

Current Water Conditions in Massachusetts

April 8, 2010



- March precipitation was much above normal
- March streamflows were much above normal
- March ground-water levels were above normal and normal
- March reservoir levels were above normal

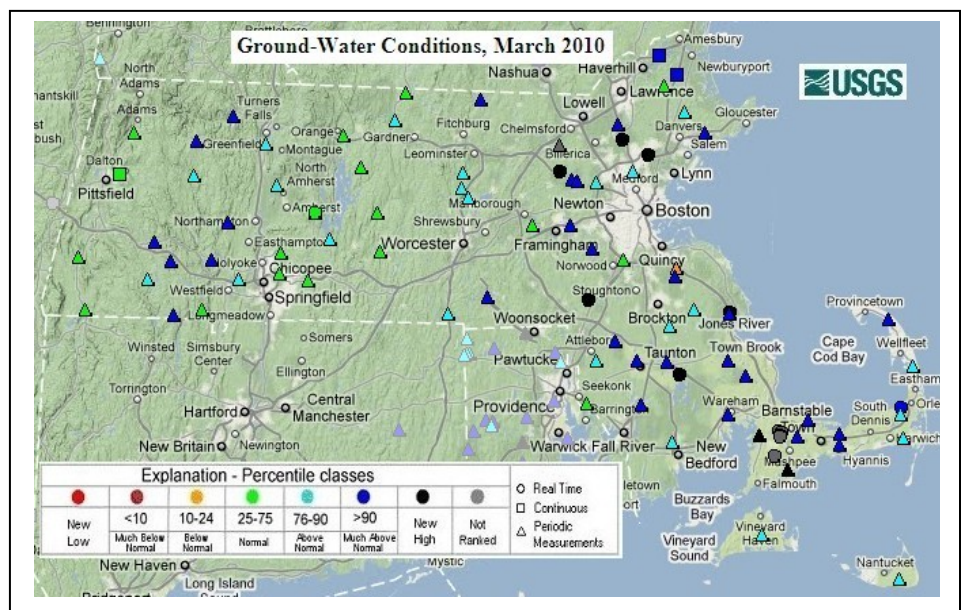
Precipitation Conditions

Following a major precipitation event at the end of February, Massachusetts was impacted by three major rainfall events during March. These events, combined with the wet antecedent conditions, resulted in widespread minor to major flooding across the state, especially during the March 13th to 16th and 29th to 31st events. Depending on storm event and location, flood levels reached record high levels at 17 gaging stations and record high average March discharges were recorded for four major river basins in eastern Massachusetts.

March state-wide average precipitation was about 10.37 inches, which is about 261 percent of the long-term average for the month. The regions of Massachusetts received between 380 percent (Northeast) and 113 percent (Western) of average precipitation during March. Boston had a record March rainfall of 14.77 inches, which is the 2nd highest of any month for that station. Many rainfall stations in eastern and southeastern Massachusetts recorded over 15 inches of rain during March. A maximum of 19.74 was reported from a station in Jamaica Plain. A table of March 2010 estimated precipitation statistics, based on precipitation data from the Department of Conservation and Recreation and National Weather Service precipitation monitoring networks, is attached. A map at the back of this report shows the distribution of March total rainfall in Massachusetts and adjacent areas of New England.

Ground-Water Levels

In general, ground-water levels reported by the United States Geological Survey (USGS) at the end of March were generally much above normal across most of the State. The exception was far western Massachusetts and the area extending from Springfield to Gardner, where the levels were generally normal. The USGS assessment of ground-water levels is based on 89 wells in Massachusetts with 10 or more years of record. Ground-water and surface-water conditions in Massachusetts drought regions range from normal to above normal and are shown in a table at the end of this report.



