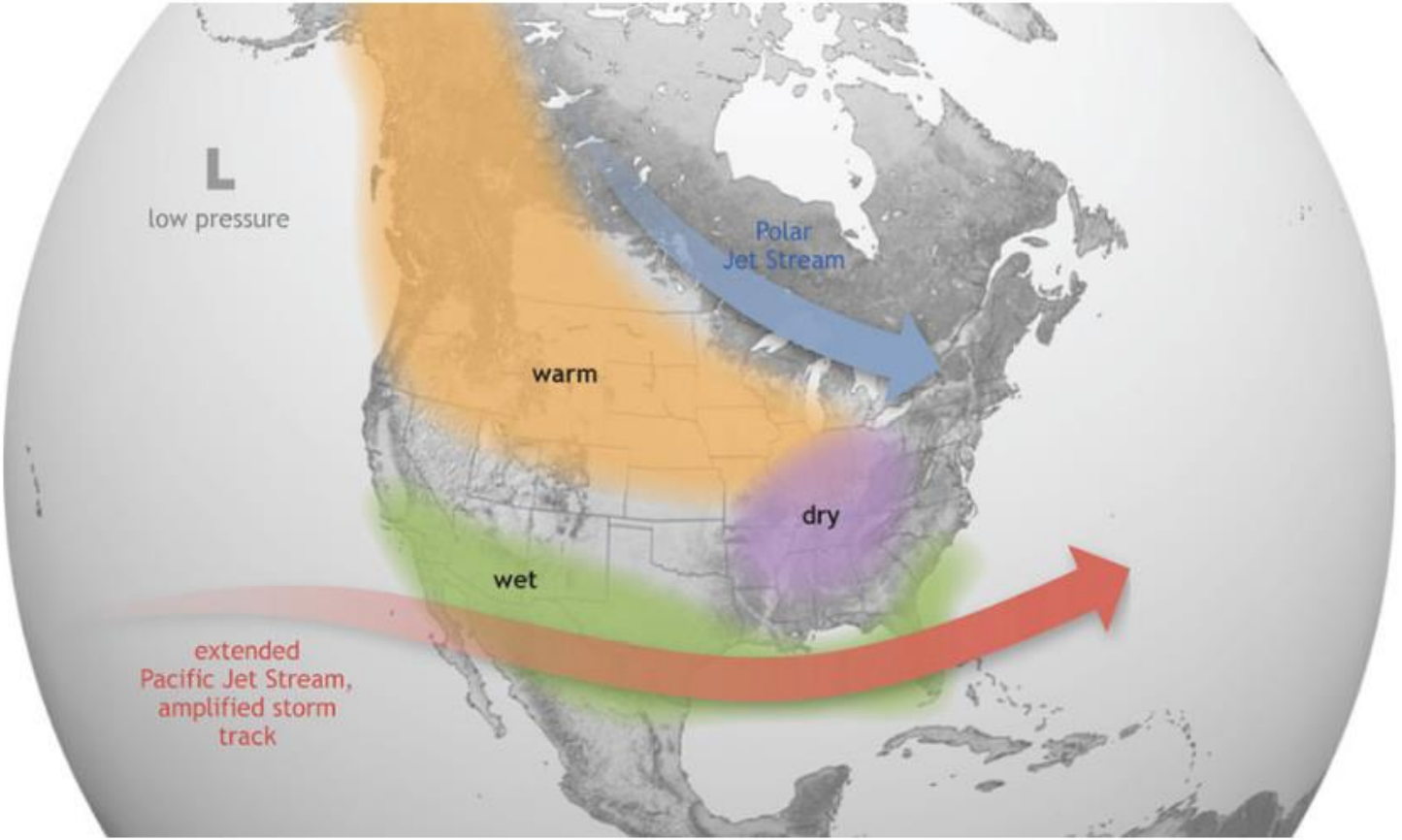
2024 Water Supply Outlook (01/17/24)

Approximate date	Purpose of Meeting
End of January	Review reservoir carryover and initial projection of water supply, tentatively categorize water-year type
End of February	Review reservoir carryover and initial projection of water supply, tentatively categorize water-year type, set March wet and normal year streamflow targets, modify MEF timing (if applicable) to match anticipated snowmelt runoff
End of March	Refine projection of water supply, tentatively categorize water-year type, and set April wet and normal streamflow targets, modify MEF timing (if applicable) to match anticipated snowmelt runoff
Mid-April	Refine projection of water supply, categorize water-year type, update wet and normal streamflow targets for the month, set initial RDAs based on water year type, modify MEF timing (if applicable) to match anticipated snowmelt runoff
Early May	Refine projection of water supply, update water-year type (if applicable), set wet and normal streamflow targets for the month, review initial RDAs based on water year type, taking into account any changes in water year type, modify MEF timing (if applicable) to match anticipated snowmelt runoff
Mid-May	Refine projection of water supply, update water-year type, update wet and normal streamflow targets for the month, update RDAs based on any changes in water year type, modify MEF timing (if applicable) to match anticipated snowmelt runoff
Early June	Refine projection of water supply, update water-year type (if applicable), set wet and normal streamflow targets for month, quantify portion of RDAs used to date, modify MEF timing (if applicable) to match anticipated snowmelt runoff
Mid June	Finalize projection of water supply and water-year type, update wet and normal streamflow targets for month, modify RDAs based on any changes in water year type, modify MEF timing (if applicable) to match anticipated snowmelt runoff
Early July	Set wet and normal streamflow targets for the month, evaluate RDAs, quantify portion of RDAs used to date
Mid July	Update wet and normal streamflow targets for the month
Early August	Set wet and normal streamflow targets for the month, evaluate RDAs, quantify portion of RDAs used to date
Early September	Set wet and normal streamflow targets for the month, quantify portion of RDAs used to date
Early October	Discuss annual reporting and water operations for the completed irrigation season, develop long-range forecast based on climatic indicators
Early December	Finalize annual reporting of water measurement, refine long-range forecast based on climatic indicators

