NERFC Spring Flood Outlook

- Mar 26th 2015
- Next Briefing – 4/3

Brought to you by:
- Edward Capone - Service Coordination Hydrologist

Overview to Include:
- Potential flood outlook – convective/synoptic conditions
- Snow Water/Melt Potential --- Ice Jam Potential---
- Stream flow-Groundwater-Soil moisture and Snow Water Equivalent conditions
- Antecedent –Current—Future precipitation forecasts
- Short and Medium Range Met Forecasts (especially potentially significant events)
- Flood or Drought Outlook (Near term & Longer term)
http://ge.ssec.wisc.edu/modis-today/
MODIS IMAGES – TERRA/ AQUA
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Service Area Highlights

- Monthly Highlights to March 26th

- Below Normal Temps for March
- 2nd Mild Interlude of March is here...and stronger
- Snow Events continued north rain/snow mix south
- Snow Depths/SWE ... slow melt....NO MELT an issue
- Another cold shot coming this weekend/early next week
- Precipitation mostly below normal for March
90 and 180 Day Precipitation Departures

90 Day Departures from Normal
Ending 2015-03-23

180 Day Departures from Normal
Ending 2015-03-23

Source: NOAA Northeast River Forecast Center, Taunton, MA
Snow Conditions
---Depth---SWE---Temperature---Melt

Modelled Snowpack Temperature (monthly) forecasted for 2015 March 27, 5:00 UTC

Total Modelled Snow Melt forecasted for 48h preceding 2015 March 27, 5:00 UTC
USGS Current Streamflow Conditions

Map of 7-day average streamflow compared to historical streamflow for the day of the year (United States)

Monday, March 23, 2015

Choose a data retrieval option and select a location on the map
- List of all stations in state, State map, or Nearest stations

<table>
<thead>
<tr>
<th>Explanation - Percentile classes</th>
<th>Low</th>
<th>10-24</th>
<th>25-75</th>
<th>76-90</th>
<th>&gt;90</th>
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<td>Much below normal</td>
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<td>High</td>
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Water Supply/Lake Levels

New York City's Water Supply System
March 23, 2015

Total Storage (% of Capacity)
Current: 73.6
Normal: 93.1

Consumption (billion gallons)
03/22/15 1.04

Average Precipitation (inches)
January: 2.58 3.11
February: 1.60 2.50
March: 1.09 2.58

Current Conditions Status = Normal Operations

<table>
<thead>
<tr>
<th>Quabbin Level</th>
<th>Normal Operations</th>
<th>Below Normal</th>
<th>Drought Warning</th>
<th>Drought Emergency 1</th>
<th>Drought Emergency 2</th>
<th>Drought Emergency 3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>100% - 80%</td>
<td>80% - 65%</td>
<td>65% - 50%</td>
<td>50% - 30%</td>
<td>38% - 25%</td>
<td>25% - 0%</td>
</tr>
</tbody>
</table>

- Scituate Reservoir Elevation (feet): 280.96 (92.1% of Capacity)
- Plant Influent (mgd): 54,035.0588 (63.6 CFS)
- Cumulative Reservoir Evap. (gal): -46,830
- Downstream Discharge (mgd): 9.95 (15.39 CFS)

Lake Champlain Extremes and Level
**Soil Moisture/River Ice Thickness/Frost Depth**

- Palmer/Crop Soil Moisture Indices -- Short/Long Term Normal/Wet south basins
- River Ice Thicknesses --- Jan- Mar AFDD Above Normal
  - 0.5’ to 1.5’ ft. Plus Ice Thickness – Central/Northern NY northeastward to Maine
  - Many openings ... Ice Free SNE

-- Earlier Ice Jams (Breakup/Freezeup)
- Walkill River
- Cattaraugus Creek
- Buffalo Creek
- Casanovia Creek
- St. Johns River
- Aroostook River
- Penobscot River
- Kennebec

**Frost**
- < 6 inches SNE
Looking Ahead – Pattern Switching—BNTANP

**Week 1**

- Brief...but significant warmup
- Near 1 Inch Rain Event...higher temps and dewpoints

**Week 2**

- Below Normal Temps
- Above Normal Precipitation.

Can we get another period of Controlled Melt?
North Atlantic Oscillation (NAO)
Pacific-North American Pattern (PNA)

> NAO


```
mean = 0.8185
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> PNA


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mean = 0.1615
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March

Composite Temperature Anomalies (F)
Versus 1981-2010 Longterm Average

March

Composite Temperature Anomalies (F)
Versus 1981-2010 Longterm Average

<table>
<thead>
<tr>
<th>Temperature Anomalies (F)</th>
<th>-6.0</th>
<th>-4.0</th>
<th>-2.0</th>
<th>0.0</th>
<th>2.0</th>
<th>4.0</th>
<th>6.0</th>
</tr>
</thead>
</table>

NOAA/ESRL PSD and CIES-CDC
Dominant Winter Wx Pattern
Outlooks – 6-10 and 8-14 day
CPC April 2015 Outlook

ONE-MONTH OUTLOOK
TEMPERATURE PROBABILITY
0.5 MONTH LEAD
VALID APR 2015
MADE 19 MAR 2015

EC MEANS EQUAL
A MEANS ABOVE
B MEANS BELOW

ONE-MONTH OUTLOOK
PRECIPITATION PROBABILITY
0.5 MONTH LEAD
VALID APR 2015
MADE 19 MAR 2015

EC MEANS EQUAL
A MEANS ABOVE
B MEANS BELOW
Surface Map – Mar 27th
500 MB Height – Mar 27th
500 MB Height – Apr 5th
MMEFS – Met Model Ensemble Forecast System

Flood Potential Outlook
Valid until Apr 2nd
Upcoming Briefings
Friday Morning Schedule

➢ Winter/Spring Outlooks

➢ Friday, April 3rd at 11:00AM
➢ Every 2 Weeks into May 2014
➢ Emphasis on Snowpack and Ice/Melt Issues
➢ Fridays – Week of Snow Survey Measurements
Thank you

Ed Capone

Service Coordination Hydrologist