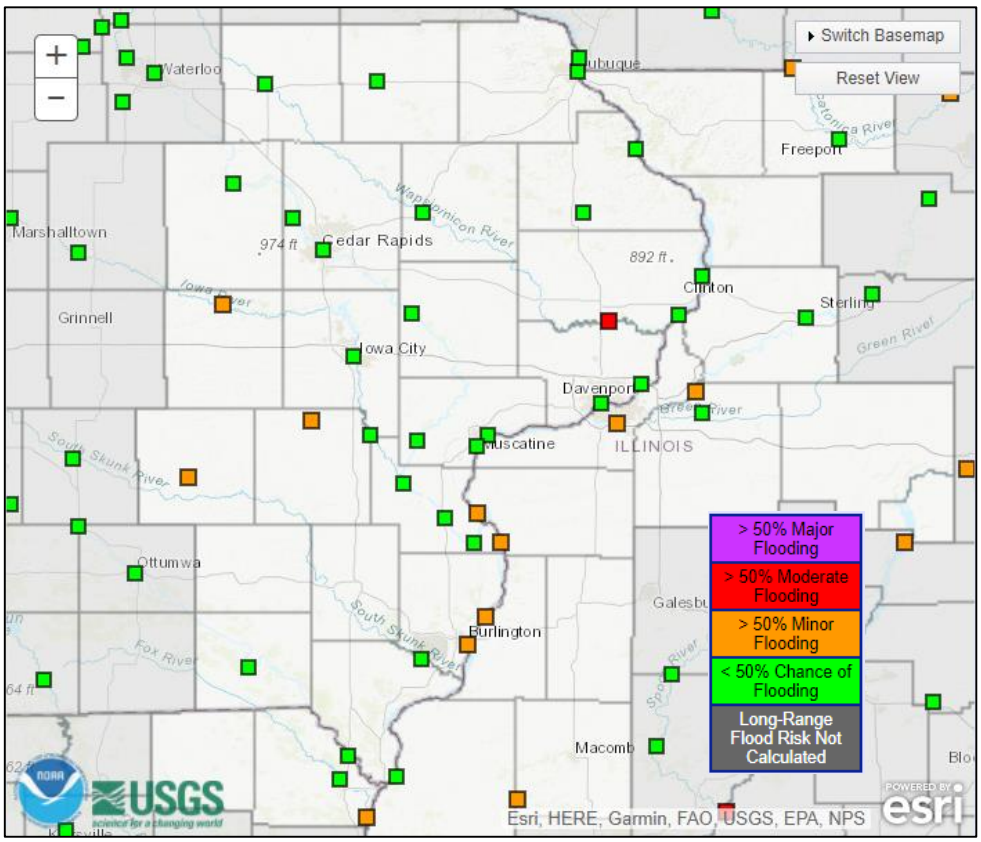
National Weather Service
Quad Cities, IA/IL

2021 Spring Flood Outlook

Thursday, March 11, 2021

Spring Flooding Potential:
Favorable Snowmelt Reduces Flood Risk



Mississippi River

Quad Cities and Upstream: Below Normal

Downstream of Quad Cites: Slightly Above Normal

Tributary Rivers

Near to Below normal

Localized Areas: above normal

Colored boxes highlight locations with a 50% chance of reaching the correlated flood category.

Key Points:

- Flood risk this season is lower than previous years, with the highest risk for Minor Flooding.
- **The snowpack has melted in the last two weeks. This melt has led to some river rises, especially on local rivers.**
- **Local Rivers:** Risk has been reduced with the loss of the deep snowpack. Snowmelt runoff alone is not likely to cause widespread flooding. Risk is below normal for moderate/major flooding heading through the spring.
- **Mississippi River:** Risk for Minor Flooding is *Slightly Above Normal* downstream of the Quad Cities.
- The amount of additional snowfall and heavy spring rains will influence if flood potential this spring as well as the severity of any flooding.

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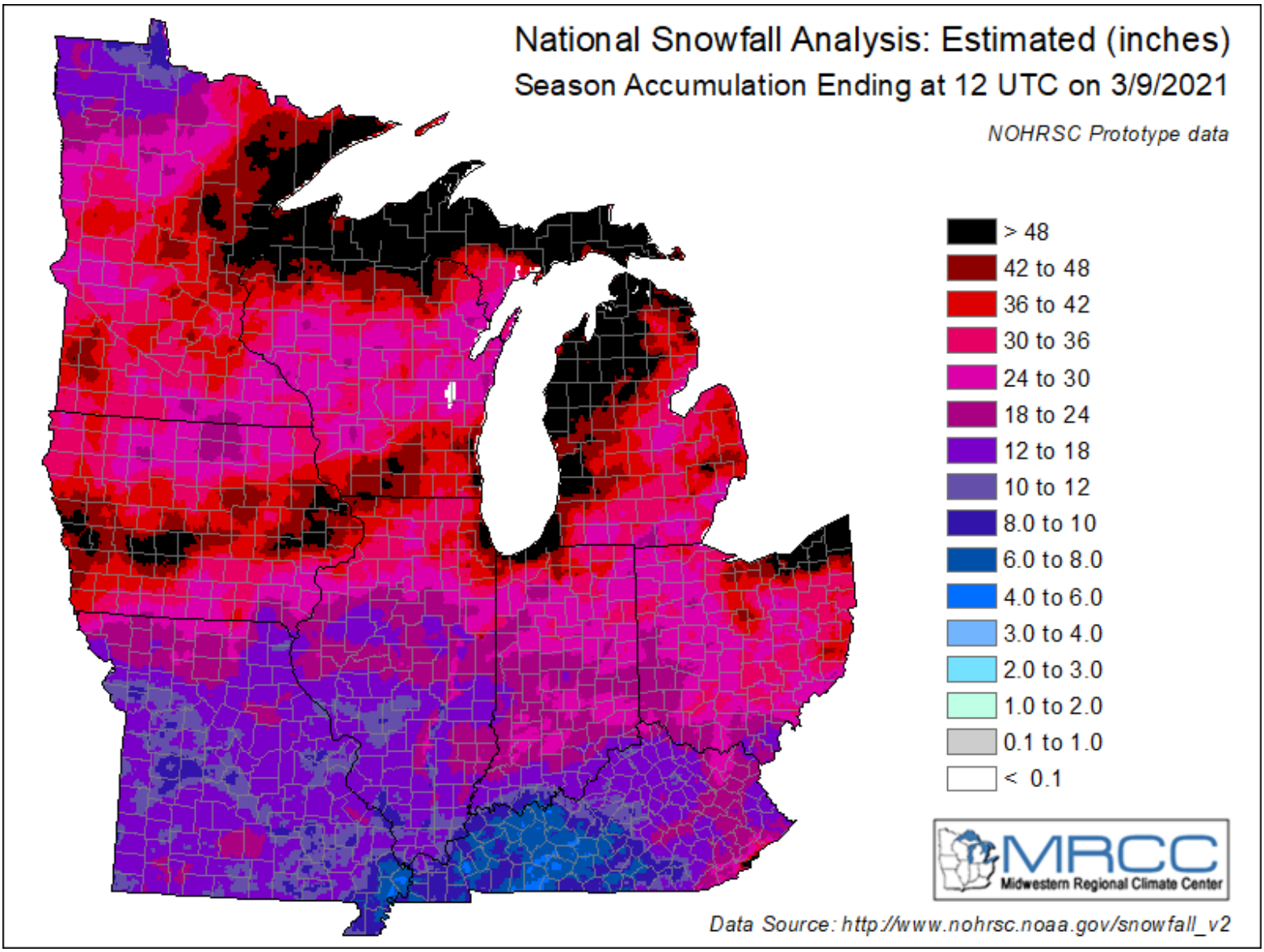
Factors Considered in this Outlook

- Seasonal Temperatures and Precipitation
- Snow Cover Comparison
- Frost Depth
- Soil Moisture
- Current River Streamflows
- Weather Forecasts & Outlooks



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Seasonal Temperatures/Precipitation

Average Winter Temperatures:

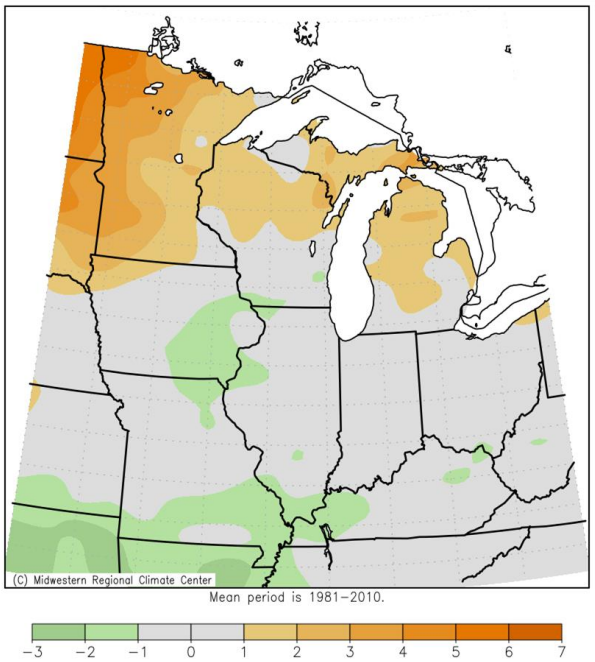
- Below normal temperatures this winter. Locally, averages have been 1-3 degrees below normal
- Lately, temperatures have been above normal; enhanced snowmelt

