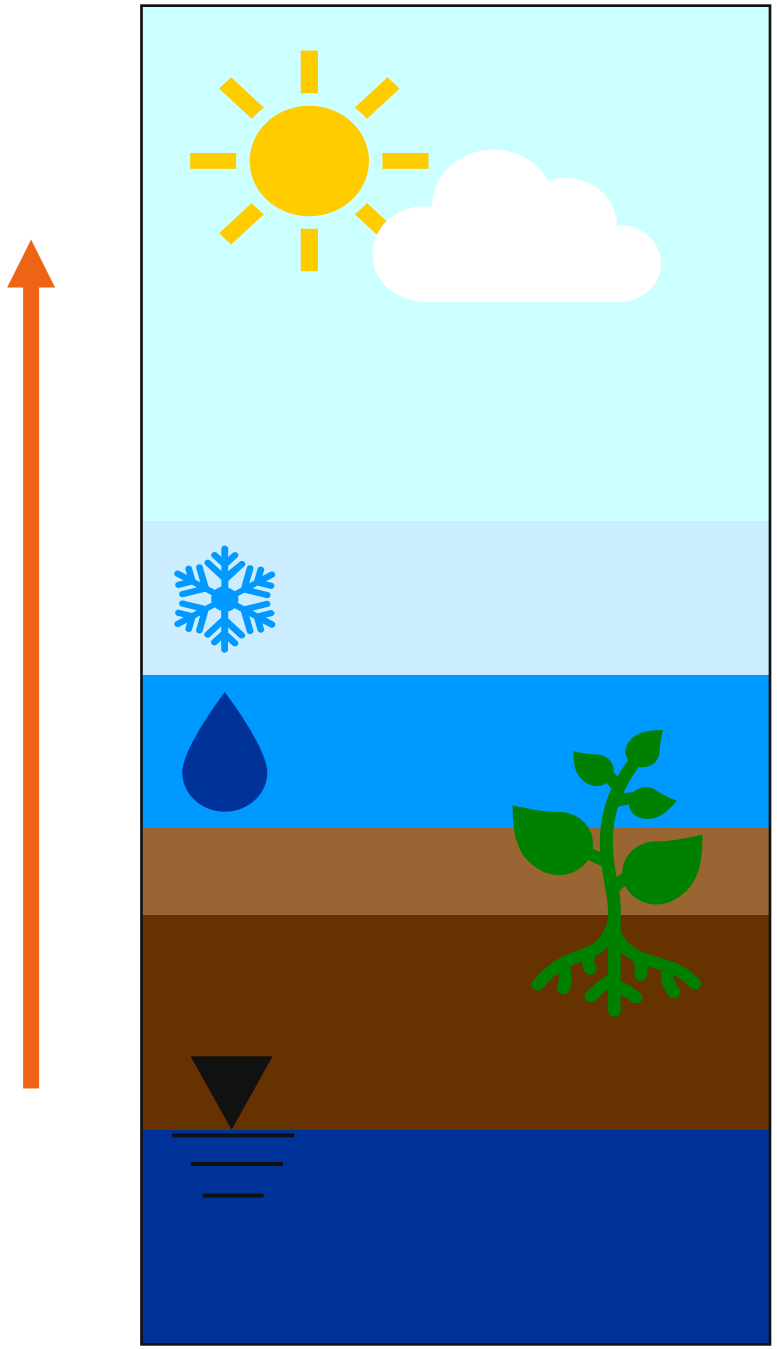
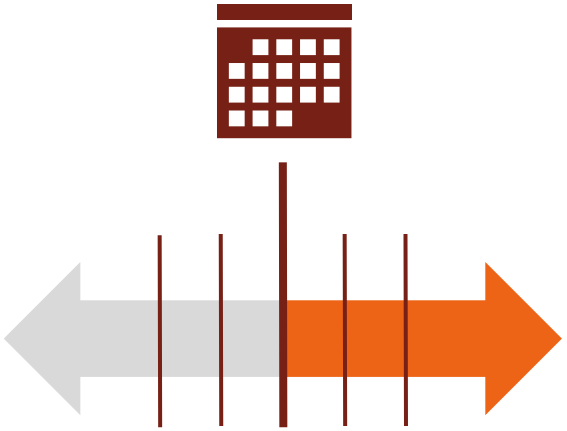
Hydrology & System Status Update March 2025

Colorado River Authority of Utah Board Meeting
Marc Stilson, Principal Engineer
Lily Bosworth, Staff Engineer

March 25, 2025
SALT LAKE CITY, UTAH

Hydrology



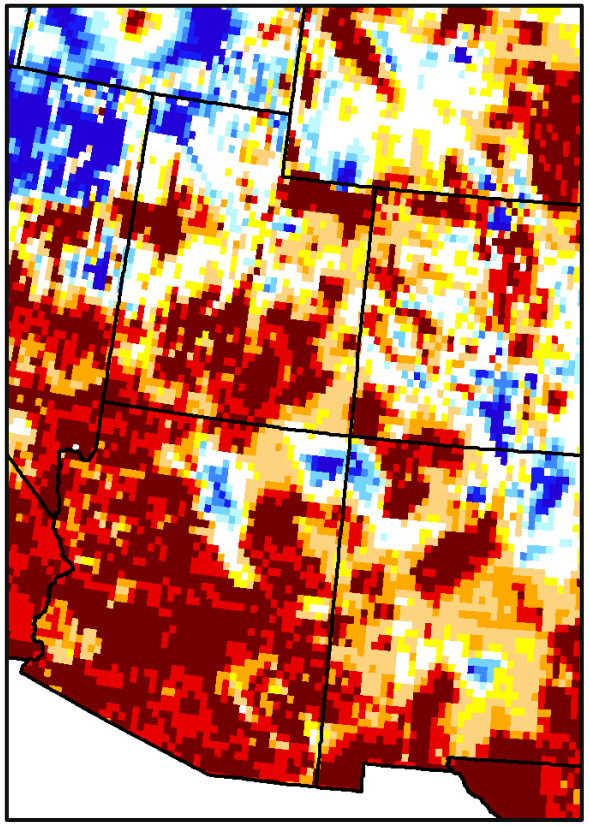


Today's data:

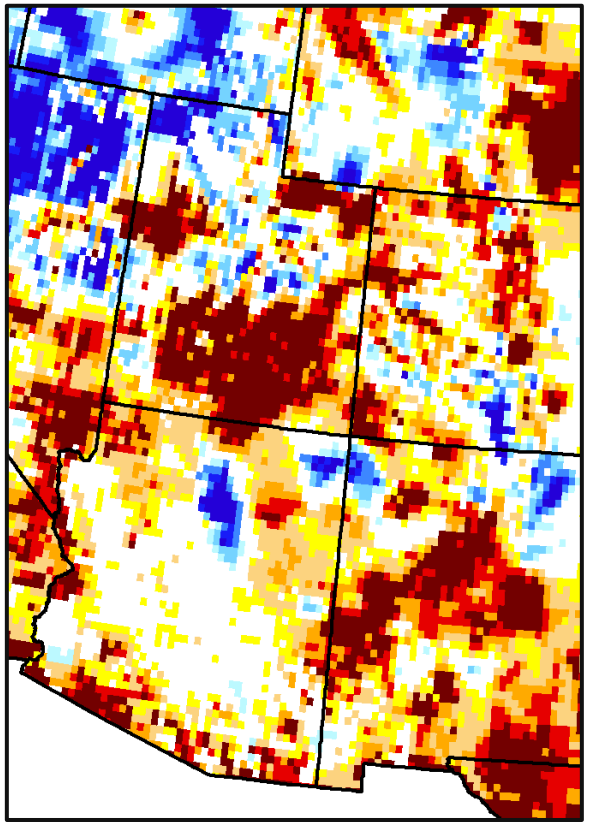
- Ground-up
- Present, future
- Upper Colorado River Basin

Subsurface Hydrology: Mid-March 2025

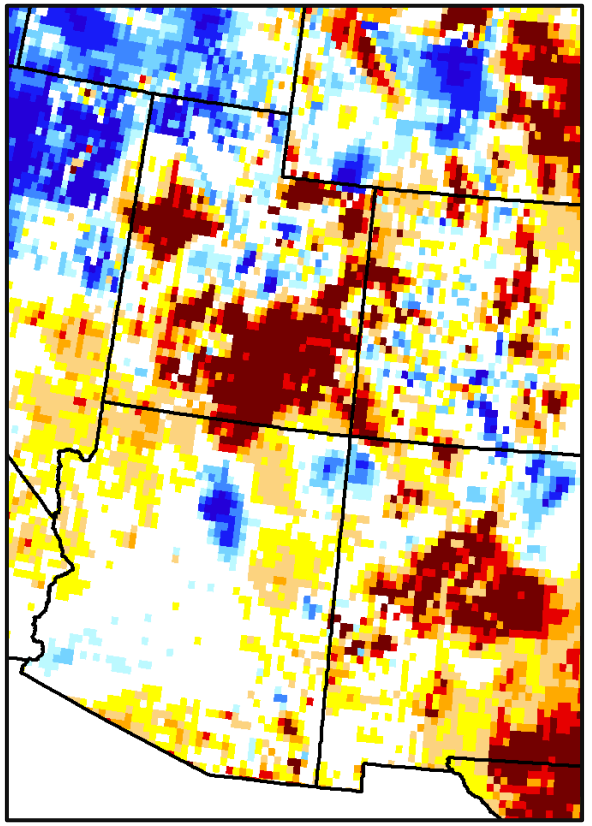
Shallow Groundwater

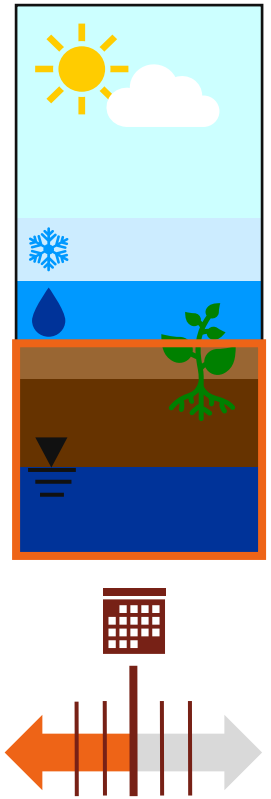


Root Zone Soil Moisture



Surface Soil Moisture





- Soil moisture tends to be low

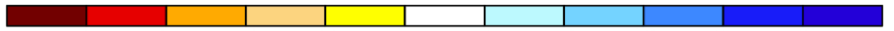
Wetness percentiles are relative to the period 1948-2012

