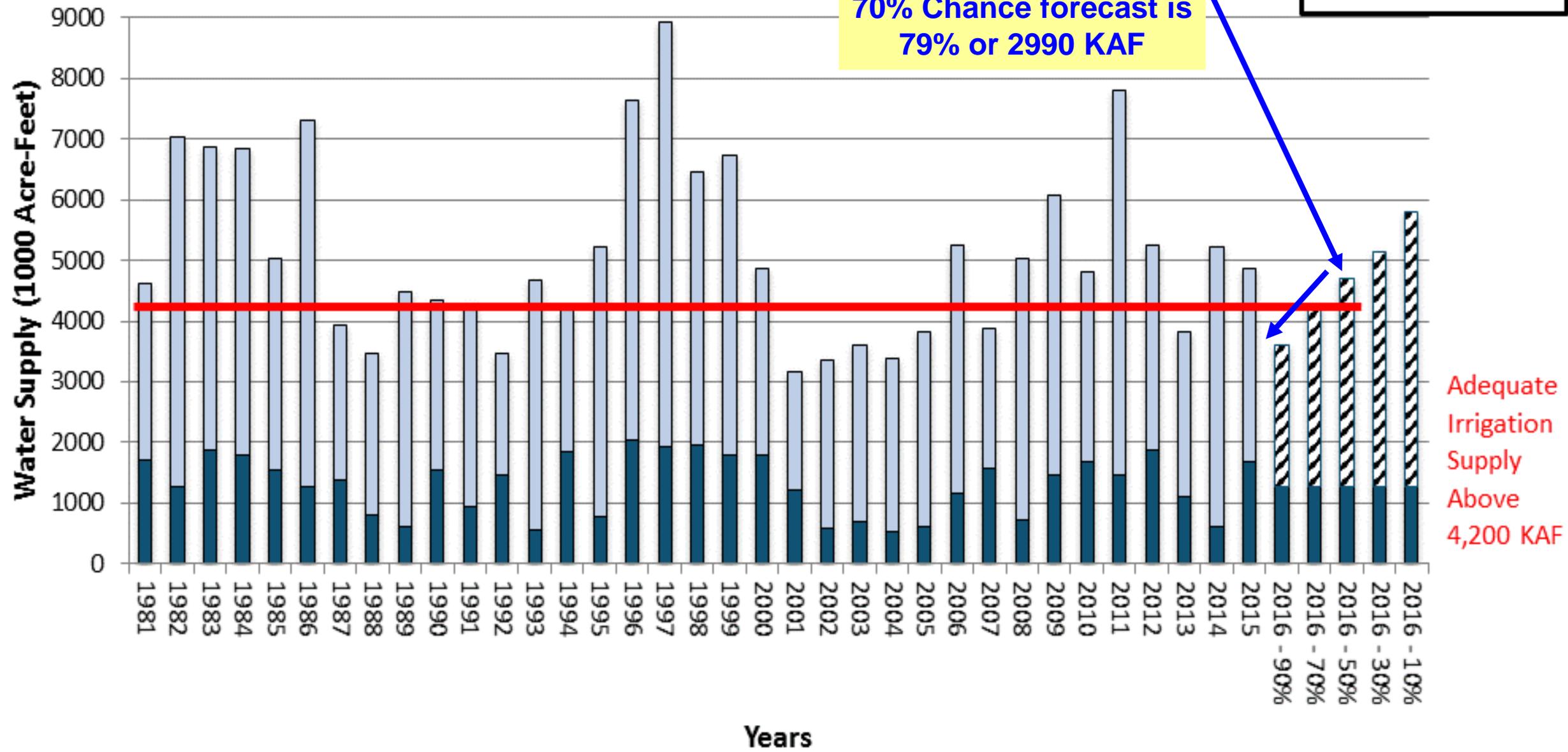
Based on Provisional SNOTEL data as of Jan 13, 2016