Winter Precipitation:

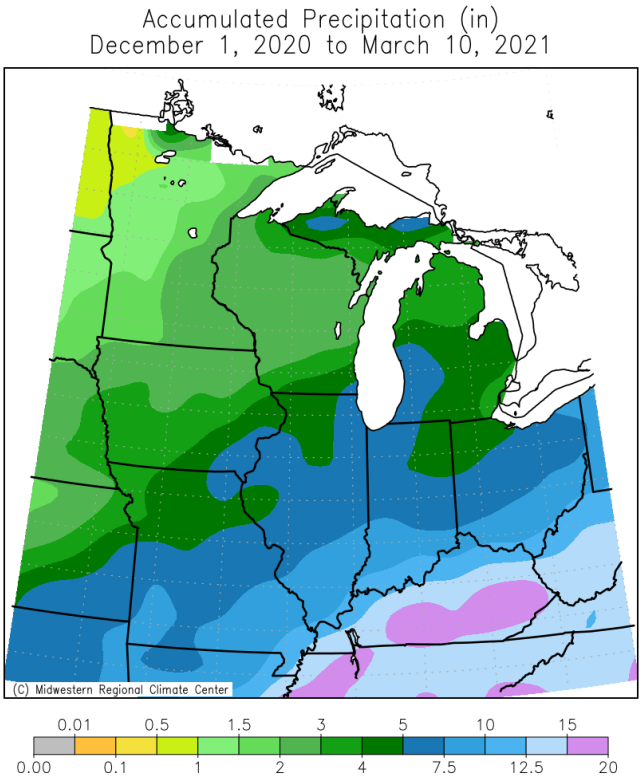
- Locally – Near to Below Normal
- Upstream (Mississippi River watershed) – Below Normal

Average Temperature Departure from Normal

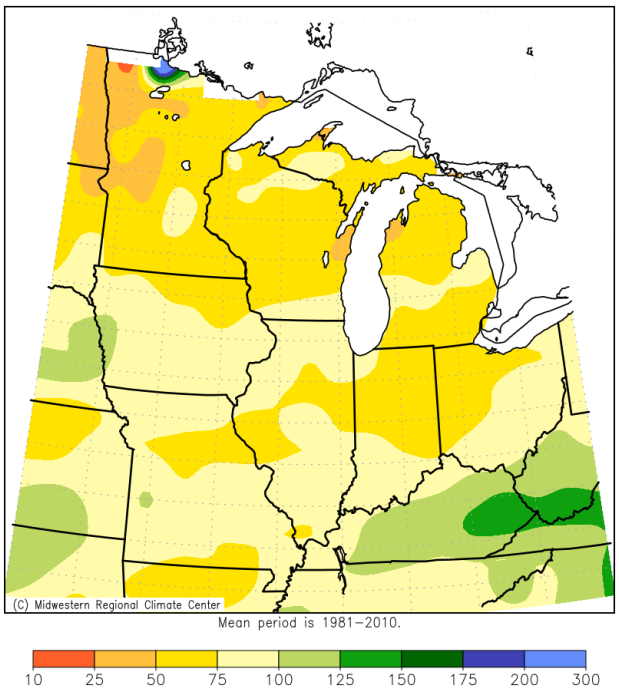
Dec 1, 2020 – Mar 9, 2021



Accumulated Precipitation



Accumulated Precipitation Percent of Mean



Images Courtesy of Midwest Regional Climate Center

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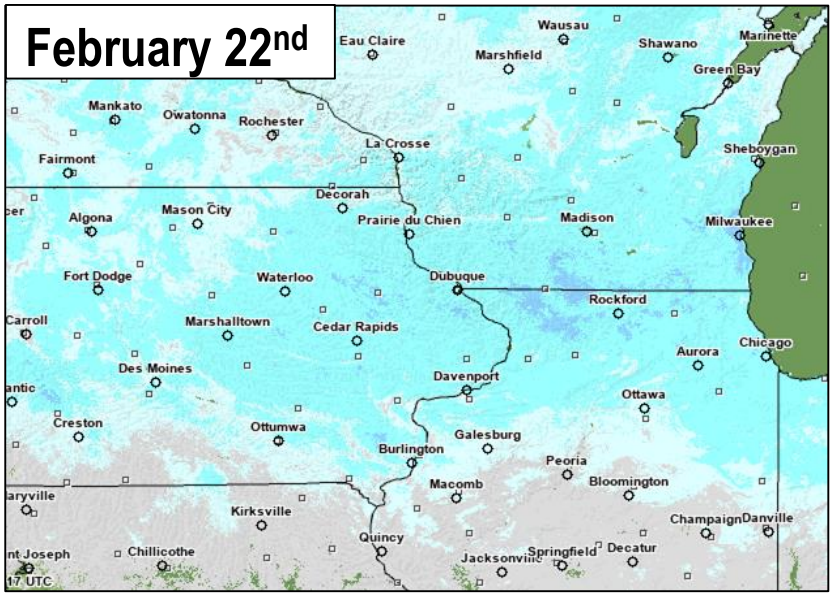
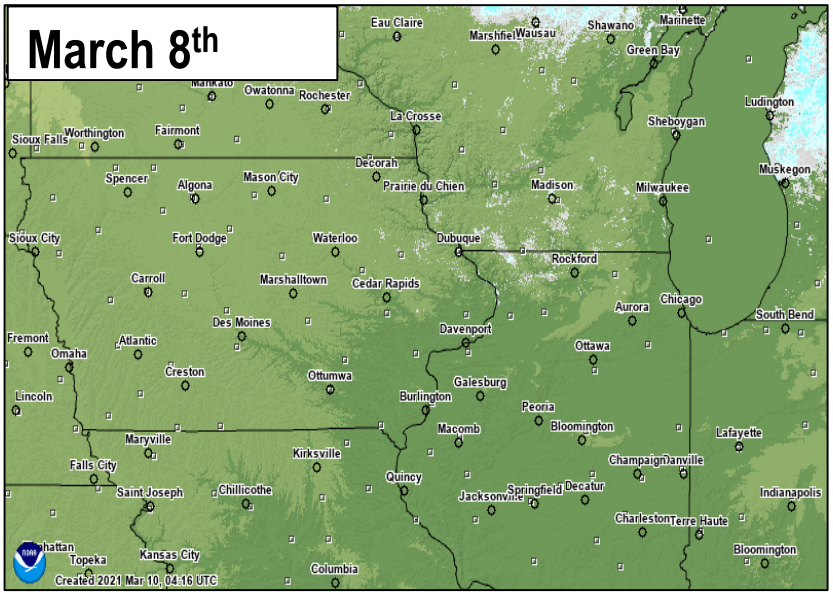
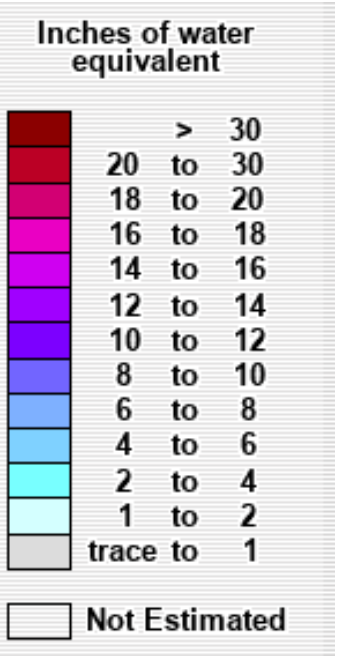
Snowpack Changes







Images courtesy of NOHRSC.

Contribution to flood potential:

- As shown above, in the last two weeks, we have lost all of the winter snowpack. The meltwater has led to some river rises and is likely to continue, but heavy snow and/or rain would be needed to see larger river responses.

