

First Spring Flood Outlook 2021



**National Weather Service – Green Bay
February 11, 2021**



Key Points

Near Normal Risk for Spring Flooding in Northeast Wisconsin

Increases Risk

- Elevated Stream Levels
 - 50th-90th Percentile
- Cold Snap
 - Increases ice thickness and ice jam potential
- Lake Michigan Levels
 - Running near record
 - Some improvement from 2020

Decreases Risk

- Snow Depth
 - Below Normal
- Snow Water Equivalent
 - Below Normal (lowest 10th percentile)
- Frost Depth
 - More Shallow than Average
- Soil Moisture near Average

Greatest Threat of Minor Flooding

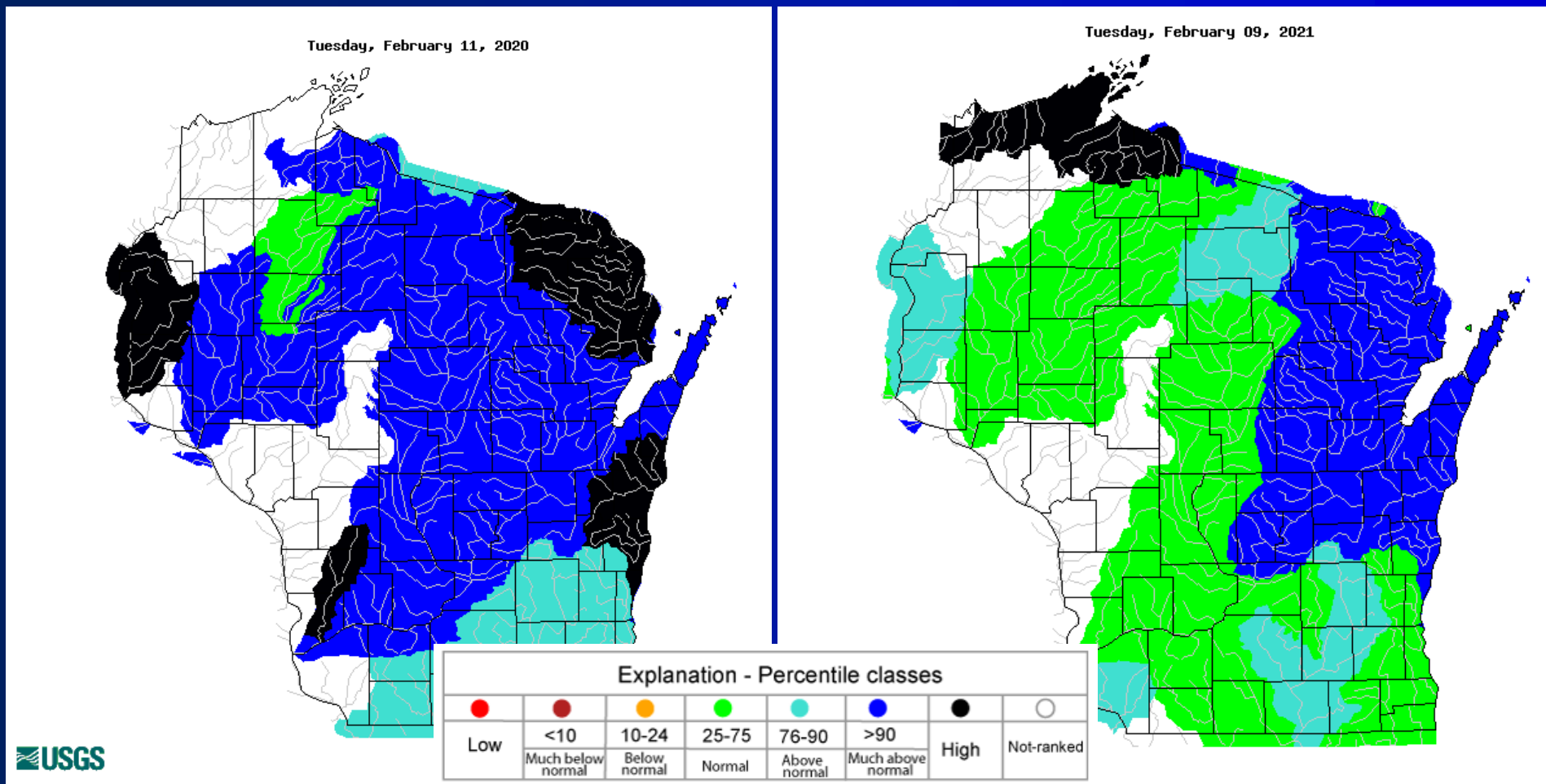
Typical Flooding Expected at the Following Locations:

- BBCW3 – Yellow River at Babcock
- SHIW3 – Wolf River at Shiocton
- NEWW3 – Wolf River at New London

Additional Information

- Much drier pattern in the Fall of 2020 into the Winter season has led to less soil moisture this season.
- River levels are still running well above normal due to increased precipitation over the past 2 to 3 years.
- Reduced snowpack and water in the snowpack will lead to average chances of flooding across northeast Wisconsin.
- Final flooding potential will depend on how fast the snow melts, any additional precipitation and any prolonged Arctic outbreaks.

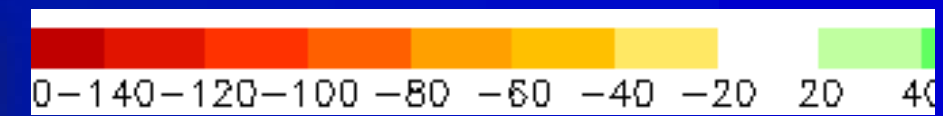
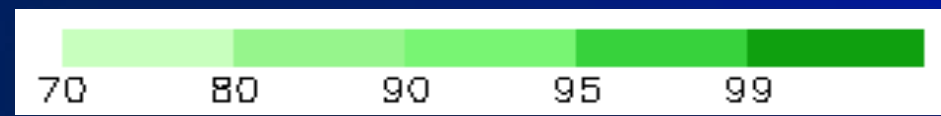
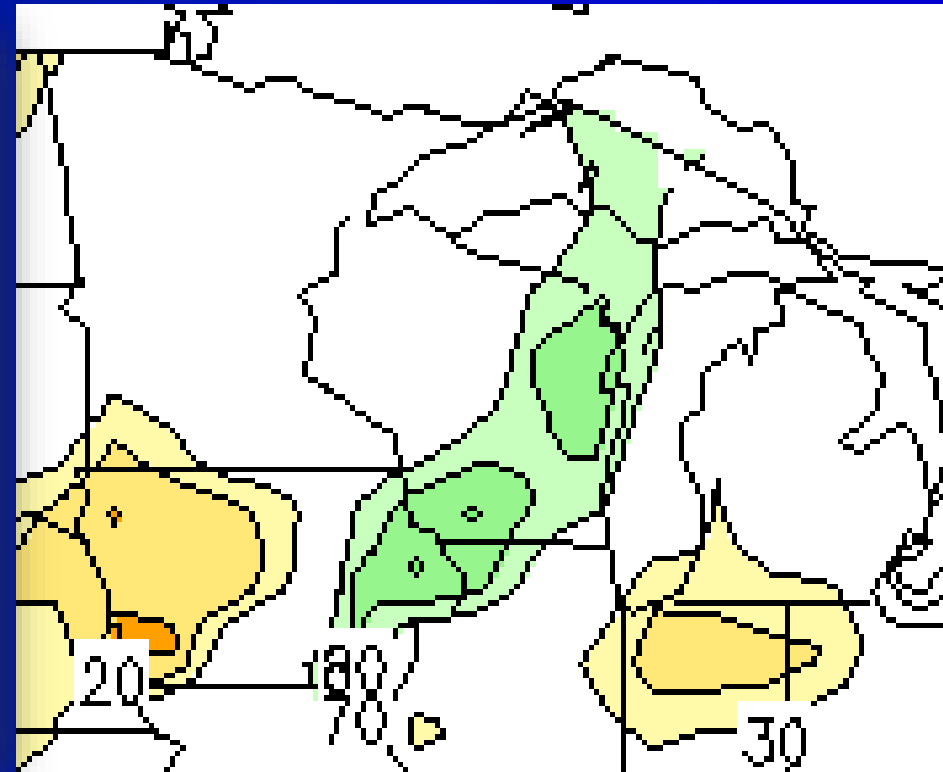
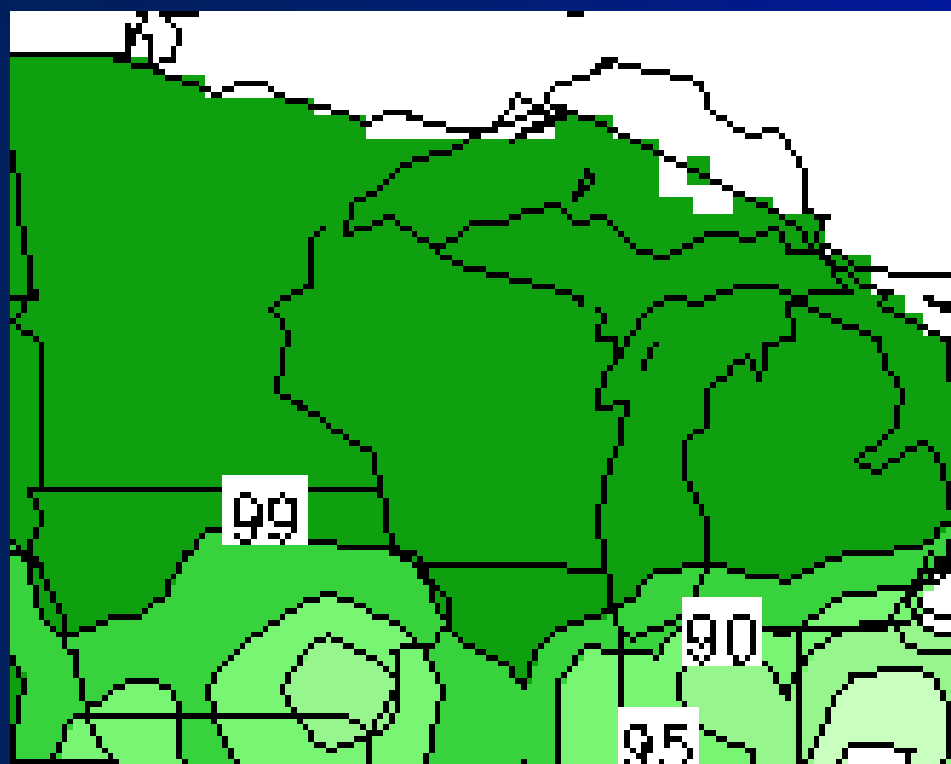
Streamflow Data 2020 vs 2021