# Jan 1 Historic and Forecasted Surface Water Supply Snake River Near Heise

**Jan 2016 Streamflow Forecast 91% Apr-Sep**  
**70% Chance forecast is 79% or 2990 KAF**

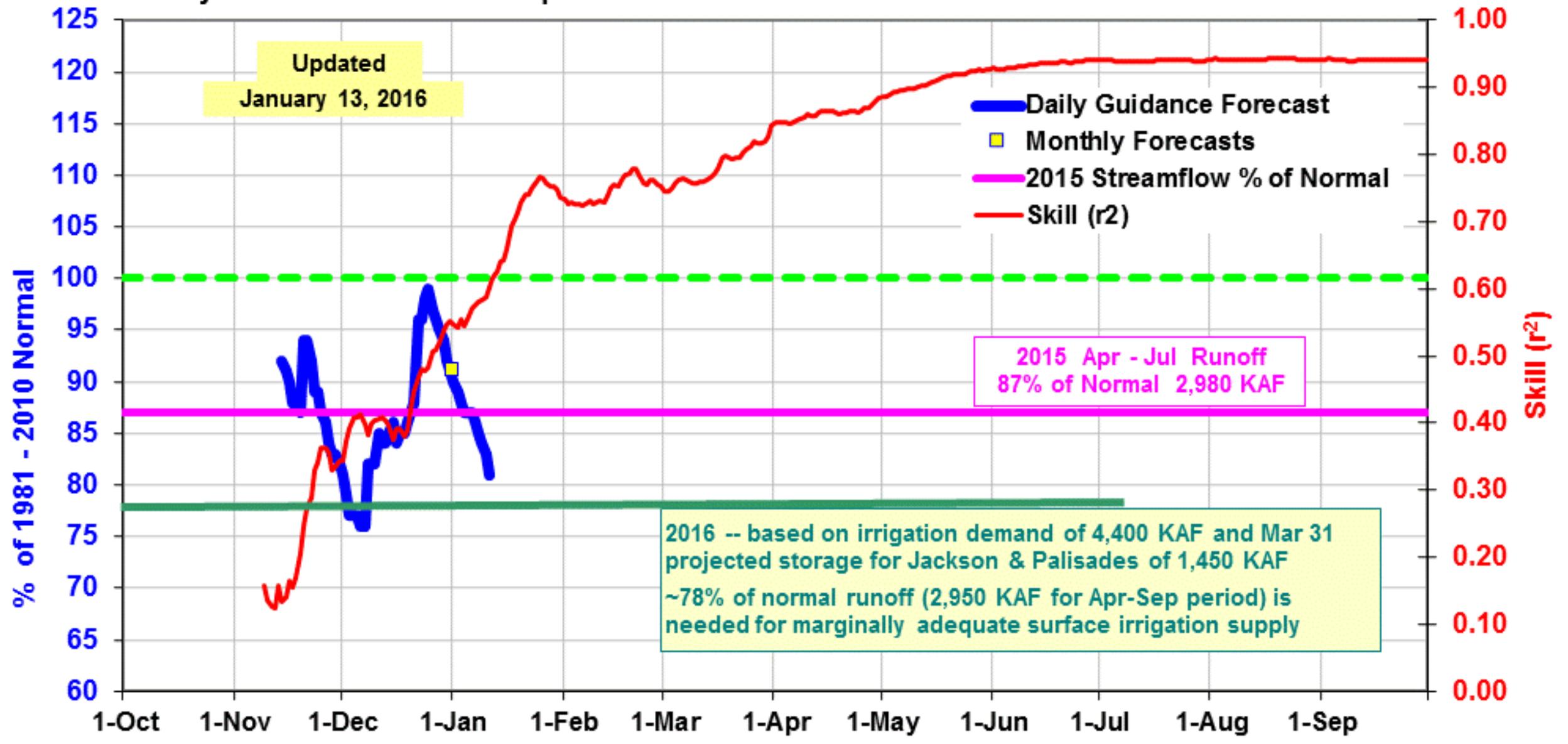
StreamFlow Apr-Sep  
 Reservoir 31-Dec



Adequate Irrigation Supply Above 4,200 KAF

