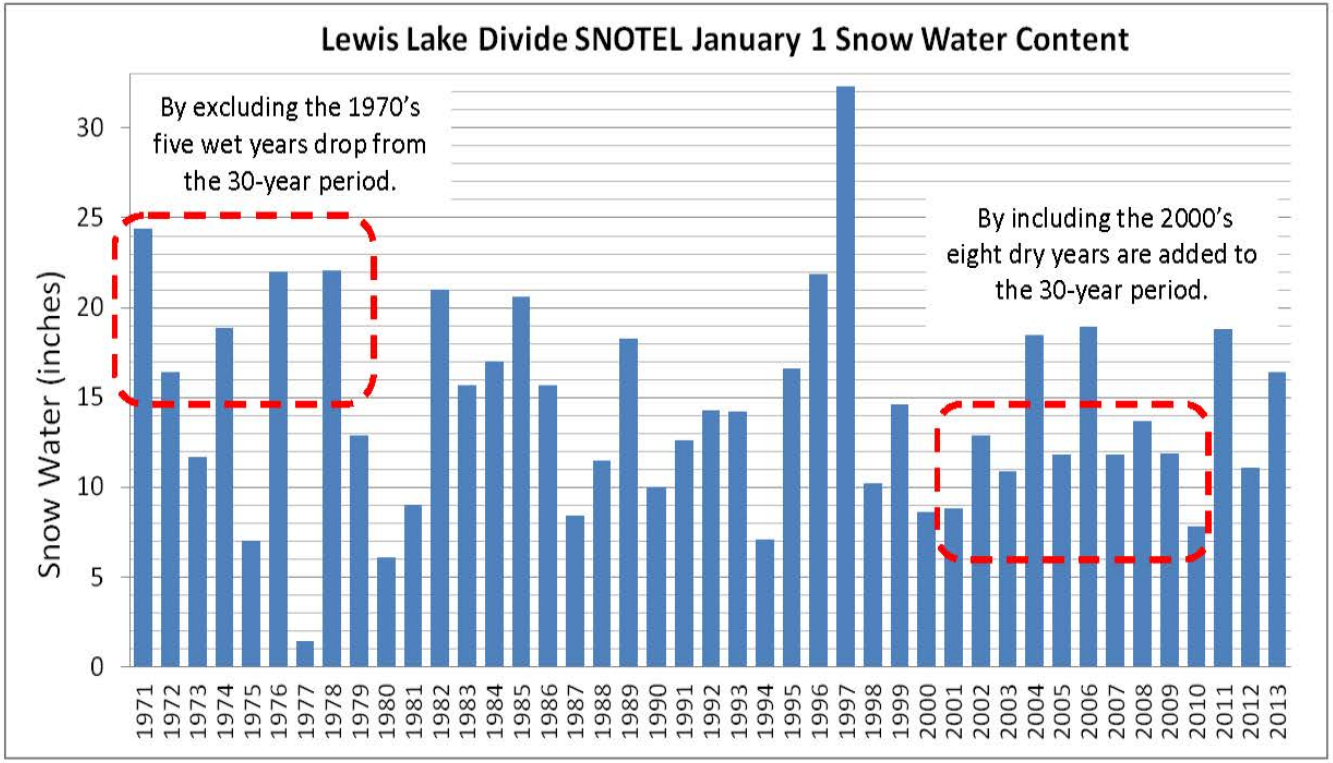
NRCS
United States Department of Agriculture
Natural Resources Conservation Service

Idaho Water Supply Outlook Report January 1, 2013

Idaho Water Supply Outlook

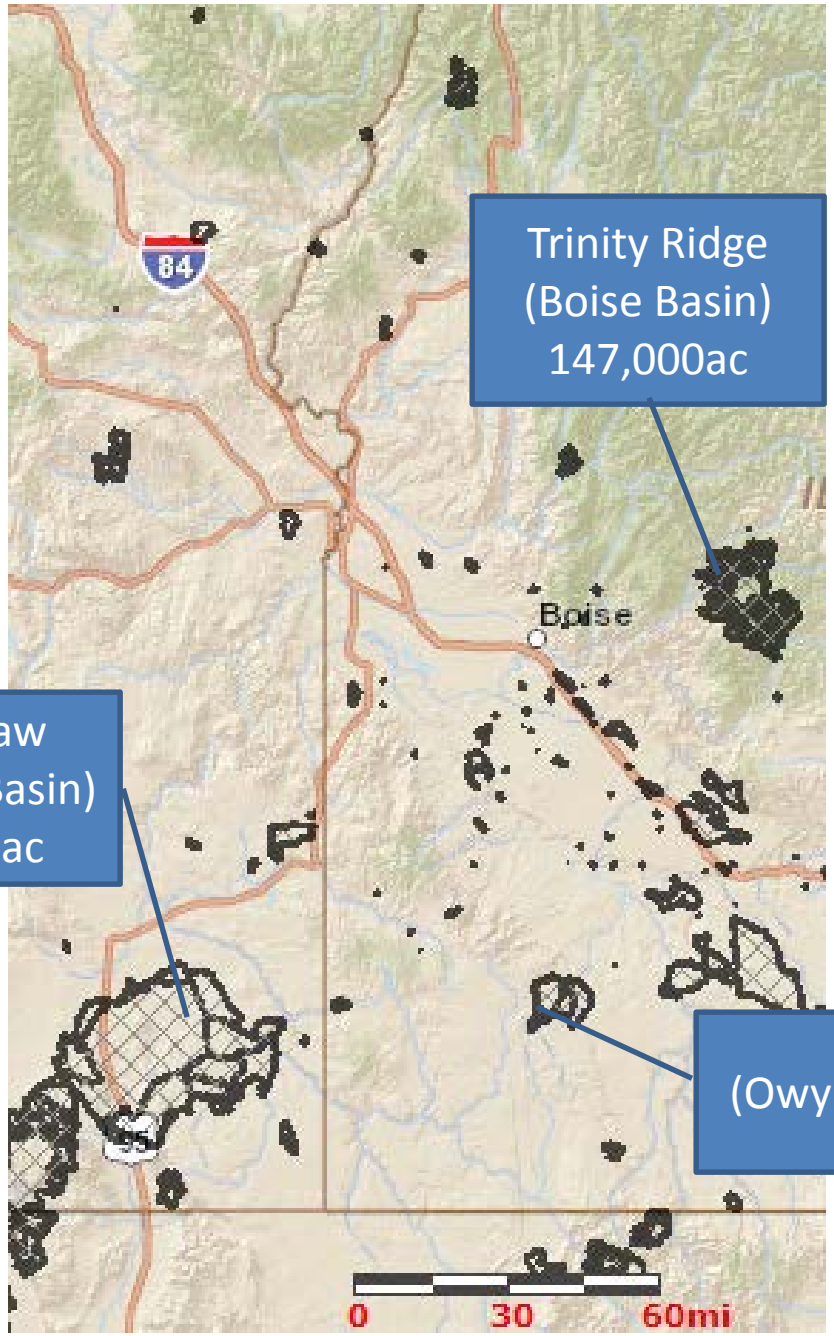
IDWR State Water Supply Meeting Jan 11, 2013



What is the upshot of changing 30-year normal periods?

Every decade there is shift in the 30-year period used to calculate normals. **The change requires all of us to recalibrate our expectations when using percentages to understand the water supply.**

Summer 2012 Fires



Idaho led the nation in acres burned with 1.7 million acres.

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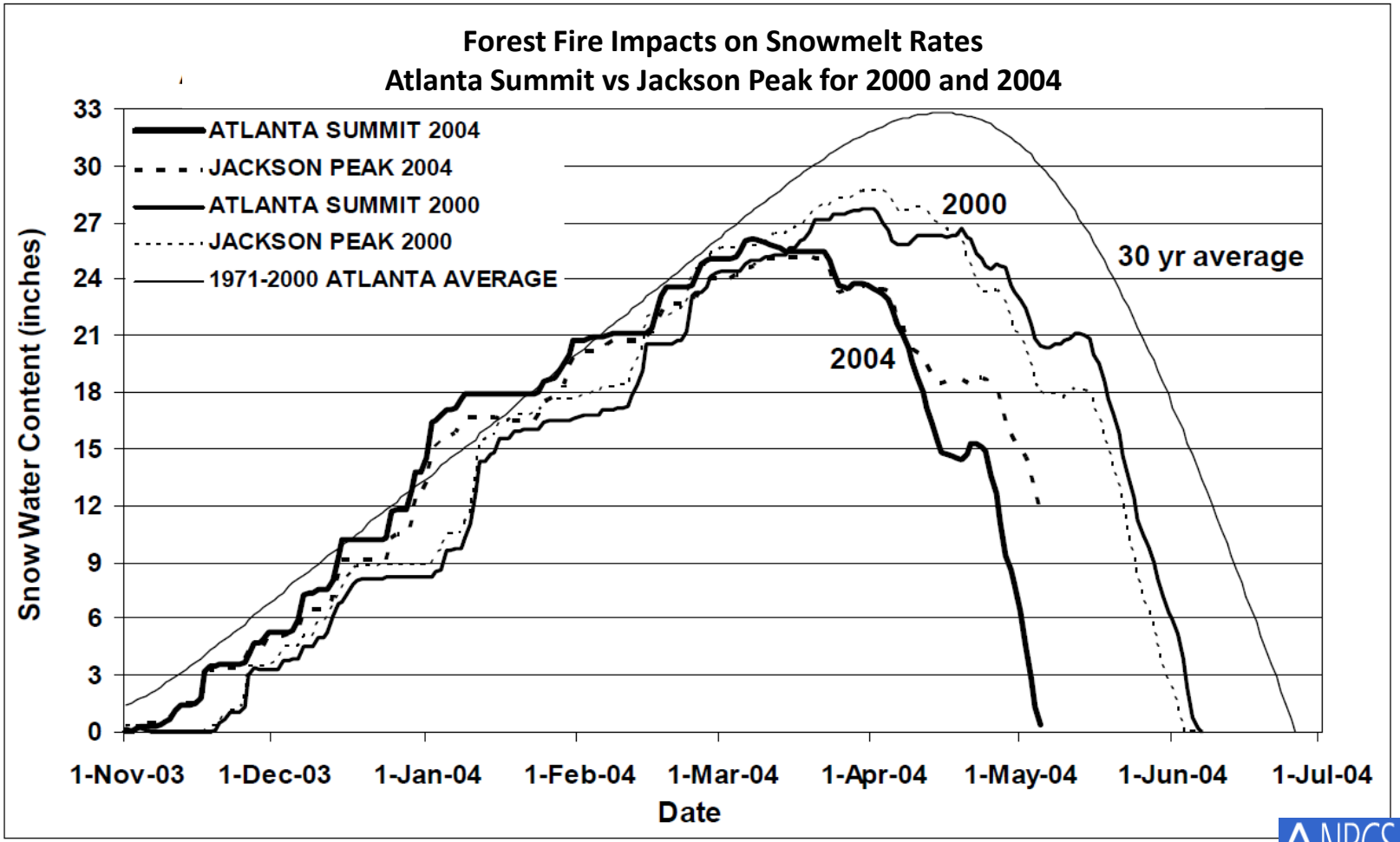
Hydrologic Fire Effects: Earlier snowmelt & runoff



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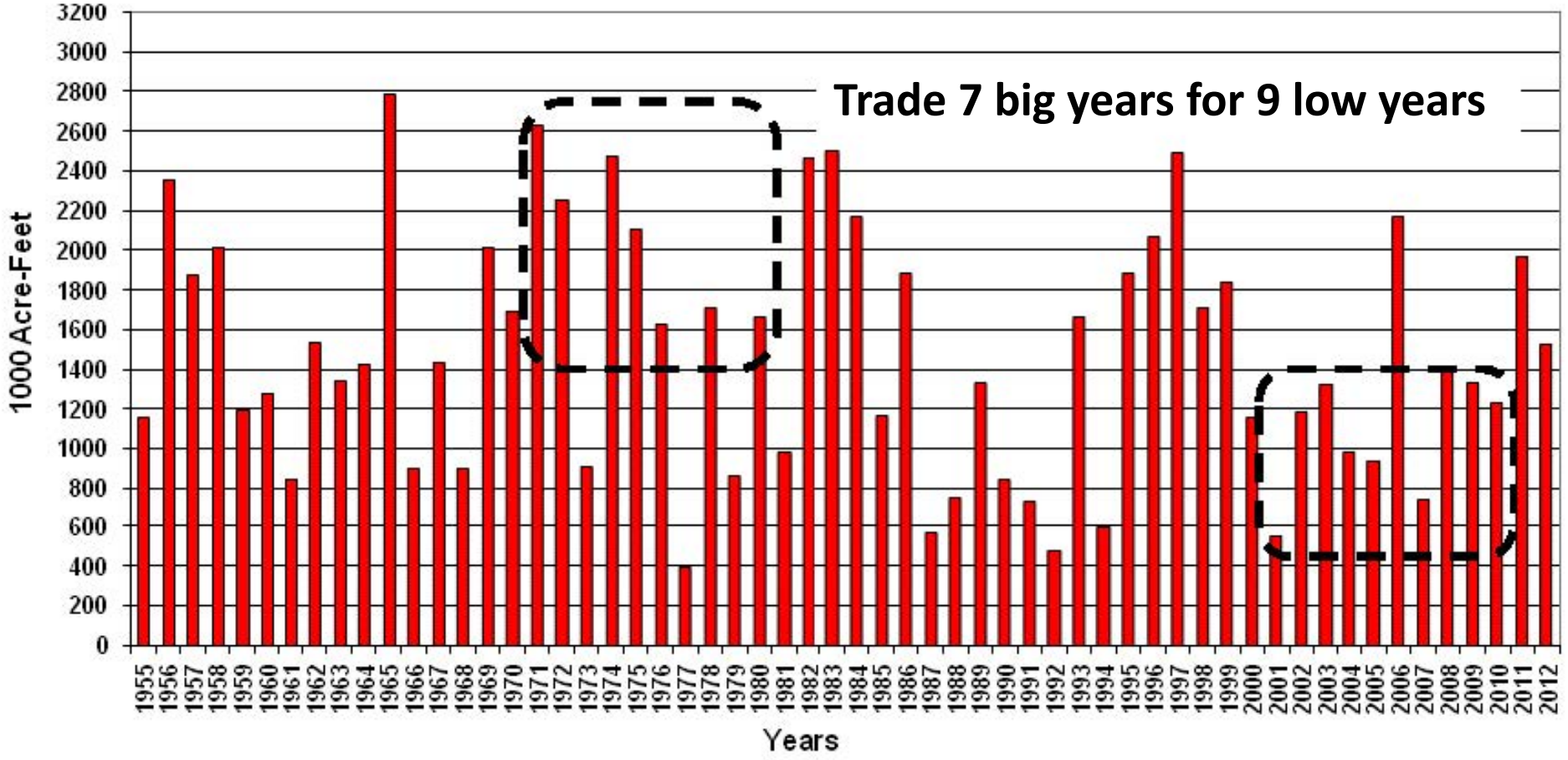
New Normals this Year

