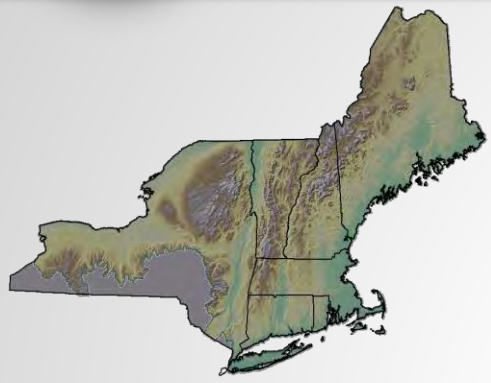




# Northeast River Forecast Center's *Water Resources Outlook*



Brought to you by:

*Edward Capone – Service Coordination Hydrologist*

Overview to Include:

- Water Resources Outlook
- Precipitation  
Past...Current....Future
- Current/Future...Streamflow
  - Groundwater
  - Soil Moisture
  - Lake Levels
  - Short/Medium Range Models
- Seasonal Outlook





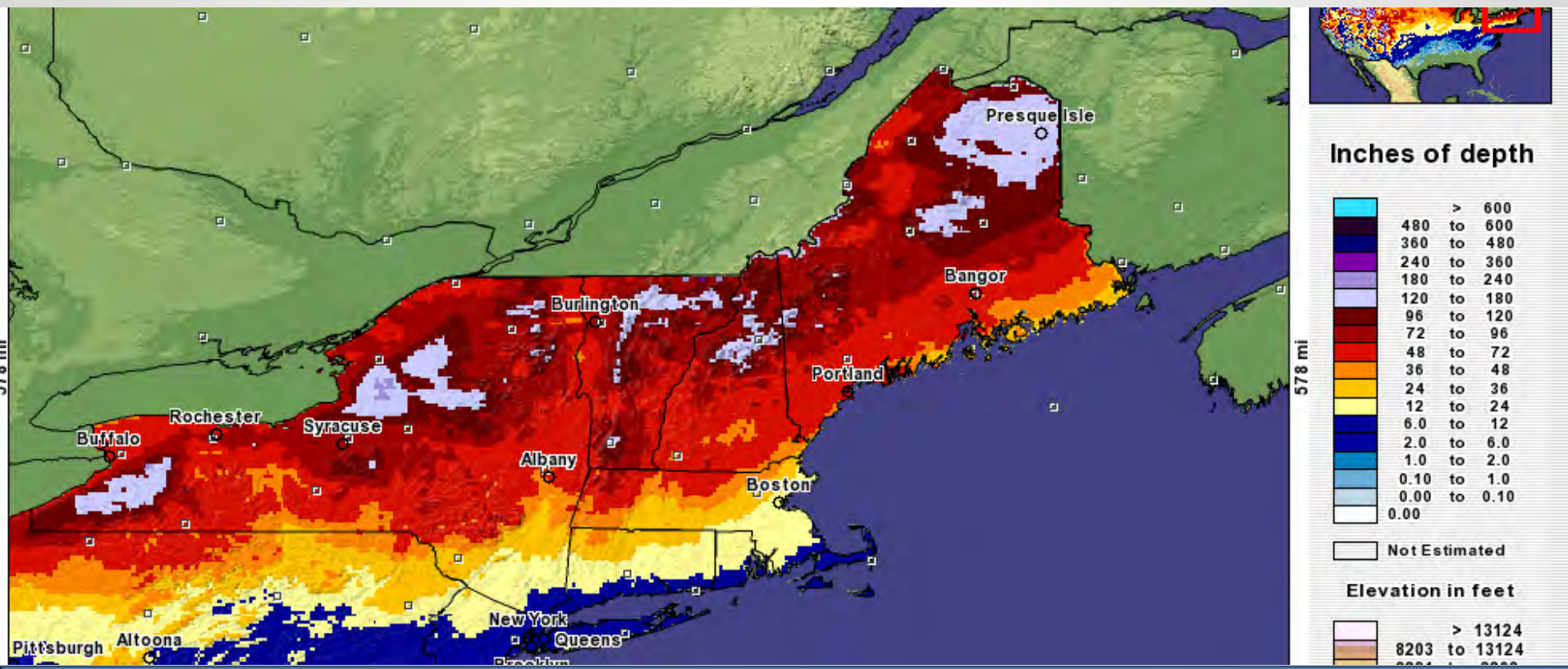


# Main Features

## Spring 2020 Arrives

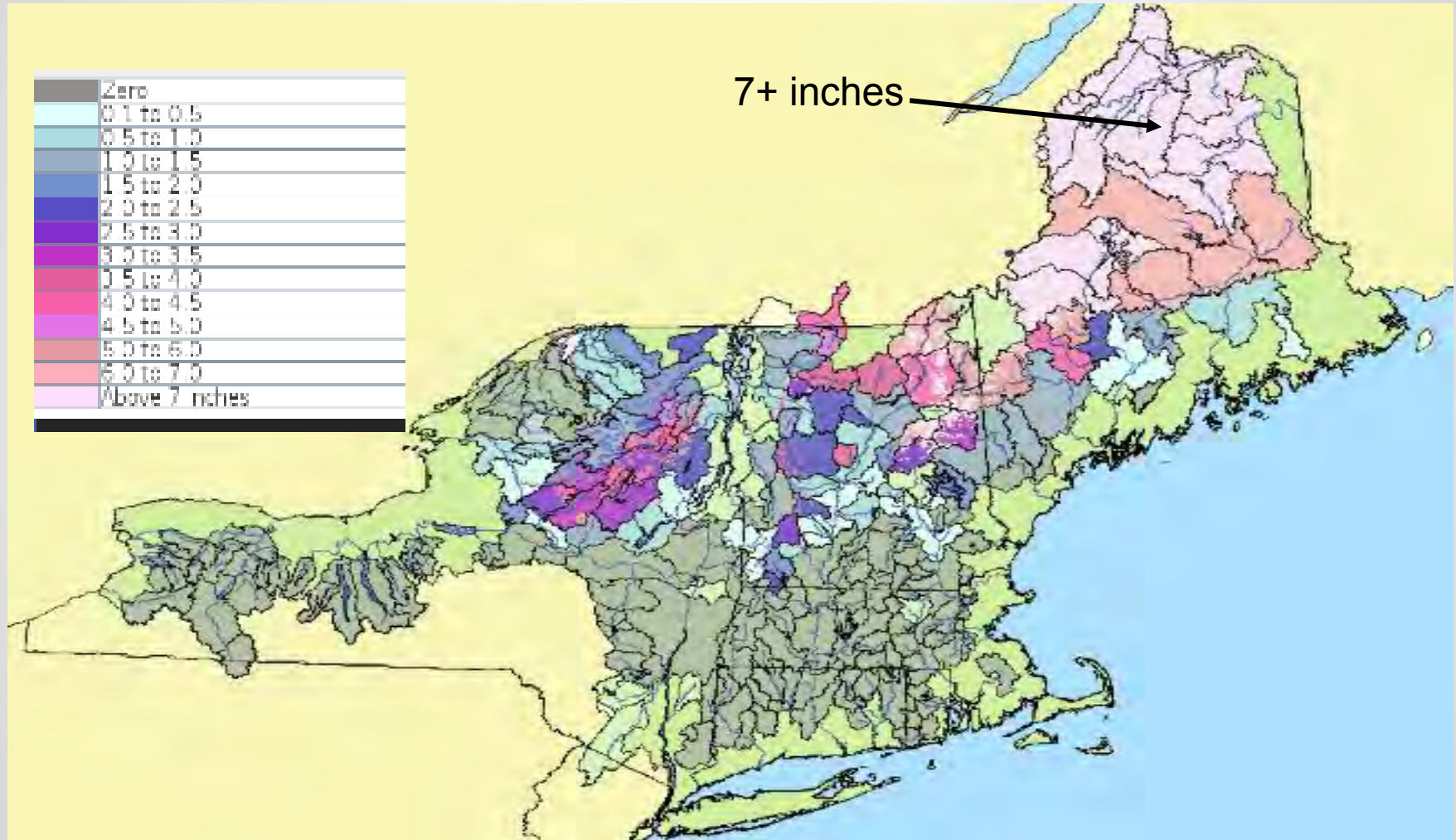


- Warmer than normal winter across much of the Northeast
- Southern New England dry start to 2020 – recent rainfalls bring March closer to normal
- Snow water equivalents near normal in Northern New England...especially northern Maine
- River ice cover and ice jam potential near normal far northern New England
- Teleconnections suggest more of the same for the 1 to 2 weeks...
- Negative PNA dominates – normal to even below normal precip ... indices fluctuating





# Snow Water Equivalent (inches) NERFC Snow-17 Model

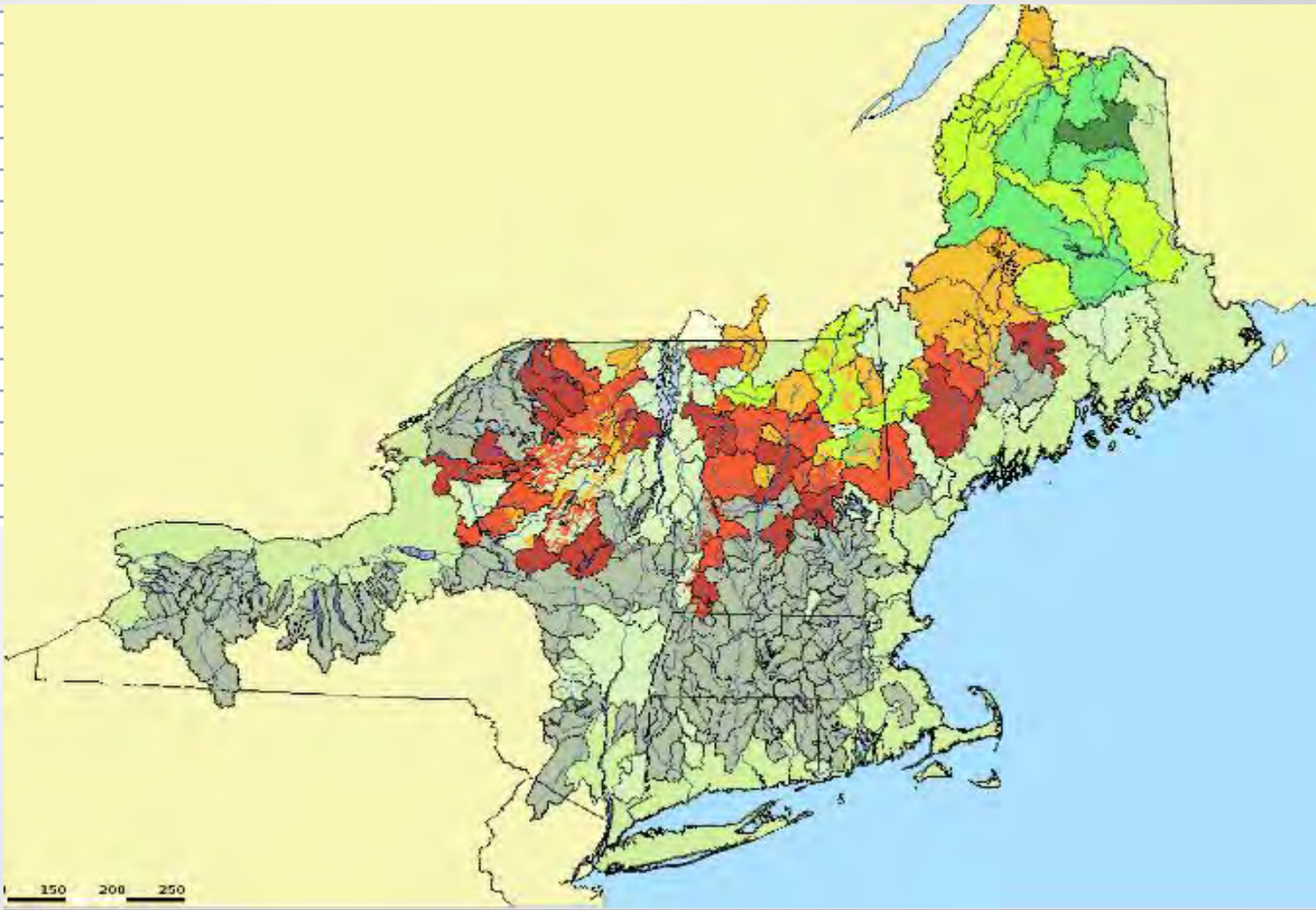
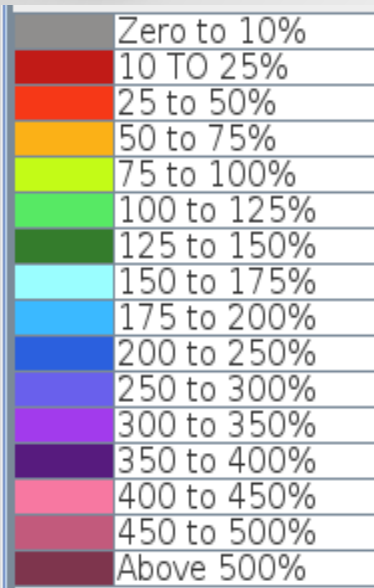






