Snowpack & Streamflow Forecast Update

Presented by: Erin Whorton
NRCS Snow Survey: 2024

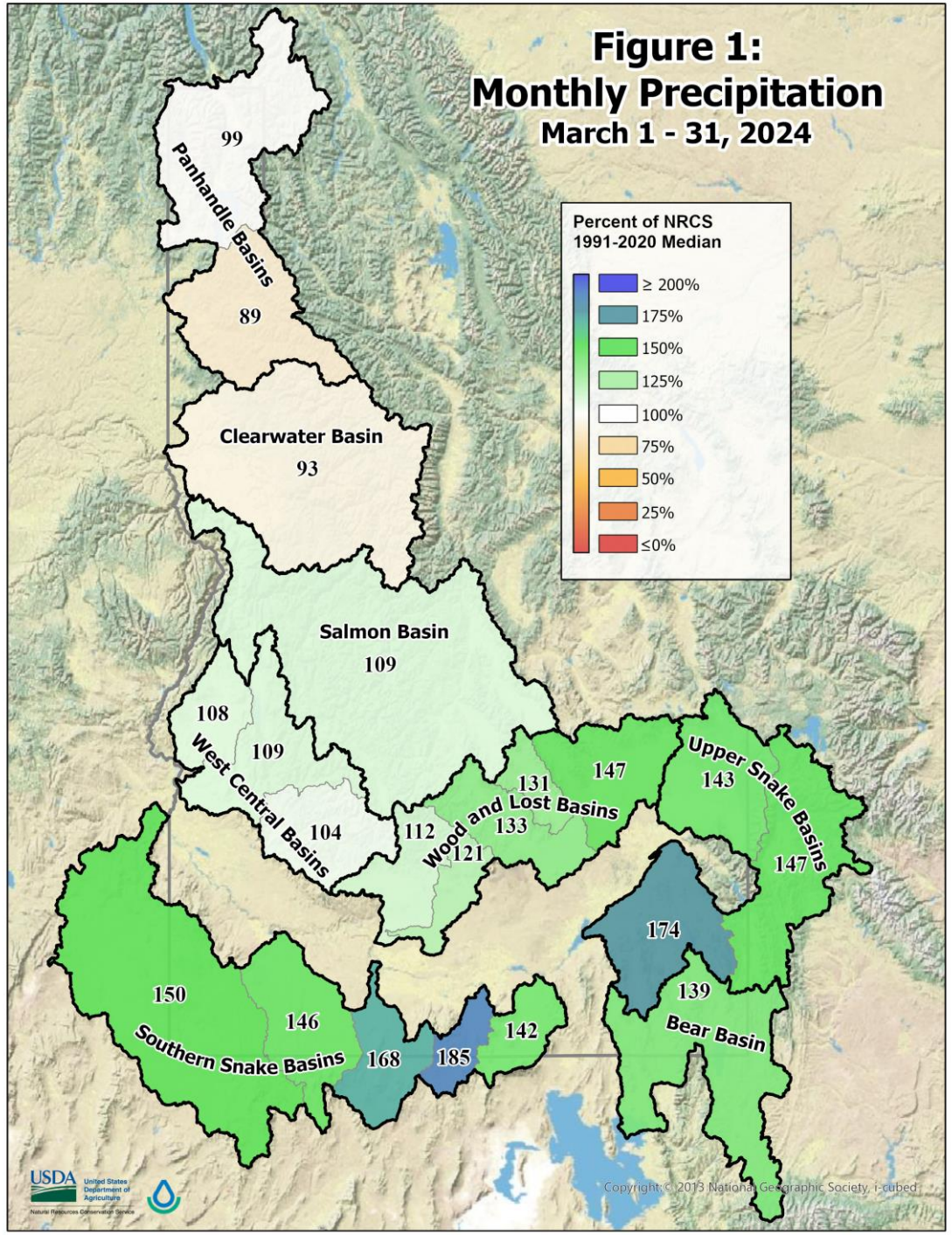
Figure 1:
Monthly Precipitation
March 1 - 31, 2024
Percent of NRCS
1991-2020 Median
≥ 200%
175%
150%
125%
100%
75%
50%
25%
≤0%
Panhandle Basins
99
89
Clearwater Basin
93
Salmon Basin
109
108
109
West Central Basins
104
112
Wood and Lost Basins
131
133
121
147
Upper Snake Basins
143
147
174
139
Bear Basin
150
146
Southern Snake Basins
168
185
142
USDA
United States Department of Agriculture
Natural Resources Conservation Service
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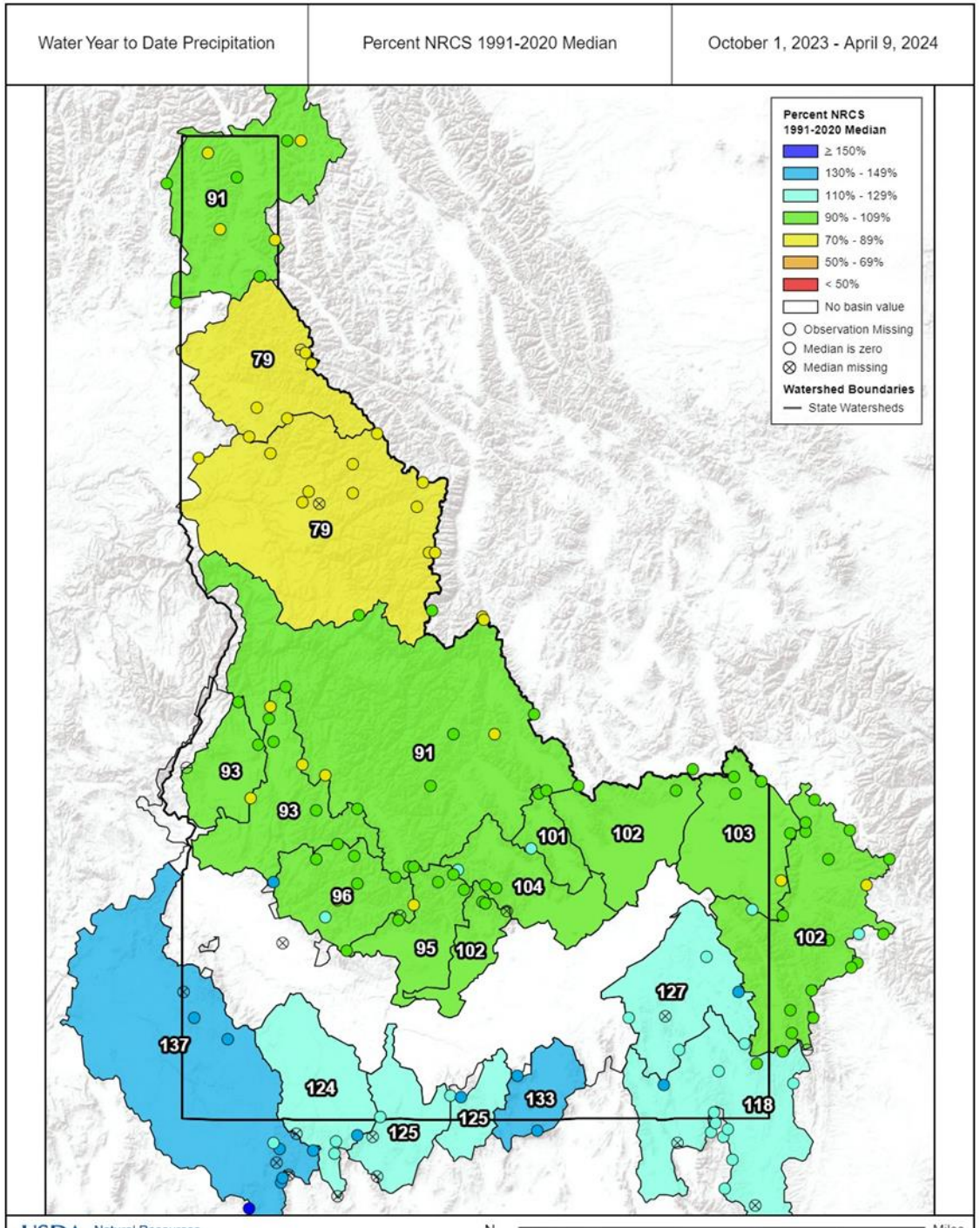
Water Year to Date Precipitation
Percent NRCS 1991-2020 Median
October 1, 2023 - April 9, 2024
Percent NRCS
1991-2020 Median
≥ 150%
130% - 149%
110% - 129%
90% - 109%
70% - 89%
50% - 69%
< 50%
No basin value
Observation Missing
Median is zero
Median missing
Watershed Boundaries
State Watersheds
91
79
79
93
91
93
101
102
103
96
104
95
102
102
127
137
124
125
125
133
118

