IASCD Division VI Spring Meeting Water Storage Report Mar 17, 2015

Photo taken by Ray Gadd March 11, 2015 looking east and south over Big Wood River valley illustrating lack of snow on south facing slopes.

Ron Abramovich
Water Supply Specialist
USDA NRCS Snow Survey
Boise, Idaho

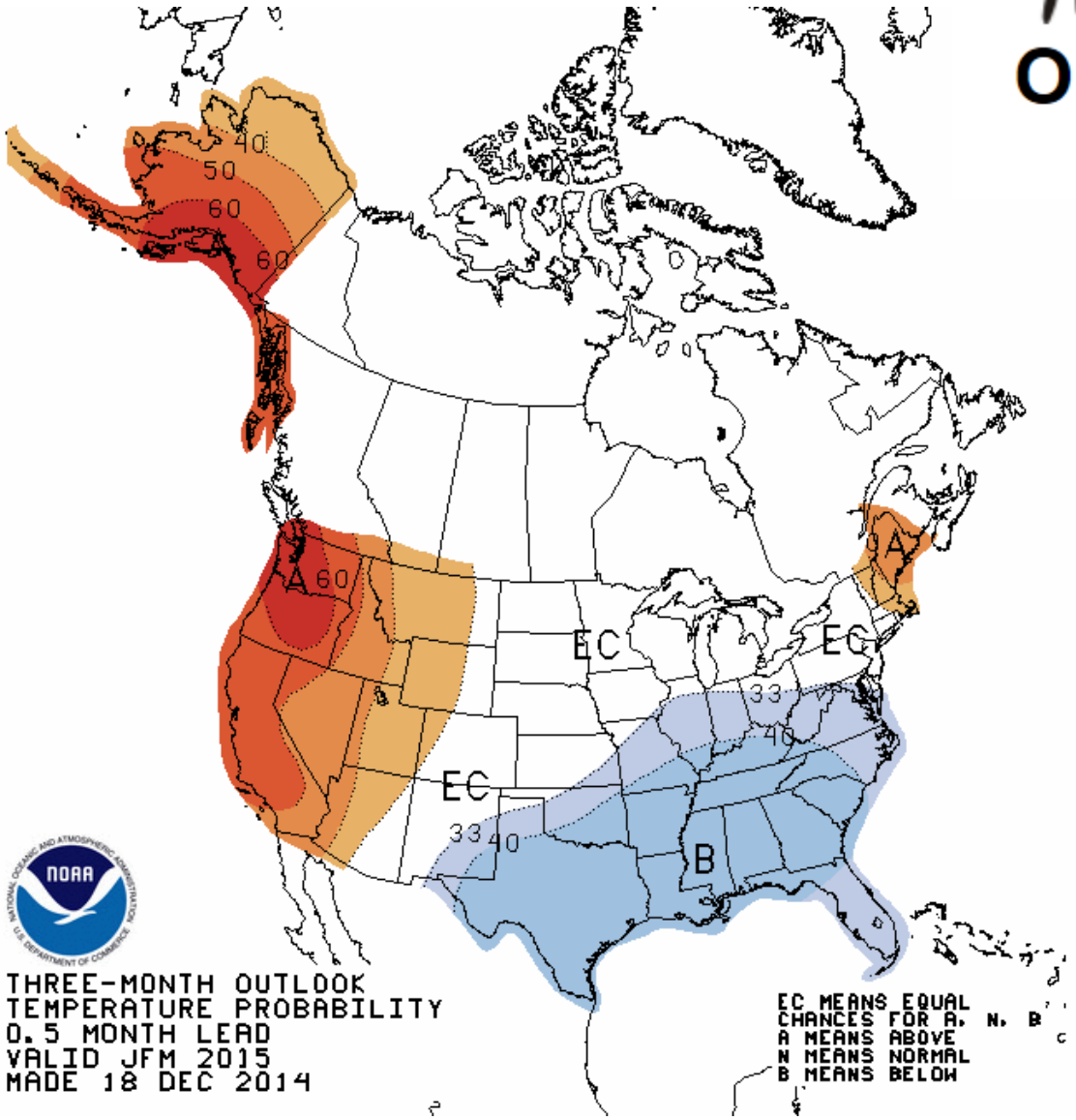
NRCS Natural Resources Conservation Service

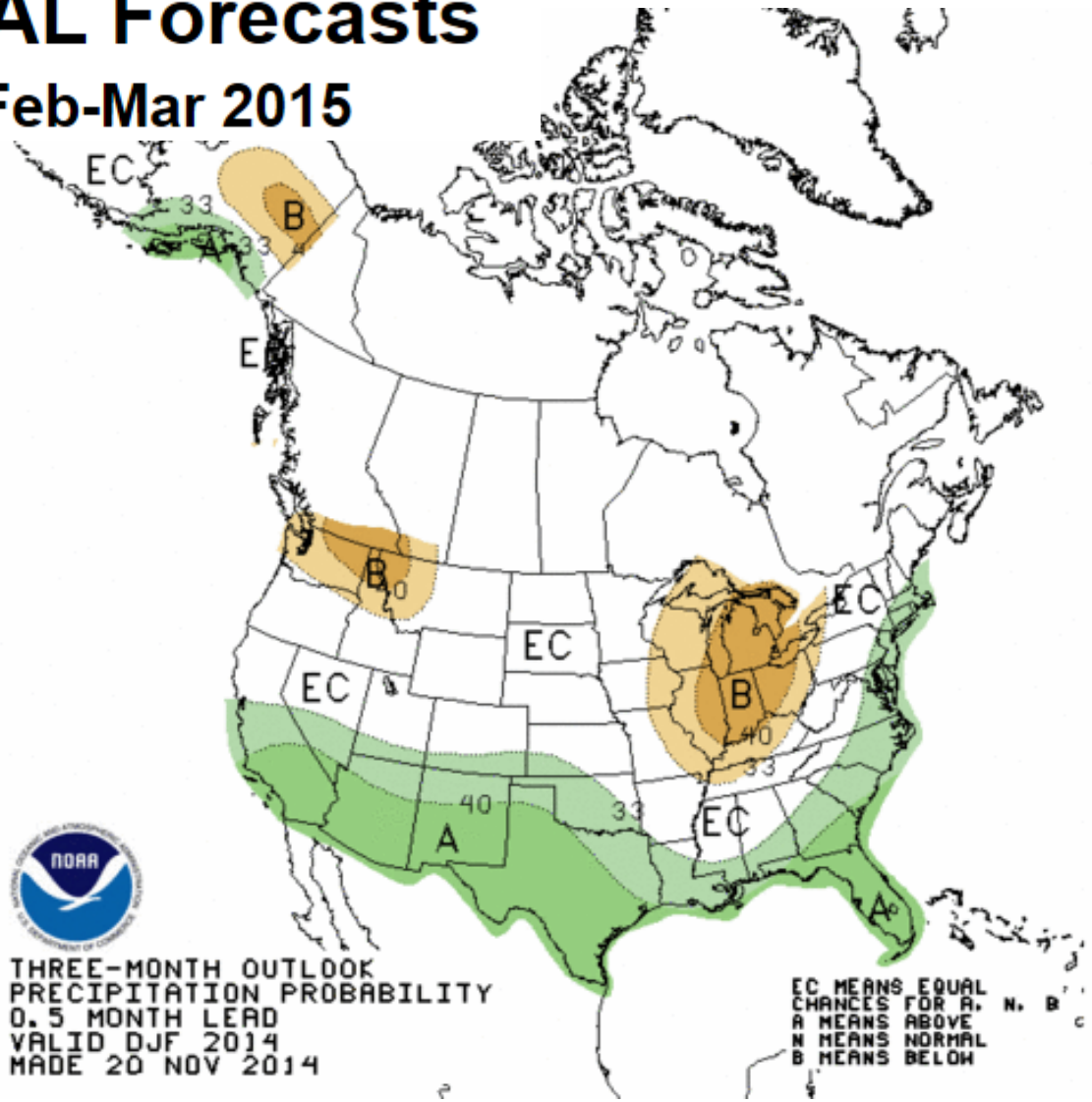
2014/2015 Temperature Forecasts

Three-Month Outlooks

OFFICIAL Forecasts

Jan-Feb-Mar 2015

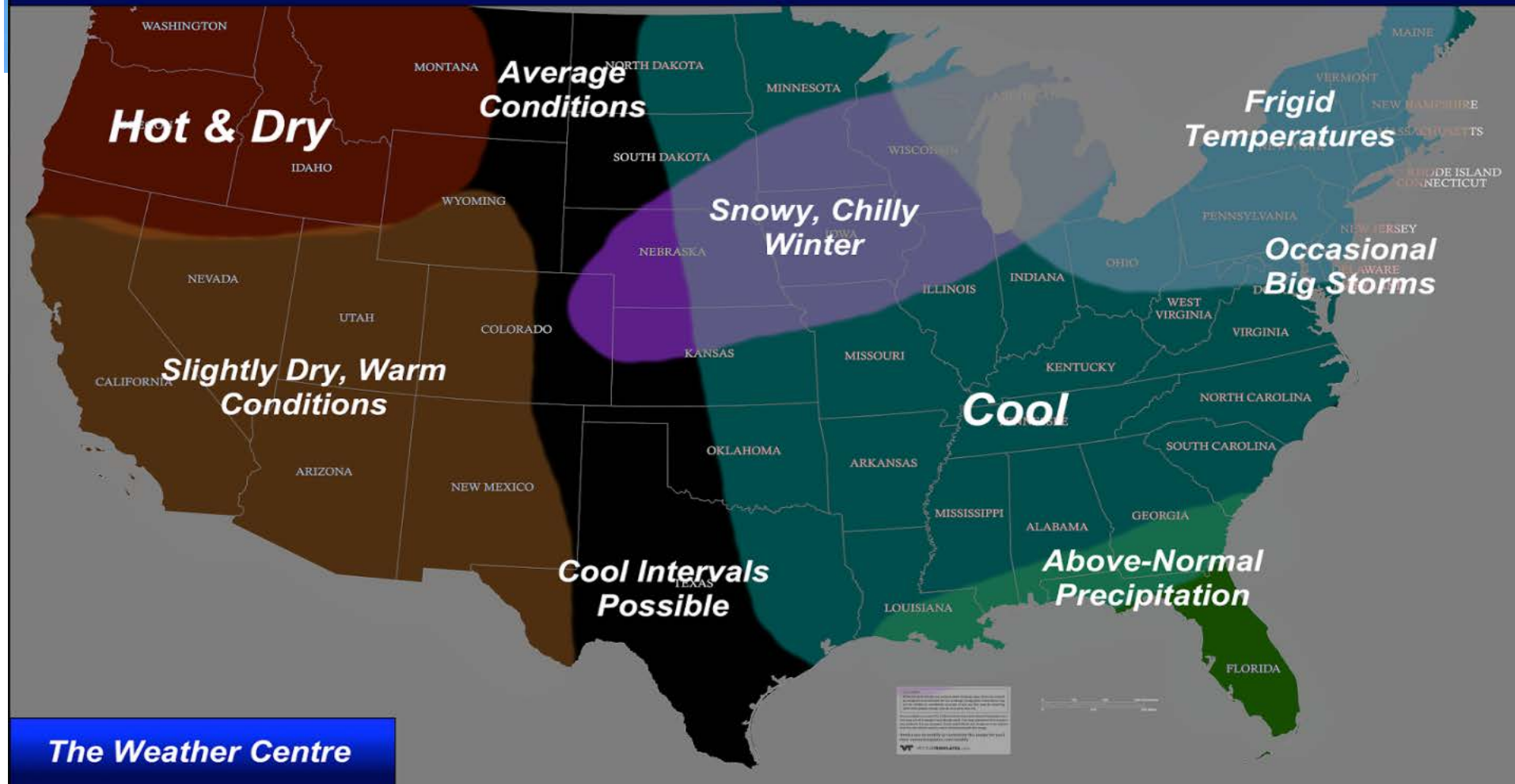


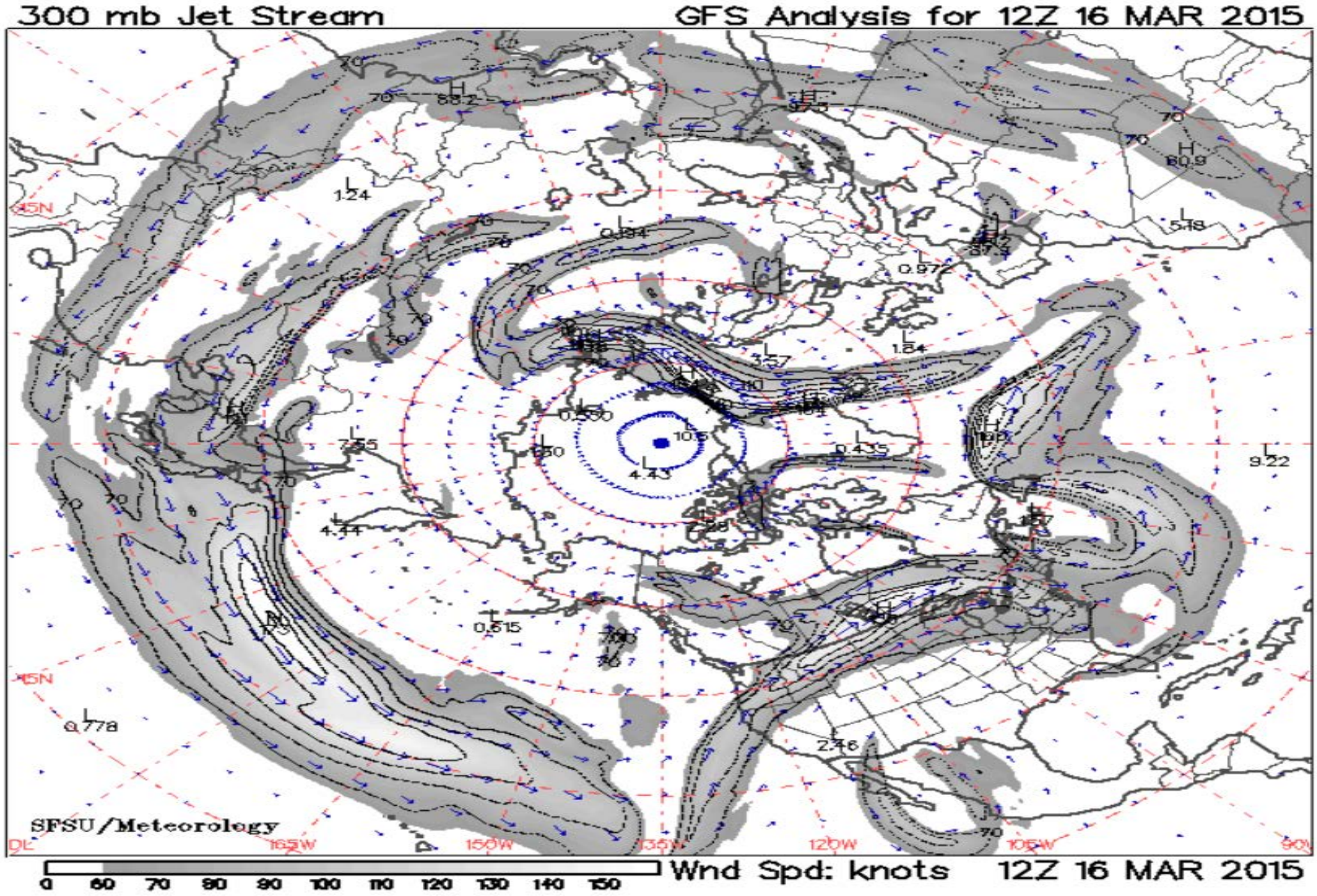


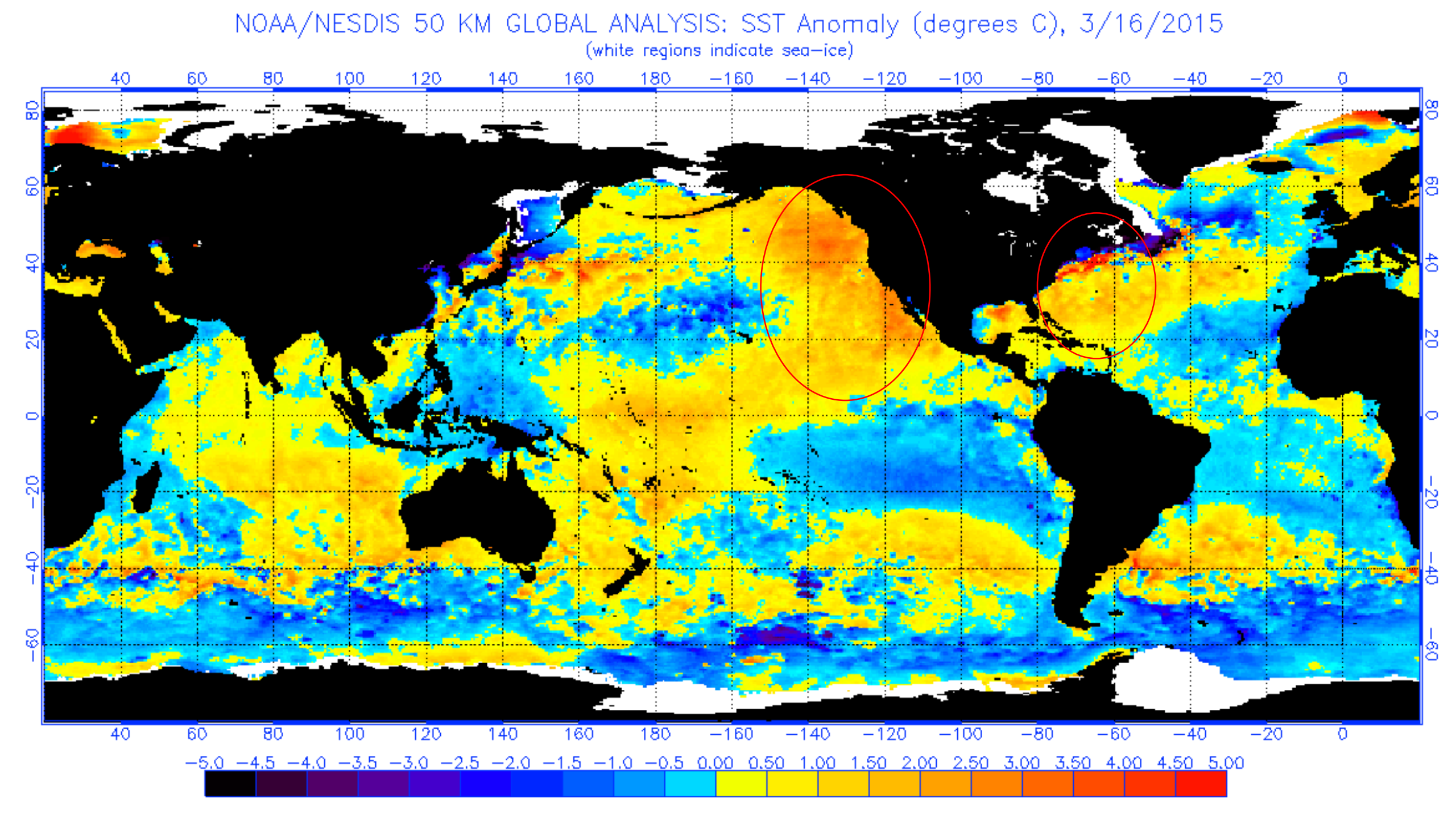
2014/2015 Precipitation Forecasts

Issued October 11, 2014 by Andrew

Official 2014-2015 Winter Forecast

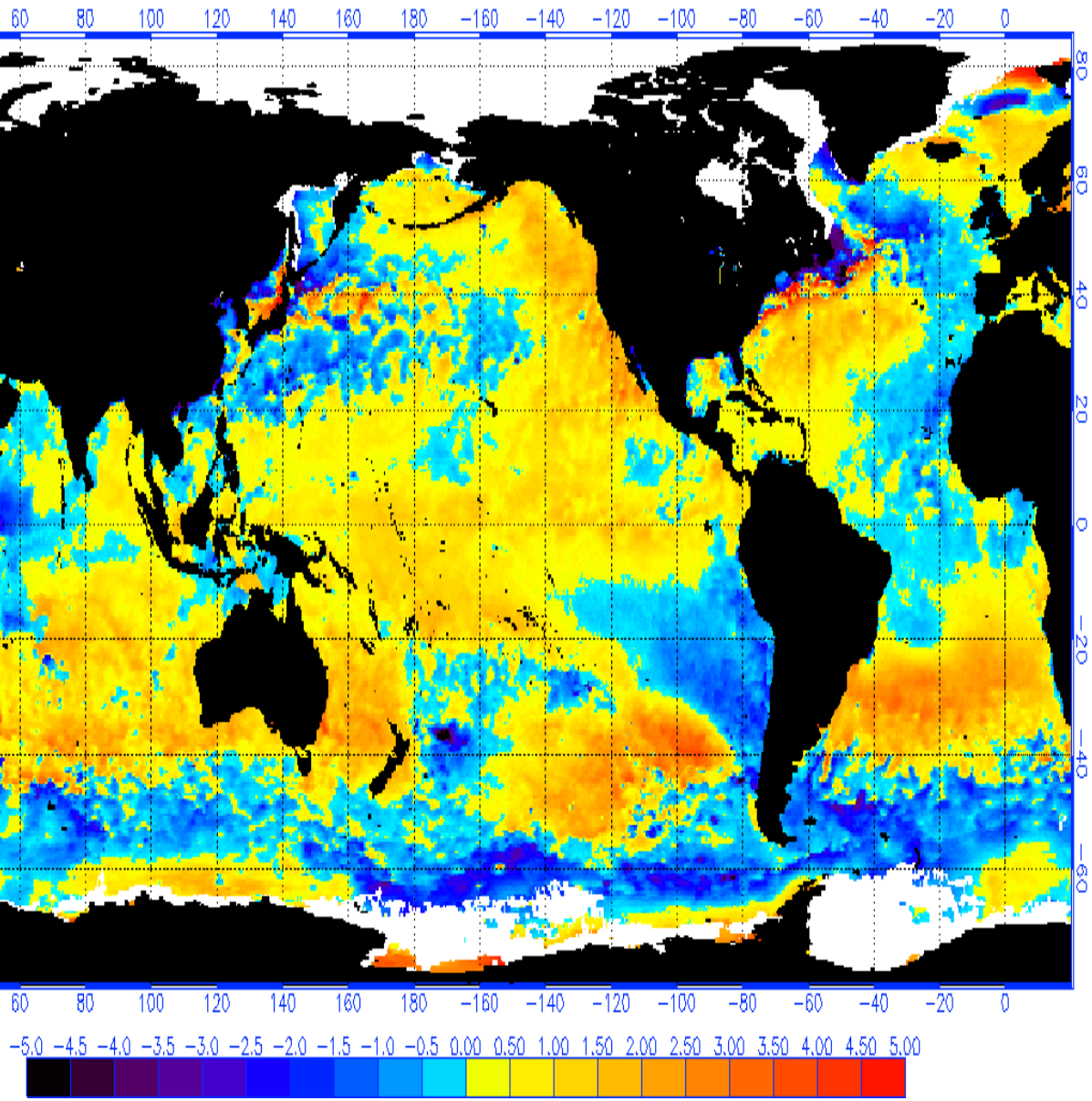



300 mb Jet Stream
GFS Analysis for 12Z 16 MAR 2015
SFSU/Meteorology
Wnd Spd: knots
12Z 16 MAR 2015
0 60 70 80 90 100 110 120 130 140 150