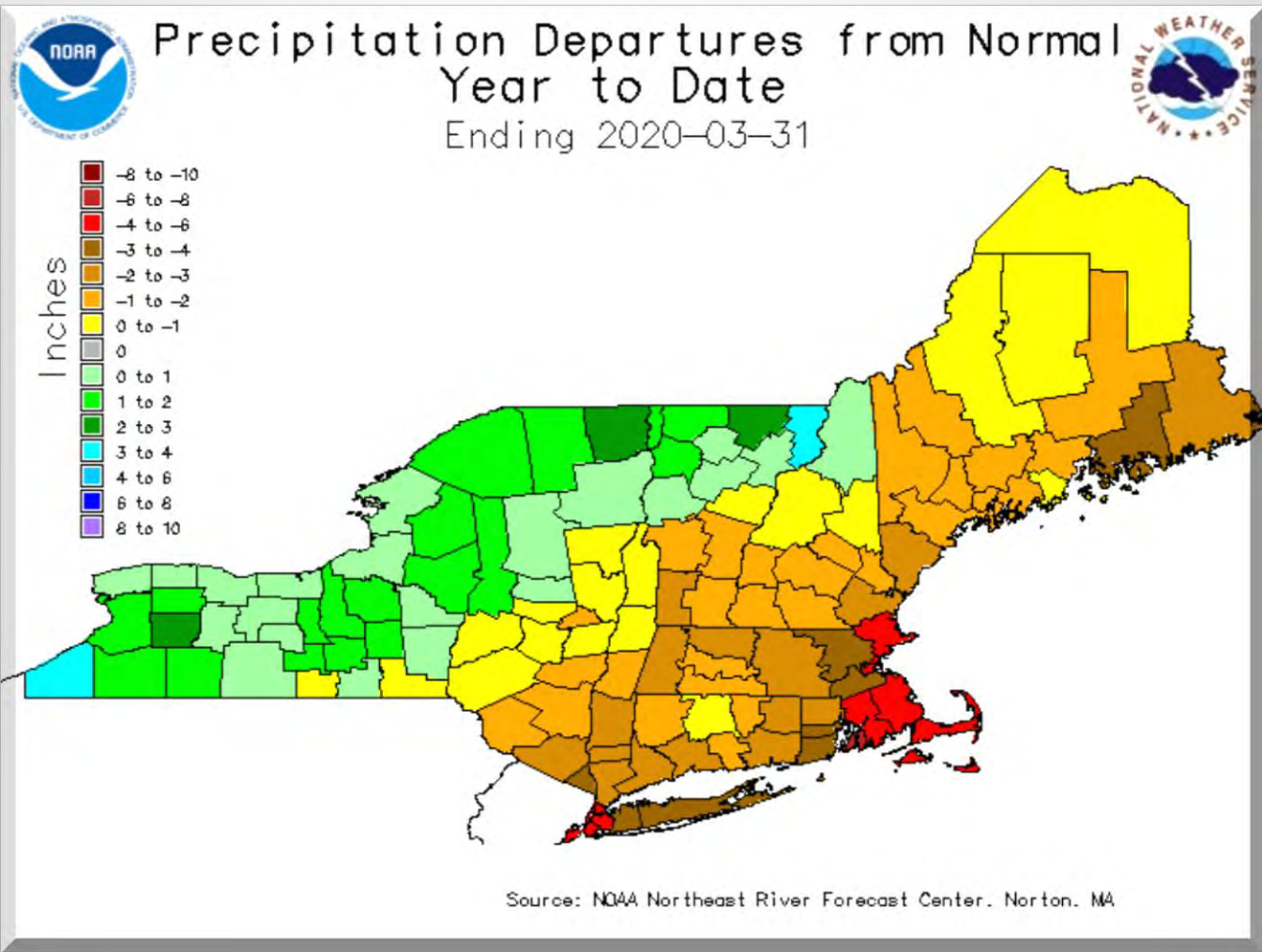
# Percent of Normal Snow Water Equivalent

## *NERFC SNOW-17 Model*





# 2020 – Dry Start (south and east)





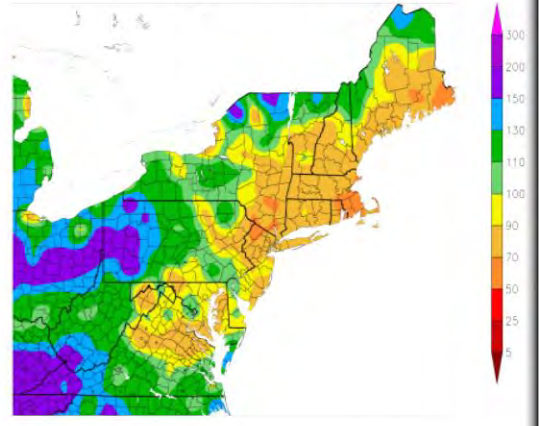


# NE Precipitation Trends – % of Normal

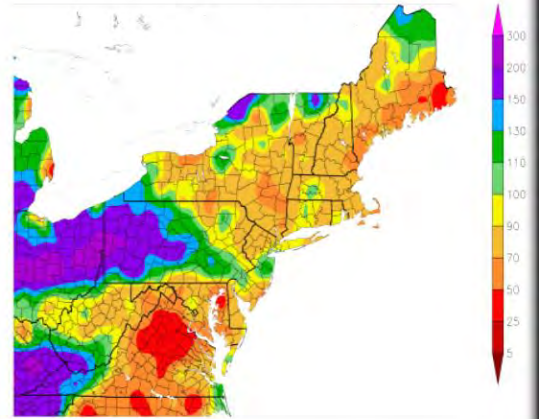


## Year to date---Last 30 days---Last 90 days

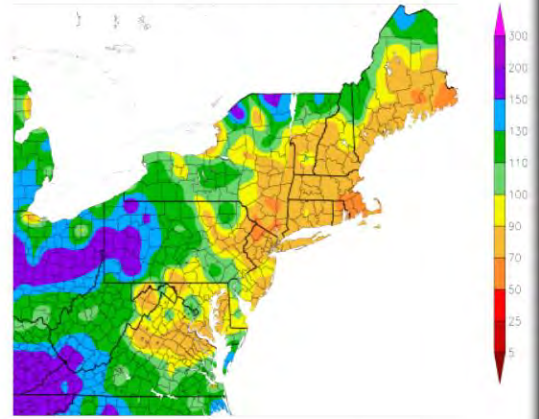
Percent of Normal Precipitation (%) **YTD**  
1/1/2020 – 3/30/2020



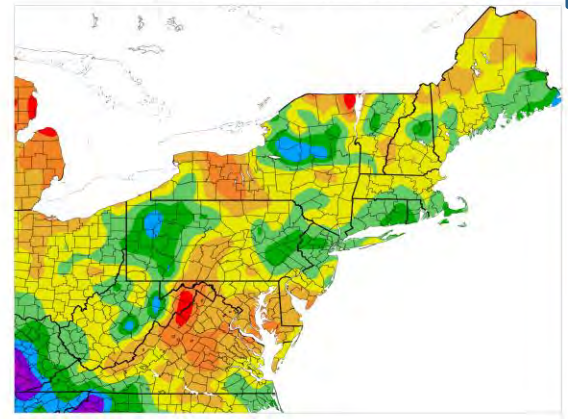
Percent of Normal Precipitation (%) **30d**  
3/1/2020 – 3/30/2020



Percent of Normal Precipitation (%) **90d**  
1/1/2020 – 3/30/2020

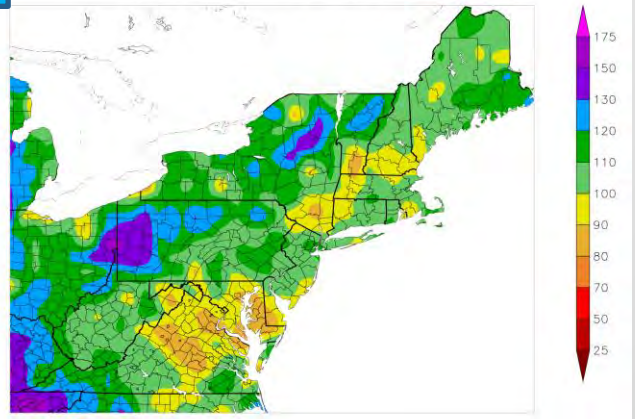


Precipitation (in)  
3/31/2019 – 3/30/2020



### Last 12 Months

Percent of Normal Precipitation (%)  
3/31/2019 – 3/30/2020



Generated 3/31/2020 at HPRCC using provisional data.

NOAA Regional Climate Centers

Generated 3/31/2020 at HPRCC using provisional data.

NOAA Regional Climate Centers



# Building a Weather-Ready Nation



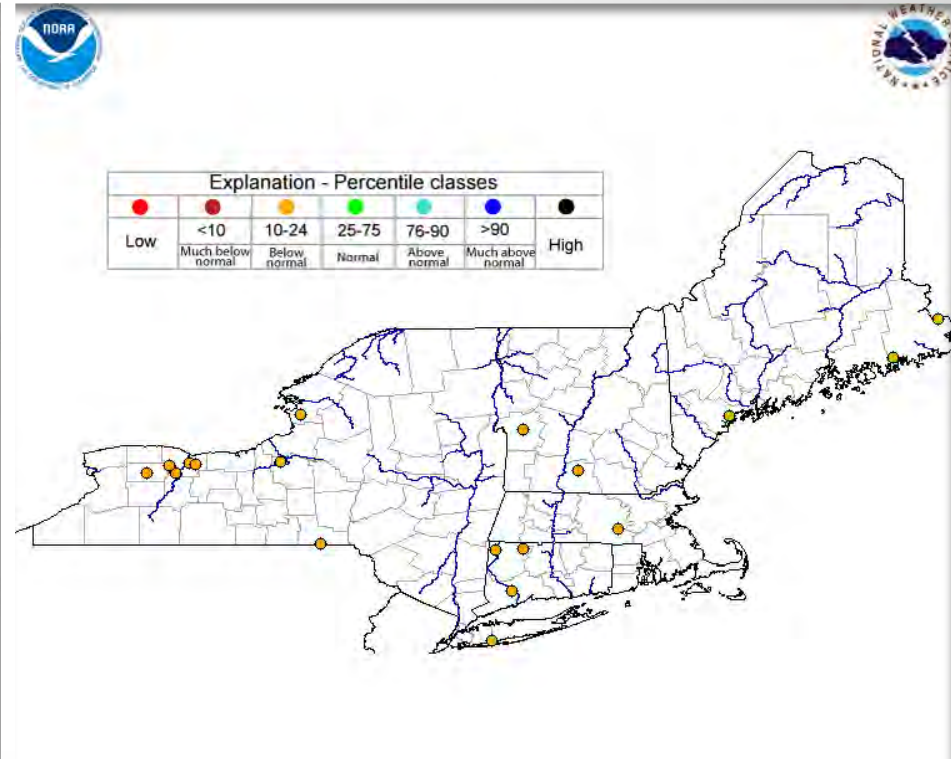
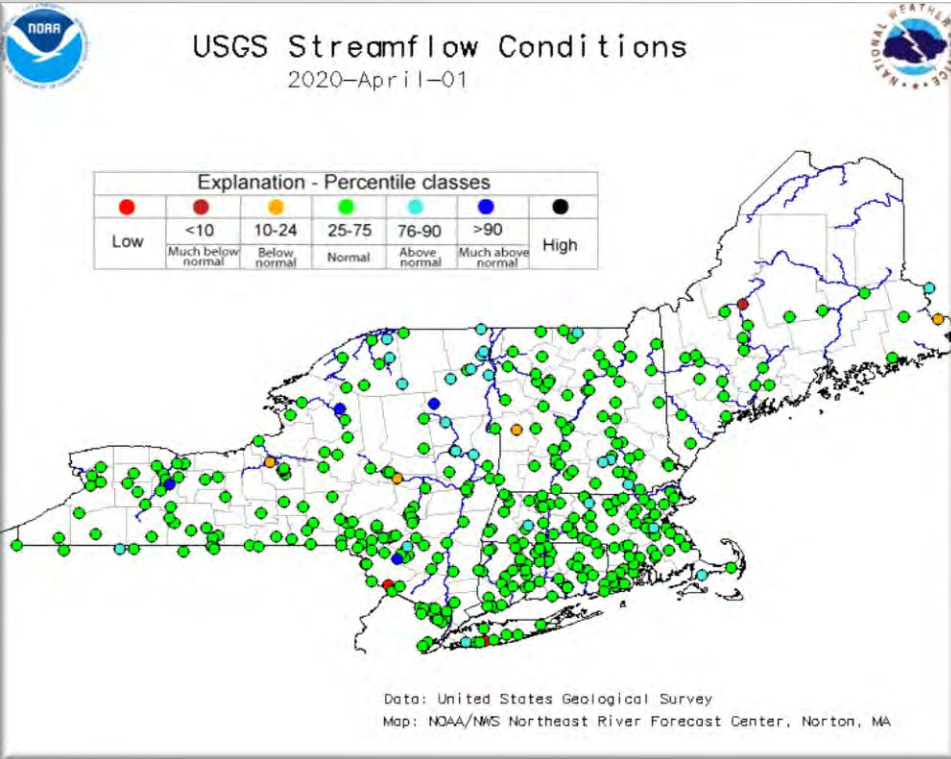
# USGS Streamflow