The surface layer is defined as the top 2 centimeters of soil

Cell Resolution 0.125 degrees

Projection of this document is Lambert Azimuthal Equal Area

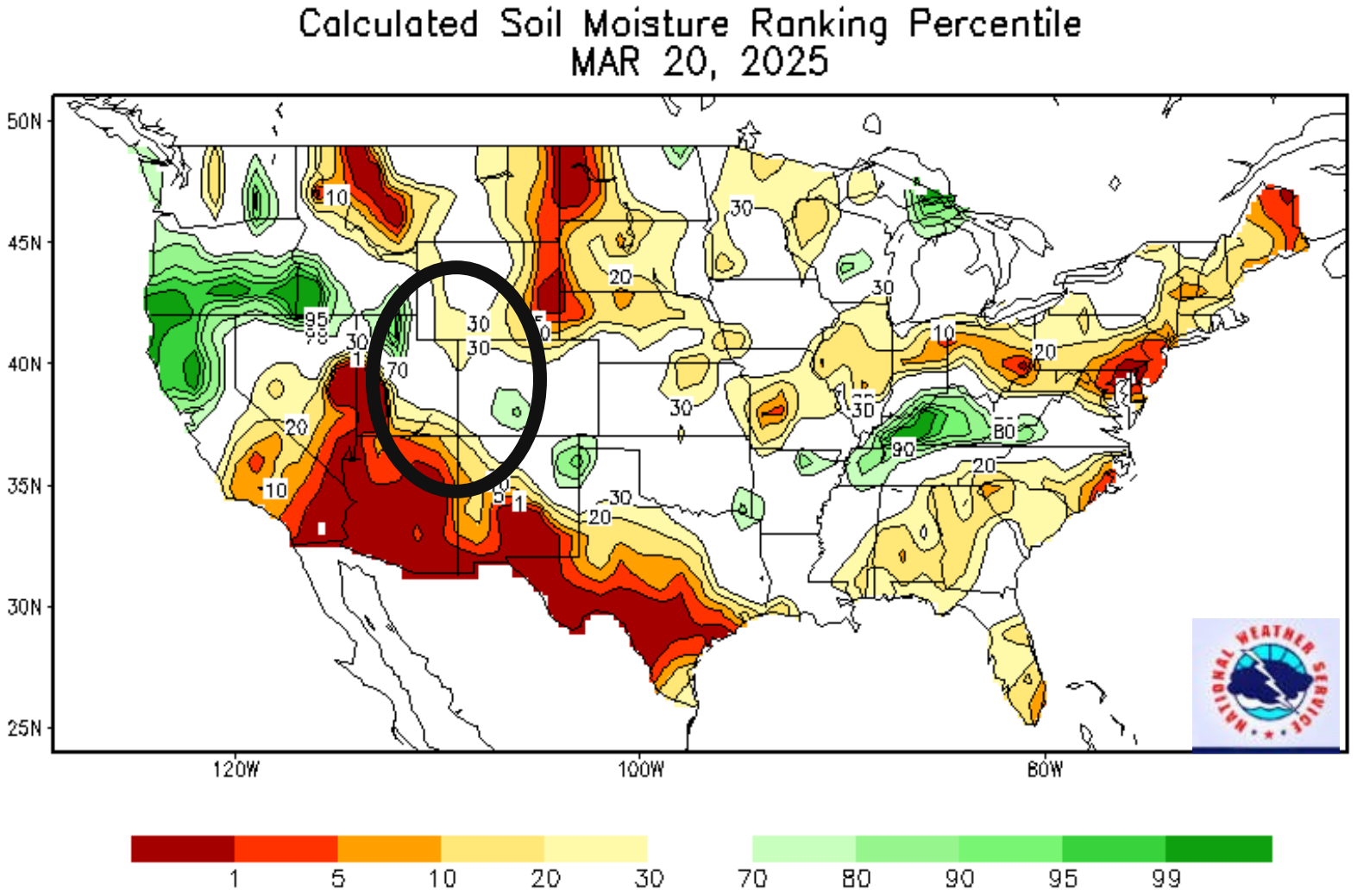
https://nasagrace.unl.edu



Wetness Percentile

Subsurface Hydrology: Mid-March 2025

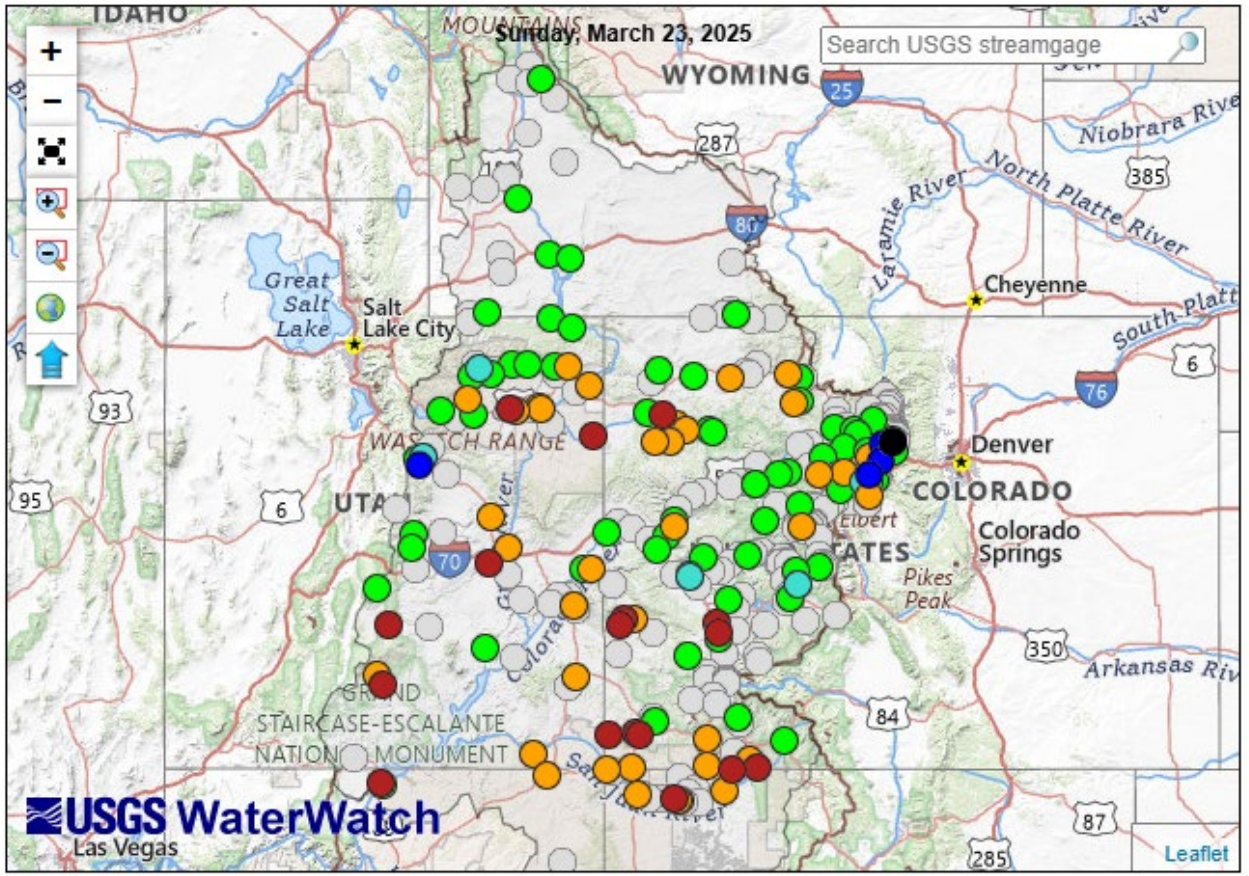
- Percentage soil moisture at or below the 50th percentile across the Upper Colorado River Basin



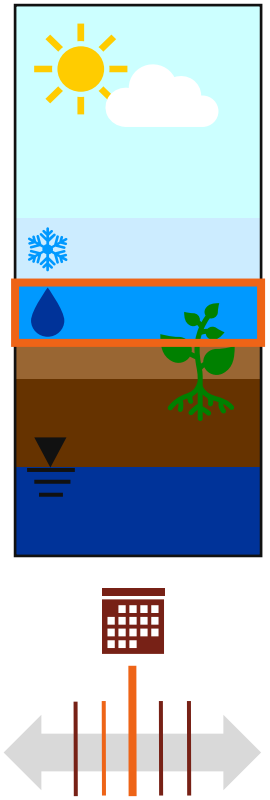
Surface Hydrology: February – March 2025