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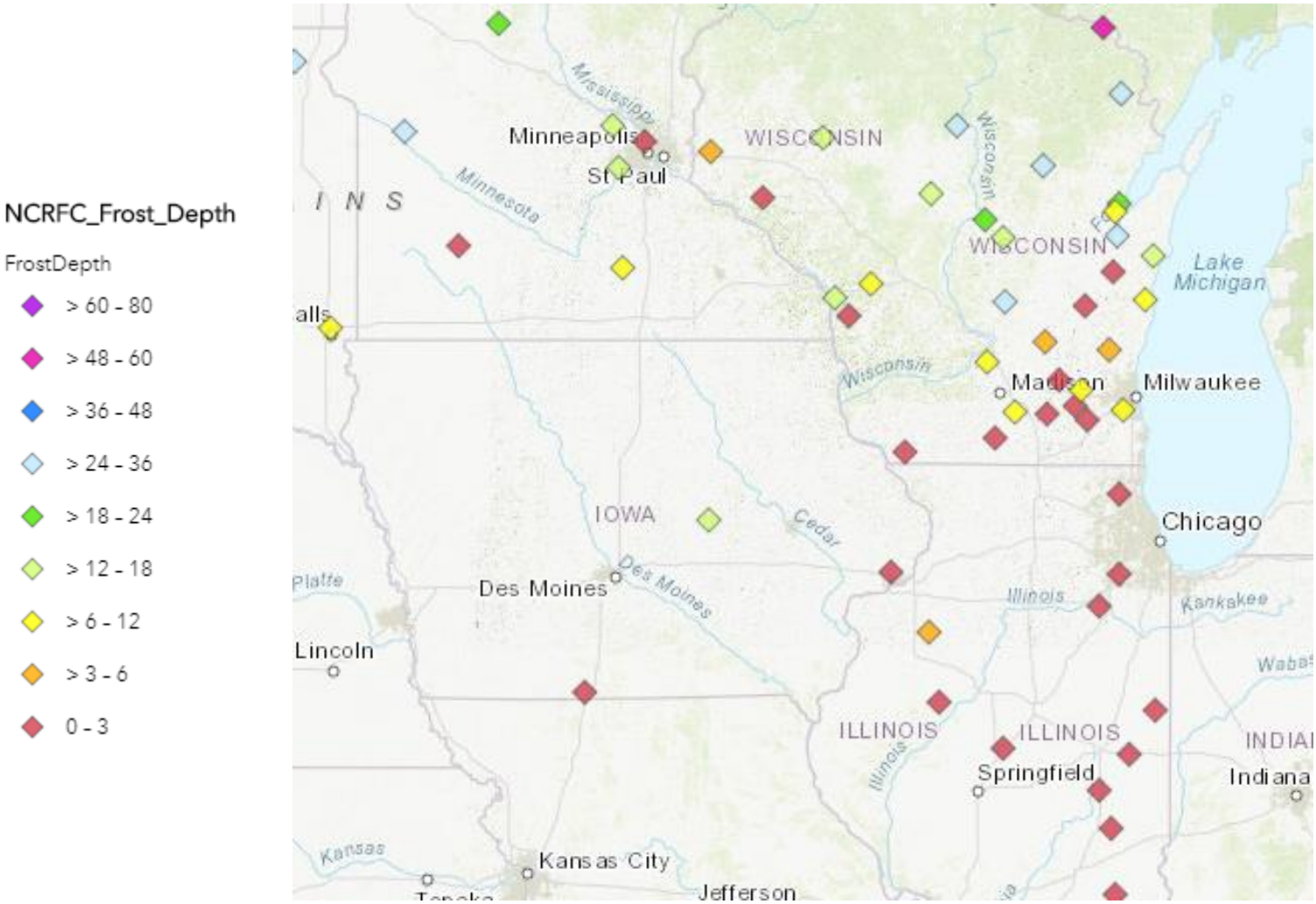
Frost Depth

Frozen ground

- Frost depths are less than normal



Images courtesy of the NWS NCRFC

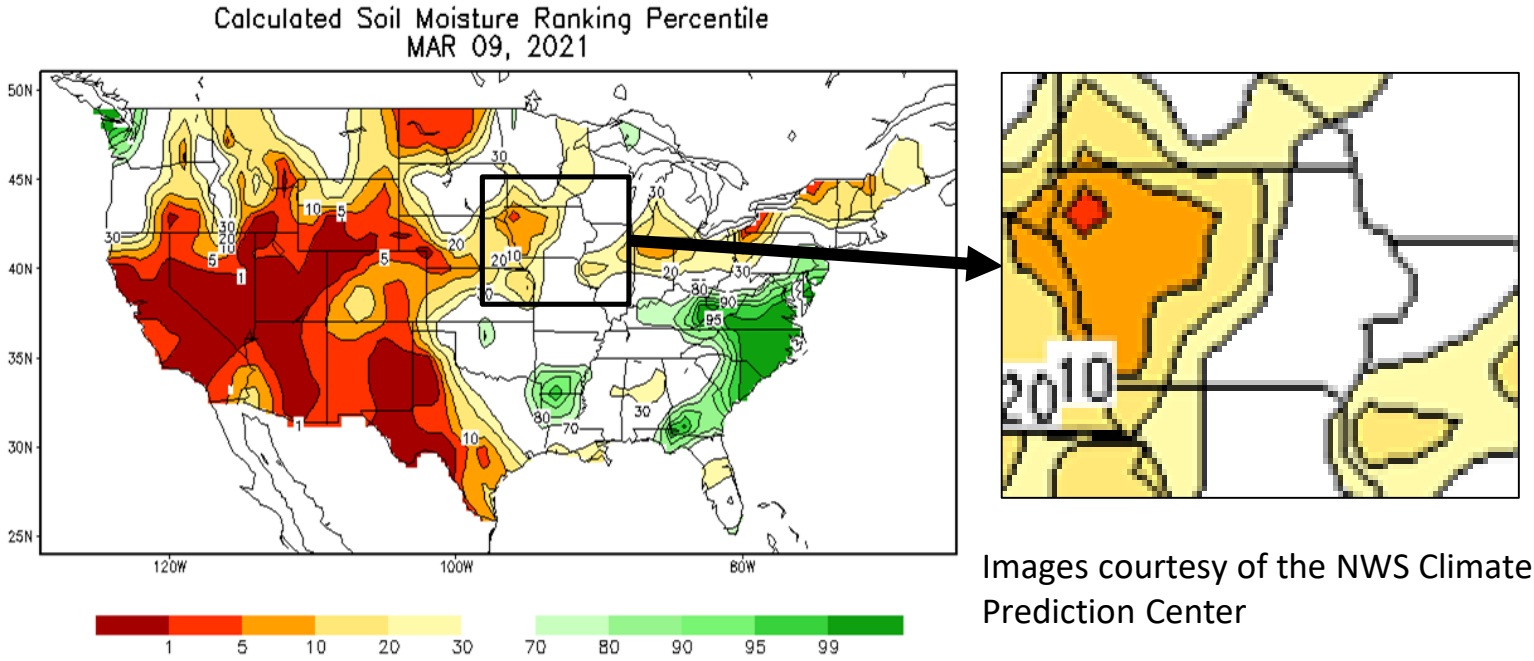
Contribution to flood potential:

- Shallow frost from this winter has nearly all thawed out locally, with a few locations indicating low depths. This has allowed some infiltration into the ground of the snowmelt and rain, limiting runoff.

Soil Moisture/Drought

Dryer Soils, but No Local Areas under Drought Conditions:

- Near to slightly below soil moisture locally
- Regionally, soil moisture is drier than normal, especially in western and central Iowa and west central Illinois into northeast Missouri..



Images courtesy of the NWS Climate Prediction Center

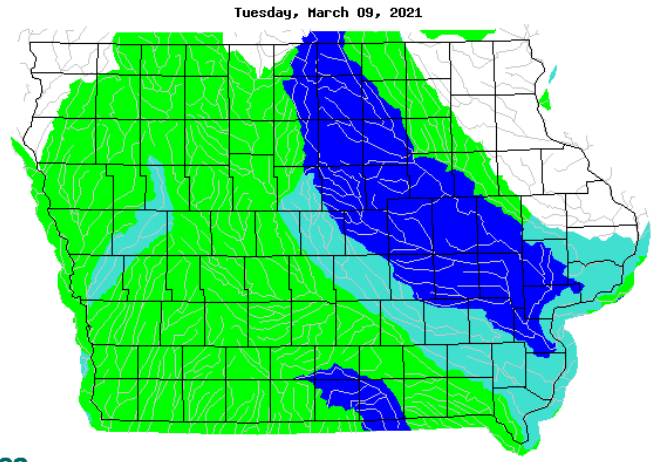
Contribution to flood potential:

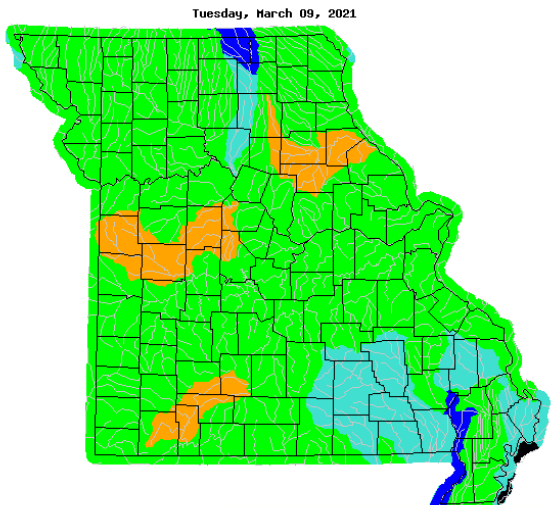
- Soils are still relatively dry after the large amount of snowmelt. Dry soils will allow for more infiltration of rain and snow this spring. With this considered, the effects of soil moisture will have a low impact on spring flooding at the moment, leading to a decreased flood risk.