## Normal to Below Normal SE New England



### Daily Streamflow

### 7 – Day Average Streamflow

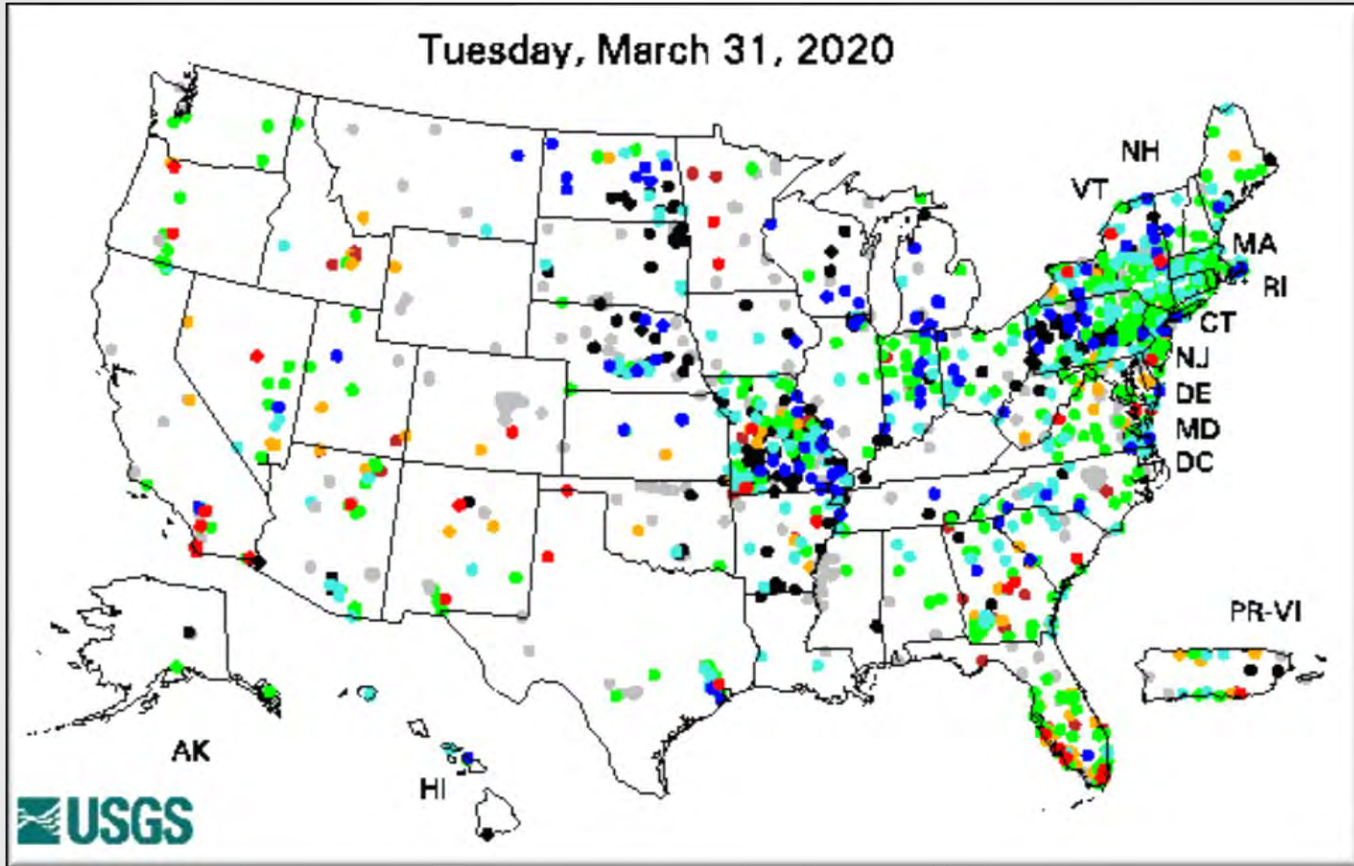






# USGS Groundwater Conditions

## *Normal to Above normal groundwater levels*



Explanation - Percentile classes (symbol color based on most recent measurement)							
Low	<10	10-24	25-75	76-90	>90	High	Not Ranked
	Much Below Normal	Below Normal	Normal	Above Normal	Much Above Normal		

Real Time  
 Continuous  
 Periodic Measurements





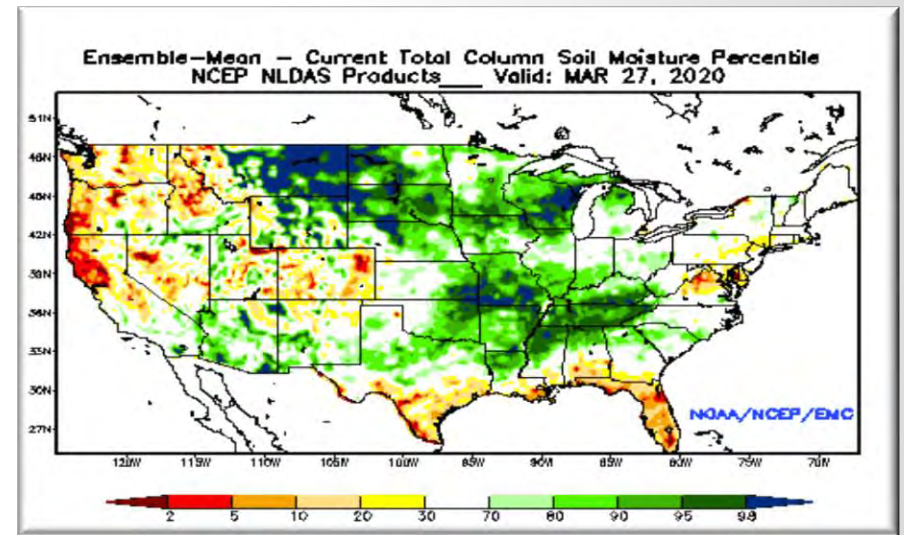
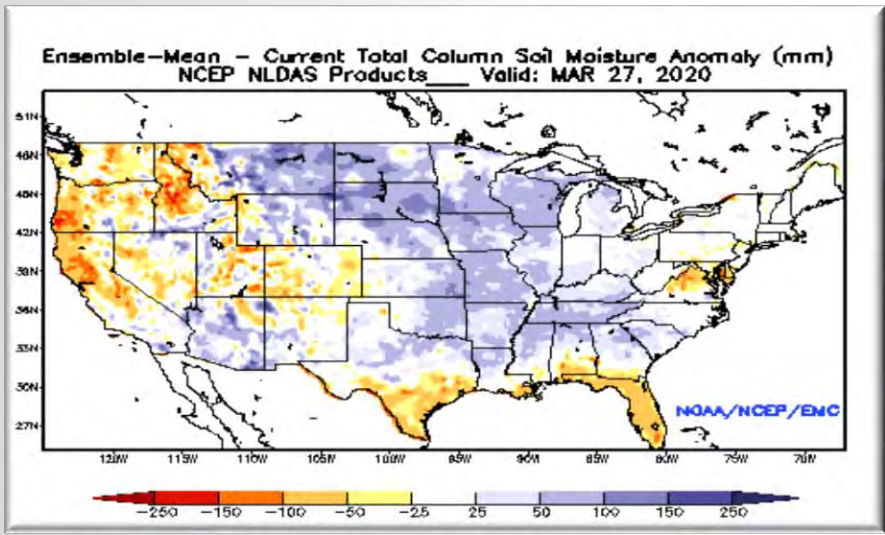


# Soil Moisture Current Conditions

## Departures and Percentiles ...normal to above



The NLDAS experimental drought monitor is derived from near real-time soil moisture output from both the NASA MOSAIC and NCEP Noah land surface models. The anomalies and percentiles are based on a 28 year climatology (1980 - 2007). Two separate climatology files are used; one for the calculation of anomalies, and one for the calculation of percentiles. The anomaly climatology file contains 1 soil moisture value per day (daily average over 28 years) for each gridbox. The percentile climatology file contains 140 soil moisture values per day (5 for each year) for each gridbox.



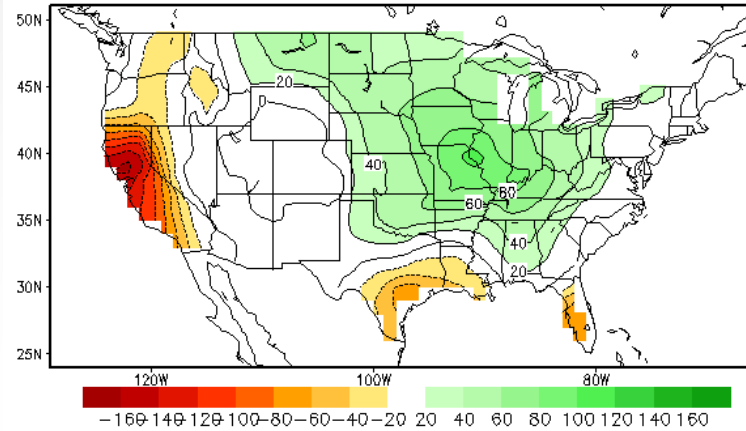


# Soil Moisture Forecasts

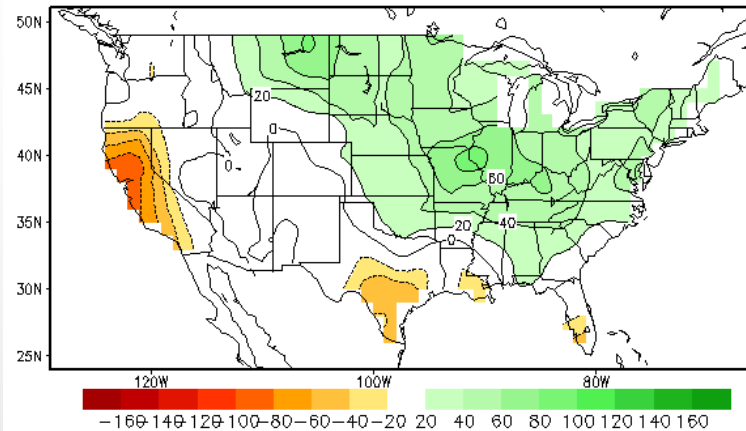
## CPC-NCEP -- Normal to the end of June 2020