# 2016 Snake River near Heise: Apr - Jul Volume

## NRCS Monthly Forecasts are Yellow Squares

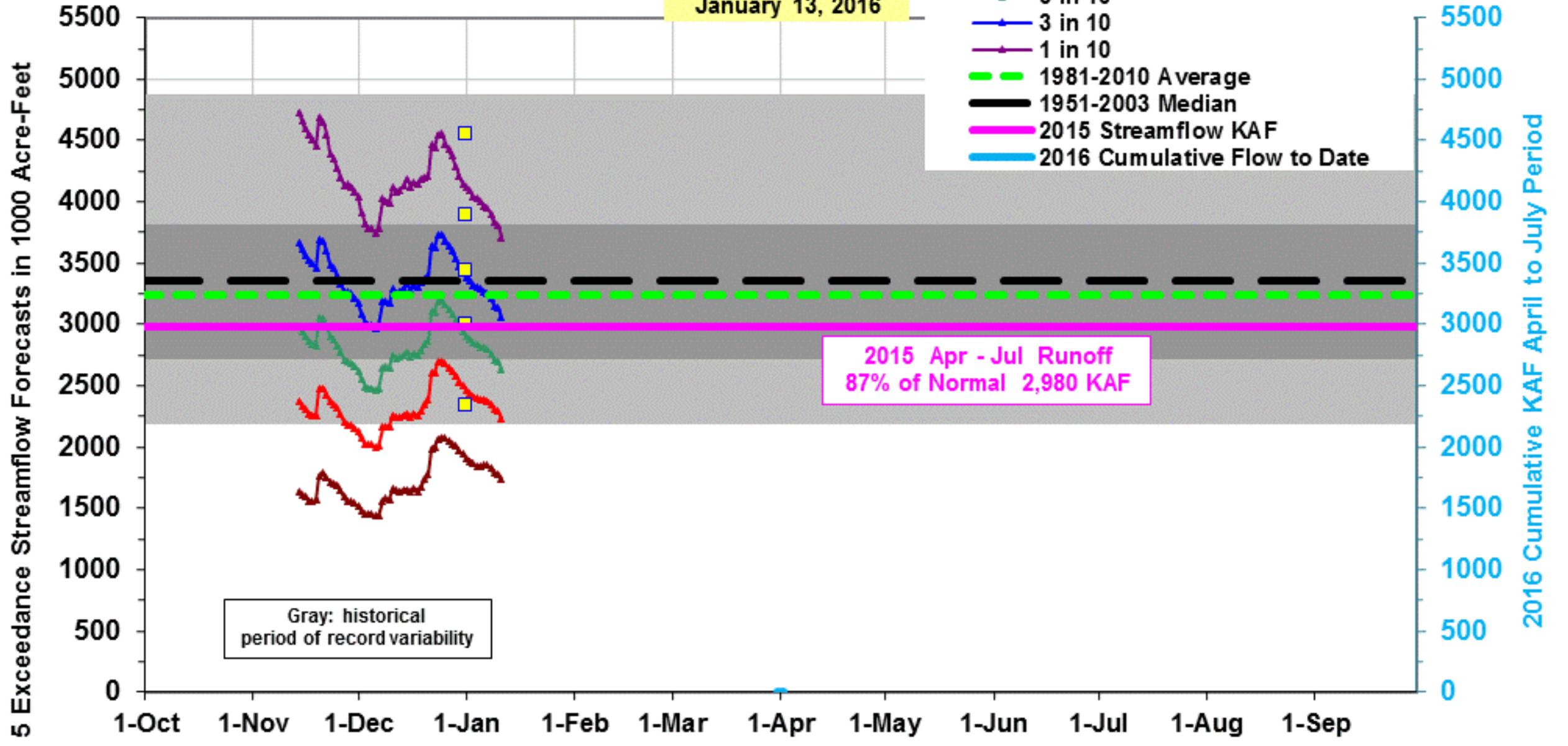


SNOTELs used: Base Camp, Blind Bull, Cottonwood Ck, Lewis Lake, Snake River Station, Slug Ck, Thumb Div, Willow Ck

