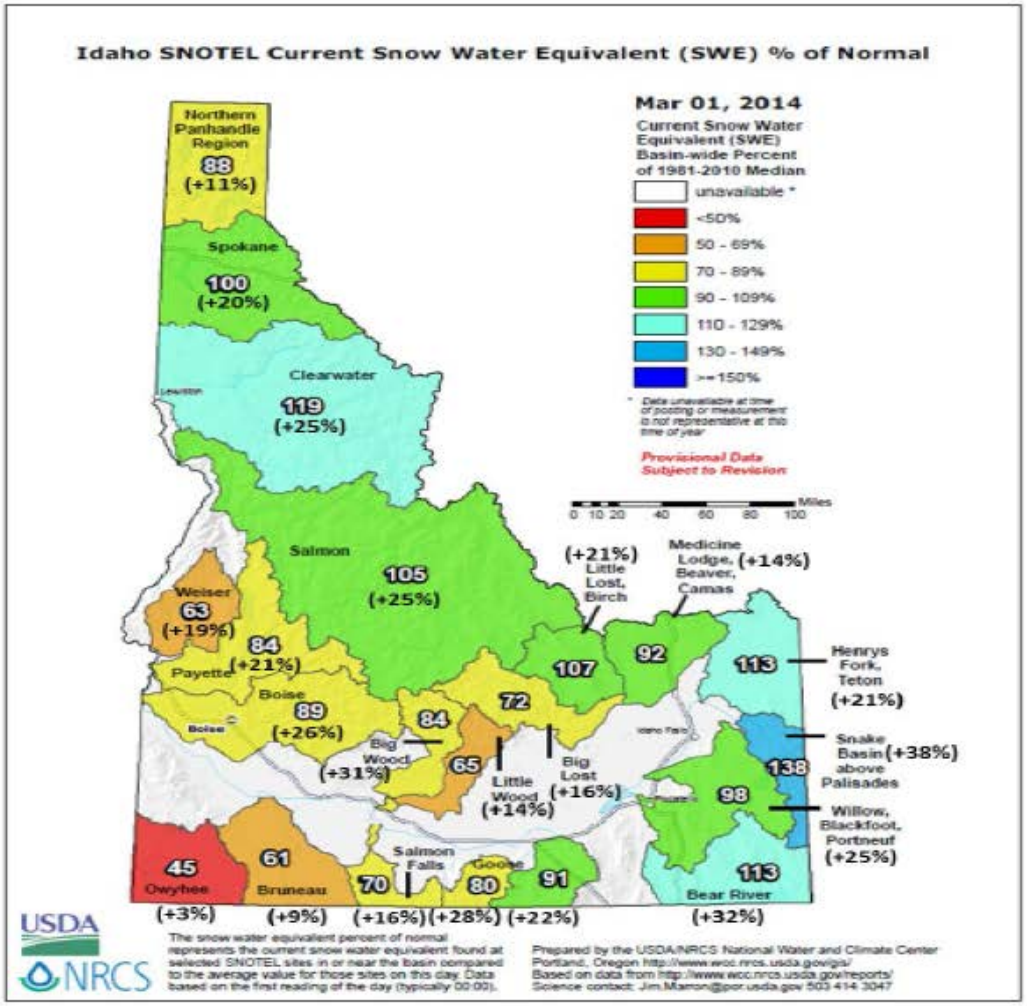
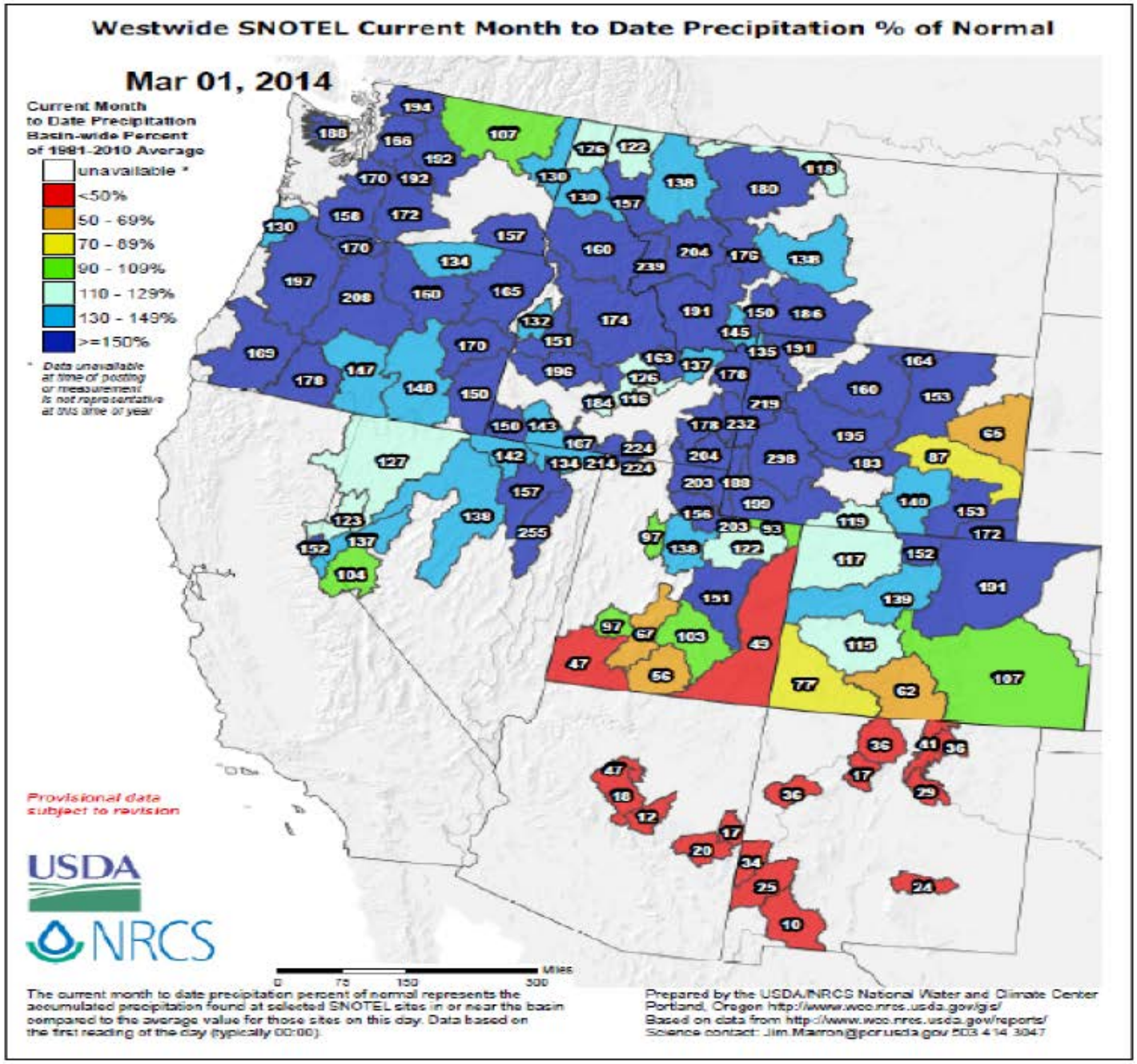
Natural Resources Conservation Service

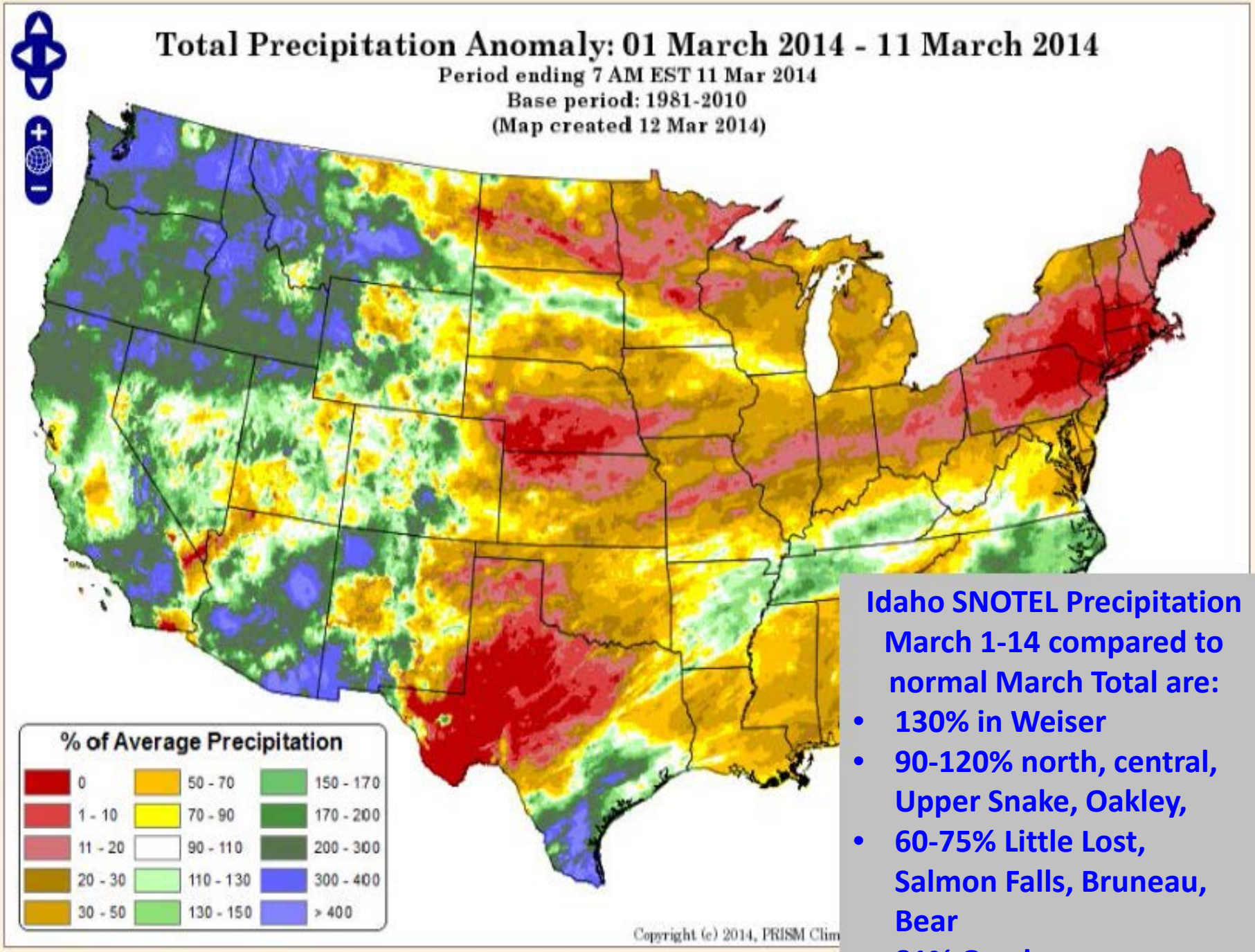
Idaho Water Supply Outlook Report
March 1, 2014



The "Pineapple Express" and major storm cycle during February brought up to twice the normal monthly precipitation throughout most of Idaho and also brought good news for most of Idaho's numerous water users. The above map shows the March 1 snow water content levels based on SNOTEL sites in the region and the increase in snowpack percentage points (in parentheses) since the 1st of February.

