



Spring Flood Outlook #1

February 13, 2025
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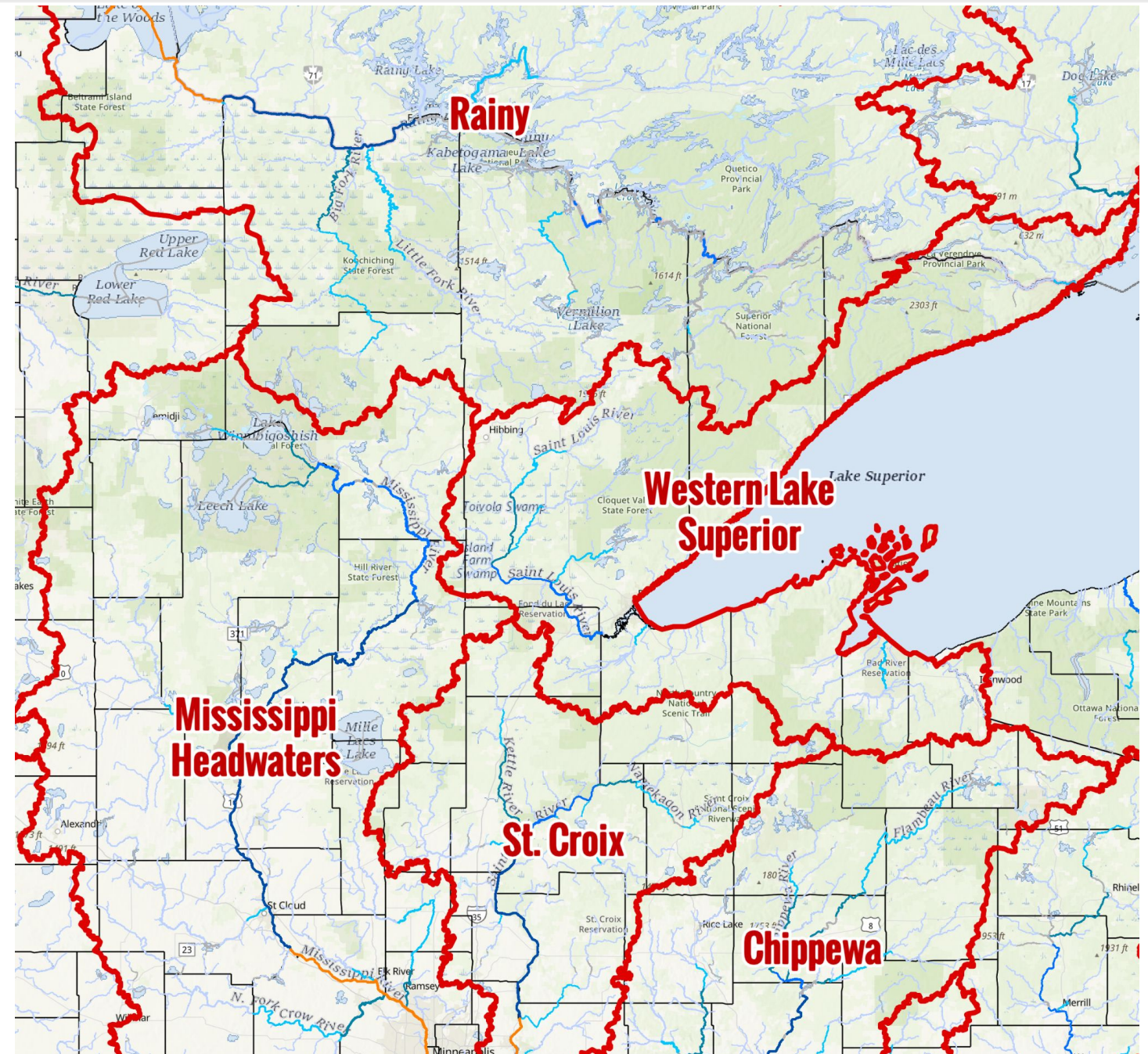
Mid February 2025

Key Messages

- Most river basins have a **normal to below normal amount of water** in the snowpack.
 - Some areas along the North Shore have normal to above normal snowwater.
- **Ground is deeply frozen** with some water contained in the soil.
- **Spring flood risk is normal to below normal, highest in northeast MN.**
- **Precipitation and rate of melt through spring while the ground is still frozen will be one of the most important flood risk factors.**

Next Scheduled Update

- February 27, 2025





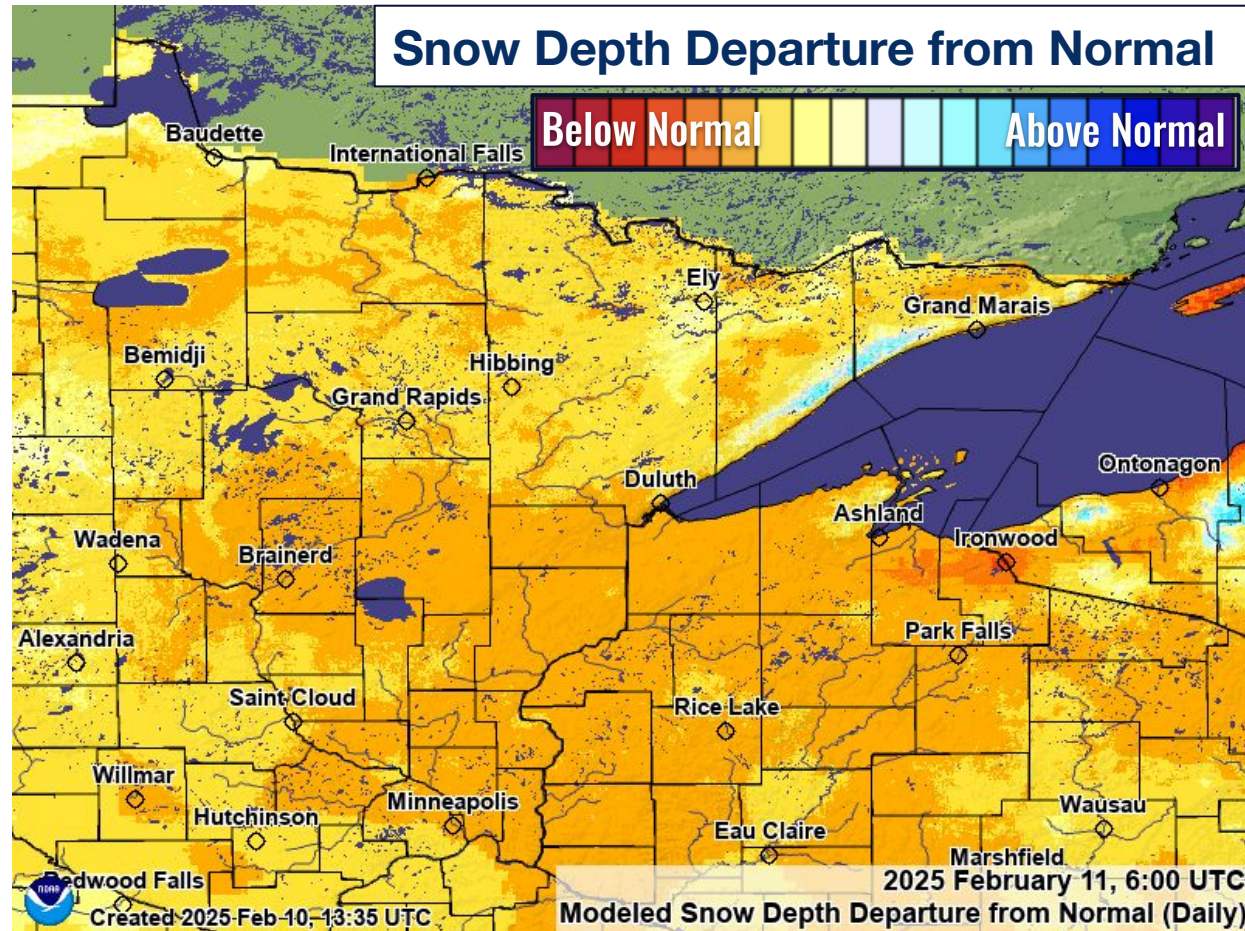
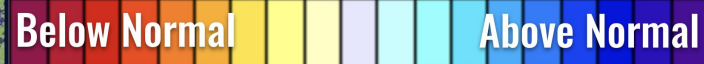
Current Snow Depth