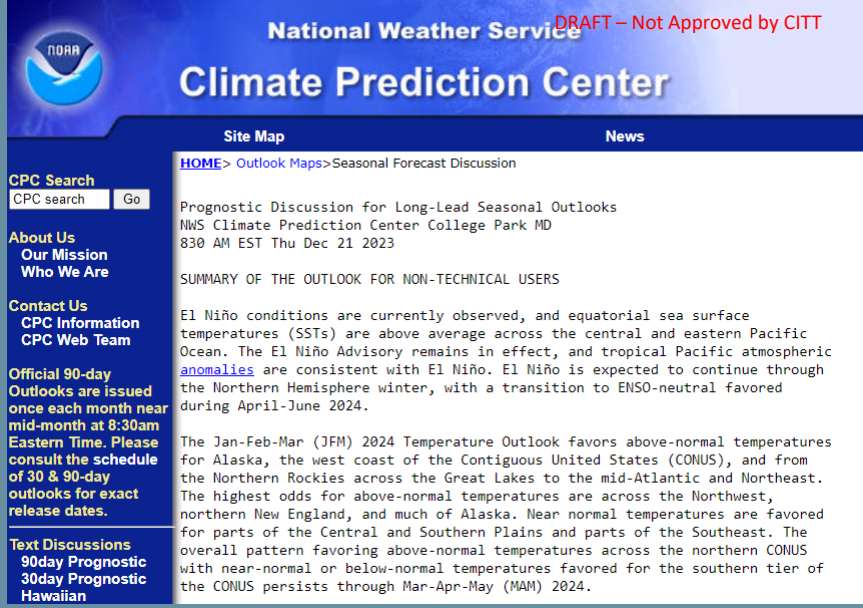
Appendix 3.5 Timeline

ENSO – El Niño



During El Niño, trade winds weaken. Warm water is pushed back east, toward the west coast of the Americas. The warmer waters cause the Pacific jet stream to move south of its neutral position. With this shift, **areas in the northern U.S. and Canada are dryer and warmer than usual.**

ENSO – El Niño

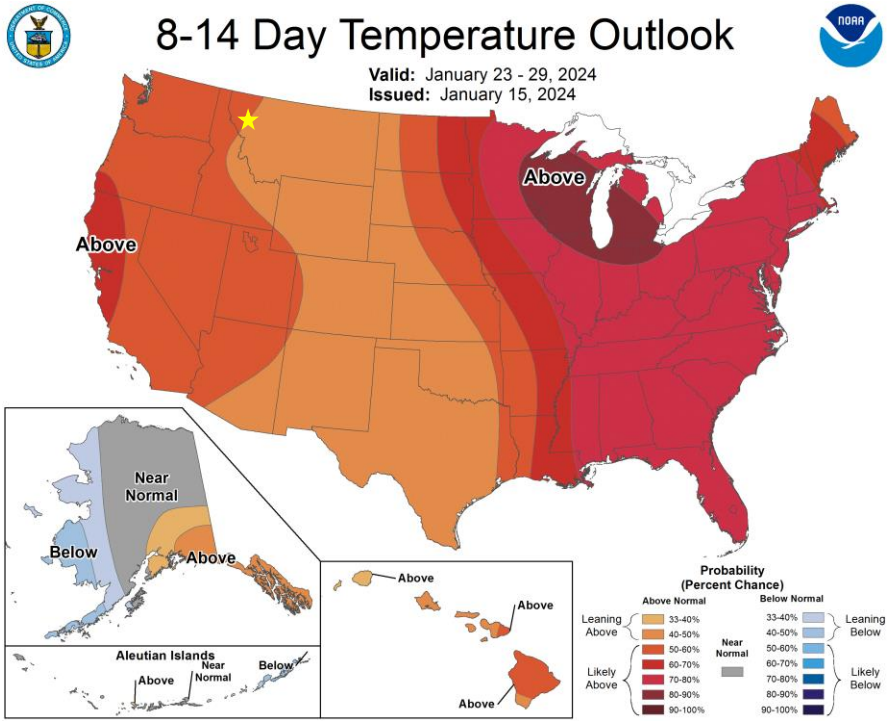


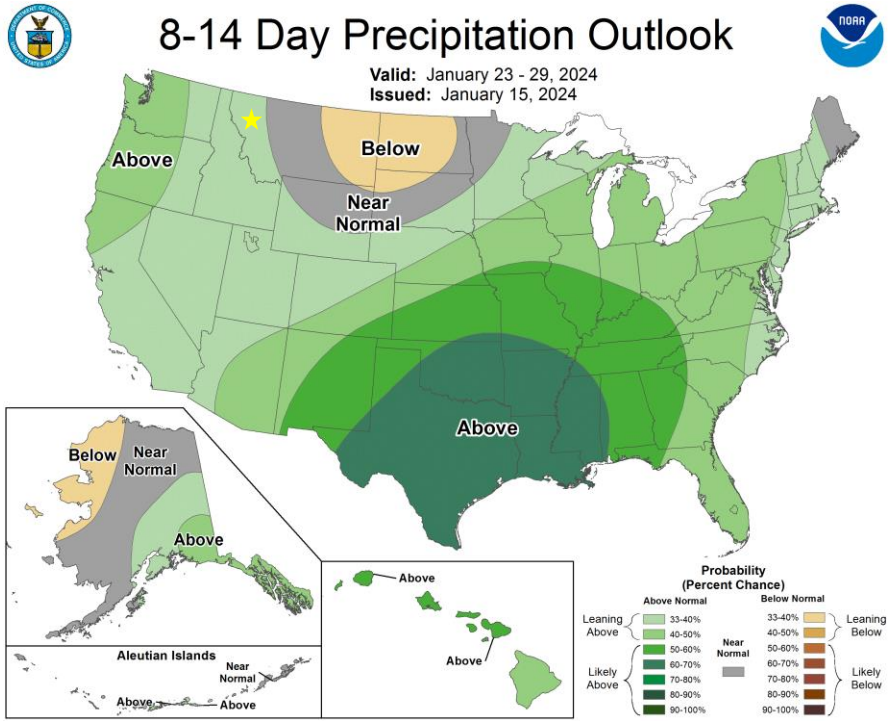
According to NOAA (link in Notes):