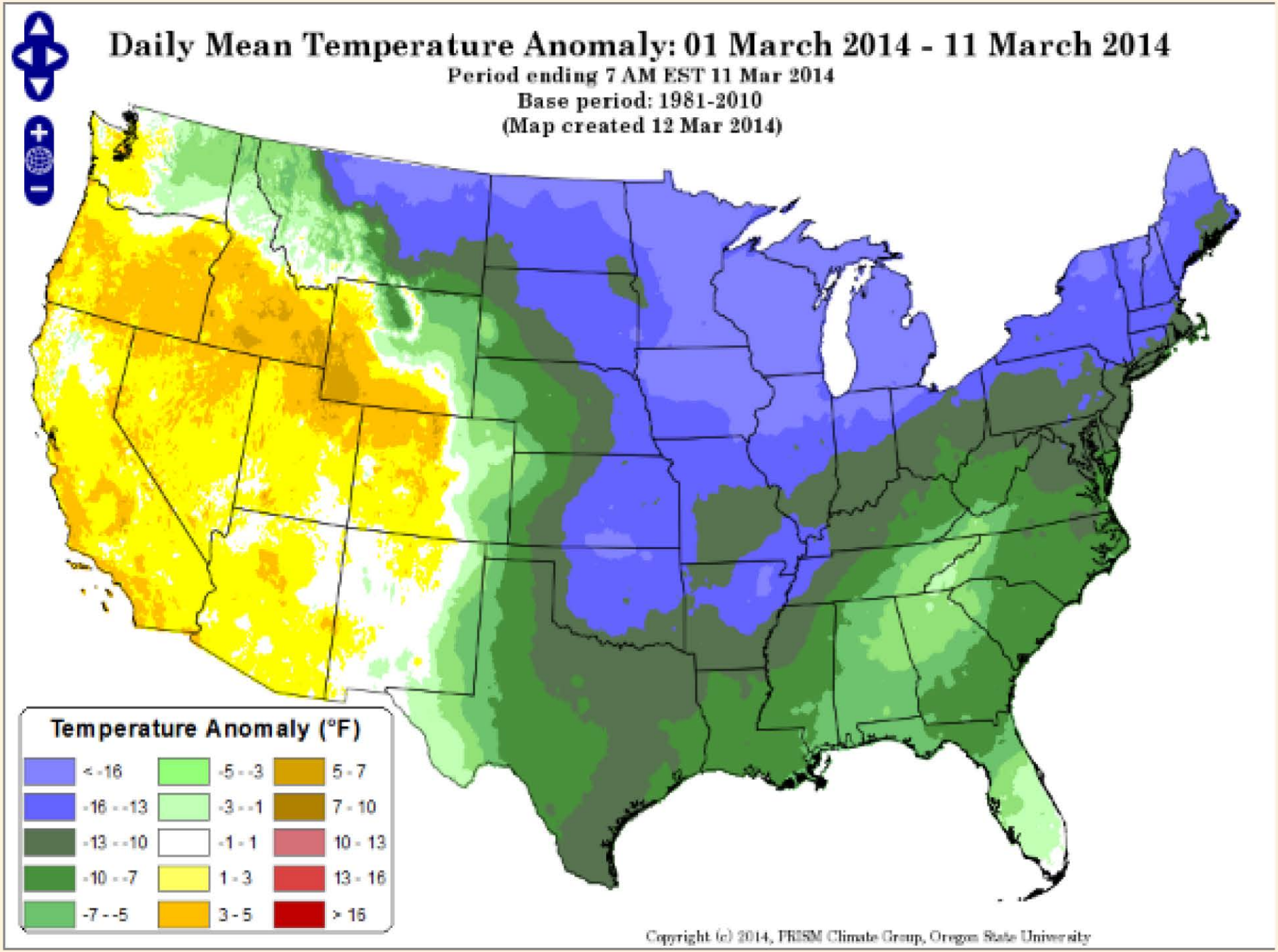
February SNOTEL Precipitation as % of Average



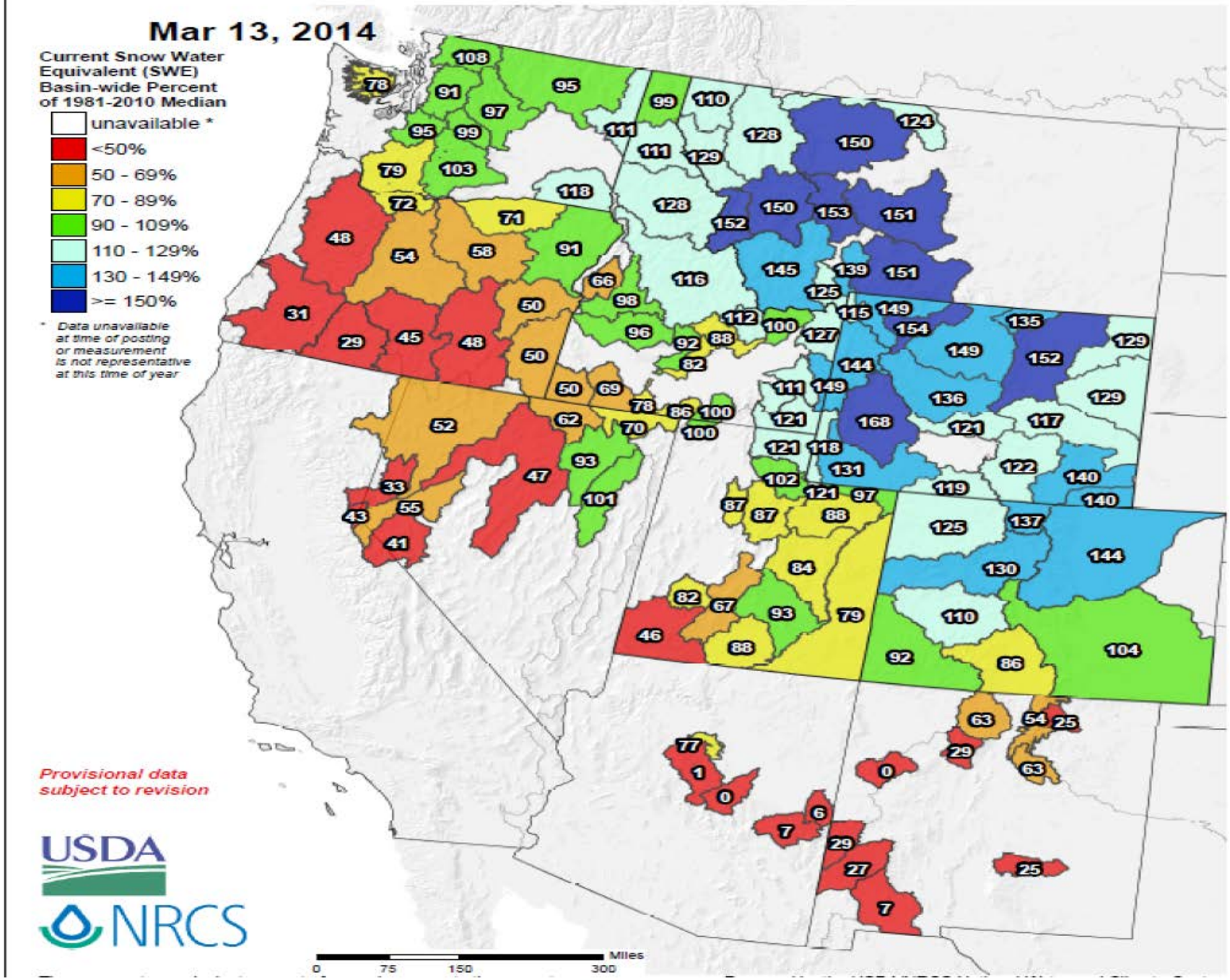


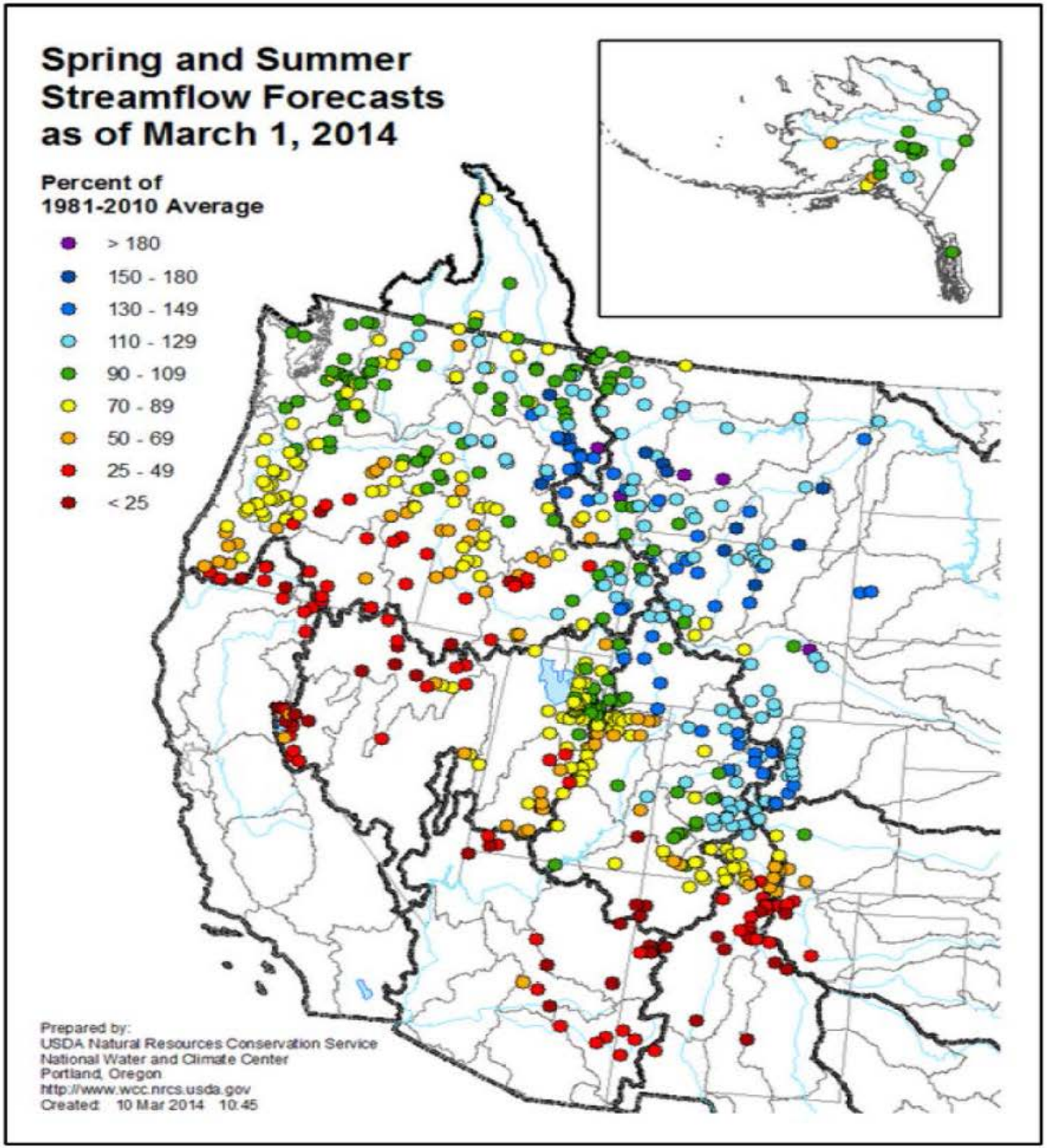
Idaho SNOTEL Precipitation March 1-14 compared to normal March Total are:

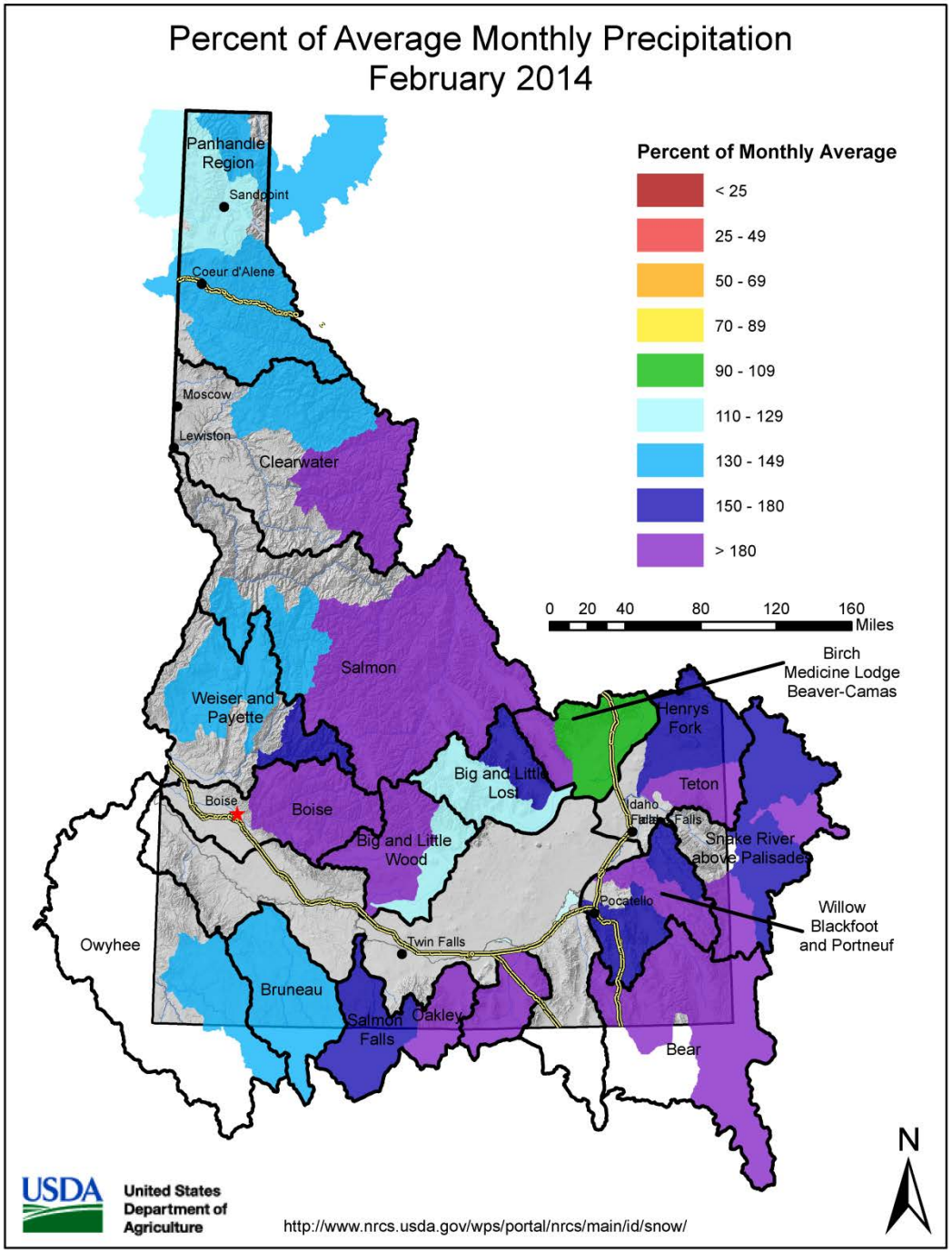
- **130% in Weiser**
- **90-120% north, central, Upper Snake, Oakley,**
- **60-75% Little Lost, Salmon Falls, Bruneau, Bear**
- **81% Owyhee**


Daily Mean Temperature Anomaly: 01 March 2014 - 11 March 2014
Period ending 7 AM EST 11 Mar 2014
Base period: 1981-2010
(Map created 12 Mar 2014)
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
Copyright (c) 2014, PRISM Climate Group, Oregon State University

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




Spring and Summer
Streamflow Forecasts
as of March 1, 2014
Percent of
1981-2010 Average
> 180
150 - 180
130 - 149
110 - 129
90 - 109
70 - 89
50 - 69
25 - 49
< 25
Prepared by:
USDA Natural Resources Conservation Service
National Water and Climate Center
Portland, Oregon
http://www.wcc.nrcs.usda.gov
Created: 10 Mar 2014 10:45



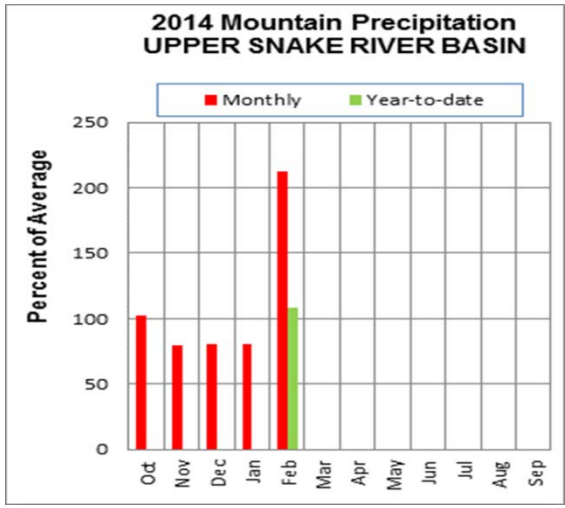
February SWE Increase:

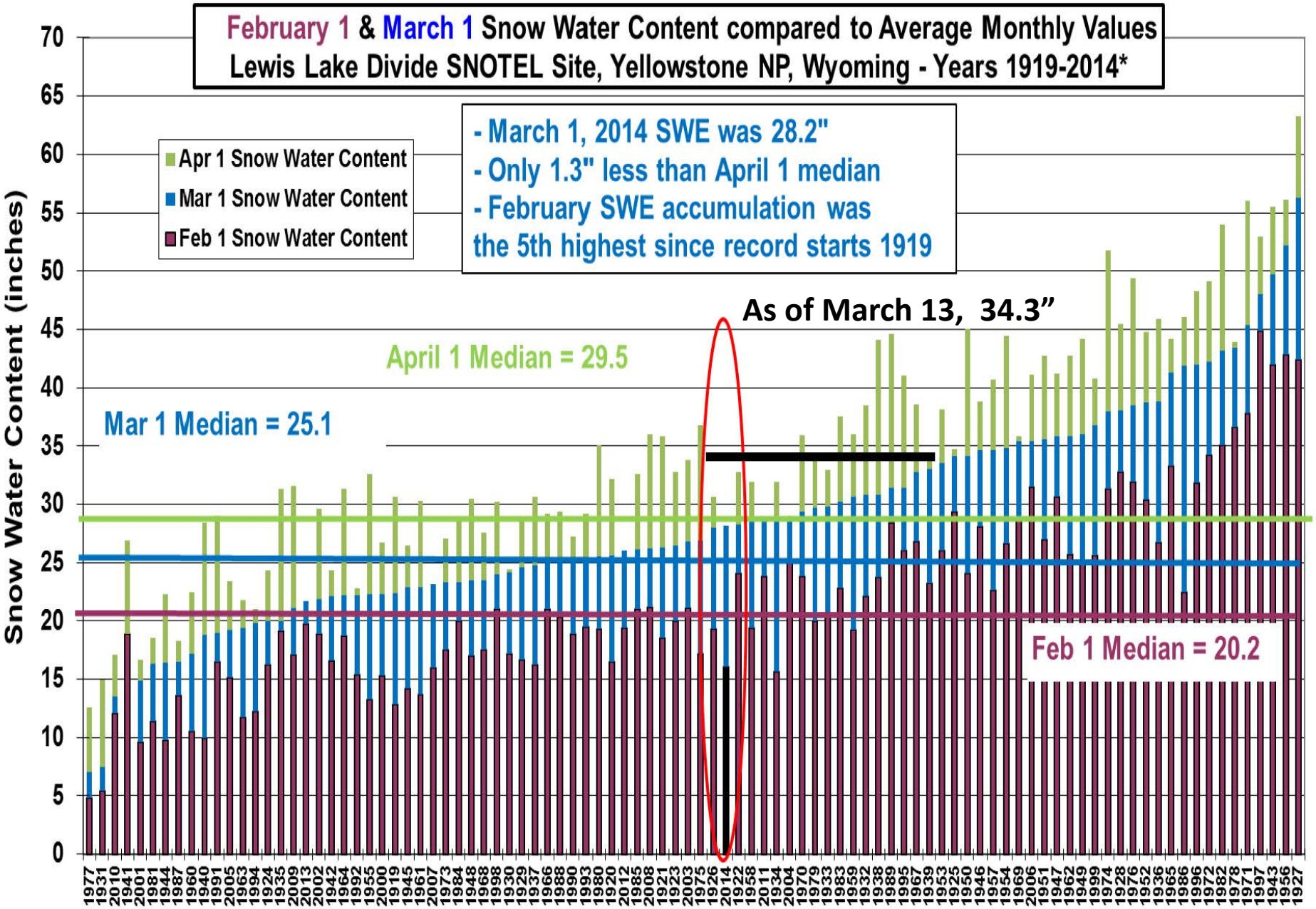
Clearwater Basin - 2nd greatest February increase since 1981; only February 1999 had a bigger increase.

Boise Basin - 4th greatest February increase since 1961; only years 1986, 1999, and 1972 received more.

Snake abv Jackson Lake, Hoback, Greys, Salt, Gros Ventre – 2nd greatest since 1961 only 1986 had more.

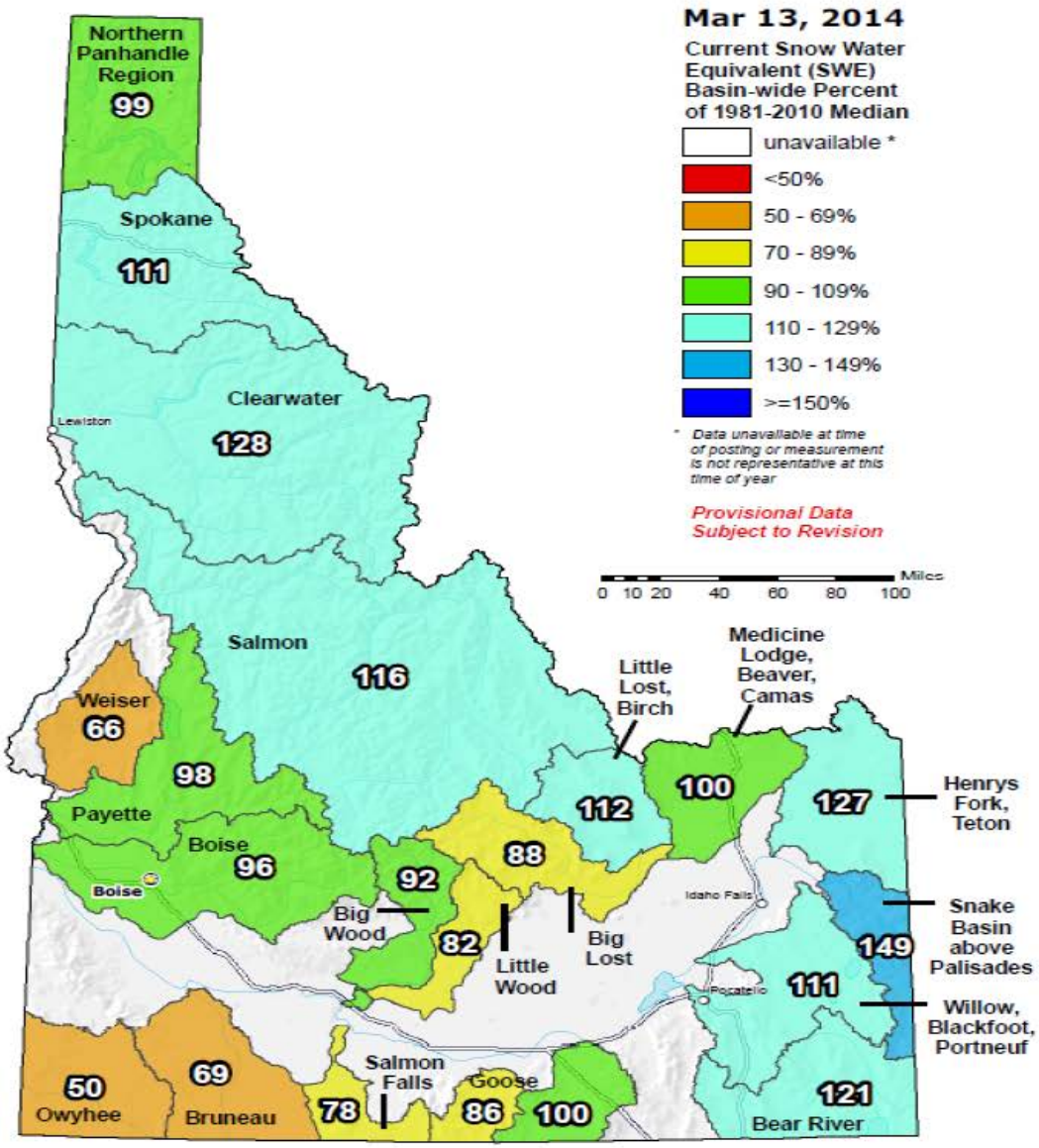
Lewis Lake Divide – 5th highest February increase since records start in 1919





*Early years are estimated from mid-month measurements including 1919-1937 for February 1 and 1919-1929 for April 1.