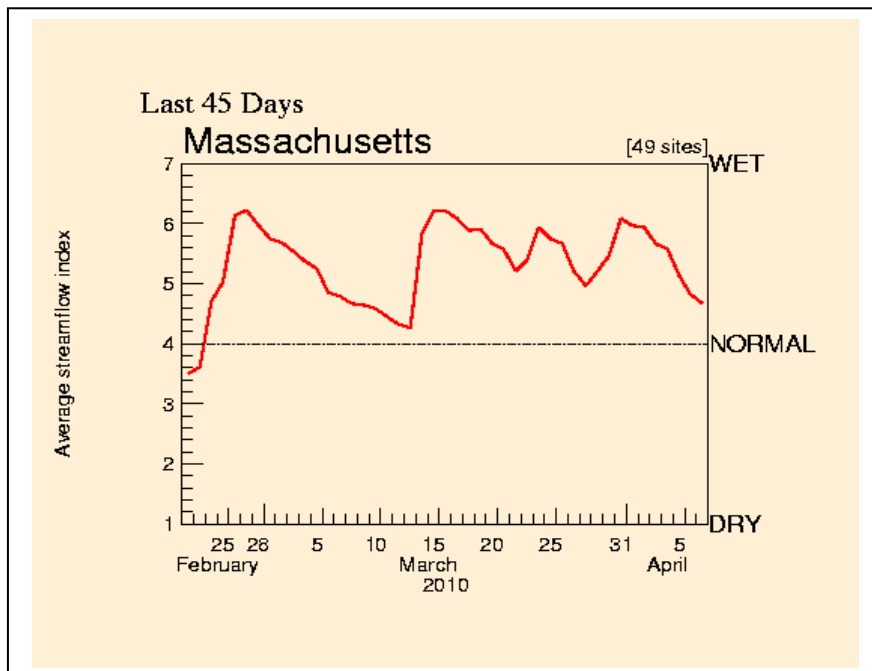
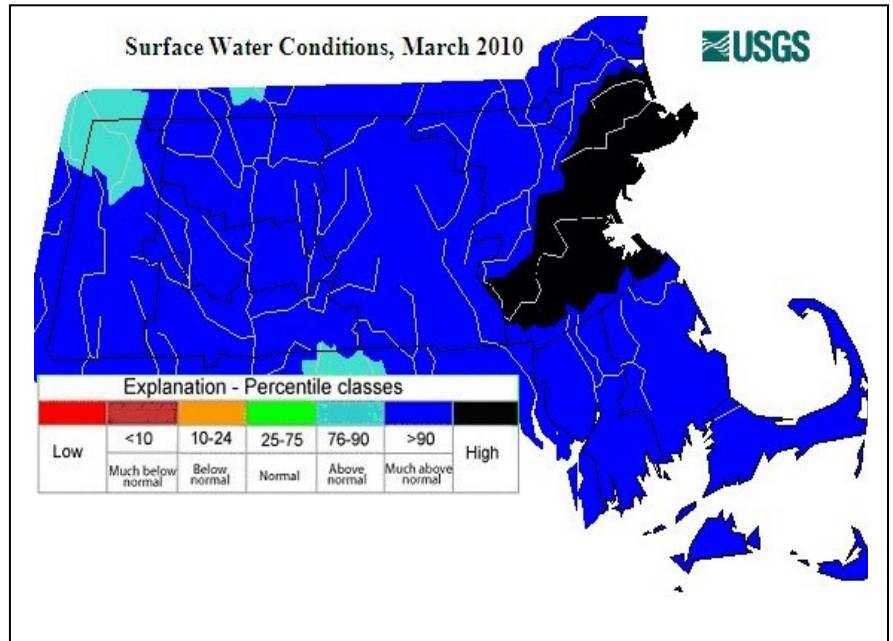
The USGS Groundwater Conditions Statement for the end of March 2009 can be viewed at the web site: http://ma.water.usgs.gov/water/water_g.htm

Streamflow

During March 2010, streamflows that are monitored by the Commonwealth of Massachusetts and United States Geological Survey (USGS) cooperative stream gaging program were generally high or much above normal. The Hoosic basin in the northwest corner of Massachusetts was above normal. Highest-of-record average March streamflow was recorded in the Charles, Ipswich, Neponset, and Parker River basins in eastern Massachusetts. As shown in a table at the end of this report, the USGS has listed the drought regions of Massachusetts as having above-normal surface-water conditions for March.

The graph below depicts a composite daily streamflow relative to normal streamflow for Massachusetts for the period of February 22 to April 6, 2010. Flows, declining from much-above-normal conditions at the end of February, rose sharply to much-above-normal conditions as a result of the first of three major rainfall events during the month that began on March 12th. Two additional increases in flow followed. The graph is a composite of 49 real-time gages across the state with a long period of record.

