

# 2020 Spring Flood Outlook



## Updated April 23, 2020

Mark Fuchs  
Senior Service Hydrologist  
National Weather Service  
St. Louis, MO

NWS St. Louis

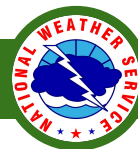


## Bottom Line Up Front:

- Mississippi River: Below average flood risk through July! = minor flooding at most forecast gages.
- Missouri River: Minor flooding likely from now through July
- Illinois River: Flooding is not likely through July
- Local tributaries: Near average flood risk, flooding unlikely in most locations.
- With snow gone, it all comes down to rainfall. Above normal rainfall the next 3 months will increase the risk of significant flooding.

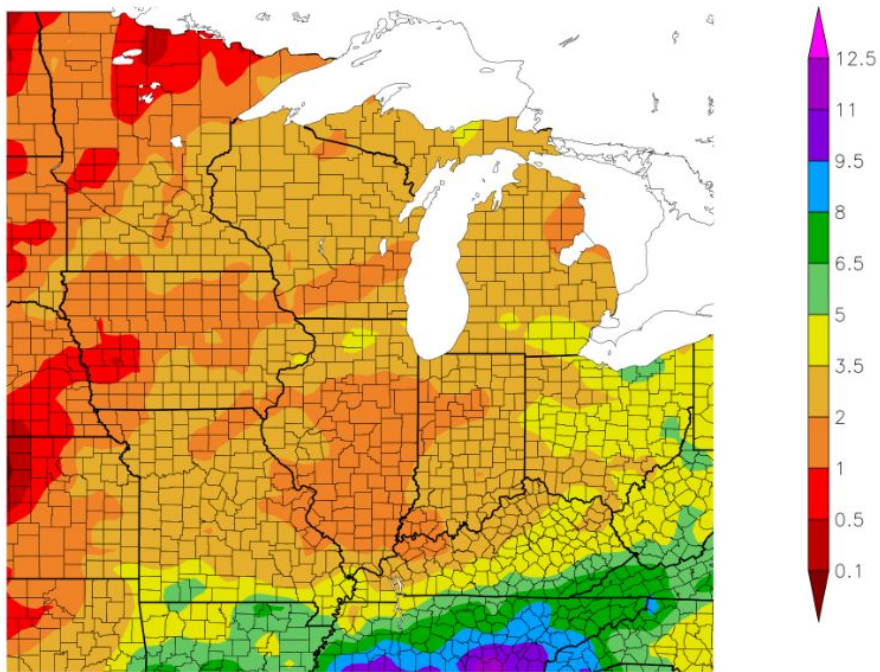
# Factors we look at for spring flooding:

- Recent precipitation in major river basins (below normal)
- Snowpack in major river basins (gone)
- Soil moisture in area basins (improving)
- Current flow in area rivers (high, but improving)



# Spring Flood Outlook 2020

Precipitation (in)  
3/23/2020 - 4/21/2020



Generated 4/22/2020 at HPRCC using provisional data.

NOAA Regional Climate Centers

NWS St. Louis

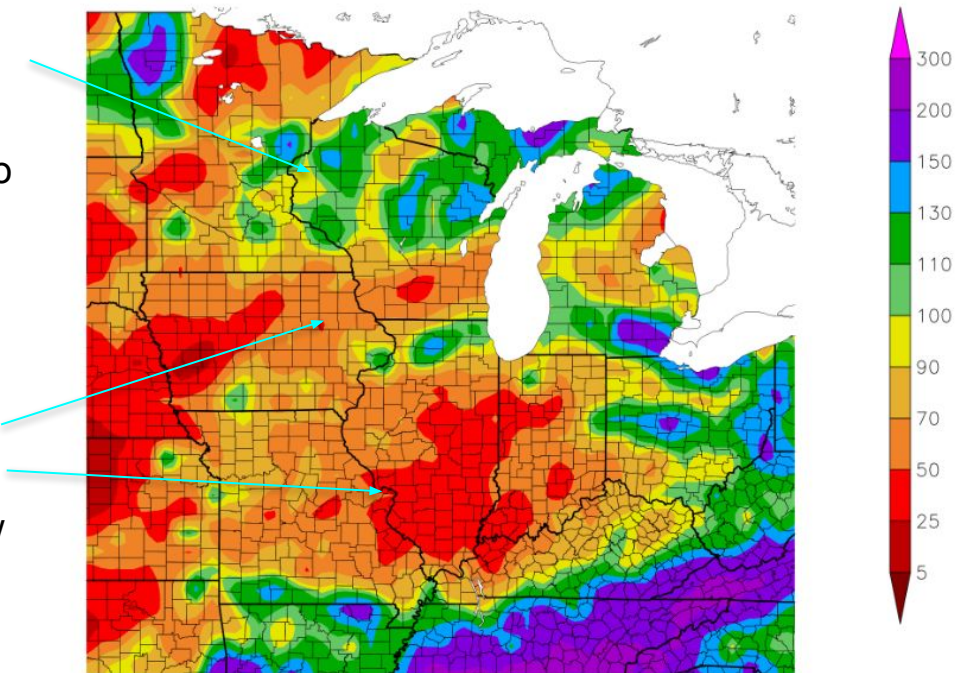


# Spring Flood Outlook 2020

Percent of Normal Precipitation (%)  
3/23/2020 – 4/21/2020

While much of northern Wisconsin and Minnesota have shown mixed departures from normal the past 30 days, this region also appears to be drying out.

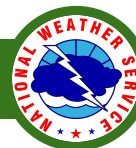
Over the past 30 days, much of Missouri, Illinois, Iowa, and southern Wisconsin have had below normal precipitation, in some areas less than half of what typically falls.



Generated 4/22/2020 at HPRCC using provisional data.