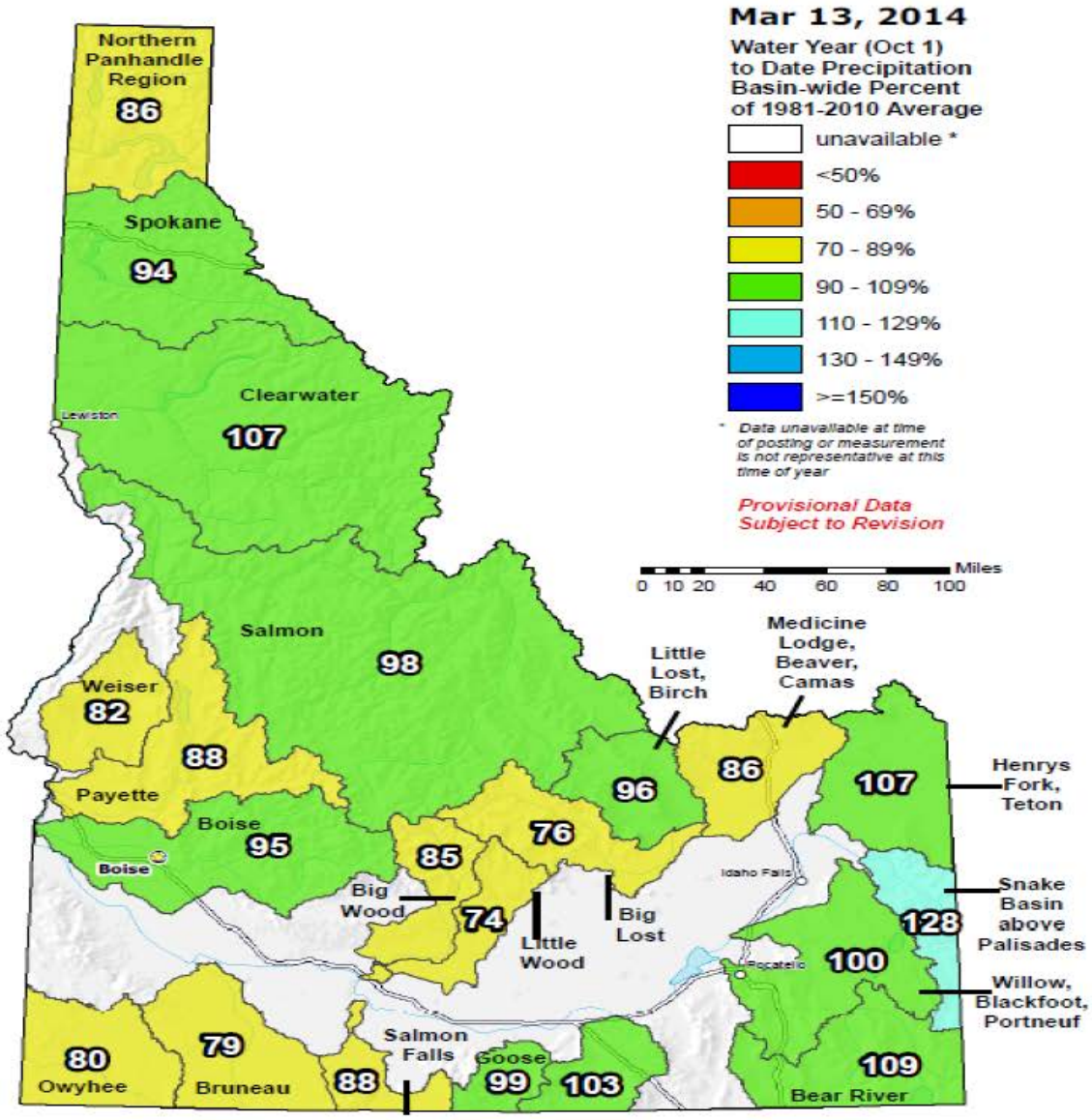
Idaho SNOTEL Current Snow Water Equivalent (SWE) % of Normal



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 the USDA/NRCS National Water and Climate Center
Portland, Oregon http://www.wcc.nrcs.usda.gov/gis/
Based on data from http://www.wcc.nrcs.usda.gov/reports/
Science contact: Jim.Marron@por.usda.gov 503 414 3047

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



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 the USDA/NRCS National Water and Climate Center
Portland, Oregon http://www.wcc.nrcs.usda.gov/gis/
Based on data from http://www.wcc.nrcs.usda.gov/reports/
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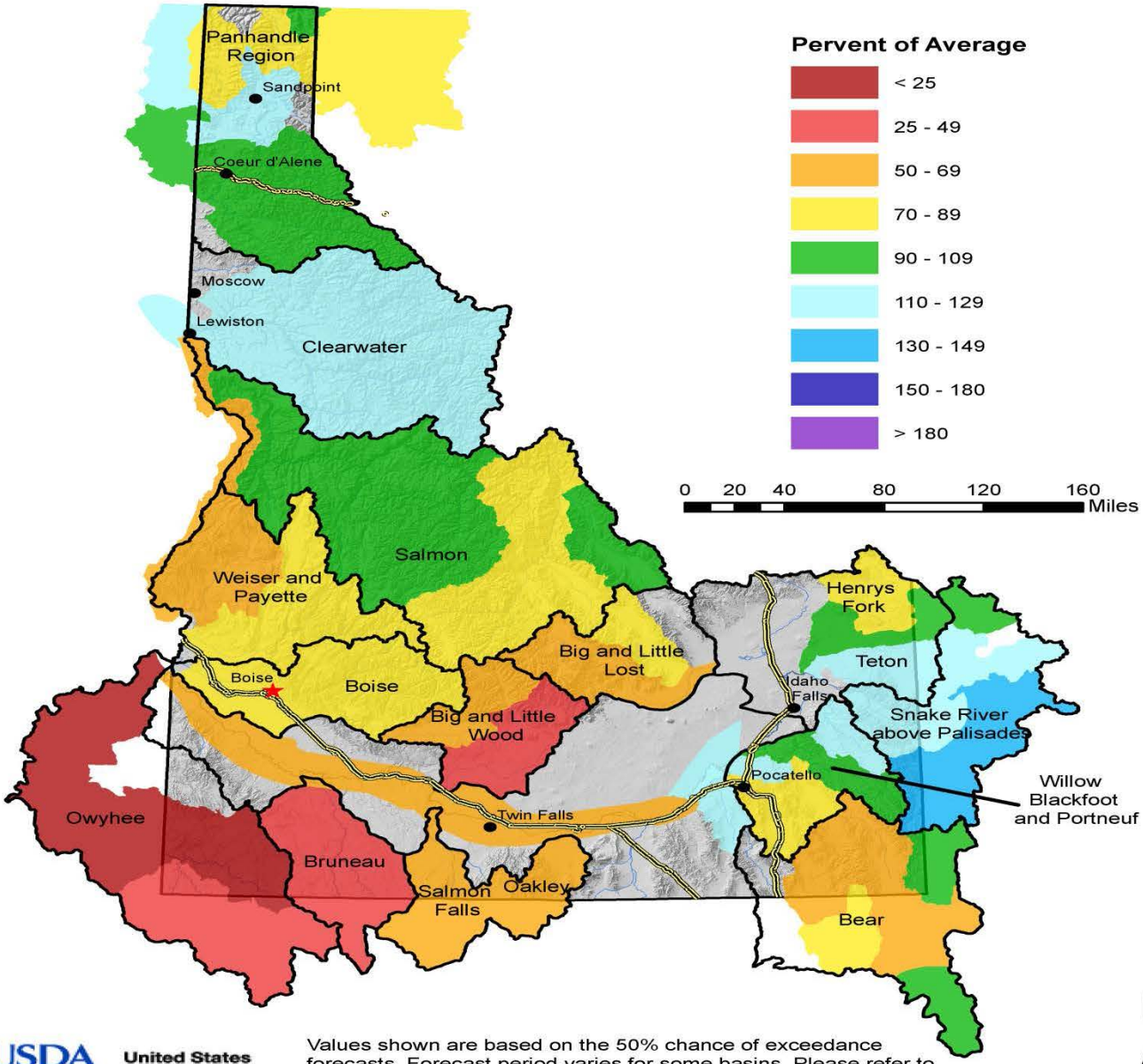
NRCS Idaho Streamflow Forecasts
March 1 2014



USDA United States Department of Agriculture

Values shown are based on the 50% chance of exceedance forecasts. Forecast period varies for some basins. Please refer to the Water Supply Outlook Report for more details regarding these forecasts.
http://www.nrcs.usda.gov/wps/portal/nrcs/main/id/snow/

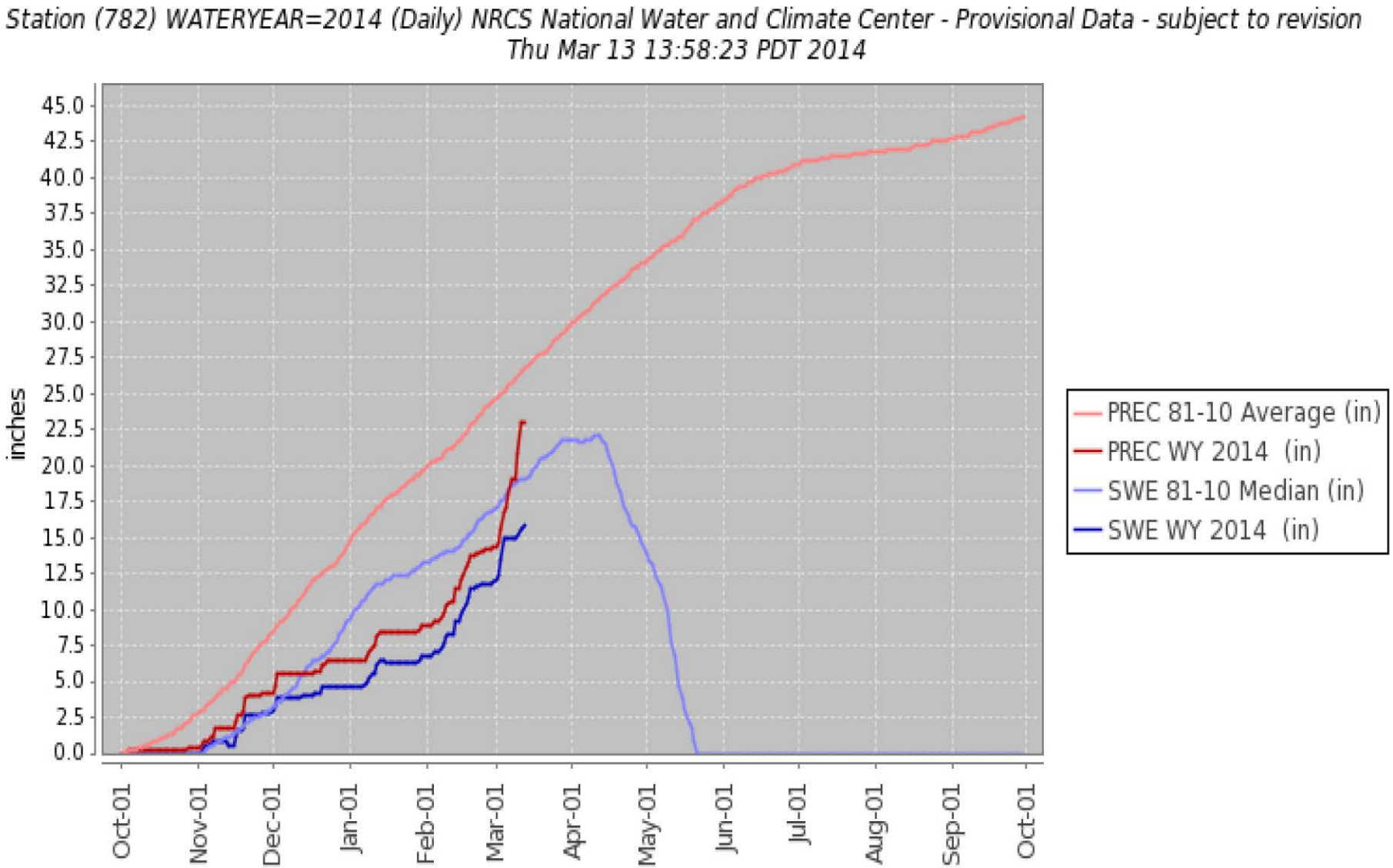
IDAHO SURFACE WATER SUPPLY INDEX (SWSI) March 1, 2014