- Every decade the 30 year normals change periods.
- This year we go from the 1971-2000 period to the 1981-2010 period.
- The change is meant to keep pace with current climatic conditions as most recent years are said to represent the current conditions.
- Most data types will be calculated as a straight average except Snow Water Equivalent which will be the “median” or “middle value”

Boise River near Boise Streamflow April - Sept



Apr-Sep Volumes:

1971-2000 average = 1,526 KAF

1981-2010 average = 1,363 KAF

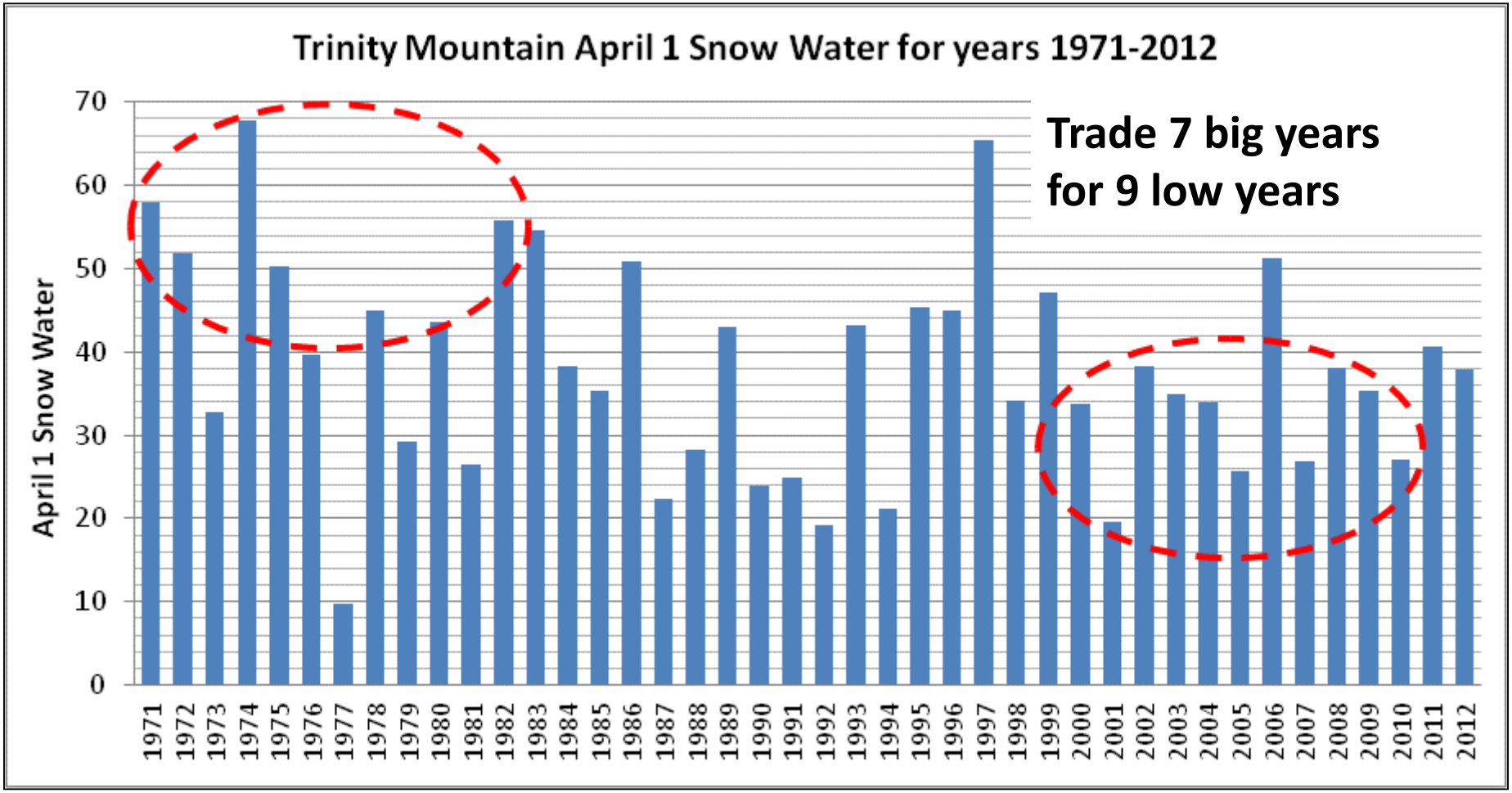
Compare 2012 runoff of 1,600 KAF

105% of 1971-2000 average

117% of 1981-2010 average

+12%

Old 1971-2000 vs New 1981-2010 Normals



1971-2000 average = 39.5”

1981-2010 median = 35.3”

Compare 2012 snowpack of 37.9”

95% of 1971-2000 average

107% of 1981-2010 average +12%

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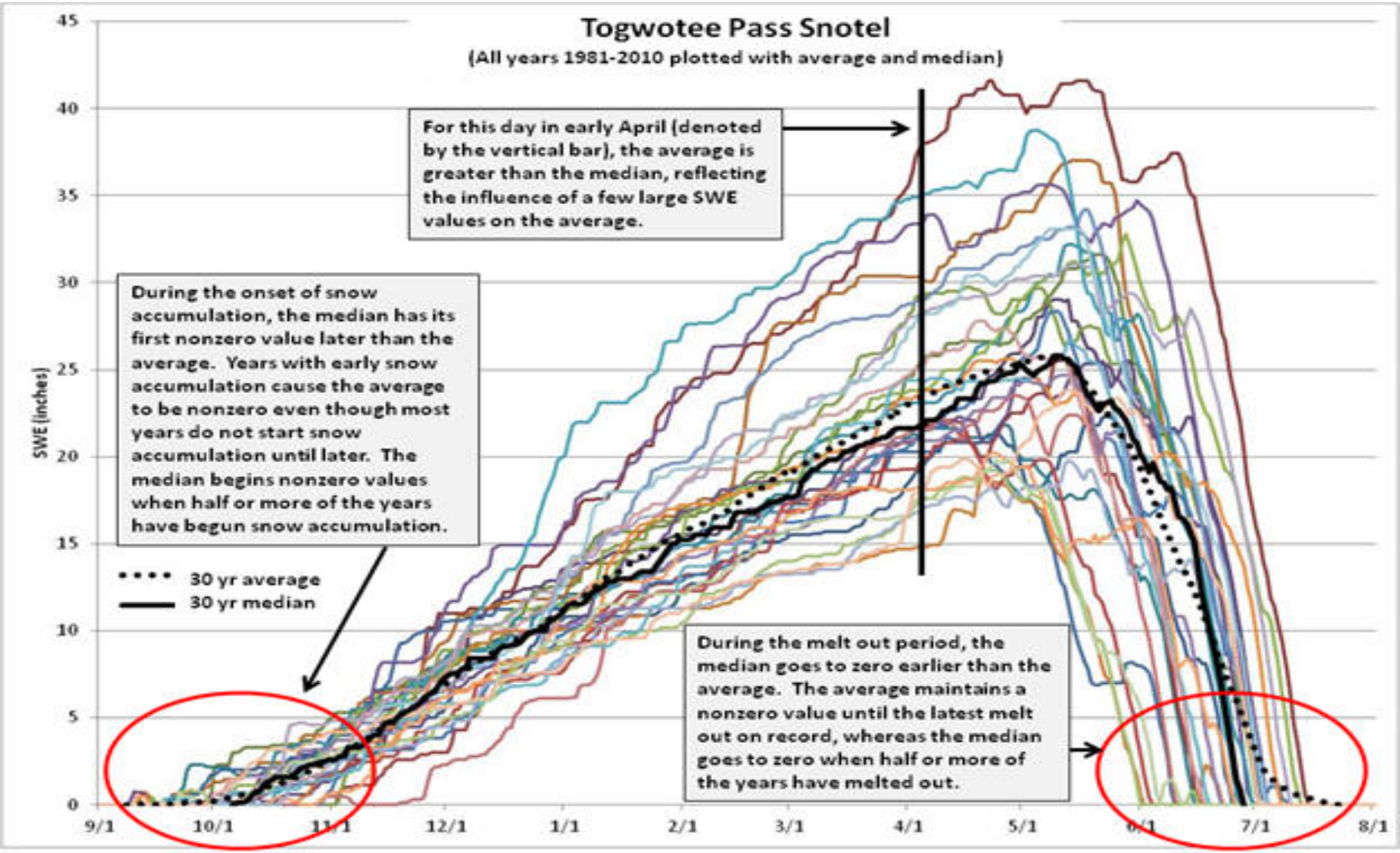
Why will SWE use a median?



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Basin	# Sites	January 1 SWE as % of 1971-2000 Average	January 1 SWE as % of 1981-2010 Median	Difference
Snake above Palisades	17	93%	112%	19%
Owyhee	7	62%	79%	17%
Bear River	15	85%	102%	17%
Little Lost, Birch	4	117%	133%	16%
Northern Panhandle	7	117%	132%	15%
Spokane	10	77%	92%	15%
Willow, Blackfoot, Portneuf	6	70%	85%	15%
Snake Basin Above American Falls	27	93%	108%	15%
Big Lost	4	155%	168%	13%
Medicine Lodge, Beaver, Camas	4	111%	123%	12%
Clearwater	14	75%	86%	11%
Boise	9	93%	103%	10%
Big Wood	9	124%	133%	9%
Goose	2	79%	88%	9%
Bruneau	5	75%	83%	8%
Henrys Fork, Teton	7	104%	111%	7%
Salmon	22	106%	113%	7%
Payette	11	100%	105%	5%
Weiser	3	67%	72%	5%
Salmon Falls	5	78%	83%	5%
Raft	1	99%	103%	4%
Little Wood	4	145%	147%	2%

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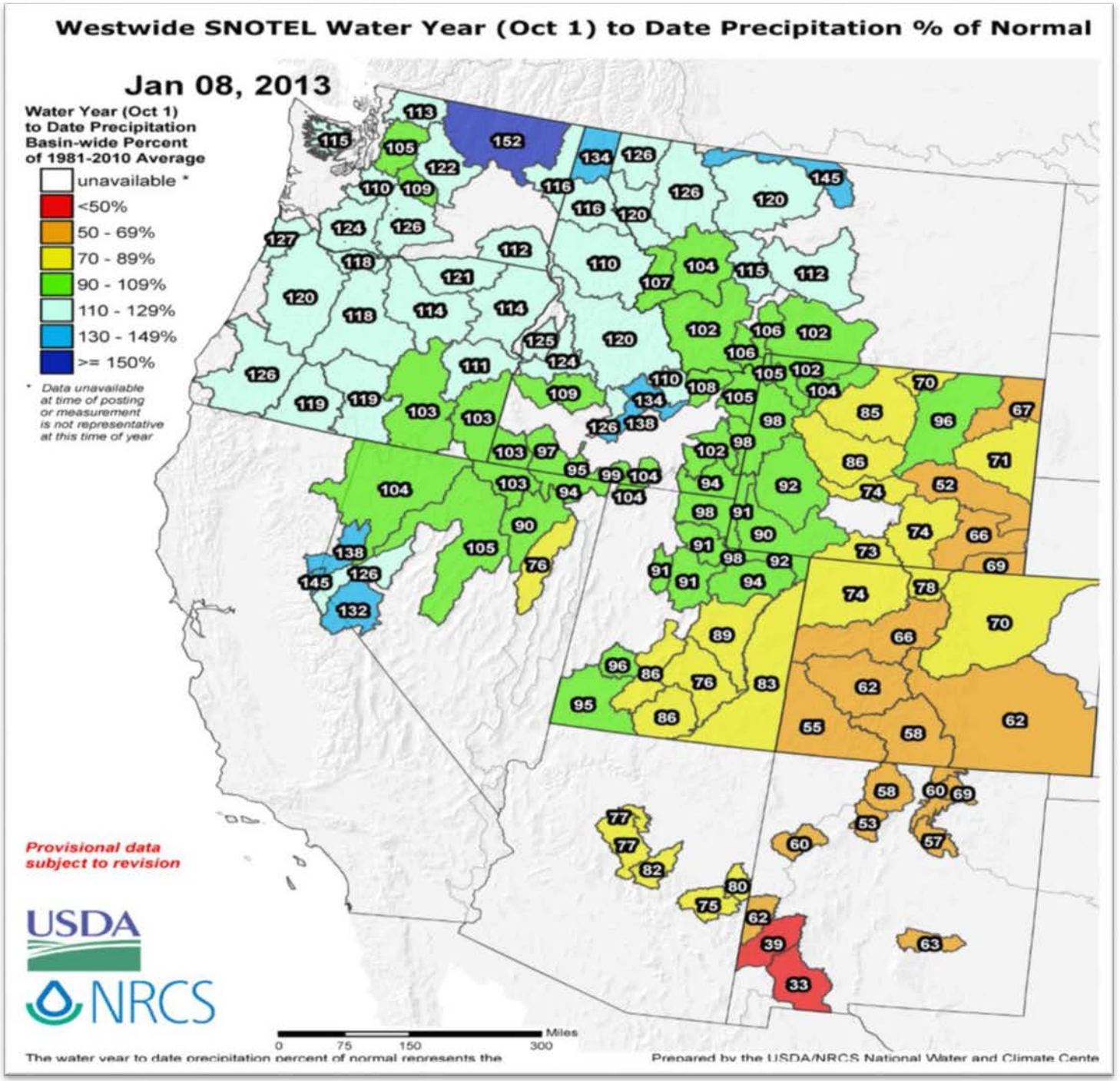
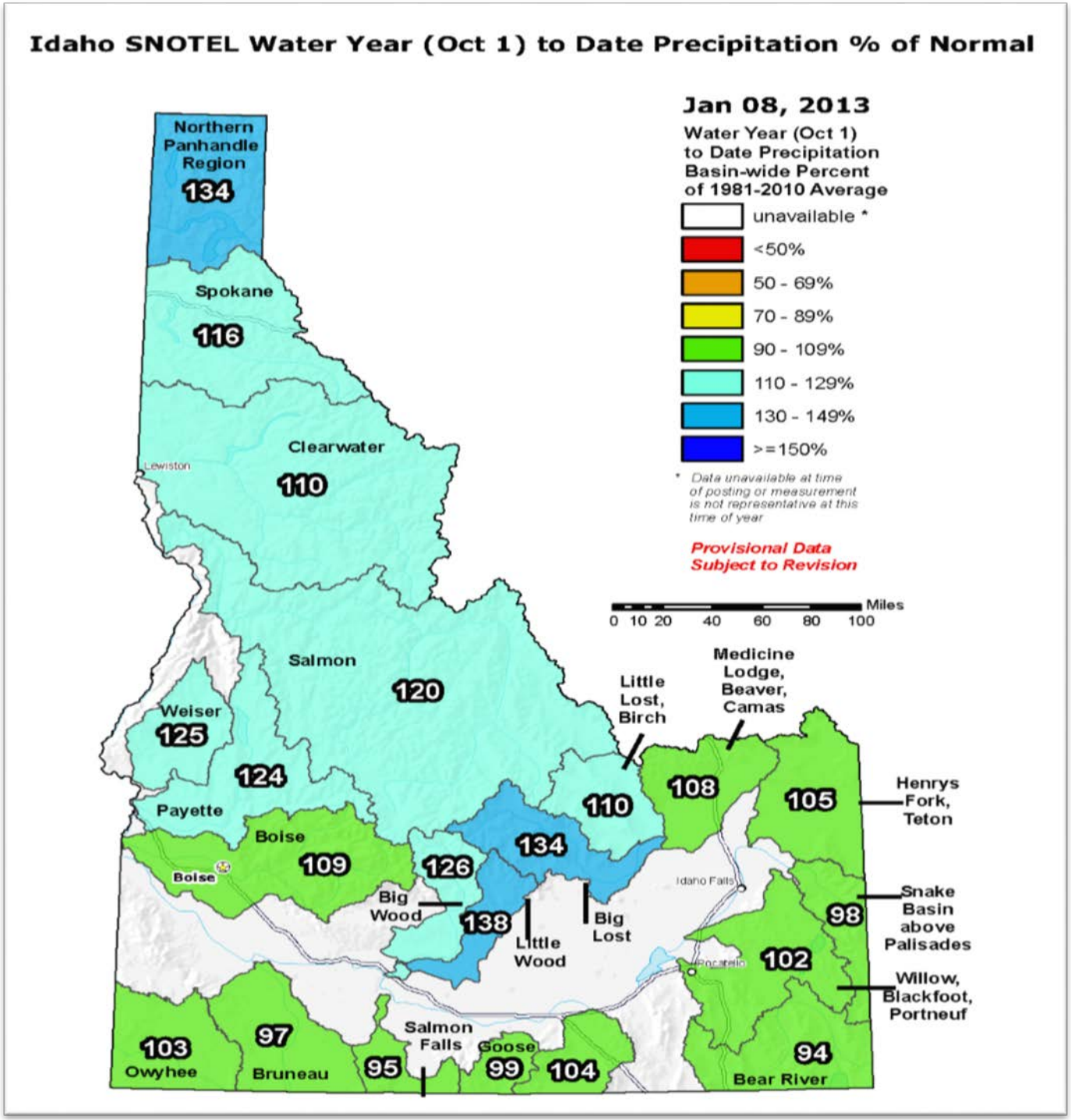
Basin / Station Name	Elevation (ft)	Jan 1, 2013 Snow Water Equivalent (in)	1971-2000 Average SWE (in)	1981-2010 Median SWE (in)	% of 71-00 Ave	% of 81-10 Median	Difference
Snake above Palisades							
GUNSIGHT PASS	9820	6.7	na	6.1	na	110%	na
BLIND BULL SUM	8650	10.1	13.1	9.1	77%	111%	34%
EAST RIM DIVIDE	7930	4.5	5.9	4.3	76%	105%	29%
WILLOW CREEK	8380	11.3	14.3	10.8	79%	105%	26%
THUMB DIVIDE	7980	8.5	7.6	6.2	112%	137%	25%
SNAKE RIVER STATION	6920	7.5	7.9	6.4	95%	117%	22%
SPRING CREEK DIVIDE	9000	10.6	12.5	10.2	85%	104%	19%
GRANITE CREEK	6770	7.6	7.6	6.5	100%	117%	17%
BASE CAMP	7030	10	8.2	7.2	122%	139%	17%
LOOMIS PARK	8240	6.2	7.9	6.6	78%	94%	16%
COTTONWOOD CREEK	7670	8.5	9.7	8.5	88%	100%	12%
PHILLIPS BENCH	8200	10.9	12.5	11.0	87%	99%	12%
LEWIS LAKE DIVIDE	7850	16.4	14.8	13.3	111%	123%	12%
GROS VENTRE SUMMIT	8750	6.2	6.9	6.2	90%	100%	10%
TWO OCEAN PLATEAU	9240	16.3	13.5	12.5	121%	130%	9%
SALT RIVER SUMMIT	7760	4.9	5.4	4.9	91%	100%	9%
TOGWOTEE PASS	9580	11.3	11.6	11.1	97%	102%	5%
Basin-wide Percent	17 sites				93%	112%	19%