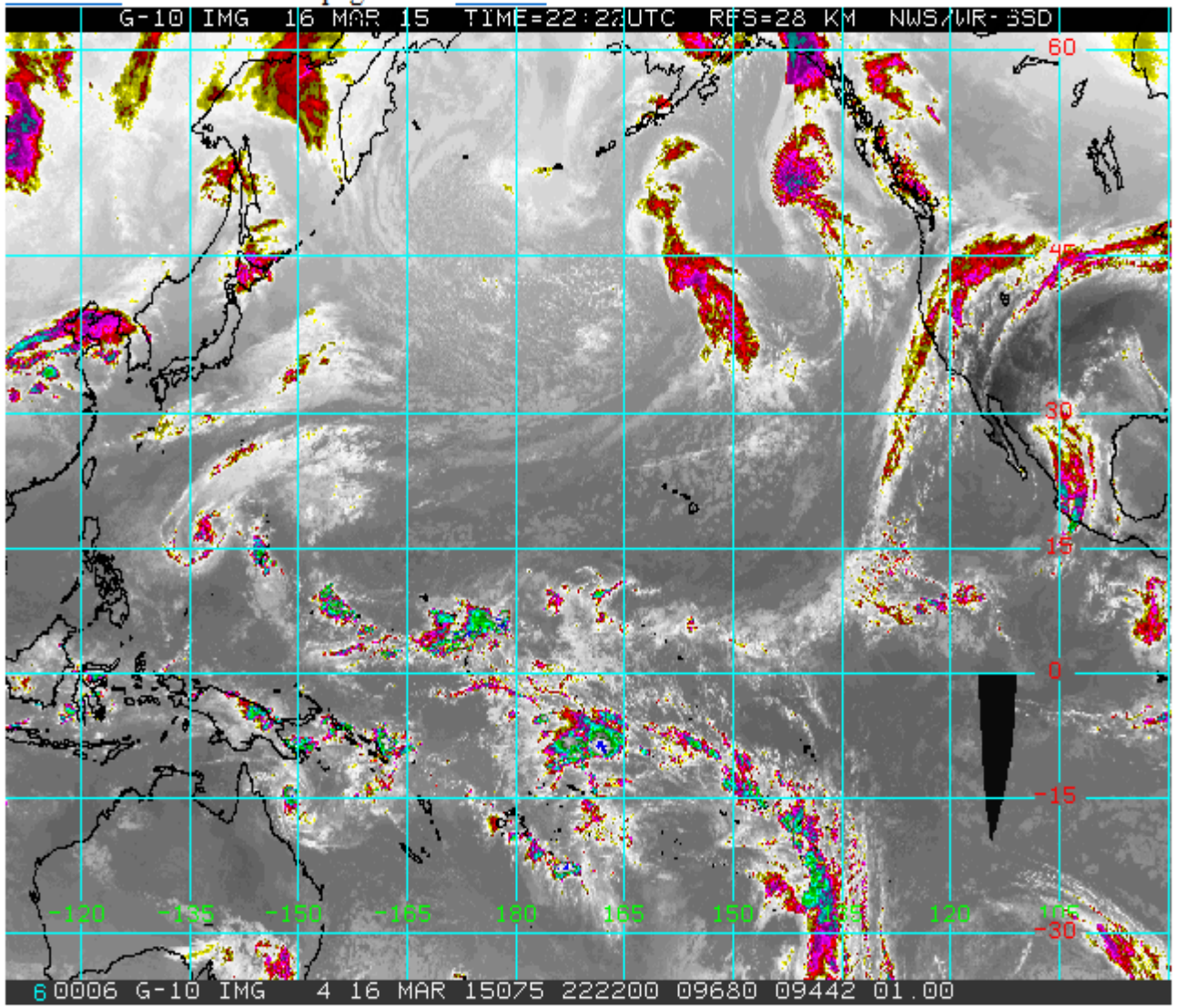

NOAA/NESDIS 50 KM GLOBAL ANALYSIS: SST Anomaly (degrees C), 3/16/2015
(white regions indicate sea-ice)
40 60 80 100 120 140 160 180 −160 −140 −120 −100 −80 −60 −40 −20 0
80 60 40 20 0 −20 −40 −60
−5.0 −4.5 −4.0 −3.5 −3.0 −2.5 −2.0 −1.5 −1.0 −0.5 0.00 0.50 1.00 1.50 2.00 2.50 3.00 3.50 4.00 4.50 5.00

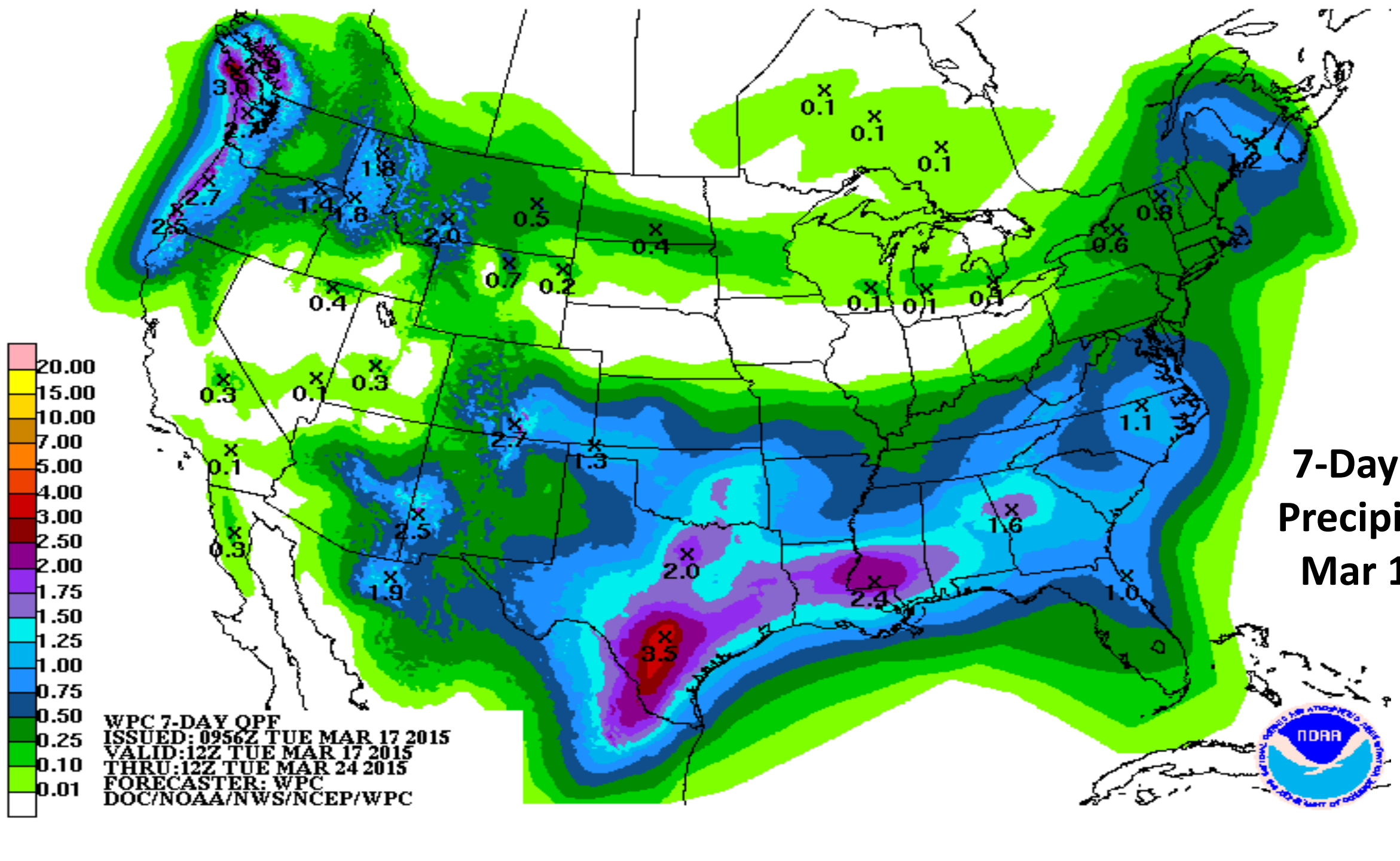
NOAA/NESDIS 50 KM GLOBAL ANALYSIS: SST Anomaly (degrees C), 1/19/2015

(white regions indicate sea-ice)



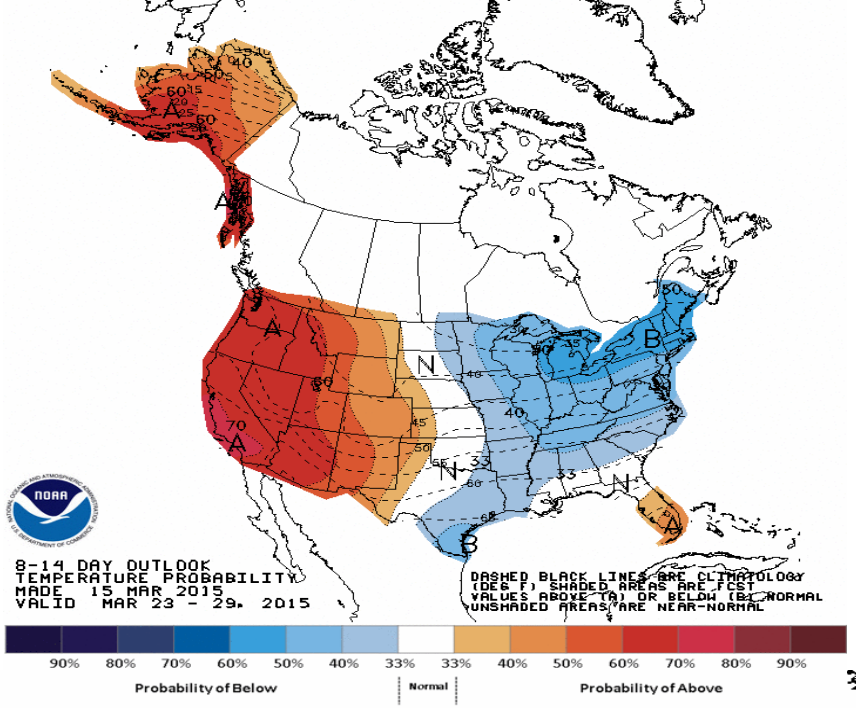
animation To refresh the page click: Refresh



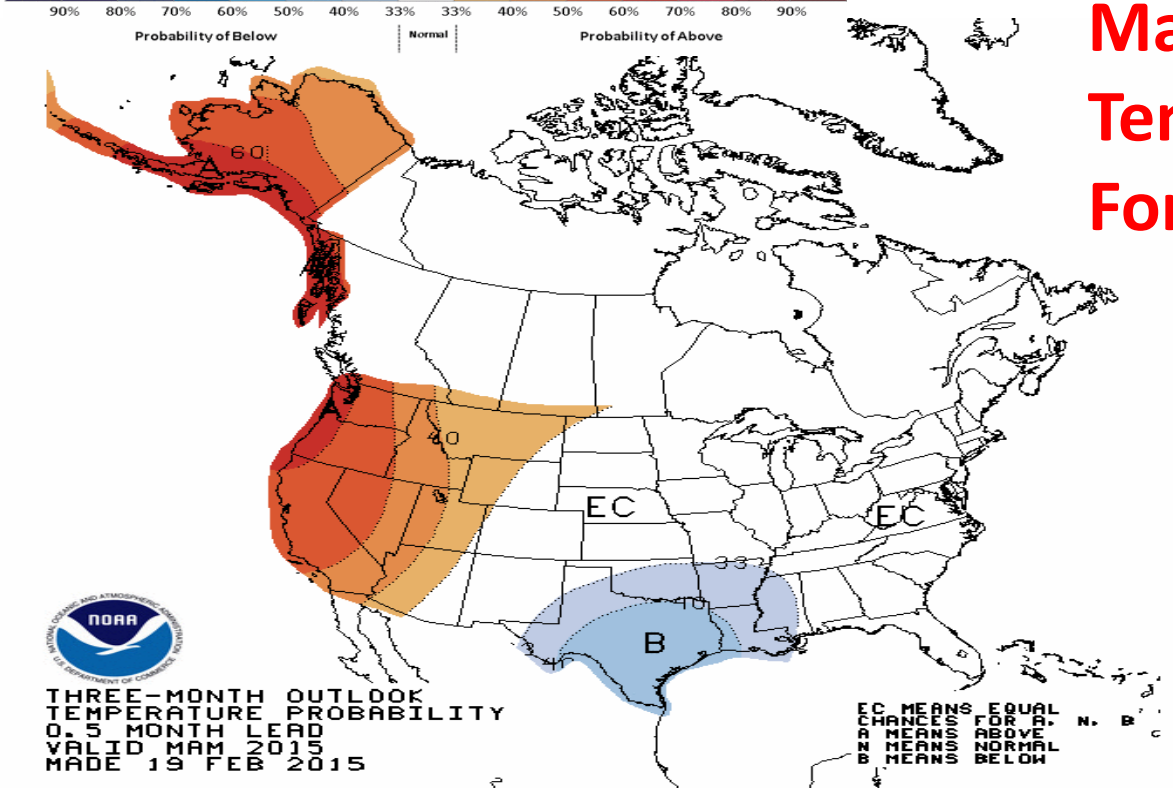


7-Day Total Precipitation Mar 17-24

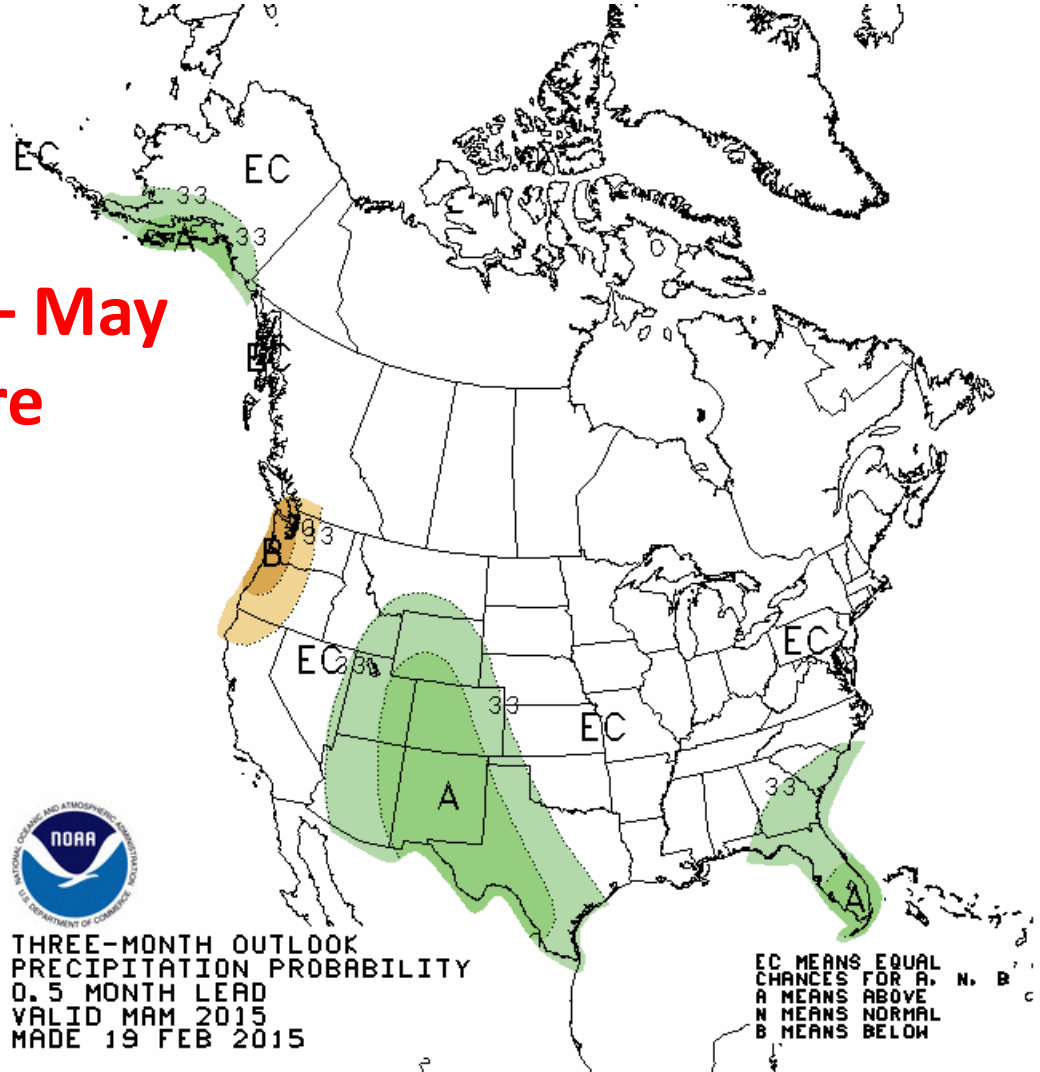
Mar 23-29 Temperature Forecast



Mar – Apr – May Temperature Forecast



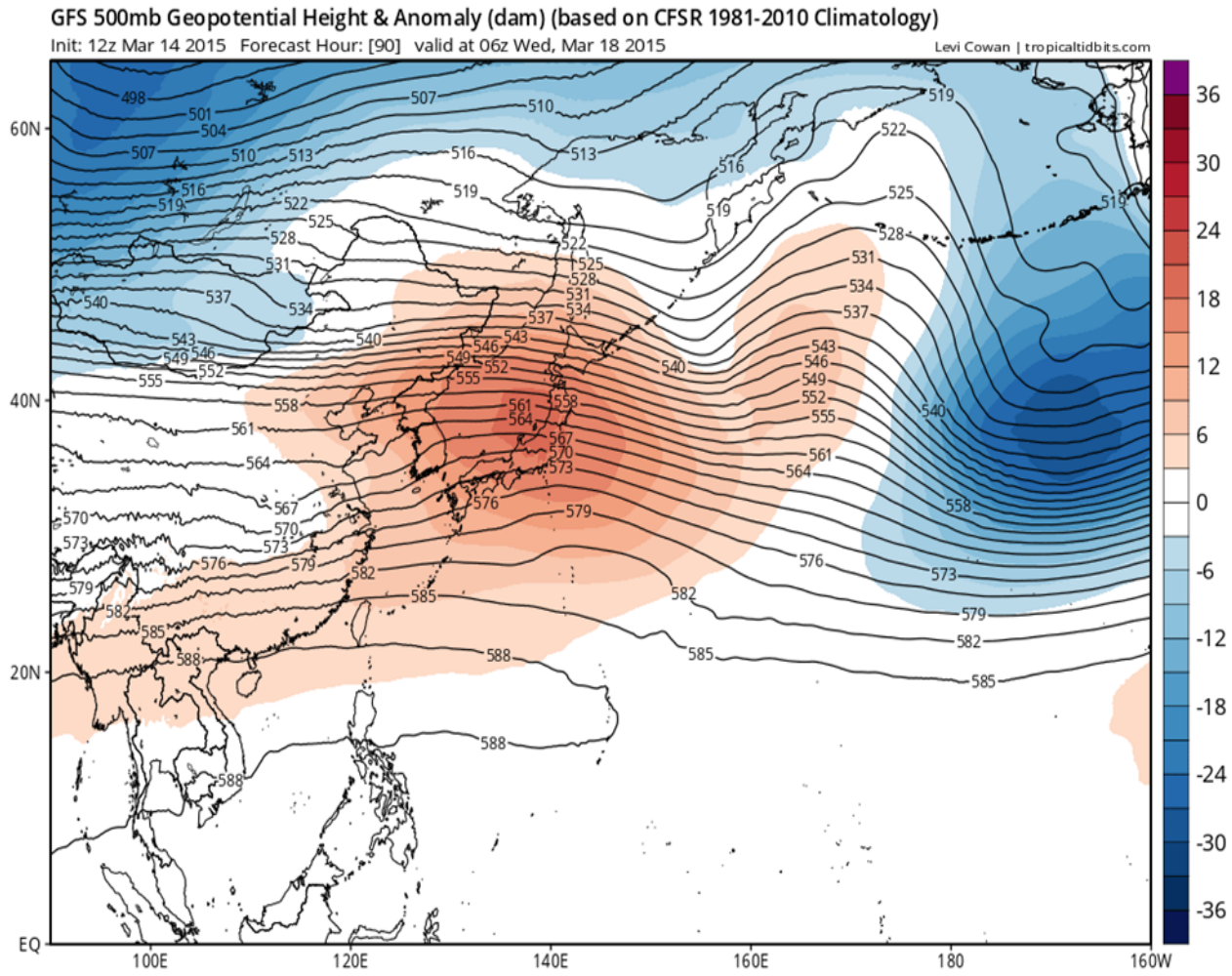
Mar – Apr – May Precipitation Forecast



Wintry Blast Expected to Close March, Open April

Posted: 15 Mar 2015 03:28 PM PDT

After a warmer ending to March, it is expected that a cold air mass will deliver one of the last punches of wintry weather to the country.



In a nutshell, this means very cold weather is expected about 6-10 days later, likely in the very final days of March and the first week or so of April…..

… this will likely be more of a strong cold blast, as opposed to a deep freeze.

To summarize:

- Predominantly warm weather is expected to persist through the end of March.

- The last few days of March and first week of April could see a shot of rather strong cold weather. Andrew

Capital Press
The West's Ag Website
THE WEST'S AG WEEKLY SINCE 1928 • MARCH 16,

Douglas calls for spring, summer moisture

Matthew Weaver
Capital Press

Published:
February 3, 2015 3:24PM

Creighton University professor emeritus Art Douglas addresses farmers at the Spokane Ag Expo and Pacific Northwest Farm Forum Feb. 3 in Spokane. MATTHEW WEAVER/CAPITAL PRESS
Buy this photo

Creighton University professor emeritus Art Douglas forecasts a cool, wet spring and summer, with moisture likely coming in April in the Pacific Northwest.

