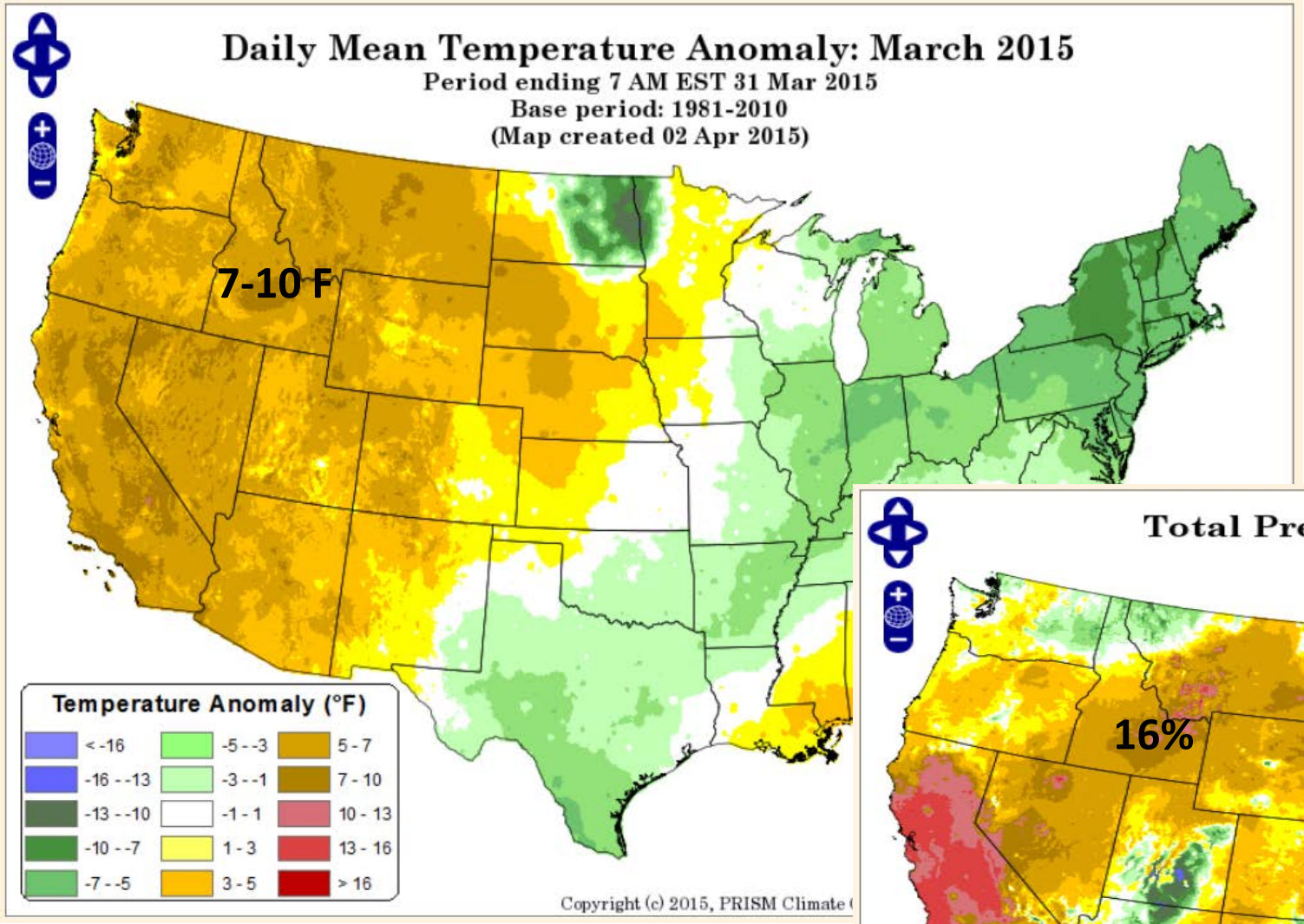
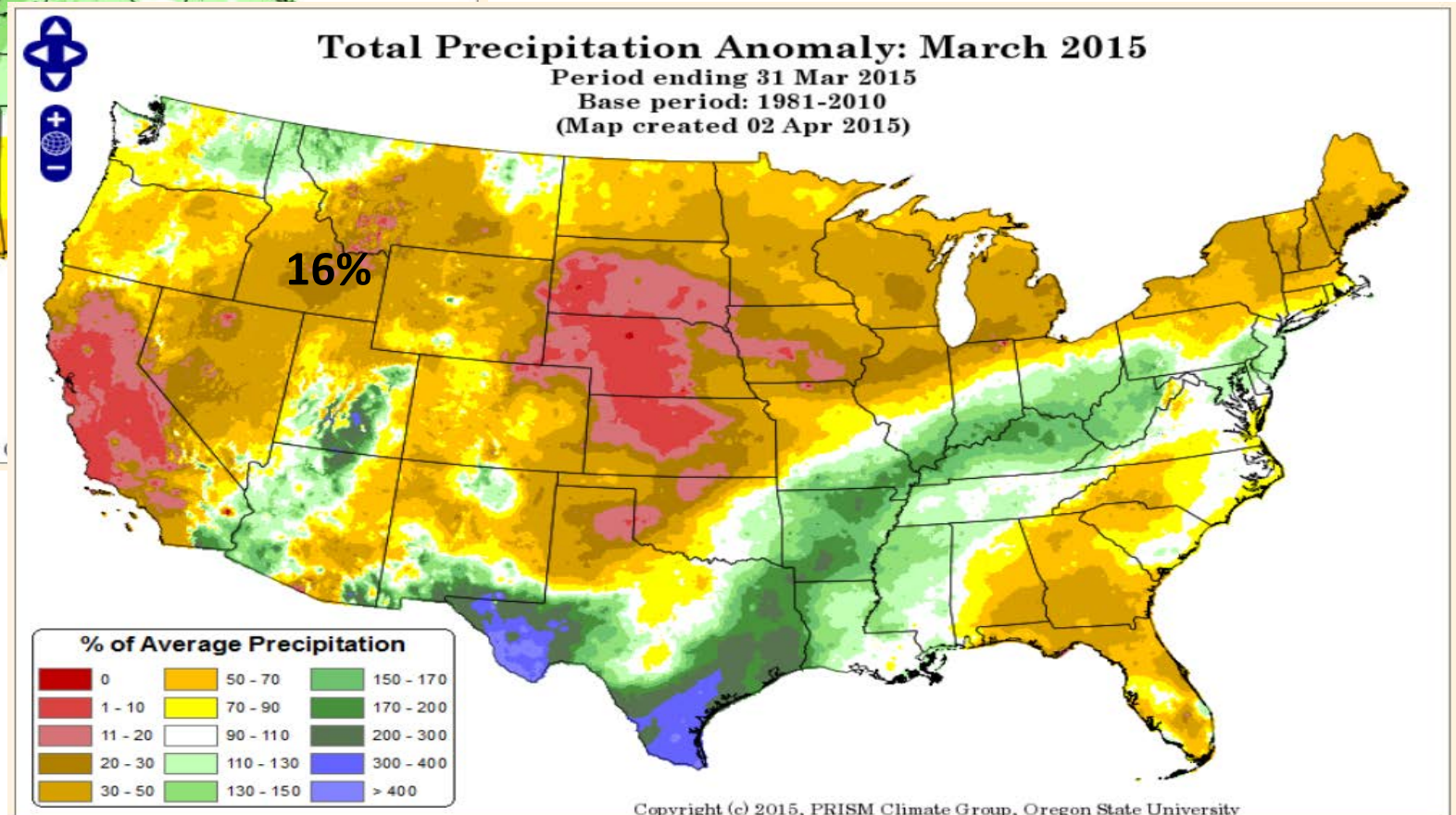
IDWR
State Water Supply Meeting
April 8, 2015

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





USDA

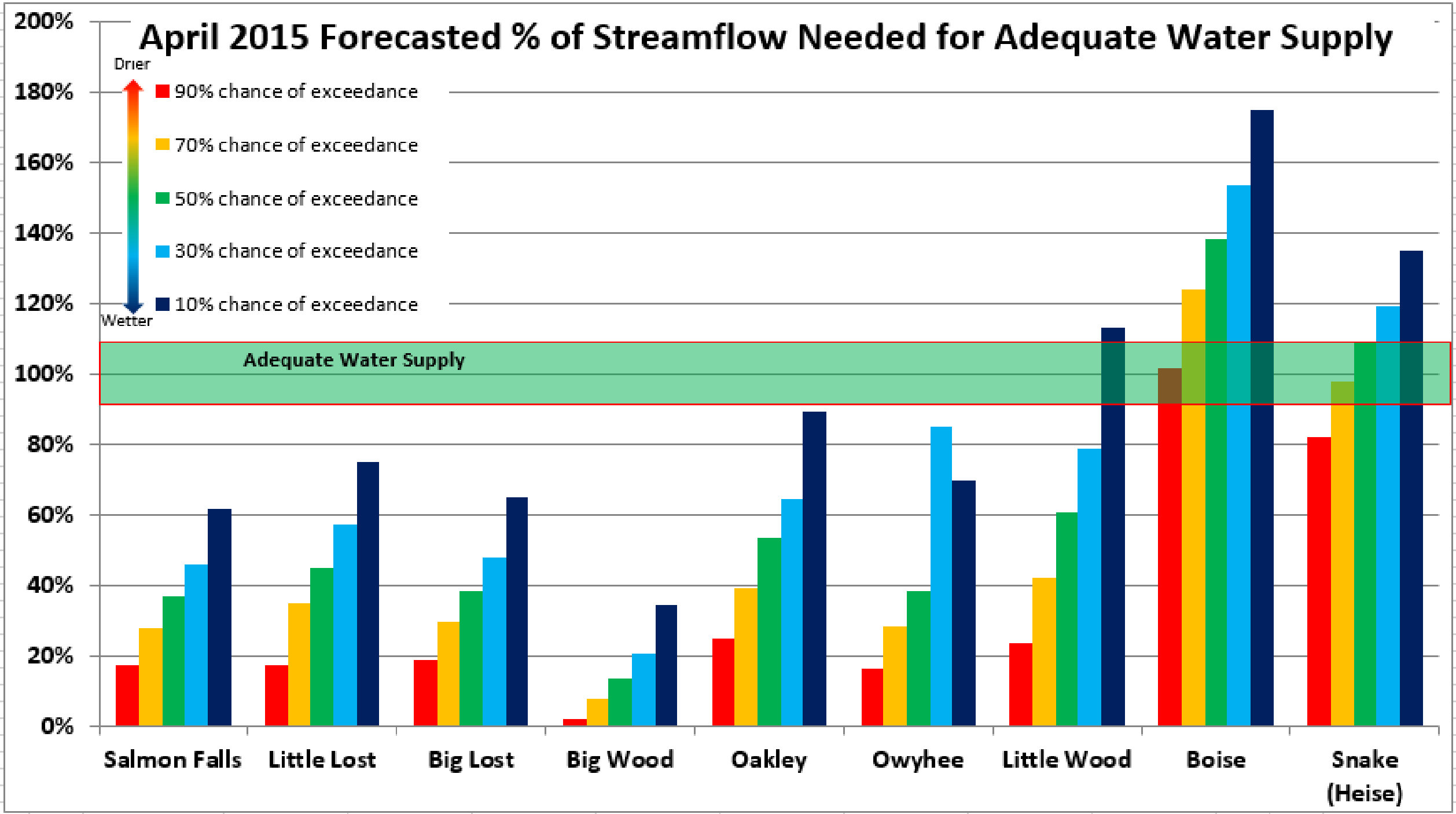
United States Department of Agriculture

IDAHO SURFACE WATER SUPPLY INDEX (SWSI) April 1, 2015

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	Not Available	---	---
Spokane	-3.8	1994	NA
Clearwater	-1.9	2010	NA
Salmon	-1.9	2005	NA
Weiser	-2.6	2013	NA
Payette	-2.7	2013	NA
Boise	-1.2	2002	-2.0
Big Wood	-2.9	2004	0.1
Little Wood	-4.0	2014	-1.3
Big Lost	-3.8	2004	0.6
Little Lost	-3.1	2003	1.3
Teton	-2.6	2003	-3.9
Henrys Fork	NA	NA	-3.4
Snake (Heise)	-1.0	1994	-1.5
Oakley	-2.4	2014	-0.1
Salmon Falls	-3.1	2004	-0.8
Bruneau	-2.9	2014	NA
Owyhee	-3.8	2014	-3.2
Bear River	-0.7	2014	-3.7

April 2015 5 Exceedance Forecasts Volumes Compared to Ag Threshold Shortages (KAF)

Basin Based on March 1, 2015 monthly streamflow forecasts	Adequate Irrigation Water Supply (KAF)	March 31 Reservoir Storage (KAF)	Streamflow Volume Needed for Adequate Water Supply		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)		Percent of Adequate Supply Based on 50% Chance of Exceedance Streamflow Forecast
			KAF	% Avg	fcst	diff	fcst	diff	fcst	diff	fcst	diff	fcst	diff	
Salmon Falls	110	34	76	89%	13	-63	21	-55	28	-48	35	-41	47	-29	37%
Little Lost	40	0	40	118%	7	-33	14	-26	18	-22	23	-17	30	-10	45%
Big Lost	180	34	146	97%	27	-119	43	-103	56	-90	70	-76	95	-51	38%
Big Wood	275	81	194	73%	4	-190	15	-179	26	-168	40	-154	67	-127	13%
Oakley	50	22	28	108%	7	-21	11	-17	15	-13	18	-10	25	-3	54%
Owyhee	450	192	258	44%	42	-216	73	-185	99	-159	219	-39	180	-78	38%
Little Wood	60	22	38	41%	9	-29	16	-22	23	-15	30	-8	43	5	61%
Boise	1500	871	629	46%	640	11	780	151	870	241	965	336	1100	471	138%
Snake (Heise)	4400	1897	2503	66%	2060	-443	2450	-53	2720	217	2990	487	3380	877	109%
Teton	85	0	85	44%	70	-15	103	18	125	40	147	62	180	95	147%
Bear River	400	711													


April 2015 Forecasted % of Streamflow Needed for 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%
Salmon Falls
Little Lost
Big Lost
Big Wood
Oakley
Owyhee
Little Wood
Boise
Snake (Heise)

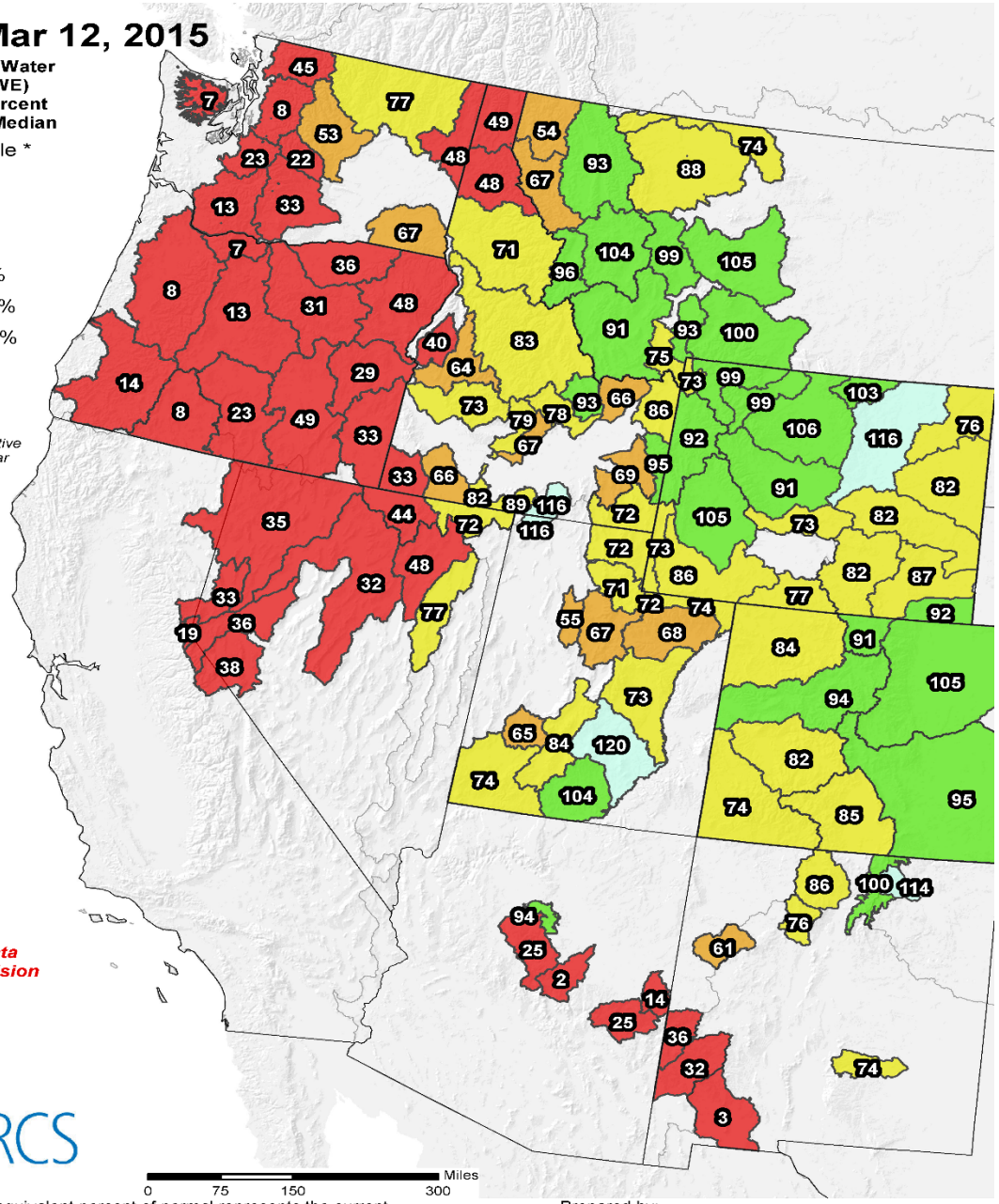
Westwide SNOTEL Current Snow Water Equivalent (SWE) % of Norm

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

0 75 150 300 Miles

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

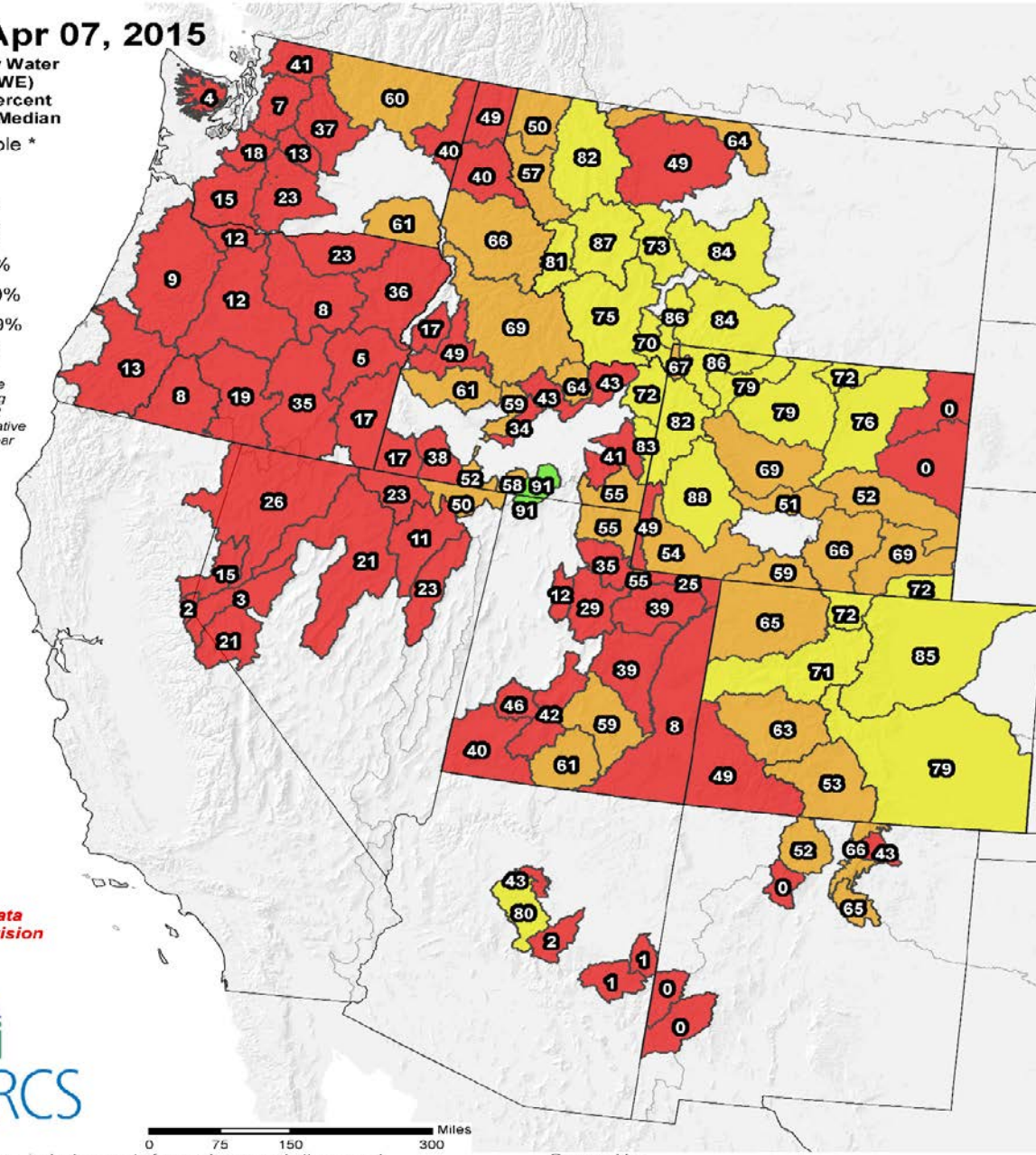
Westwide SNOTEL Current Snow Water Equivalent (SWE) % of Normal

