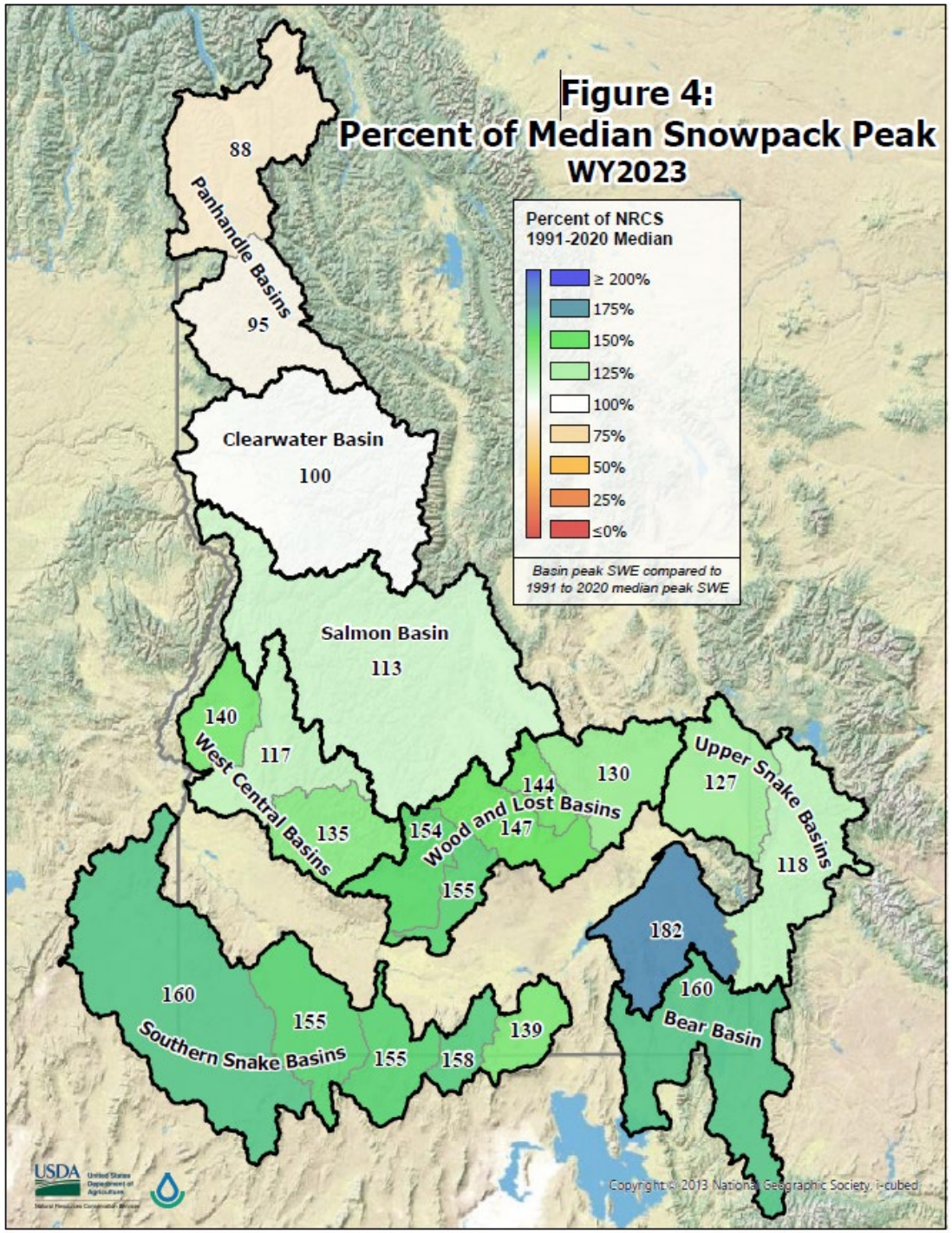
Snowpack Conditions & Water Supply Update

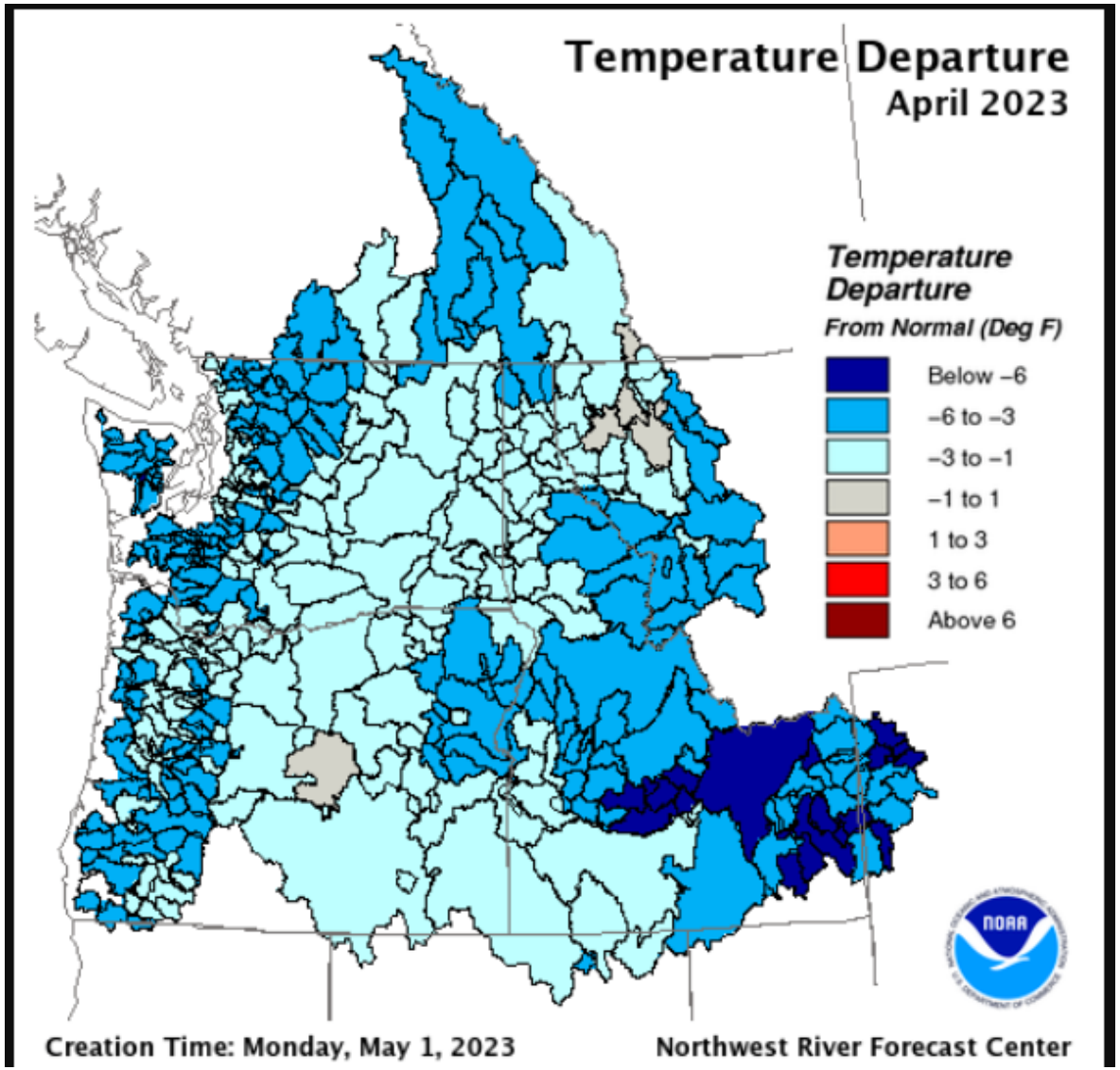
Idaho Water Supply Committee Meeting
May 10, 2023