“El Niño conditions are currently observed, and equatorial sea surface temperatures (SSTs) are above average across the central and eastern Pacific Ocean. The El Niño Advisory remains in effect, and tropical Pacific atmospheric anomalies are consistent with El Niño. El Niño is expected to continue through the Northern Hemisphere winter, with a transition to ENSO-neutral favored during April-June 2024. ”

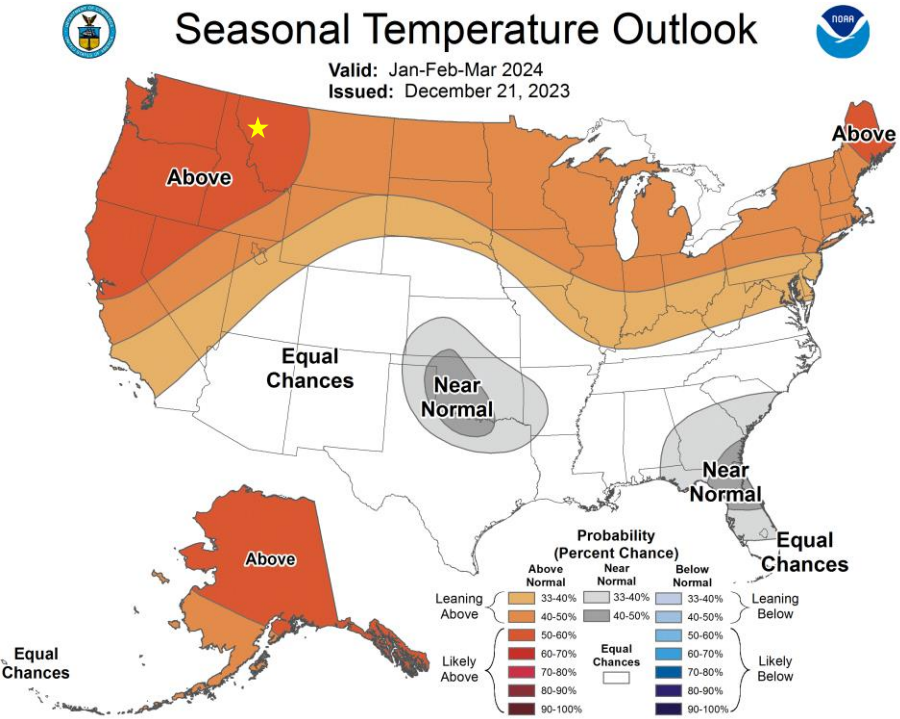
-NOAA Climate Prediction Center (12/21/23)

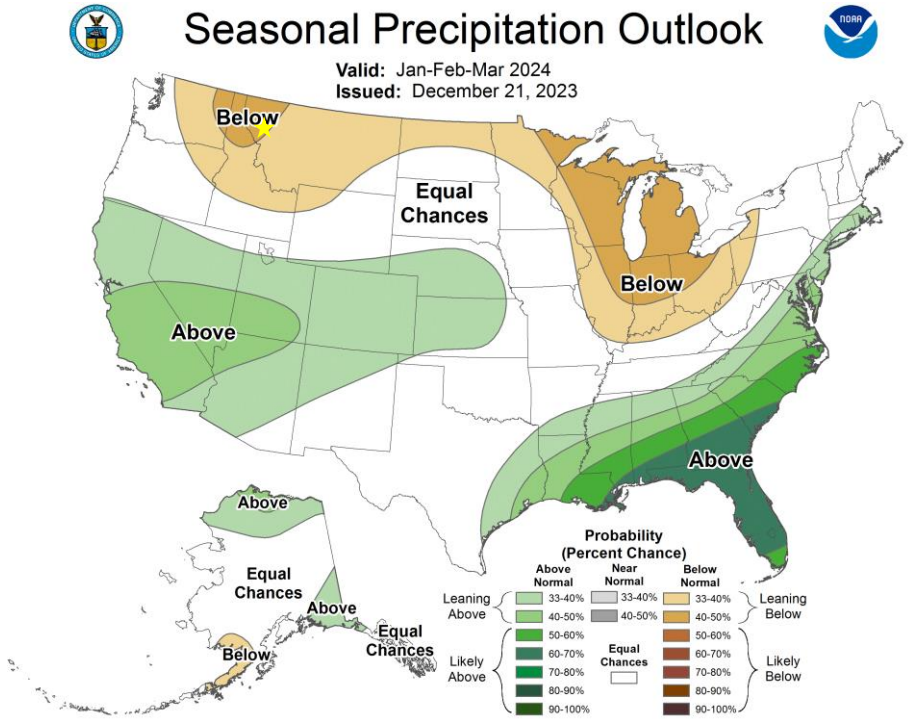
8-14 Day Outlook – Issued January 15, 2024