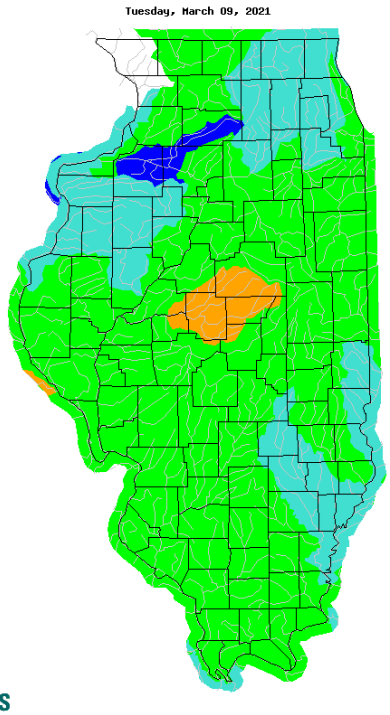
Streamflows

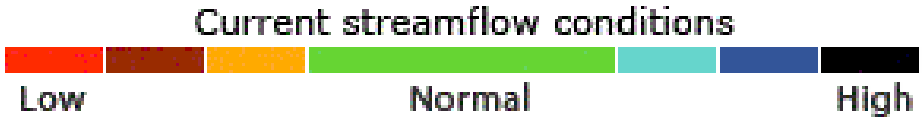
Streamflows are generally above normal across IA, IL, and MO, while there are a some rivers in the central Mississippi River watershed running near normal.

Note: White colored basins are where streamflow measurements have been turned off due to the stream being ice affected









Images courtesy of the USGS.

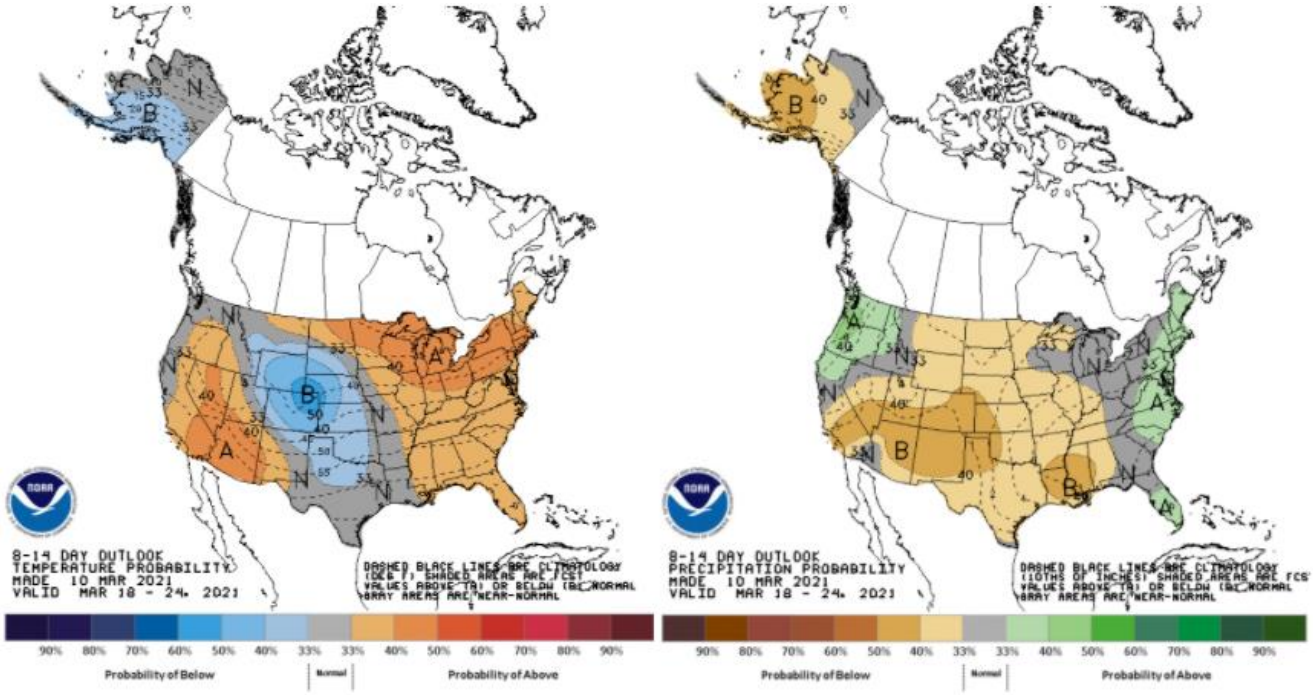
Contribution to flood potential:

- Rivers at near or above normal levels indicate there is less capacity in the rivers for runoff from additional spring snow and rain.

Weather Outlooks

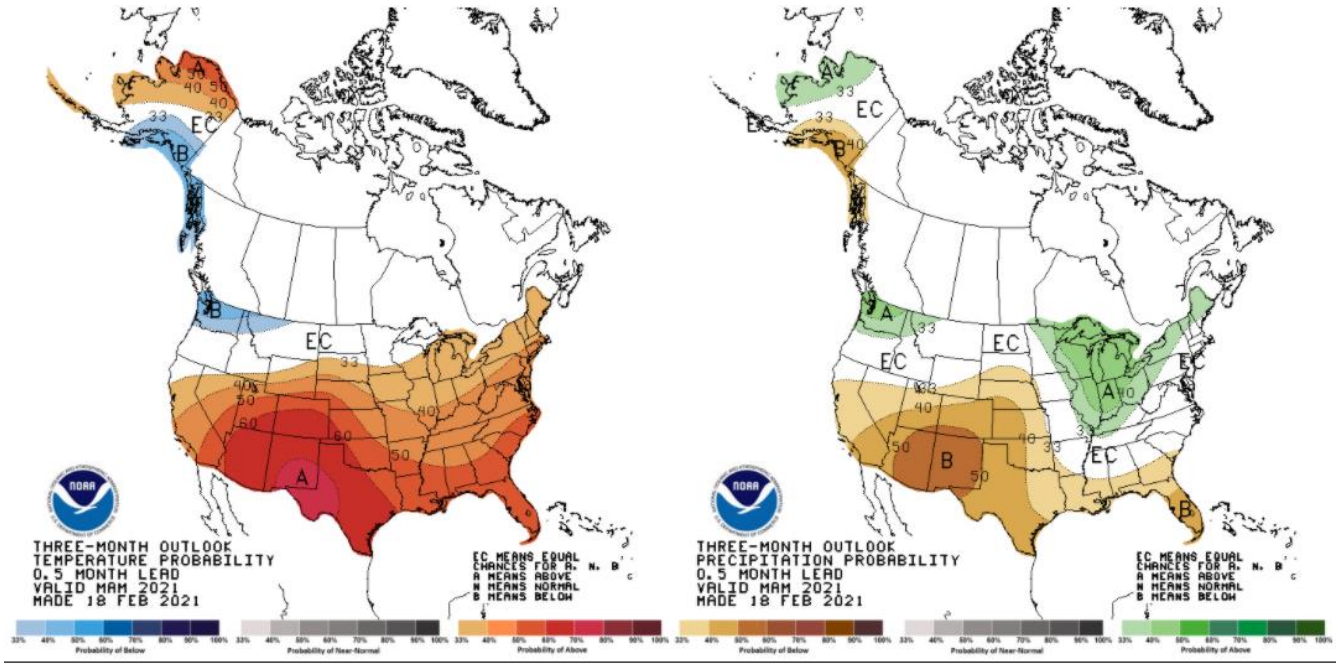
Week 2 Temperature and Precipitation Outlooks (3/17-3/23):

- Above normal Temperatures & below normal Precipitation favored



March-May Outlook:

- Above normal temperatures are favored.
- Near to above normal Precipitation is slightly favored



Images courtesy of the NWS Climate Prediction Center

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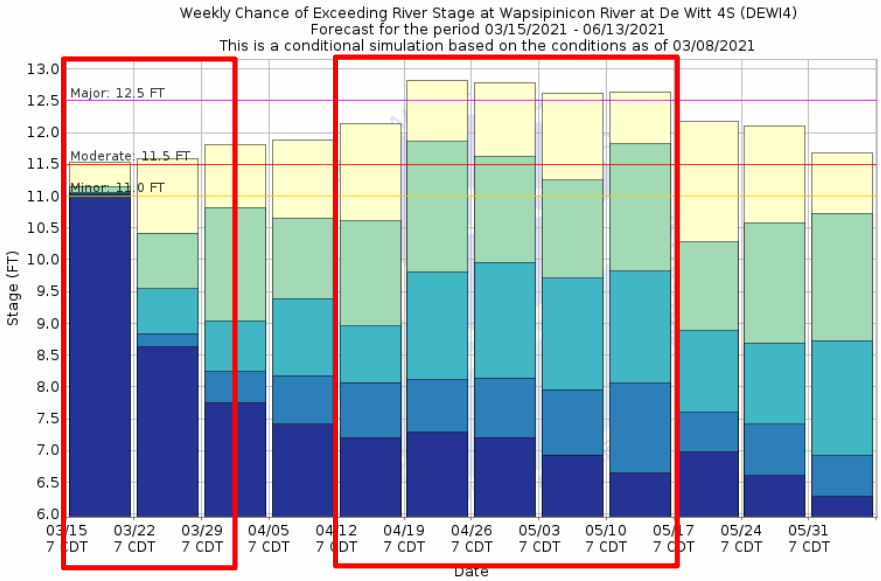
Flood Potential by Basin

- Mississippi River – Near Normal
  - Slightly above normal for Minor Flooding downstream of the Quad Cities
- La Moine River – Near Normal
- Pecatonica River – Near Normal
- Rock River – Above Normal
- Maquoketa River – Near Normal
- Wapsipinicon River – Near Normal (lower portion is Above Normal, with ongoing flooding)
- Skunk and North Skunk Rivers – Near Normal
- Fox River (MO) – Near Normal
- Cedar River – Near Normal
- English River – Near Normal
- Iowa River (above Coralville Res) – Near Normal
- Iowa River (below Coralville Res) – Near Normal

Occurrence and category of flooding will depend on future precipitation this spring spring.