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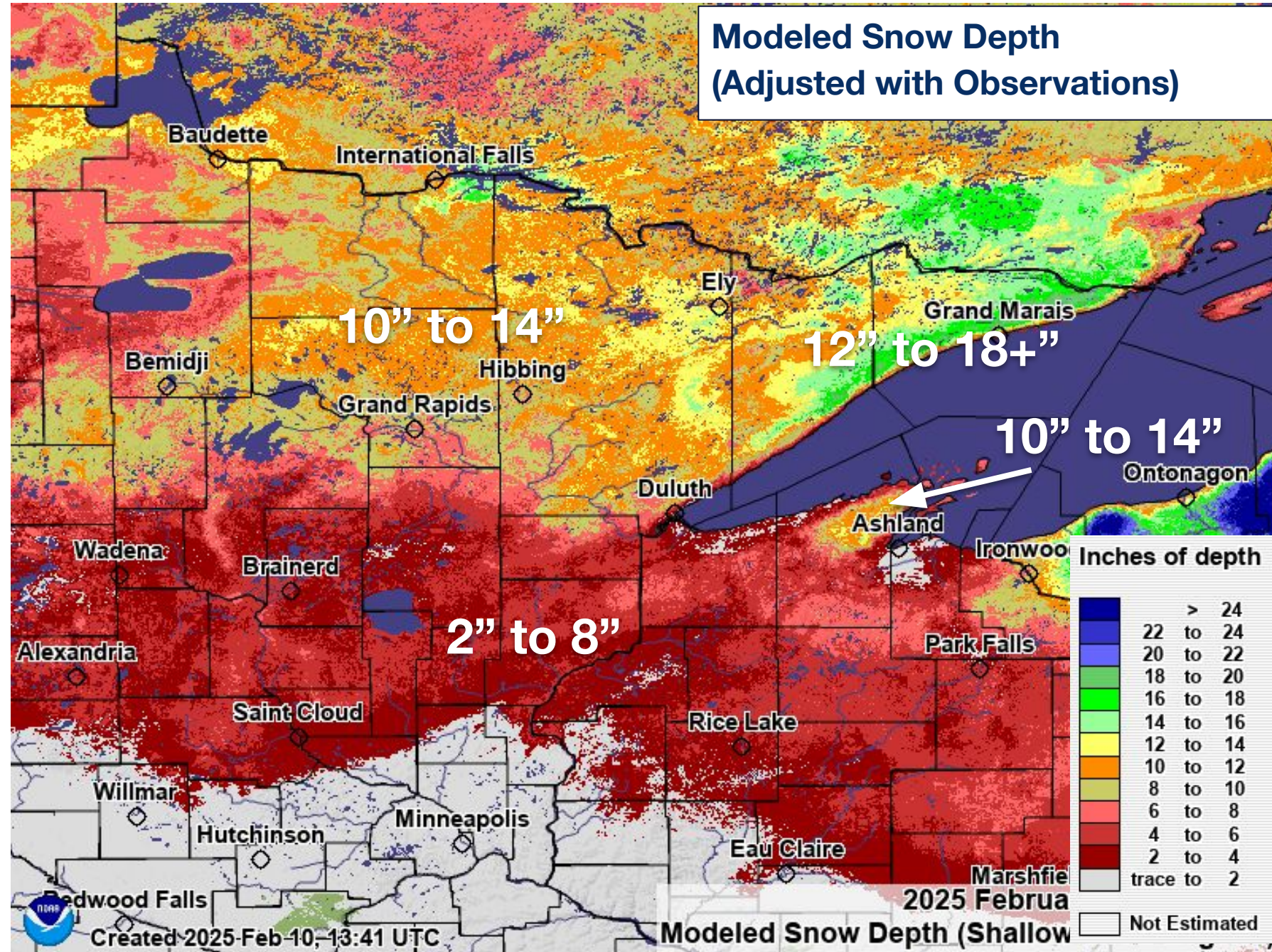
Current depth of the snow on the ground

- Current snow depth is largely below normal, except in isolated areas along the North Shore.
- Snow depth is 4"-24" below normal, with the largest deficiencies in the southern half of the Northland.

Snow Depth Departure from Normal



Modeled Snow Depth (Adjusted with Observations)