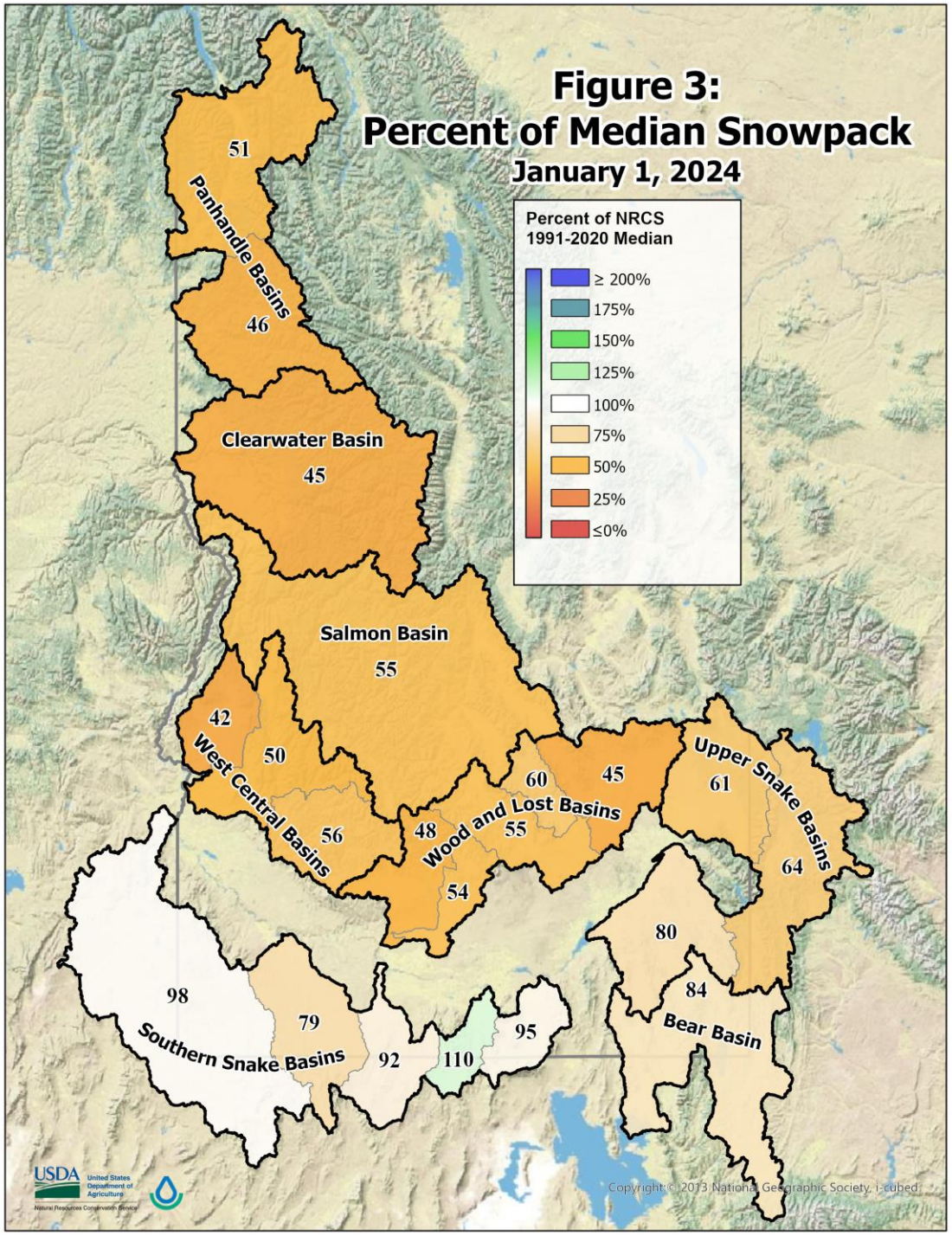
Figure 3:
Percent of Median Snowpack
January 1, 2024
Percent of NRCS
1991-2020 Median
≥ 200%
175%
150%
125%
100%
75%
50%
25%
≤0%
51
Panhandle Basins
46
Clearwater Basin
45
Salmon Basin
55
42
50
West Central Basins
56
48
Wood and Lost Basins
55
54
60
45
Upper Snake Basins
61
64
80
84
Bear Basin
98
79
Southern Snake Basins
92
110
95
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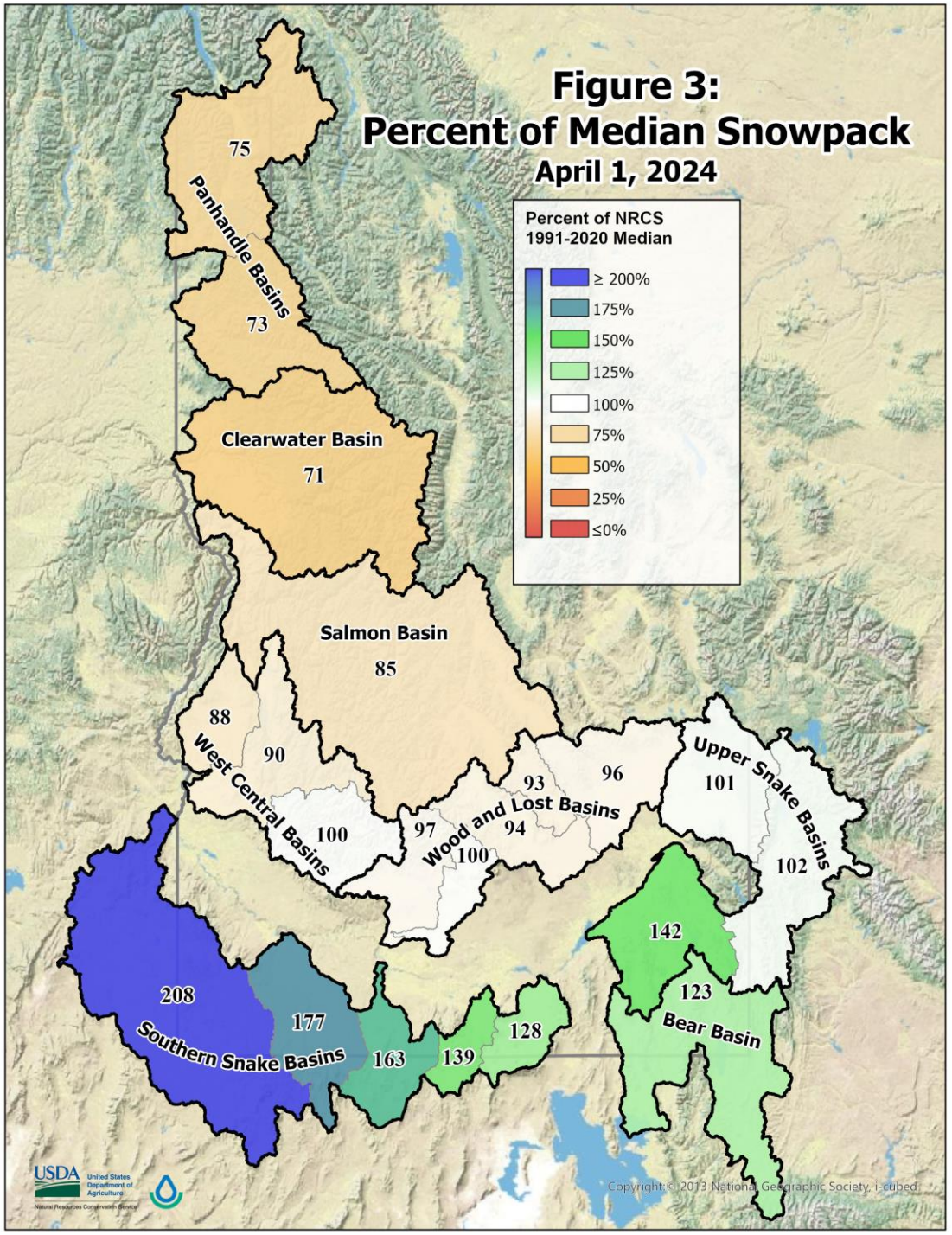
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75
Panhandle Basins
73
Clearwater Basin
71
Salmon Basin
85
88
90
West Central Basins
100
97
Wood and Lost Basins
100
94
93
96
Upper Snake Basins
101
102
142
123
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208
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163
139
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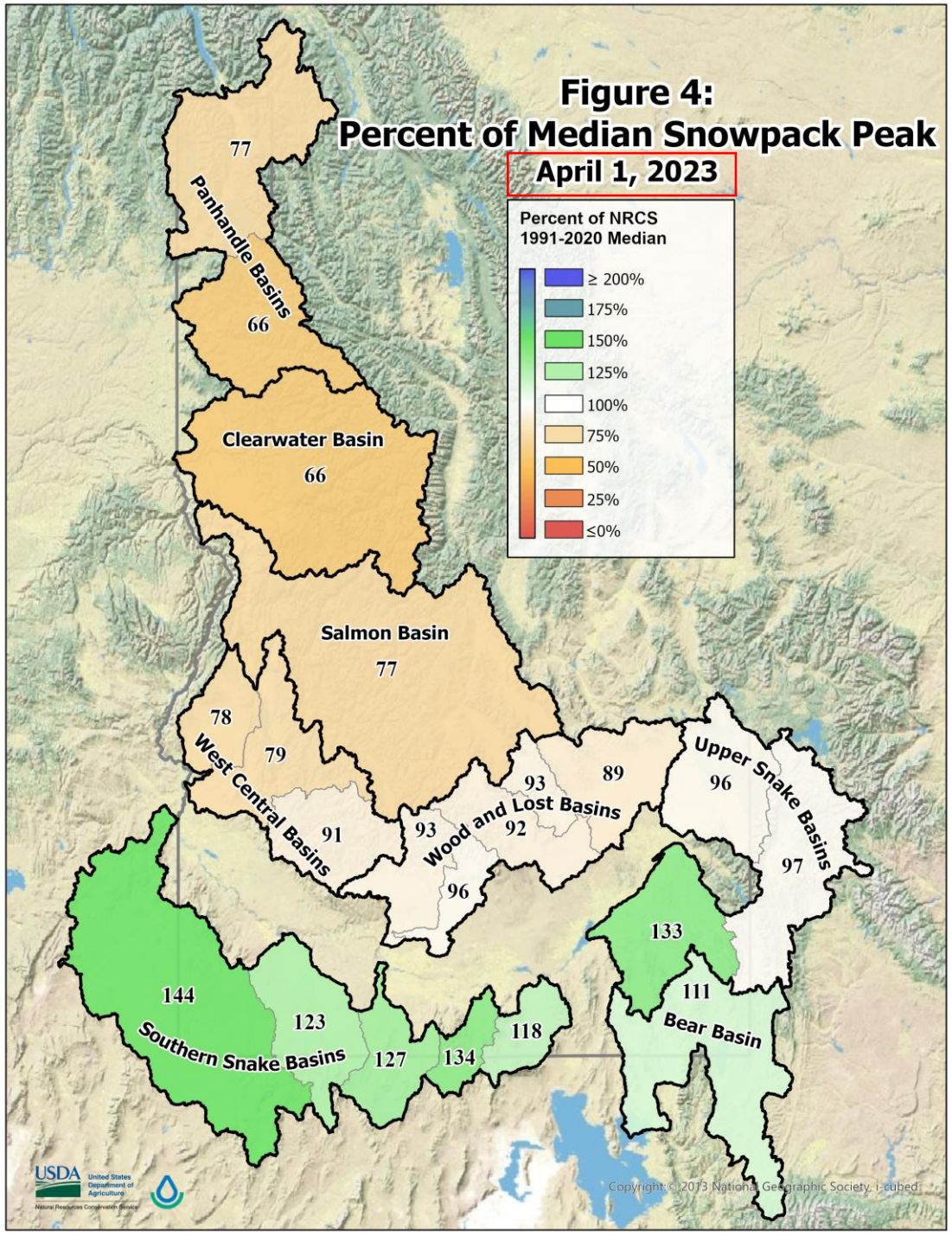
Figure 4:
Percent of Median Snowpack Peak
April 1, 2023
Percent of NRCS
1991-2020 Median
≥ 200%
175%
150%
125%
100%
75%
50%
25%
≤0%
Panhandle Basins
77
66
Clearwater Basin
66
Salmon Basin
77
78
79
West Central Basins
91
93
Wood and Lost Basins
92
93
89
96
Upper Snake Basins
96
97
133
111
Bear Basin
144
Southern Snake Basins
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118
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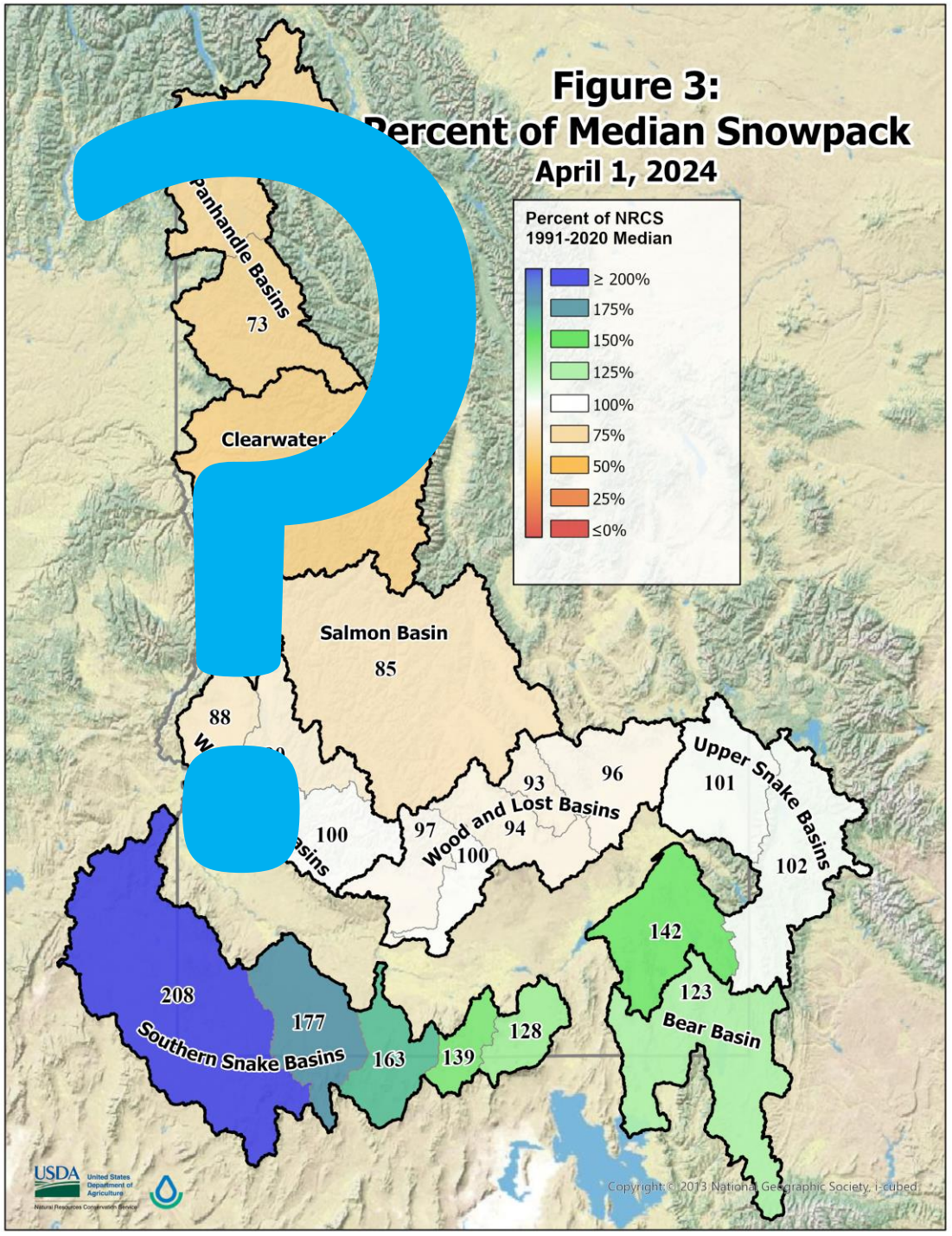
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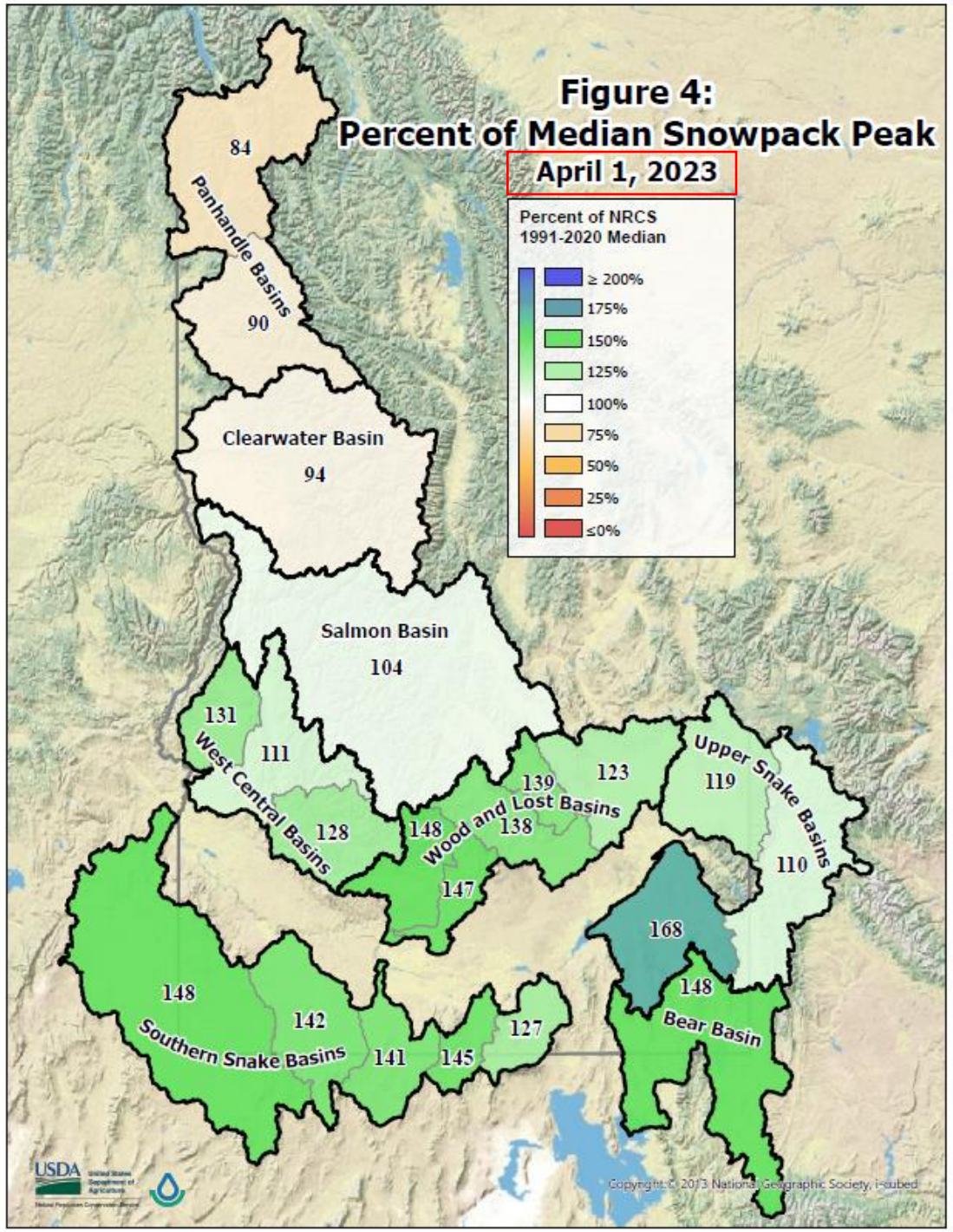
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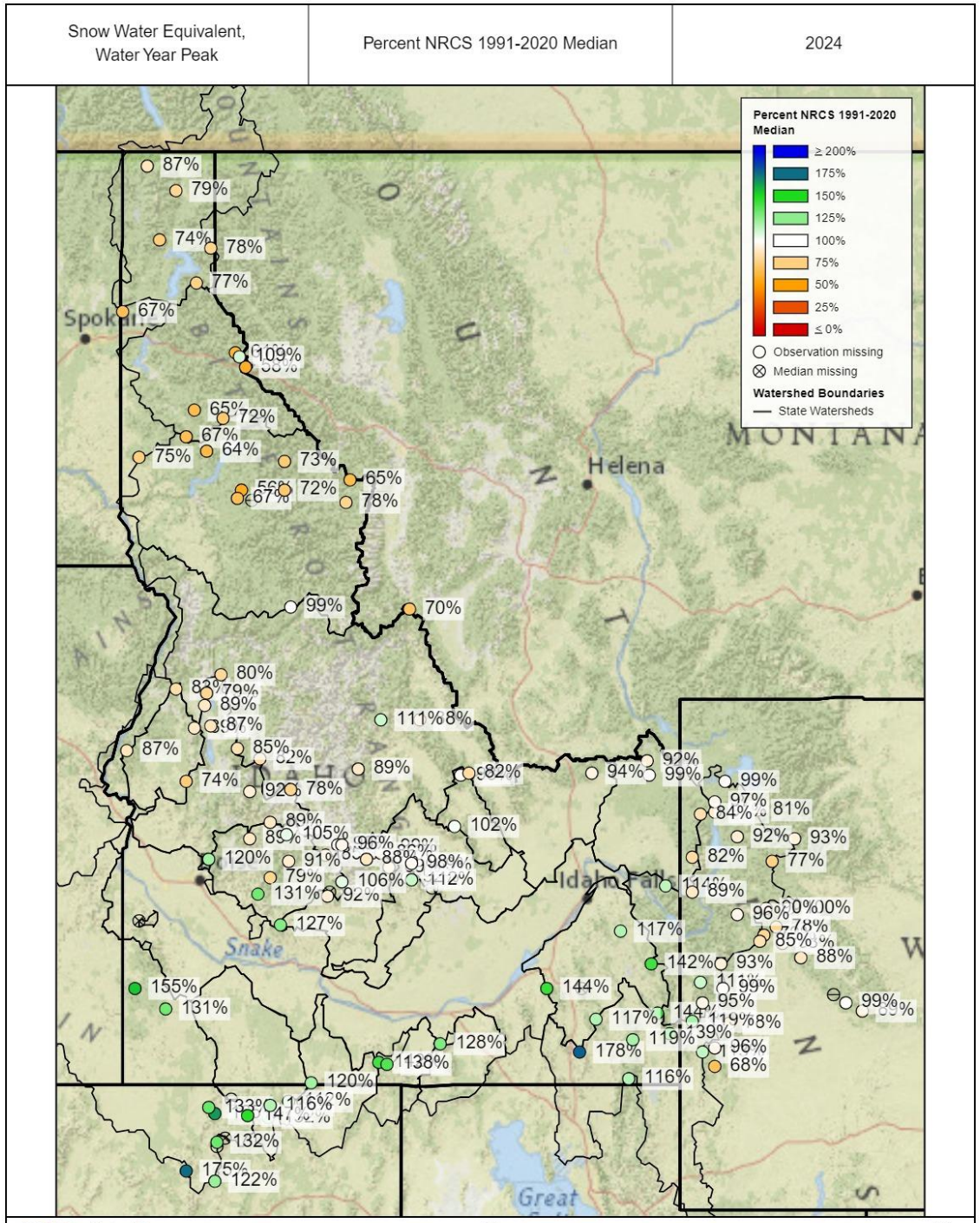
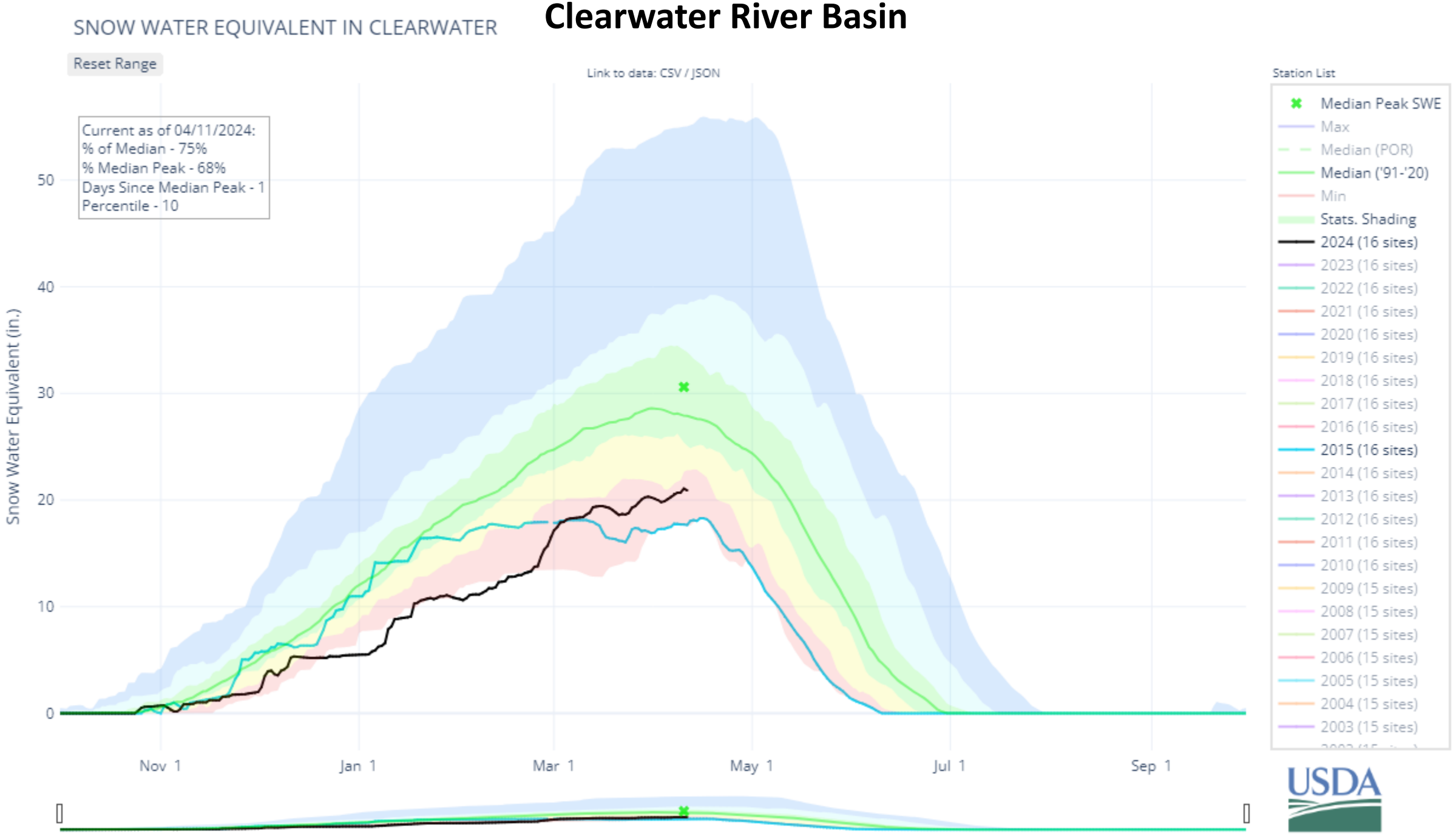
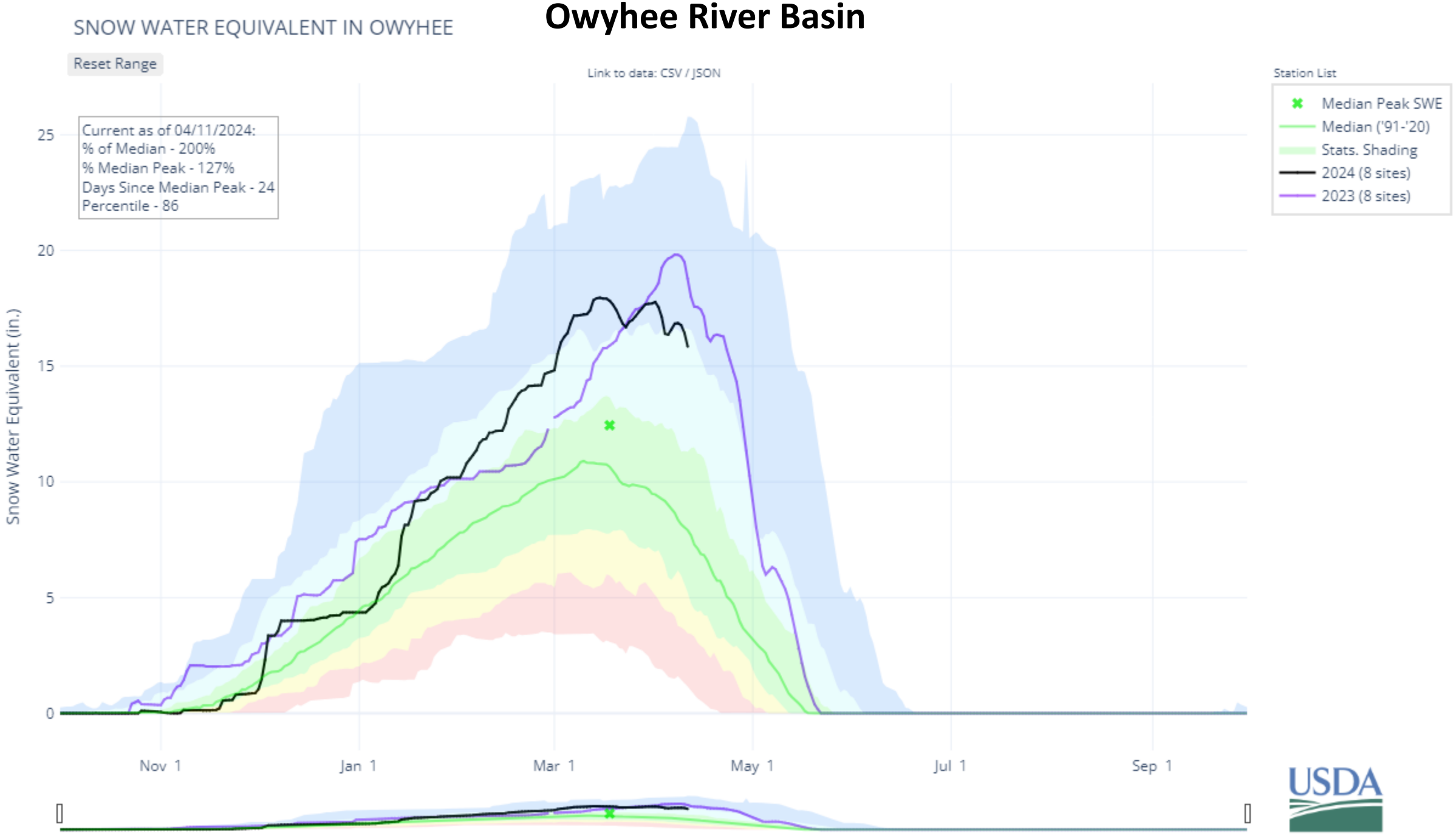