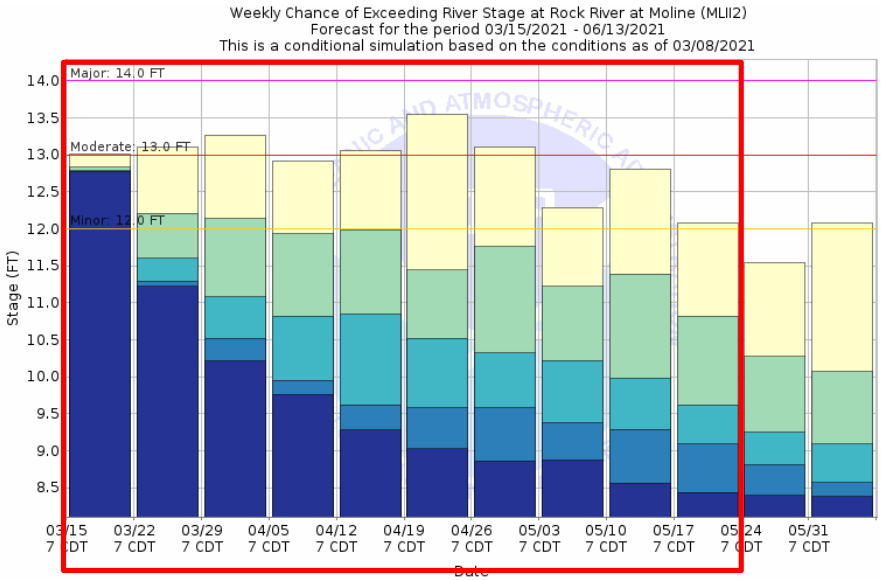
Higher chances for more widespread Minor levels to be reached.

Timeline For Flood Potential – Local Rivers



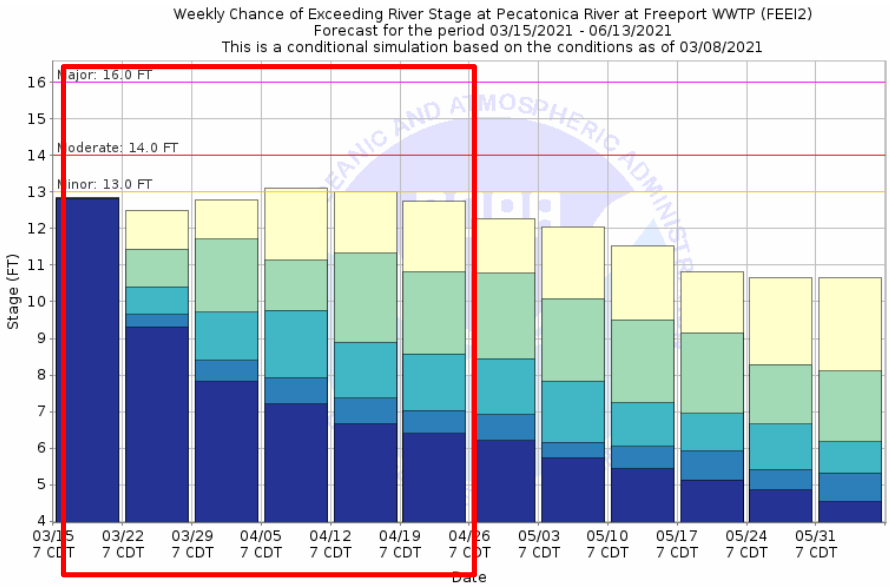
Lower Wapsipinicon River

Minor-Moderate Flooding is ongoing. The long-term outlook indicates a high likelihood of receding into April, with probabilities for higher levels returning for later in April into May from spring rain potential.



Lower Rock River

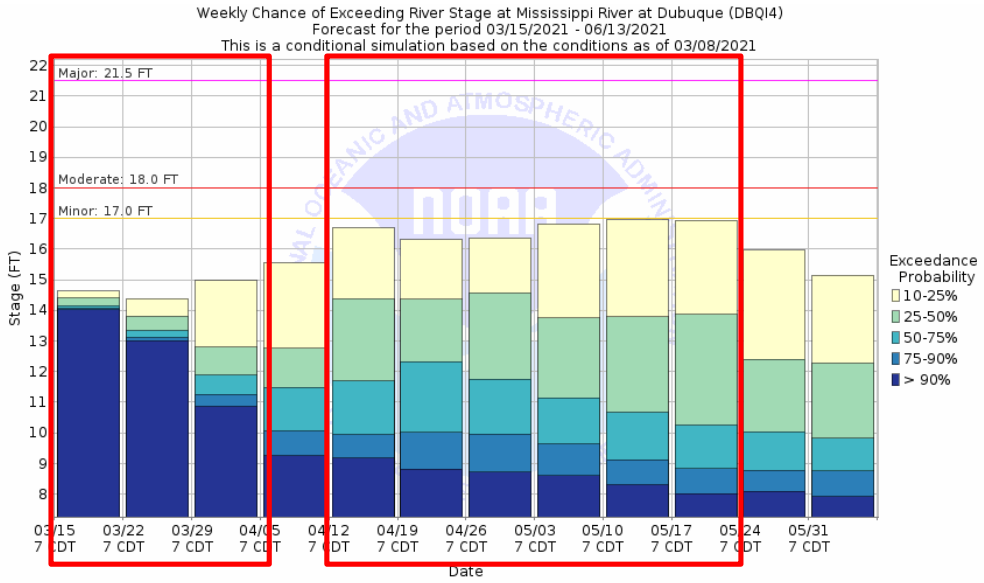
Minor Flooding is possible in the near-term. Probabilities are high that the river will recede in the coming weeks, but spring rains will keep probabilities for flooding through May.



Pecatonica River

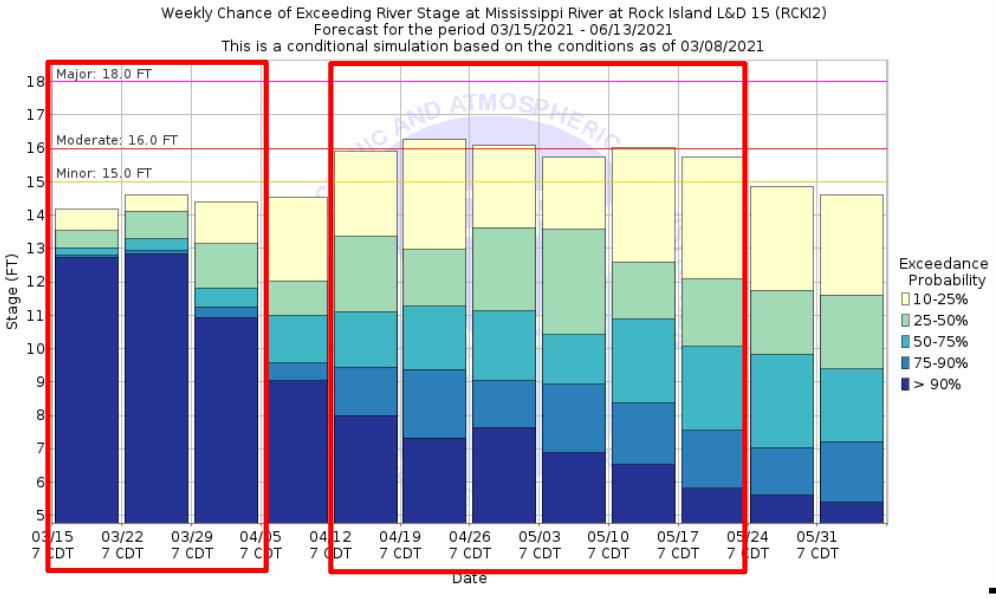
Probabilities are high that the river will remain below flood stage, but Minor Flooding is possible. Low probabilities increase in April for the chance for rises due to spring rains.

