



# Northeast River Forecast Center's March 30th Spring Flood Outlook

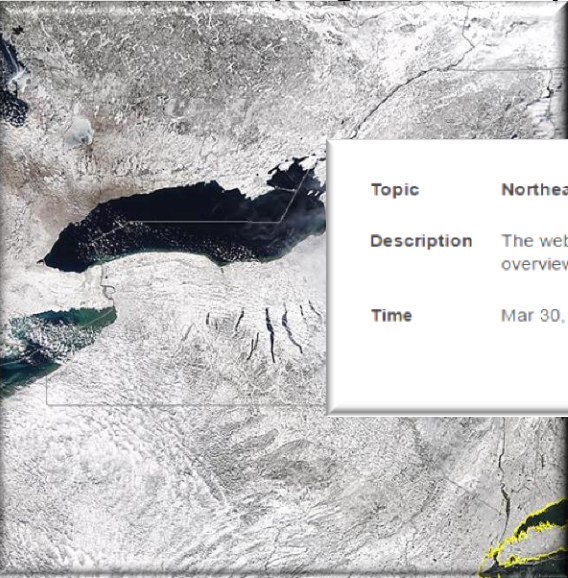
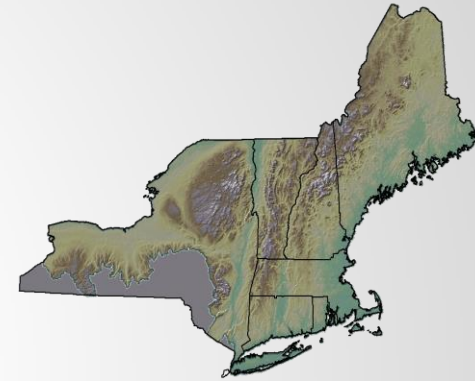


➤ Brought to you by:

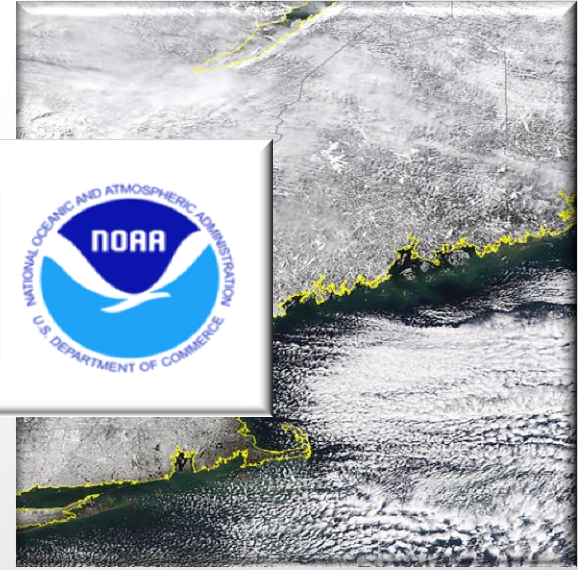
➤ *Edward Capone – Service Coordination Hydrologist*

➤ Overview to Include:

- ● National Spring Outlook Map
- ● Precipitation .... Past...current....future
- ● Current...Streamflow/Groundwater/Soil Moisture/Lake Levels/Snow Conditions
- ● Short and Medium Range Met Forecasts / River Forecasts
- ● River Ice Conditions
- ● NERFC Spring Outlook Graphic



<b>Topic</b>	Northeast Monthly Climate Update: Spring Flood Outlook
<b>Description</b>	The webinar will feature a review of March conditions and an overview of the flood potential during spring.
<b>Time</b>	Mar 30, 2017 9:30 AM in Eastern Time (US and Canada)



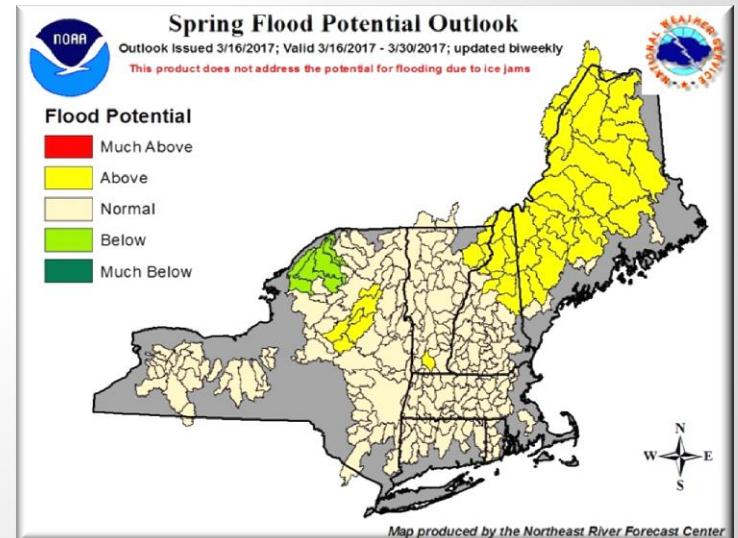
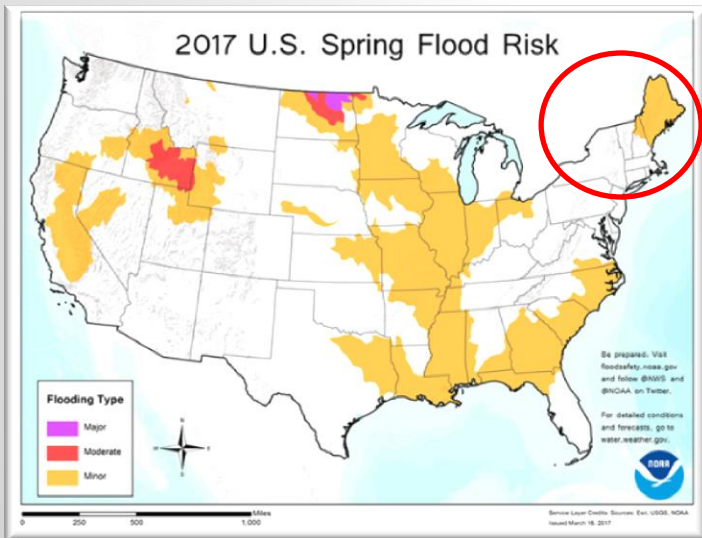
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# Main Features – Active Pattern

## *March – cold with near normal precip*

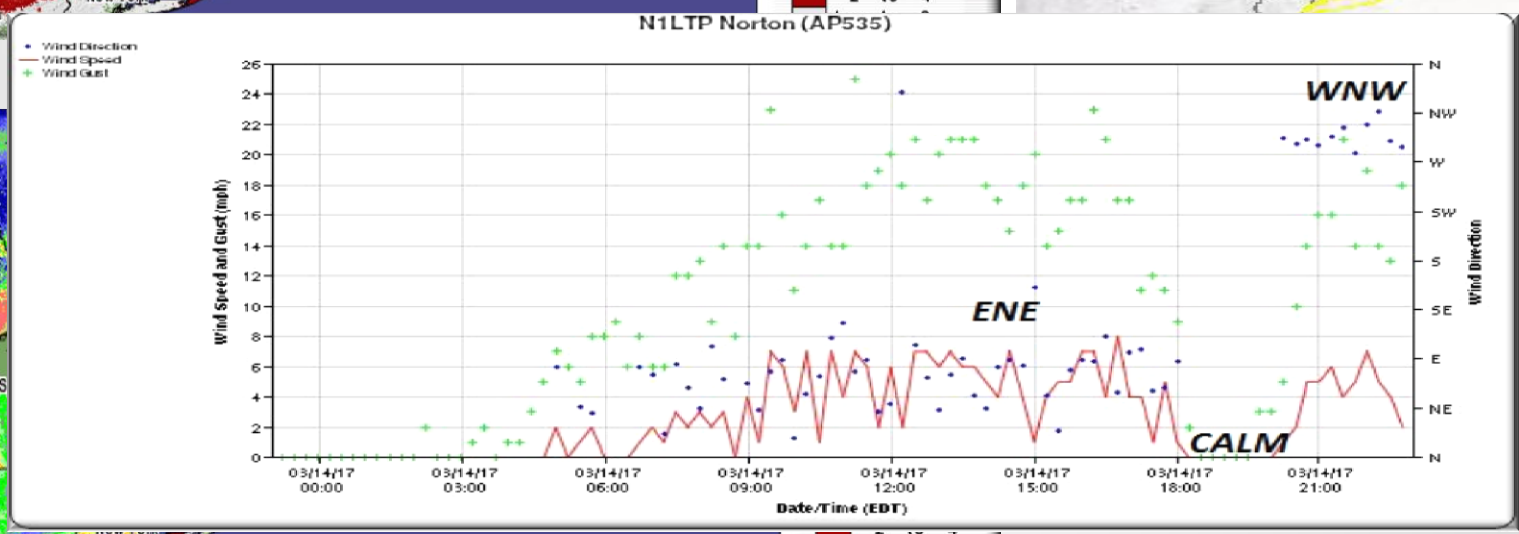
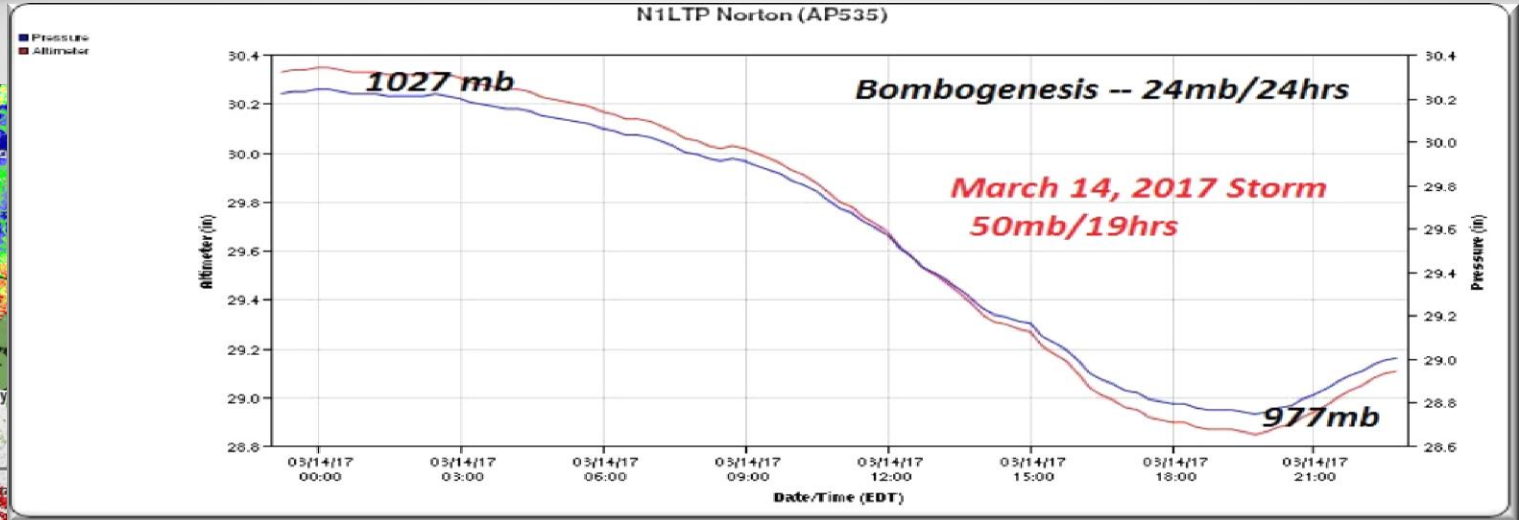
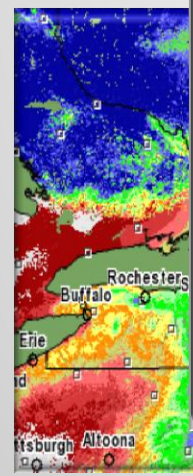
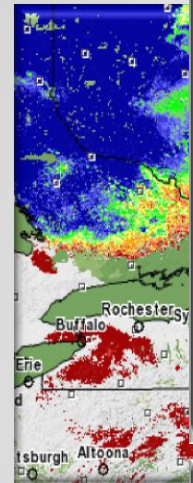
- March – Coldest winter month ... NESIS storm
- California bowling balls ... that transition off-shore
- Controlled snowmelt into next week – deep snowpack areas
- Possible significant “cold” systems ... every few days
- Transition to above normal temps -- above normal precipitation
- During the Spring Transition... watch “cut-off” season
- Later in the period...possibly a Gulf system ...no lack of precip





