

# Idaho's Water Outlook

North Side Canal Company Annual Meeting  
January 14, 2016 Jerome, Idaho



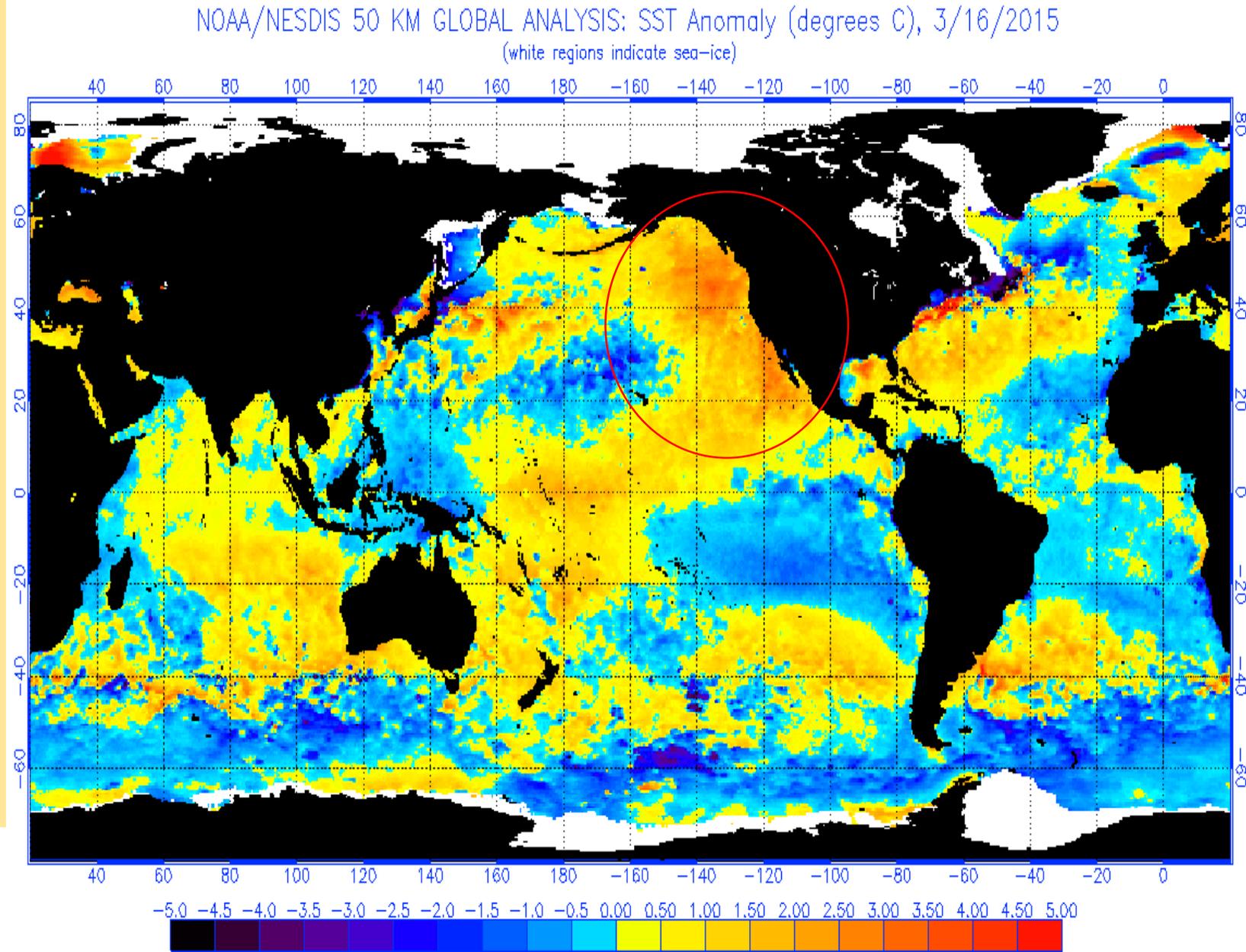
Measuring Snow at  
Mores Creek Summit  
Dec 30, 2015  
150% of Median

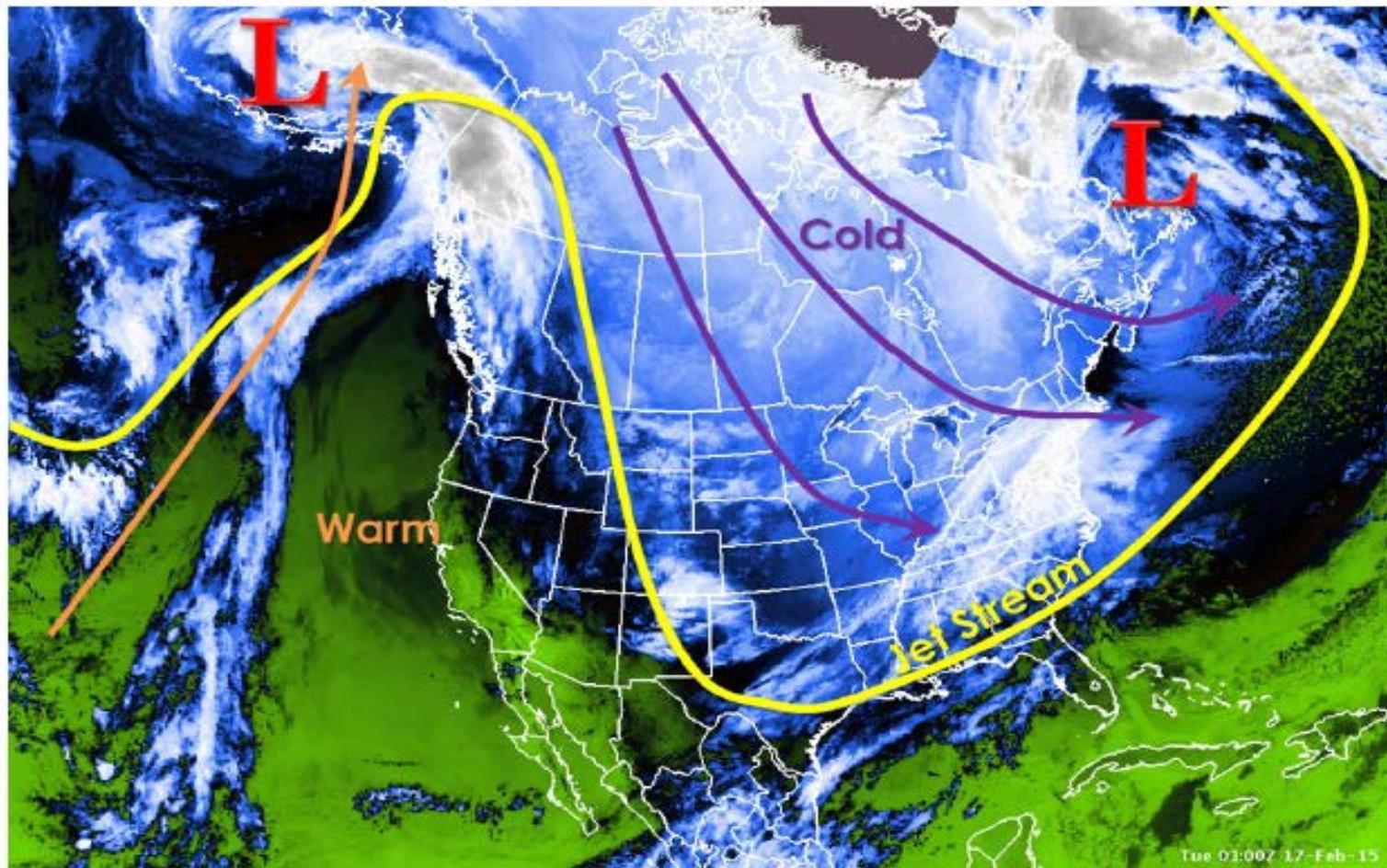
Ron Abramovich  
Water Supply Specialist  
Snow Survey  
Boise, Idaho



## Sea Surface Temperatures March 16, 2015

- **Warm waters off west coast: warmest in 60-70 years**
- **PDO flipped to positive in January 2014**
- **Temperatures were ~6 F above normal, similar to Seattle's 2015 winter temperatures**
- **NOAA mentioned warm waters have extended to depths of 60-100 meters**



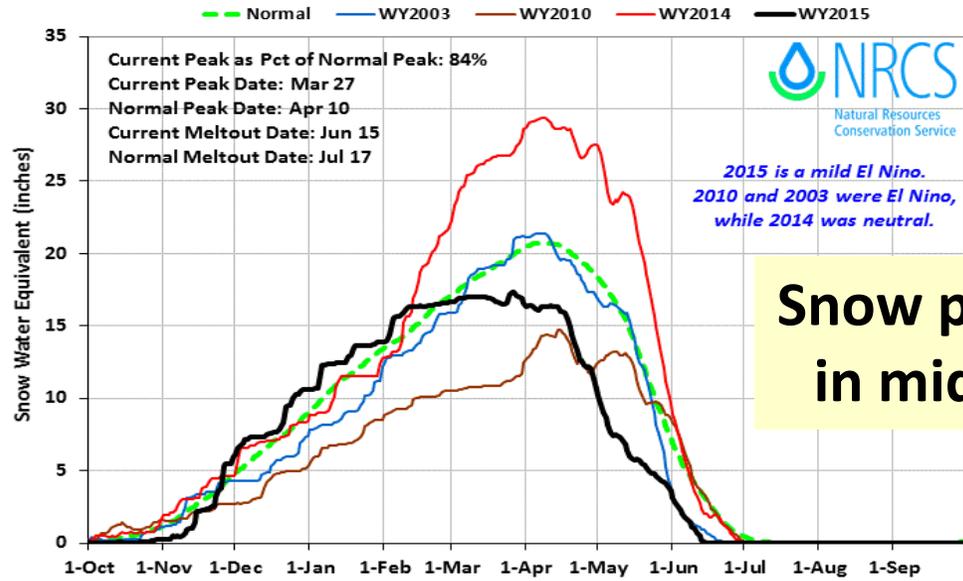


**From NWS:  
Example of  
winter weather  
pattern for  
2015 but also  
for most of  
2014**

The ridge has kept our area unseasonably warm and relatively dry through early March. A few Pacific weather systems were able to punch through, but precipitation totals for January through the first part of March were less than 50% of normal across most of southwest Idaho and southeast Oregon, and less than 25% of normal in a few areas.

Snake Basin above Palisades 2015 Snowpack Comparison Graph (18 sites)