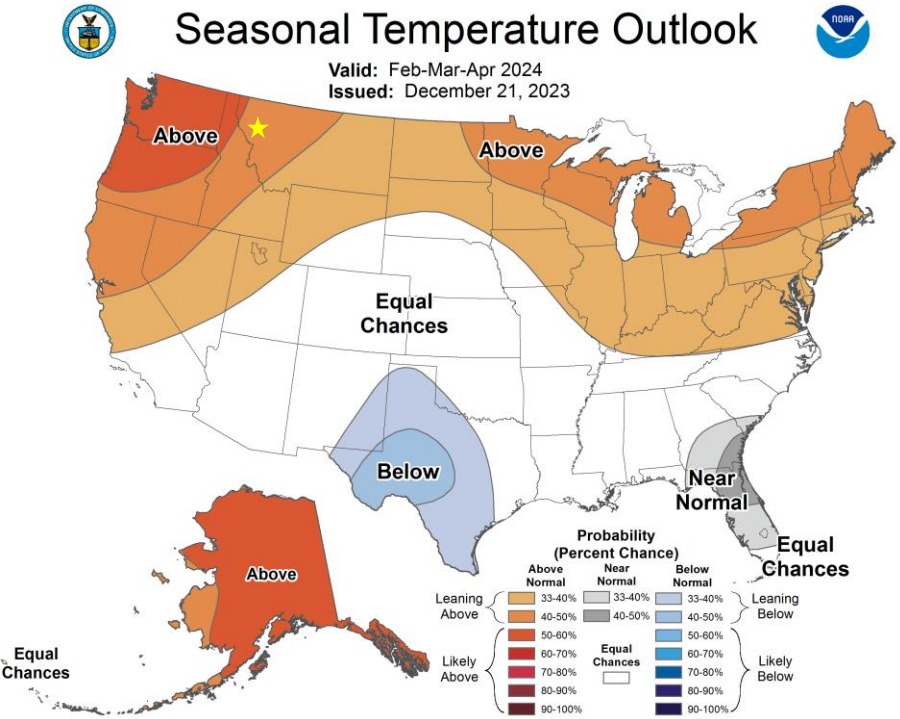


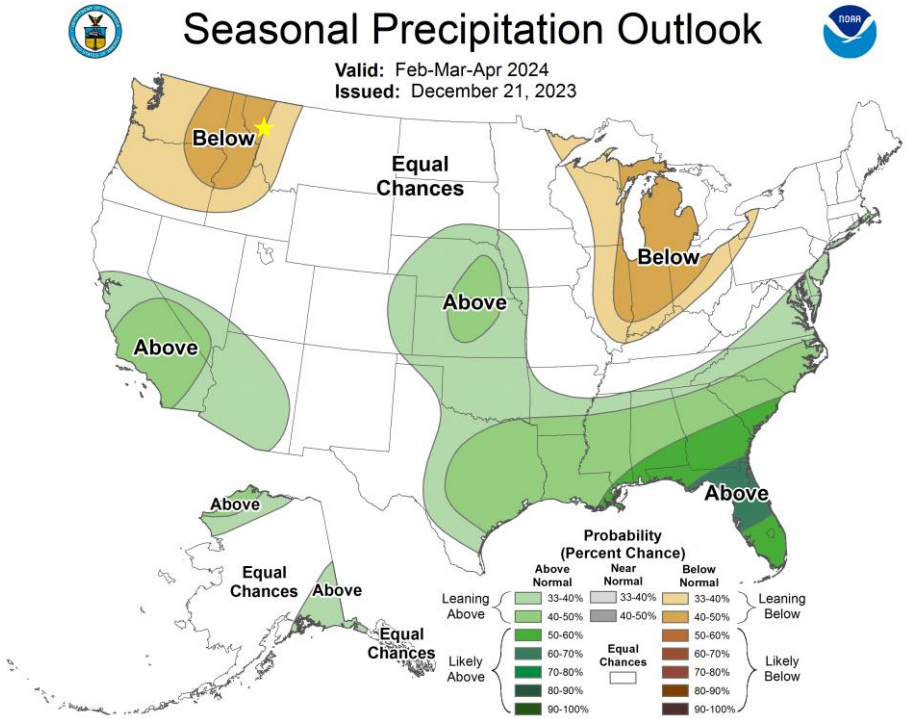
Three Month Outlook – Jan-Feb-Mar 2024



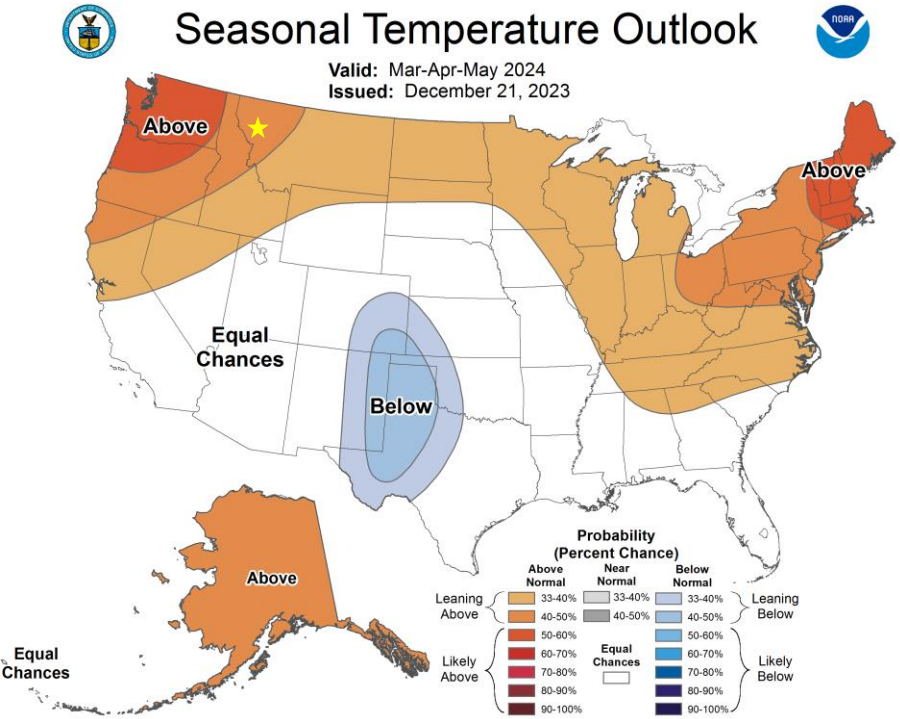


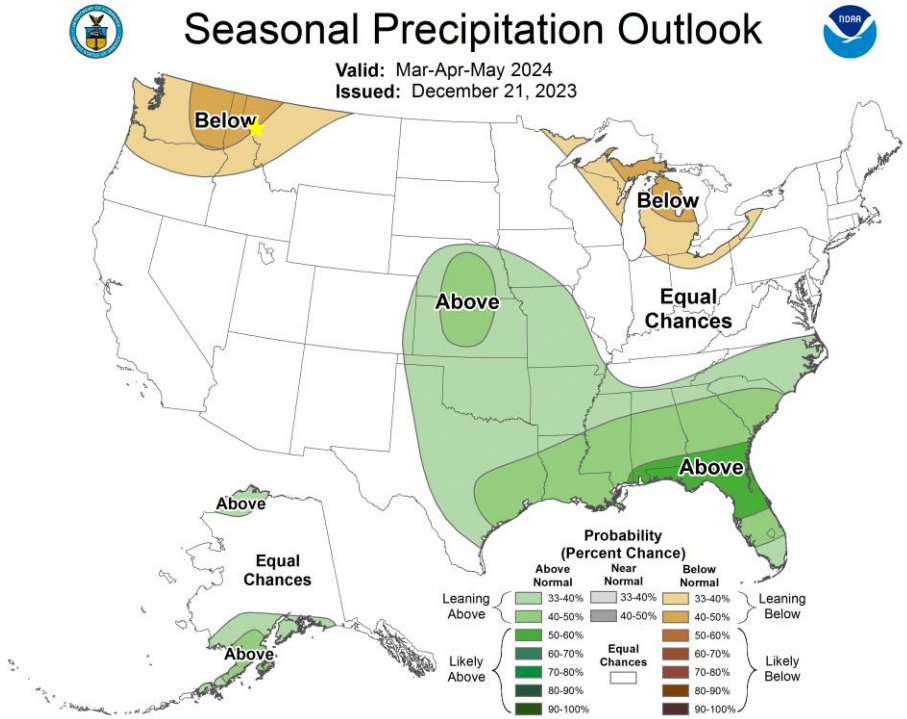
Three Month Outlook – Feb-Mar-Apr 2024





Three Month Outlook – Mar-Apr-May 2024





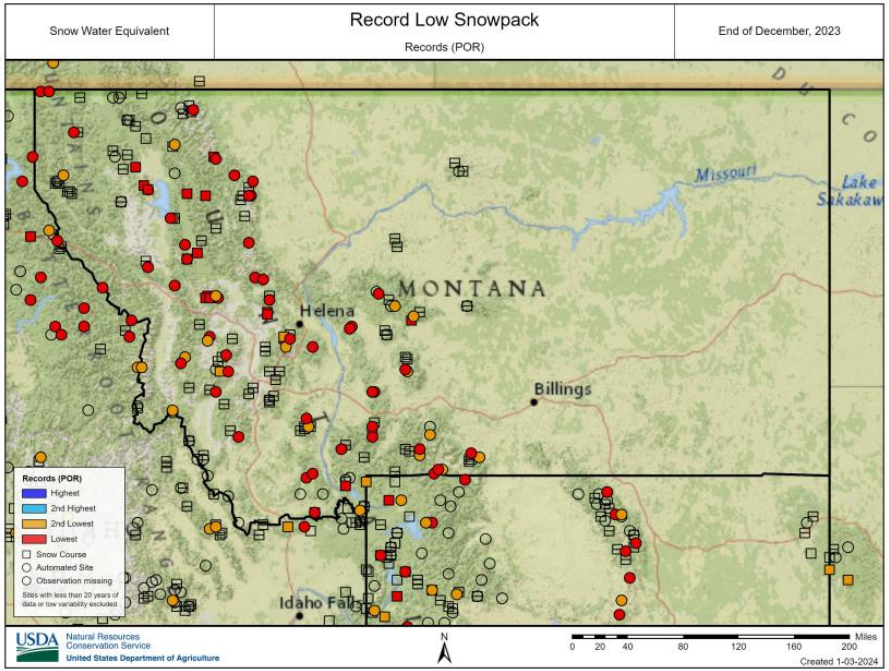
USDA United States Department of Agriculture
Natural Resources Conservation Service

Montana Water Supply Outlook Report

January 1, 2024

"Warm temperatures and lack of precipitation over the last couple months have resulted in a bleak start to the seasonal snowpack in