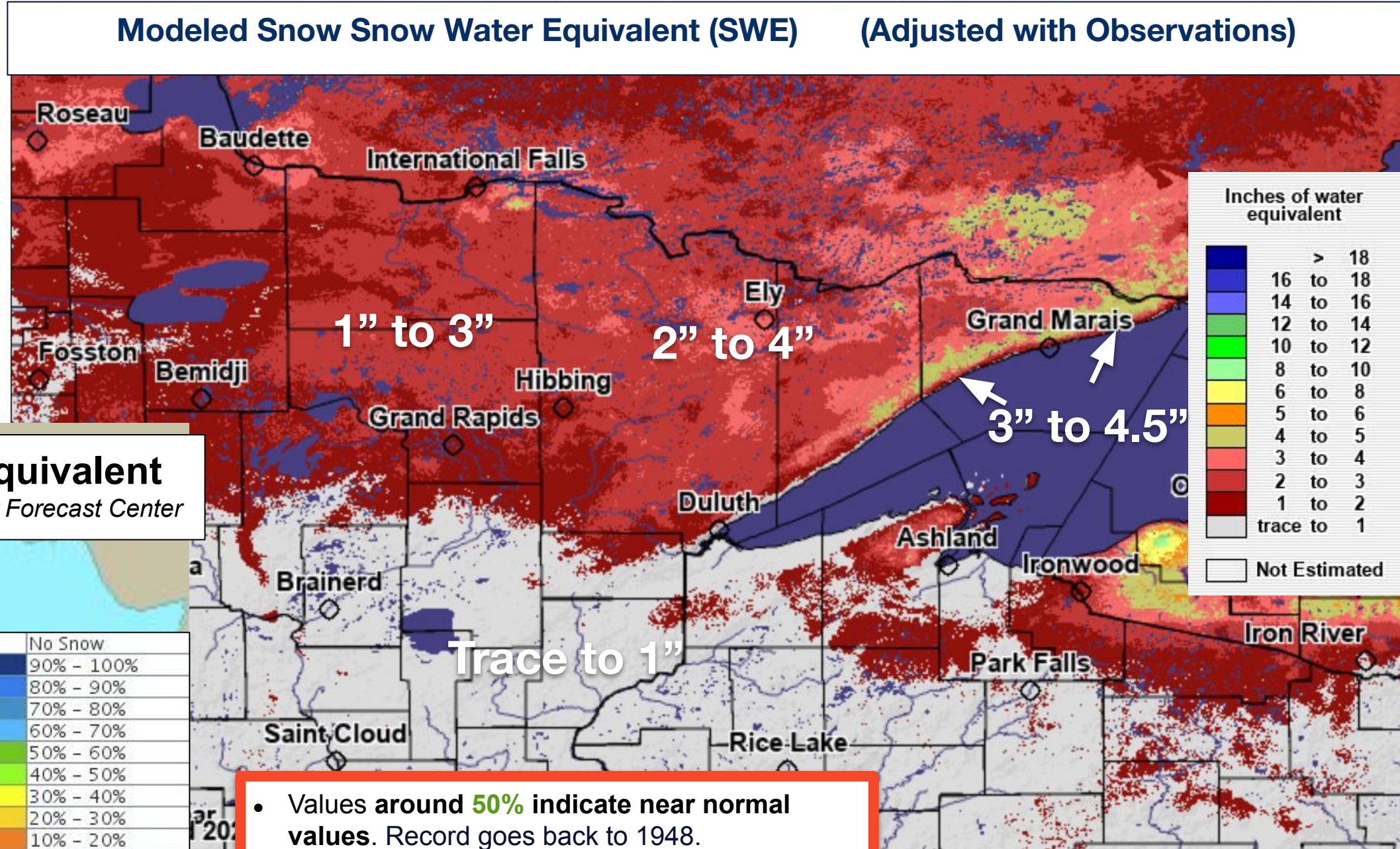


Current Snow Water Equivalent

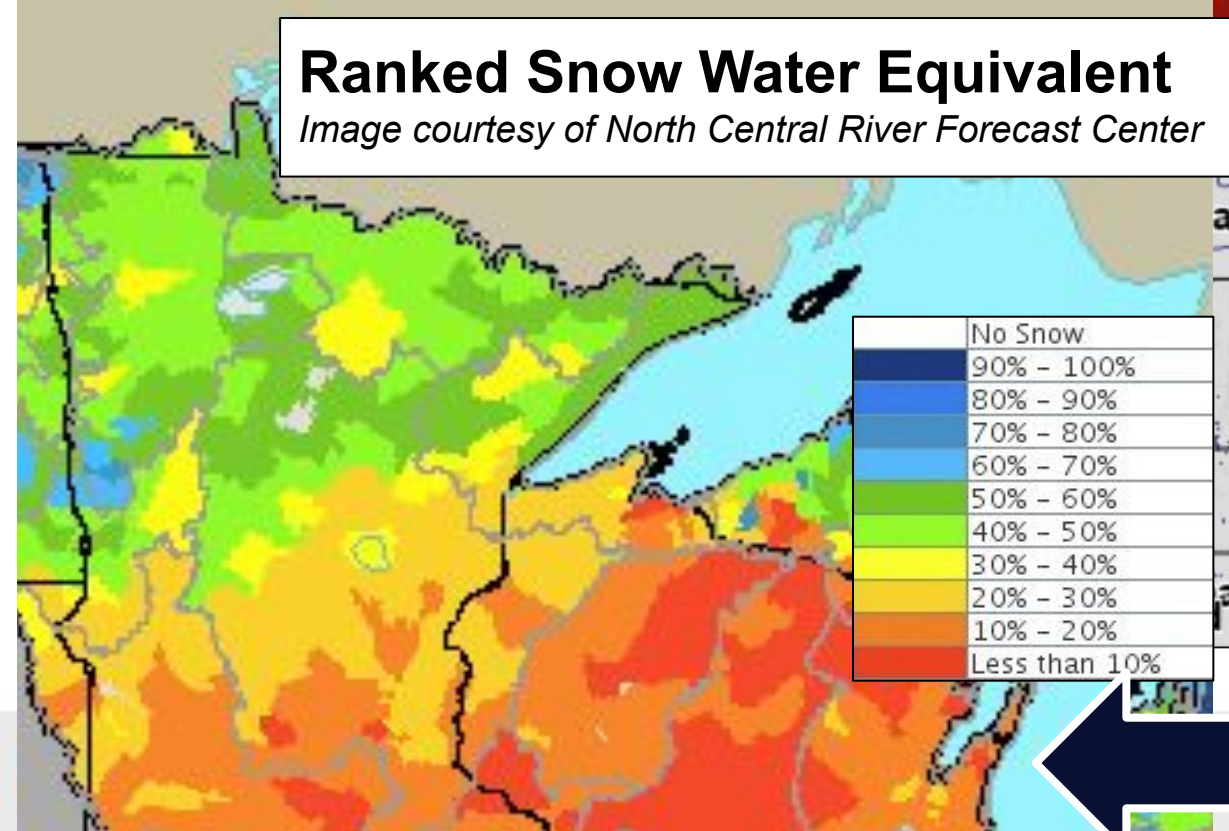
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Map shows a modeled estimate of water in the snowpack

- Currently **0.5-4.5"** of water in the snowpack.
- Some moisture is trapped in frozen soil due to freeze/thaw and early winter rains. This is difficult to quantitatively measure.



Ranked Snow Water Equivalent
Image courtesy of North Central River Forecast Center



- Values around **50%** indicate near normal values. Record goes back to 1948.
- "**Less than 10%**" indicates values currently in the bottom of the historical record for this date. Record goes back to 1948.

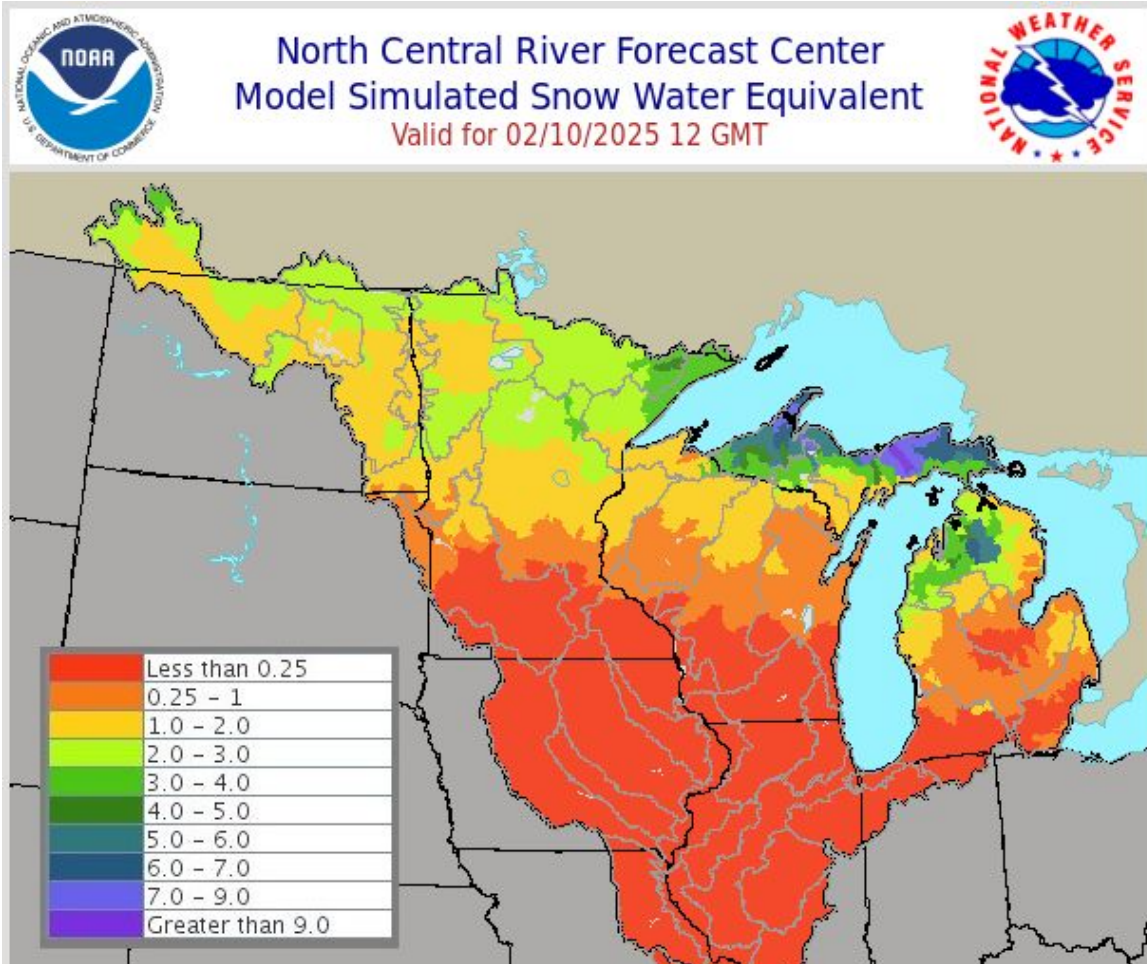
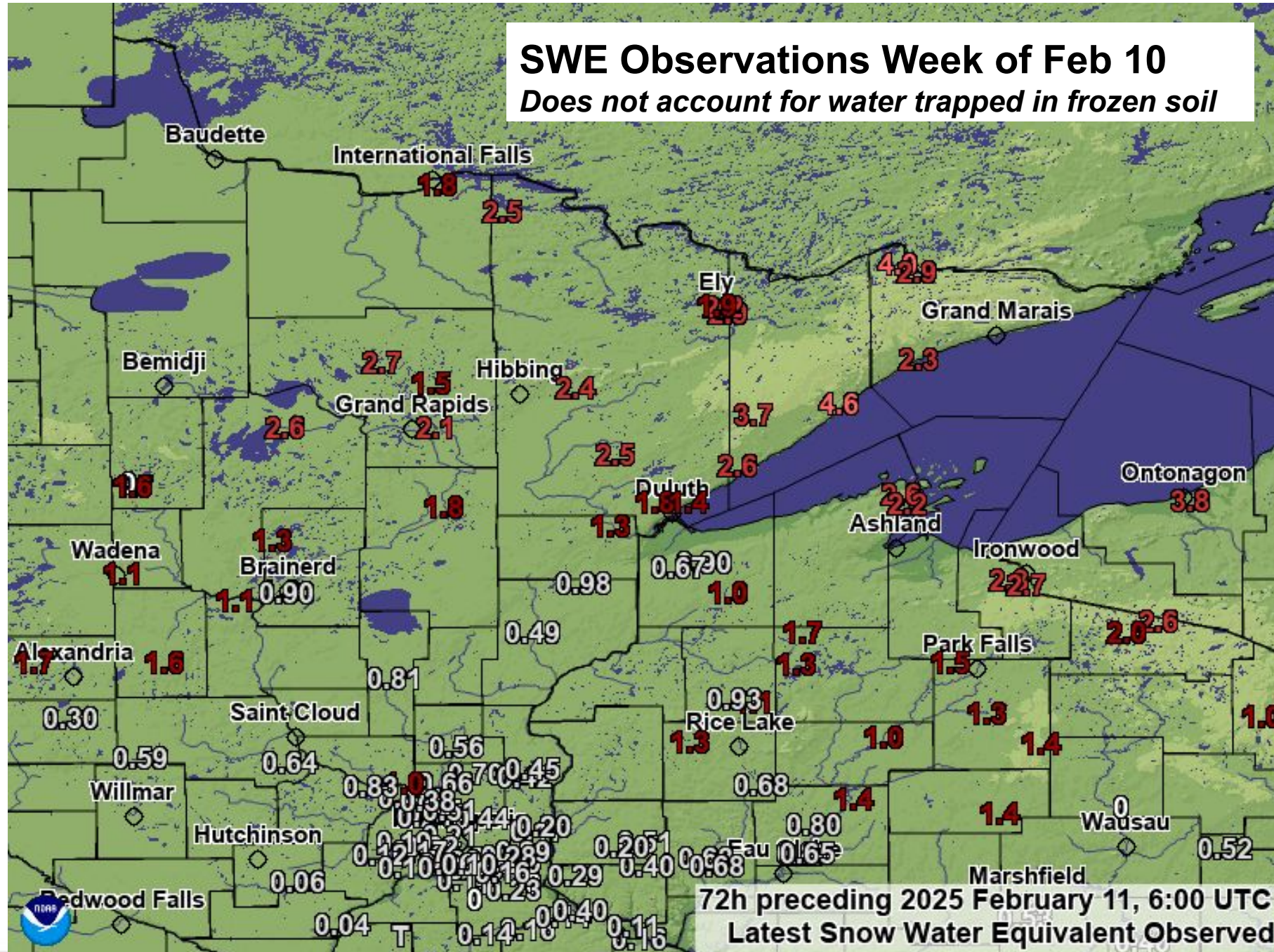