- Streamflow is near to above normal, but has improved from last year.
- Higher river flow may still lead to quick rises to at least bankfull in some areas.

Soil Moisture Content

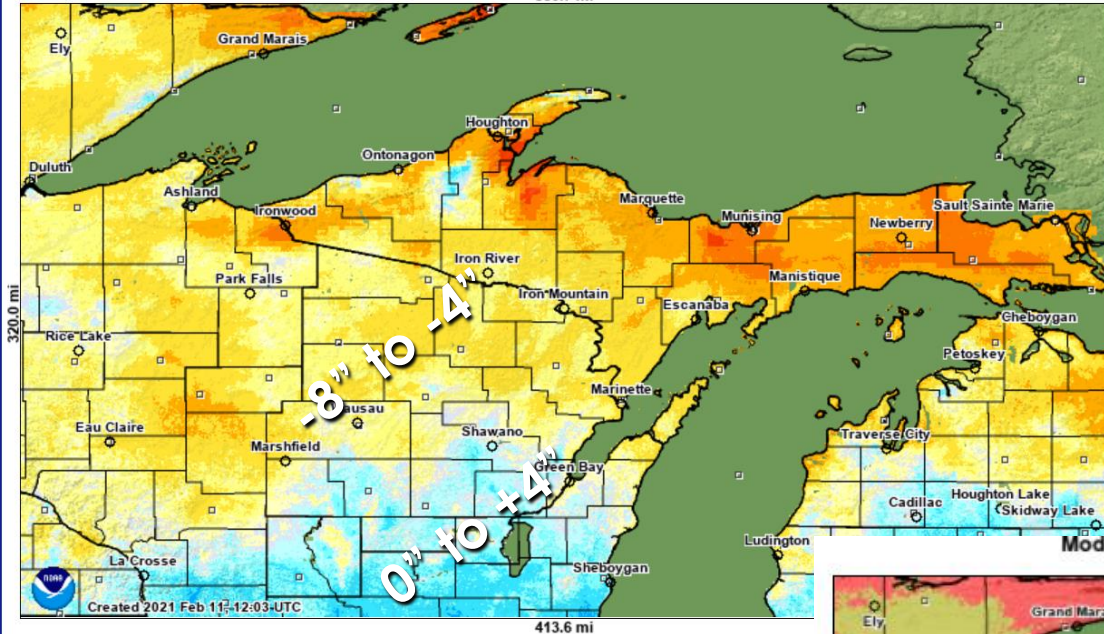
February 11, 2020 vs. February 10, 2021



Snow Depth and Departure from Average

Modeled Snow Depth Departure from Normal (Daily) for 2021 February 11, 6:00 UTC

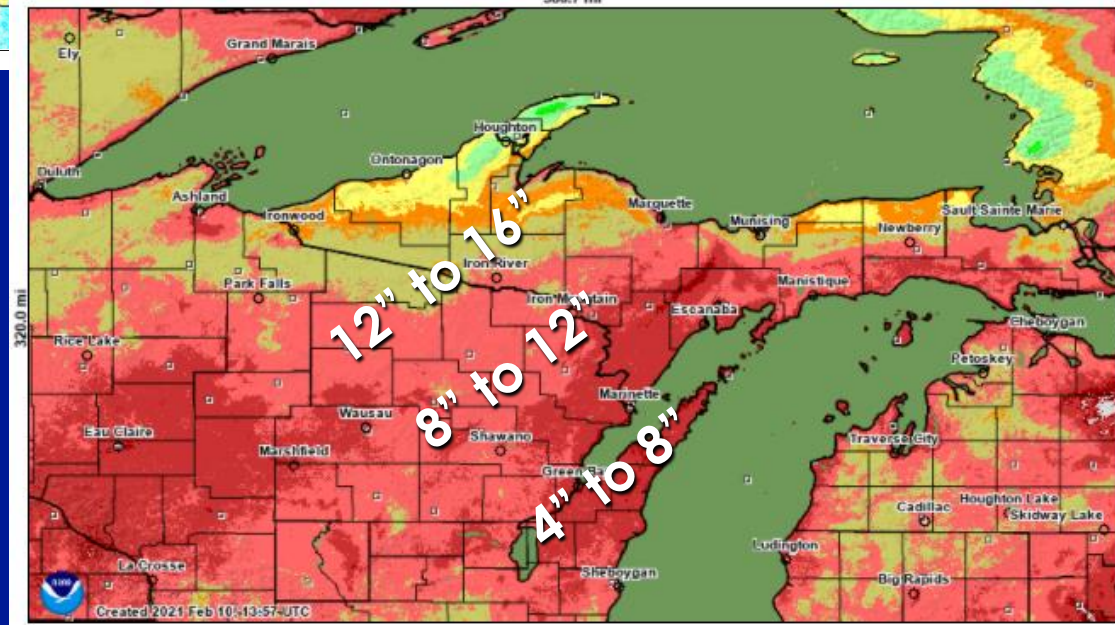
380.7 mi



-8" to -4"
0" to +4"

Modeled Snow Depth forecasted for 2021 February 10, 22:00 UTC

380.7 mi

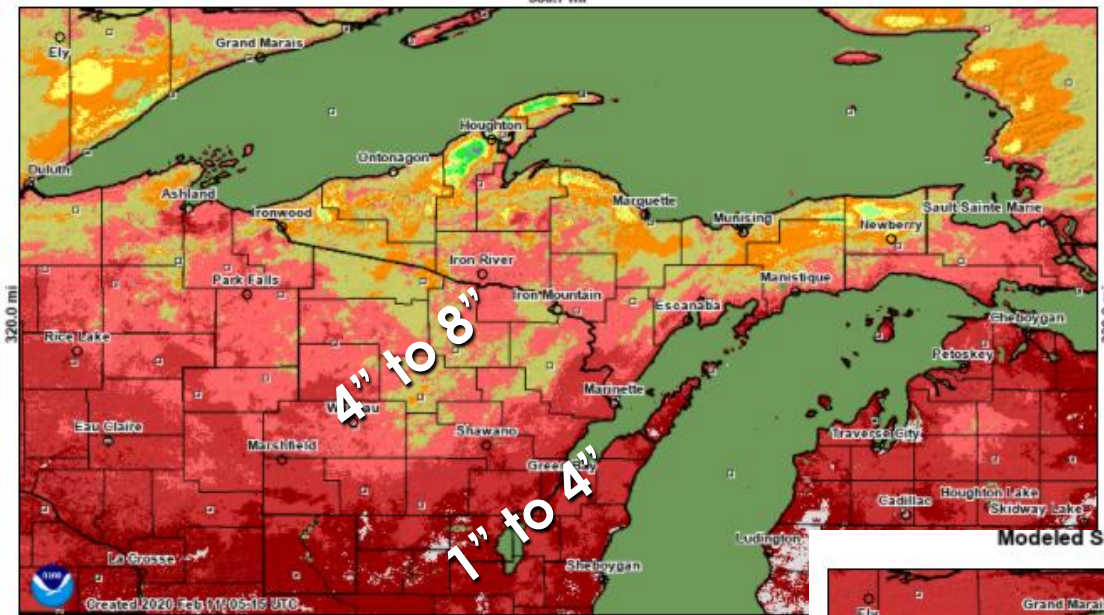


12" to 16"
8" to 12"
4" to 8"