Montana and northern Wyoming. Precipitation since October 1 has mostly been well below normal. As a result, the snowpack is currently about 30-60% of what it normally is this time of the year, except for part of the southern Absaroka and Wind River Mountains. Currently many NRCS snow monitoring stations in the region are reporting their lowest snowpack on record. Additionally, temperatures have been significantly warmer than normal during the last two months, as a result the snowpack has experienced some melt."

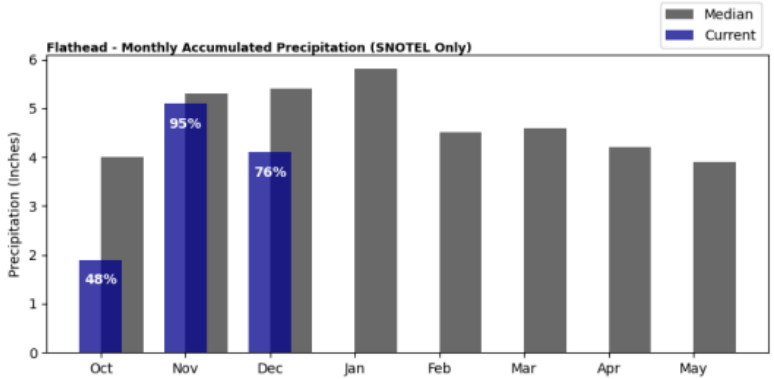
- Montana Water Supply Outlook Report. Jan 1, 2024