SPOKANE — A celebrated weatherman predicts a cool, wet spring and summer, but a continued El Niño could delay planting in the fall for the Northwest region.

Art Douglas, professor emeritus at Creighton University in Omaha, Neb., and a mainstay at the Spokane Ag Expo, addressed farmers at the event.

Douglas expects warm temperatures to persist in the western United States through February, keeping precipitation below normal levels.

"This is not a real good pattern for trying to get some much-needed rain into the western U.S.," Douglas said.

Douglas expects warm temperatures to persist in the western United States through February, keeping precipitation below normal levels.

"This is not a real good pattern for trying to get some much-needed rain into the western U.S.," Douglas said.

April is the best chance for spring precipitation in the Pacific Northwest, Douglas said.

Douglas predicts cool temperatures and moisture in the region through June and July. Weather could delay planting in the Midwest.

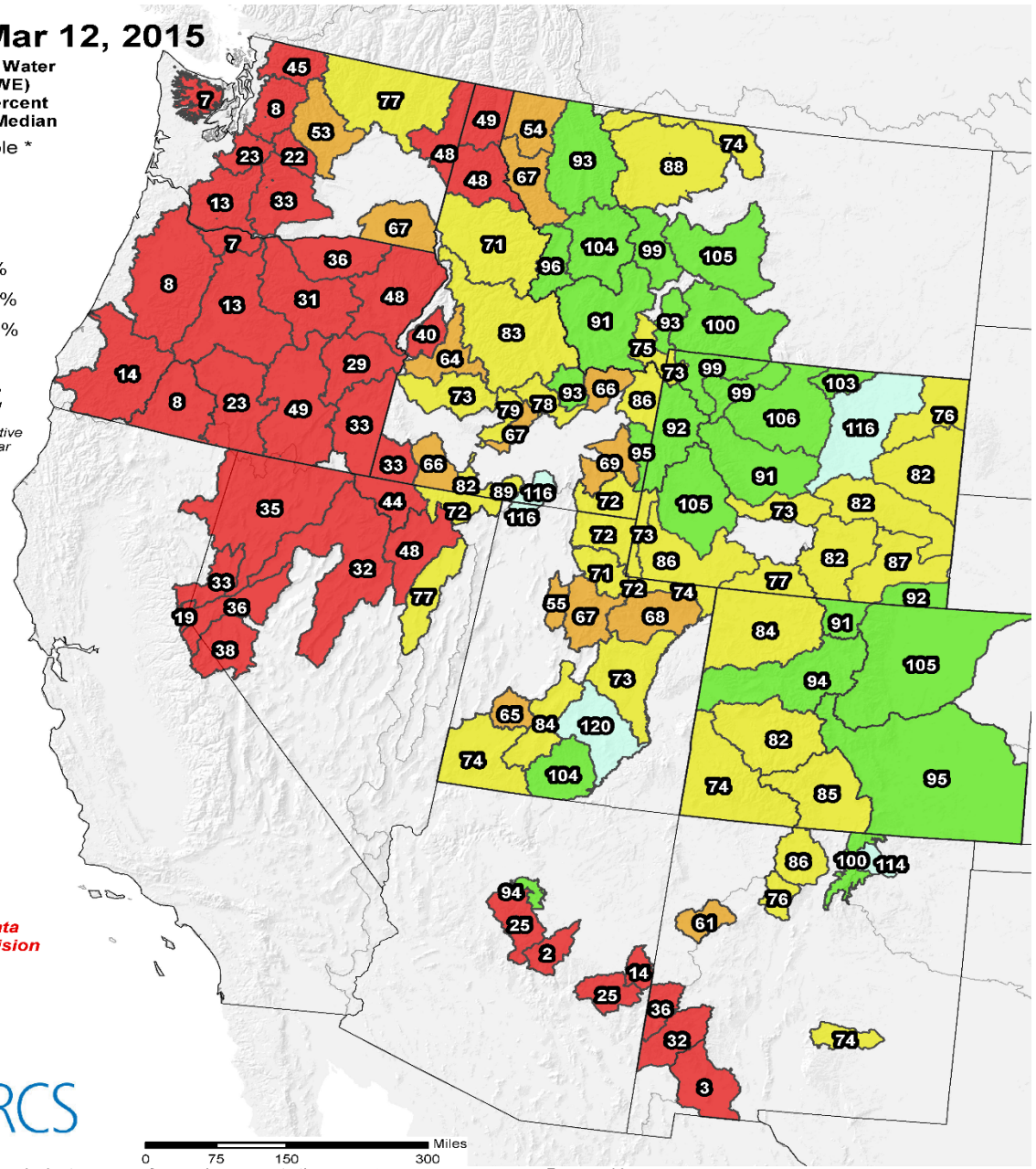
Westwide SNOTEL Current Snow Water Equivalent (SWE) % of Normal

Mar 12, 2015

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

- unavailable *
- <50%
- 50 - 69%
- 70 - 89%
- 90 - 109%
- 110 - 129%
- 130 - 149%
- >= 150%

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



Provisional data subject to revision

USDA NRCS

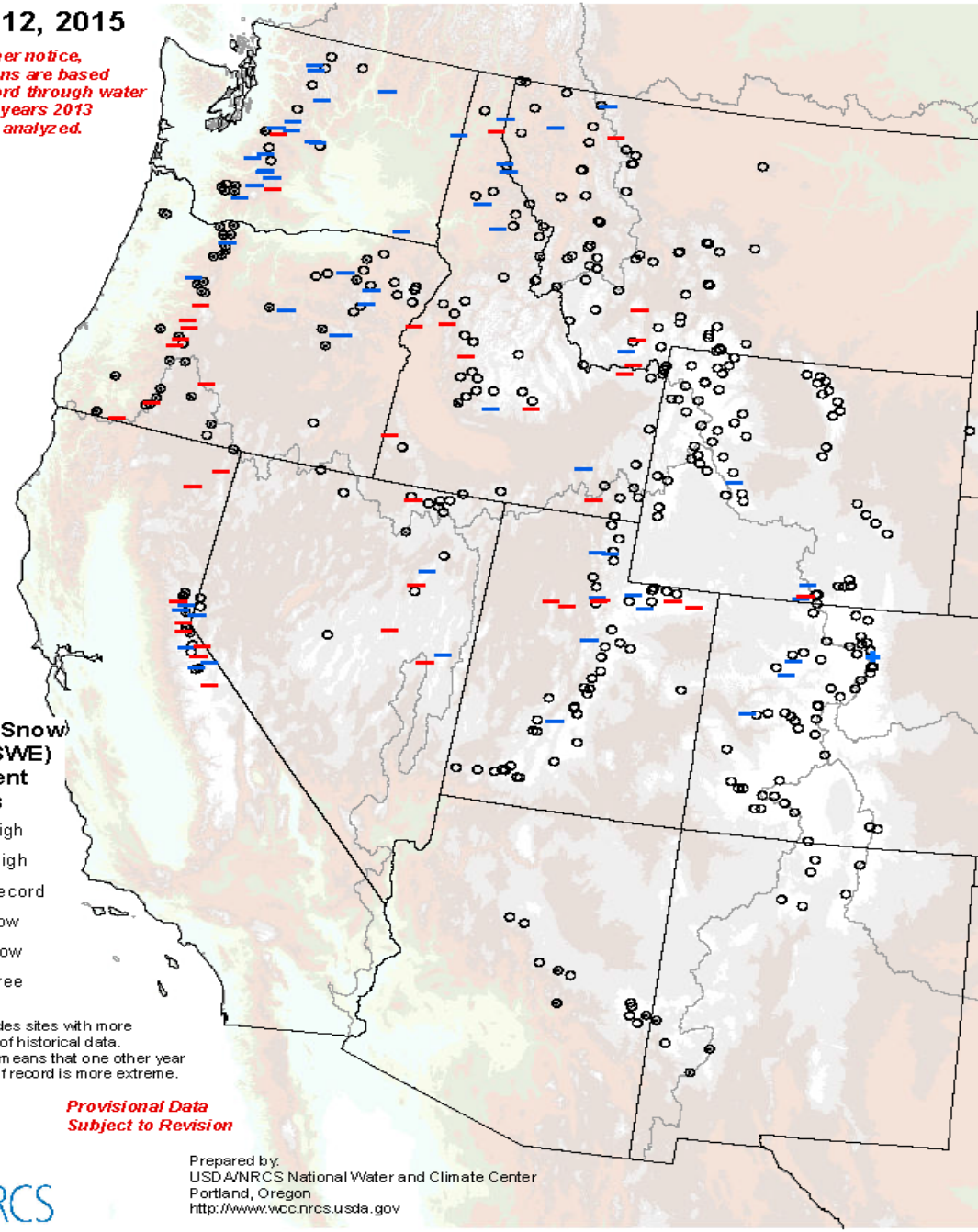
The snow water equivalent percent of normal represents the current snow water equivalent found at selected SNOTEL sites in or near the basin compared to the average value for those sites on this day. Data based on the first reading of the day (typically 00:00).

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

SNOTEL Current Snow Water Equivalent (SWE) Records

Mar 12, 2015

NOTE: Until further notice, record calculations are based on period of record through water year 2012; water years 2013 and 2014 are not analyzed.



Current Snow Water (SWE) Equivalent Records

- New High
- Near High
- Non-Record
- New Low
- Near Low
- snow free

Analysis includes sites with more than 20 years of historical data.
"Near" record means that one other year of the period of record is more extreme.

Provisional Data Subject to Revision

USDA NRCS

Prepared by:
USDA/NRCS National Water and Climate Center
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Westwide SNOTEL Water Year (Oct 1) to Date Precipitation % of Normal

Mar 12, 2015

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

- unavailable *
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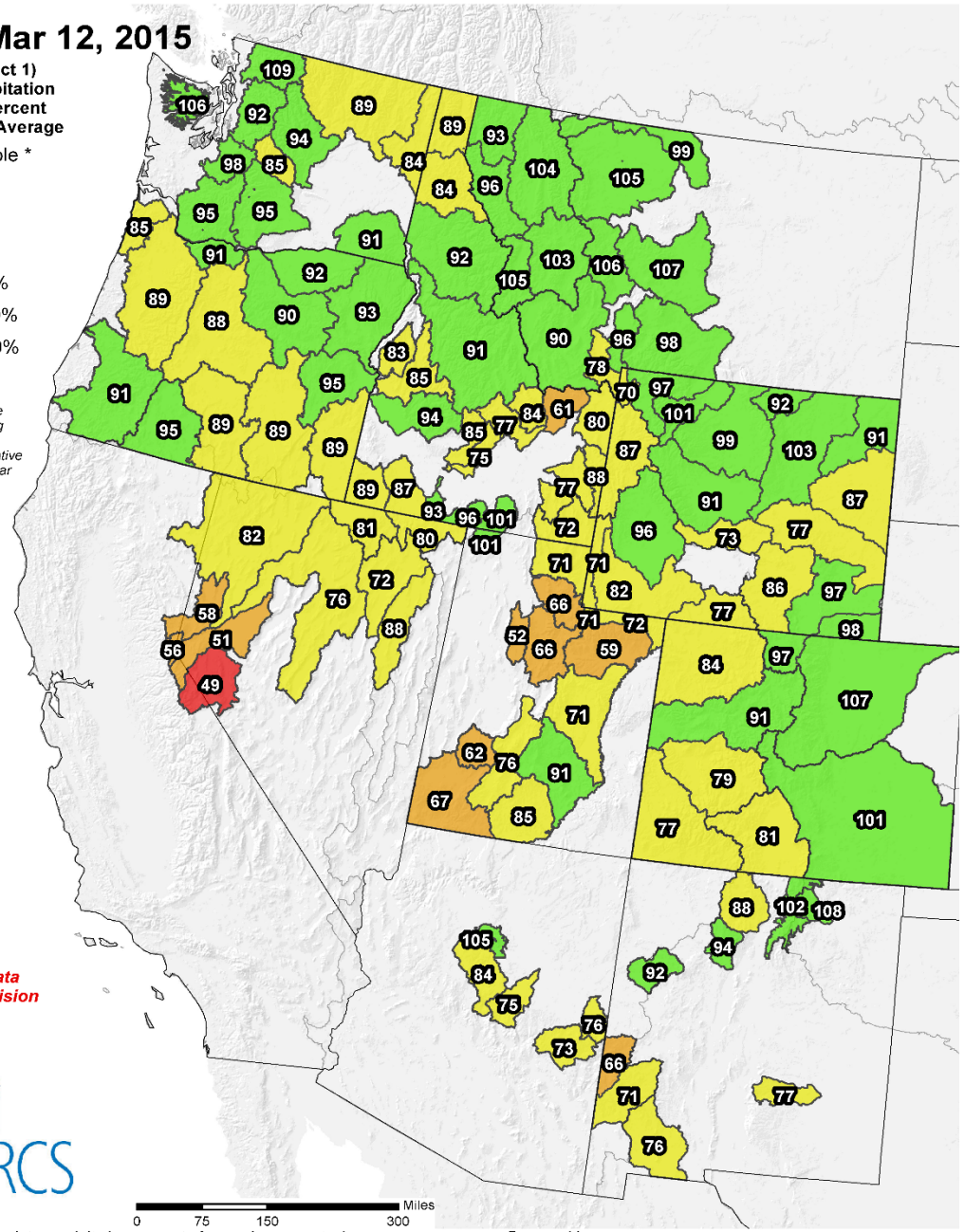

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USDA NRCS

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).

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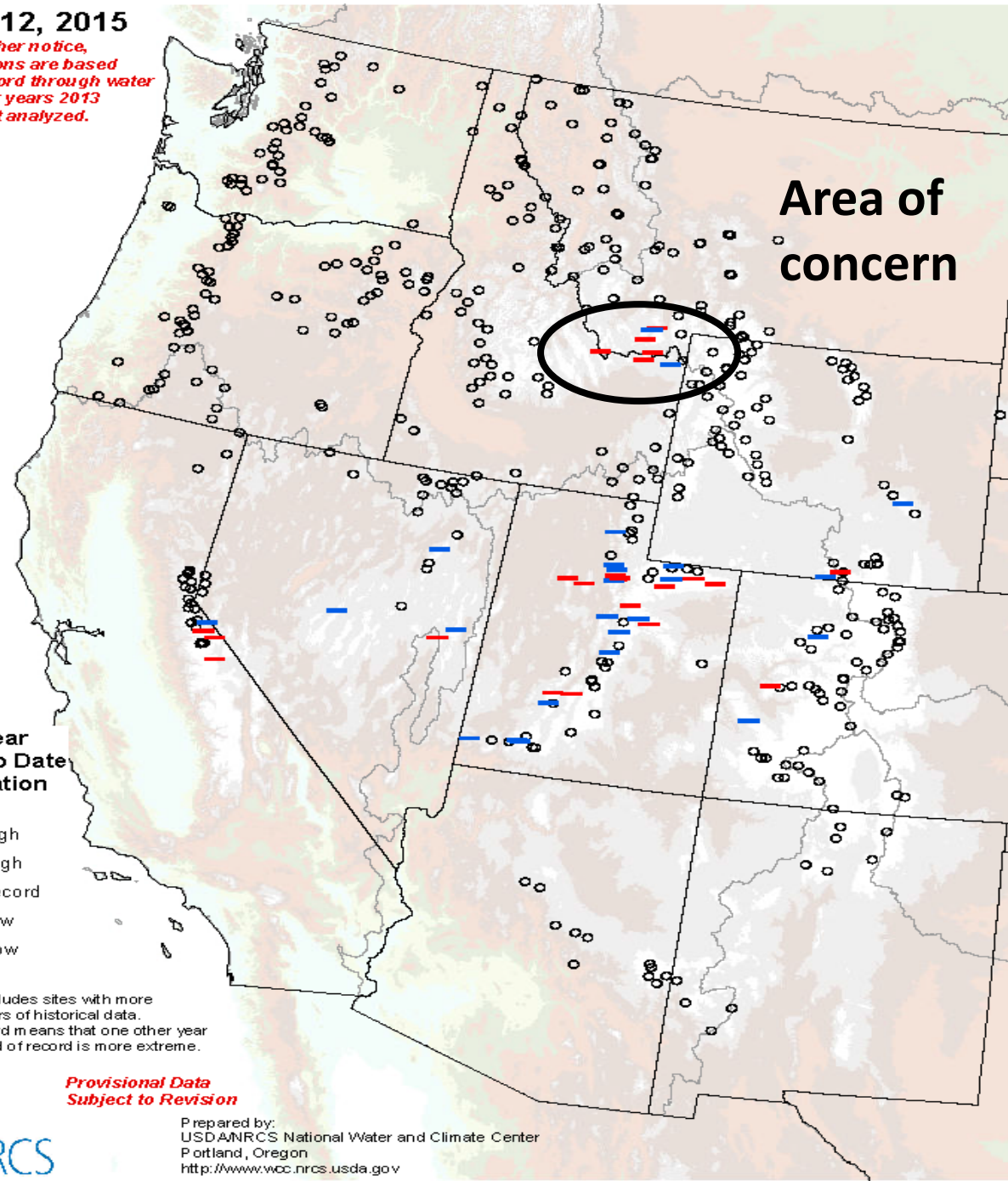
SNOTEL Water Year (Oct 1) to Date Precipitation Records

Mar 12, 2015

NOTE: Until further notice, record calculations are based on period of record through water year 2012; water years 2013 and 2014 are not analyzed.

Area of concern



Water Year (Oct 1) to Date Precipitation Records

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USDA NRCS

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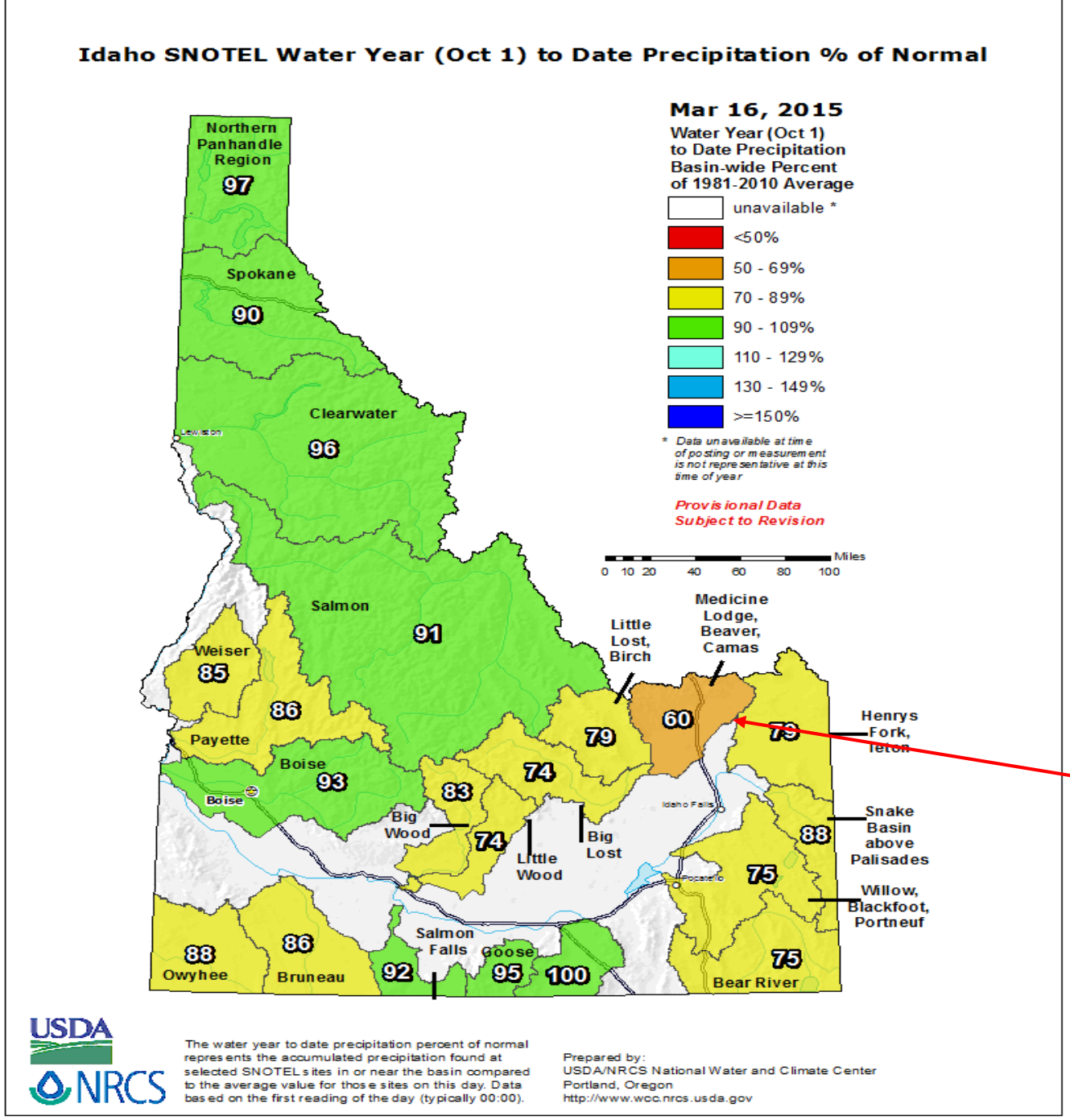
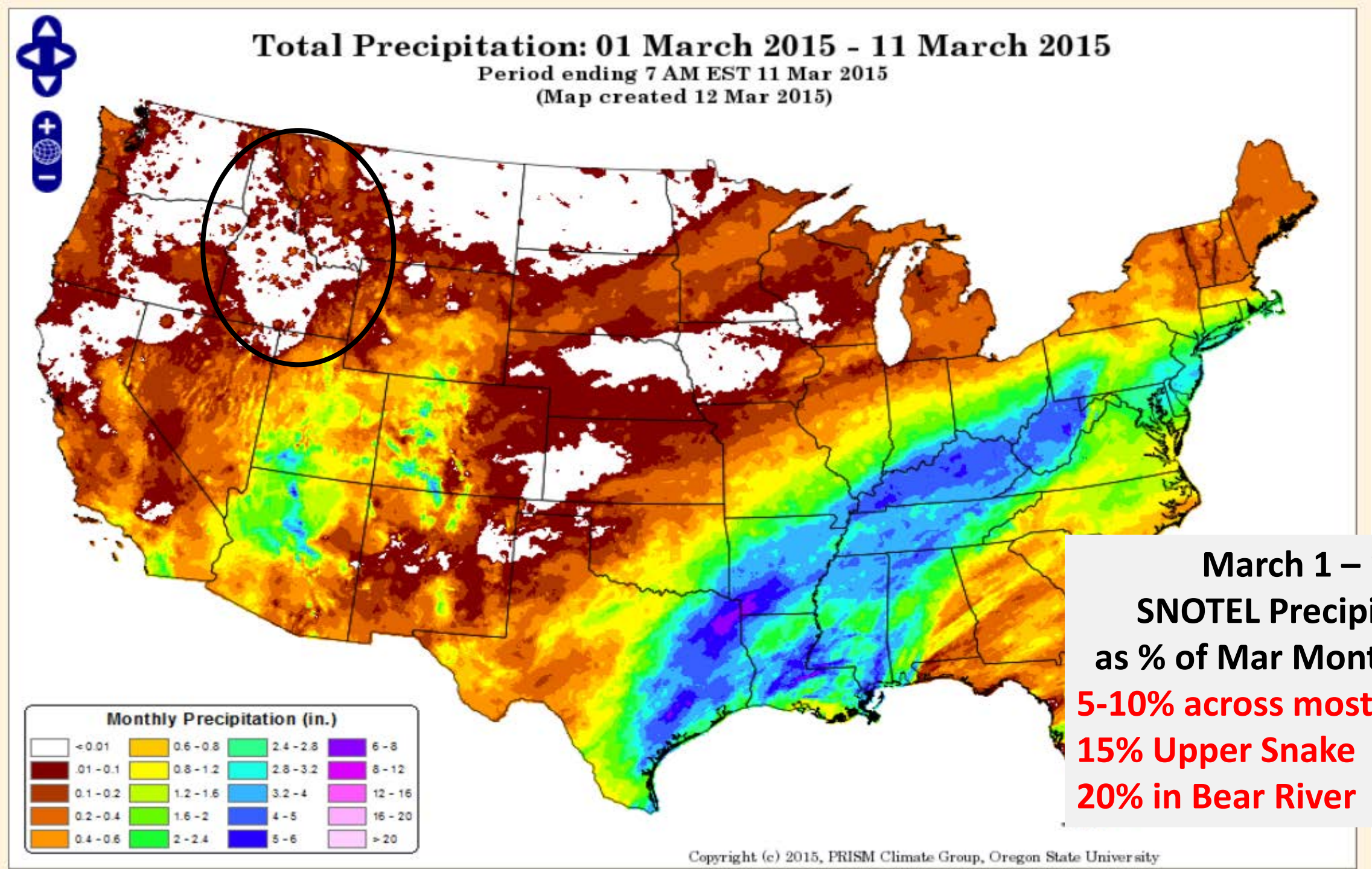


Water year to date precipitation lowest is in Mud Lake area (Medicine Lodge, Beaver, Camas basins) at only 60% of average

Similar winter & spring pattern as last year - ??