Based on Provisional SNOTEL data as of Sep 30, 2015

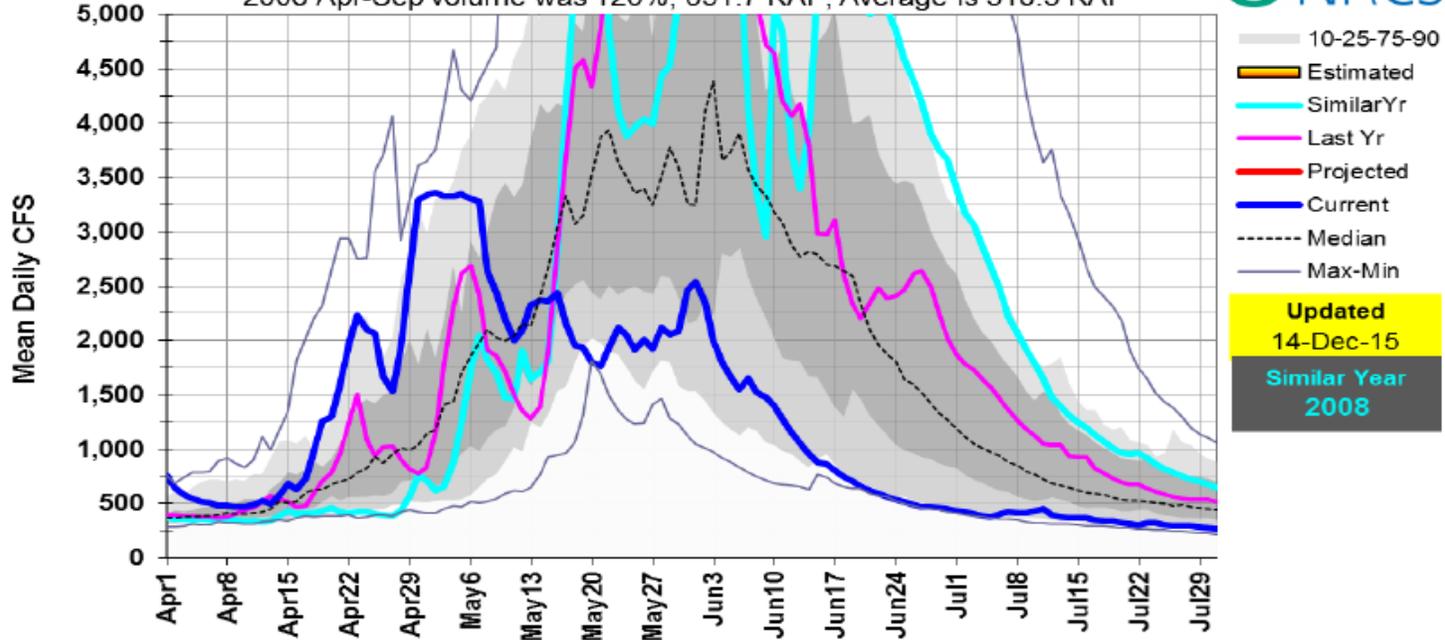


Snow peaked  
in mid-Feb

# Recap of Last Winter

13010065: Snake R above Jackson Lake at Flagg Ranch, WY

2008 Apr-Sep volume was 126%, 651.7 KAF, Average is 518.5 KAF

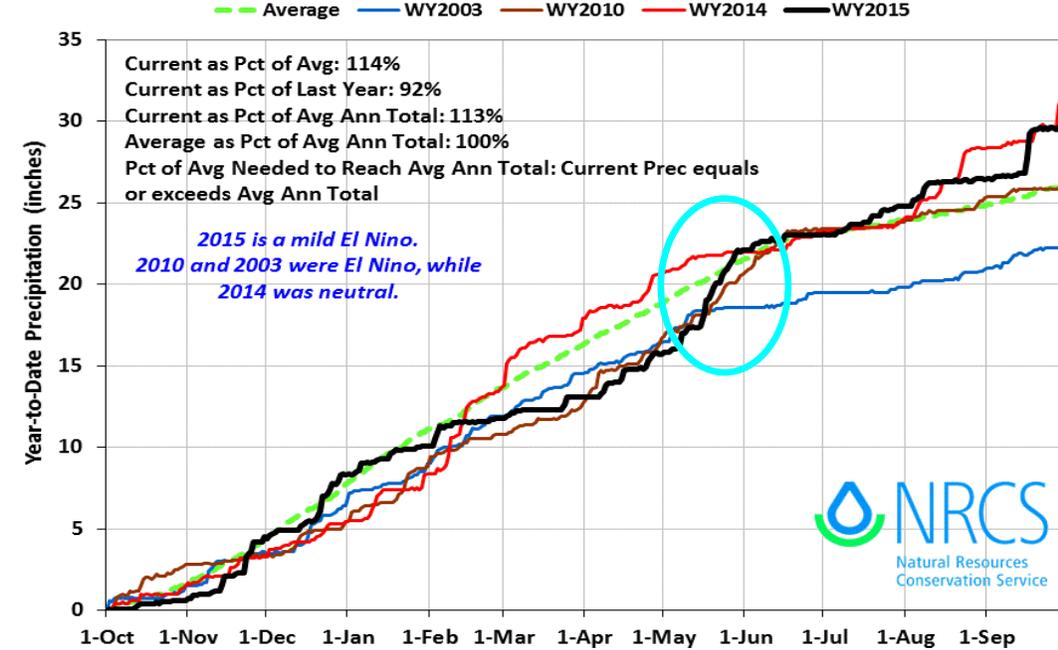


Snowmelt peak flows were low  
and early, with an early return to  
base flows

# May Rains Helped!

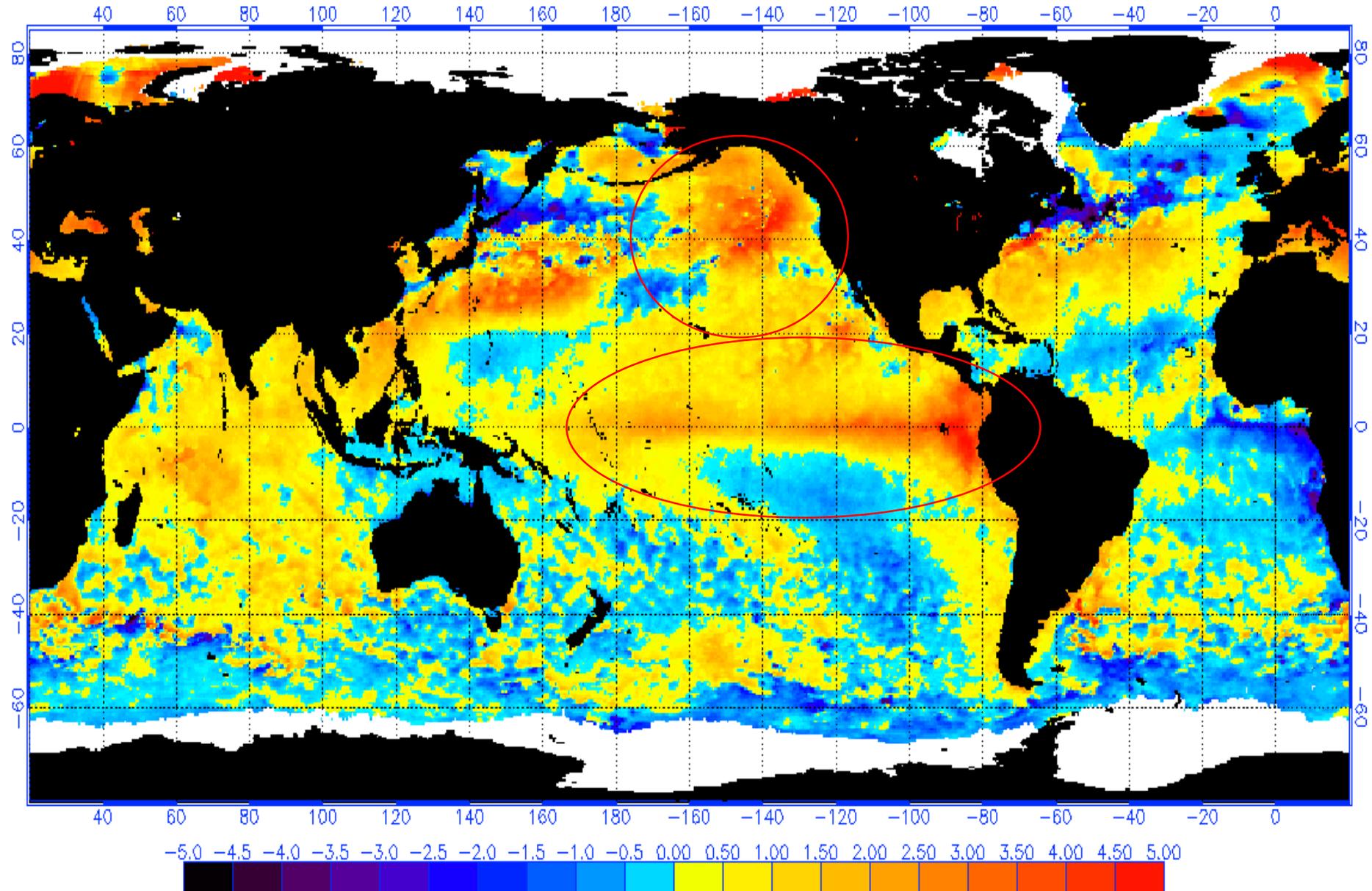
Willow Blackfoot & Portneuf Basins 2015 Precipitation Comparison Graph (6 sites)

Based on Provisional SNOTEL data as of Sep 30, 2015



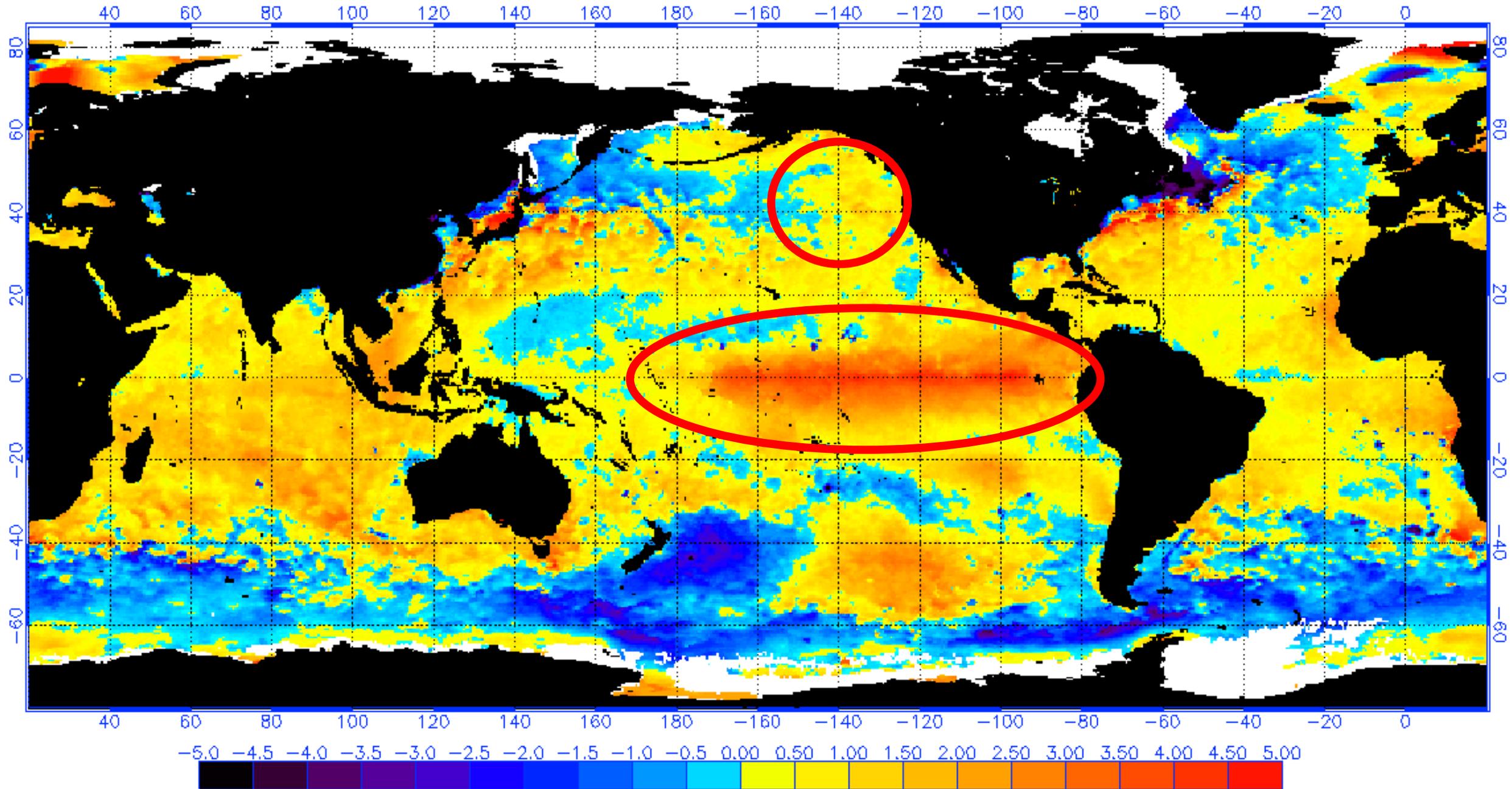
# Sea Surface Temperatures June 15, 2015 – Strong El Nino Building

NOAA/NESDIS 50 KM GLOBAL ANALYSIS: SST Anomaly (degrees C), 6/15/2015  
(white regions indicate sea-ice)



NOAA/NESDIS 50 KM GLOBAL ANALYSIS: SST Anomaly (degrees C), 1/14/2016  
(white regions indicate sea-ice)

Jan 14 2016



**Decoded Science - Weather Around The World, 7/28:  
Heat, Local And Worldwide; El Niño; Monsoon; Tropics  
July 28, 2015 by [Jon Plotkin](#)**

**If El Niño takes control of the weather pattern during fall and winter, we can expect a new alignment with a trough in the west and a ridge in the east.**

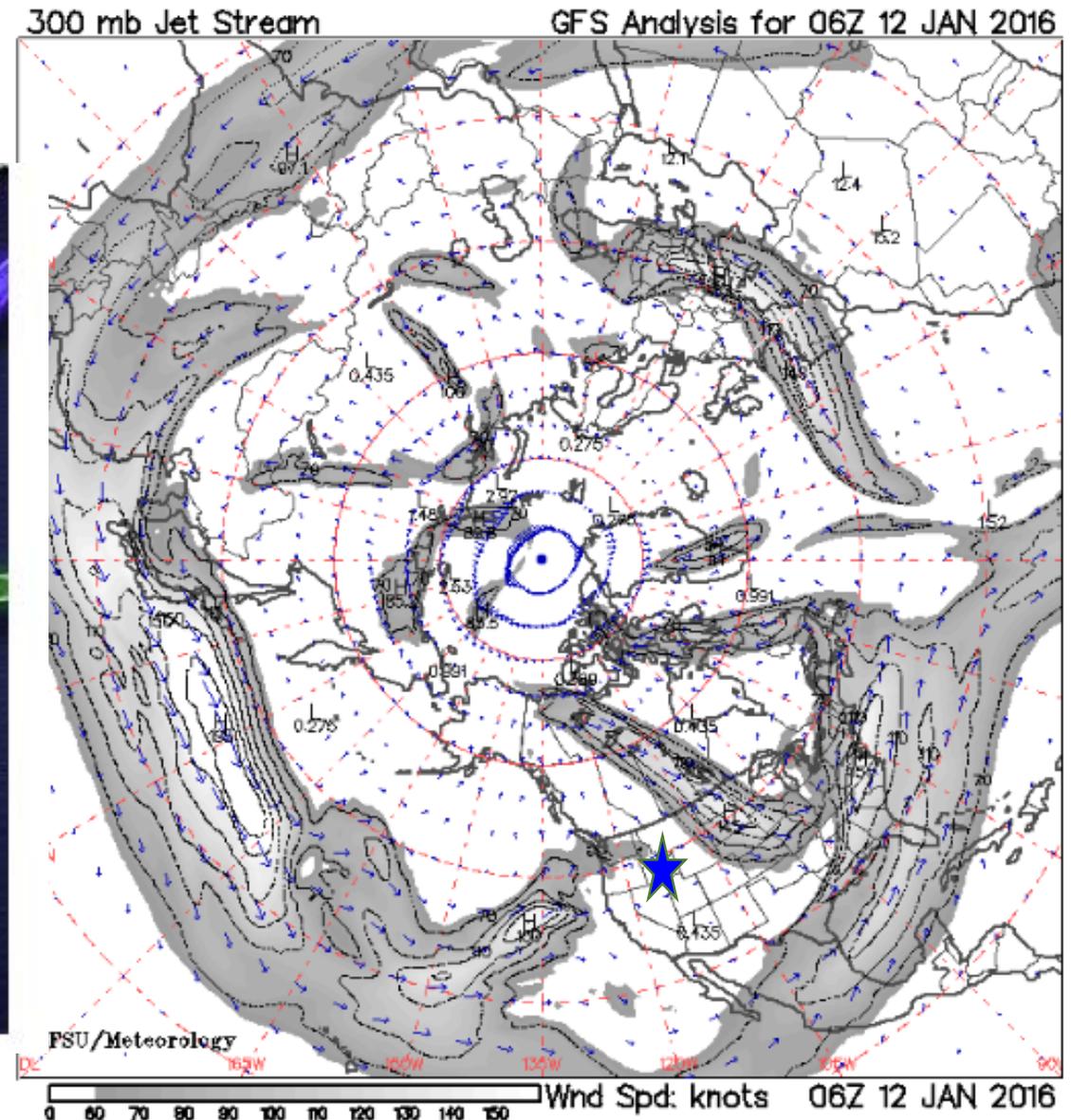
**The weather of the past two winters will be reversed, with warm in the east, and cool and rainy in the west.**

This pattern resembles a modified Strong El Niño pattern, and could stick around for the winter months.

From Andrew at The Weather Centre

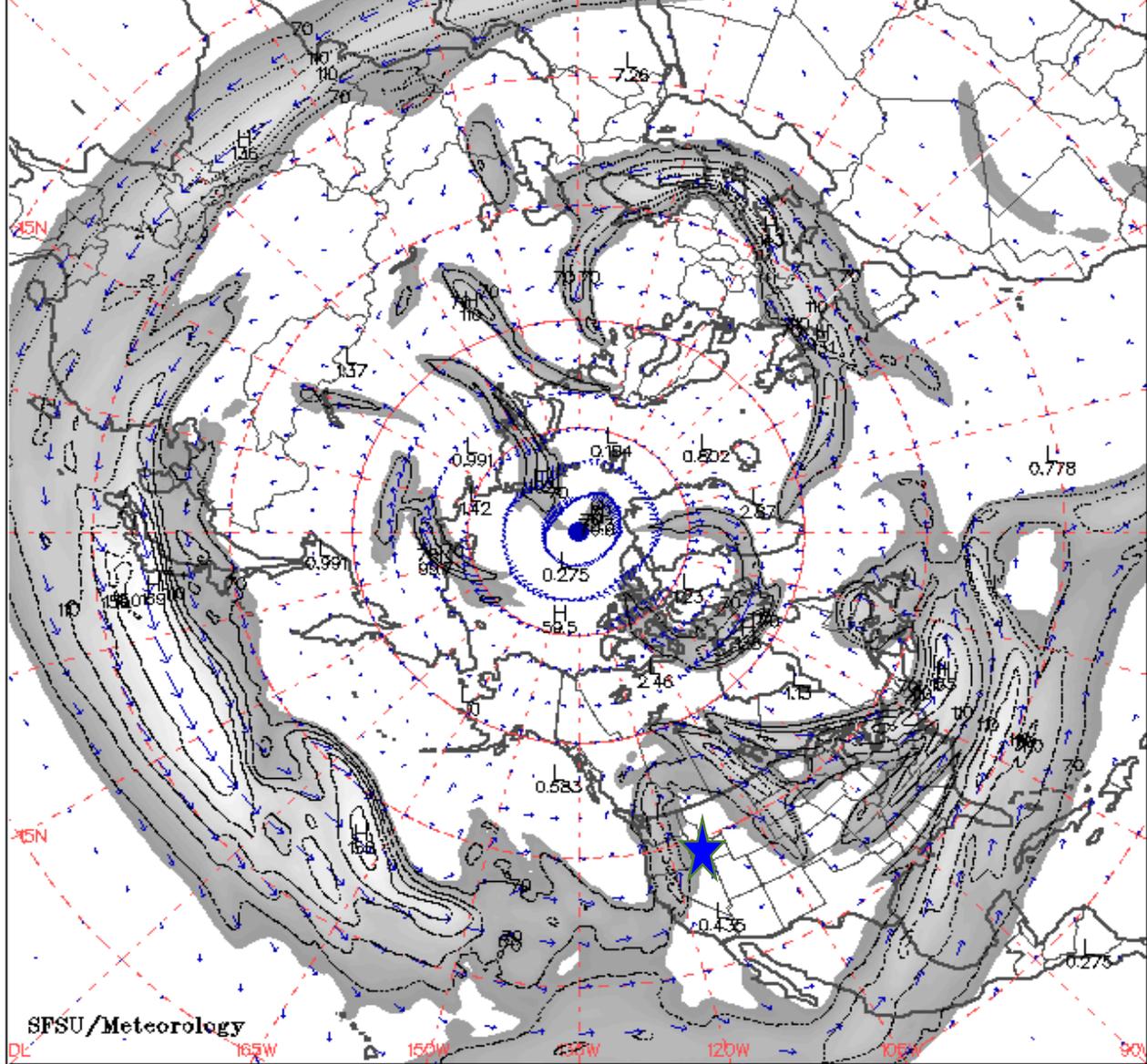
<http://theweathercentre.blogspot.com/#sthash.SoE5xzjO.dpuf>