Snow Water Equivalent, Water Year Peak
Percent NRCS 1991-2020 Median
2024
Percent NRCS 1991-2020 Median
≥ 200%
175%
150%
125%
100%
75%
50%
25%
≤ 0%
Observation missing
Median missing
Watershed Boundaries
State Watersheds
Spokane
Helena
MONTANA
Idaho Falls
Snake
Great

Clearwater River Basin



Owyhee River Basin



using custom time span

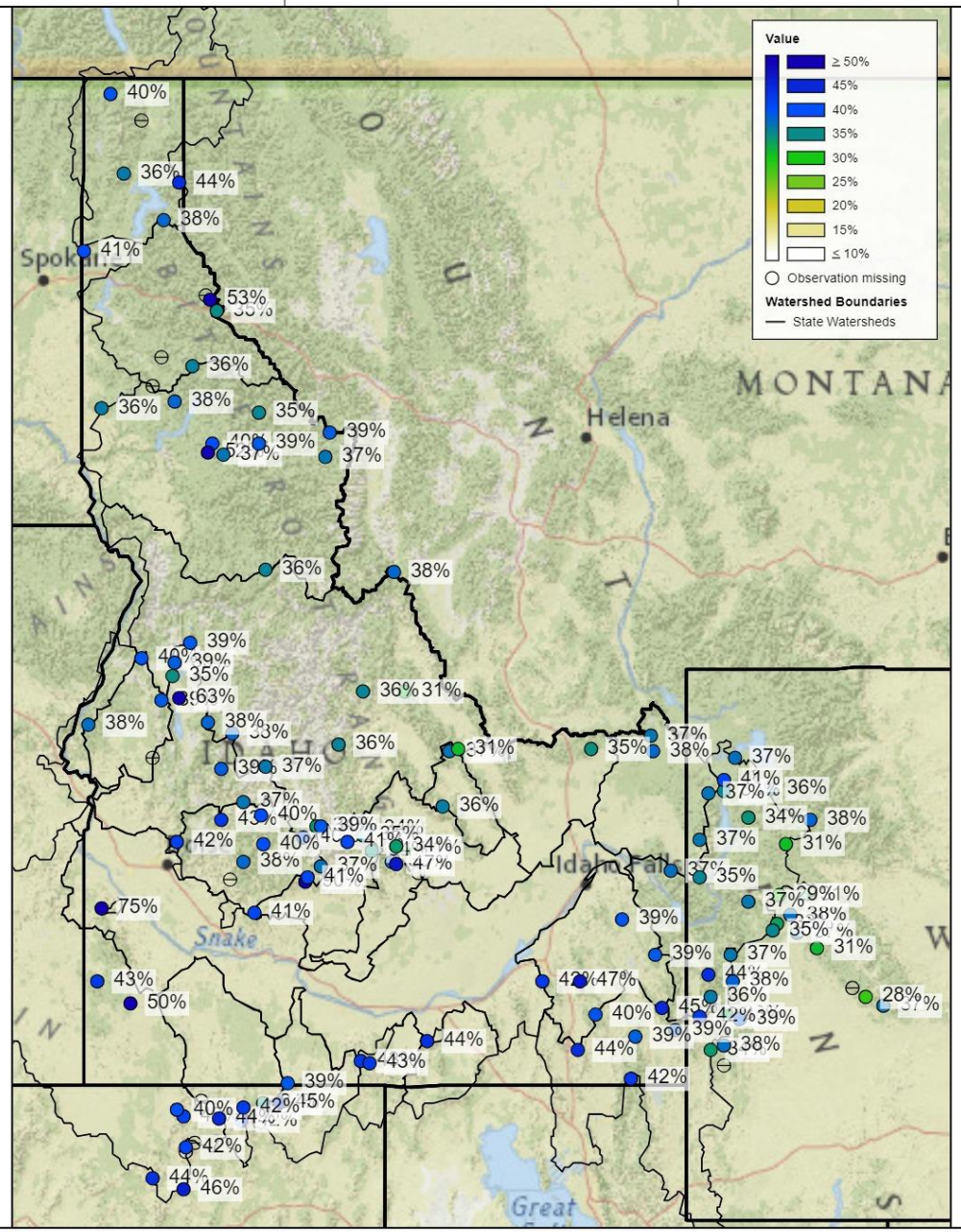
Owyhee River NR Rome OR - 13181000

January 8, 2023 - April 12, 2024

Discharge, cubic feet per second

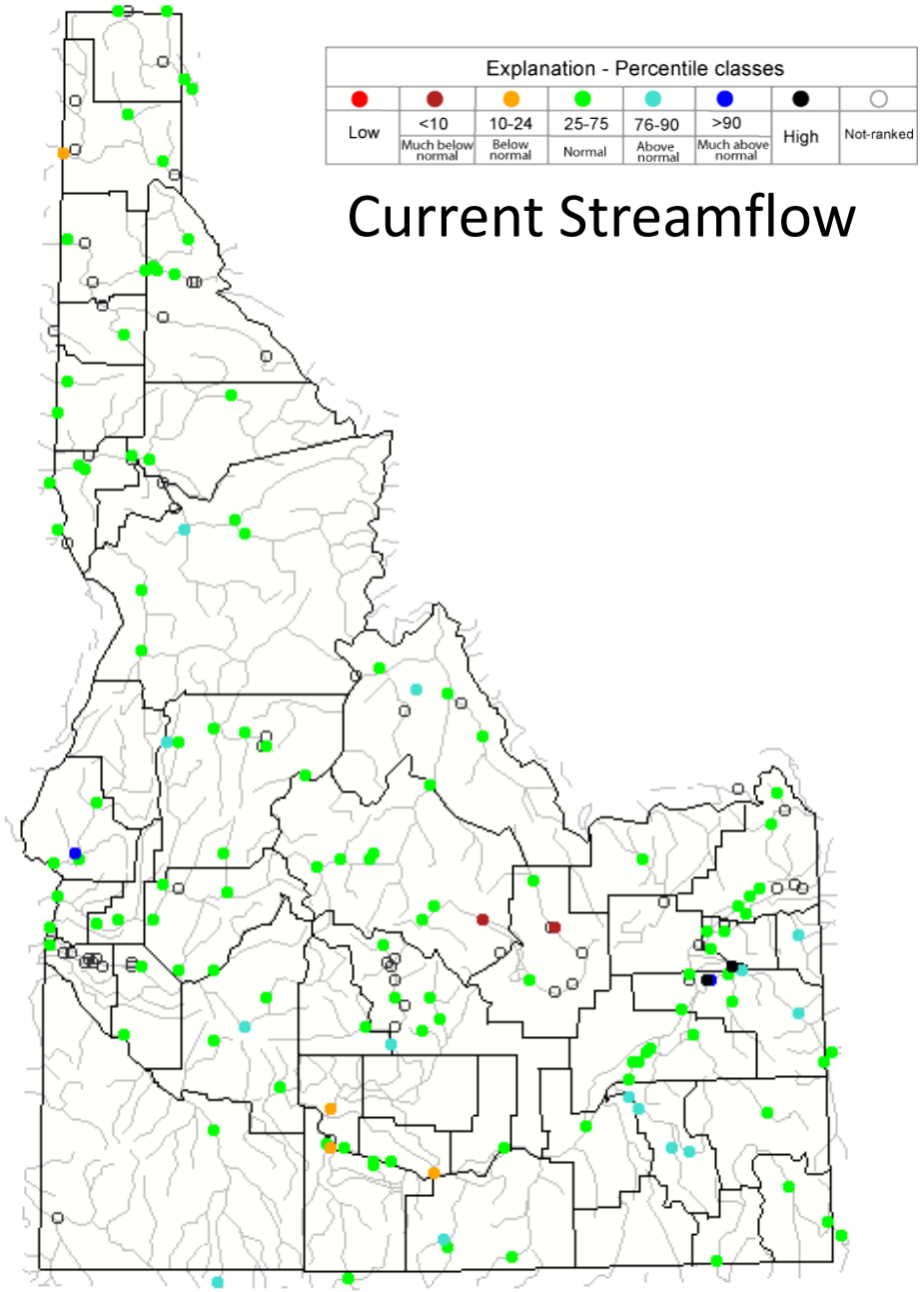
1410 ft3/s - Mar 17, 2024 12:00:00 PM MDT

Snow Density	Value	April 11, 2024, first of day

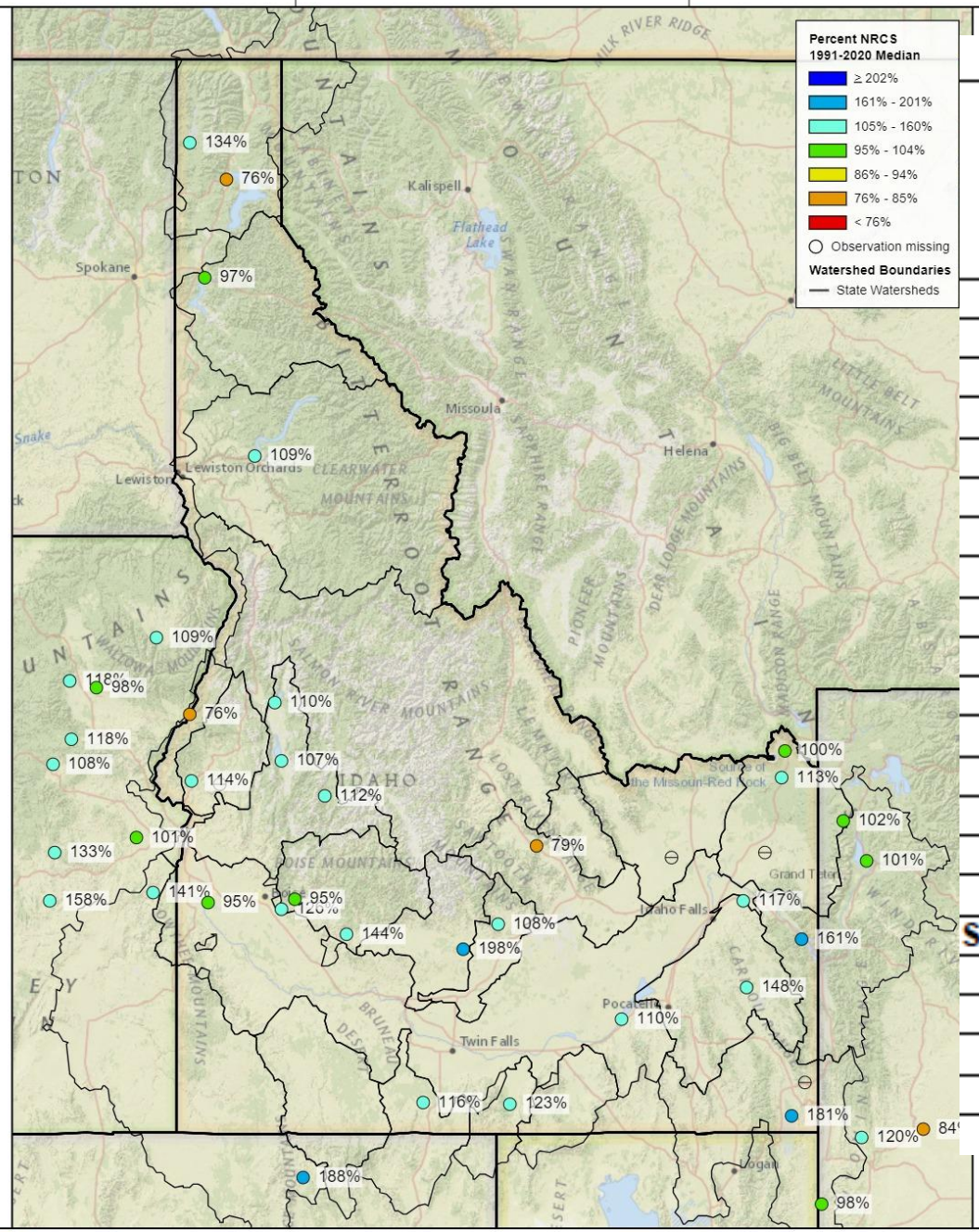


USDA Natural Resources Conservation Service

Wednesday, April 10, 2024



Reservoir Storage	Percent NRCS 1991-2020 Median	April 1st, 2024

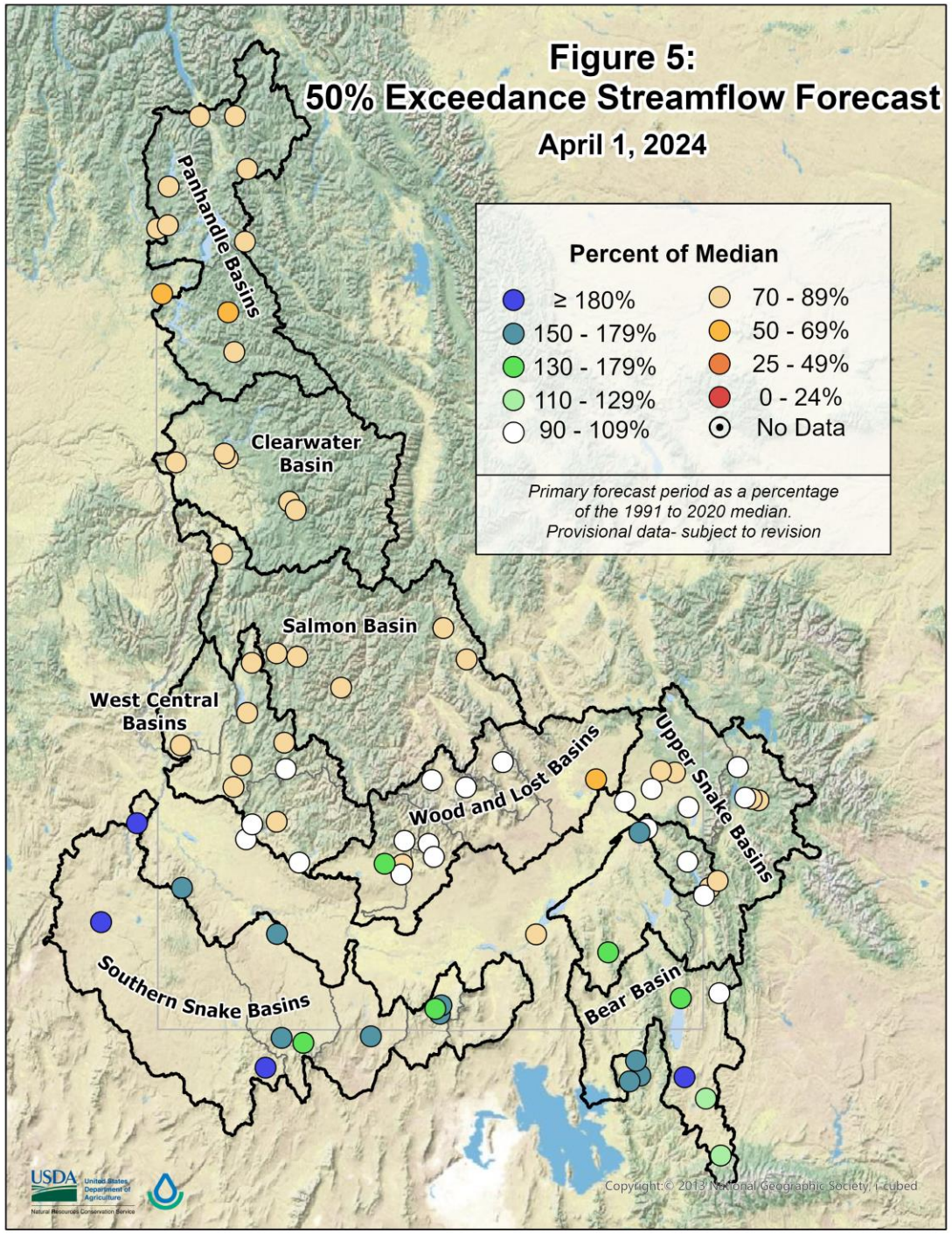


BASIN or REGION	SWSI Value	Most Recent Year With Similar SWSI Value	Agricultural Water Supply Shortage May Occur When SWSI is Less Than
Spokane	-2.6	2021	NA
Clearwater	-2.6	2021	NA
Salmon	-1.1	2003	NA
Weiser	-0.6	2016	NA
Payette	-0.9	2020	NA
Boise	0.9	1993	- 2.5
Big Wood above Hailey	0.1	2016	- 2.7
Big Wood	0.9	2018	0.5
Camas Creek nr Blaine	1.3	2012	NA
Little Wood	0.9	2018	- 1.5
Big Lost	0.4	2012	0.7
Little Lost	0.4	2012	1.7
Teton	1.1	2023	- 3.9
Henrys Fork	0.9	2012	- 2.9
Snake (Heise)	1.8	2019	- 1.7
Oakley	2.6	2019	- 0.2
Salmon Falls above Jackpot	3.1	2017	NA
Salmon Falls	2.3	1996	-0.7
Bruneau	3.3	2017	NA
Owyhee	4.0	2011	- 2.2
Bear River	3.0	2011	- 3.9