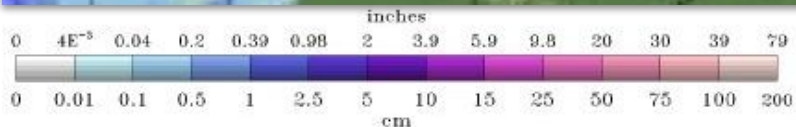
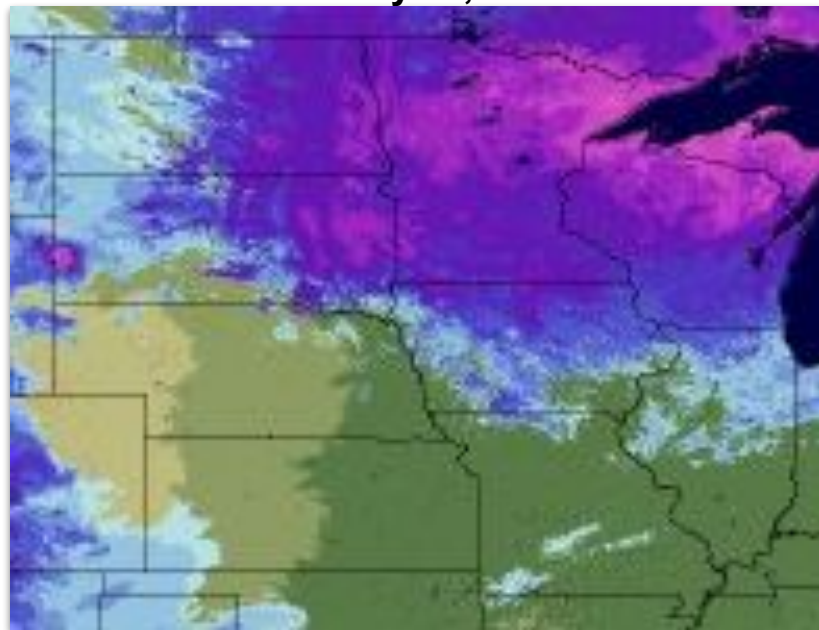
NOAA Regional Climate Centers

NWS St. Louis

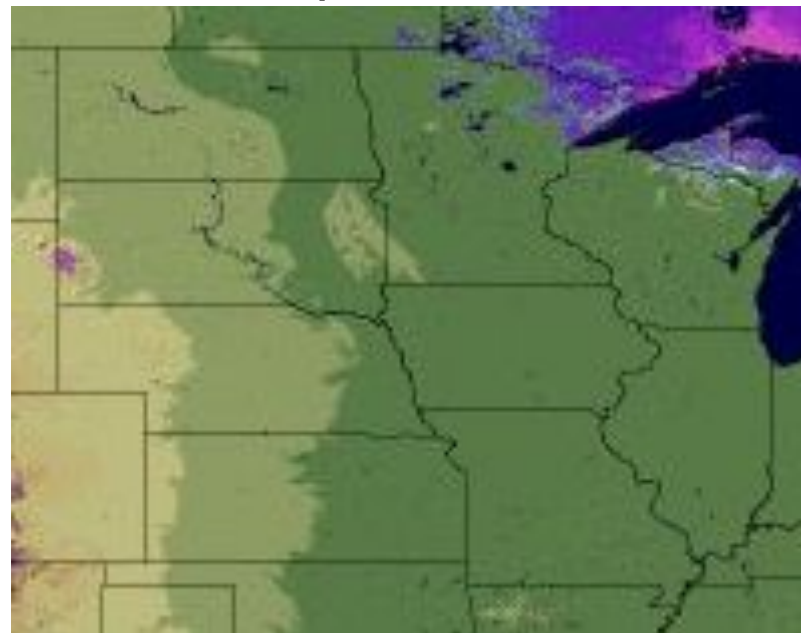


# Snow Water Equivalent - Mostly gone!

February 12, 2020



April 23, 2020



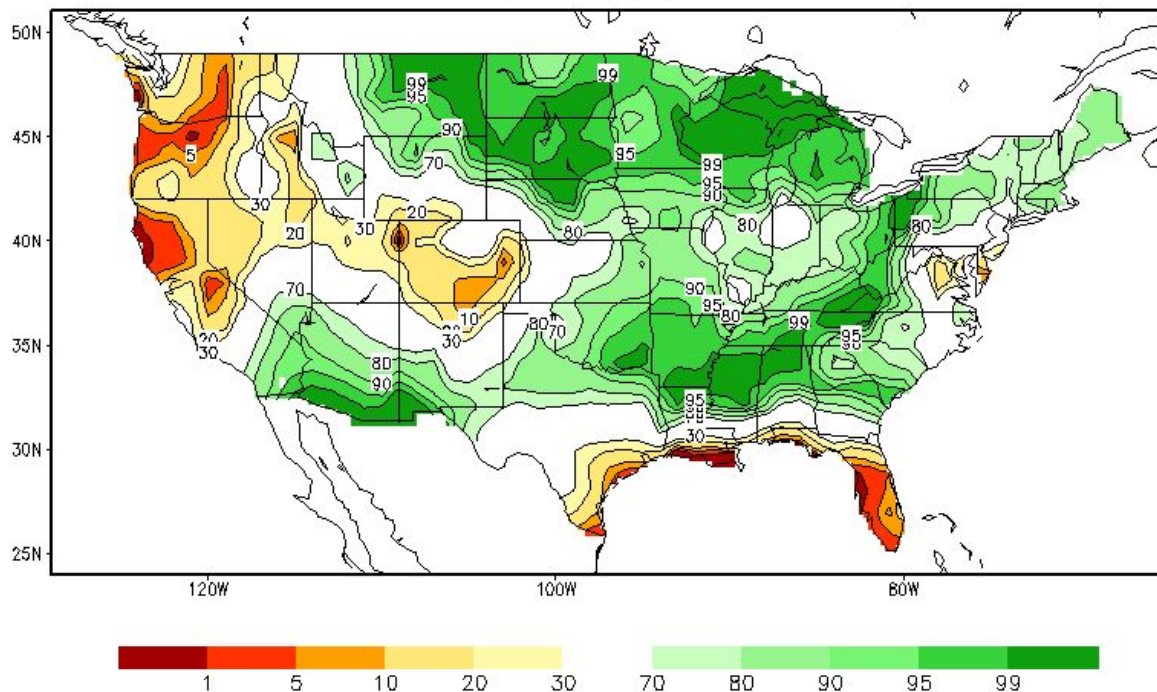
NWS St. Louis



# Spring Flood Outlook 2020 - Soil Moisture Percentile Modeling may be inaccurate

While CPC soil moisture modeling continue to show wet soils, there is mounting evidence from field observations and streamflow percentiles these results may have a high bias.

