

Early Spring Flood Outlook – Elevated Threat

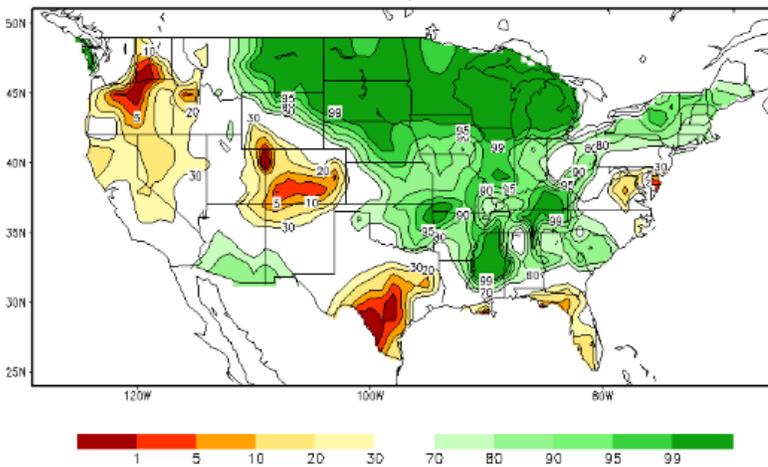
- Current conditions suggest spring flooding will be more likely than in a typical year, throughout the upper midwest. However, significant flooding is not certain.
- Major contributing factors to flood potential will be determined over the winter months.

What Do We Know So Far?

Soils are Wet

All of the upper Midwest received well above normal rain again this fall, mostly 150 to 200 percent of normal. This continued to supply soils with excess moisture as we froze the upper portion of the soil.

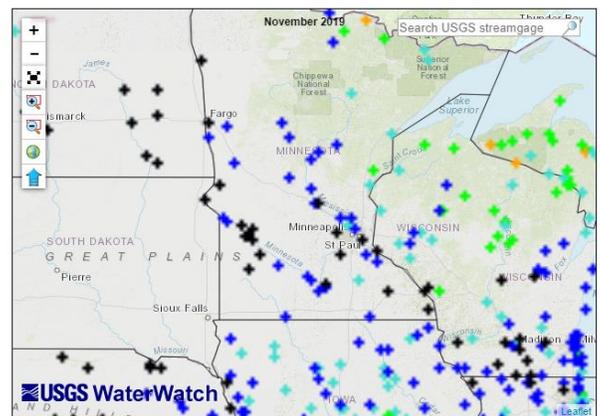
Calculated Soil Moisture Ranking Percentile
 JAN 20, 2020



Streamflow is High

Going into seasonal freeze-up, river levels throughout the upper Midwest remained very high, with many showing record levels for early winter.

Map of monthly average streamflow compared to historical streamflow for the month of the year



Explanation - Percentile classes					
●	●	●	●	●	●
Low	<10	10-24	25-75	76-90	>90
	Much below normal	Below normal	Normal	Above normal	Much above normal

What does this mean?

Before we even look at snowpack, the soil and rivers are primed for high runoff. A low snowpack would help reduce the flood threat, but a normal or high snowpack would increase the risk of major spring flooding. Much like last year, the type of melt we get will be a major factor. Recall that

we had a nearly ideal melt in spring 2019

(mild days with cold nights for recovery, and a three-week period of no rain/snow in March). Even a “normal” melt season would result in significant spring flooding this time around.

Spring Flood Threat Checklist (as of mid January)

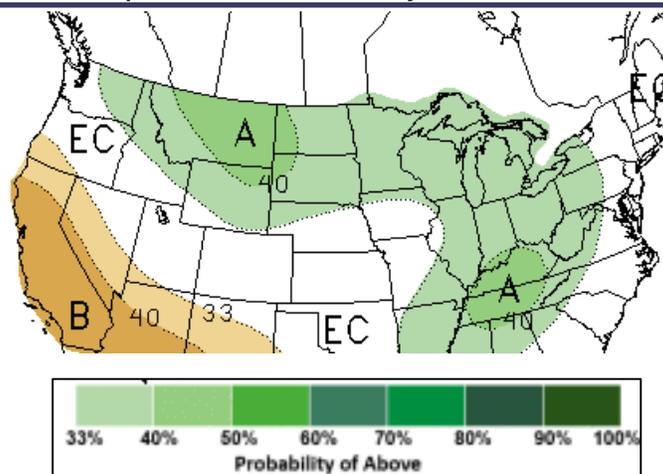
Threat	Impact to Potential Spring Flooding	Link to Image
High river levels	Increased Threat	USGS WaterWatch
High soil moisture	Increased Threat	CPC Soil Moisture
Winter Precipitation	To Be Determined	Winter Outlook
Snowpack/Liquid Equivalent	To Be Determined	Snow Analysis
Rate of Snowmelt	To Be Determined	24, 48, & 72 hr Snowmelt
Frost Depth*	So far, decreased threat	Frost Depth Map
Spring Precipitation	To Be Determined	Precip Forecast (in season)