USDA NRCS
Natural Resources Conservation Service

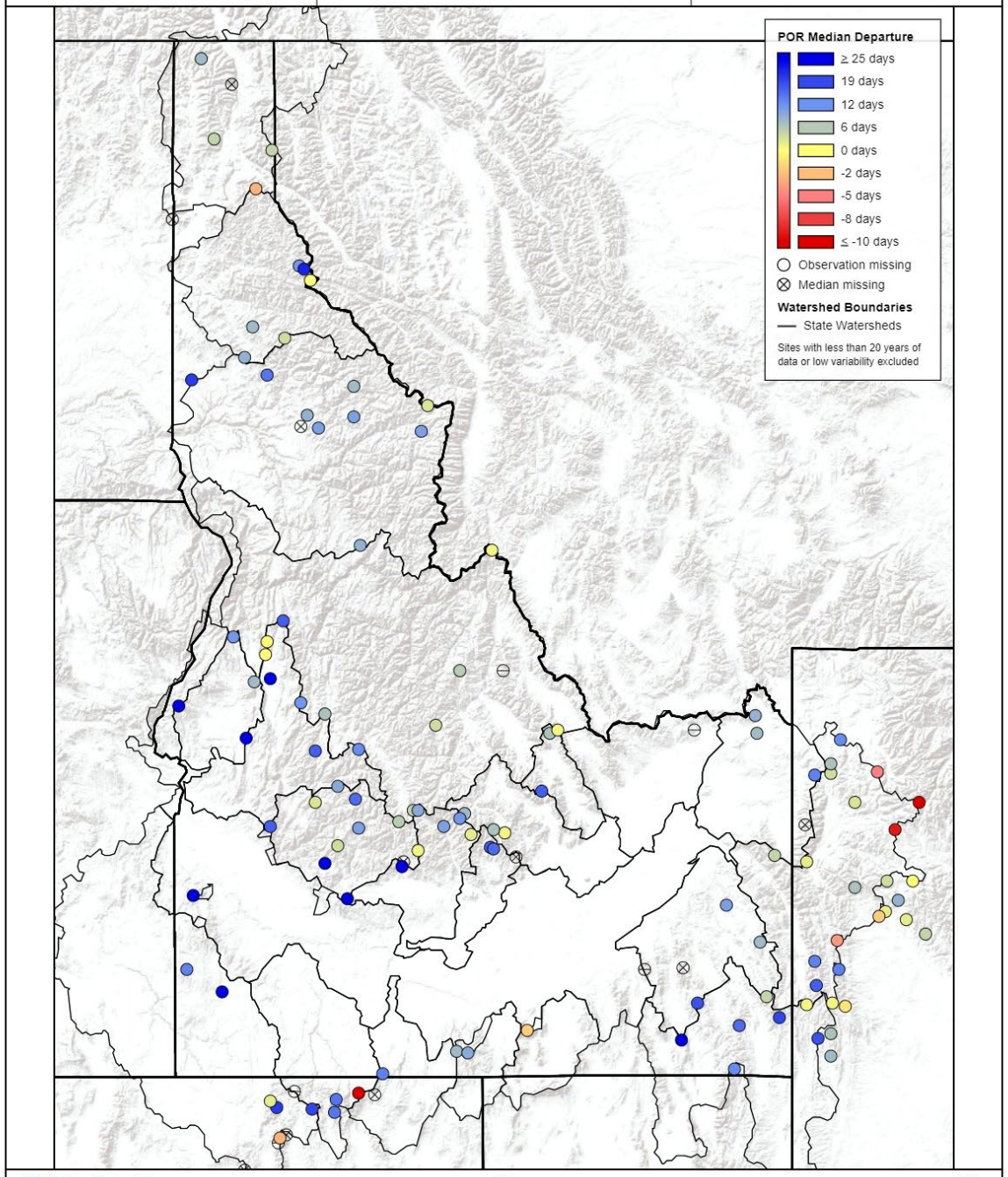
Presented by
Erin Whorton

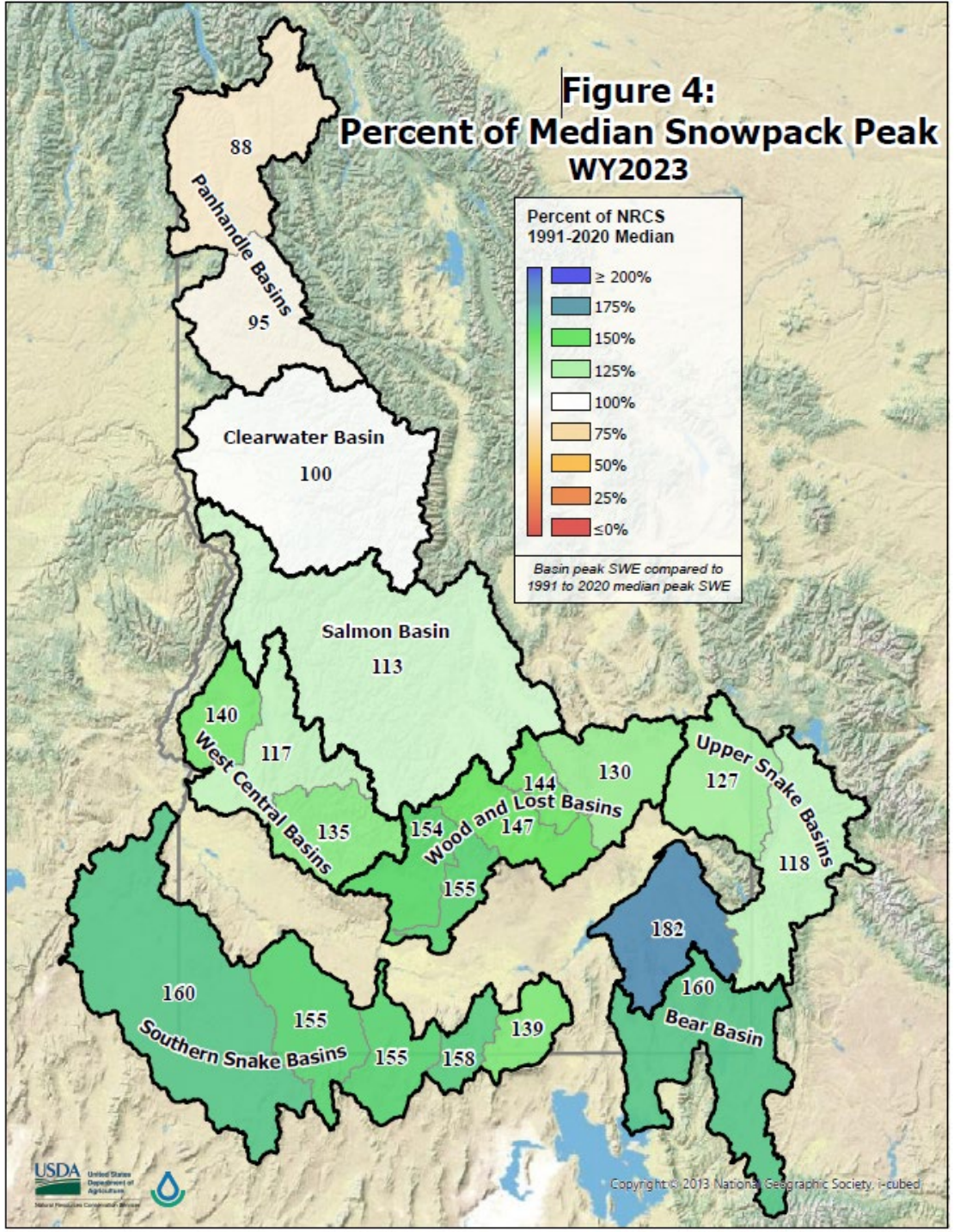


Pebble Creek SNOTEL, April 1, 2023

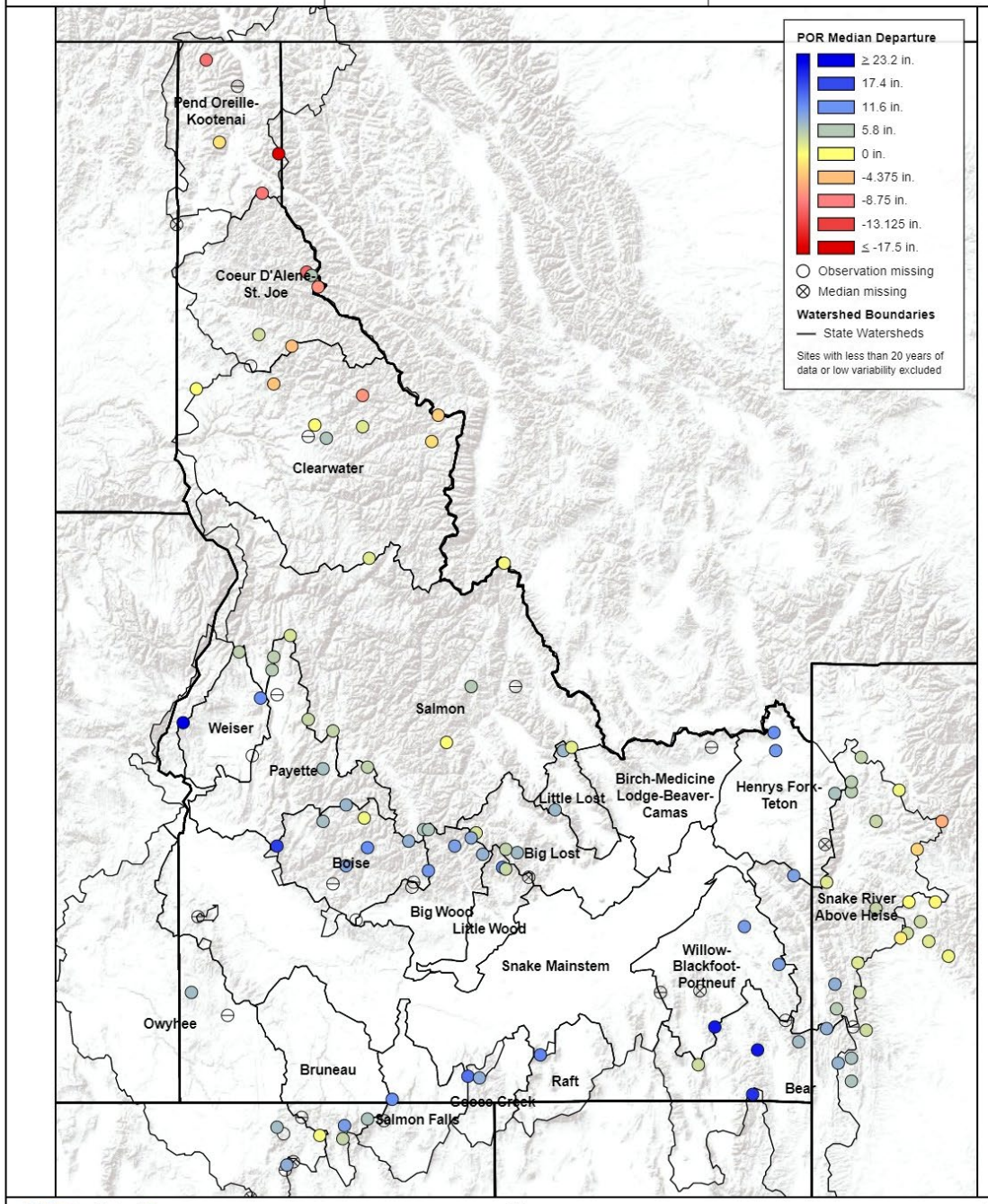


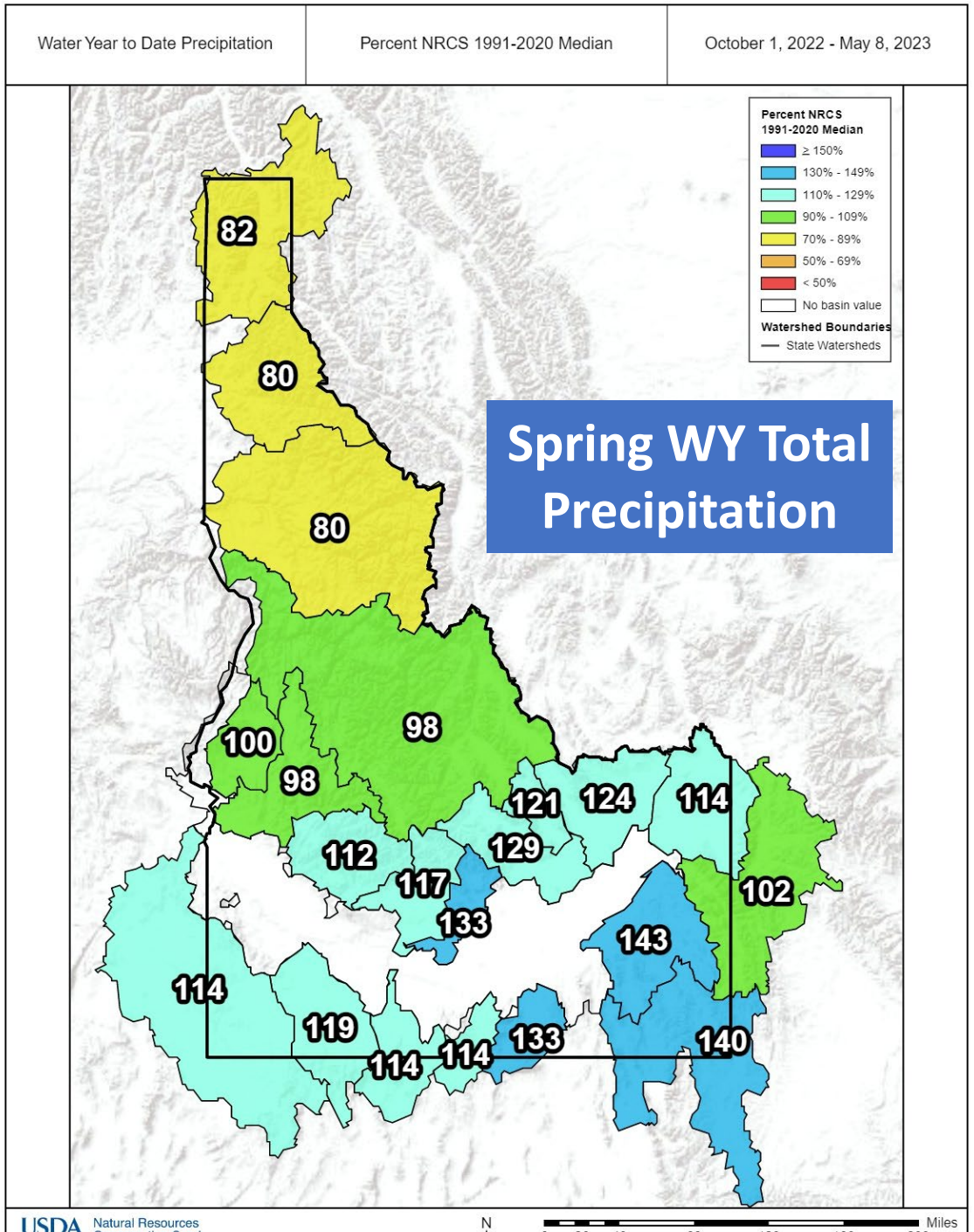
Snow Water Equivalent, Date of Water Year Peak	POR Median Departure	2023