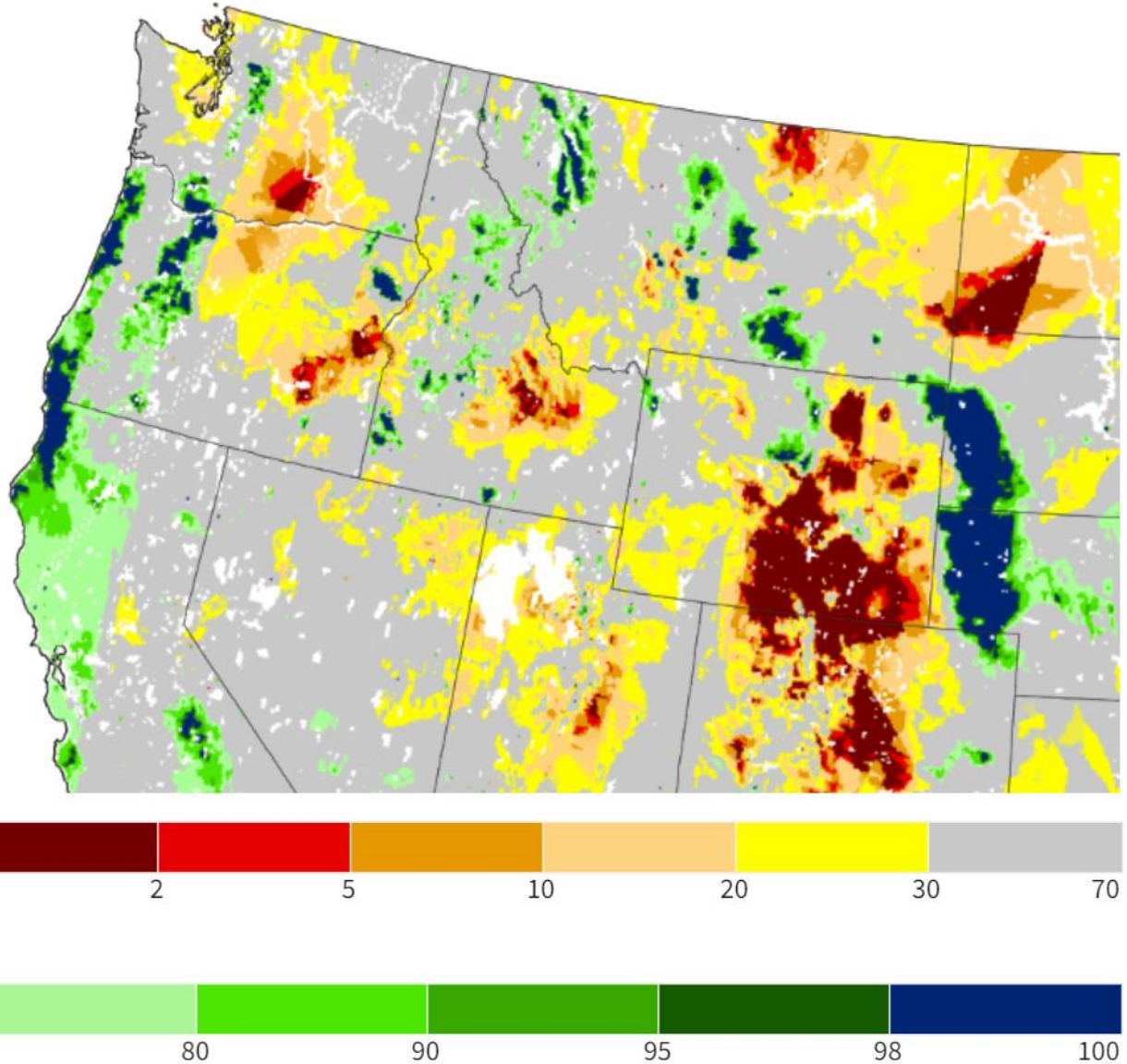
April 1, April-July Median Forecast

Forecast Point	KAF	% *normal
NF Clearwater (Dworshak Inflow)	1600	68%
Salmon R at Salmon	685	86%
Boise R nr Boise	1120	99%
Big Wood bl Magic Dam	210	122%
Big Lost R at Howell	160	110%
Snake R nr Heise	3320	106%
Oakley Inflow	34	194%
Salmon Falls nr San Jacinto	110	196%
Owyhee R nr Rome	560	273%