Calculated Soil Moisture Ranking Percentile  
APR 22, 2020



NWS St. Louis

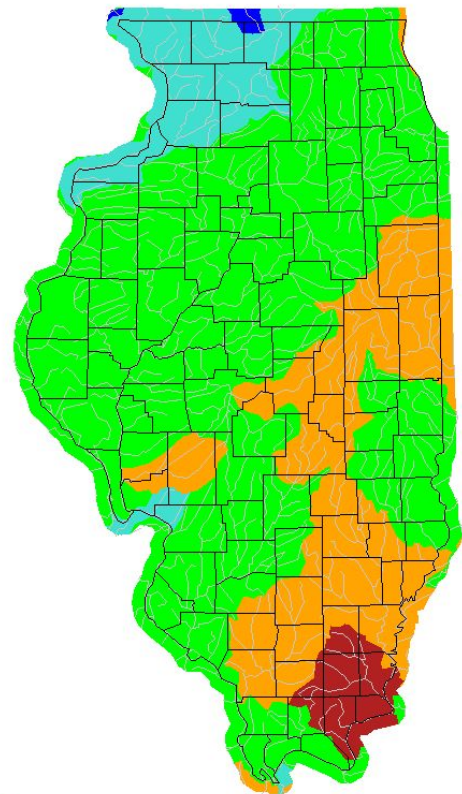
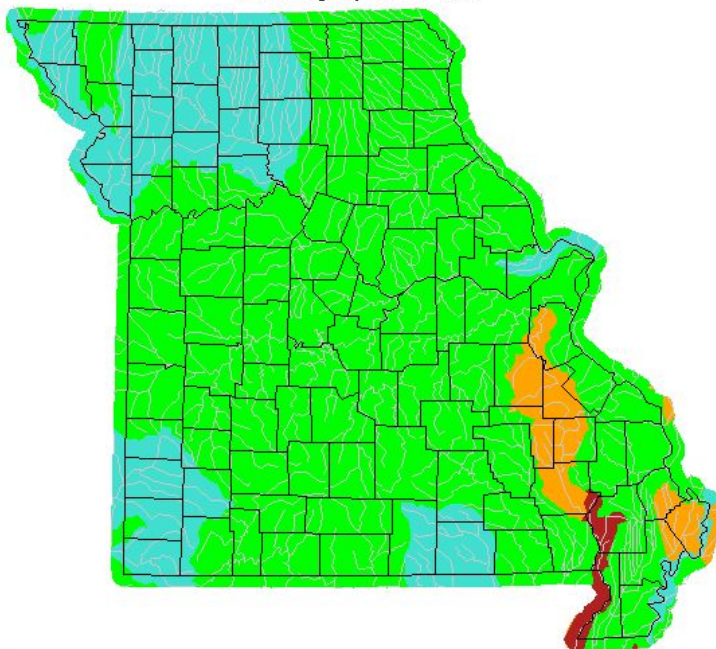


# Spring Flood Outlook 2020 - Current Streamflow

Wednesday, April 22, 2020

Wednesday, April 22, 2020

While parts of Missouri and NW Illinois are still experiencing above normal flow, there has been increasing areas of below normal streamflow in both states, particularly over eastern and southern Illinois and over southeastern Missouri in the St. Francois and Big. WPC rainfall forecasts indicate this dryness may be relatively short-term.



Explanation - Percentile classes							
Low	<10	10-24	25-75	76-90	>90	High	No Data
	Much below normal	Below normal	Normal	Above normal	Much above normal		



NWS St. Louis

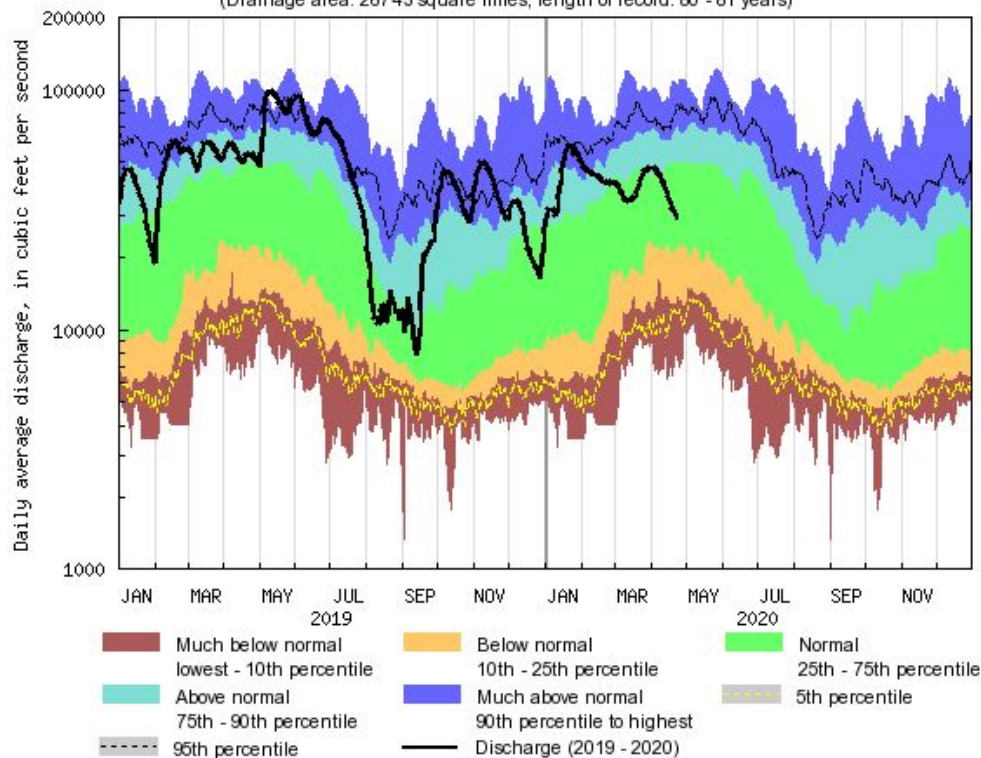




# Illinois River at Valley City, IL

USGS 05686100 ILLINOIS RIVER AT VALLEY CITY, IL  
(Drainage area: 26743 square miles, length of record: 80 - 81 years)

The Illinois River has finally fallen back to normal flows, a rare occurrence over the past year and a half.