Apr 07, 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

0 75 150 300 Miles

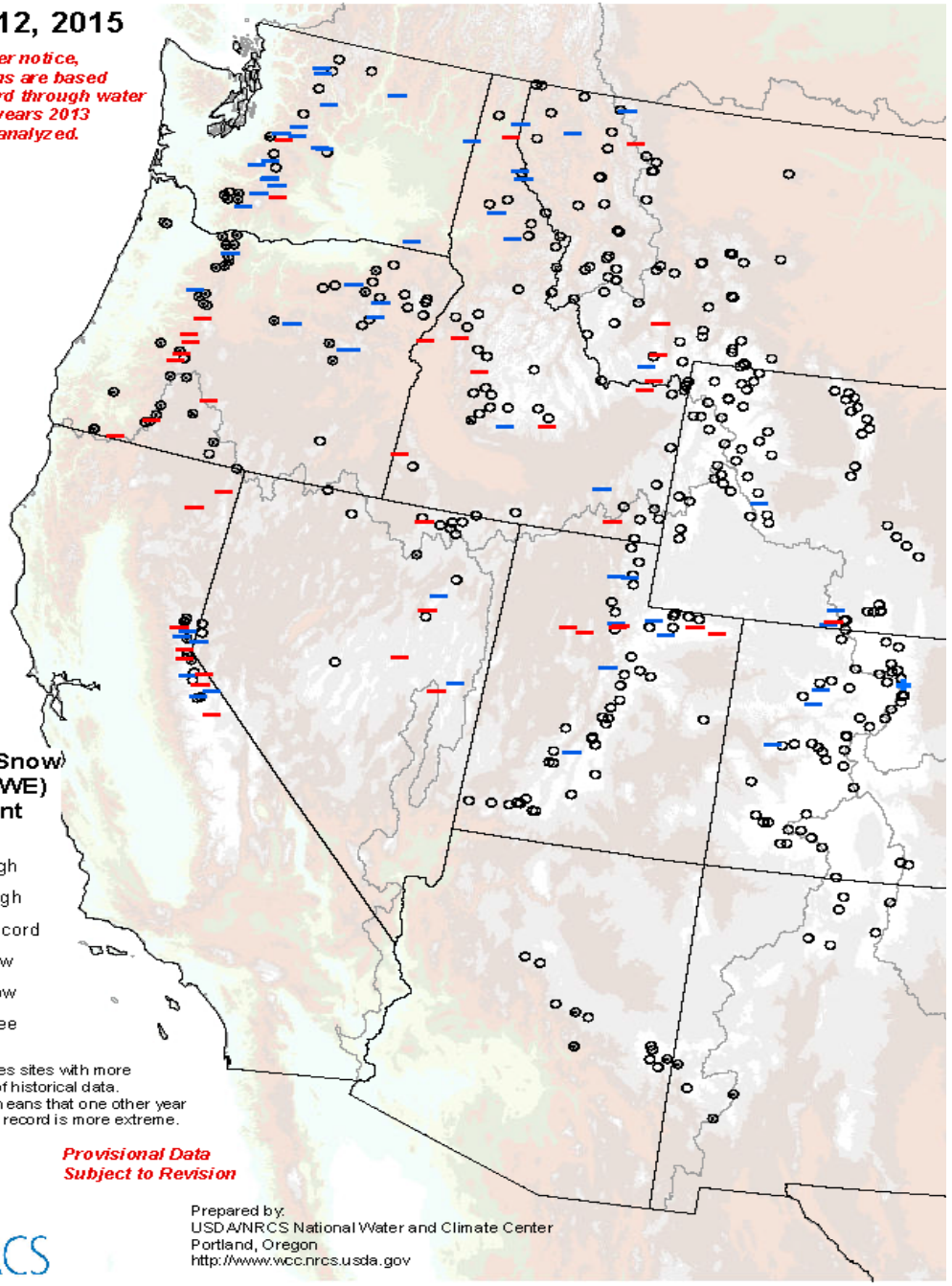
The snow water equivalent percent of normal represents the current snow water equivalent found at selected SNOTEL sites in or near the basin compared to the average value for those sites on this day. Data based on the first reading of the day (typically 00:00).

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

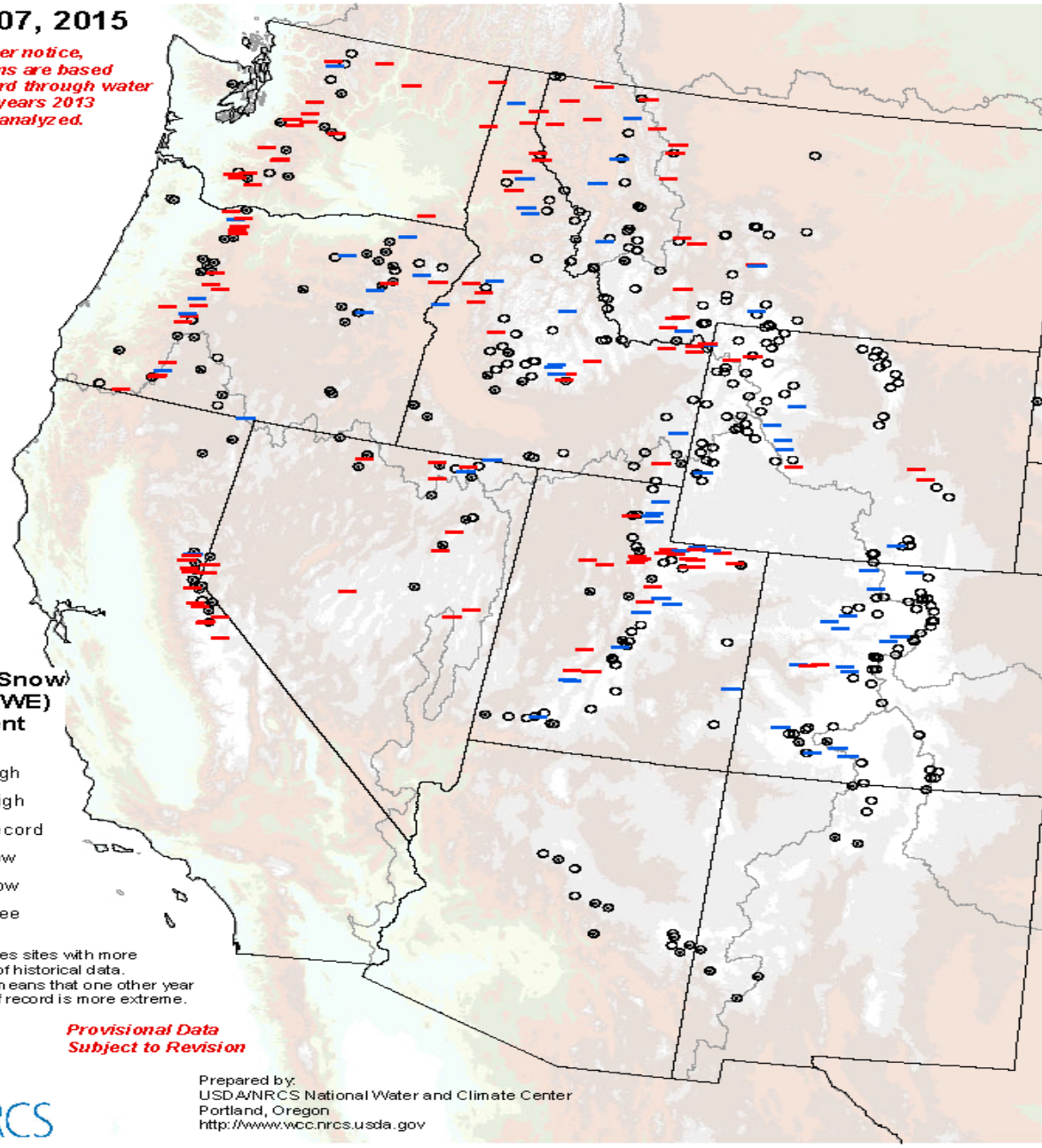
USDA NRCS

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

SNOTEL Current Snow Water Equivalent (SWE) Records

Apr 07, 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
Portland, Oregon
http://www.wcc.nrcs.usda.gov

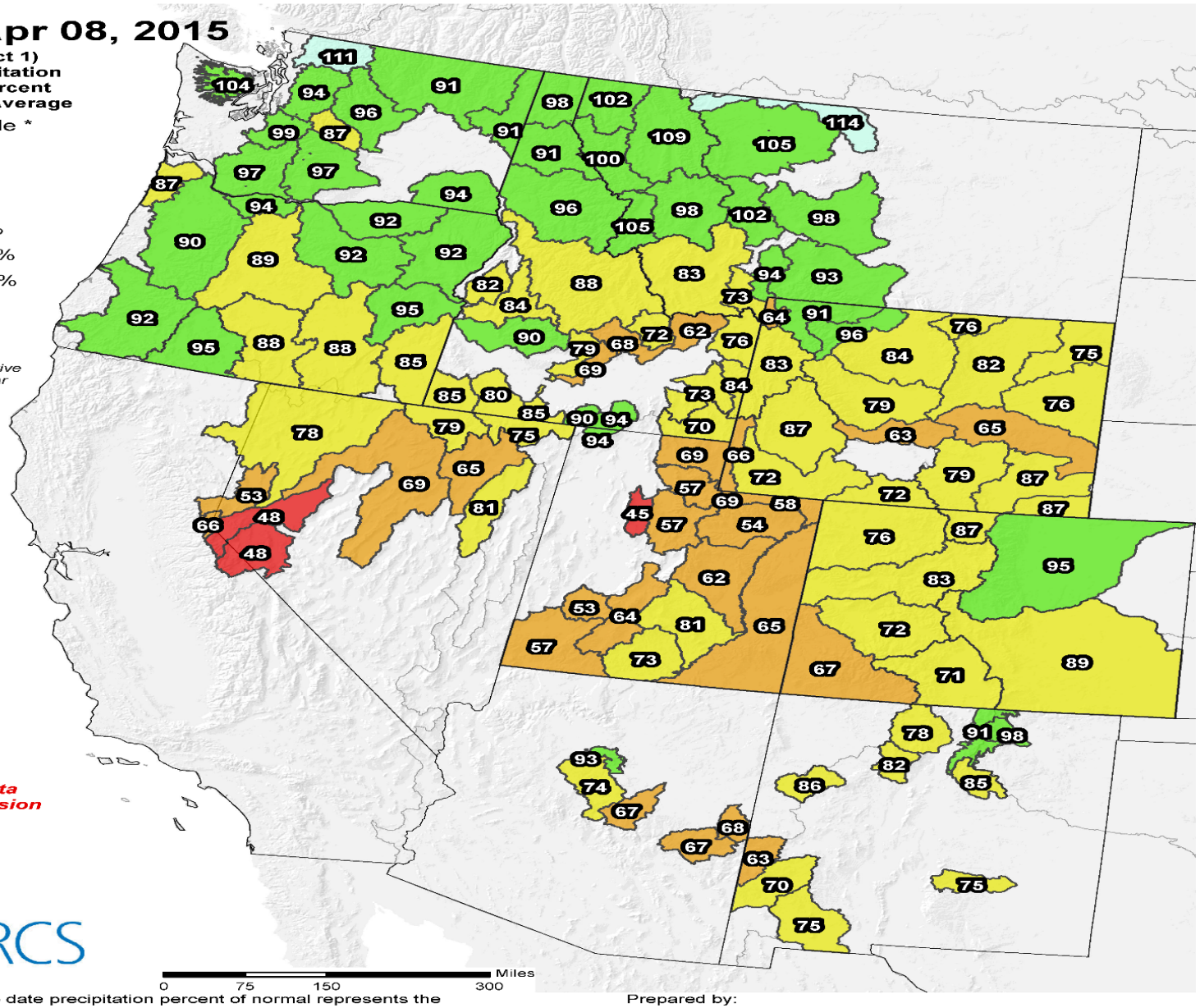
Westwide SNOTEL Water Year (Oct 1) to Date Precipitation % of Normal

Apr 08, 2015

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

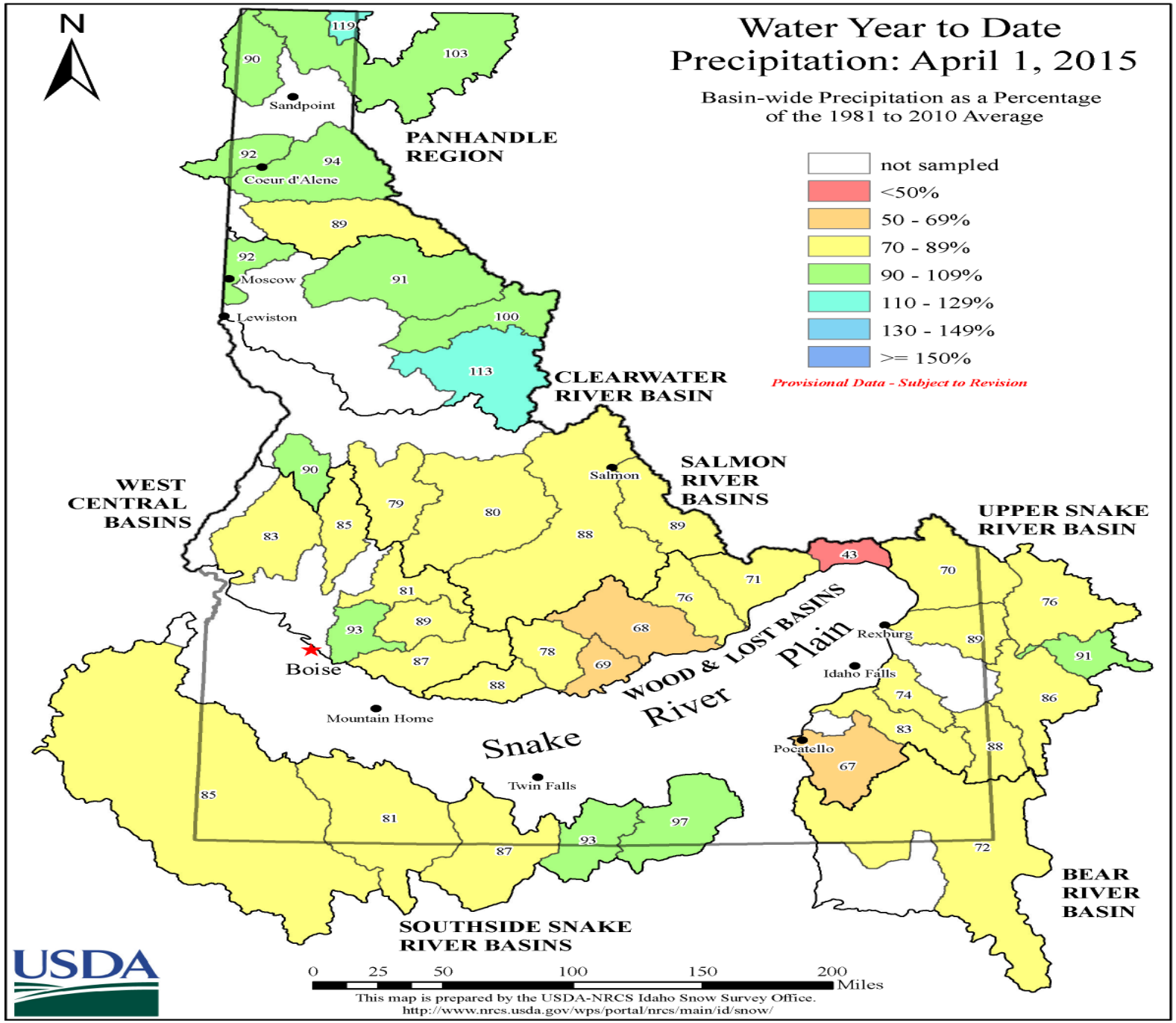
- unavailable *
- <50%
- 50 - 69%
- 70 - 89%
- 90 - 109%
- 110 - 129%
- 130 - 149%
- >= 150%

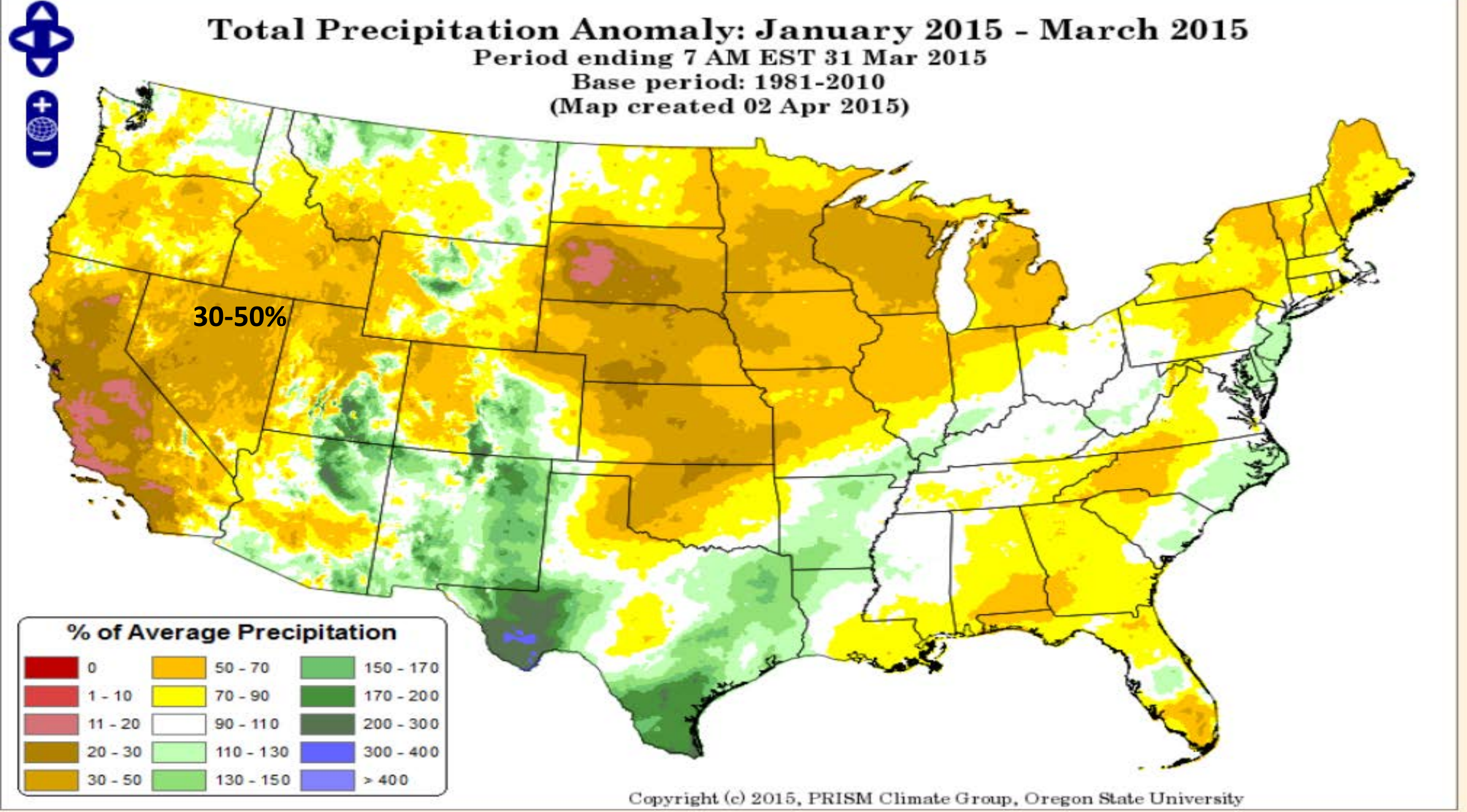
* *Data unavailable at time of posting or measurement is not representative at this time of year*