Snow Water Equivalent 2020 vs 2021

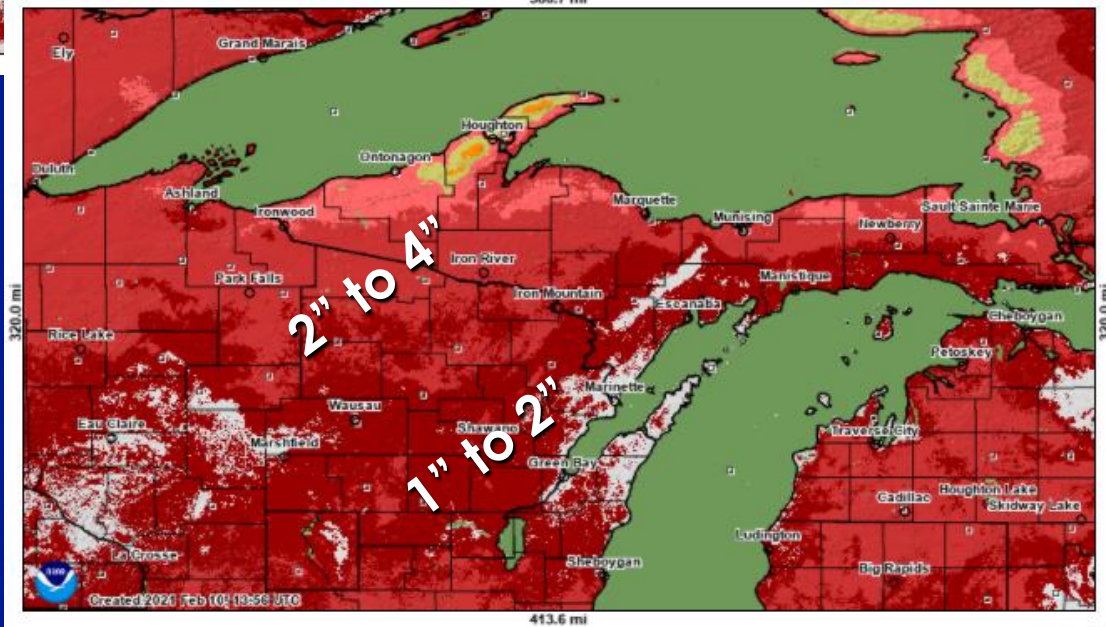
Modeled Snow Water Equivalent for 2020 February 10, 21:00 UTC

360.7 mi

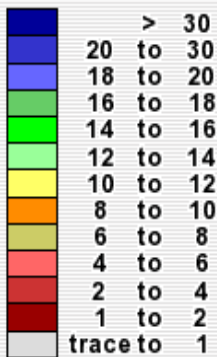


Modeled Snow Water Equivalent forecasted for 2021 February 10, 21:00 UTC

360.7 mi



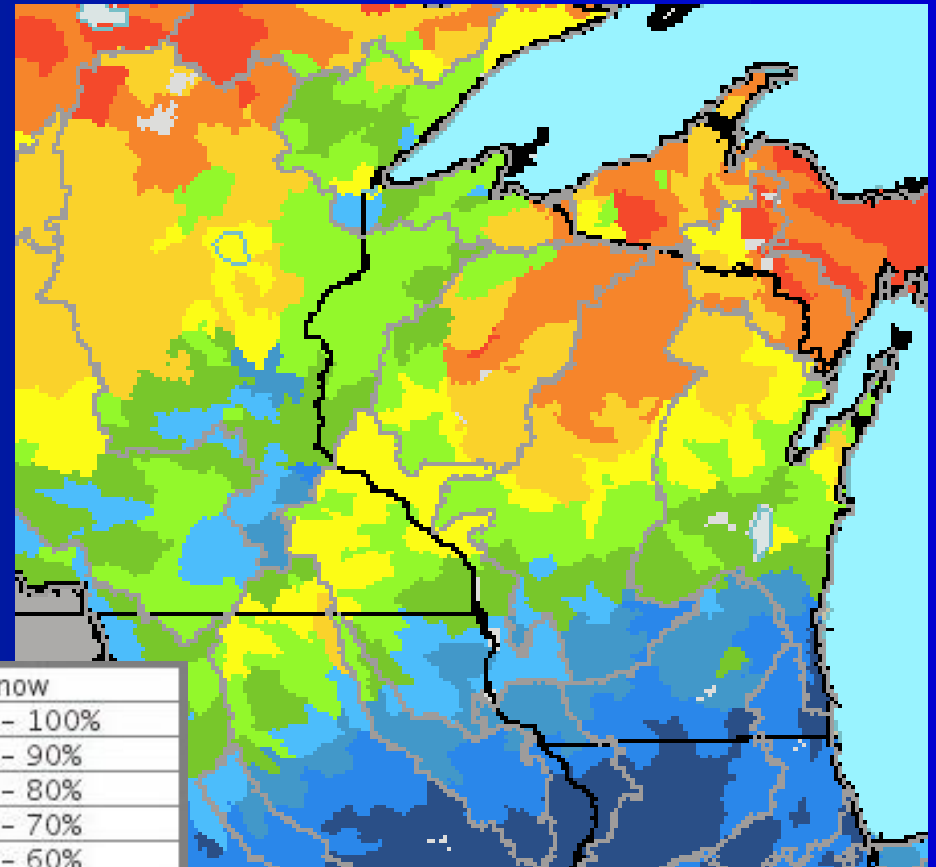
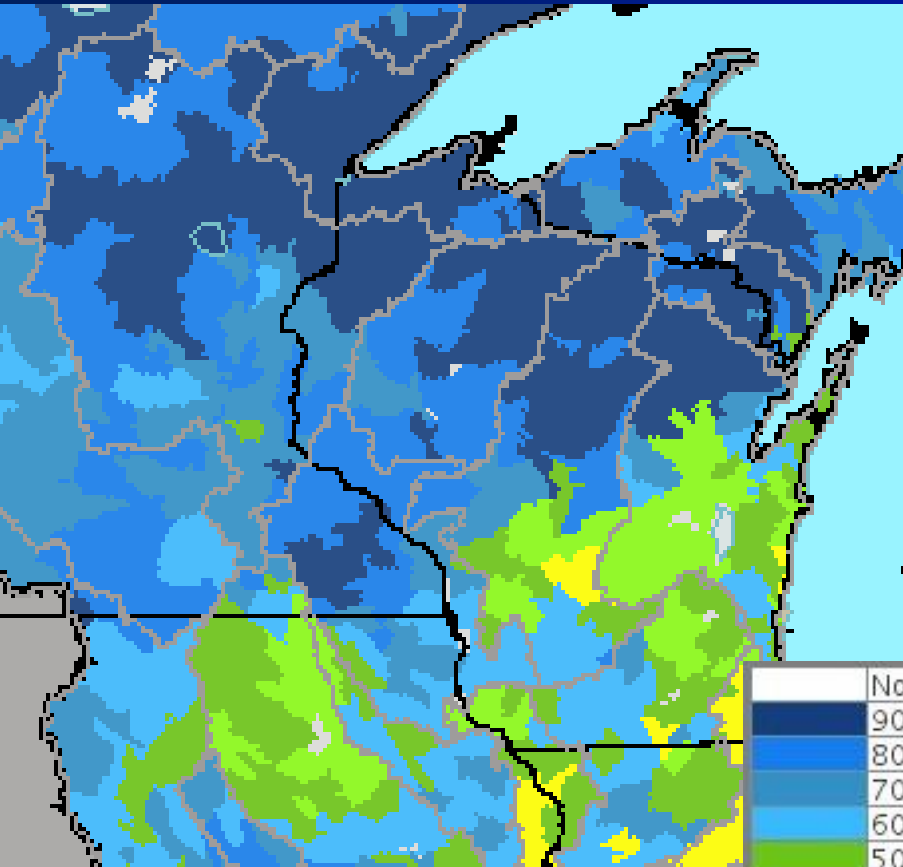
Inches of water equivalent