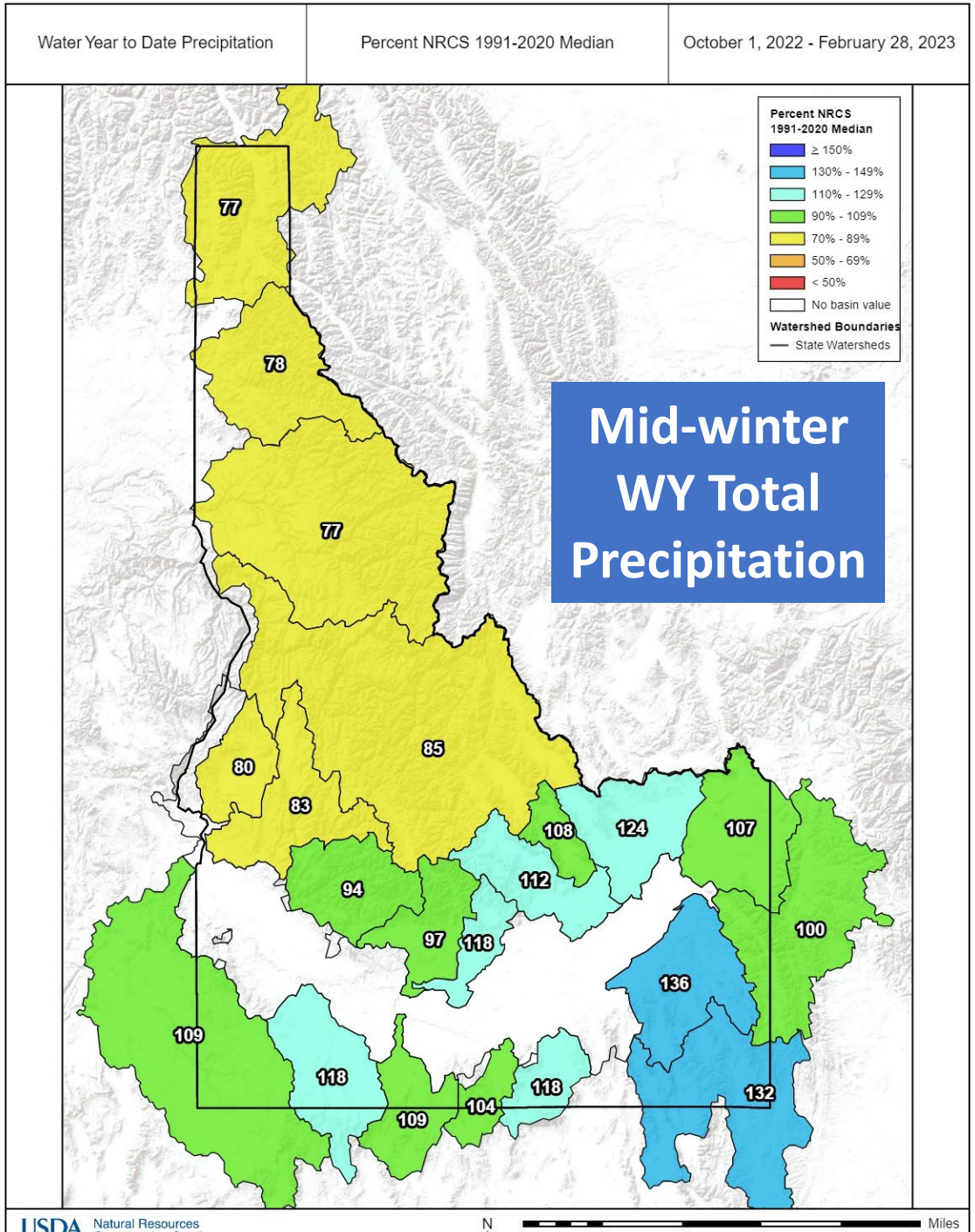




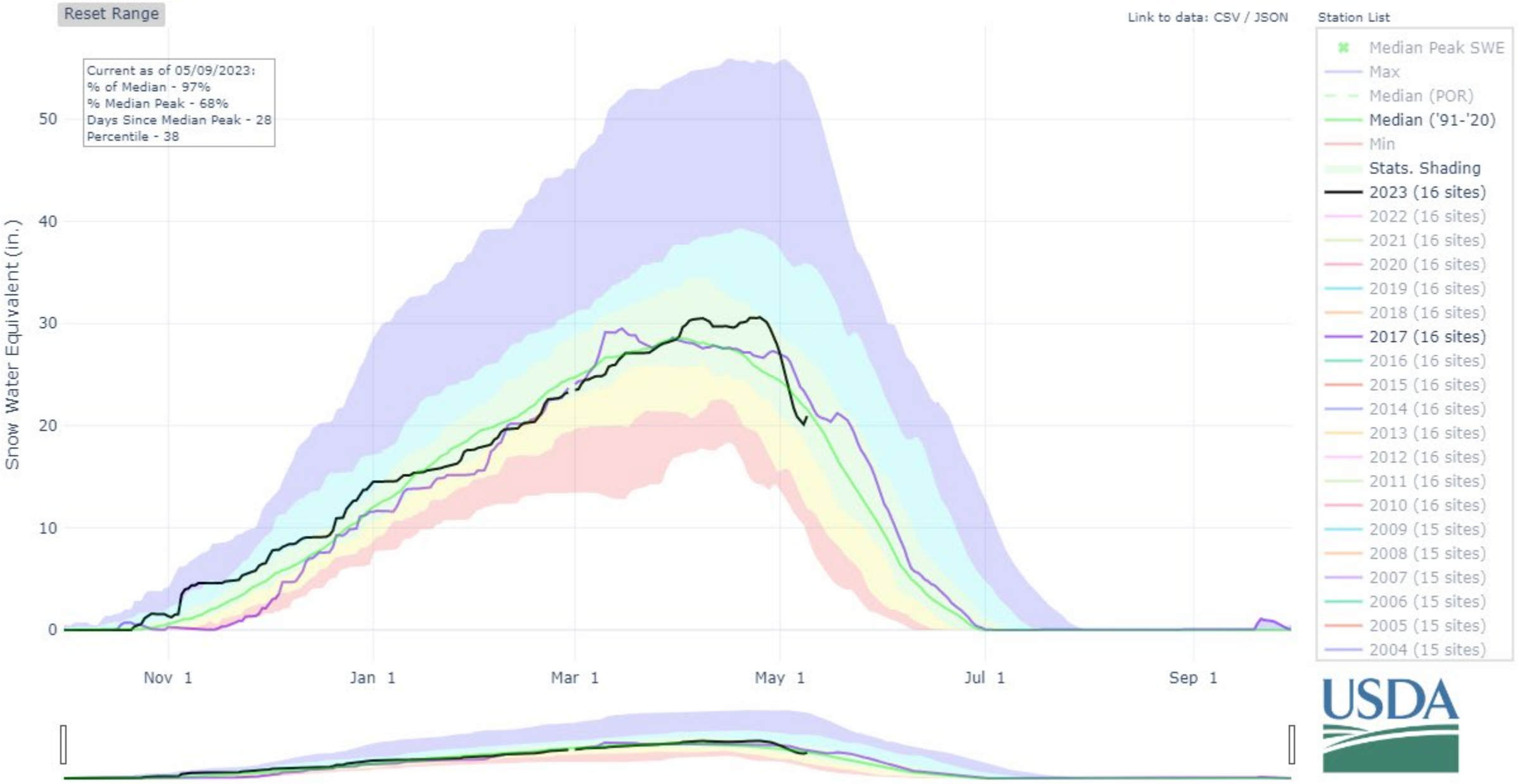
Snow Water Equivalent	POR Median Departure	May 9, 2023, first of day



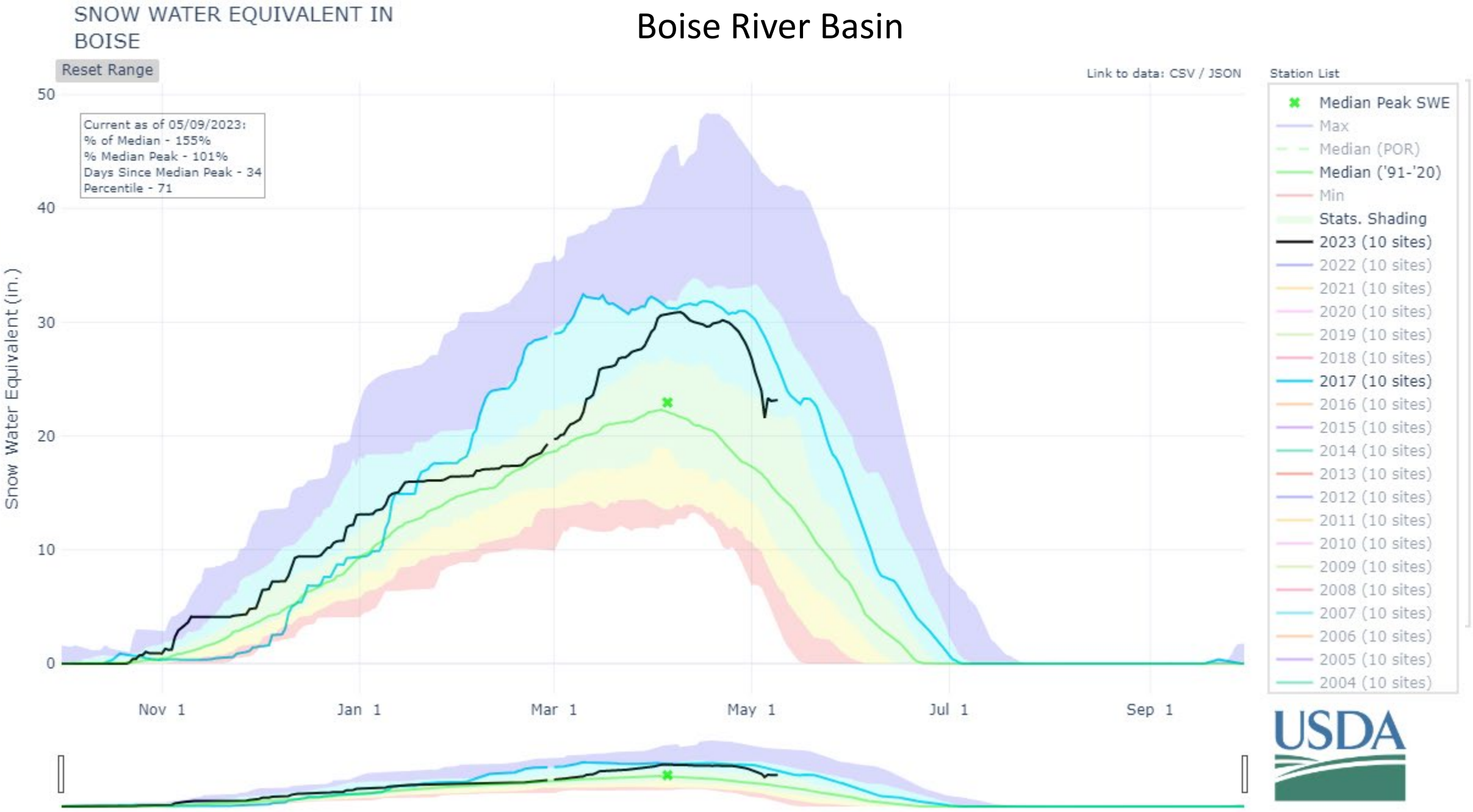

Water Year to Date Precipitation
Percent NRCS 1991-2020 Median
October 1, 2022 - May 8, 2023
Percent NRCS 1991-2020 Median
≥ 150%
130% - 149%
110% - 129%
90% - 109%
70% - 89%
50% - 69%
< 50%
No basin value
Watershed Boundaries
State Watersheds
Spring WY Total Precipitation
82
80
80
100
98
98
121
124
114
112
129
117
102
133
143
114
119
114
114
133
140
USDA Natural Resources
N
Miles


Water Year to Date Precipitation
Percent NRCS 1991-2020 Median
October 1, 2022 - February 28, 2023
Percent NRCS 1991-2020 Median
≥ 150%
130% - 149%
110% - 129%
90% - 109%
70% - 89%
50% - 69%
< 50%
No basin value
Watershed Boundaries
State Watersheds
Mid-winter WY Total Precipitation
77
78
77
85
80
83
108
124
107
94
112
97
118
100
136
109
118
118
104
109
132
USDA Natural Resources
N
Miles