***normal climatological reference is based on 1991-2020 NRCS median streamflow data**



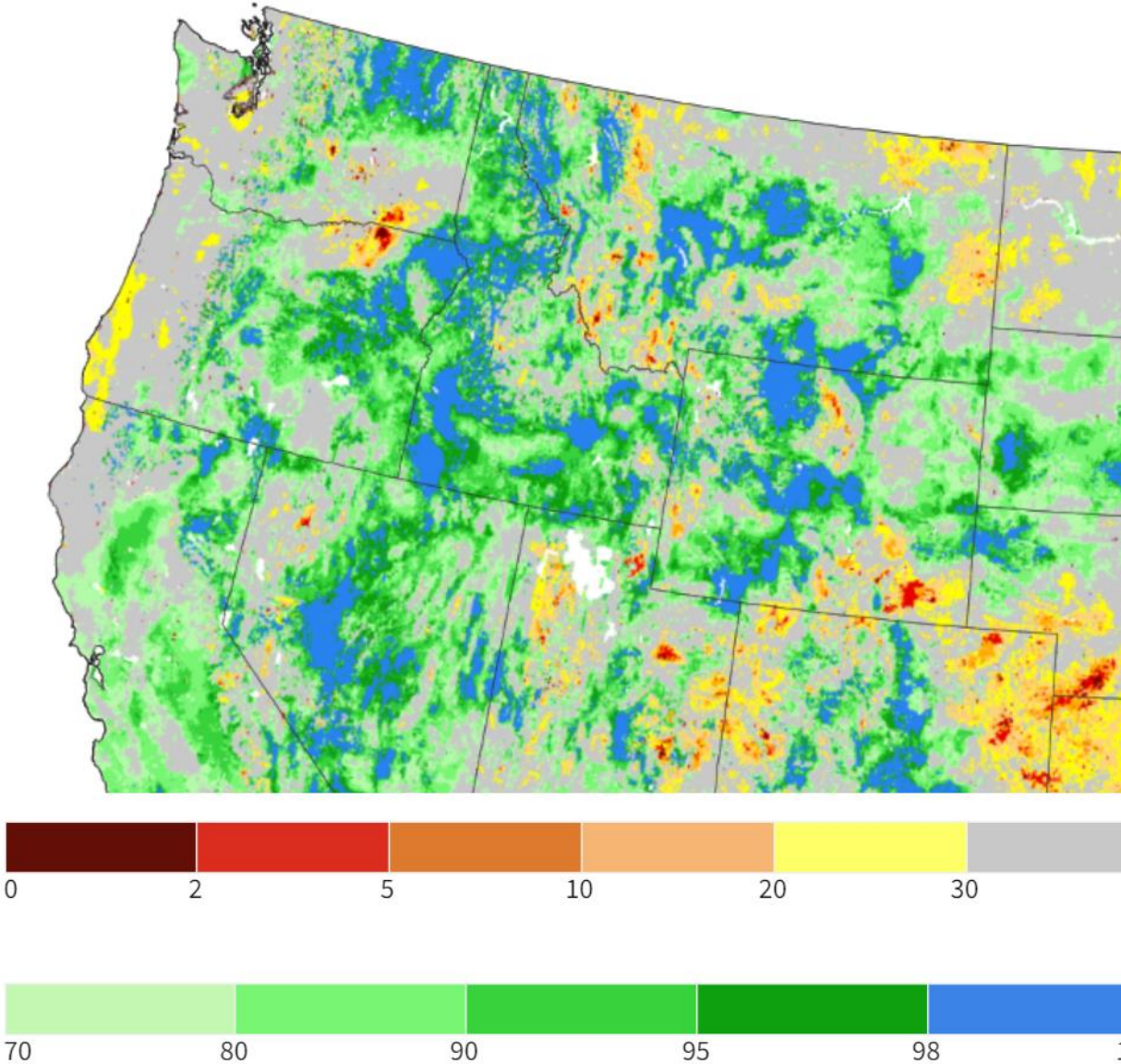
20 cm Soil Moisture Percentile



Source(s): NationalSoilMoisture.com
Data Valid: 04/06/24

Drought.gov

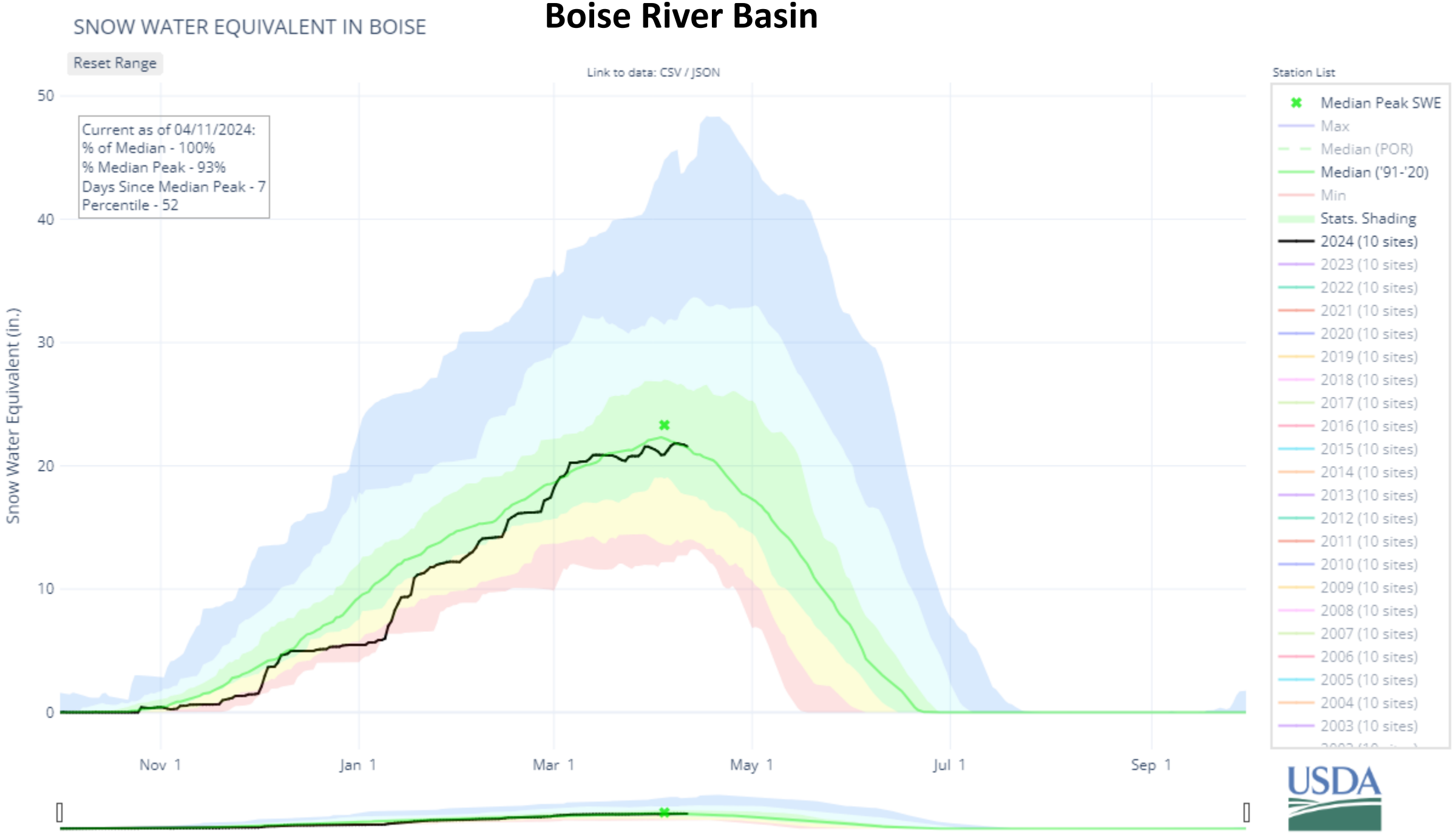
0–100 cm Soil Moisture Percentile



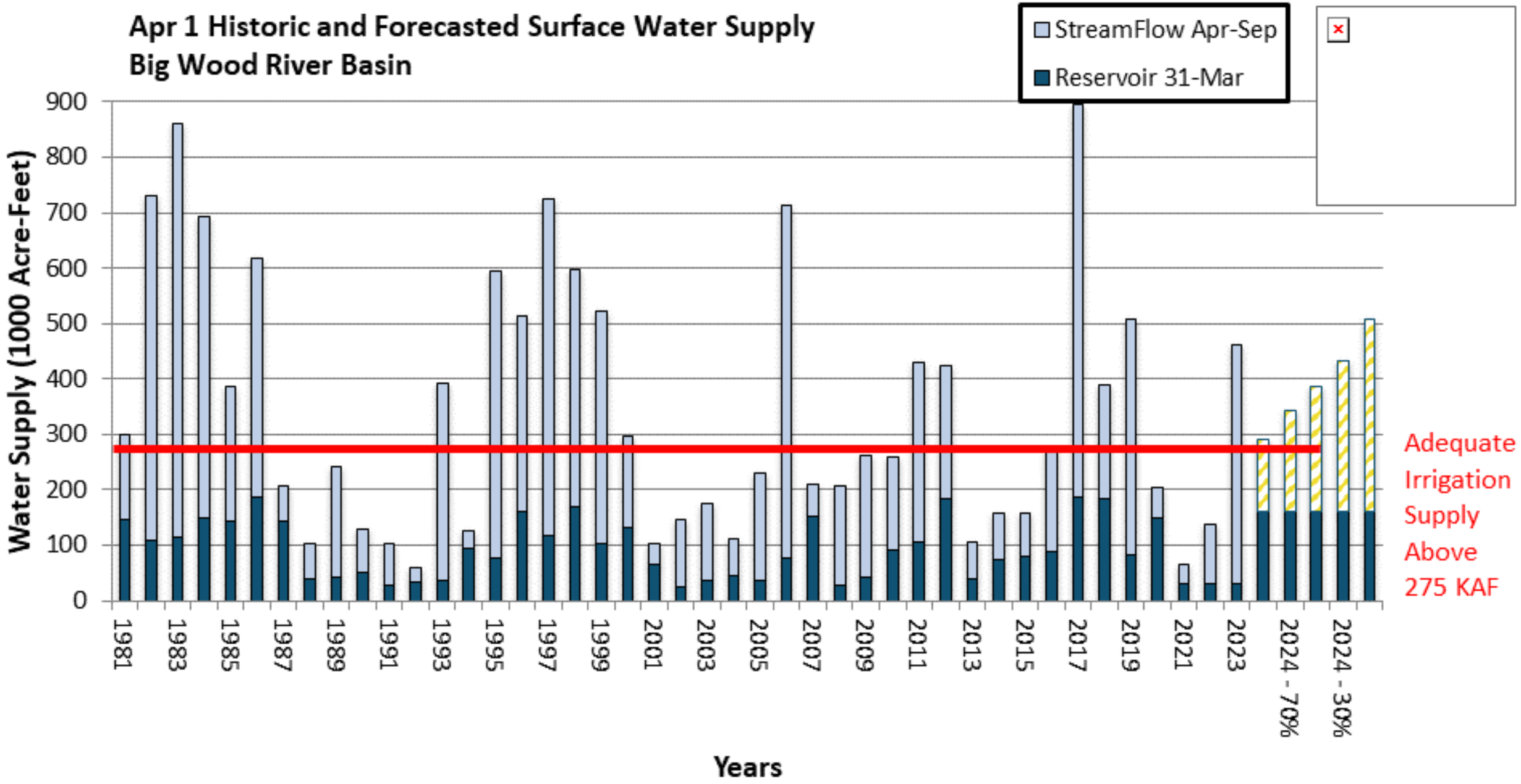
Source(s): NASA
Data Valid: 04/09/24

Drought.go

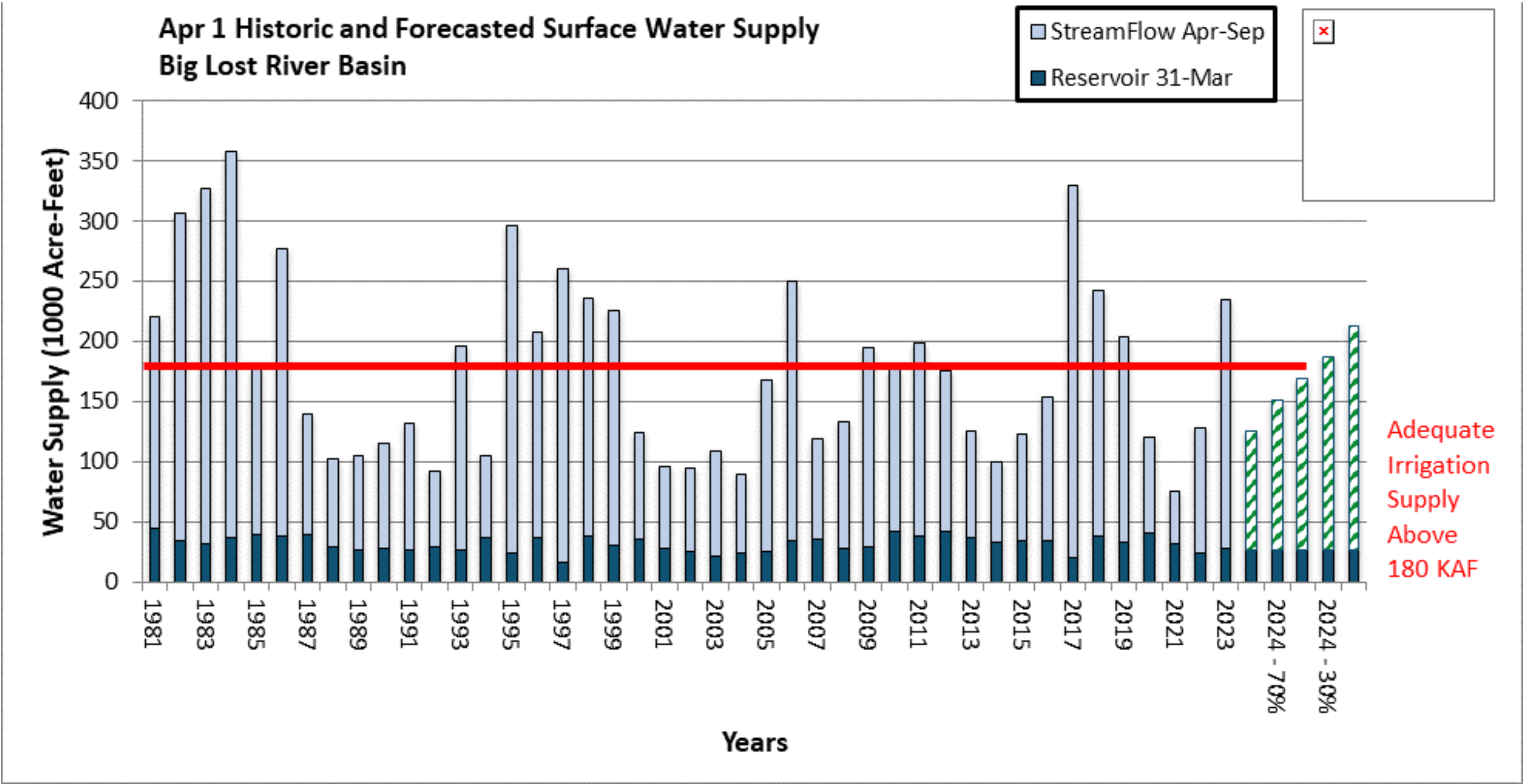
Boise River Basin



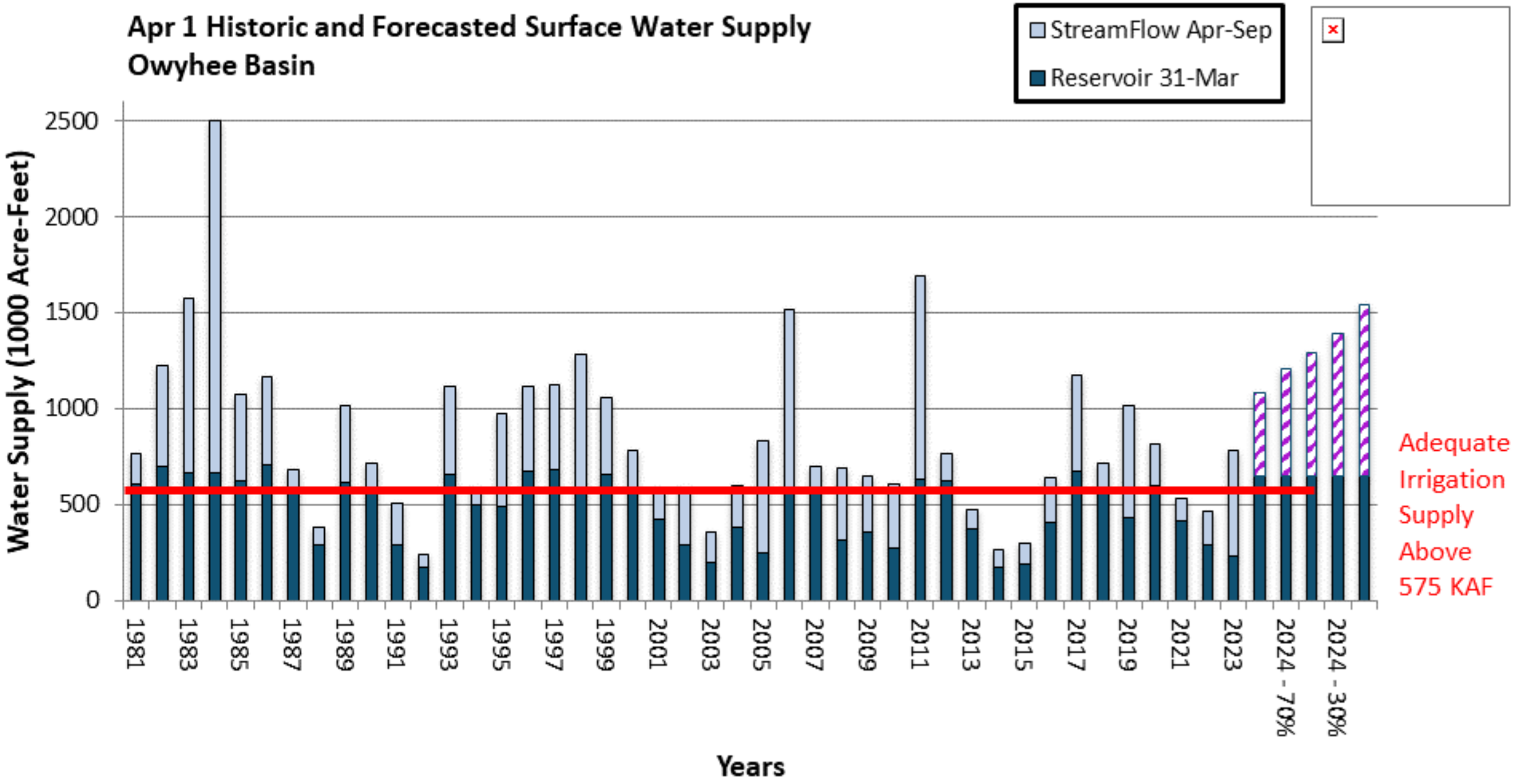
Big Wood River Basin



Big Lost River Basin - Possible shortage



Owyhee River Basin



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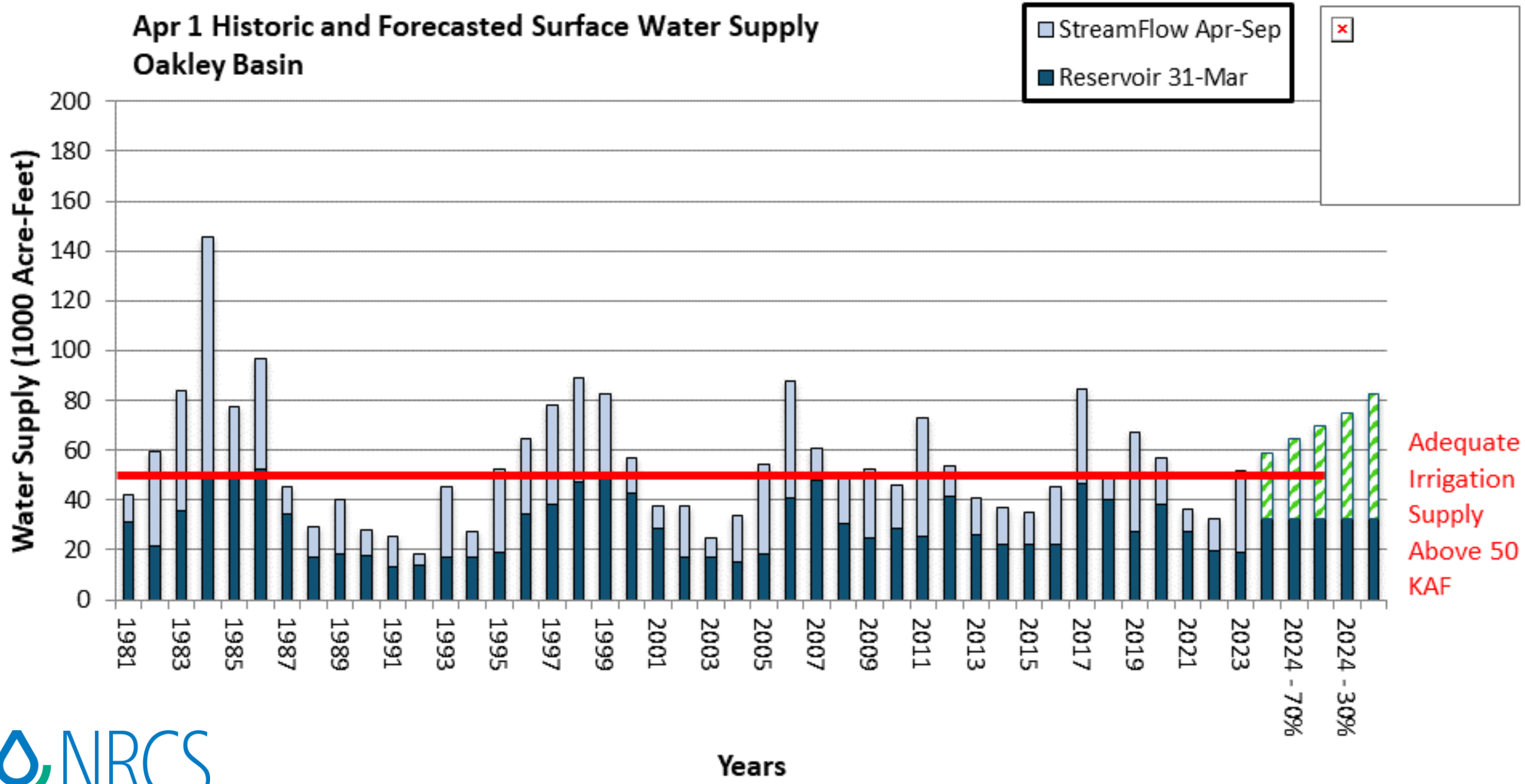
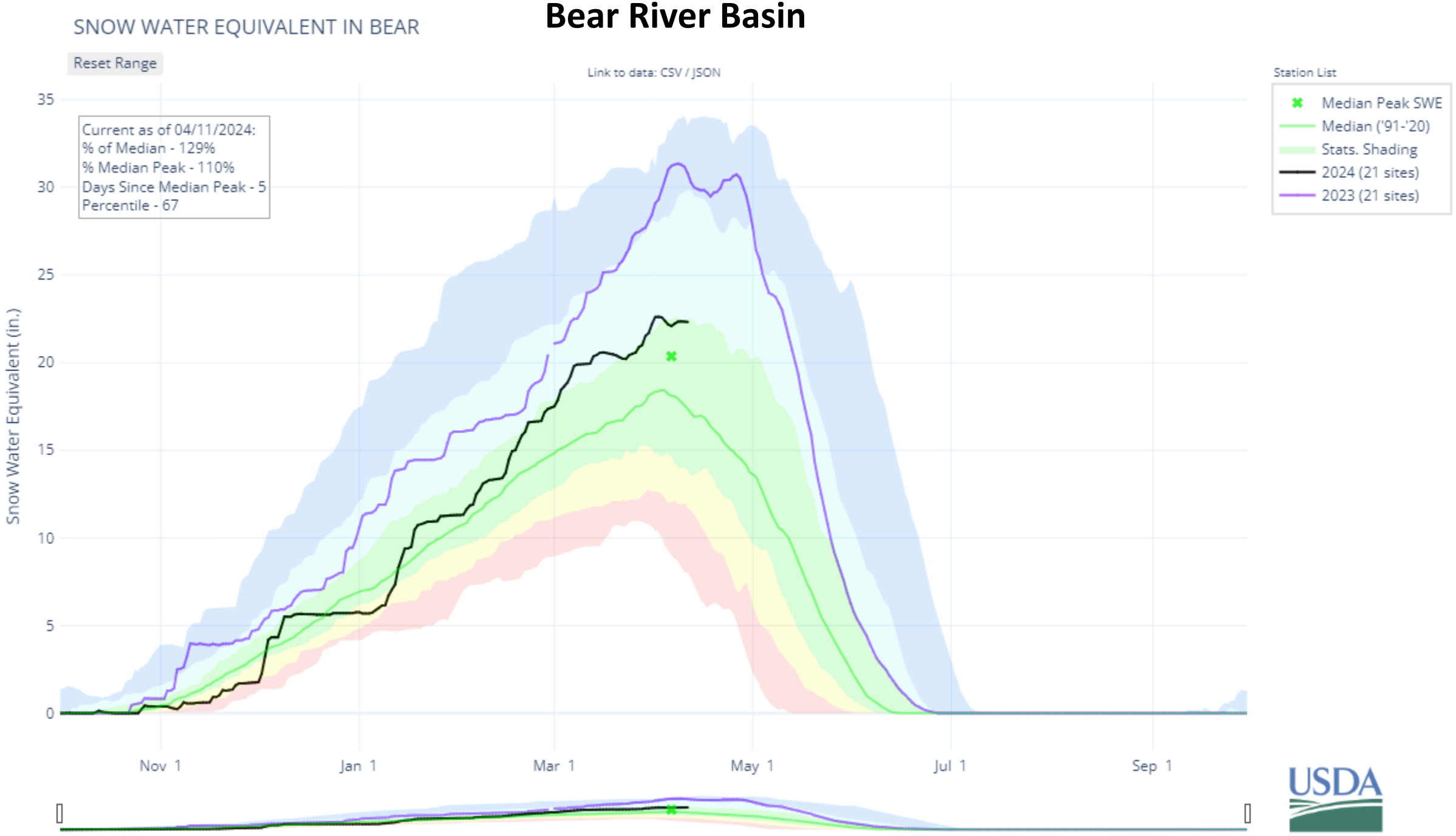
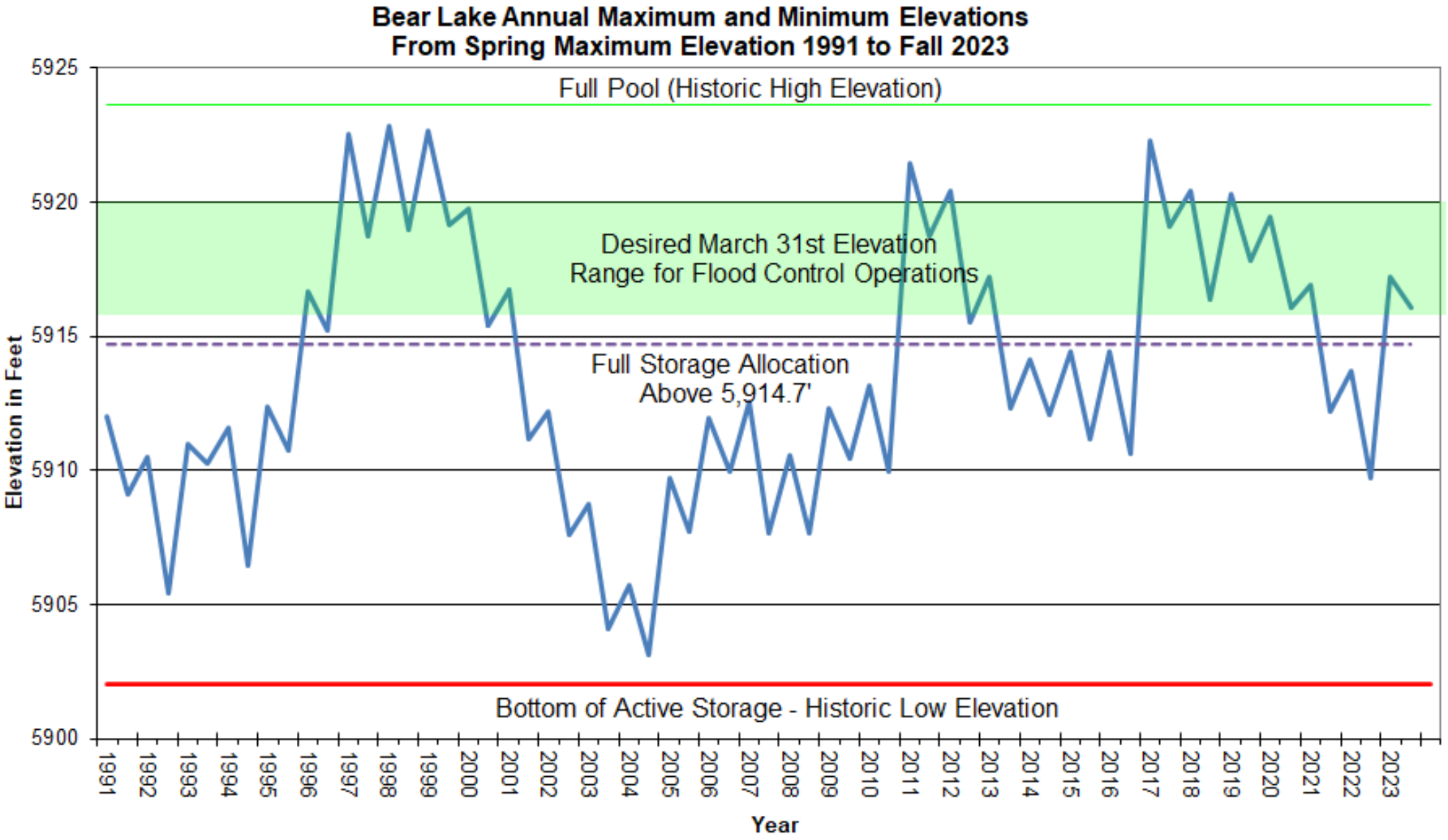