Timeline For Flood Potential – Mississippi River



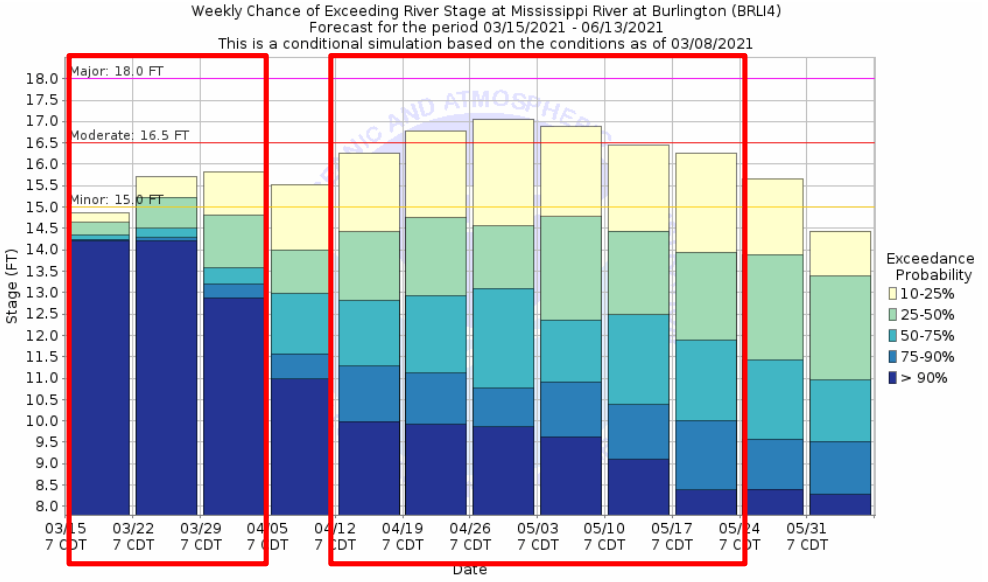
Mississippi – Dubuque

Probabilities are high that the snowmelt crest will occur by the end of March, and below flood stage. Probabilities do increase for new rises in April and May, but chances are low for exceeding flood stage.



Mississippi – Rock Island

Probabilities are high that the snowmelt crest will occur through the first week of April. Probabilities do increase for new rises later in April and in May, but remain low, less than 25% of rising above flood stage.



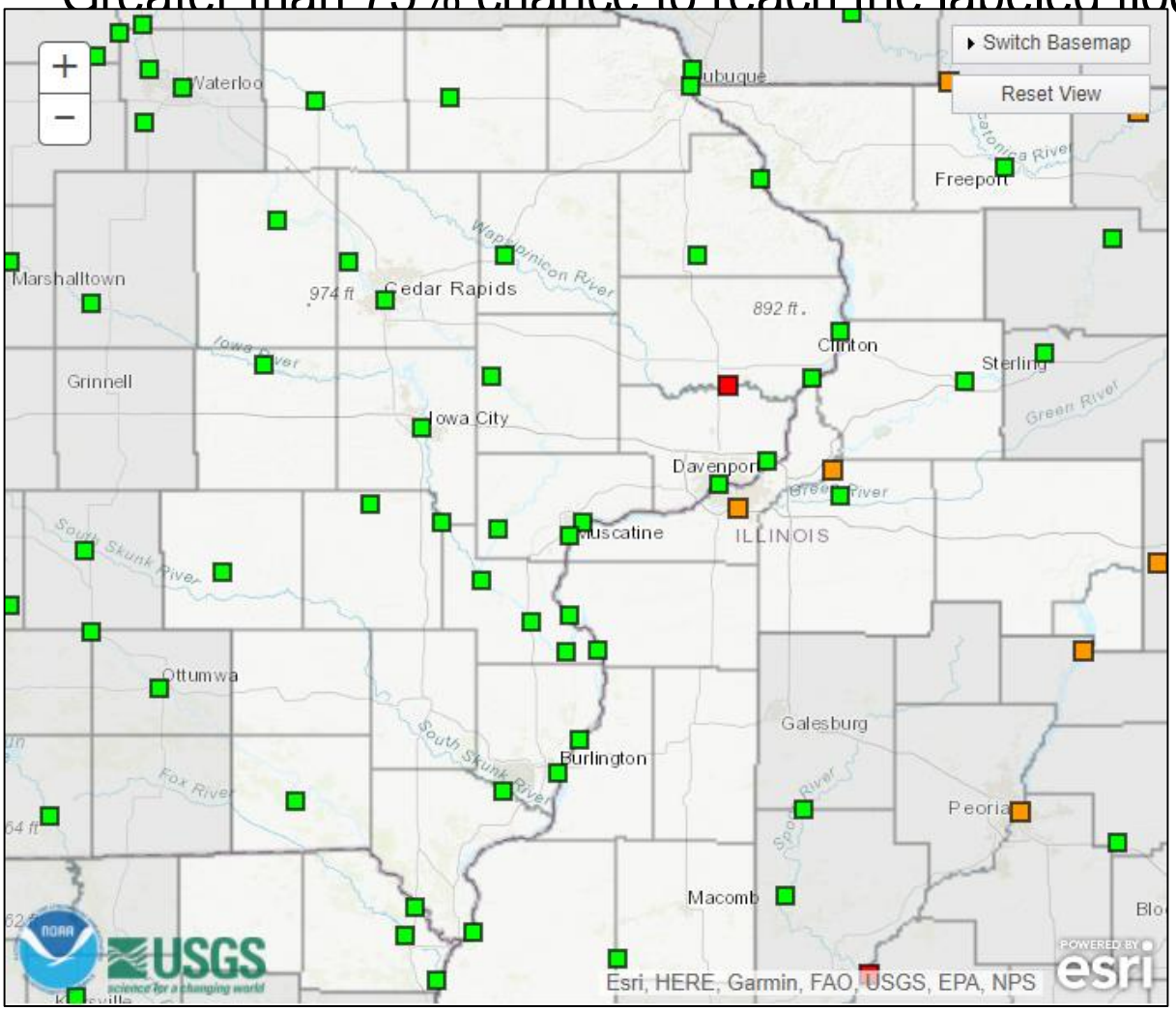
Mississippi - Burlington

Probabilities are high that the snowmelt crest will occur through the first week of April. There is increased probabilities for new rises for later in April and May, with 25-50% probabilities approaching flood stage.

Forecasts & Outlooks: High Probabilities

Locations with high chances for flooding:

- Greater than 75% chance to reach the labeled flood stage



> 75% Major Flooding
> 75% Moderate Flooding
> 75% Minor Flooding
< 75% Chance of Flooding

- High-end chances (>75%) are low all around at the moment. With further spring precipitation, these chances may increase.
- Areas with higher threat for exceeding flood stages are the lower Wapsipinicon (currently flooding) and the lower Rock River

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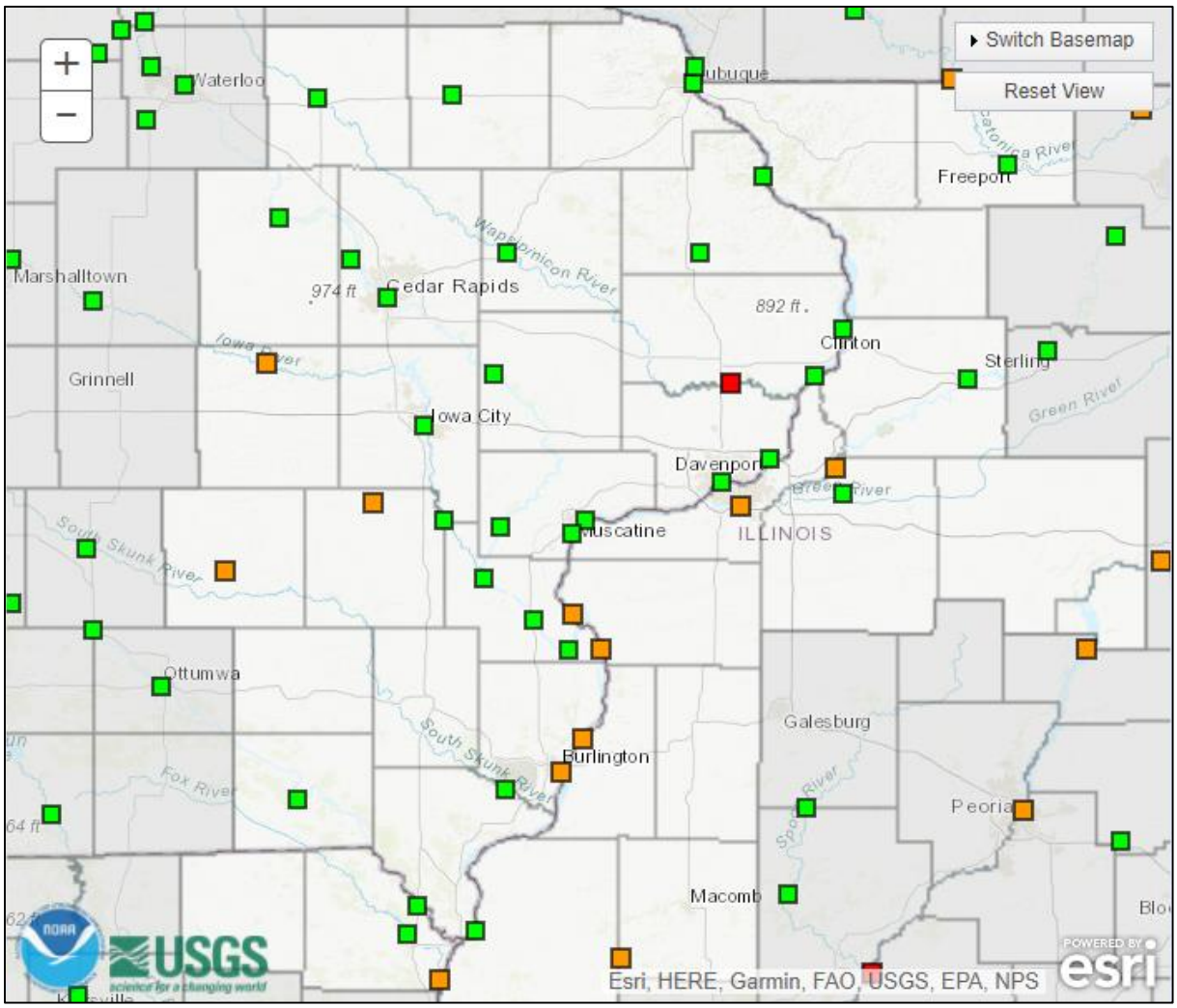
Forecasts & Outlooks: 50% Chance