# High Impact Event

## East Coast "bombogenesis"



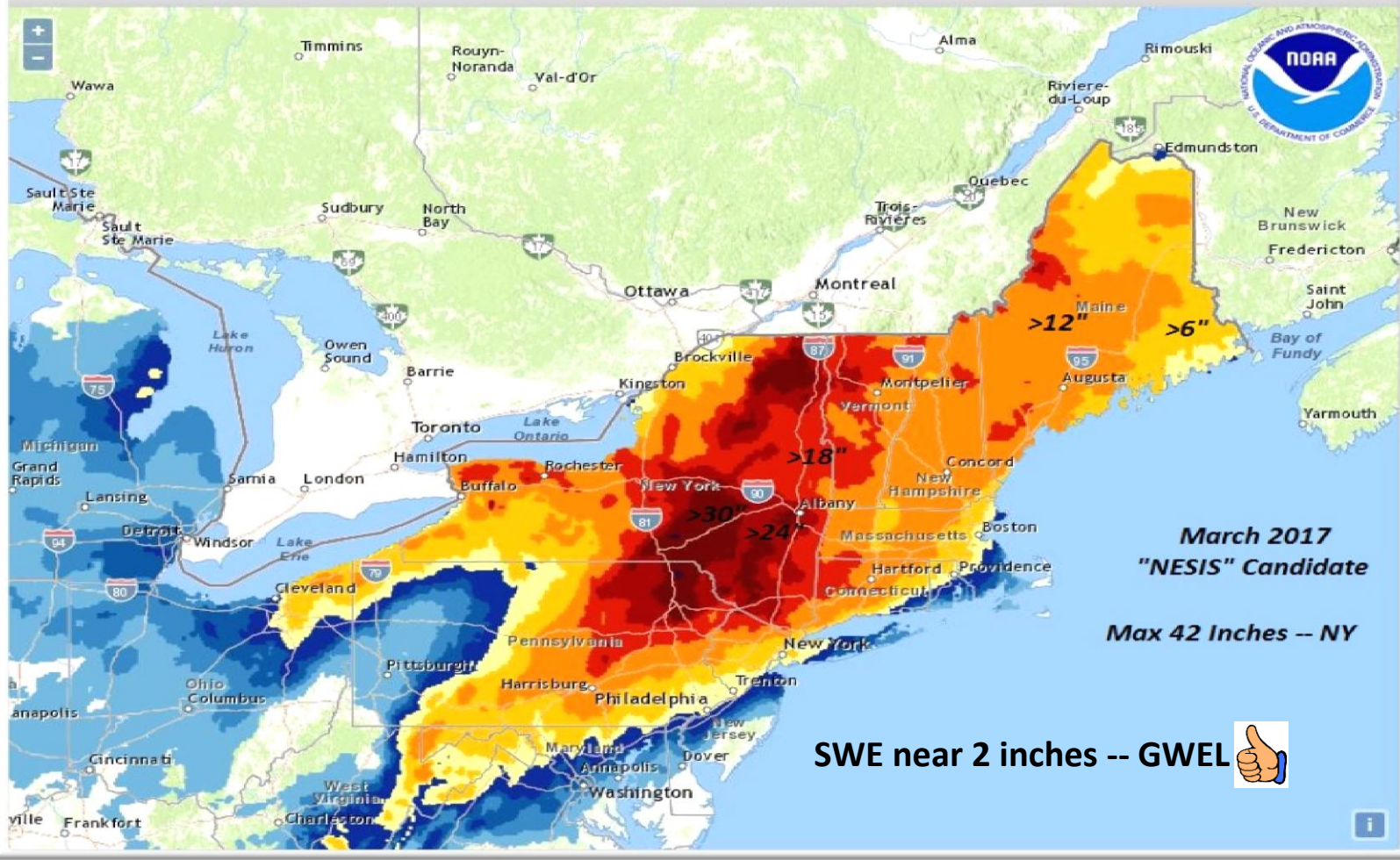




# March 14th Snowstorm

## NESIS Candidate

SNOWFALL ANALYSIS FROM THE LAST 48 HOURS ENDING: WEDNESDAY MARCH 15TH, 2017



**March 2017**  
**"NESIS" Candidate**  
**Max 42 Inches -- NY**

**SWE near 2 inches -- GWEL** 







# NESIS

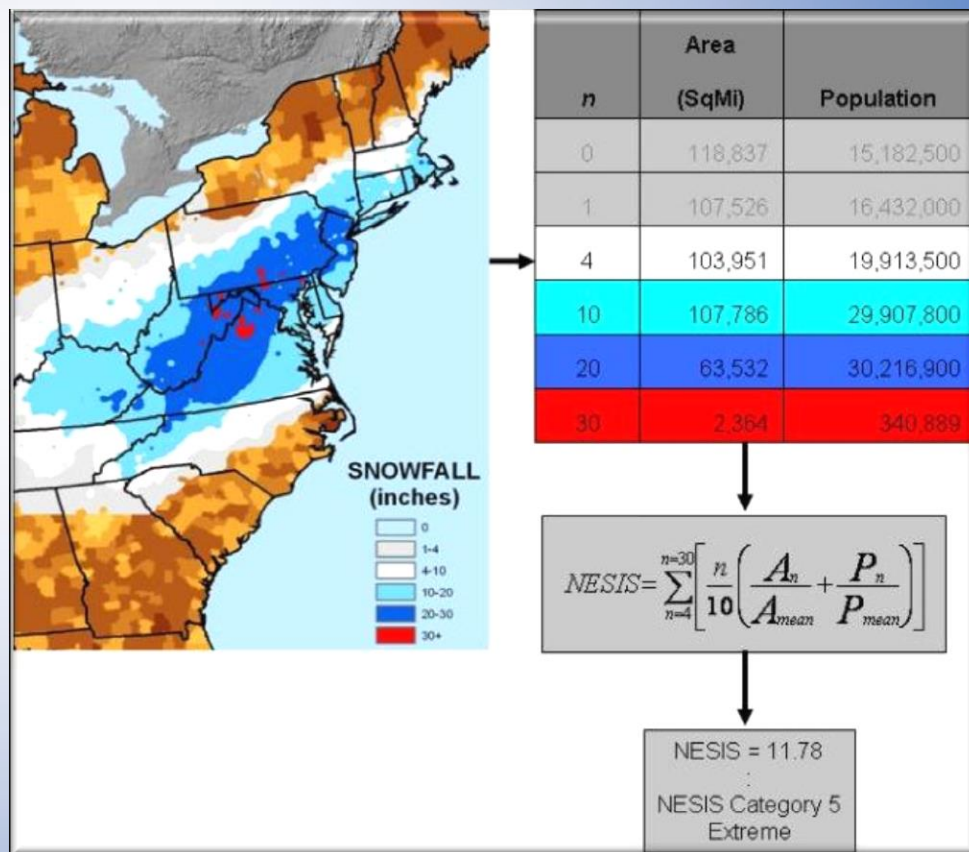


## Northeast Snowfall Impact Scale

- Depth—Area---Population Impacted NOAA...Kocin/Uccellini

Category	NESIS Value	Description
1	1 — 2.499	Notable
2	2.5 — 3.99	Significant
3	4 — 5.99	Major
4	6 — 9.99	Crippling
5	10.0+	Extreme

RANK	START	END	NESIS	CATEGORY	DESCRIPTION	MAP
1	1993-03-12	1993-03-14	13.20	5	Extreme	<a href="#">view</a>
2	1996-01-06	1996-01-08	11.78	5	Extreme	<a href="#">view</a>
3	1960-03-02	1960-03-05	8.77	4	Crippling	<a href="#">view</a>
4	2016-01-22	2016-01-24	7.66	4	Crippling	<a href="#">view</a>
5	2003-02-15	2003-02-18	7.50	4	Crippling	<a href="#">view</a>
6	1961-02-02	1961-02-05	7.06	4	Crippling	<a href="#">view</a>
7	1964-01-11	1964-01-14	6.91	4	Crippling	<a href="#">view</a>
8	2005-01-21	2005-01-24	6.80	4	Crippling	<a href="#">view</a>
9	1978-01-19	1978-01-21	6.53	4	Crippling	<a href="#">view</a>
10	1969-12-25	1969-12-28	6.29	4	Crippling	<a href="#">view</a>
11	1983-02-10	1983-02-12	6.25	4	Crippling	<a href="#">view</a>
12	1958-02-14	1958-02-17	6.25	4	Crippling	<a href="#">view</a>
13	1966-01-29	1966-01-31	5.93	3	Major	<a href="#">view</a>
14	1978-02-05	1978-02-07	5.78	3	Major	<a href="#">view</a>