NRCS

Bear River Basin

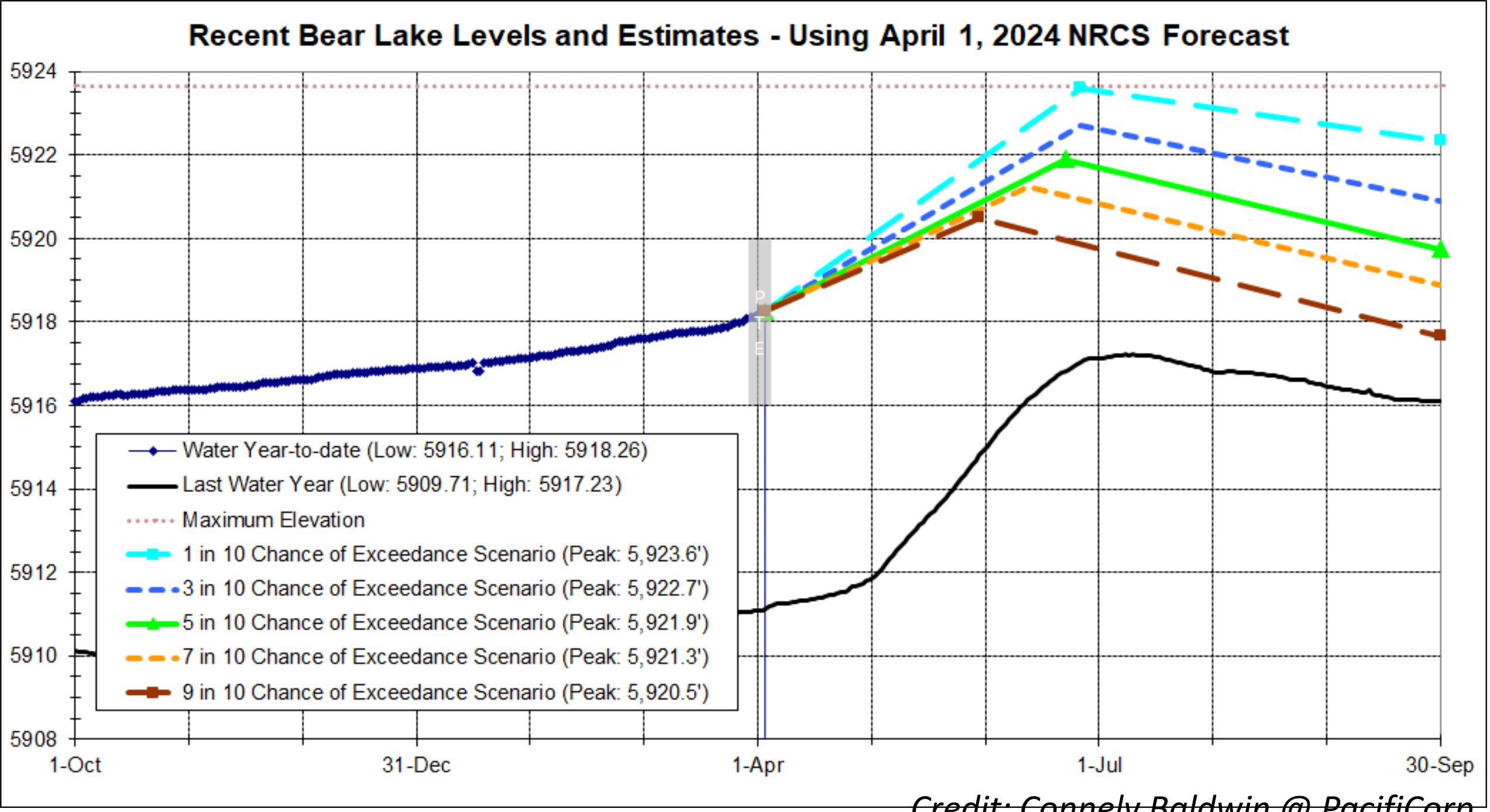




Current Bear Lake elevation = 5918.4 ft

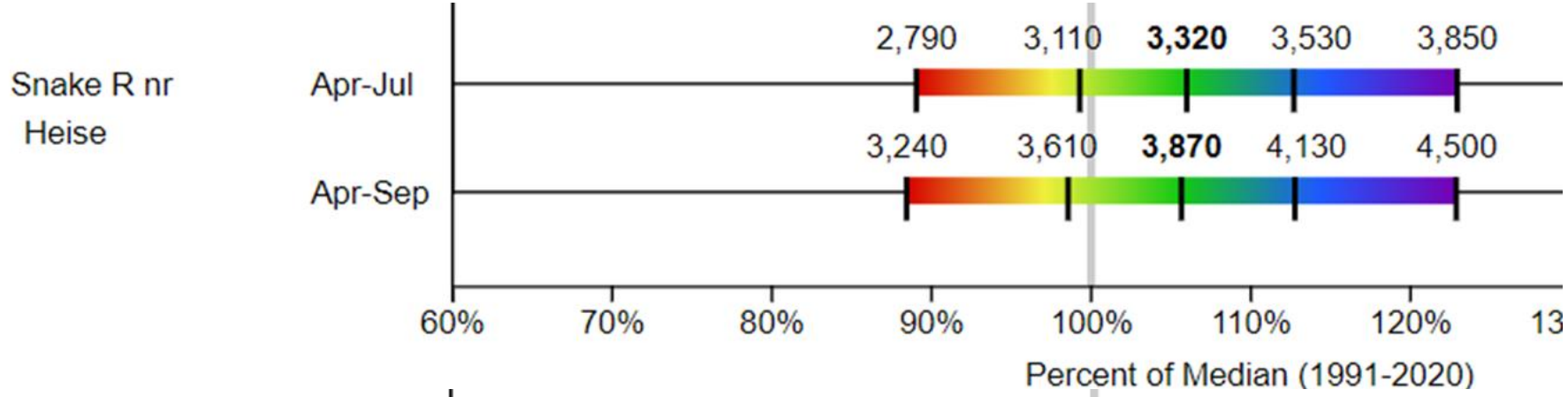
Full 245 kaf storage allocation available

Credit: Connely Baldwin @ PacifiCorp

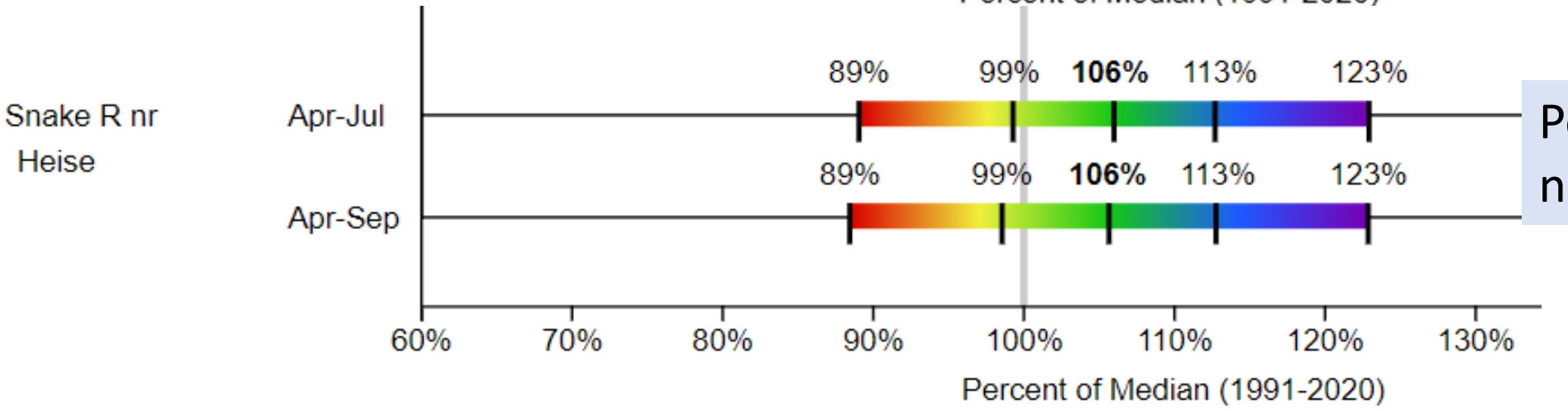


Credit: Connely Baldwin @ PacifiCorp

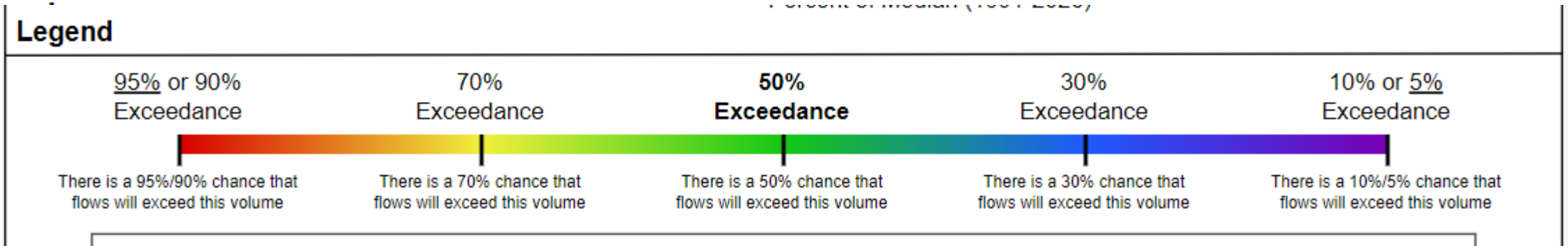
Streamflow Forecasts for April 1 at Heise

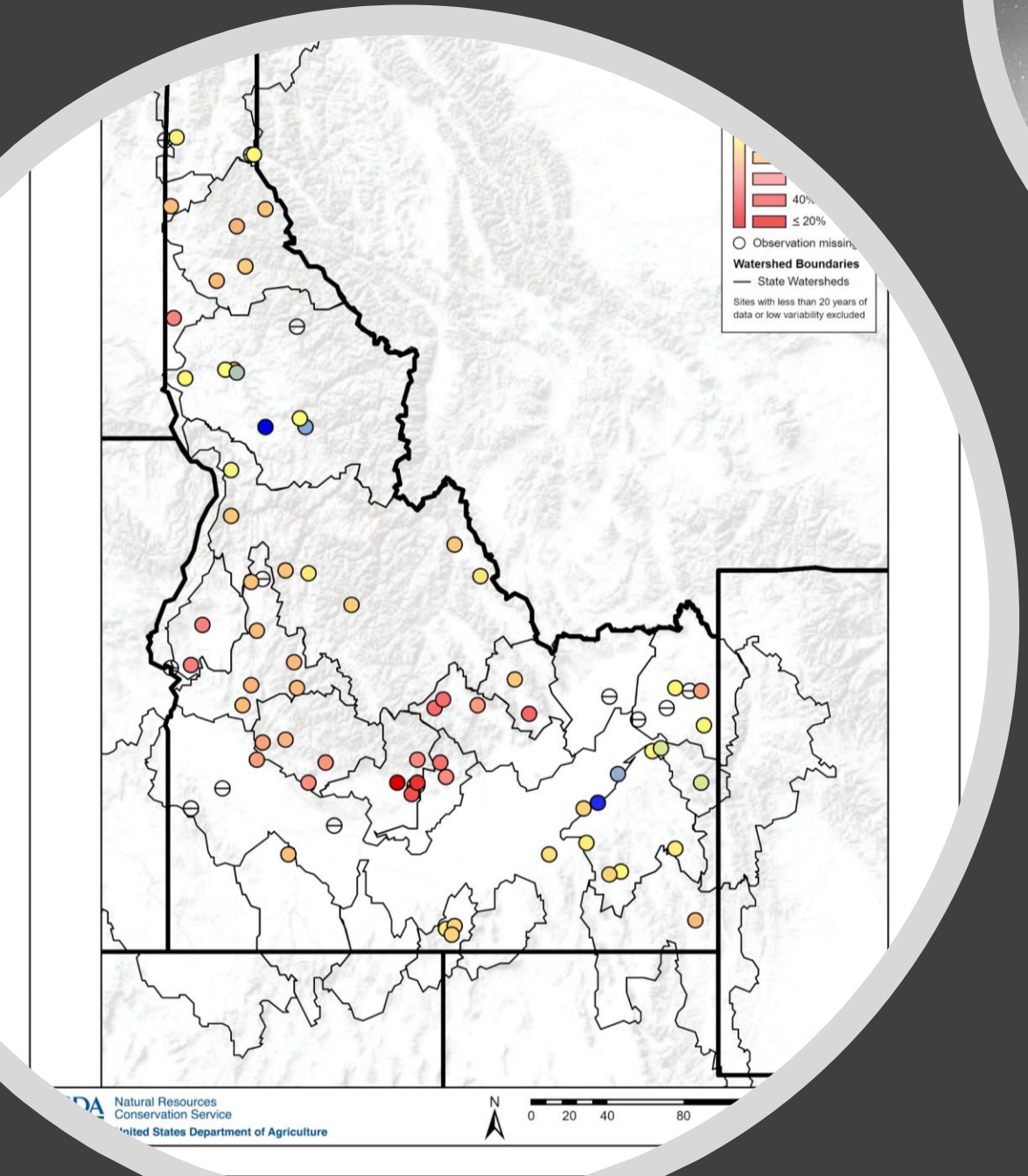


KAF **(median)**
(370 KAF increase from March 1)



Percent of 30-year normal **median**





Thank you!