- Below normal to normal flow across Upper Basin

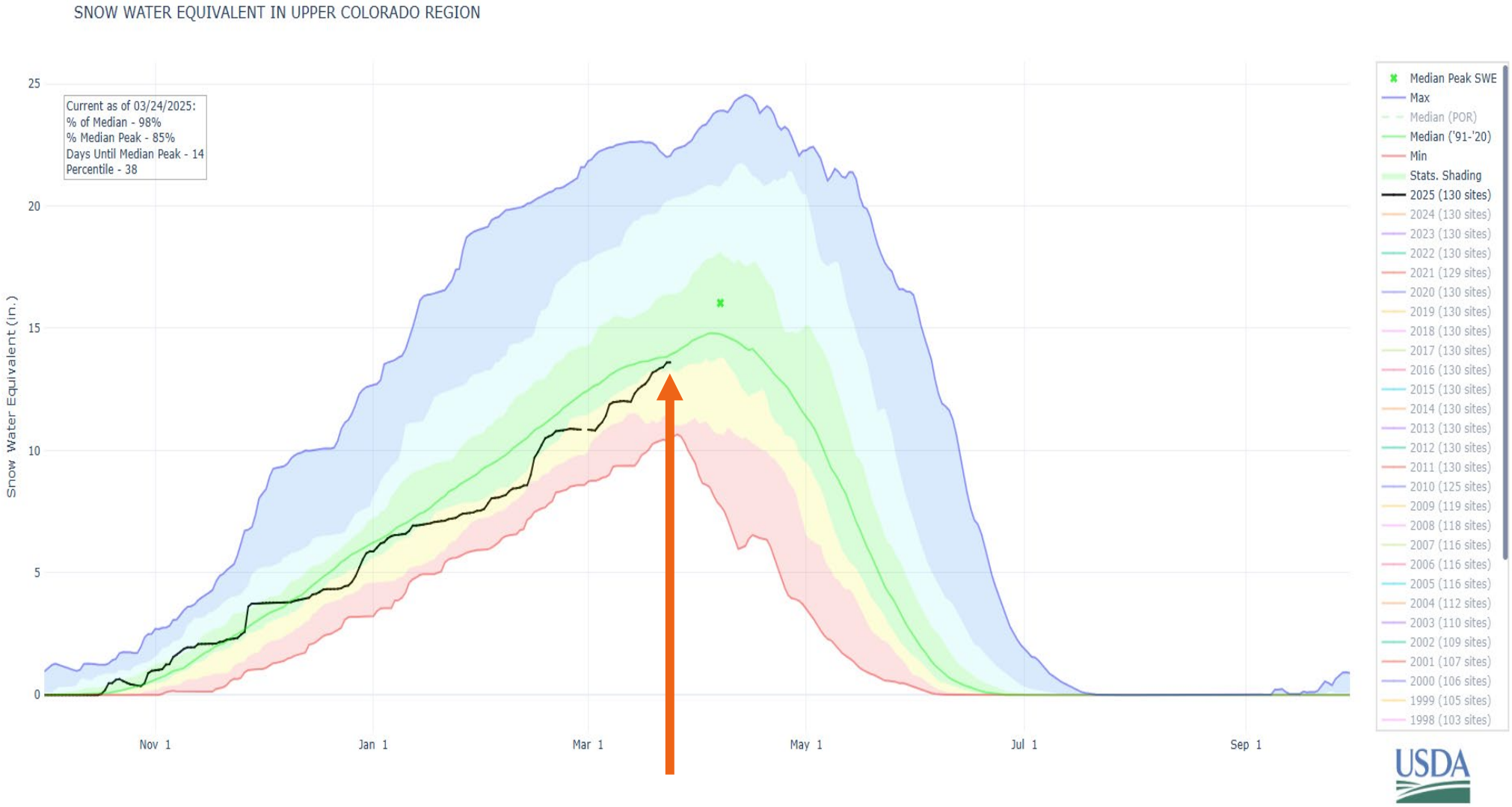
Map of 28-day streamflow compared to historical streamflow for the day of the year

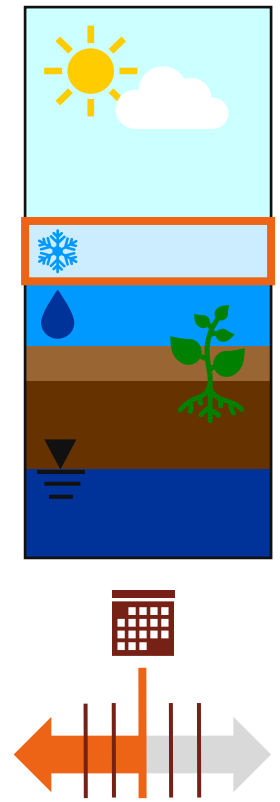


Explanation - Percentile classes							
Low	<10	10-24	25-75	76-90	>90	High	Not-ranked
	Much below normal	Below normal	Normal	Above normal	Much above normal		