Current Snow Water Equivalent (SWE)

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Latest Observations and Ranked SWE

- **Widespread 1.5-2.5" SWE**
- Lowest SWE of 1" or less from Brainerd Lakes to I-35 to Hwy 53 in NW WI.
- Locally higher amounts in excess of 4" along the North Shore and up the Gunflint Trail.





Current Regional Snow Water

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How much water is in the snow pack right now compared to normal?

Rainy River

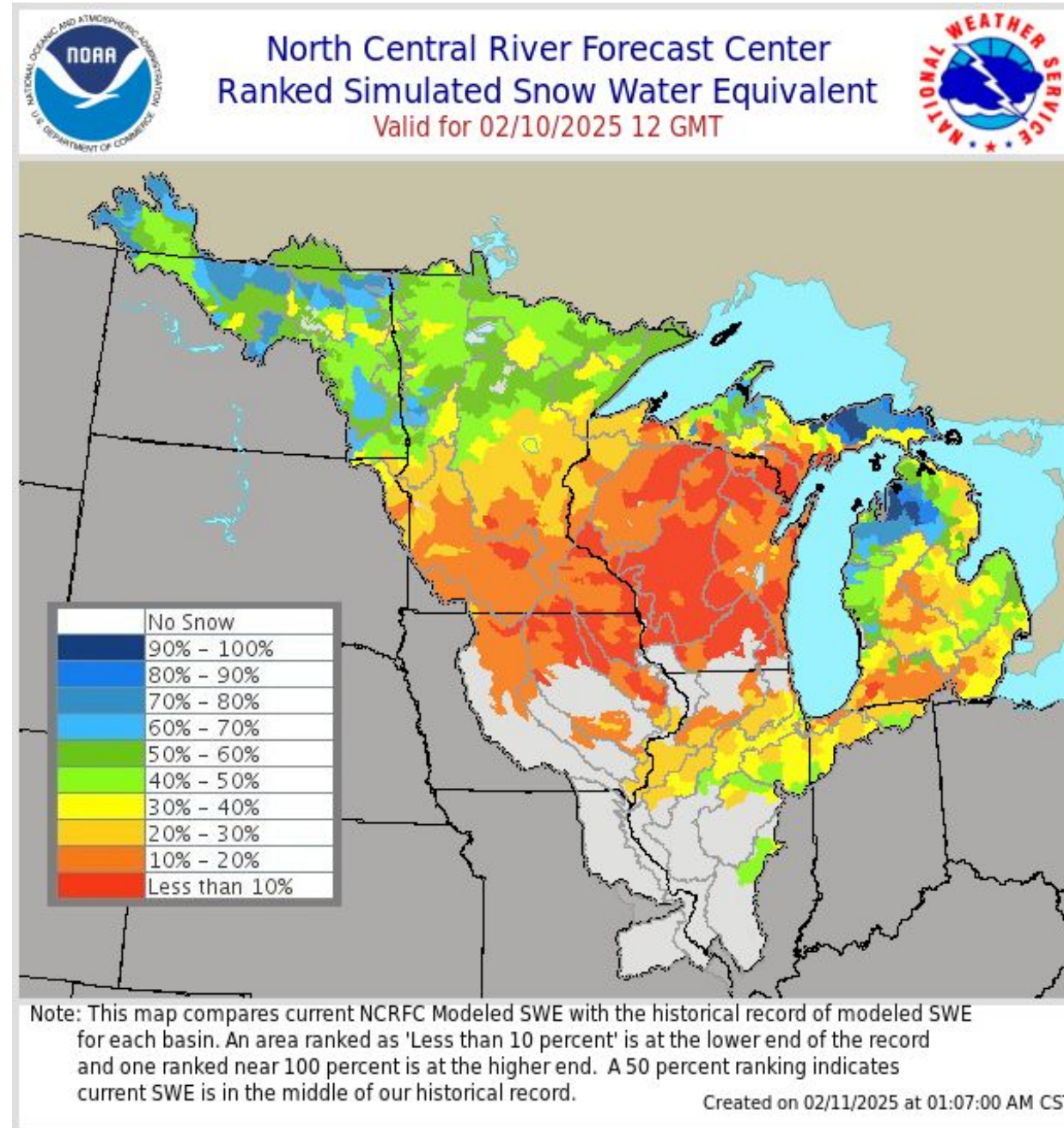
→ Normal to slightly below normal, highest in eastern headwaters, slightly higher on Canadian side

Mississippi Headwaters

→ Normal in the far northern headwaters to well below normal further downriver

St Croix River

→ Below normal



Western Lake Superior North Shore (MN)

→ Normal to above normal

Western Lake Superior South Shore (WI)