USGS WaterWatch

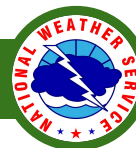
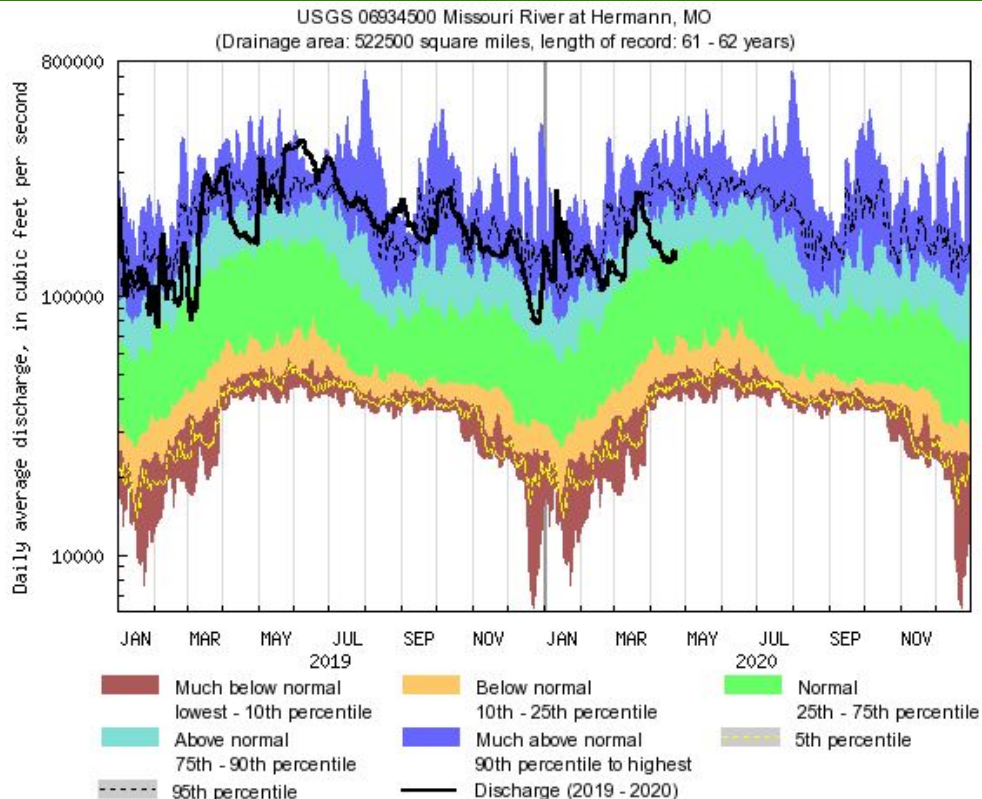
Last updated: 2020-04-23

NWS St. Louis



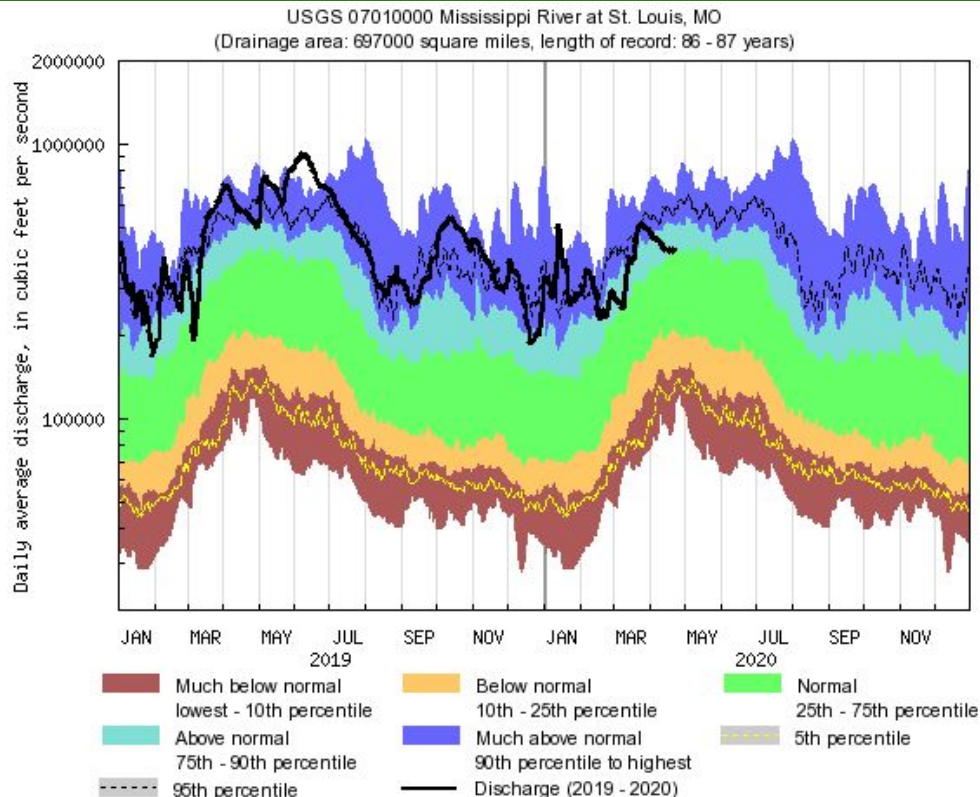
# Missouri River at Hermann, MO

Meanwhile, the Missouri River at Hermann is still above normal, but at least near the upper end of what we typically consider “normal”, near the 75th percentile of flows for this time of year.