Locations with chances for flooding:

- Around a 50% chance to reach the labeled flood stage



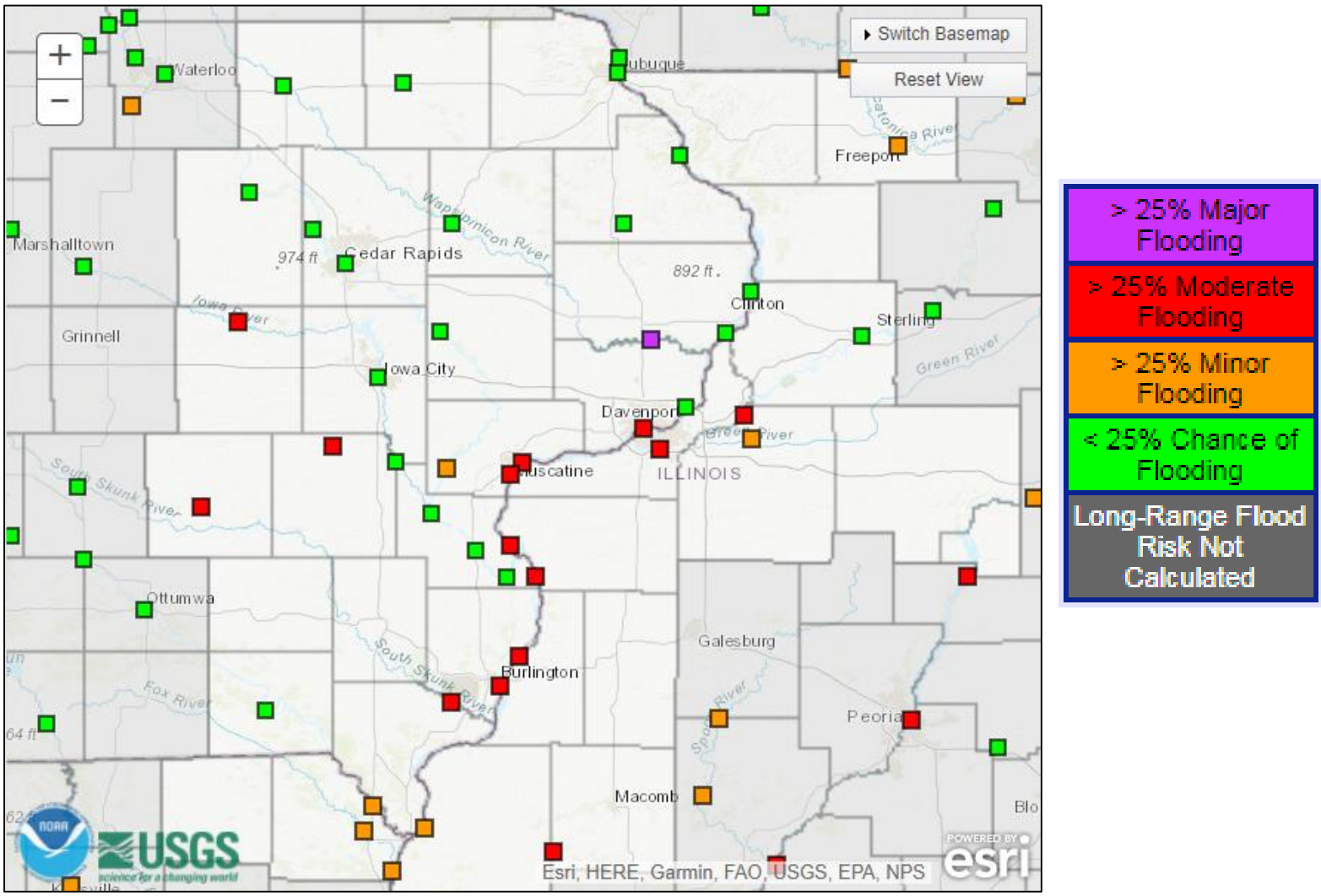
- > 50% Major Flooding
- > 50% Moderate Flooding
- > 50% Minor Flooding
- < 50% Chance of Flooding
- Long-Range Flood Risk Not Calculated

- The Mississippi River will have a 50% chance for reaching minor flood stage, general in locations downstream of the Quad Cities.
- A number of the local rivers have a 50% probability to reach minor flood stage.

Forecasts and Outlooks: Lower Probabilities

Locations with chances for flooding:

- Around a 25% chance to reach the labeled flood stage



- This graphic shows that the many river locations in the local area have at least a small (25%) chance of reaching flood stage, with several showing at least a low probability of rising to moderate levels.

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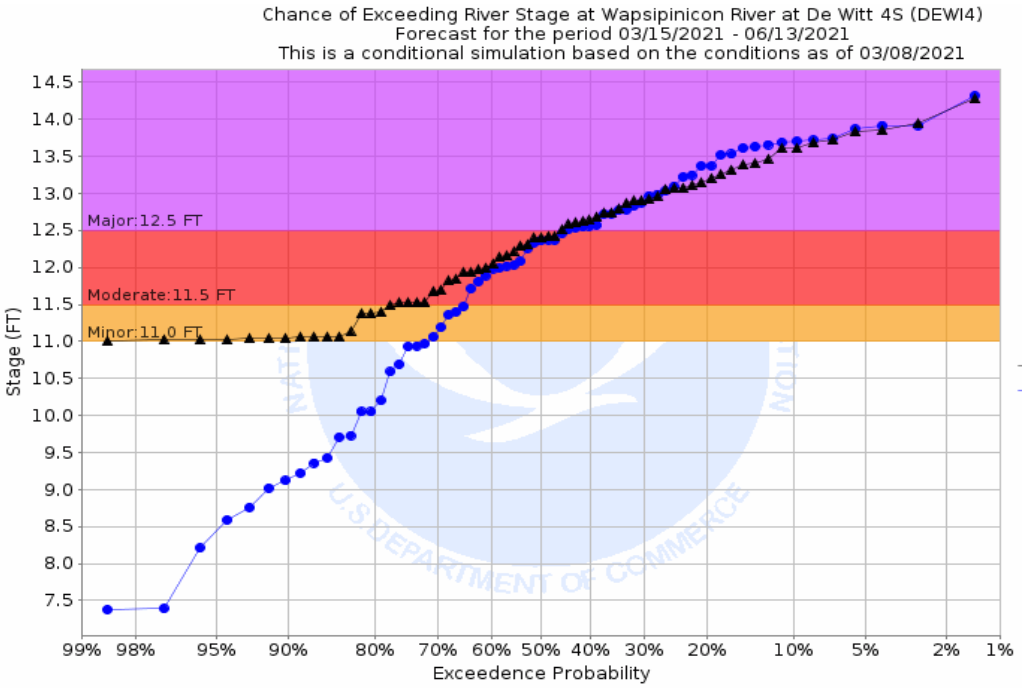
How far outside of normal is the flood risk?

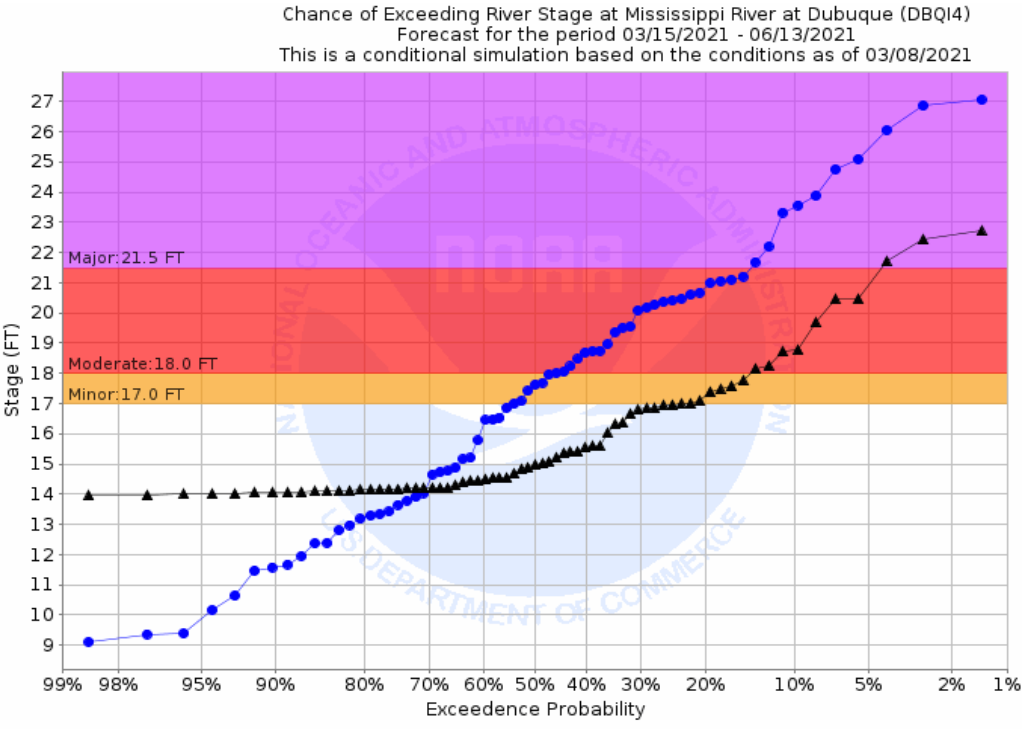
Closer the lines are together the closer to normal the flood threat is.