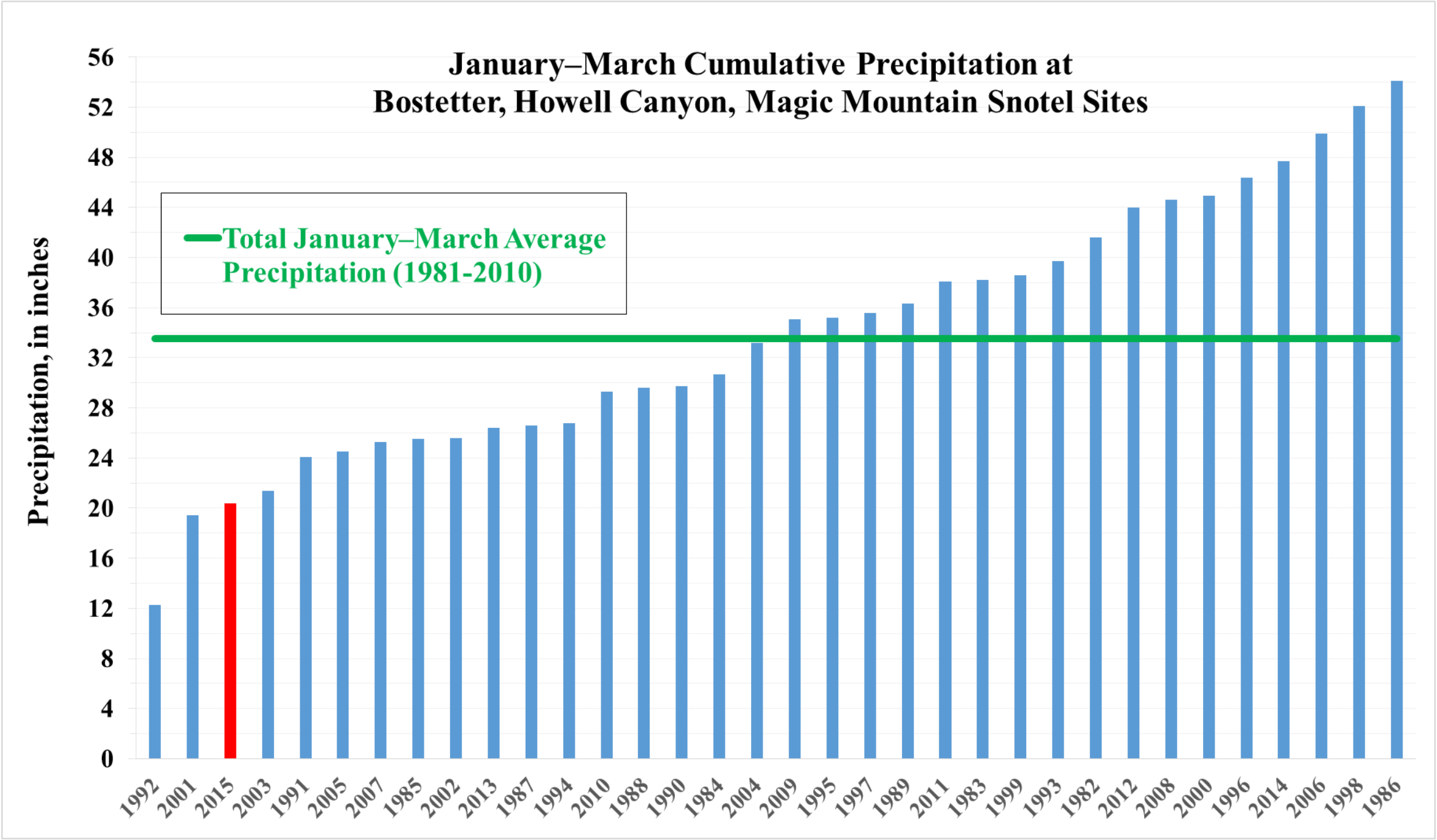


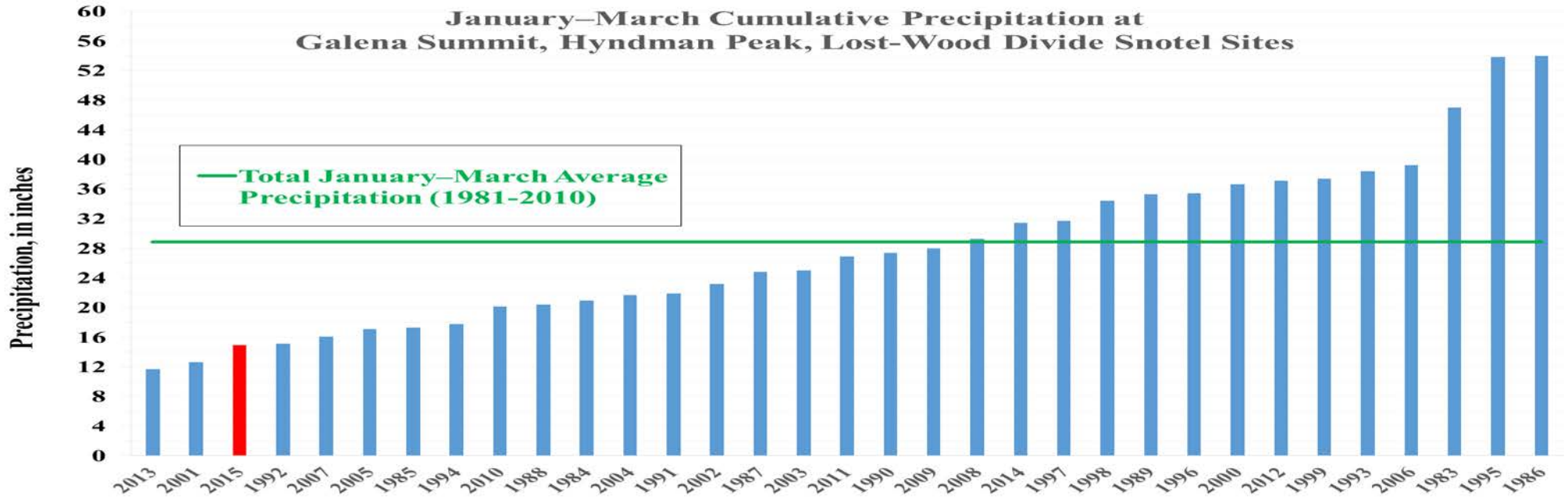
The water year to date precipitation percent of normal represents the accumulated precipitation found at selected SNOTEL sites in or near the basin compared to the average value for those sites on this day. Data based on the first reading of the day (typically 00:00).

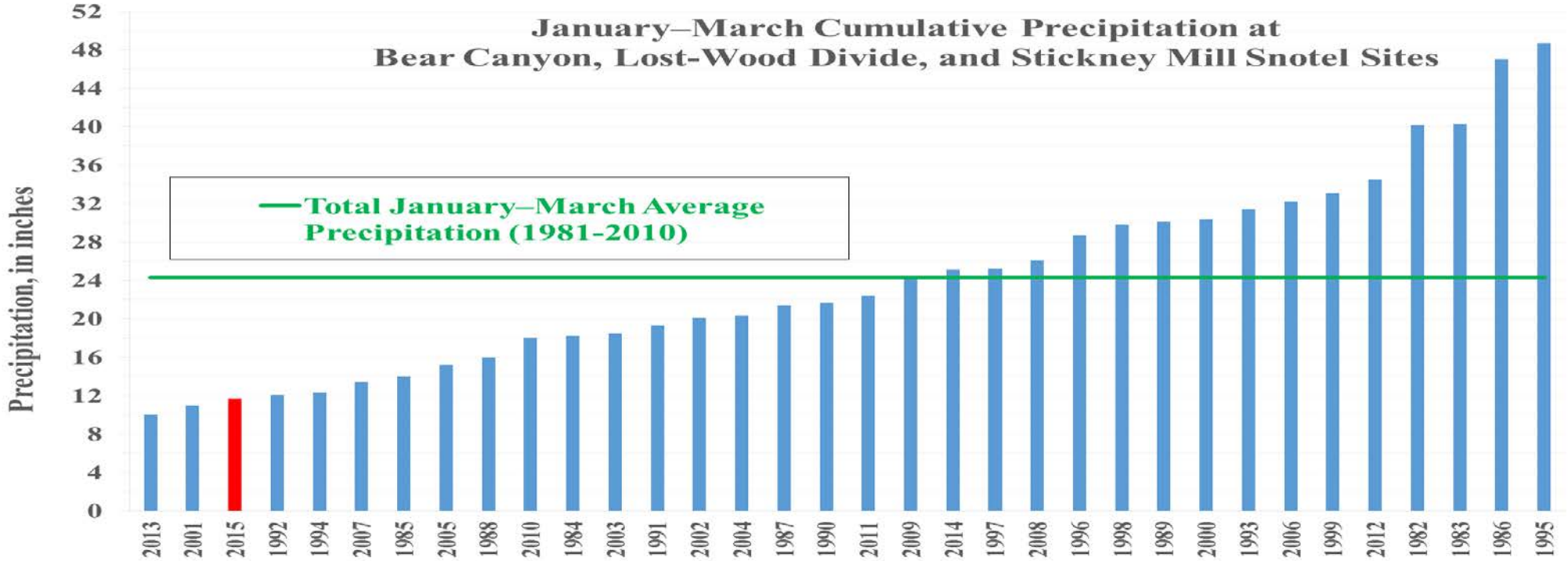
Prepared by:
USDA/NRCS National Water and Climate Center
Portland, Oregon
http://www.wcc.nrcs.usda.gov


Water Year to Date
Precipitation: April 1, 2015
Basin-wide Precipitation as a Percentage
of the 1981 to 2010 Average
not sampled
<50%
50 - 69%
70 - 89%
90 - 109%
110 - 129%
130 - 149%
>= 150%
Provisional Data - Subject to Revision
N
PANHANDLE REGION
CLEARWATER RIVER BASIN
SALMON RIVER BASINS
WEST CENTRAL BASINS
UPPER SNAKE RIVER BASIN
BEAR RIVER BASIN
SOUTHSIDE SNAKE RIVER BASINS
Snake River Plain
WOOD & LOST BASINS
Sandpoint
Coeur d'Alene
Moscow
Lewiston
Salmon
Boise
Mountain Home
Twin Falls
Rexburg
Idaho Falls
Pocatello
119
103
90
92
94
89
91
100
113
83
85
79
80
88
81
93
87
78
69
68
76
71
43
70
74
83
67
86
91
72
97
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


Total Precipitation Anomaly: January 2015 - March 2015
Period ending 7 AM EST 31 Mar 2015
Base period: 1981-2010
(Map created 02 Apr 2015)
30-50%
% of Average Precipitation
0
1 - 10
11 - 20
20 - 30
30 - 50
50 - 70
70 - 90
90 - 110
110 - 130
130 - 150
150 - 170
170 - 200
200 - 300
300 - 400
> 400
Copyright (c) 2015, PRISM Climate Group, Oregon State University

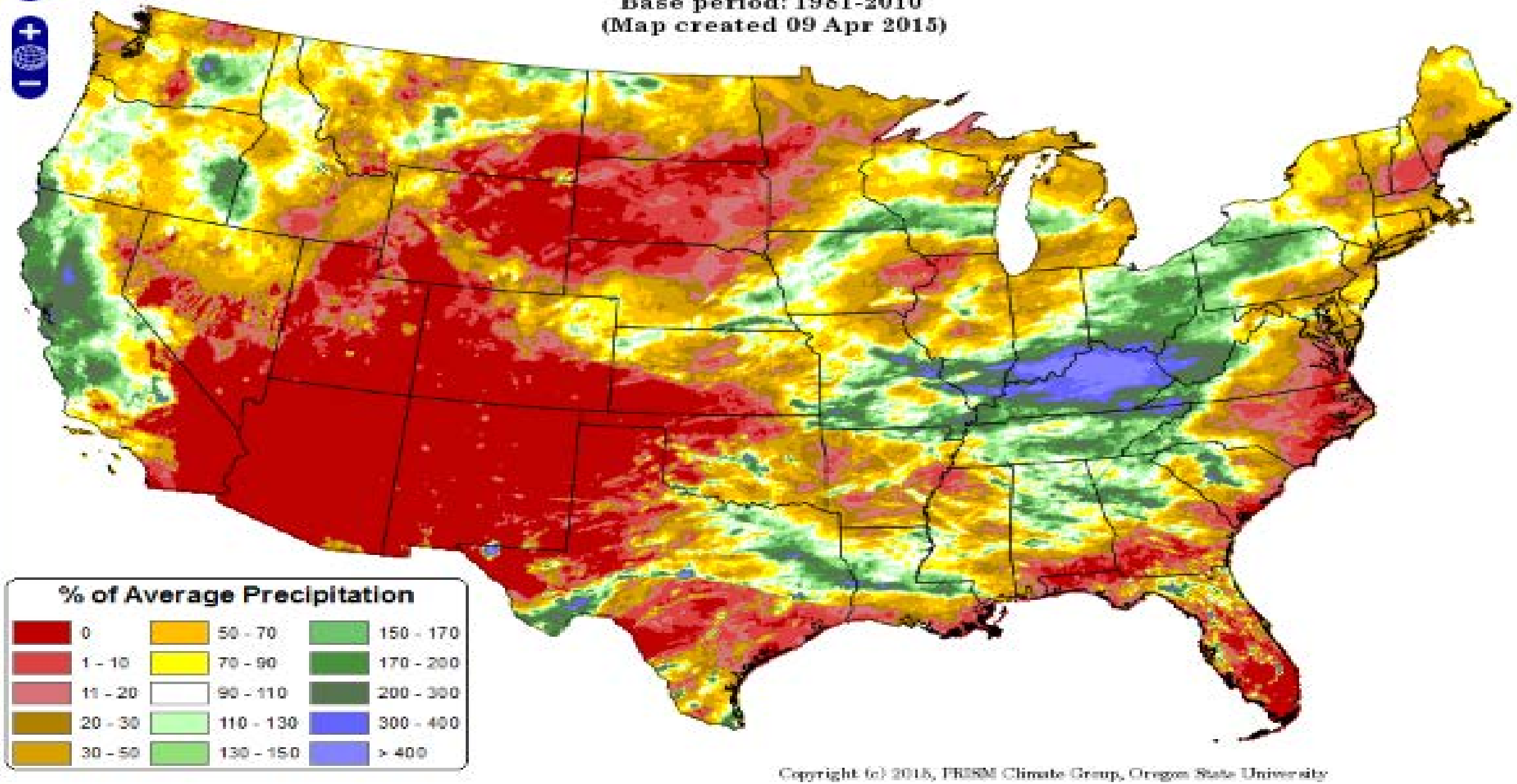

January–March Cumulative Precipitation at
Bostetter, Howell Canyon, Magic Mountain Snotel Sites
Total January–March Average Precipitation (1981-2010)
Precipitation, in inches
0
4
8
12
16
20
24
28
32
36
40
44
48
52
56
1992
2001
2015
2003
1991
2005
2007
1985
2002
2013
1987
1994
2010
1988
1990
1984
2004
2009
1995
1997
1989
2011
1983
1999
1993
1982
2012
2008
2000
1996
2014
2006
1998
1986


January–March Cumulative Precipitation at
Galena Summit, Hyndman Peak, Lost-Wood Divide Snotel Sites
Total January–March Average Precipitation (1981-2010)
Precipitation, in inches
60
56
52
48
44
40
36
32
28
24
20
16
12
8
4
0
2013
2001
2015
1992
2007
2005
1985
1994
2010
1988
1984
2004
1991
2002
1987
2003
2011
1990
2009
2008
2014
1997
1998
1989
1996
2000
2012
1999
1993
2006
1983
1995
1986


January–March Cumulative Precipitation at
Bear Canyon, Lost-Wood Divide, and Stickney Mill Snotel Sites
Total January–March Average Precipitation (1981-2010)
Precipitation, in inches
52
48
44
40
36
32
28
24
20
16
12
8
4
0
2013
2001
2015
1992
1994
2007
1985
2005
1988
2010
1984
2003
1991
2002
2004
1987
1990
2011
2009
2014
1997
2008
1996
1998
1989
2000
1993
2006
1999
2012
1982
1983
1986
1995

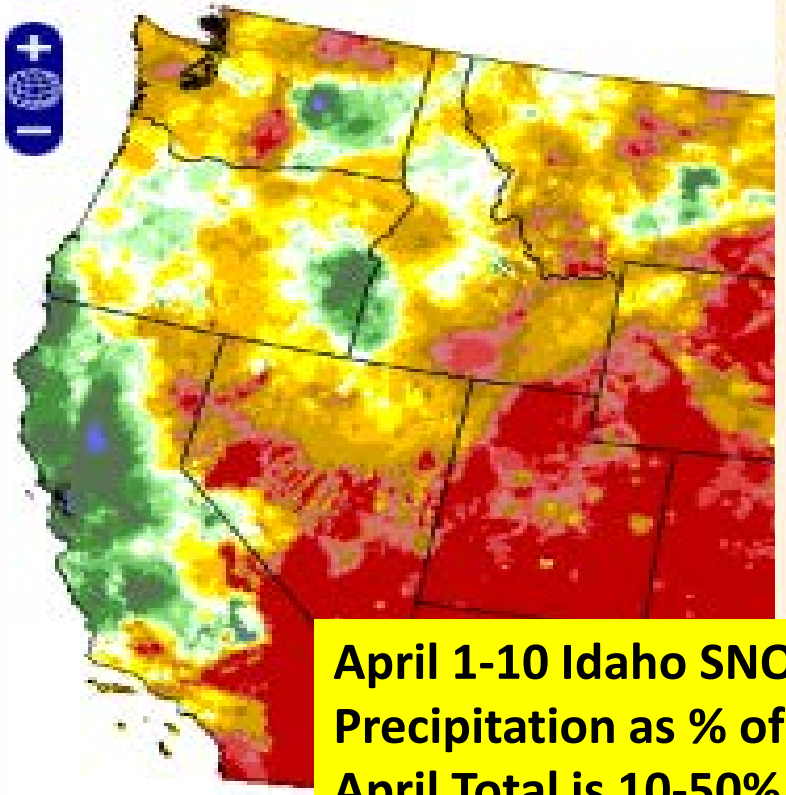
Total Precipitation Anomaly: 01 April 2015 - 08 April 2015

Period ending 7 AM EST 08 Apr 2015
Base period: 1981-2010
(Map created 09 Apr 2015)