Additional information on streamflow is available from the USGS web page:
http://ma.water.usgs.gov/water/water_s.htm



KEY:

- 1 = New record low for day
- 2 = < 10th percentile
- 3 = 10th – 24th percentile
- 4 = 25th – 74th percentile
- 5 = 75th – 89th percentile
- 6 = ≥ 90th percentile
- 7 = New record high for day

Water Supply Reservoir Levels

Surface water reservoir percent-full values for water supply sources provided by water suppliers are listed below. The reservoir percent-full values listed are for the end of March and are reported to be generally above-normal for this time of year.

March / April 2010 Massachusetts Reservoir Status

Reservoir/City or Town	Percent Full	Reservoir/City or Town	Percent Full
Quabbin	101	Beverly/Salem	102
Worcester	104	Lynn	100.3
Cobble Mt./ Springfield	100	Taunton/New Bedford/Assawompsett	125

Note: NA Indicates data not available for this report

Drought Indices/Forecasts

US Drought Monitor

The National Drought Mitigation Center's (NDMC's) April 6, 2010, Drought Monitor Map shown at right indicates no drought conditions in Massachusetts or New England.

Standardized Precipitation Index

The Western Regional Climate Center's (Desert Research Institute, University and Community College System of Nevada) 1-, 3-, 6-, and 12-Month Standardized Precipitation Index across Massachusetts at the end of March ranged from exceptionally to very wet.

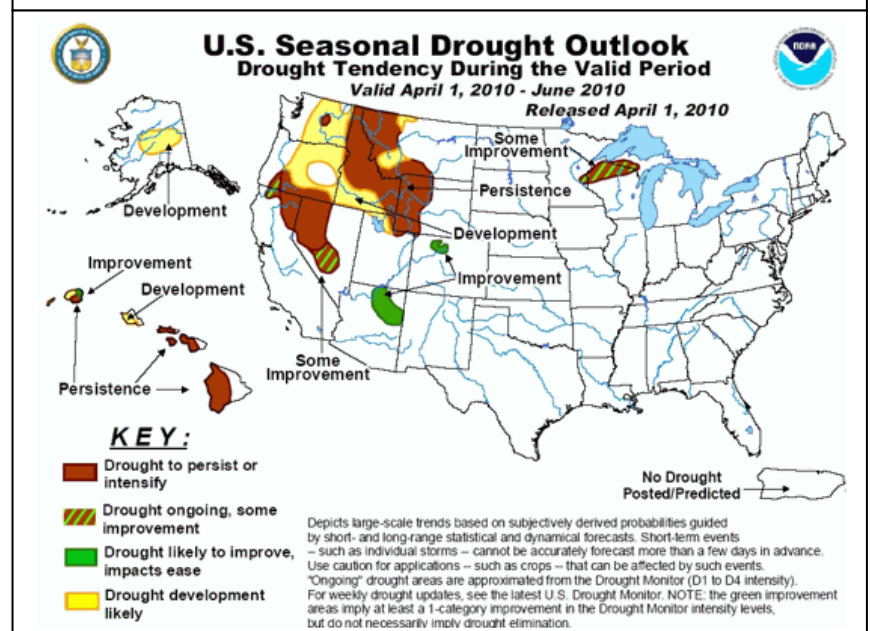
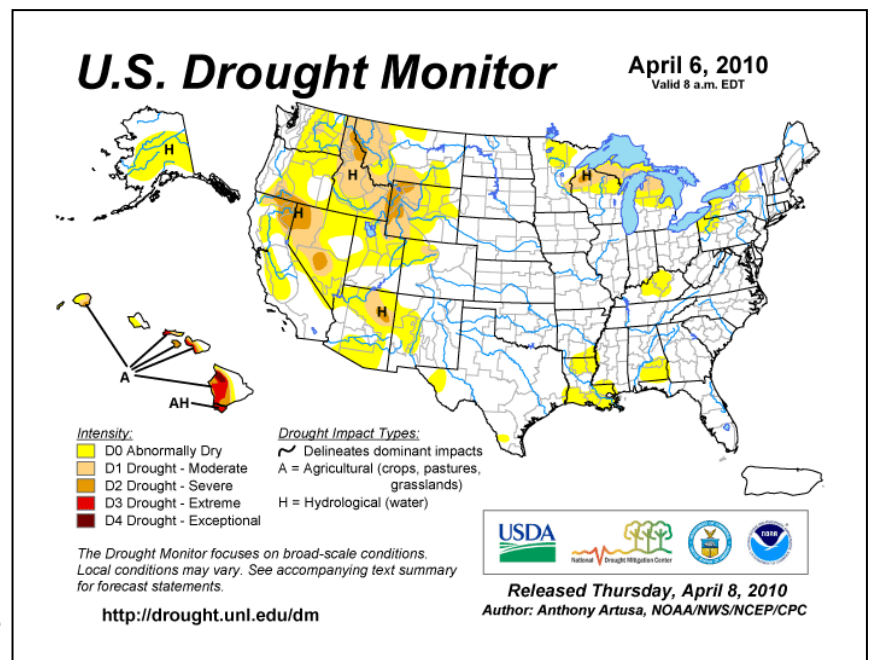
NWS/NOAA's Climate Prediction Center