Snow Water Equivalent Percentiles

Percentiles 2/12/2020

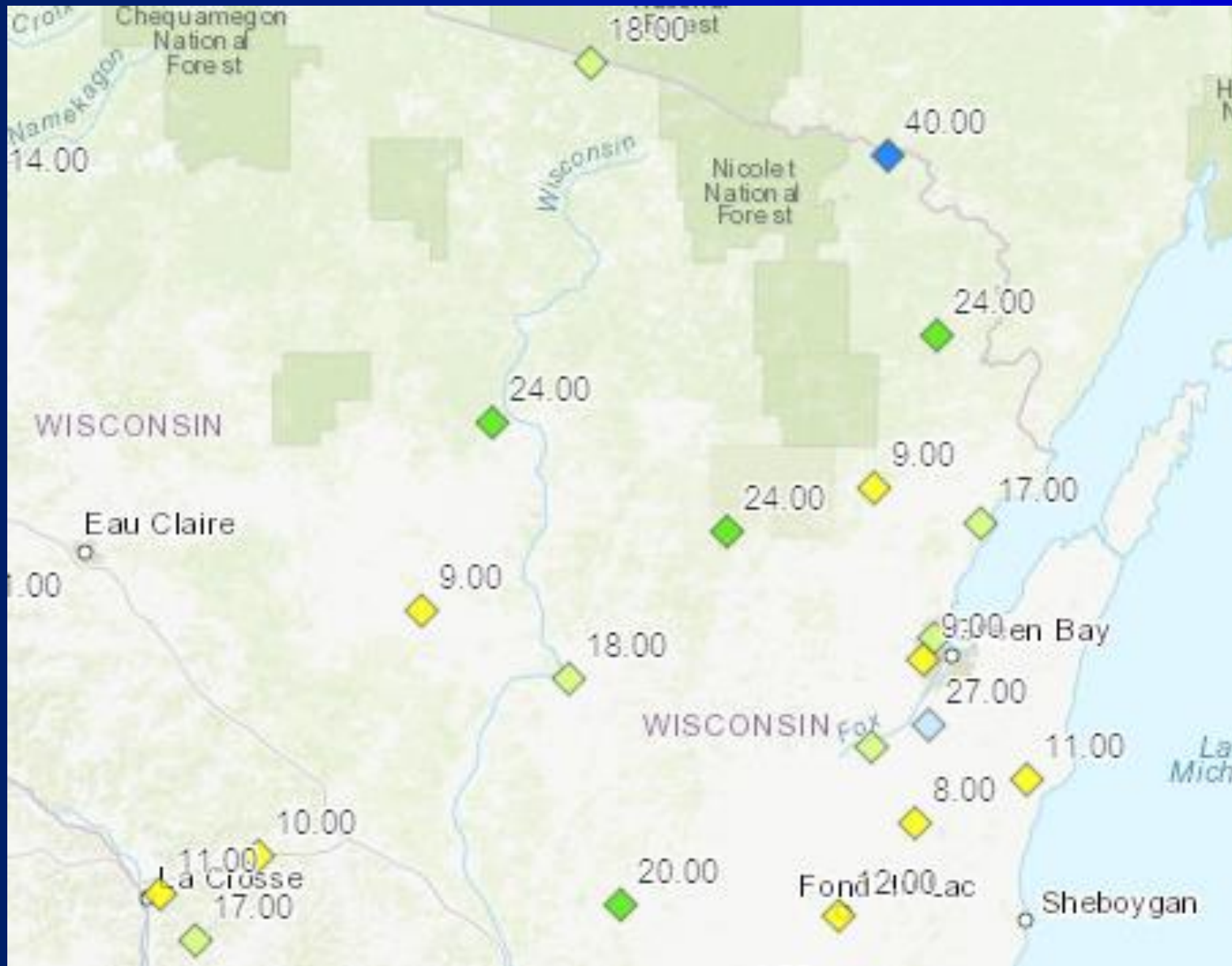
Percentiles 2/10/2021



90-100 percentile in some Central/north-central

Near lowest 10th percentile
This year central/north-central

Frost Depths (February 10, 2021)

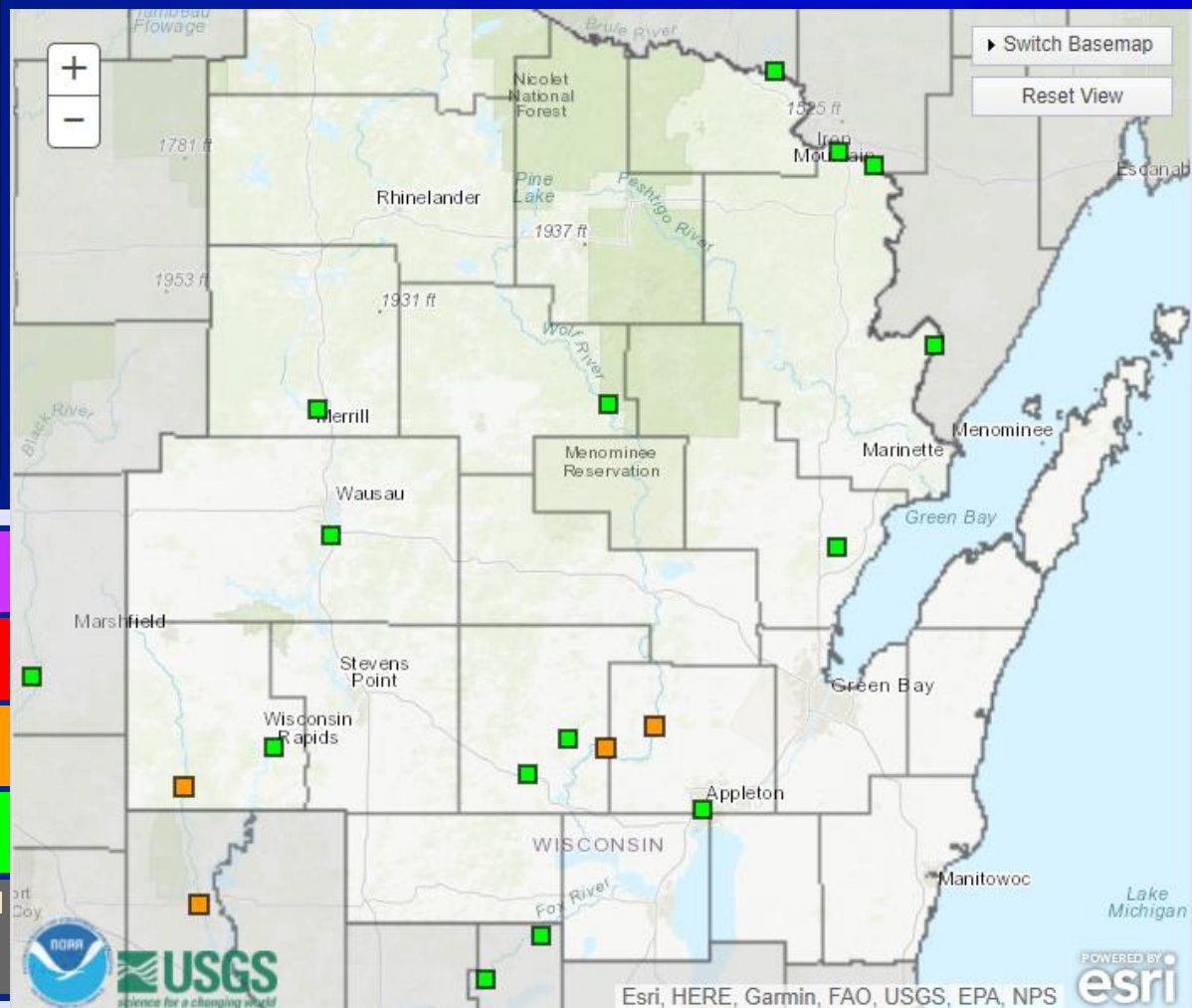
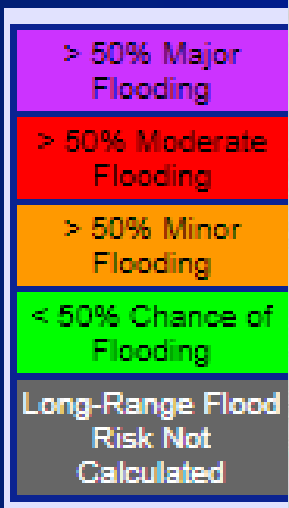


River Flooding Probabilities

Minor flooding possible on a few Northeast Wisconsin rivers.