CA storm track is missing



March 1 – 12

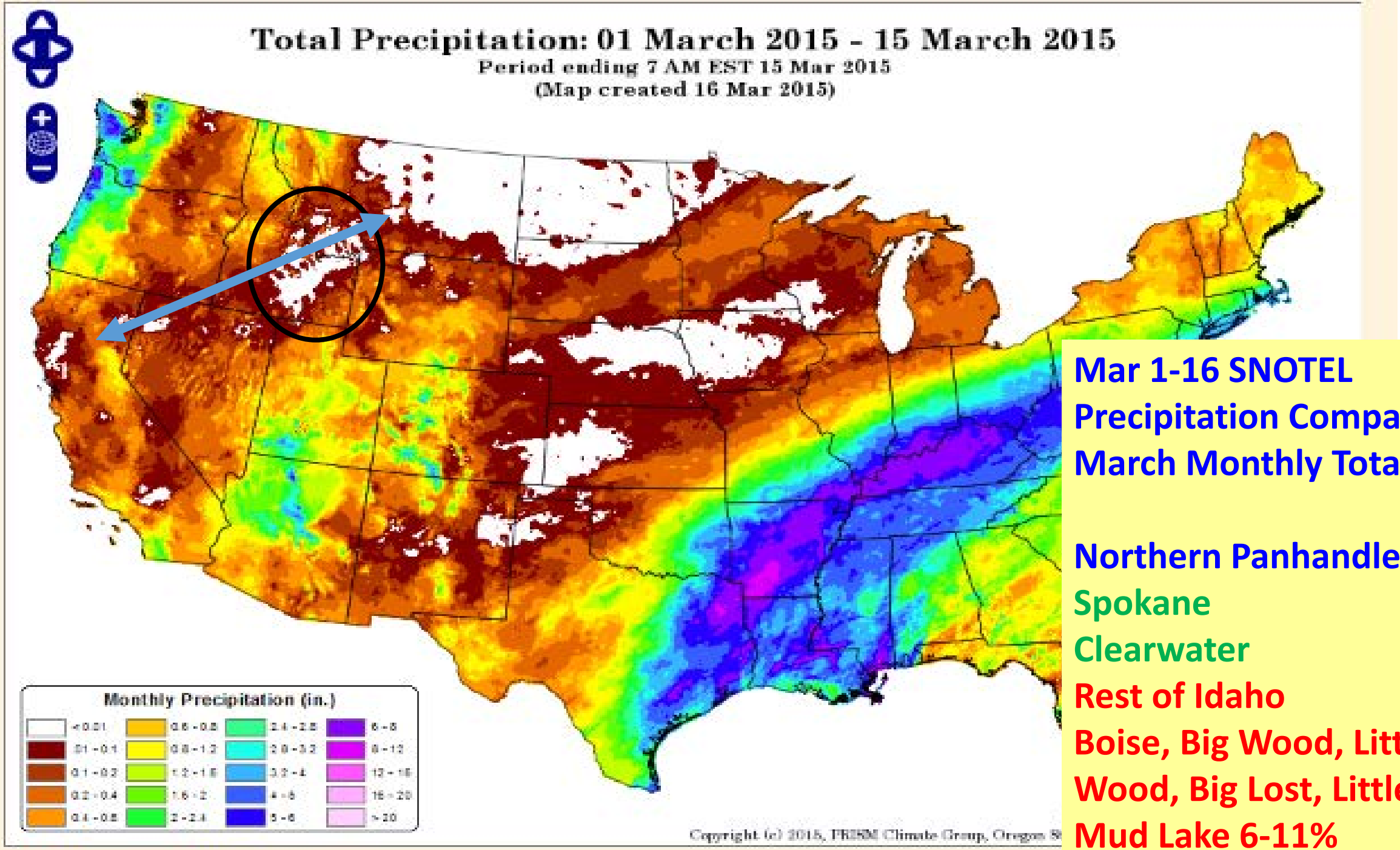
SNOTEL Precipitation

as % of Mar Monthly Total

5-10% across most of Idaho

15% Upper Snake

20% in Bear River



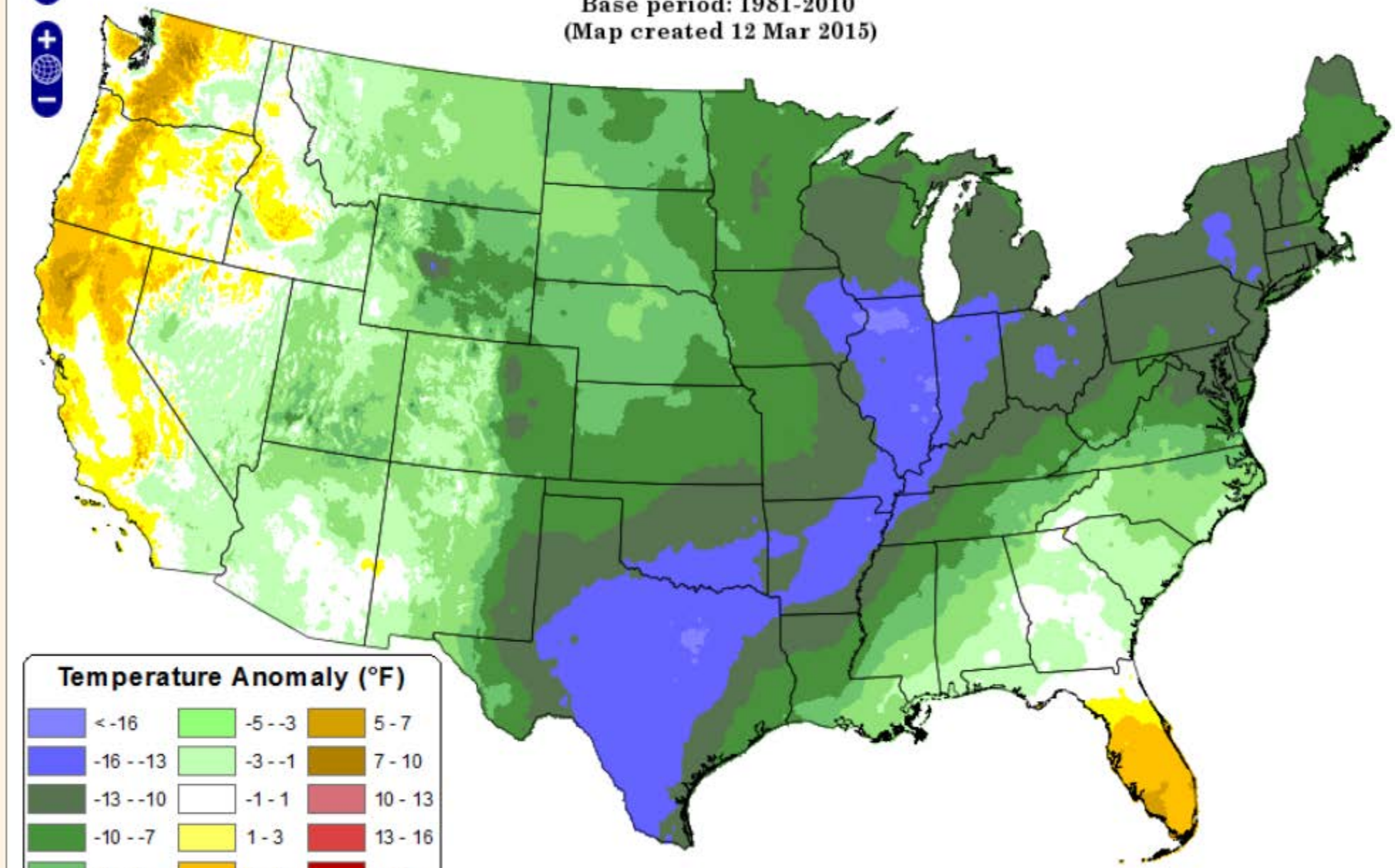
Mar 1-16 SNOTEL Precipitation Compared to March Monthly Total:

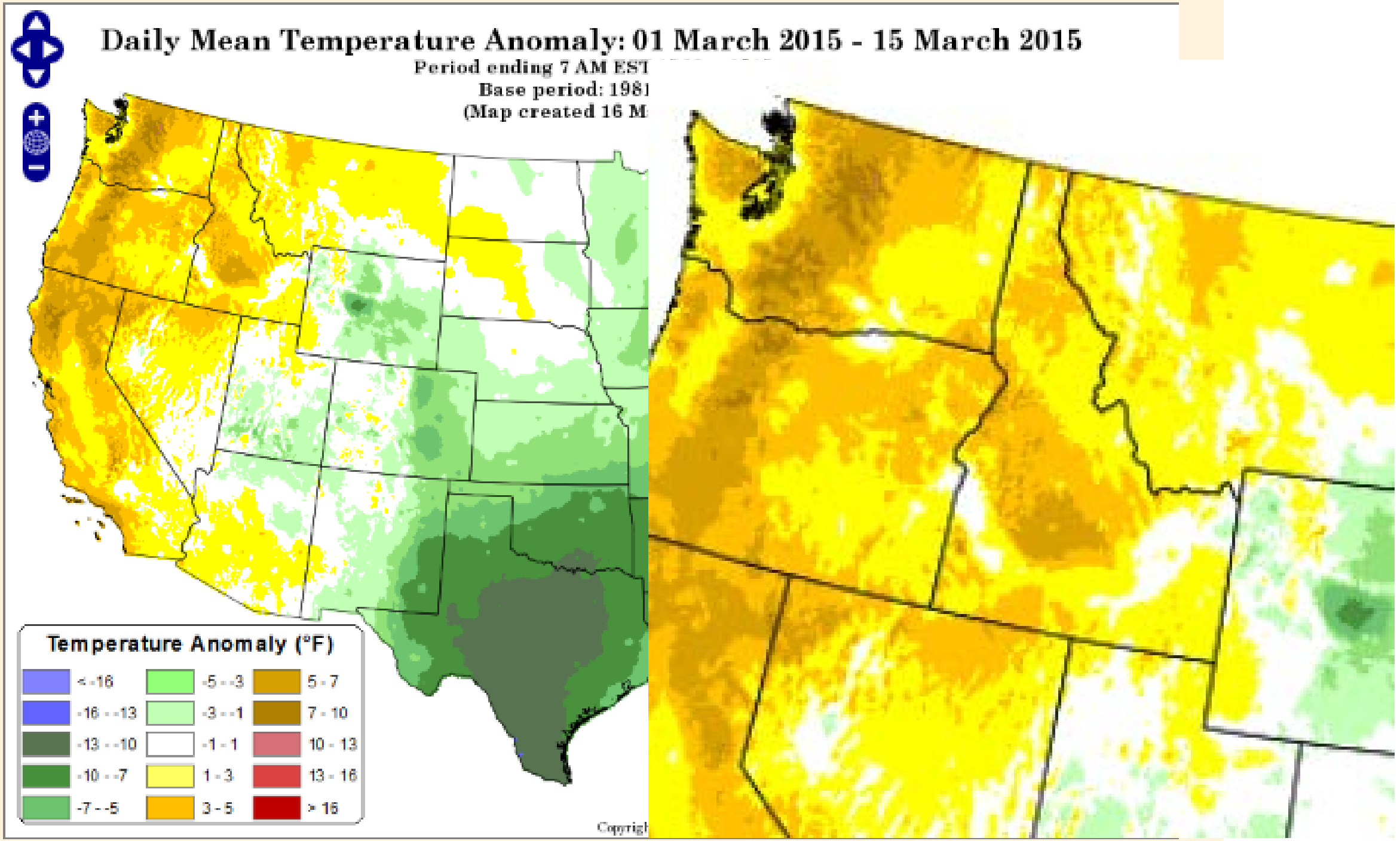
Northern Panhandle	64%
Spokane	50%
Clearwater	37%
Rest of Idaho	6-25%

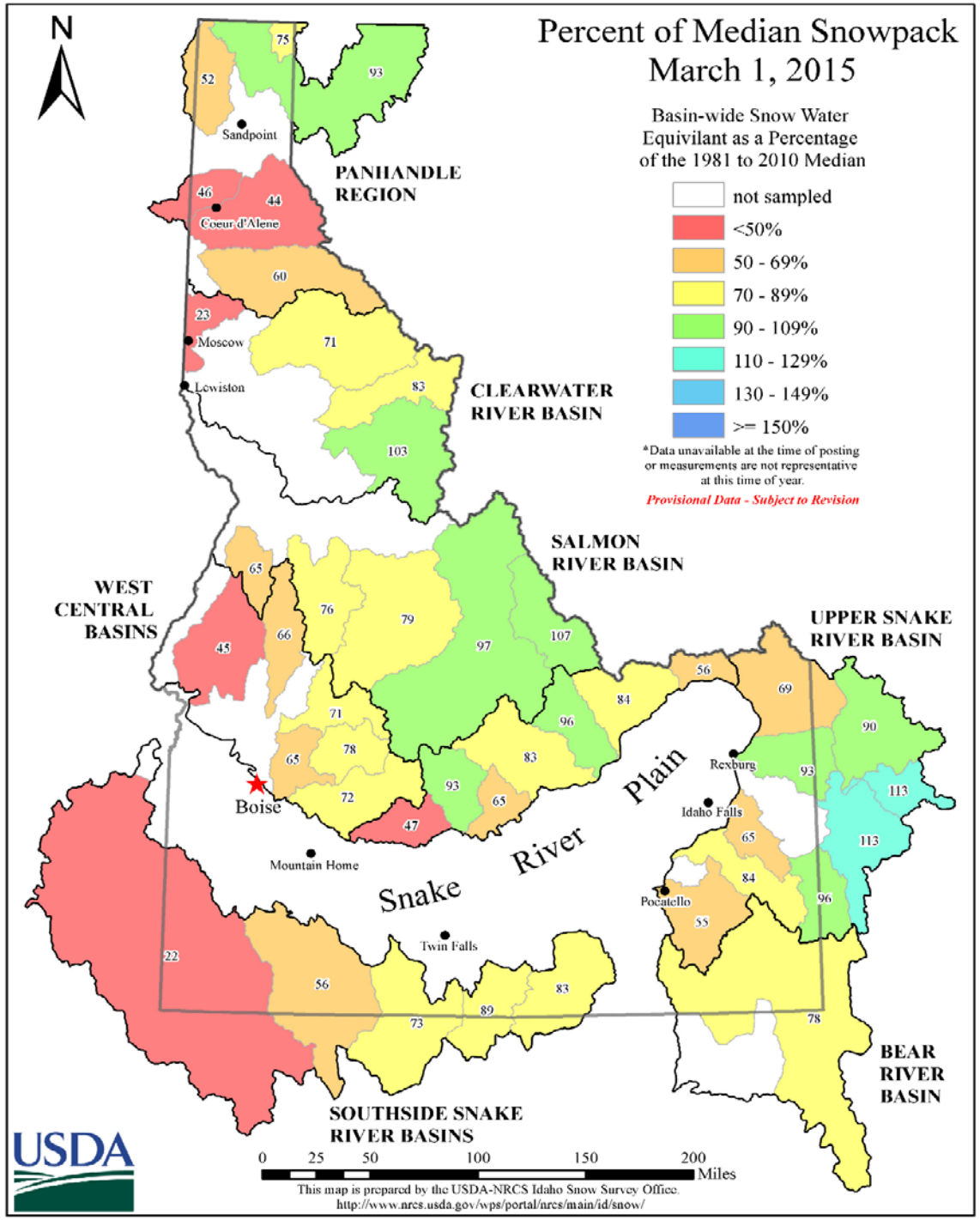
Boise, Big Wood, Little Wood, Big Lost, Little Lost & Mud Lake 6-11%

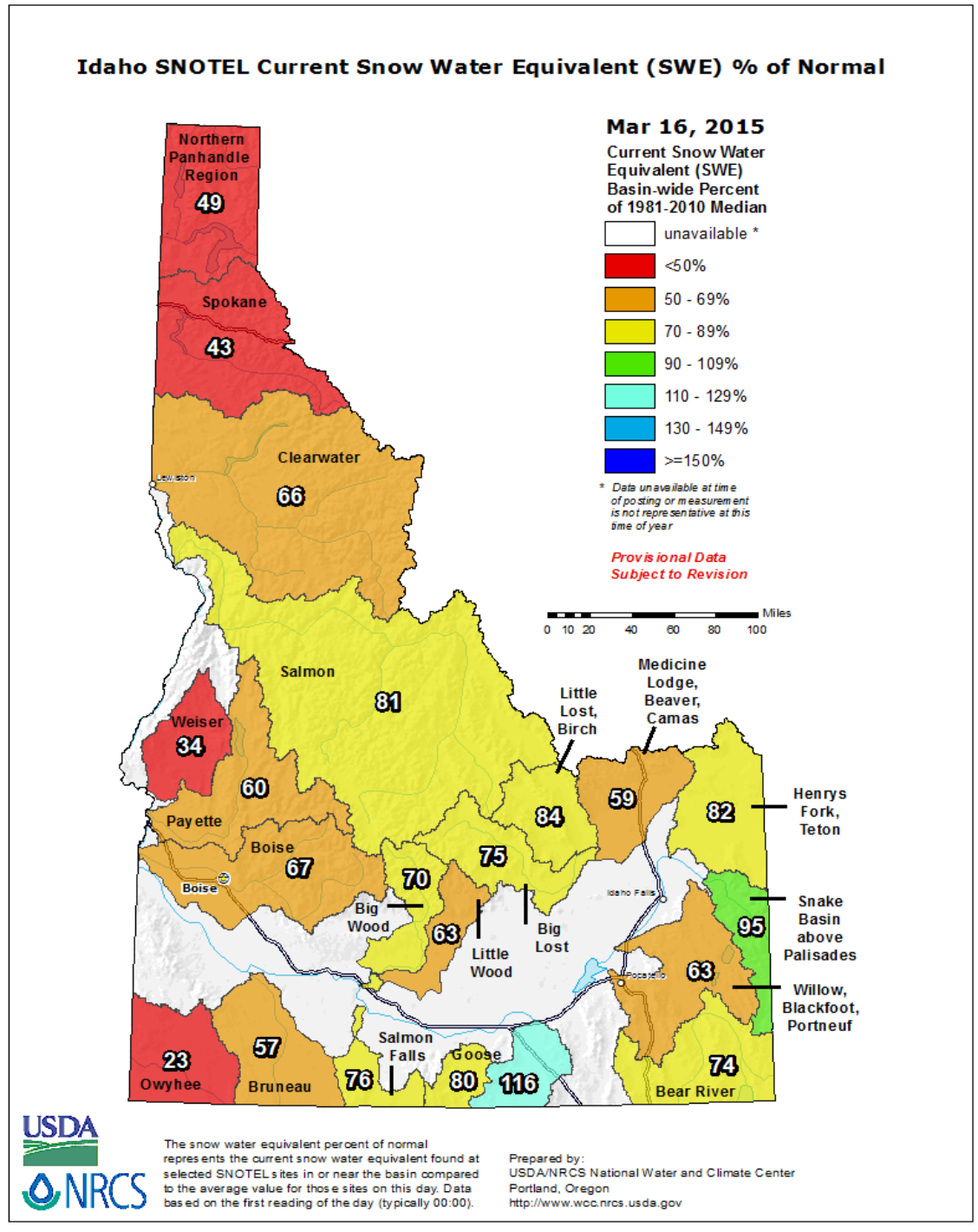
Daily Mean Temperature Anomaly: 01 March 2015 - 11 March 2015

Period ending 7 AM EST 11 Mar 2015
Base period: 1981-2010
(Map created 12 Mar 2015)