* Frost depth is fairly shallow so far this winter due to mild temperatures and early snow "blanket".

Winter 2019: **Precipitation Outlook**

Outlooks continue to favor near to above normal precipitation for the winter months. The indicators are fairly weak in the global pattern this winter (no strong El Niño or La Niña), so confidence is not particularly high this year. Temperatures will be fairly mild into early February, then potentially below normal the rest of the month.

Keep in mind...even a normal amount of precipitation this winter season would bring an elevated risk for flooding this upcoming spring.



The updated Winter Outlook for Jan-Mar 2020 indicates slightly higher than normal chances for above normal precipitation.

Next Update Planned for mid February

2020 Probabilistic Spring Flood Outlook Dates:
February 13, 2020
February 27, 2020
March 12, 2020

Potential Flooding Impacts For Winter/Spring

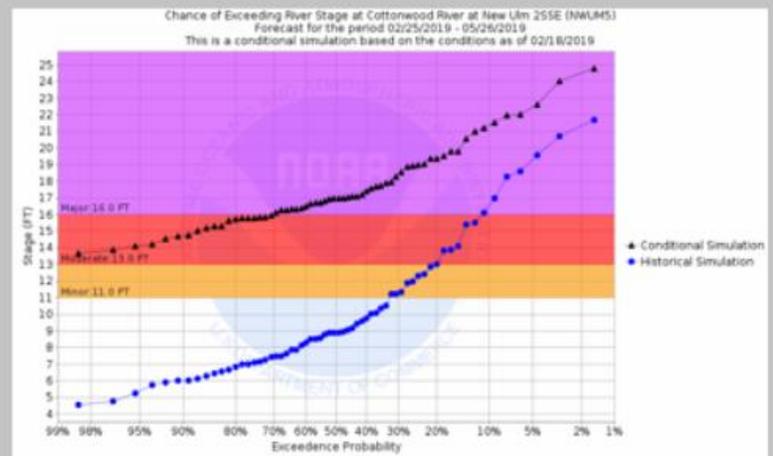
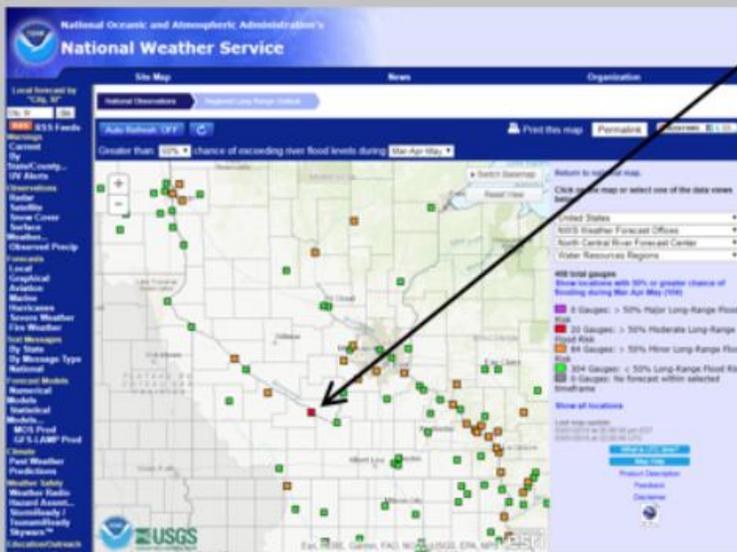
- Widespread flooding affecting infrastructure in Spring 2020
 - Including lakes, lowlands, agriculture, overland flooding.
- Elevated risk for ice jams