Water Year Precipitation Oct 1 – Jan 8



Idaho Water Year Precipitation Oct 1 – Jan 8

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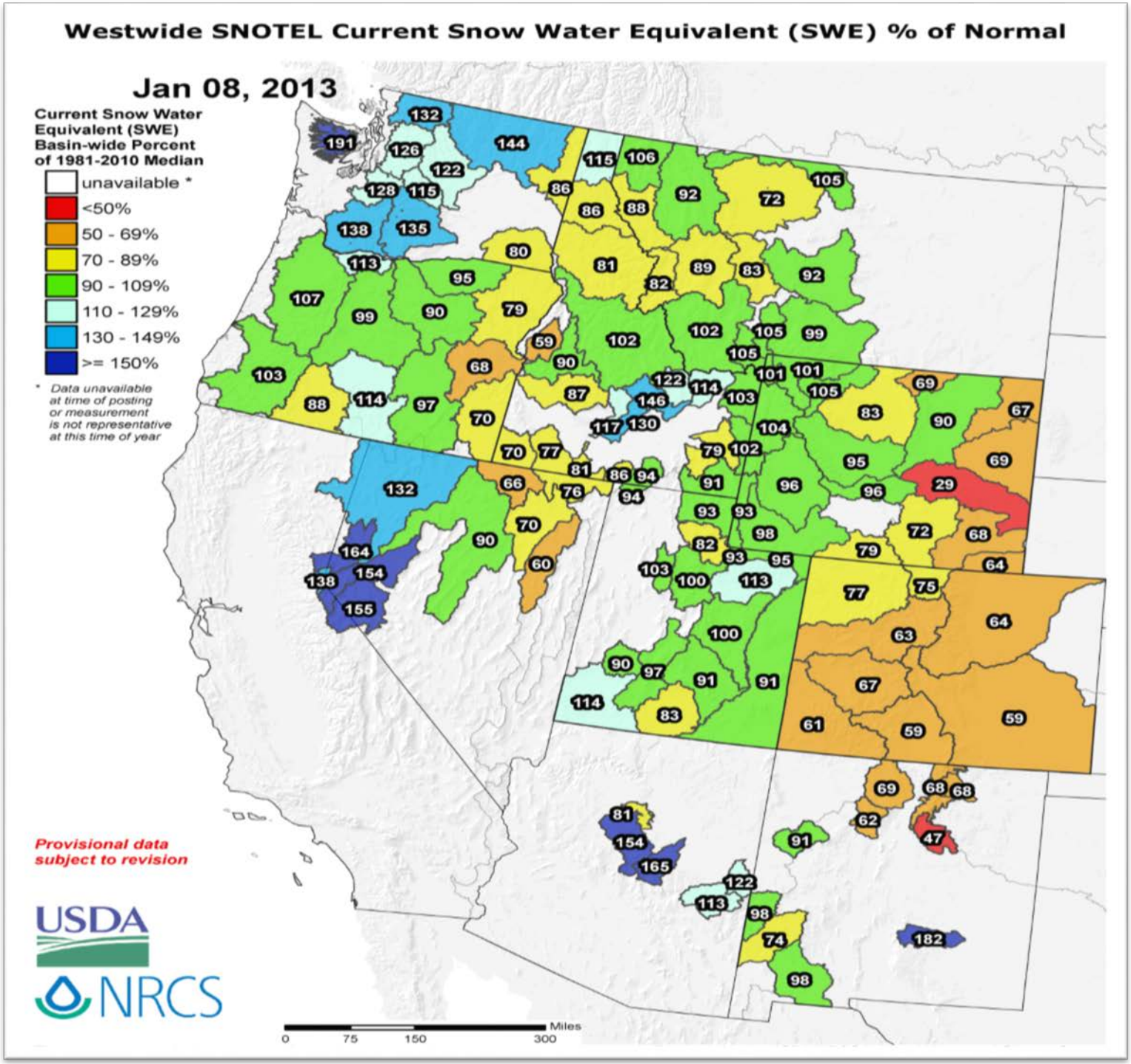
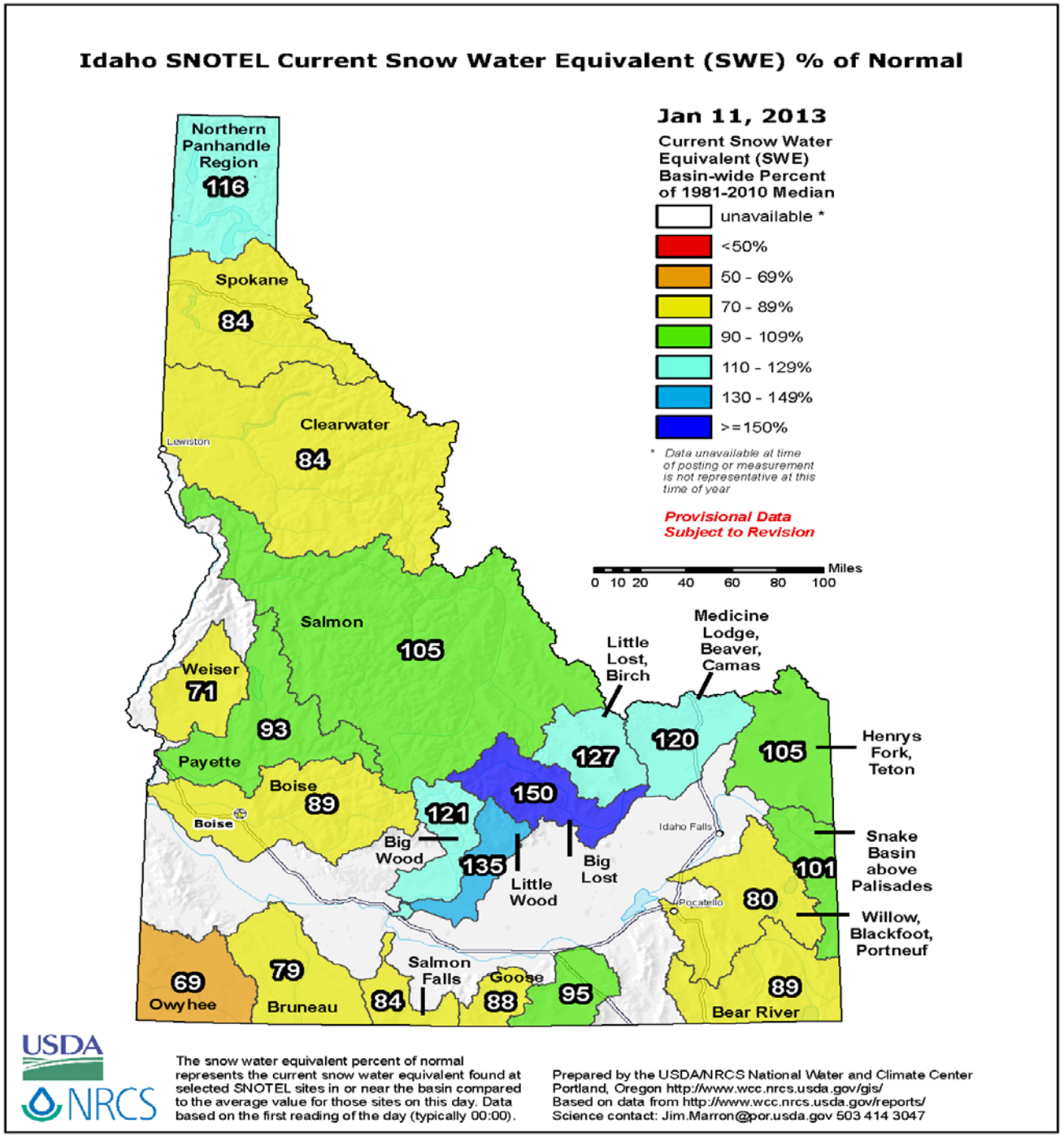


Snowpack as of Jan 8



Idaho Snowpack as of Jan 11

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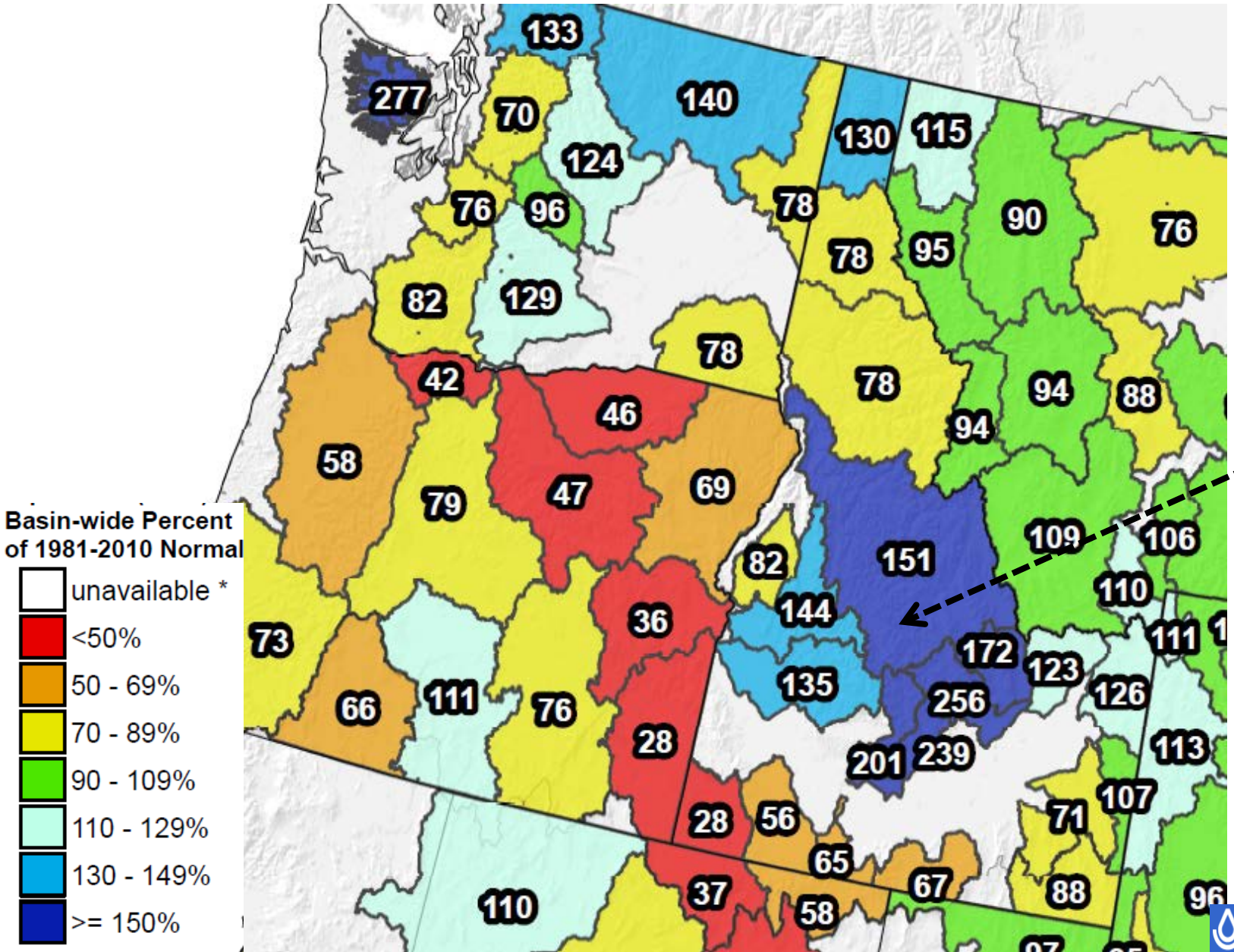
Snow Water % of Normal as of Dec 5th