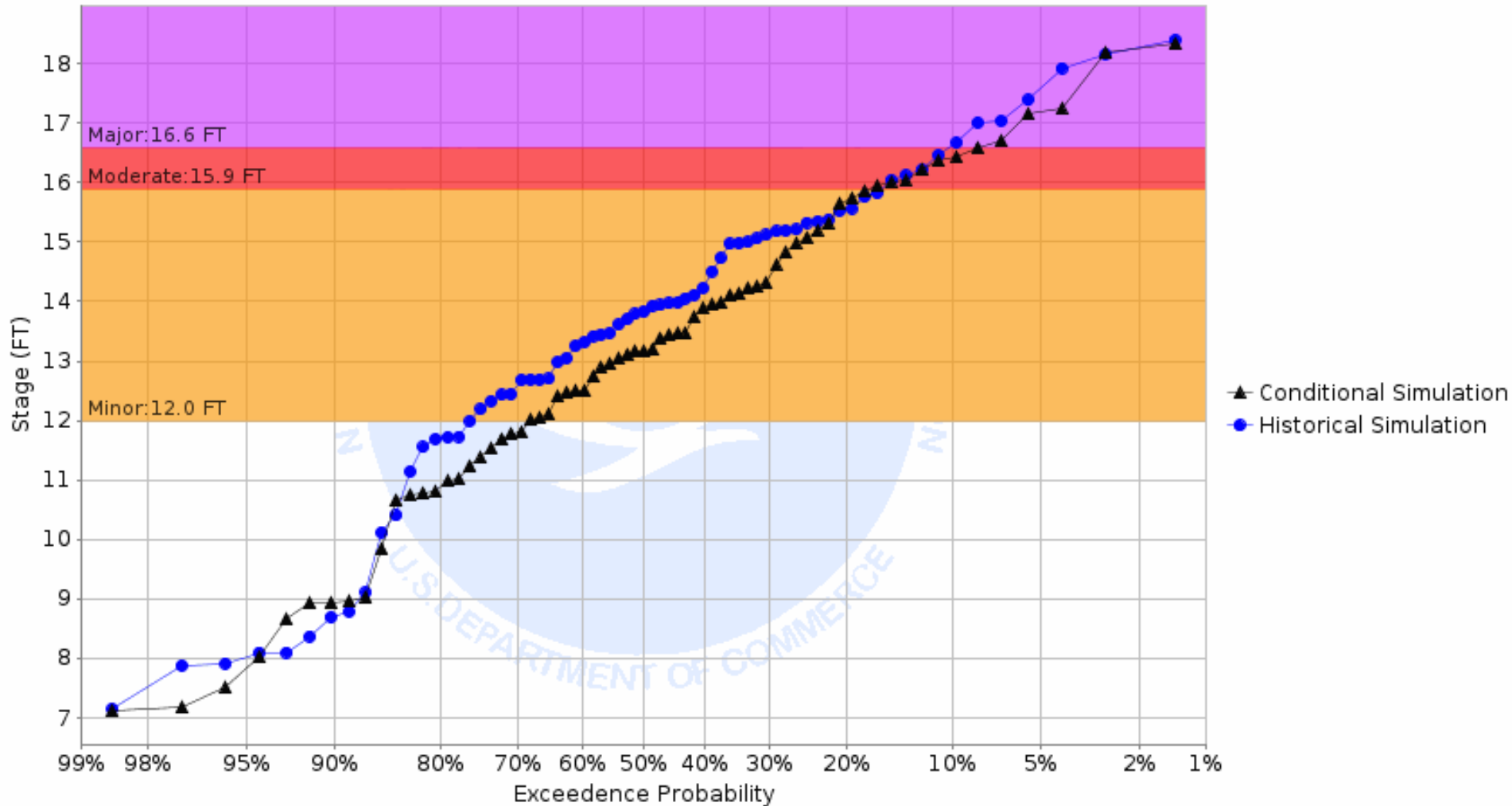
Wolf River

Yellow River



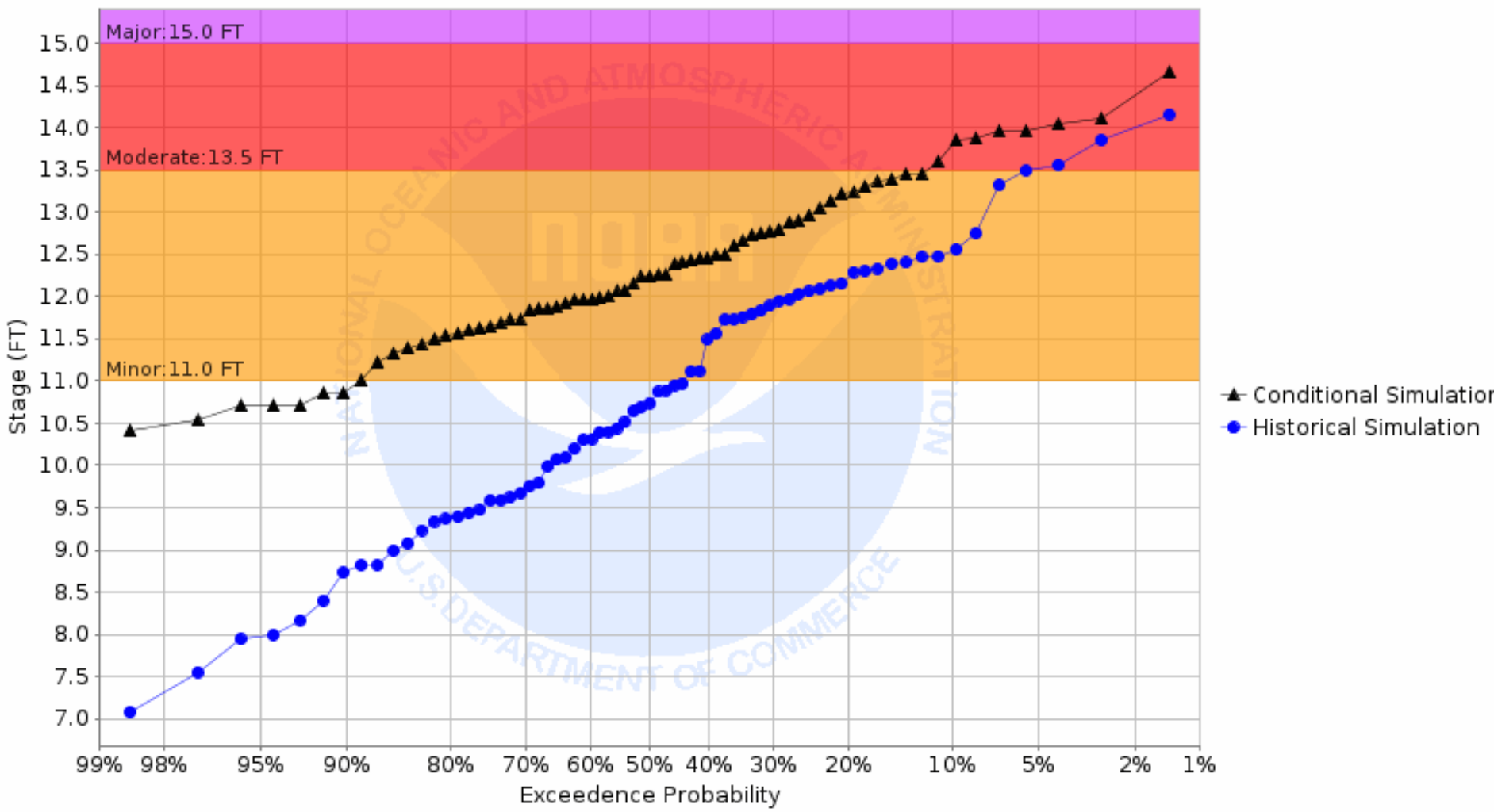
Probability of Flooding Yellow River (BBCW3)

Chance of Exceeding River Stage at Yellow River at Babcock 1WNW (BBCW3)
Forecast for the period 02/15/2021 - 05/16/2021
This is a conditional simulation based on the conditions as of 02/08/2021



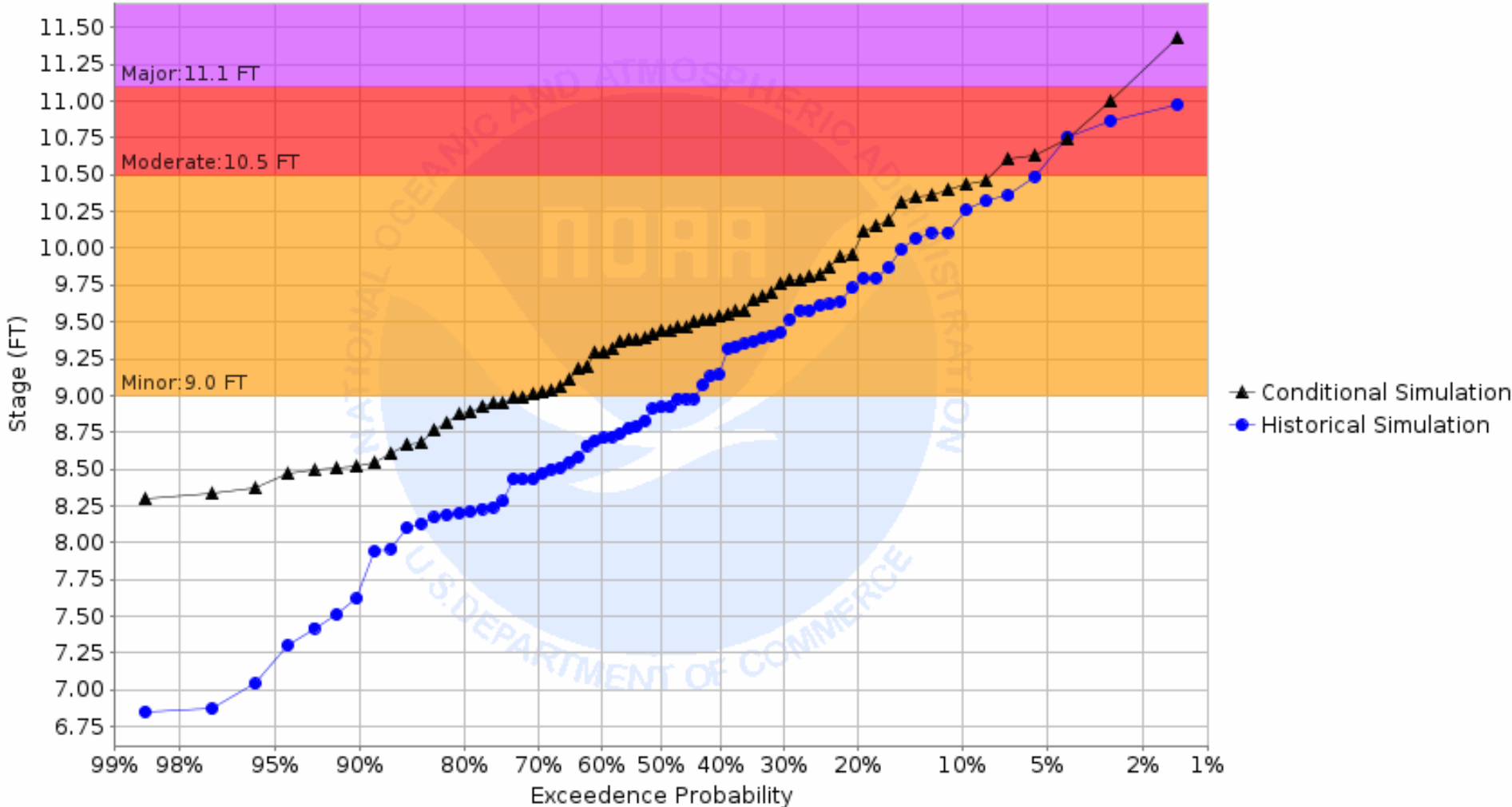
Probability of Flooding Wolf River (SHIW3)