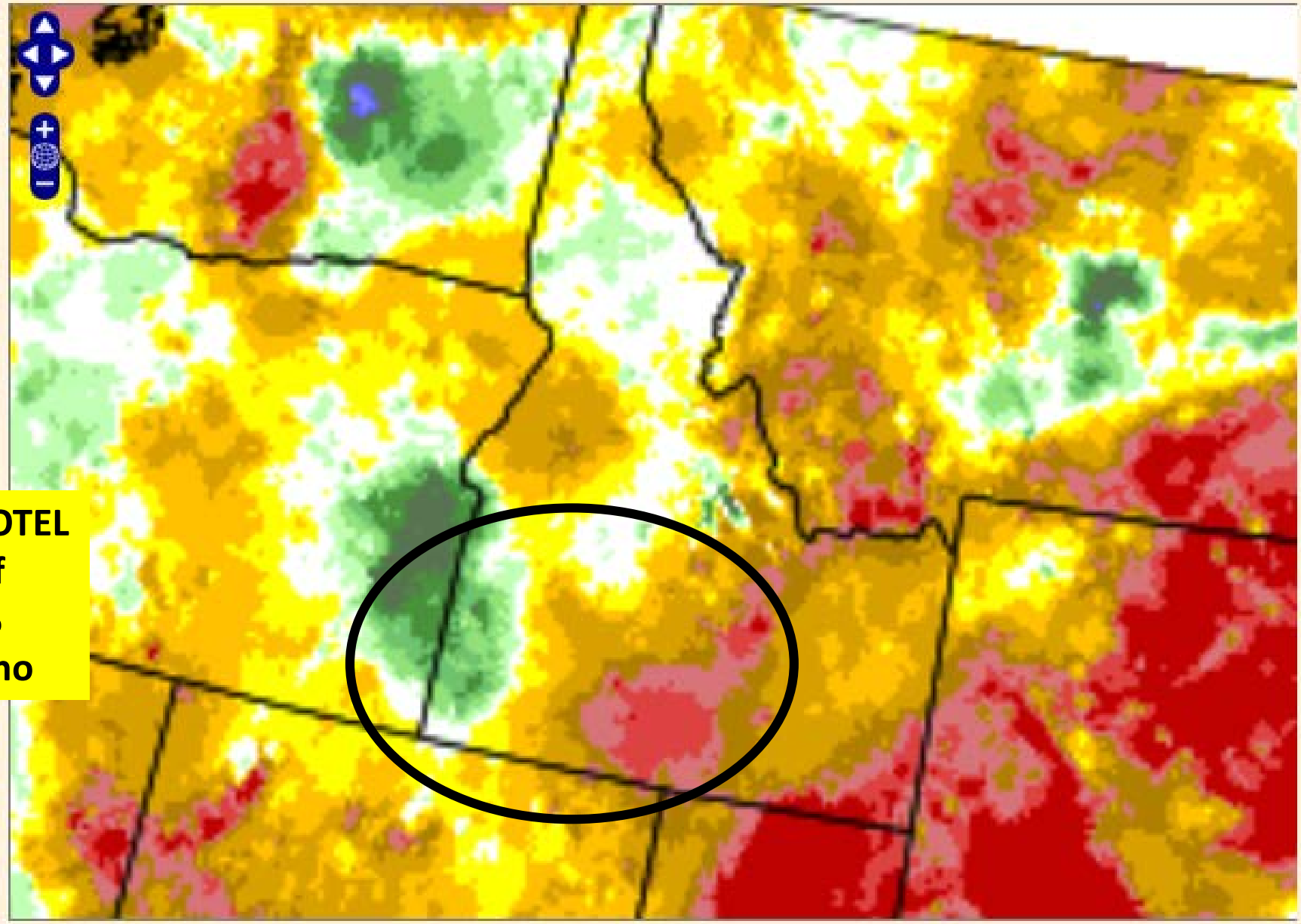


Copyright (c) 2015, PRISM Climate Group, Oregon State University

Total Precipitation Anomaly: 01 April 2015 - 08 April 2015



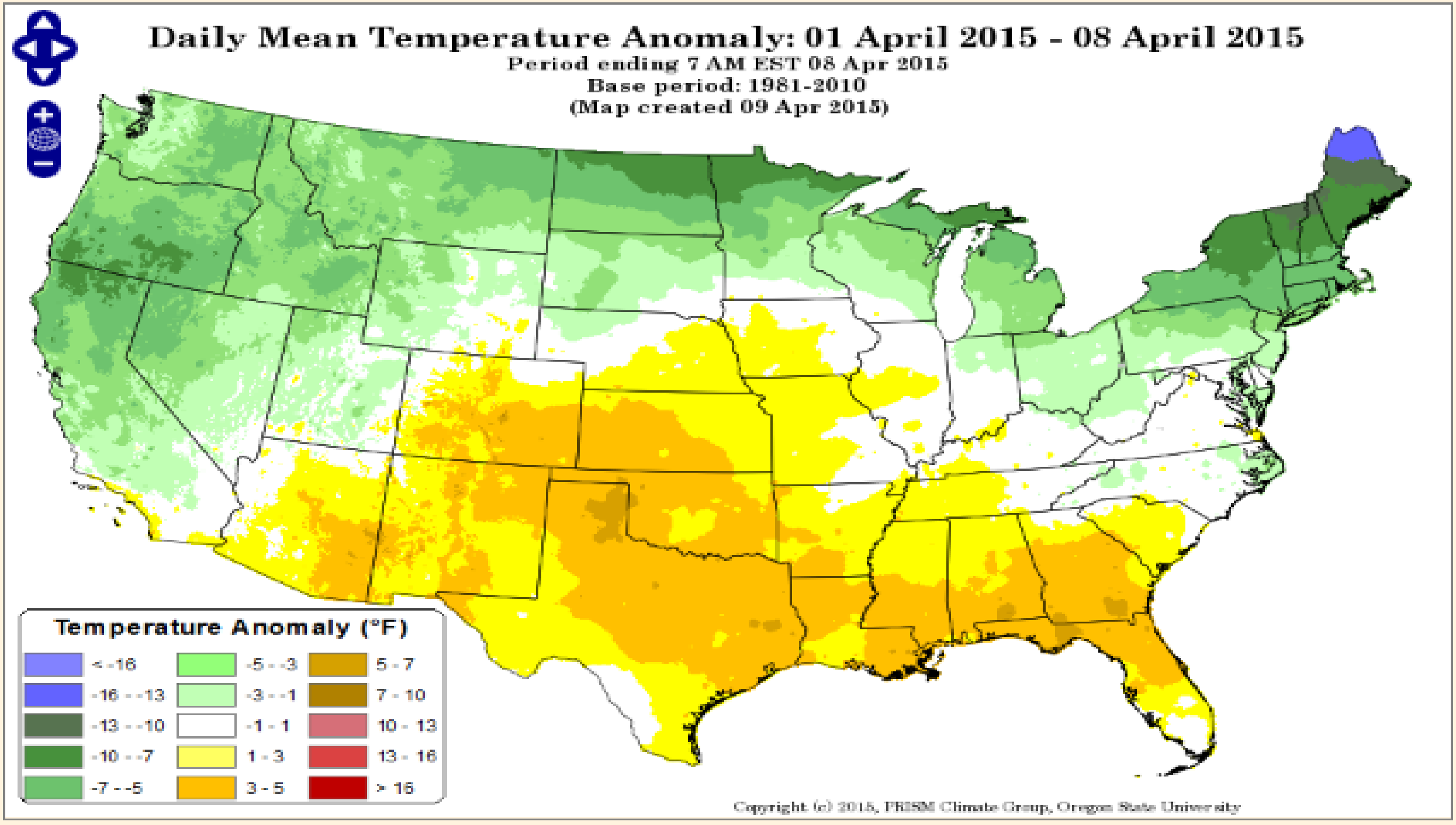
April 1-10 Idaho SNOTEL Precipitation as % of April Total is 10-50% across southern Idaho

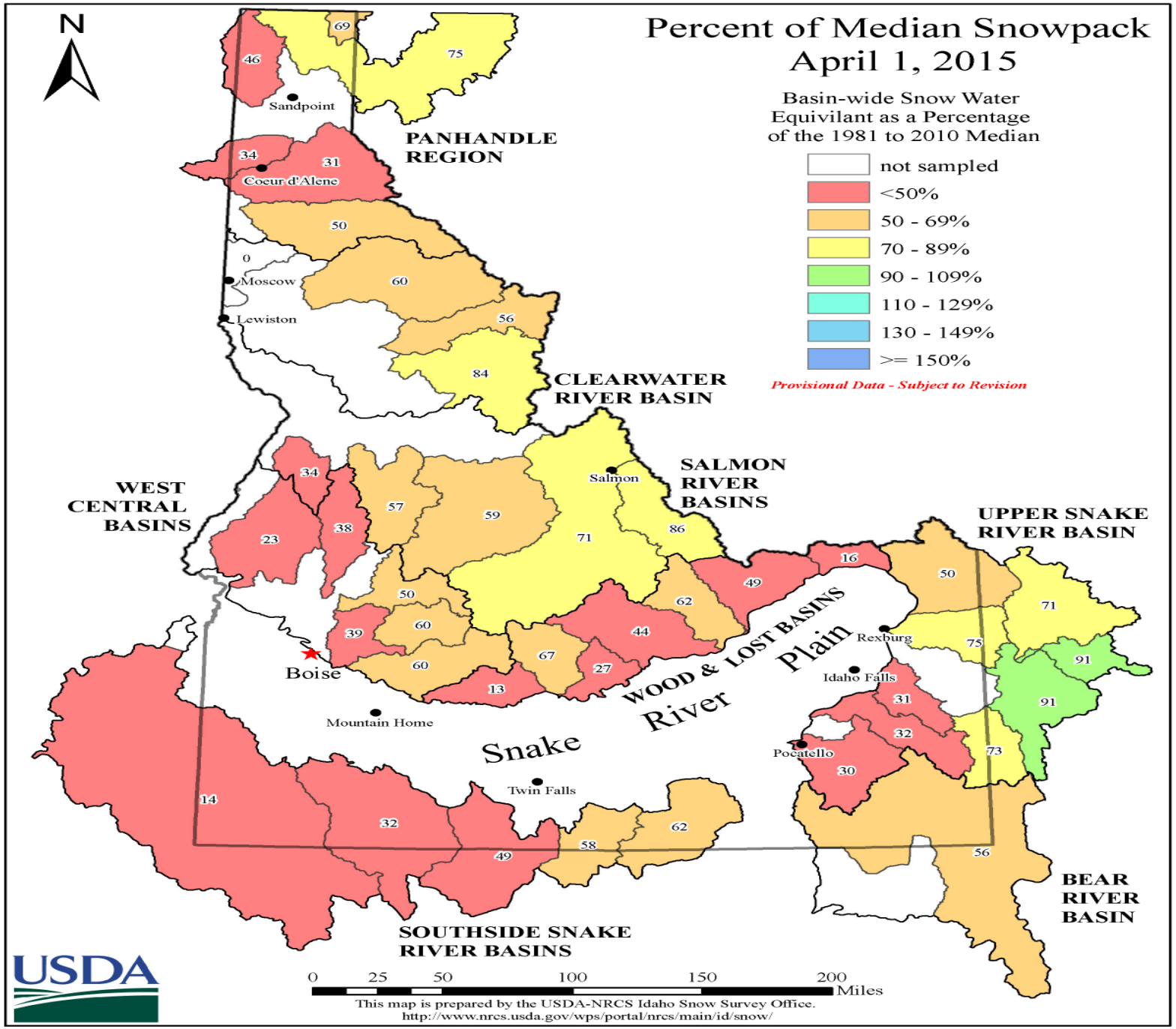


% of Average Precipitation

0	50 - 70	150 - 170
1 - 10	70 - 90	170 - 200
11 - 20	90 - 110	200 - 300
20 - 30	110 - 130	300 - 400
30 - 50	130 - 150	> 400

Copyright (c) 2015, PRISM Climate Group, Oregon State University


Daily Mean Temperature Anomaly: 01 April 2015 - 08 April 2015
Period ending 7 AM EST 08 Apr 2015
Base period: 1981-2010
(Map created 09 Apr 2015)
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) 2015, PRISM Climate Group, Oregon State University


Percent of Median Snowpack
April 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%
Provisional Data - Subject to Revision
N
PANHANDLE REGION
CLEARWATER RIVER BASIN
SALMON RIVER BASINS
WEST CENTRAL BASINS
UPPER SNAKE RIVER BASIN
WOOD & LOST BASINS
Snake River Plain
SOUTHSIDE SNAKE RIVER BASINS
BEAR RIVER BASIN
Sandpoint
Coeur d'Alene
Moscow
Lewiston
Salmon
Boise
Mountain Home
Twin Falls
Rexburg
Idaho Falls
Pocatello
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

April 1 2015 Snow Index Analysis & Highlights

Panhandle	**Tied (2001) lowest total SWE since 1961**
Coeur d'Alene	**Shattered lowest total SWE record (20.70, previous minimum was 36.4), data since '61**
St. Joe	**3rd lowest total SWE since 1961 (2001)**
Spokane	**Lowest total SWE since 1961**
NF Clearwater	**Tied (2001) lowest total SWE since 1961**
NF Clearwater high elevation sites only	**2nd lowest total SWE since 1961 (2001)**
Lochsa	**4th lowest total SWE since 1963 (2001)**
Clearwater	**3rd lowest total SWE since 1961 (2005)**
MF Salmon	**3rd lowest total SWE since 1963 (1977)**
South Fork Salmon	**3rd lowest total SWE since 1961 (1977)**
Little Salmon River	**Lowest total SWE since 1961**
Salmon River	**3rd lowest total SWE since 1963 (1977)**

April 1 2015 Snow Index Analysis & Highlights

Big Wood	Tied for 6th lowest total SWE since 1961 (1977)
Little Wood	2nd lowest total SWE since 1961 (1977)
Big Lost	Lowest total SWE since 1961
Little Lost	2nd lowest total SWE since 1961 (1977)

Salmon Falls	4th lowest total SWE since 1961 (1977)
Owyhee	Lowest total SWE since 1961 (only 7% of April 1 total SWE median)
Bruneau	Lowest total SWE since 1961

Bear above ID-UT line	3rd lowest total SWE since 1961 (1992)
Bear above WY-ID line	2nd lowest total SWE since 1961 (1992)

NF Coeur d' Alene	37% near record low
St. Joe	60%
Spokane Post Falls	46%
Dworshak Inflow	70%
Selway	82%
Lemhi	50%
MF Salmon	57%
Salmon White Bird	74%
Boise nr Boise	63%
Payette Horseshoe	53%
Weiser	46%
Big Wood Hailey	43%
Magic Reservoir	33% near record low
Little Wood Carey	25%
Mackay Reservoir	31% near record low
Little Lost	55%

April 1, 2015 NRCS Streamflow Forecast

April-July Period Forecasts 50% Chance of Exceedance Forecasts

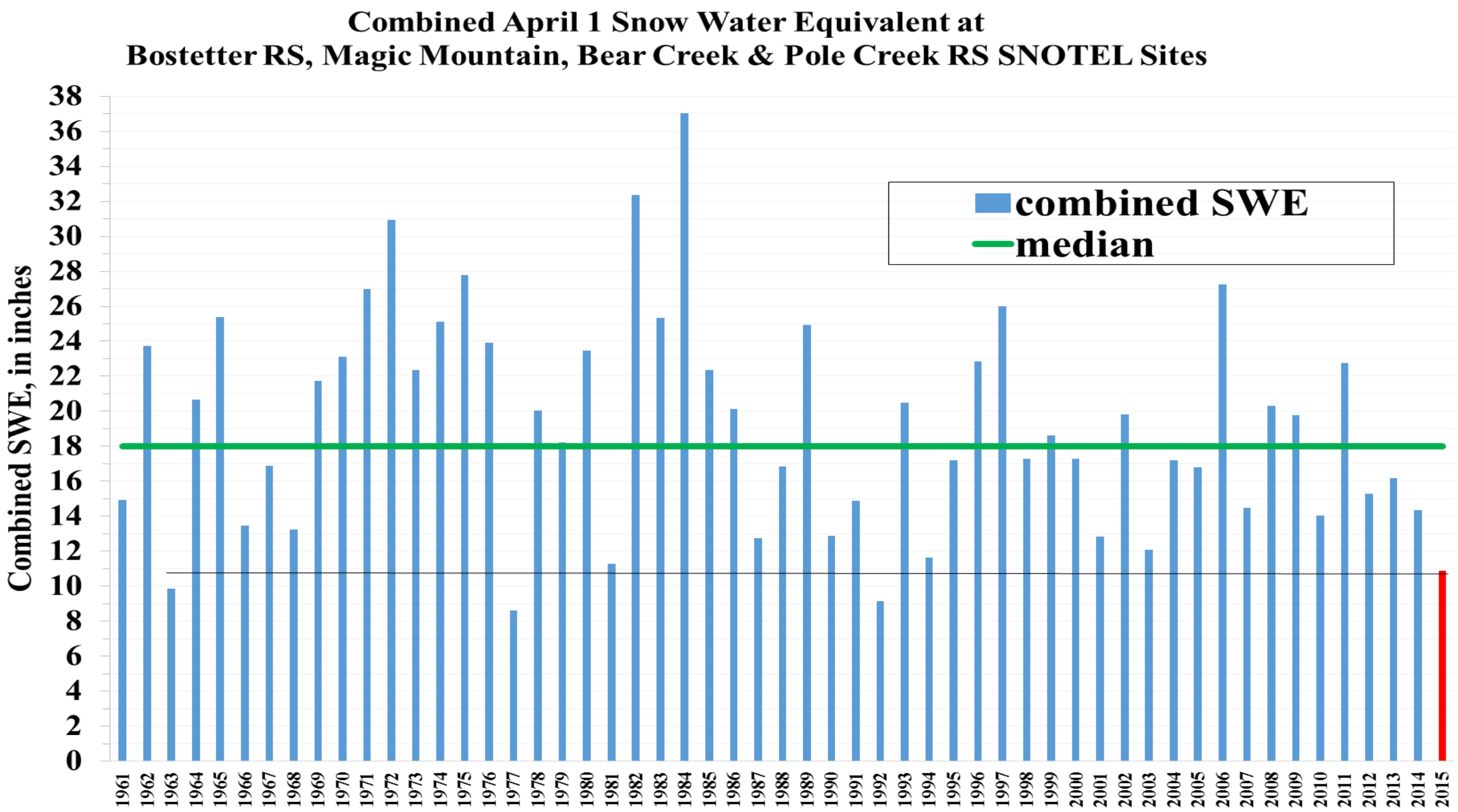
Based on current climate trends users may choose to use smaller volume forecast to reduce risk

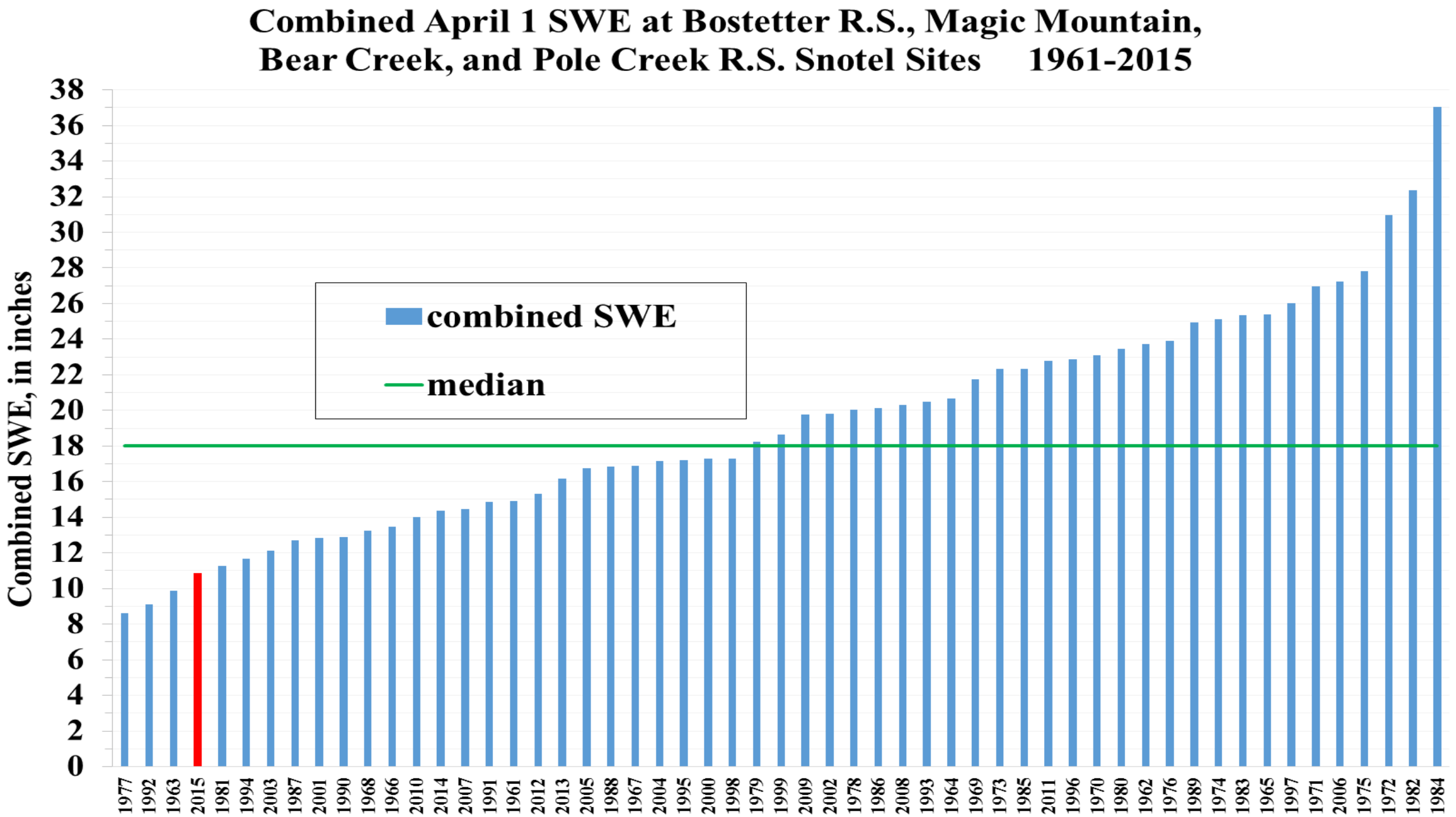
Teton Driggs	65%
Henrys Fork Rexburg	61%
Snake Moran	68%
Buffalo	86%
Salt	55%
Snake Heise	72%
Snake Neeley	27%
Oakley Reservoir	54%
Salmon Falls	36%
27% (70% Chance of Exceedance)	
Bruneau	39%
Owyhee Reservoir	21%
Smiths Fork	67%
Bear Stewart Dam	10% near record low