→ Below normal

Chippewa

→ Well below normal



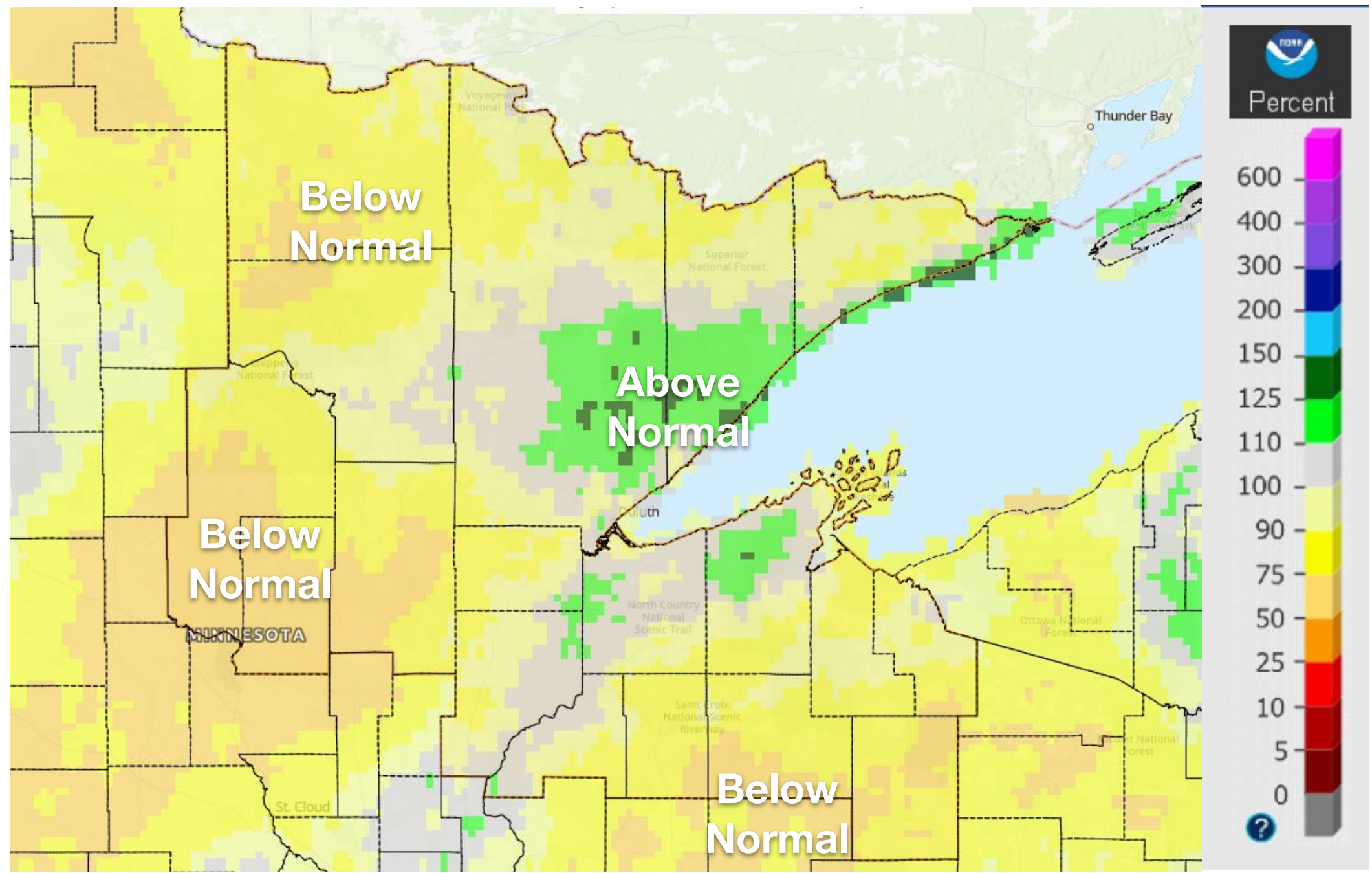


Accumulated Precipitation (Liquid Equivalent)

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Percent of Normal Precipitation for Current Water Year (Since Oct. 1)

- **Most snow has been very light and fluffy, with low liquid equivalent amounts** (how much water is in the snowfall if it was melted)
- Map does account for rainfall in December.



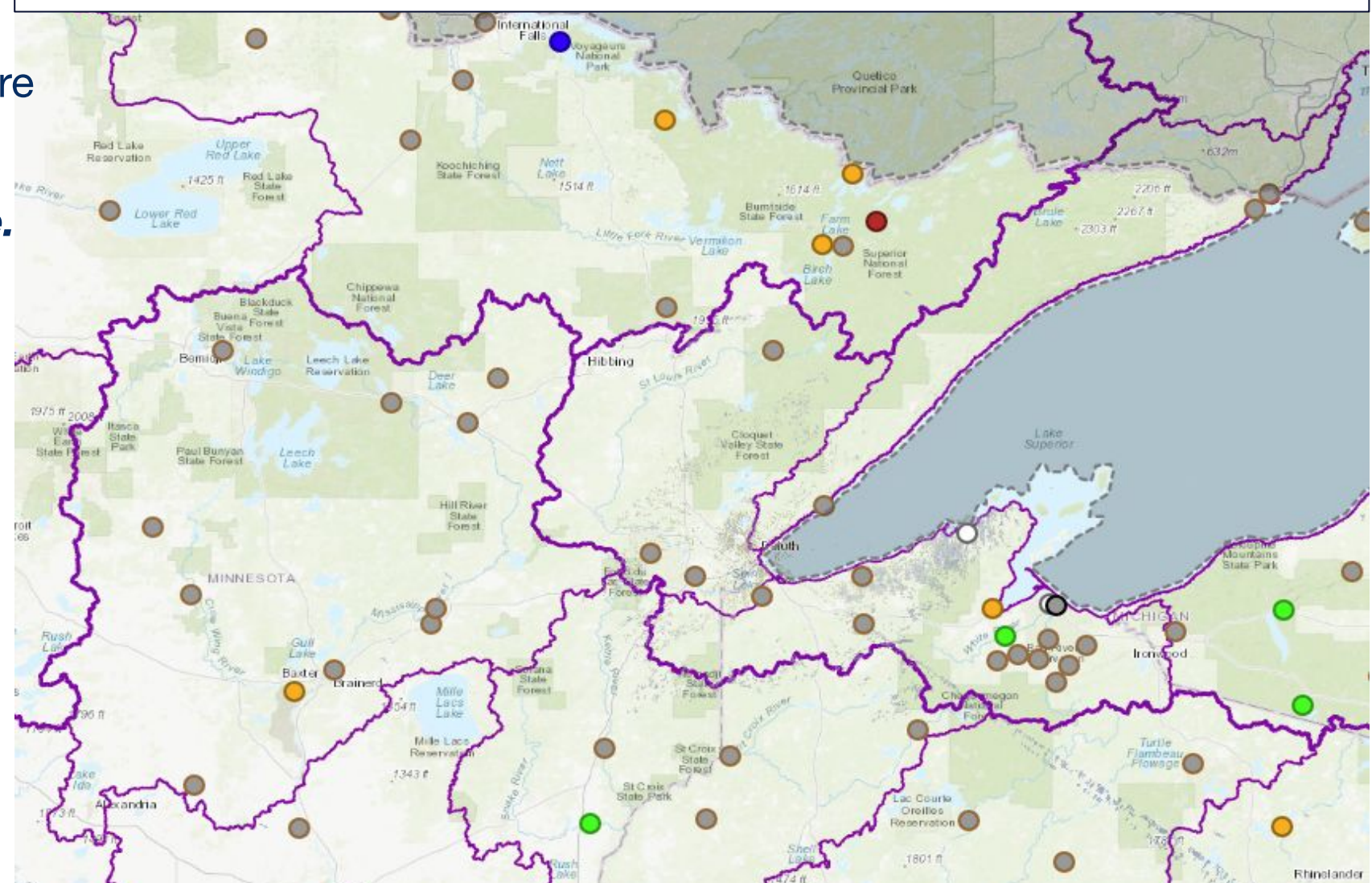


Current Drought and Streamflow

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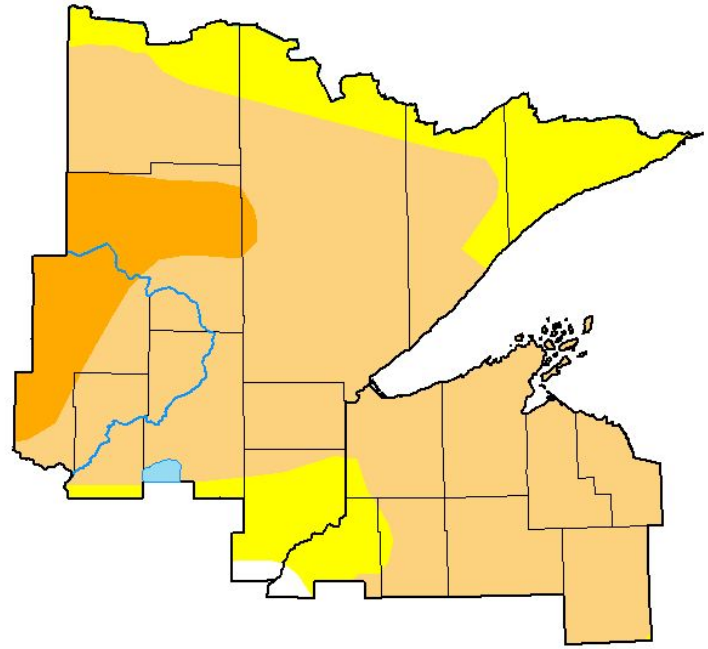
- Abnormally Dry to Severe Drought across the region.
- Most streamflow is still below normal. Many river gauges not available due to ice, but streamflows were very low when they froze over.
 - Lots of ice on area rivers - should rapid rises occur in the spring, **ice jams could be possible.**

Current Streamflow Rankings (USGS Dashboard)



Above flood stage	Normal	25 th – 75 th percentile	Not flowing
All-time high for this day	Below normal	10 th – 24 th percentile	Not ranked
Much above normal	Much below normal	<10 th percentile	Measurement flag
Above normal	All-time low for this day	0 th percentile (minimum)	Recent measurement unavailable
100 th percentile (maximum)	>90 th percentile		
76 th – 90 th percentile			

U.S. Drought Monitor Duluth, MN WFO



February 11, 2025
(Released Thursday, Feb. 13, 2025)
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	0.73	99.27	79.88	10.47	0.00	0.00
Last Week 02-04-2025	0.73	99.27	79.88	10.47	0.00	0.00
3 Months Ago 11-12-2024	0.00	100.00	96.84	77.17	0.00	0.00
Start of Calendar Year 01-07-2025	0.73	99.27	79.88	10.47	0.00	0.00
Start of Water Year 10-01-2024	2.57	97.43	71.52	0.00	0.00	0.00
One Year Ago 02-13-2024	0.00	100.00	49.28	18.52	0.00	0.00

Intensity:

None	D2 Severe Drought
D0 Abnormally Dry	D3 Extreme Drought
D1 Moderate 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>