Chance of Exceeding River Stage at Wolf River at Shiocton (SHIW3)
Forecast for the period 02/15/2021 - 05/16/2021
This is a conditional simulation based on the conditions as of 02/08/2021



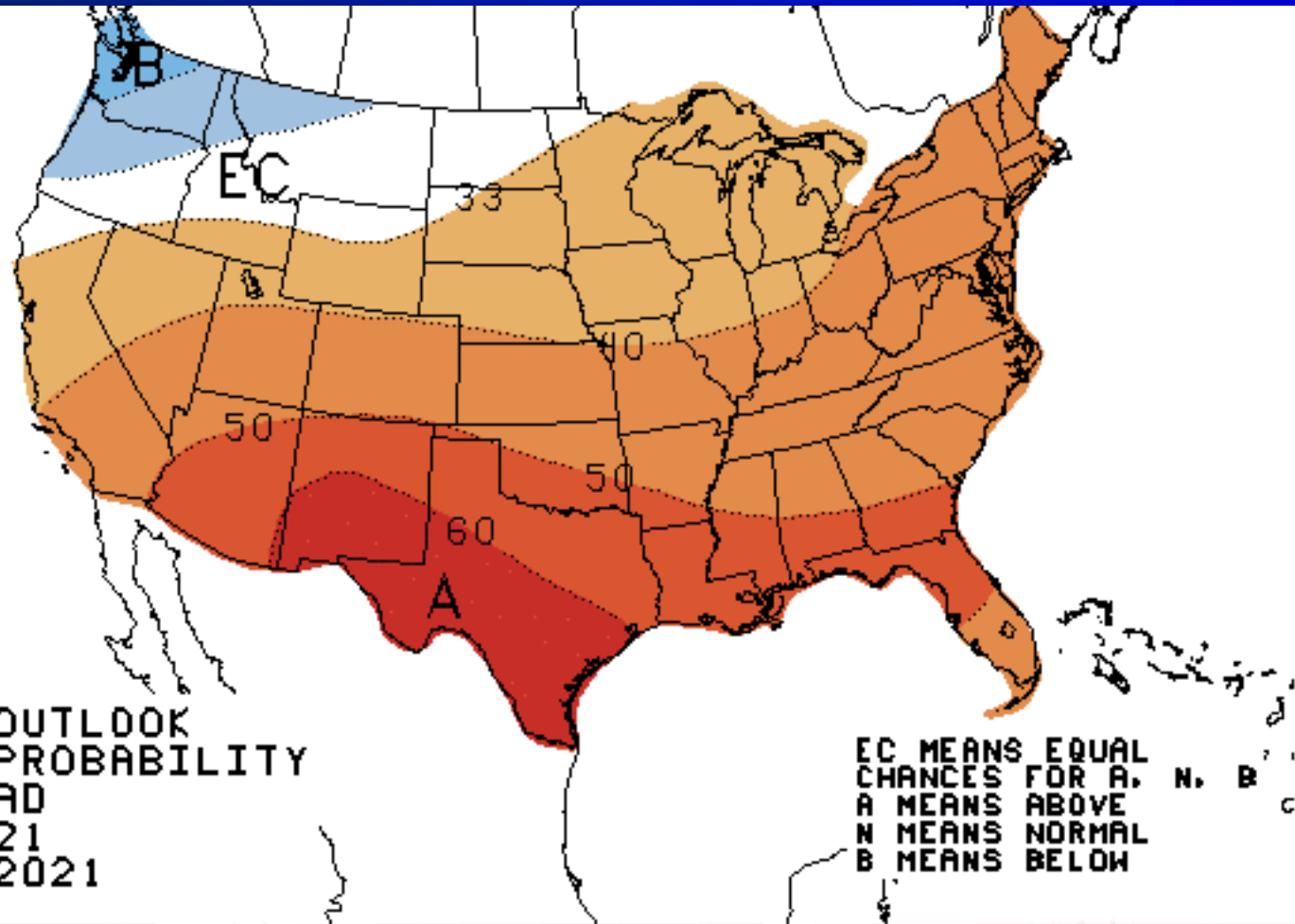
Probability of Flooding Wolf River (NEWW3)

Chance of Exceeding River Stage at Wolf River at New London (NEWW3)
Forecast for the period 02/15/2021 - 05/16/2021
This is a conditional simulation based on the conditions as of 02/08/2021

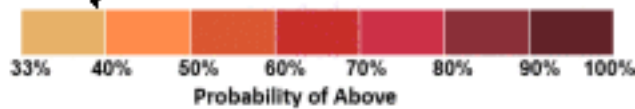
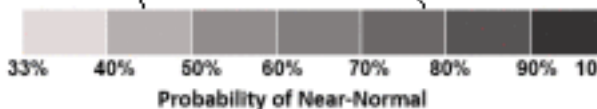
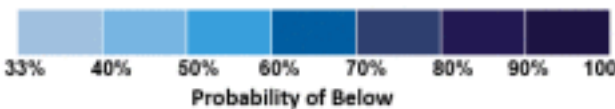


Temperature and Precipitation Outlook

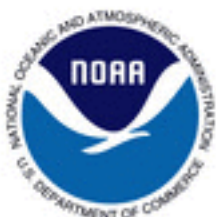
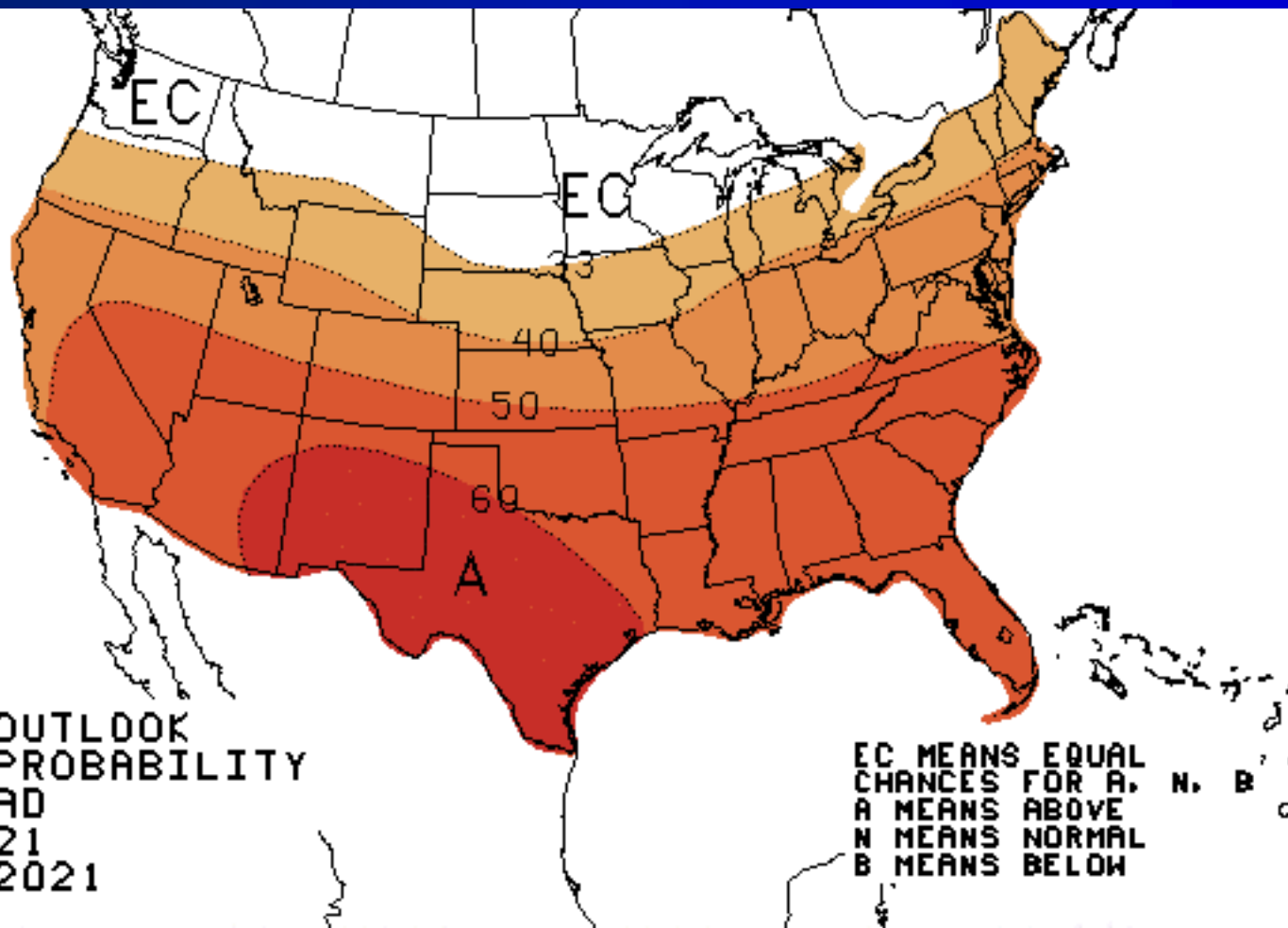
February – April Temperature Outlook