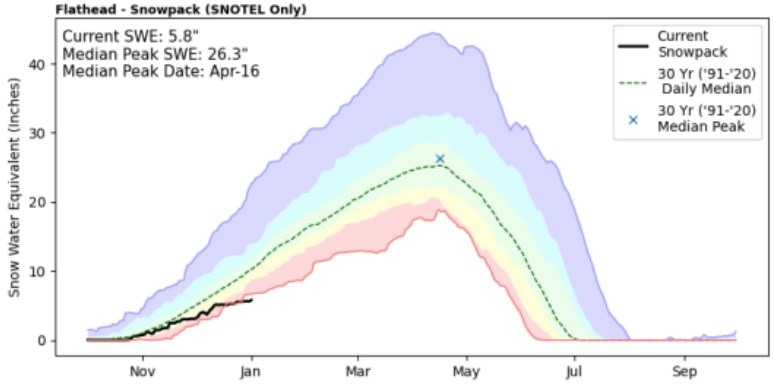


Basin Overview

Flathead

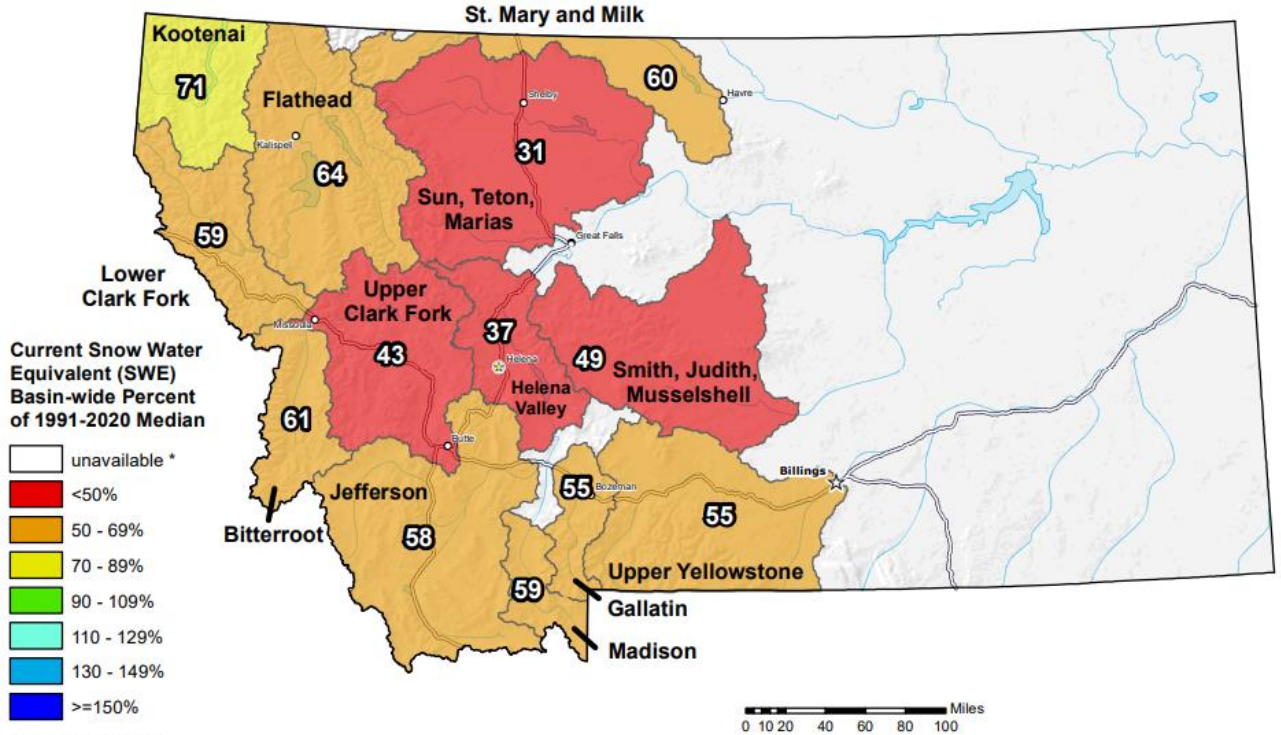
Precipitation in December was well below normal at 76%, which brings the seasonal accumulation (October-December) to 74% of median. The snowpack in the Flathead is well below normal at 53% of median, compared to 117% at this time last year.