Lagged Averaged Soil Moisture Outlook for End of APR2020  
units: anomaly (mm), SM data ending at 20200330



Lagged Averaged Soil Moisture Outlook for End of JUN2020  
units: anomaly (mm), SM data ending at 20200330





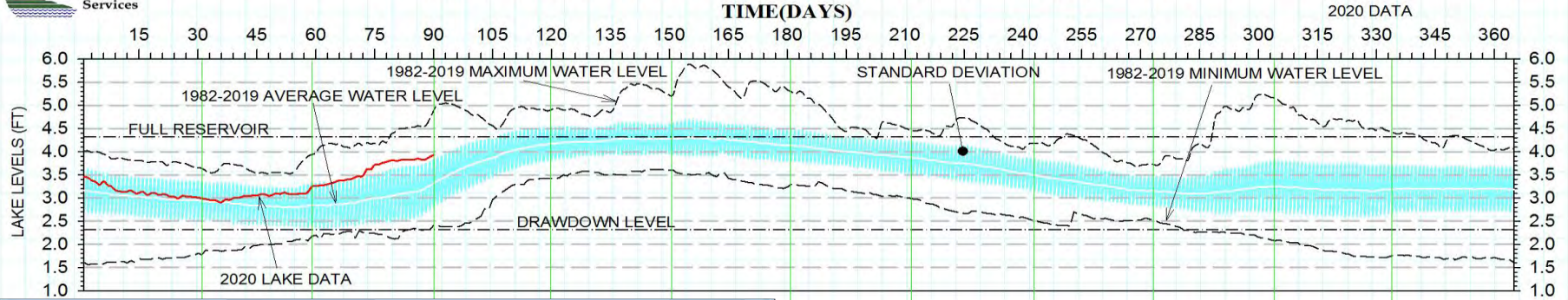


# Larger Lake Levels

## Near Normal to Above Normal Lake Levels



### LAKE WINNIPESAUKEE LAKE LEVEL DATA



**Kennebec --Mostly Normal to Above Normal Levels**  
**Androscoggin – Mostly Normal to Above Normal**

#### Update on Water Supply Status Massachusetts Water Resources Authority

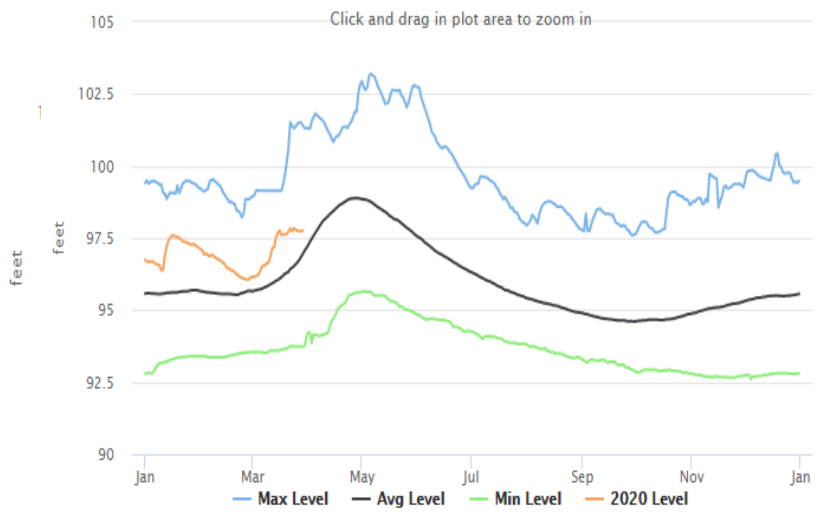
March 1, 2020

**RESERVOIR LEVELS:** The Quabbin Reservoir, the largest water supply source for 47 communities in the Metro Boston area, is currently at **95.2%** of its 412 billion-gallon maximum capacity. The 65 billion-gallon Wachusett Reservoir is **91.4%** full.

[Detailed Data and Archives](#)

**CONDITIONS STATUS:** According to the MWRA's Drought Management Plan, the water system is currently listed in a **Normal Status** (see graph below).

#### Lake Champlain Extremes and 2020 Level



Highcharts.com

Highcharts.com



*Building a Weather-Ready Nation*



# Water Supply – Lake Levels

## NYC /Great Sacandaga – Near and Above Normal



### New York City's Water Supply System

March 30, 2020

**Total Storage** (% of Capacity)

Current: 97.0

Normal: 94.7

**Consumption** (billion gallons)

3/29/20 0.89

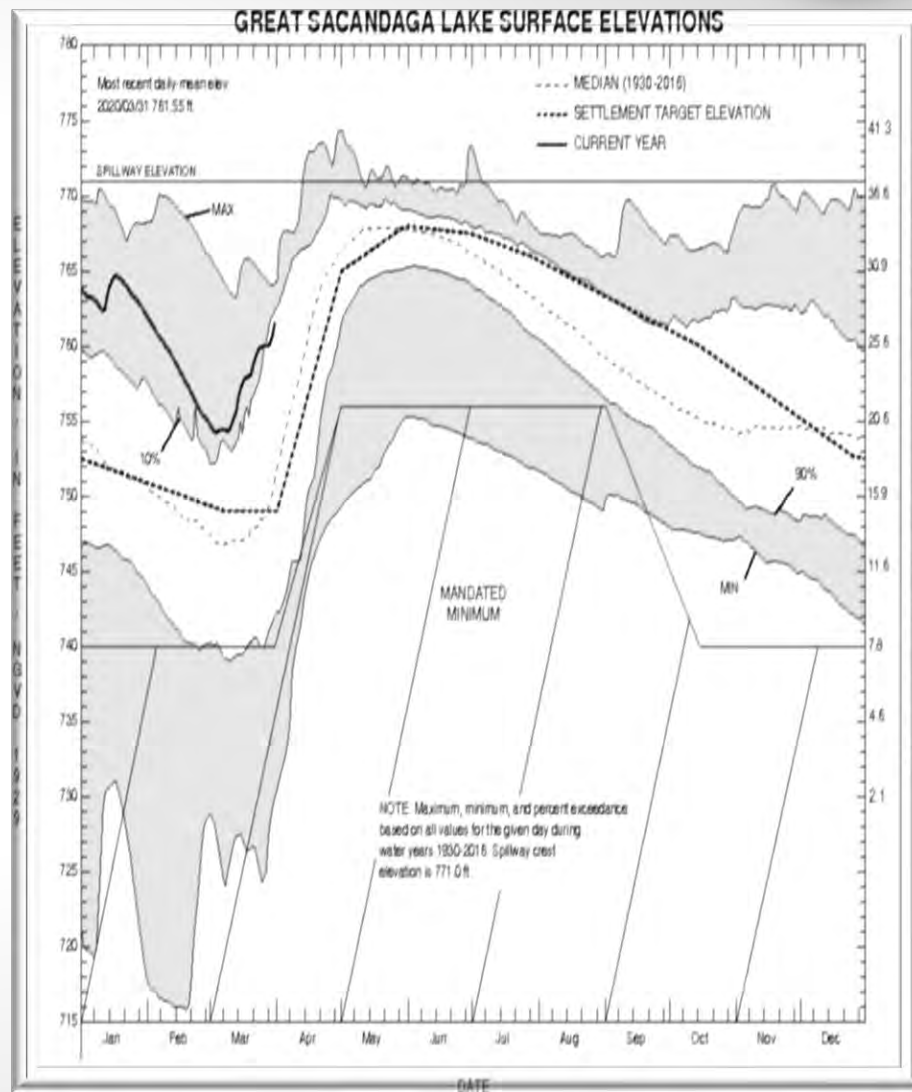
**Average Precipitation** (inches)

Actual Historical

January: 1.98 3.25

February: 3.16 2.72

March: 2.85 3.12

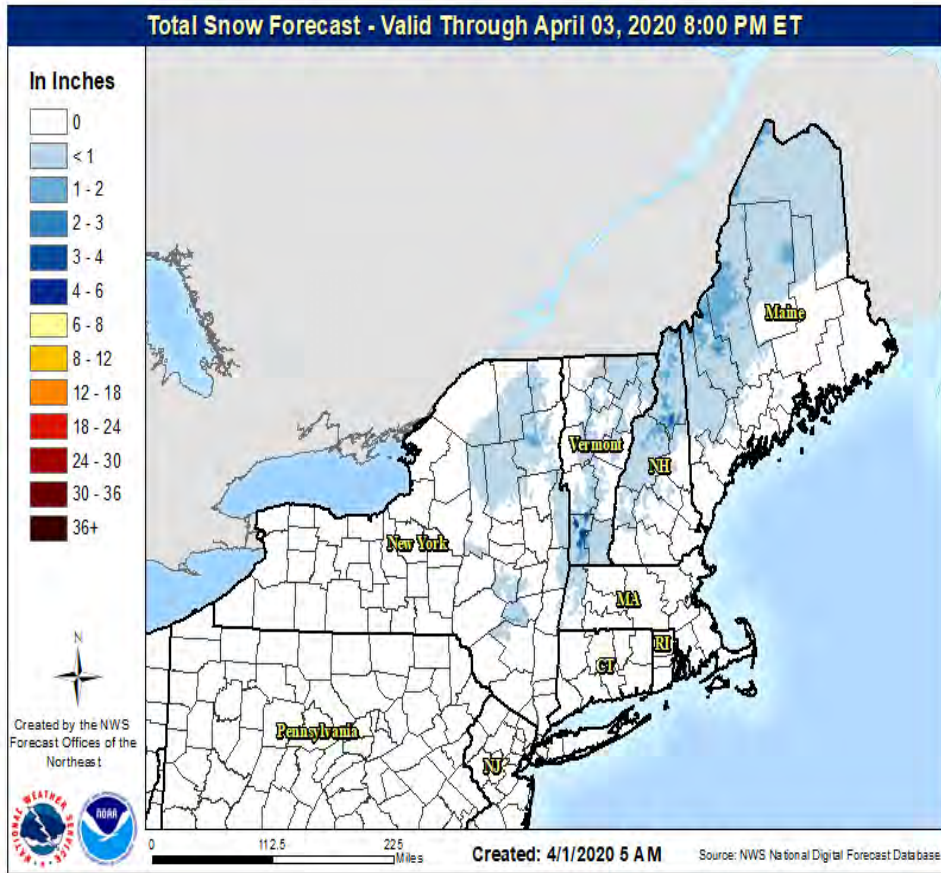
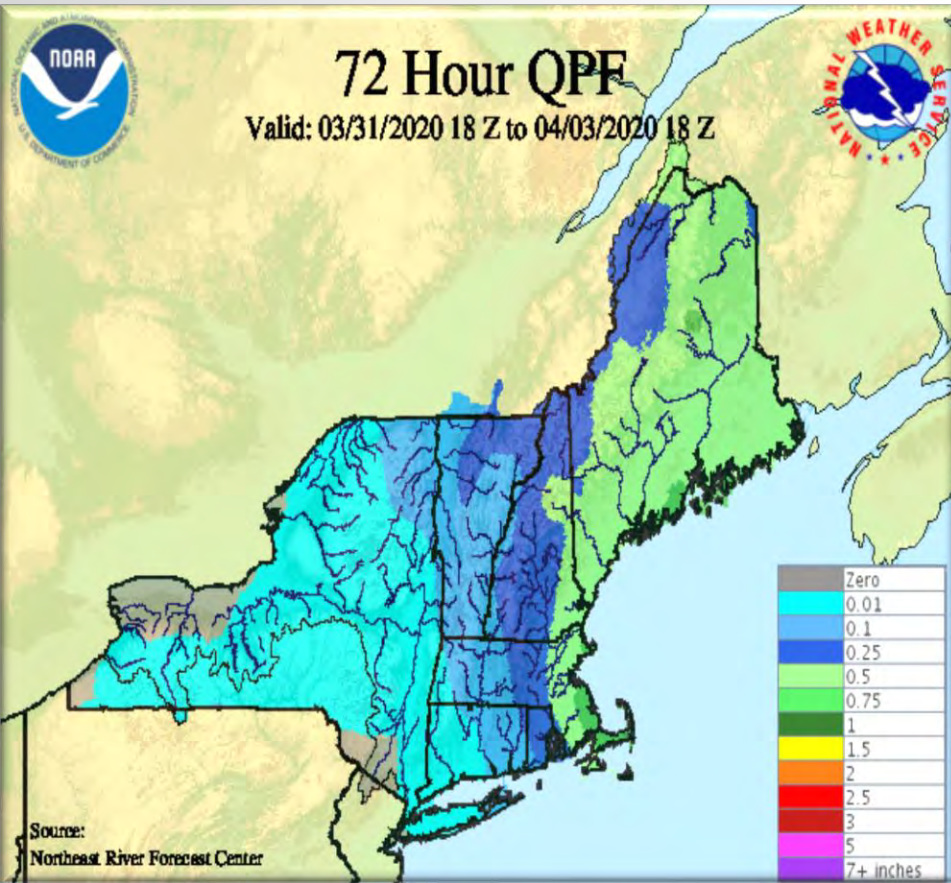