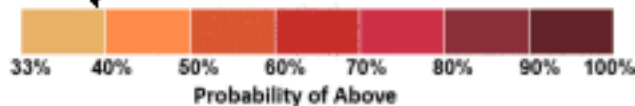
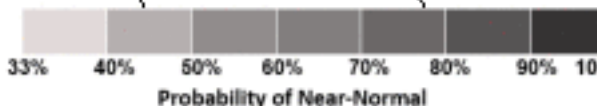
THREE-MONTH OUTLOOK
TEMPERATURE PROBABILITY
0.5 MONTH LEAD
VALID FMA 2021
MADE 21 JAN 2021



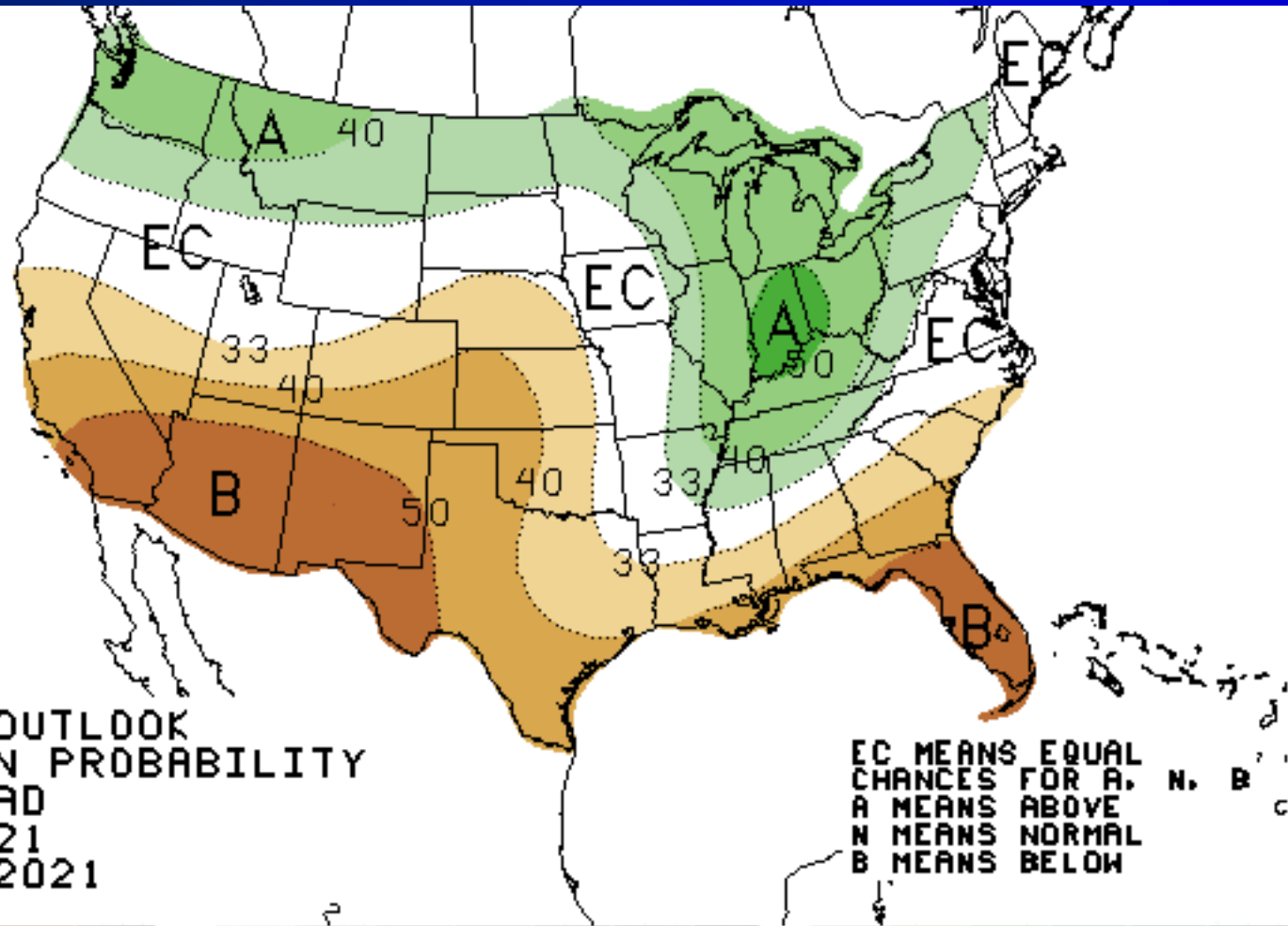
April – June Temperature Outlook



THREE-MONTH OUTLOOK
TEMPERATURE PROBABILITY
2.5 MONTH LEAD
VALID AMJ 2021
MADE 21 JAN 2021

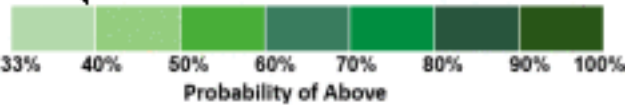
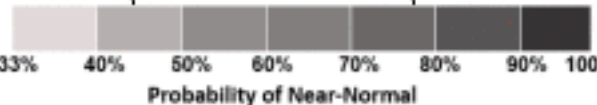
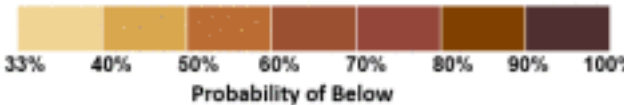


February – April Precipitation Outlook

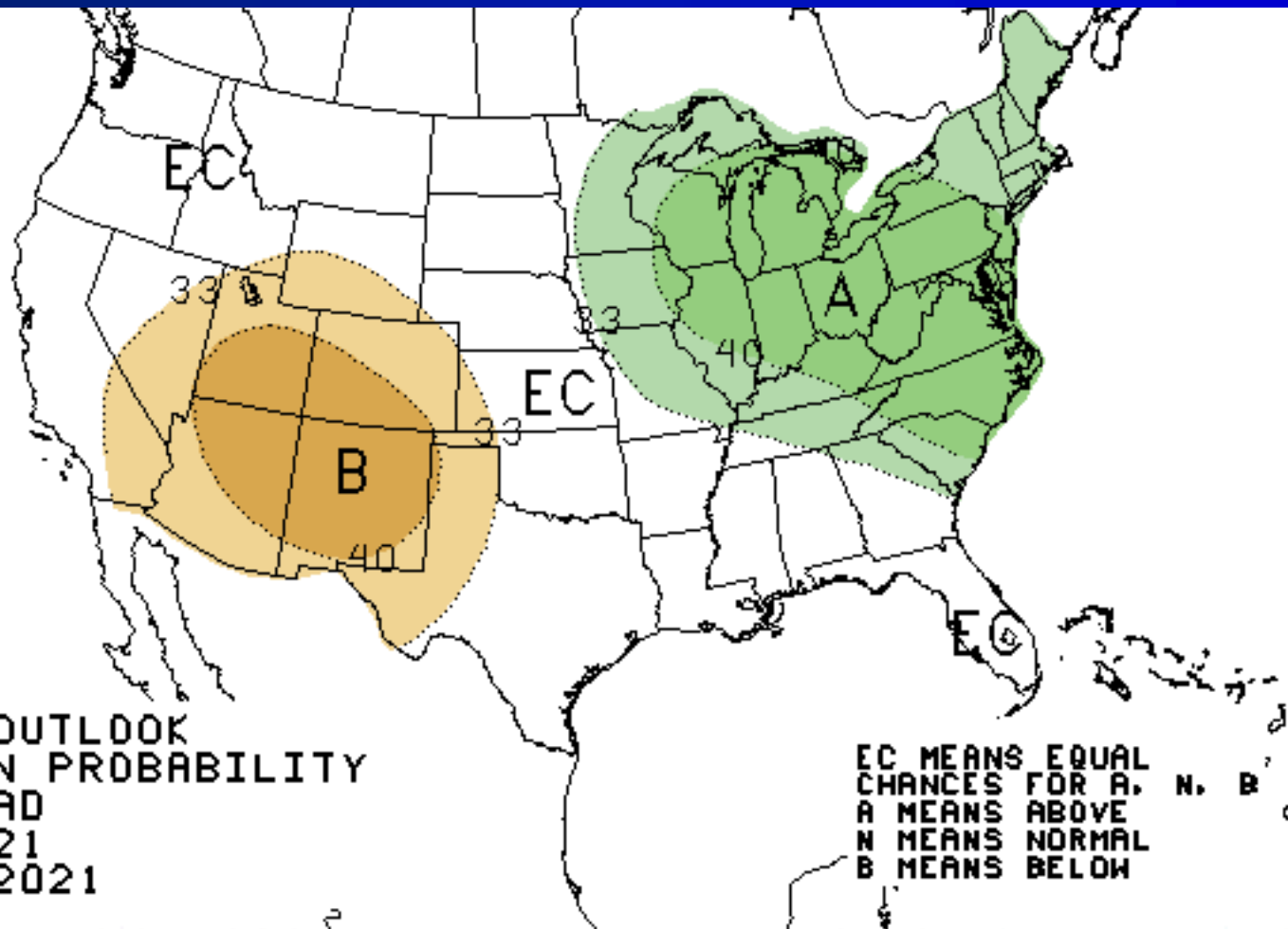


THREE-MONTH OUTLOOK
PRECIPITATION PROBABILITY
0.5 MONTH LEAD
VALID FMA 2021
MADE 21 JAN 2021

EC MEANS EQUAL
CHANCES FOR A, N, B
A MEANS ABOVE
N MEANS NORMAL
B MEANS BELOW

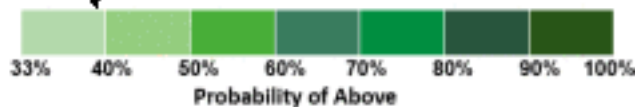
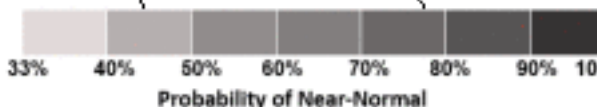
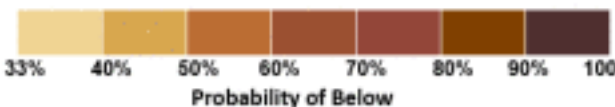