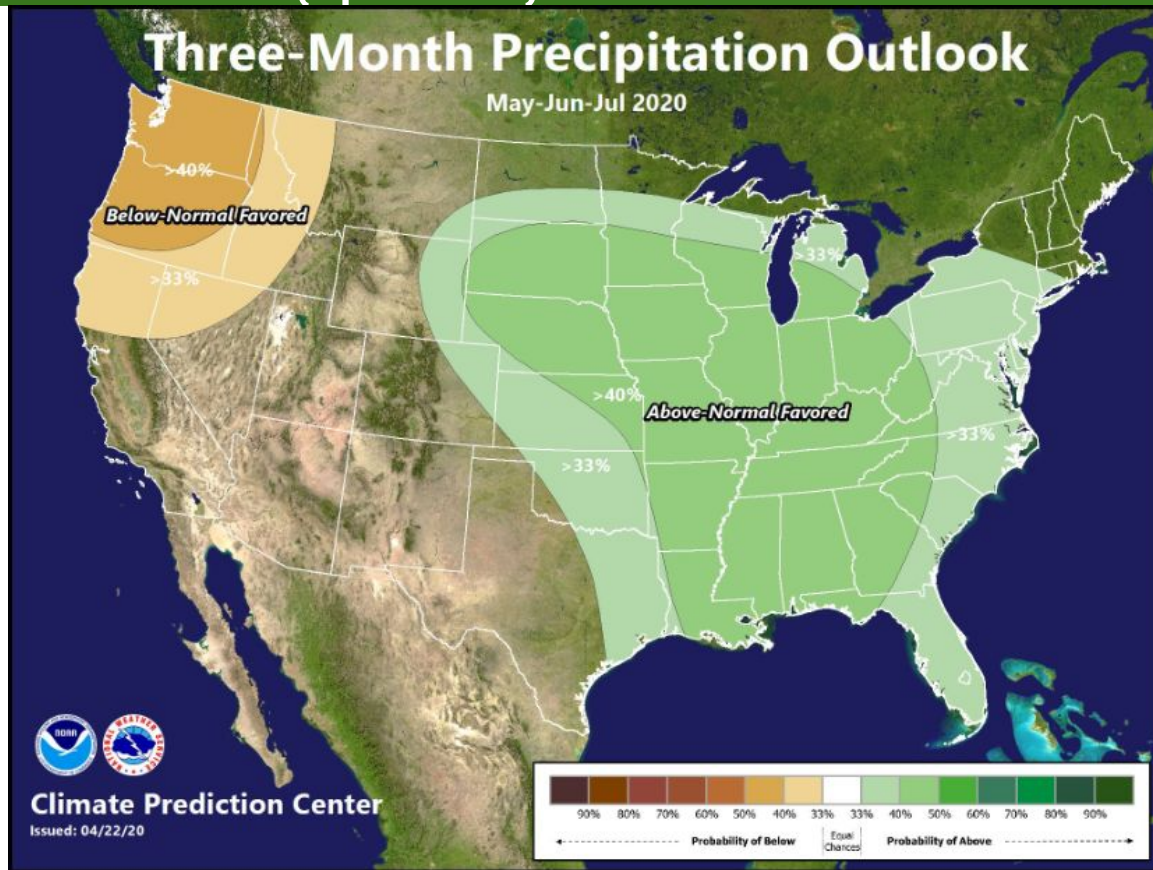
# Mississippi River at St. Louis, MO

The Mississippi River at St. Louis is also falling back to near what is considered the upper realm of normal flow.

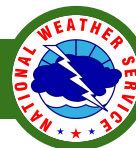


# 90-Day Precipitation Outlook (April-June)

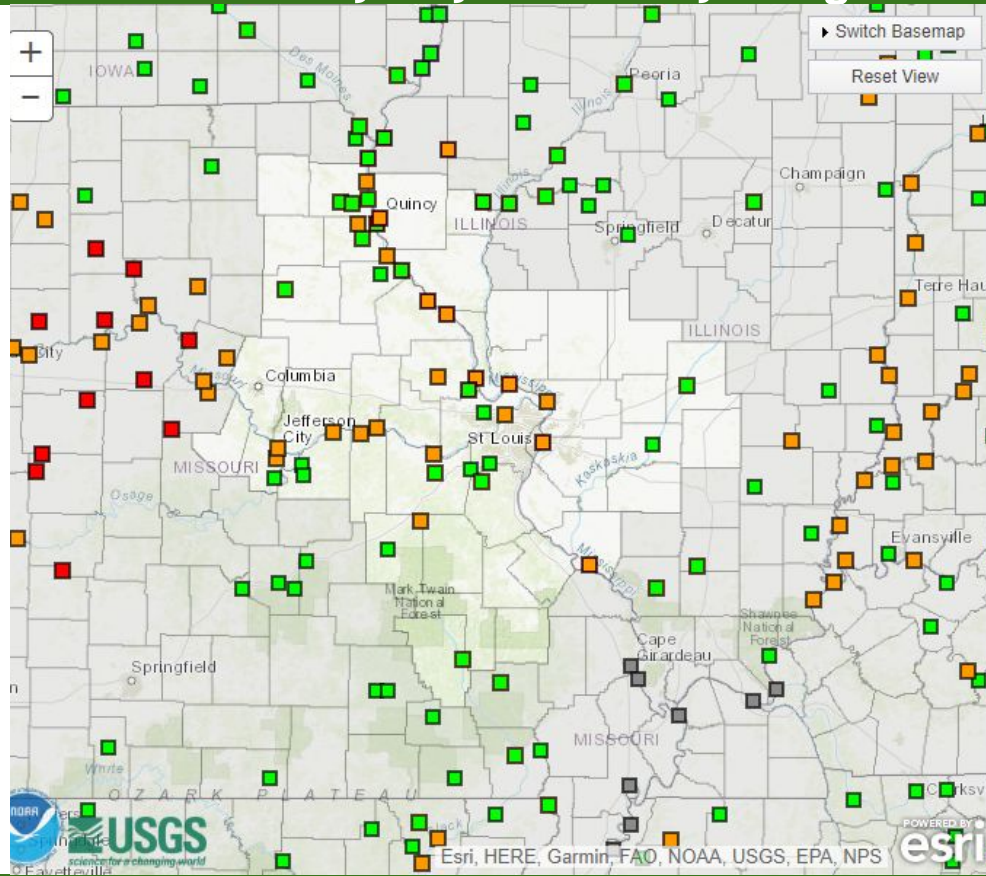
This is the one piece of not-so-good news in this outlook presentation. The entire lower Missouri and upper Mississippi valleys are still expecting a likelihood of above normal precipitation for the next 3 months. Remember, this outlook is NOT included in this 90-day river outlook!