Storms brought several feet of snow in Central Idaho Mountains

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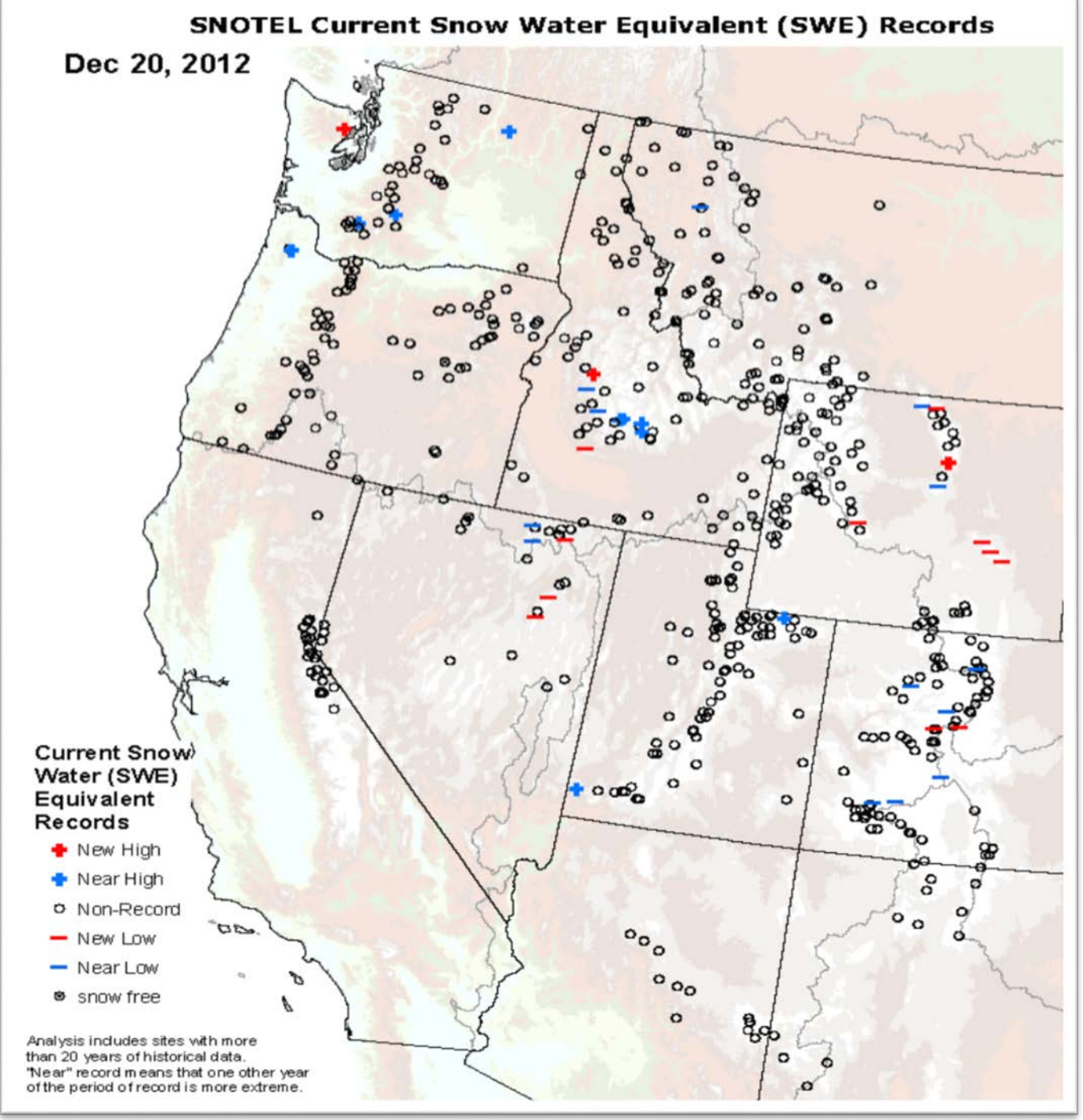

+ and – are Near Record High Snow above 6,881 feet:

- **Deadwood Summit**
- **Lost-wood Divide**
- **Bear Canyon**
- **Stickney Mill**

+ and – are Near Record Low Snow below 6100 feet:

- **Cozy Cove**
- **Graham GS**
- **Bogus Basin**

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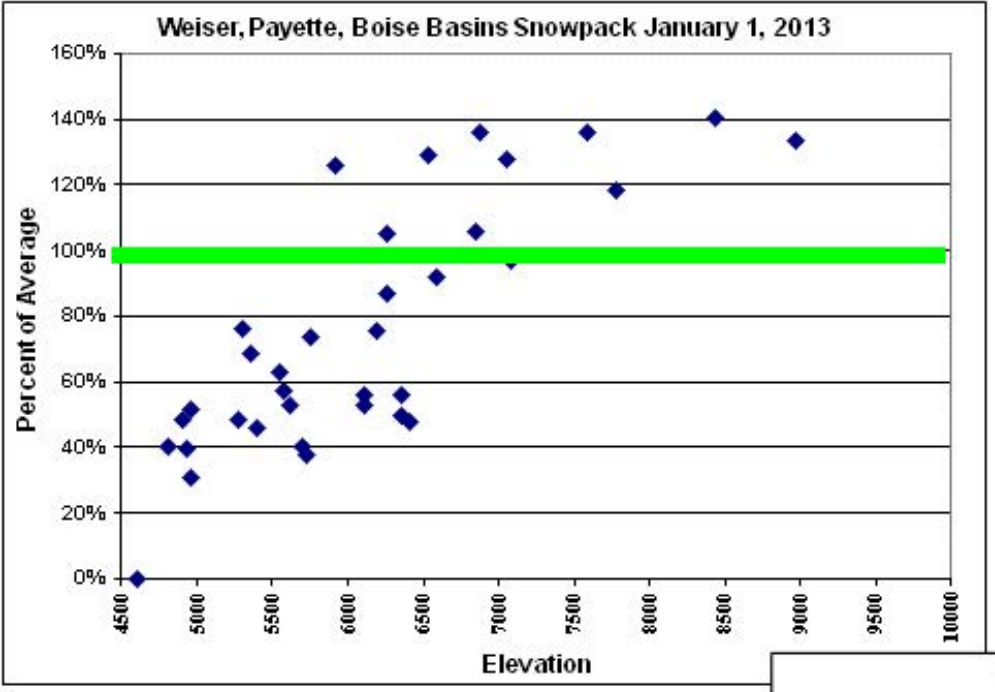
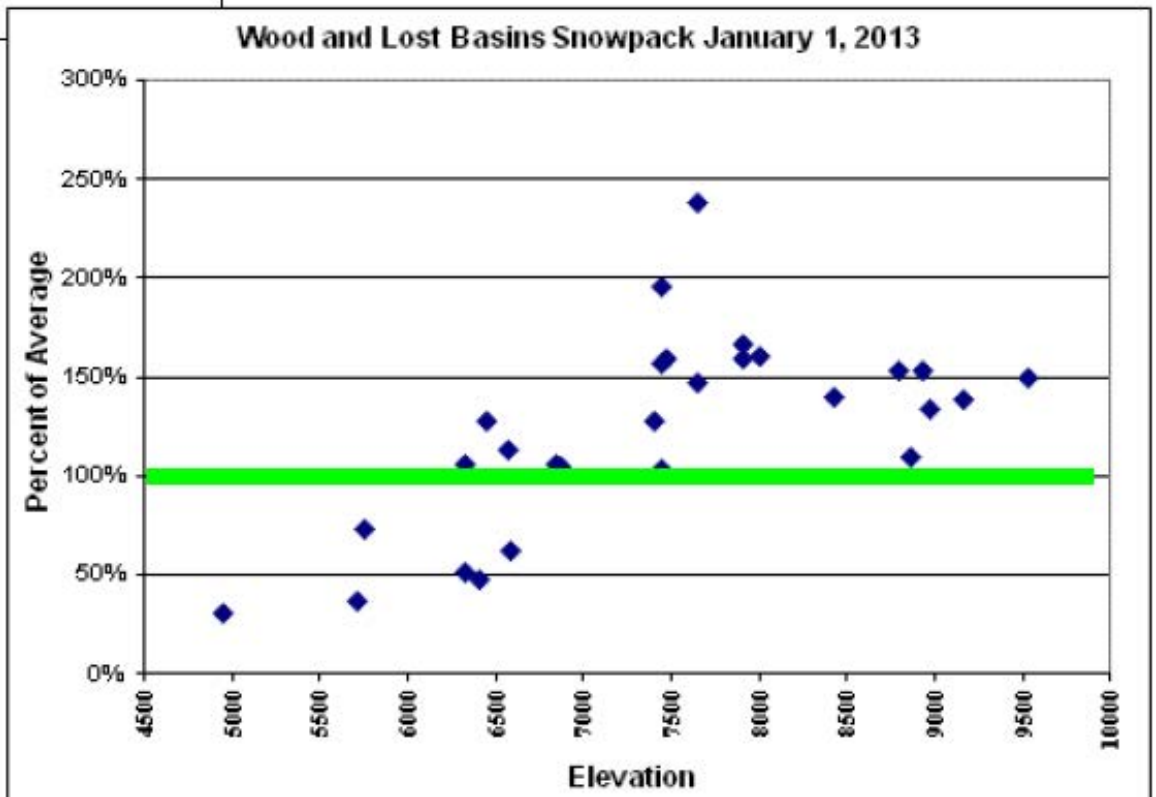
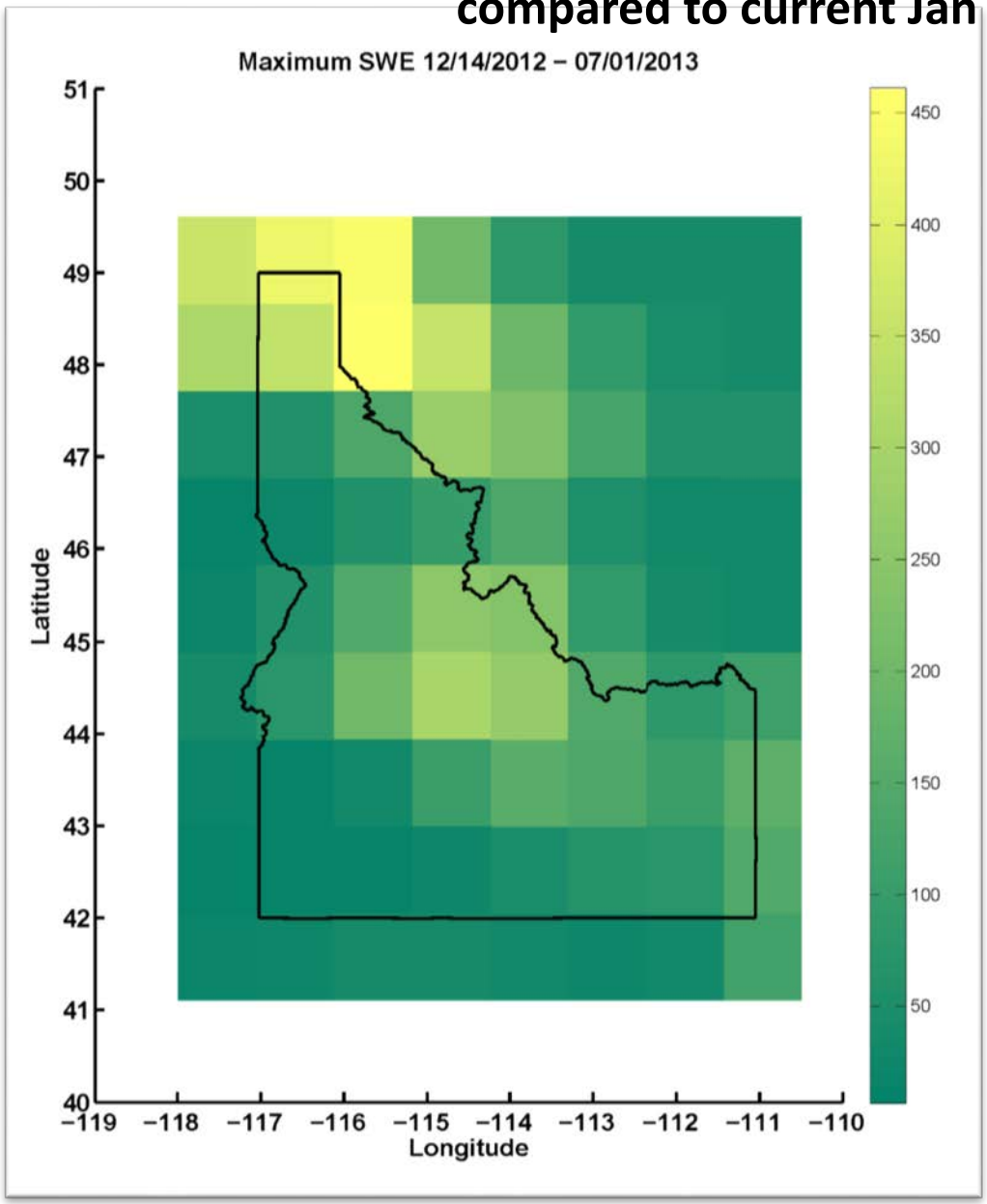
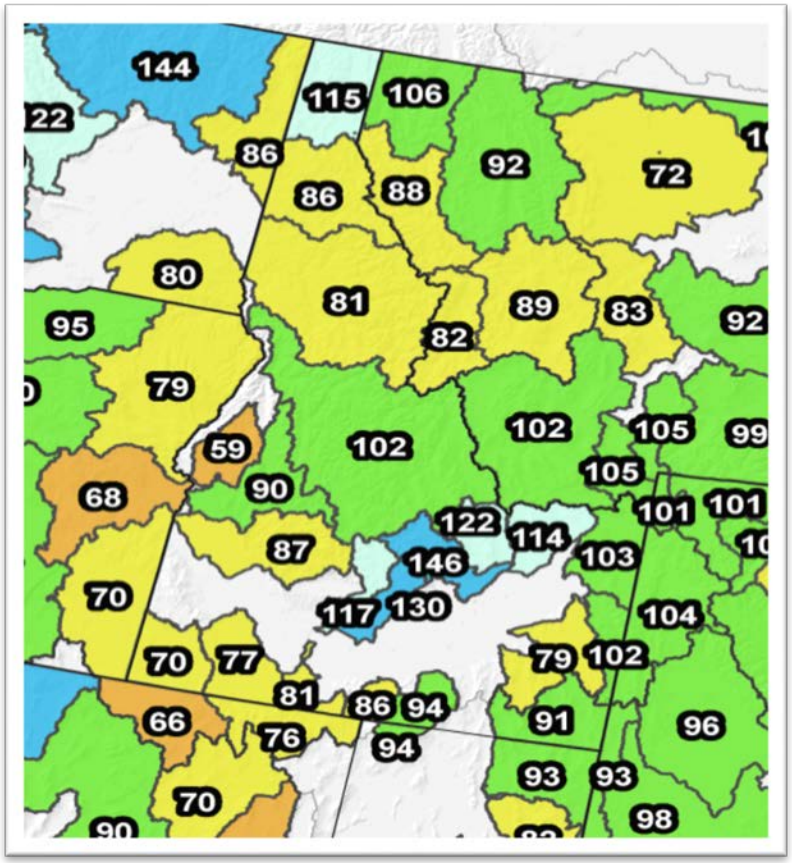