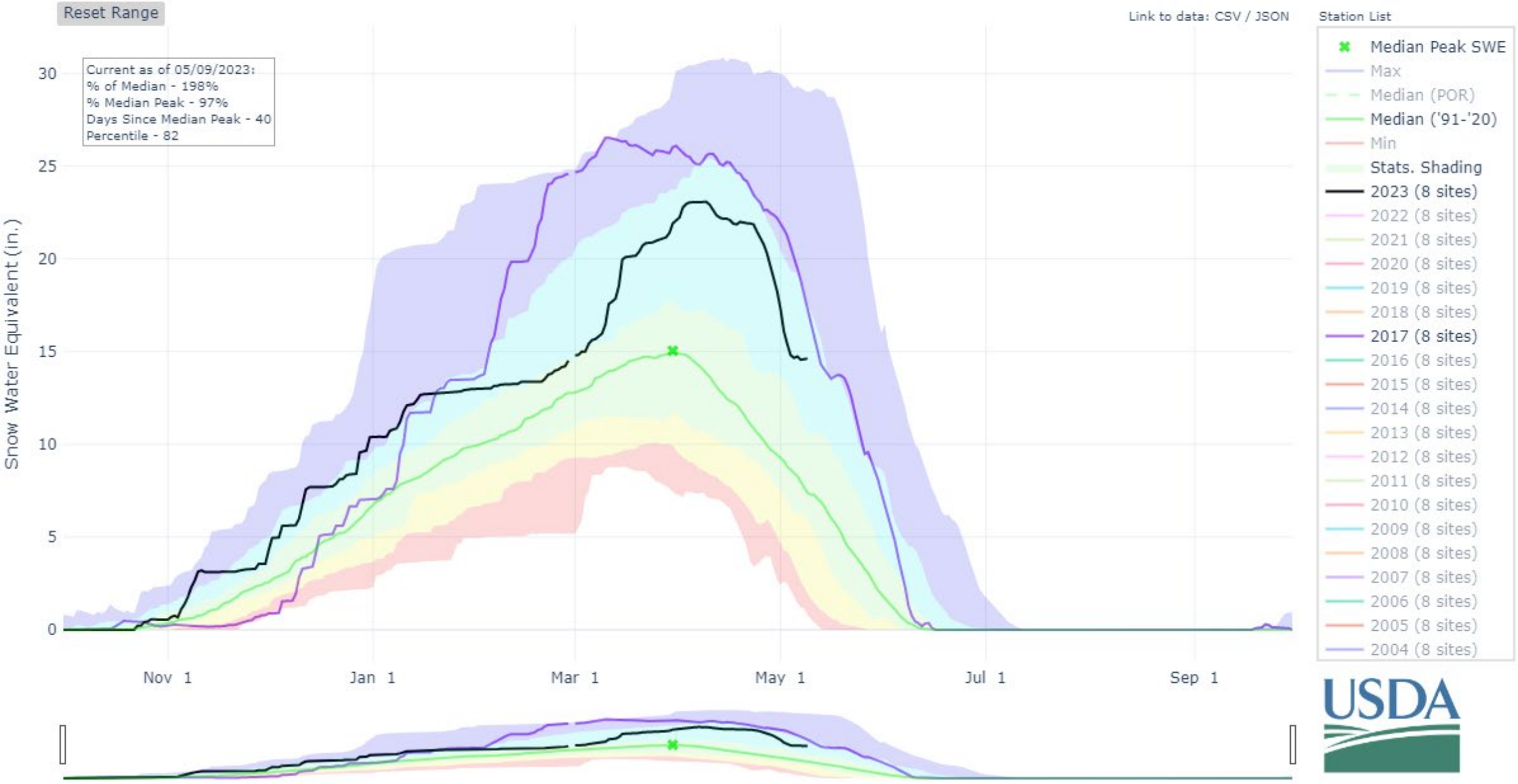
SNOW WATER EQUIVALENT IN CLEARWATER



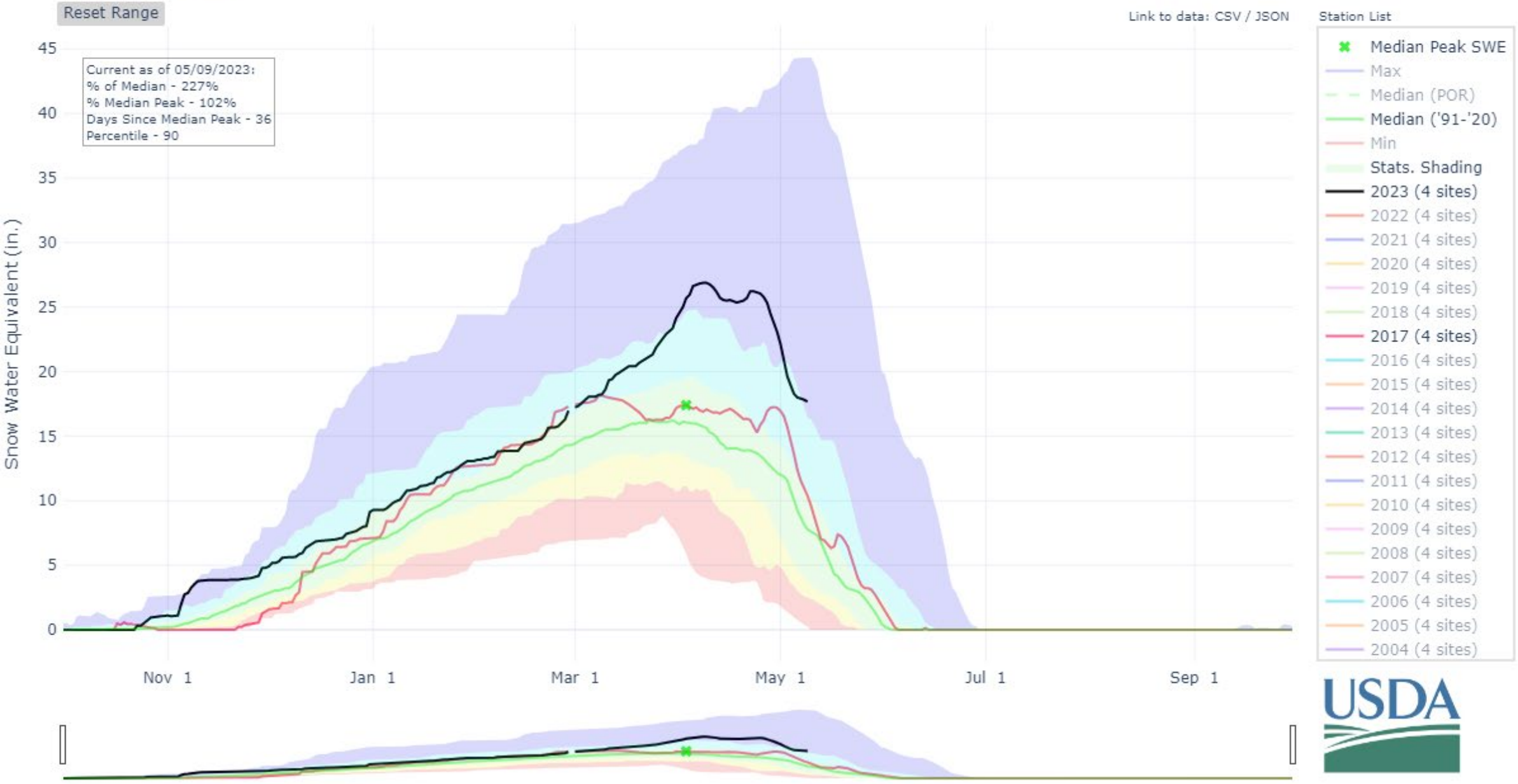
Boise River Basin

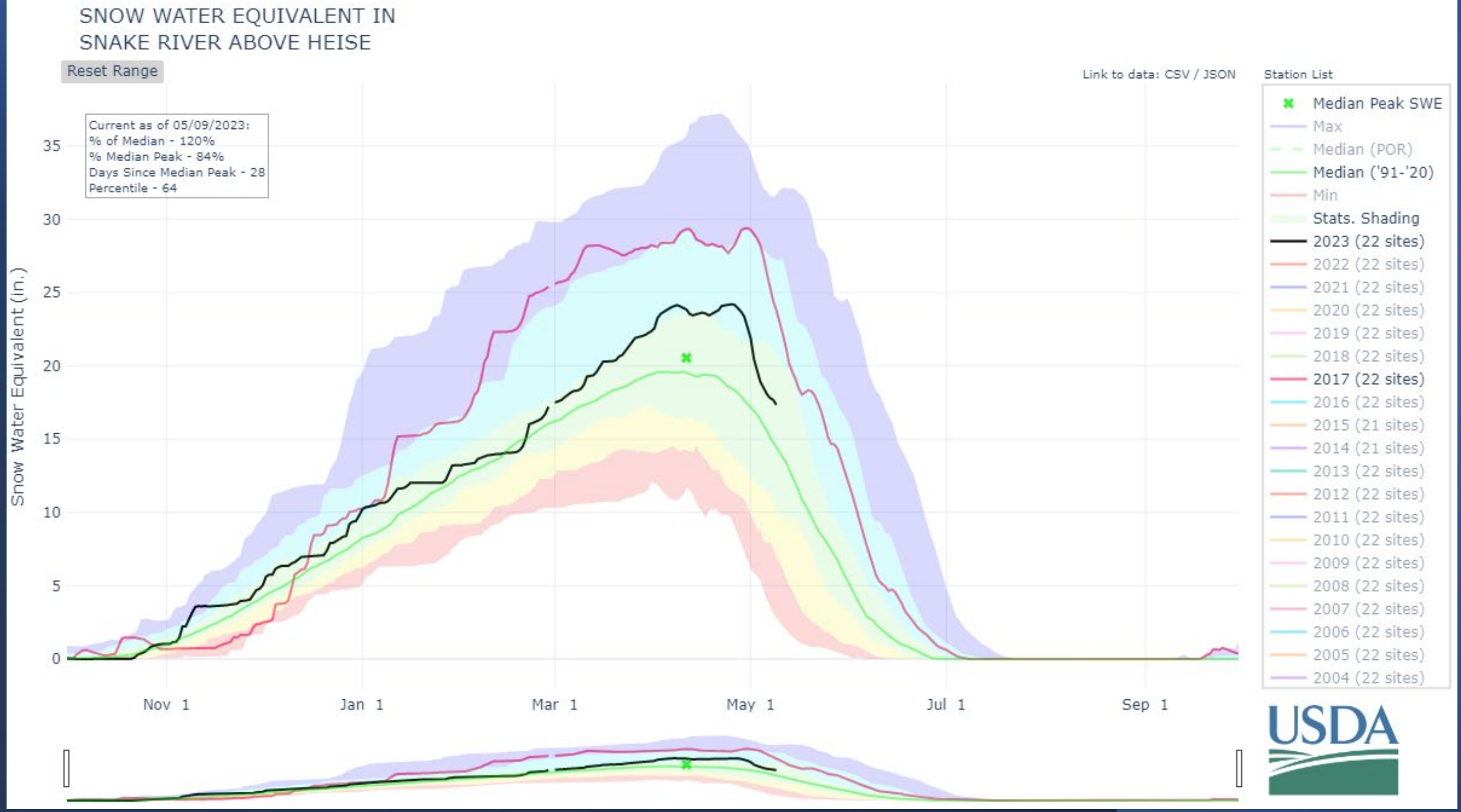


SNOW WATER EQUIVALENT IN BIG WOOD

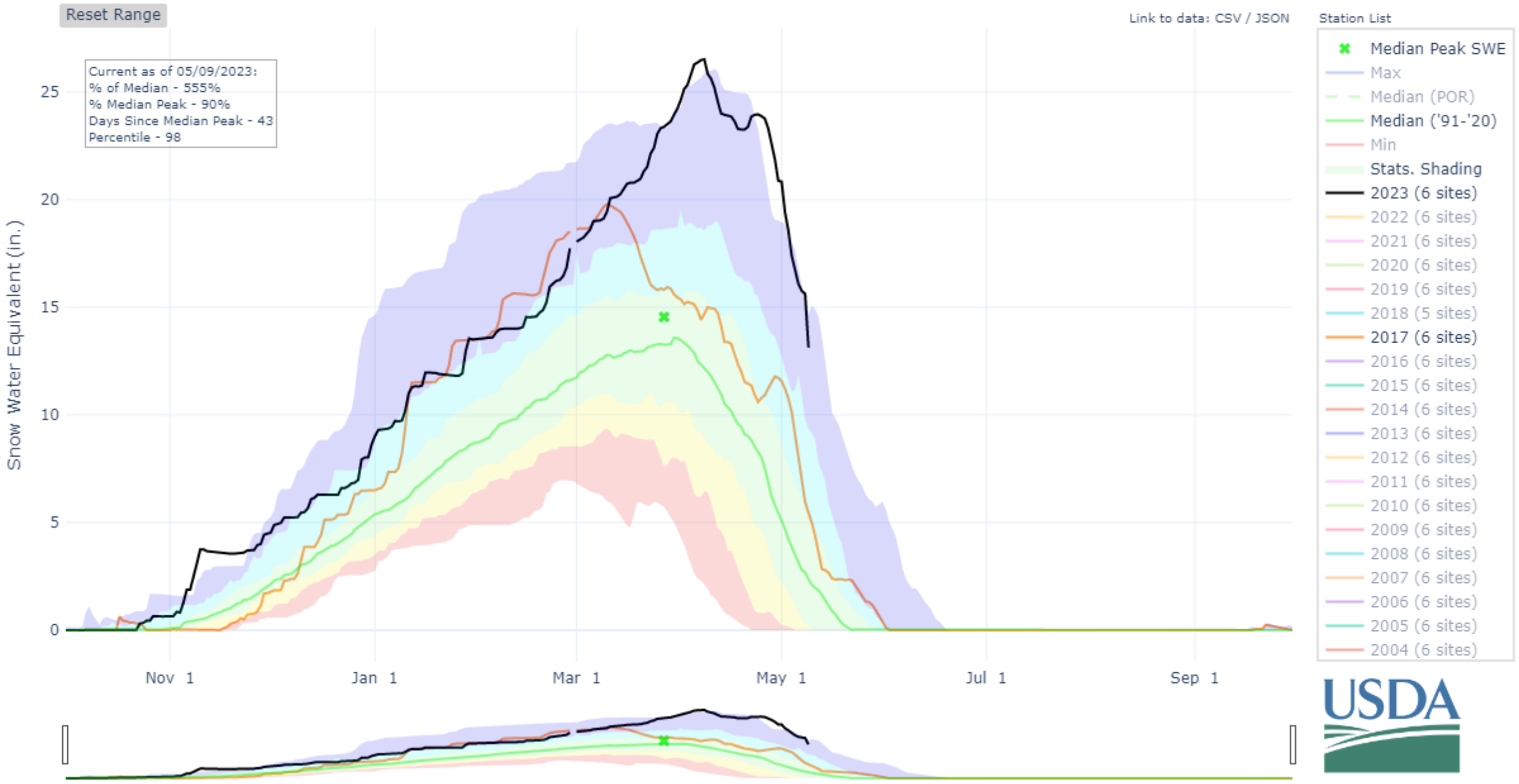


SNOW WATER EQUIVALENT IN SALMON FALLS



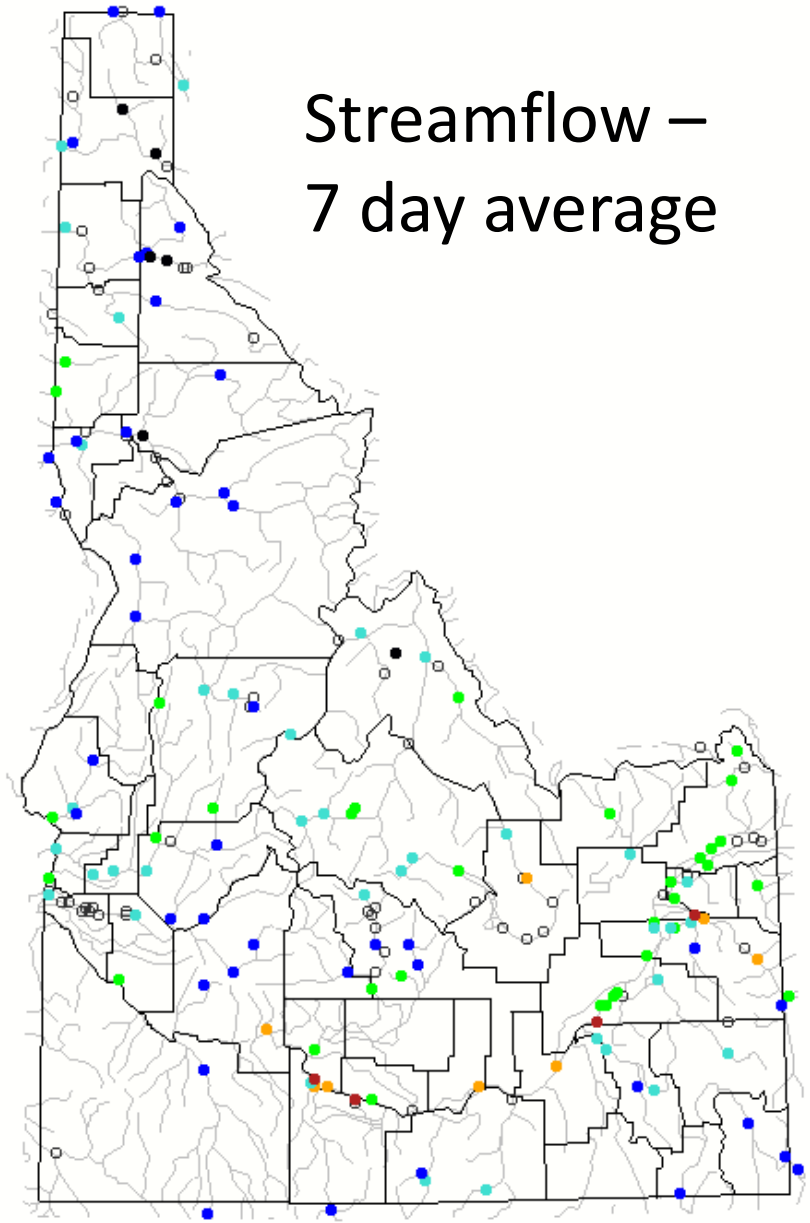

SNOW WATER EQUIVALENT IN
SNAKE RIVER ABOVE HEISE
Reset Range
Link to data: CSV / JSON
Station List
Current as of 05/09/2023:
% of Median - 120%
% Median Peak - 84%
Days Since Median Peak - 28
Percentile - 64
Snow Water Equivalent (in.)
35
30
25
20
15
10
5
0
Nov 1
Jan 1
Mar 1
May 1
Jul 1
Sep 1
Median Peak SWE
Max
Median (POR)
Median ('91-'20)
Min