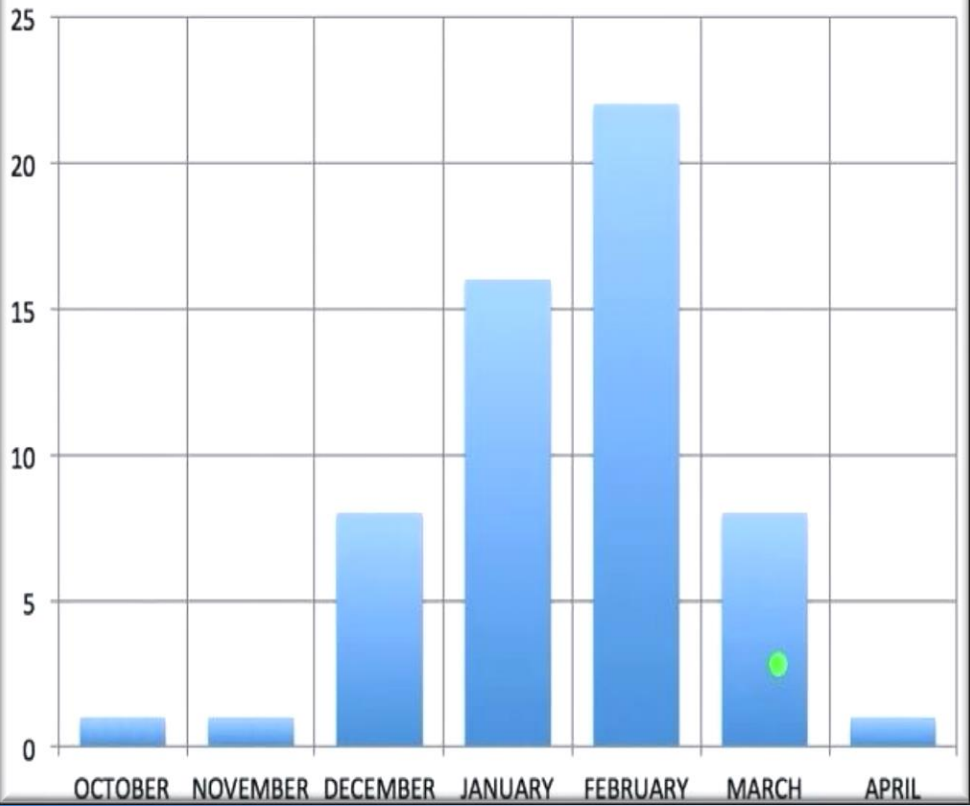


# NESIS Storms – Decadal since 1950's

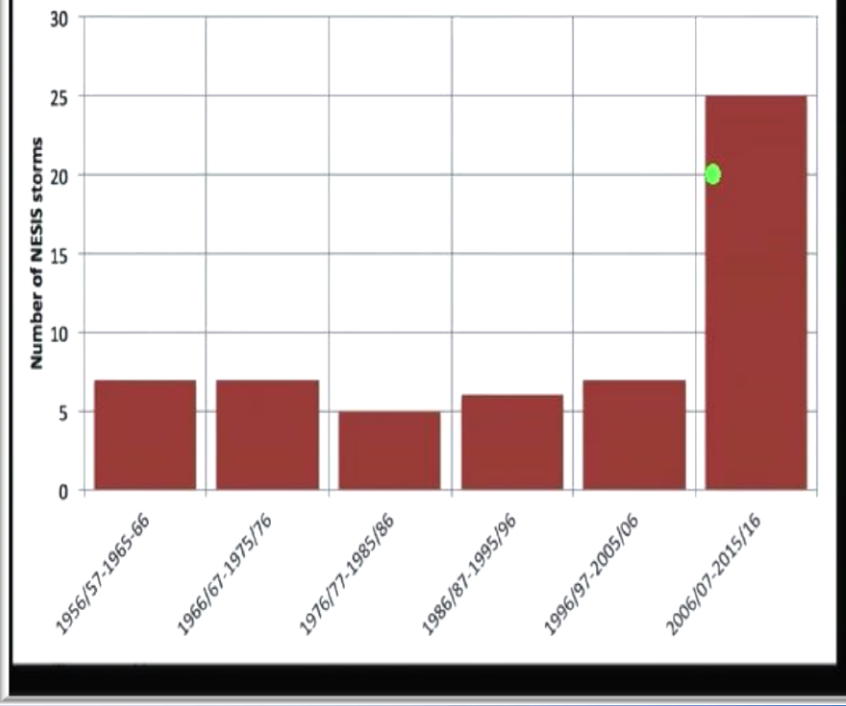
*Kocin/DeLeo*



### NESIS Storms By Month



### Decadal count of Major Impact Northeast Winter Storms (NESIS)



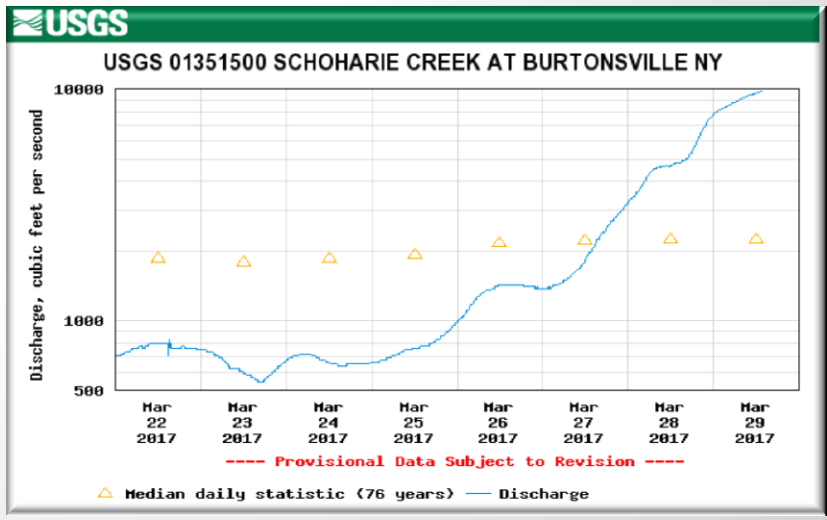
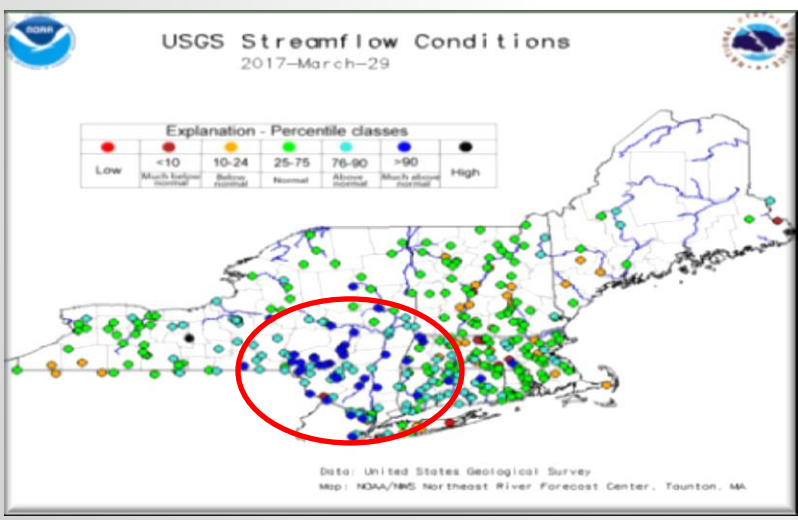
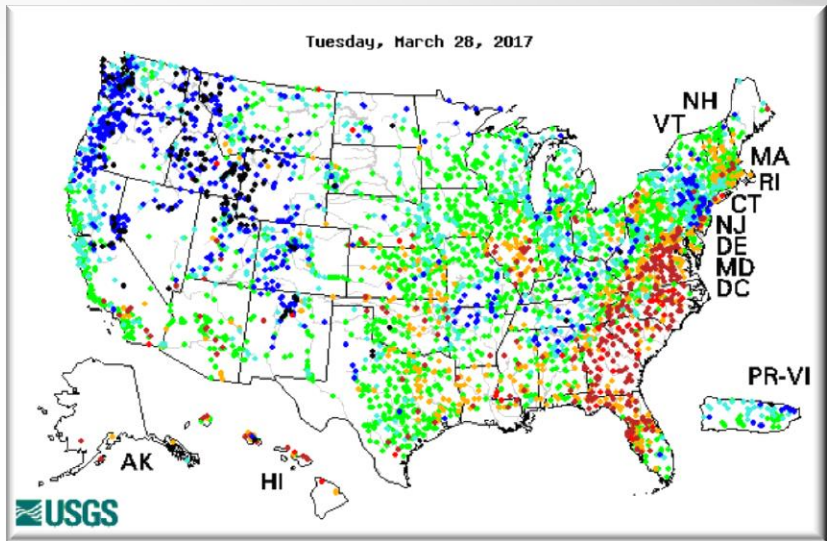
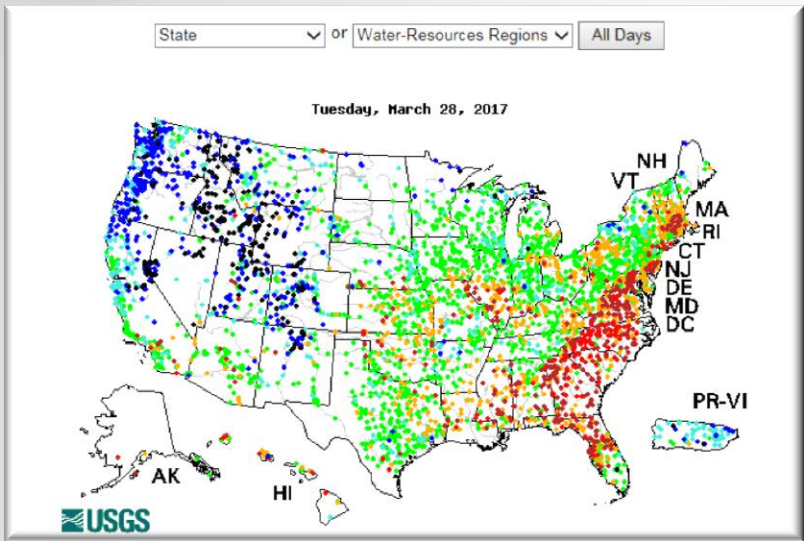
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# USGS Streamflow Conditions

## 7-day average -- Current



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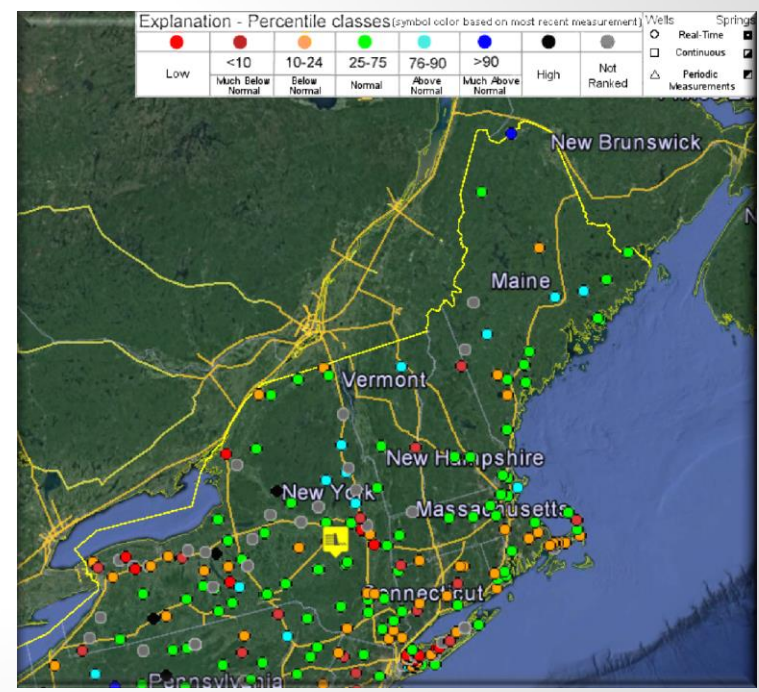
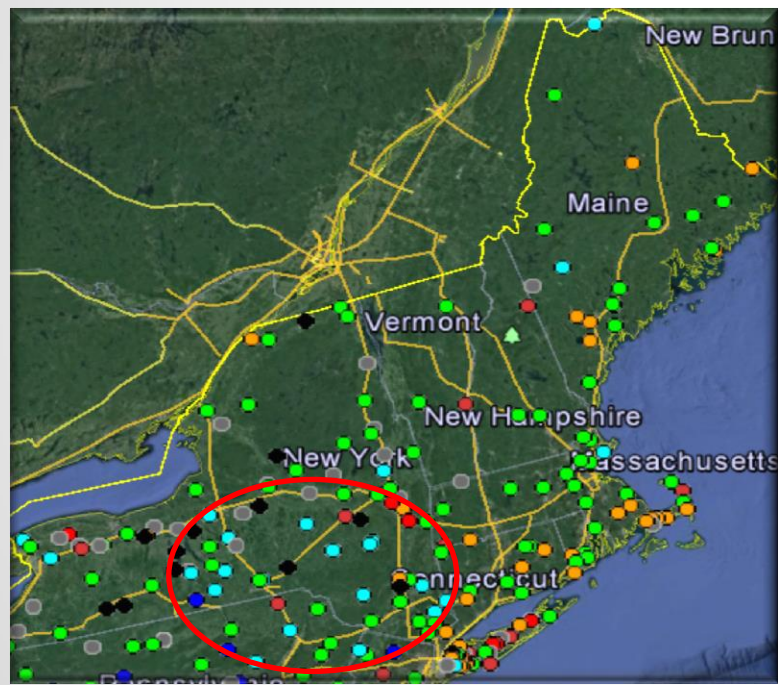
# USGS Groundwater Conditions

## *Recovering from drought??*



*Now*

*2 weeks ago*



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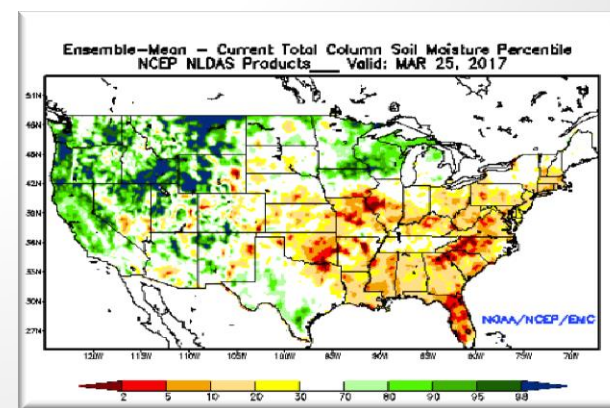
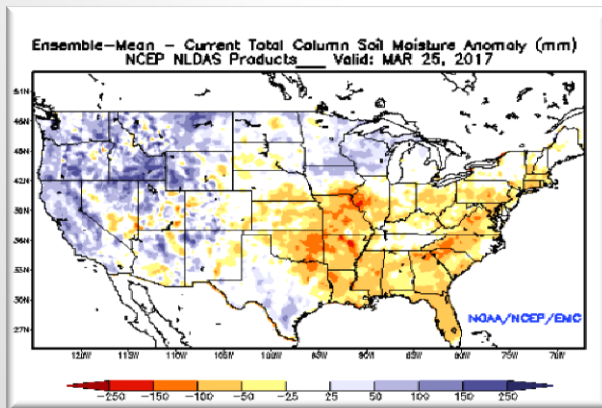
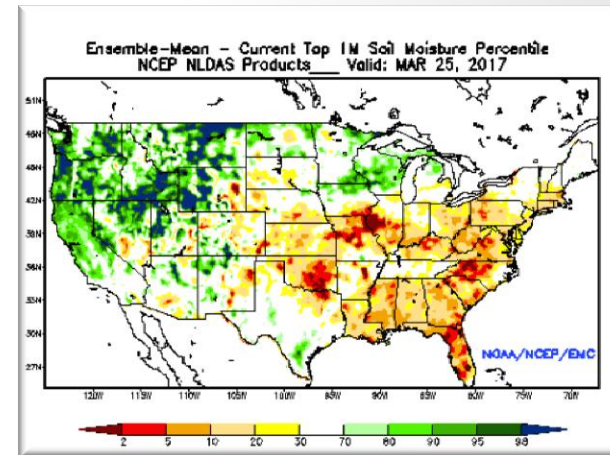
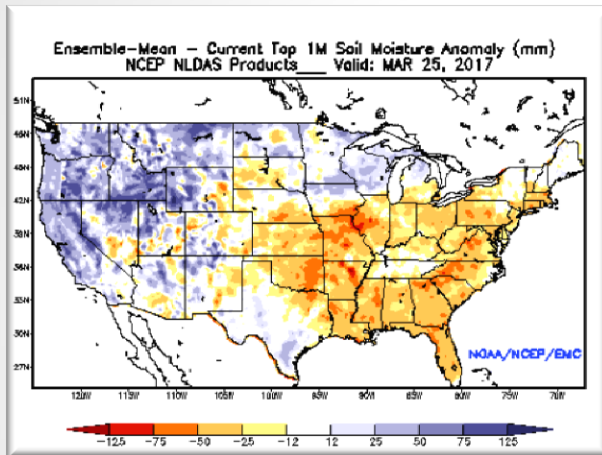


# Soil Moisture Current Conditions

## *Departures and Percentiles*



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.