Weiser, Payette, Boise Basins Snowpack January 1, 2013
160%
140%
120%
100%
80%
60%
40%
20%
0%
Percent of Average
4500
5000
5500
6000
6500
7000
7500
8000
8500
9000
9500
10000
Elevation


Wood and Lost Basins Snowpack January 1, 2013
300%
250%
200%
150%
100%
50%
0%
Percent of Average
4500
5000
5500
6000
6500
7000
7500
8000
8500
9000
9500
10000
Elevation

2013 Snowpack trends
Long range experimental NCEP's Climate Forecast System Max SWE model compared to current Jan 8, 2013 conditions





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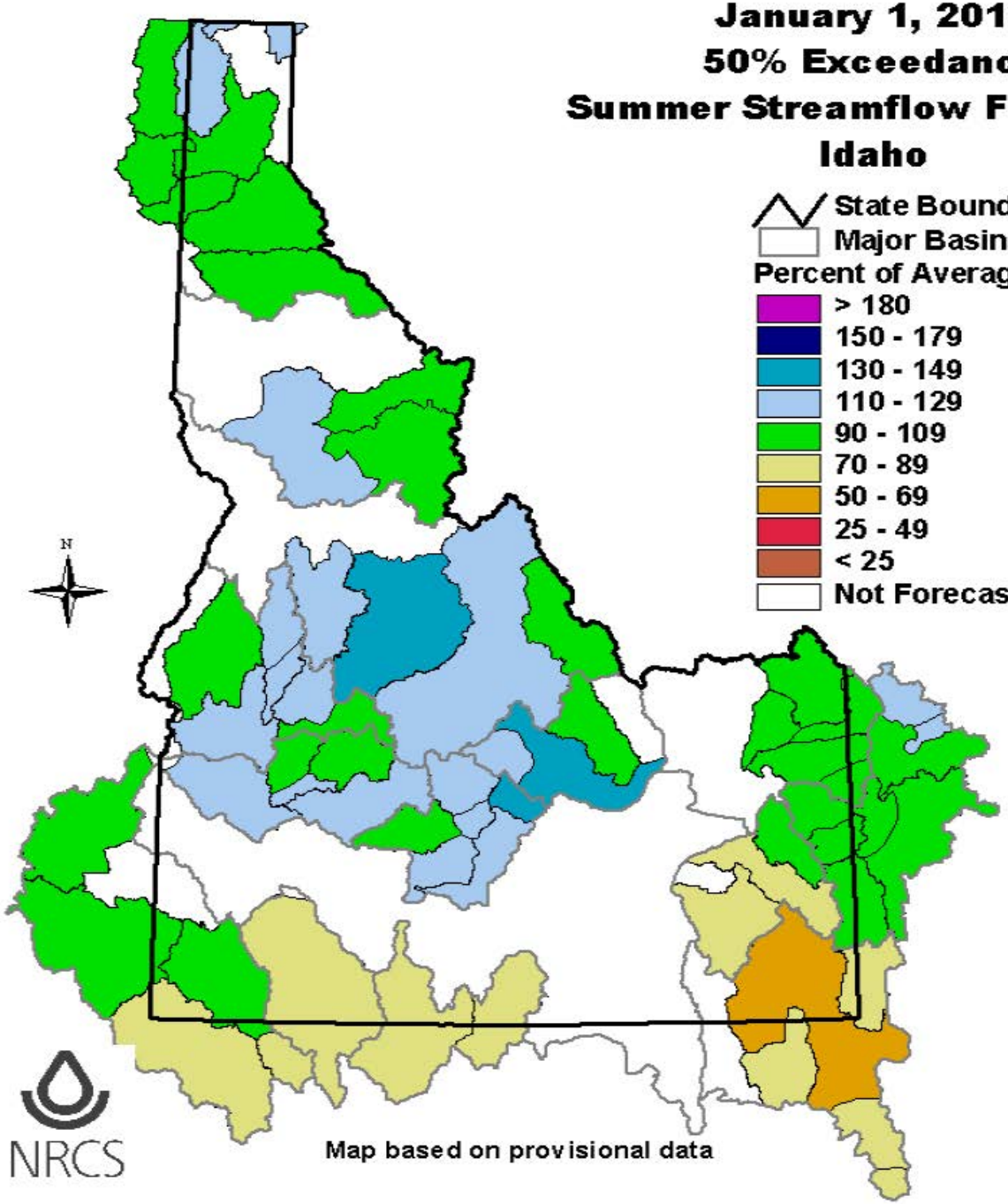
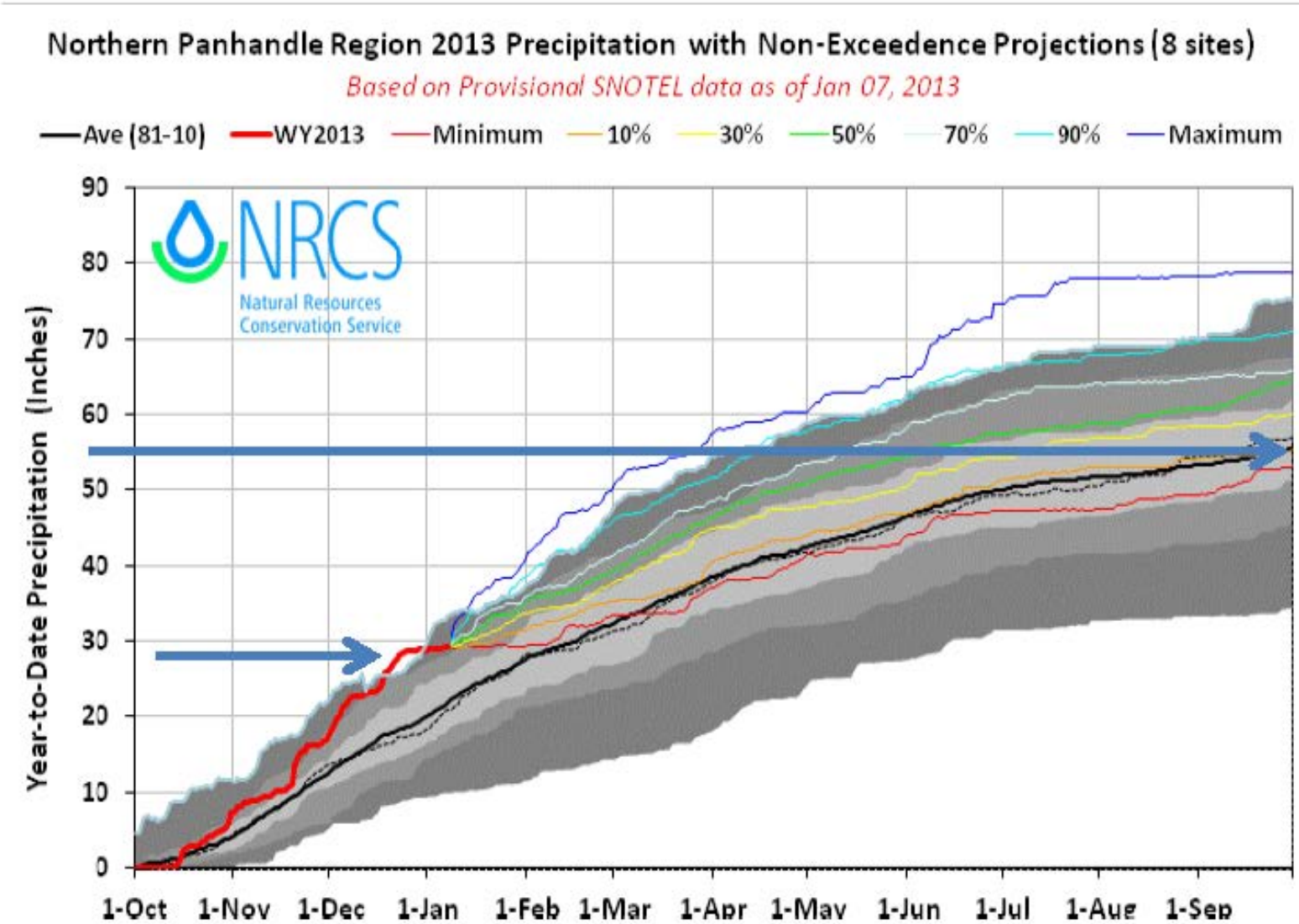
January 1, 2013
50% Exceedance
Summer Streamflow Forecasts
Idaho



2012 annual precipitation was 123% of average.

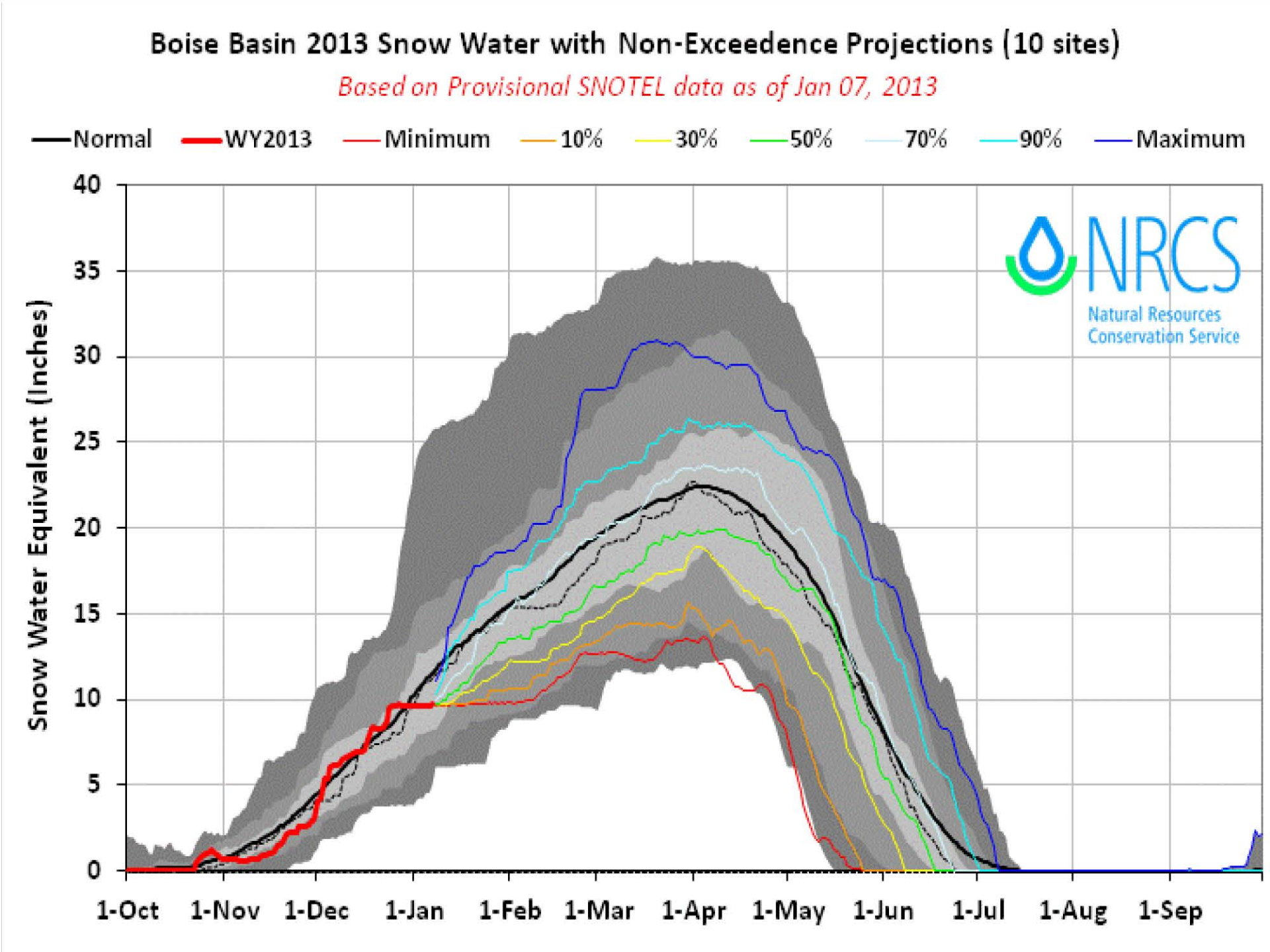
Above normal Fall precipitation primed soils and brought streams to above average levels.