BASIN or REGION	*SWSI Value*	*Most Recent Year With Similar SWSI Value*	*Agricultural Water Supply Shortage May Occur When SWSI is Less Than*
Northern Panhandle	-0.4	2000/2007	NA
Spokane	-0.1	2006	NA
Clearwater	2.1	2009/2012	NA
Salmon	0.1	2010	NA
Weiser	-2.1	2004/2013	NA
Payette	-1.8	2002/2005	NA
Boise	-1.1	2002/2003	-1.5
Big Wood	-1.8	2002/2003	0.0
Little Wood	-2.8	2002/2013	-1.7
Big Lost	-1.6	2000/2007	0.5
Little Lost	-1.3	2000/2008	1.2
Teton	0.9	2006/2009	-3.9
Henrys Fork	-0.1	2000/2012	-3.4
Snake (Heise)	1.1	2006/2012	-1.5
Oakley	-2.3	2002/2004	-0.2
Salmon Falls	-3.3	2003	-1.0
Bruneau	-2.6	2007/2013	NA
Owyhee	-3.8	1992/2003	-3.4
Bear River	0.4	2001/2013	-2.7

SWSI SCALE, PERCENT CHANCE OF EXCEEDANCE, AND INTERPRETATION

```
 -4      -3      -2      -1       0       1       2       3       4
  |------|------|------|------|------|------|------|------|
 99%     87%     75%     63%     50%     37%     25%     13%     1%
-------------------------------------------------------------------
|Much    | Below     |        Near Normal        | Above    | Much  |
|Below   | Normal    |        Water Supply       | Normal   | Above |
-------------------------------------------------------------------
```

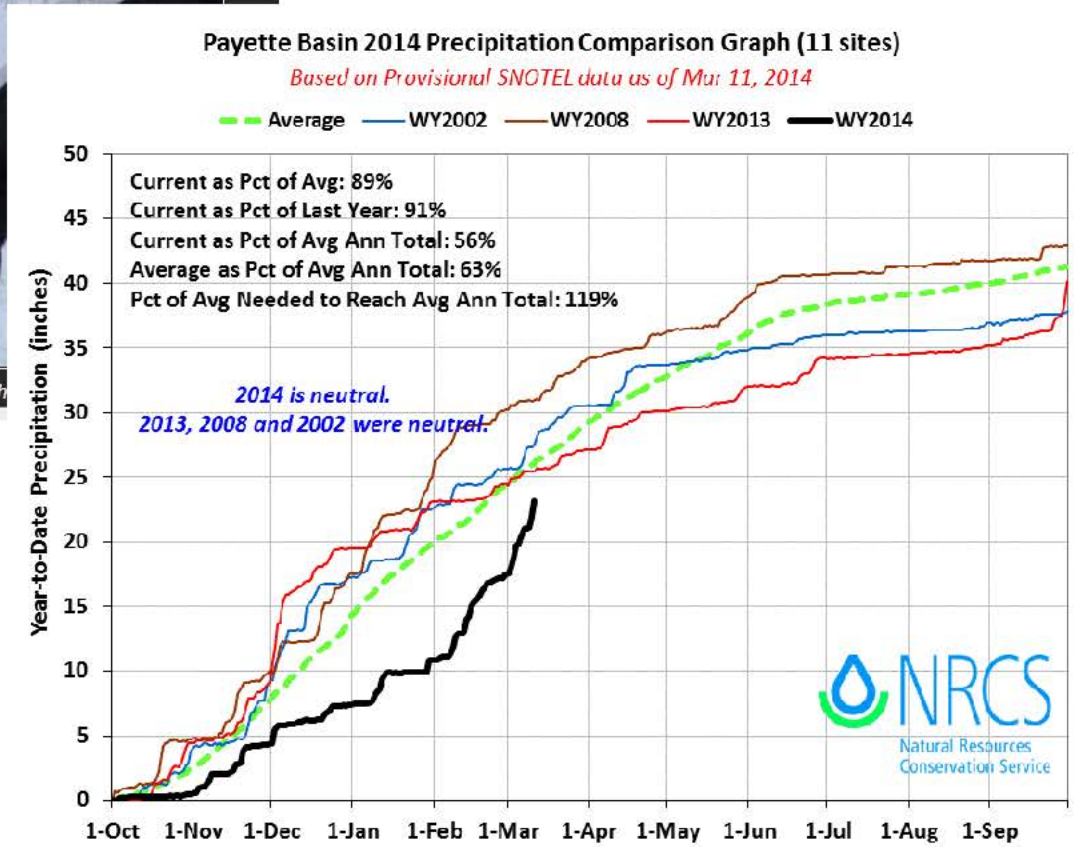
SNOTEL Site SQUAW FLAT – Weiser - Payette Divide
8” of precipitation since March 1