# Snowpack Conditions -- SWE

## NOHRSC

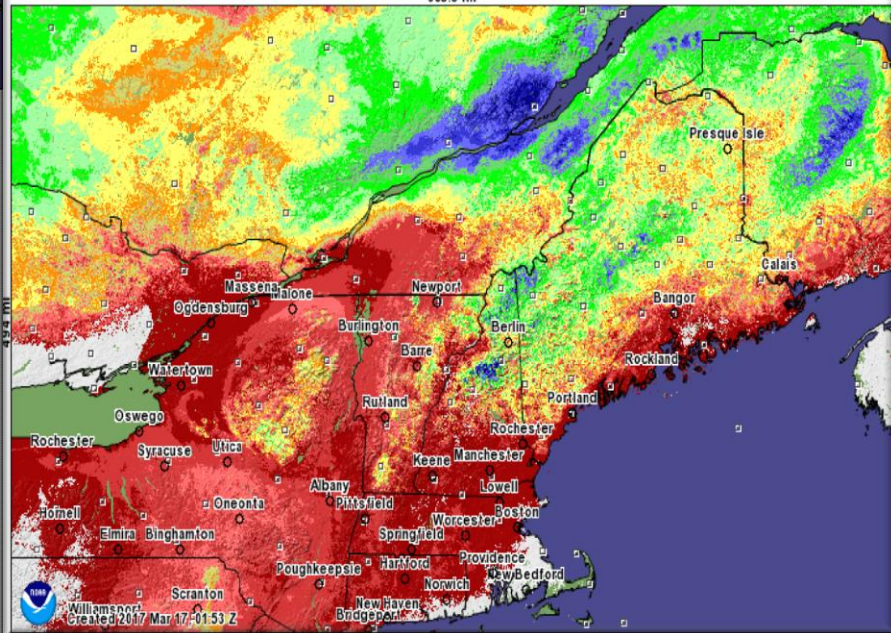
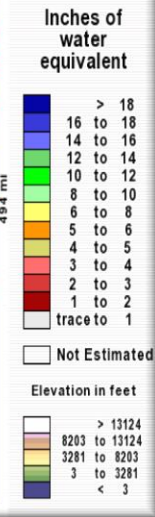
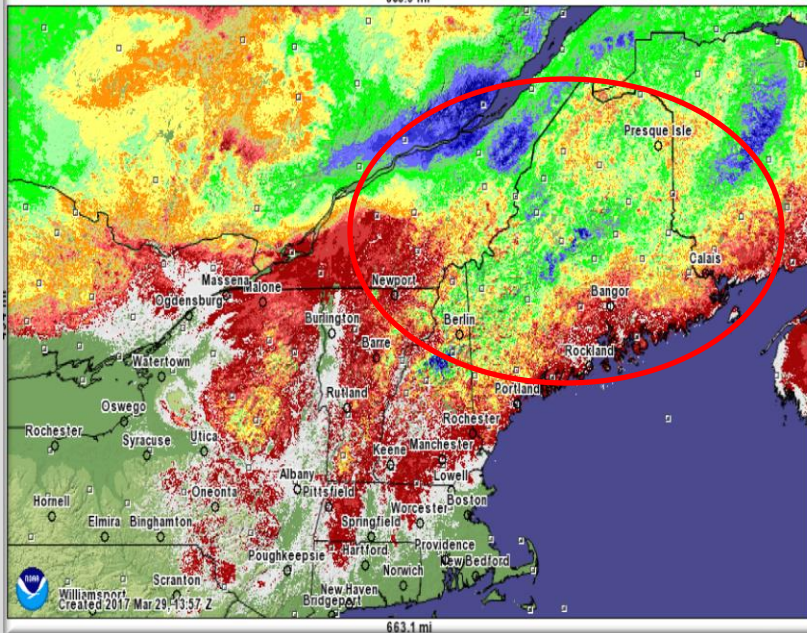


*NOW*

*2 weeks ago*

Modeled Snow Water Equivalent (Shallow-snow Legend) forecasted for 2017 March 29, 17:00 UTC

Modeled Snow Water Equivalent (Shallow-snow Legend) for 2017 March 16, 17:00 UTC

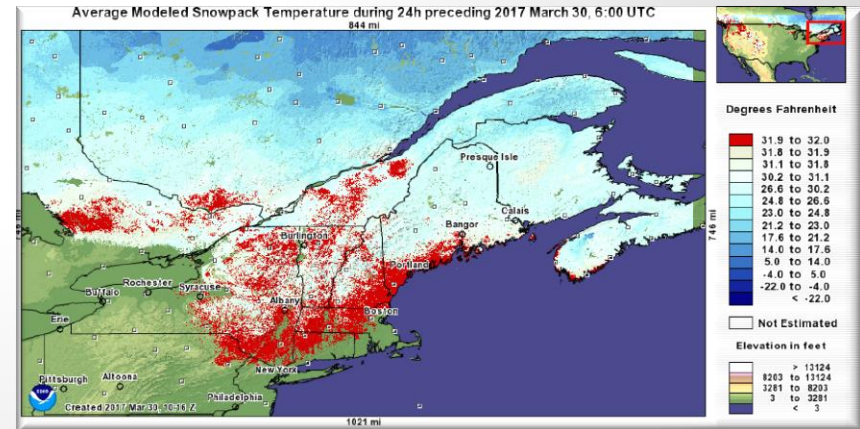
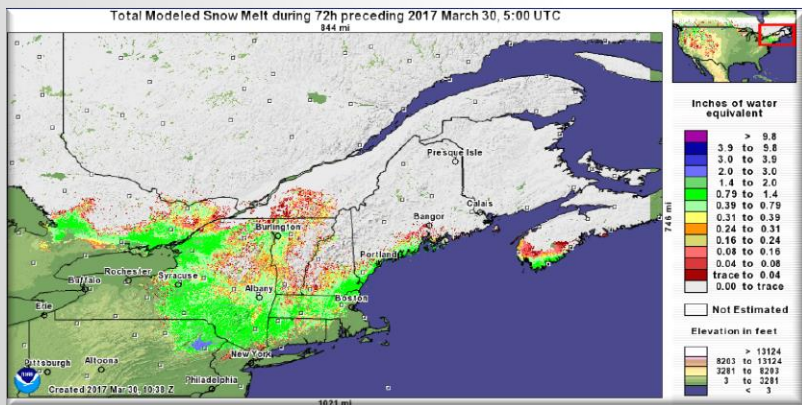
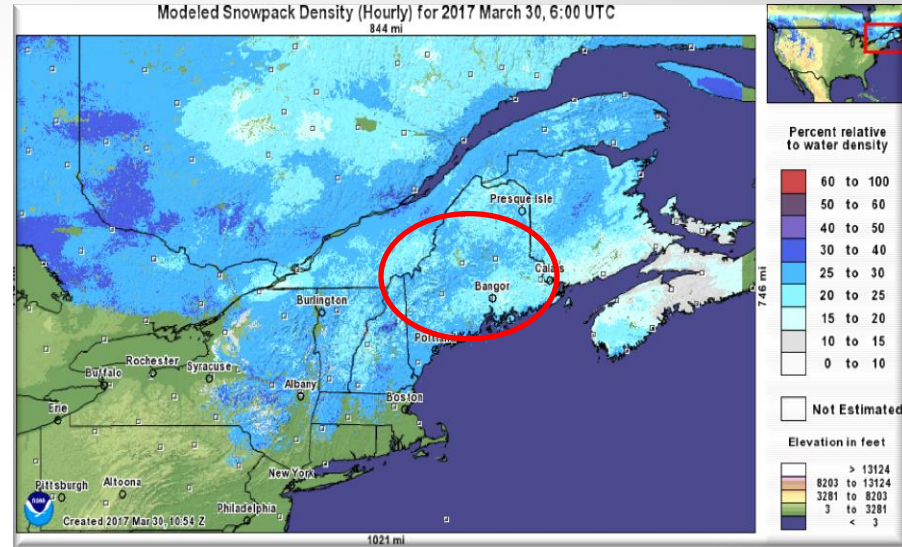
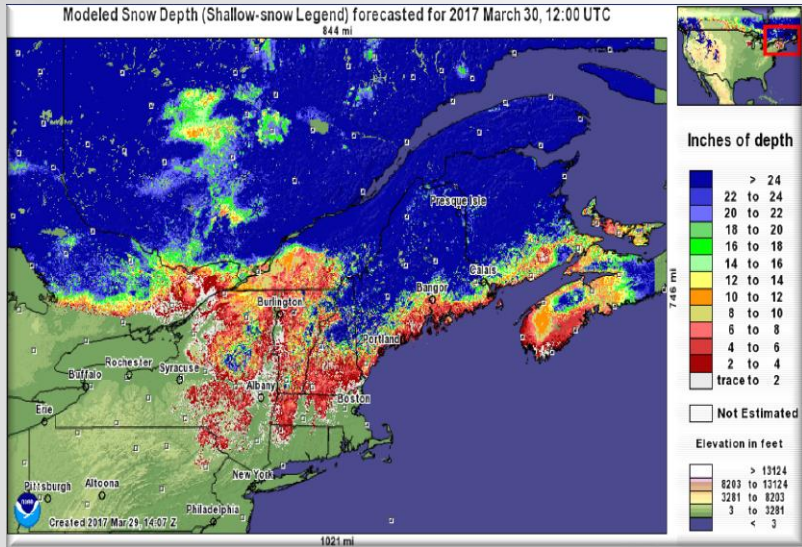