NWS St. Louis



# Spring Flood Outlook 2020 - May-July most likely categories



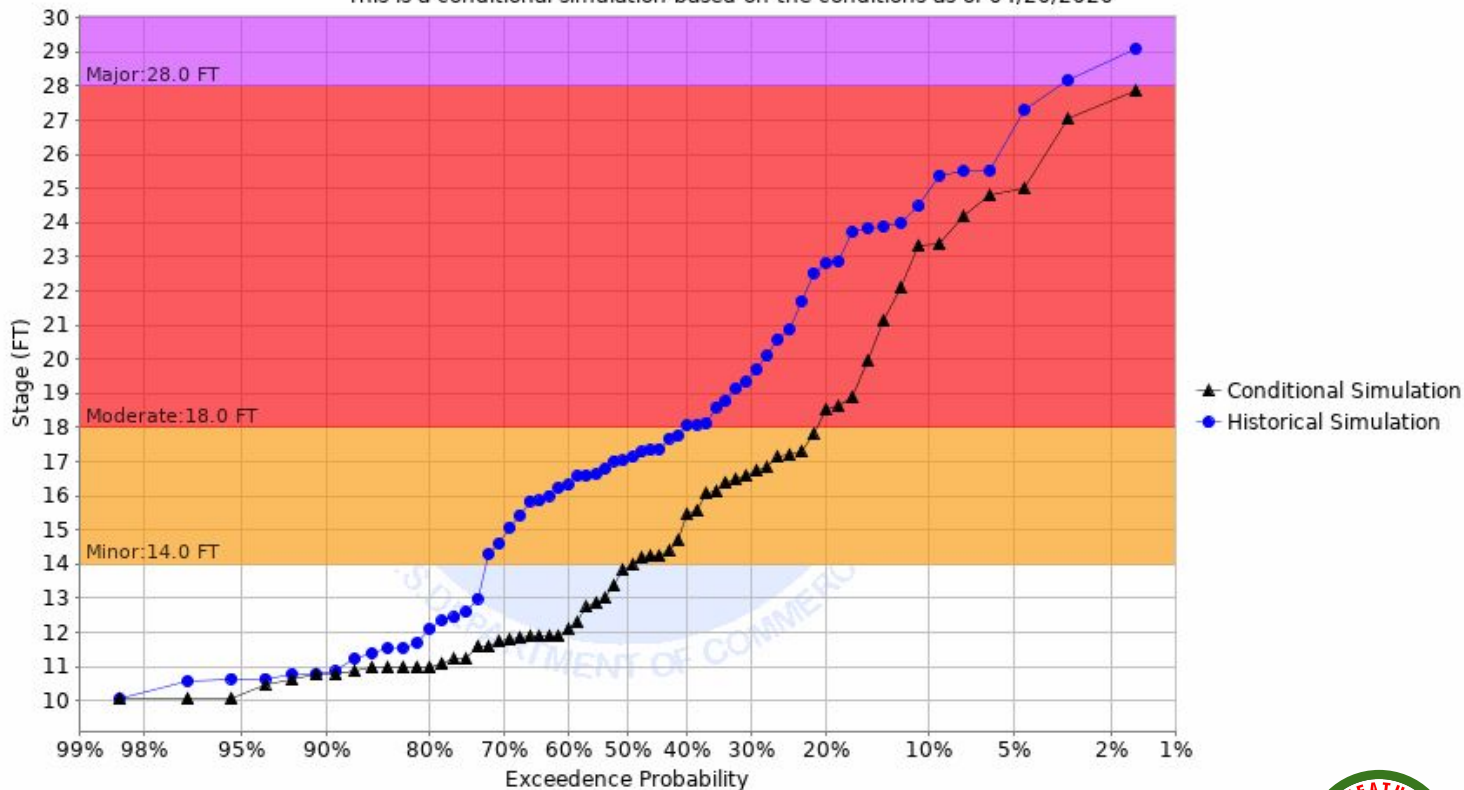
NWS St. Louis



# Spring Flood Outlook 2020 - Illinois River

Chance of Exceeding River Stage at Illinois River at Beardstown (BEA12)  
Forecast for the period 04/27/2020 - 07/26/2020  
This is a conditional simulation based on the conditions as of 04/20/2020

The Illinois River may have seen the greatest improvement of any tributary from last month. In fact, stream flows across eastern and southern Illinois are in the 10-30%-tile range due to the dry weather of the past month. Much of this dryness has been right over the Illinois River basin, which translates into flood probabilities well below historical norms for this time of year over the lower Illinois River.