https://www.nrcs.usda.gov/idaho/snow-survey

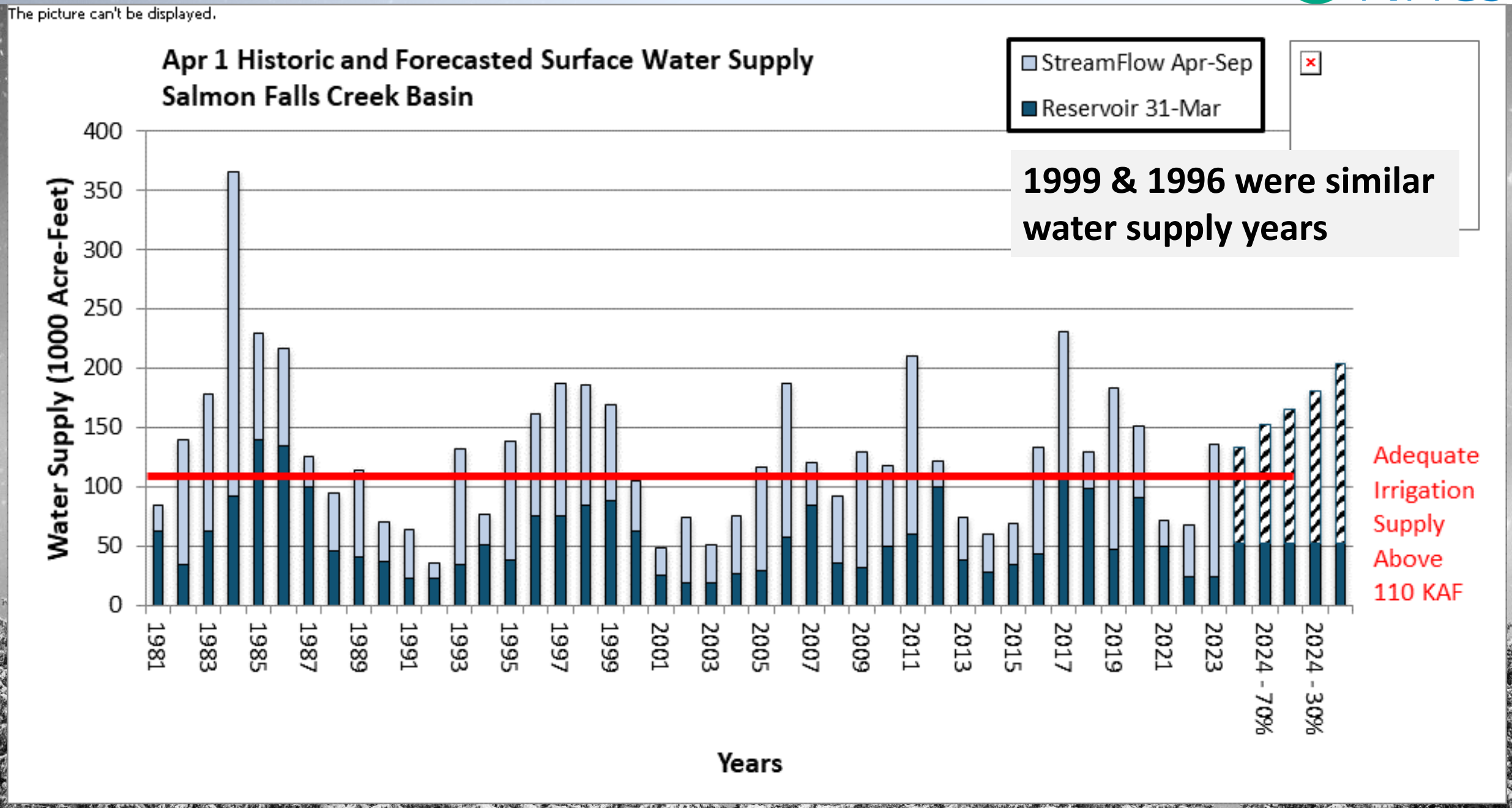
Erin Whorton

erin.whorton@usda.gov

208-685-6983

NRCS

April 1 forecasted water supply



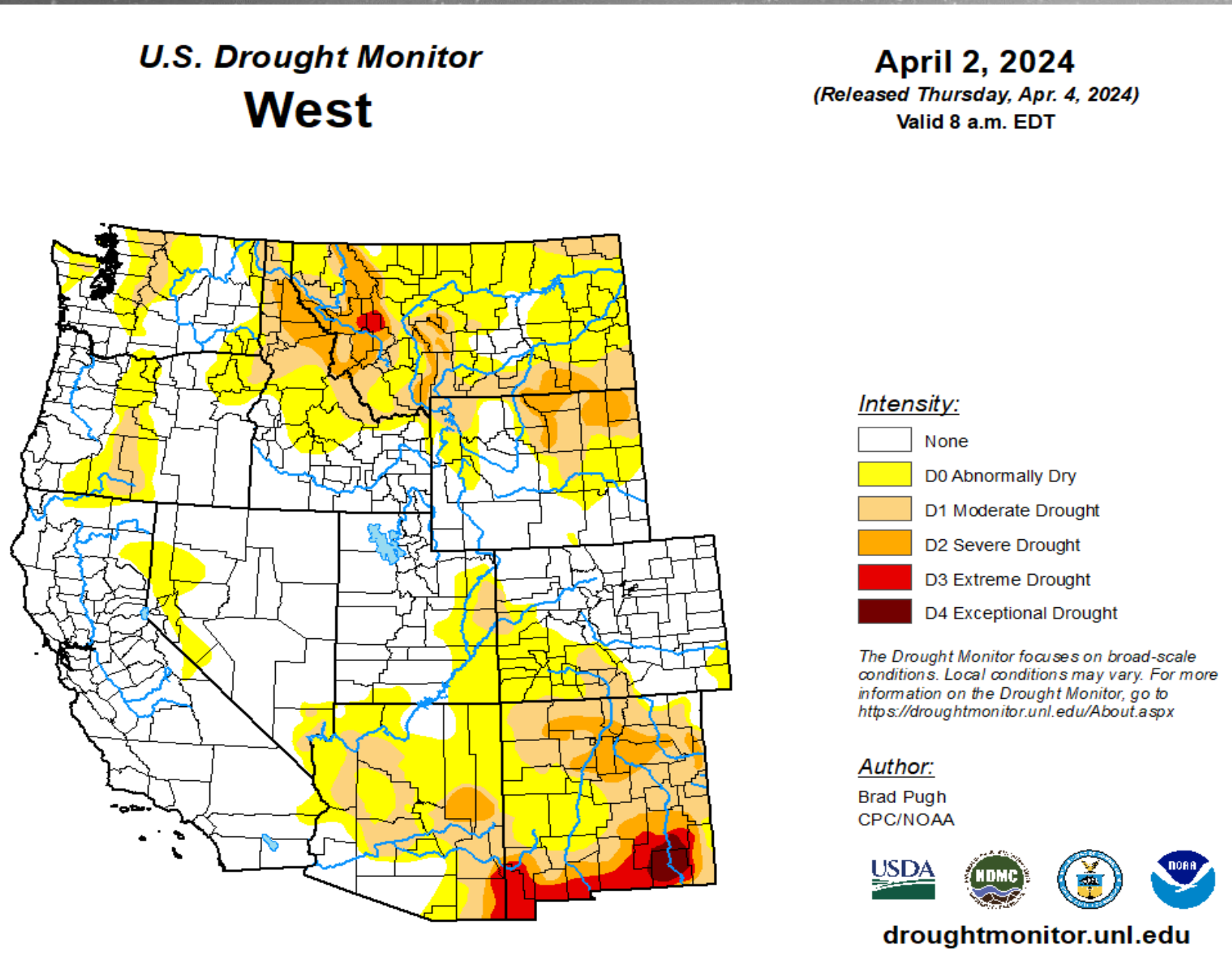
Twin Falls Soil & Water Conservation District: Salmon Falls Reservoir Storage Allotment

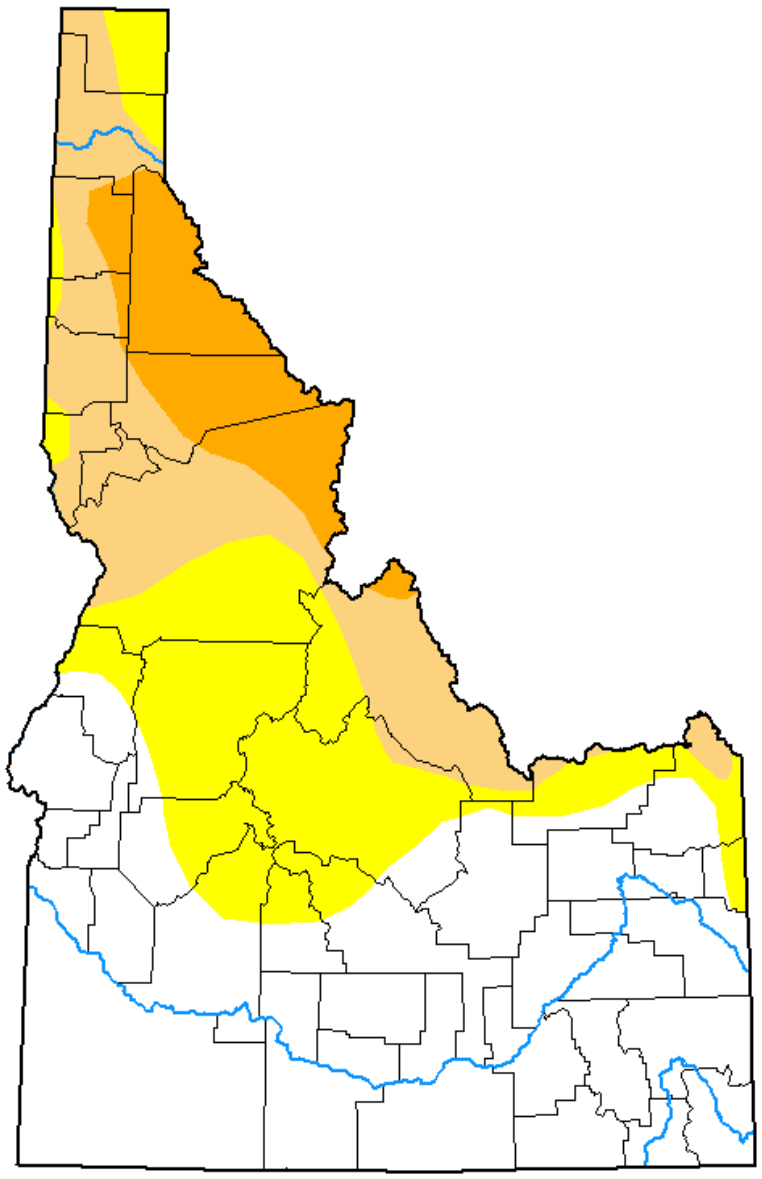
Note: Allotment formula is based on current reservoir storage and the April 1 to September 30 streamflow forecasts

Updated: April 10, 2024

	Water accounting	Data input	Chance of Exceedance Streamflow Forecasts				
Total water in system	Streamflow Exceedance (Probability)		**90%**	**70%**	**50%**	**30%**	**10%**
	Streamflow Forecast*, April 1-Sept. 30, acre-feet		81,000	100,000	114,000	129,000	152,000
	WY23 Streamflow Forecasts for Comparison		104,000	125,000	140,000	157,000	182,000
	Reservoir Storage, April 9, acre-feet	57,490	57,490	57,490	57,490	57,490	57,490
	Total Storage (Inflow Forecast + Storage)		**138,490**	**157,490**	**171,490**	**186,490**	**209,490**
Water loss from system	Less Dead Storage in Reservoir (5,000 AF)	5,000	133,490	152,490	166,490	181,490	204,490
	Projected Reservoir Loss of 20%	0.20	26,698	30,498	33,298	36,298	40,898
	In Dam, Available for Delivery		106,792	121,992	133,192	145,192	163,592
	Projected Delivery Efficiency	0.650	69,415	79,295	86,575	94,375	106,335
	Less Water for Callen (AF)	485	485	485	485	485	485
	Less Individual Storage Carryover (AF)	11,949	11,949	11,949	11,949	11,949	11,949
Water share	Water to be Delivered Over the Weir		56,981	66,861	74,141	81,941	93,901
	Divided by Total Shares	60050.65	**0.95**	**1.11**	**1.23**	**1.36**	**1.56**

Drought across the Idaho & the West





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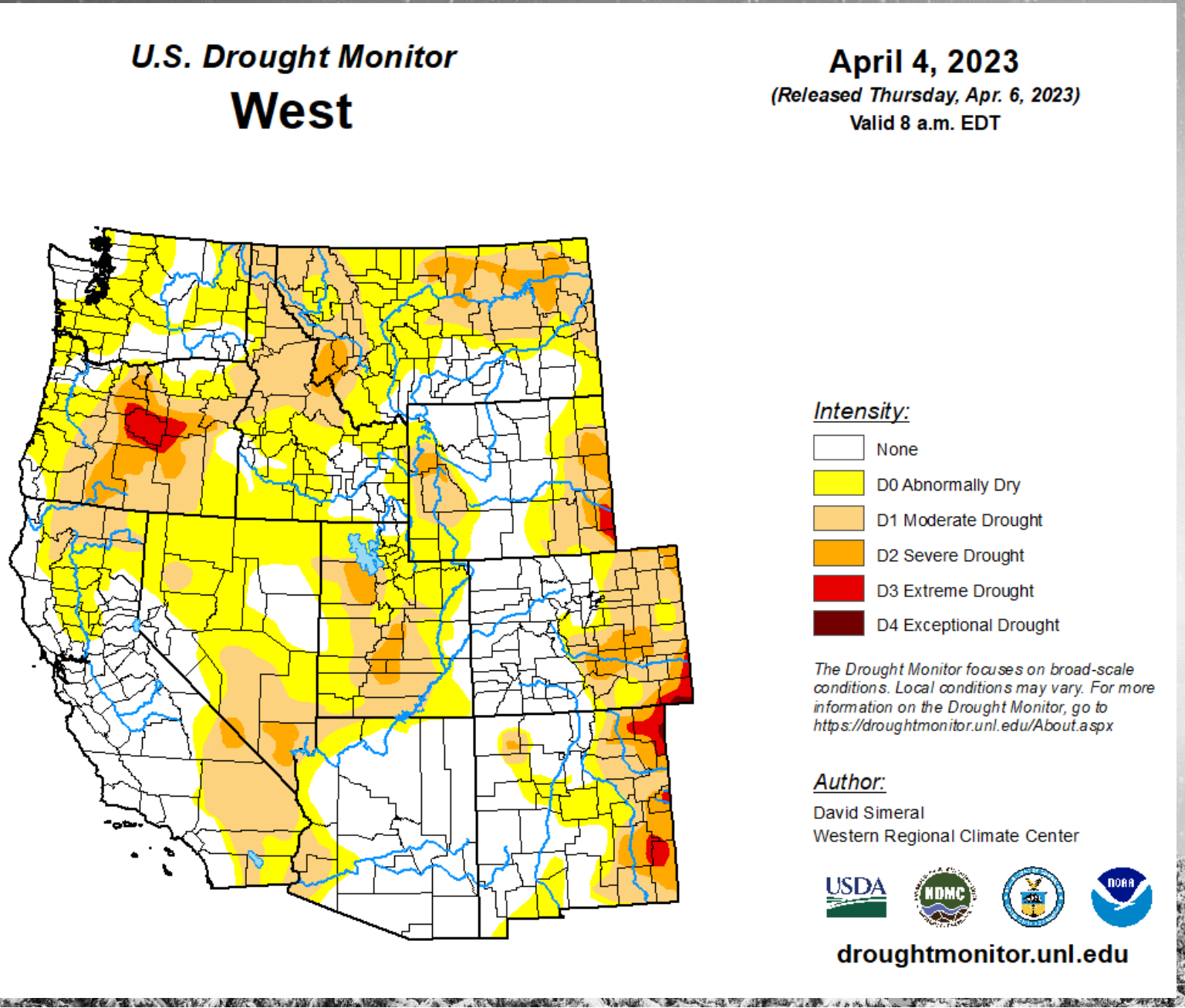
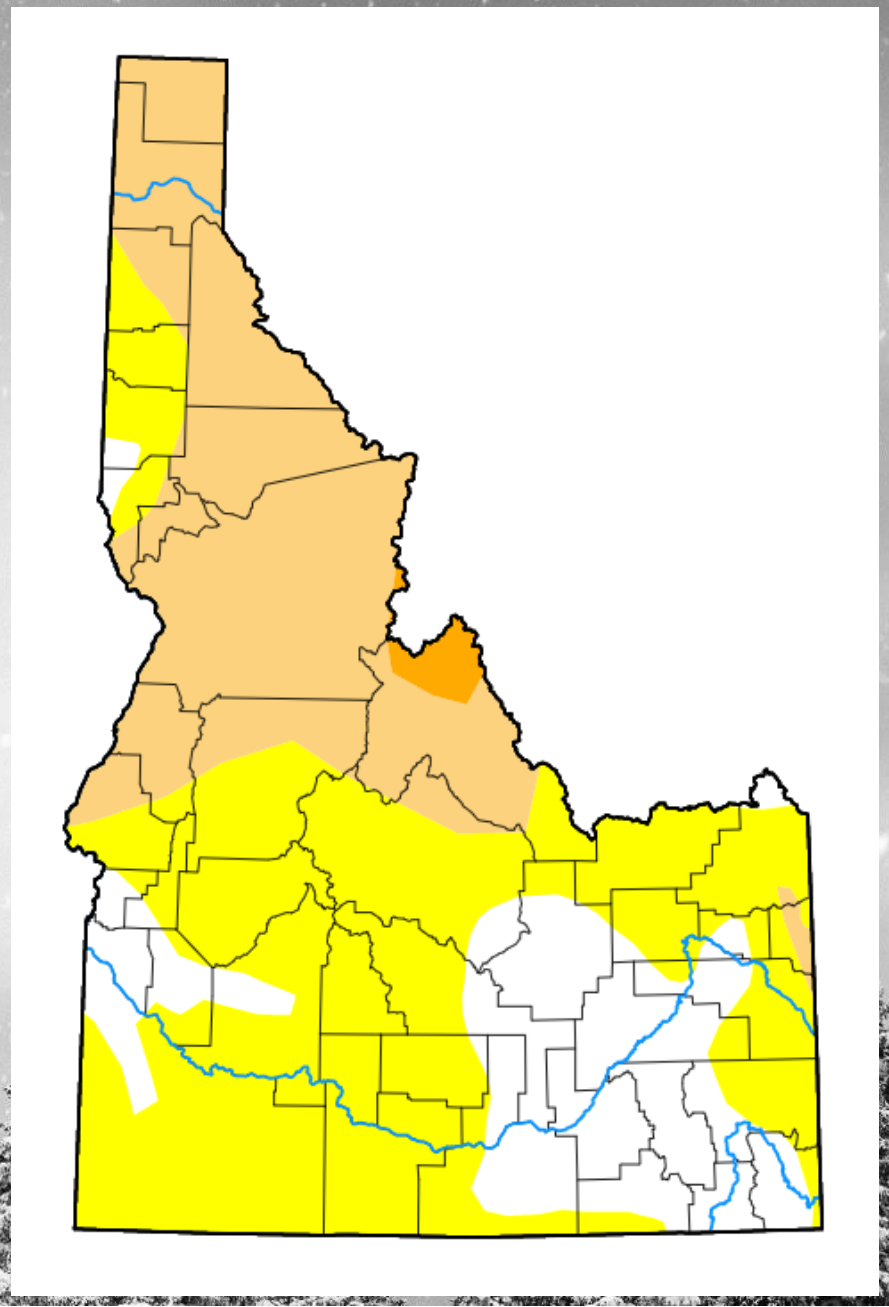
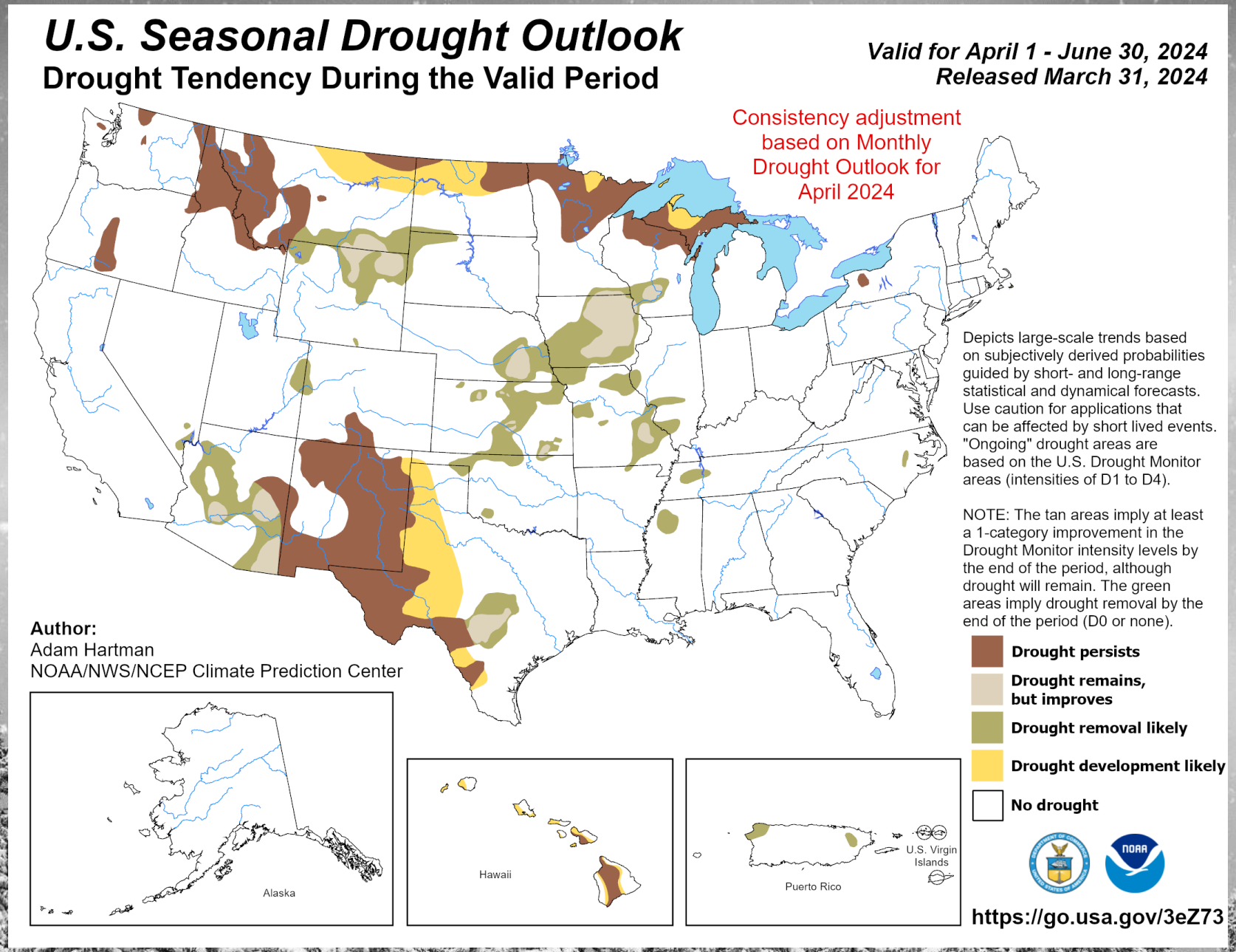
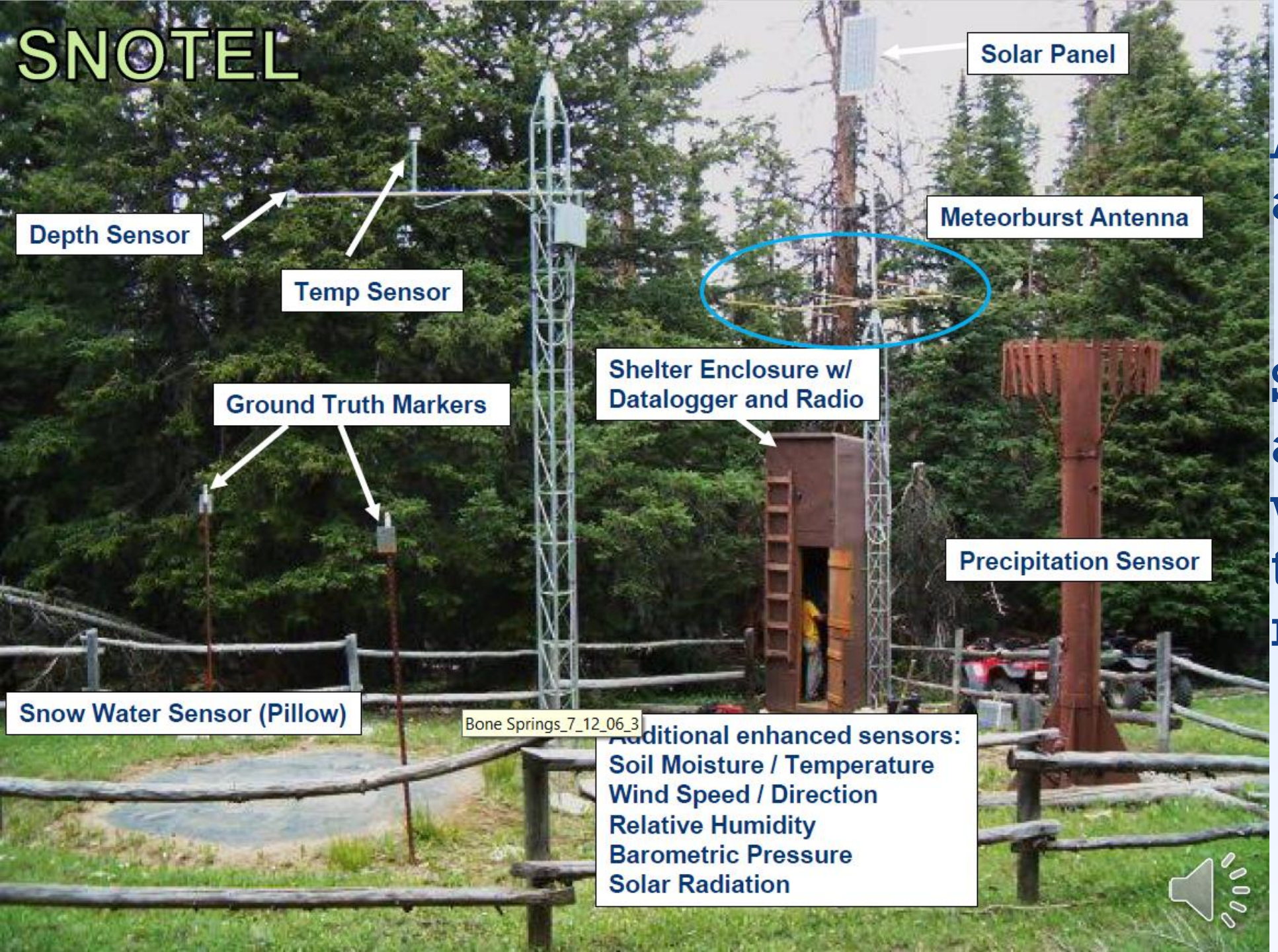