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# Snowpack Conditions





# Water Supply/Lake Levels

## Near to Above Normal



### New York City's Water Supply System

March 28, 2017

Total Storage	(% of Capacity)
Current:	90.3
Normal:	92.8

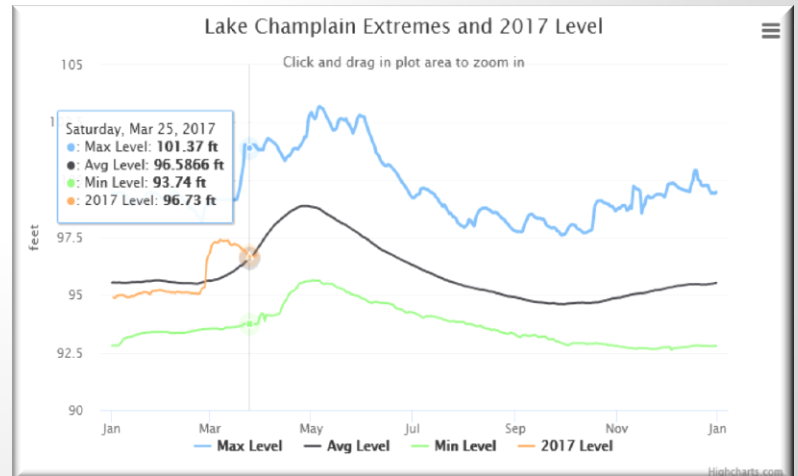
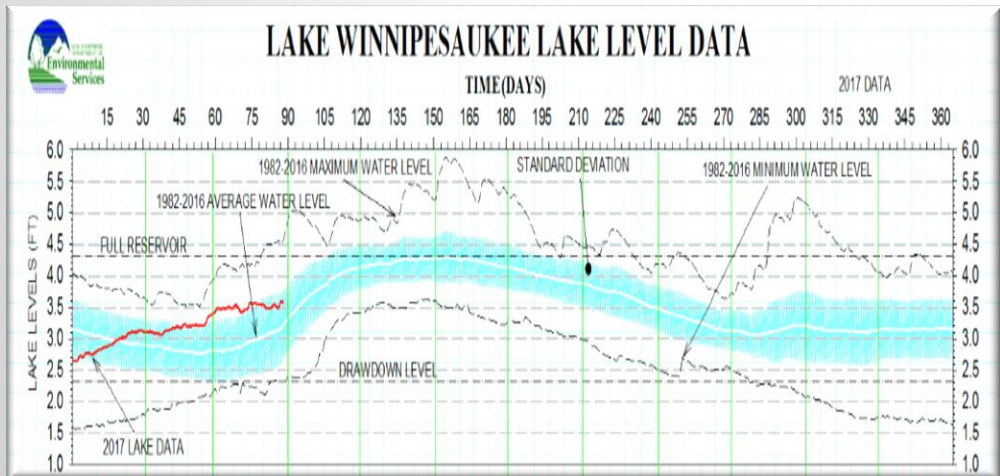
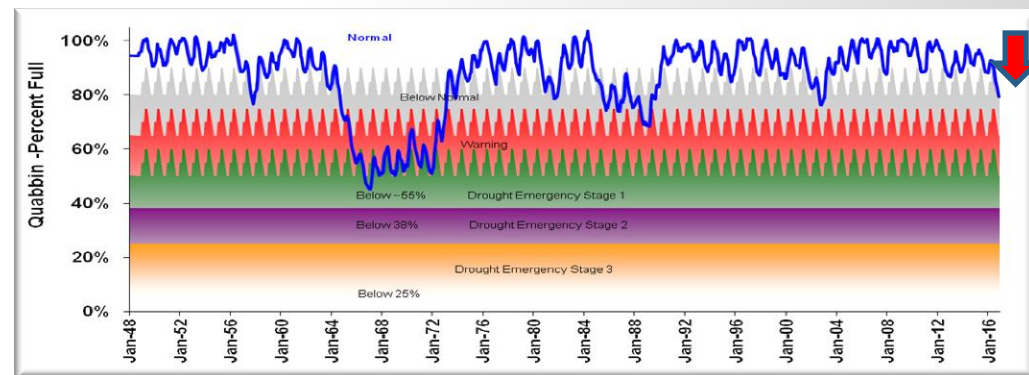
Consumption	(billion gallons)
3/27/17	0.95

Average Precipitation	(inches)	Actual	Historical
January:	3.34	3.20	
February:	2.58	2.46	
March:	2.94	2.98	

Kennebec -- >Normal  
 Androscoggin -- >Normal

Scituate Reservoir Elevation (feet)	285.06	(104.3 % of Capacity)
Plant Influent (mgd)	54.826534	(84.83 CFS)
Cumulative Reservoir Evap. (gal)	4,517,246	
Downstream Discharge (mgd)	107.19	(165.84 CFS)

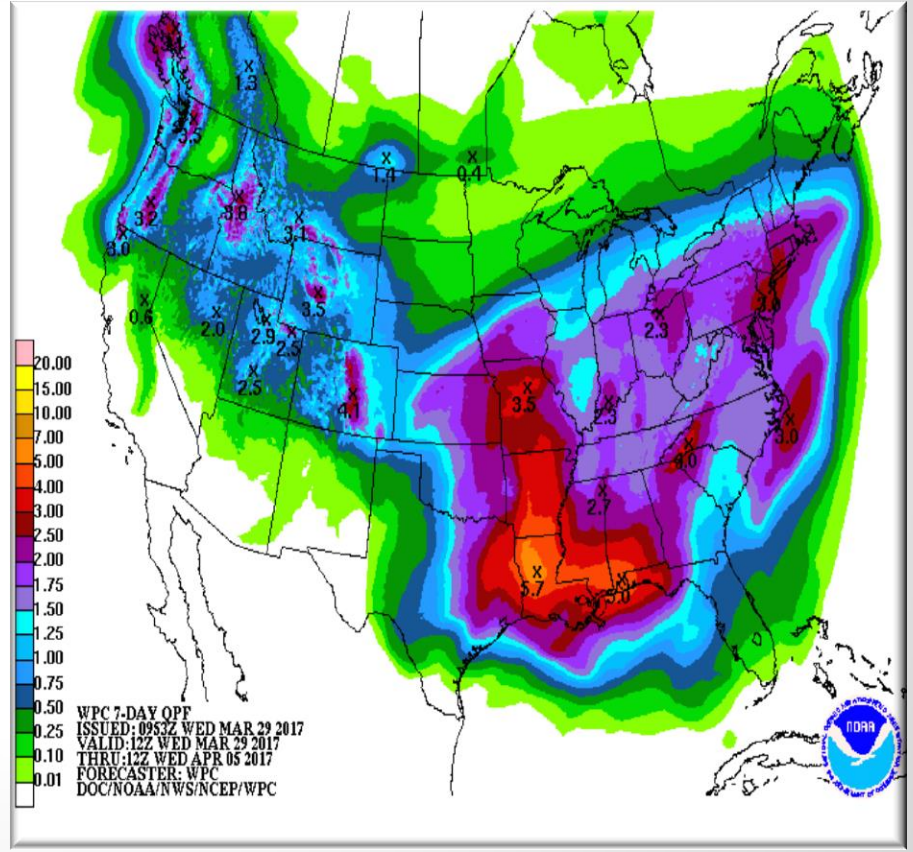
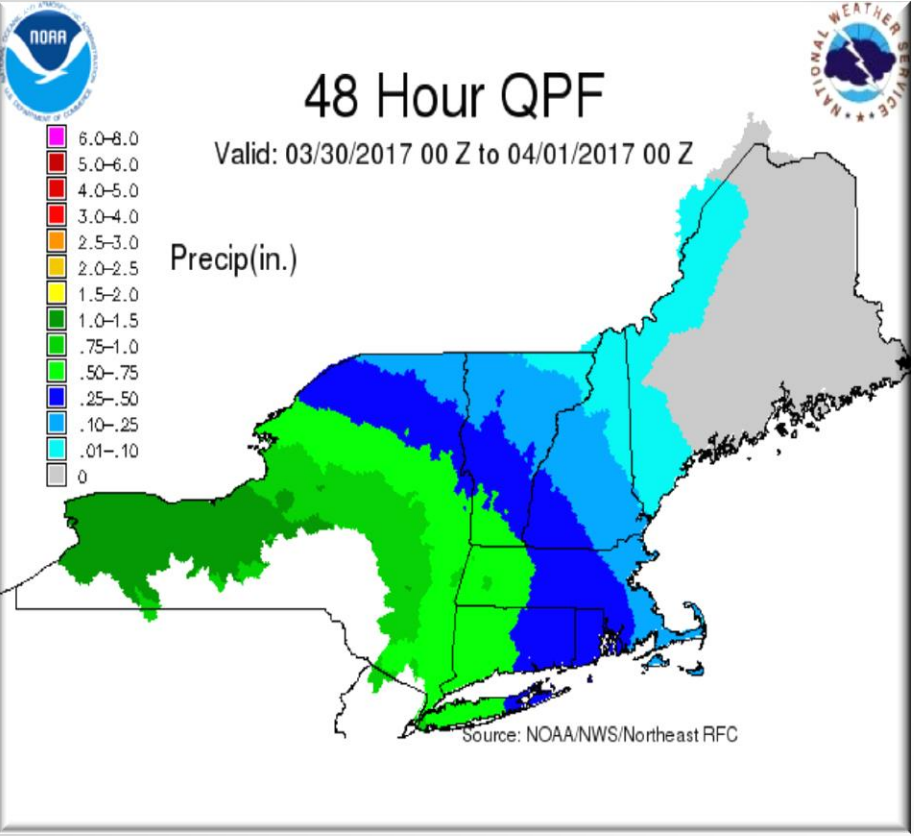






# Precipitation Forecast

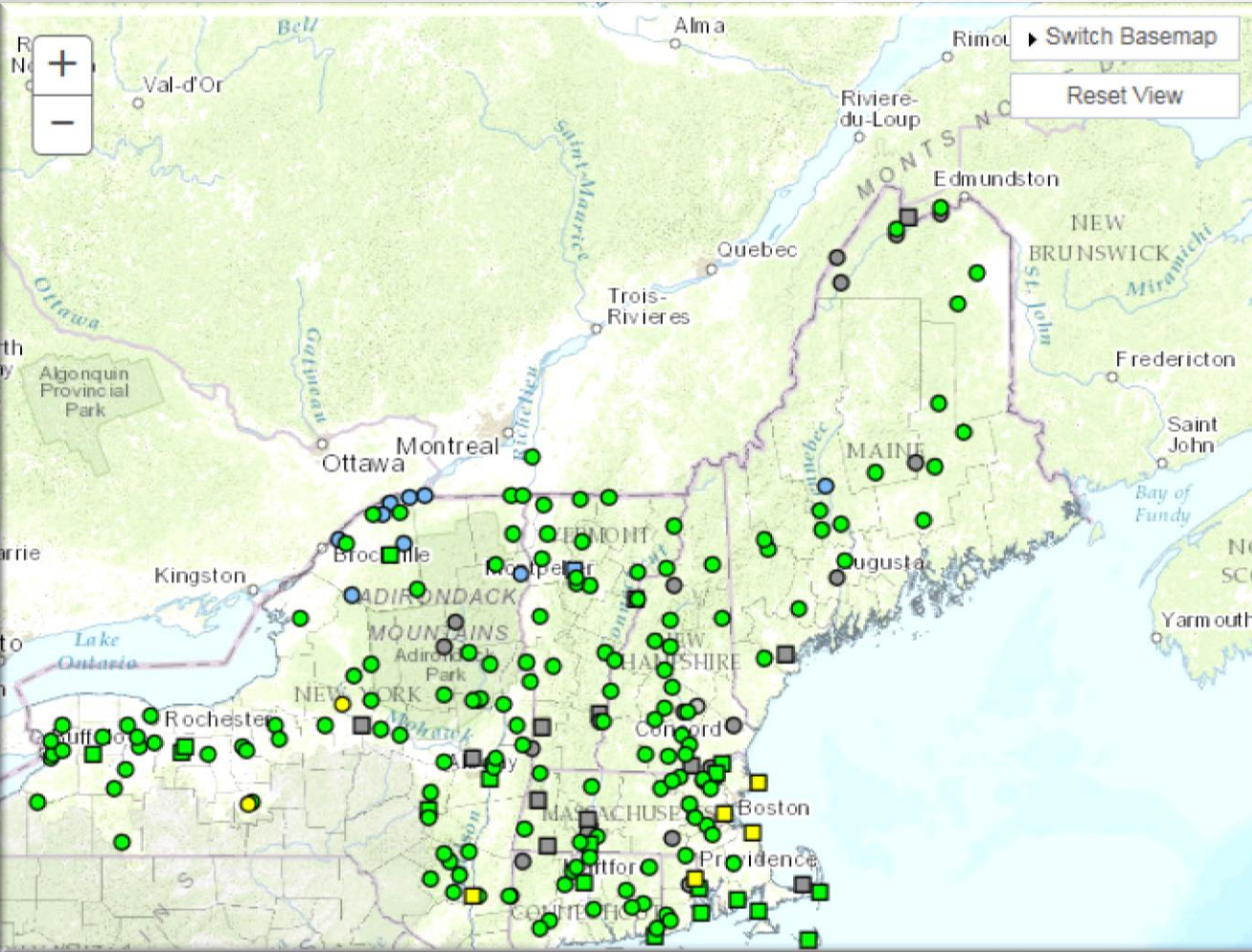
## 2-Day and 7-Day





# NERFC 72-Hr River Forecast

## No Flooding



Click on the map or select one of the data views below:

- United States
- NWS Weather Forecast Offices
- Northeast River Forecast Center
- Water Resources Regions

- Probability and forecasts available
- Forecasts available

**219 total gauges**  
[Show all locations in flood \(0\)](#)

- 0 Gauges: Major Flooding
- 0 Gauges: Moderate Flooding
- 0 Gauges: Minor Flooding
- 7 Gauges: Near Flood Stage
- 163 Gauges: No Flooding
- 13 Flood Category Not Defined
- 0 At or Below Low Water Threshold
- 1 Gauges: Forecasts Are Not Current
- 35 Gauges: No forecast within selected timeframe
- 0 Gauges: Out of Service

[Show all locations](#)

Last map update:  
03/29/2017 at 03:51:30 pm EDT  
03/29/2017 at 19:51:30 UTC

[What is UTC time?](#)  
[Map Help](#)