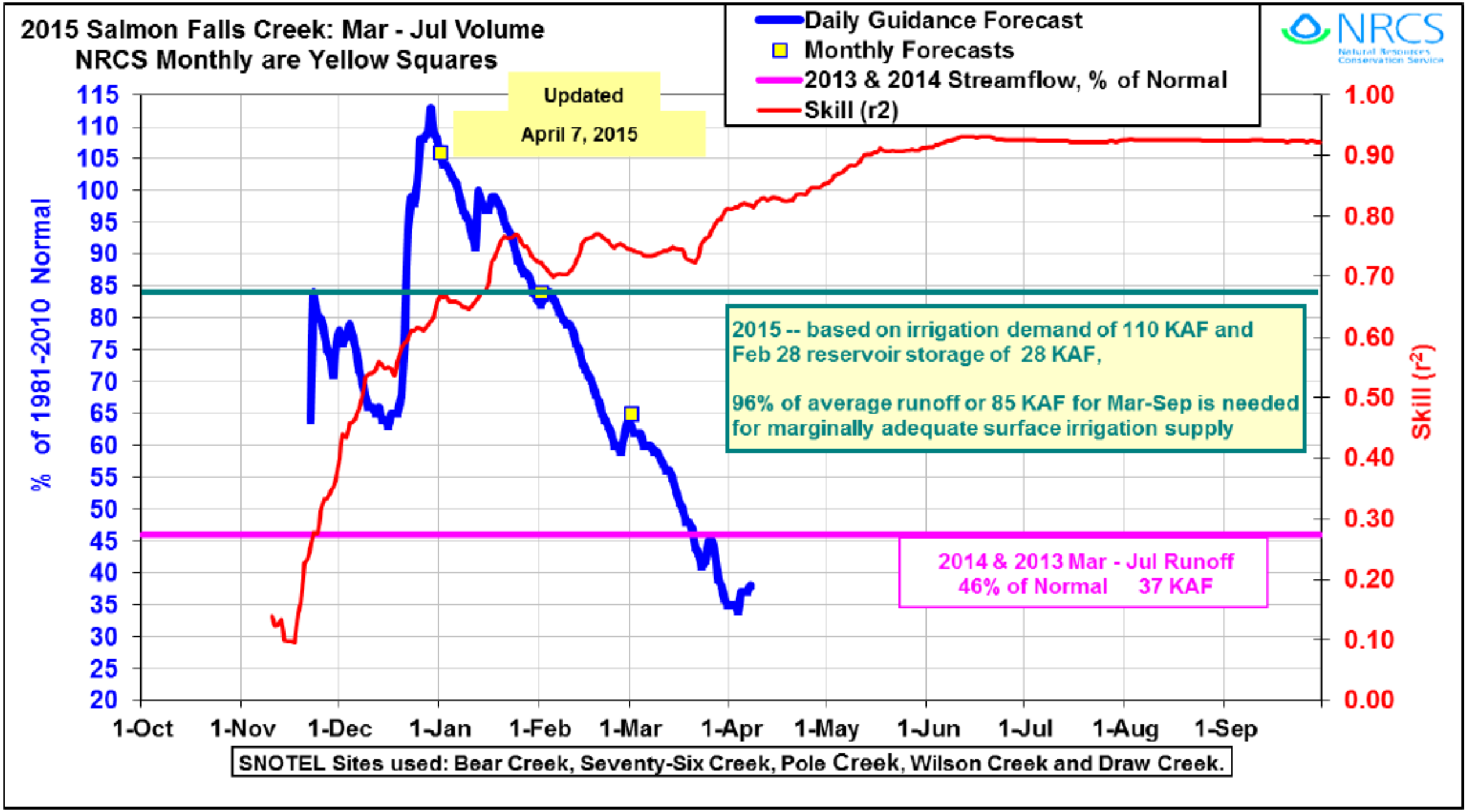
April 1, 2015 NRCS Streamflow Forecast

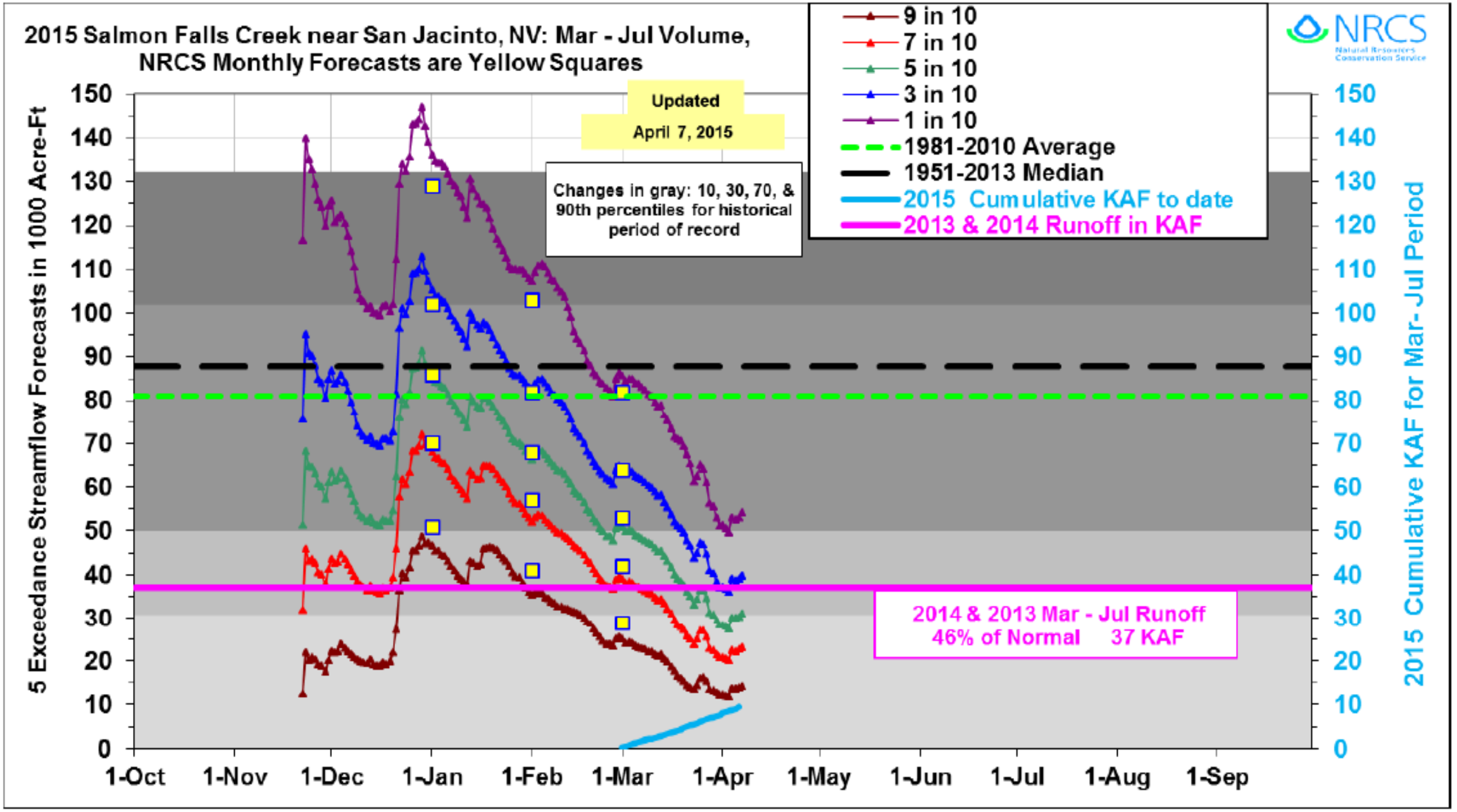
April-July Period Forecasts 50% Chance of Exceedance Forecasts

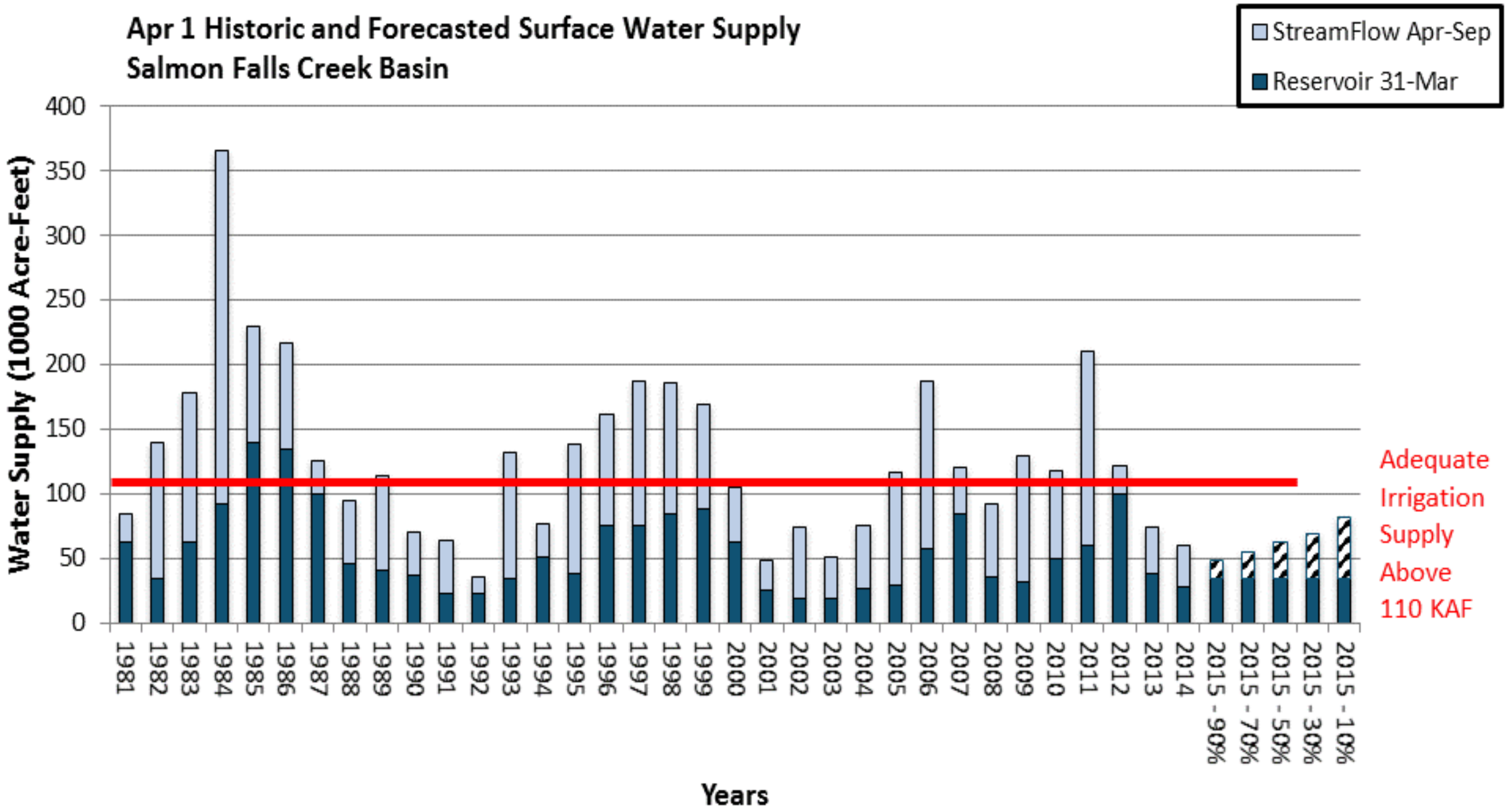
Based on current climate trends users may choose to use smaller volume forecast to reduce risk

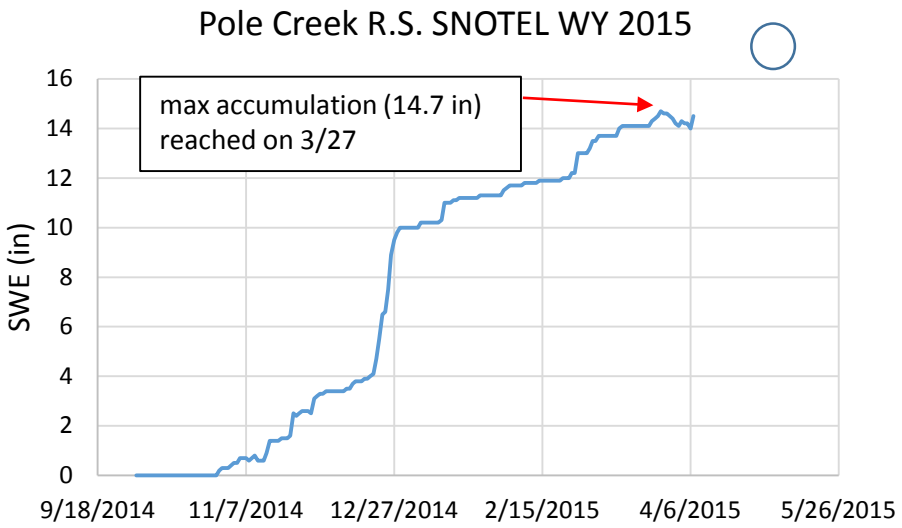

Combined April 1 Snow Water Equivalent at
Bostetter RS, Magic Mountain, Bear Creek & Pole Creek RS SNOTEL Sites
Combined SWE, in inches
0
2
4
6
8
10
12
14
16
18
20
22
24
26
28
30
32
34
36
38
combined SWE
median
1961
1962
1963
1964
1965
1966
1967
1968
1969
1970
1971
1972
1973
1974
1975
1976
1977
1978
1979
1980
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
2015

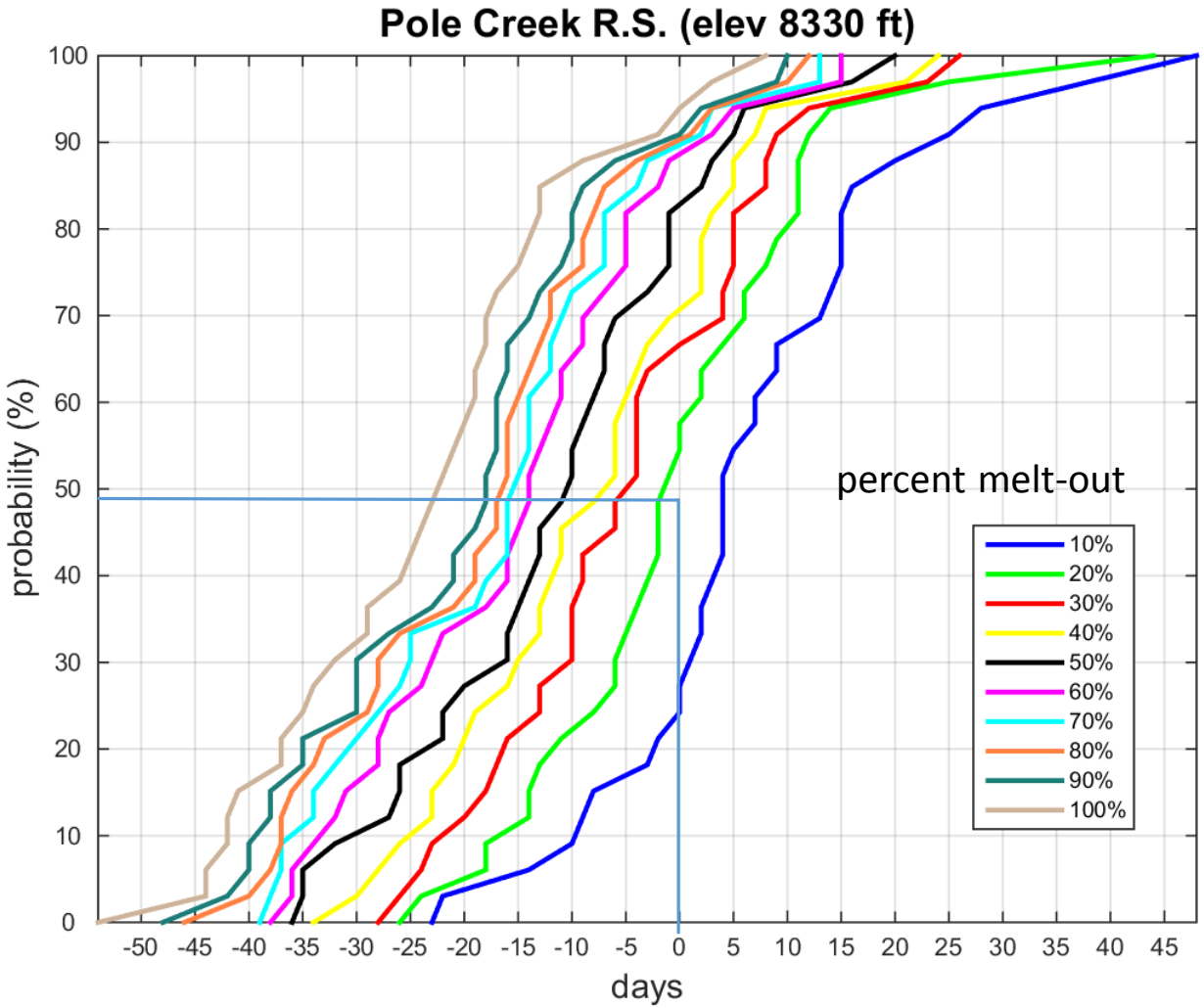

Combined April 1 SWE at Bostetter R.S., Magic Mountain, Bear Creek, and Pole Creek R.S. Snotel Sites 1961-2015
Combined SWE, in inches
0
2
4
6
8
10
12
14
16
18
20
22
24
26
28
30
32
34
36
38
combined SWE
median
1977
1992
1963
2015
1981
1994
2003
1987
2001
1990
1968
1966
2010
2014
2007
1991
1961
2012
2013
2005
1988
1967
2004
1995
2000
1998
1979
1999
2009
2002
1978
1986
2008
1993
1964
1969
1973
1985
2011
1996
1970
1980
1962
1976
1989
1974
1983
1965
1997
1971
2006
1975
1972
1982
1984


2015 Salmon Falls Creek: Mar - Jul Volume
NRCS Monthly are Yellow Squares
Daily Guidance Forecast
Monthly Forecasts
2013 & 2014 Streamflow, % of Normal
Skill (r2)
NRCS
Natural Resources Conservation Service
Updated
April 7, 2015
% of 1981-2010 Normal
Skill (r²)
115
110
105
100
95
90
85
80
75
70
65
60
55
50
45
40
35
30
25
20
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
2015 -- based on irrigation demand of 110 KAF and Feb 28 reservoir storage of 28 KAF,
96% of average runoff or 85 KAF for Mar-Sep is needed for marginally adequate surface irrigation supply
2014 & 2013 Mar - Jul Runoff
46% of Normal 37 KAF
SNOTEL Sites used: Bear Creek, Seventy-Six Creek, Pole Creek, Wilson Creek and Draw Creek.


2015 Salmon Falls Creek near San Jacinto, NV: Mar - Jul Volume,
NRCS Monthly Forecasts are Yellow Squares
Updated
April 7, 2015
Changes in gray: 10, 30, 70, & 90th percentiles for historical period of record
9 in 10
7 in 10
5 in 10
3 in 10
1 in 10
1981-2010 Average
1951-2013 Median
2015 Cumulative KAF to date
2013 & 2014 Runoff in KAF
2014 & 2013 Mar - Jul Runoff
46% of Normal 37 KAF
5 Exceedance Streamflow Forecasts in 1000 Acre-Ft
2015 Cumulative KAF for Mar- Jul Period
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
150
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


Apr 1 Historic and Forecasted Surface Water Supply
Salmon Falls Creek Basin
StreamFlow Apr-Sep
Reservoir 31-Mar
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
2015 - 90%
2015 - 70%
2015 - 50%
2015 - 30%
2015 - 10%
Years
Adequate Irrigation Supply Above 110 KAF