Stats. Shading
2023 (22 sites)
2022 (22 sites)
2021 (22 sites)
2020 (22 sites)
2019 (22 sites)
2018 (22 sites)
2017 (22 sites)
2016 (22 sites)
2015 (21 sites)
2014 (21 sites)
2013 (22 sites)
2012 (22 sites)
2011 (22 sites)
2010 (22 sites)
2009 (22 sites)
2008 (22 sites)
2007 (22 sites)
2006 (22 sites)
2005 (22 sites)
2004 (22 sites)
USDA

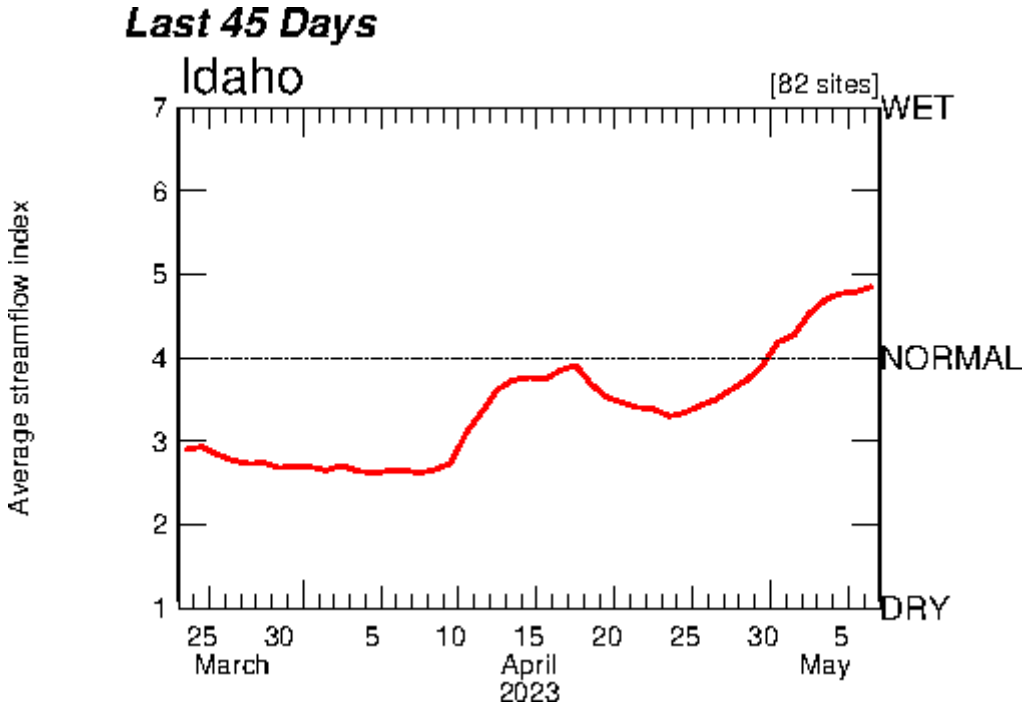
SNOW WATER EQUIVALENT IN WILLOW-BLACKFOOT-PORTNEUF



Monday, May 08, 2023

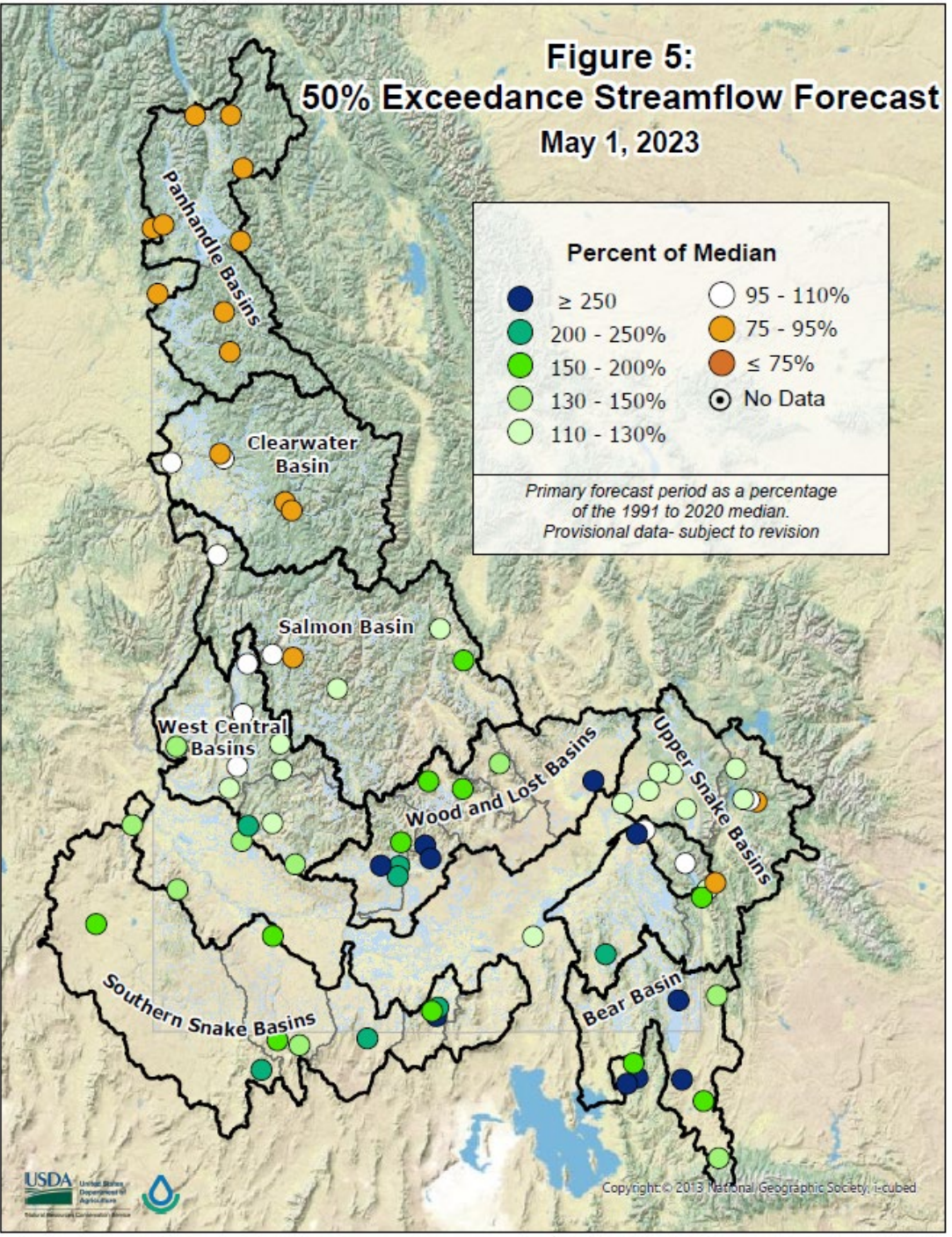
Streamflow – 7 day average





Explanation - Percentile classes							
Low	<10	10-24	25-75	76-90	>90	High	Not-ranked
	Much below normal	Below normal	Normal	Above normal	Much above normal		