Avalanche experts to survey massive slide near Lowman

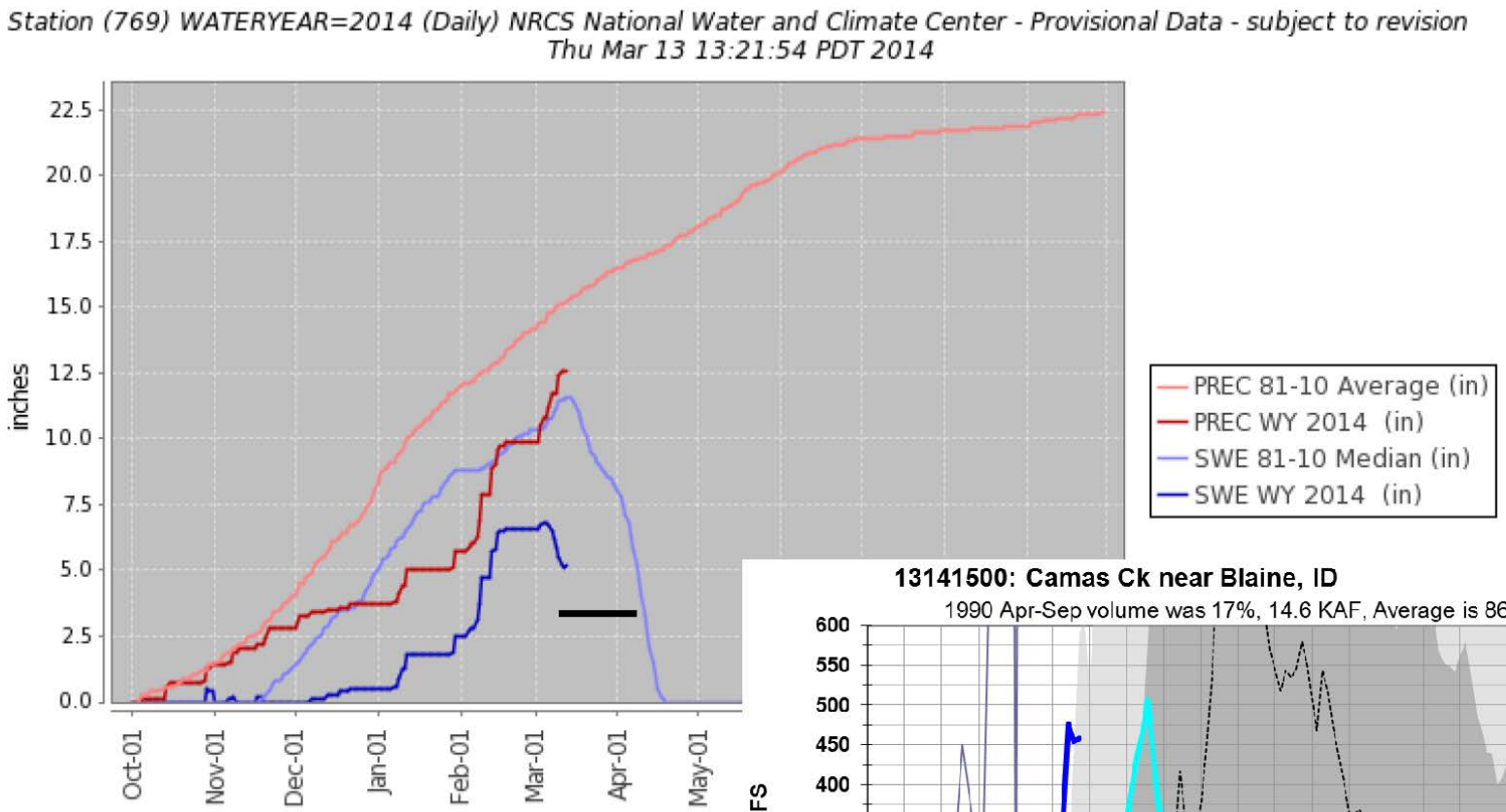
1 2 3 4 5 6 7 ... 10 3 of 10

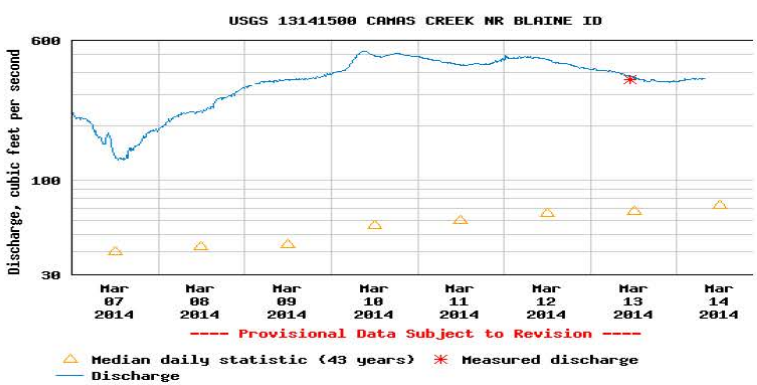
Credit: Idah

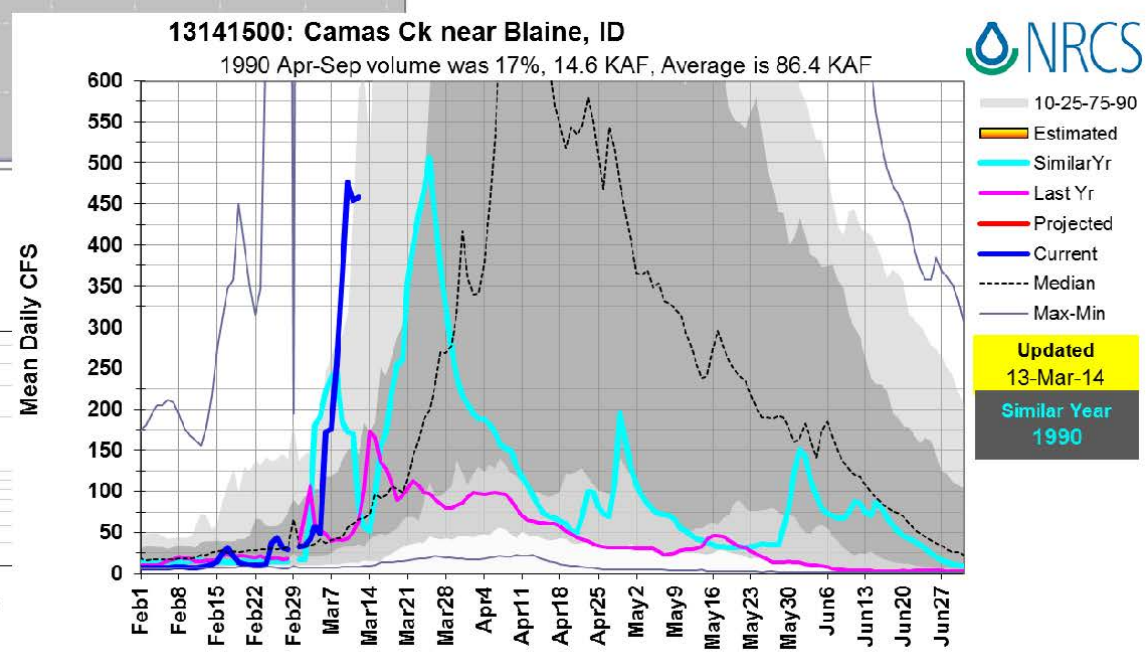


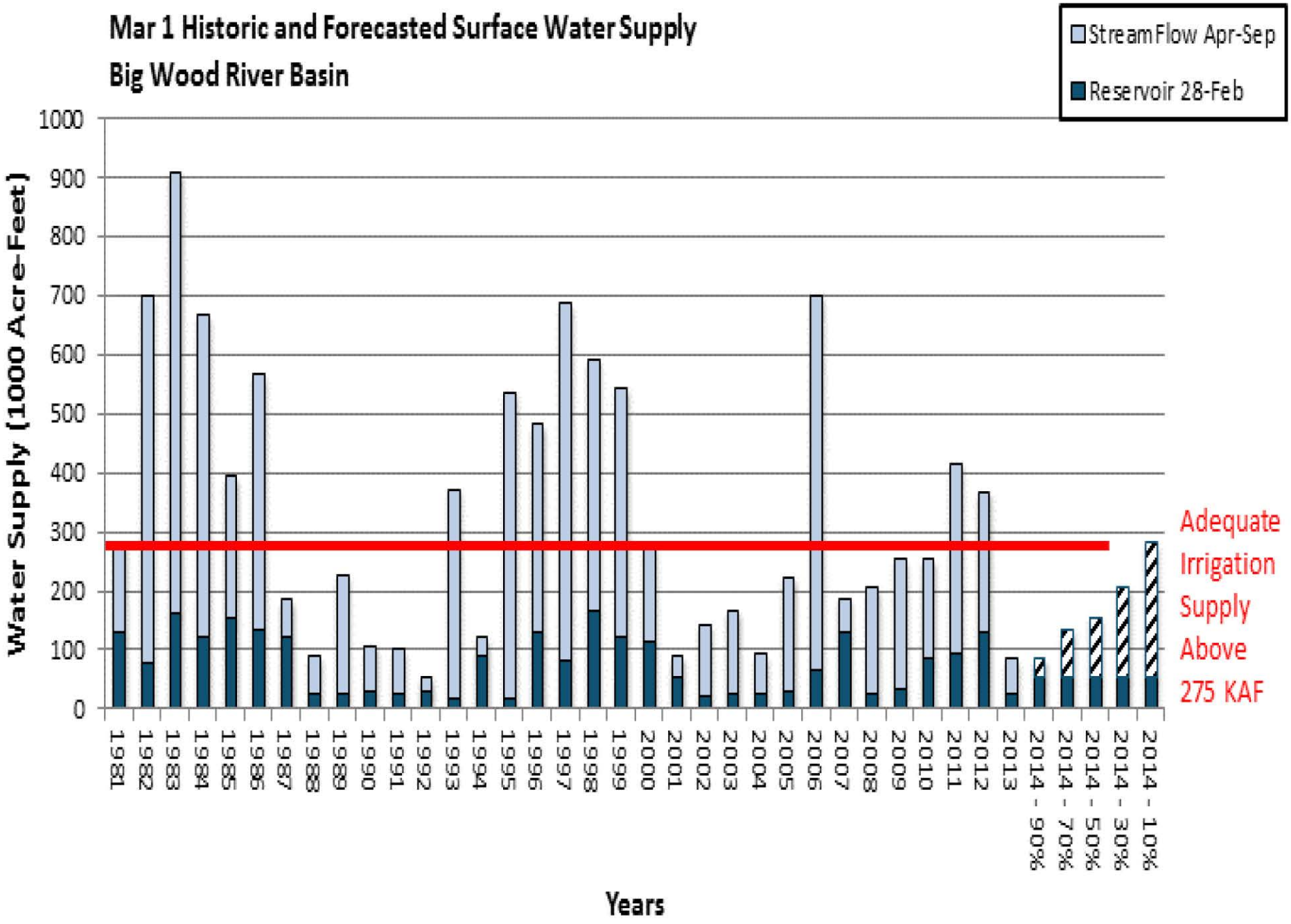
Camas Creek near Blaine, on average, peaks 1 day before Soldier R.S. swe reaches half melt,

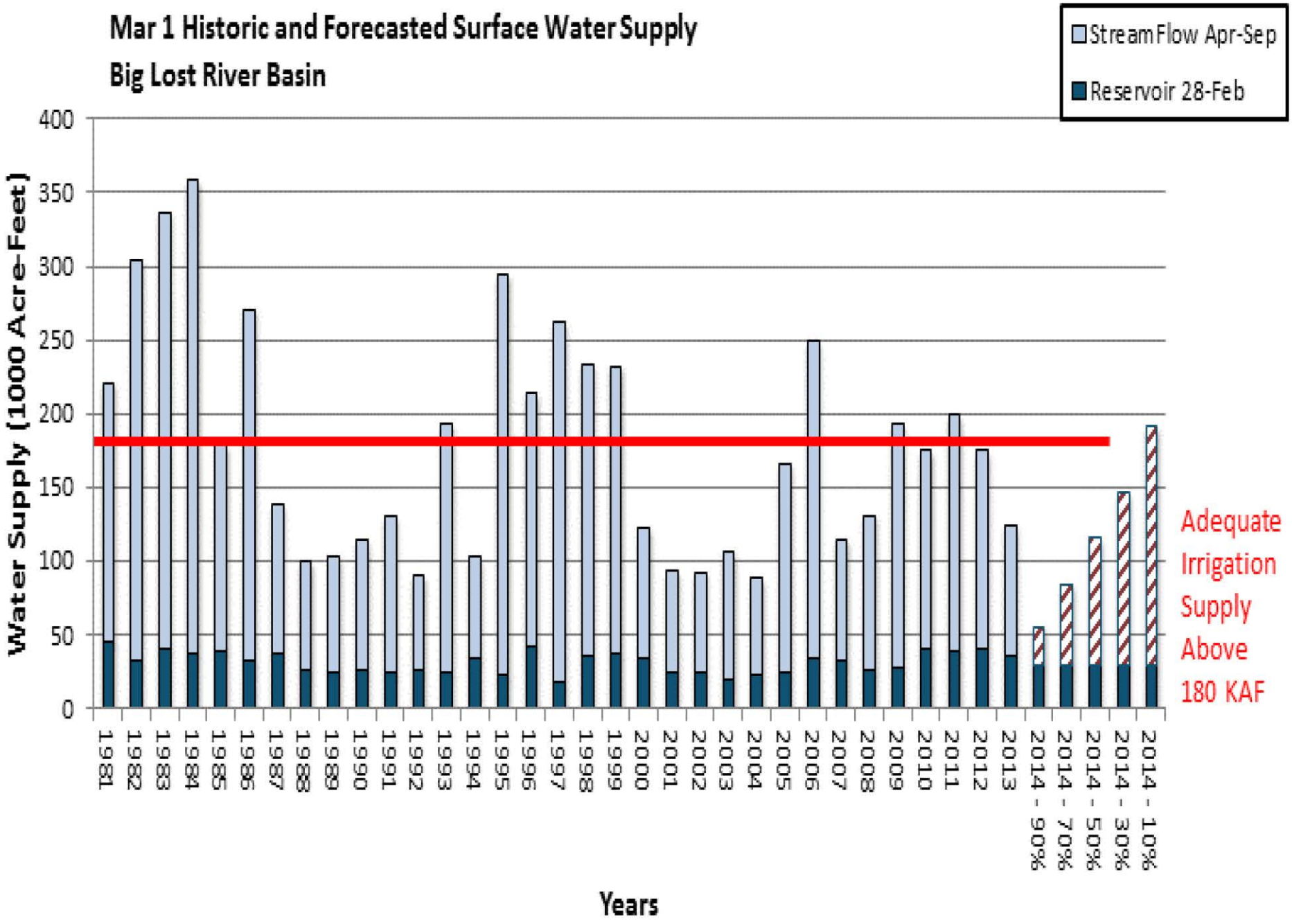
6.8” peak SWE
3.4” half melt

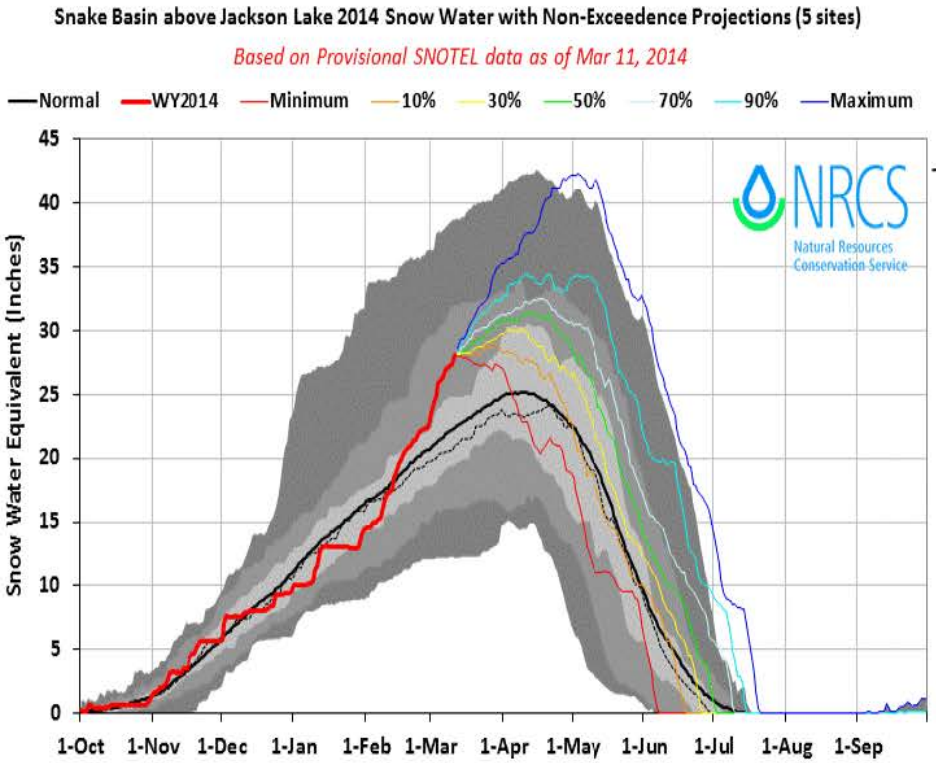


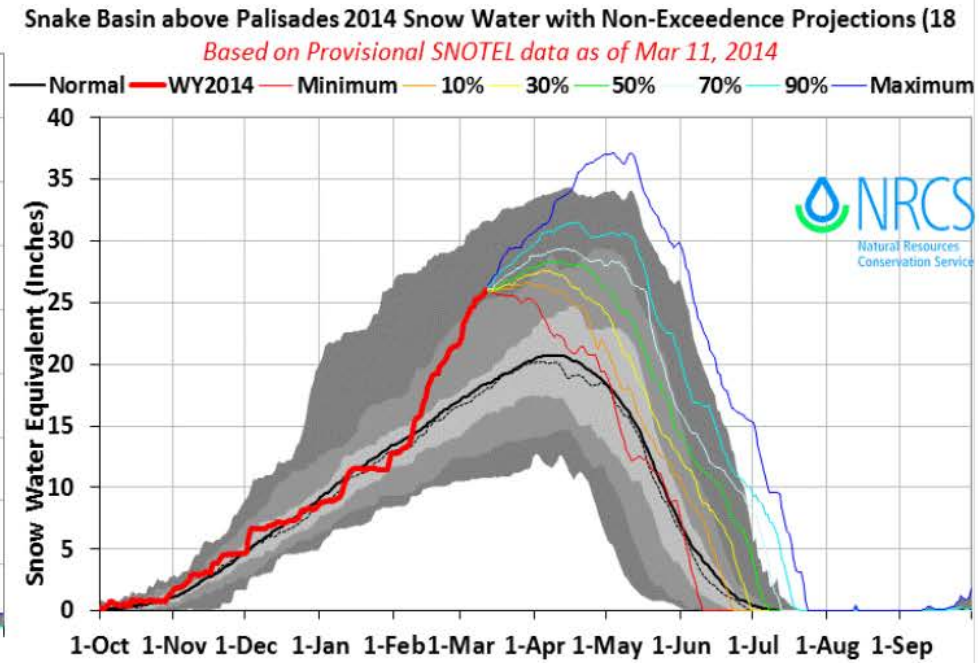





Mar 1 Historic and Forecasted Surface Water Supply
Big Wood River Basin
Stream Flow Apr-Sep
Reservoir 28-Feb
Water Supply (1000 Acre-Feet)
1000
900
800
700
600
500
400
300
200
100
0
Adequate Irrigation Supply Above 275 KAF
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014 - 90%
2014 - 70%
2014 - 50%
2014 - 30%
2014 - 10%
Years