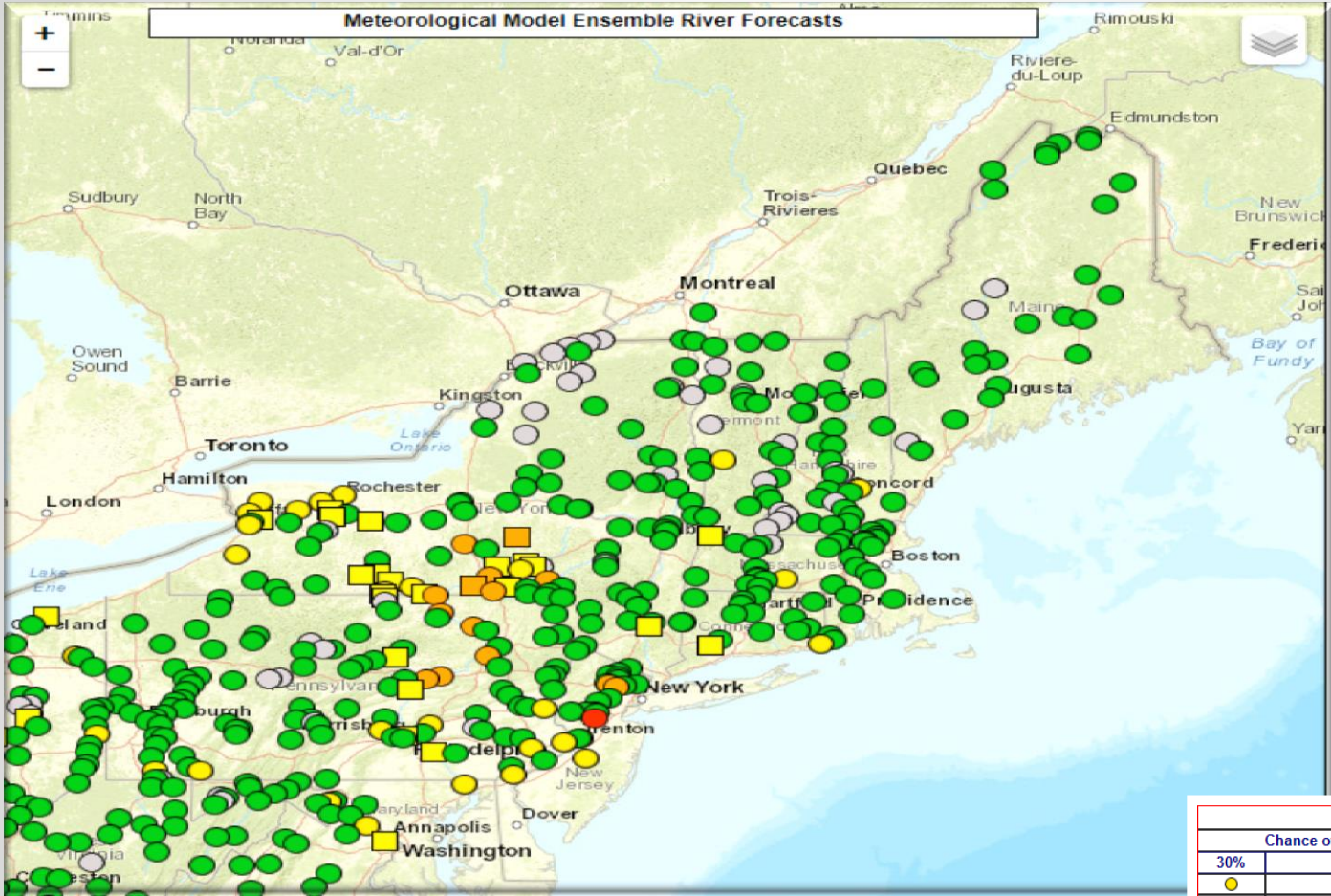
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# Short-range Ensemble River Forecasts

<http://www.weather.gov/erh/MMEFS>



Map Legend			
Chance of Exceedance			River Forecast Centers
30%	Level	70%	
●	Action	■	Middle Atlantic River Forecast Center
●	Minor Flood	■	Northeast River Forecast Center
●	Moderate Flood	■	Ohio River Forecast Center
●	Major Flood	■	Southeast River Forecast Center
●	= less than 30% chance of reaching Action level		
○	= no critical levels defined for this point		

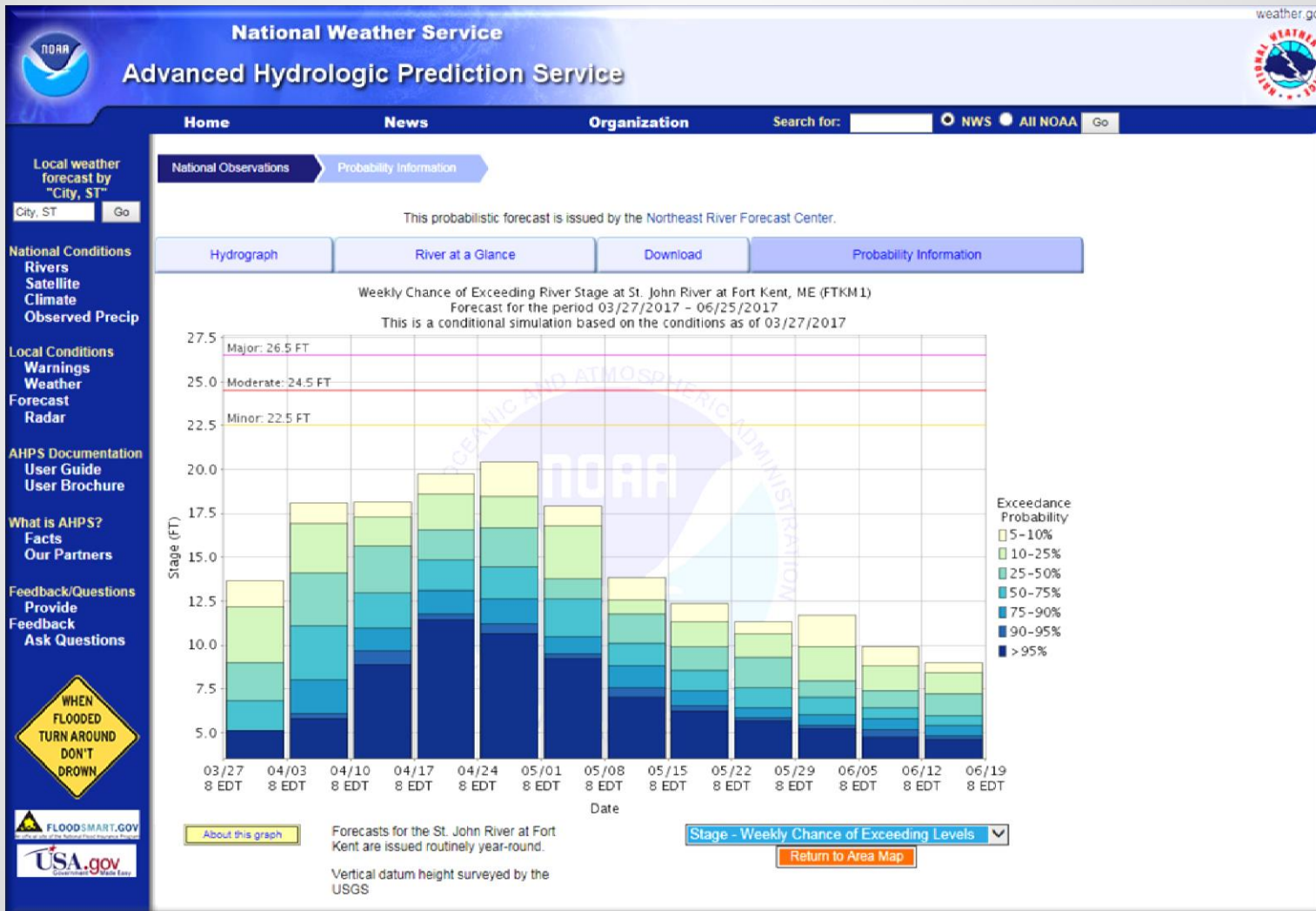


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# AHPS – Advanced Hydrologic Prediction Service

## Fort Kent – Exceedance Probability





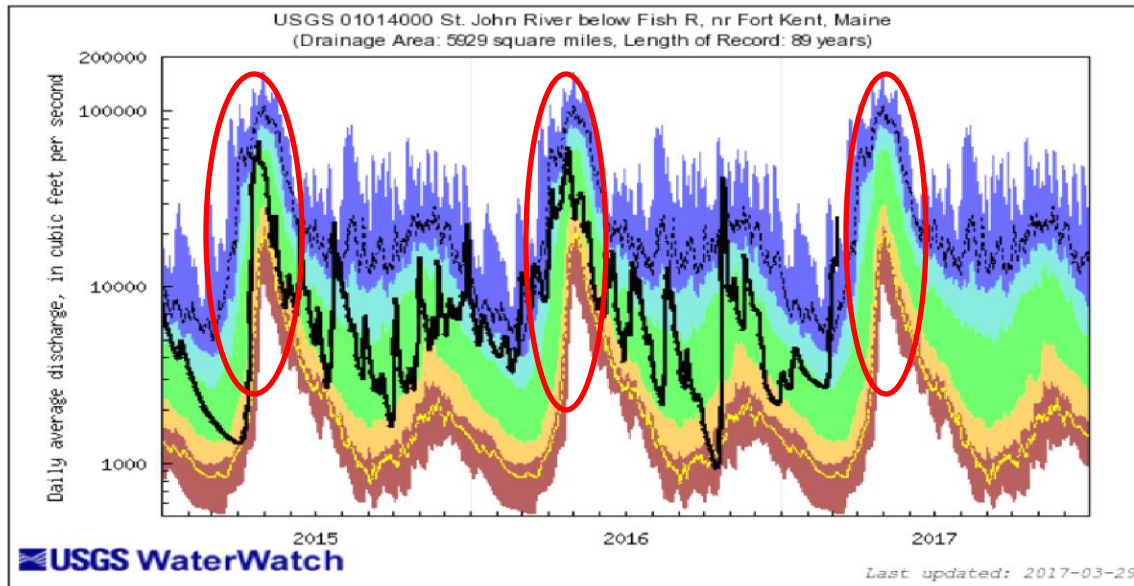


# Fort Kent Maine – Saint John River 89 Year Flow Duration Graphic

## USGS Streamflow Duration Hydrograph Builder

Site Number: 01014000    Year: 2017    No. of years: 3    Flow: Daily    cfs    GO  
 5th and 95th percentiles: Line    Overlay:     Year Type: Calendar Year    Output: Hydrograph

For some streams, flow statistics may have been computed from mixed regulated and unregulated flows; this can affect depictions of flow conditions.