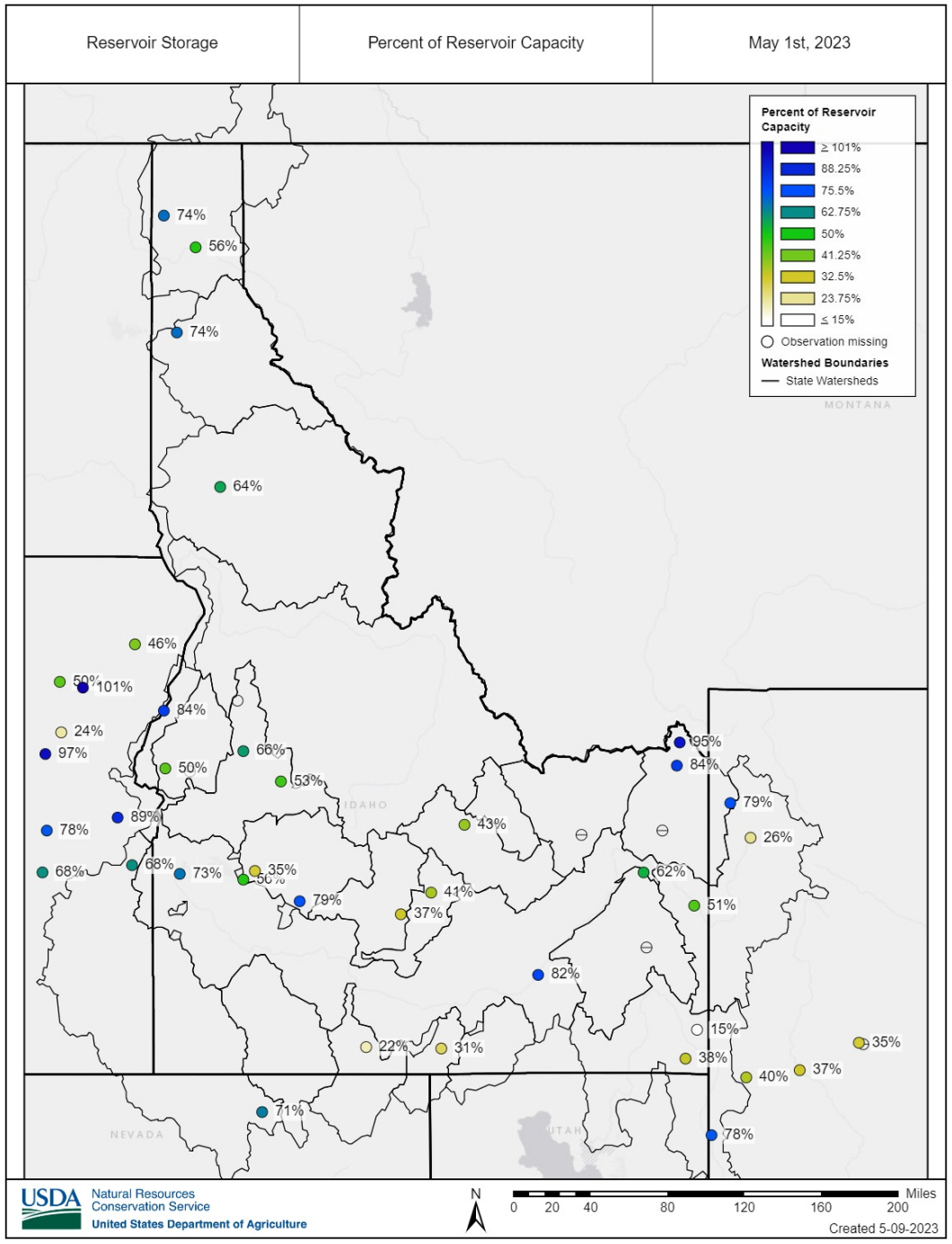
USGS



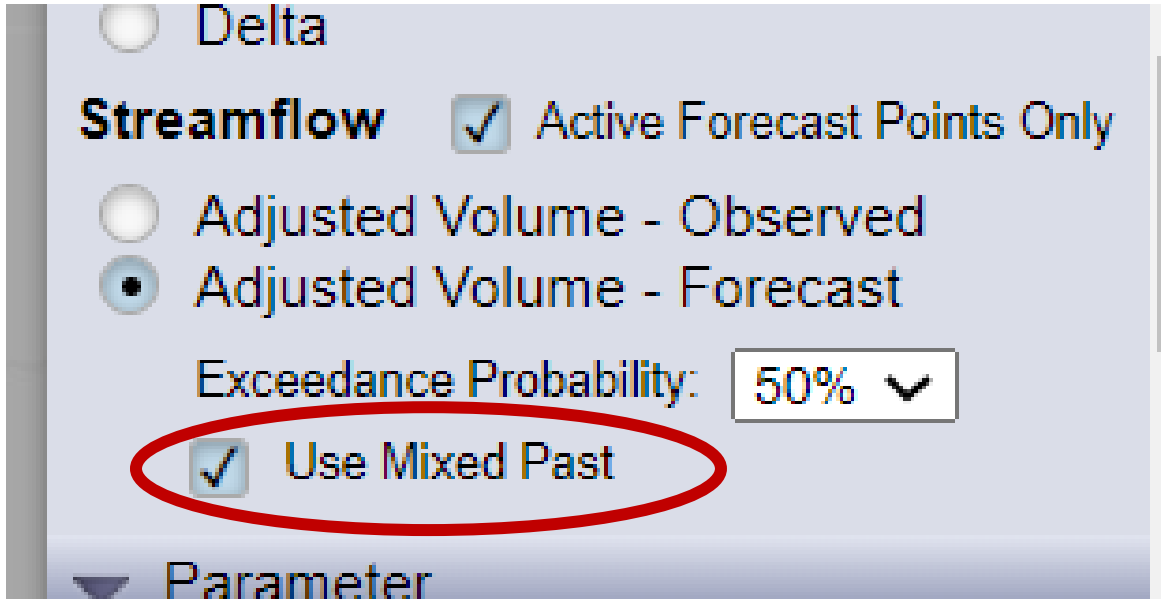
Streamflow Forecasts

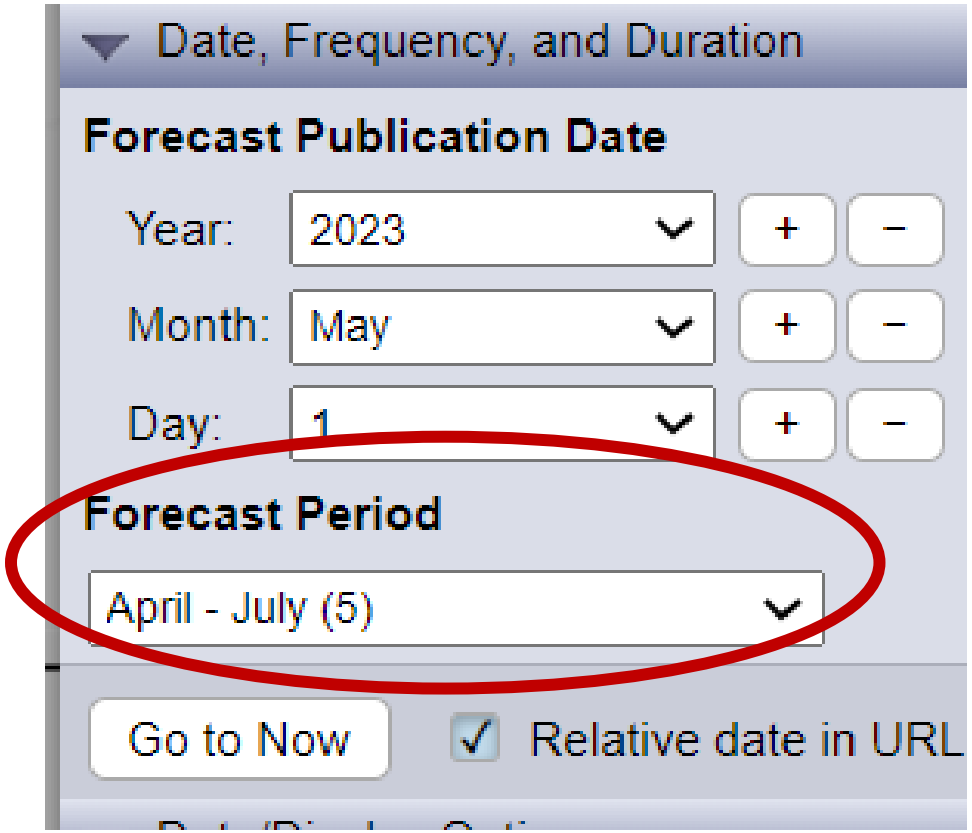
&

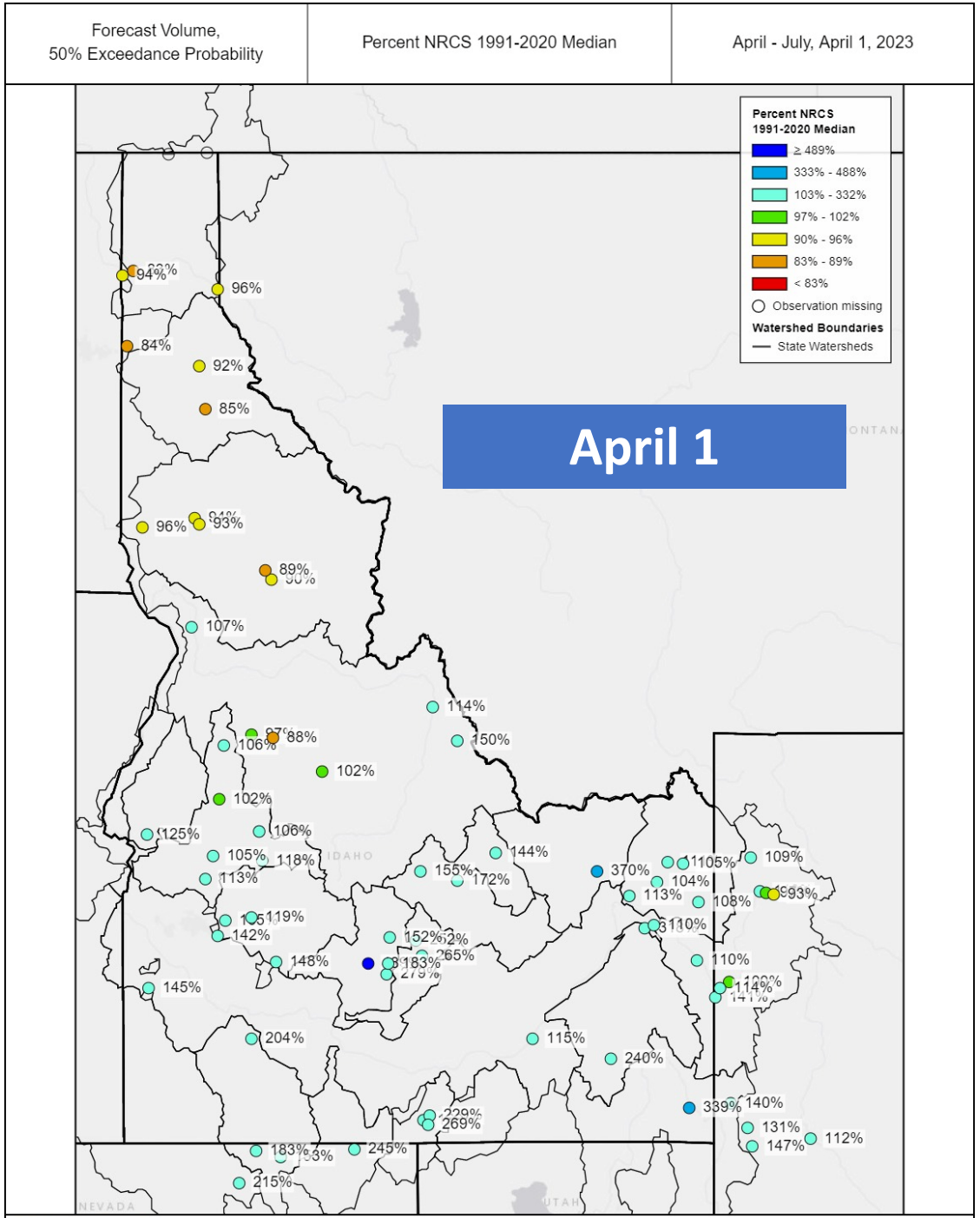
Reservoir Storage

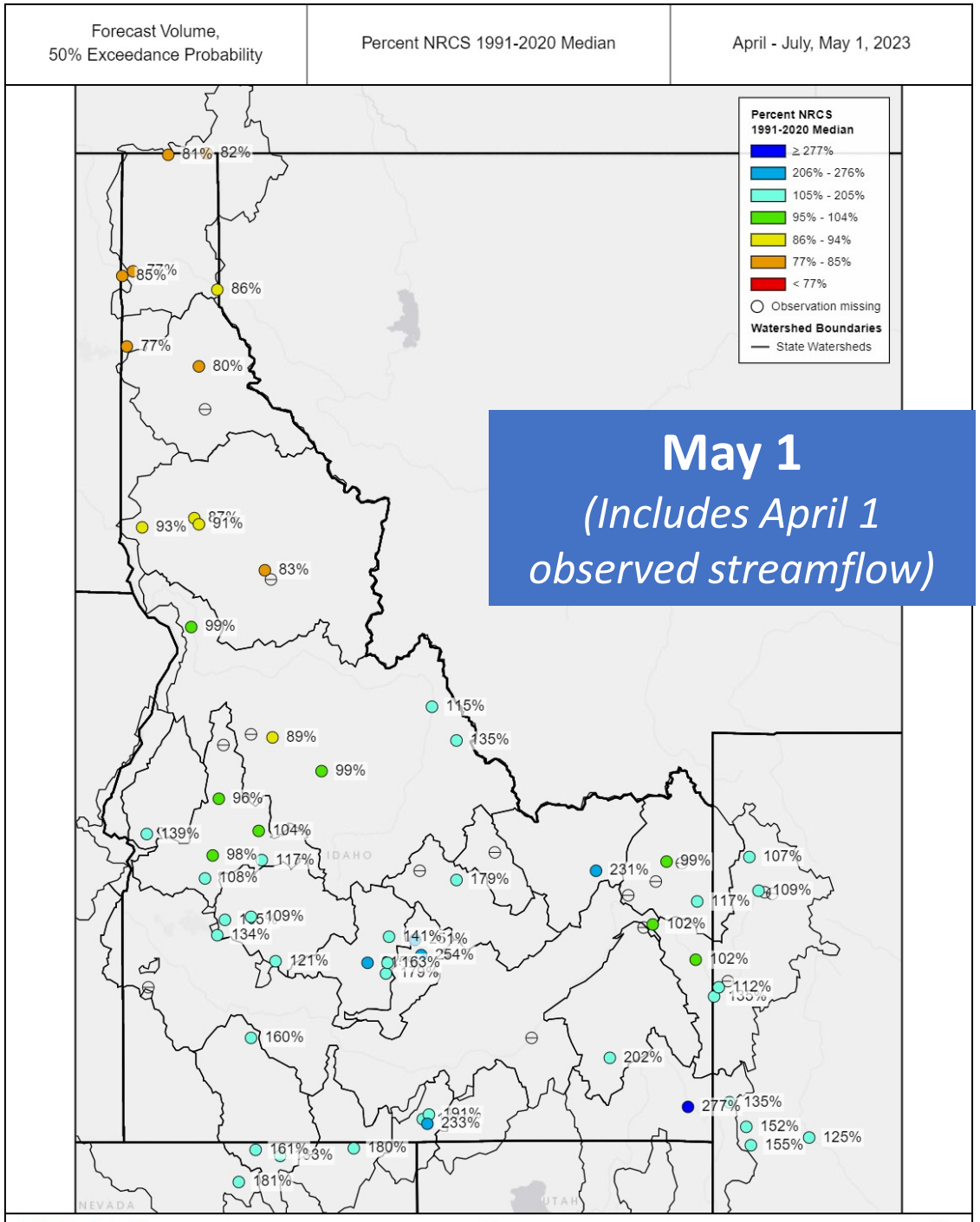


Comparing streamflow forecasts on Imap…






Forecast Volume,
50% Exceedance Probability
Percent NRCS 1991-2020 Median
April - July, April 1, 2023
Percent NRCS
1991-2020 Median
≥ 489%
333% - 488%
103% - 332%
97% - 102%
90% - 96%
83% - 89%
< 83%
Observation missing
Watershed Boundaries
State Watersheds
April 1
IDAHO
NEVADA
UTAH


Forecast Volume,
50% Exceedance Probability
Percent NRCS 1991-2020 Median
April - July, May 1, 2023
Percent NRCS
1991-2020 Median
≥ 277%
206% - 276%
105% - 205%
95% - 104%
86% - 94%
77% - 85%
< 77%
Observation missing