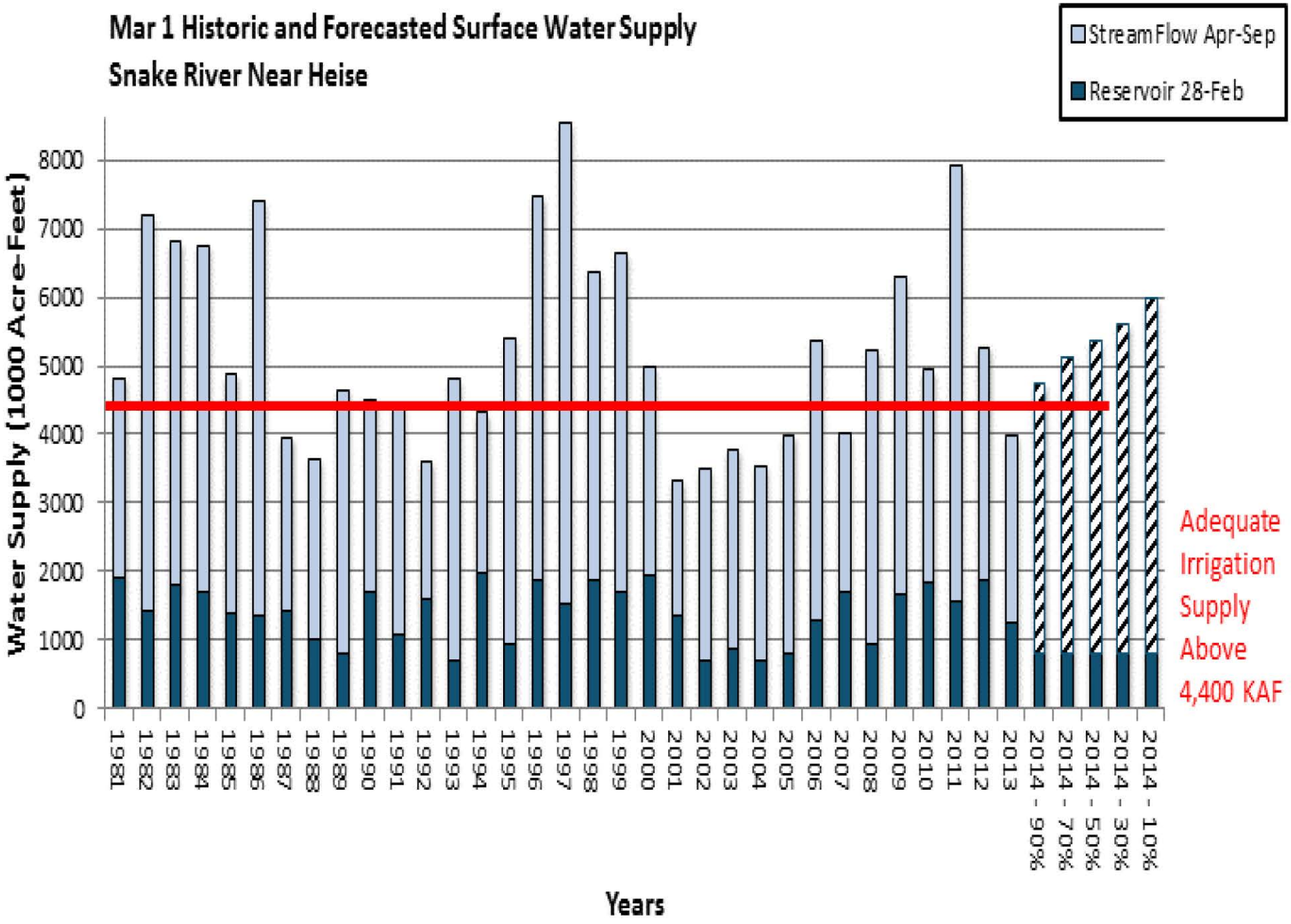

Mar 1 Historic and Forecasted Surface Water Supply
Big Lost River Basin
Stream Flow Apr-Sep
Reservoir 28-Feb
Water Supply (1000 Acre-Feet)
400
350
300
250
200
150
100
50
0
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014 - 90%
2014 - 70%
2014 - 50%
2014 - 30%
2014 - 10%
Years
Adequate Irrigation Supply Above 180 KAF





Snow Indexes with March 14 SWE Data compared to April 1 Indexes:

Hoback	**12th highest compared to April 1 index that starts in 1961**
Greys	**14th highest compared to April 1 index that starts in 1961**
Gros Venture	**16th highest compared to April 1 index that starts in 1961**


Mar 1 Historic and Forecasted Surface Water Supply
Snake River Near Heise
Stream Flow Apr-Sep
Reservoir 28-Feb
Water Supply (1000 Acre-Feet)
0
1000
2000
3000
4000
5000
6000
7000
8000
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
2014 - 90%
2014 - 70%
2014 - 50%
2014 - 30%
2014 - 10%
Years
Adequate Irrigation Supply Above 4,400 KAF

Snake River Near Heise SWSI

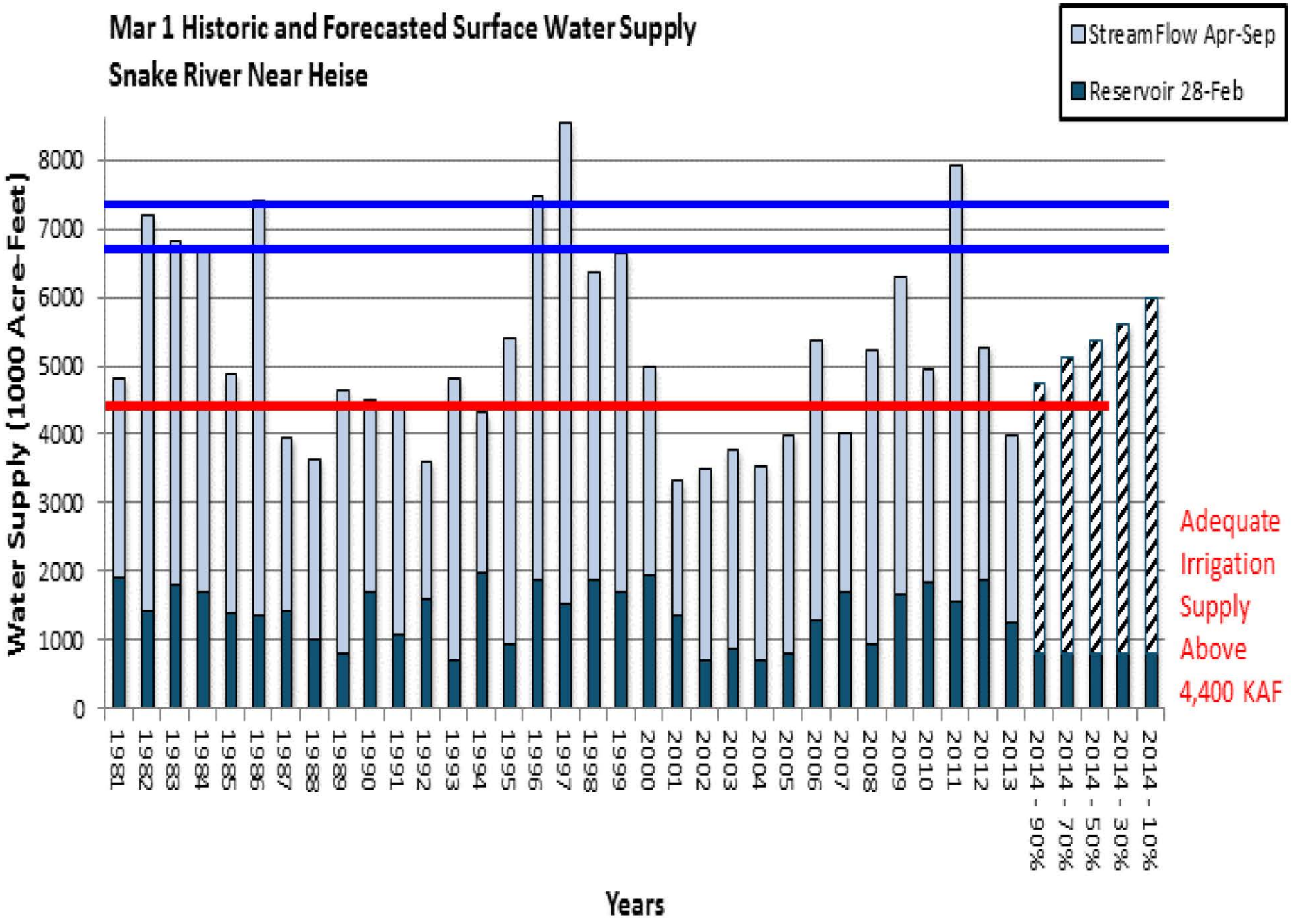
Adequate Water Supply Greater than -1.5 SWSI or 4,400 KAF

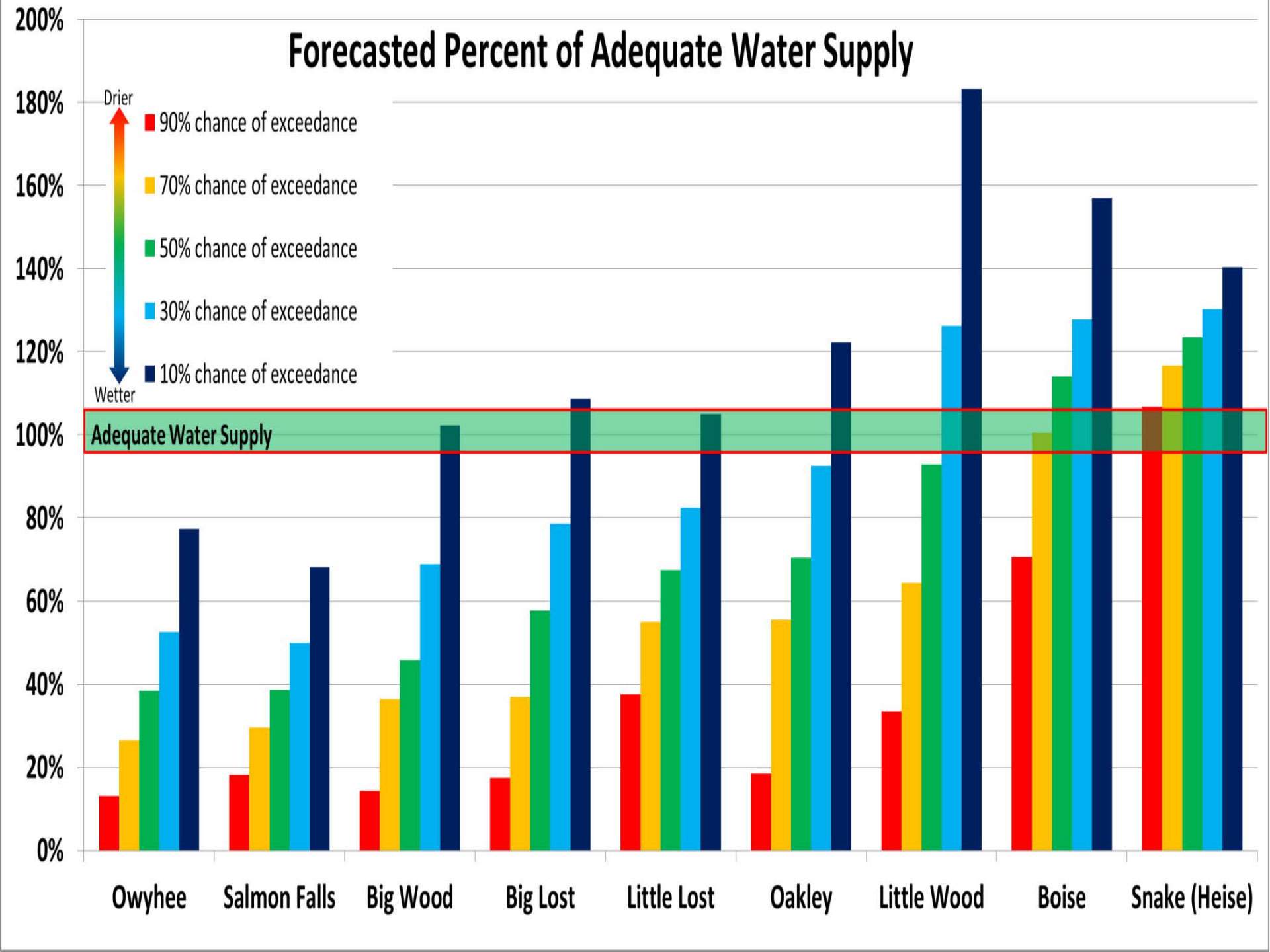
Station ID	Station Name	Period	Data Type	Years	# of Years	
13037500	Snake River near Heise	Apr-Sep	strm	1981-2013	33	Units KAF
13010500	Jackson Lake	28-Feb	resv	1981-2013	33	Units KAF
13032450	Palisades Reservoir	28-Feb	resv	1981-2013	33	Units KAF