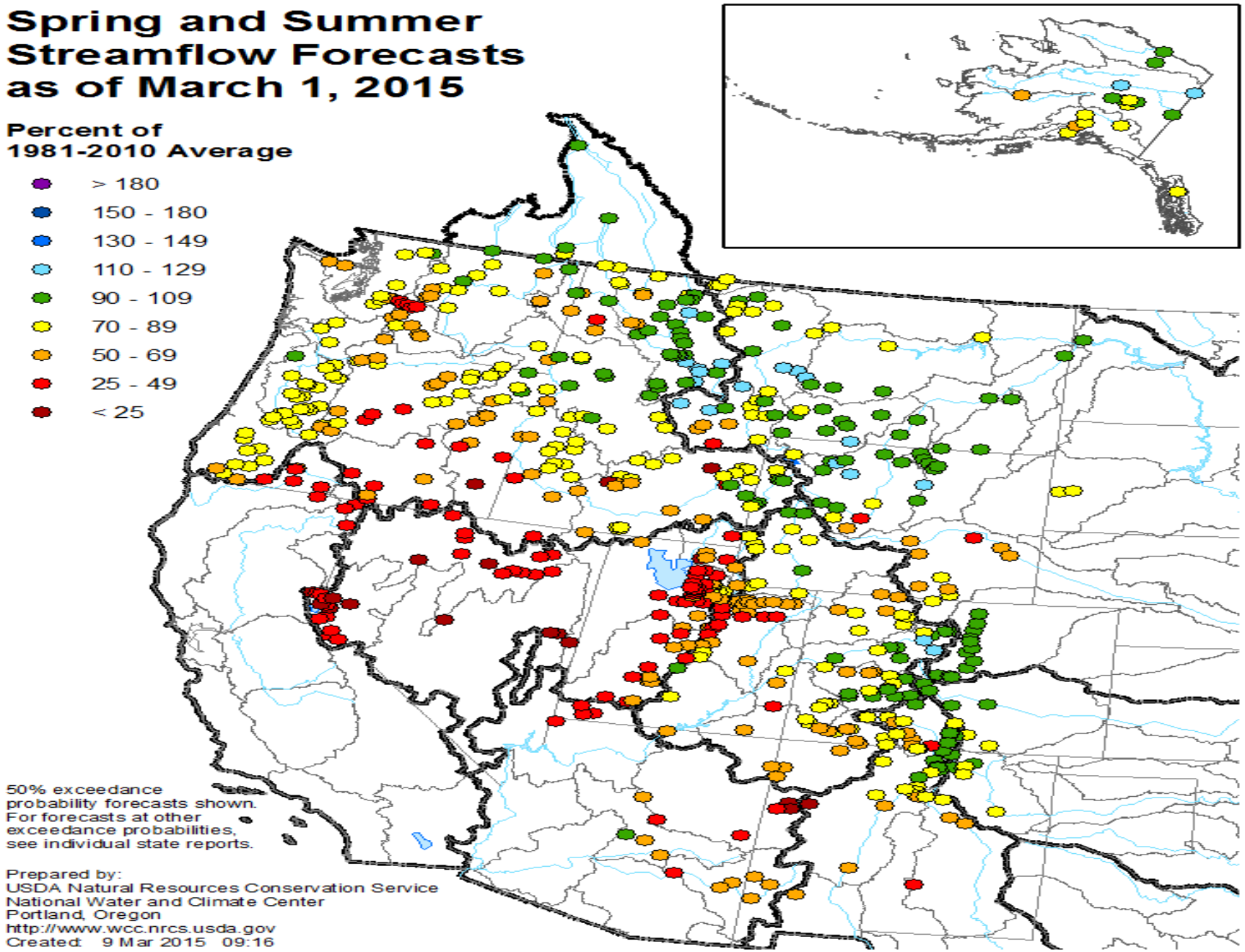



Daily Mean Temperature Anomaly: 01 March 2015 - 15 March 2015
Period ending 7 AM EST
Base period: 198
(Map created 16 M
Temperature Anomaly (°F)
< -16
-16 - -13
-13 - -10
-10 - -7
-7 - -5
-5 - -3
-3 - -1
-1 - 1
1 - 3
3 - 5
5 - 7
7 - 10
10 - 13
13 - 16
> 16


Percent of Median Snowpack
March 1, 2015
Basin-wide Snow Water Equivilant as a Percentage of the 1981 to 2010 Median
not sampled
<50%
50 - 69%
70 - 89%
90 - 109%
110 - 129%
130 - 149%
>= 150%
*Data unavailable at the time of posting or measurements are not representative at this time of year.
Provisional Data - Subject to Revision
N
PANHANDLE REGION
CLEARWATER RIVER BASIN
SALMON RIVER BASIN
WEST CENTRAL BASINS
UPPER SNAKE RIVER BASIN
BEAR RIVER BASIN
SOUTHSIDE SNAKE RIVER BASINS
Snake River Plain
Sandpoint
Coeur d'Alene
Moscow
Lewiston
Boise
Mountain Home
Twin Falls
Pocatello
Idaho Falls
Rexburg
0 25 50 100 150 200 Miles
This map is prepared by the USDA-NRCS Idaho Snow Survey Office.
http://www.nrcs.usda.gov/wps/portal/nrcs/main/id/snow/
USDA


Idaho SNOTEL Current Snow Water Equivalent (SWE) % of Normal
Mar 16, 2015
Current Snow Water Equivalent (SWE) Basin-wide Percent of 1981-2010 Median
unavailable *
<50%
50 - 69%
70 - 89%
90 - 109%
110 - 129%
130 - 149%
>=150%
* Data unavailable at time of posting or measurement is not representative at this time of year
Provisional Data Subject to Revision
Miles
0 10 20 40 60 80 100
Northern Panhandle Region 49
Spokane 43
Clearwater 66
Salmon 81
Weiser 34
Payette 60
Boise 67
Little Lost, Birch 84
Medicine Lodge, Beaver, Camas 59
Henrys Fork, Teton 82
Big Wood 70
Little Wood 63
Big Lost 75
Snake Basin above Palisades 95
Willow, Blackfoot, Portneuf 63
Owyhee 23
Bruneau 57
Salmon Falls 76
Goose 80
116
Bear River 74
USDA
NRCS
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

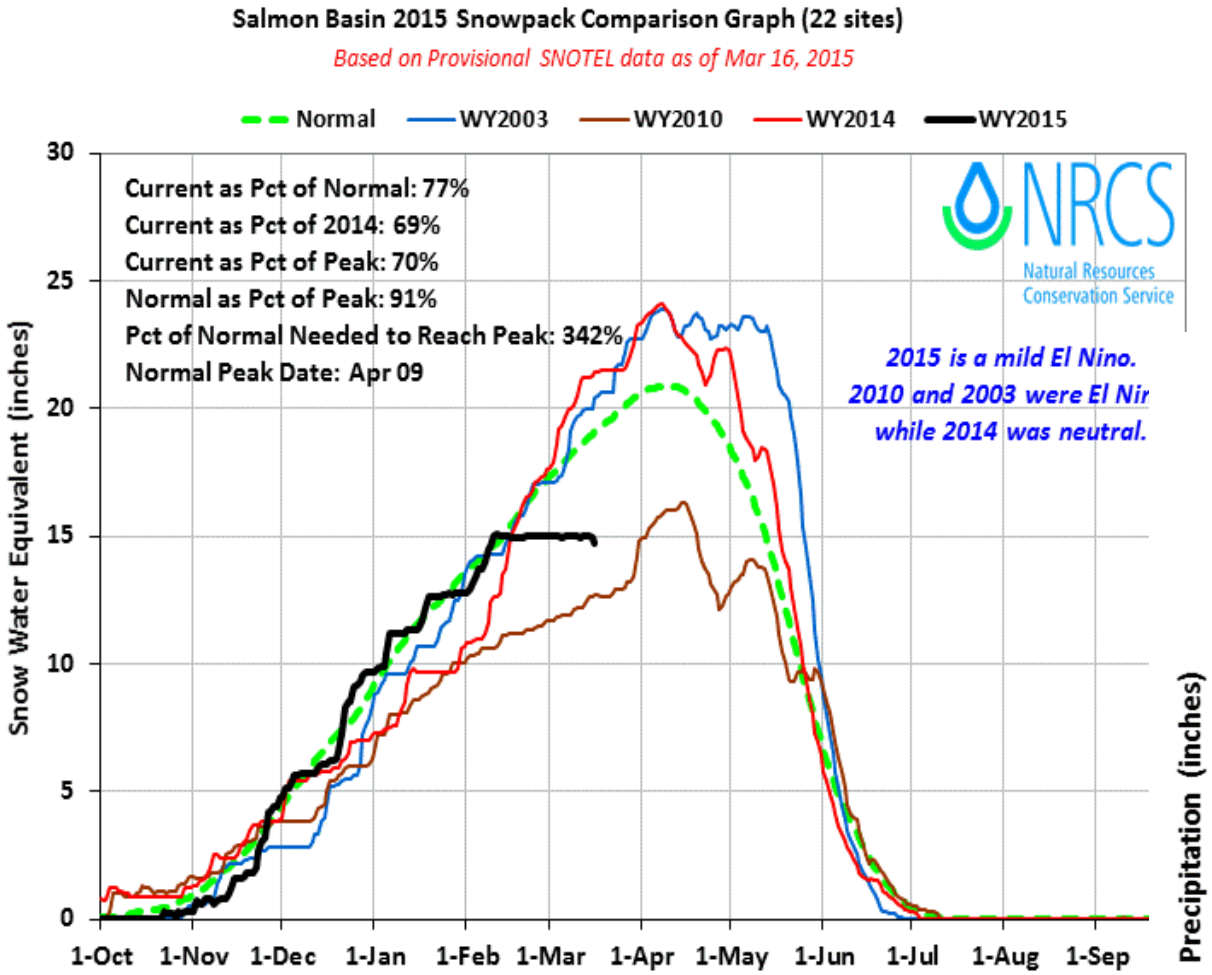
Spring and Summer Streamflow Forecasts as of March 1, 2015

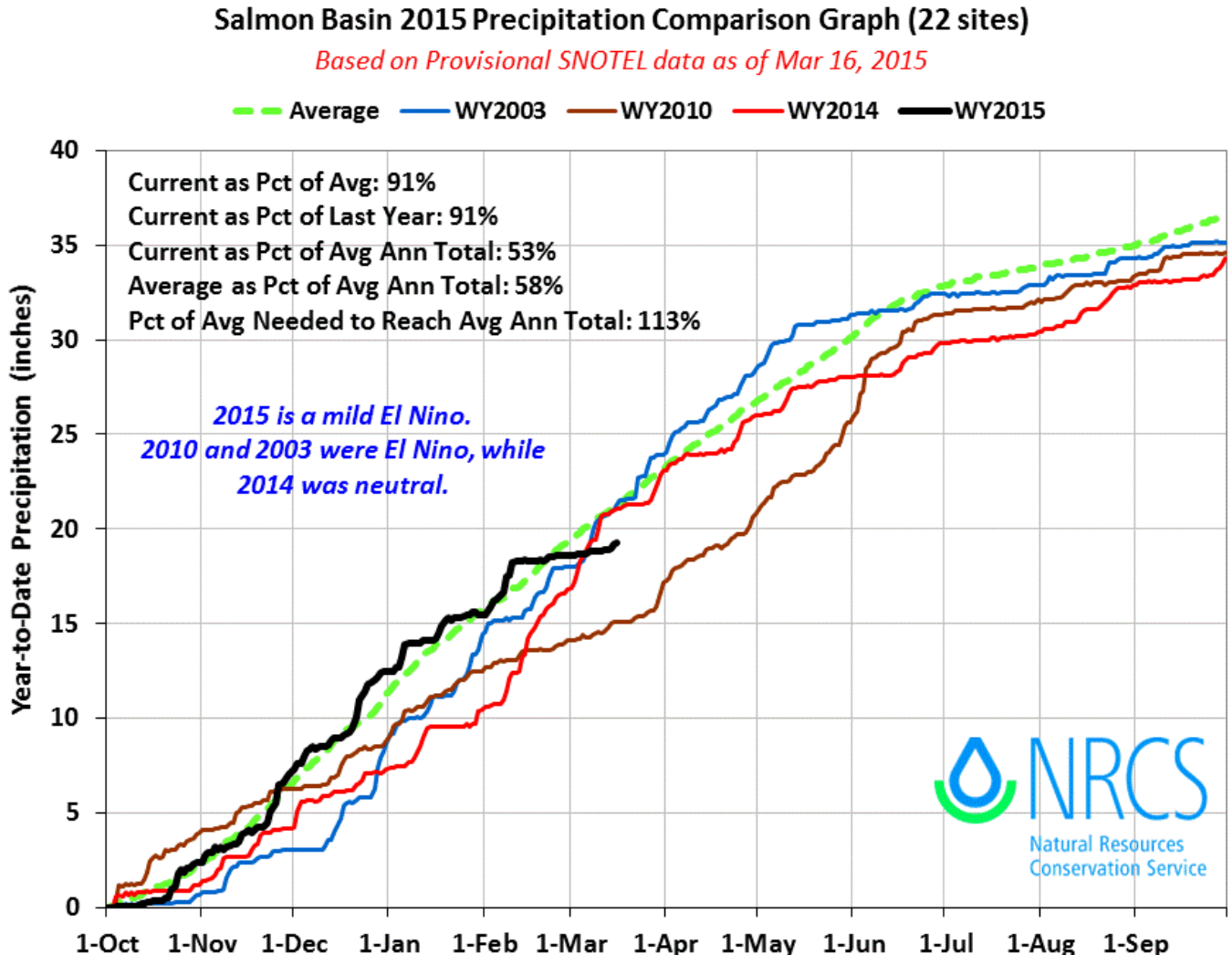


50% exceedance probability forecasts shown. For forecasts at other exceedance probabilities, see individual state reports.

Prepared by:
USDA Natural Resources Conservation Service
National Water and Climate Center
Portland, Oregon
http://www.wcc.nrcs.usda.gov
Created: 9 Mar 2015 09:16

Snow Drought – Water Year to Date Precipitation is near Normal





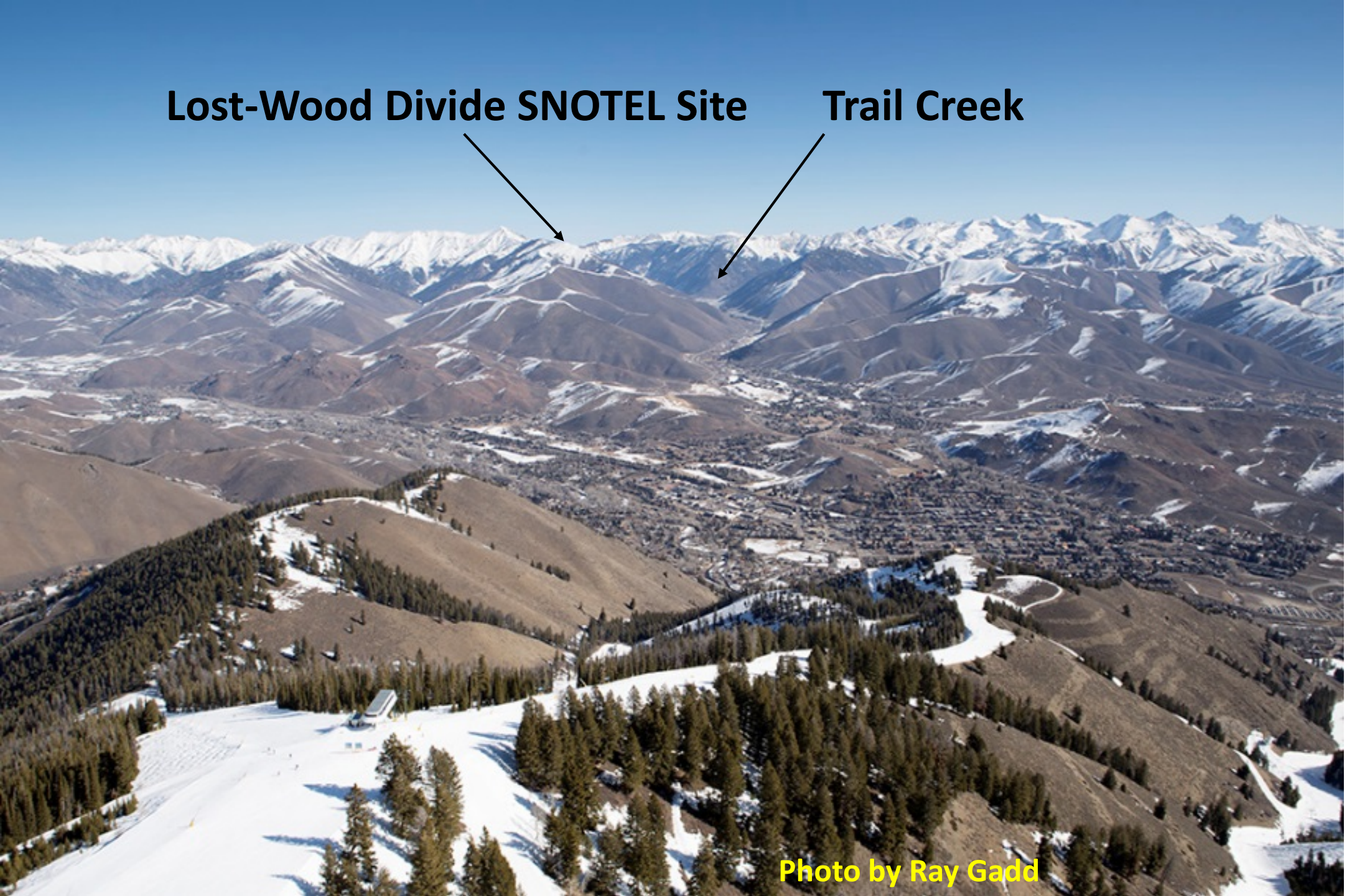
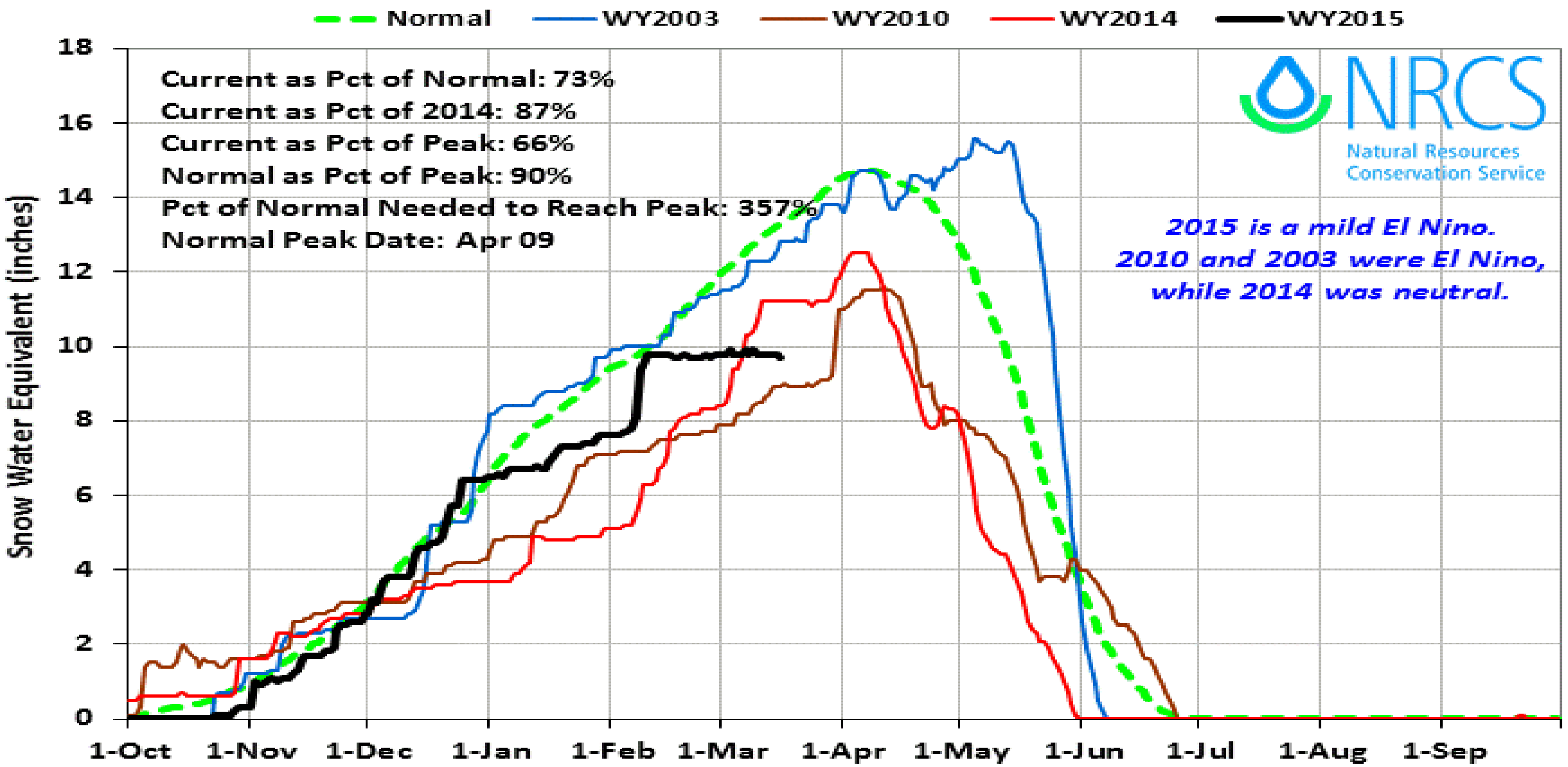


Photo taken by Ray Gadd March 11, 2015 looking east over Ketchum in Big Wood River valley illustrating lack of snow on south facing slopes.

