

Current Water Conditions in Massachusetts

August 11, 2011



- July precipitation was below normal
- July streamflows were generally normal
- July ground-water levels were generally normal and above normal
- July reservoir levels were normal

Precipitation Conditions

Estimated July state-wide average precipitation is 2.48 inches, which is 67 percent of the long-term average for the month. The regions of Massachusetts received between 128 (Cape Cod and Islands) and 48 percent (Central) of average precipitation during July. July 2011 was the 34th driest July in the last 117 years in Massachusetts according to the National Climate Data Center. By the end of July the warm weather and below normal rainfall had dropped the soil moisture index to slightly below normal in the eastern part of the State. August precipitation to date is generally above normal.

A table of July 2011 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 July rainfall in Massachusetts.

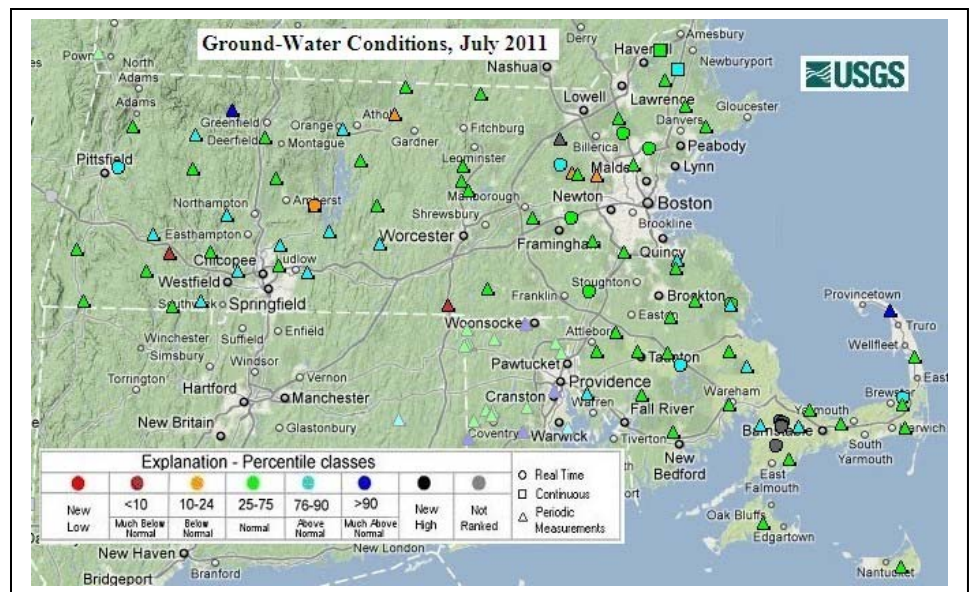
During late afternoon of July 26th western Massachusetts got another round of severe weather. A line of thunderstorms moving west to east produced a Microburst/ straight line wind in the town of Wilbraham that resulted in severe to moderate tree damage over an area approximately 600 feet wide and 2 miles long. The National Weather Service estimated wind speeds up to 100MPH. Some damage was also reported in Chicopee and Holyoke. There was a report of one storm related fatality.

Ground-Water Levels

Ground-water levels reported by the United States Geological Survey (USGS) at the end of July were generally above normal in the Connecticut Valley area and normal in the rest of the State. This assessment of ground-water levels is based on 89 wells in Massachusetts with 10 or more years of record. An assessment of ground-water conditions in the Massachusetts drought regions is shown in a table at the end of this report.

The USGS Groundwater Conditions for the end of July 2011 can be viewed at the web site:

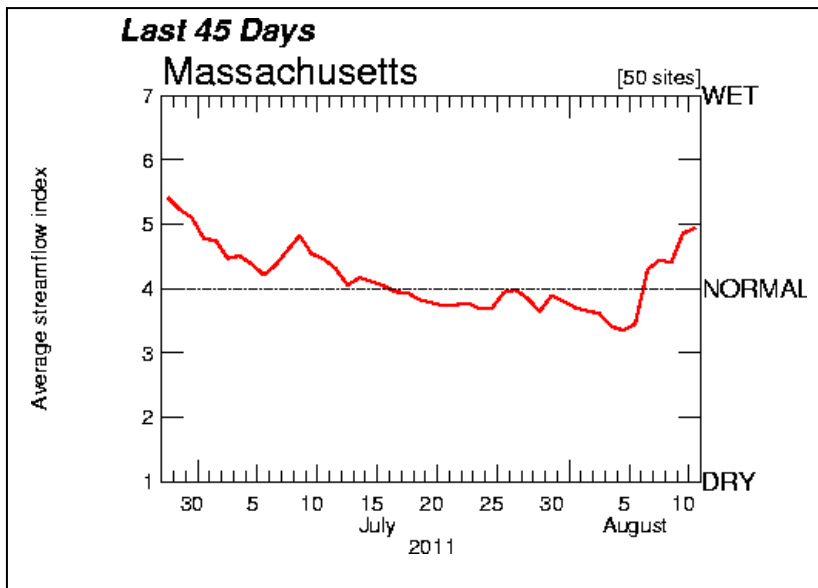
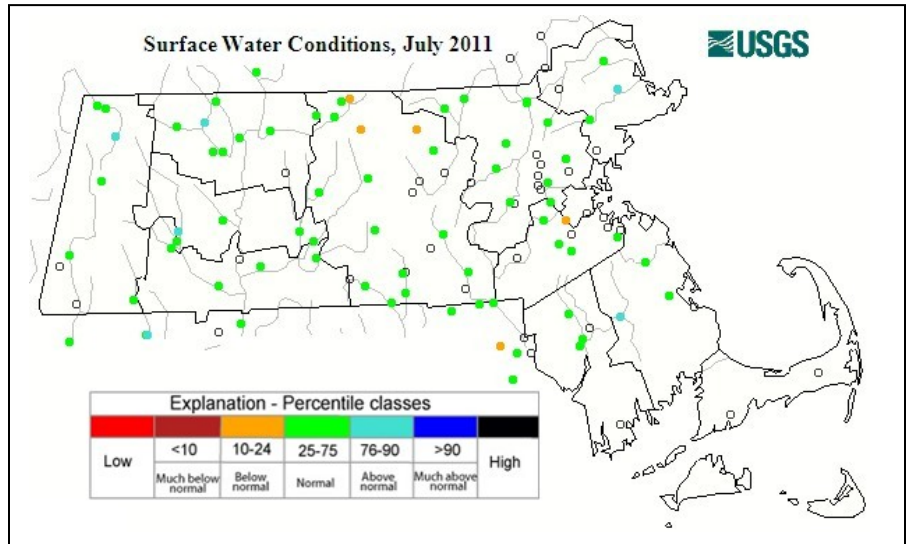
<http://groundwaterwatch.usgs.gov/StateMapsNet.asp?ncd=crn&sc=25>



Streamflow

Average July 2011 streamflows that are monitored by the Commonwealth of Massachusetts and United States Geological Survey (USGS) cooperative stream gaging program were generally normal throughout Massachusetts. As shown in a table at the end of this report MA DCR has listed the drought regions of Massachusetts as having normal and no data (Cape Cod and Islands) surface-water conditions for July.

The graph below depicts a composite daily streamflow relative to normal streamflow for Massachusetts for the period of June 28 to August 11, 2011. Generally slightly above normal flows during the first third of July fell to near normal and slightly below normal at the end of the month. Flows during the first part of August have risen to a little above normal. The graph is a composite of 50 real-time gages across the state with a long period of record.



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 July. Reservoirs are generally normal with a few a little above normal for this time of year.

July / August 2011 Massachusetts Reservoir Status

Reservoir/City or Town	Percent Full	Reservoir/City or Town	Percent Full
Quabbin	96.2	Beverly/Salem	88.5
Worcester	90	Lynn	73.4
Cobble Mt./ Springfield	85.1	Taunton/New Bedford/Assawompsett	94.6

Note: NA Indicates data not available for this report

Drought Indices/Forecasts

US Drought Monitor

The National Drought Mitigation Center's (NDMC's) August 9, 2011 Drought Monitor Map for the United States shown at right indicates no drought conditions in Massachusetts.