# 2016 Snake River near Heise: Apr - Jul Volume

## NRCS Monthly Forecasts are Yellow Squares

Updated  
January 13, 2016

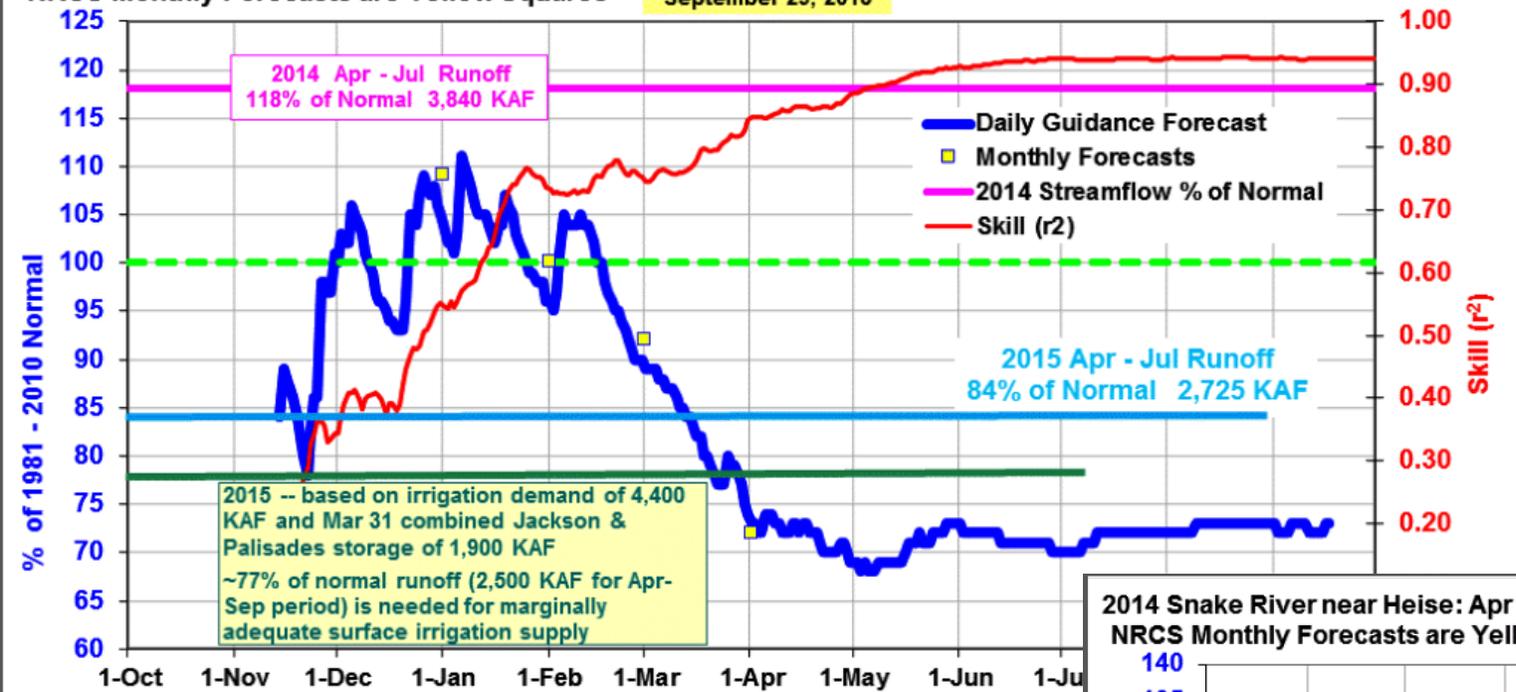


# 2015 Snake River near Heise: Apr - Jul Volume

Updated  
September 29, 2015



NRCS Monthly Forecasts are Yellow Squares



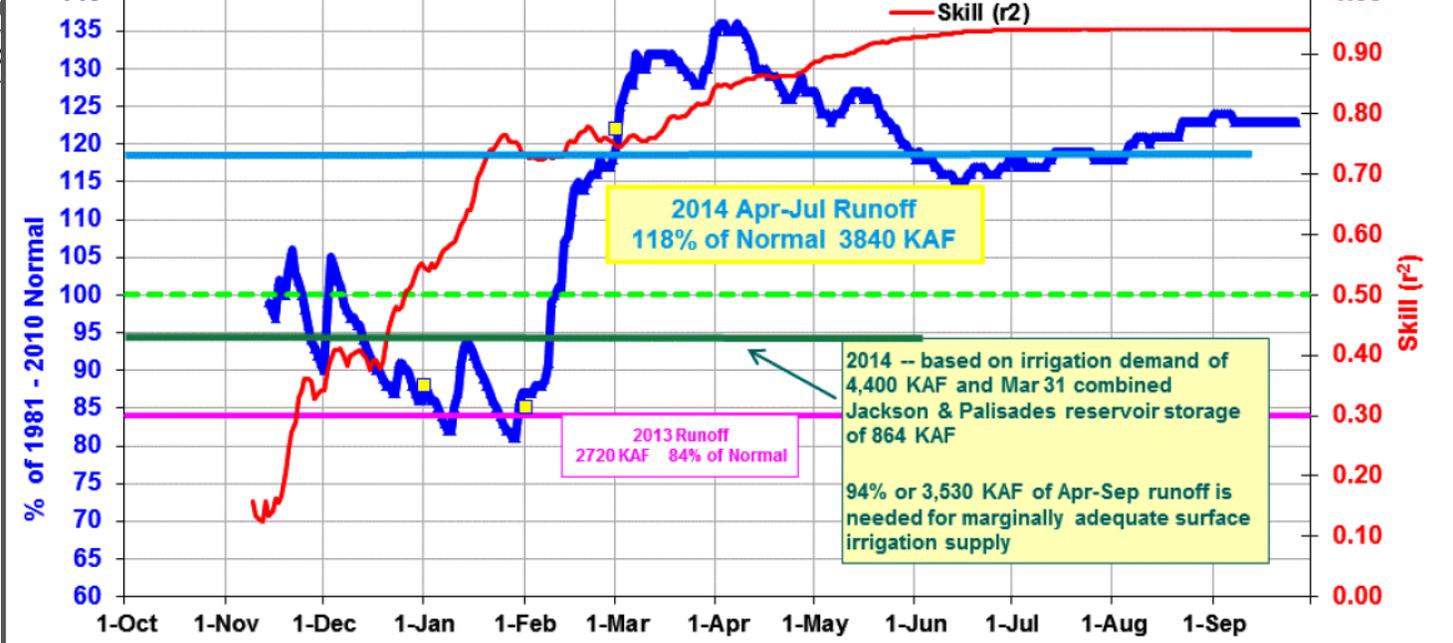
SNOTELs used: Base Camp, Blind Bull, Cottonwood Ck, Lewis Lake, Snake River Station