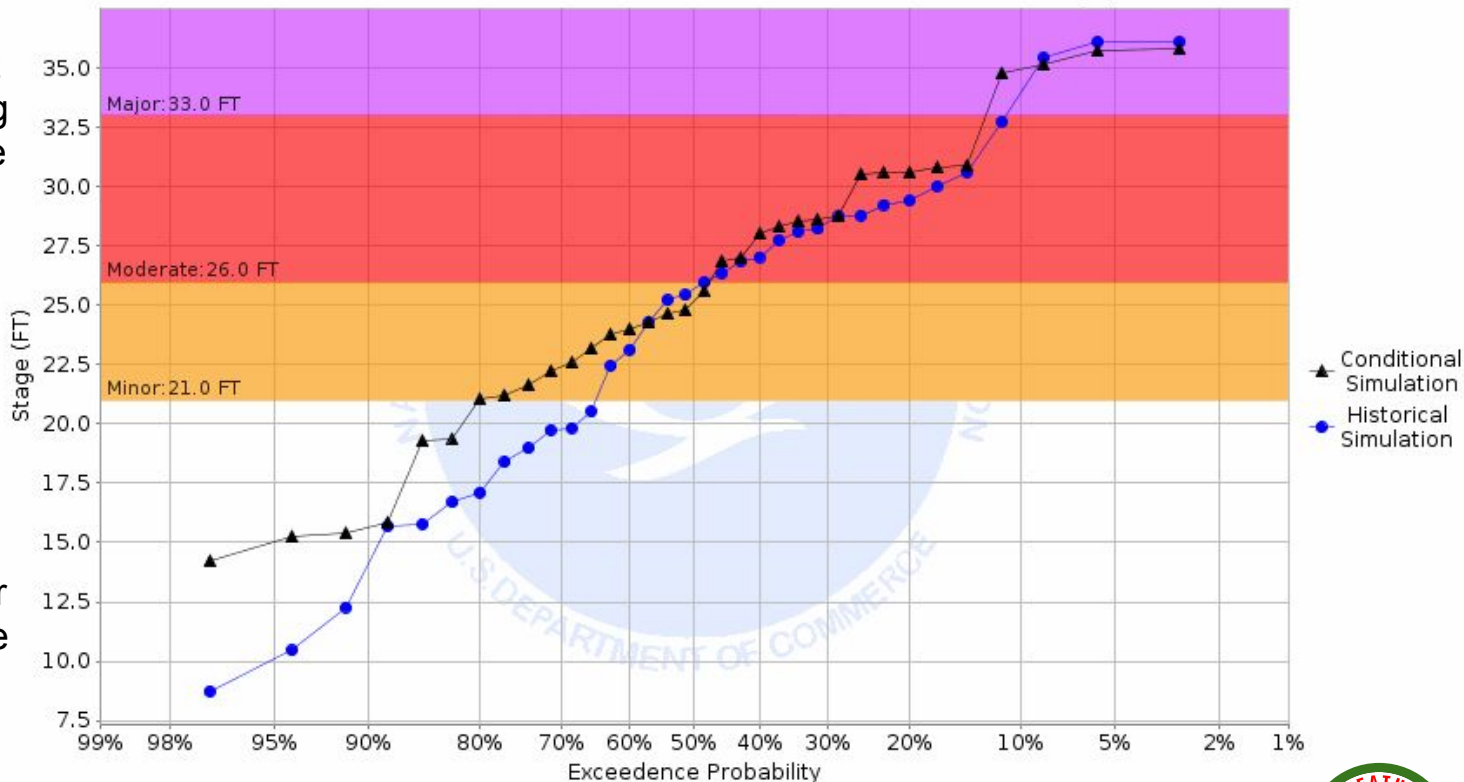
NWS St. Louis



# Spring Flood Outlook 2020 - Missouri River

The Missouri River is not experiencing the tremendous improvement in probabilities seen along the Mississippi, due to the fact that there was very little disappearing snow cover to influence the results. Still, there is improvement. Moderate flooding was still a likelihood at Hermann a month ago, but that is no longer the case. However, additional minor flooding still appears quite likely along the Missouri.

Chance of Exceeding River Stage on the MISSOURI R at HERMANN MO MKC DCP  
Forecast for the period 04/25/2020 - 07/24/2020  
This is a conditional simulation based on the current conditions as of 04/20/2020



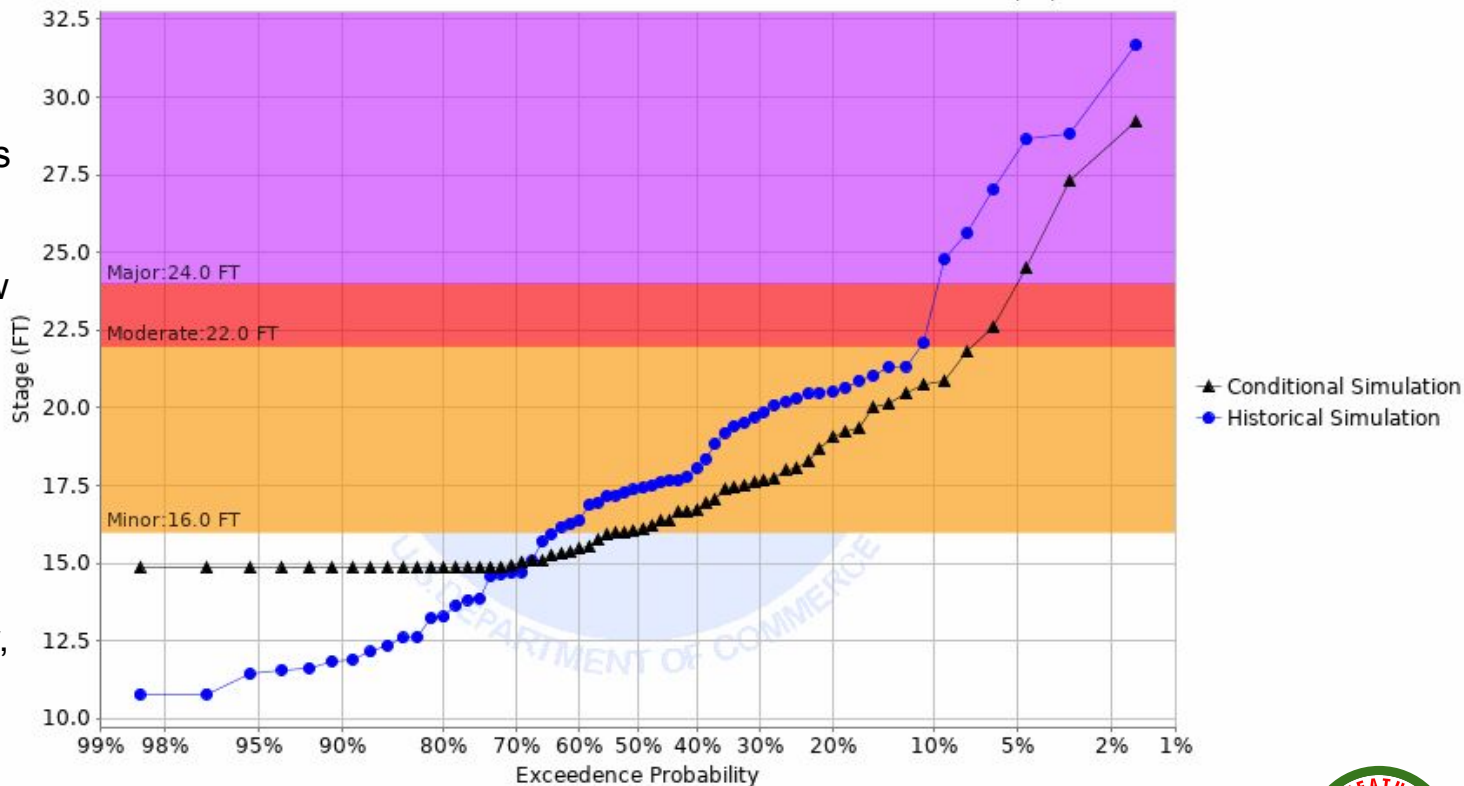
NWS St. Louis



# Spring Flood Outlook 2020 - Upper Mississippi River

Chance of Exceeding River Stage at Mississippi River at Hannibal WTP (HNNM7)  
Forecast for the period 04/27/2020 - 07/26/2020  
This is a conditional simulation based on the conditions as of 04/20/2020