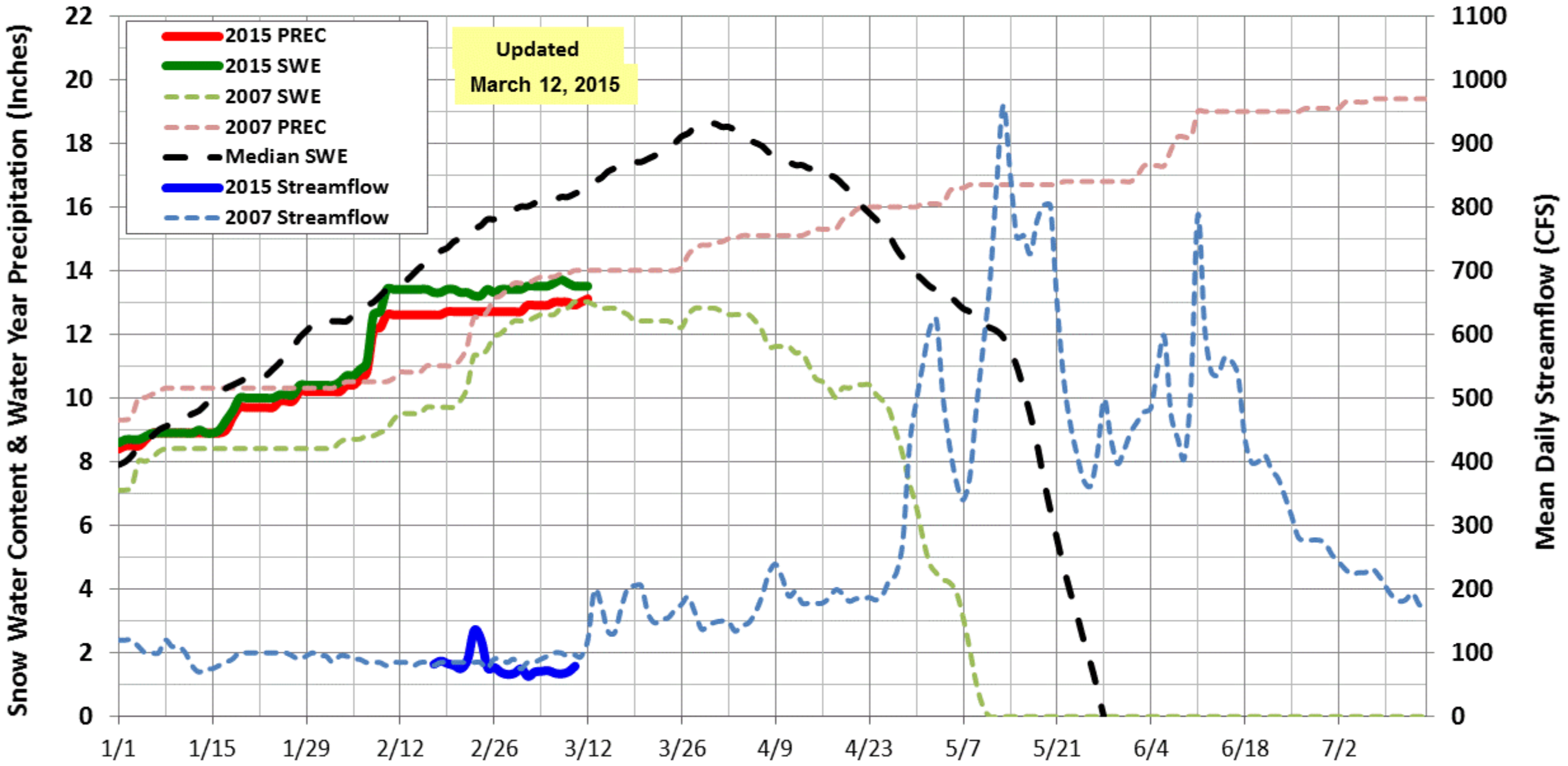
Big Lost Basin 2015 Snowpack Comparison Graph (5 sites)

Based on Provisional SNOTEL data as of Mar 16, 2015

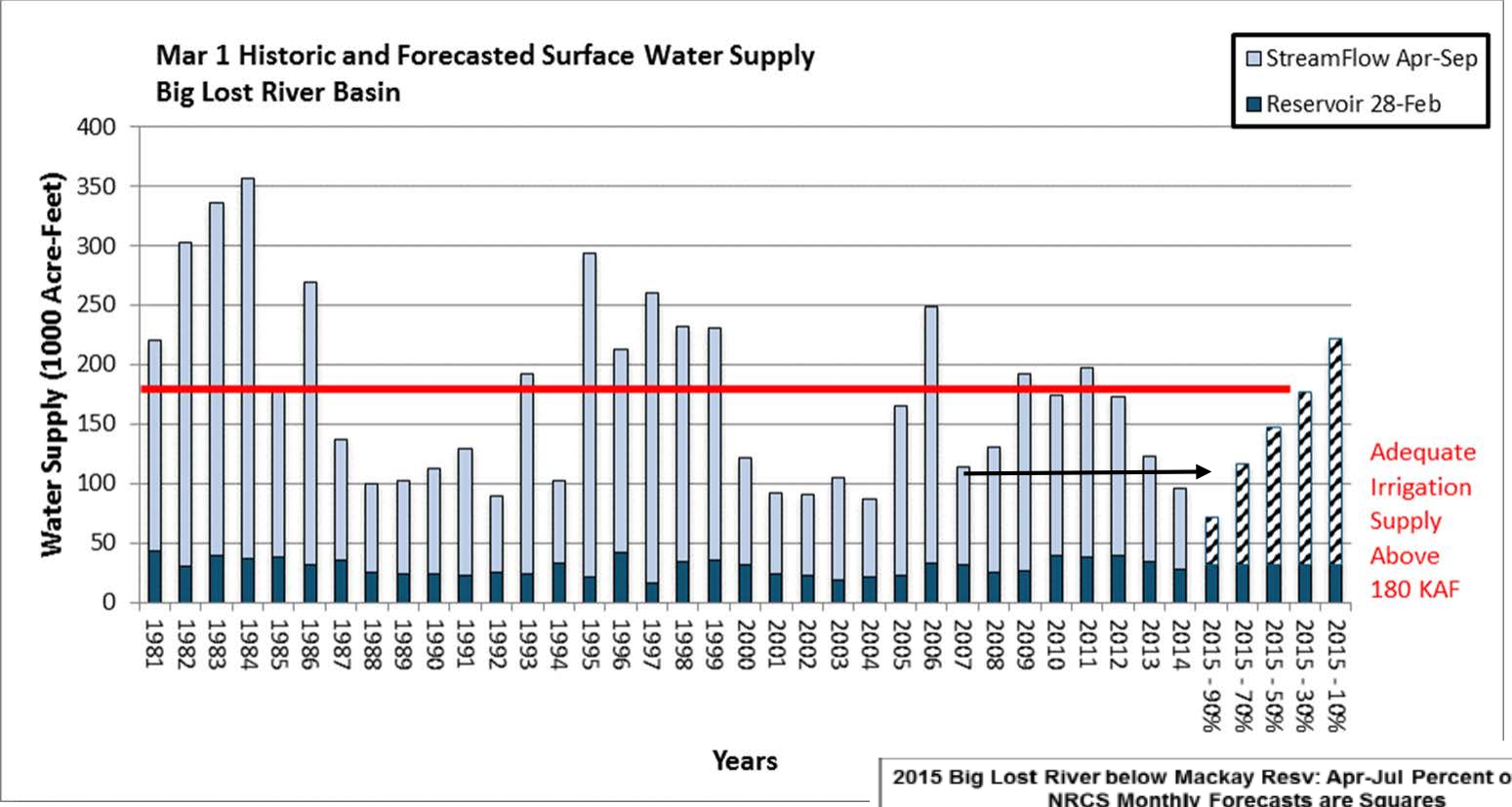


2015 & 2007 Lost Wood Divide SNOTEL and Big Lost River at Howell Ranch

USDA NRCS
United States Department of Agriculture
Natural Resources Conservation Service

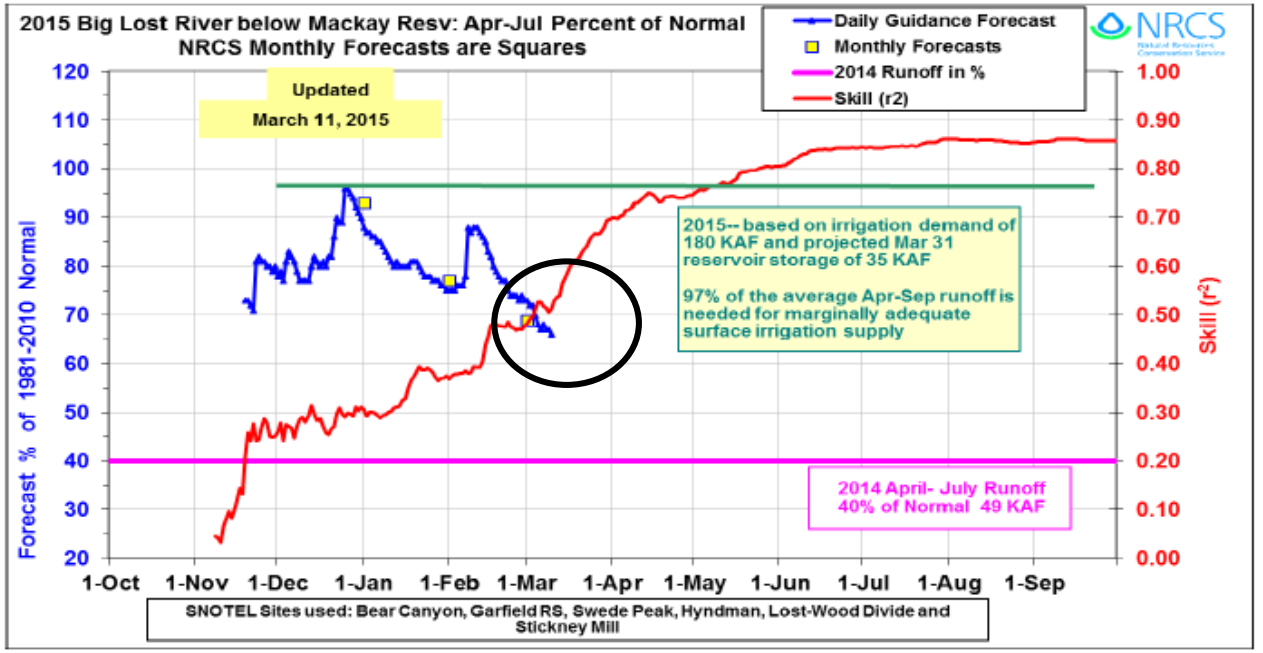


On average, Big Lost R at Howell Ranch increases in flow or has its snowmelt peak 4 days after Lost-Wood Divide melts out.



Big Lost River below Mackay Reservoir

Year	Runoff	
2007	55%	
1959	59%	
1977	51%	
2014	40%	
2015	69%	Forecast



Forecast Skill
~0.5 on March 1

Big Lost at Howell Ranch nr Chilly ID

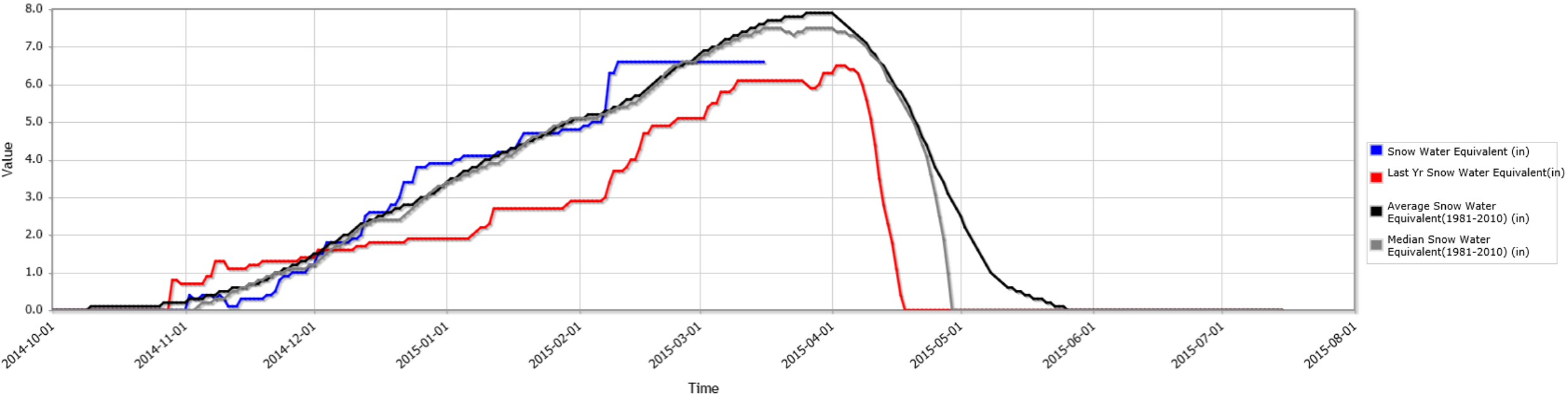
Summary:

On average (50% probability) peak streamflow occurs:

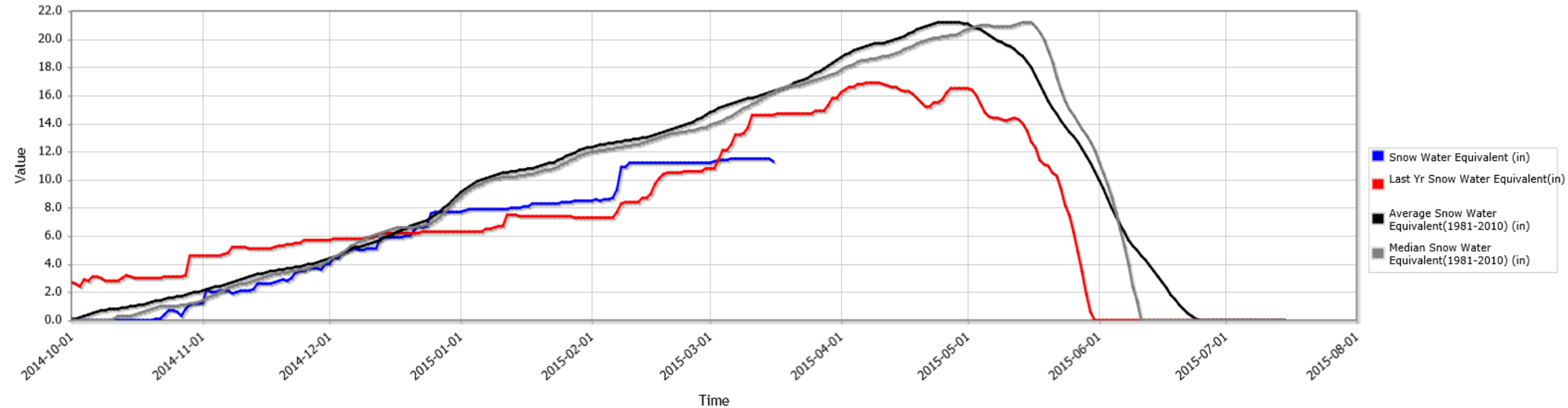
- **~ 1 day after Smiley Mountain SNOTEL site reaches 40% melt-out**
- **~ 2 days after Bear Canyon SNOTEL site has reached complete (100%) melt-out**
- **~ 32 days after Stickney Mill SNOTEL site has reached complete (100%) melt-out**

Once we are in active snowmelt for WY2015, we can use melt-out timing at Stickney Mill, the lowest elevation SNOTEL site, to predict melt-out timing at Smiley Mountain, the highest elevation site.

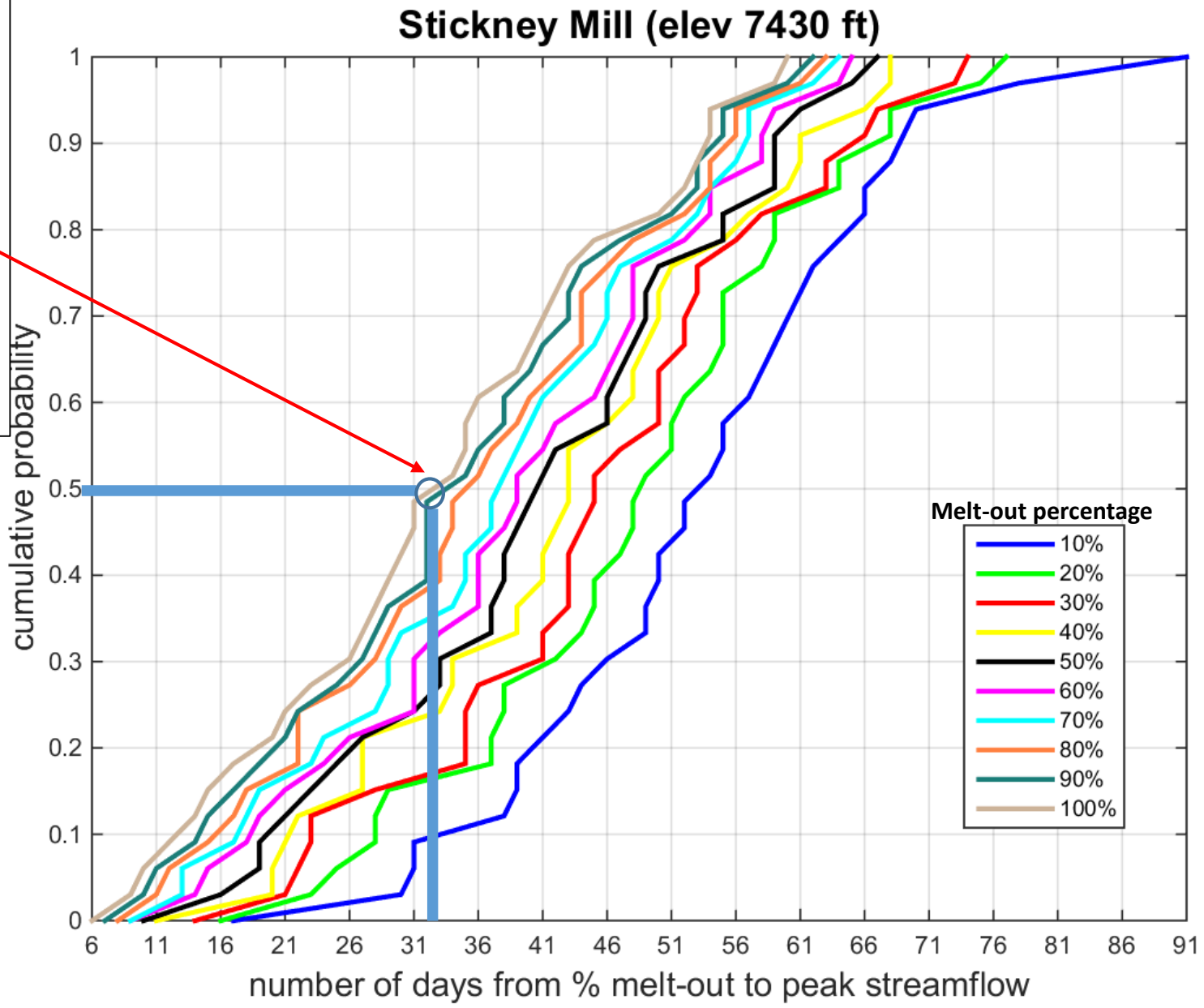
Stickney Mill (792) Idaho SNOTEL Site - 7430 ft

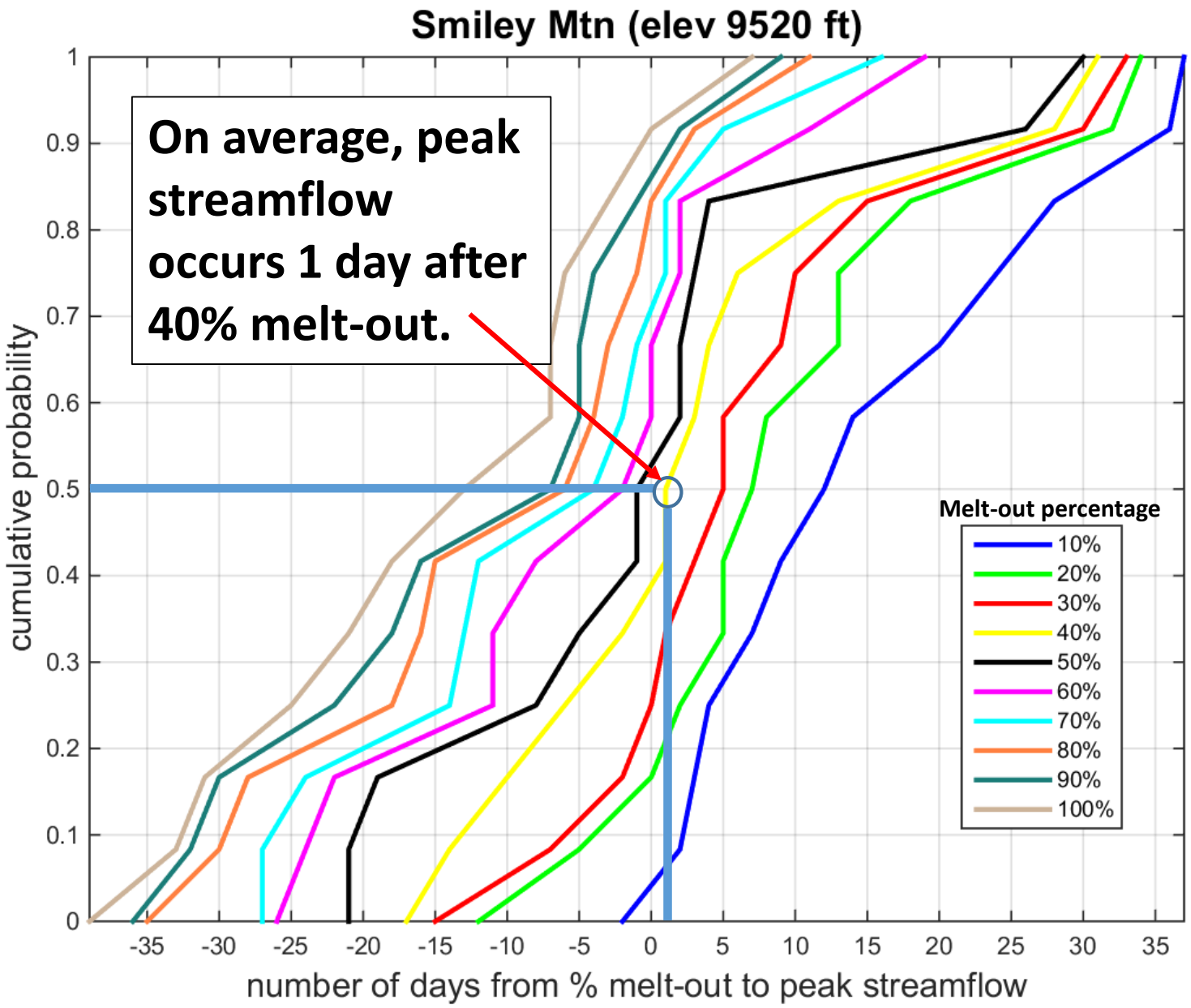


Smiley Mountain (926) Idaho SNOTEL Site - 9520 ft



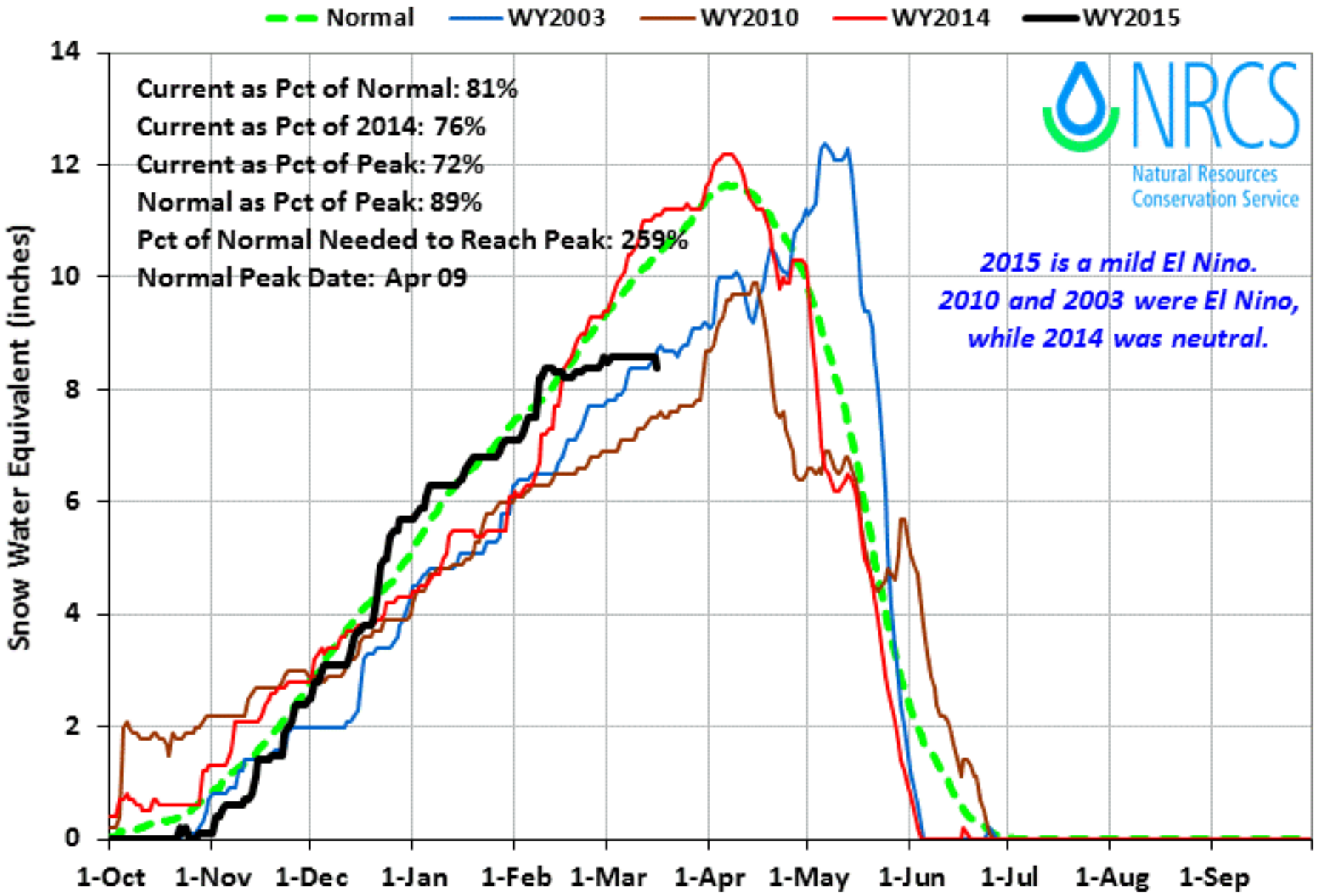
On average, peak streamflow occurs ~32 days after complete (100%) melt-out.