Example of higher risk locations: Wapsipinicon River locations: DeWitt, IA (DEWI4)



This graphic shows the probability of the Wapsipinicon River at DeWitt reaching Major Flood stage (12.5 ft) is near normal at around 45%. Probabilities are above normal for reaching Moderate Flood Stage, 77% versus the normal probability of 65%.

Example of lower risk locations: Mississippi River at Dubuque, IA (DBQI4)



For the Mississippi River at Dubuque, the risk for reaching Minor Flood Stage (17.0 ft) this year is 23%. In a normal year, this gage has a 54% chance of reaching 17.0 ft. There is also a below normal chance for Major Flood Stage (21.5 ft), 4%, compared to the normal of 14%.

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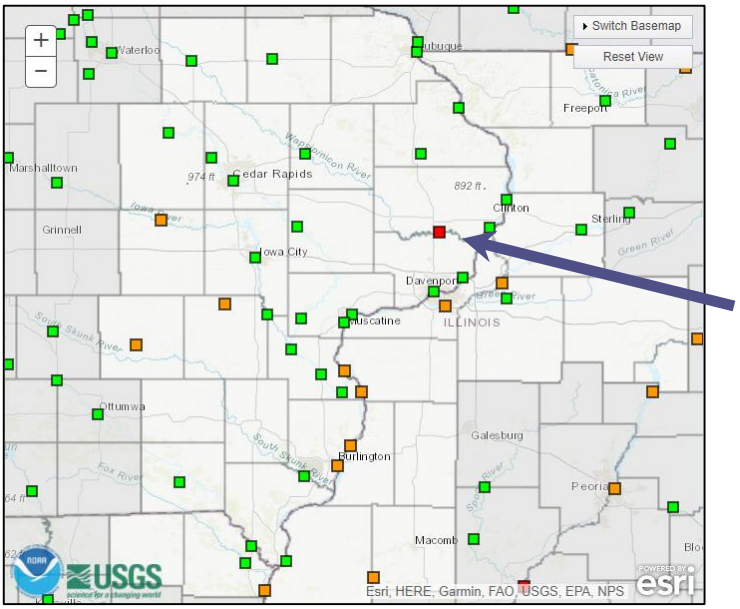
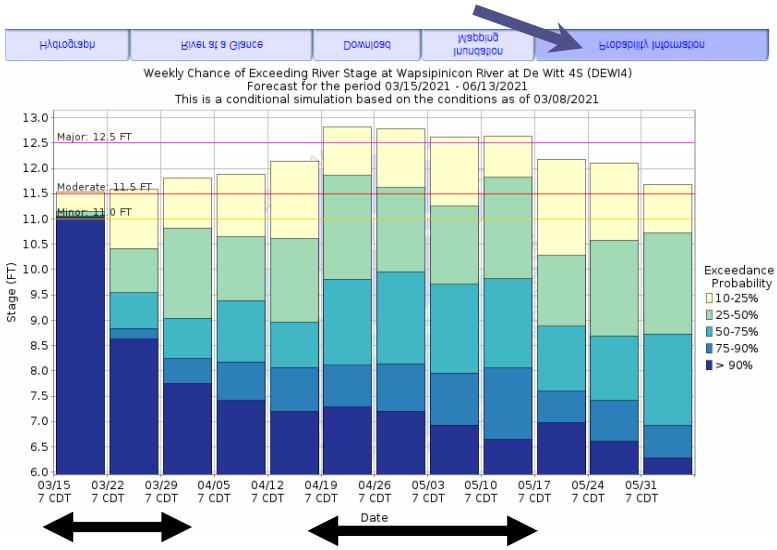
Probabilistic Outlook Information

Where to find the information:

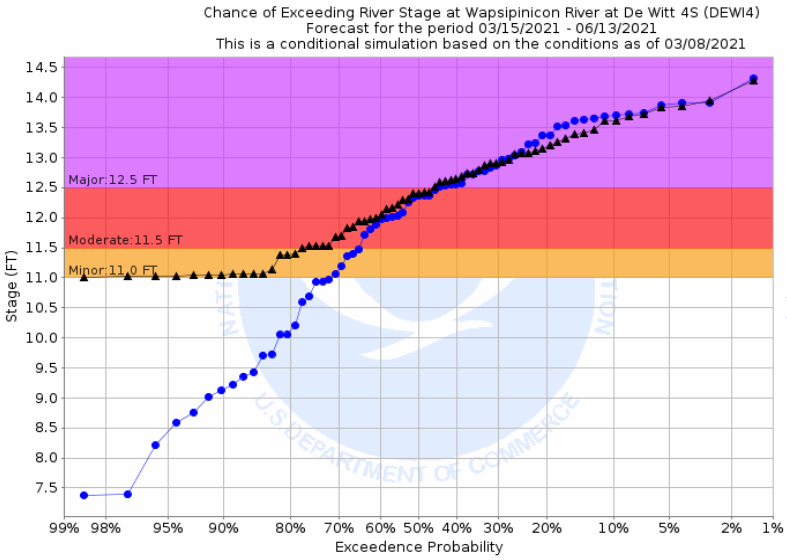
- https://water.weather.gov/ahps2/long_range.php?wfo=dvn
- To see the graphs, choose a location from the map.



- Choosing the Probability Information Tab will get you to the graphical analysis of the probabilities.



This graph shows the most likely timing of high river levels.



This graph shows the probability compared to normal of reaching particular river levels through the entire 3 month period.

Click to go to the Flood Outlook Webpage

Information Sources

- Quad Cities WFO Forecast Discussions (technical weather and hydrology discussion) forecast.weather.gov/product.php?site=DVN&issuedby=DVN&product=AFD
- Advanced Hydrological Prediction Service (AHPS) – water.weather.gov/ahps
- North Central River Forecast Center – www.weather.gov/ncrfc
- Probailistic Information - https://water.weather.gov/ahps2/long_range.php?wfo=dvn

- Midwest Regional Climate Center (MRCC) – http://mrcc.isws.illinois.edu/
- US Geological Survey (USGS) WaterWatch page – http://waterwatch.usgs.gov
- National Operational Hydrologic Remote Sensing Center (NOHRSC) – www.nohrsc.noaa.gov
- NOAA Climate Prediction Center – www.cpc.ncep.noaa.gov
- NOAA Weather Prediction Center – www.wpc.ncep.noaa.gov
- US Drought Monitor – droughtmonitor.unl.edu

This is the final Spring Flood Outlook for 2021!

(probabilistic 3-month outlooks continue monthly throughout the year)

National Weather Service
Quad Cities, IA/IL

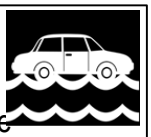
2021 Spring Flood Outlook

Thursday, March 11, 2021

Bottom Line:

- **Flood risk this season continues to be lower than previous years. Rises will still occur in many rivers, but within bank rises are expected for most rivers, and those that do flood are likely to see levels peak with minor flood impacts.**
- **The majority of area rivers have a below normal risk of reaching flood levels of moderate or major flood severity**
- **As the snow has melted favorably only limited locations are expected to see higher river levels. The flood risk for the remainder of the spring months turns toward additional spring precipitation.**
- **Soil conditions are favorable to reduce the flood risk. Thawing soils and near to below normal soil moisture indicates soils will have the ability to absorb water from additional precipitation this spring.**

Flood Quick Facts and Preparedness:



Quick facts you should know about flooding:

- Flooding can be caused by heavy rain, rapid snow melt, coastal storms, storm surge, waterway overflow, ice jamming, levee overtopping, dam failure, or from wastewater systems.
- Flooding has occurred in every U.S. state and territory.
- It only takes 6 inches of fast-moving water to knock you off your feet.
- A car can be moved in as little as 2 feet of water.
- 90% of all U.S. natural disasters declared by the President involve flooding.

Preparedness:

Know your risk: Are you in a flood-prone area? Know your zone: **www.fema.gov/flood-zones**

- You must purchase separate flood insurance for your home. There is a 30 day wait period between when you buy a flood insurance policy and when it goes into effect. Plan ahead!
- A **Flood Watch** is issued when conditions are favorable for flooding. *Time to prepare*!
- A **Flood Warning** is issued when flooding is imminent or occurring. *Time to act!*

Never drive into flood waters! Turn around, don't drown!

Find out more information at: www.weather.gov/dvn/2021_springfloodoutlook

Follow us on Facebook and Twitter for more up to date information:

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Building a Weather-Ready Nation

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