## Jet Stream Jan 12, 2016



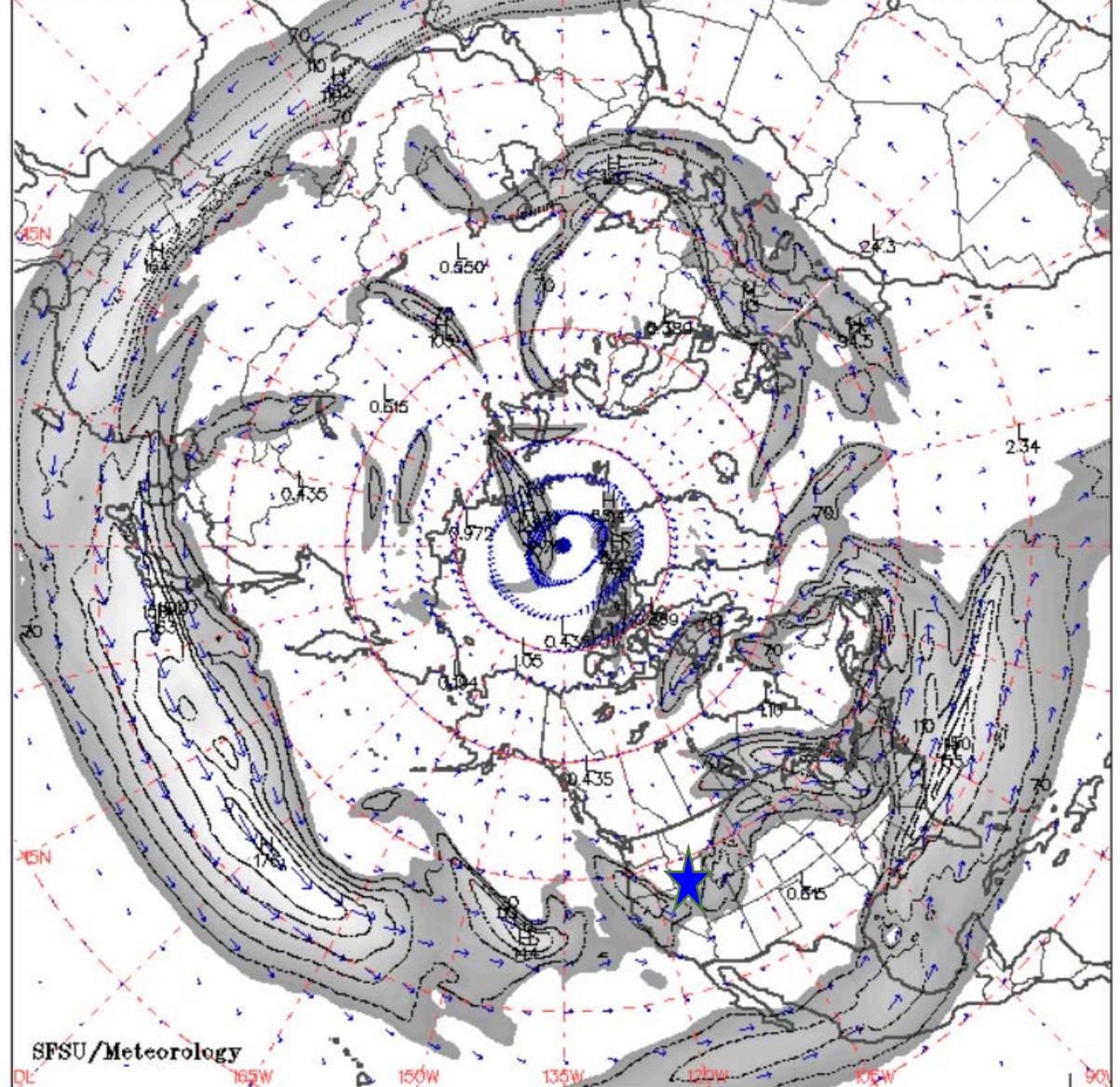
# Jet Stream Jan 13, 2016

300 mb Jet Stream GFS Analysis for 12Z 13 JAN 2016

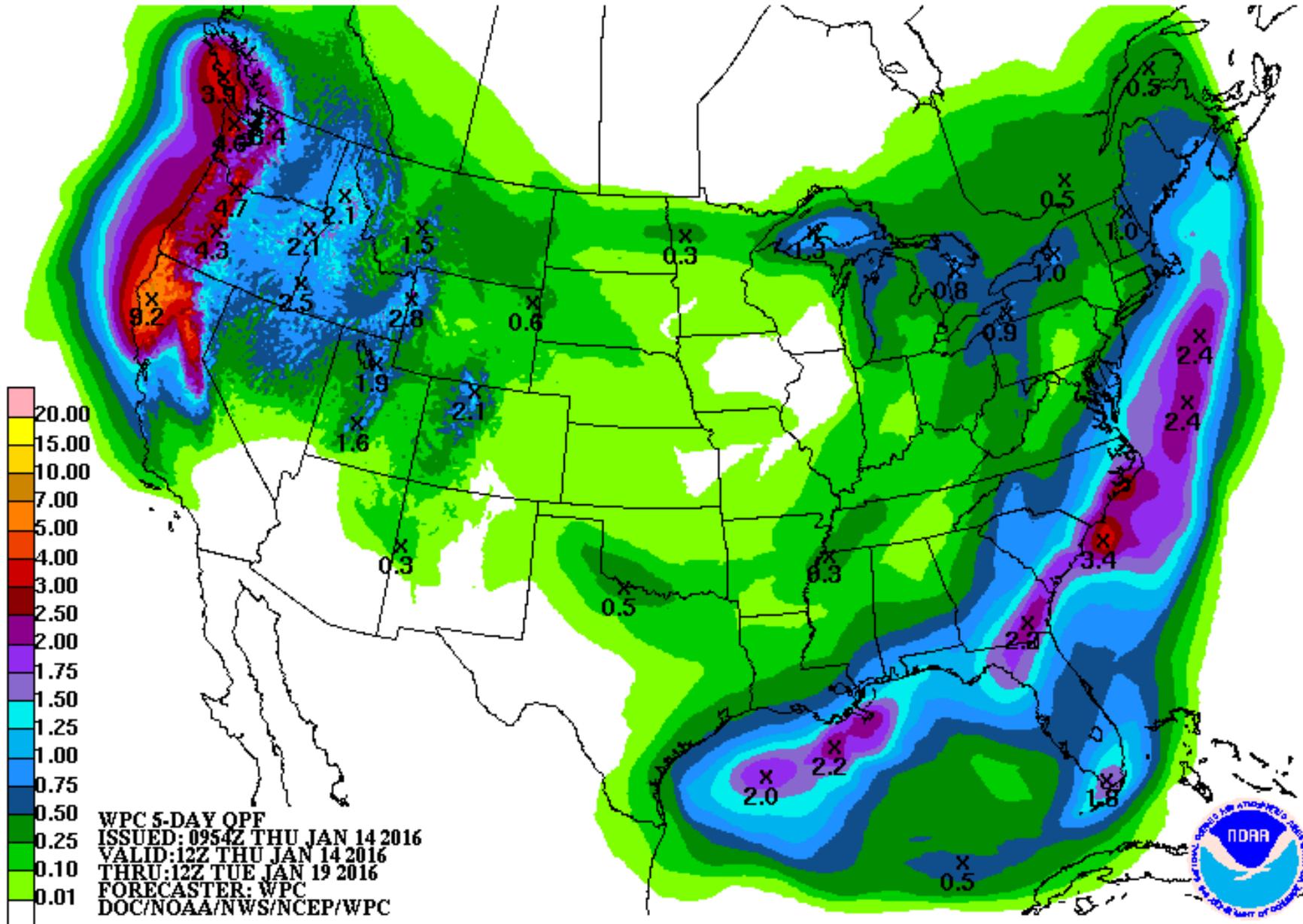


# Jet Stream Jan 14, 2016

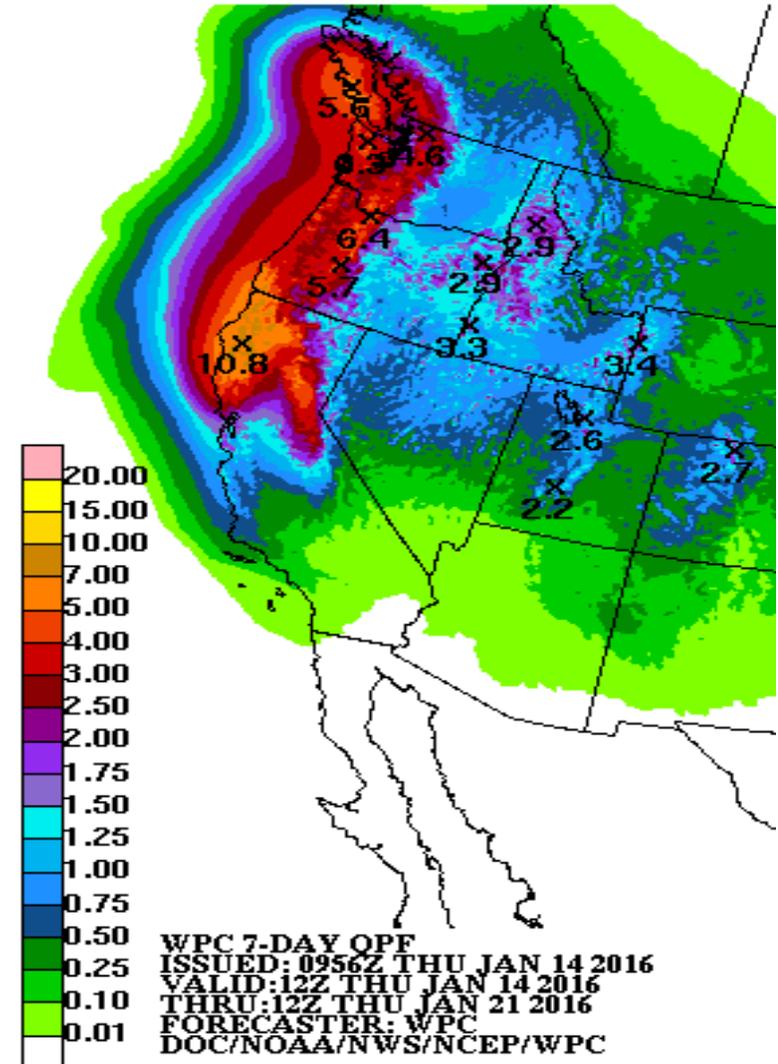
300 mb Jet Stream GFS Analysis for 06Z 14 JAN 2016



# 5 Day Total Precipitation Forecast Jan 14 - 19



# 7 Day Total Precipitation Forecast Jan 14 - 21!



## Precipitation Forecasts

Precipitation (in)  
during the period:

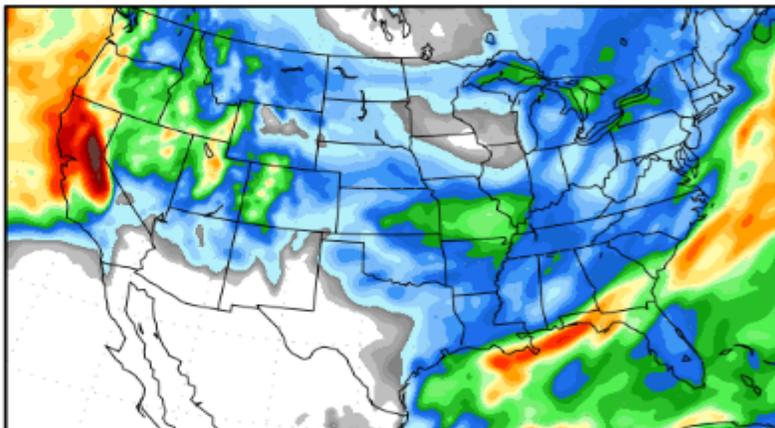


Thu, 14 JAN 2016 at 00Z

-to-

Fri, 22 JAN 2016 at 00Z

**Total Precip  
Jan 14 – 22**

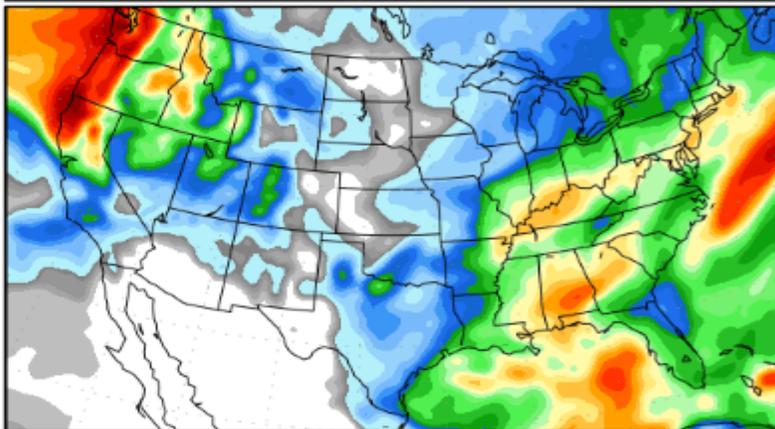


Fri, 22 JAN 2016 at 00Z

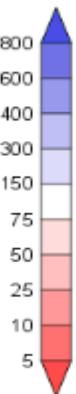
-to-

Sat, 30 JAN 2016 at 00Z

**Total Precip  
Jan 22 – 30**



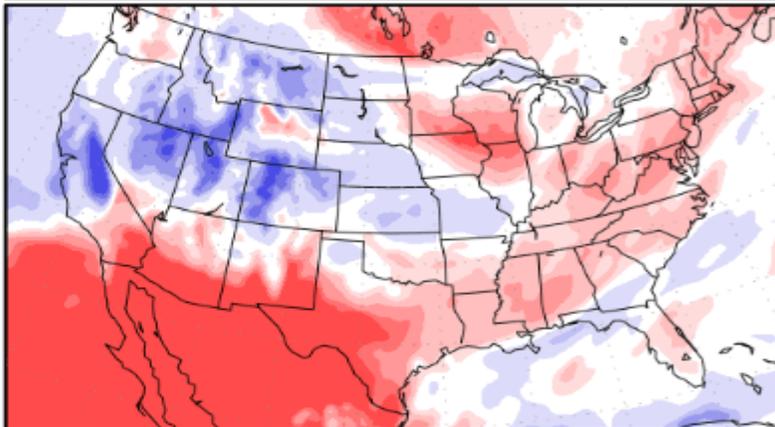
Precipitation (% of normal)  
during the first period:



Thu, 14 JAN 2016 at 00Z

-to-

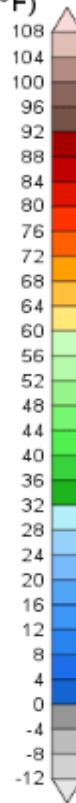
Fri, 22 JAN 2016 at 00Z



Precipitation forecasts from the National Centers for Environmental Prediction.  
Normal rainfall derived from Xie-Arkin (CMAP) Monthly Climatology for 1979-2003.  
Forecast Initialization Time: 00Z14JAN2016

## Temperature Forecasts

Mean Surface Temperature (°F)  
during the period:

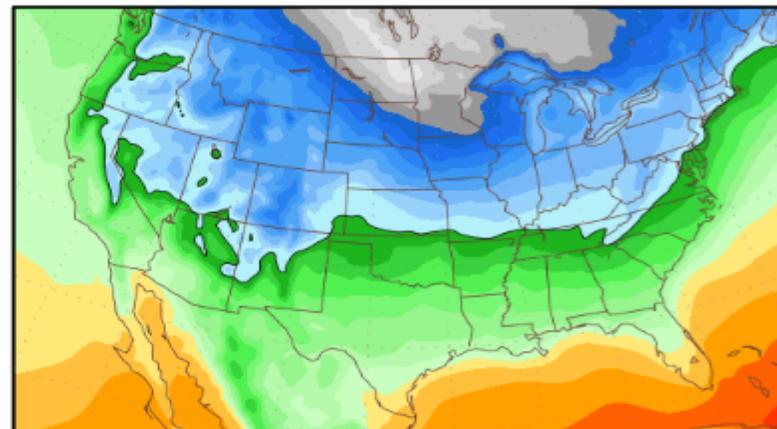


Thu, 14 JAN 2016 at 00Z

-to-

Fri, 22 JAN 2016 at 00Z

**Mean Temps  
Jan 14 – 22**

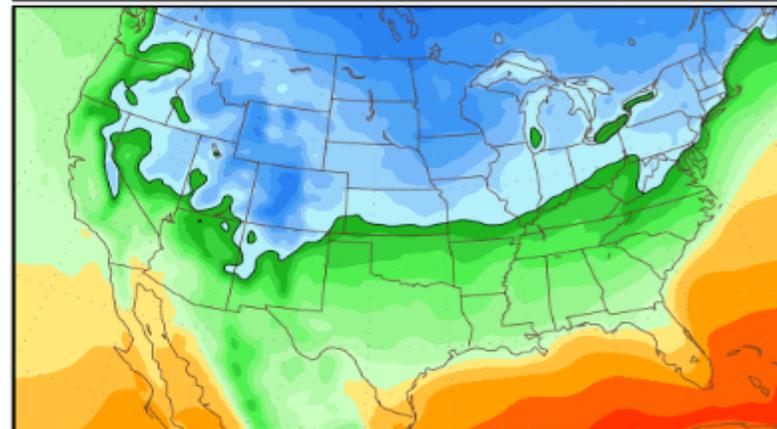


Fri, 22 JAN 2016 at 00Z

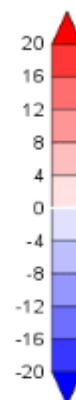
-to-

Sat, 30 JAN 2016 at 00Z

**Mean Temps  
Jan 22 – 30**



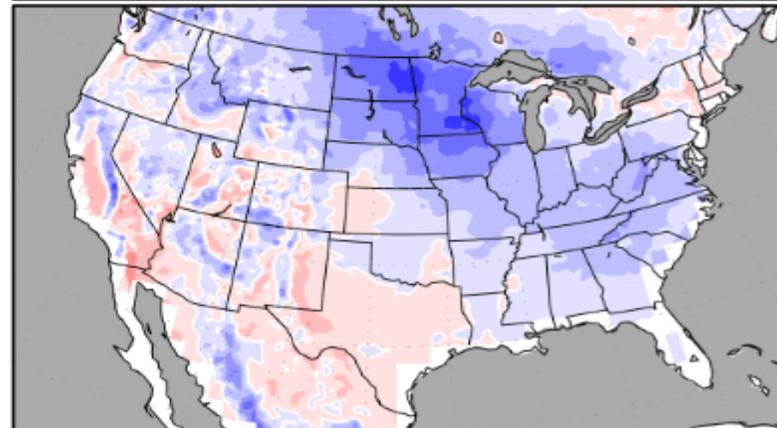
Temperature Anomaly  
during the first period:



Thu, 14 JAN 2016 at 00Z

-to-

Fri, 22 JAN 2016 at 00Z

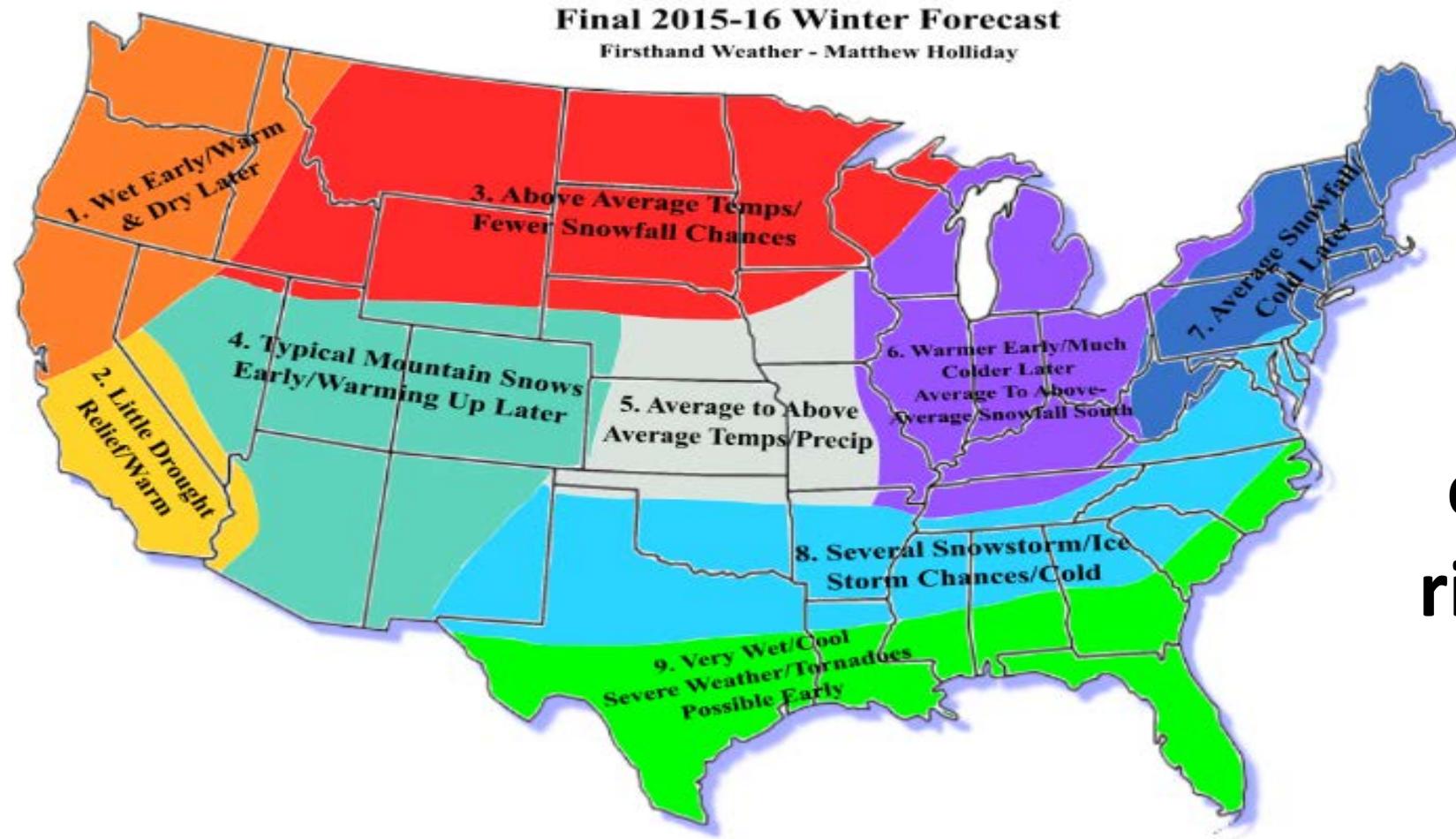


Temperature forecasts from the National Centers for Environmental Prediction.  
Normal Temperature derived from CRU monthly climatology for 1901-2000  
Forecast Initialization Time: 00Z14JAN2016

# Firsthand Weather's Final 2015-16 Winter Forecast

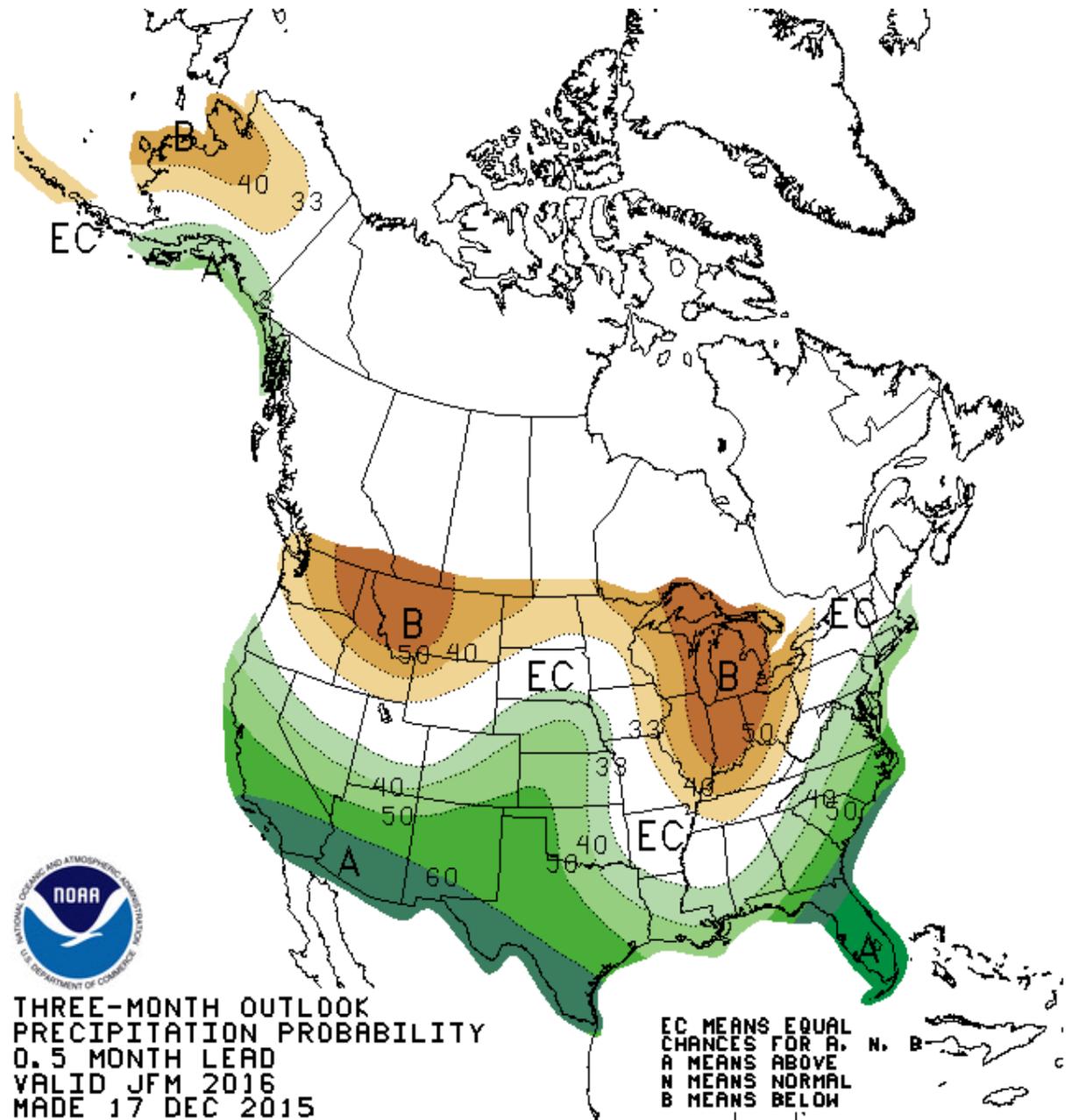
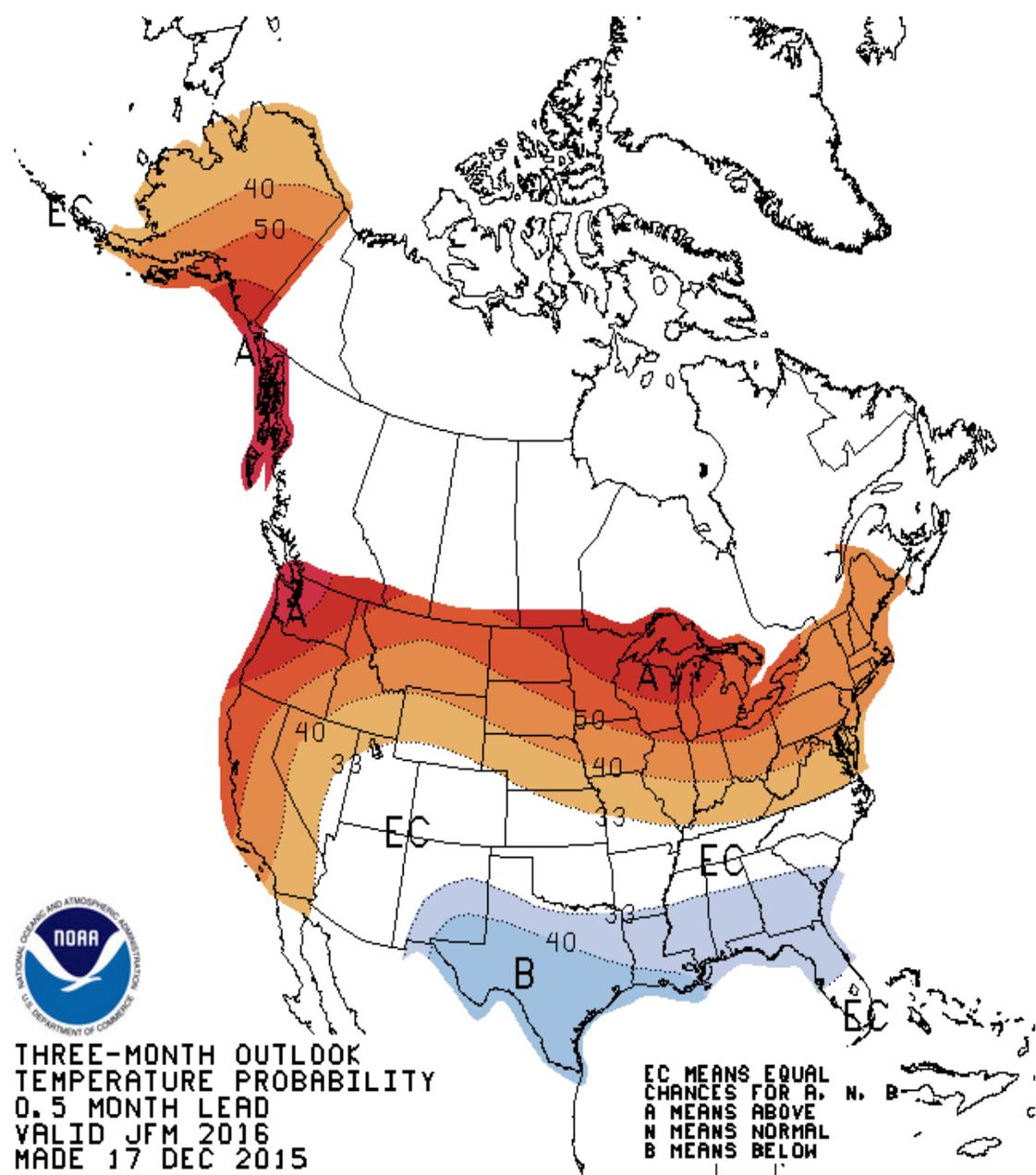
[Matthew Holliday](#) | November 8, 2015

Firsthand Weather's Final 2015-16 Winter Forecast:



... this upcoming winter forecast is going to be more challenging to “get right” than the prior two winter forecasts.