ENSO Classification

SE Strong El Nino - EN Mild El Nino - N Neutral - LN Mild La Nina - SL Strong La Nina

Rank	Year	Enso	Stream Flow Apr-Sep	Reservoir 28-Feb	Streamflow + Reservoir Sum	Non-Exceedance Probability	SWSI
1	1997	N	7009	1507	8516	97%	3.9
2	2011	SL	6343	1532	7875	94%	3.7
3	1996	N	5584	1862	7446	91%	3.4
4	1986	N	6054	1317	7371	88%	3.2
5	1982	N	5772	1405	7177	85%	2.9
6	1983	SE	5008	1772	6780	82%	2.7
7	1984	N	5046	1687	6733	79%	2.5
8	1999	SL	4947	1662	6609	76%	2.2
9	1998	SE	4495	1853	6348	74%	2.0
10	2009	N	4610	1649	6259	71%	1.7
2014 10% Chance Exceedance Forcast		N	5190	760	5950	70%	1.6
2014 30% Chance Exceedance Forcast		N	4820	760	5580	69%	1.6
11	1995	SE	4442	918	5360	68%	1.5
12	2006	N	4076	1267	5343	65%	1.2
2014 50% Chance Exceedance Forcast		N	4570	760	5330	63%	1.1
13	2012	LN	3384	1863	5248	62%	1.0
14	2008	N	4286	902	5188	59%	0.7
2014 70% Chance Exceedance Forcast		N	4320	760	5080	57%	0.6
15	2000	N	3057	1900	4957	56%	0.5
16	2010	EN	3106	1803	4909	53%	0.2
17	1985	N	3490	1363	4853	50%	0.0
18	1981	N	2912	1876	4788	47%	-0.2
19	1993	EN	4113	663	4776	44%	-0.5
2014 90% Chance Exceedance Forcast		N	3950	760	4710	43%	-0.6
20	1989	SL	3866	761	4627	41%	-0.7
21	1990	N	2806	1681	4487	38%	-1.0
22	1991	N	3354	1054	4408	35%	-1.2
23	1994	SE	2318	1965	4283	32%	-1.5


Mar 1 Historic and Forecasted Surface Water Supply
Snake River Near Heise
Stream Flow Apr-Sep
Reservoir 28-Feb
Water Supply (1000 Acre-Feet)
0
1000
2000
3000
4000
5000
6000
7000
8000
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
2014 - 90%
2014 - 70%
2014 - 50%
2014 - 30%
2014 - 10%
Years
Adequate Irrigation Supply Above 4,400 KAF


Forecasted Percent of Adequate Water Supply
Drier
Wetter
90% chance of exceedance
70% chance of exceedance
50% chance of exceedance
30% chance of exceedance
10% chance of exceedance
Adequate Water Supply
200%
180%
160%
140%
120%
100%
80%
60%
40%
20%
0%
Owyhee
Salmon Falls
Big Wood
Big Lost
Little Lost
Oakley
Little Wood
Boise
Snake (Heise)

February 1, 2014 Water Supply Forecasts, Amount Needed & Shortages Based on the 5 Exeedance Forecasts

BASIN	*Adequate Irrigation Water Supply (KAF)*	*Projected March 31 Reservoir Storage (KAF)*	*Streamflow Volume Needed for Adequate Water Supply (KAF) (% of Ave.)*	*90% Chance of Exceedance Streamflow Forecast Apr-Sep (KAF)*	*70% Chance of Exceedance Streamflow Forecast Apr-Sep (KAF)*	*50% Chance of Exceedance Streamflow Forecast Apr-Sep (KAF)*	*30% Chance of Exceedance Streamflow Forecast Apr-Sep (KAF)*	*10% Chance of Exceedance Streamflow Forecast Apr-Sep (KAF)*
Salmon Falls	110	22	88 (103%)	9 (-79)	19 (-69)	28 (-60)	39 (-49)	58 (-30)
Big Wood	275	50	225 (85%)	0 (-225)	8 (-217)	20 (-205)	85 (-140)	170 (-55)
Oakley	50	23	27 (87%)	9 (-18)	13 (-14)	14 (-13)	20 (-7)	27 (0)
Big Lost	180	31	149 (99%)	27 (-122)	50 (-99)	75 (-74)	110 (-39)	165 (+16)
Little Lost	40	0	40 (85%)	13 (-27)	19 (-21)	23 (-17)	28 (-12)	36 (-4)
Owyhee	450	75	375 (50%)	85 (-290)	173 (-202)	250 (-125)	340 (-35)	505 (+130)
Boise	1500	545	955 (70%)	200 (-755)	540 (-415)	695 (-260)	850 (-105)	1190 (+235)
Little Wood	60	18	42 (45%)	8 (-34)	23 (-19)	36 (-6)	53 (+11)	83 (+41)
Snake (Heise)	4400	700	3700 (98%)	2270 (-1430)	2940 (-760)	3240 (-460)	3540 (-160)	4210 (+510)
Teton	85	0	85 (44%)	93 (+8)	120 (+35)	141 (+56)	163 (+78)	199 (+114)
Bear River	400	680	0	2 (+282)	10 (+290)	62 (+342)	125 (+405)	217 (+497)

Adequate Supply − Reservoir Storage = Streamflow Needed

Water Supply Outlook Key:	Shortages	Some Shortages	Marginal Supplies	Sufficient Supplies	Surplus

March 1, 2014 Water Supply- Amount Needed, Shortages & Surplus

Based on All Five Chance of Exceedance Forecasts

Fore-cast Period Used	*BASIN or REGION*	*Adequate Irrigation Water Supply (KAF)*	*Reservoir Storage (KAF)*	*Streamflow Volume Needed for Adequate Water Supply KAF (%)*	*90% Chance of Exceedance Streamflow Forecast (KAF)*	*70% Chance of Exceedance Streamflow Forecast (KAF)*	*50% Chance of Exceedance Streamflow Forecast (KAF)*	*30% Chance of Exceedance Streamflow Forecast (KAF)*	*10% Chance of Exceedance Streamflow Forecast (KAF)*
Mar-Sep	Owyhee	450	127 Feb28	323 (55%)	49 (-274)	99 (-224)	144 (-179)	197 (-126)	290 (-33)
Mar-Sep	Salmon Falls	110	20 Feb28	90 (106%)	16 (-75)	26 (-64)	34 (-56)	44 (-46)	60 (-30)
Apr-Sep	Big Wood	275	60 Mar13 70 Mar31	205 (77%)	32 (-173)	82 (-123)	103 (-102)	155 (-50)	230 (+25)
Apr-Sep	Big Lost	180	30 Mar10 35 Mar31	145 (97%)	26 (-119)	55 (-90)	86 (-59)	117 (-28)	162 (+17)
Apr-Sep	Little Lost	40	N/A	40 (118%)	15 (-25)	22 (-18)	27 (-13)	33 (-7)	42 (+2)
Mar-Sep	Oakley	50	18.3 Feb28	31 (100%)	16 (-15)	26 (-5)	34 (+3)	44 (+13)	60 (+29)
Mar-Sep	Little Wood	60	15 Feb28	42 (46%)	14 (-28)	27 (-15)	39 (-3)	53 (+11)	77 (+35)
Apr-Sep	Boise	1500	522 Feb28 588 Mar13 640 Mar31	860 (63%)	675 (-185)	960 (+100)	1090 (+230)	1220 (+360)	1500 (+640)
Apr-Sep	Snake (Heise)	4400	760 Feb28 588 Mar13 860 Mar31	3540 (98%)	3950 (+410)	4320 (+780)	4570 (+1030)	4820 (+1280)	5190 (+1650)
Apr-Sep	Teton	85	N/A	85 (44%)	166 (+81)	200 (+115)	225 (+140)	250 (+165)	295 (+210)
Apr-Sep	Bear River	500	700 Mar31	minimal	4 (+184)	61 (+241)	115 (+295)	169 (+349)	248 (+428)

Water Supply Outlook Key:	Shortages	Some Shortages	Marginal Supplies	Sufficient Supplies	Surplus

March 1, 2014 Water Supply- Amount Needed, Shortages & Surplus

Based on All Five Chance of Exceedance Forecasts

Fore-cast Period Used	*BASIN or REGION*	*Adequate Irrigation Water Supply (KAF)*	*Reservoir Storage (KAF)*	*Streamflow Volume Needed for Adequate Water Supply KAF (%)*	*90% Chance of Exceedance Streamflow Forecast (KAF)*	*70% Chance of Exceedance Streamflow Forecast (KAF)*	*50% Chance of Exceedance Streamflow Forecast (KAF)*	*30% Chance of Exceedance Streamflow Forecast (KAF)*	*10% Chance of Exceedance Streamflow Forecast (KAF)*
Mar-Sep	Owyhee	450	127 Feb28	323 (55%)	49 (-274)	99 (-224)		197 (-126)	290 (-33)
Mar-Sep	Salmon Falls	110	20 Feb28	90 (106%)	16 (-75)	26 (-64)		44 (-46)	60 (-30)
Apr-Sep	Big Wood	275	60 Mar13 70 Mar31	205 (77%)	32 (-173)	82 (-123)		155 (-50)	230 (+25)
Apr-Sep	Big Lost	180	30 Mar10 35 Mar31	145 (97%)	26 (-119)	55 (-90)		117 (-28)	162 (+17)
Apr-Sep	Little Lost	40	N/A	40 (118%)	15 (-25)	22 (-18)		33 (-7)	42 (+2)
Mar-Sep	Oakley	50	18.3 Feb28	31 (100%)	16 (-15)	26 (-5)		44 (+13)	60 (+29)
Mar-Sep	Little Wood	60	15 Feb28	42 (46%)	14 (-28)	27 (-15)		53 (+11)	77 (+35)
Apr-Sep	Boise	1500	522 Feb28 588 Mar13 640 Mar31	860 (63%)	675 (-185)	960 (+100)		1220 (+360)	1500 (+640)
Apr-Sep	Snake (Heise)	4400	760 Feb28 588 Mar13 860 Mar31	3540 (98%)	3950 (+410)	4320 (+780)		4820 (+1280)	5190 (+1650)
Apr-Sep	Teton	85	N/A	85 (44%)	166 (+81)	200 (+115)		250 (+165)	295 (+210)
Apr-Sep	Bear River	500	700 Mar31	minimal	4 (+184)	61 (+241)		169 (+349)	248 (+428)

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