

Natural Resources Conservation Service

Idaho Water Supply Outlook Report

March 1, 2016



Snow Surveyors tracks coming out from the Big Creek Summit SNOTEL site February 26, 2016. Big Creek

IDWR

State Water Supply Meeting

March 11, 2016

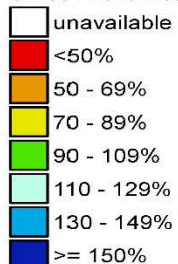
Ron Abramovich
Water Supply Specialist
Snow Survey
Boise, Idaho



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

Mar 10, 2016

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



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

Provisional data subject to revision

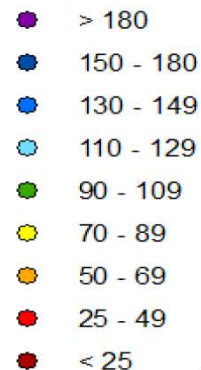


The snow water equivalent percent of normal represents the current snow water equivalent found at selected SNOTEL sites in or near the basin compared to the average value for those sites on this day. Data based on the first reading of the day (typically 00:00).

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

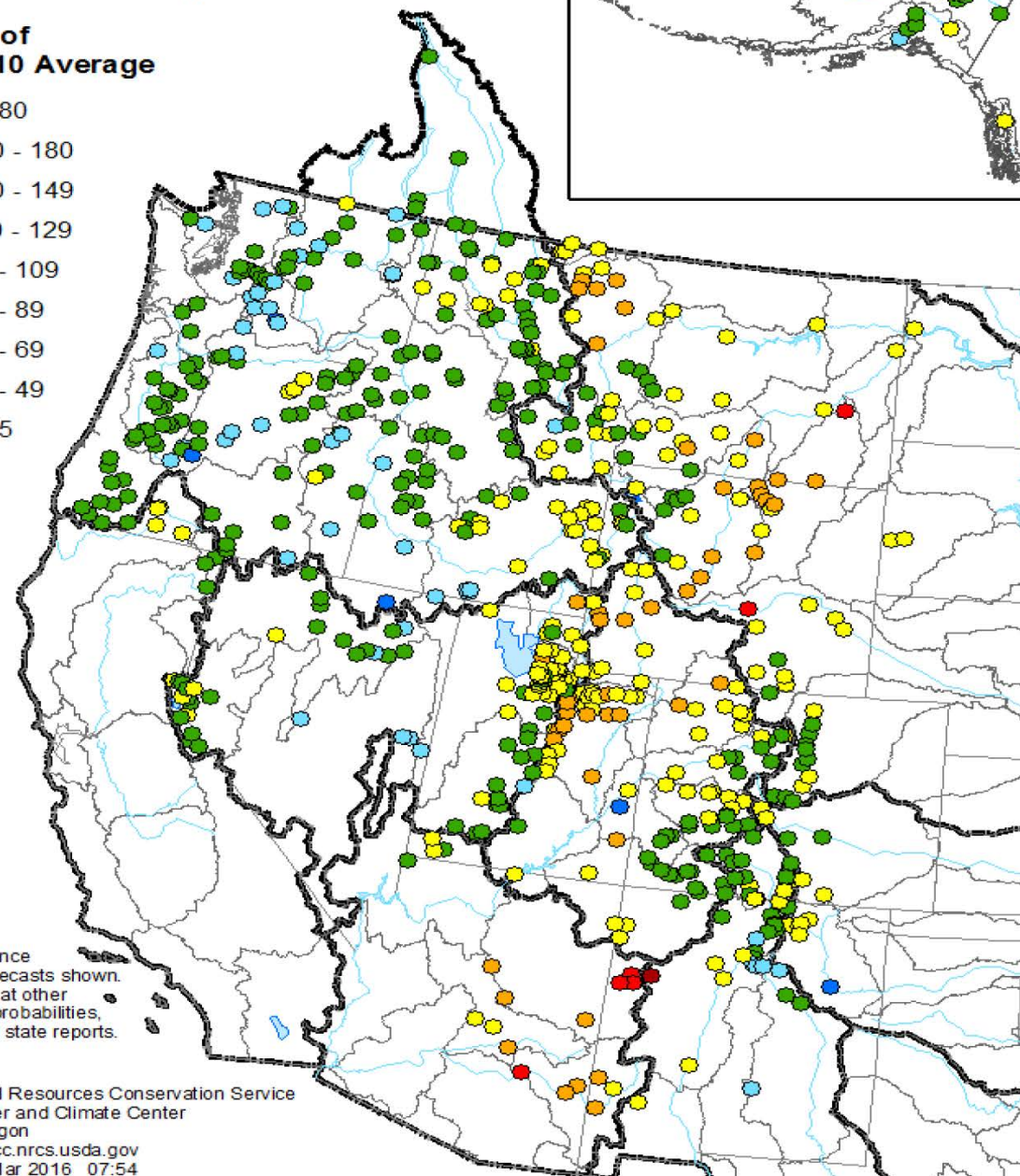
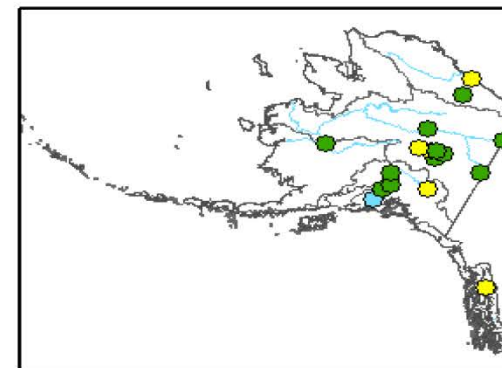
Spring and Summer Streamflow Forecasts as of March 1, 2016

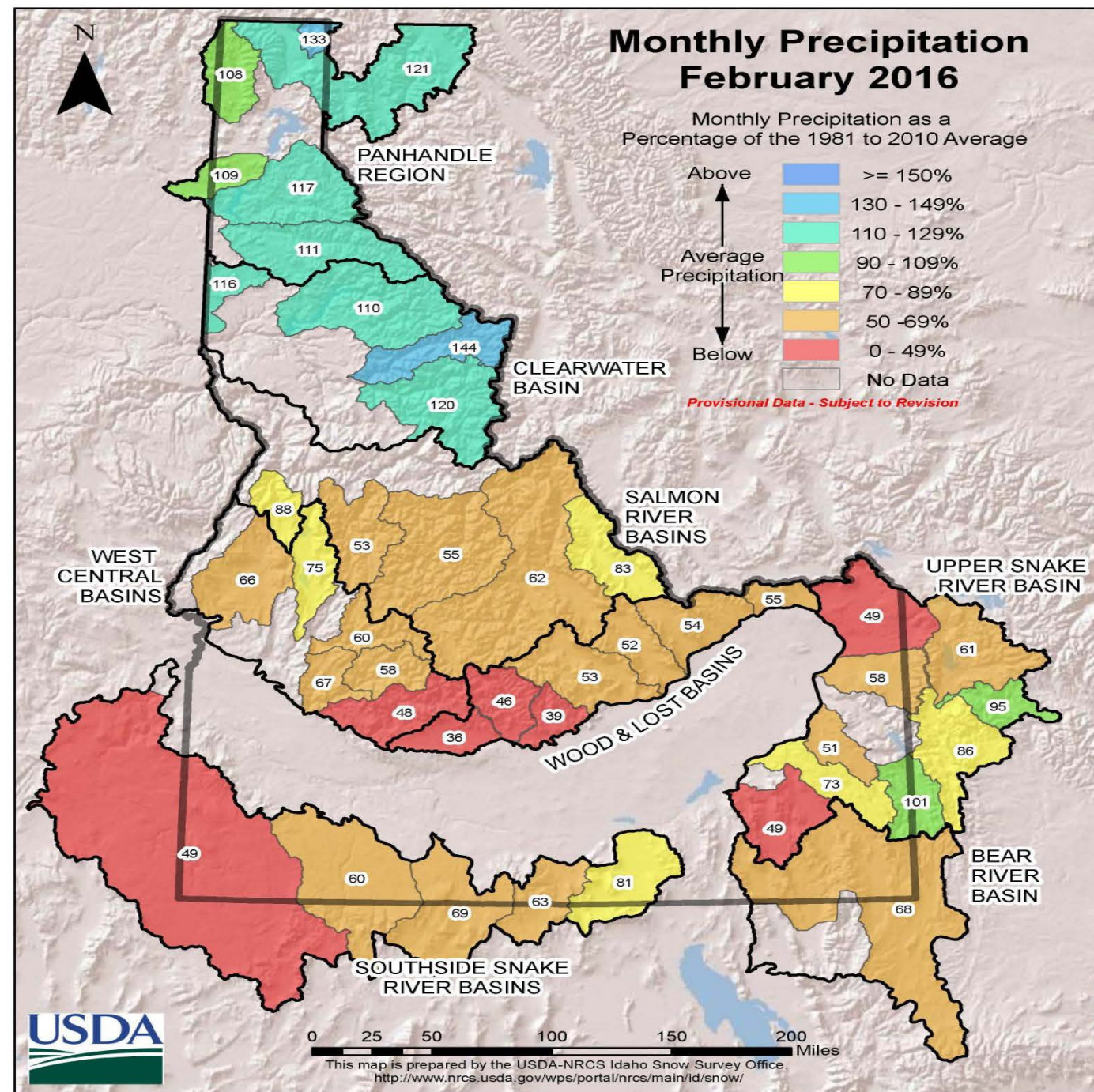
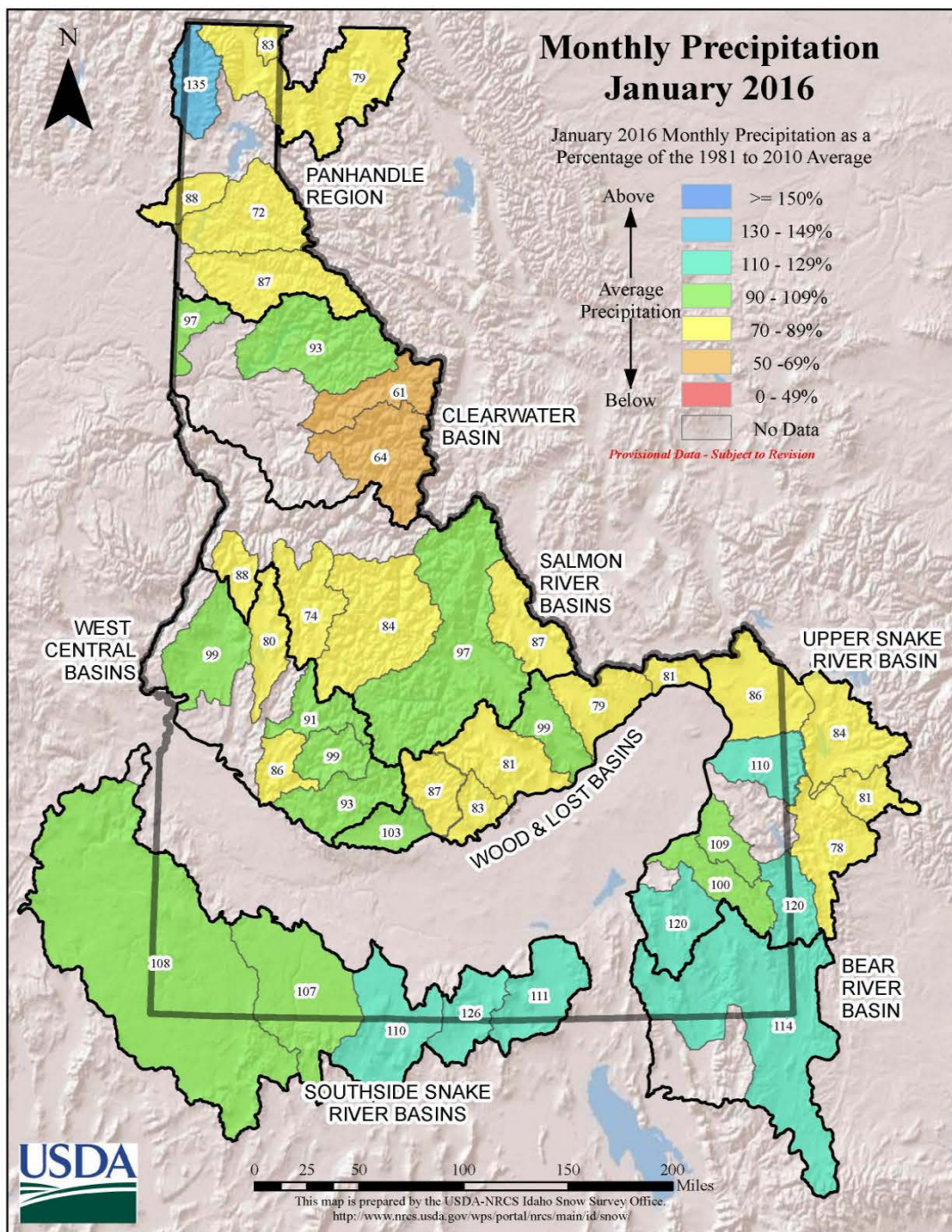
Percent of 1981-2010 Average



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

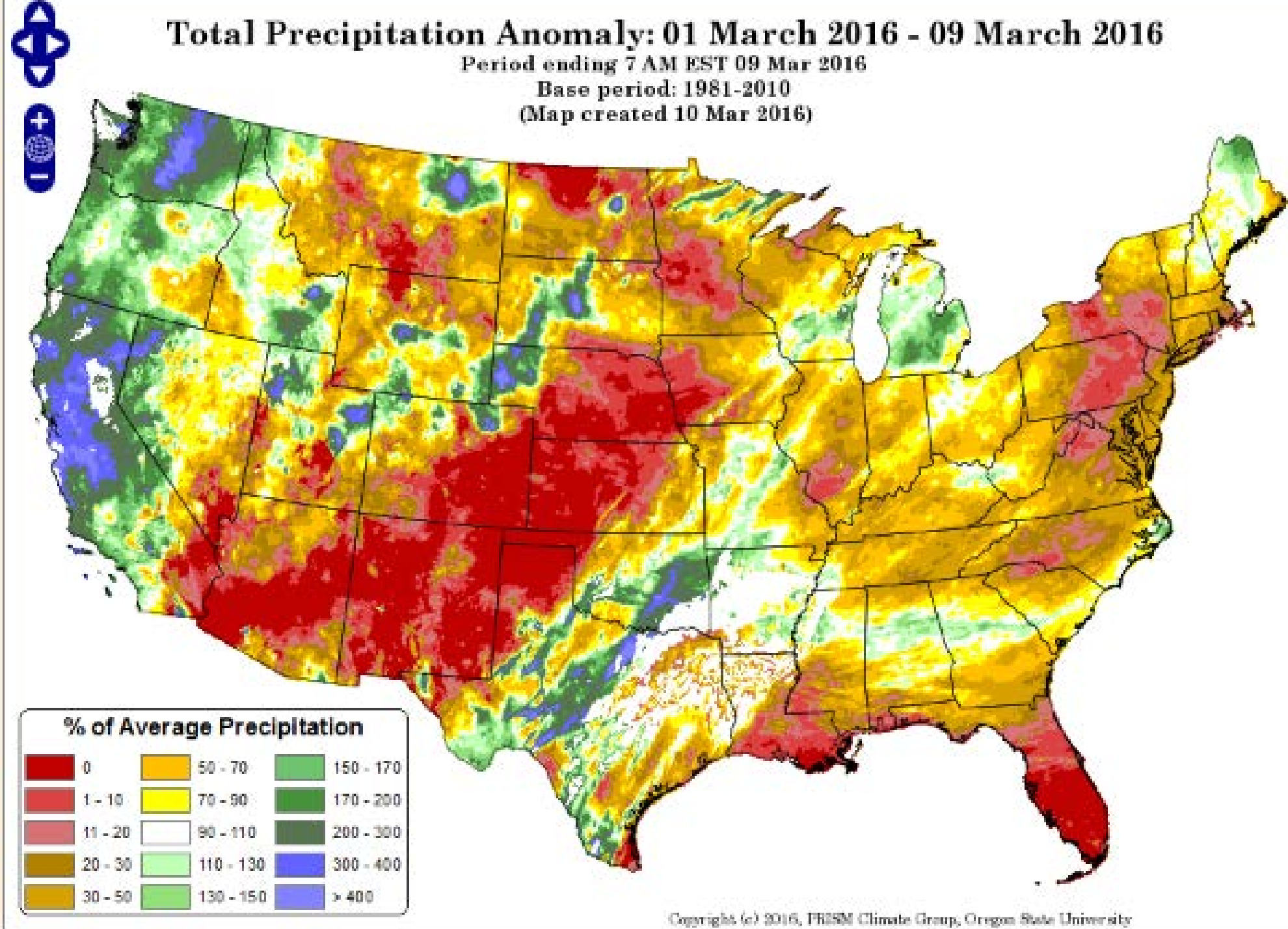
Prepared by:
USDA Natural Resources Conservation Service
National Water and Climate Center
Portland, Oregon
<http://www.wcc.nrcs.usda.gov>
Created: 8 Mar 2016 07:54