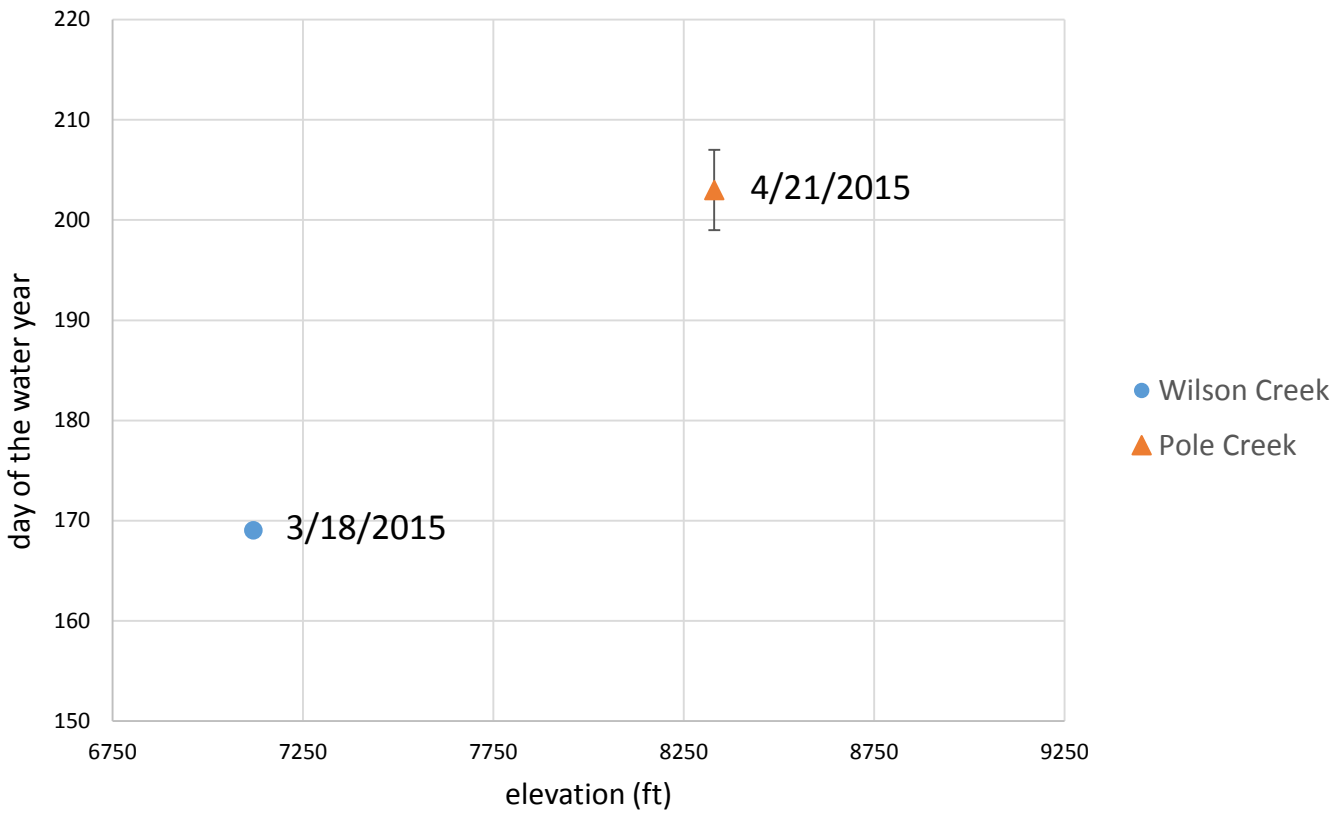




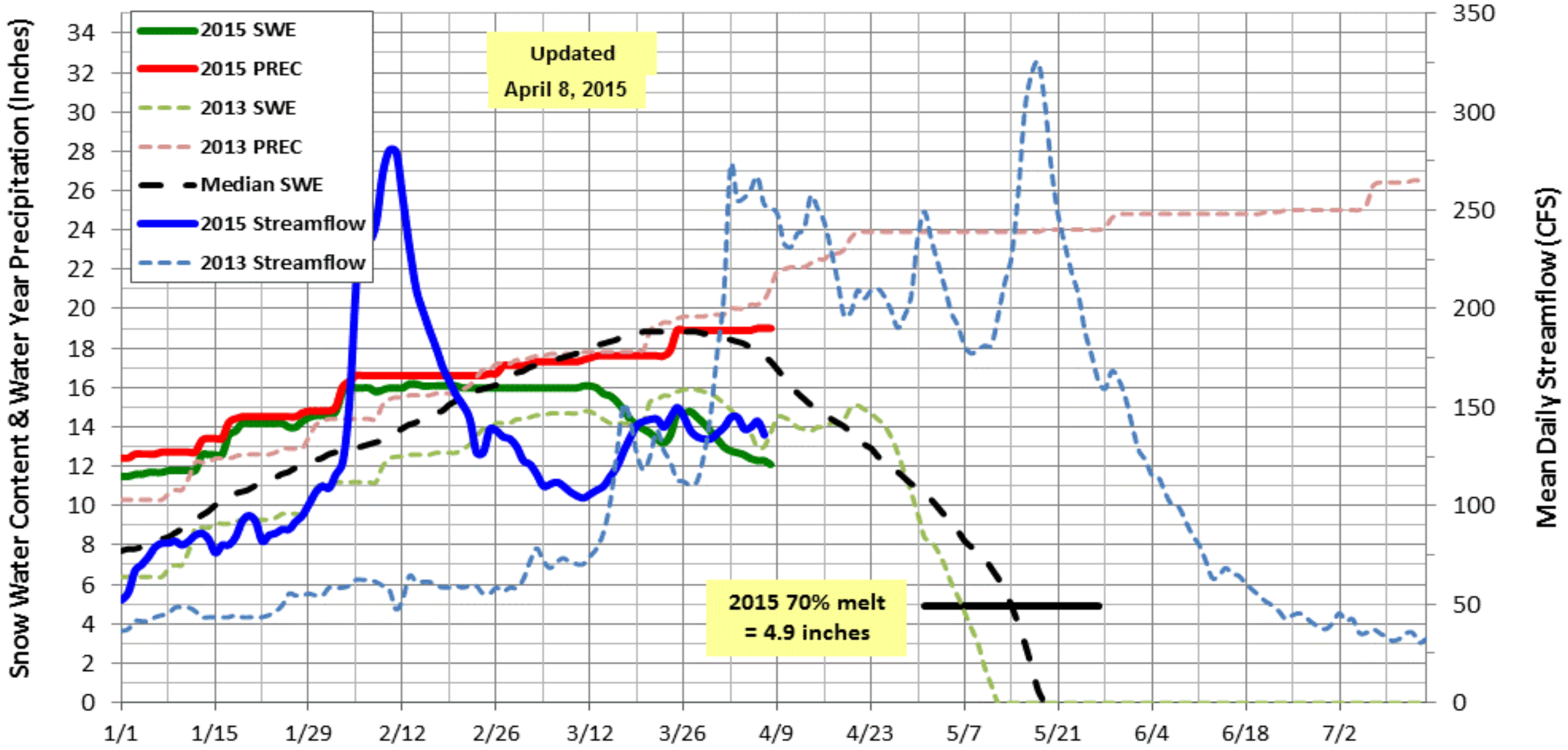
- **Pole Creek SNOTEL site reached max accumulation (14.7 in) on 3/27.**
- **As of as of 4/7 SWE is 14.5 in (~1% melt-out).**
- **Currently, Pole Creek is not far enough into melt to use the melt-out percentages from the probability chart, however, the chart can be used to estimate the average melt-out percent at the time of peak streamflow.**
- **On average (50% probability), Pole Creek is at 20% melt-out (green line) at the time of peak streamflow for Salmon Falls.**

- **Melt-out timing from Wilson Creek, the lower elevation SNOTEL site, may be used to estimate melt-out timing at Pole Creek, the highest elevation site.**

- **Wilson Creek reached 20% melt-out on 3/18, it is estimated Pole Creek will reach 20% melt-out on 4/21 (± 4 days).**



2015 & 2013 Magic Mountain SNOTEL and Salmon Falls Creek near San Jacinto



Salmon Fall Creek usually peaks or has an increase when Magic Mtn SNOTEL is about 70% melted

Twin Falls Soil & Water Conservation District
Salmon Falls Reservoir Storage Allotment

Updated April 8, 2015

Based on NRCS April 1 Streamflow Forecasts

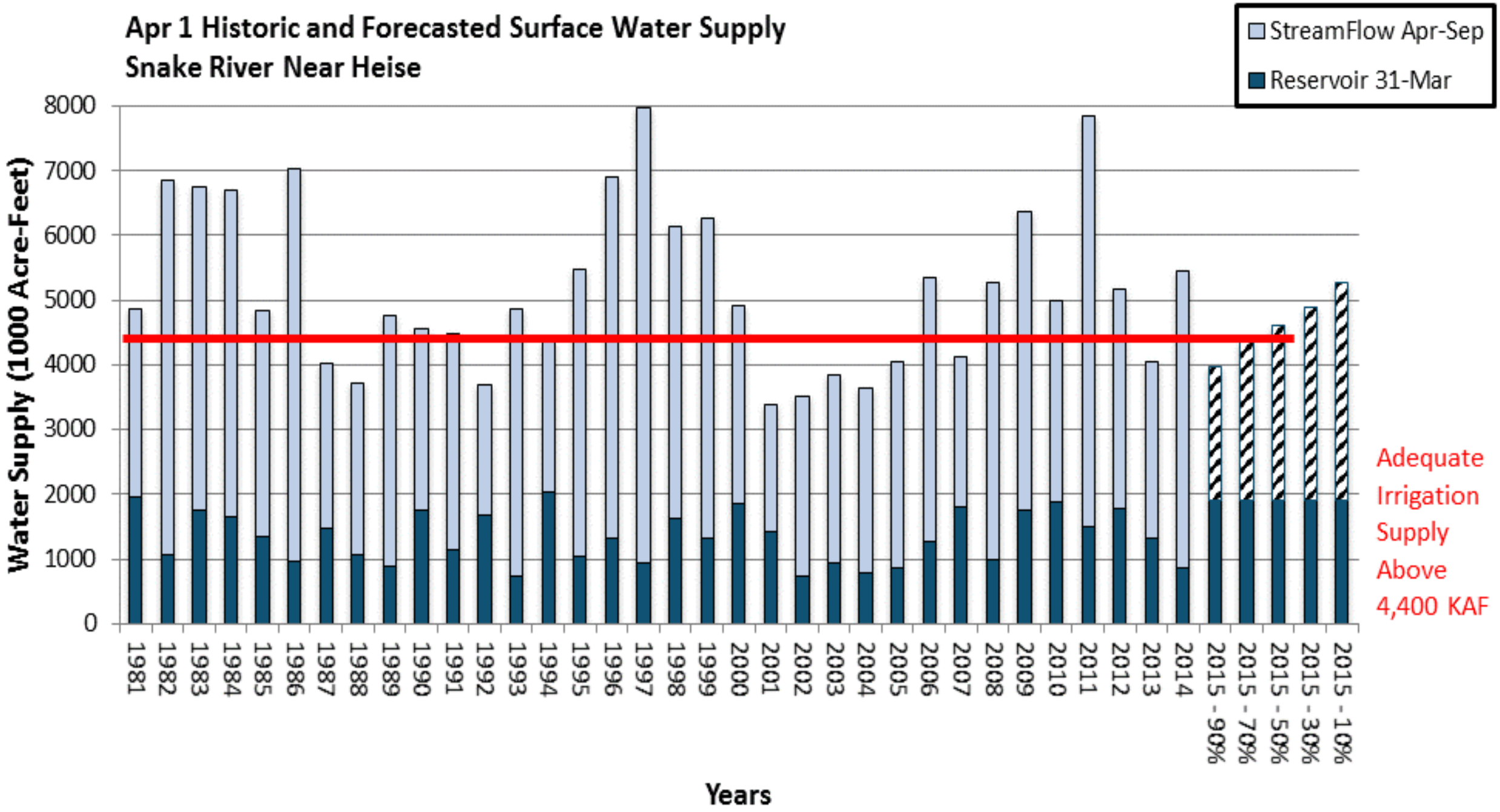
Note: Allotment formula is based on March 31 reservoir storage and April 1 - September 30 forecasts.

		Chance of Exceedance Streamflow Forecasts				
		90%	70%	50%	30%	10%
Inflow Forecast, April 1-September 30, acre-feet		13600	21000	28000	35000	0
Storage in Dam, March 31, acre-feet	34100	34100	34100	34100	34100	34100
Total Storage (Inflow Forecast + Storage)		47700	55100	62100	69100	34100
Less Dead Storage in Reservoir (5000 A-F)	5000	42700	50100	57100	64100	29100
Projected Reservoir Loss of 20%	0.20	8540	10020	11420	12820	5820
In Dam, Available for Delivery		34160	40080	45680	51280	23280
Projected Delivery Efficiency: 2010 56.0% 2009 59.8% 2008 55% 2007 59.4% 2006 65.3% 2005 59.4% 2013 53% 2014 48%	0.48	16397	19238	21926	24614	11174
Less Water for Callen	485	485	485	485	485	485
Less Individual Storage Carryover	988	988	988	988	988	988
Water to be Delivered Over the Weir		14924	17765	20453	23141	9701
Divided by Total Shares	60050.65	0.249	0.296	0.341	0.385	0.162
Allotment if 'Individual Storage Carryover' is not subtracted from 'In Dam, Available for Delivery'		0.265	0.312	0.357	0.402	0.178

Average Allotment	
1924-2006	0.761
1971-2000	0.934
2002-2006	0.616
Full Allotment	1.167

2013 allotment 0.380 Runoff 35 KAF Apr-Sep

2014 allotment 0.332 Runoff 33 KAF Apr-Sep


Apr 1 Historic and Forecasted Surface Water Supply
Snake River Near Heise
StreamFlow Apr-Sep
Reservoir 31-Mar
Water Supply (1000 Acre-Feet)
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
2014
2015 - 90%
2015 - 70%
2015 - 50%
2015 - 30%
2015 - 10%
Years
Adequate Irrigation Supply Above 4,400 KAF

Little Wood River Basin SWSI

Adequate Water Supply Greater than -1.3 SWSI or 60 KAF

Station ID	Station Name	Period	Data Type	Years	# of Years	
13148500	LITTLE WOOD RIVER NR CAREY, ID	Apr-Sep	strm	1981-2014	34	Units KAF
13148200	LITTLE WOOD	31-Mar	resv	1981-2014	34	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 31-Mar	Streamflow + Reservoir Sum	Non-Exceedance Probability	SWSI
1	1983	SE	217	3	219	97%	3.9
2	1995	SE	177	20	197	94%	3.7
3	1982	N	176	18	195	91%	3.5
4	2006	N	170	5	175	89%	3.2
5	1984	N	149	23	172	86%	3.0
6	1997	N	162	7	170	83%	2.7
7	1986	N	142	23	165	80%	2.5
8	1998	SE	121	21	142	77%	2.3
9	1993	EN	112	23	135	74%	2.0
10	2011	SL	104	23	127	71%	1.8
11	1999	SL	117	8	125	69%	1.5
12	2005	EN	93	21	113	66%	1.3
13	1996	N	83	22	106	63%	1.1
14	2009	N	76	19	95	60%	0.8
15	2012	LN	62	26	89	57%	0.6
16	2010	EN	59	28	88	54%	0.4
17	1985	N	66	22	87	51%	0.1
18	1981	N	59	28	87	49%	-0.1
19	1989	SL	63	18	82	46%	-0.4
20	2000	N	49	25	74	43%	-0.6
21	2003	EN	55	19	73	40%	-0.8
2015 10% Chance Exceedance Forcast		EN	43	22	65	39%	-1.0
22	2008	N	51	11	62	37%	-1.1
23	2004	N	37	23	60	34%	-1.3
24	1991	N	42	15	57	31%	-1.5
25	1990	N	35	23	57	29%	-1.8
26	1987	N	27	30	57	26%	-2.0
27	2013	N	32	25	56	23%	-2.3
28	2007	EN	23	29	52	20%	-2.5
2015 30% Chance Exceedance Forcast		EN	30	22	52	19%	-2.6
29	1994	SE	22	30	52	17%	-2.7
30	2002	N	35	15	50	14%	-3.0
31	2001	LN	26	23	49	11%	-3.2
32	1988	SE	26	20	47	9%	-3.5
33	2014	EN	27	19	46	6%	-3.7
34	1992	EN	23	23	46	3%	-3.9
2015 50% Chance Exceedance Forcast		EN	23	22	45	2%	-4.0
2015 70% Chance Exceedance Forcast		EN	16	22	39	1%	-4.0
2015 90% Chance Exceedance Forcast		EN	9	22	31	1%	-4.1

Little Wood River Basin SWSI

Adequate Water Supply Greater than -1.3 SWSI or 60 KAF

Station ID	Station Name	Period	Data Type	Years	# of Years	
13148500	LITTLE WOOD RIVER NR CAREY, ID	Apr-Sep	strm	1981-2014	34	Units KAF
13148200	LITTLE WOOD	31-Mar	resv	1981-2014	34	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 31-Mar	Streamflow + Reservoir Sum	Non-Exceedance Probability	SWSI
20	2000	N	49	25	74	43%	-0.6
21	2003	EN	55	19	73	40%	-0.8
2015 10% Chance Exceedance Forcast		EN	43	22	65	39%	-1.0
22	2008	N	51	11	62	37%	-1.1
23	2004	N	37	23	60	34%	-1.3
24	1991	N	42	15	57	31%	-1.5
25	1990	N	35	23	57	29%	-1.8
26	1987	N	27	30	57	26%	-2.0
27	2013	N	32	25	56	23%	-2.3
28	2007	EN	23	29	52	20%	-2.5
2015 30% Chance Exceedance Forcast		EN	30	22	52	19%	-2.6
29	1994	SE	22	30	52	17%	-2.7
30	2002	N	35	15	50	14%	-3.0
31	2001	LN	26	23	49	11%	-3.2
32	1988	SE	26	20	47	9%	-3.5
33	2014	EN	27	19	46	6%	-3.7
34	1992	EN	23	23	46	3%	-3.9
2015 50% Chance Exceedance Forcast		EN	23	22	45	2%	-4.0
2015 70% Chance Exceedance Forcast		EN	16	22	39	1%	-4.0
2015 90% Chance Exceedance Forcast		EN	9	22	31	1%	-4.1

Big Lost River Basin SWSI

Adequate Water Supply Greater than 0.6 SWSI or 180 KAF

Station ID	Station Name	Period	Data Type	Years	# of Years	
13127000	Big Lost R blw Mackay Reservoir	Apr-Sep	strm	1981-2014	34	Units KAF
13126000	Mackay Reservoir	31-Mar	resv	1981-2014	34	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 31-Mar	Streamflow + Reservoir Sum	Non-Exceedance Probability	SWSI
1	1984	N	321	37	358	97%	3.9
2	1983	SE	296	31	327	94%	3.7
3	1982	N	272	35	307	91%	3.5
4	1995	SE	272	24	296	89%	3.2
5	1986	N	239	38	277	86%	3.0
6	1997	N	244	16	260	83%	2.7
7	2006	N	216	34	249	80%	2.5
8	1998	SE	198	38	236	77%	2.3
9	1999	SL	196	30	226	74%	2.0
10	1981	N	176	44	220	71%	1.8
11	1996	N	171	37	208	69%	1.5
12	2011	SL	160	39	199	66%	1.3
13	1993	EN	169	27	196	63%	1.1
14	2009	N	166	29	195	60%	0.8
15	1985	N	139	39	178	57%	0.6
16	2012	LN	134	43	177	54%	0.4
17	2010	EN	135	41	177	51%	0.1
18	2005	EN	142	25	168	49%	-0.1
19	1987	N	101	39	140	46%	-0.4
20	2008	N	105	28	133	43%	-0.6
21	1991	N	106	26	132	40%	-0.8
	2015 10% Chance Exceedance Forcast	EN	95	34	129	39%	-1.0
22	2013	N	88	37	125	37%	-1.1
23	2000	N	89	35	124	34%	-1.3
24	2007	EN	83	35	118	31%	-1.5
25	1990	N	88	28	116	29%	-1.8
26	2003	EN	87	21	108	26%	-2.0
27	1989	SL	78	27	105	23%	-2.3
28	1994	SE	69	36	105	20%	-2.5
	2015 30% Chance Exceedance Forcast	EN	70	34	104	19%	-2.6
29	1988	SE	74	29	102	17%	-2.7
30	2014	EN	67	32	99	14%	-3.0
31	2001	LN	68	27	96	11%	-3.2
32	2002	N	69	25	94	9%	-3.5
33	1992	EN	64	29	92	6%	-3.7
	2015 50% Chance Exceedance Forcast	EN	56	34	90	4%	-3.8
34	2004	N	66	24	90	3%	-3.9
	2015 70% Chance Exceedance Forcast	EN	43	34	77	2%	-4.0

Big Lost River Basin SWSI

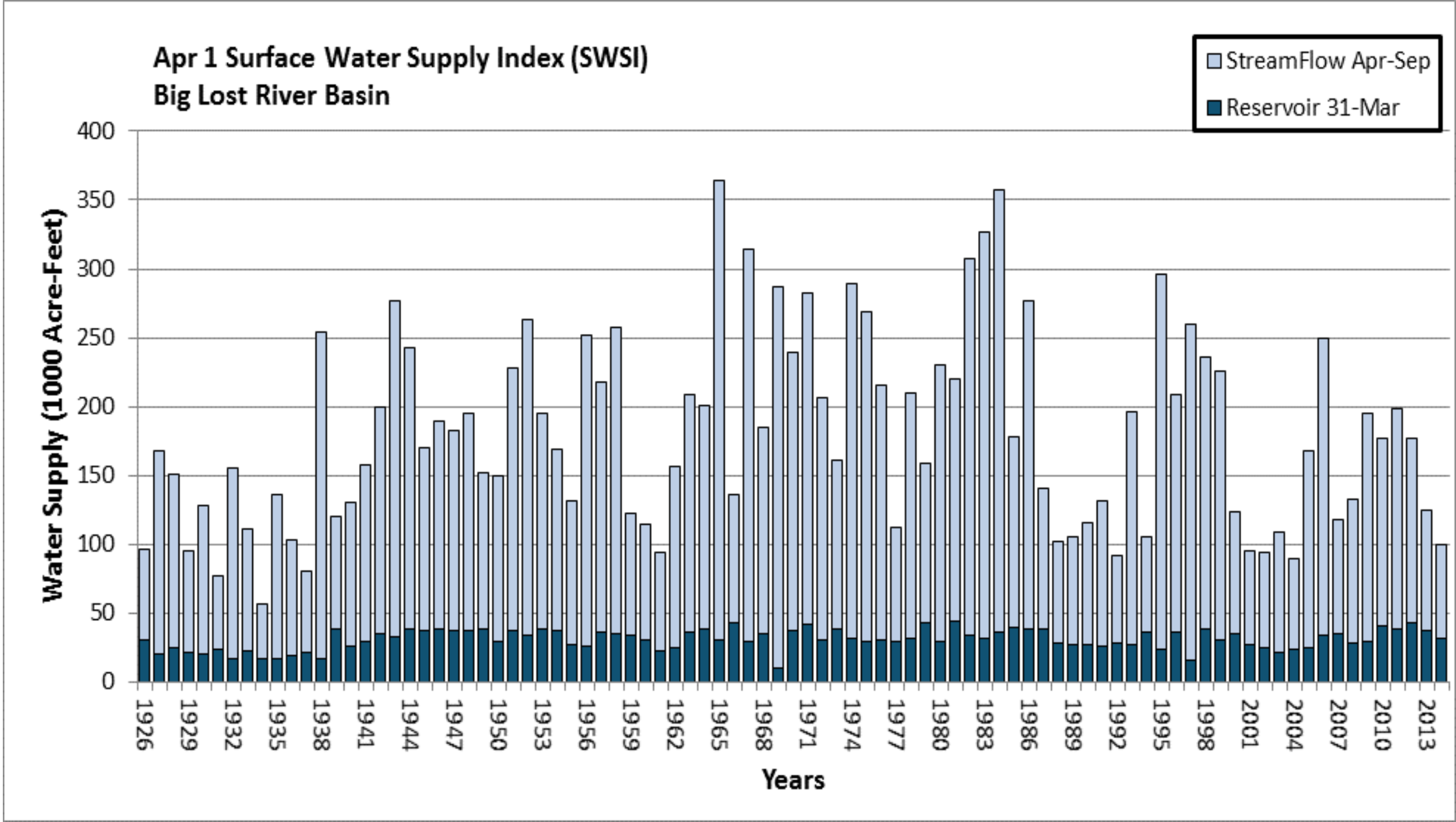
Adequate Water Supply Greater than 0.6 SWSI or 180 KAF

Station ID	Station Name	Period	Data Type	Years	# of Years	
13127000	Big Lost R blw Mackay Reservoir	Apr-Sep	strm	1981-2014	34	Units KAF
13126000	Mackay Reservoir	31-Mar	resv	1981-2014	34	Units KAF