Watershed Boundaries
State Watersheds
May 1
(Includes April 1
observed streamflow)
IDAHO
NEVADA
UTAH

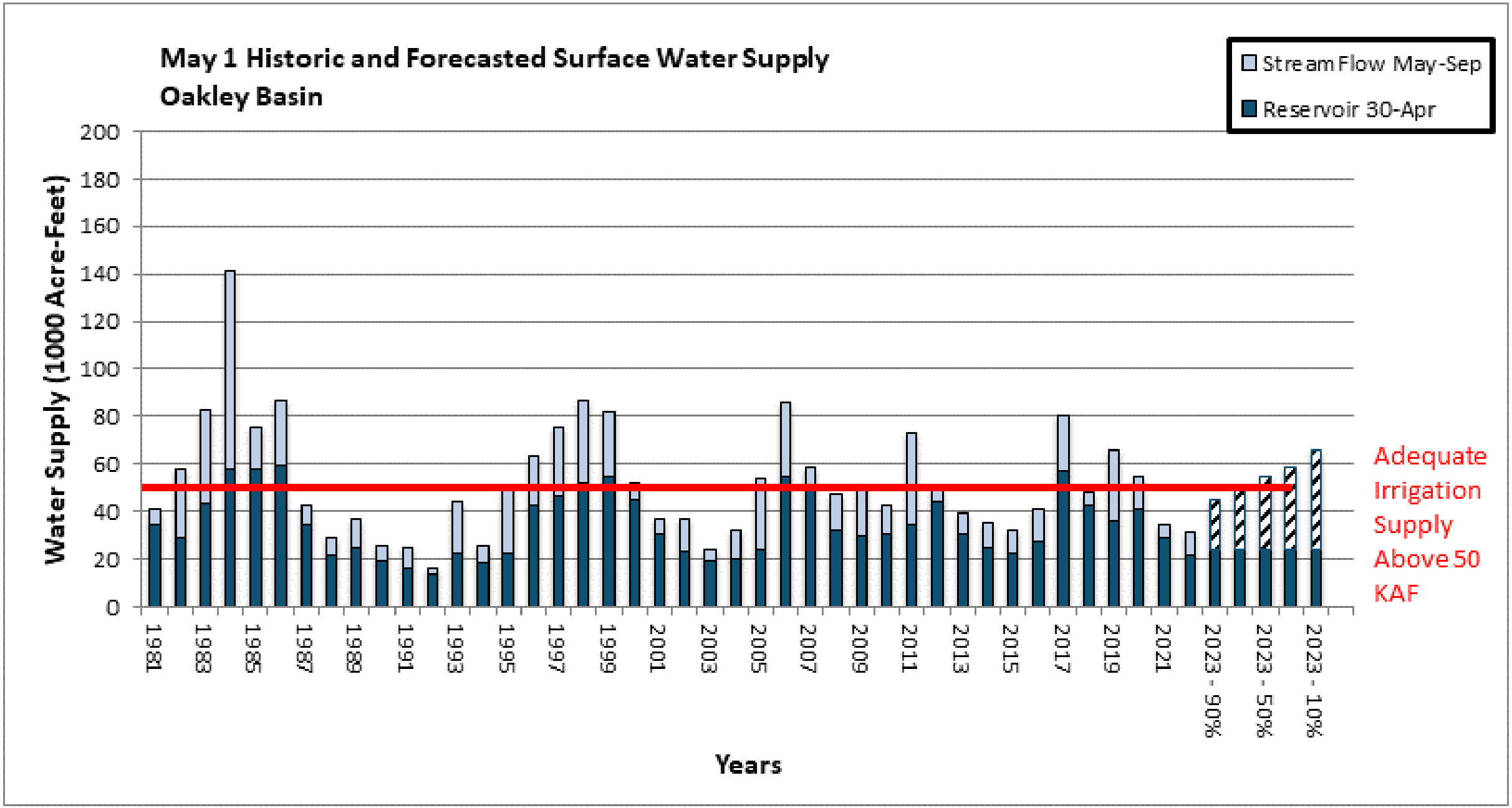
BASIN or REGION	SWSI Value	Most Recent Year With Similar SWSI Value	Agricultural Water Supply Shortage May Occur When SWSI is Less Than
Spokane	-0.8	2004	NA
Clearwater	-1.5	2013	NA
Salmon	1.0	2013	NA
Weiser	1.8	2010	NA
Payette	1.0	2019	NA
Boise	1.5	2012	- 2.7
Big Wood above Hailey	2.3	1993	NA
Big Wood	1.3	2018	0.6
Camas Creek nr Blaine	3.0	2006	NA
Little Wood	4.0	1995	- 1.6
Big Lost	3.0	2006	0.1
Little Lost	2.3	1999	1.6
Teton	1.0	2014	- 3.9
Henrys Fork	1.8	2017	- 2.9
Snake (Heise)	-0.5	2012	- 1.1
Oakley	1.8	2007	0.4
Salmon Falls above Jackpot	3.3	1998	NA
Salmon Falls	0.8	2020	- 0.6
Bruneau	2.5	1997	NA
Owyhee	0.8	2000	- 0.9
Bear River	1.0	2021	- 3.9