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

Jan 12, 2024



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

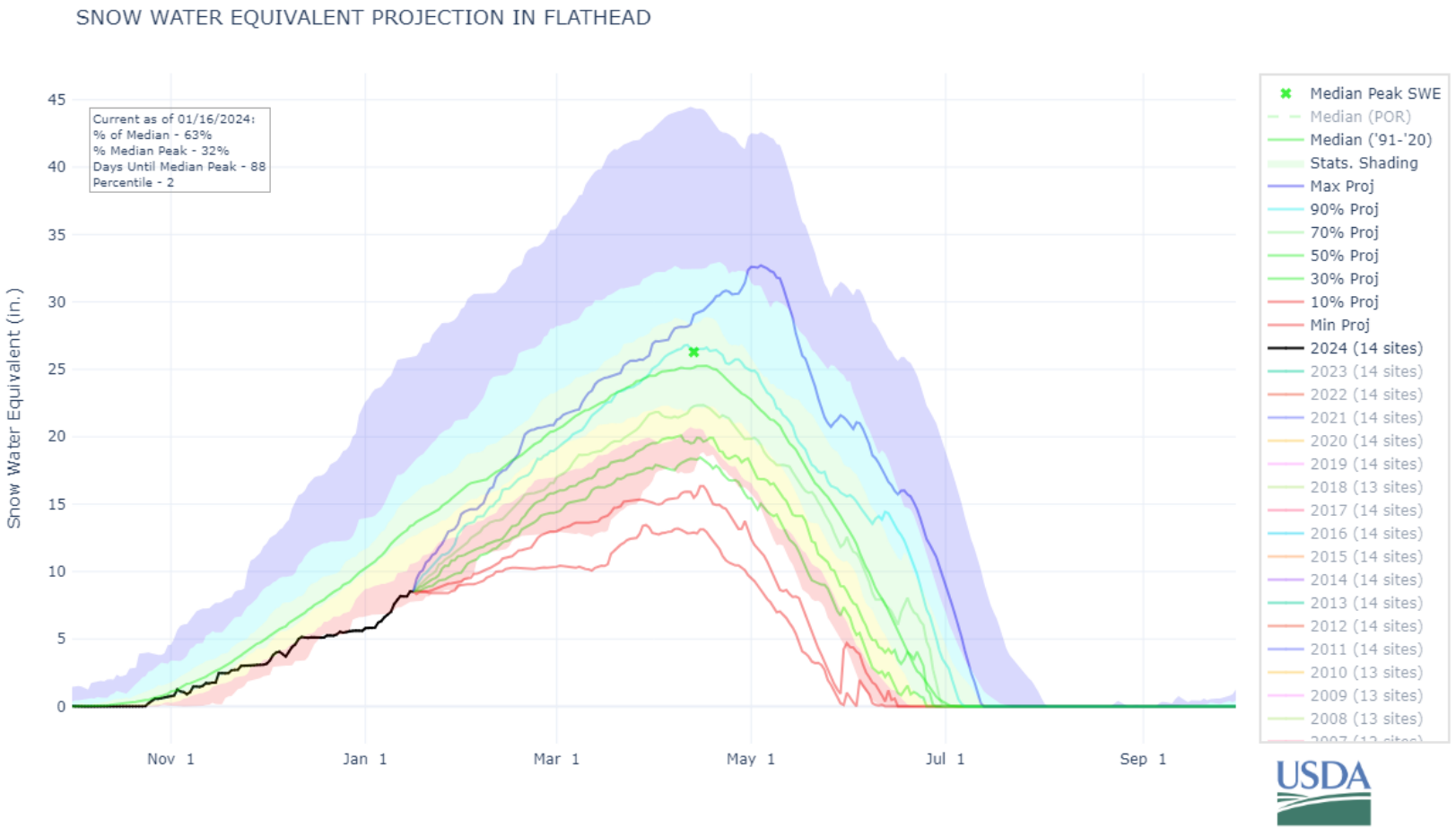
Provisional Data Subject to Revision

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
https://www.nrcs.usda.gov/wps/portal/wcc/home/

DRAFT – Not Approved by CITT

AWS Plot | SNOW WATER EQUIVALENT PROJECTION IN FLATHEAD



USDA

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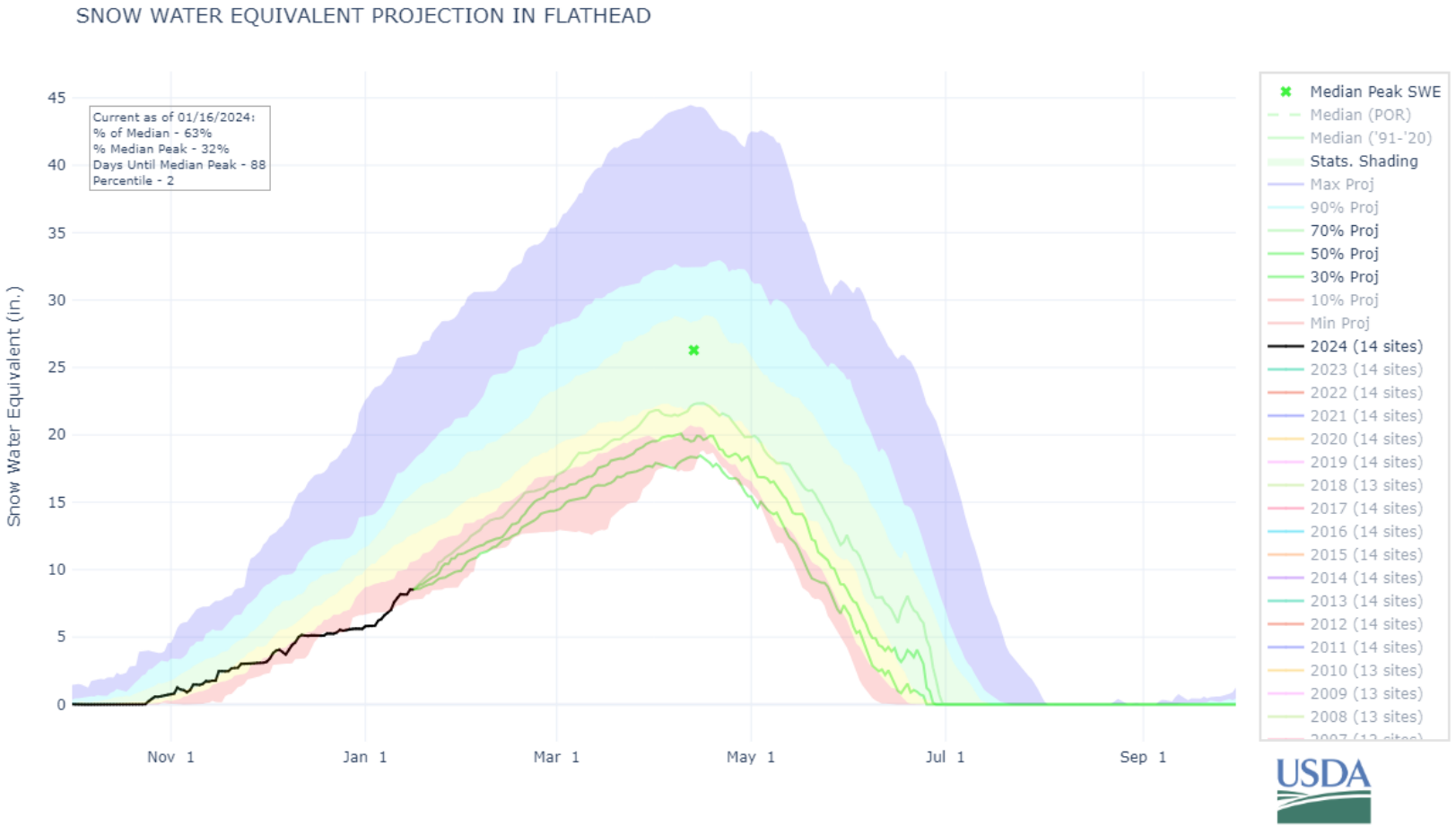
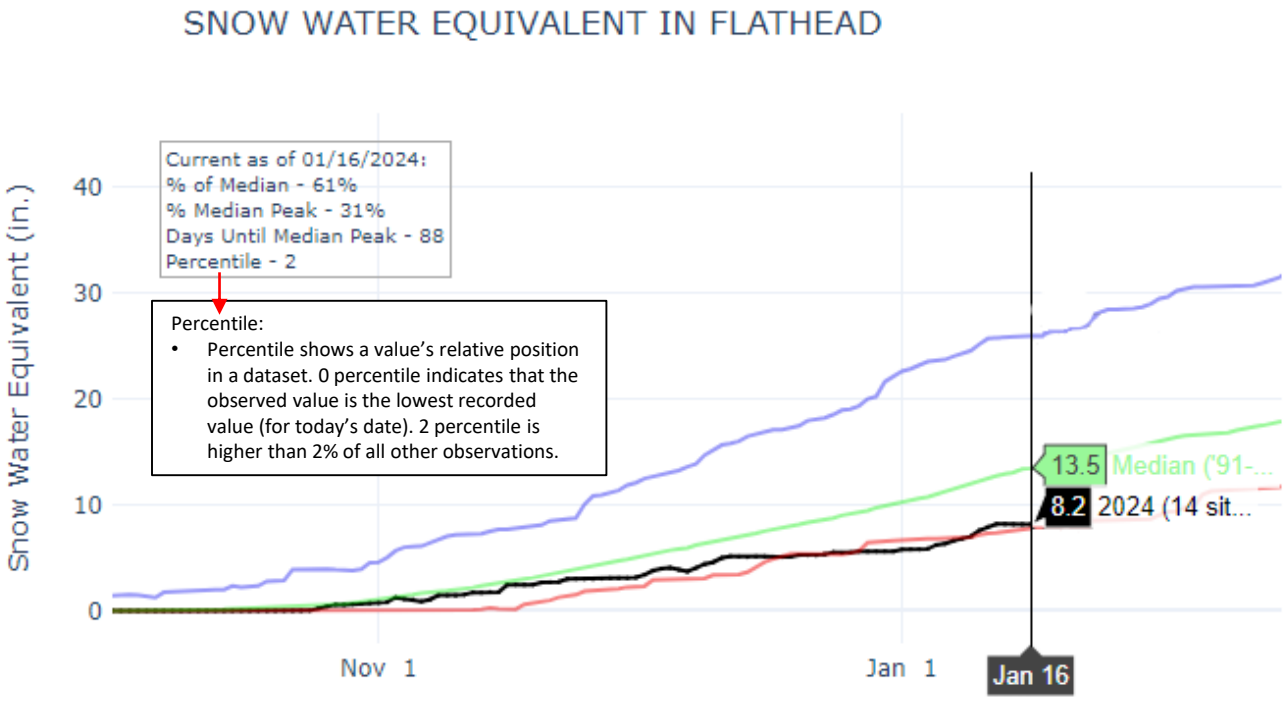
AWS Plot | SNOW WATER EQUIVALENT PROJECTION IN FLATHEAD