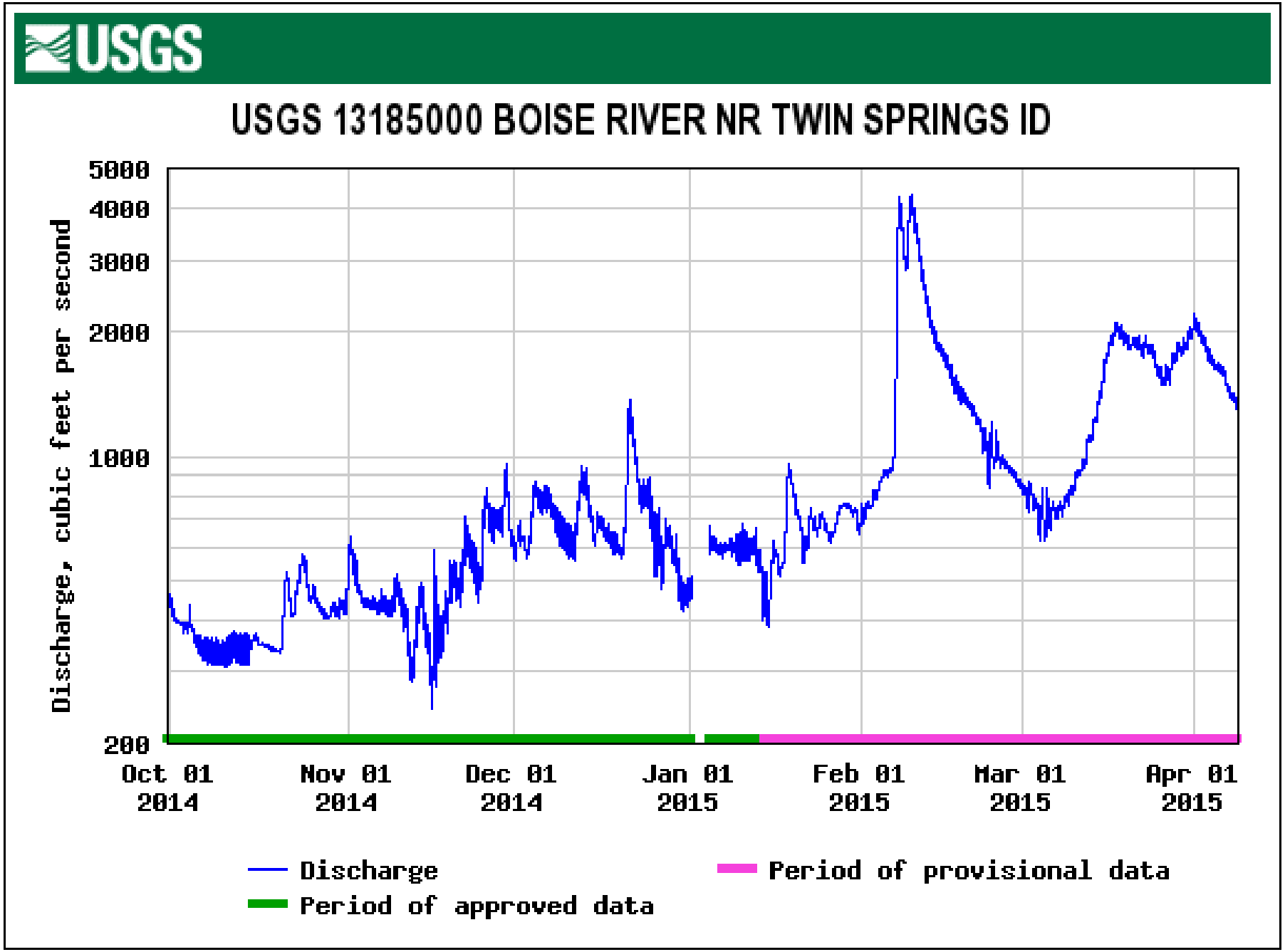
ENSO Classification

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

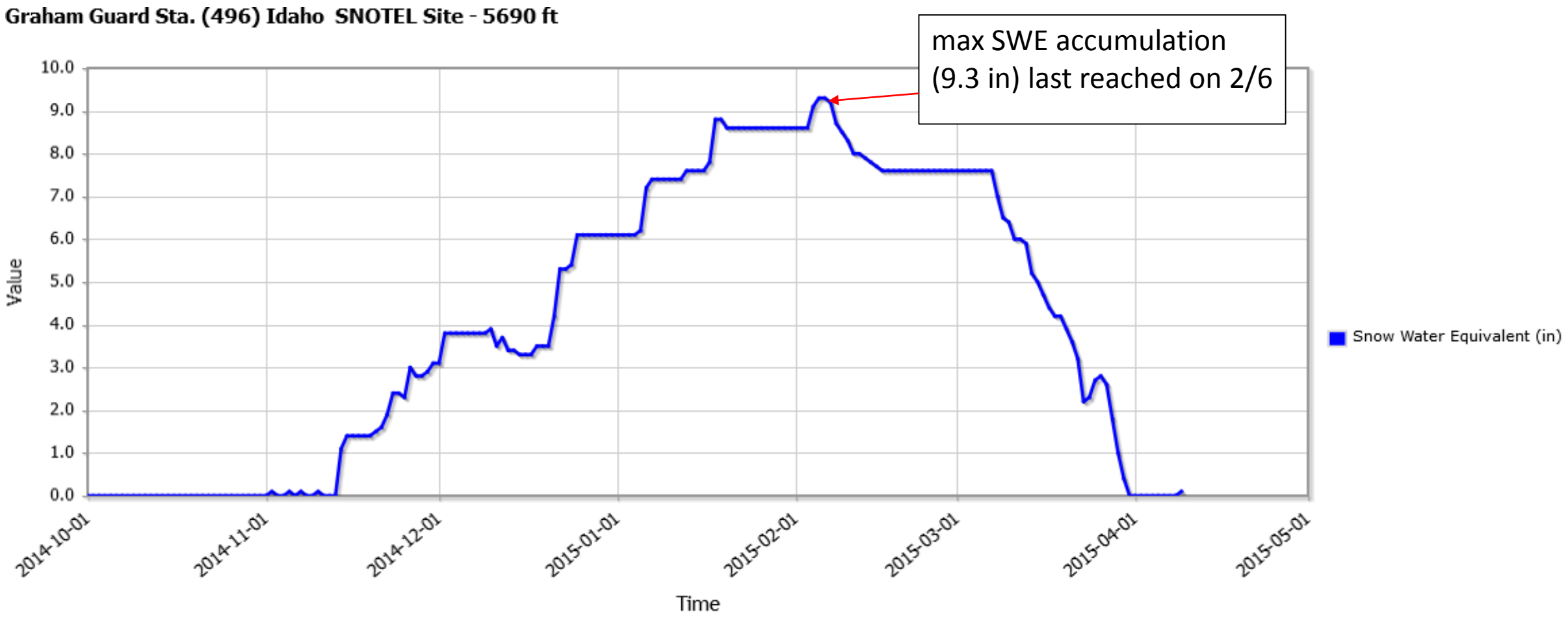
Rank	Year	Enso	Stream Flow Apr-Sep	Reservoir 31-Mar	Streamflow + Reservoir Sum	Non-Exceedance Probability	SWSI
20	2008	N	105	28	133	43%	-0.6
21	1991	N	106	26	132	40%	-0.8
	2015 10% Chance Exceedance Forcast	EN	95	34	129	39%	-1.0
22	2013	N	88	37	125	37%	-1.1
23	2000	N	89	35	124	34%	-1.3
24	2007	EN	83	35	118	31%	-1.5
25	1990	N	88	28	116	29%	-1.8
26	2003	EN	87	21	108	26%	-2.0
27	1989	SL	78	27	105	23%	-2.3
28	1994	SE	69	36	105	20%	-2.5
	2015 30% Chance Exceedance Forcast	EN	70	34	104	19%	-2.6
29	1988	SE	74	29	102	17%	-2.7
30	2014	EN	67	32	99	14%	-3.0
31	2001	LN	68	27	96	11%	-3.2
32	2002	N	69	25	94	9%	-3.5
33	1992	EN	64	29	92	6%	-3.7
	2015 50% Chance Exceedance Forcast	EN	56	34	90	4%	-3.8
34	2004	N	66	24	90	3%	-3.9
	2015 70% Chance Exceedance Forcast	EN	43	34	77	2%	-4.0


Apr 1 Surface Water Supply Index (SWSI)
Big Lost River Basin
StreamFlow Apr-Sep
Reservoir 31-Mar
Water Supply (1000 Acre-Feet)
400
350
300
250
200
150
100
50
0
1926
1929
1932
1935
1938
1941
1944
1947
1950
1953
1956
1959
1962
1965
1968
1971
1974
1977
1980
1983
1986
1989
1992
1995
1998
2001
2004
2007
2010
2013
Years

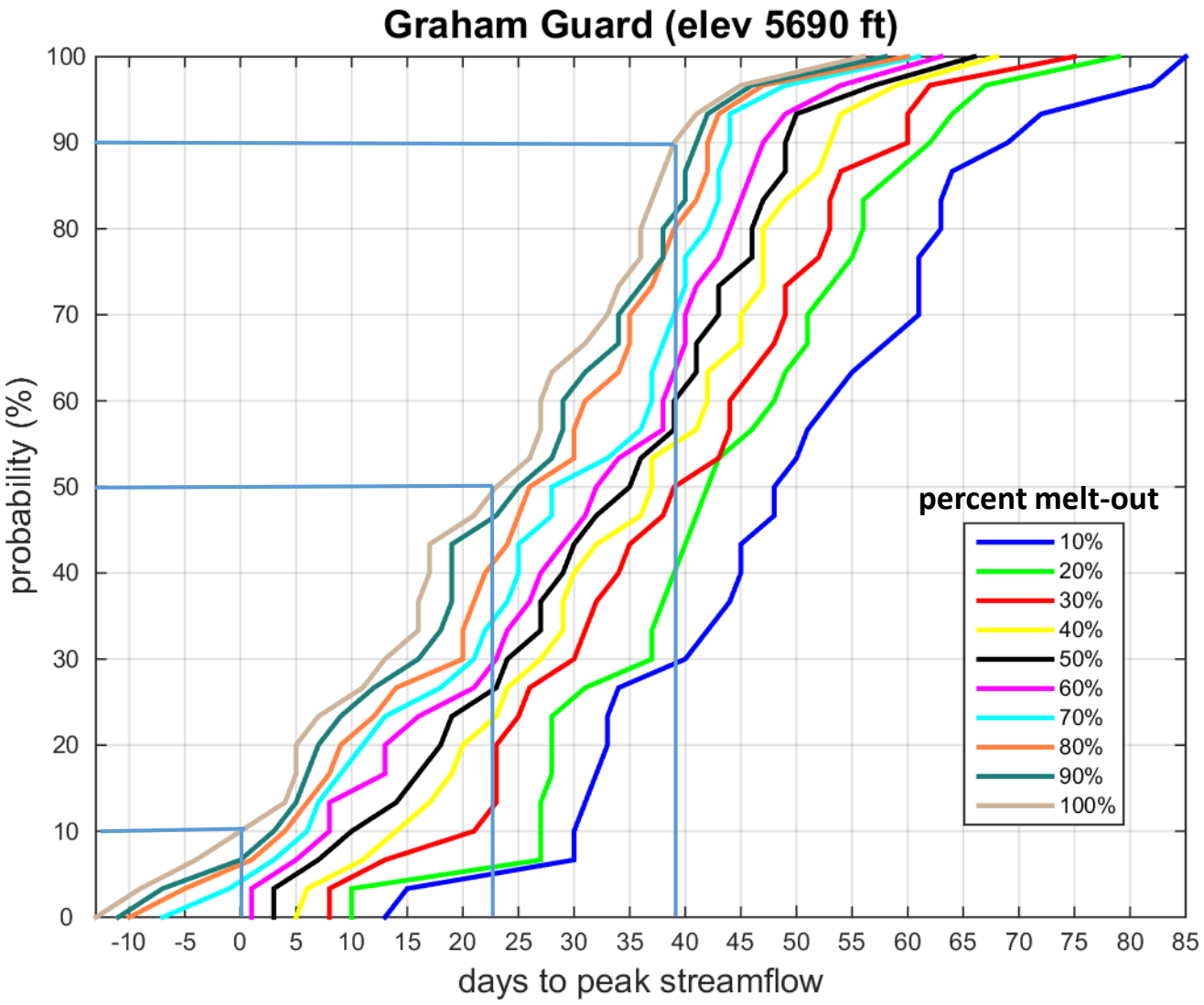
- As of 4/9/2015, the Boise River nr Twin Springs ID **does not appear to have experienced its snowmelt - dominated peak.**



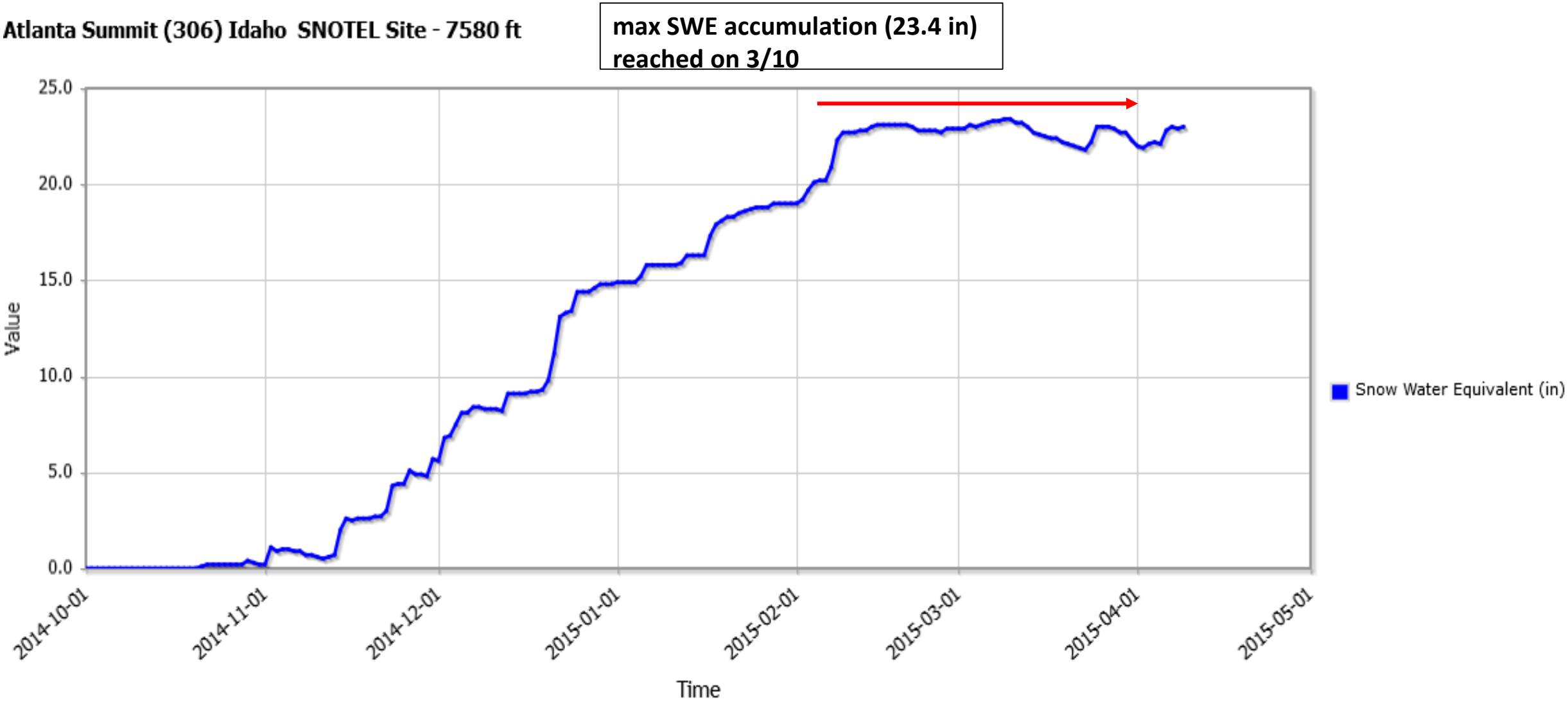
- **As of 4/9, the Graham Guard SNOTEL site is 100% melted out. Complete melt-out (no snow remaining on snow pillow) was reached on 3/31/2015.**



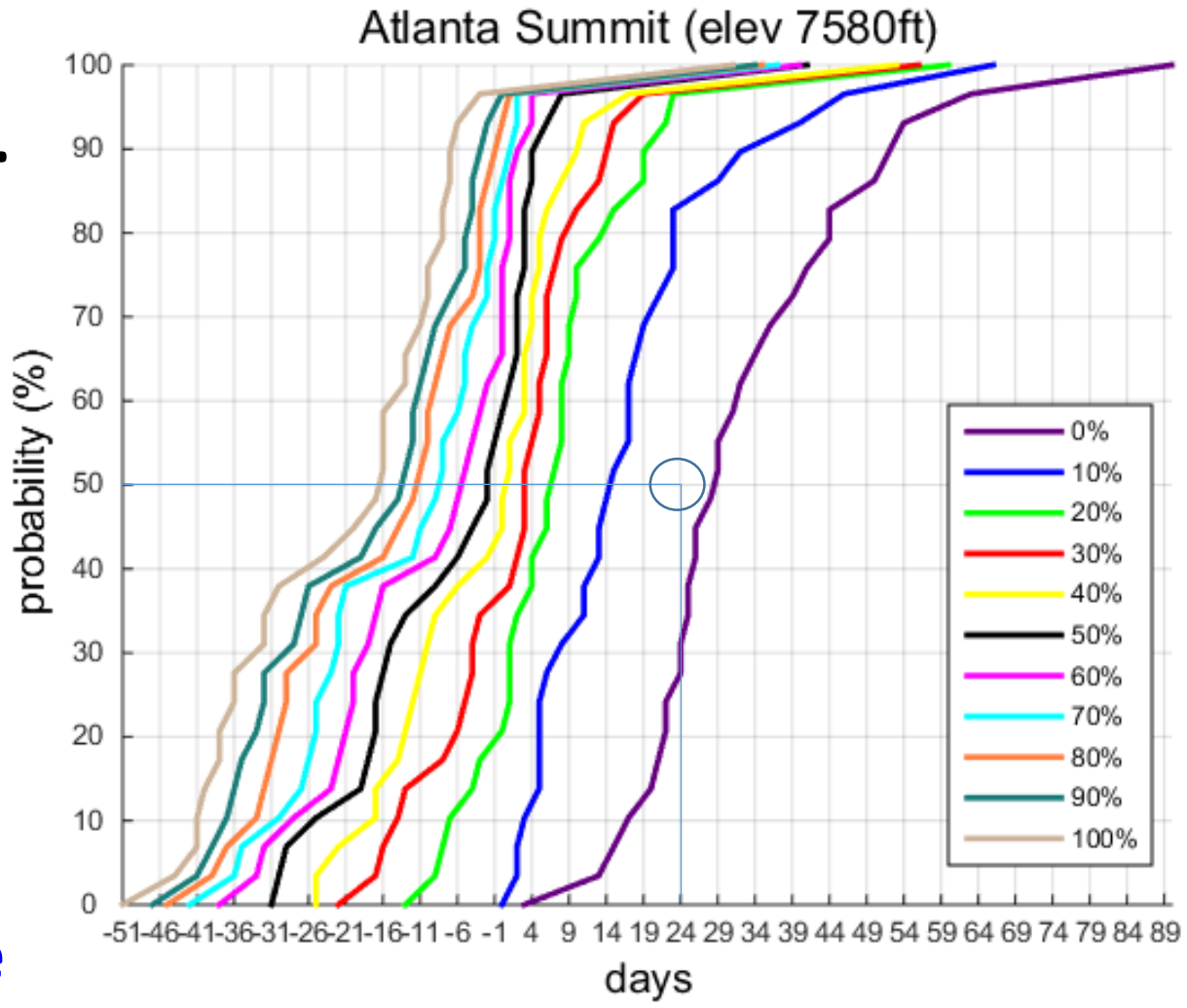
- The 100% melt-out curve, indicated by the TAN line, can be used to evaluate the probability of peak streamflow occurring within a given number of days if adjusted for the date of inquiry.
- For example, as of 4/9, 100% melt-out occurred 10 days ago. The tan line suggests there is a 50% probability that peak streamflow occurs within 23 days of 100% melt-out. Adjusting for the 9 day difference, there is a 50% probability it will occur within the next 14 days.
- The 50% probability line represents the average, however, any probability percentage can be evaluated, i.e. -
    - There is a 90% probability peak streamflow will occur within the next 30 days.
    - There is a 10% probability peak streamflow occurred 9 or more days ago.