April – June Precipitation Outlook



THREE-MONTH OUTLOOK
PRECIPITATION PROBABILITY
2.5 MONTH LEAD
VALID AMJ 2021
MADE 21 JAN 2021

EC MEANS EQUAL
CHANCES FOR A, N, B
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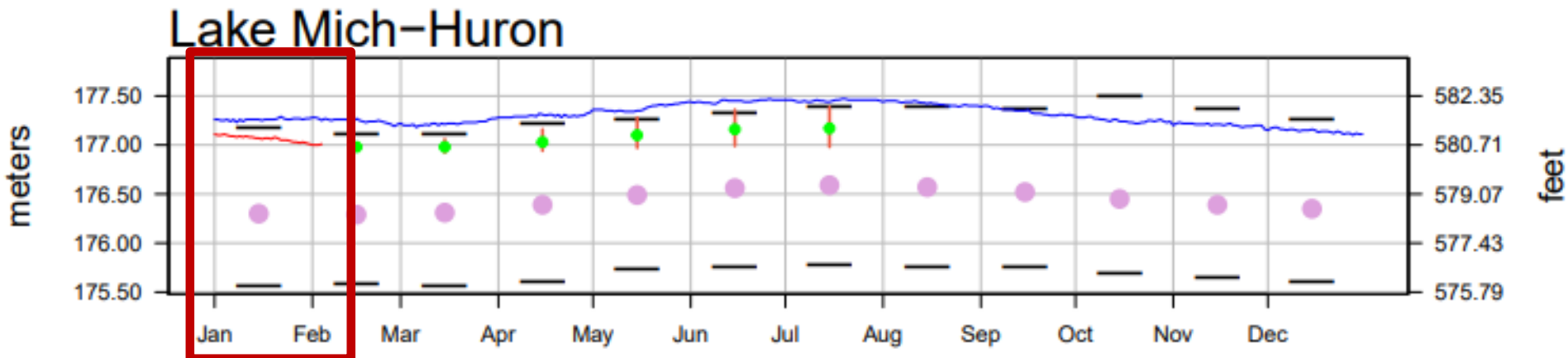


Lake Michigan Water Levels and Flooding Concerns

Shoreline Flooding and River Flooding

- Shoreline flooding potential remains elevated this year with Lake Michigan water levels running well above normal.
- The Great Lakes are subject to shoreline flooding as a result of strong storms.
 - (Especially with northeast winds)
 - Impacts the East River, Fox River, Oconto River and Menominee River
- Lakeshore flooding is primarily caused by storm surge and wave action.
- Storm surge is defined as an abnormal rise of water generated by a storm, resulting from atmospheric pressure changes and wind.

Lake Michigan Water Levels 2020 vs 2021

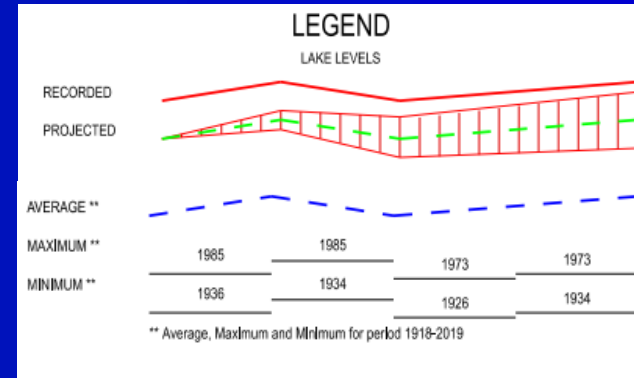
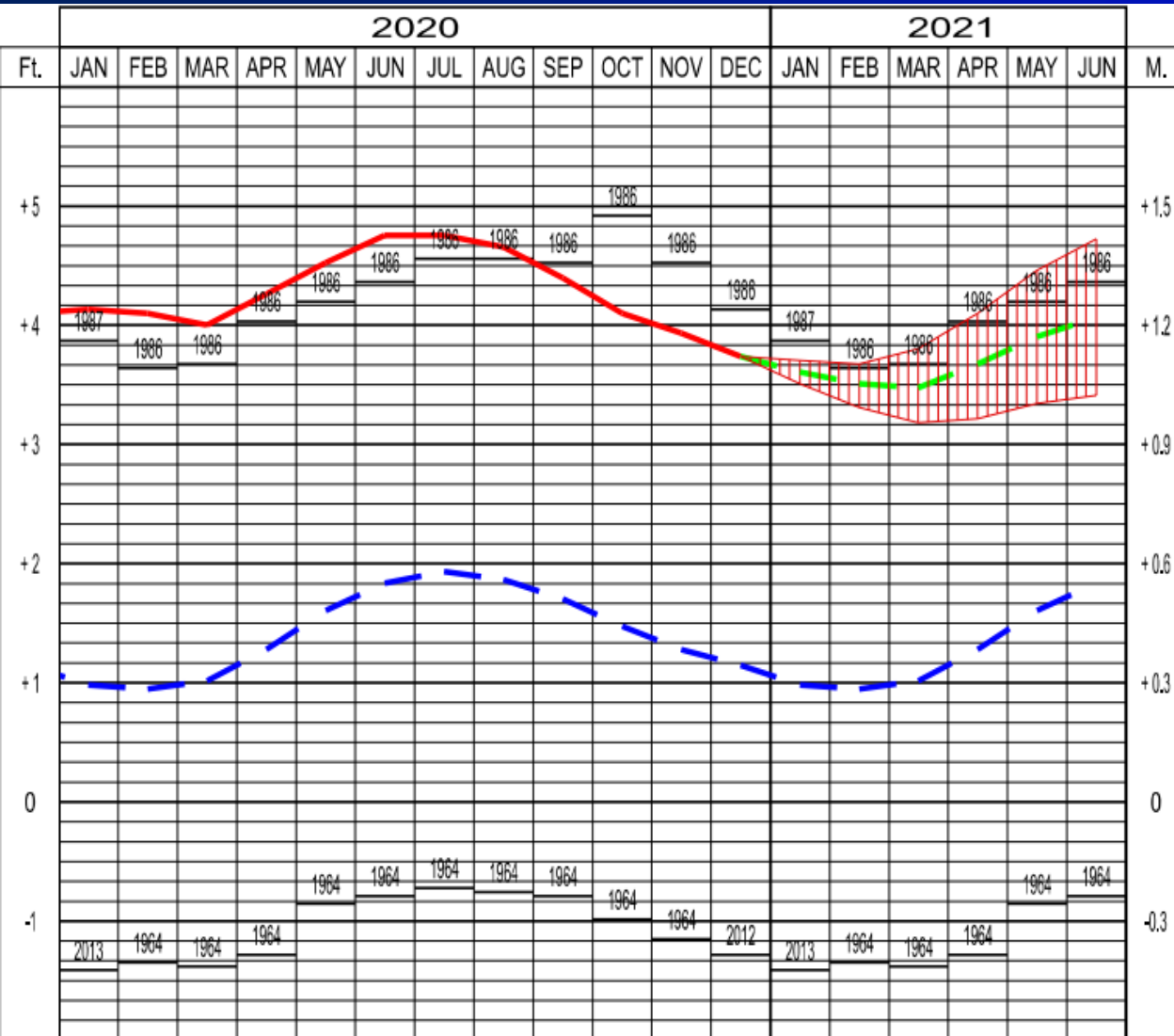


- 2021
- 2020
- Coordinated Forecast
- LTA Monthly Mean
- Record High/Low Monthly Mean



Lake levels are around 10 inches lower than 2020, but still around 27 inches above the long-term average.

Lake Michigan Forecast Water Levels



Lake levels are still running around 2 feet above the long-term average.

Data is from the US Army Corps of Engineers.



Questions or comments...

- nws.greenbay@noaa.gov

Useful Links

- Streamflow Data – [USGS WaterWatch](#)
- Soil Moisture Data – [CPC Soil Moisture](#)
- Seasonal Outlooks – [Climate Prediction Center](#)
- Snow Information – [NOHRSC](#)
- Frost Depth Data – [North-Central River Forecast Center](#)
- Great Lakes Water Levels – [US Army Corps of Engineers](#)