Smiley Mtn (elev 9520 ft)
On average, peak streamflow occurs 1 day after 40% melt-out.
cumulative probability
number of days from % melt-out to peak streamflow
Melt-out percentage
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%

Little Lost and Birch Basins 2015 Snowpack Comparison Graph (4 sites)

Based on Provisional SNOTEL data as of Mar 16, 2015



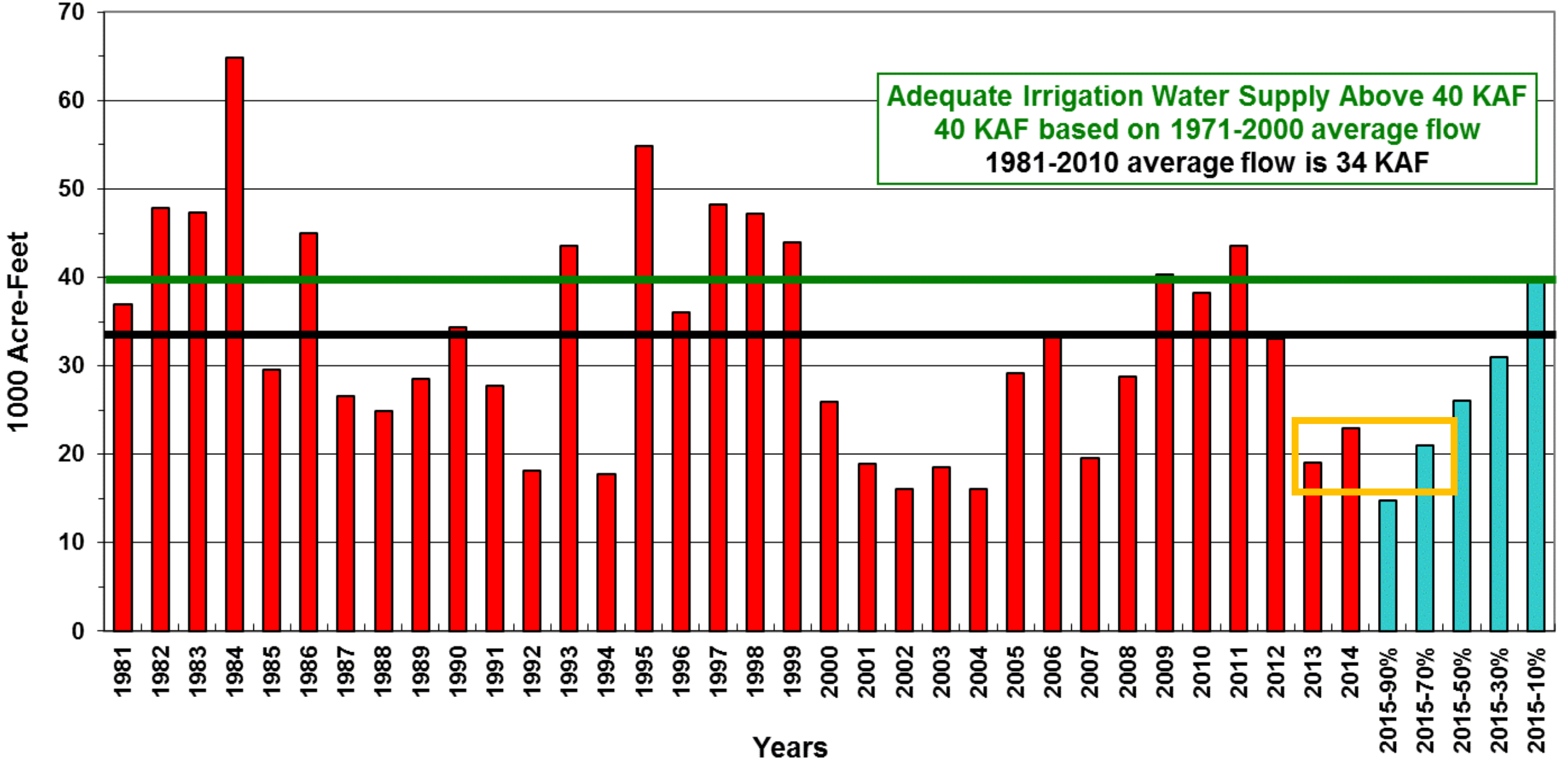
NRCS
Natural Resources Conservation Service

2015 is a mild El Nino. 2010 and 2003 were El Nino, while 2014 was neutral.

March 1 Surface Water Supply Index (SWSI)
Little Lost River below Wet Creek

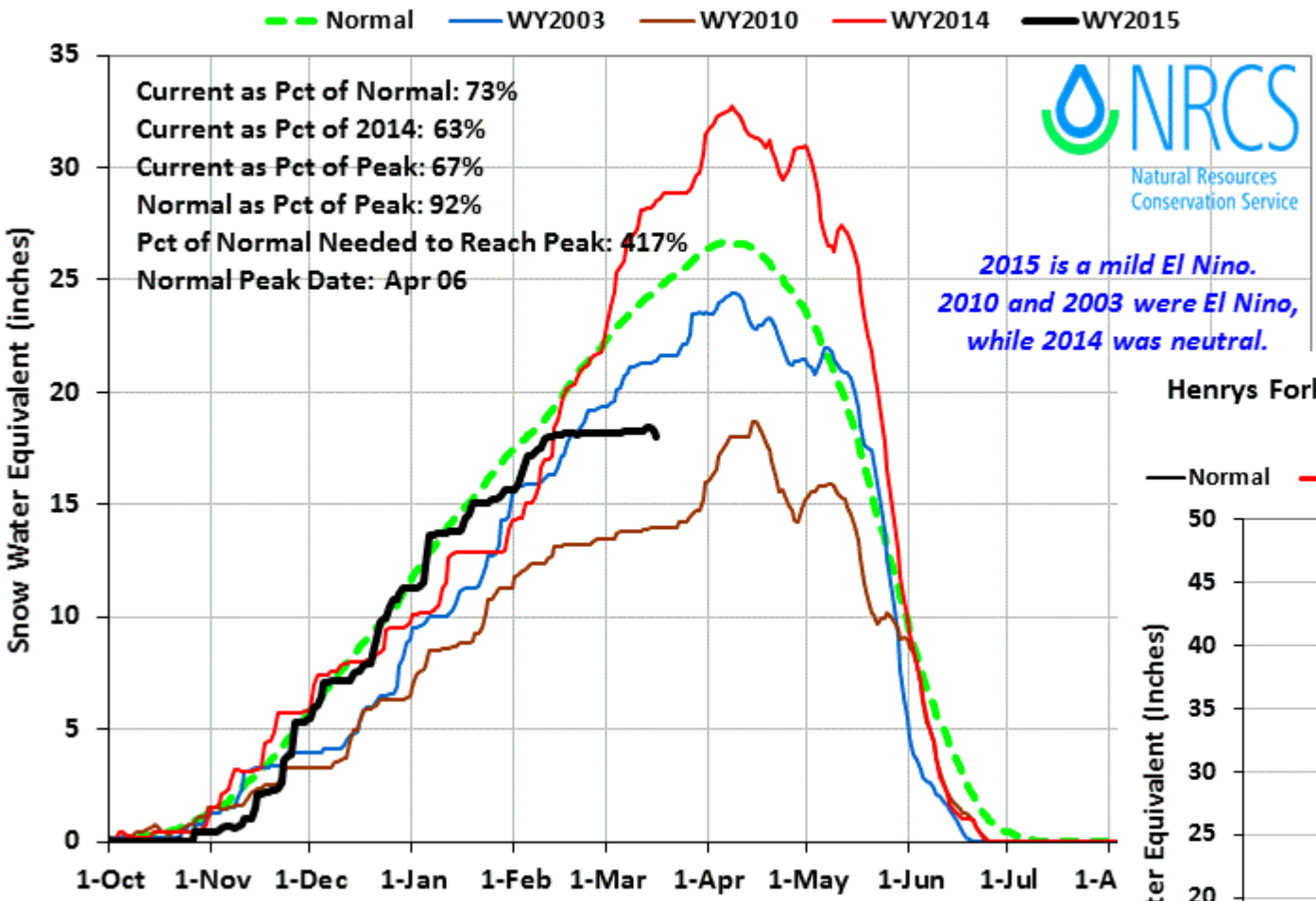
Streamflow Apr-Sep

NRCS Natural Resources Conservation Service



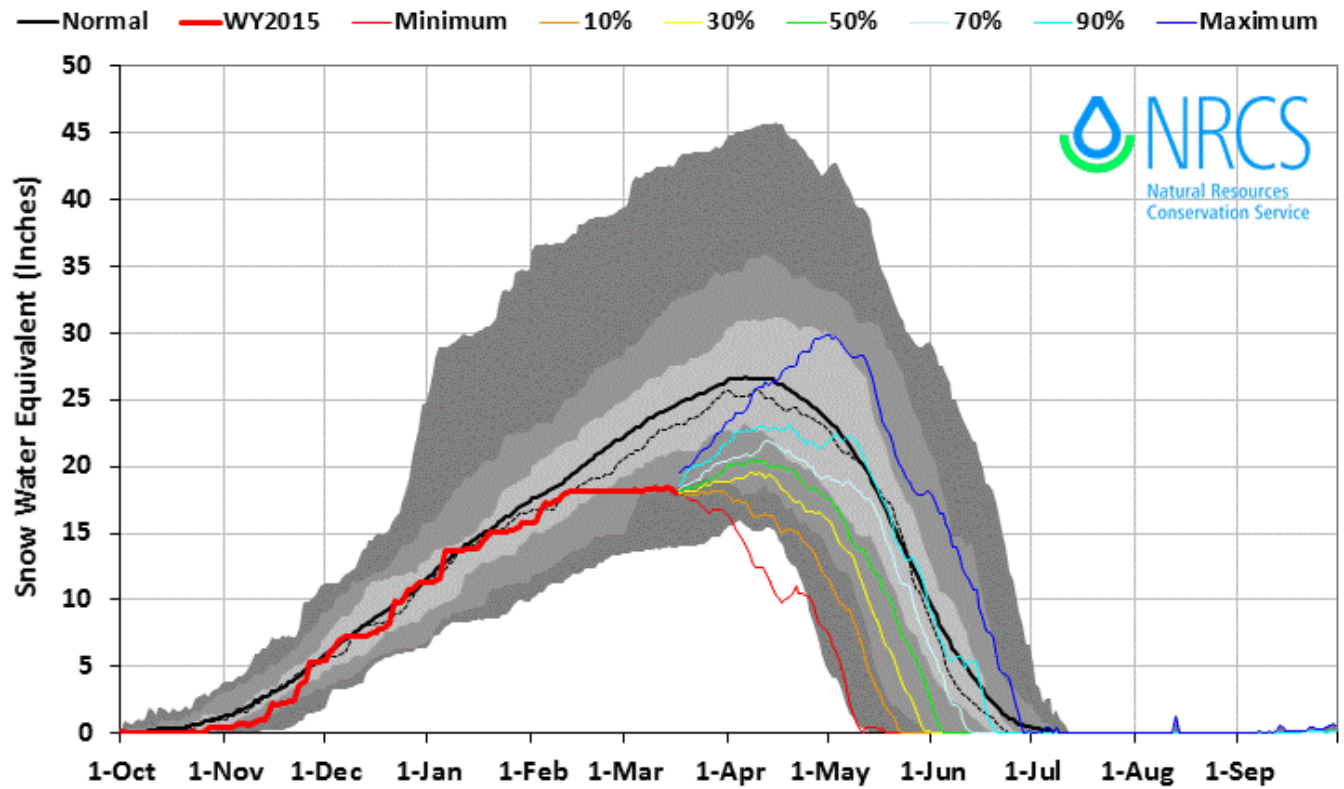
Henrys Fork and Teton Basins 2015 Snowpack Comparison Graph (7 sites)

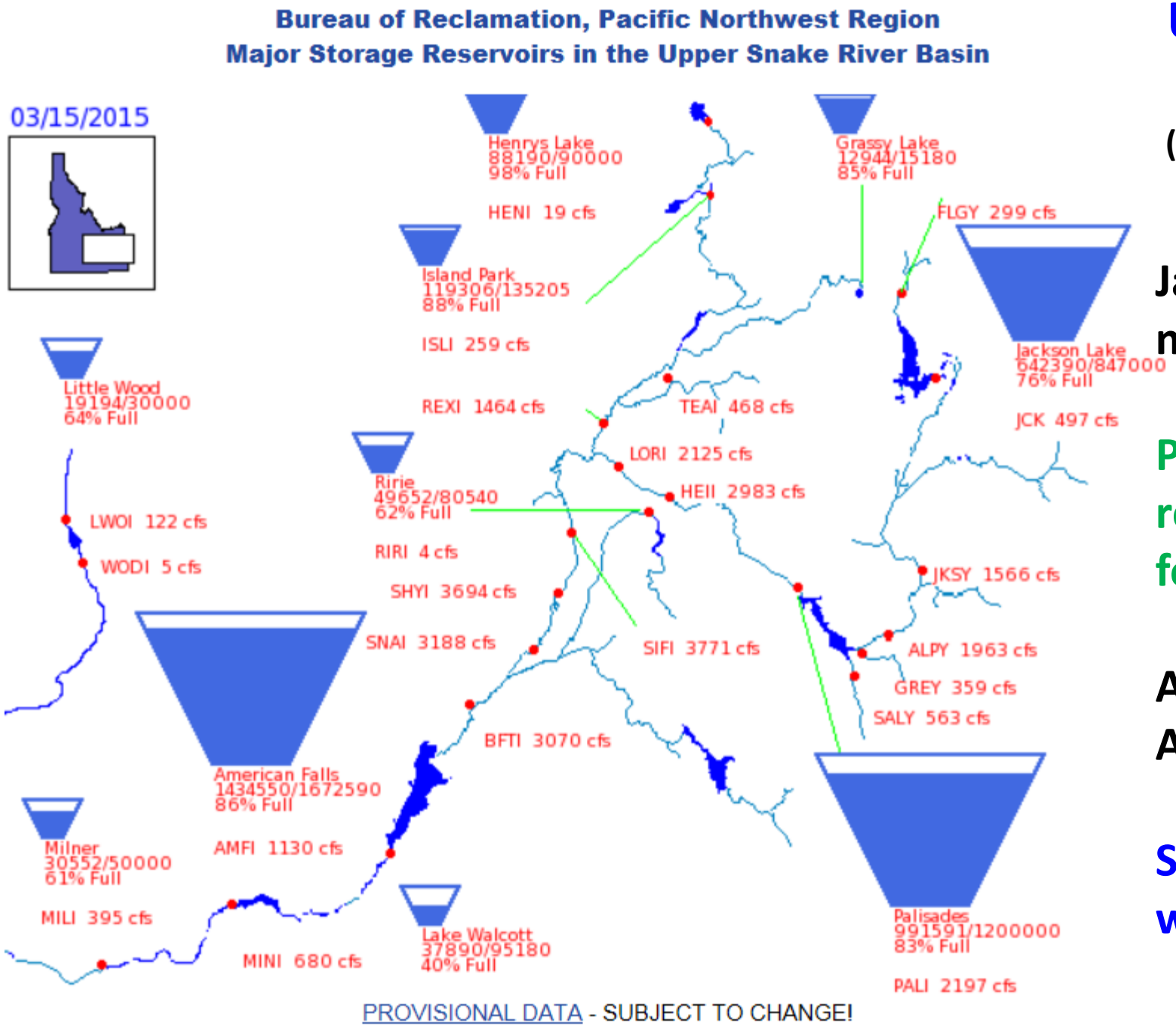
Based on Provisional SNOTEL data as of Mar 16, 2015



Henrys Fork & Teton Basins 2015 Snow Water with Non-Exceedence Projections (7 sites)

Based on Provisional SNOTEL data as of Mar 16, 2015





Upper Snake River system is at 81 % of capacity.

(Jackson Lake, Palisades, Grassy Lake, Island Park, Ririe, American Falls, Lake Walcott)

Jackson 76% holding – should fill mid-Jun

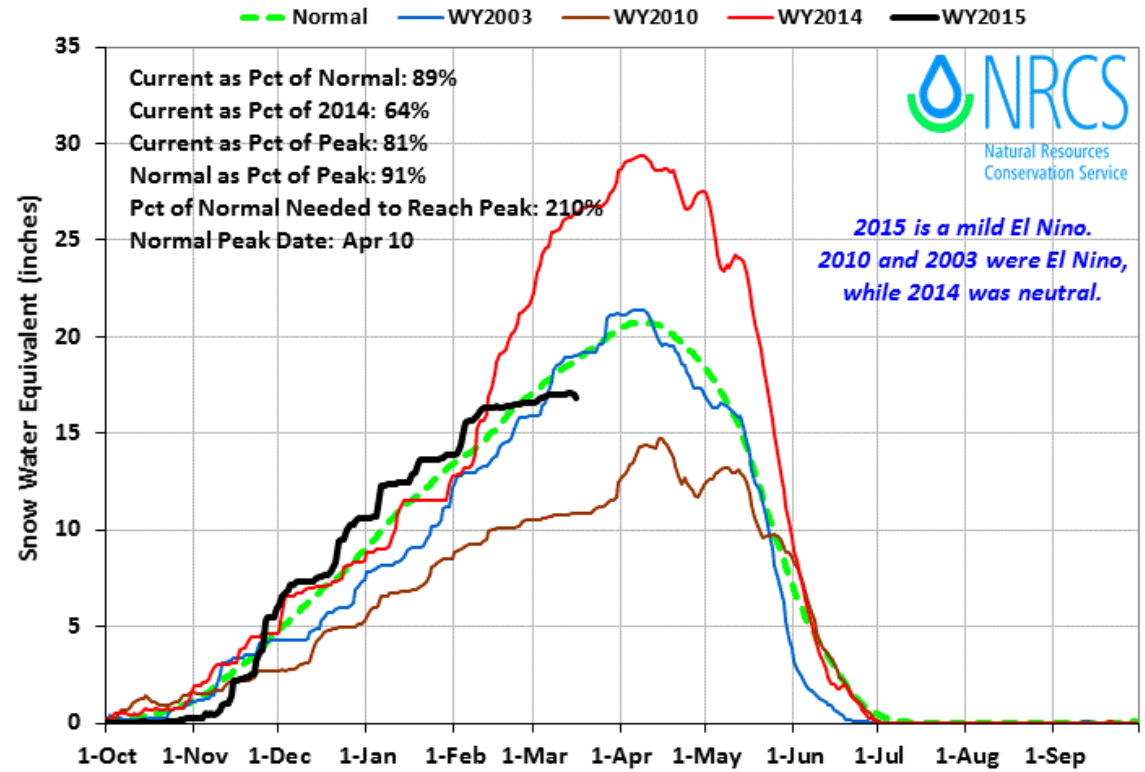
Palisades 83% releasing - will review April 1 streamflow forecast. Good position to be in.