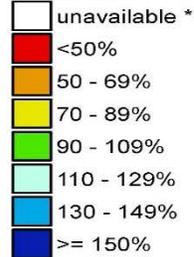
# Jan Feb & Mar 3 Month Temperature & Precipitation Forecasts



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

Jan 12, 2016

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

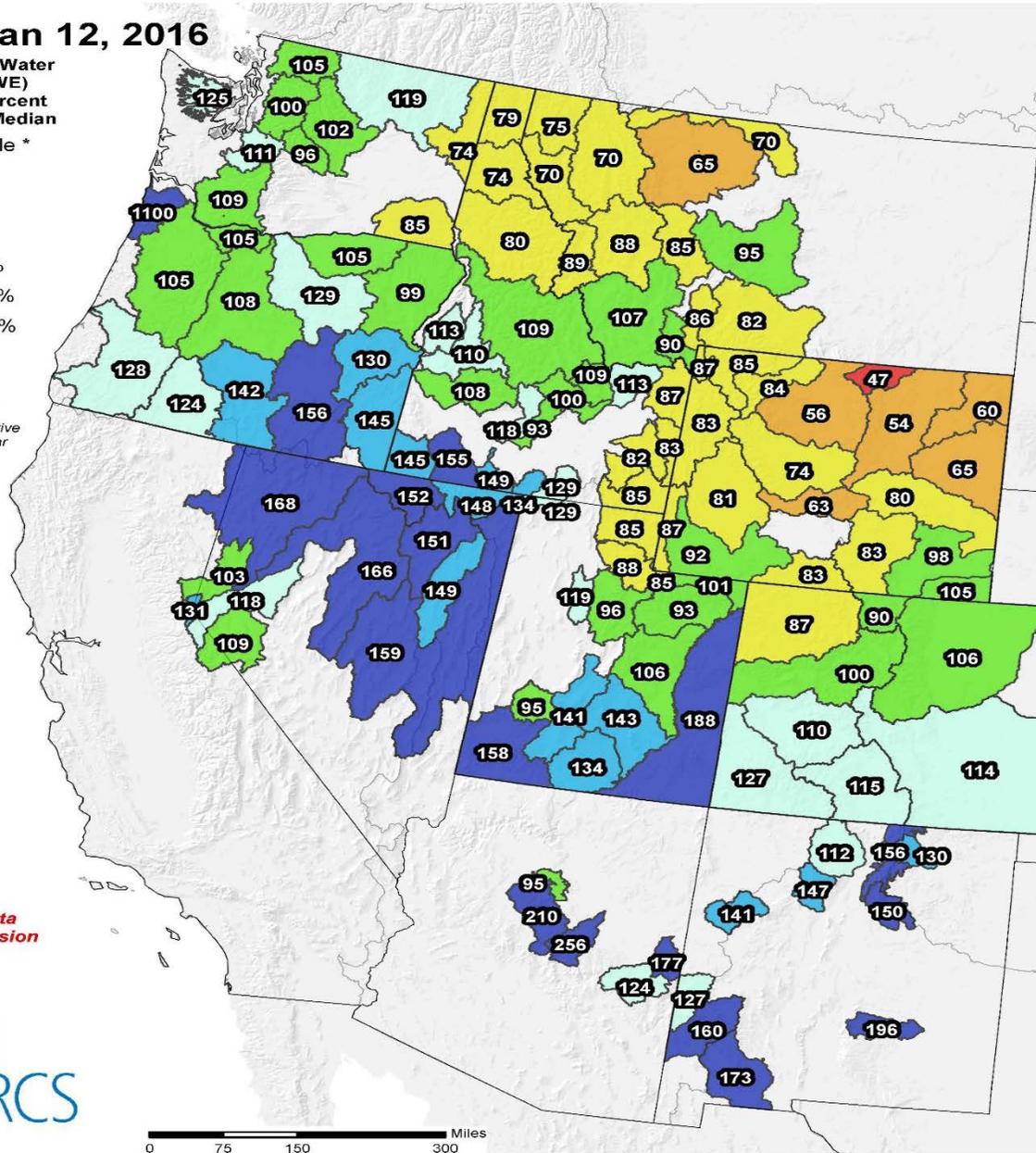


\* Data unavailable at time of posting or measurement is not representative at this time of year

Provisional data subject to revision



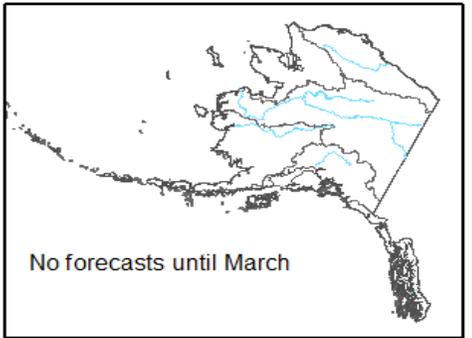
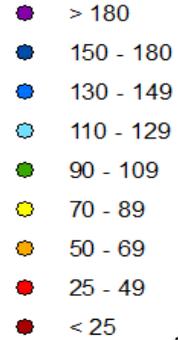
The snow water equivalent percent of normal represents the current snow water equivalent found at selected SNOTEL sites in or near the basin compared to the average value for those sites on this day. Data based on the first reading of the day (typically 00:00).



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

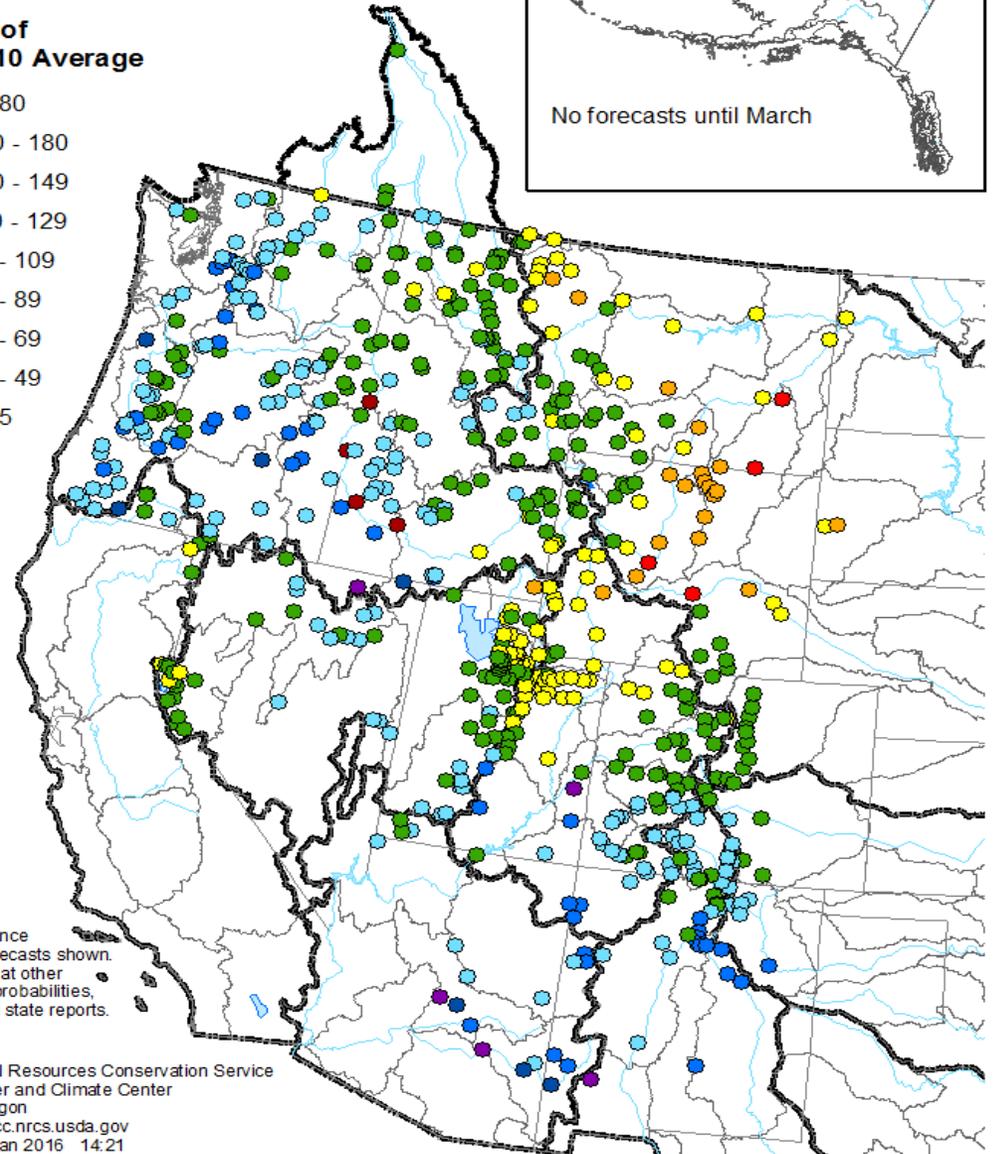
# Spring and Summer Streamflow Forecasts as of January 1, 2016

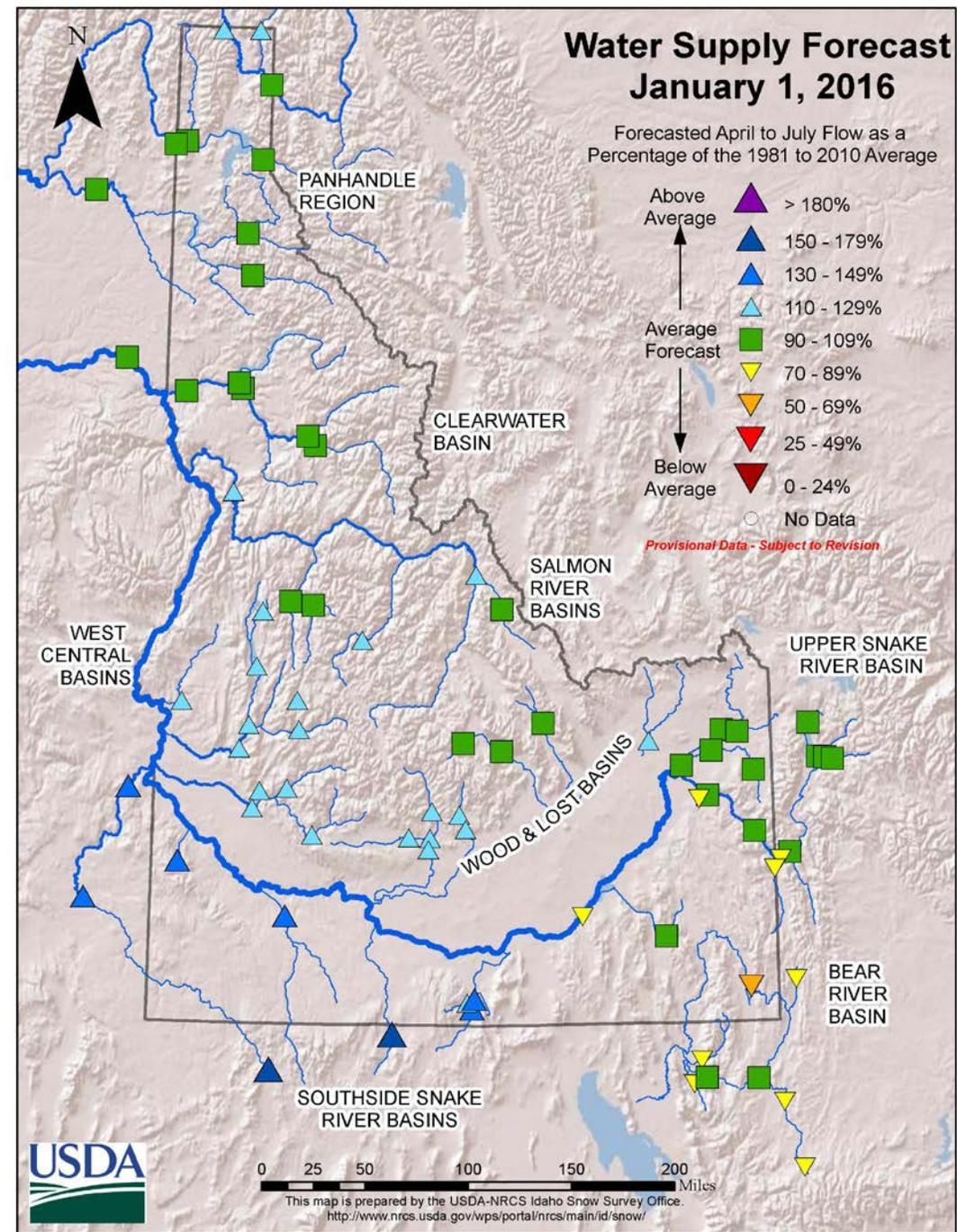
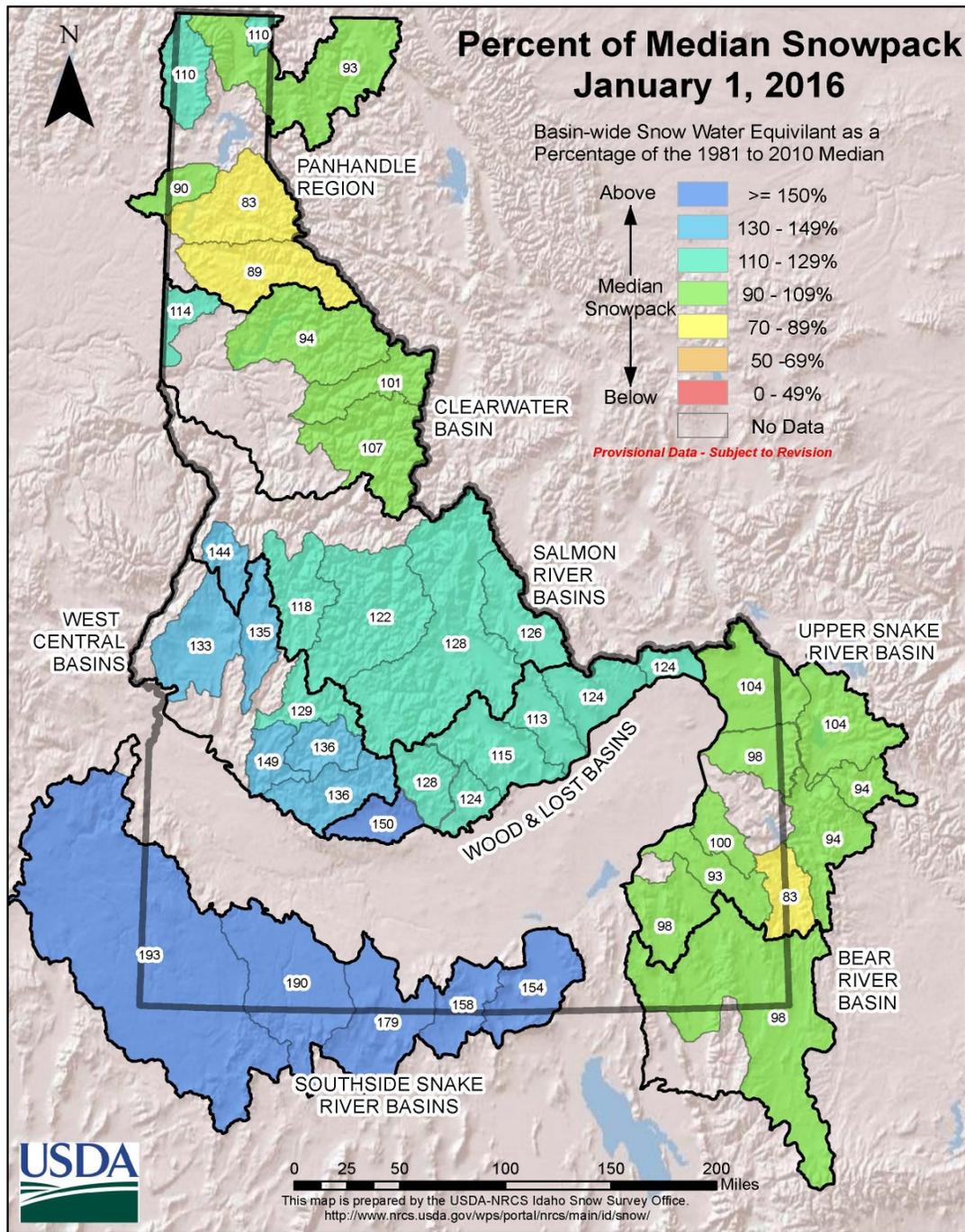
Percent of 1981-2010 Average



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

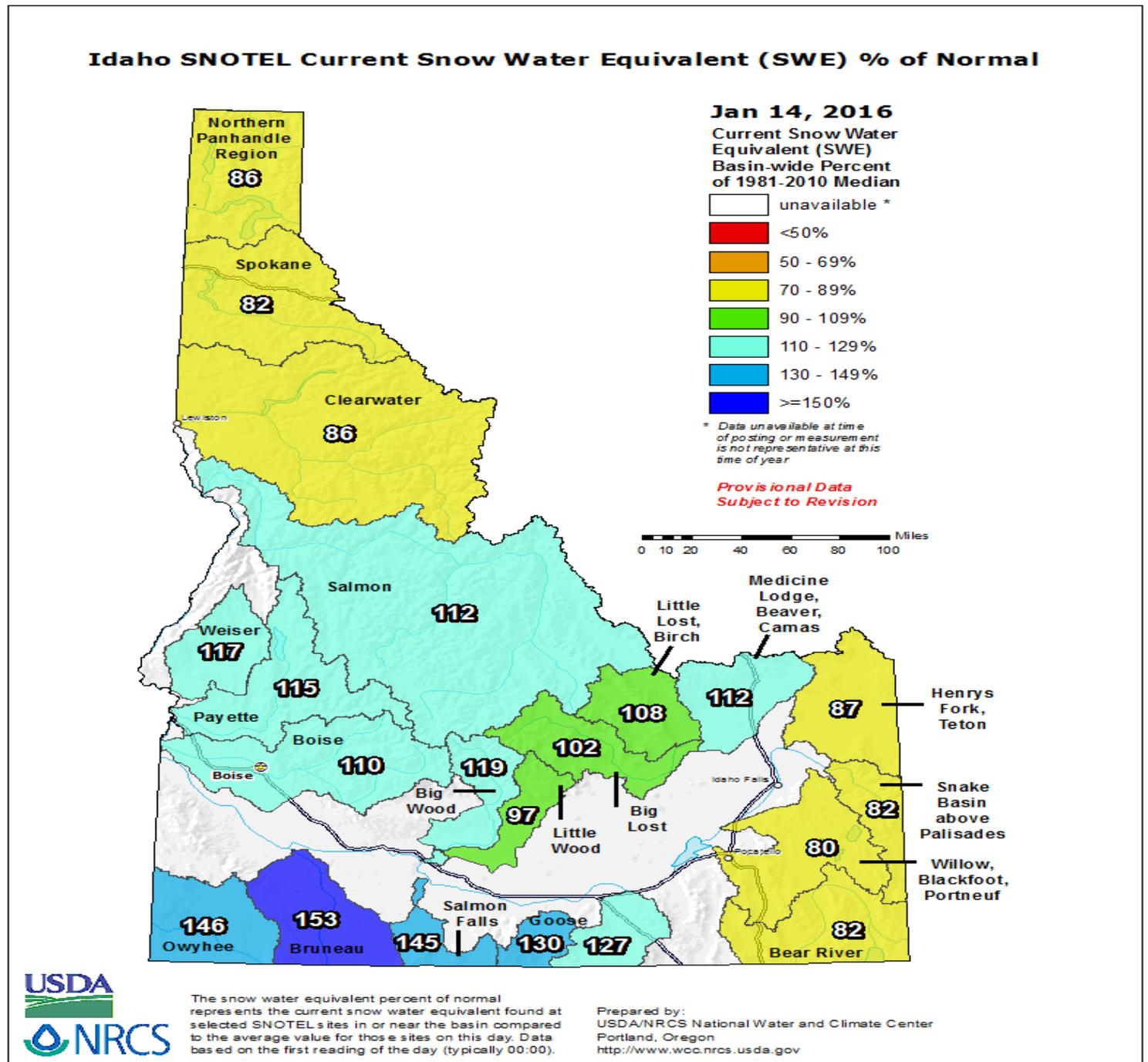




January 1-12 precipitation was minimal.