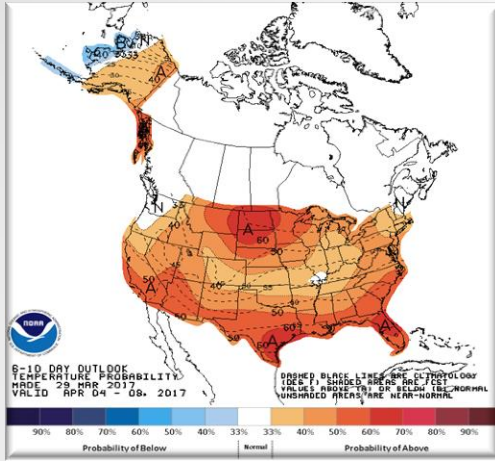
Explanation - Percentile classes							
lowest-10th percentile	5	10-24	25-75	76-90	95	90th percentile - highest	Flow
Much below Normal		Below normal	Normal	Above normal	Much above normal		



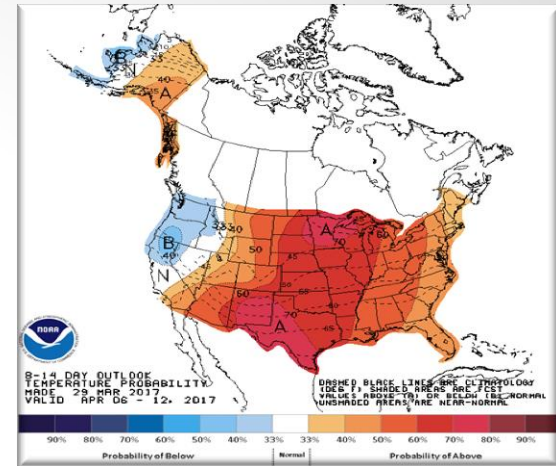


# CPC Outlooks

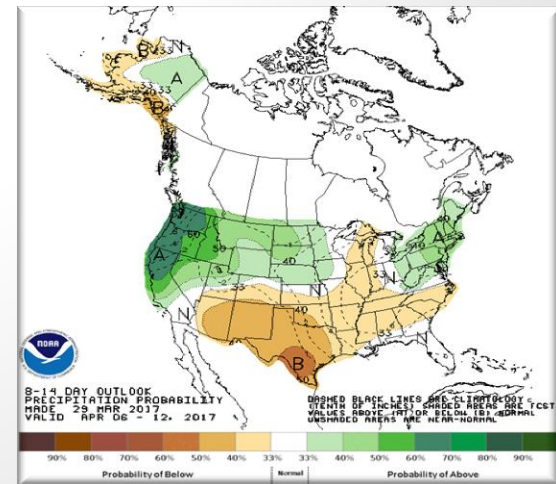
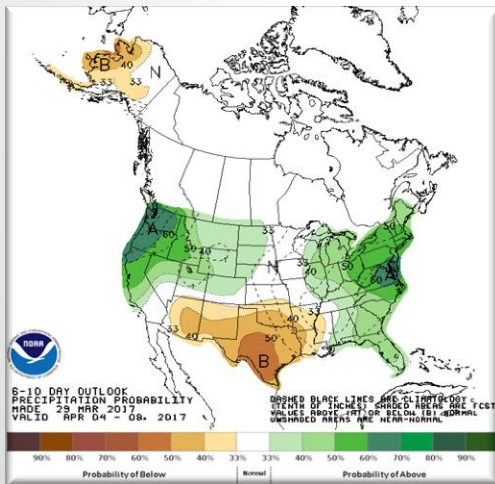
## 6 to 10 and 8 to 14 day outlooks



6 to 10 day outlooks



8 to 14 day outlooks

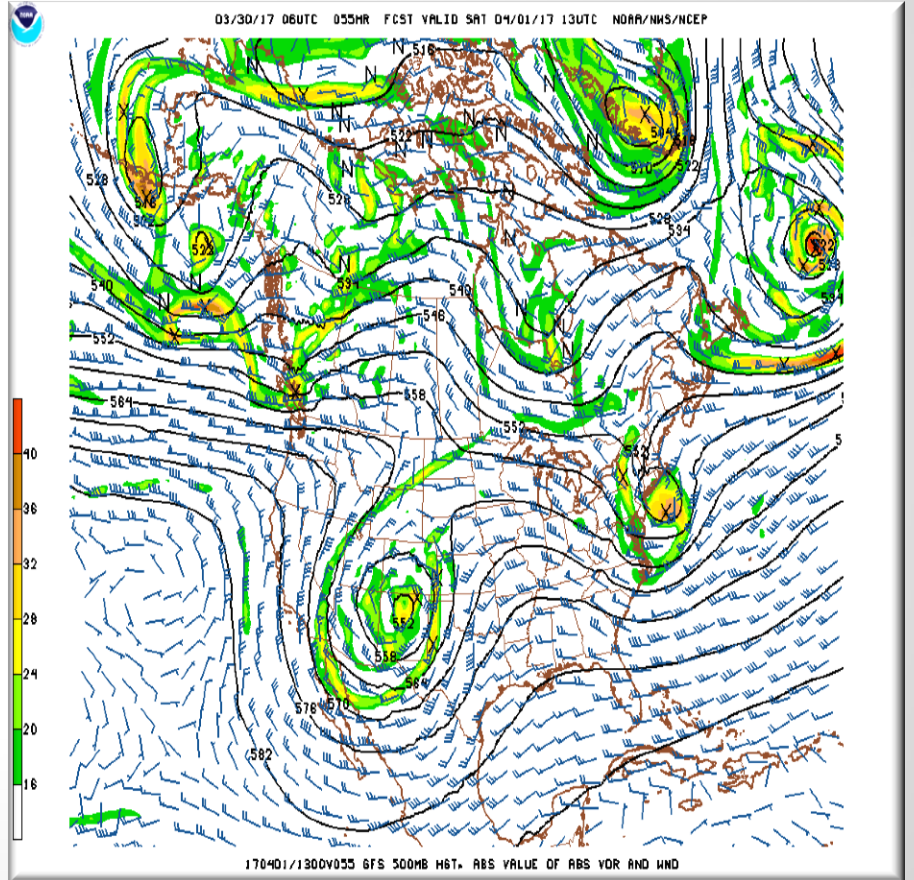
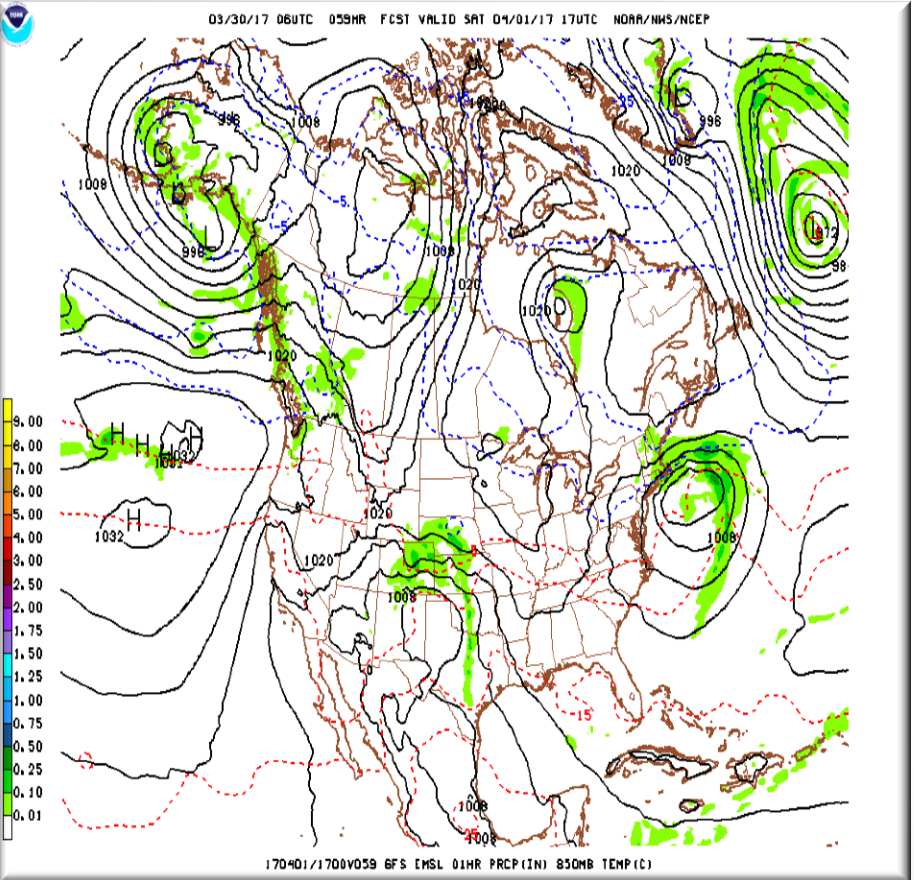






# Developing System 4/1

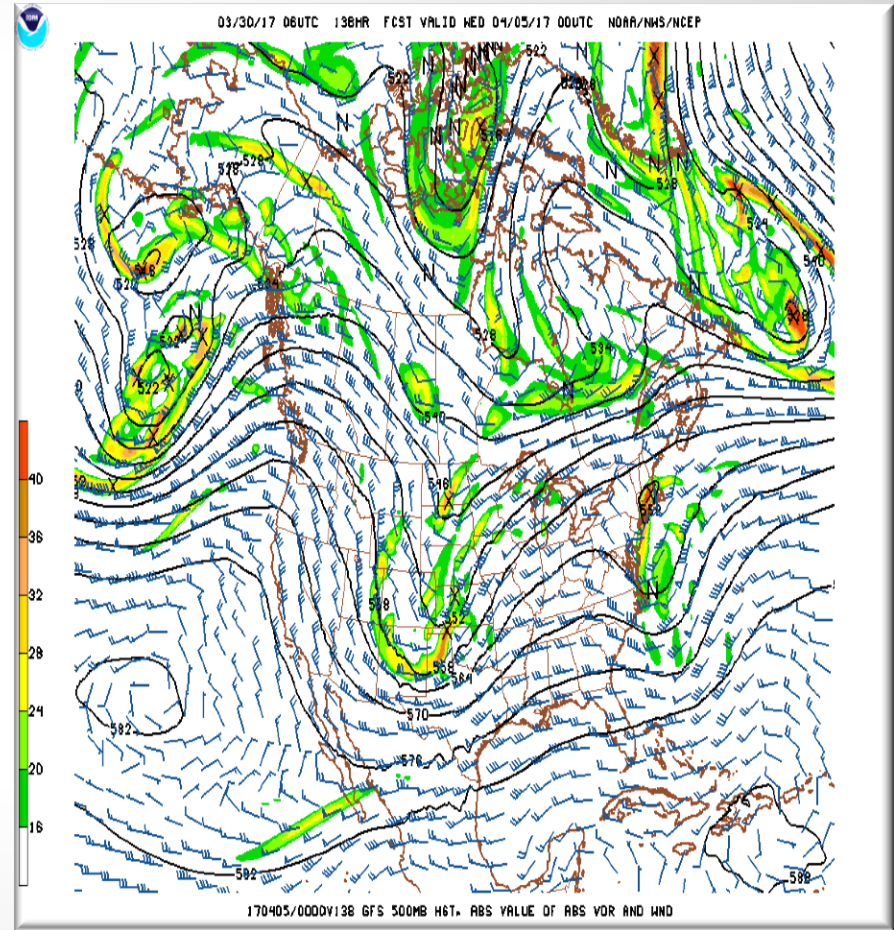
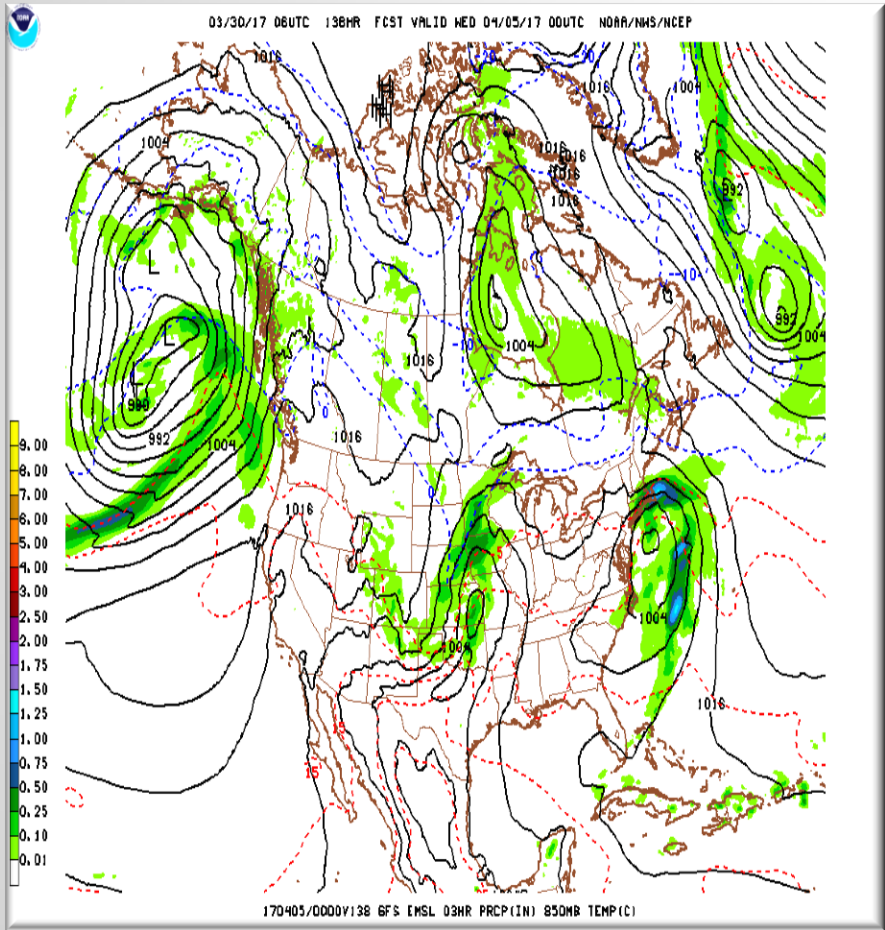
*Possible accumulating snow interior*