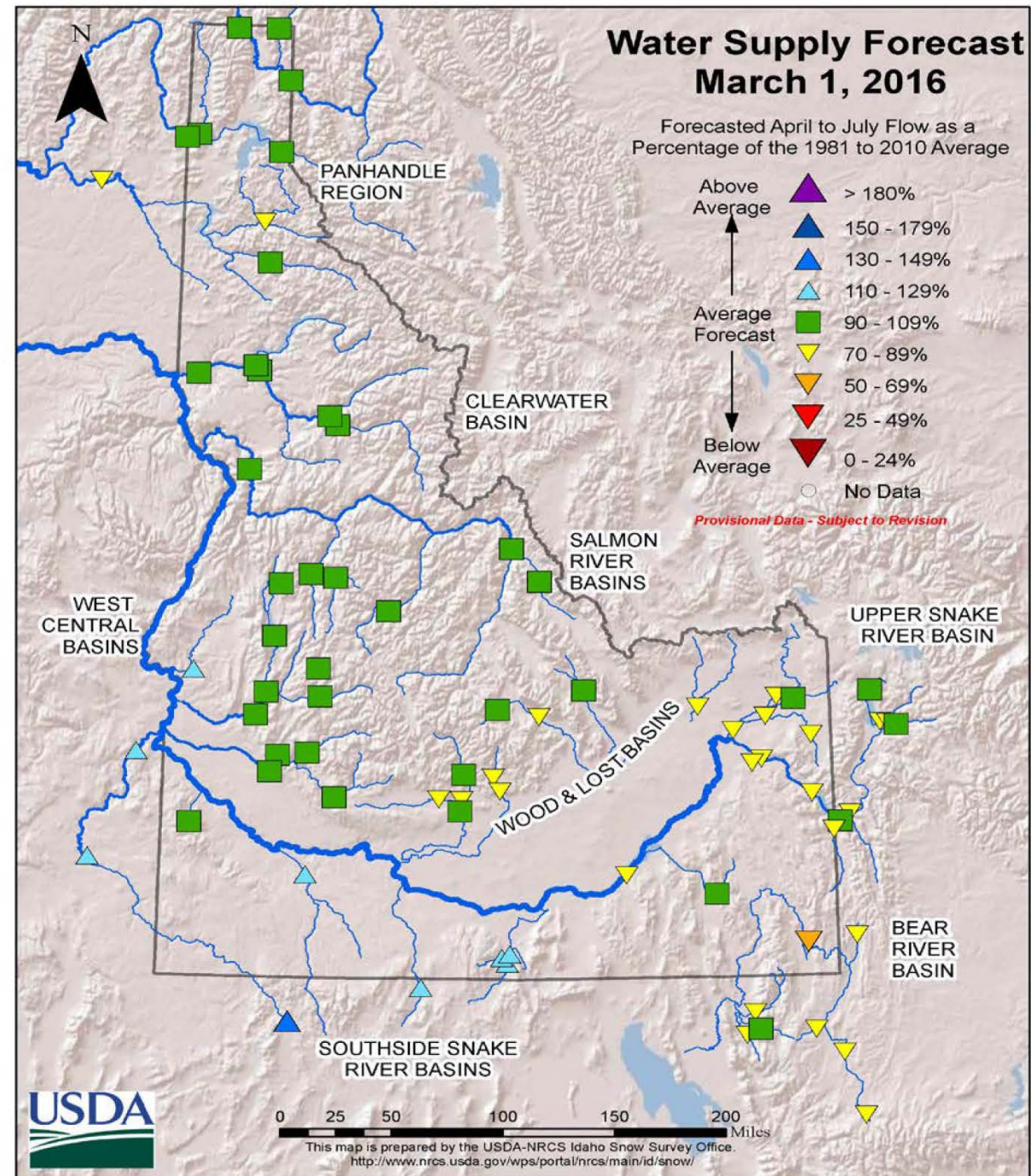
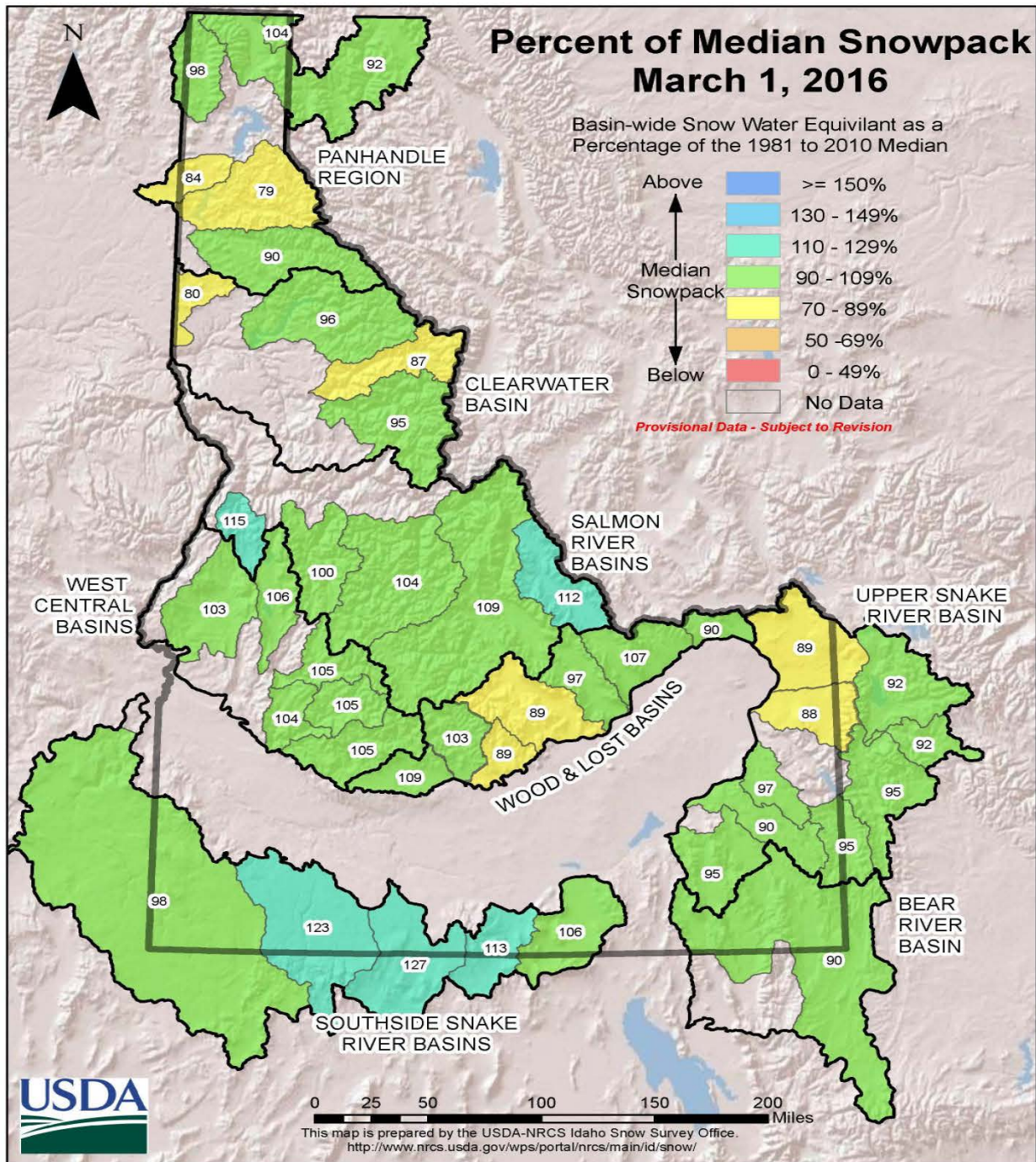




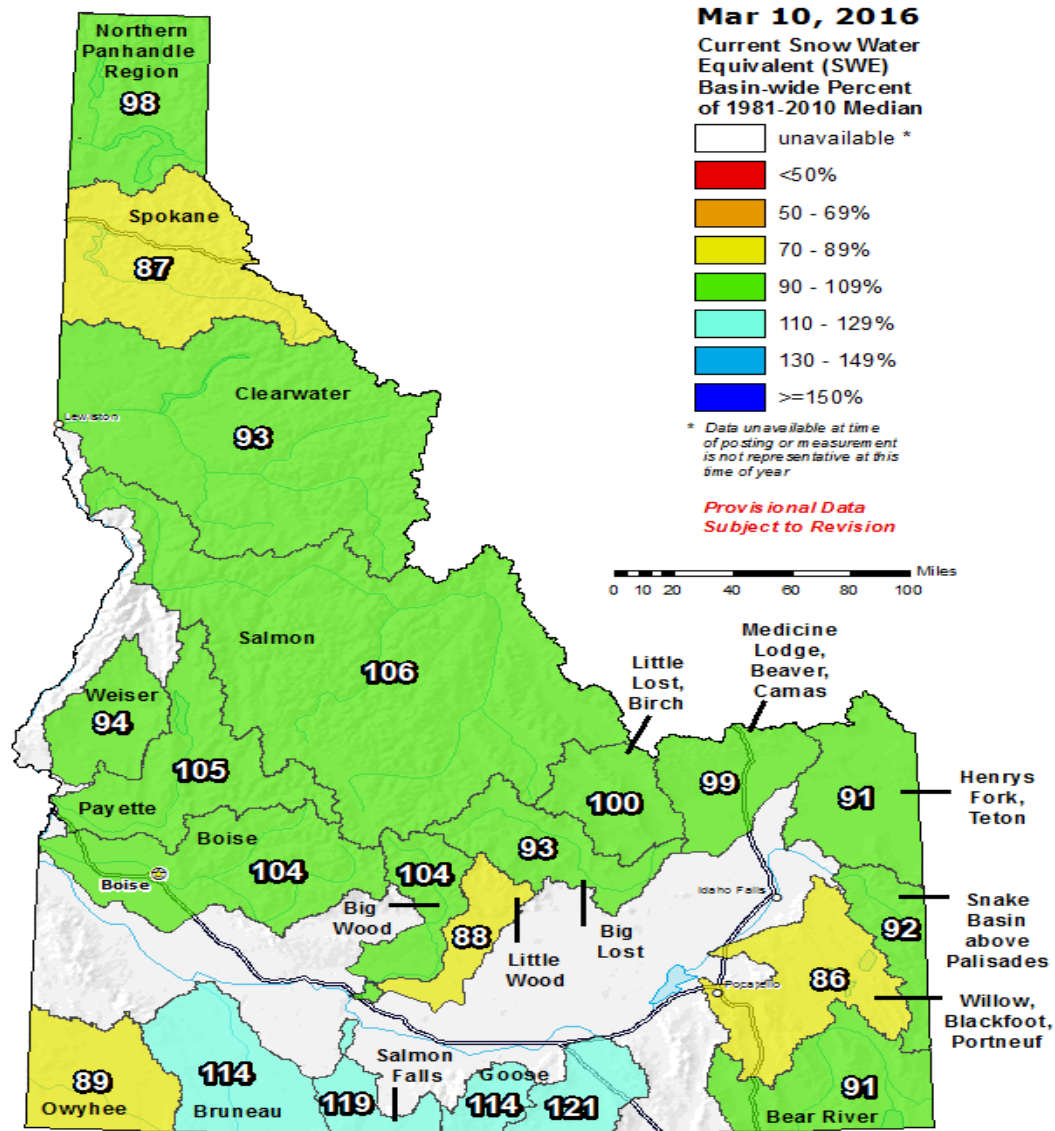
Pockets of above average March precipitation so far...

SNOTEL precipitation for the March 1 - 9 Period compared to the normal March totals is 25-50%





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

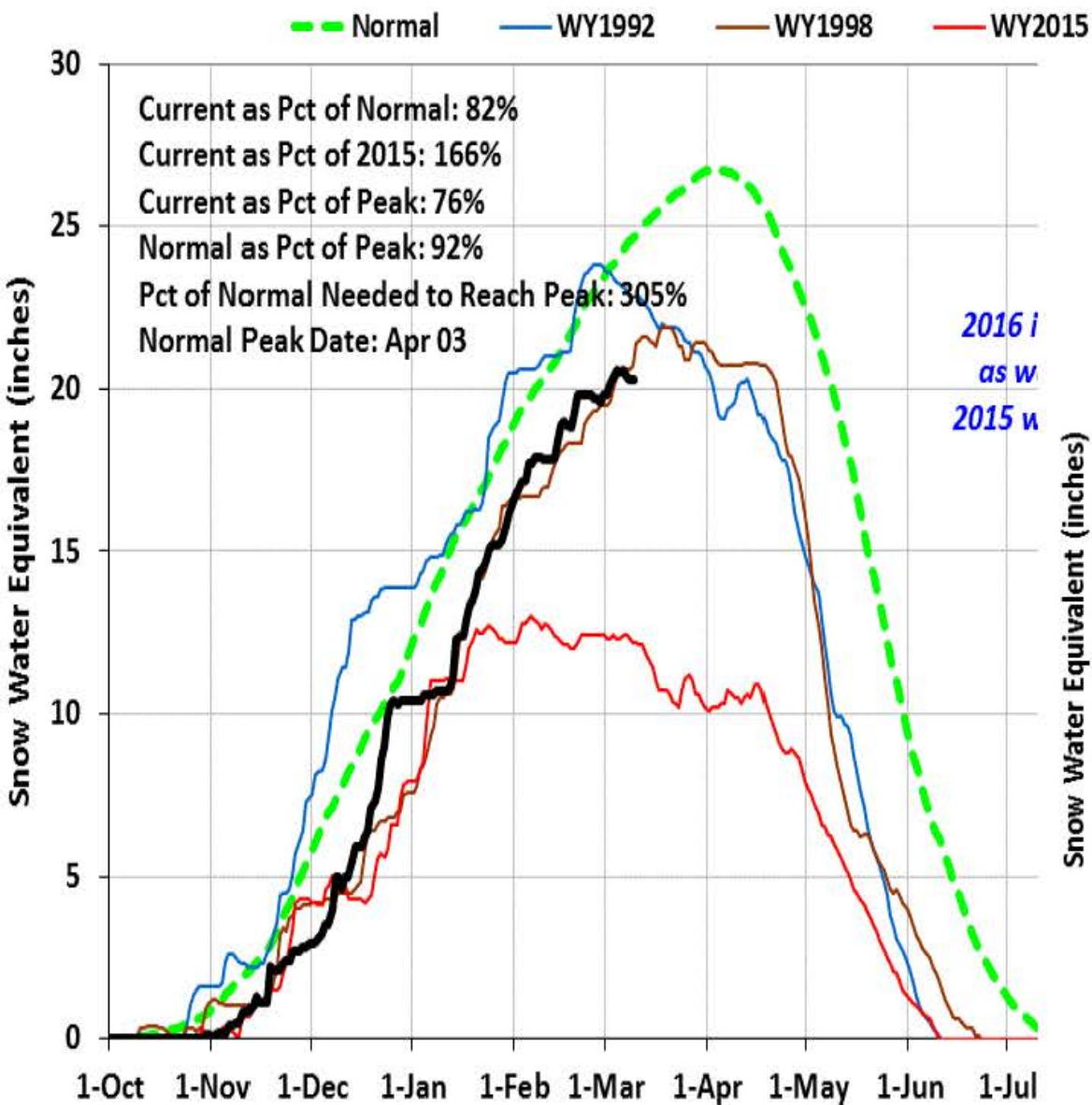


Today's snowpacks are only
75-79% of seasonal peaks in
Spokane, Little Wood, Big Lost,
Upper Snake abv American Falls
& Bear River

103-107% of seasonal peaks
from the
Bruneau to Raft rivers

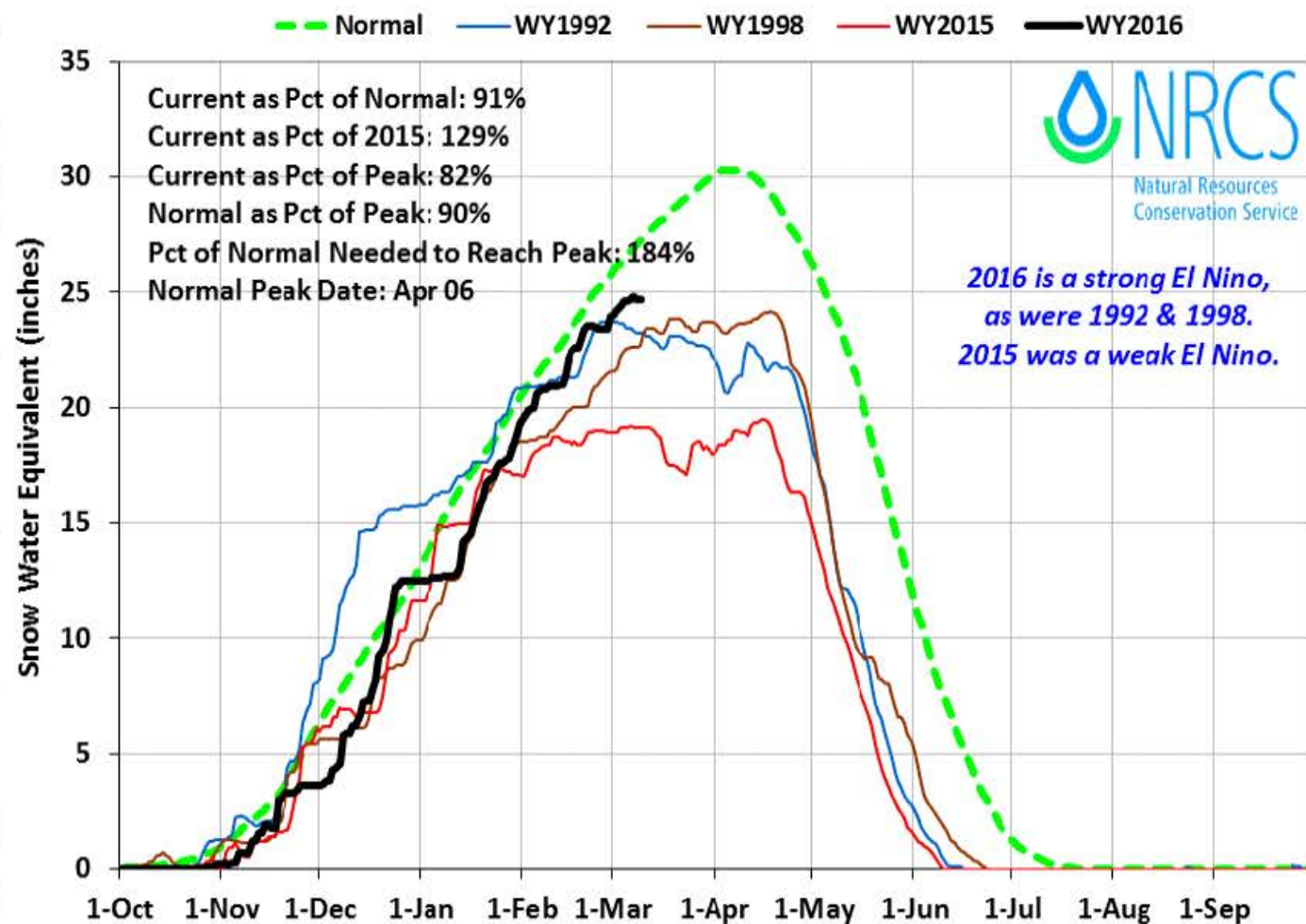
Spokane Basin 2016 Snowpack Comparison Graph (9 sites)