# Precipitation Forecast

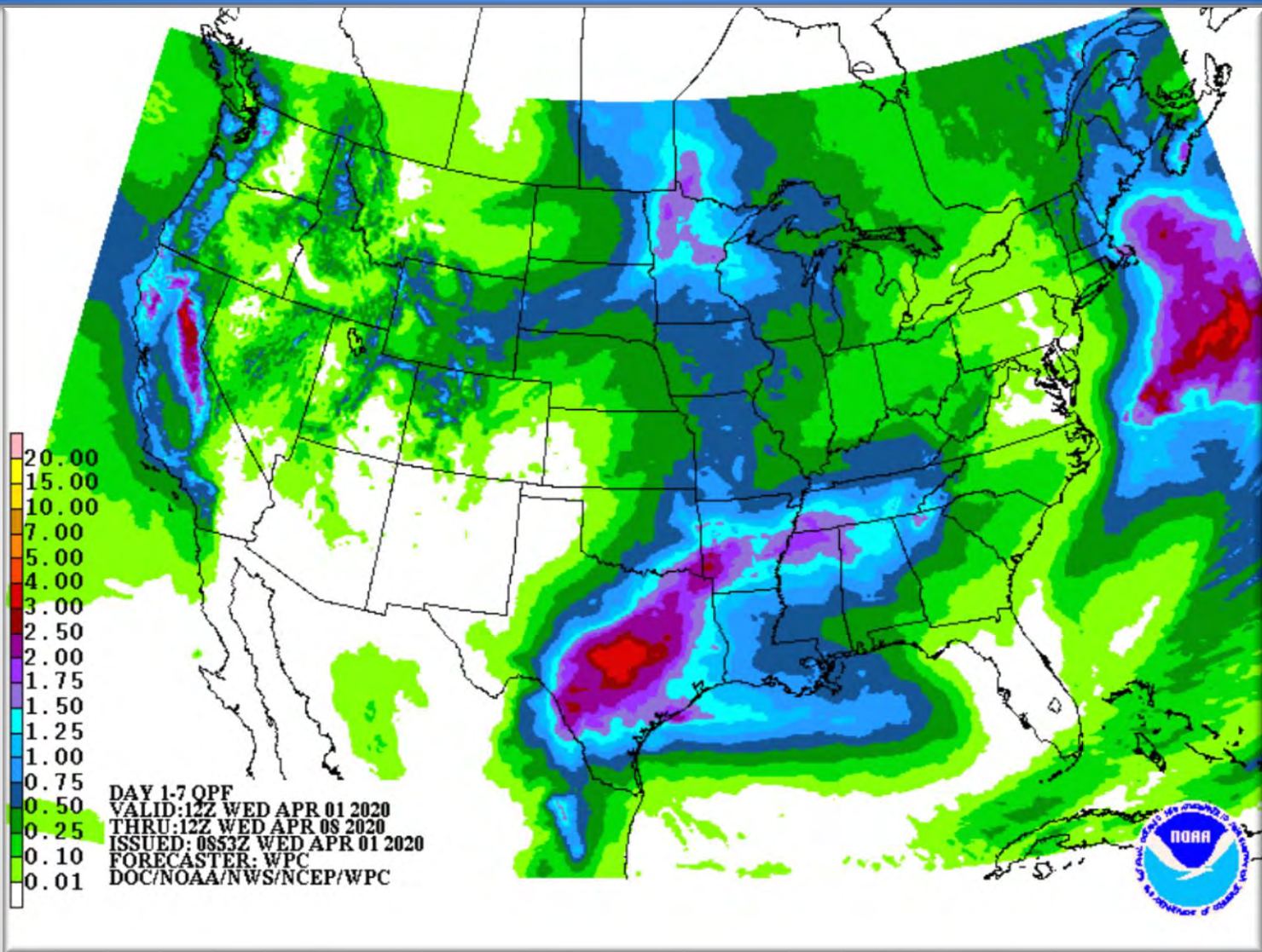
## 3-Day QPF and 3-Day Snowfall







# WPC DAY 1-7 Precipitation Forecast (QPF)

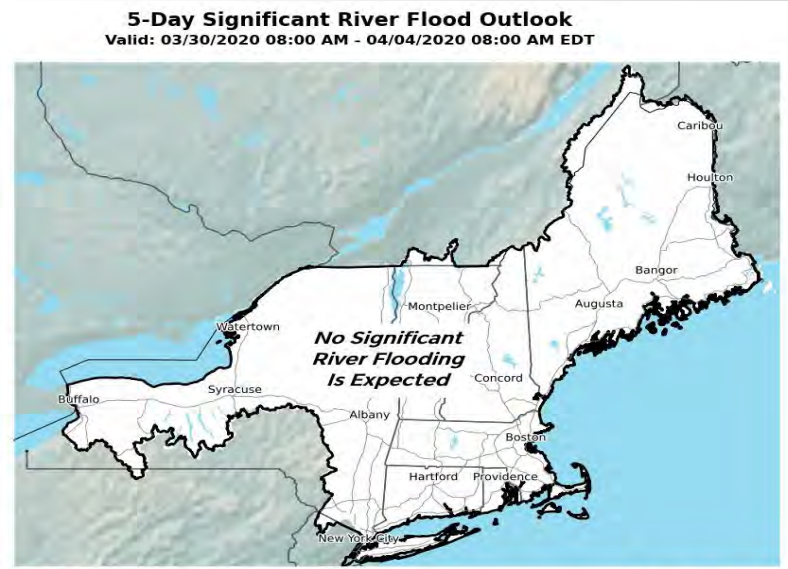
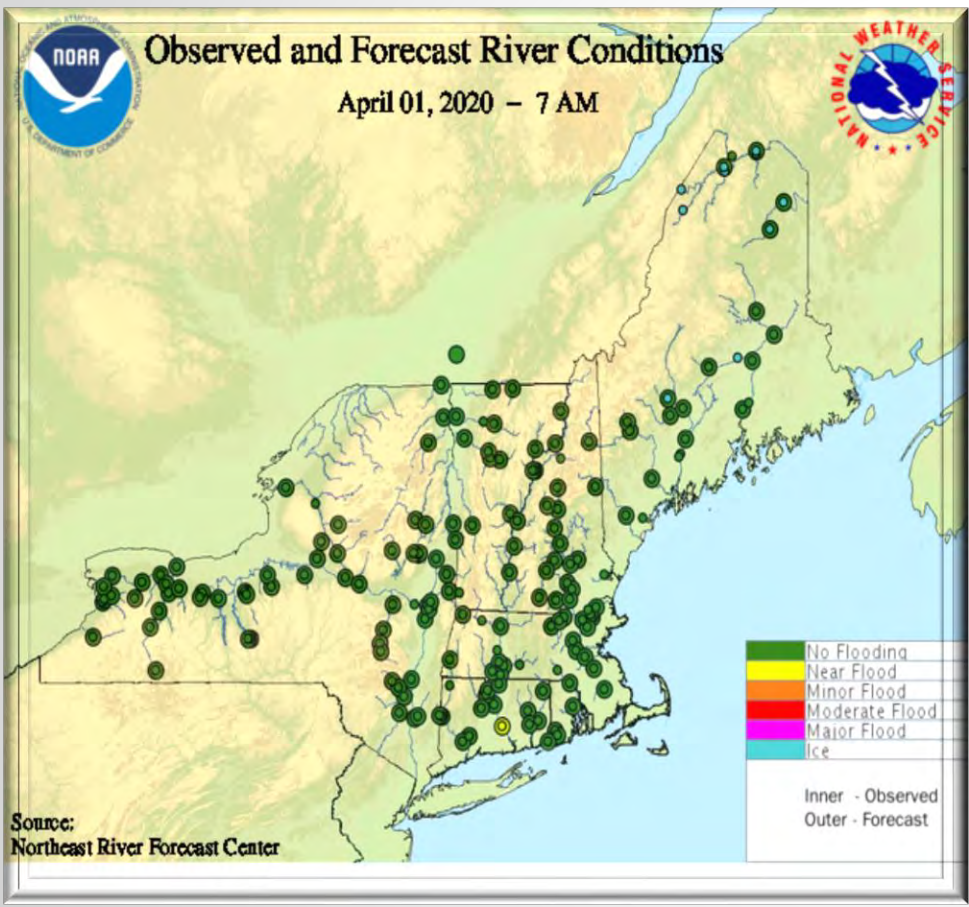






# NERFC 72-Hr River Forecast

## 5-Day Outlook



**National Weather Service**  
 Northeast RFC  
 03/30/2020 12:01 PM EDT

Follow Us: [f](#) [t](#) [v](#)  
[weather.gov/nerfc](http://weather.gov/nerfc)

Significant River Flooding impacts include road hazards and damage to residential, commercial, and/or agricultural areas. Evacuation may be required. Flash flooding or Minor river flooding are NOT included in this outlook. Check your local weather forecast frequently for the most up-to-date information for your area.

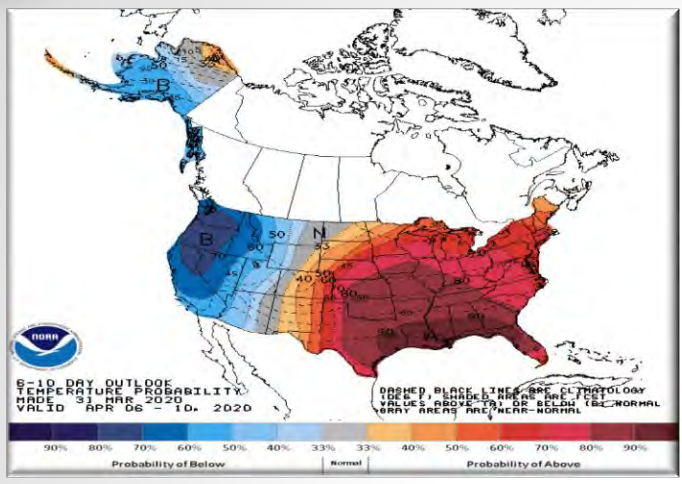
- Shaded areas are the forecast region of the Northeast River Forecast Center
- Significant River Flooding Not Expected
  - Significant River Flooding Possible  
Weather conditions indicate, without certainty that significant river flooding could occur
  - Significant River Flooding Likely  
Weather conditions indicate that significant river flood conditions can be expected
  - Significant River Flooding Occurring  
Significant river flooding is occurring at this time