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National Drought Mitigation Center



droughtmonitor.unl.edu

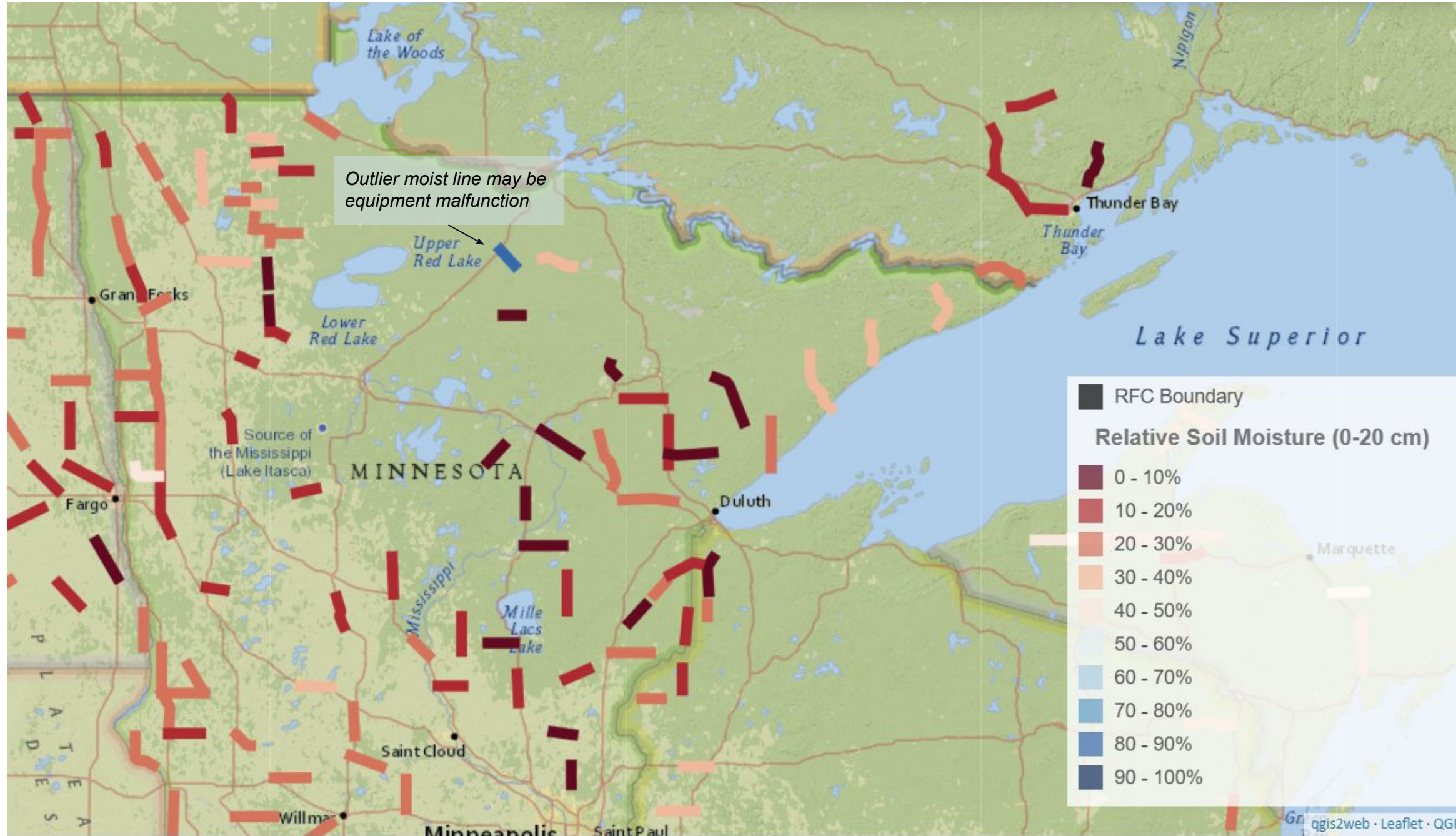


Fall Airborne Survey Soil Moisture

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National Water Center Airborne Soil Moisture Survey

- Most lines flown between Sep 25 - Oct 18, 2024.
- **Fall soil moisture was very low** due to dry weather in the late summer into mid fall.
- Map does not account for moisture trapped in soil during freeze/thaw and rain in late fall and early winter.





Looking Back Three Years

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Snowpack conditions near Isabella, MN on NWS Duluth Snow Surveys



Jan 25, 2023



Jan 25, 2024



Jan 29, 2025



Rainy Basin Outlook

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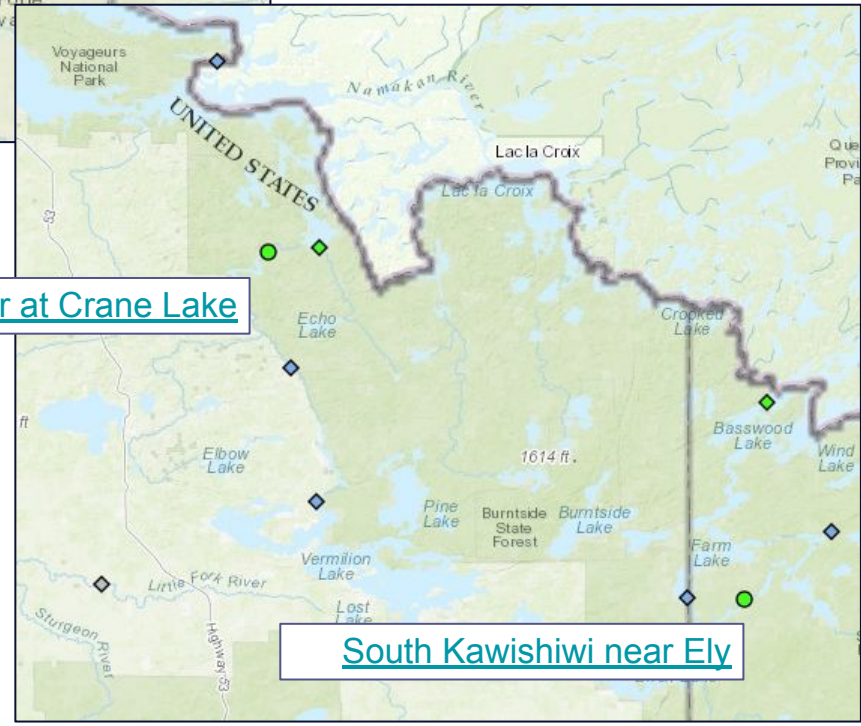
Spring Flood Outlook

Point	Flood Stage	Chance of Minor Flood	Chance of Moderate Flood
Littlefork at Littlefork	22 ft.	<5%	<5%
S. Kawishiwi nr Ely	6.5 ft.	7%	<5%
Vermilion River at Crane Lake	14 ft.	7%	<5%

NOTE: Probabilities are valid for current and forecast conditions through May 18th, 2025, and do not account for ice jam flooding potential

View Interactive Map:

- [River Observations](#)
- [Short-Term River Forecasts](#)
- [Long-Range River Flood Risk](#)