Based on Provisional SNOTEL data as of Mar 09, 2016



Clearwater Basin 2016 Snowpack Comparison Graph (15 sites)

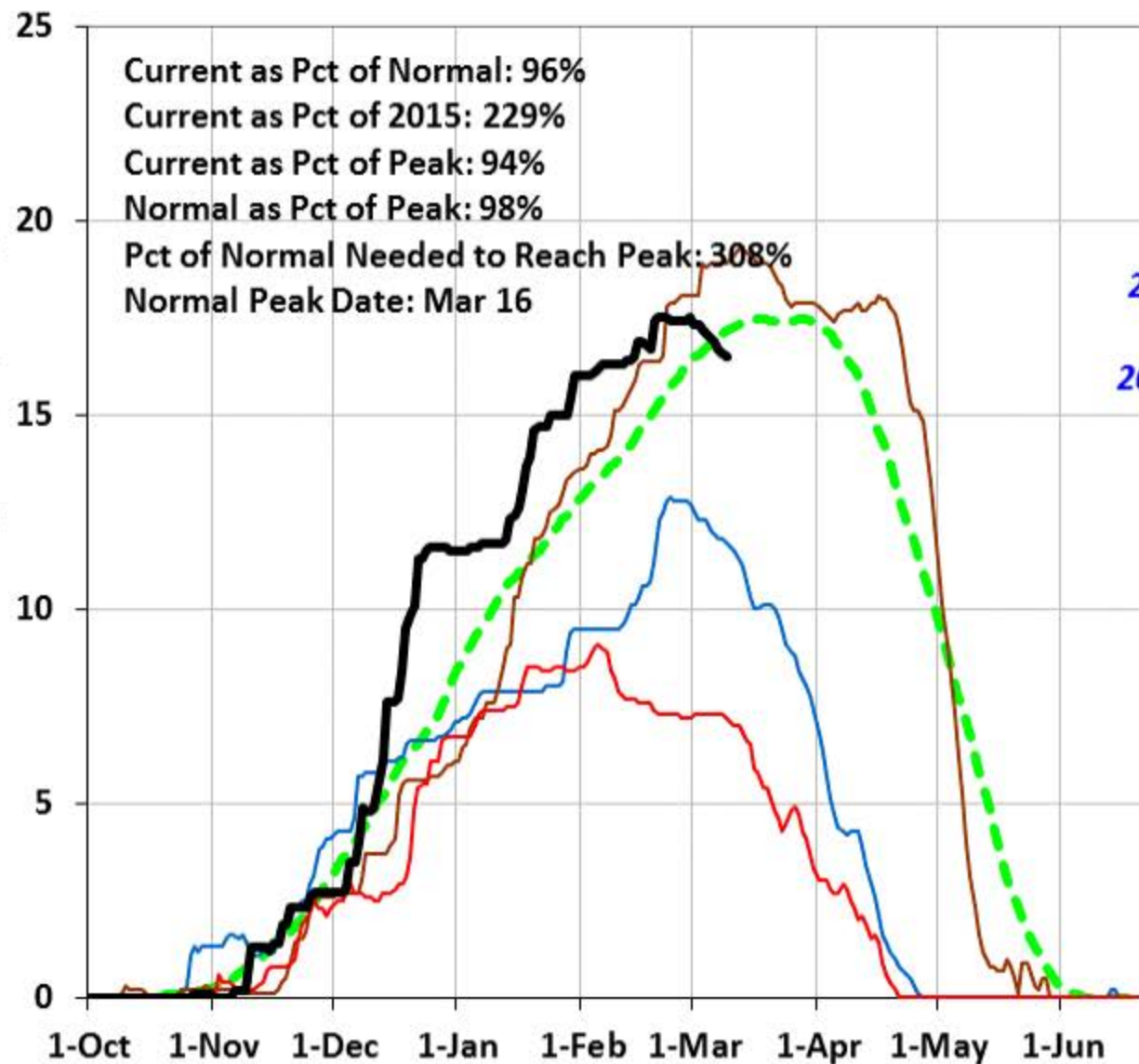
Based on Provisional SNOTEL data as of Mar 09, 2016



Weiser Basin 2016 Snowpack Comparison Graph (4 sites)

Based on Provisional SNOTEL data as of Mar 09, 2016

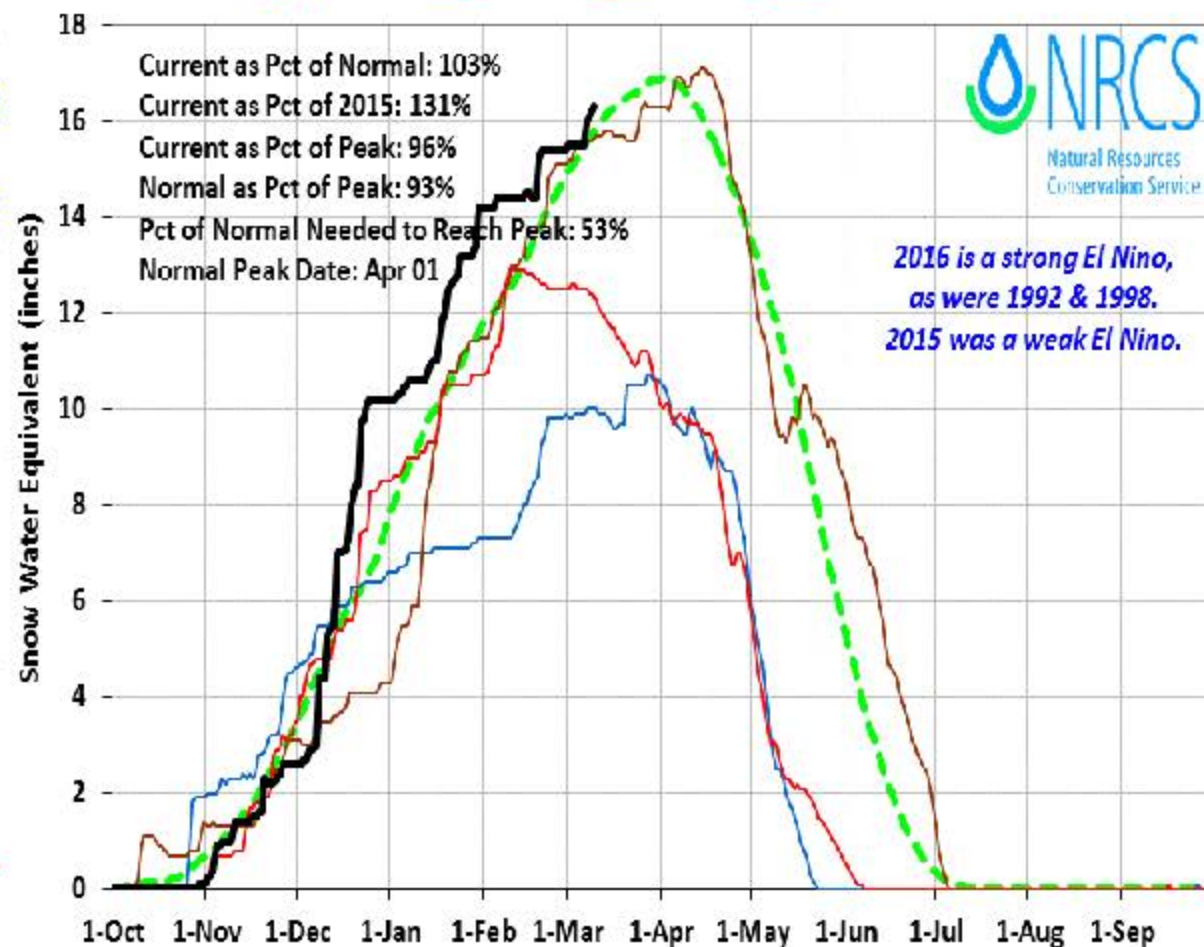
Normal WY1992 WY1998 WY2015 WY2016



Big Wood Basin 2016 Snowpack Comparison Graph (9 sites)

Based on Provisional SNOTEL data as of Mar 09, 2016

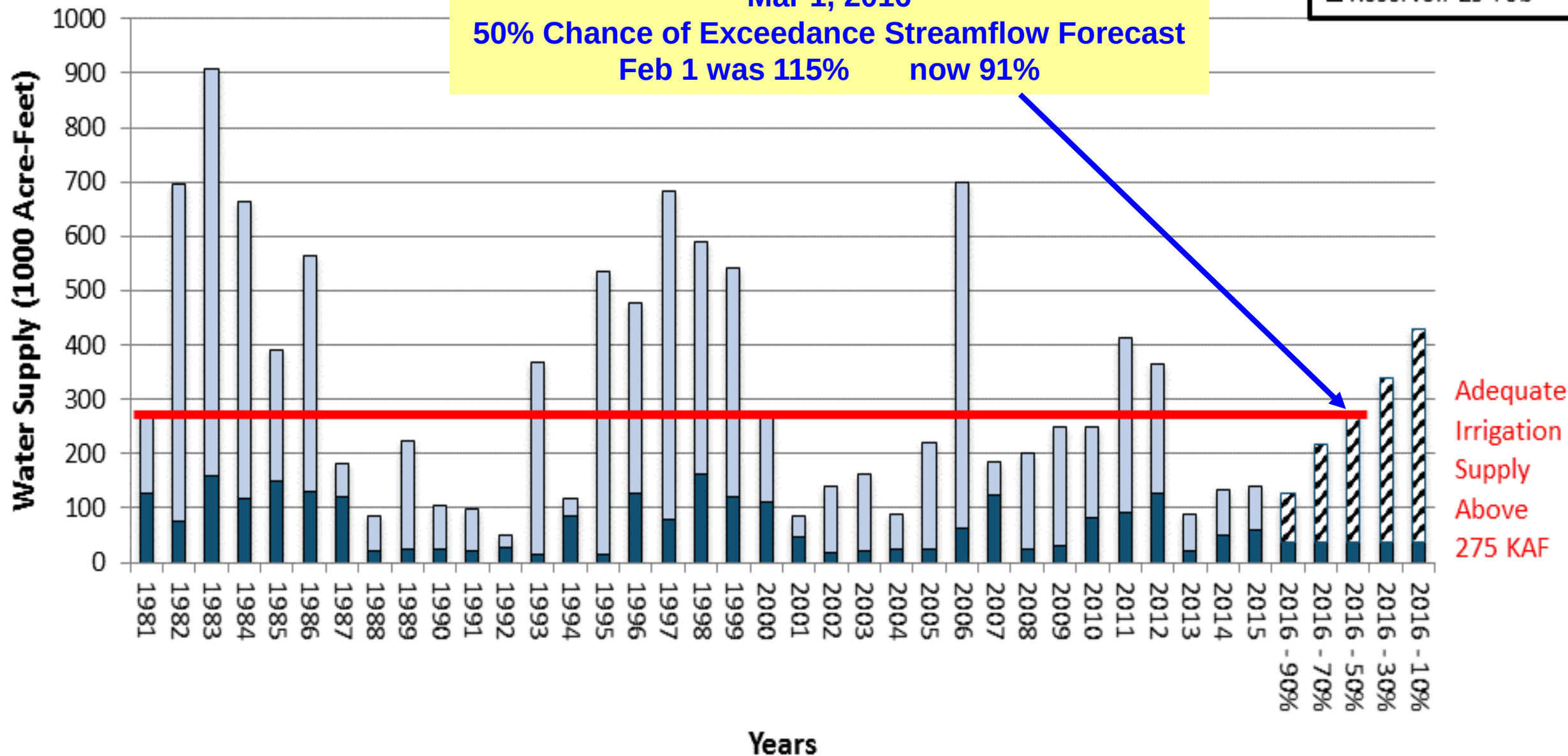
Normal WY1992 WY1998 WY2015 WY2016



Mar 1 Historic and Forecasted Surface Water Supply Big Wood River Basin

StreamFlow Apr-Sep
Reservoir 29-Feb

Mar 1, 2016
50% Chance of Exceedance Streamflow Forecast
Feb 1 was 115% now 91%



Little Wood Basin 2016 Snowpack Comparison Graph (5 sites)

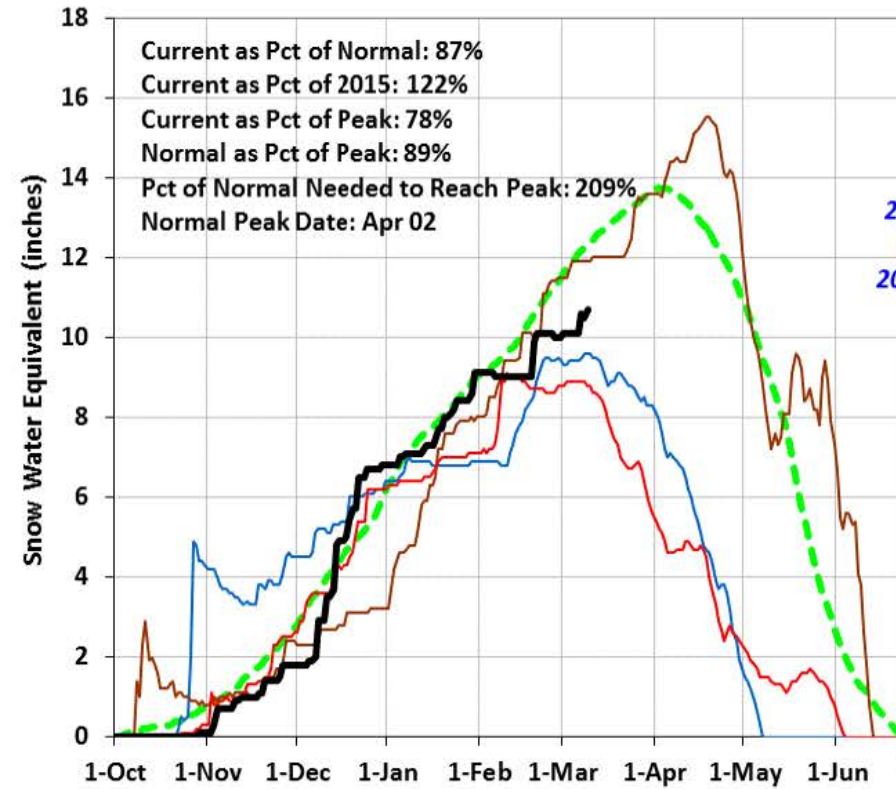
Based on Provisional SNOTEL data as of Mar 09, 2016

Normal WY1992 WY1998 WY2015 WY2016

Current as Pct of Normal: 87%
Current as Pct of 2015: 122%
Current as Pct of Peak: 78%
Normal as Pct of Peak: 89%
Pct of Normal Needed to Reach Peak: 209%
Normal Peak Date: Apr 02

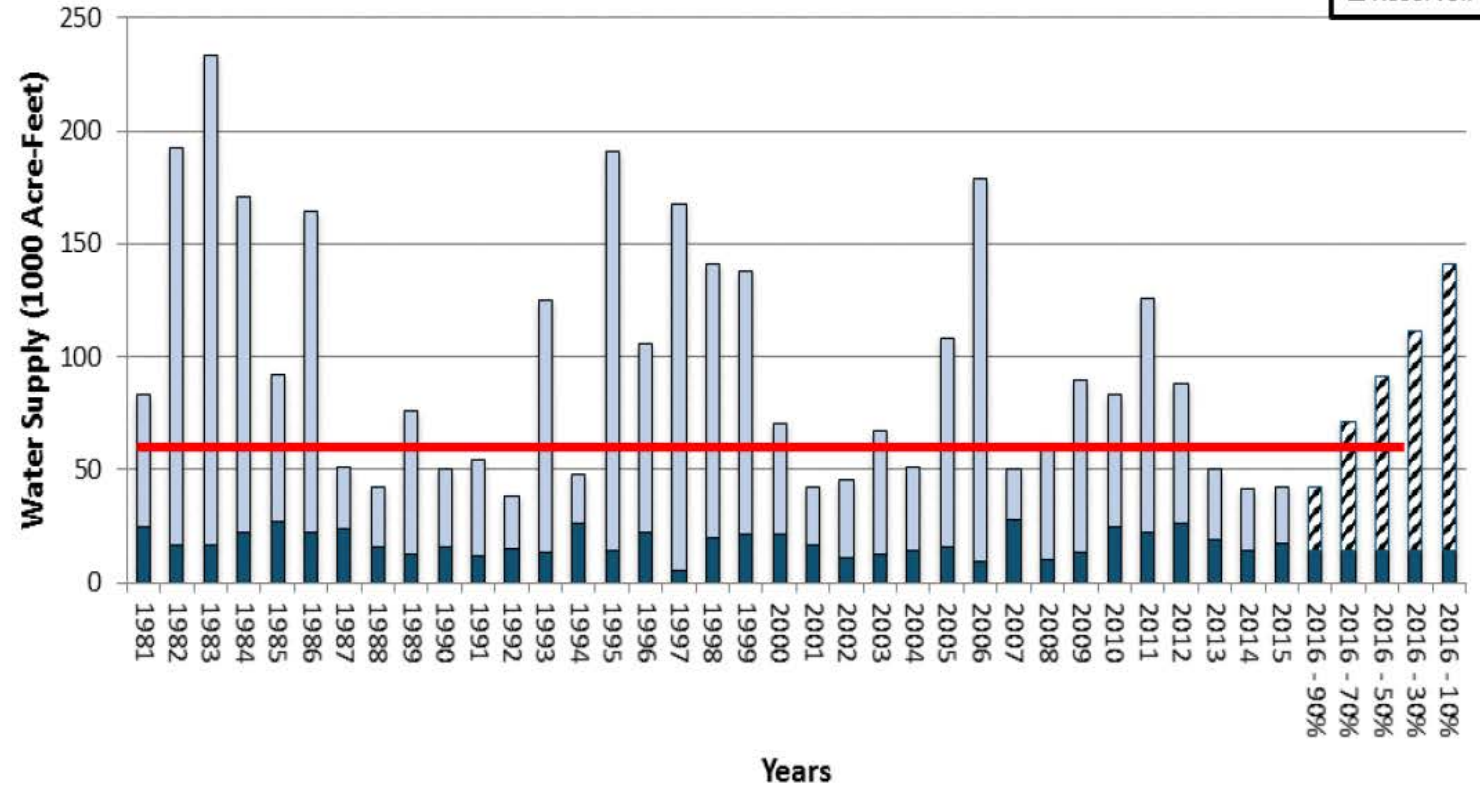


2016 is a strong El Nino,
as were 1992 & 1998.
2015 was a weak El Nino.