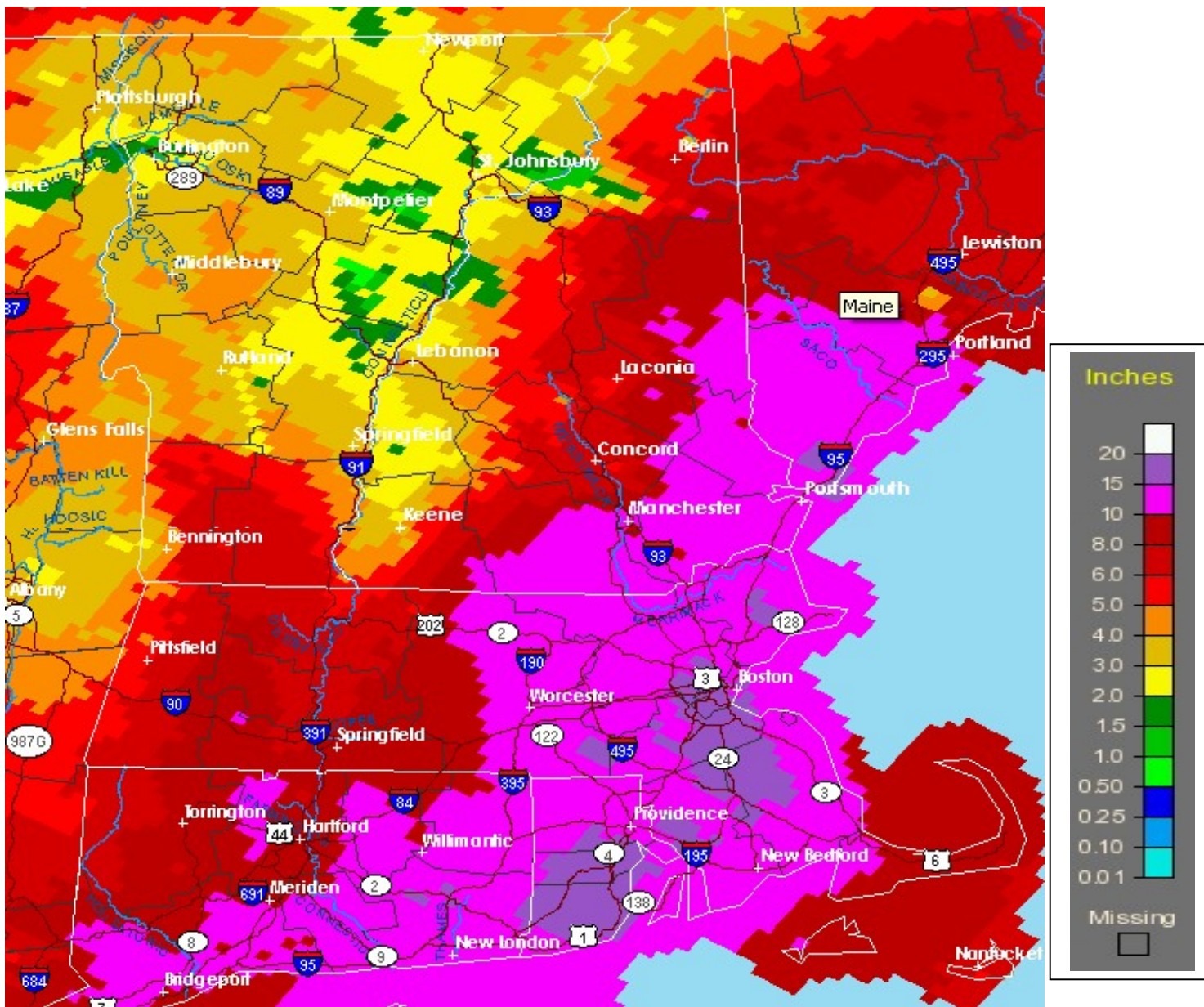
The U.S. Seasonal Drought Outlook dated April 4, 2010, predicts no tendency for drought conditions to develop in Massachusetts through June 2010.