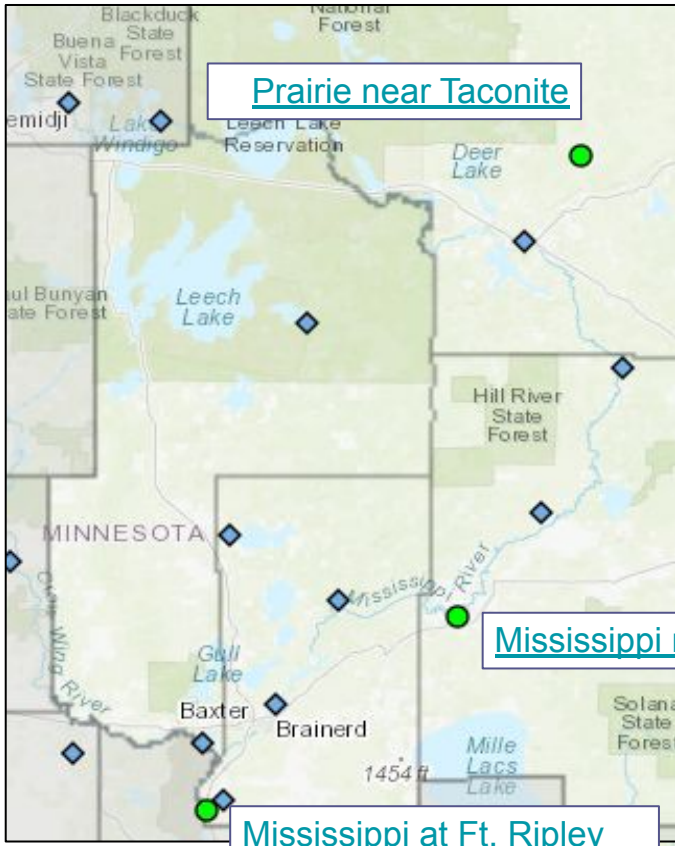




Upper Mississippi Basin Outlook

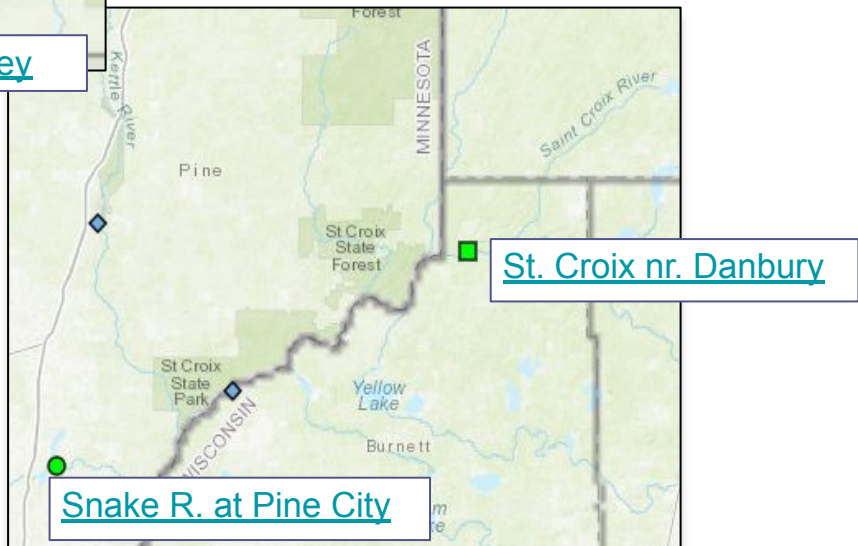
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Spring Flood Outlook



Point	Flood Stage	Chance of Minor Flood	Chance of Moderate Flood
St. Croix nr. Danbury	7 ft.	<5%	<5%
Snake at Pine City	9 ft.	6%	<5%
Prairie near Taconite	10 ft.	<5%	<5%
Mississippi near Aitkin	13 ft.	16%	<5%
Mississippi at Ft. Ripley	10.5 ft.	18%	<5%

NOTE: Probabilities are valid for current and forecast conditions through May 18th, 2025, and do not account for ice jam flooding potential



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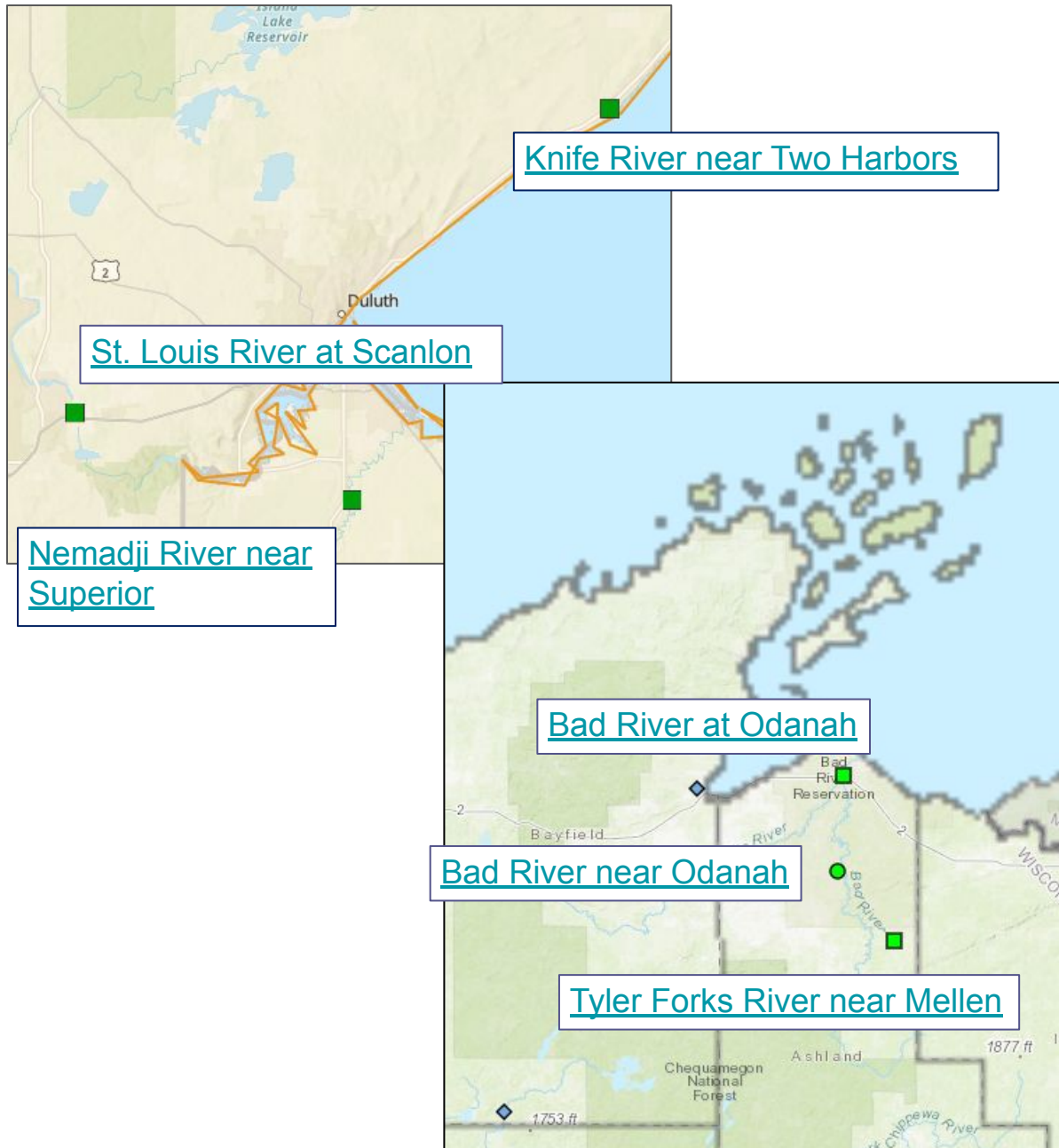
- [River Observations](#)
- [Short-Term River Forecasts](#)
- [Long-Range River Flood Risk](#)



W. Lake Superior Basin Outlook

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Spring Flood Outlook



Point	Flood Stage	Chance of Minor Flood	Chance of Moderate Flood
St. Louis at Scanlon	10.5 ft.	<5%	<5%
Knife River nr. Two Harbors	33.0 ft.	<5%	<5%
Bad River nr. Odanah	16.0 ft.	<5%	<5%
Bad River at Odanah	8.5 ft.	<5%	<5%
Tyler Forks River nr. Mellen	9.0 ft.	24%	14%
Nemadji River nr. Superior	24.0 ft.	<5%	<5%

View Interactive Map:

- [River Observations](#)
- [Short-Term River Forecasts](#)
- [Long-Range River Flood Risk](#)

NOTE: Probabilities are valid for current and forecast conditions through May 18th, 2025, and do not account for ice jam flooding potential