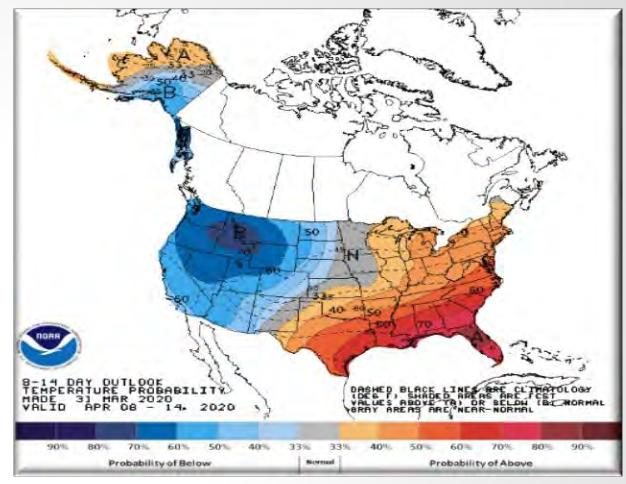


# CPC Outlooks

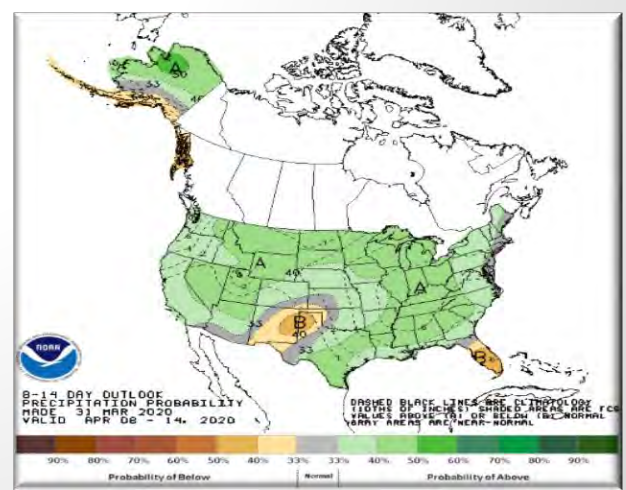
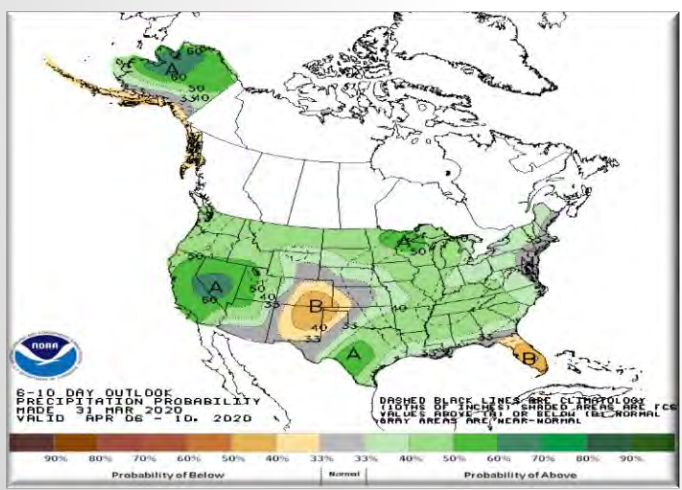
## 6 to 10 and 8 to 14 day outlooks



**6 to 10 day outlooks**



**8 to 14 day outlooks**



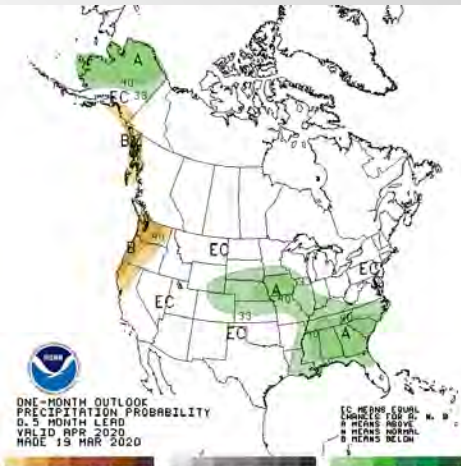
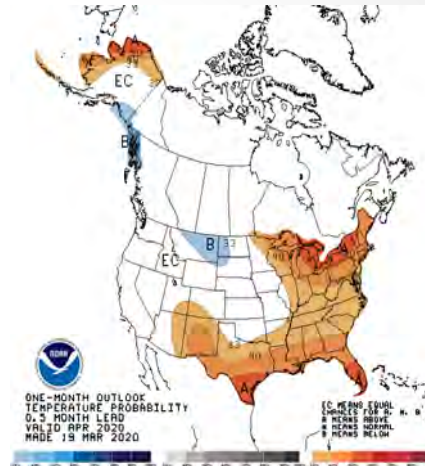
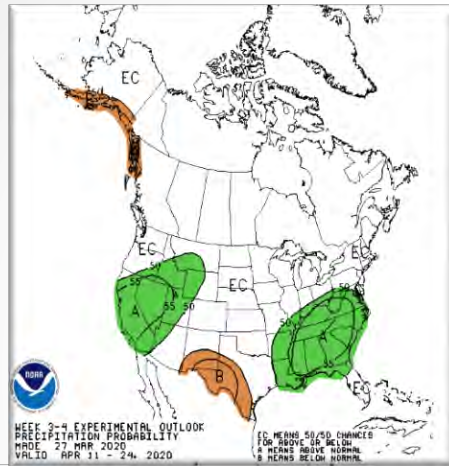
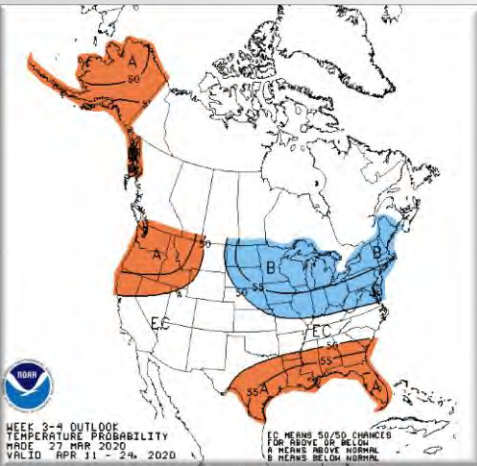




# Outlook....week 3-4...30-day...90-day



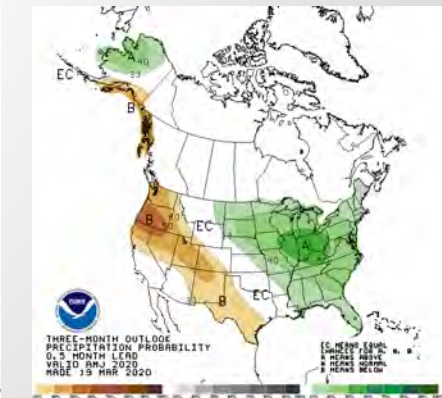
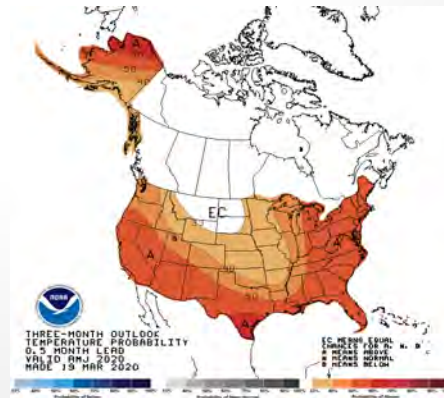
April 2020



The shading on the temperature map depicts the most favored category, either above-normal (A) or below-normal (B) with the solid lines giving the probability (>50%) of this more likely category (above or below).

The shading on the precipitation map depicts the most favored category, either above-median (A) or below-median (B) with the solid lines giving the probability (>50%) of this more likely category (above or below).

A M J — 90day



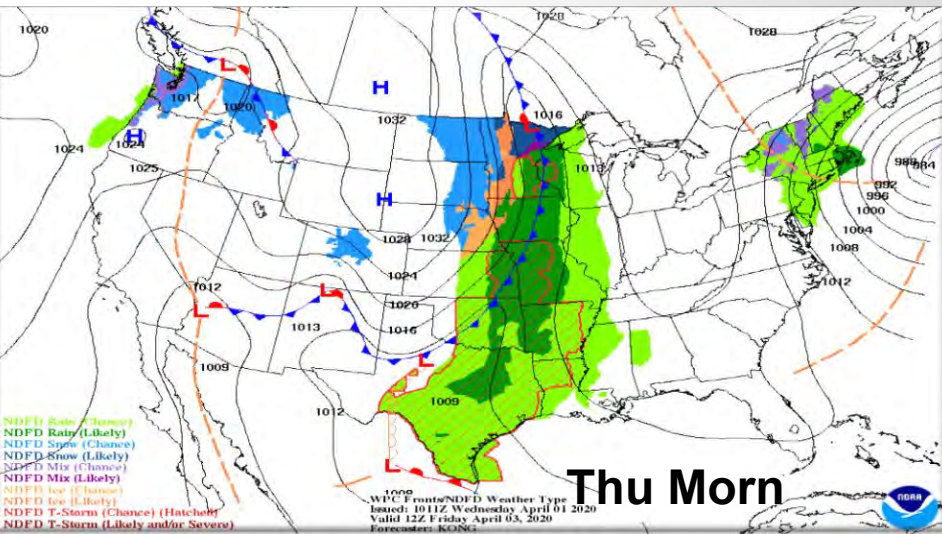
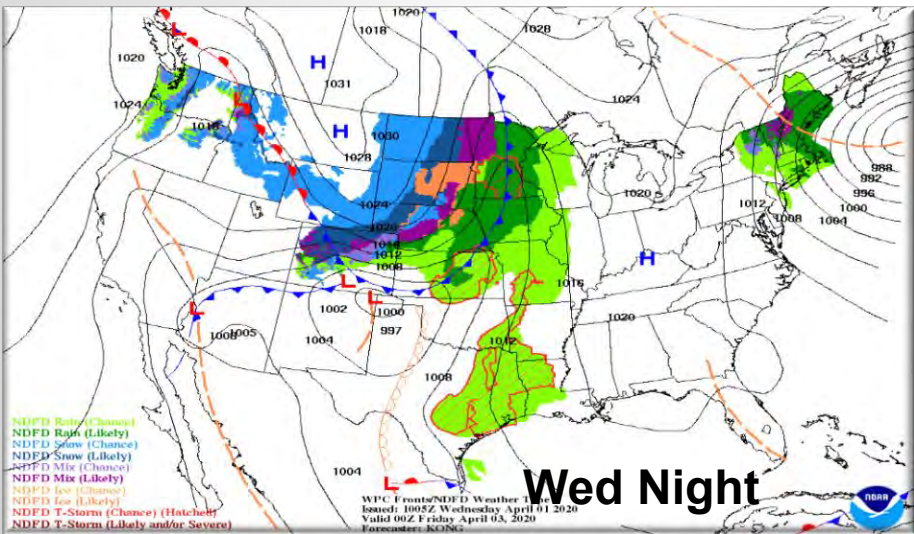
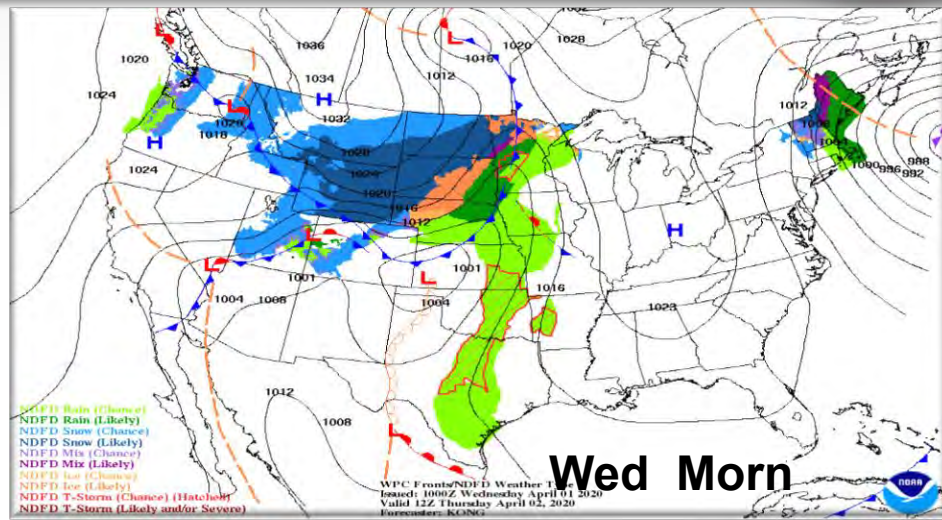
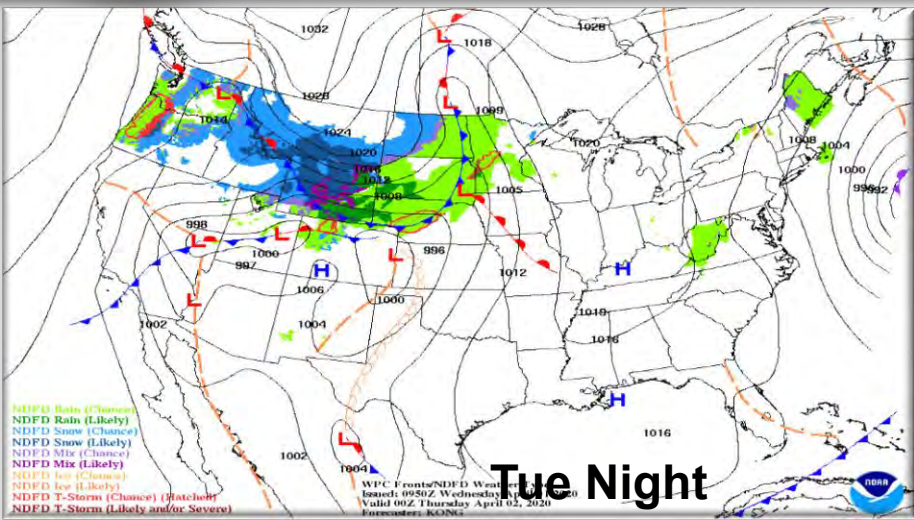