Mar 1 Historic and Forecasted Surface Water Supply Little Wood River Basin

StreamFlow Mar-Sep
Reservoir 29-Feb



Adequate
Irrigation
Supply
Above 60
KAF

Big Lost Basin 2016 Snowpack Comparison Graph (5 sites)

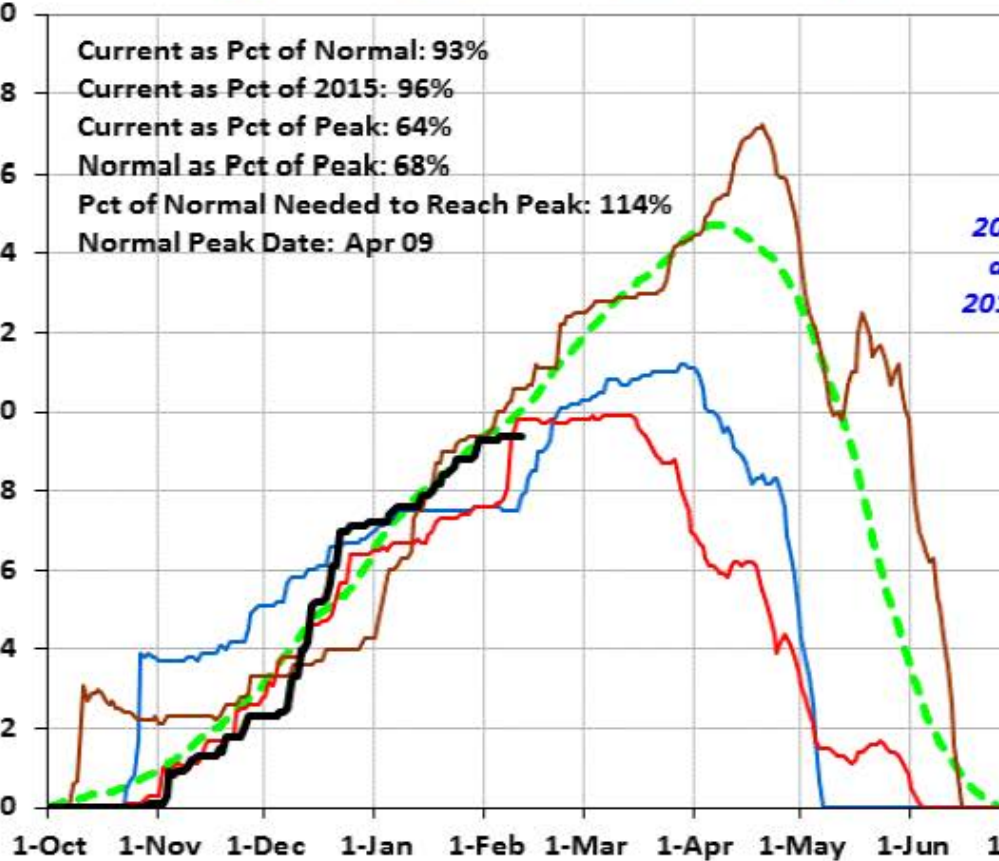
Based on Provisional SNOTEL data as of Feb 11, 2016

Normal WY1992 WY1998 WY2015 WY2016



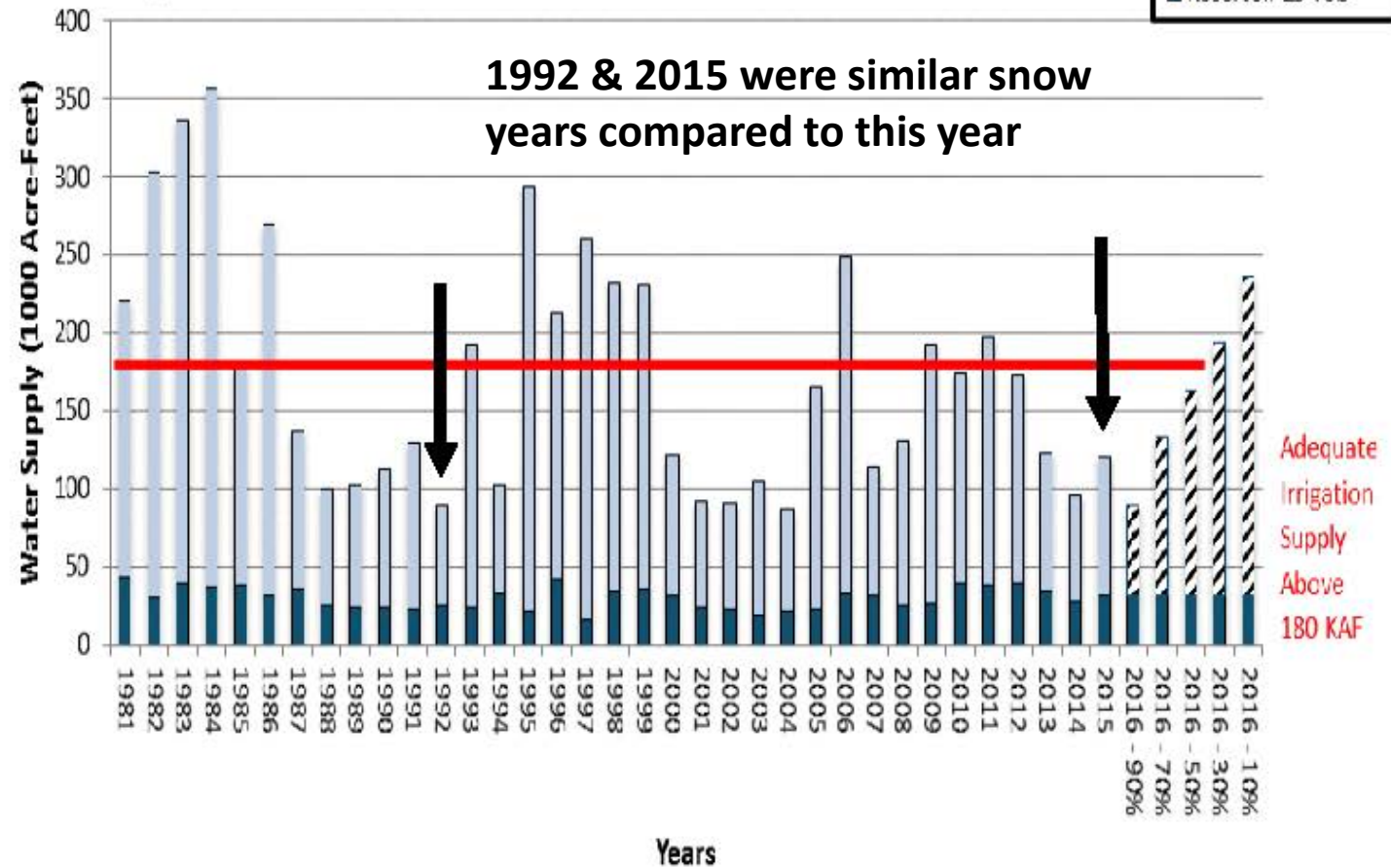
Current as Pct of Normal: 93%
 Current as Pct of 2015: 96%
 Current as Pct of Peak: 64%
 Normal as Pct of Peak: 68%
 Pct of Normal Needed to Reach Peak: 114%
 Normal Peak Date: Apr 09

Snow Water Equivalent (inches)



Mar 1 Historic and Forecasted Surface Water Supply Big Lost River Basin

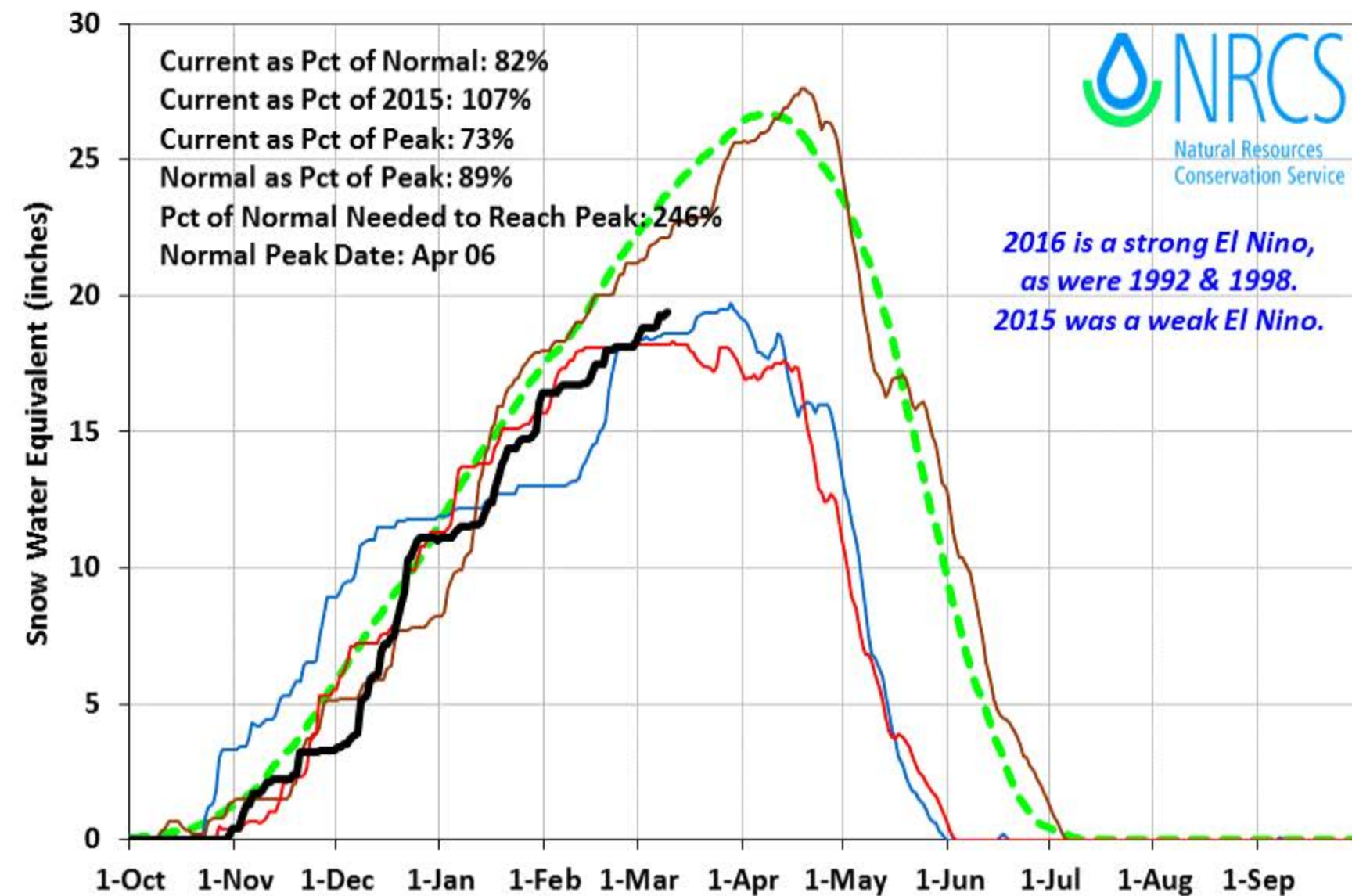
StreamFlow Apr-Sep
 Reservoir 29-Feb



Henrys Fork and Teton Basins 2016 Snowpack Comparison Graph (7 sites)

Based on Provisional SNOTEL data as of Mar 09, 2016

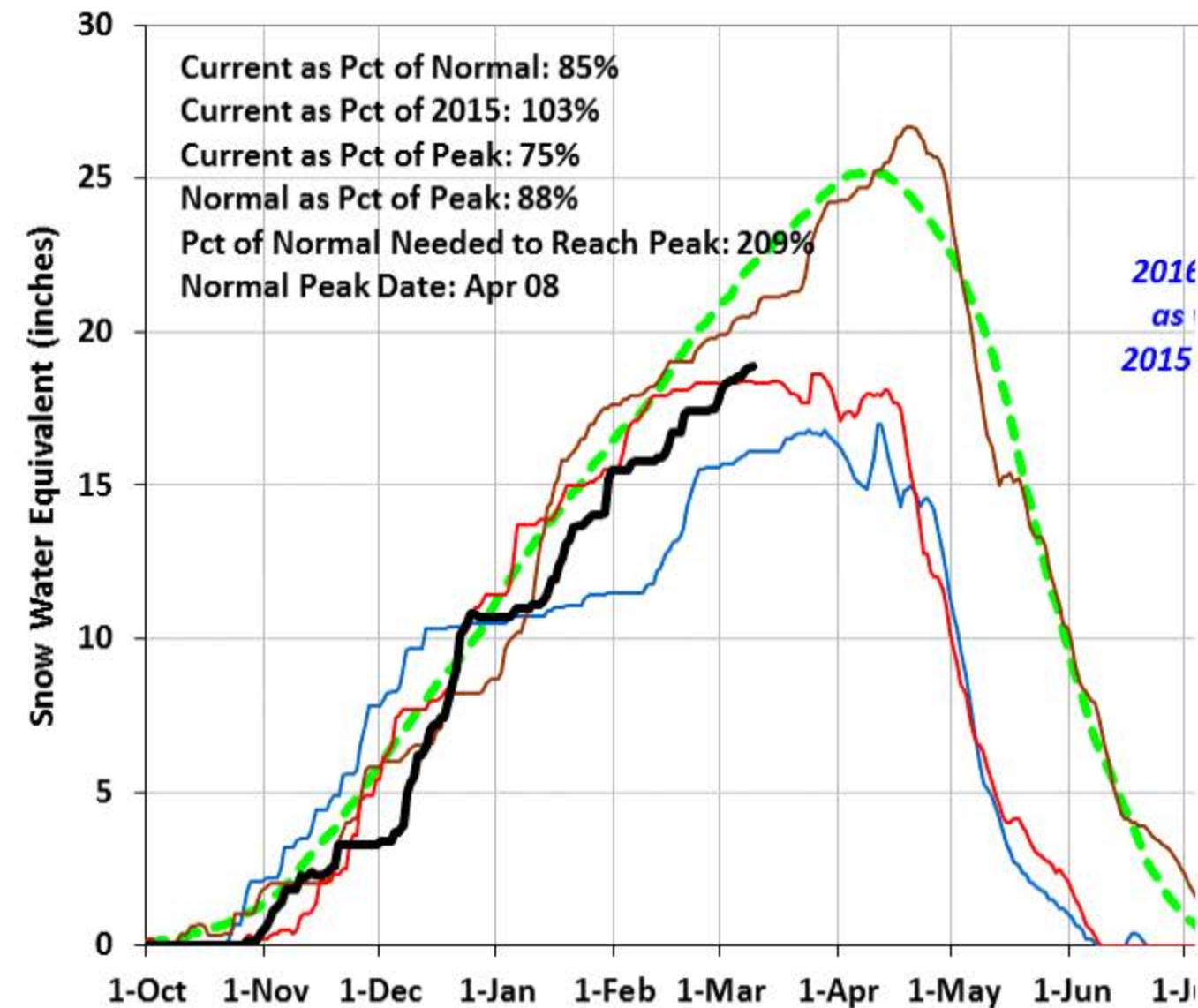
Normal WY1992 WY1998 WY2015 WY2016



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

Based on Provisional SNOTEL data as of Mar 09, 2016

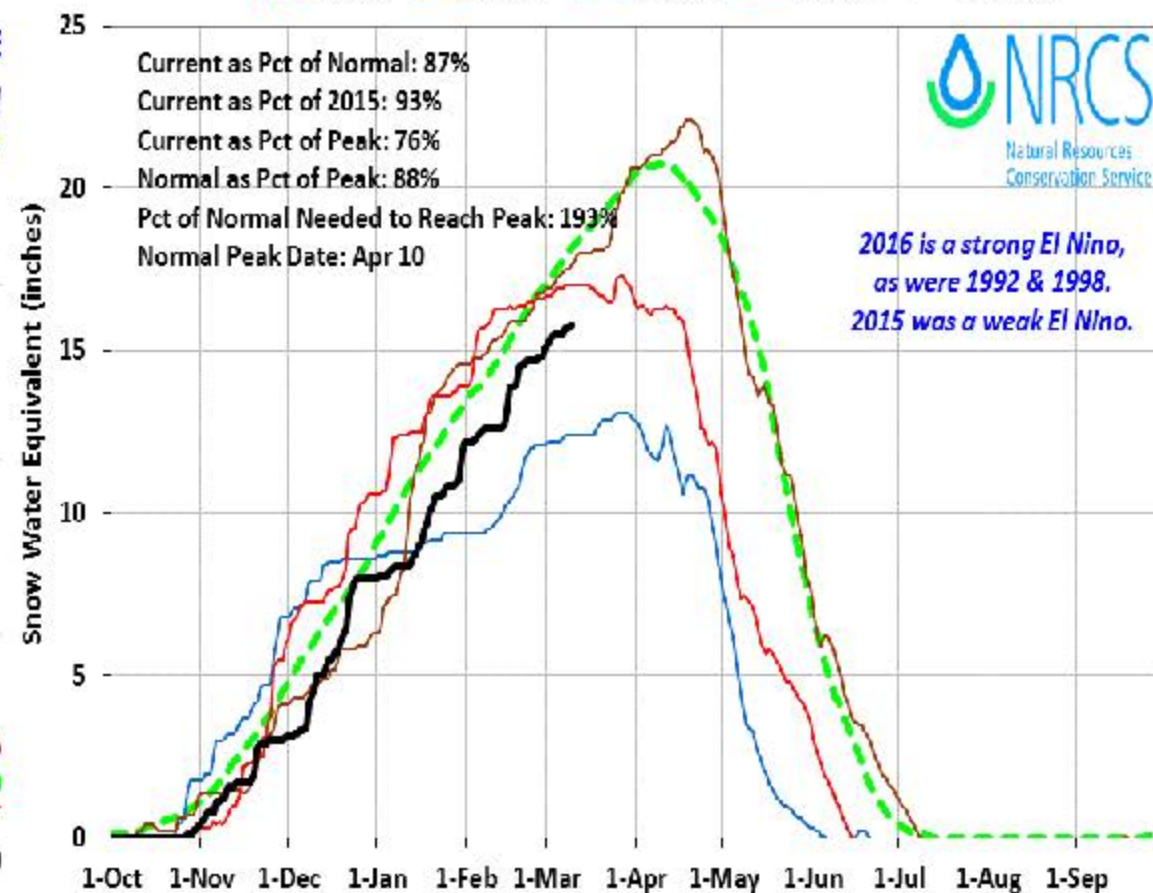
Normal WY1992 WY1998 WY2015 WY2016



Snake Basin abv Palisades 2016 Snowpack Comparison Graph (18 sites)