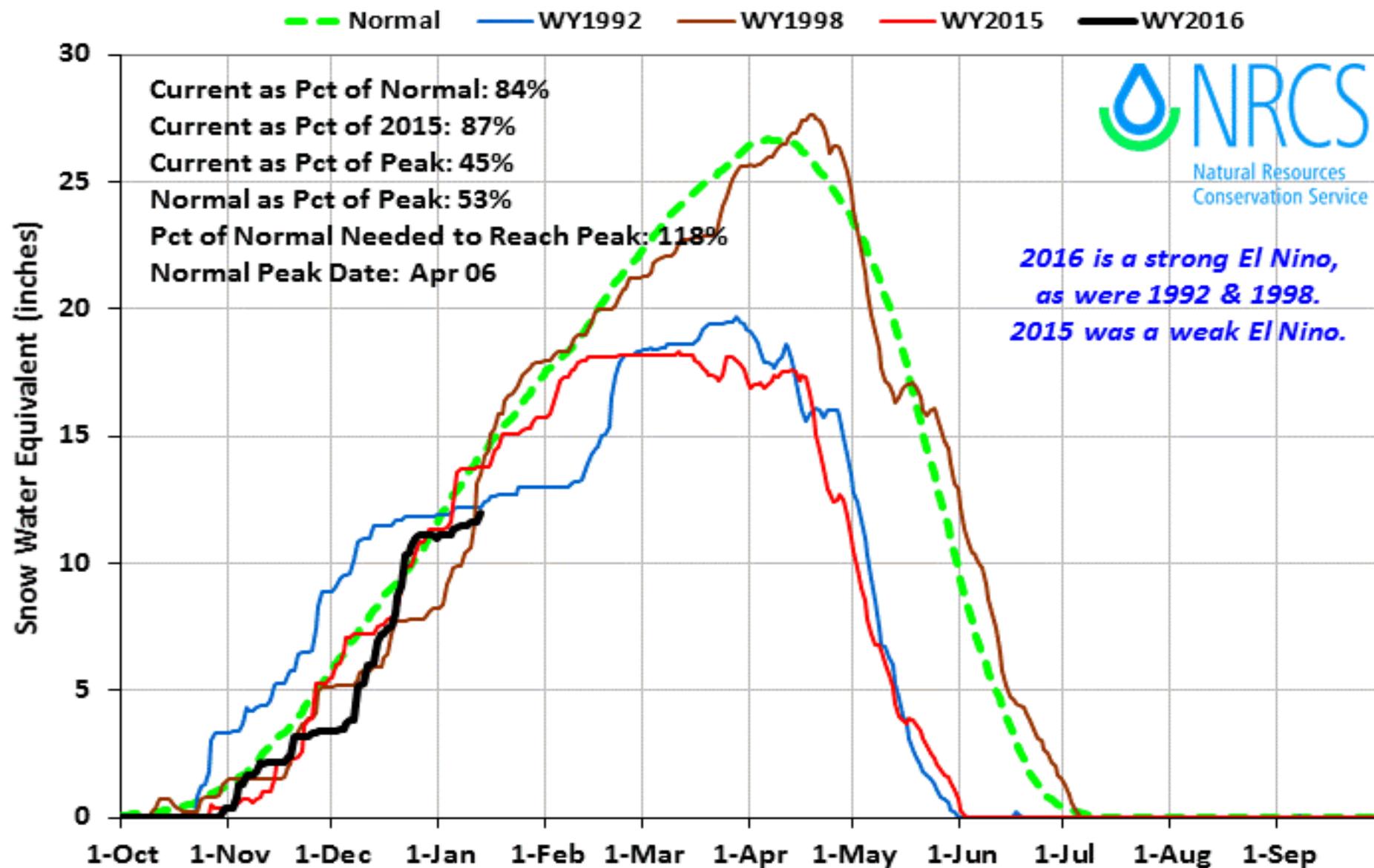
Storms started moving into the state Jan 13!

With minimal precipitation, snowpack %'s were dropping 1-2 percentage points a day.



# Henry's Fork and Teton Basins 2016 Snowpack Comparison Graph (7 sites)

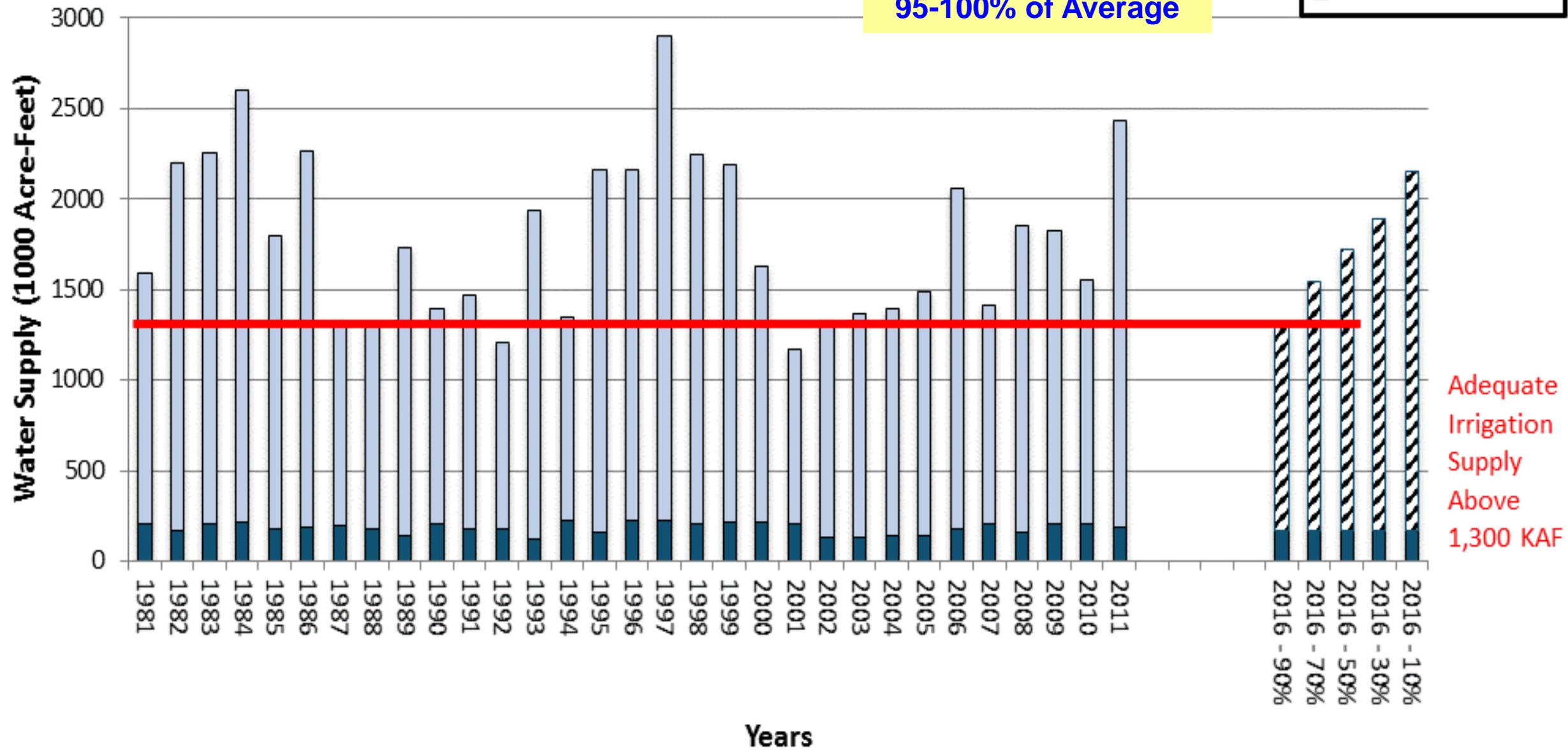
Based on Provisional SNOTEL data as of Jan 13, 2016



# Jan 1 Historic and Forecasted Surface Water Supply Henrys Fork Basin

**Jan 2016 Streamflow  
Forecasts in Henrys  
Fork Ranges from  
95-100% of Average**

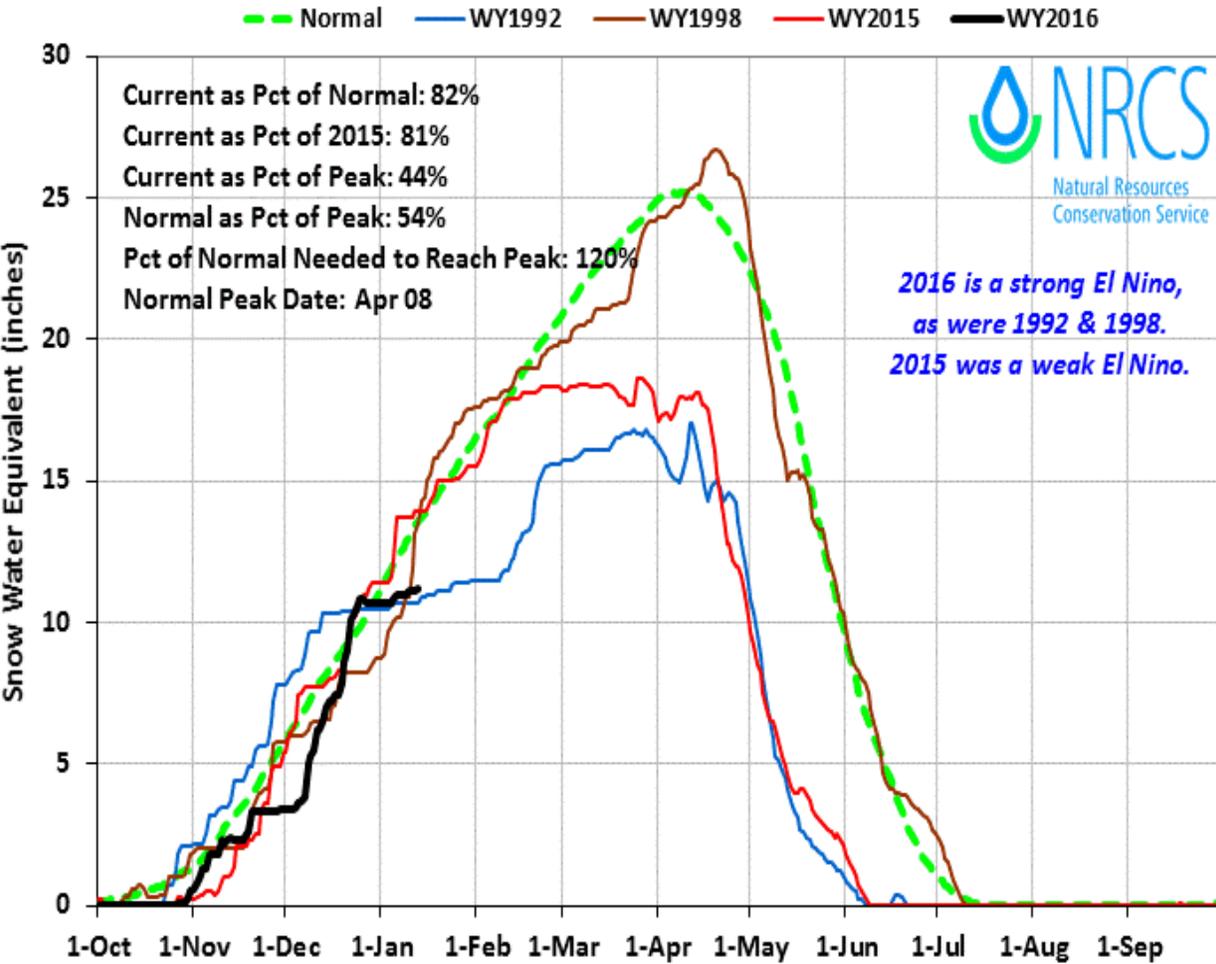
StreamFlow Apr-Sep  
 Reservoir 31-Dec



Adequate  
Irrigation  
Supply  
Above  
1,300 KAF

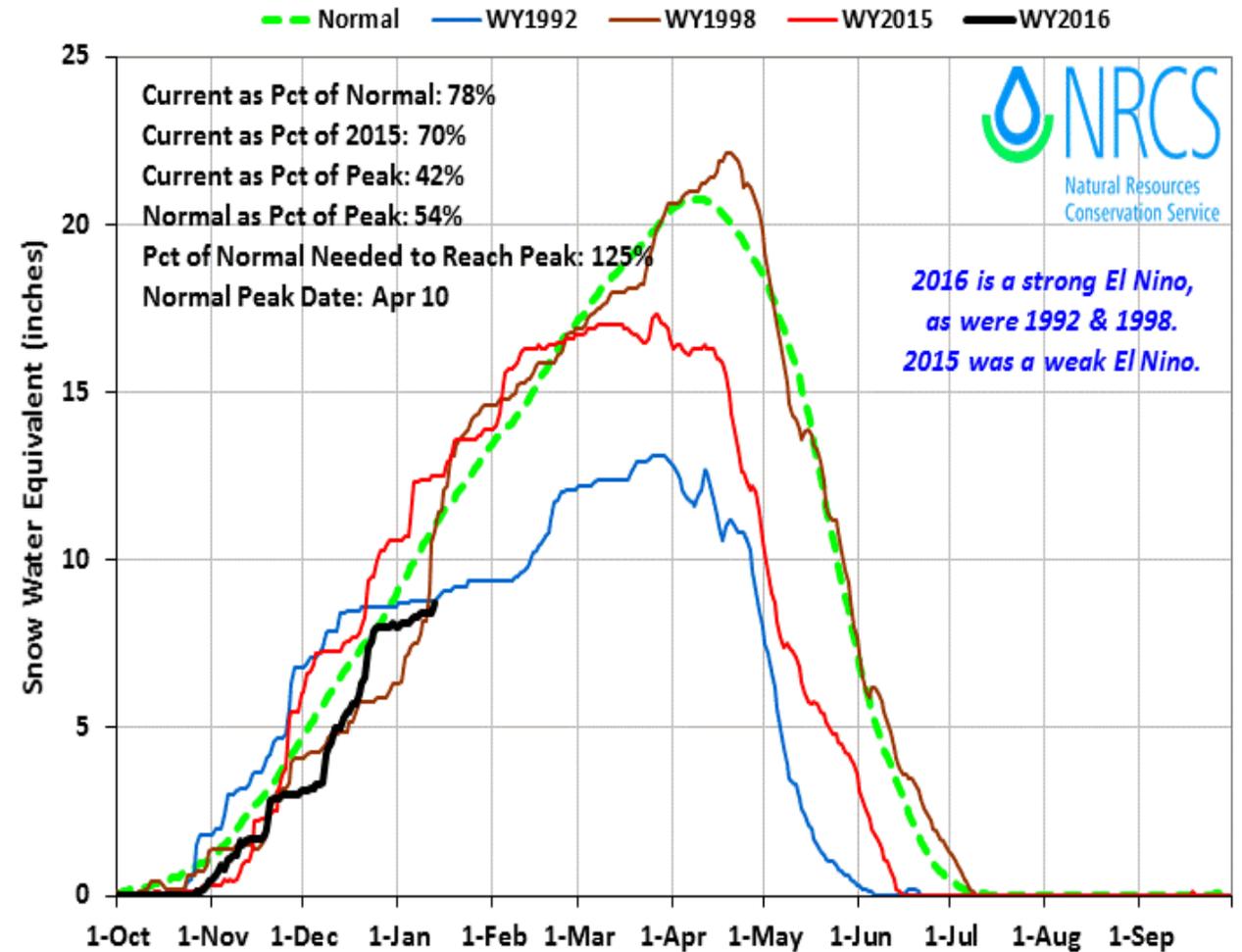
### Snake Basin above Jackson Lake 2016 Snowpack Comparison Graph (5 sites)