# Surface Maps



## Weekend – large HIGH moves in (dry)



Building a Weather-Ready Nation



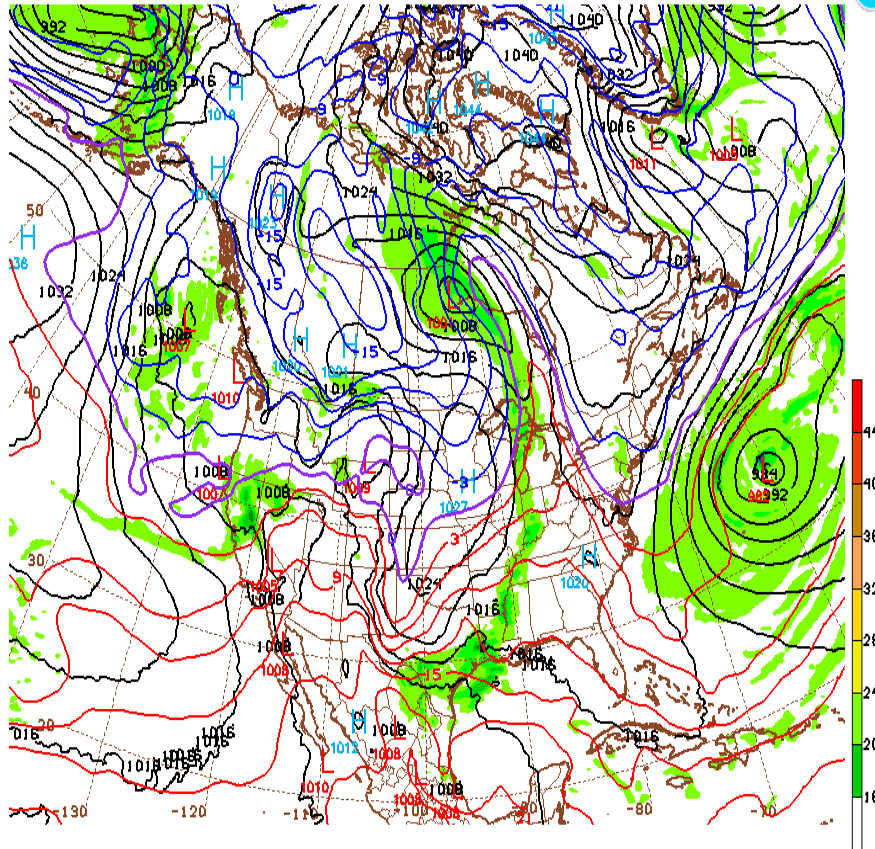


# GFS Model

## Valid 4/3 – Surface and 500 mb

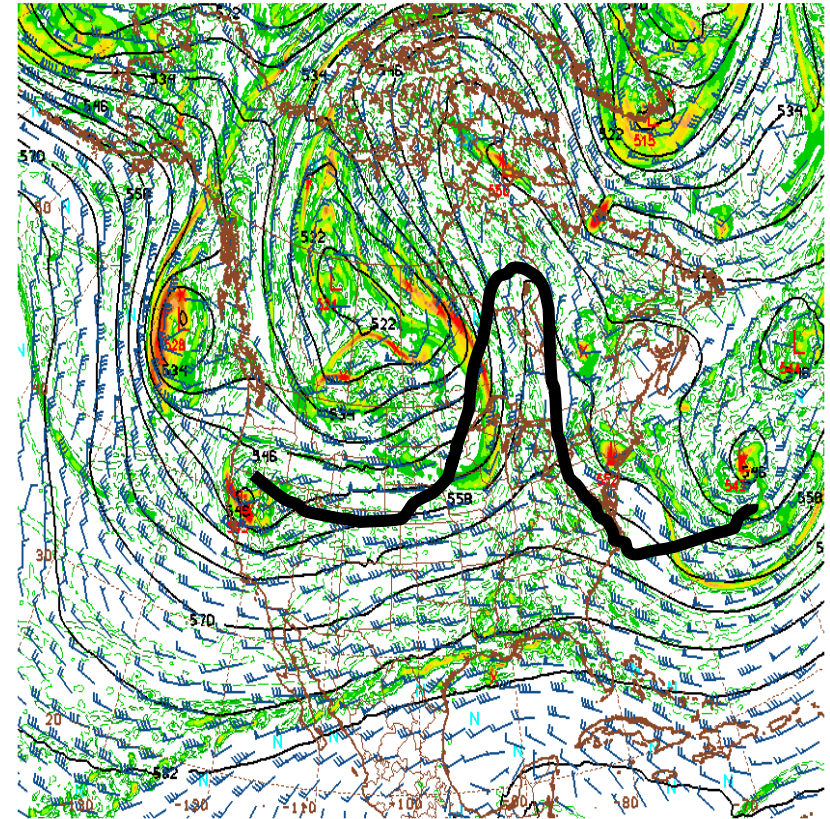


03/31/20 12UTC 99HR FCST VALID SAT 04/04/20 14UTC NOAA/NWS/NCEP



SAT 200404/1400V098 GFS EMSL (4MB) 03HR PRCP(IN) 850MB TEMP(C)