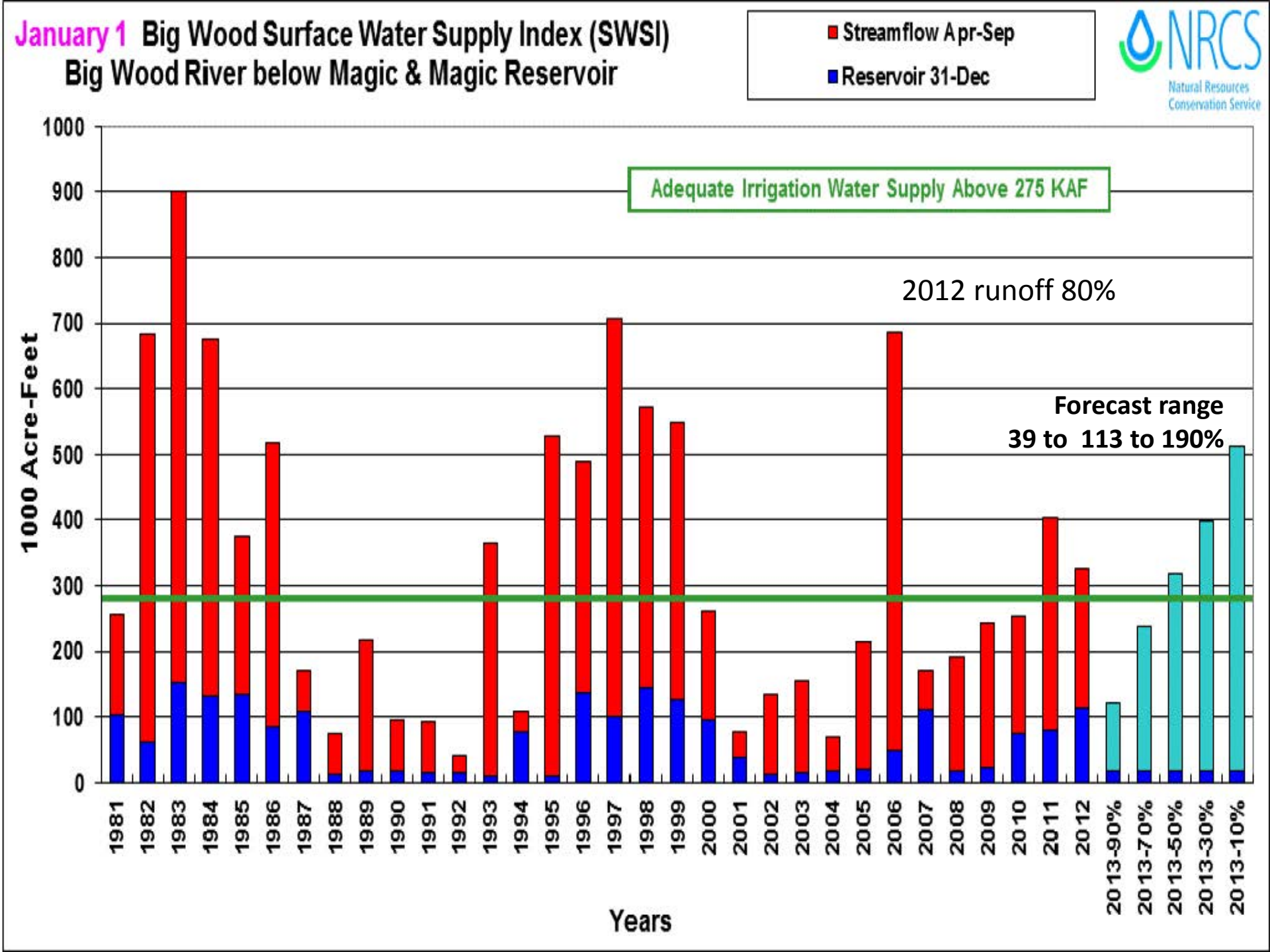


This region has already received over 57% of annual precipitation

Boise Basin 2013 Snow Water with Non-Exceedence Projections (10 sites)

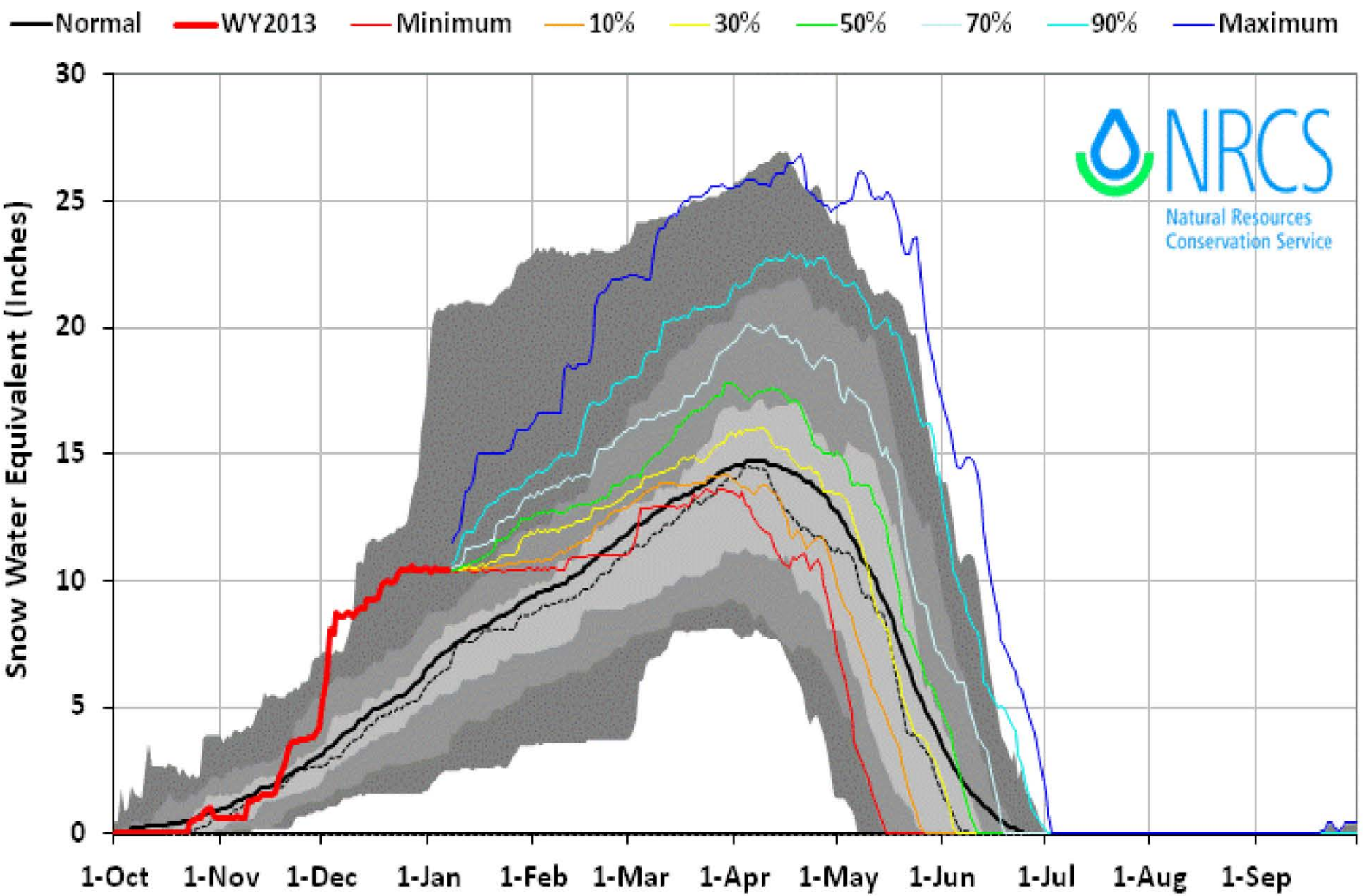
Based on Provisional SNOTEL data as of Jan 07, 2013




January 1 Big Wood Surface Water Supply Index (SWSI)
Big Wood River below Magic & Magic Reservoir
Streamflow Apr-Sep
Reservoir 31-Dec
NRCS
Natural Resources Conservation Service
Adequate Irrigation Water Supply Above 275 KAF
2012 runoff 80%
Forecast range
39 to 113 to 190%
1000 Acre-Feet
0
100
200
300
400
500
600
700
800
900
1000
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013-90%
2013-70%
2013-50%
2013-30%
2013-10%
Years

Big Lost Basin 2013 Snow Water with Non-Exceedence Projections (5 sites)

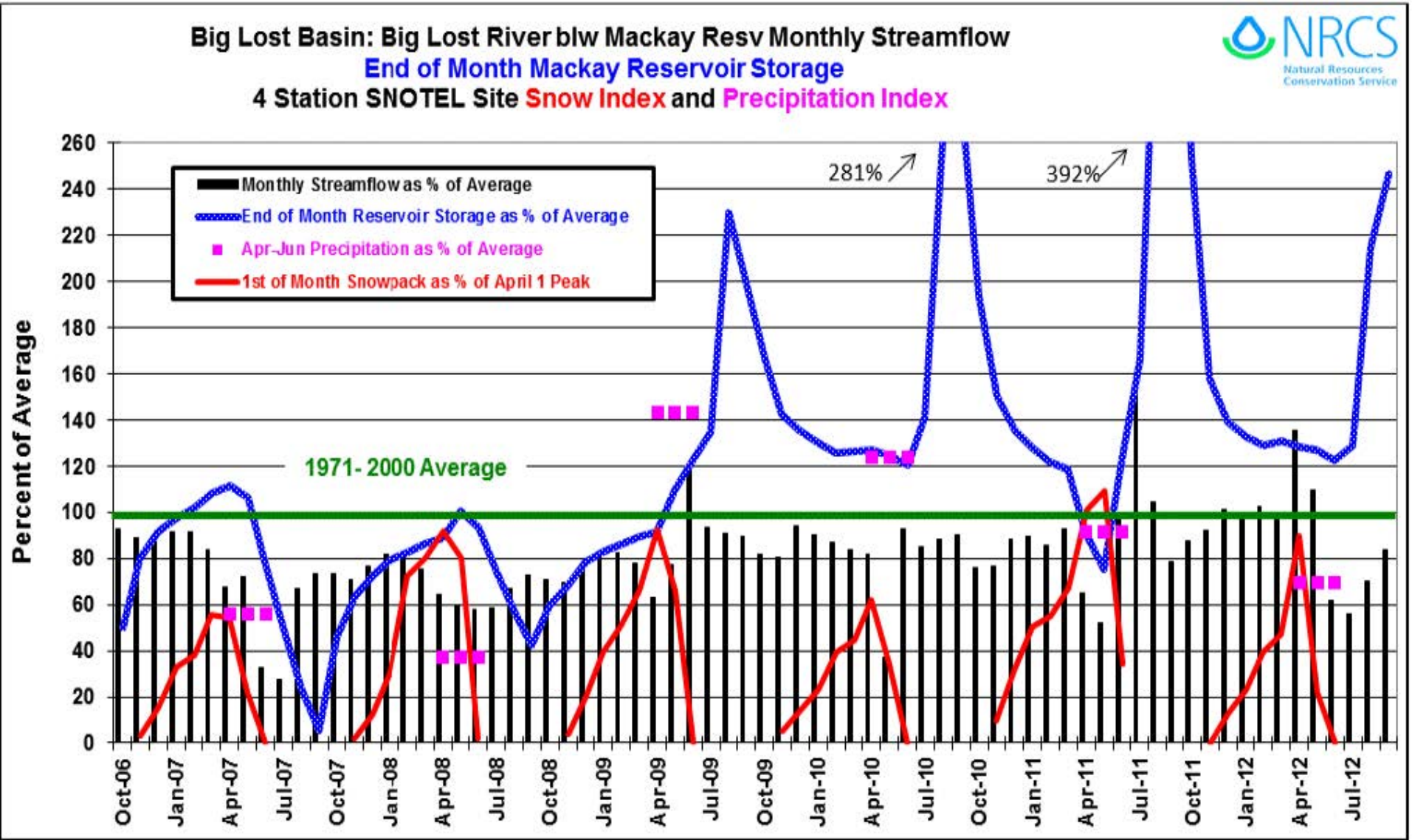
Based on Provisional SNOTEL data as of Jan 07, 2013