# 2014 Snake River near Heise: Apr - Jul Volume

Updated  
September 26, 2014



NRCS Monthly Forecasts are Yellow Squares

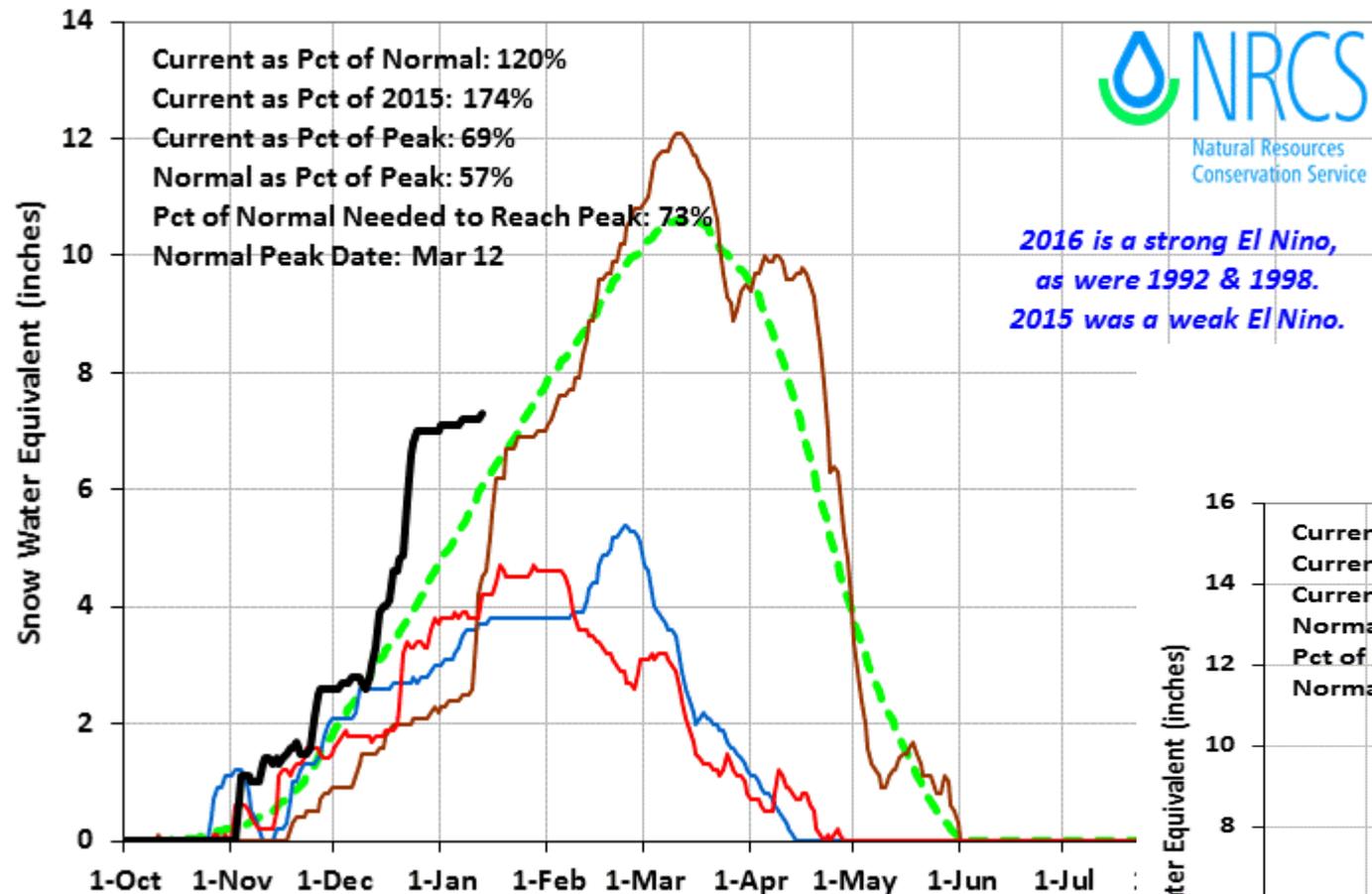


SNOTELs used: Base Camp, Blind Bull, Cottonwood Ck, Lewis Lake, Snake River Station, Slug Ck, Thumb Div, Willow Ck