Based on Provisional SNOTEL data as of Mar 09, 2016

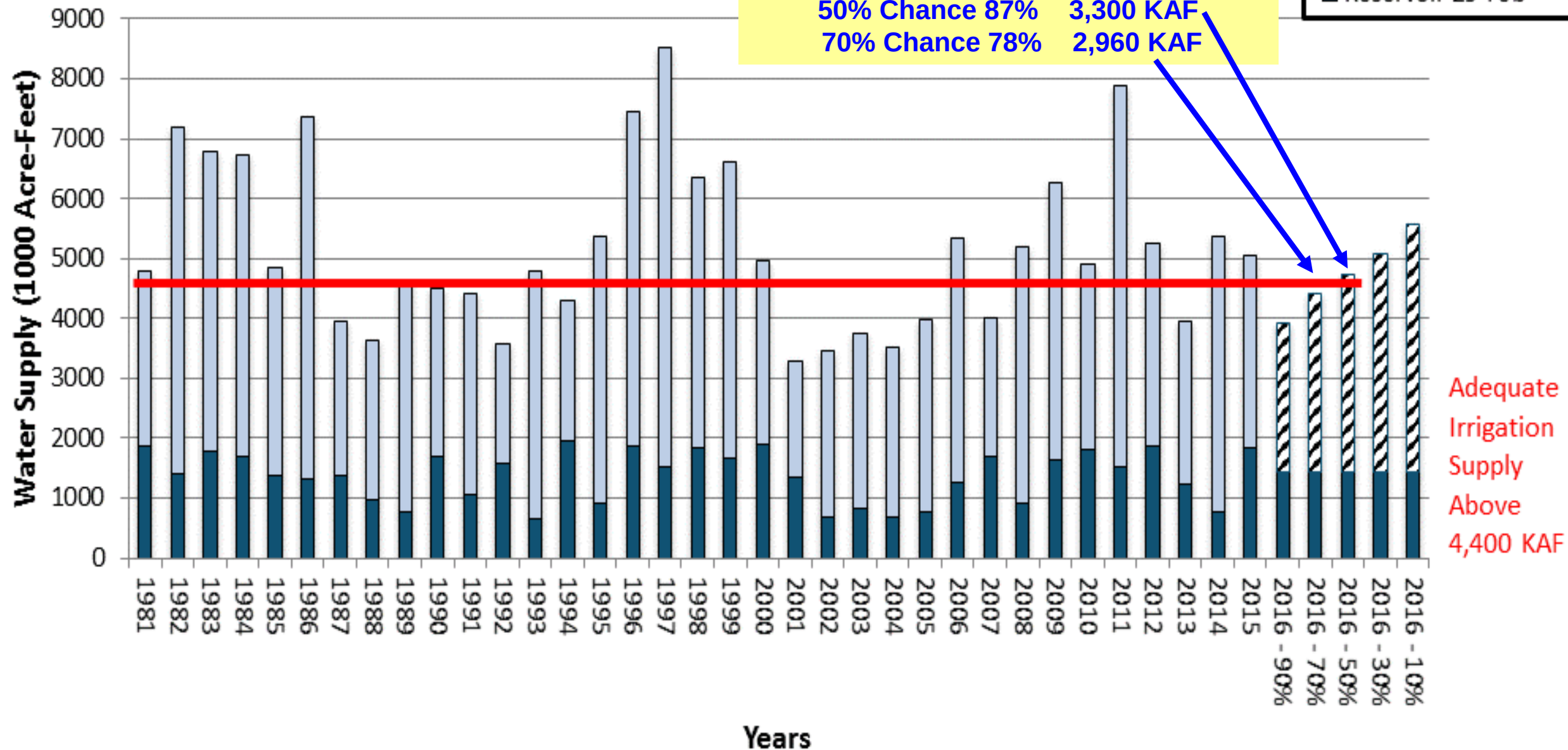
Normal WY1992 WY1998 WY2015 WY2016



Mar 1 Historic and Forecasted Surface Water Supply Snake River Near Heise

StreamFlow Apr-Sep
Reservoir 29-Feb

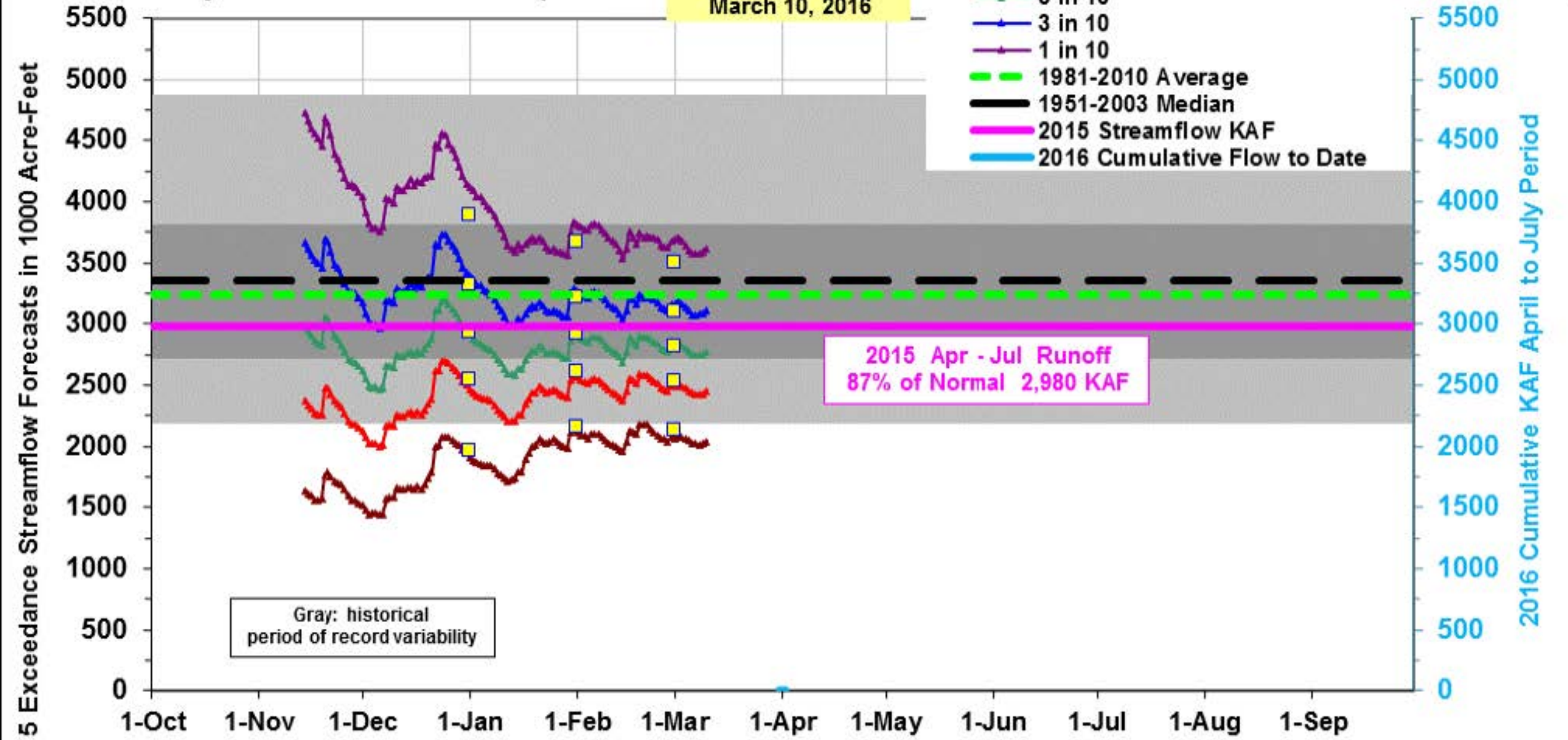
Mar 2016 Apr-Sep Forecast
50% Chance 87% 3,300 KAF
70% Chance 78% 2,960 KAF



2016 Snake River near Heise: Apr - Jul Volume

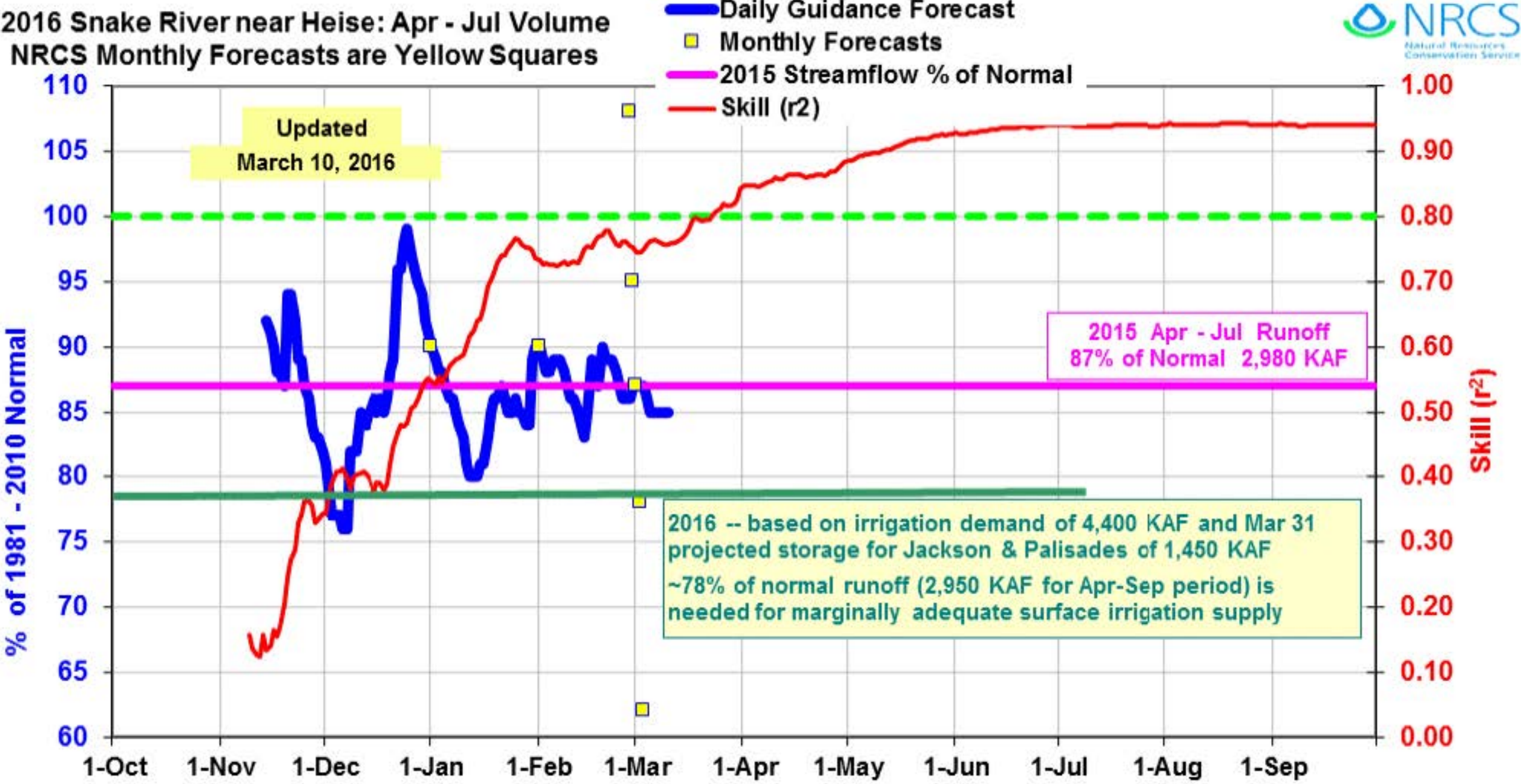
NRCS Monthly Forecasts are Yellow Squares

Updated
March 10, 2016



2016 Snake River near Heise: Apr - Jul Volume

NRCS Monthly Forecasts are Yellow Squares

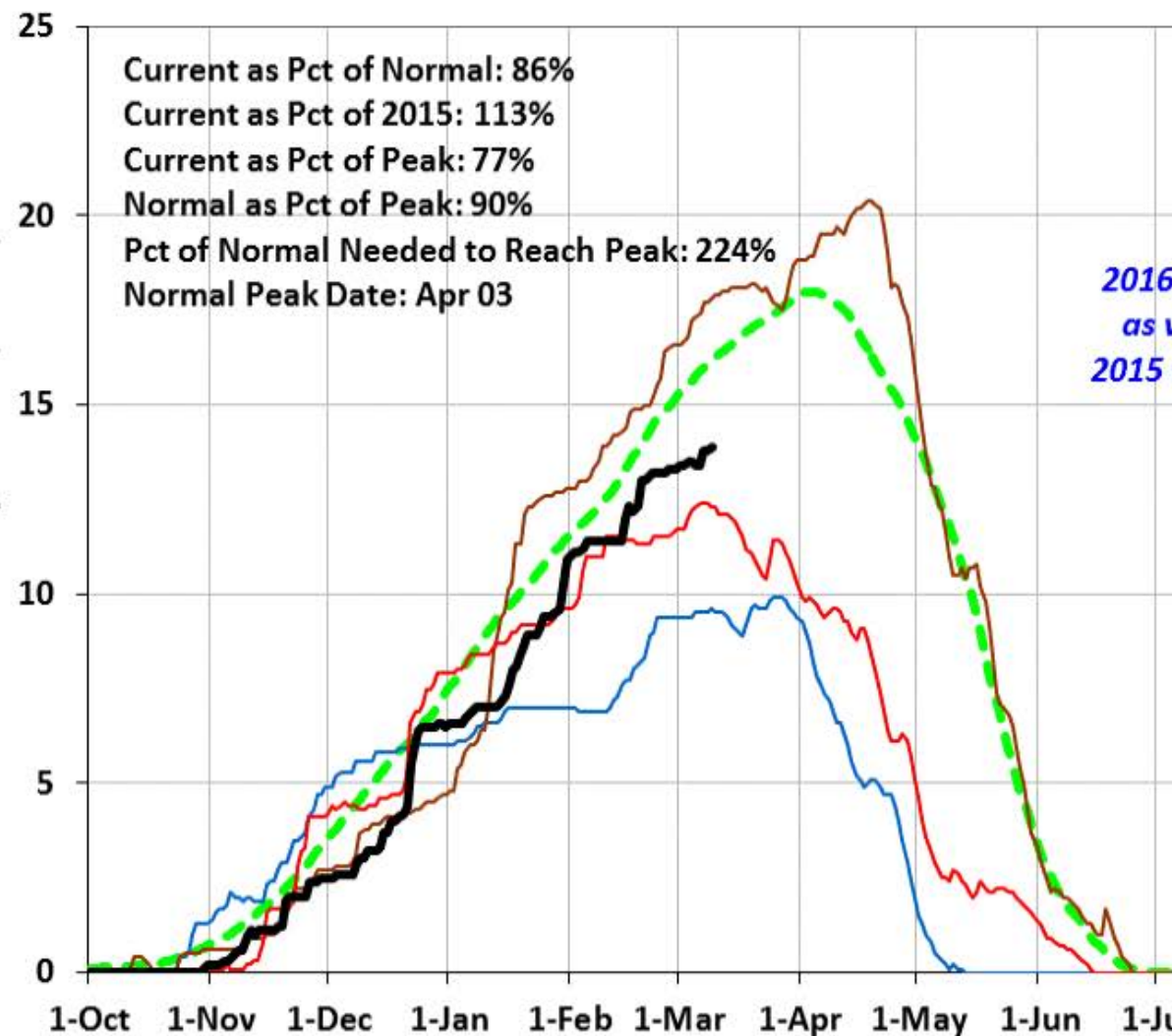


SNOTELs used: Base Camp, Blind Bull, Cottonwood Ck, Lewis Lake, Snake River Station, Slug Ck, Thumb Div, Willow Ck