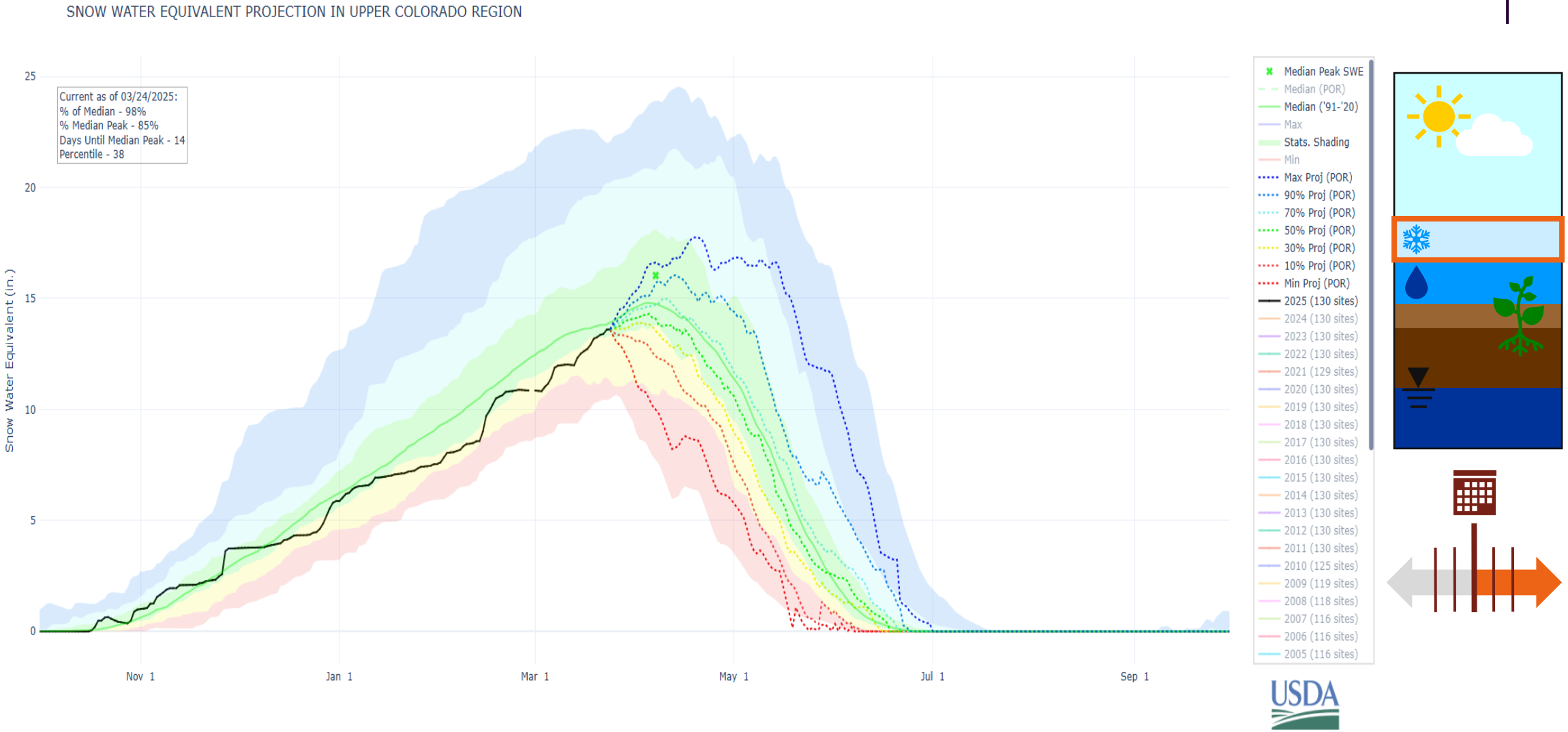
Surface Hydrology: Water Year 2025 Snow





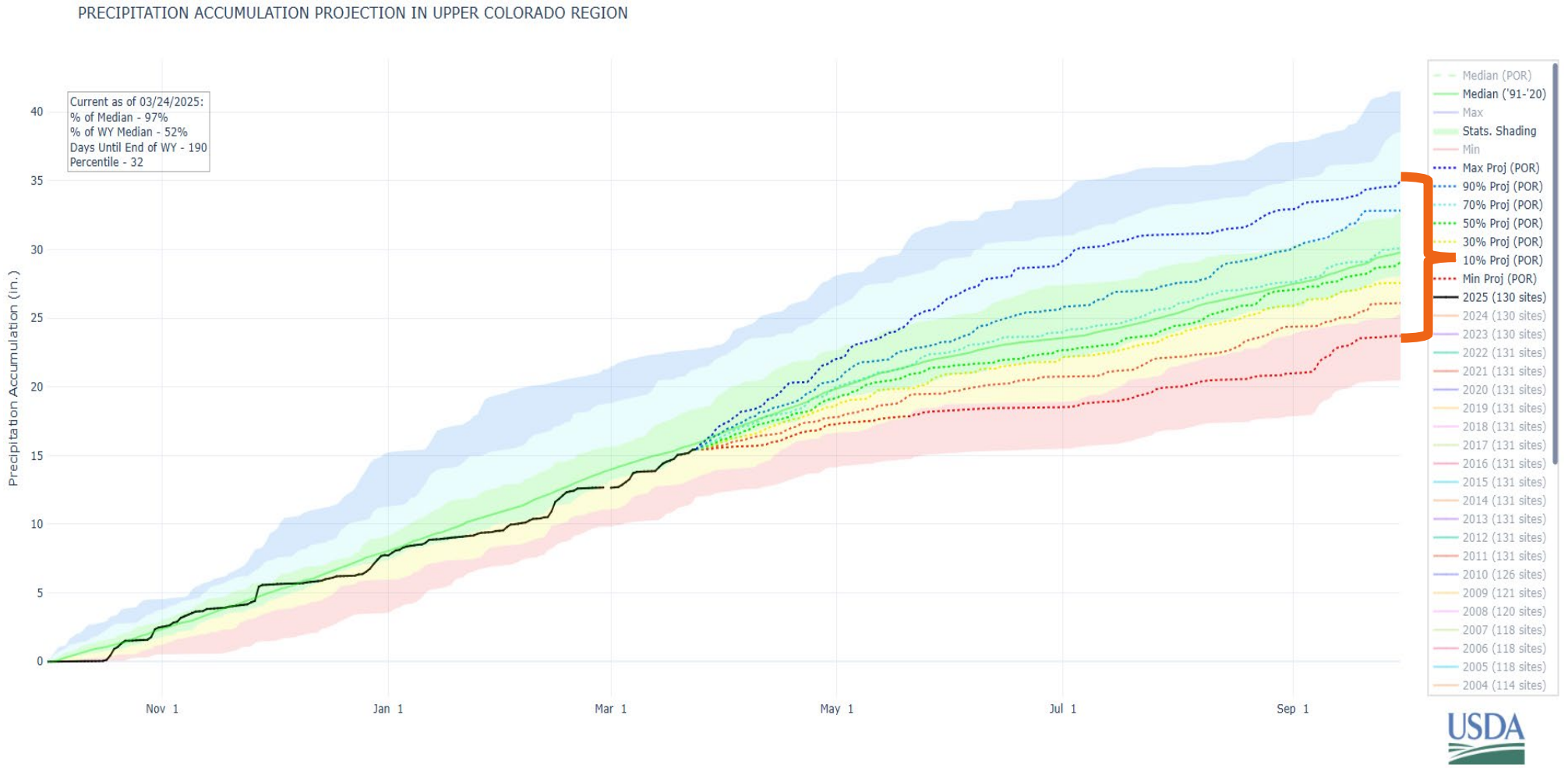
- Snow accumulation continues slightly below normal
- ASO flight today!

Surface Hydrology: Water Year 2025 Snow



- SWE is likely to be slightly below normal for the remainder of the season

Atmospheric Hydrology: Water Year 2025 Precipitation Total



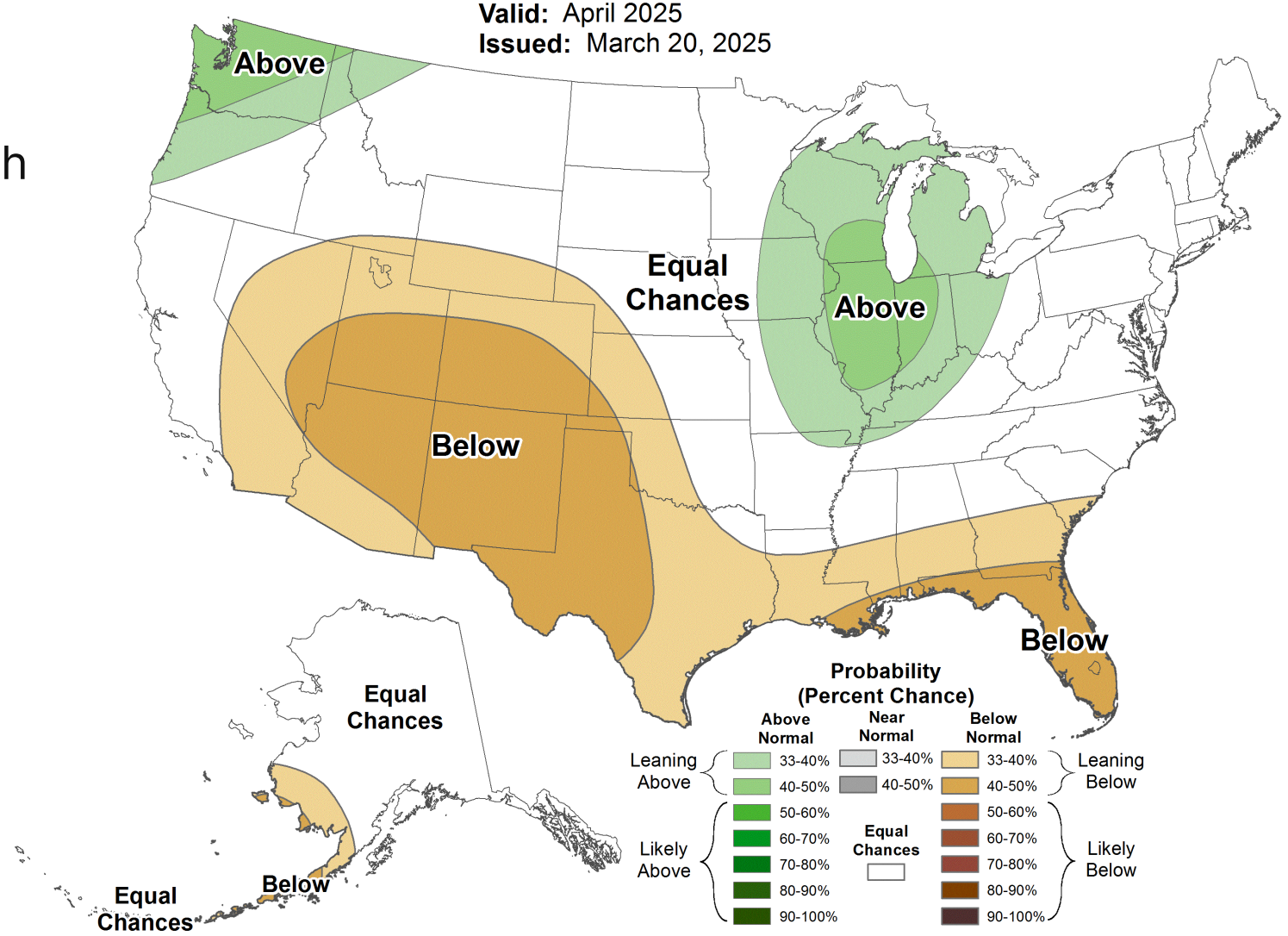
- Slightly below normal precipitation projected for Water Year 2025
- A wide range of possibilities remains

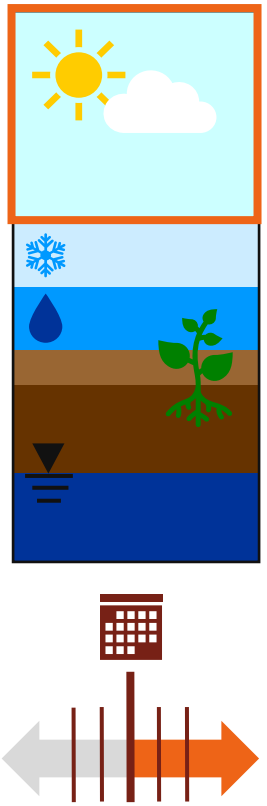
Atmospheric Hydrology: 3 Month Precipitation Outlook