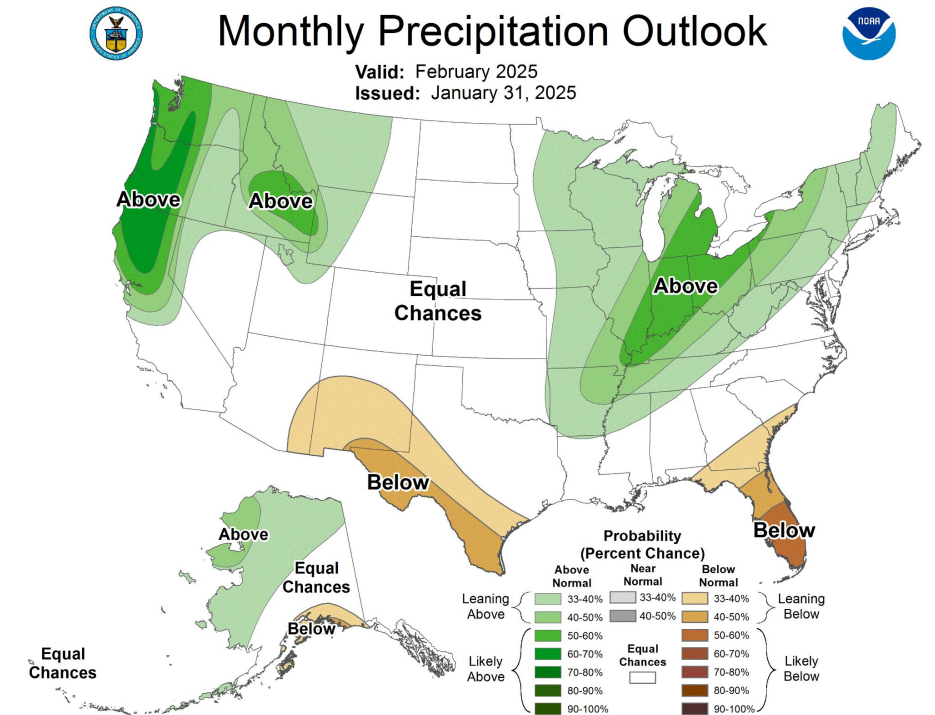
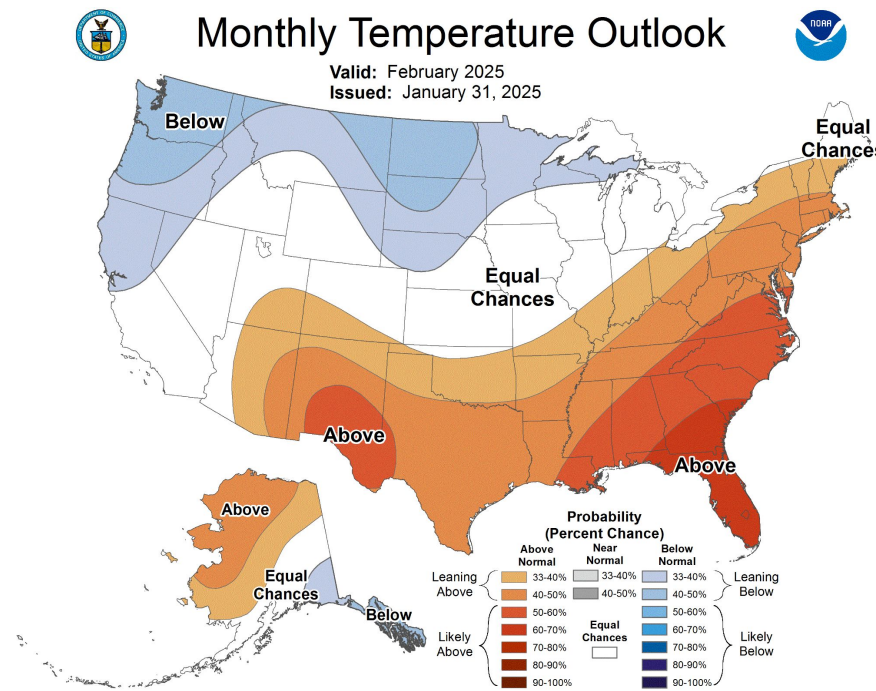
Spring Weather Outlook

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These are general outlooks that depict broad trends for the weeks and months ahead

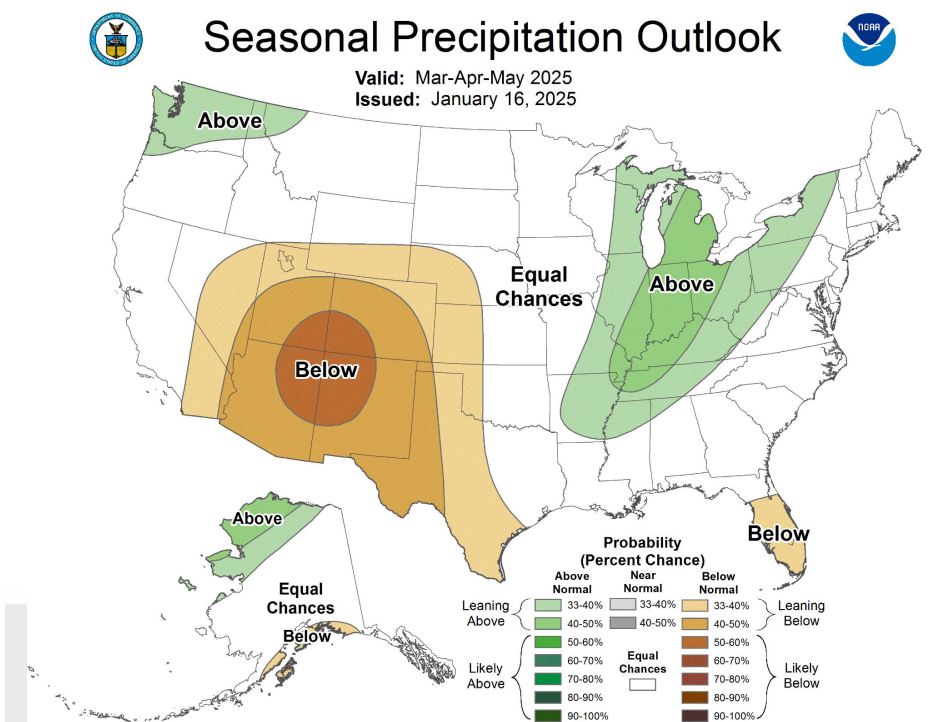
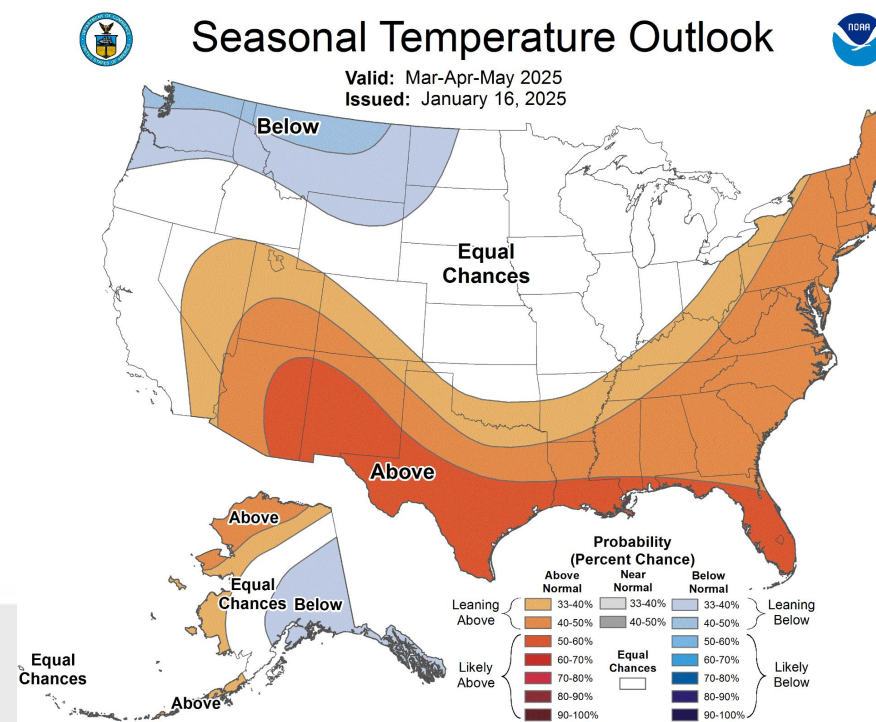
This Month (February)

- 30-40% chance below normal temperatures. Additional frost development possible.
- 30-40% chance above normal precipitation. Could add to marginal snowpack.
- Impact to Spring Flooding: **Neutral to Negative** (more runoff potential)



Seasonal Outlook (March-April-May)

- Equal chance of above, below, or near normal temperatures.
- Equal chance of above, below, or near normal precipitation.
- Impact to Spring Flooding: **Neutral**





Spring Flood Outlook

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Potential for Spring Flooding Low across Northeast Minnesota and Northwest Wisconsin

Key Messages

→ The spring flooding potential across the Northland is normal to below normal.

→ Largely <5% chance of reaching minor flood stage at most forecast points.

◆ Only six locations with a greater than 5% chance of minor flooding, but all below a 25% chance

→ Deep frost could lead to poor infiltration and efficient runoff of snowmelt and rain.

Next Scheduled Briefings

→ February 27

Threat	How Current and Forecast Conditions Impact Flood Potential	Link to Image(s)
High river levels	Lower	USGS WaterWatch MN WI
High soil moisture	Normal to Below Normal	CPC Soil Moisture
Winter Precipitation	Normal to Below Normal	Climate Prediction Center 6 to 10 Day 8 - 14 Day
Snowpack/ Liquid Equivalent	Normal to Below Normal	Snow Analysis Snow Depth Ranking
Rate of Snowmelt	TBD	24, 48, & 72 hr Snowmelt
Frost Depth	Higher	Frost Depth Map
Spring Precipitation	TBD	Precip Forecast (3-Month)