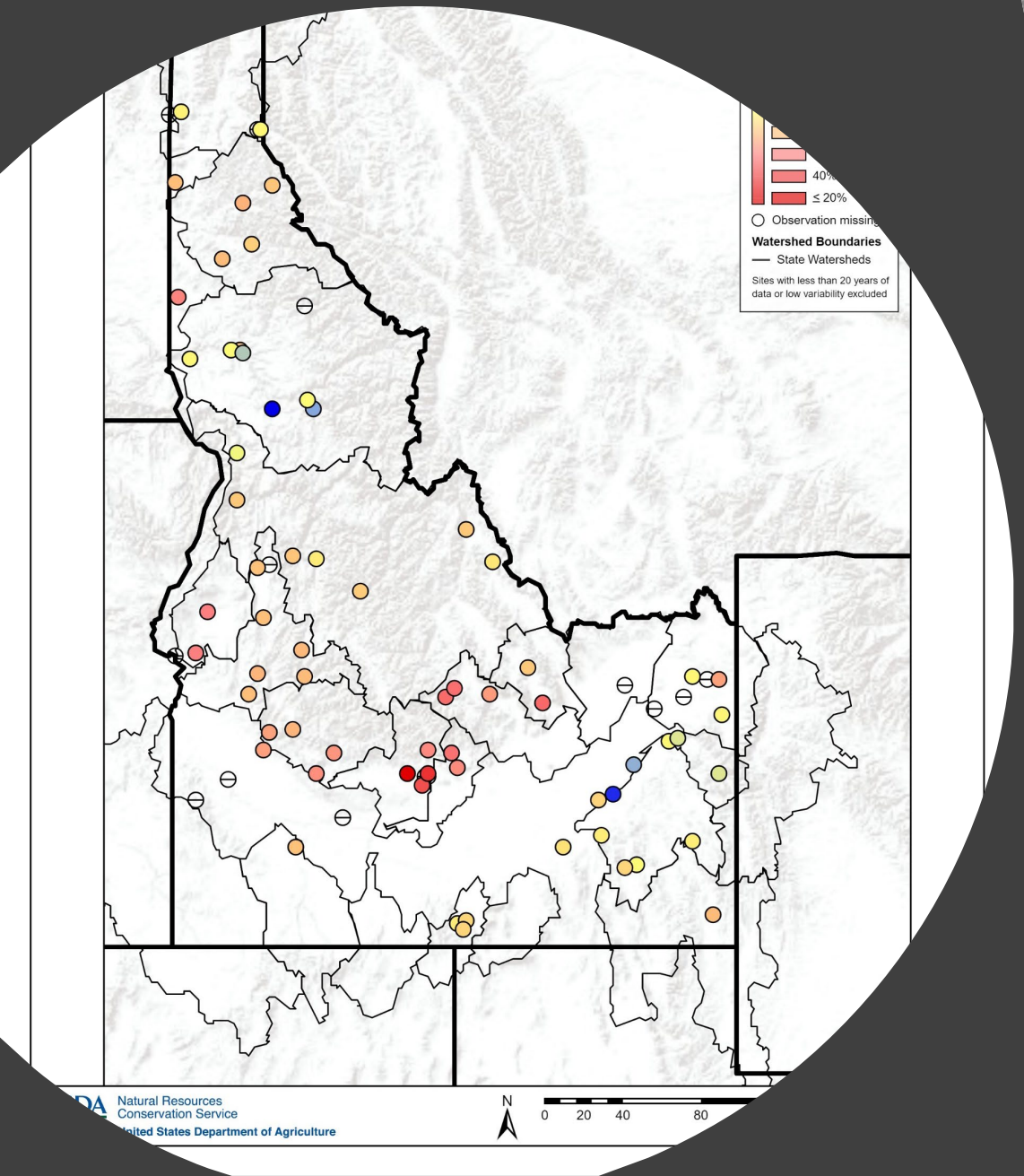
SWSI SCALE, PERCENT CHANCE OF EXCEEDANCE, AND INTERPRETATION

```
-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 |
-------------------------------------------------------------------
```

Water supply looks good across the state despite decreases in streamflow forecasts from April to May

- Water supply could be a little tight in Oakley/Goose Creek Basin if 70% or 90% (drier) forecasts come to fruition
- Stay tuned for BOR presentation on whether Upper Snake System is expected to fill.


May 1 Historic and Forecasted Surface Water Supply
Oakley Basin
Stream Flow May-Sep
Reservoir 30-Apr
Water Supply (1000 Acre-Feet)
200
180
160
140
120
100
80
60
40
20
0
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009
2011
2013
2015
2017
2019
2021
2023 - 90%
2023 - 50%
2023 - 10%
Years
Adequate Irrigation Supply Above 50 KAF

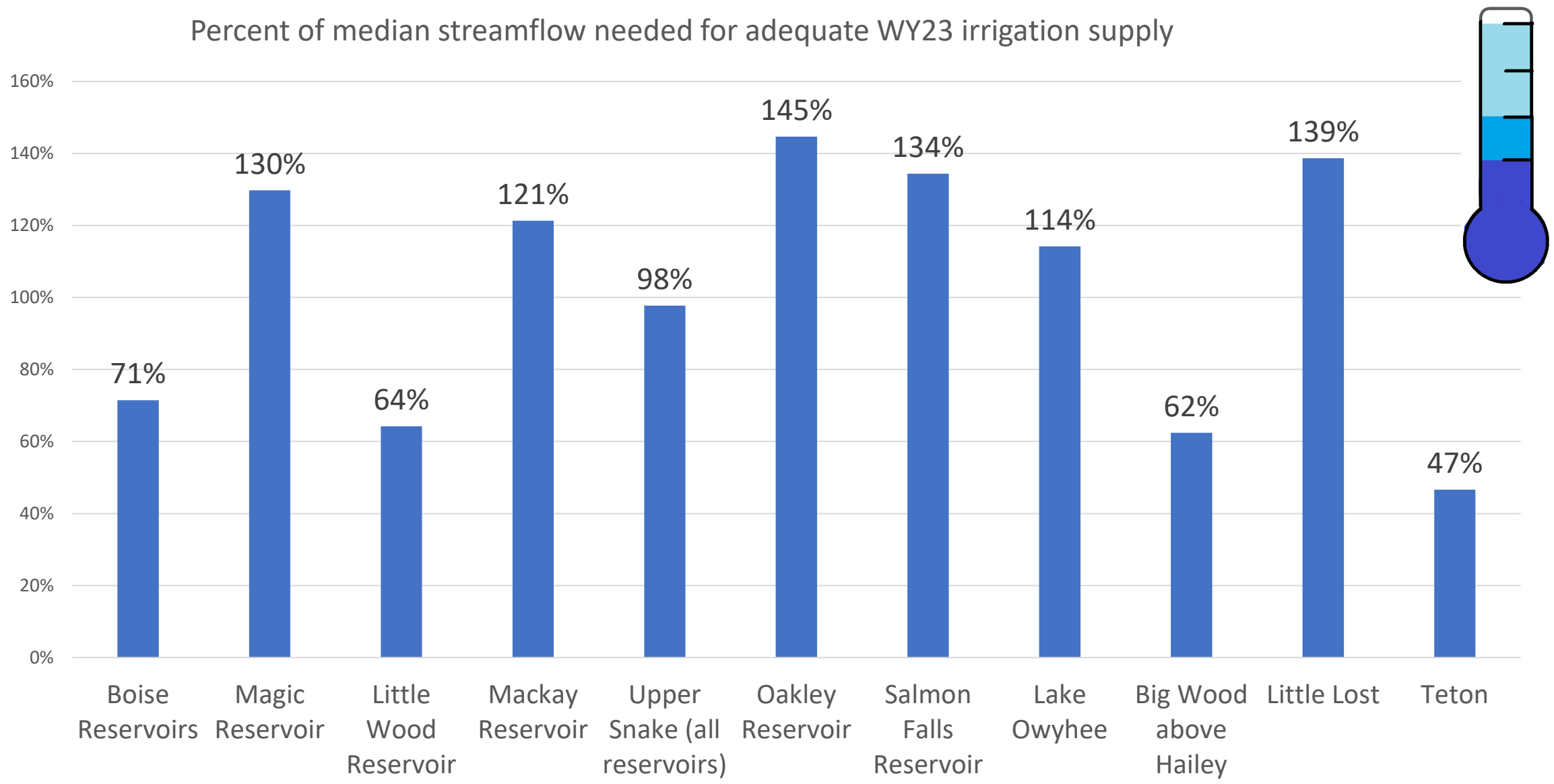


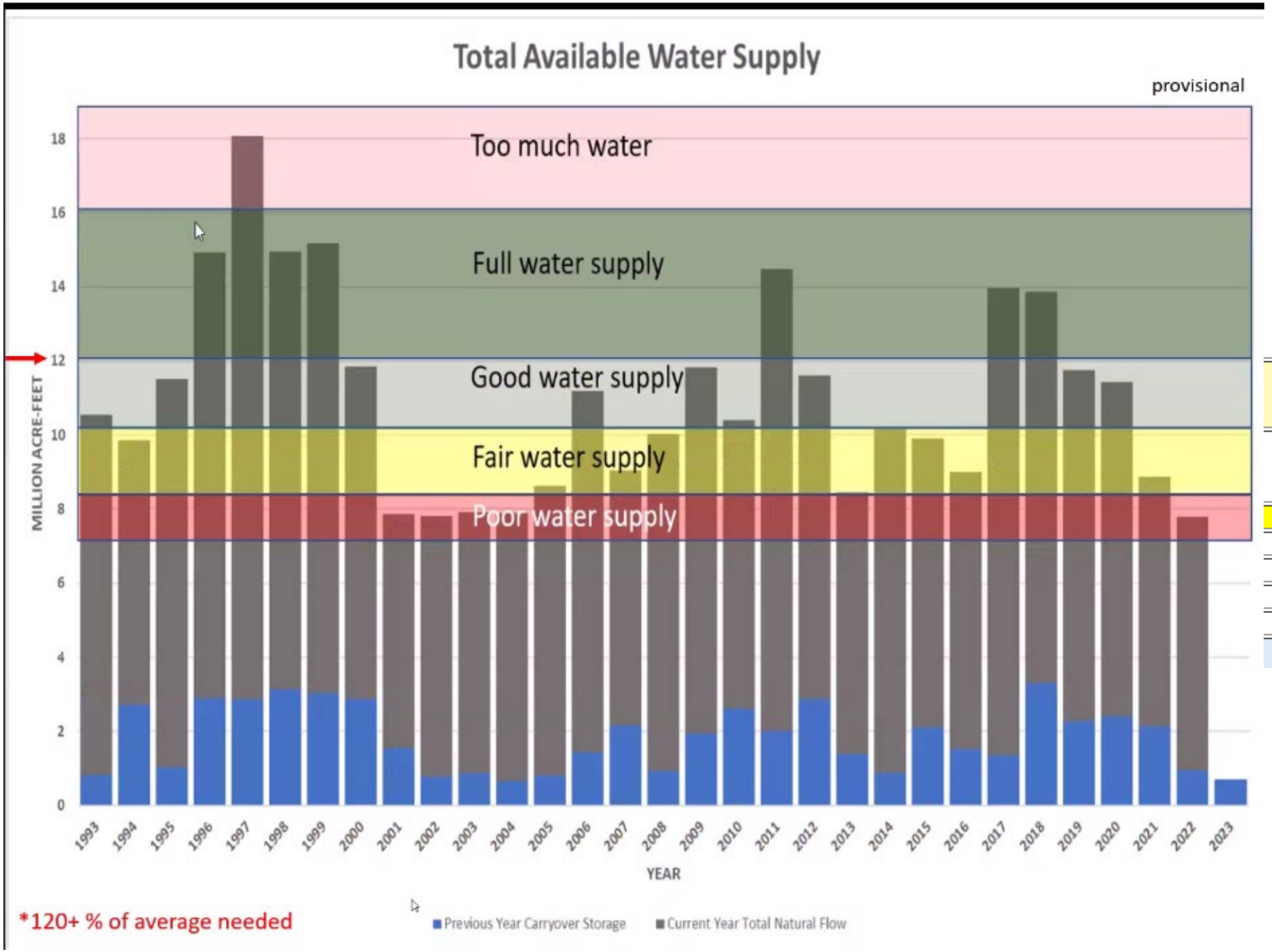
Thank you!

Idaho Snow Survey - NRCS

Erin Whorton
erin.whorton@usda.gov
208-685-6983

NRCS


Percent of median streamflow needed for adequate WY23 irrigation supply
160%
140%
120%
100%
80%
60%
40%
20%
0%
71%
130%
64%
121%
98%
145%
134%
114%
62%
139%
47%
Boise Reservoirs
Magic Reservoir
Little Wood Reservoir
Mackay Reservoir
Upper Snake (all reservoirs)
Oakley Reservoir
Salmon Falls Reservoir
Lake Owyhee
Big Wood above Hailey
Little Lost
Teton



Storage = 2.54 MAF
Forecast @ Milner = 6.567 MAF
Total = 9.11 MAF

Natural Forecast

ESP with 10 Days QPF ***Ensemble: 2023-05-09 Issue***

Forecast Period	Forecasts Are in KAF			
	90 %	50 %	% Average	10 %
APR-SEP	6216	6567	106	7281
APR-JUL	5206	5572	106	6177
JAN-SEP	6985	7336	102	8050
JAN-JUL	5974	6341	101	6945
OCT-SEP	7825	8176	99	8890

Experimental