- Below average precipitation forecast through April

Monthly Precipitation Outlook

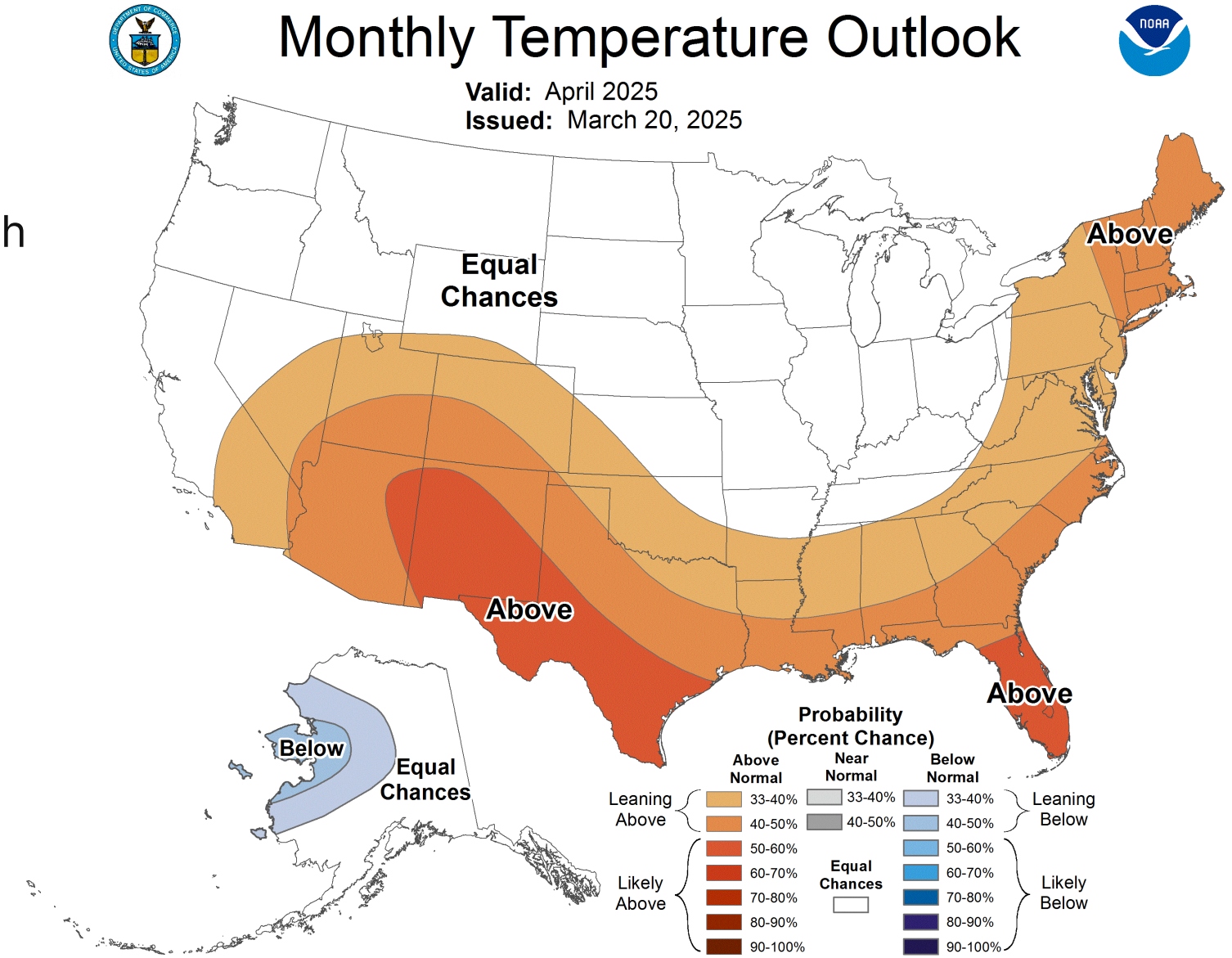
Valid: April 2025
Issued: March 20, 2025

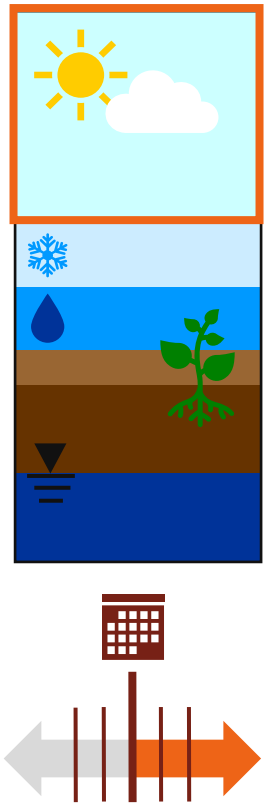




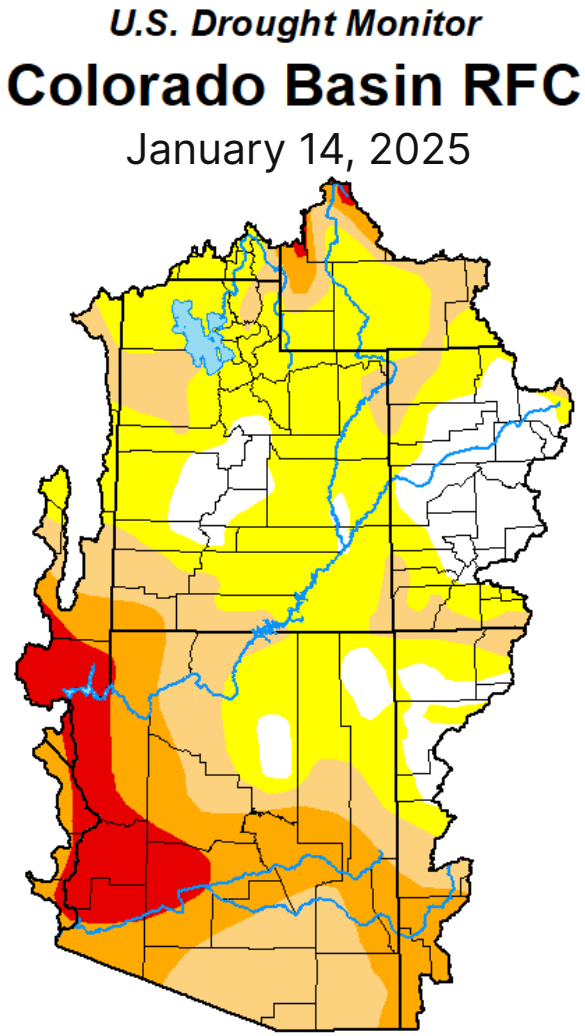
Atmospheric Hydrology: Temperature Outlook

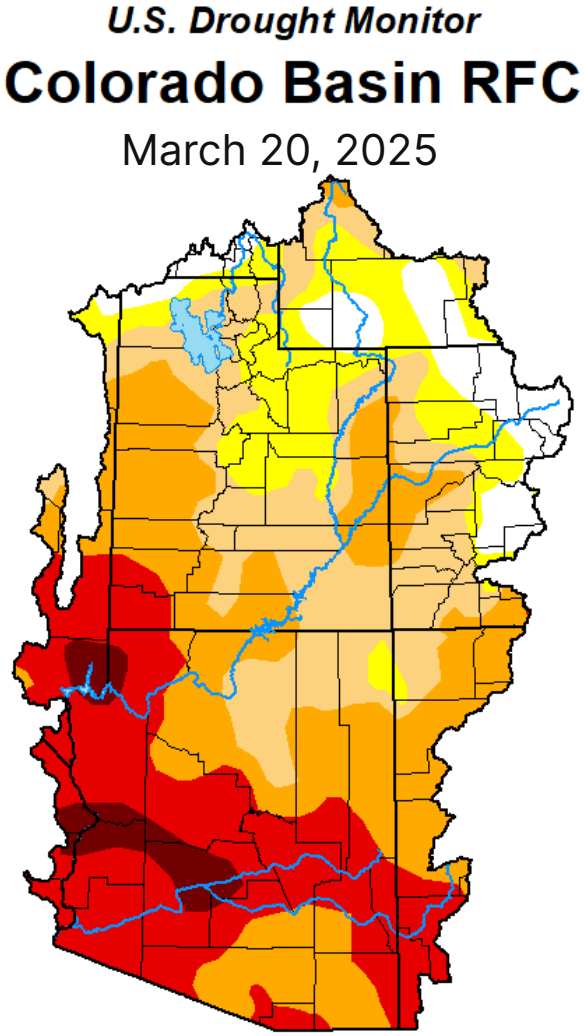
- Above average temperatures forecast through April





Drought Conditions: U.S. Drought Monitor





March 18, 2025
(Released Thursday, Mar. 20, 2025)
Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	7.40	92.60	80.00	57.88	28.01	3.66
Last Week *03-11-2025*	6.67	93.33	80.01	57.88	28.29	3.66
3 Months Ago *12-17-2024*	19.78	80.22	39.58	20.39	6.66	0.00
Start of Calendar Year *01-07-2025*	13.35	86.65	46.96	24.34	7.74	0.00
Start of Water Year *10-01-2024*	27.96	72.04	26.26	2.67	0.00	0.00
One Year Ago *03-19-2024*	42.22	57.78	24.24	8.11	1.90	0.00

Intensity:

- None
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to https://droughtmonitor.unl.edu/About.aspx

Author:
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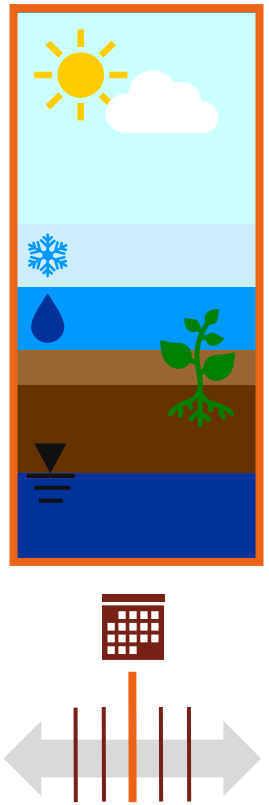
U.S. Department of Agriculture