*The National Weather Service urges those who would be affected by flooding to **Prepare Now** and stay tuned to updates as we move through the winter into early spring.*

How to Read the Long Range Flood Risk Graphics – at https://water.weather.gov/ahps2/long_range.php?wfo=mpx

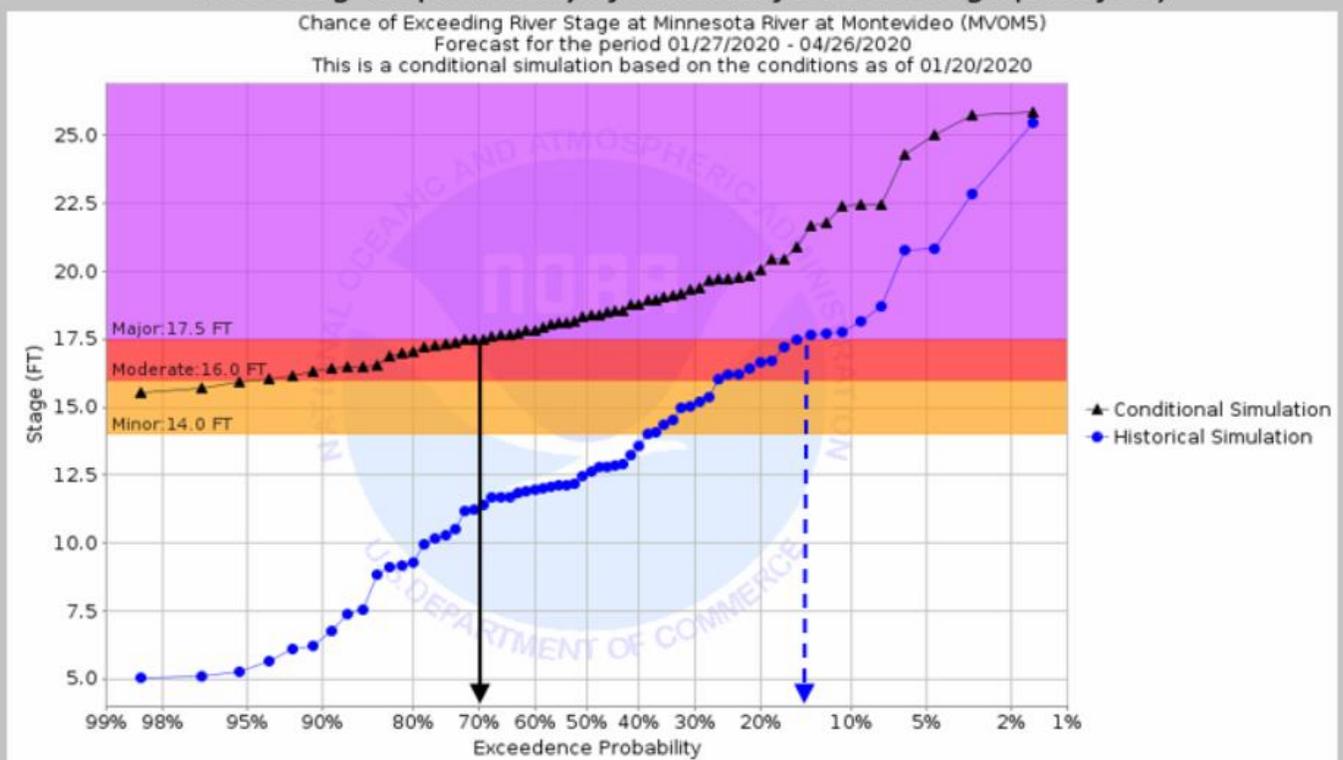
River forecasters run long range river models, including current soil moisture profiles, snow pack info, and 45-day model precipitation forecasts. The result is a graph of probability of reaching various stages .

Click a point in here -- hover over the "Probability Information" tab – and select the "...during Entire Period" graph. It will look something like this:



For Example, Look at the Minnesota River at Montevideo

Evaluating the probability of reach Major Flood Stage (17.5 feet)



Black Line represents the newest forecast – **Blue Line** represents historical average.

Chance of reaching major flood stage (purple) this spring is about 70 percent, well above the 15% historical average.