Prediction: no development of drought conditions



SNOTEL sites look quite different in the winter!

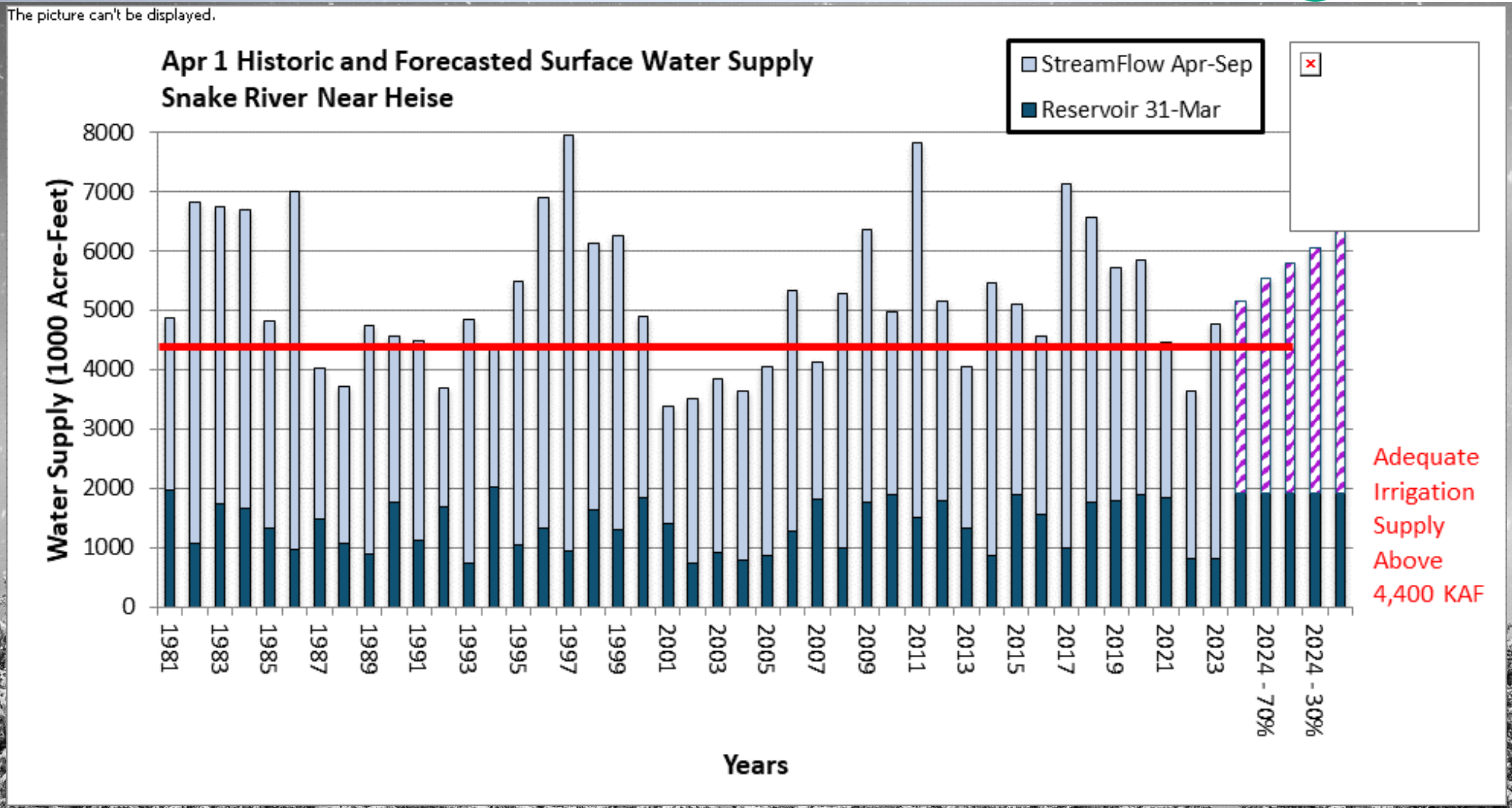


A closer look at a SNOTEL site

SNOTEL sites are automated weather stations that measure many things!

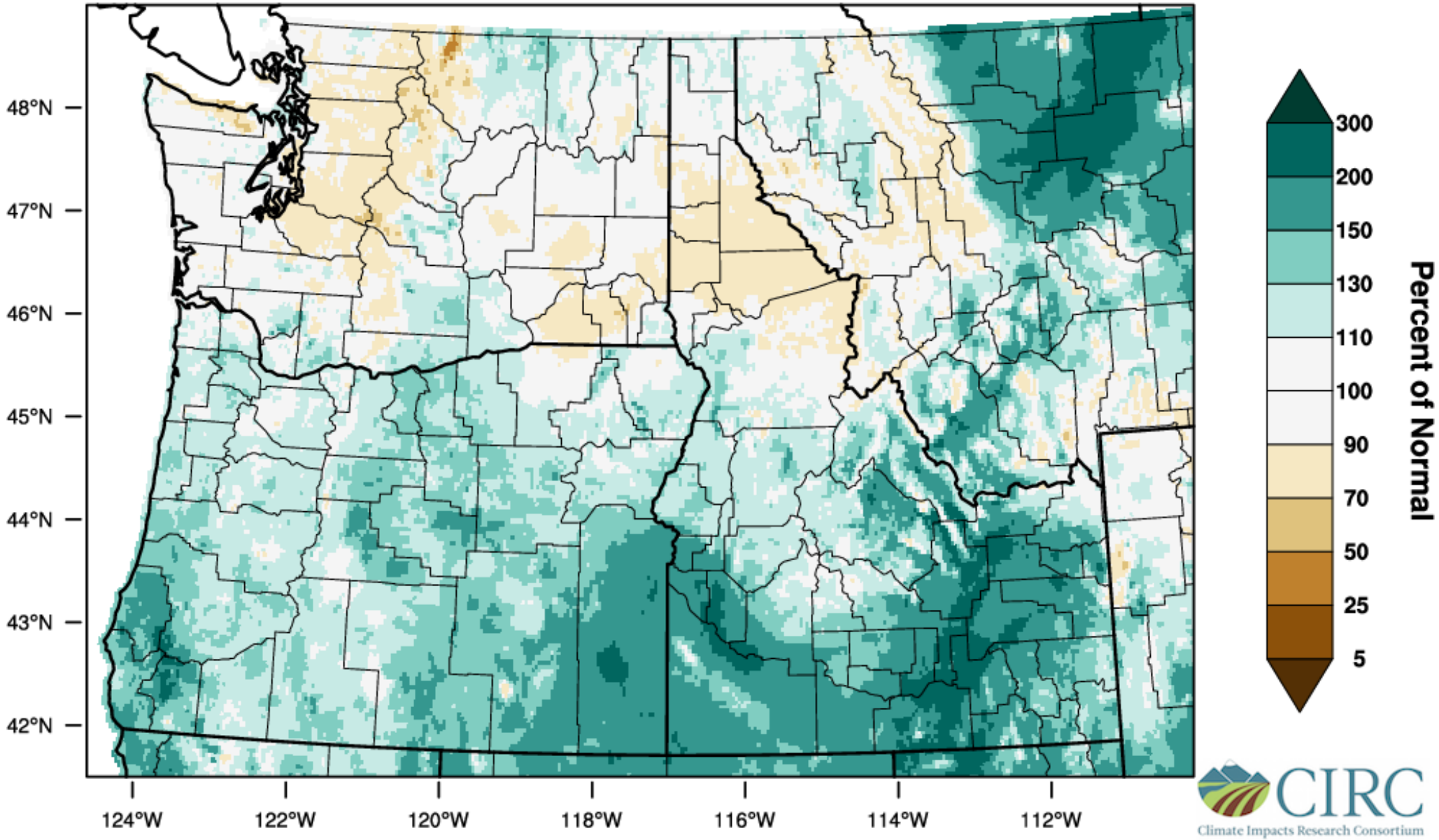
NRCS

April forecasted water supply



Precipitation, Current Calendar Year, 01/01/24 to 04/07/24

Percent of 1991-2020 Normal, Northwestern United States

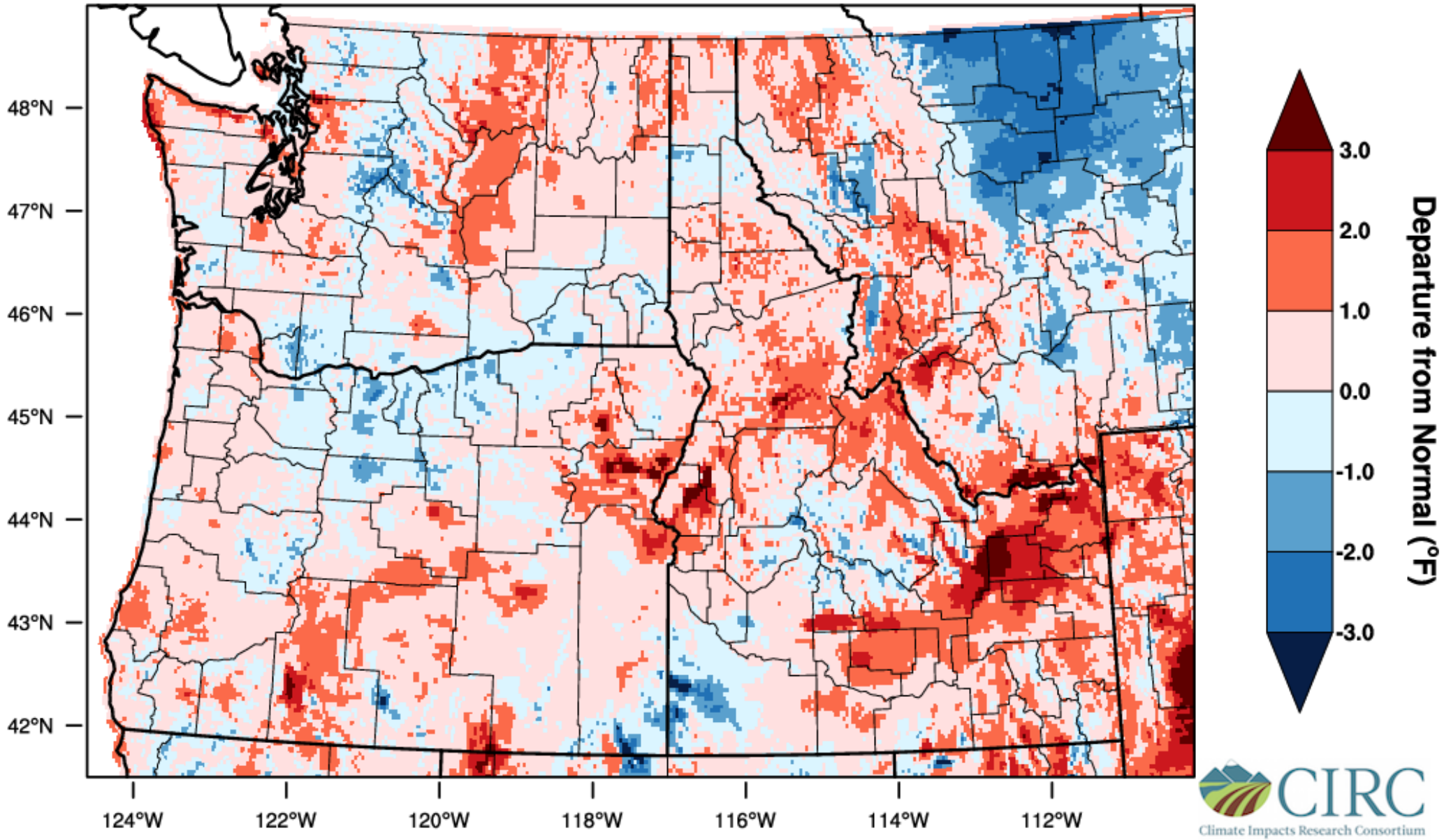


NW Climate Toolbox (climatetoolbox.org), created 9 APR 2024

CIRC
Climate Impacts Research Consortium
A NOAA RISA TEAM

Average Temperature, Current Calendar Year, 01/01/24 to 04/07/24

Departure from 1991-2020 Normal, Northwestern United States



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