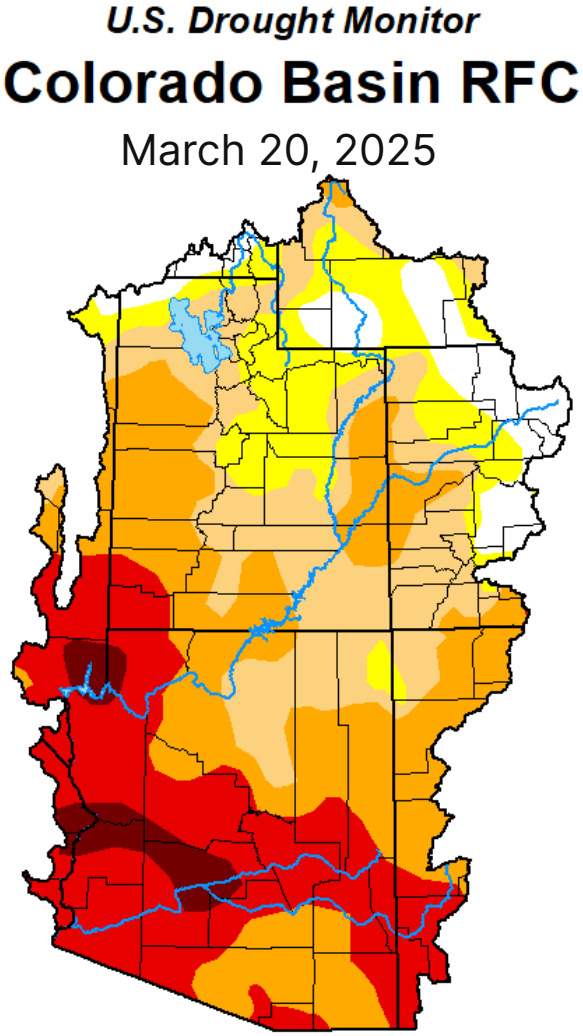
droughtmonitor.unl.edu



Drought Conditions: U.S. Drought Monitor

- Severe drought appearing in Upper Colorado River Basin

Drought conditions increasing in the Colorado River Basin



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USDA NDMC NOAA

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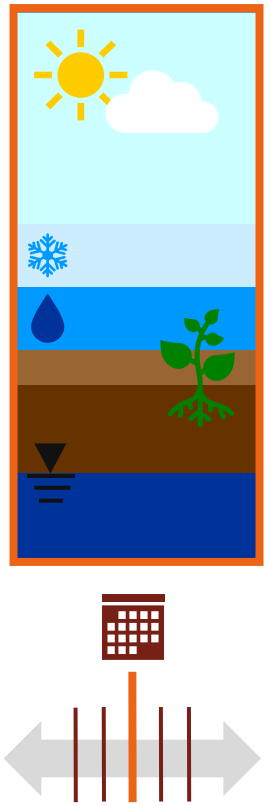
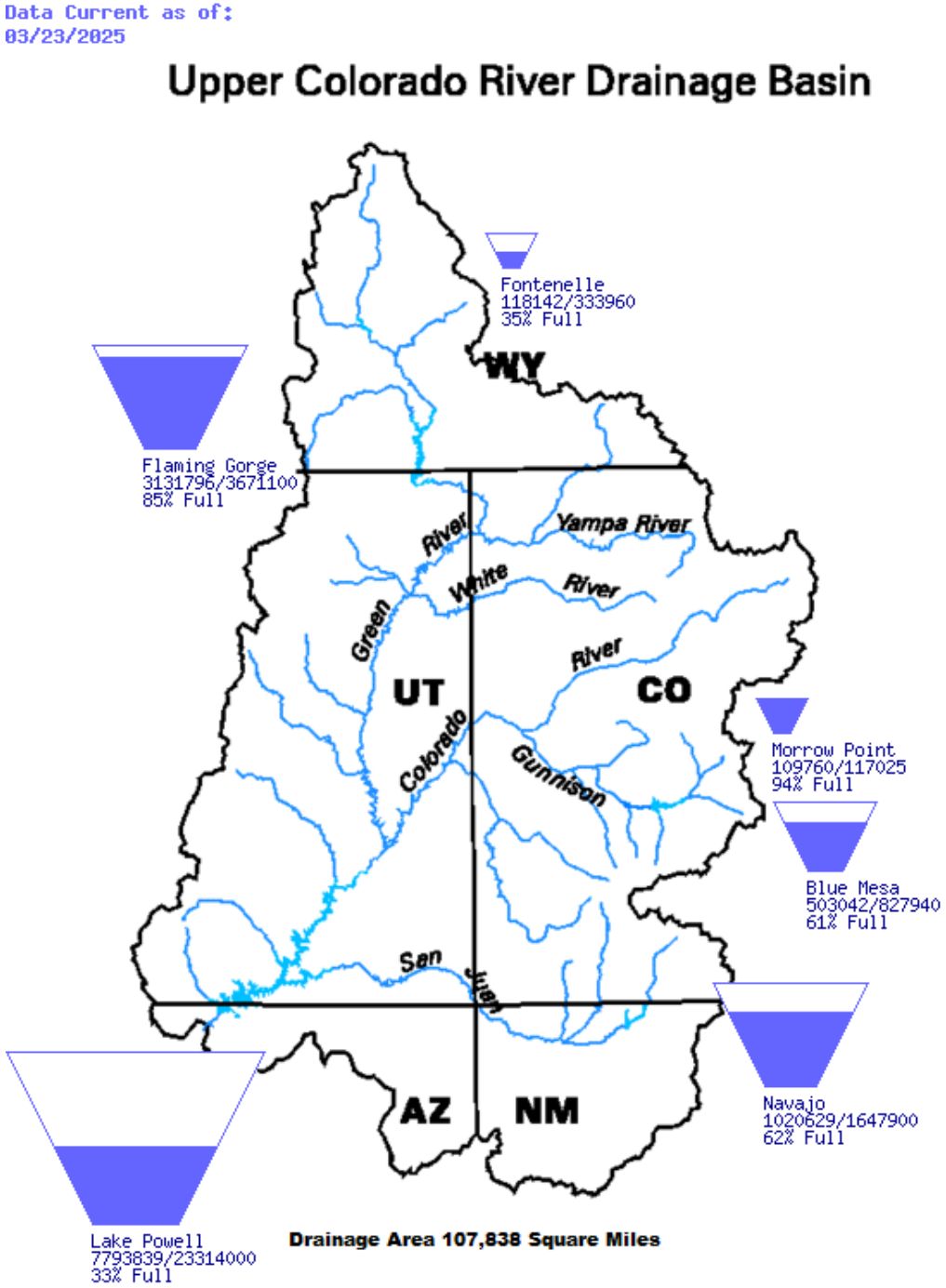