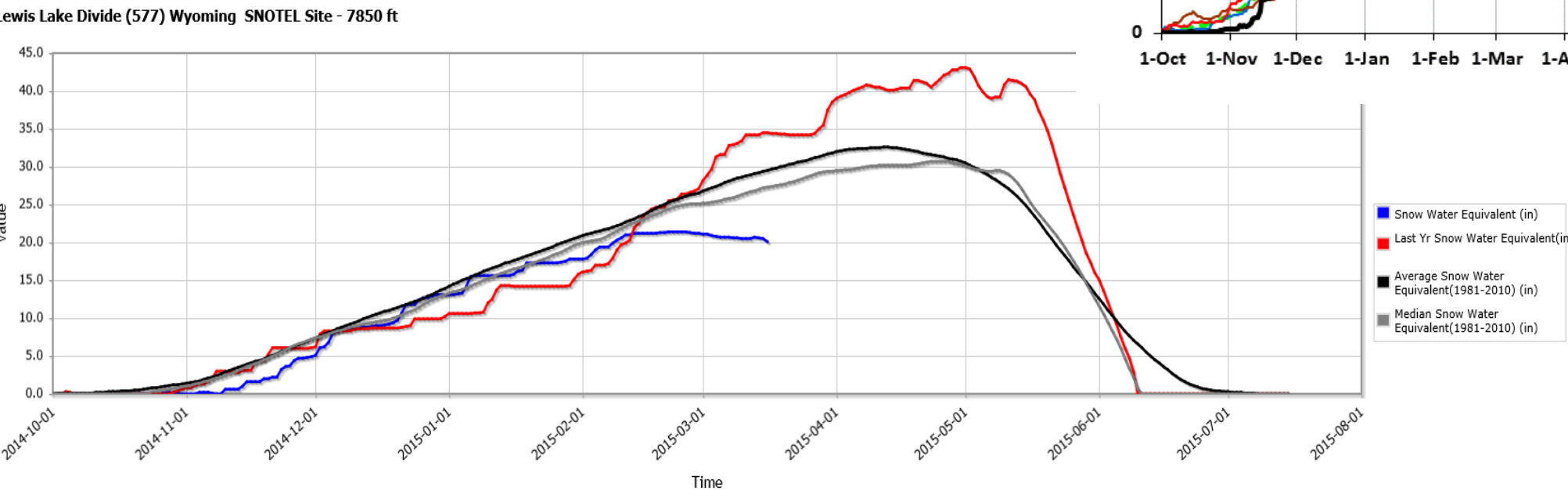
American Falls 80% - fill in mid-April

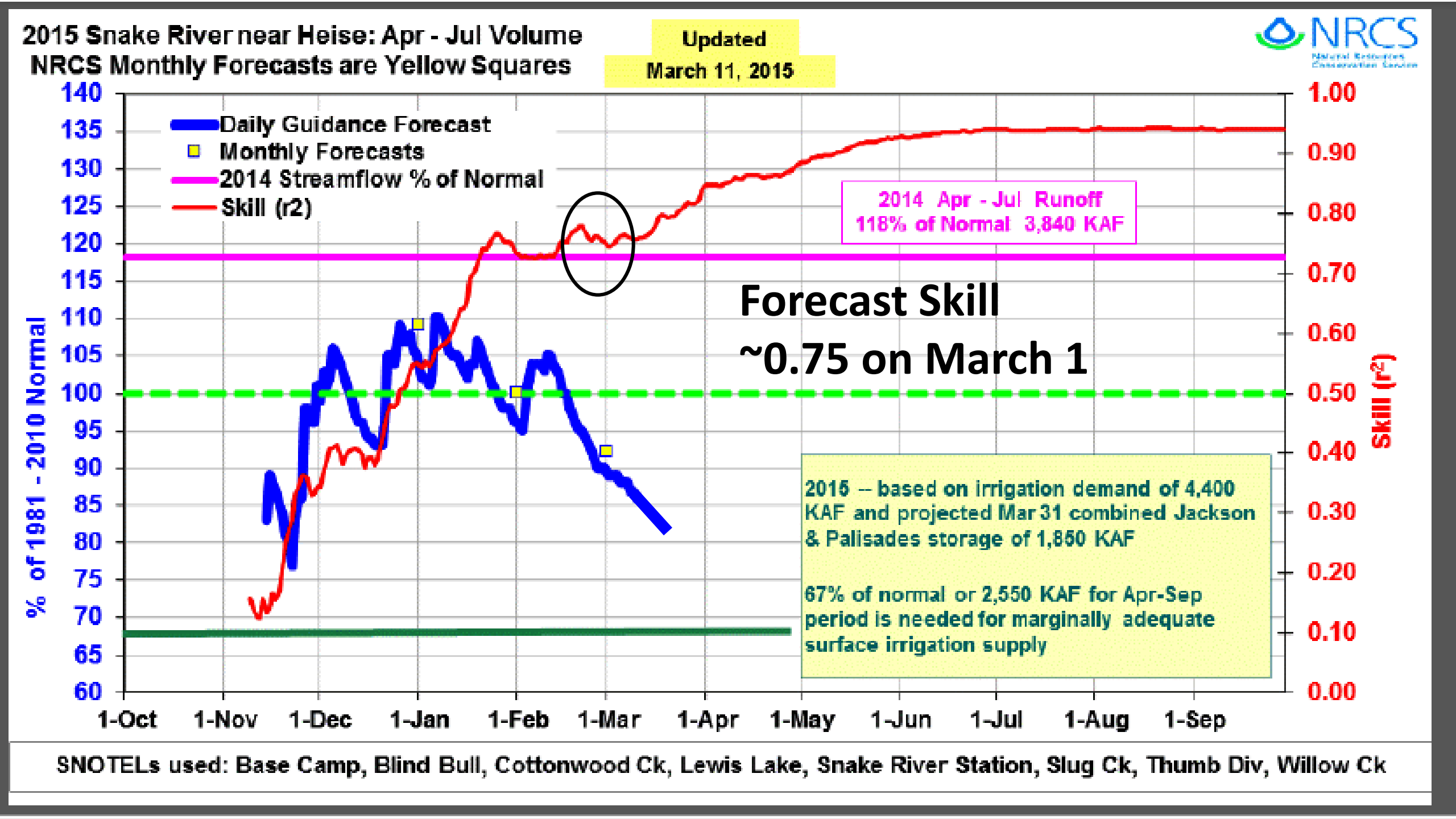
System is in good shape for whatever future weather occurs.

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

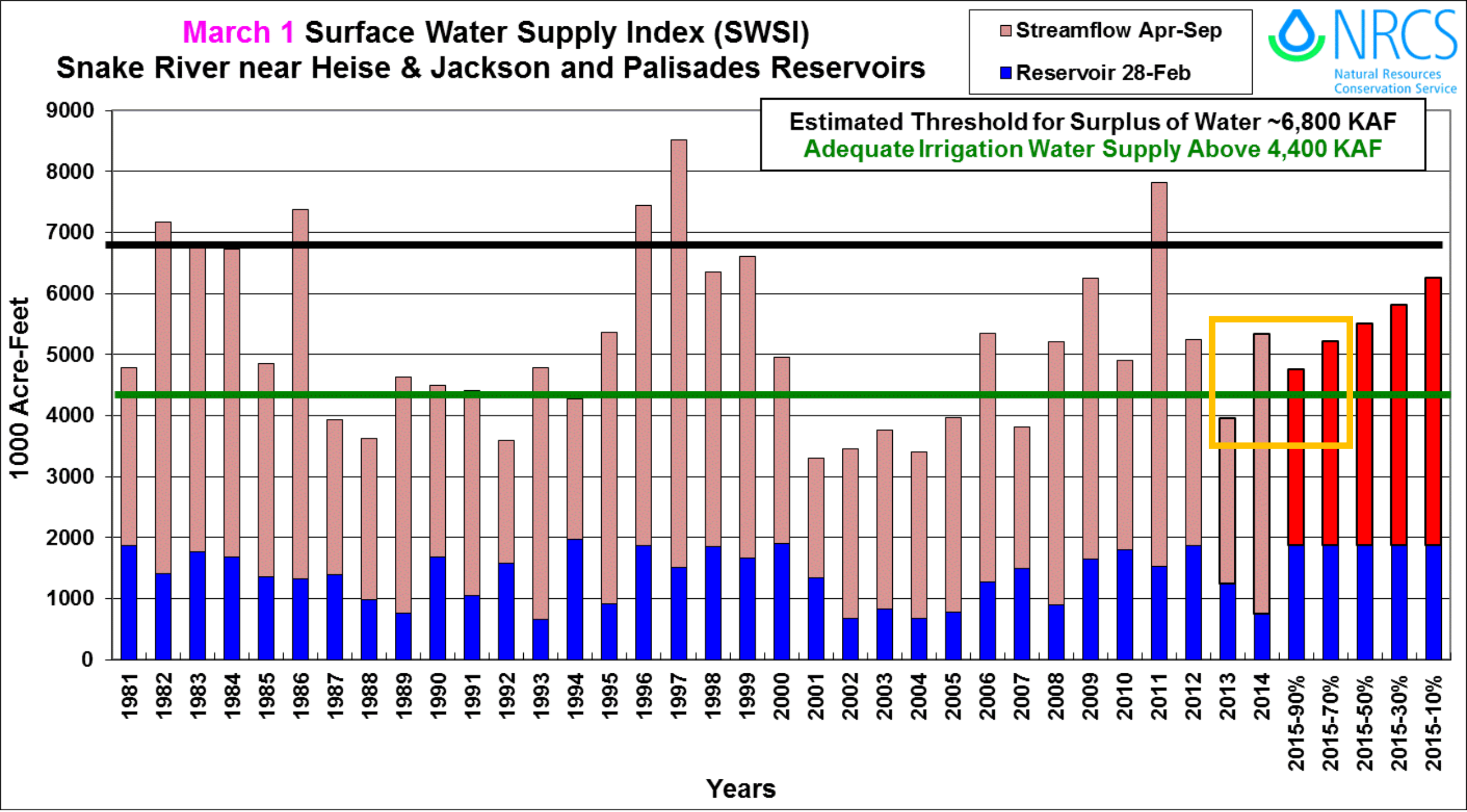
Based on Provisional SNOTEL data as of Mar 16, 2015






2015 Snake River near Heise: Apr - Jul Volume
NRCS Monthly Forecasts are Yellow Squares
Updated
March 11, 2015
NRCS
Daily Guidance Forecast
Monthly Forecasts
2014 Streamflow % of Normal
Skill (r2)
2014 Apr - Jul Runoff
118% of Normal 3,840 KAF
Forecast Skill
~0.75 on March 1
2015 -- based on irrigation demand of 4,400 KAF and projected Mar 31 combined Jackson & Palisades storage of 1,850 KAF
67% of normal or 2,550 KAF for Apr-Sep period is needed for marginally adequate surface irrigation supply
% of 1981 - 2010 Normal
Skill (r²)
140
135
130
125
120
115
110
105
100
95
90
85
80
75
70
65
60
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
1-Oct
1-Nov
1-Dec
1-Jan
1-Feb
1-Mar
1-Apr
1-May
1-Jun
1-Jul
1-Aug
1-Sep
SNOTELs used: Base Camp, Blind Bull, Cottonwood Ck, Lewis Lake, Snake River Station, Slug Ck, Thumb Div, Willow Ck

March 1 Surface Water Supply Index (SWSI)
Snake River near Heise & Jackson and Palisades Reservoirs

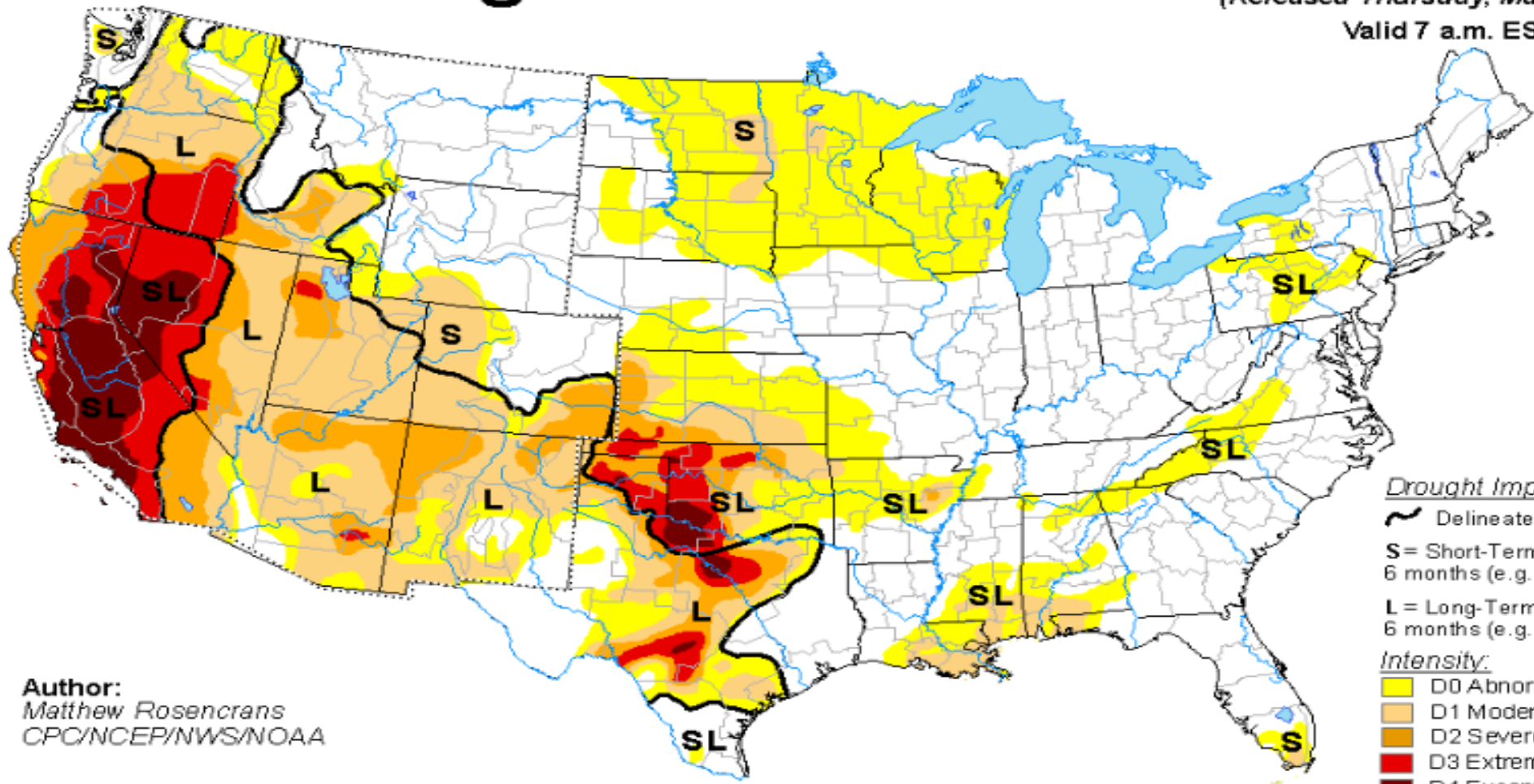


U.S. Drought Monitor

March 10, 2015

(Released Thursday, Mar. 12, 2015)

Valid 7 a.m. EST



Author:
Matthew Rosencrans
CPC/NCEP/NWS/NOAA

Drought Impact Types:

Delineates dominant impacts

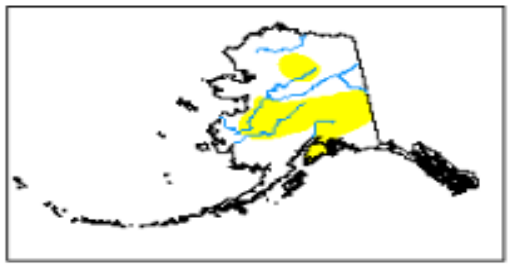
S = Short-Term, typically less than 6 months (e.g. agriculture, grasslands)

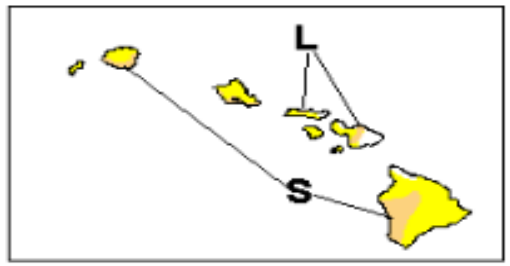
L = Long-Term, typically greater than 6 months (e.g. hydrology, ecology)

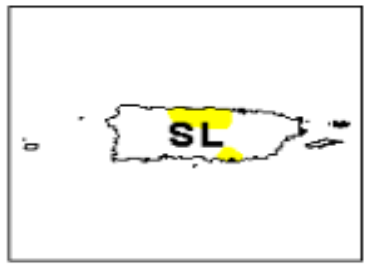
Intensity:

- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.







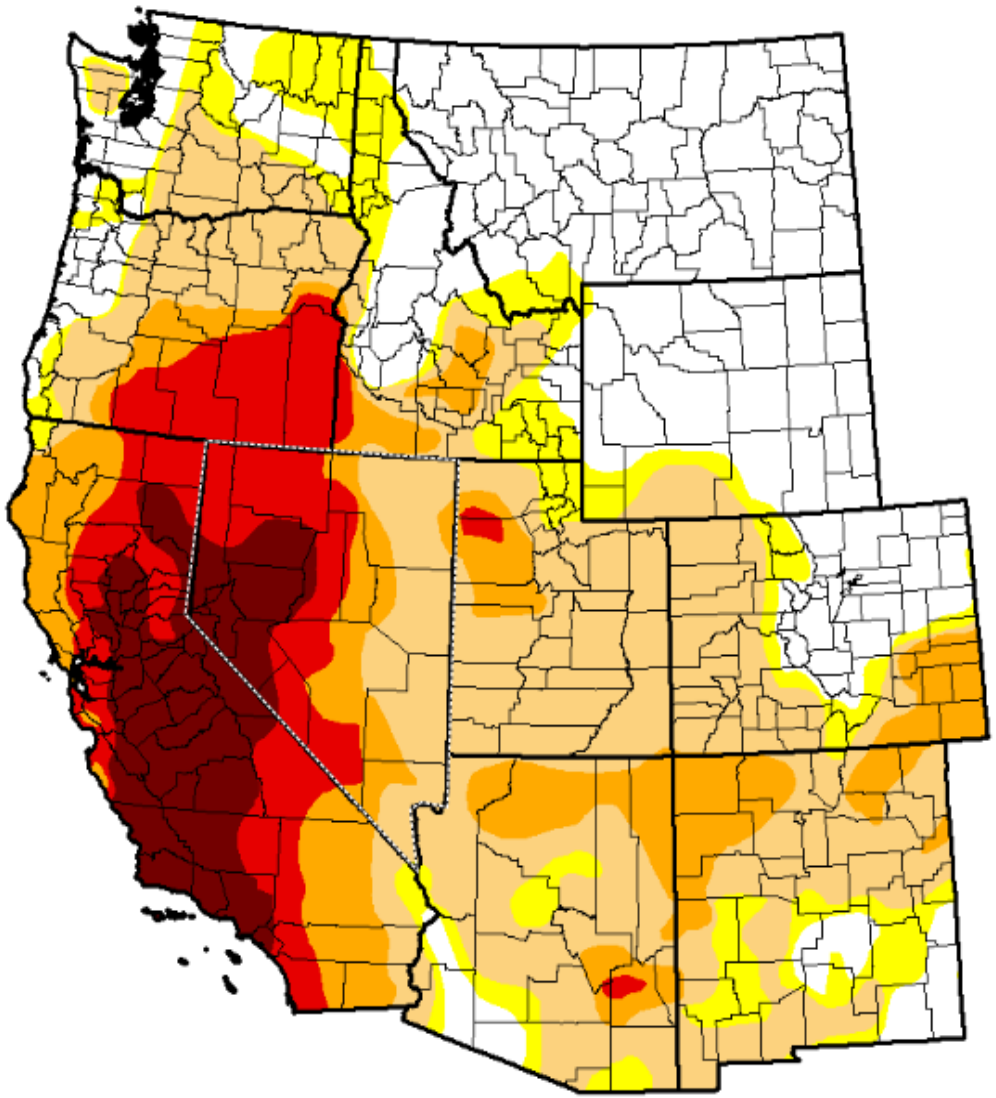
USDA

National Drought Mitigation Center

http://droughtmonitor.unl.edu/

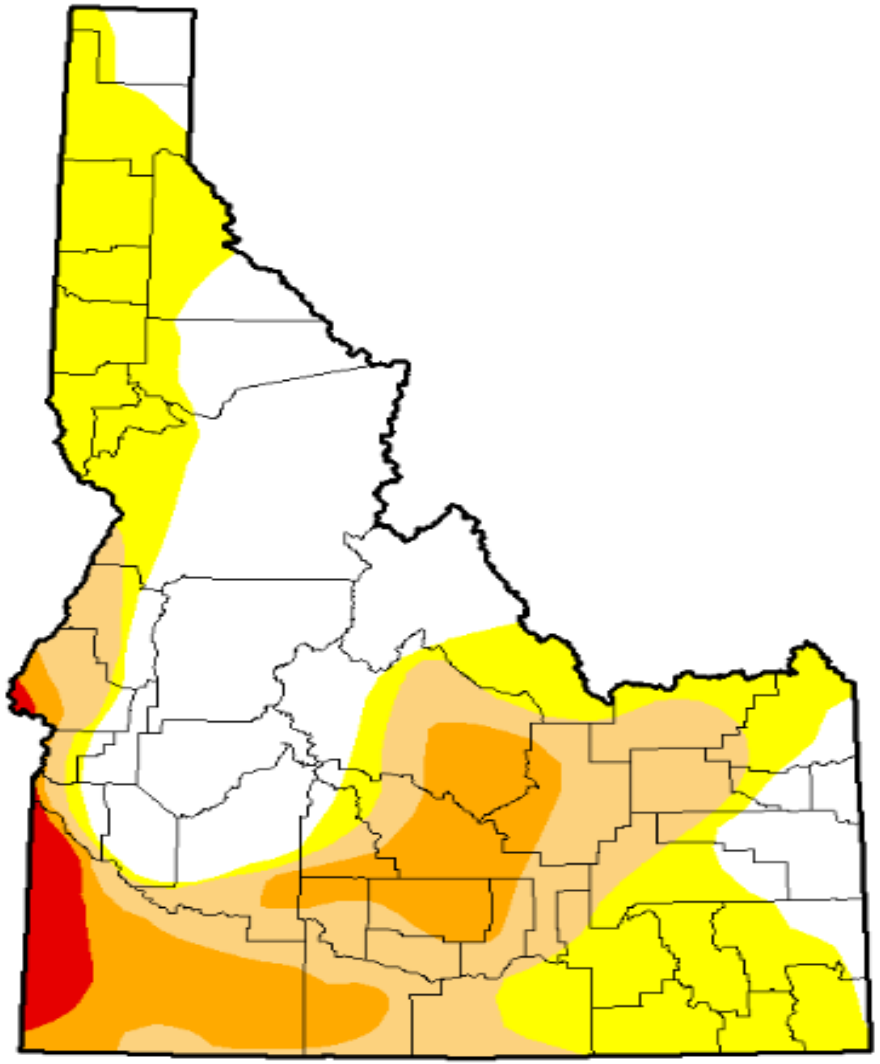
U.S. Drought Monitor

West



U.S. Drought Monitor

Idaho



Questions – Comments

Photo taken by Ray Gadd March 11, 2015 looking east over Big Wood River valley illustrating lack of snow on south facing slopes.