Based on Provisional SNOTEL data as of Jan 13, 2016



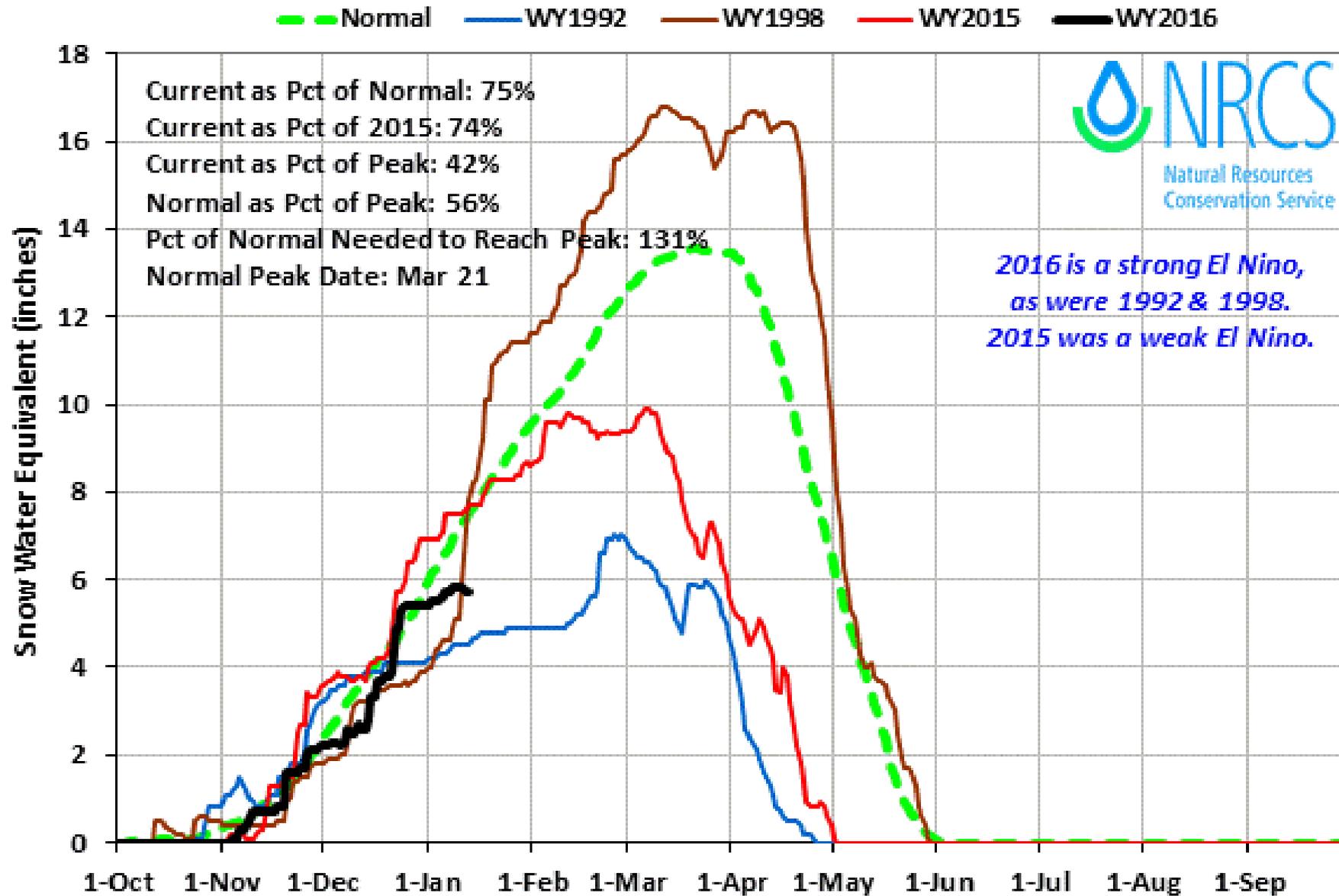
### Snake Basin above Palisades 2016 Snowpack Comparison Graph (18 sites)

Based on Provisional SNOTEL data as of Jan 13, 2016



# Willow, Blackfoot and Portneuf Basins 2016 Snowpack Comparison Graph (6 sites)

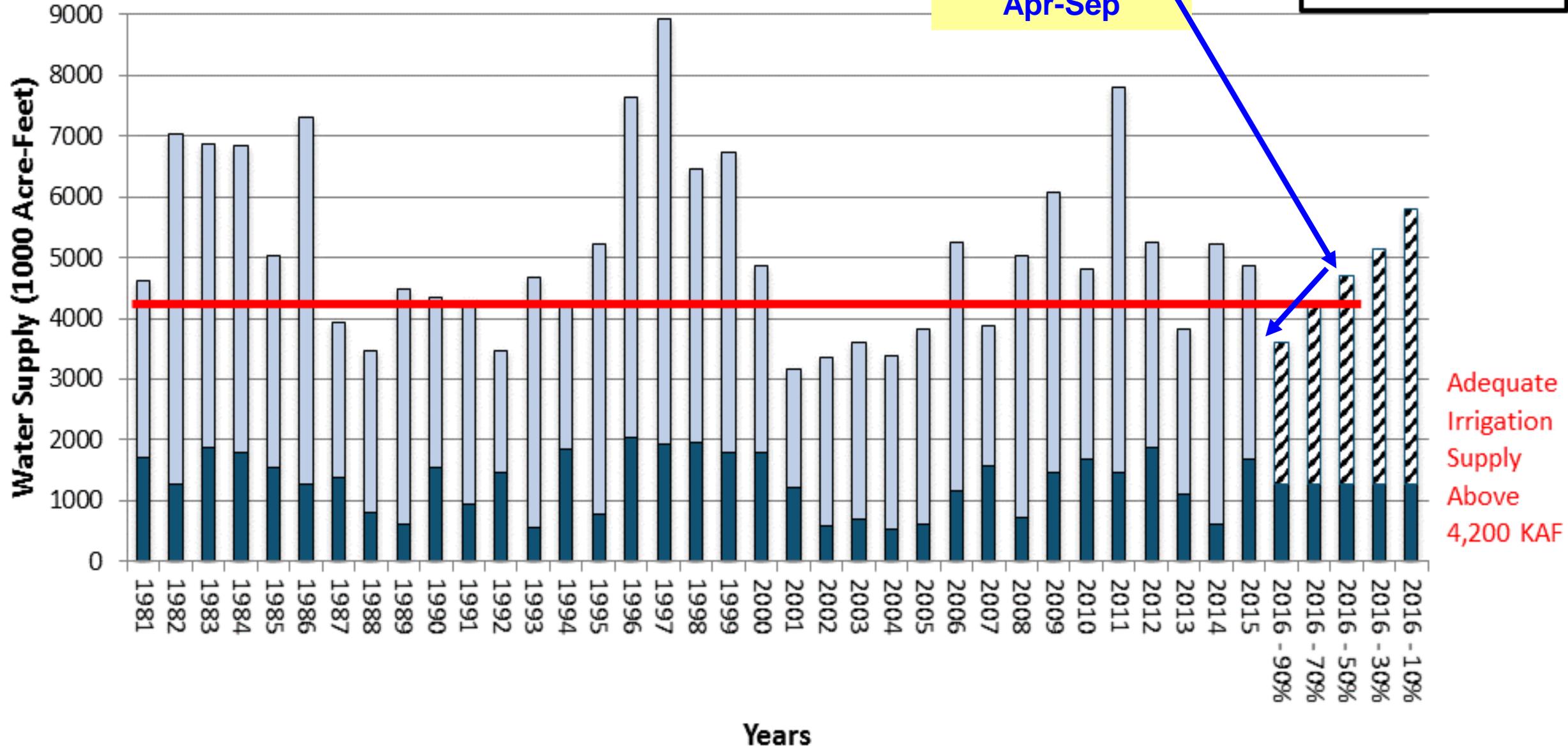
Based on Provisional SNOTEL data as of Jan 13, 2016



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

Jan 2016  
Streamflow  
Forecast 91%  
Apr-Sep

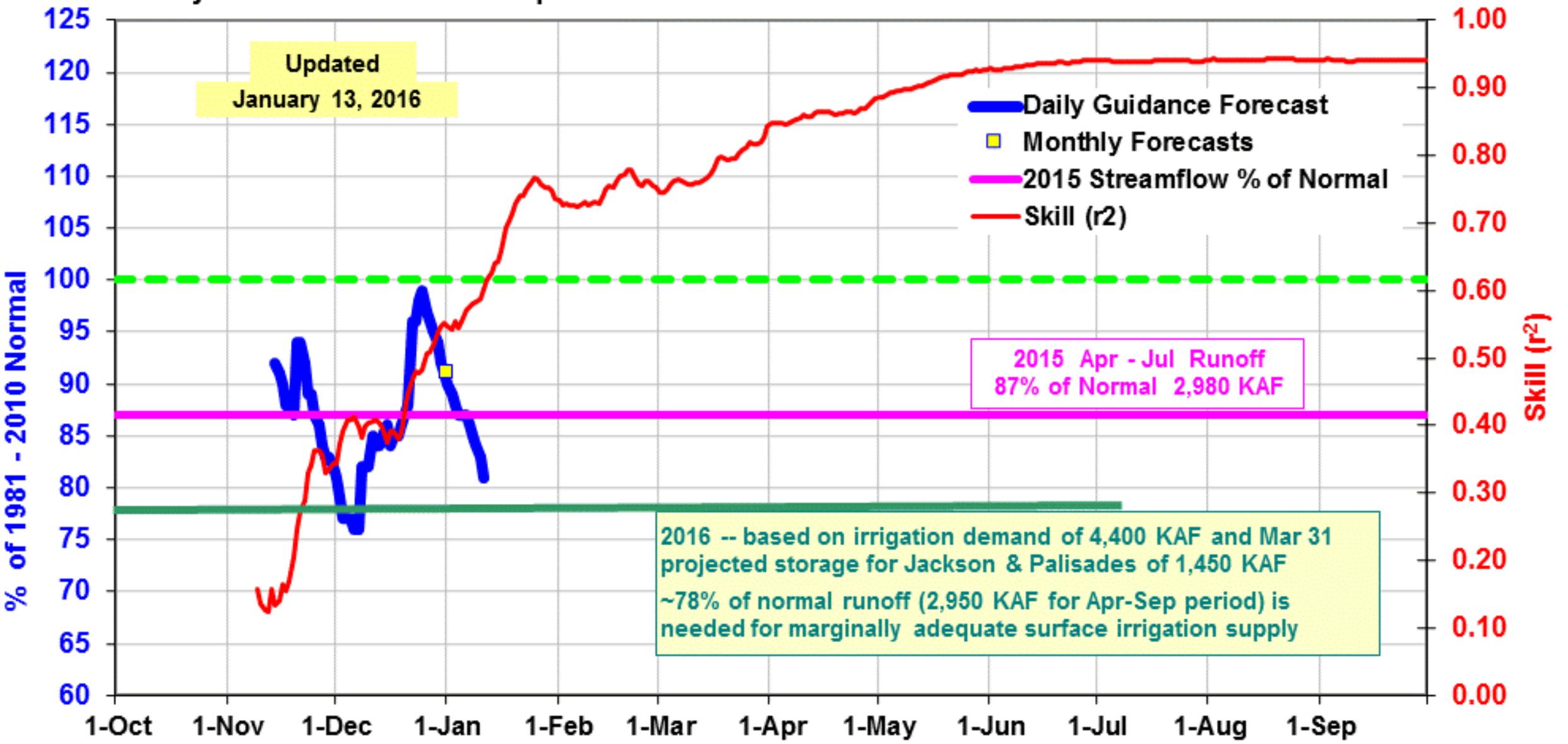
- StreamFlow Apr-Sep
- Reservoir 31-Dec



Adequate  
Irrigation  
Supply  
Above  
4,200 KAF

# 2016 Snake River near Heise: Apr - Jul Volume

## NRCS Monthly Forecasts are Yellow Squares



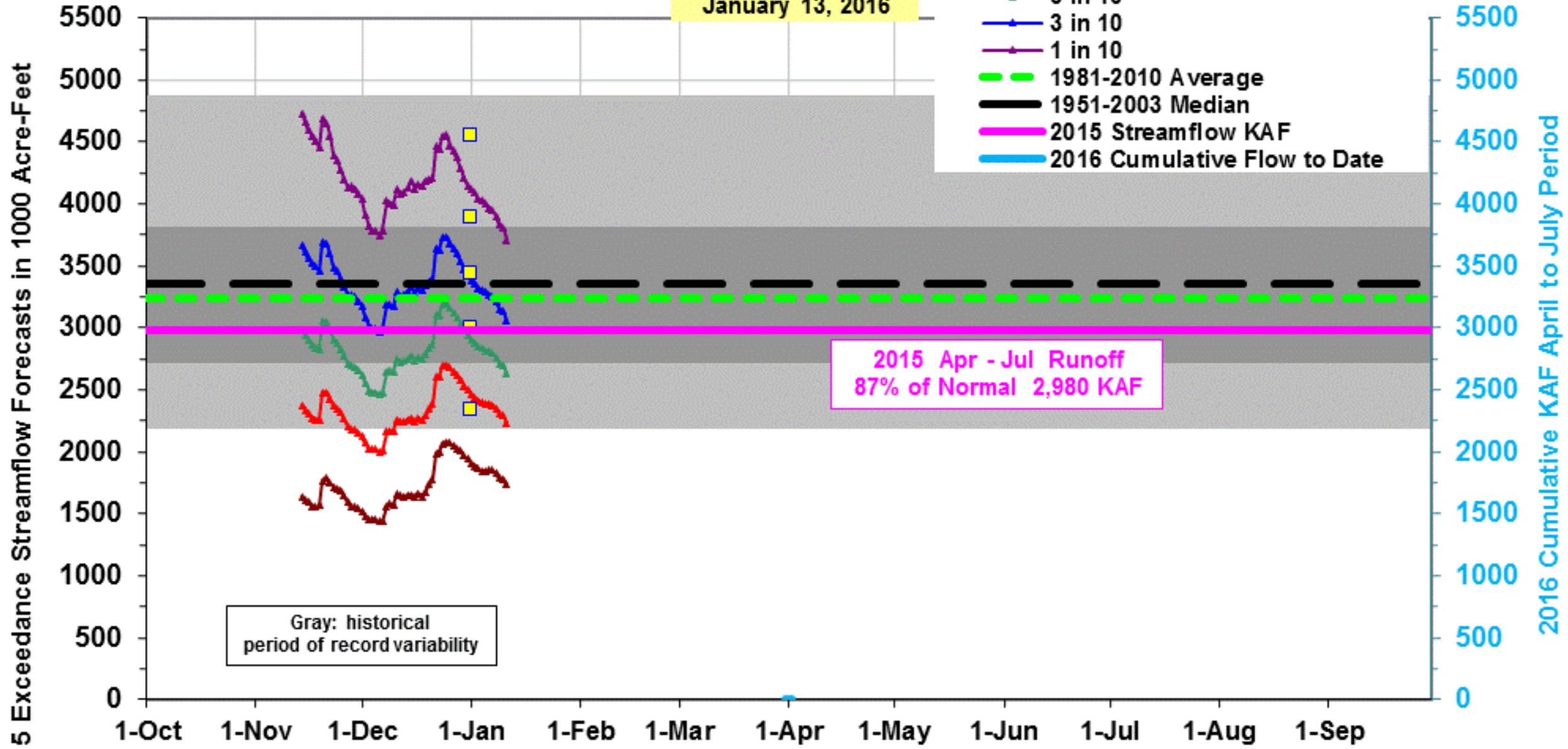
SNOTELs used: Base Camp, Blind Bull, Cottonwood Ck, Lewis Lake, Snake River Station, Slug Ck, Thumb Div, Willow Ck