# Surface/500 mb – 4/5

## Another "Cold" storm

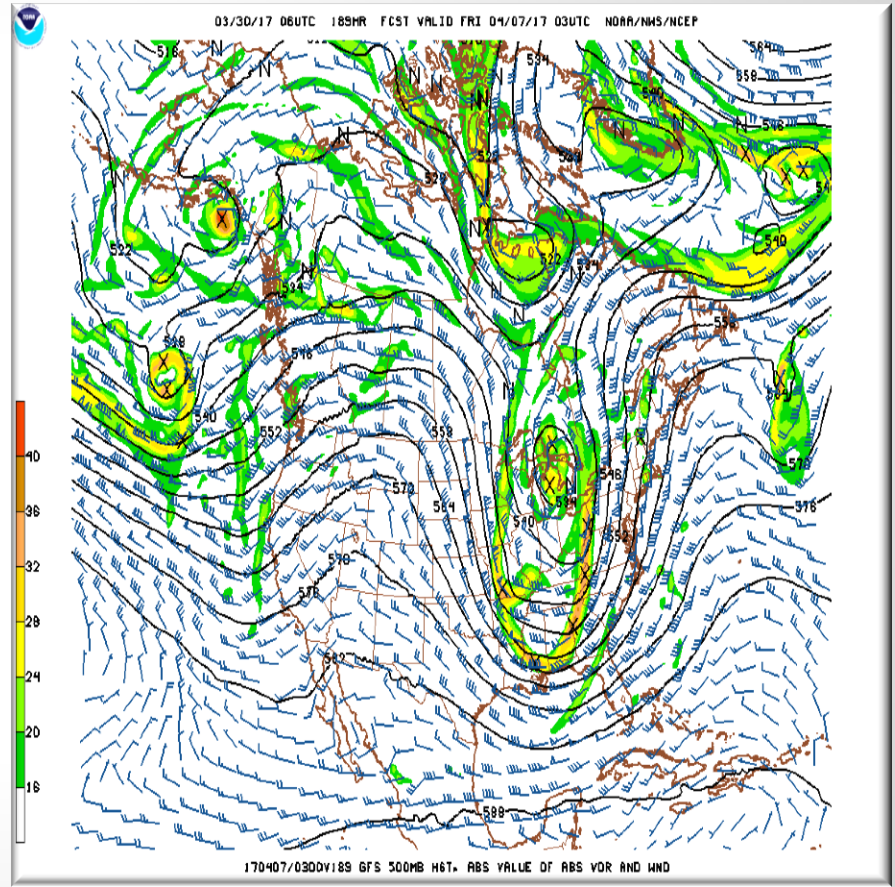
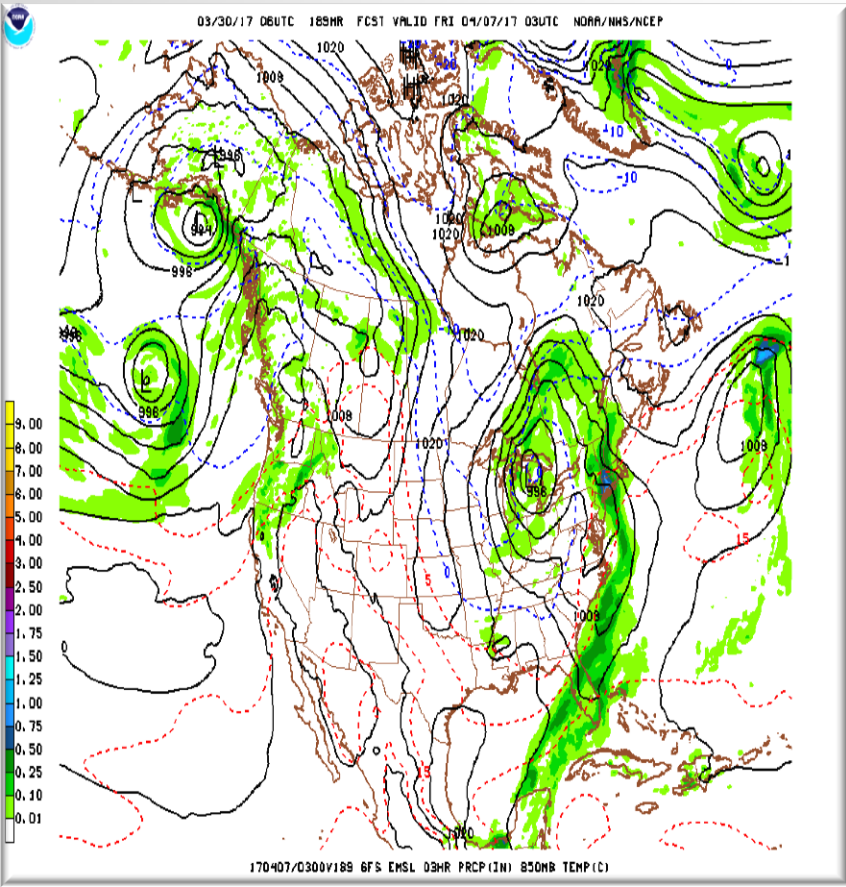






# Surface/500mb 4/7

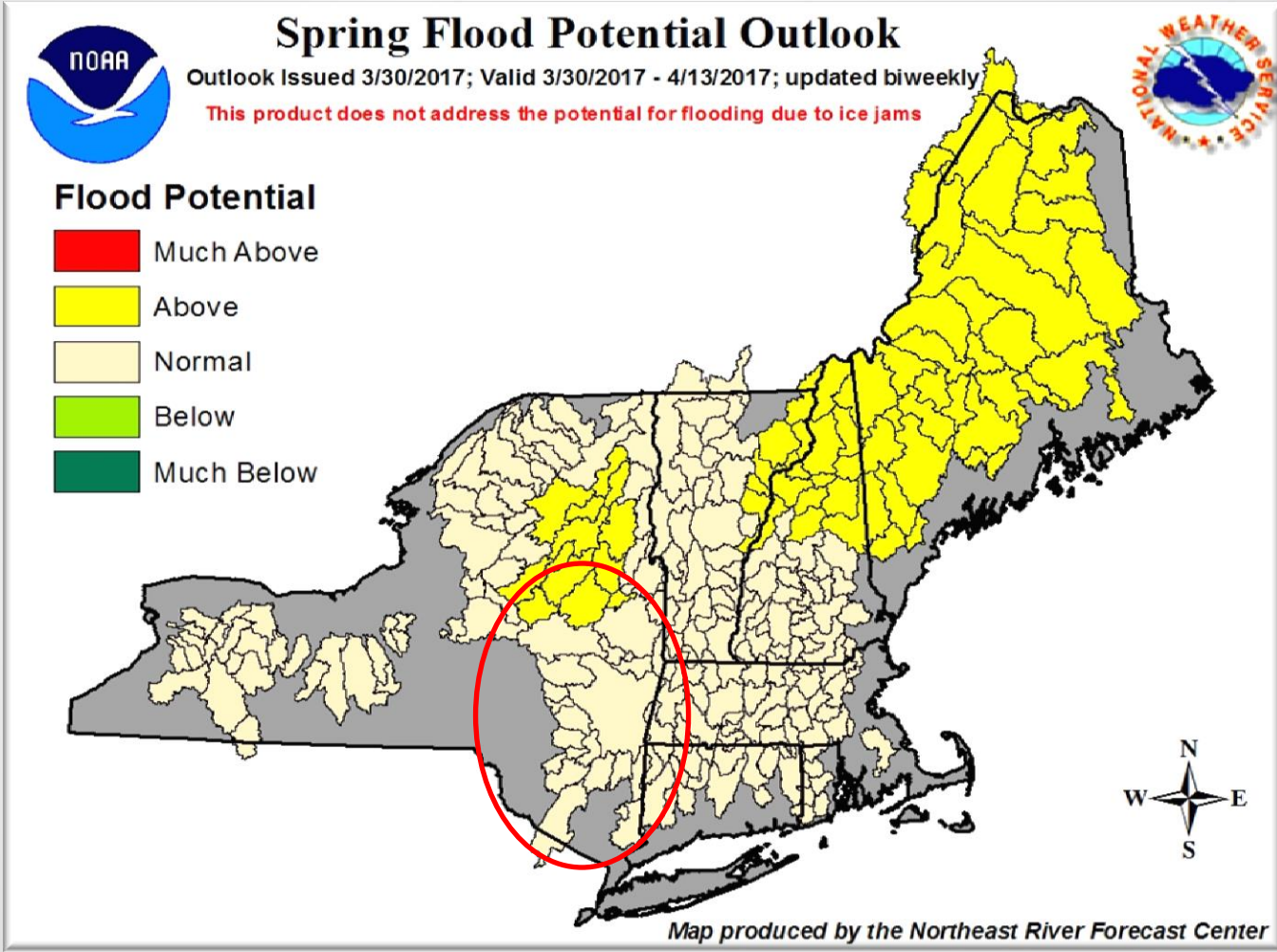
## “Warmer” event possible...high uncertainty





# NERFC Winter Outlook March 30th

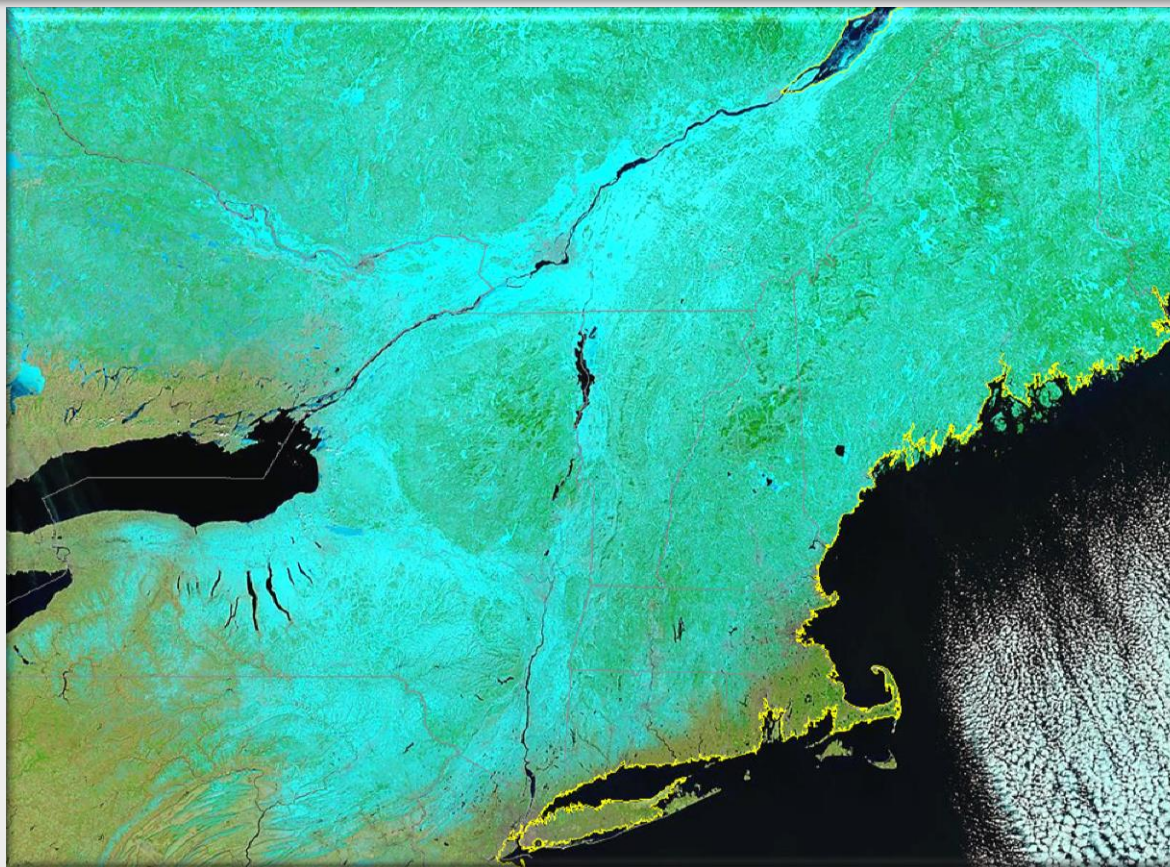
## Flood Potential -- Valid until Apr 13th







# Northeast River Forecast Center's *March 30<sup>th</sup> Spring Flood Outlook*



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