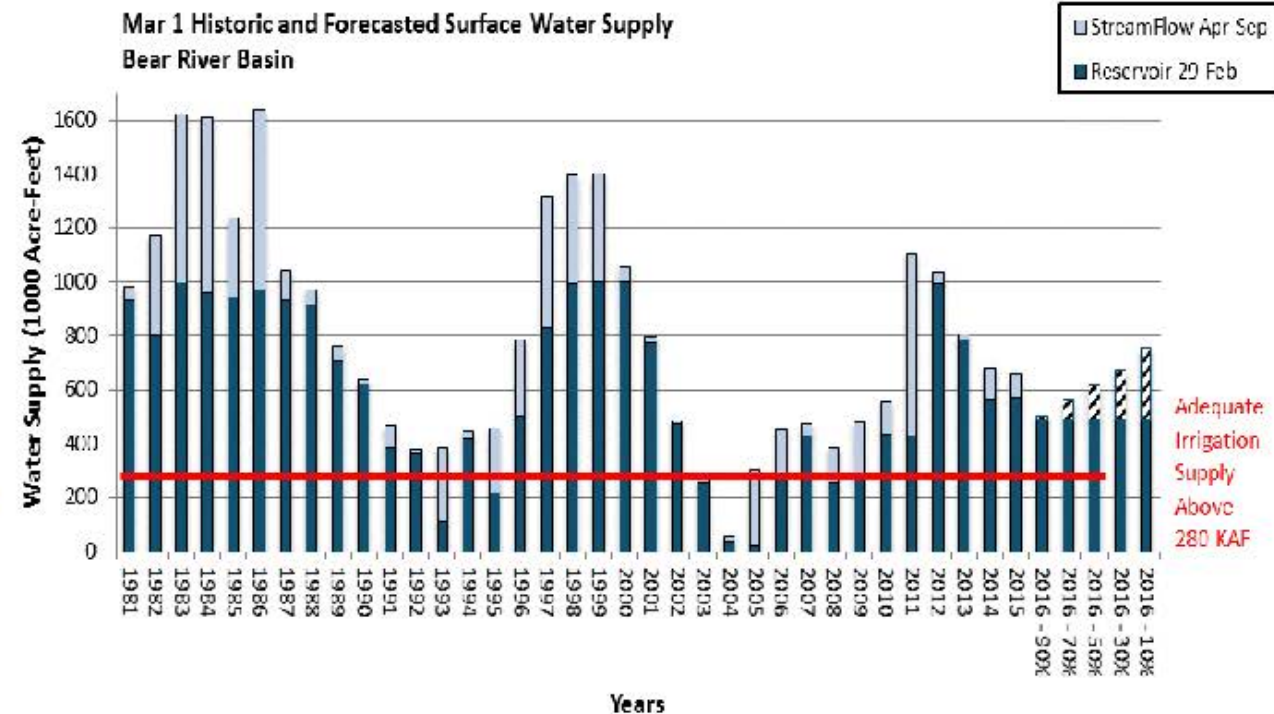
Bear Basin 2016 Snowpack Comparison Graph (15 sites)

Based on Provisional SNOTEL data as of Mar 09, 2016

Normal WY1992 WY1998 WY2015 WY2016



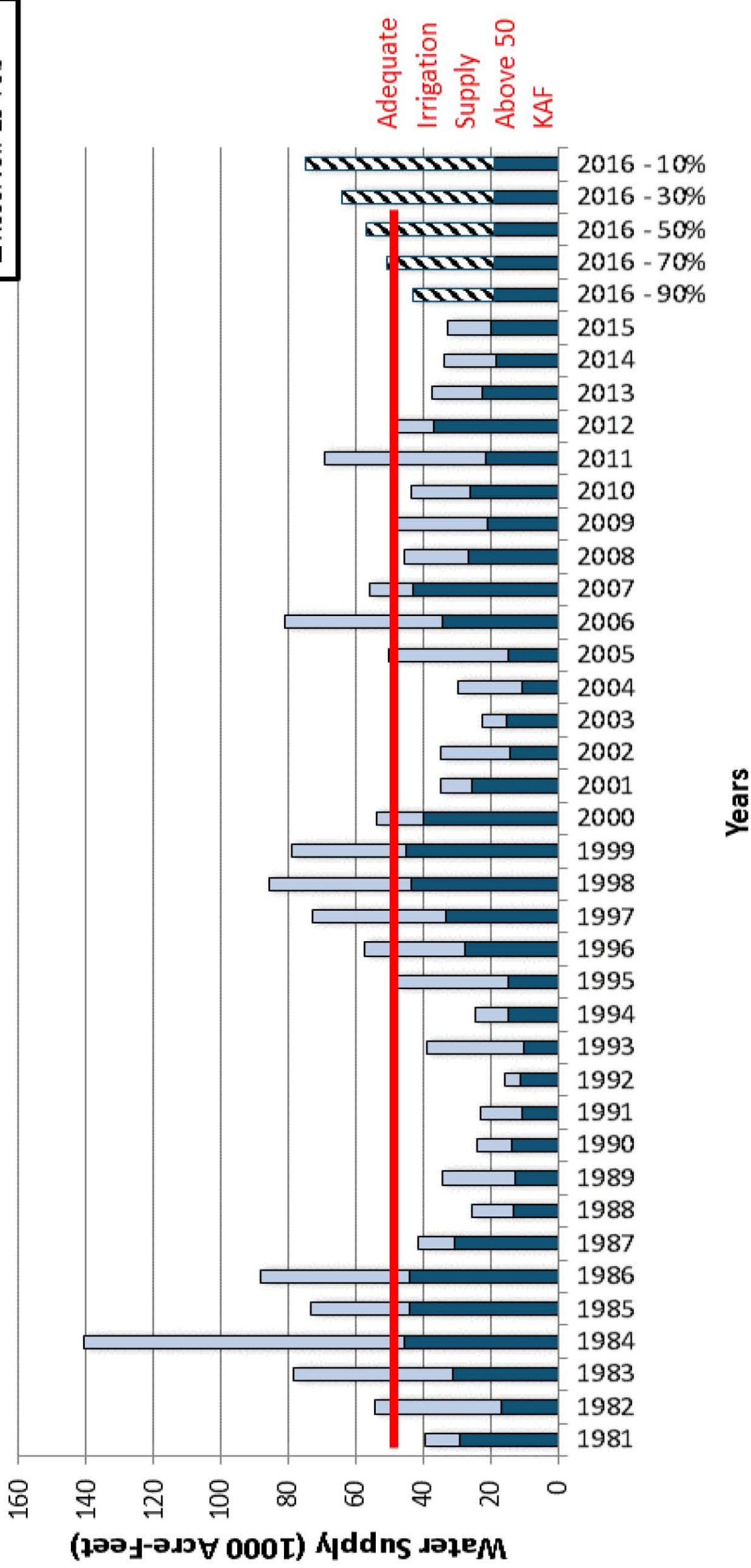
Mar 1 Historic and Forecasted Surface Water Supply
 Bear River Basin



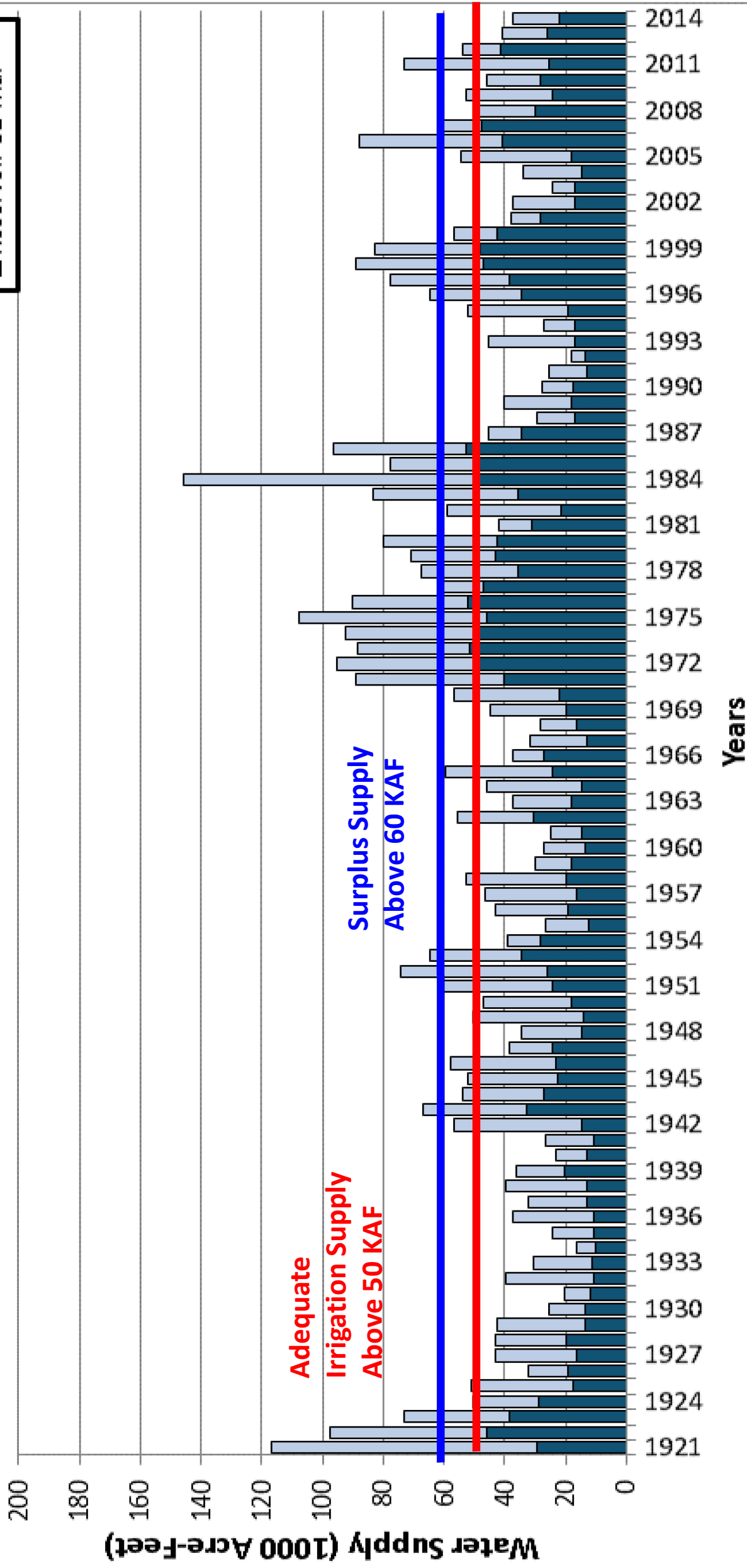
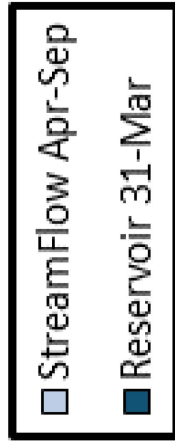
IDAHO SURFACE WATER SUPPLY INDEX (SWSI) March 1, 2016

<i>BASIN or REGION</i>	<i>SWSI Value</i>	<i>Most Recent Year With Similar SWSI Value</i>	<i>Agricultural Water Supply Shortage May Occur When SWSI is Less Than</i>
Spokane	-0.8	2013	NA
Clearwater	0.1	2003	NA
Salmon	0.3	2010	NA
Weiser	0.8	2012	NA
Payette	0.6	2003	NA
Boise	1.0	2009	-1.6
Big Wood	0.3	2000	0.2
Little Wood	0.3	2009	-1.4
Big Lost	-0.1	2012	0.7
Little Lost	0.1	2012	1.4
Teton	-0.8	2015	-3.9
Henrys Fork	-0.8	2010	-3.7
SNAKE (Heise)	-0.8	1993	-1.6
Oakley	1.0	2000	0.0
Salmon Falls	1.0	2009	-0.7
Bruneau	1.5	2005	NA
Owyhee	0.8	2005	-3.0
Bear River	-0.8	2015	-3.7

Mar 1 Historic and Forecasted Surface Water Supply Oakley Basin



Apr 1 Surface Water Supply Index (SWSI)
Oakley Basin



Oakley Basin

Year	Apr-Sep Vol [KAF]	3/31 Reservoir [KAF]	Flow Volume + Mar Res Storage [KAF]
1984	95.5	50.1	145.6
1921	87.4	29.6	117.0
1975	61.5	46.2	107.7
1922	51.2	46.2	97.4
1986	44.0	52.6	96.6
1972	45.7	49.7	95.4
1974	42.5	50.1	92.6
1976	38.0	52.3	90.3
1971	49.0	40.3	89.3
1998	42.1	47.1	89.2
1973	36.3	51.9	88.2
2006	47.0	40.8	87.8
1983	47.6	36.0	83.6
1999	34.3	48.4	82.7
1980	37.5	42.7	80.2
1997	39.5	38.4	77.9
1985	29.0	48.8	77.8
1952	48.1	26.1	74.2
1923	34.7	38.7	73.4
2011	47.4	25.7	73.1
1979	27.8	42.9	70.7
1978	31.6	36.0	67.6
1943	33.9	32.8	66.7
1953	30.0	34.7	64.7
1996	30.0	34.6	64.6
1951	37.6	24.3	61.9
1977	13.5	47.3	60.8
2007	13.0	47.8	60.8
1965	35.0	24.5	59.5
1982	37.4	21.8	59.2
1946	34.8	23.1	57.9
1942	42.2	14.6	56.8
1970	34.9	21.9	56.8
2000	14.2	42.5	56.7

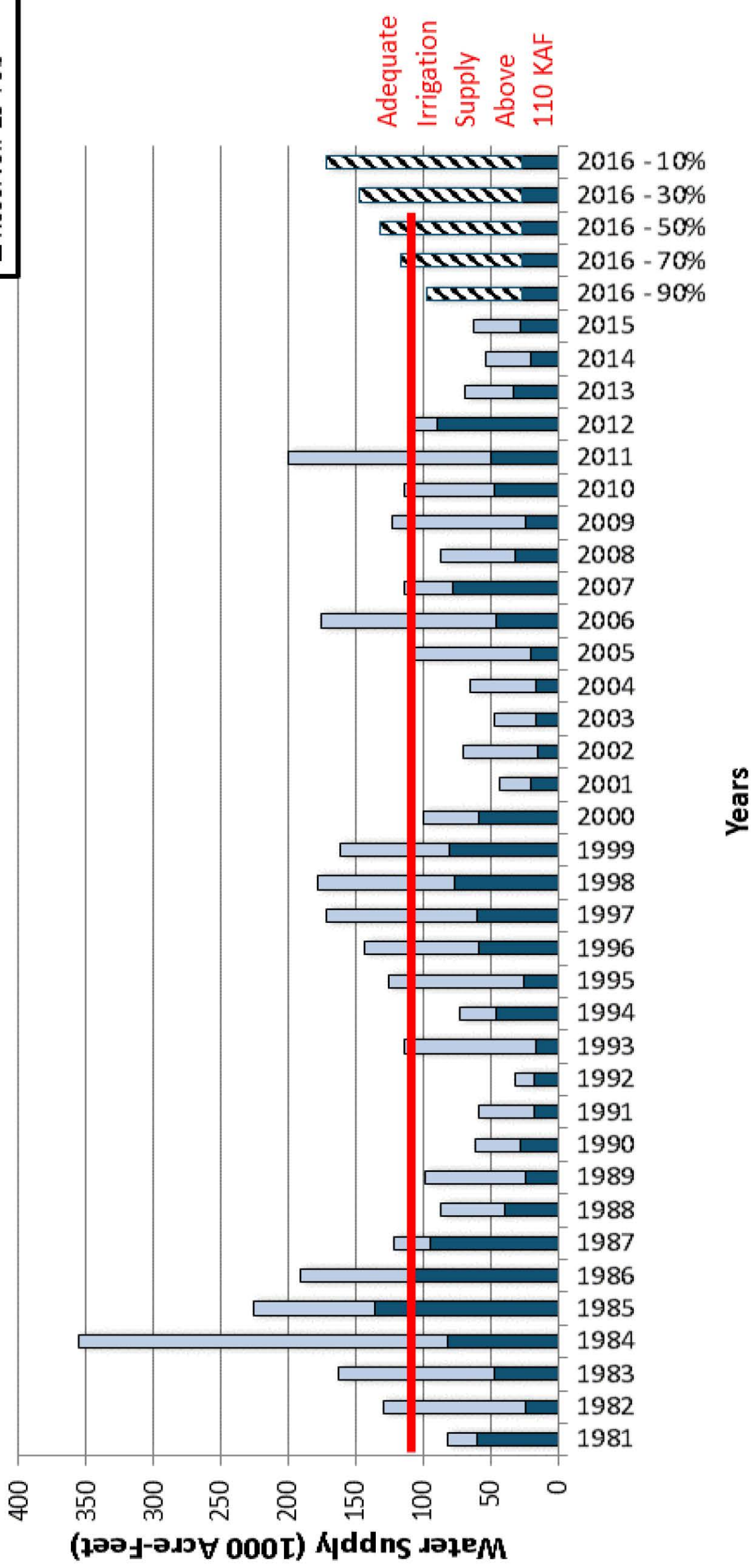
Used 60 KAF to determine Surplus

Oakley Reservoir capacity 75.6 KAF

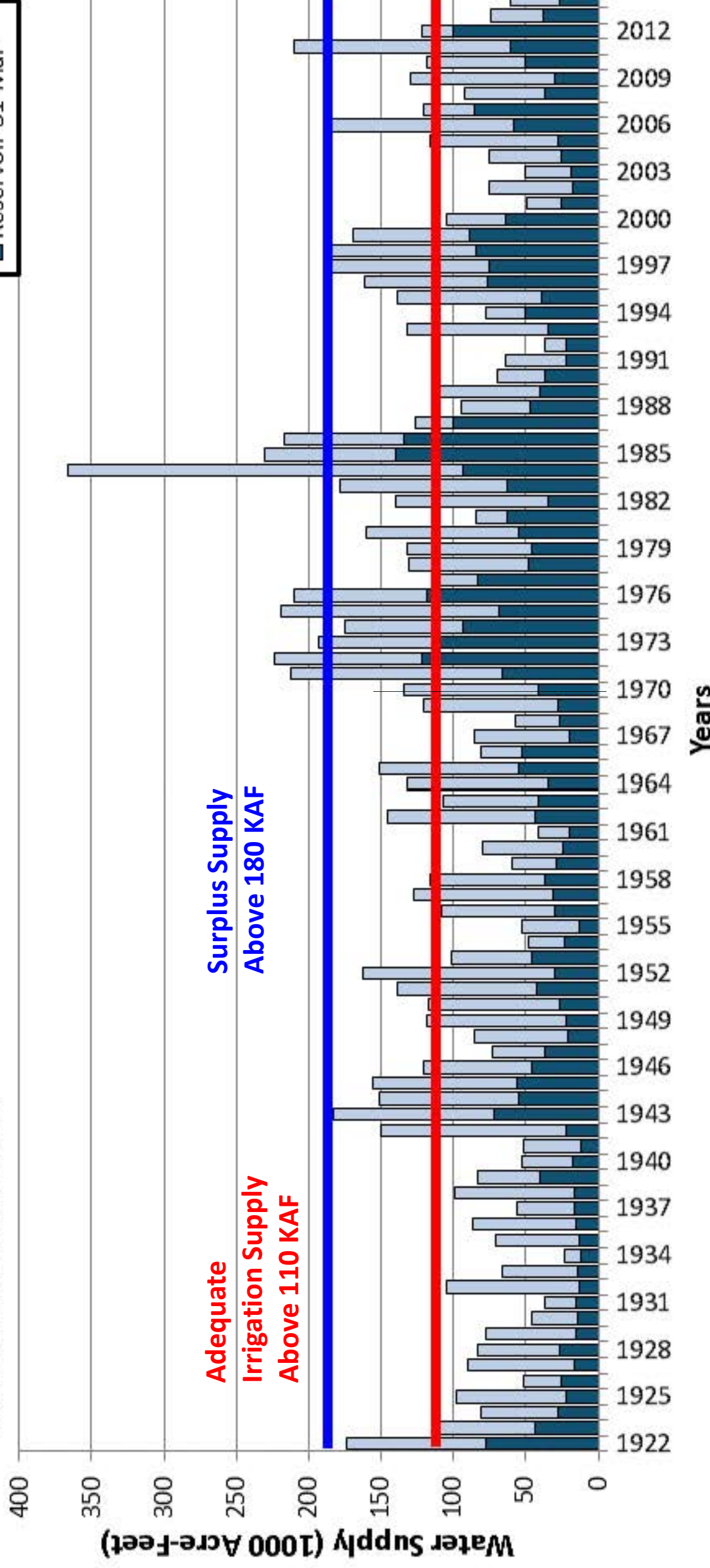
Can rent water in years with volume greater than 60 KAF