USDA

AWS Plot | SNOW WATER EQUIVALENT IN FLATHEAD



Percentile:
- Percentile shows a value's relative position in a dataset. 0 percentile indicates that the observed value is the lowest recorded value (for today's date). 2 percentile is higher than 2% of all other observations.

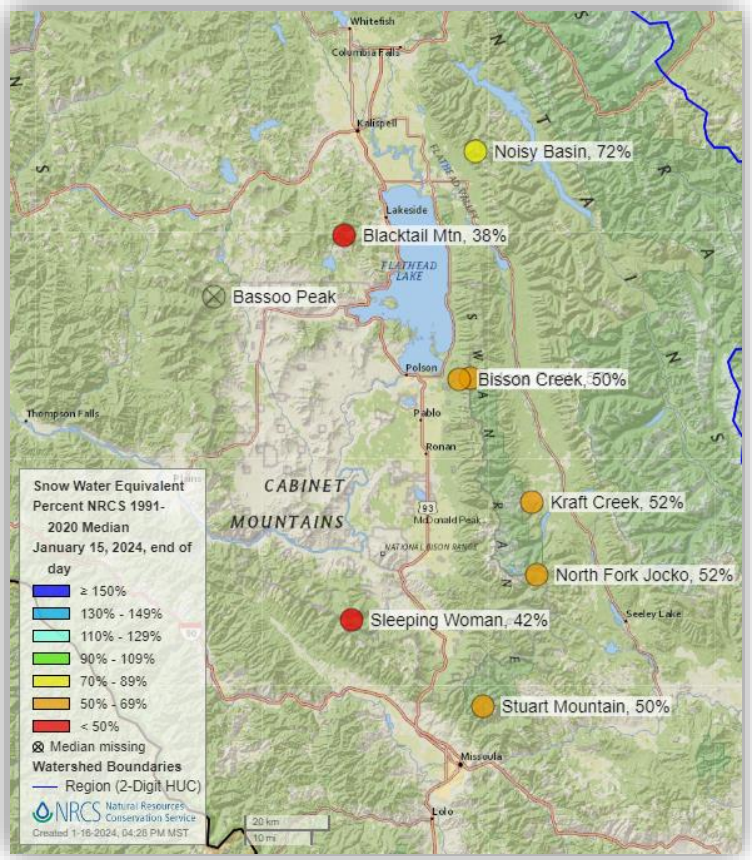
Median:
- The midpoint of an observed range of values (13.5 in).

Snow Water Equivalent
- The amount of water the snowpack contains (8.2 in)

% of Median:
- Percent of median compares a value to the median of the dataset, showing it's relative position.
- For the Flathead Basin 8.2 inches of SWE is 61% of the median (8.2 inches / 13.5 inches = 0.61).

Snow Water Equivalent for Local NRCS SNOTEL Network (1/16/2024)					
Geographic Area	Snotel Gage	SWE (in)	Median (in)	% Median	Percentile
Jocko Area	North Fork Jocko	11	21	52%	0
	Sleeping Woman	3.4	7.8	44%	*
	Stuart Mountain	*8.6*	*17.2*	*50%*	*0*
Mission Area	Moss Peak	11	1.9	57%	0
	Bisson Creek	2.4	4.8	50%	3
	Kraft Creek	*3.5*	*7*	*50%*	*2*
Little Bitterroot Area	Blacktail Mtn	2.4	6.2	39%	0
	Bassoo Peak	1.4	3	47%	0

Exceedence Probabilities:	
	< 20%
	20% - 80%
	>80%



Notes:

- The determination of wet, dry, and normal years for the purposes of defining RDA, MEF, and TIF is based on <20, 20-80, and >80 percentile exceedance levels of natural streamflow for the Apr-Jul period (Appendix 3.7).
- Stuart Mountain and Kraft Creek are in adjacent drainages. They are included for information purposes since they are near drainage divides.
- Percentile indicates the relative position of a value in a dataset. 0th percentile indicates that the observed value is the lowest on record during the period of record for today's date. The corresponding exceedance probability would be 100%.