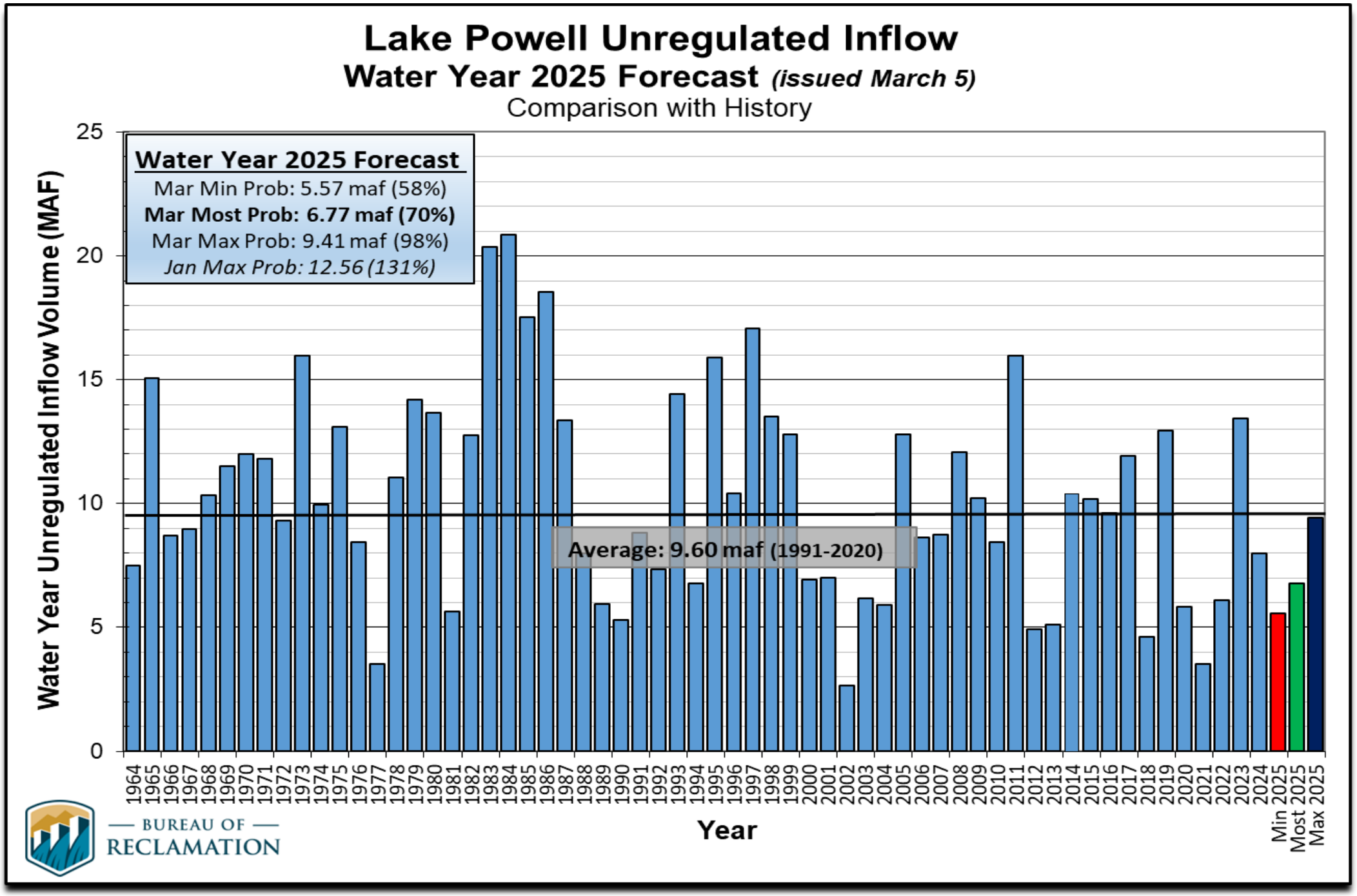
System Operations

Upper Basin Storage: March 23, 2025

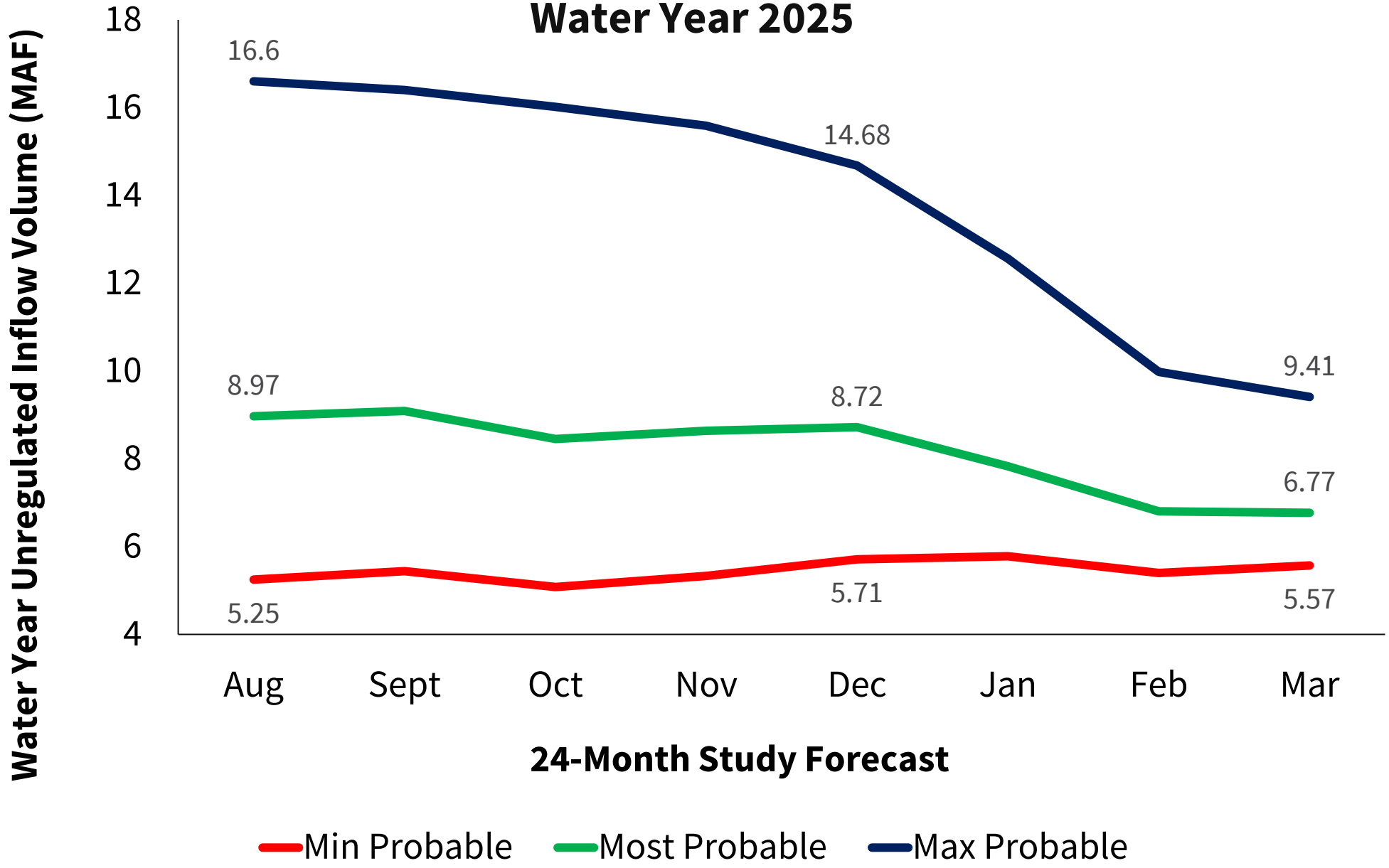


Powell, Mead and System Storage: March 23, 2025

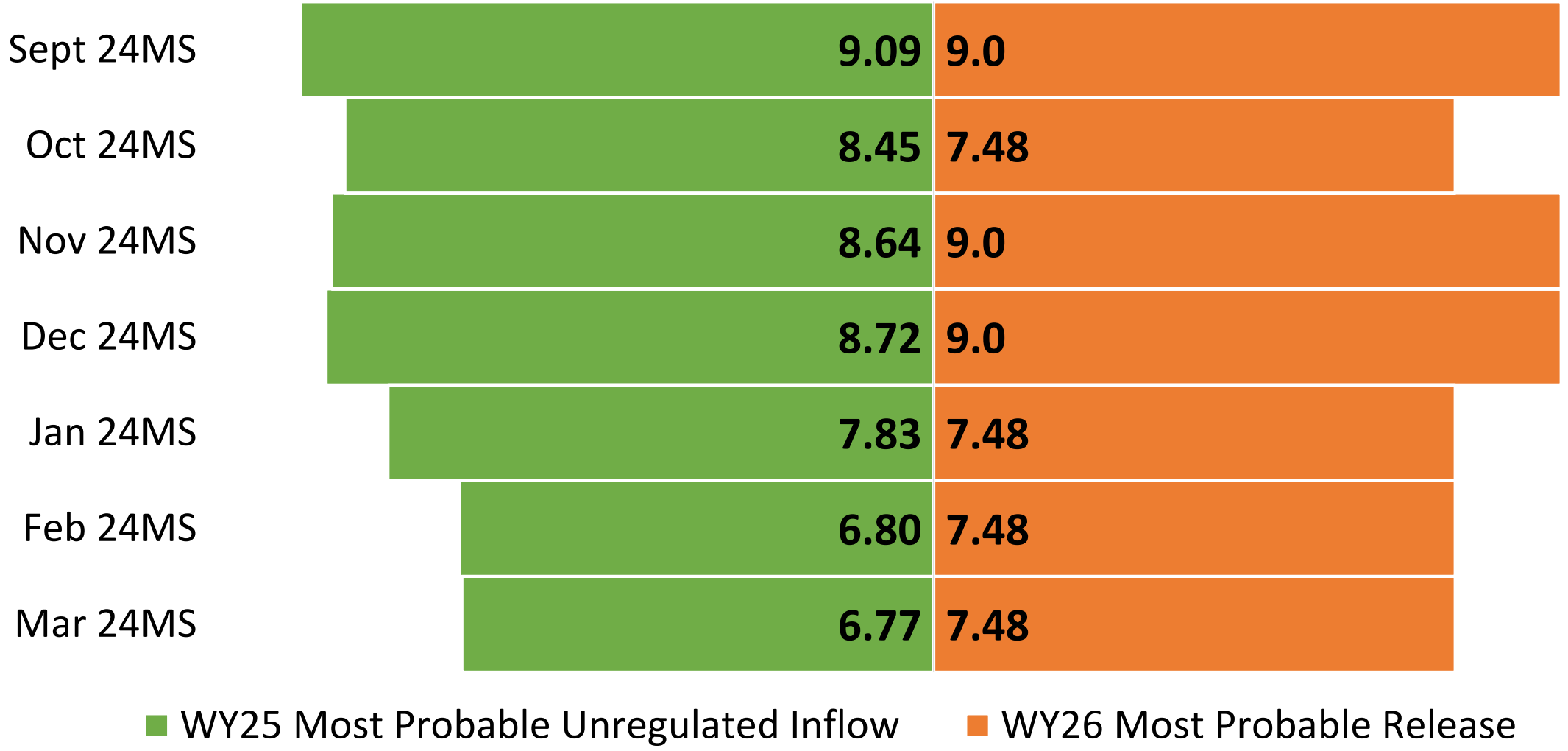
Reservoir	Percent Full	Storage (MAF)	Elevation (feet)
Lake Powell	33%	7.794	3,560.10
Lake Mead	34%	8.996	1,067.42
Total System Content	41%	23.958	NA
Total System Content (one year ago)	42%	24.682	NA


Lake Powell Unregulated Inflow
Water Year 2025 Forecast (issued March 5)
Comparison with History
Water Year 2025 Forecast
Mar Min Prob: 5.57 maf (58%)
Mar Most Prob: 6.77 maf (70%)
Mar Max Prob: 9.41 maf (98%)
Jan Max Prob: 12.56 (131%)
Average: 9.60 maf (1991-2020)
Water Year Unregulated Inflow Volume (MAF)
0
5
10
15
20
25
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 2016 2017 2018 2019 2020 2021 2022 2023 2024 Min 2025 Most 2025 Max 2025
Year
BUREAU OF RECLAMATION