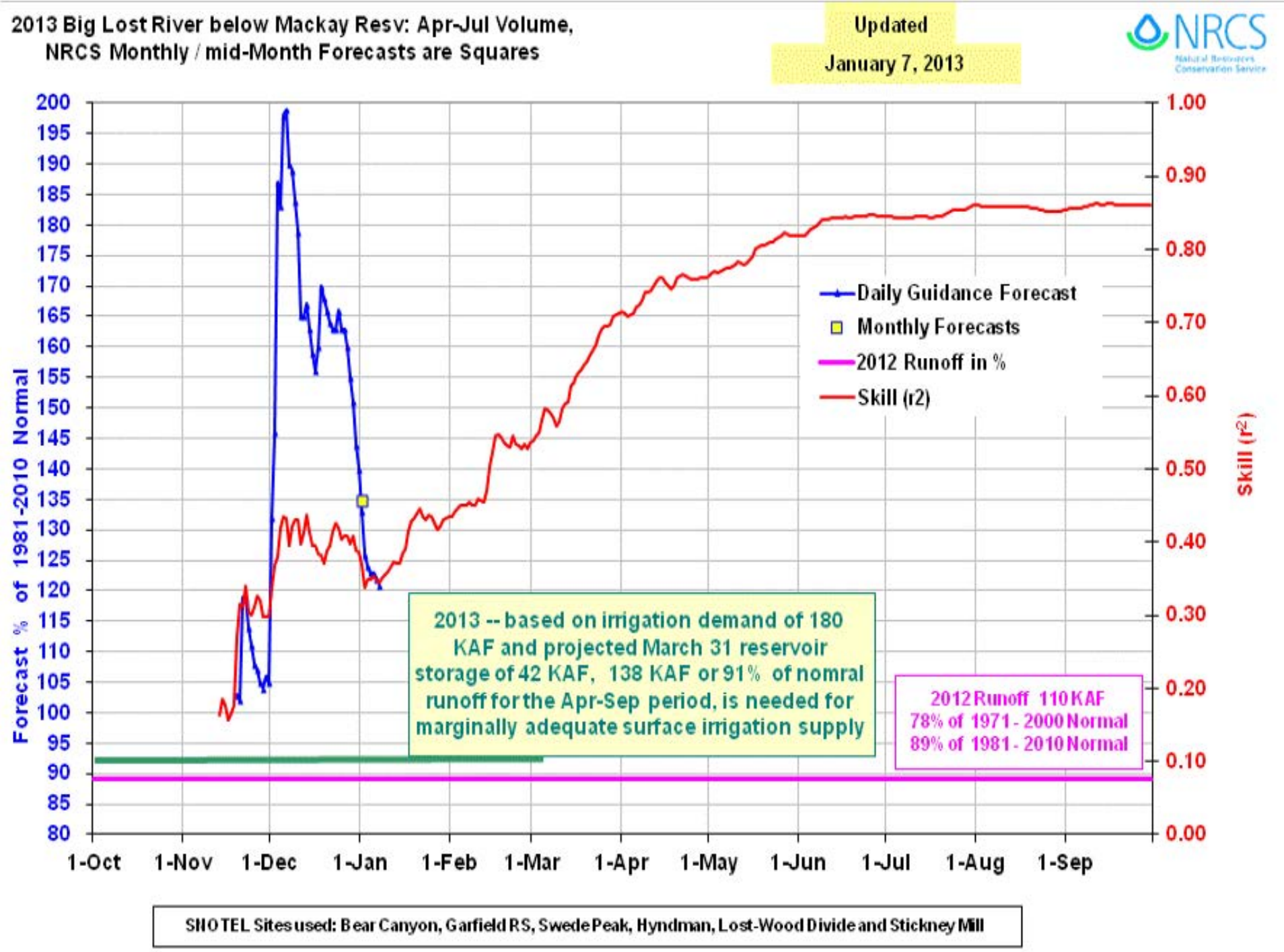


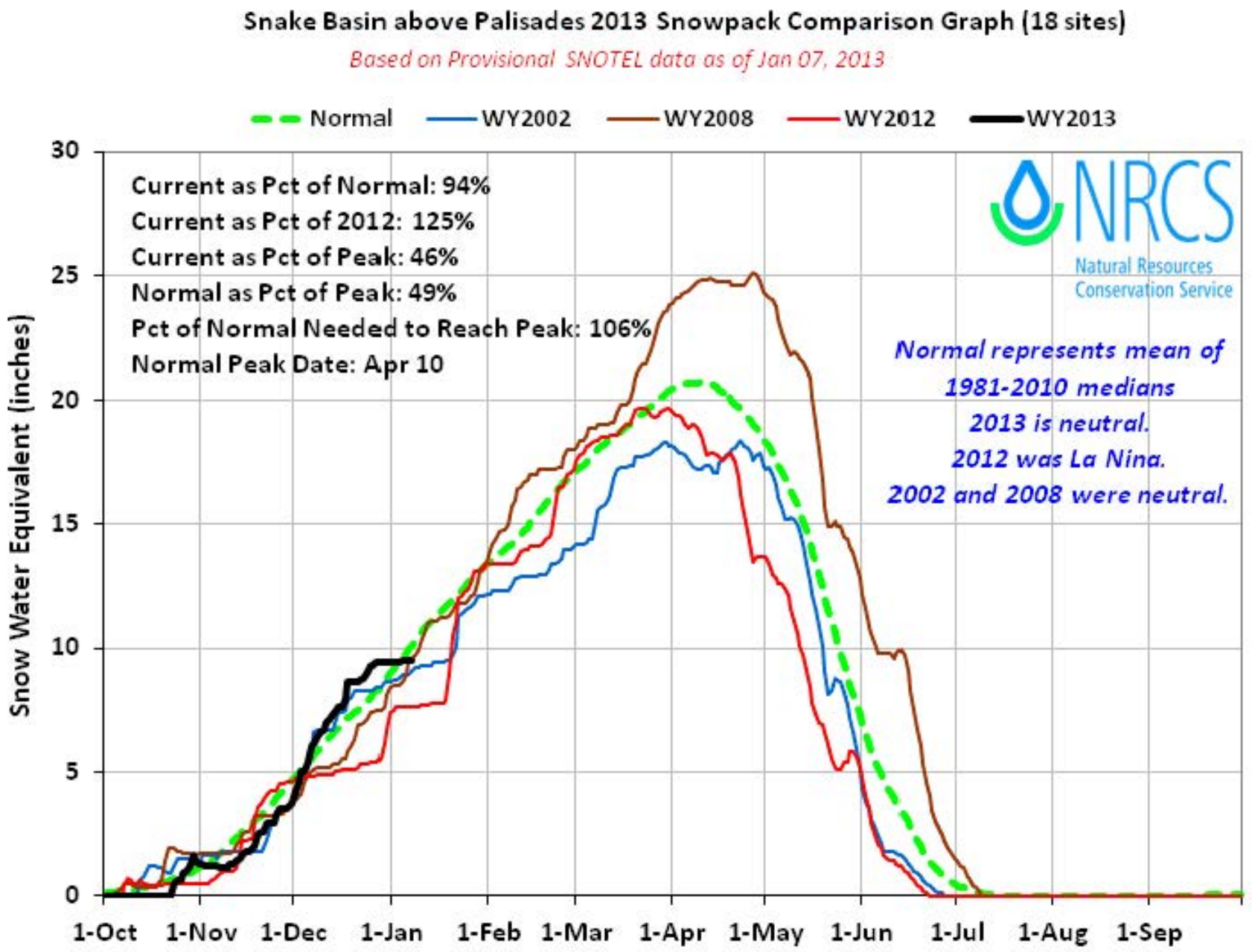
Dec 31, 2012 storage 28.3 KAF

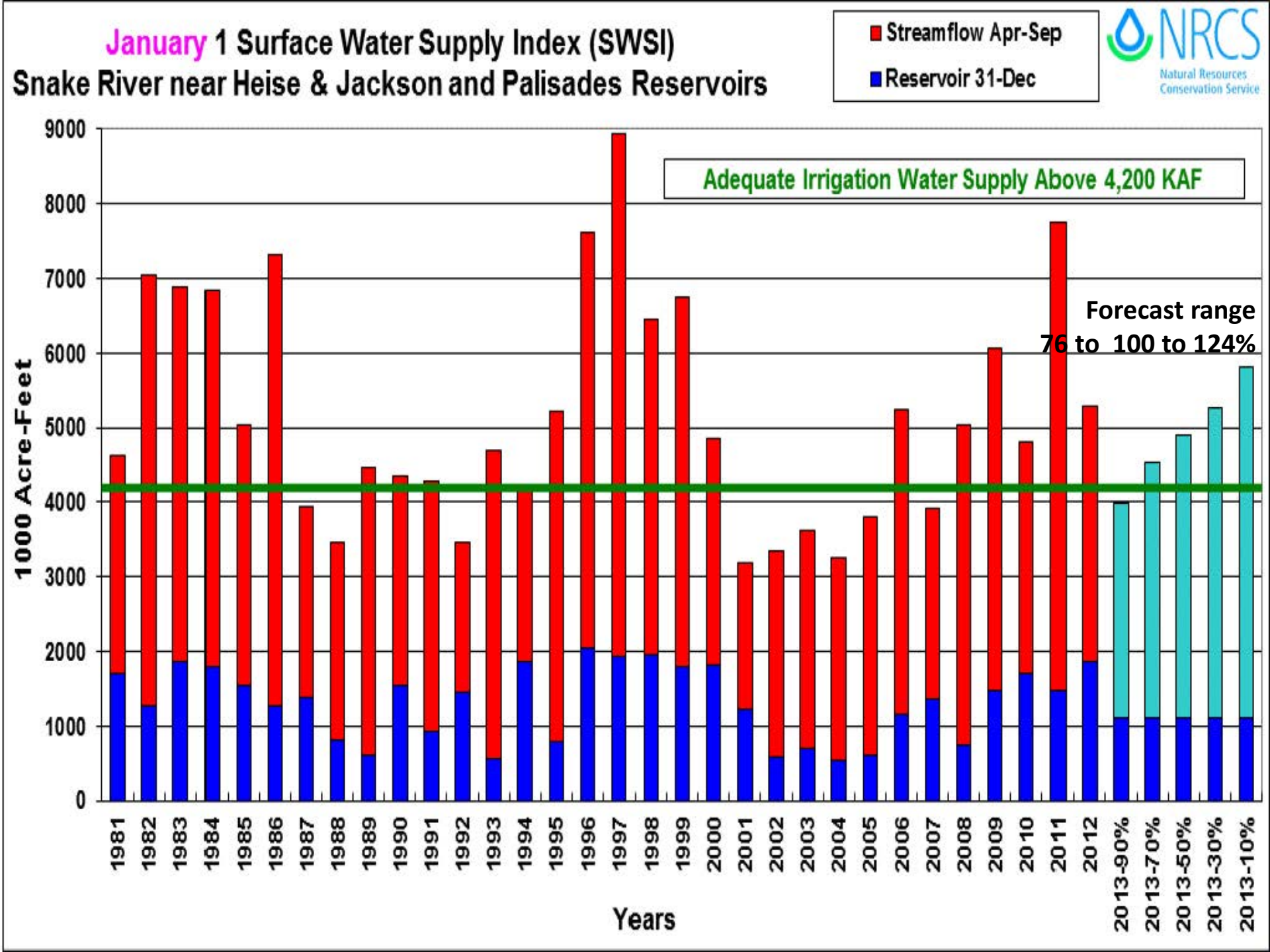
1971-00 average Dec 31 = 23.7 119 %

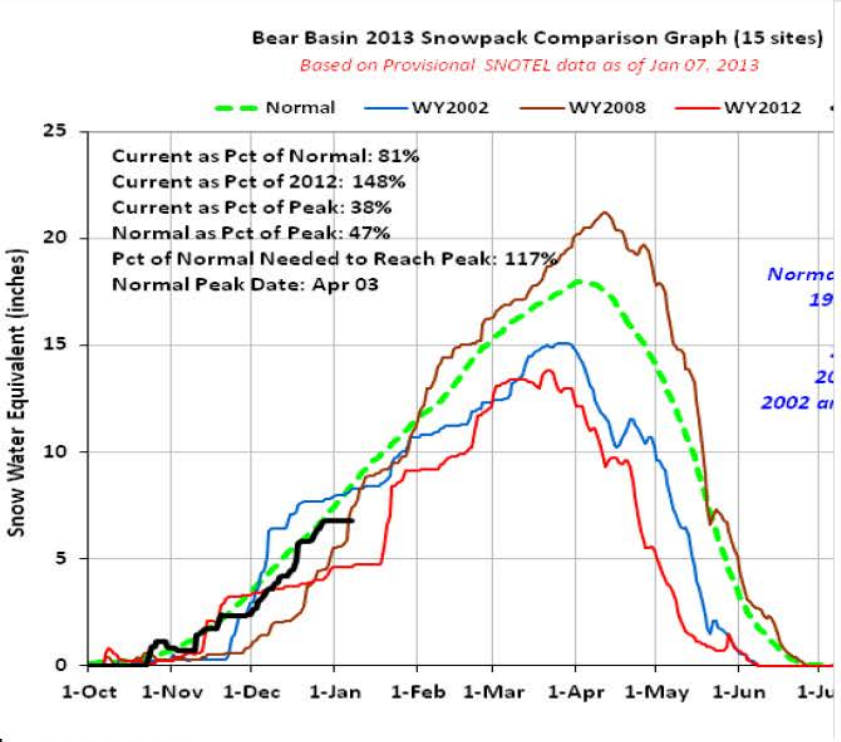
1981-10 average Dec 31 = 21.9 130%

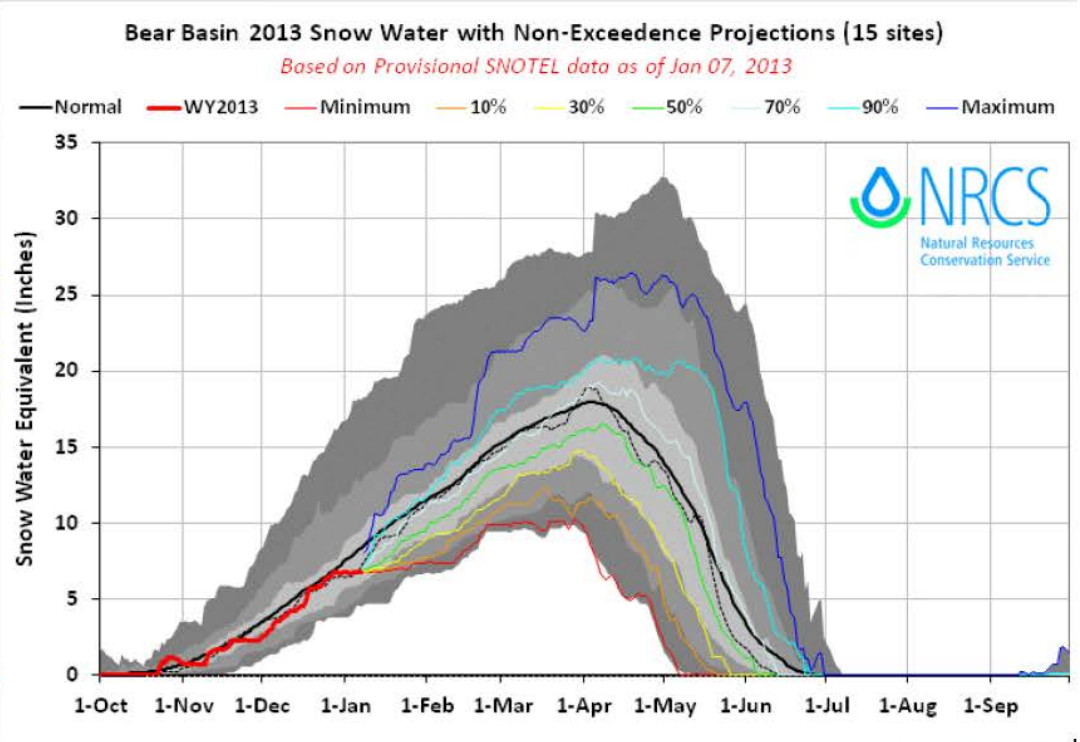


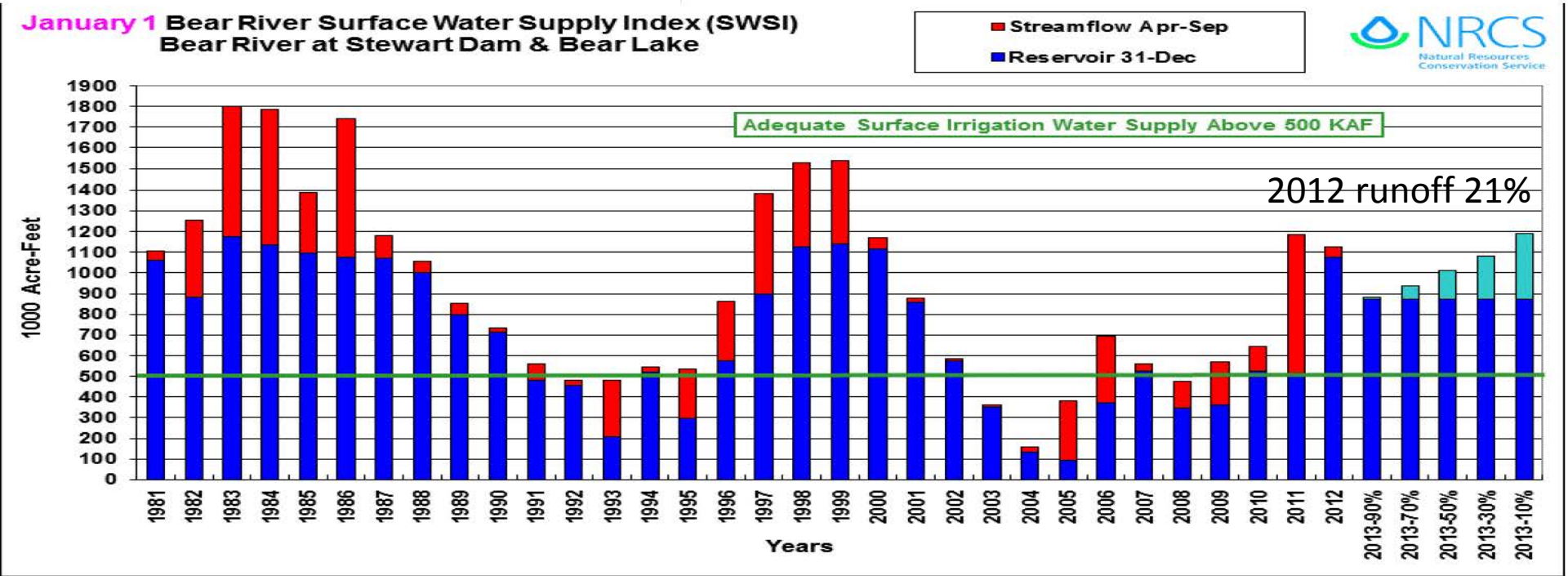

2013 Big Lost River below Mackay Resv: Apr-Jul Volume,
NRCS Monthly / mid-Month Forecasts are Squares
Updated
January 7, 2013
NRCS
Natural Resources Conservation Service
Forecast % of 1981-2010 Normal
Skill (r2)
Daily Guidance Forecast
Monthly Forecasts
2012 Runoff in %
Skill (r2)
2013 -- based on irrigation demand of 180 KAF and projected March 31 reservoir storage of 42 KAF, 138 KAF or 91% of nomral runoff for the Apr-Sep period, is needed for marginally adequate surface irrigation supply
2012 Runoff 110 KAF
78% of 1971 - 2000 Normal
89% of 1981 - 2010 Normal
1-Oct
1-Nov
1-Dec
1-Jan
1-Feb
1-Mar
1-Apr
1-May
1-Jun
1-Jul
1-Aug
1-Sep
SNOTEL Sites used: Bear Canyon, Garfield RS, Swede Peak, Hyndman, Lost-Wood Divide and Stickney Mill