03/31/20 12UTC 99HR FCST VALID SAT 04/04/20 15UTC NOAA/NWS/NCEP



SAT 200404/1500V099 GFS 500MB HGT ABS VALUE OF ABS VOR AND WIND



Building a Weather-Ready Nation

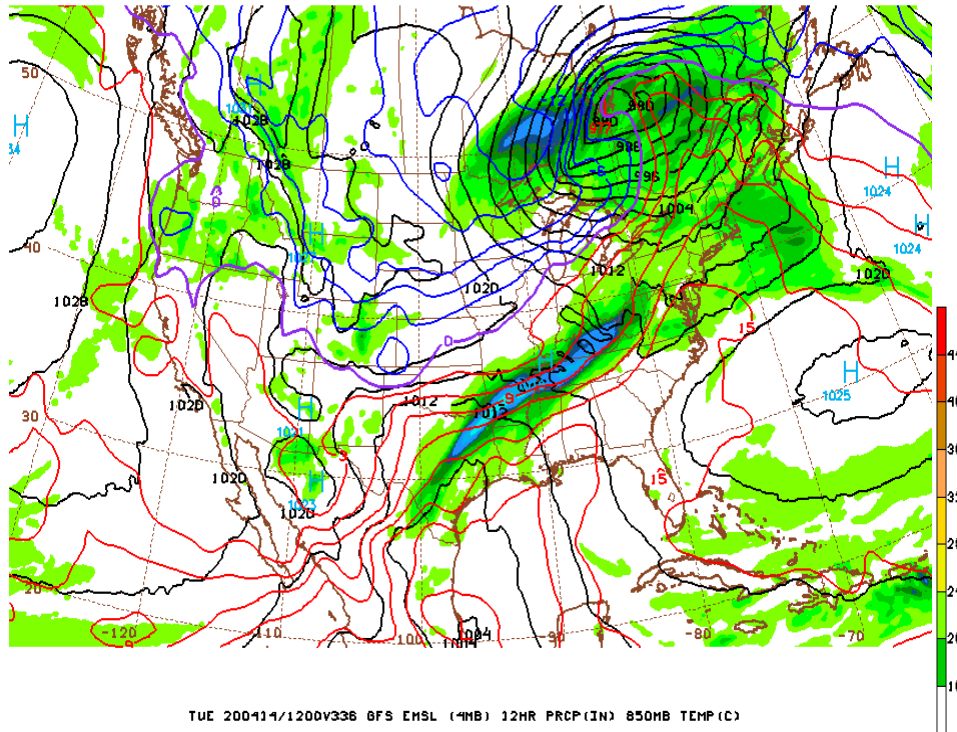


# GFS Model

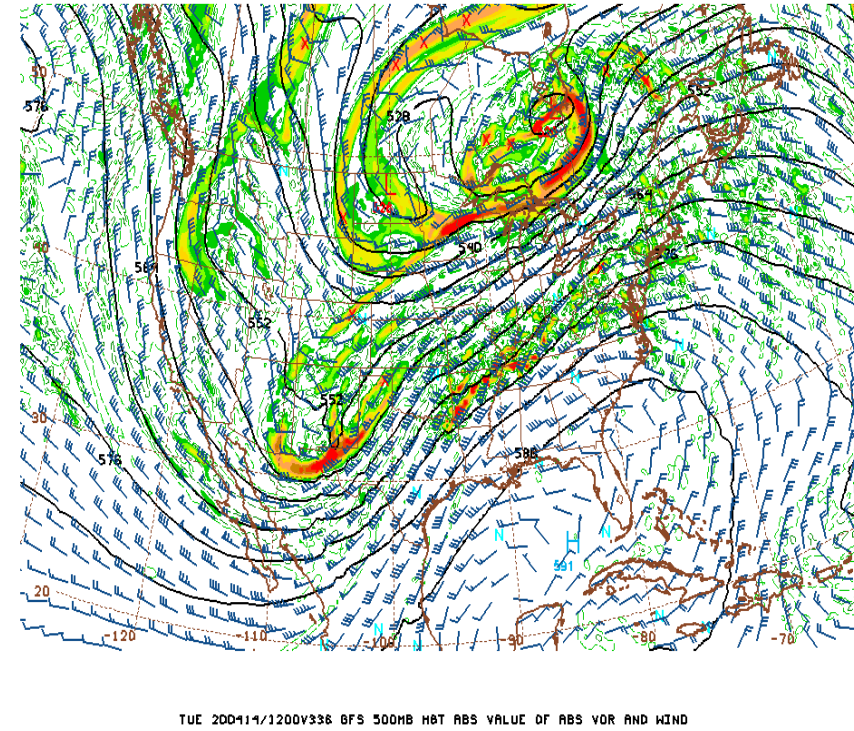
Valid 4/19 -- Surface and 500 mb



03/31/20 12UTC 336HR FCST VALID TUE 04/14/20 12UTC NOAA/NWS/NCEP



03/31/20 12UTC 336HR FCST VALID TUE 04/14/20 12UTC NOAA/NWS/NCEP



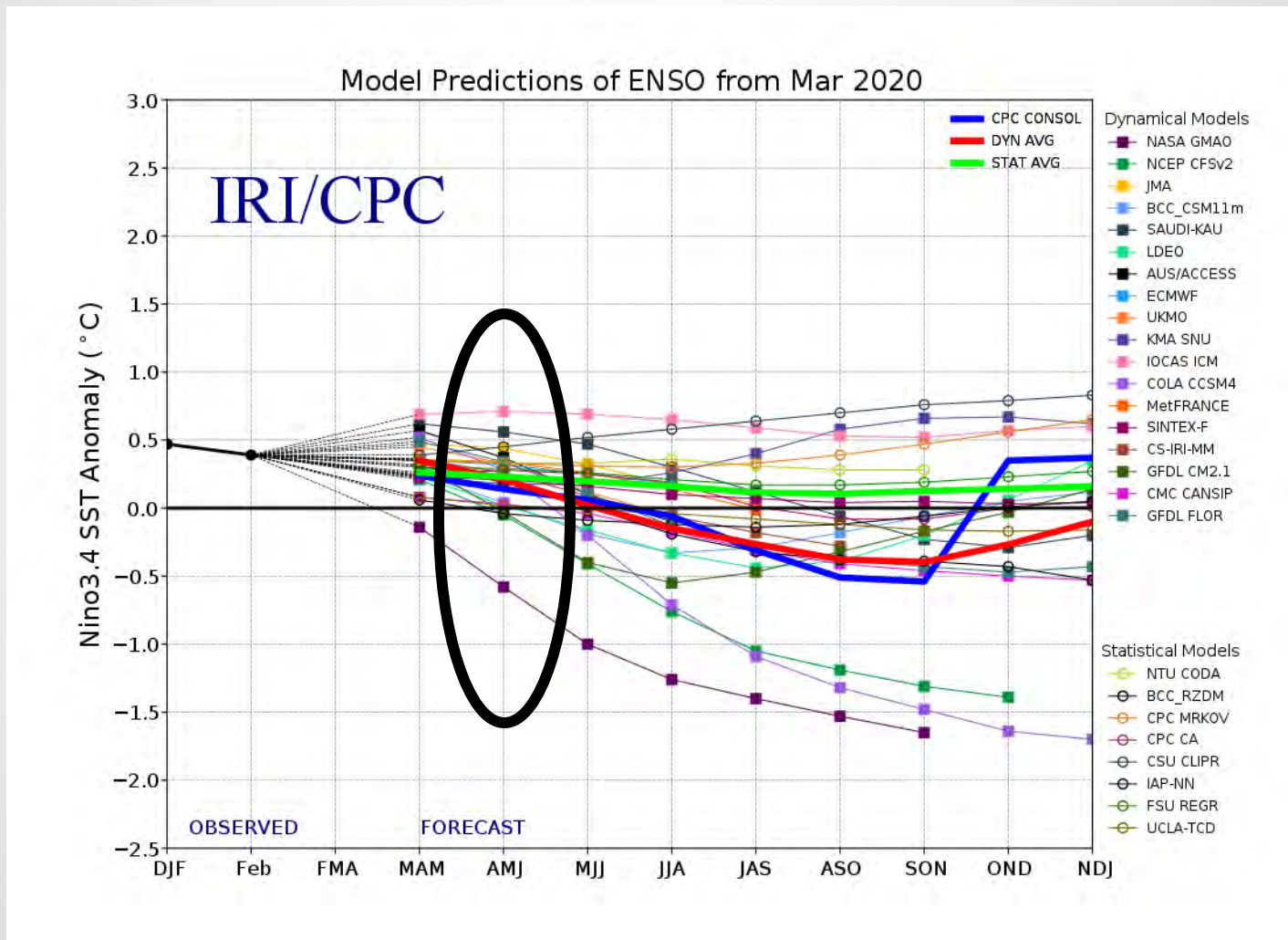
Building a Weather-Ready Nation





# Current ENSO Conditions

## Into Spring -- ENSO Neutral ... La Nada



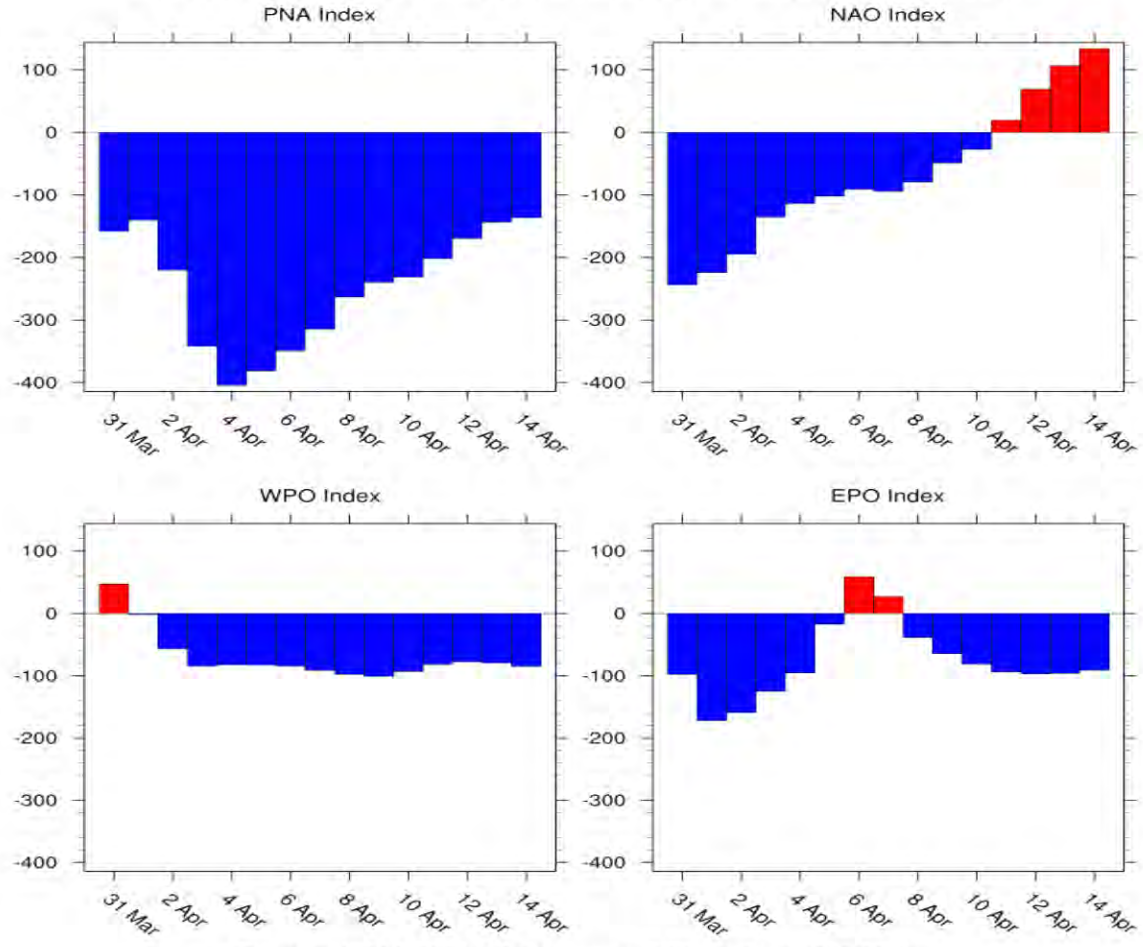


# Teleconnections -- PNA-NAO-WPO-EPO



*- PNA dominates and +NAO and -EPO early*

Forecasts of Teleconnection Indices, from 00 UTC 31 Mar



Based on NOAA/ESRL/PSD Reforecast2 Climatology, 1985-2012.







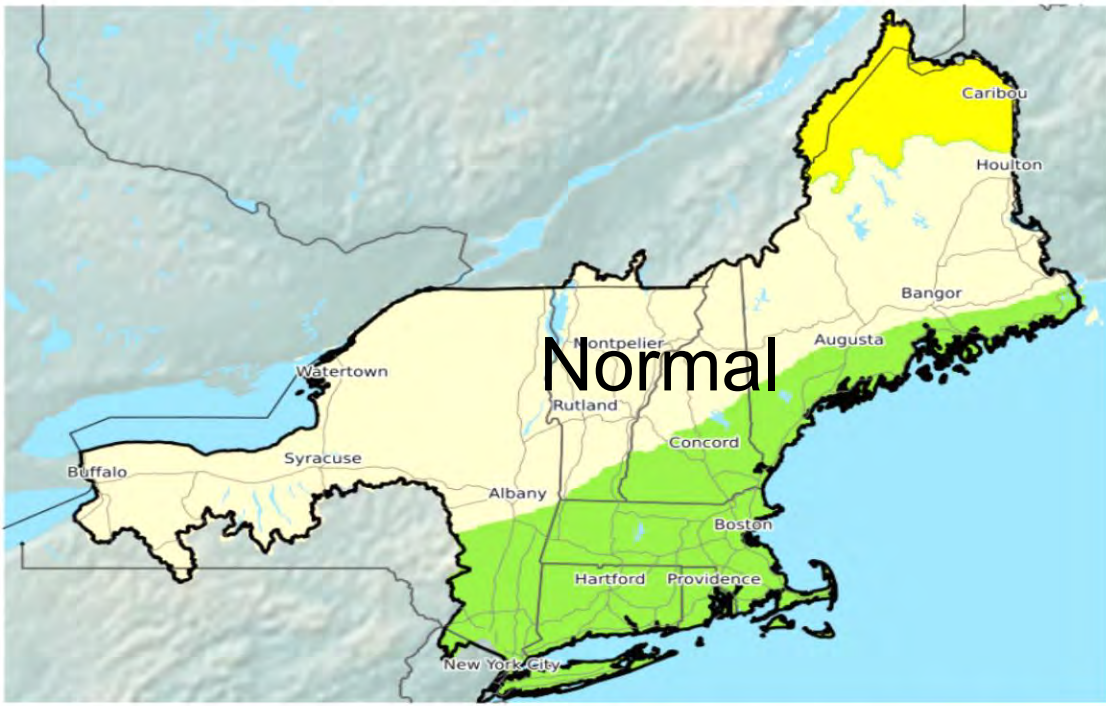
# Winter-Spring Outlook

## Flood Potential – Above Normal in Northern Maine



### Spring Flood Potential Outlook

Valid: 03/19/2020 08:00 AM - 04/02/2020 08:00 AM EDT



National Weather Service  
Northeast RFC  
03/19/2020 03:28 PM EDT

Follow Us:   
weather.gov/nerfc

#### LEGEND - River Flood Risk

- Much Above
- Below
- Normal
- Much Below

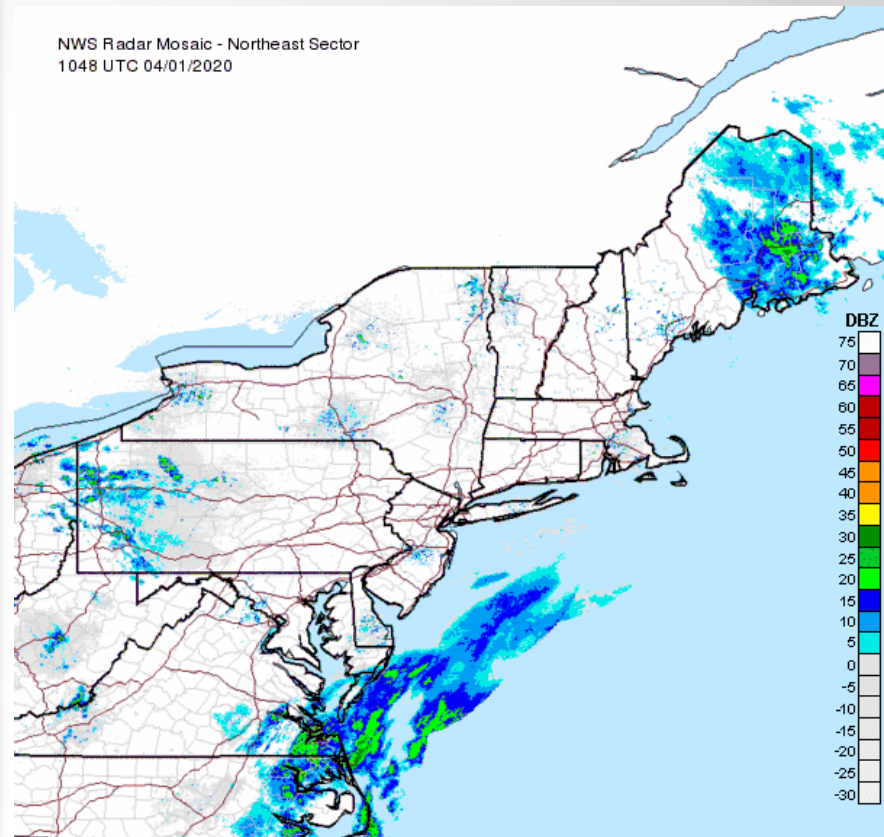
Shaded areas are NERFC forecast region  
Lines are interstate highways



Building a Weather-Ready Nation



# Northeast River Forecast Center's Next Scheduled Water Resources Outlook- 4/03//20



**Ed Capone**  
**Service Coordination Hydrologist**  
**NOAA/NWS/Northeast River Forecast Center**



**Building a Weather-Ready Nation**