Extended Forecasts

Unseasonably warm weather of the last several days gives way to cooler weather today as a back-door cold front slides in. Western Massachusetts may remain warm today. Late Thursday or early Friday, a cold front brings showers and possibly thunder. With the possible exception of early Saturday, cool and seasonable conditions should prevail for the weekend and early next week. The National Weather Service Climate Prediction Center's extended 6 to 10-day, 8 to 14-day, and 1-month forecasts all indicate above-normal temperature. The 6-10 day forecast is for below-normal rainfall and both the 8-14 day and 1-month forecasts are for normal rainfall. The NWS Climate Prediction Information can be found at:

<http://www.cpc.noaa.gov/index.php>





http://www.srh.noaa.gov/rfcshare/precip_analysis_new.php

**TOTAL RAINFALL
MARCH 2010**



GENERAL WATER CONDITIONS IN MASSACHUSETTS - MARCH 2010
EOEEA and MEMA DROUGHT MANAGEMENT PLAN REGIONS

Massachusetts Regions	Surface-Water Conditions	Ground-Water Conditions
Cape and Islands	Above Normal	Above Normal
Southeast	Above Normal	Above Normal
Northeast	Above Normal	Above Normal
Central	Above Normal	Normal
Connecticut River	Above Normal	Above Normal
Western	Above Normal	Normal

Note: Surface- and ground-water conditions for individual streamflow-gaging stations and wells may differ from general conditions.

Weather Ramblings --- Fifty years ago, the world's first weather satellite lifted off from Cape Canaveral, Fla., and opened a new and exciting dimension in weather forecasting. Top leaders from NOAA and [NASA](#) hailed the milestone as an example of their agencies' strong partnership and commitment to flying the best satellites today and beyond. The first image from the satellite, known as TIROS-1 (Television Infrared Observation Satellite), was a fuzzy picture of thick bands and clusters of clouds over the United States. An image captured a few days later revealed a typhoon about a 1,000 miles east of Australia. TIROS-1, a polar-orbiting satellite, weighed 270 pounds and carried two cameras and two video recorders. Though the satellite only lasted 78 days, its impact is still visible today. "This satellite forever changed weather forecasting," said Jane Lubchenco, Ph.D., under secretary of commerce for oceans and atmosphere and NOAA administrator. "Since TIROS-1, meteorologists have far greater information about severe weather and can issue more accurate forecasts and warnings that save lives and protect property. "Throughout the 1960s, each TIROS spacecraft carried increasingly advanced instruments and technology. By 1965, meteorologists combined 450 TIROS images into the first global view of the world's weather

A Look to the Future

NOAA operates America's constellation of environmental satellites – the GOES and POES. Both satellites monitor weather and collect data about the Earth's climate, and are capable of receiving distress signals from emergency beacons and relaying this information to first responders worldwide. Since 1982, NOAA satellites have aided in the rescue of 250 people on average each year. NOAA satellites also receive signals from remote observation instruments on the Earth including ocean buoys, which provide tsunami warnings. Through the NOAA-NASA partnership, another polar-orbiting satellite called the [National Polar-orbiting Environmental Satellite System](#) (NPOESS) Preparatory Project is scheduled to launch in late 2011. On February 1, 2010, the White House announced NPOESS, a tri-agency effort between NOAA, NASA and the Department of Defense, would be restructured. The NOAA-NASA team will build, launch and operate two more polar satellites under the Joint Polar Satellite System. The satellites, planned to launch 2015 and 2017, will handle the afternoon orbit and provide vital information on climate and weather. NOAA and NASA are also working to launch the next generation [GOES-R series of satellites](#), beginning in 2015. These spacecraft will have four times the clarity of today's GOES and provide more than 20 times the information.

This report was prepared by the Massachusetts Department of Conservation and Recreation. Data were obtained from the sources described in the report and may be preliminary in nature. Additional information, previous and future water conditions reports can be found on our web site: <http://www.mass.gov/dcr/watersupply/rainfall/>