# 2016 Snake River near Heise: Apr - Jul Volume

## NRCS Monthly Forecasts are Yellow Squares

Updated  
January 13, 2016

- 9 in 10
- 7 in 10
- 5 in 10
- 3 in 10
- 1 in 10
- 1981-2010 Average
- 1951-2003 Median
- 2015 Streamflow KAF
- 2016 Cumulative Flow to Date

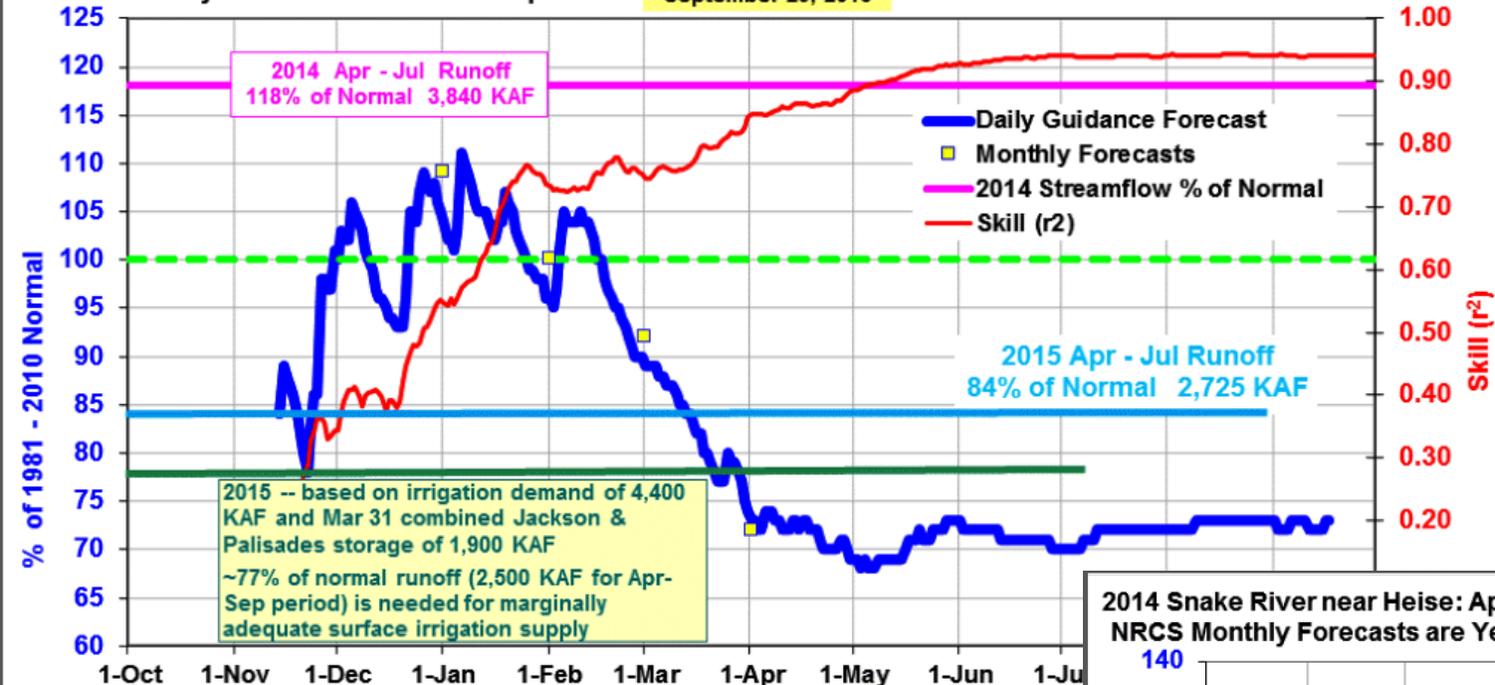


# 2015 Snake River near Heise: Apr - Jul Volume

Updated  
September 29, 2015



NRCS Monthly Forecasts are Yellow Squares



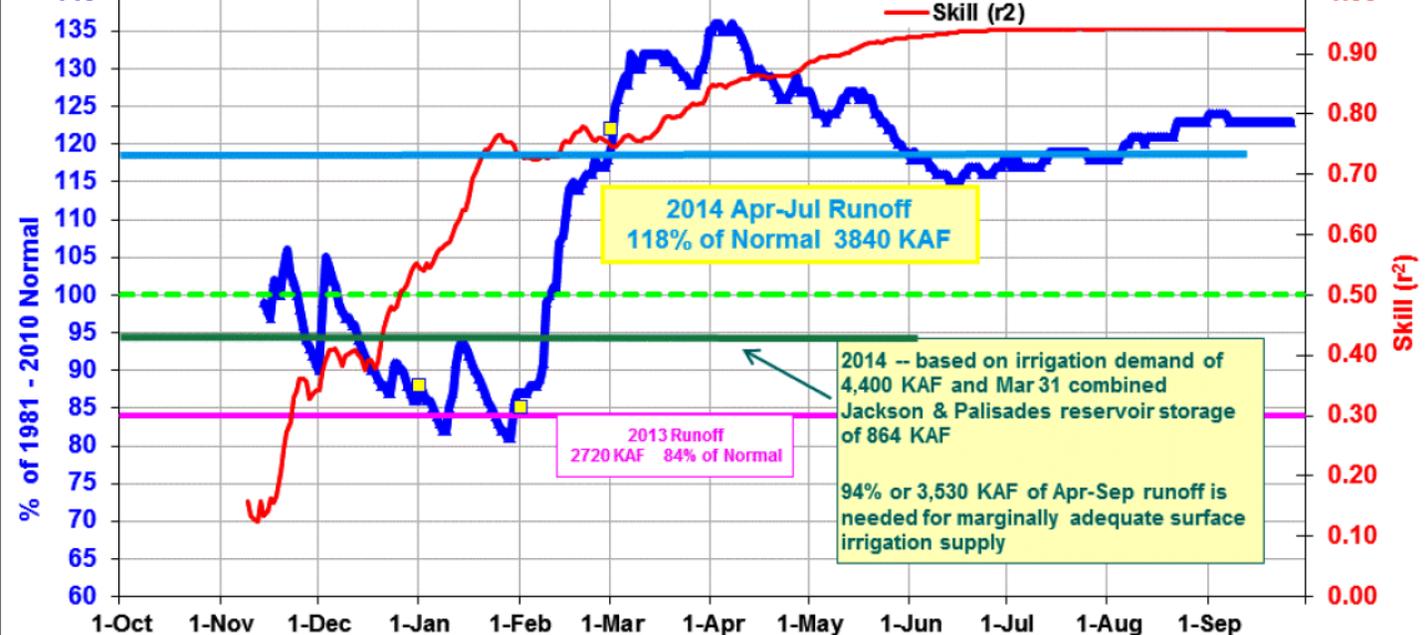
SNOTELs used: Base Camp, Blind Bull, Cottonwood Ck, Lewis Lake, Snake River Station

# 2014 Snake River near Heise: Apr - Jul Volume

Updated  
September 26, 2014



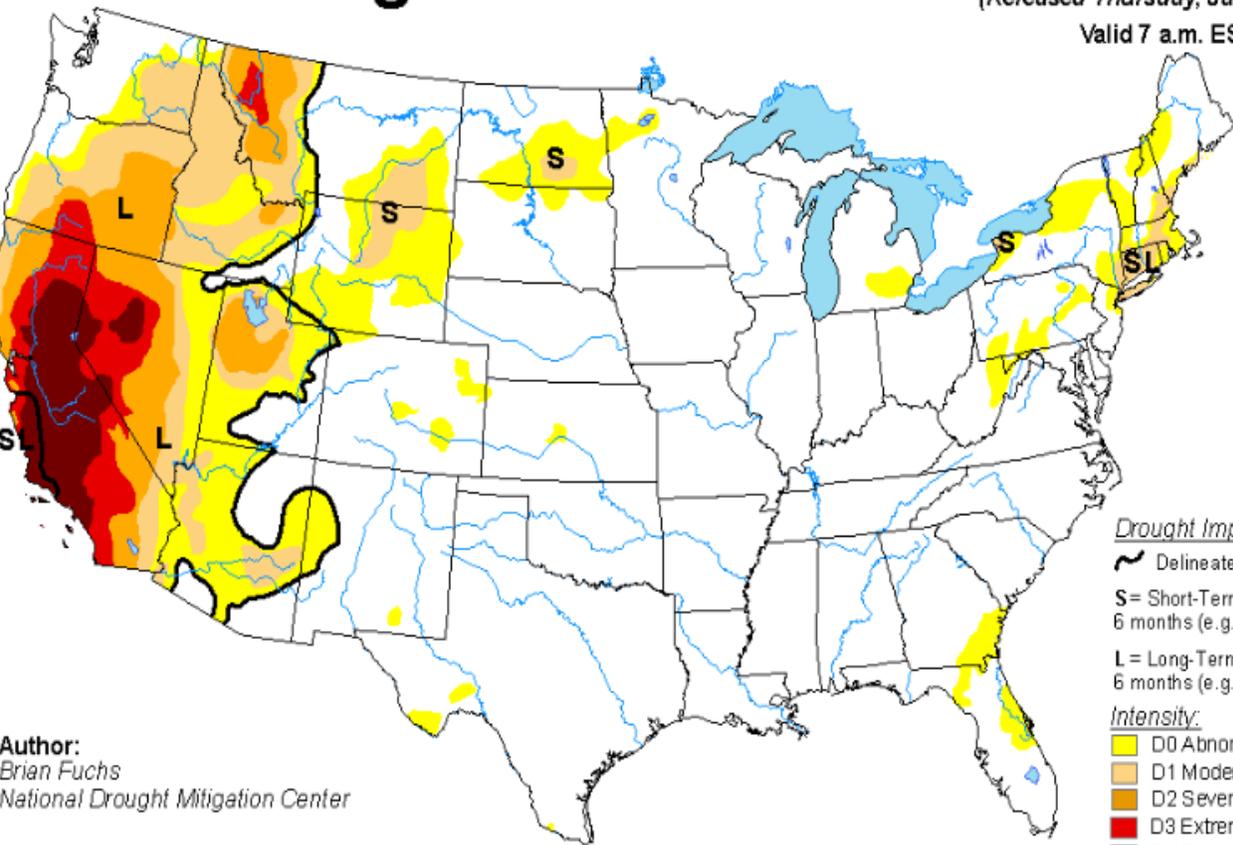
NRCS Monthly Forecasts are Yellow Squares



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

# U.S. Drought Monitor

January 12, 2016  
(Released Thursday, Jan. 14, 2016)  
Valid 7 a.m. EST



Author:  
Brian Fuchs  
National Drought Mitigation Center

### Drought Impact Types:

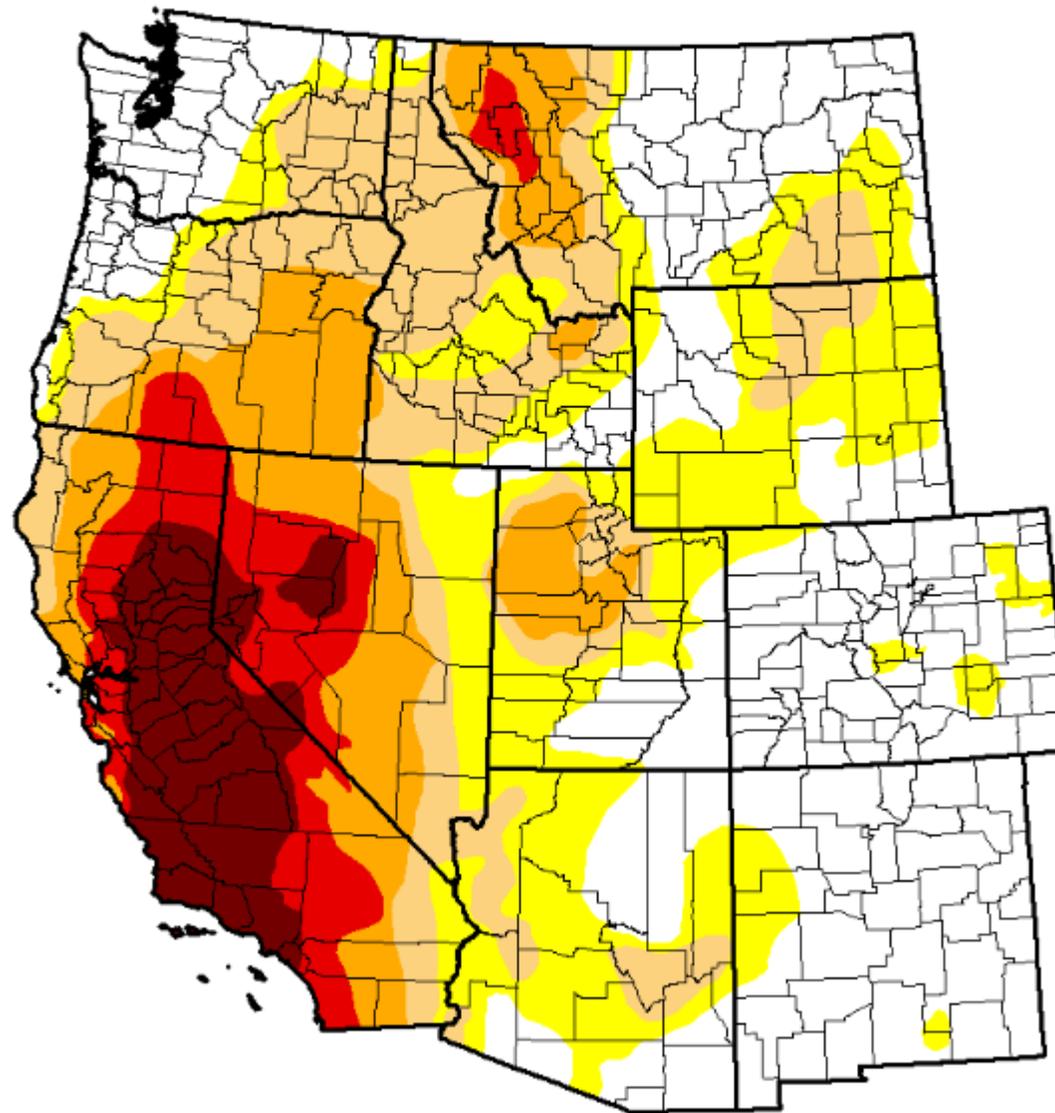
- ~ Delineates dominant impacts
- S= Short-Term, typically less than 6 months (e.g. agriculture, grasslands)
- L = Long-Term, typically greater than 6 months (e.g. hydrology, ecology)

### Intensity:

- Yellow D0 Abnormally Dry
- Light Orange D1 Moderate Drought
- Orange D2 Severe Drought
- Red D3 Extreme Drought
- Dark Red D4 Exceptional Drought

# U.S. Drought Monitor

## West



# Streamflow April - September as % of 1981-2010 Average



12 Strong  
El Nino  
Years  
Sorted

Year	ENSO	PDO	Owyhee River blw Dam	Salmon Falls Creek	Big Wood River blw Magic Dam	Snake River nr Heise	Spokane River nr Post Falls
	SE Strong El Nino	Positive or Negative					
1994	SE	pos	23	36	12	61	51
1966	SE	neg	28	48	51	78	90
1947	SE	pos / neg	44	50	59	108	90
1941	SE	pos	83	53	69	73	45
1988	SE	pos	30	65	24	70	71
1978	SE	pos	110	112	140	133	99
1973	SE	pos / neg	61	114	51	79	45
1995	SE	pos	124	135	195	118	70
1998	SE	pos / neg	135	138	161	119	82
1999	SE	pos	221	157	282	132	91
1984	SE	pos	122	173	117	86	77
1952	SE	neg	247	178	263	116	123
2016	SE	Currently pos	?	?	?	?	?