**Will verify with Oakley Canal Company
Spring 2016**

Mar 1 Historic and Forecasted Surface Water Supply Salmon Falls Creek Basin



Apr 1 Surface Water Supply Index (SWSI) Salmon Falls Creek Basin



Salmon Falls							
Year	March 31 Res [KAF]	Apr-Sep Vol [KAF]	Res + Flow [KAF]				
1984	92.6	273.7	366.3				
1985	139.5	90.3	229.8				
1972	121.0	102.7	223.7				
1975	68.3	150.2	218.5				
1986	134.0	83.0	217.0				
1971	66.1	145.9	212.0				
1976	118.0	91.8	209.8				
2011	60.1	147.9	208.0				
1973	109.0	84.1	193.1				
1997	75.1	112.4	187.5				
2006	57.4	129.8	187.2				
1998	83.7	102.1	185.8				
1943	71.9	110.8	182.7				
1983	62.1	116.2	178.3				
1974	92.5	82.4	174.9				
1922	76.8	97.2	174.0				
1999	88.4	80.3	168.7				
1952	30.7	131.5	162.2				
1996	75.8	85.3	161.1				
1980	54.2	105.7	159.9				
1945	56.0	99.0	155.0				

180 KAF was determined as the surplus volume based primarily on the reservoir capacity of 182.65 KAF and potential to fill the reservoir.

Salmon Falls Reservoir storage:

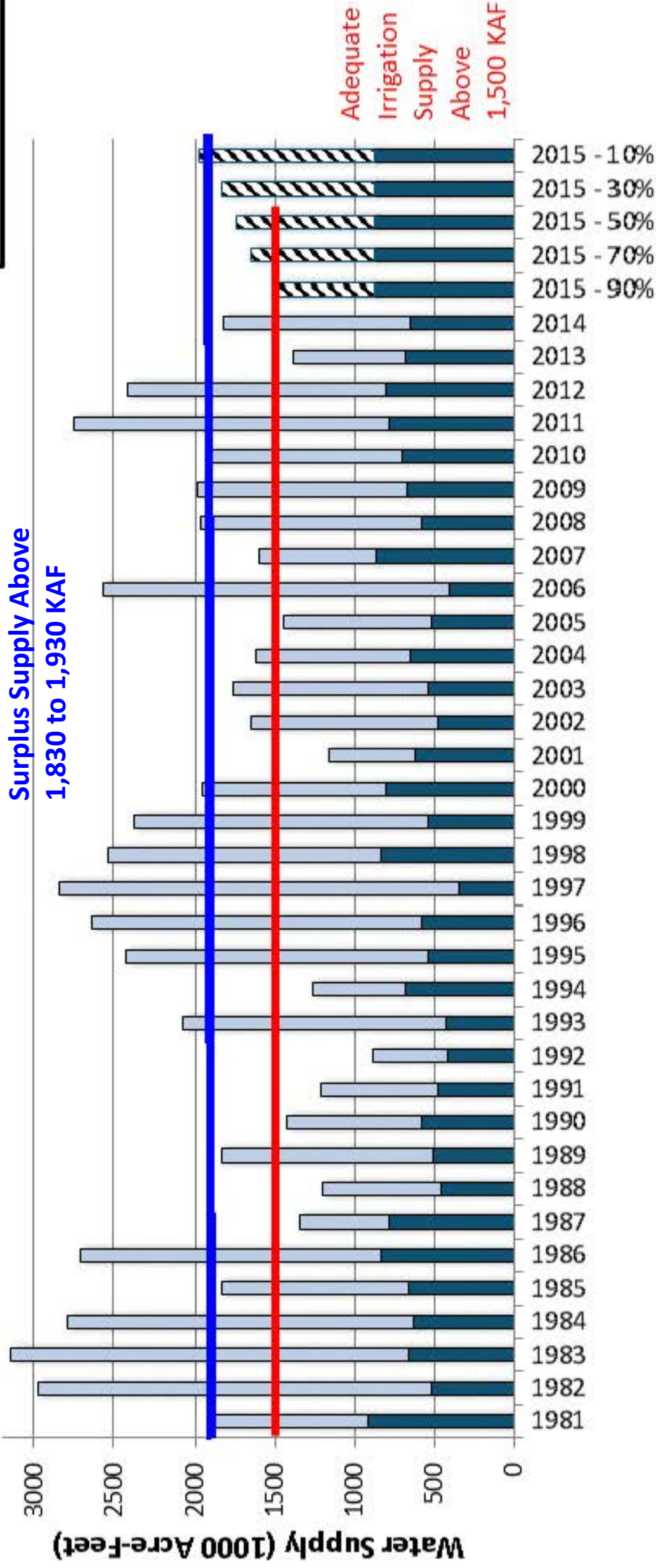
	KAF
Dead	48.00
Inactive	5.00
Active	182.65

active storage includes the 5.0 KAF of inactive storage

Usable / Active storage for Salmon Falls is 182.65 KAF

Apr 1 Historic and Forecasted Surface Water Supply Boise River Basin

Provisional



Year	Combined		Max cfs a Boise	
	Apr - Sept Volume [KAF]	March 31 Res Storage [KAF]	Sum Volume + Storage [KAF]	River at Glenwood [cfs]
1983	2494.7	655.5	3150.2	9560
1982	2460.5	515.9	2976.4	7410
1997	2490.6	346.5	2837.1	7160
1984	2160.6	630.0	2790.6	6900
2011	1965.4	785.0	2750.4	7130
1986	1881.1	831.3	2712.4	7960
1996	2065.5	574.1	2639.6	6690
2006	2162.4	403.7	2566.1	7050
1998	1700.6	837.0	2537.6	8350
1995	1887.1	535.8	2422.9	4970outlier
2012	1610.9	801.3	2412.1	8050
1999	1838.1	537.5	2375.6	6770
1993	1656.5	421.7	2078.2	6560
2009	1323.0	666.6	1989.6	6040
2008	1382.1	577.9	1960.0	6860
2000	1154.6	801.5	1956.1	3330outlier
2010	1223.8	697.0	1920.8	6000border line surplus
1989	1324.2	507.5	1831.7	6130border line surplus
1985	1165.6	664.0	1829.6	2360border line surplus
2014	1178.3	645.1	1823.4	1880border line surplus
2003	1218.6	538.4	1757.0	1480Well below 6000
2002	1178.4	471.8	1650.2	1340cfs below here
2004	973.5	647.1	1620.6	1320
2007	736.4	859.9	1596.3	1480
2005	931.1	517.2	1448.3	1230
1990	840.6	579.3	1419.9	875
2013	703.8	681.6	1385.3	1440
1987	561.8	784.6	1346.4	1470
1994	588.4	677.9	1266.3	1280
1991	734.4	477.5	1211.9	968
1988	745.6	451.3	1196.9	939
2001	544.9	619.5	1164.4	947
1992	470.8	412.3	883.1	830

Provisional

The surplus flow level for Boise River at Glenwood is 6000 cfs.

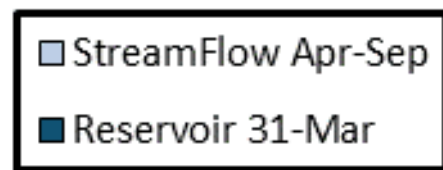
This is determined by summing the March 31 reservoir storage with the April - September volumes (1982-2014).

This sum is then compared to the maximum flow through Glenwood gage. This gage was installed 1982, so only data 1982-2014 is used.

There is a distinct cutoff in the maximum flow at Glenwood; no years have a maximum discharge from 3330 to 6000 cfs.

Therefore, at least 6,000 cfs through Glenwood is an indicator of a year with surplus flow or when Apr-Sep volume & March 31 storage is greater than 1900 KAF.

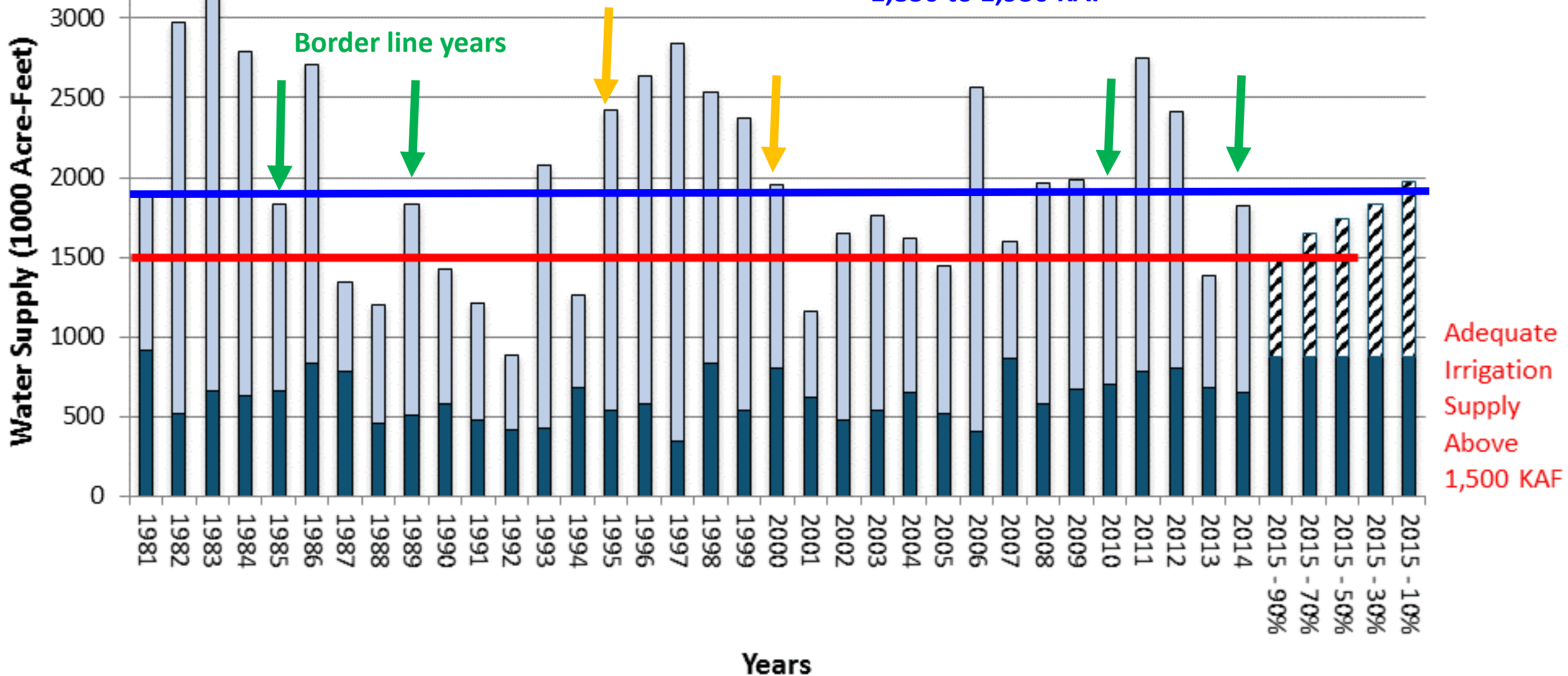
Apr 1 Historic and Forecasted Surface Water Supply Boise River Basin



Surplus Supply Above
1,830 to 1,930 KAF

Outlier years

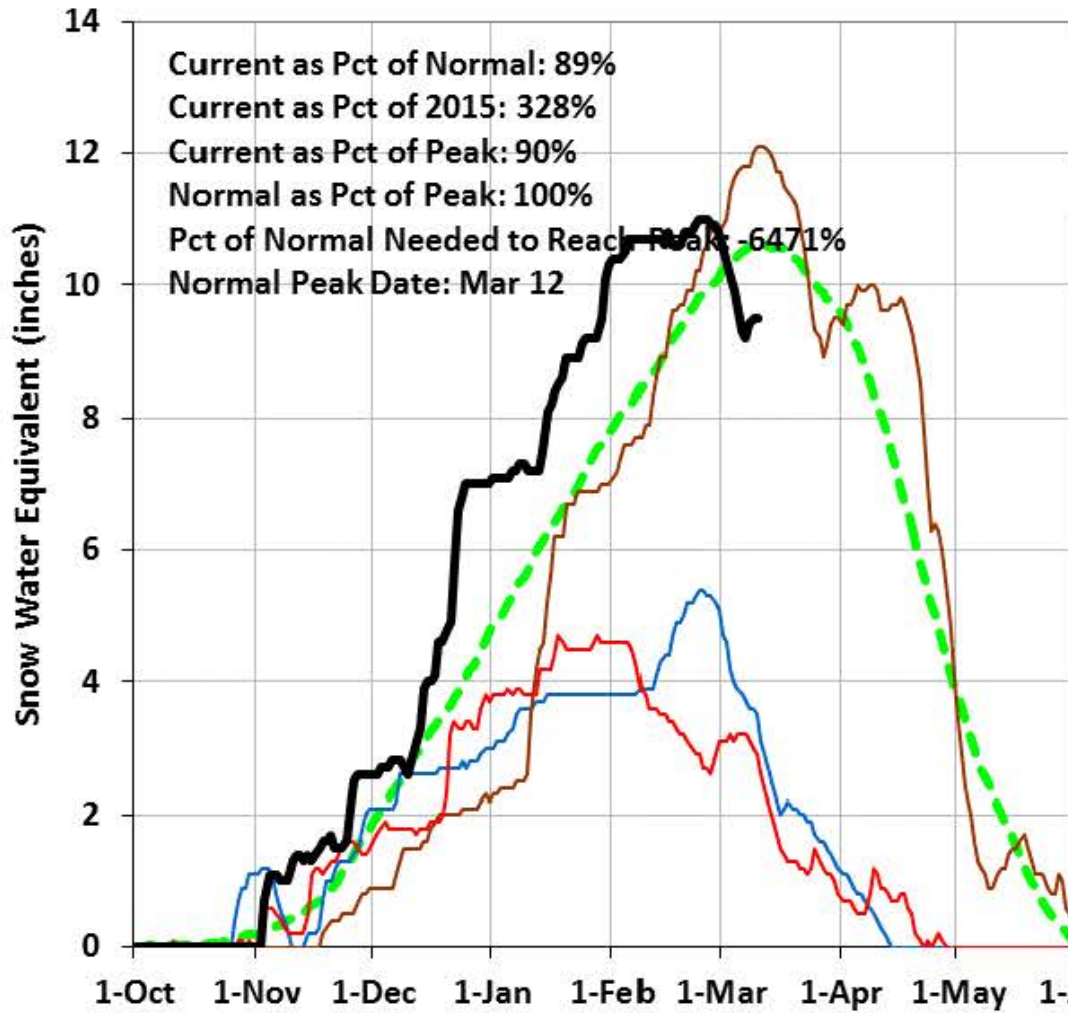
Border line years



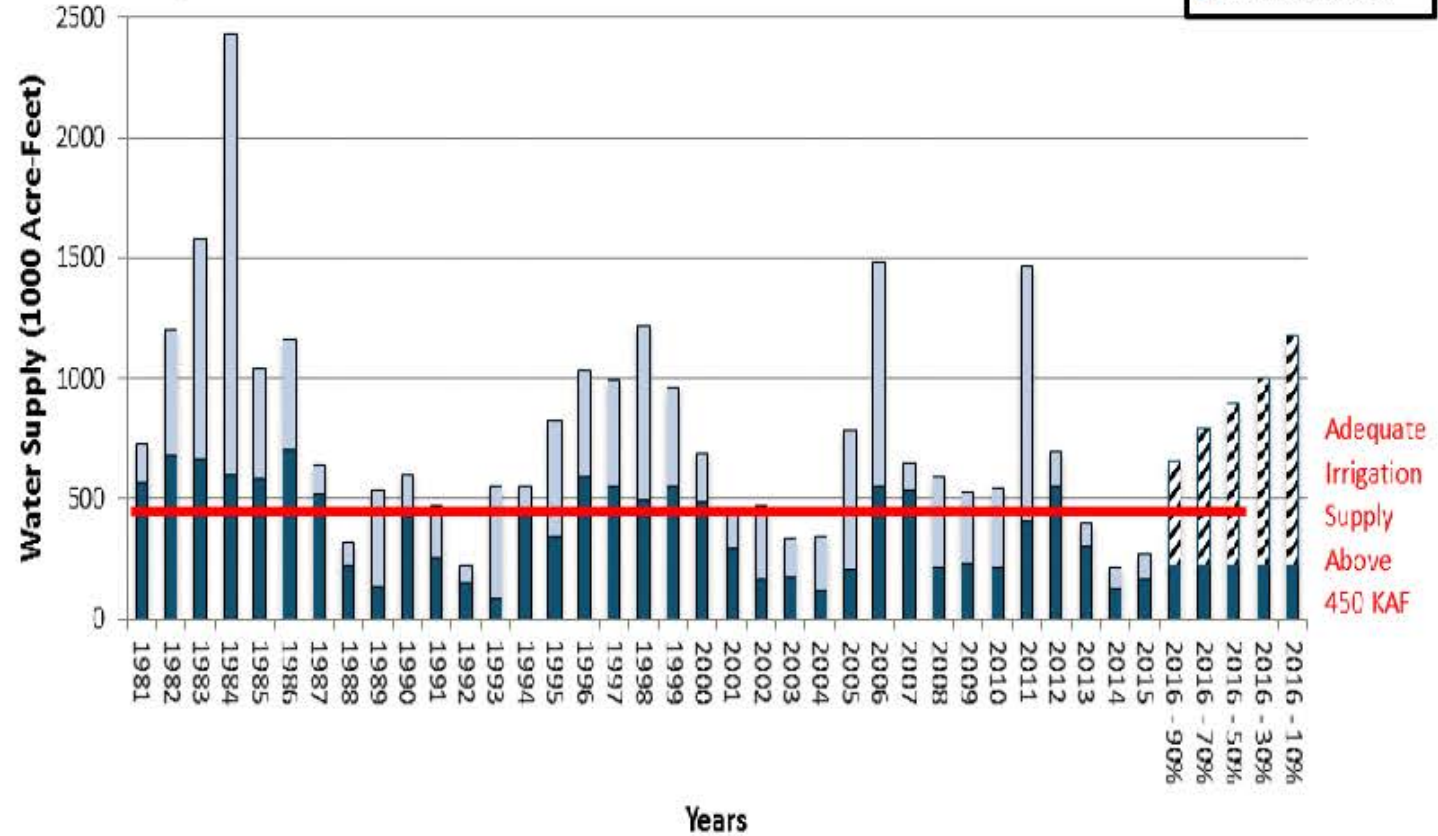
Owyhee Basin 2016 Snowpack Comparison Graph (7 sites)