On the upper Mississippi River at Hannibal, we see flood probabilities drop dramatically, from well above the historical norms to well below those historical norms. Minor flood probabilities are now just a flip of the coin, about 15% below the historical norm (blue curve). Moderate flood chances dropped from about 38%, or about 23% above the norm last month, to a mere 8% now, or about 3% below the blue curve norm.



NWS St. Louis





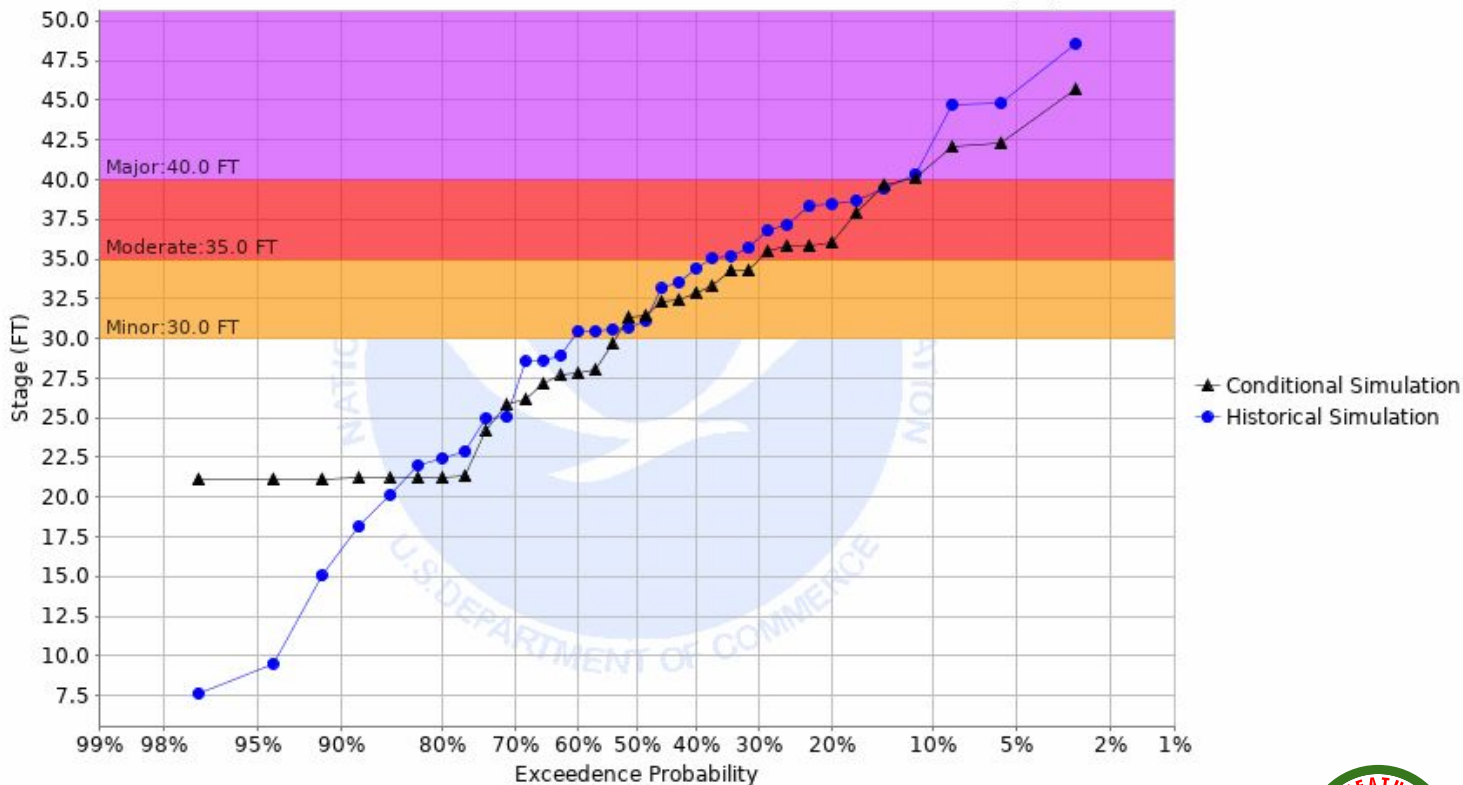
# Spring Flood Outlook 2020 - Mississippi River at St. Louis

Chance of Exceeding River Stage at Mississippi River at St. Louis (Eads Bridge) (EADM7)

Forecast for the period 04/27/2020 - 07/26/2020

This is a conditional simulation based on the conditions as of 04/20/2020

The Mississippi River at St. Louis is showing essentially slightly below historical norms for flood probabilities over the next 90 days, a far cry from the very high likelihood of significant flooding we saw 2 months ago. The difference? Little significant rain during the snowmelt, with the dryness persisting into April.



NWS St. Louis



## Summary

- Mississippi & Missouri rivers: Minor flooding or less likely through July.
- Illinois River: No flooding likely through July.
- Local tributaries: Near average flood risk, with minor flooding likely in only a few locations.
- What this outlook says is that we're in a much better place today than 2 months ago. However...
- CPC outlook for May-July still calls for a wet 90-days through July. If this happens, significant flooding could re-develop.

# Questions???

Mark Fuchs  
Senior Service Hydrologist  
National Weather Service - St. Louis, MO  
mark.fuchs@noaa.gov  
636-447-1887  
Cell: 636-293-5598