Snake Basin above Palisades 2013 Snowpack Comparison Graph (18 sites)
Based on Provisional SNOTEL data as of Jan 07, 2013
Normal
WY2002
WY2008
WY2012
WY2013
Current as Pct of Normal: 94%
Current as Pct of 2012: 125%
Current as Pct of Peak: 46%
Normal as Pct of Peak: 49%
Pct of Normal Needed to Reach Peak: 106%
Normal Peak Date: Apr 10
NRCS
Natural Resources Conservation Service
Normal represents mean of 1981-2010 medians
2013 is neutral.
2012 was La Nina.
2002 and 2008 were neutral.
Snow Water Equivalent (inches)
30
25
20
15
10
5
0
1-Oct
1-Nov
1-Dec
1-Jan
1-Feb
1-Mar
1-Apr
1-May
1-Jun
1-Jul
1-Aug
1-Sep


January 1 Surface Water Supply Index (SWSI)
Snake River near Heise & Jackson and Palisades Reservoirs
Streamflow Apr-Sep
Reservoir 31-Dec
NRCS
Natural Resources Conservation Service
Adequate Irrigation Water Supply Above 4,200 KAF
Forecast range
76 to 100 to 124%
1000 Acre-Feet
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013-90%
2013-70%
2013-50%
2013-30%
2013-10%
Years

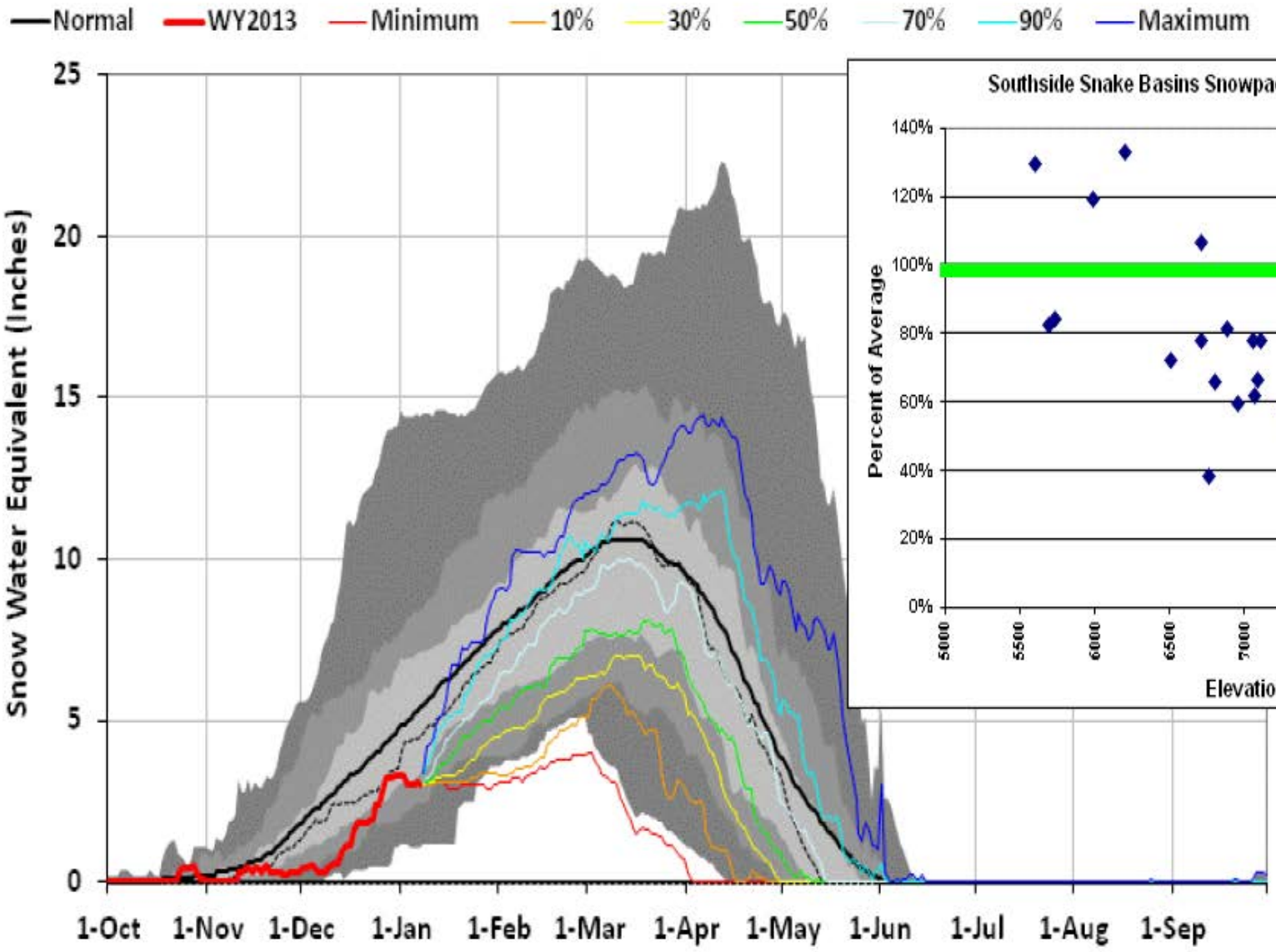

Bear Basin 2013 Snowpack Comparison Graph (15 sites)
Based on Provisional SNOTEL data as of Jan 07, 2013
Normal
WY2002
WY2008
WY2012
Current as Pct of Normal: 81%
Current as Pct of 2012: 148%
Current as Pct of Peak: 38%
Normal as Pct of Peak: 47%
Pct of Normal Needed to Reach Peak: 117%
Normal Peak Date: Apr 03
Snow Water Equivalent (inches)
0
5
10
15
20
25
1-Oct
1-Nov
1-Dec
1-Jan
1-Feb
1-Mar
1-Apr
1-May
1-Jun


Bear Basin 2013 Snow Water with Non-Exceedence Projections (15 sites)
Based on Provisional SNOTEL data as of Jan 07, 2013
Normal
WY2013
Minimum
10%
30%
50%
70%
90%
Maximum
Snow Water Equivalent (Inches)
0
5
10
15
20
25
30
35
1-Oct
1-Nov
1-Dec
1-Jan
1-Feb
1-Mar
1-Apr
1-May
1-Jun
1-Jul
1-Aug
1-Sep
NRCS
Natural Resources Conservation Service

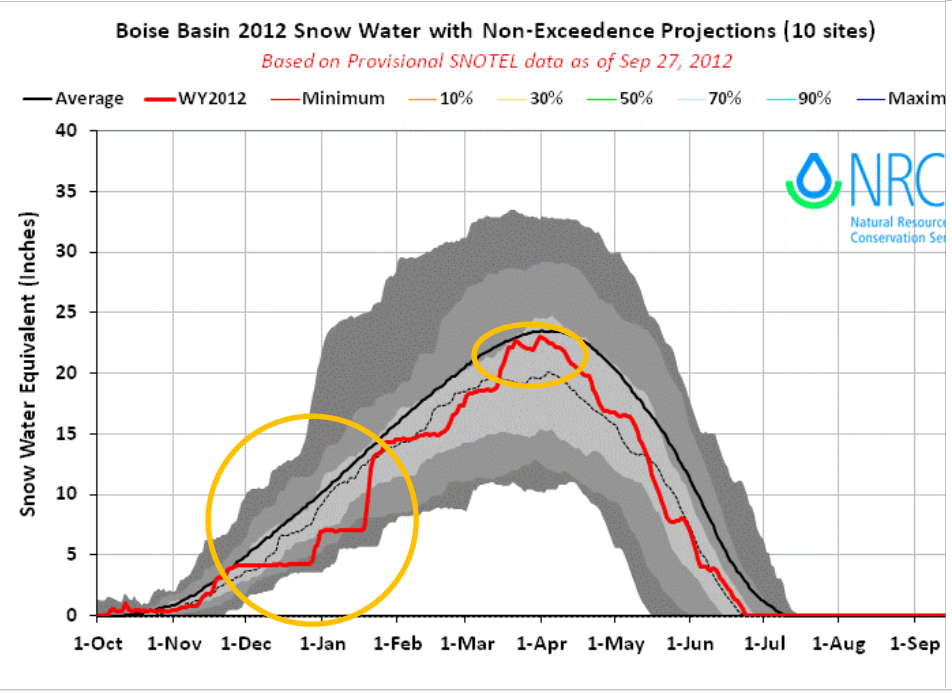

January 1 Bear River Surface Water Supply Index (SWSI)
Bear River at Stewart Dam & Bear Lake
Streamflow Apr-Sep
Reservoir 31-Dec
NRCS
Natural Resources Conservation Service
Adequate Surface Irrigation Water Supply Above 500 KAF
2012 runoff 21%
1000 Acre-Feet
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013-90%
2013-70%
2013-50%
2013-30%
2013-10%
Years

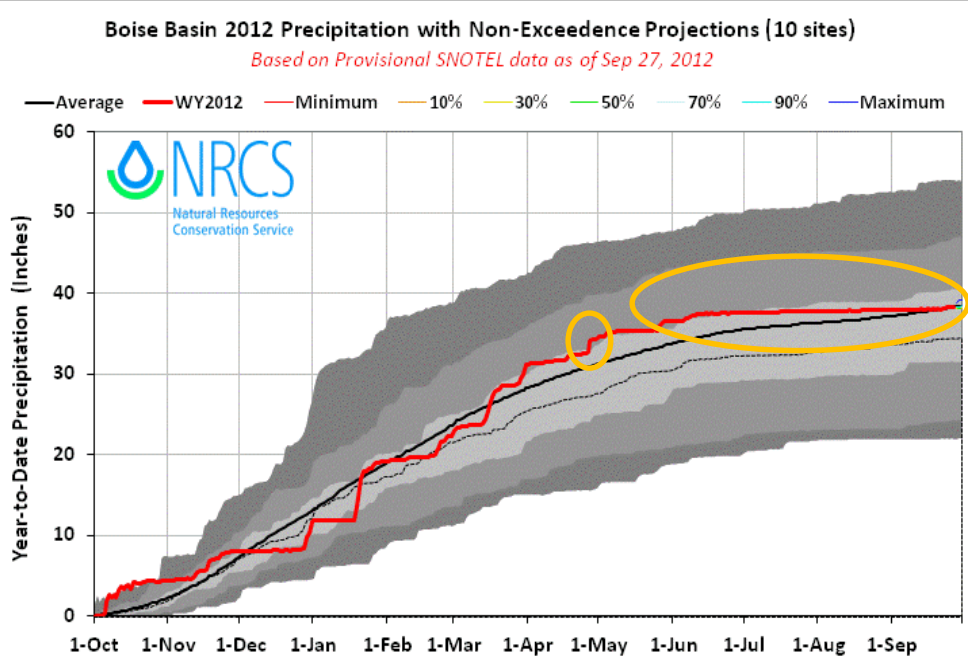
Owyhee Basin 2013 Snow Water with Non-Exceedence Projections (7 sites)

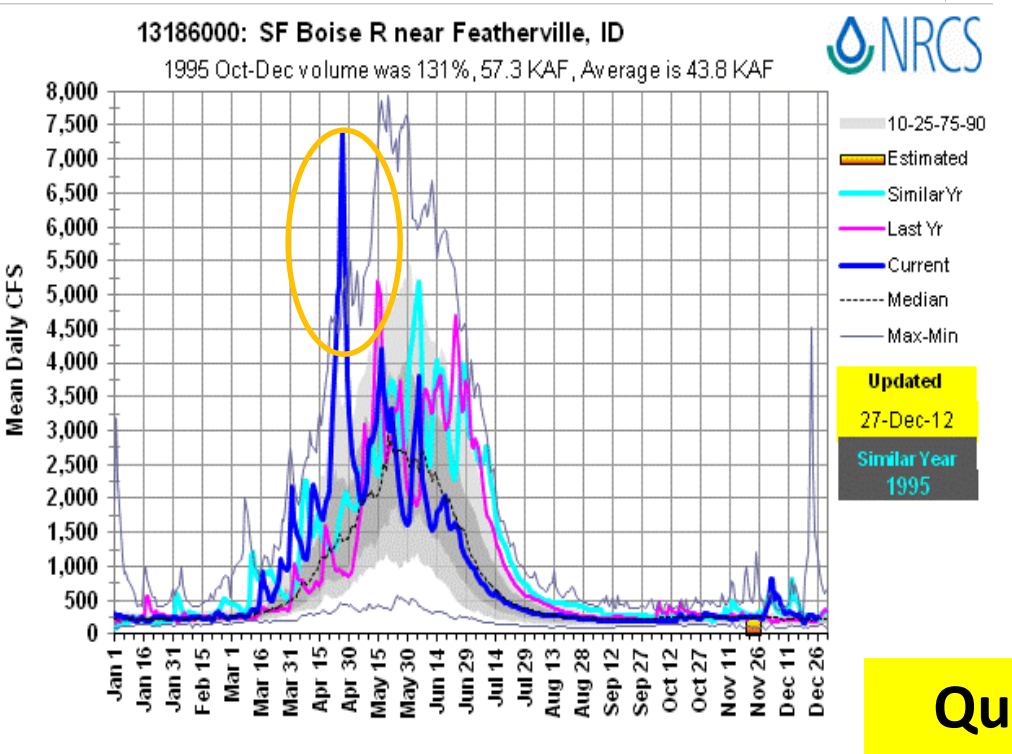
Based on Provisional SNOTEL data as of Jan 07, 2013



NRCS Natural Resources Conservation Service







The graphs above, make 2012 look like a normal year, but the way the snow fell, melted with 90F temperatures in early April followed by 1-2” of rain in late April and minimal summer precipitation was anything but normal….

Let’s hope 2013 is a little more normal with these new normals.

Questions/Comments

NRCS Natural Resources Conservation Service