Evolution of Lake Powell Unregulated Inflow Forecast
Water Year 2025



Evolution of WY25 Unregulated Inflow Forecast and WY26 Lake Powell Release



Most Probable March Forecast
Water Year 2025

April – July 2025
Forecasted Unregulated Inflow

as of March 5, 2025

Reservoir	Inflow (kaf)	Change from Feb	Percent of Avg[1]
Fontenelle	570	0	78
Flaming Gorge	660	-5	68
Blue Mesa	550	+30	87
Navajo	325	-25	52
Powell	4,300	0	67

Water Year 2025
Unregulated Inflow Forecast

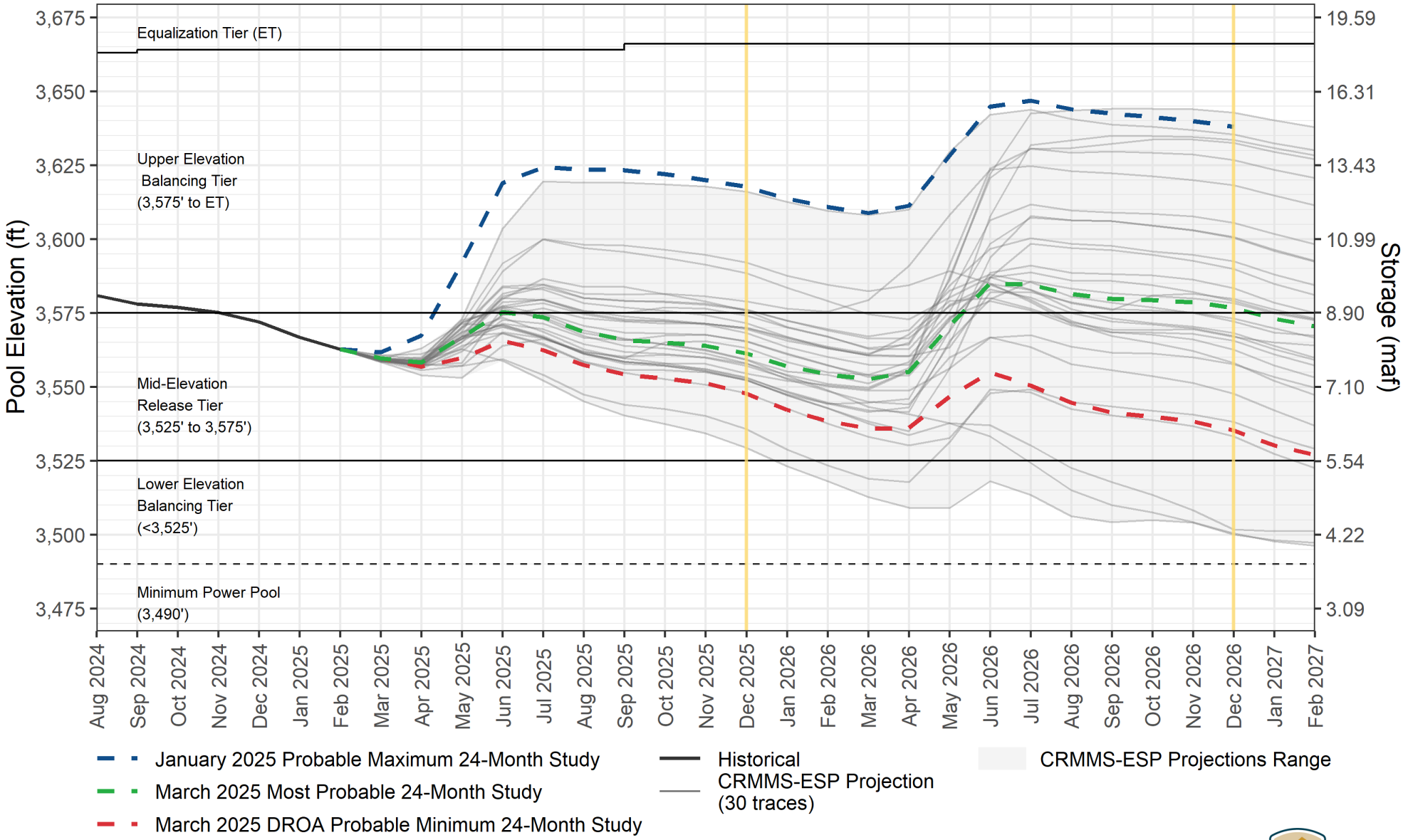
as of March 5, 2025

Reservoir	Inflow (kaf)	Change from Feb	Percent of Avg[1]
Fontenelle	845	-1	79
Flaming Gorge	1,027	+5	73
Blue Mesa	815	+5	90
Navajo	486	-34	53
Powell	6,770	-34	70

[1]Averages are based on the 1991 through 2020 period of record.

Lake Powell End-of-Month Elevations[1]

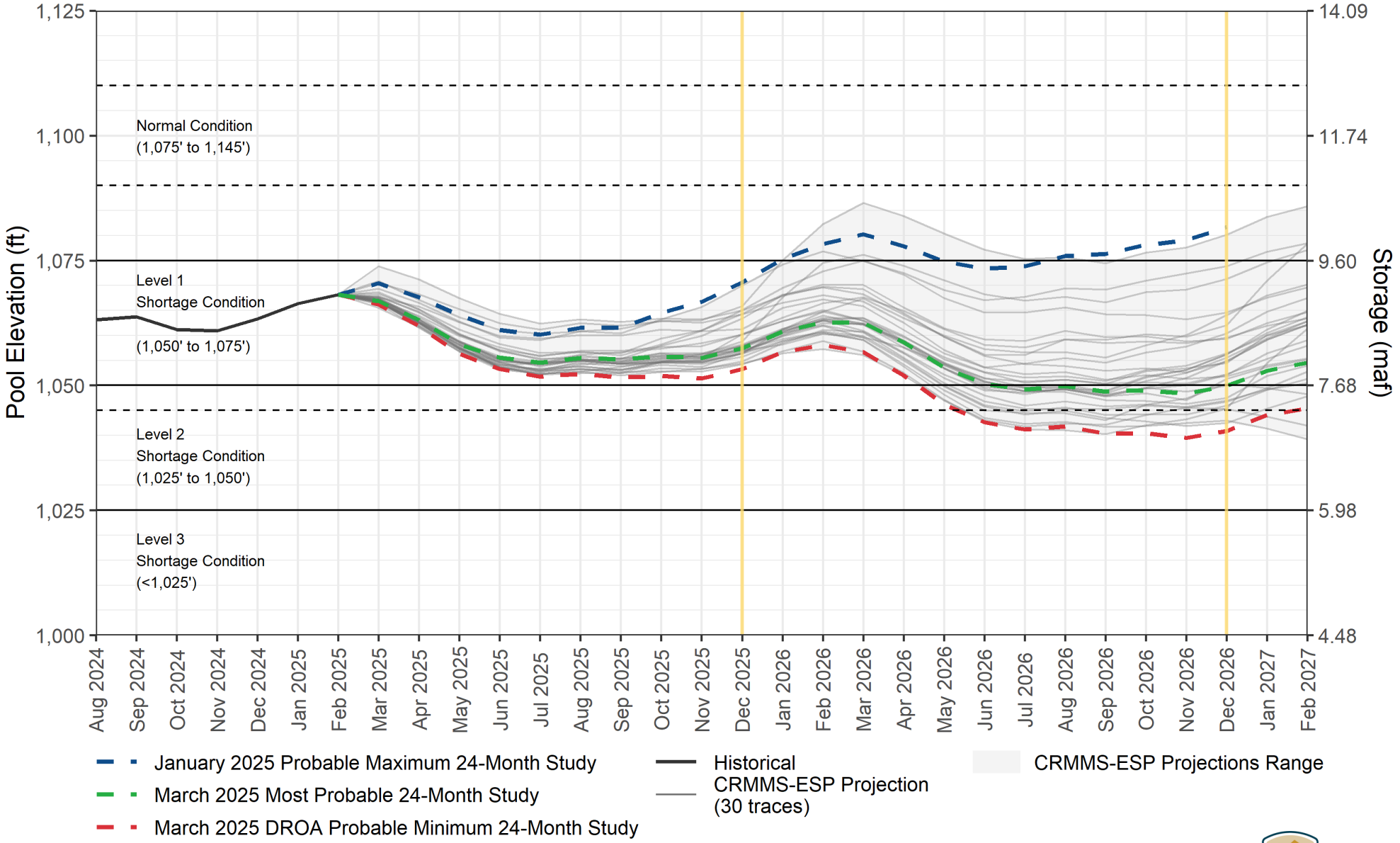
CRMMS Projections from January and March 2025



[1]For modeling purposes, simulated years beyond 2026 assume a continuation of the 2007 Interim Guidelines including the 2024 Supplement to the 2007 Interim Guidelines (no additional SEIS conservation is assumed to occur after 2026), the 2019 Colorado River Basin Drought Contingency Plans, and Minute 323 including the Binational Water Scarcity Contingency Plan. With the exception of certain provisions related to ICS recovery and Upper Basin Demand management, operations under these agreements are in effect through 2026. Reclamation initiated the process to develop operations for post-2026 in June 2023, and the modeling assumptions describe here are subject to change.

Lake Mead End-of-Month Elevations[1]

CRMMS Projections from January and March 2025



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Defending Every Drop

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