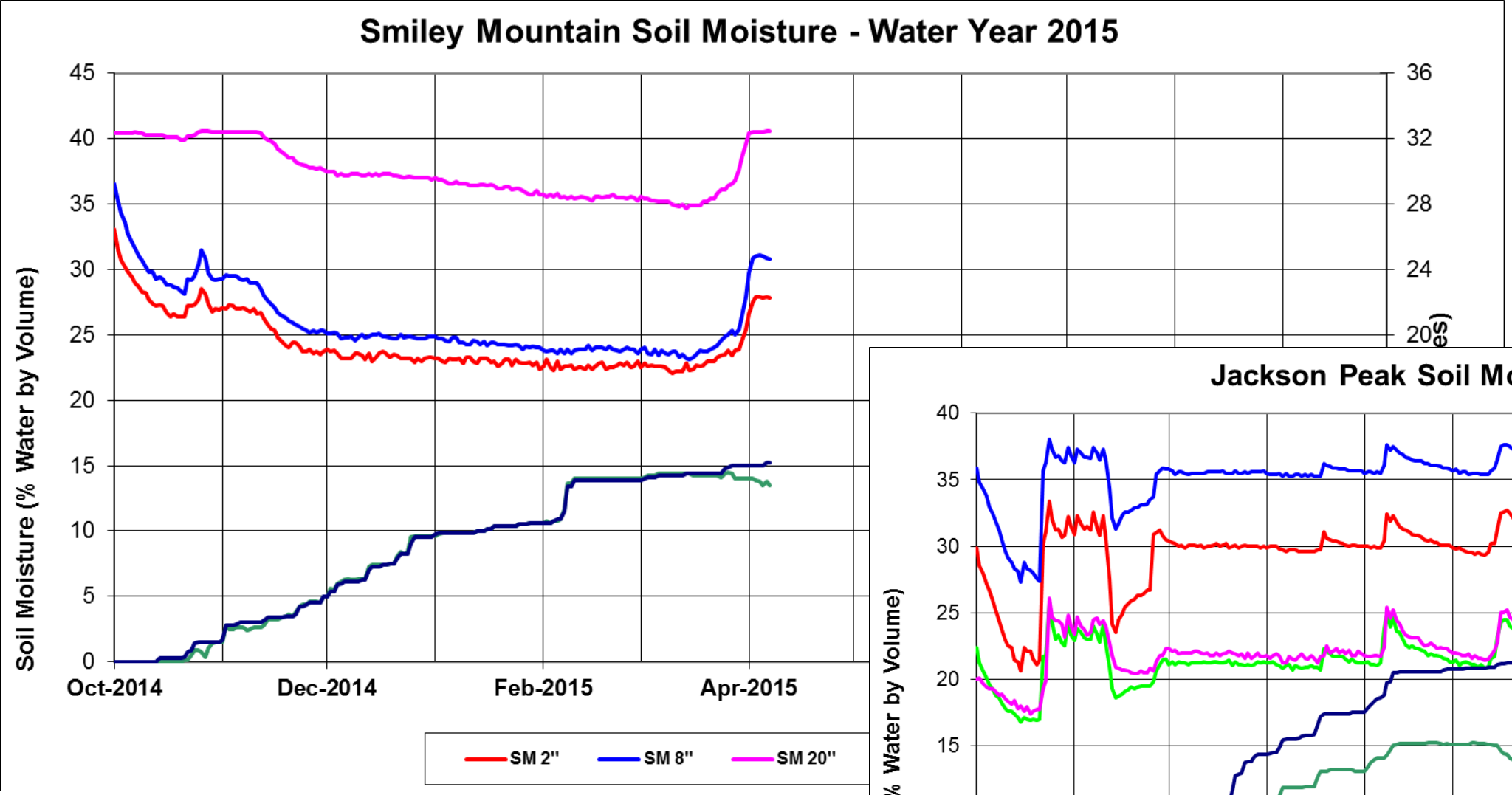


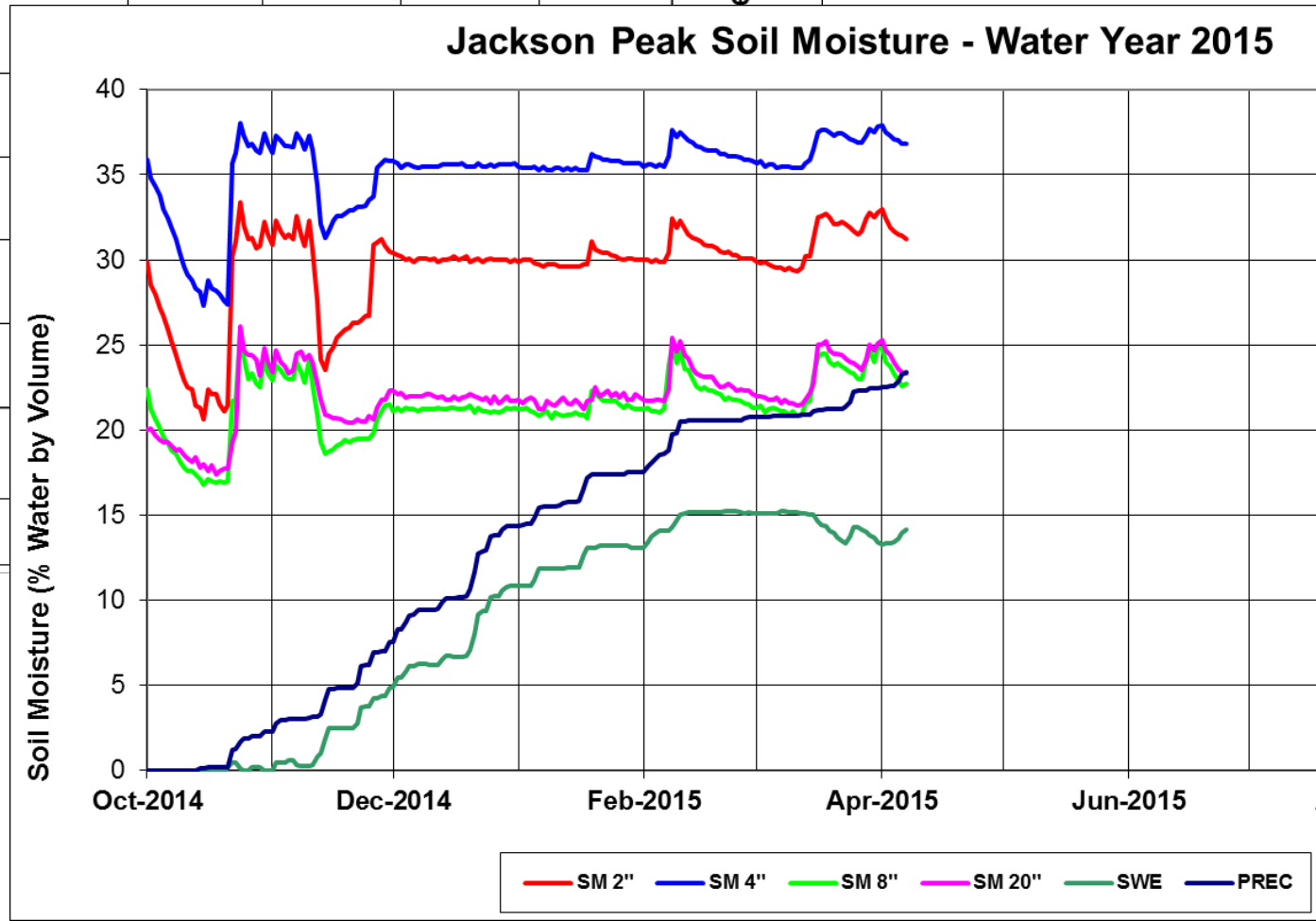
- **As of 4/9, SWE at Atlanta Summit SNOTEL site is at 23 in (~2 % melt-out).**

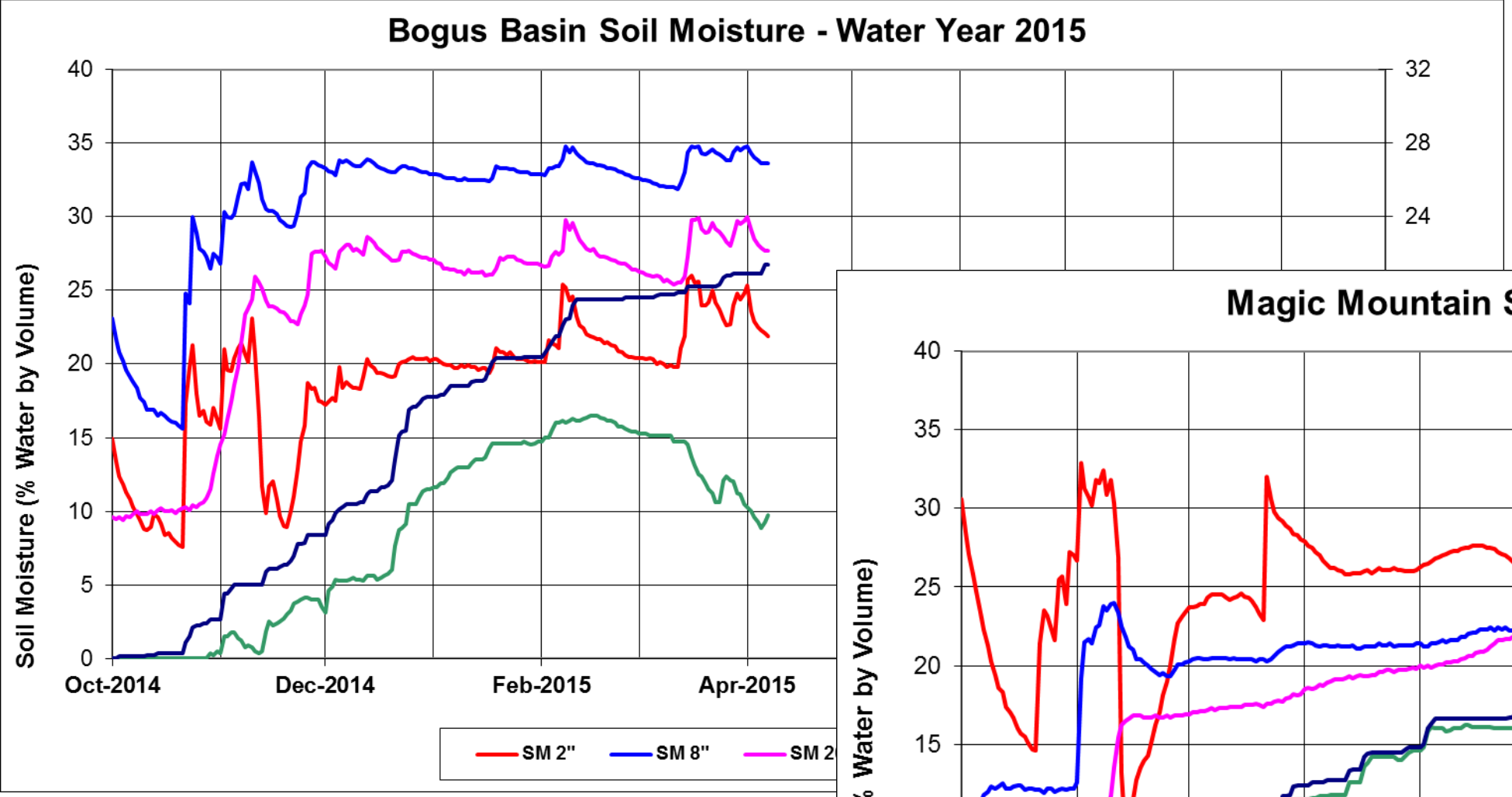


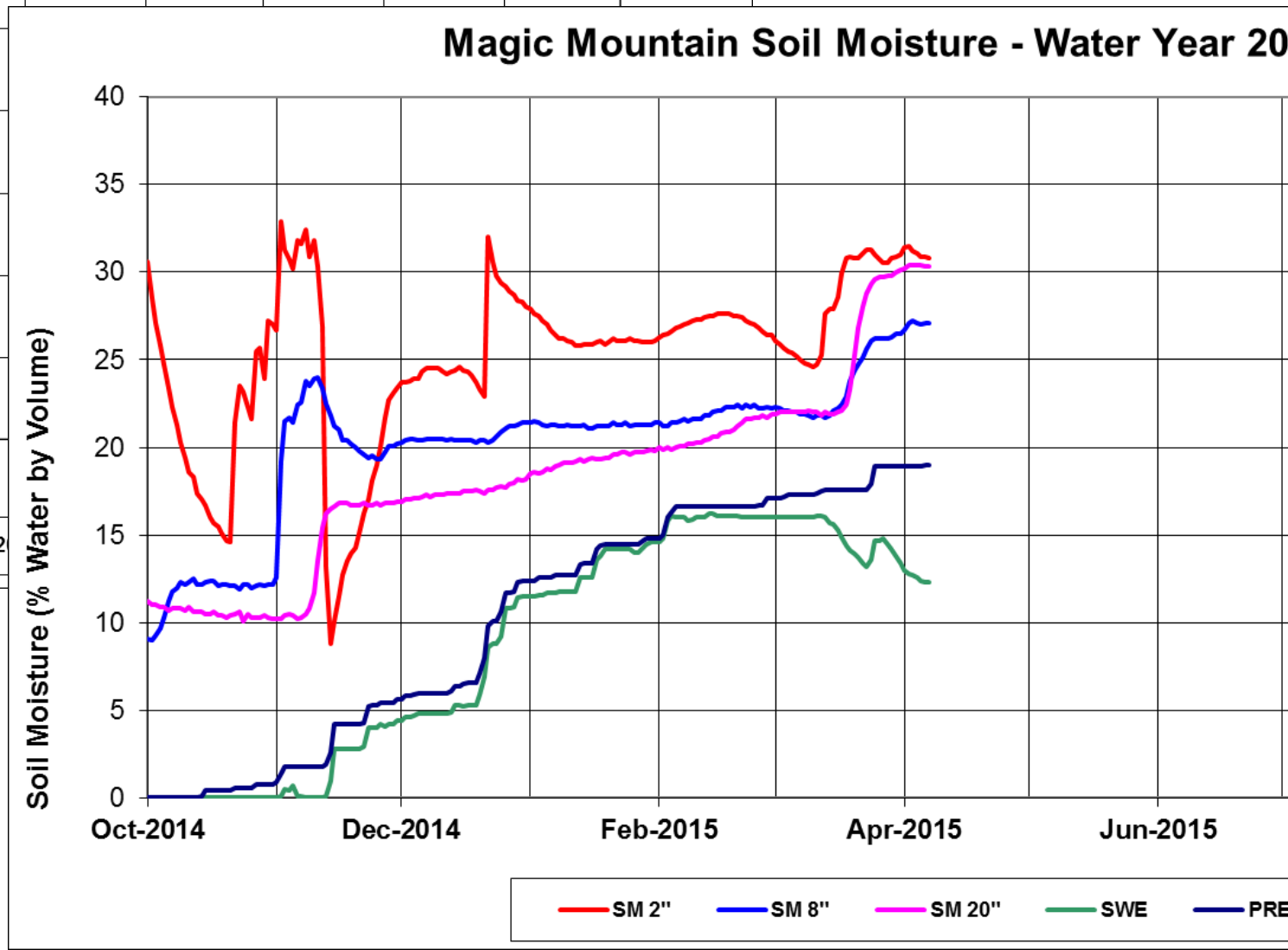
- This graph includes 0% melt-out, indicated by the purple line.
- The 0% melt-out is equal to max accumulation at the SNOTEL site.
- Current melt-out percent at Atlanta summit is ~2 % - between the purple and blue lines.
- The average, (50% probability), can be estimated by looking between the two curves. It is estimated, peak streamflow will occur (approximately) within the next 24 days.




Smiley Mountain Soil Moisture - Water Year 2015
Soil Moisture (% Water by Volume)
45
40
35
30
25
20
15
10
5
0
36
32
28
24
20
Oct-2014
Dec-2014
Feb-2015
Apr-2015
SM 2"
SM 8"
SM 20"

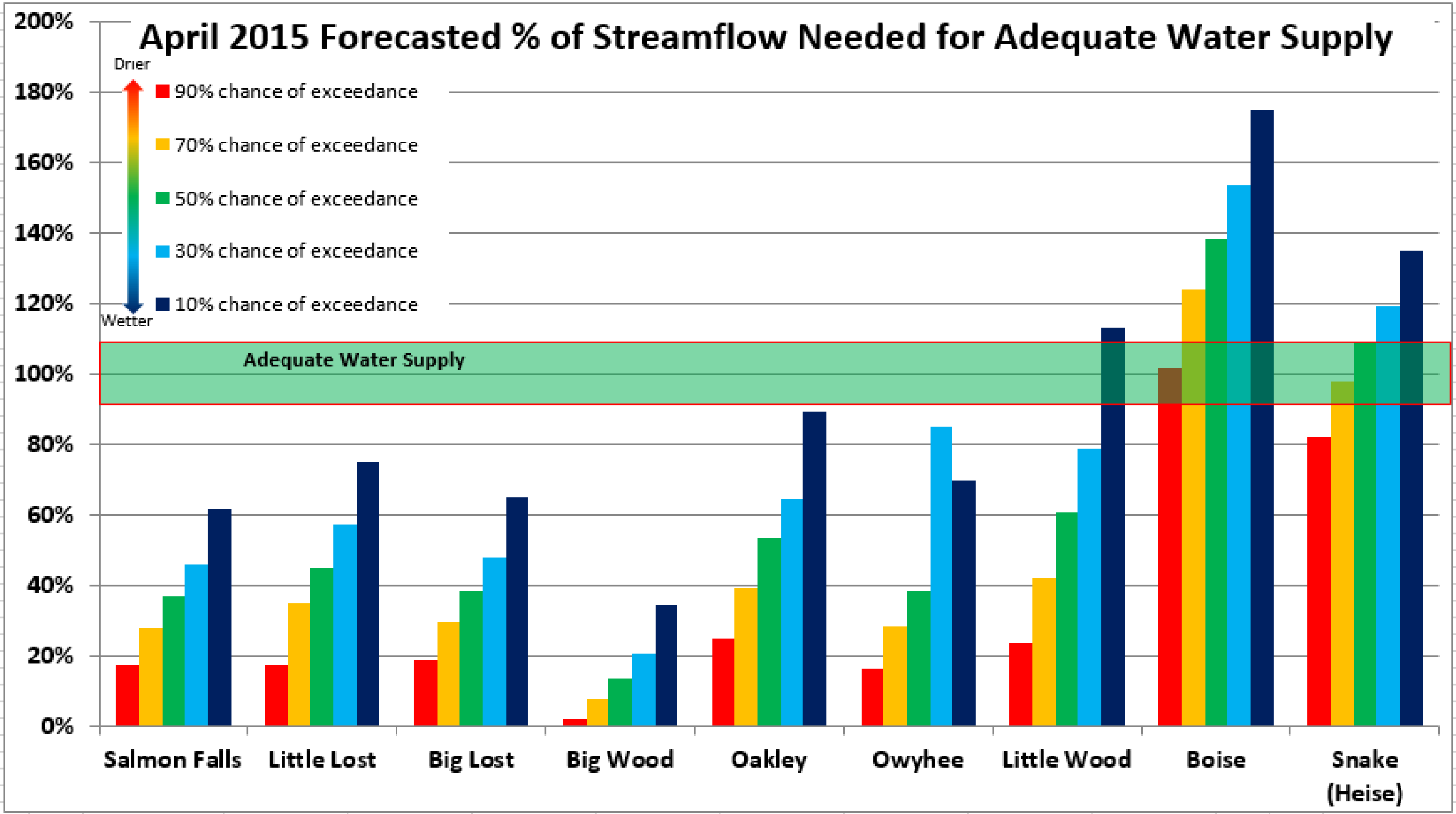

Jackson Peak Soil Moisture - Water Year 2015
Soil Moisture (% Water by Volume)
40
35
30
25
20
15
10
5
0
Oct-2014
Dec-2014
Feb-2015
Apr-2015
Jun-2015
SM 2"
SM 4"
SM 8"
SM 20"
SWE
PREC


Bogus Basin Soil Moisture - Water Year 2015
Soil Moisture (% Water by Volume)
40
35
30
25
20
15
10
5
0
32
28
24
Oct-2014
Dec-2014
Feb-2015
Apr-2015
SM 2"
SM 8"
SM 2


Magic Mountain Soil Moisture - Water Year 20
Soil Moisture (% Water by Volume)
40
35
30
25
20
15
10
5
0
Oct-2014
Dec-2014
Feb-2015
Apr-2015
Jun-2015
SM 2"
SM 8"
SM 20"
SWE
PRE

April 2015 5 Exceedance Forecasts Volumes Compared to Ag Threshold Shortages (KAF)

Basin Based on March 1, 2015 monthly streamflow forecasts	Adequate Irrigation Water Supply (KAF)	March 31 Reservoir Storage (KAF)	Streamflow Volume Needed for Adequate Water Supply		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)		Percent of Adequate Supply Based on 50% Chance of Exceedance Streamflow Forecast
			KAF	% Avg	fcst	diff	fcst	diff	fcst	diff	fcst	diff	fcst	diff	
Salmon Falls	110	34	76	89%	13	-63	21	-55	28	-48	35	-41	47	-29	37%
Little Lost	40	0	40	118%	7	-33	14	-26	18	-22	23	-17	30	-10	45%
Big Lost	180	34	146	97%	27	-119	43	-103	56	-90	70	-76	95	-51	38%
Big Wood	275	81	194	73%	4	-190	15	-179	26	-168	40	-154	67	-127	13%
Oakley	50	22	28	108%	7	-21	11	-17	15	-13	18	-10	25	-3	54%
Owyhee	450	192	258	44%	42	-216	73	-185	99	-159	219	-39	180	-78	38%
Little Wood	60	22	38	41%	9	-29	16	-22	23	-15	30	-8	43	5	61%
Boise	1500	871	629	46%	640	11	780	151	870	241	965	336	1100	471	138%
Snake (Heise)	4400	1897	2503	66%	2060	-443	2450	-53	2720	217	2990	487	3380	877	109%
Teton	85	0	85	44%	70	-15	103	18	125	40	147	62	180	95	147%
Bear River	400	711													


April 2015 Forecasted % of Streamflow Needed for 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%
Salmon Falls
Little Lost
Big Lost
Big Wood
Oakley
Owyhee
Little Wood
Boise
Snake (Heise)