Based on Provisional SNOTEL data as of Mar 10, 2016

Normal WY1992 WY1998 WY2015 WY2016



Mar 1 Historic and Forecasted Surface Water Supply Owyhee Basin

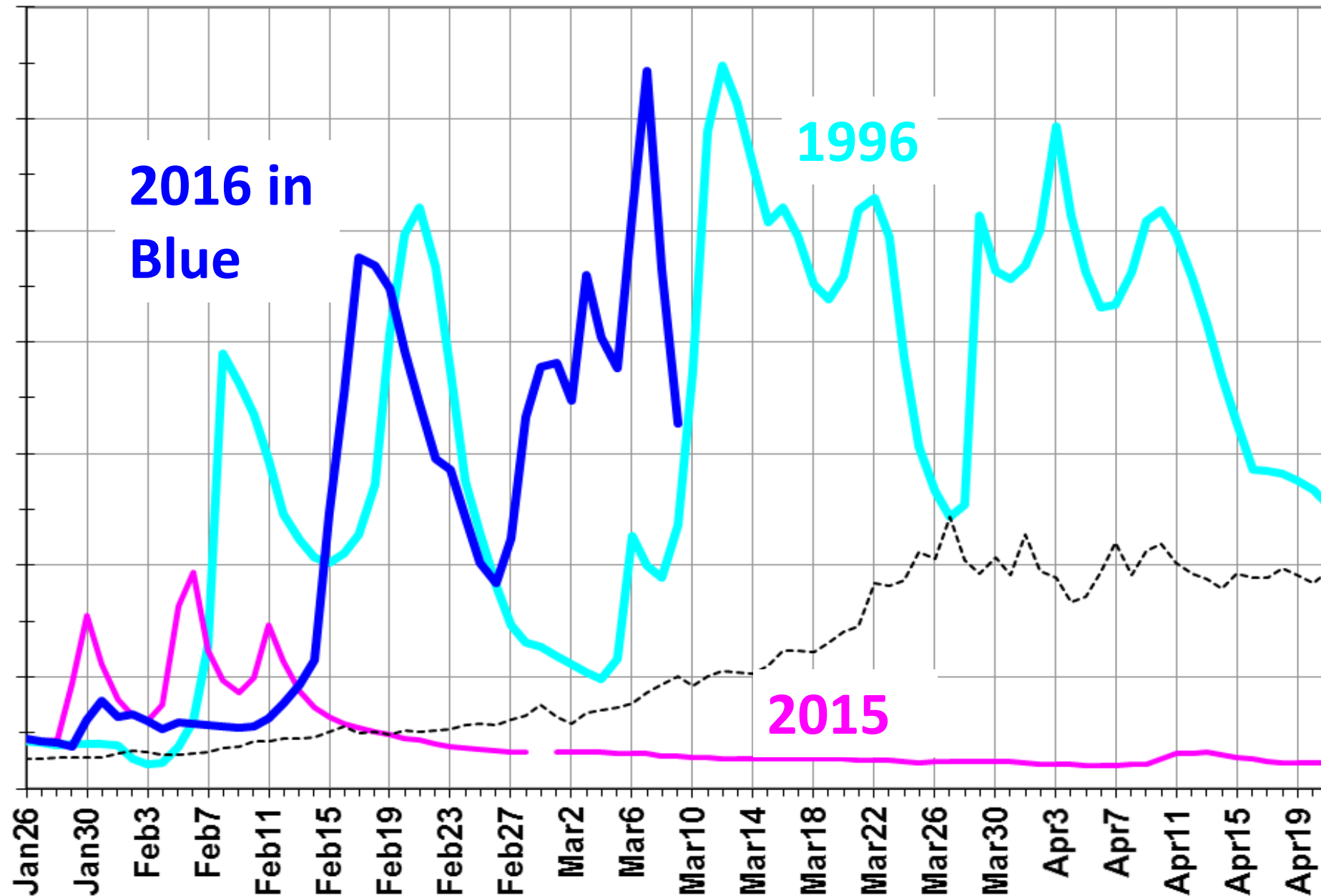


13181000: Owyhee R near Rome, OR



Mean Daily CFS

7000
6000
5000
4000
3000
2000
1000
0



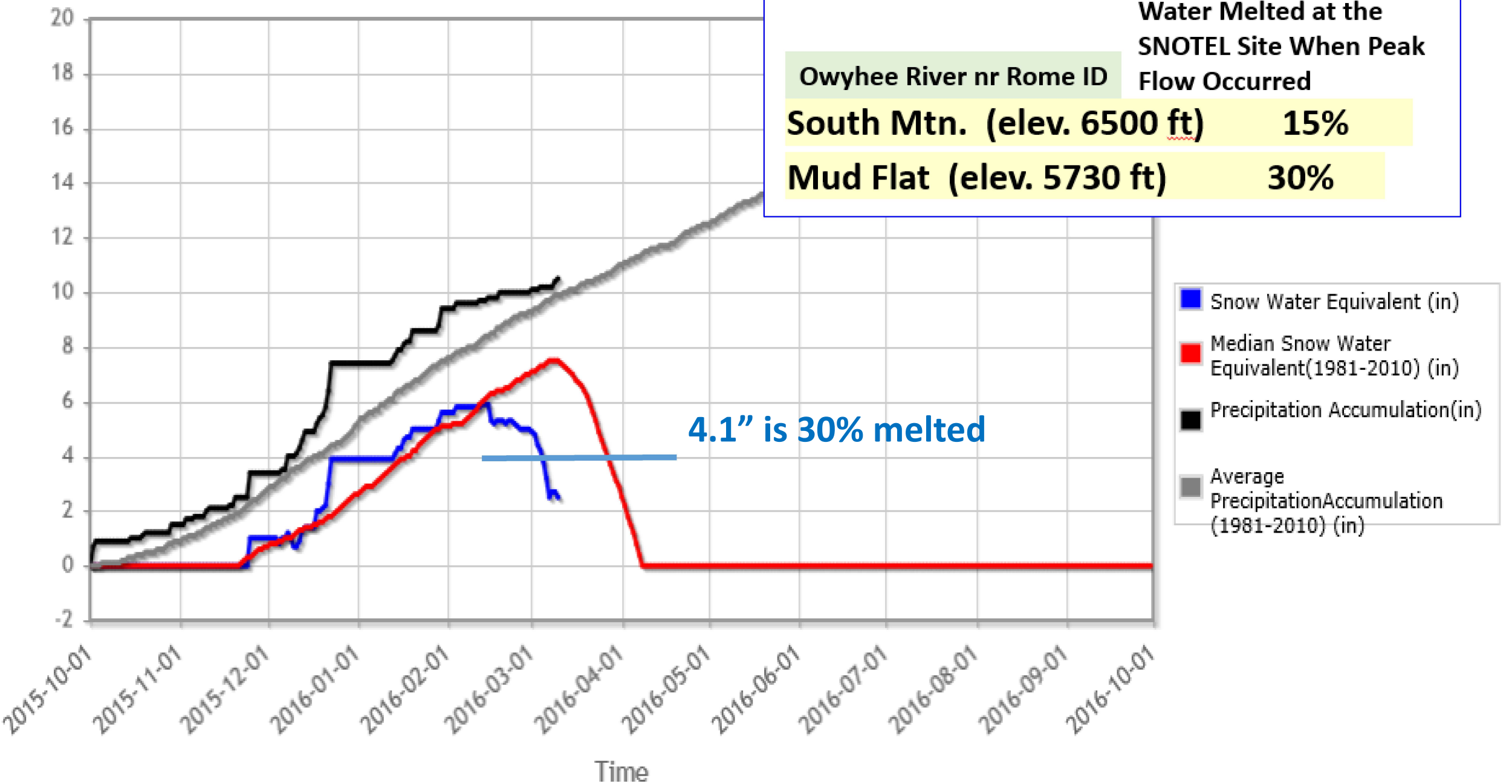
- 10-25-75-90
- Estimated
- SimilarYr
- Last Yr
- Projected
- Current
- Median
- Max-Min

Updated

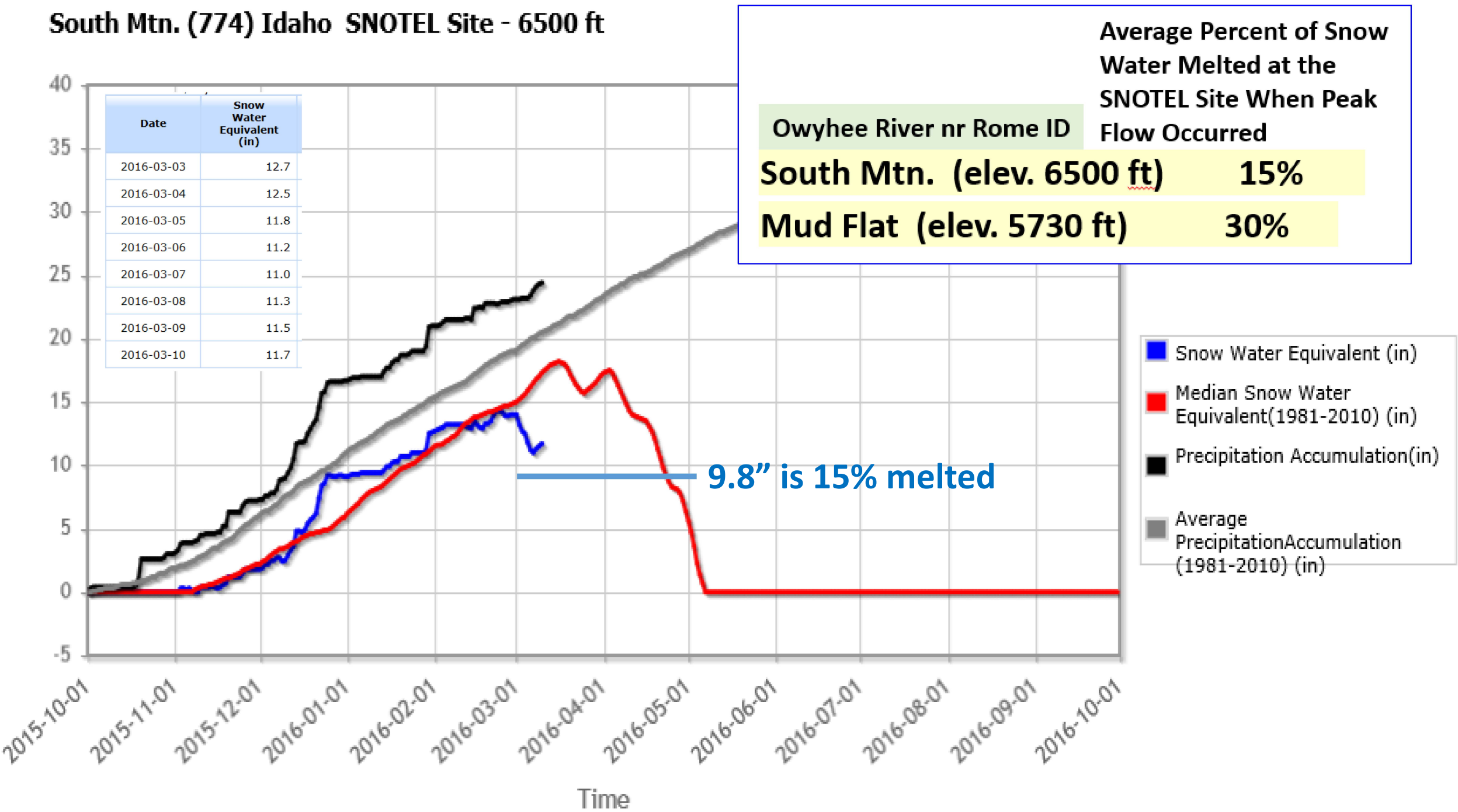
10-Mar-16

Similar Year
1996

Mud Flat (654) Idaho SNOTEL Site - 5730 ft

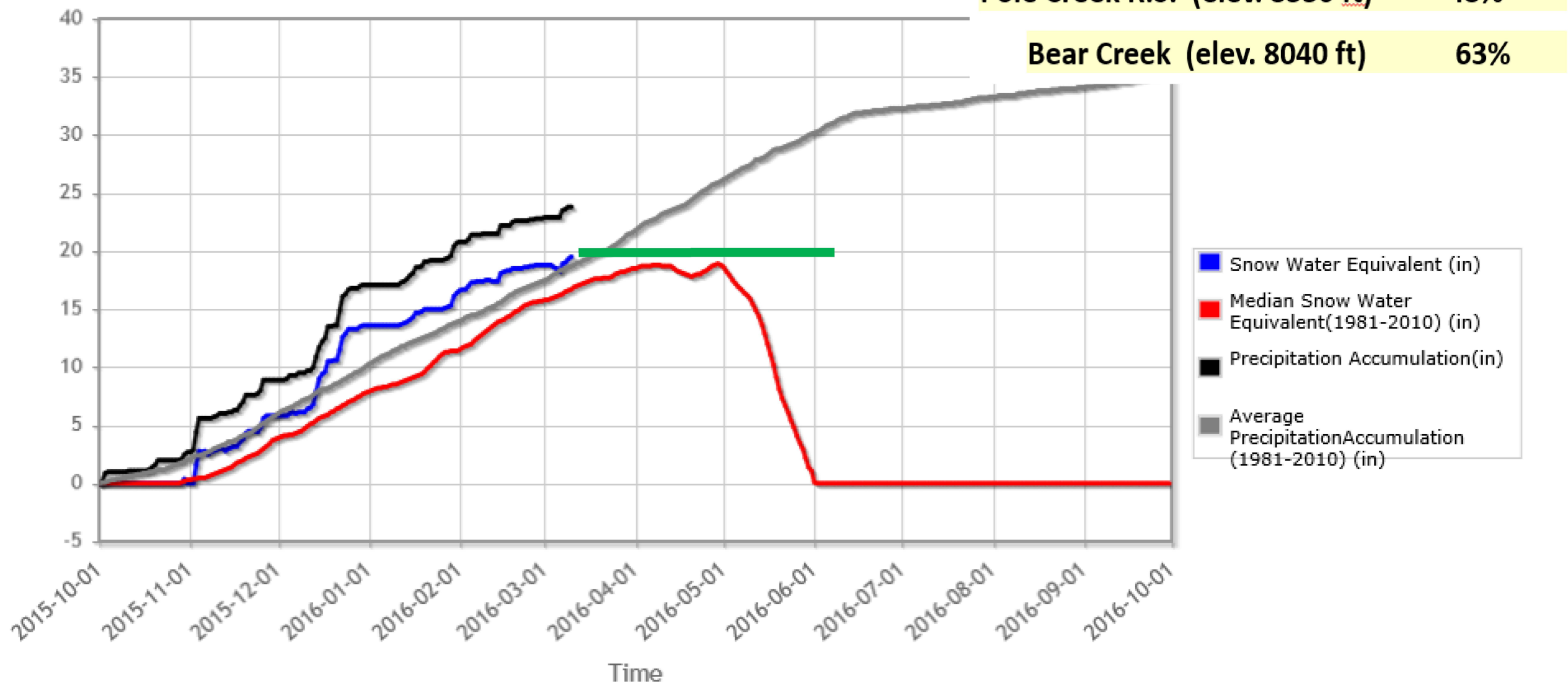


South Mtn. (774) Idaho SNOTEL Site - 6500 ft



**Bear Creek needs about 20 inches of SWE
to have adequate boating season or good spring rains**

Bear Creek (321) Nevada SNOTEL Site - 8040 ft



A photograph of a snowy mountain landscape. On the left, there are several bare, snow-covered evergreen trees. In the center, a helicopter is parked on a wide, snow-covered slope. Two people are walking away from the camera towards the helicopter, leaving a trail of footprints in the snow. The sky is overcast and grey. The text "Think Snow!!" is overlaid on the right side of the image in a large, blue, stylized font.

Think
Snow!!