### Owyhee Basin 2016 Snowpack Comparison Graph (7 sites)

Based on Provisional SNOTEL data as of Jan 13, 2016

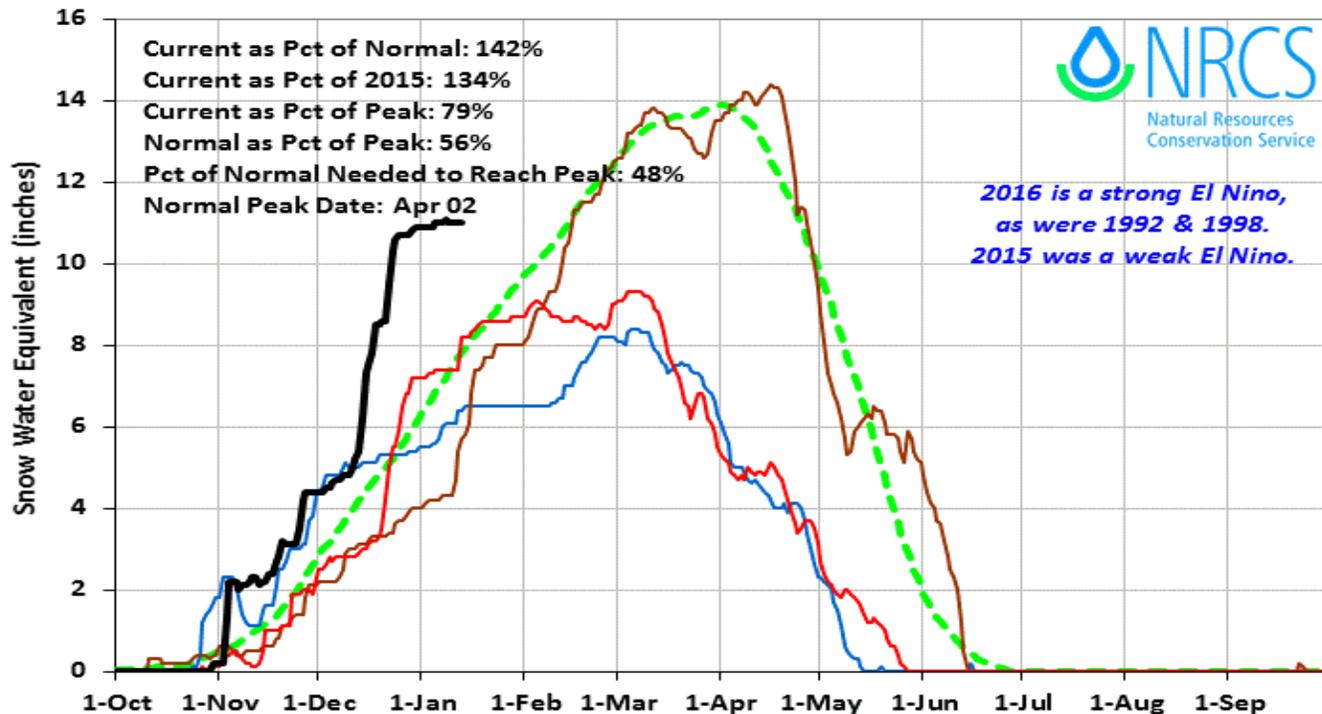
Normal WY1992 WY1998 WY2015 WY2016



### Bruneau Basin 2016 Snowpack Comparison Graph (5 sites)

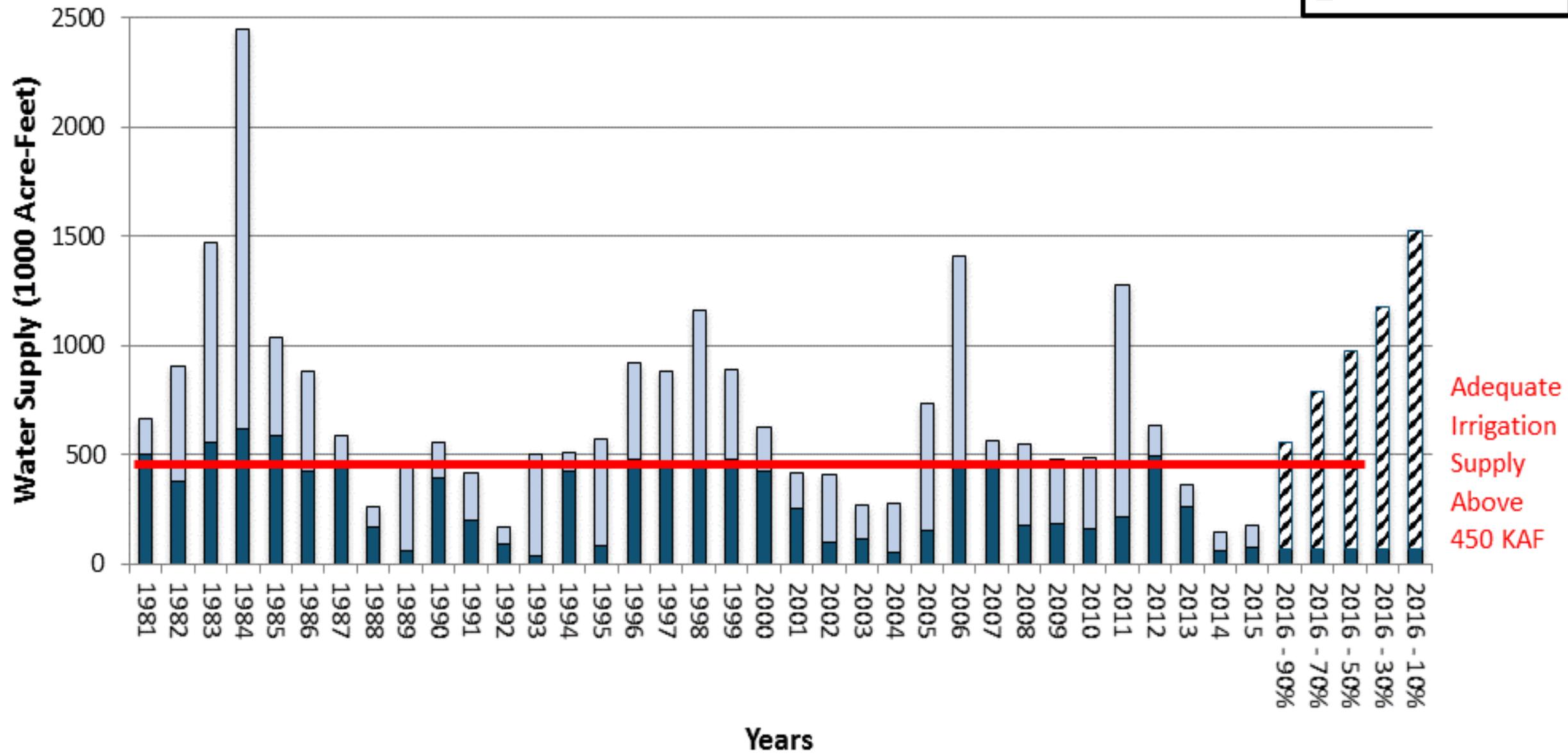
Based on Provisional SNOTEL data as of Jan 13, 2016

Normal WY1992 WY1998 WY2015 WY2016



# Jan 1 Historic and Forecasted Surface Water Supply Owyhee Basin

■ StreamFlow Feb-Sep  
■ Reservoir 31-Dec





Think Snow!!