Standardized Precipitation Index (SPI)

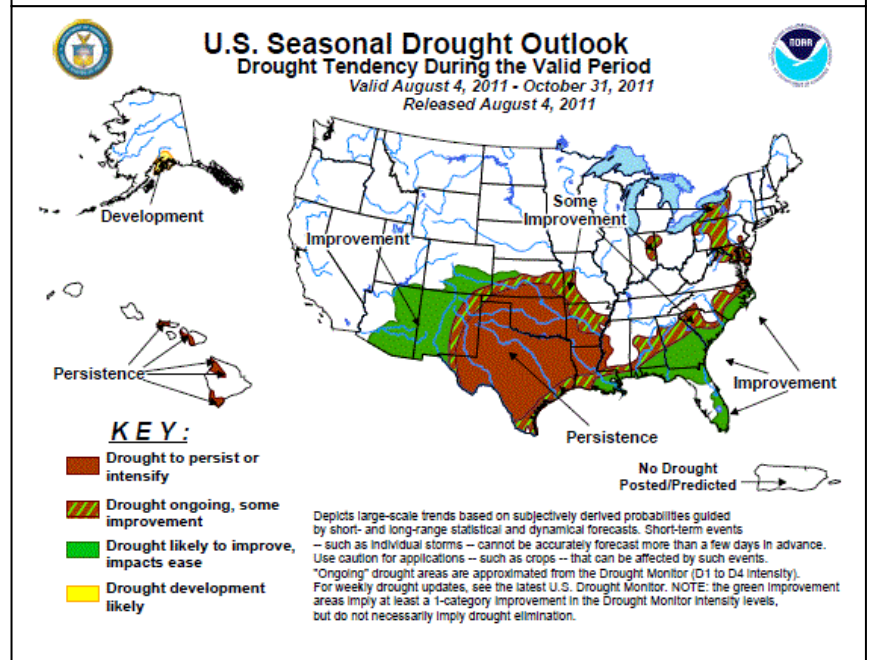
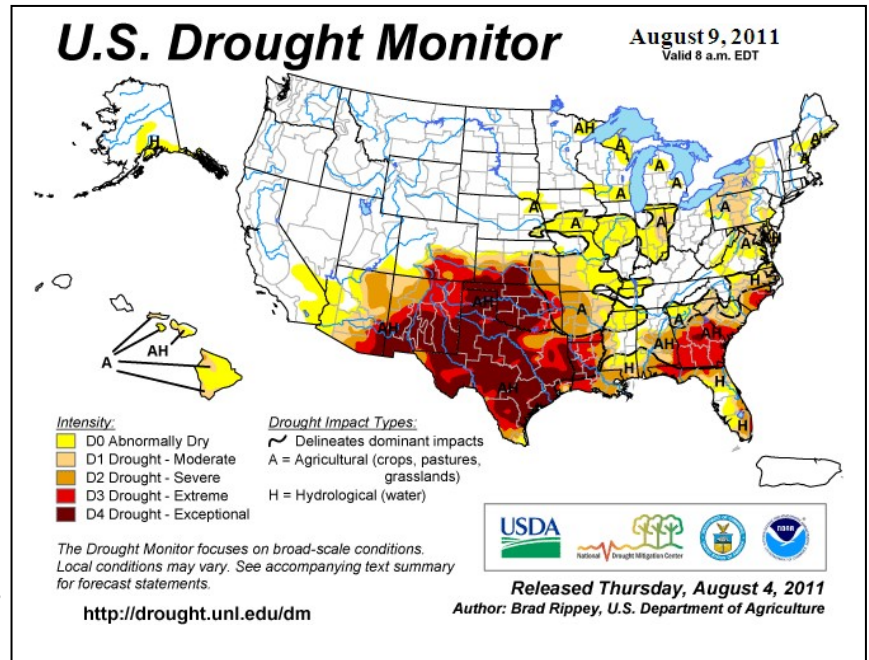
The Western Regional Climate Center's (Desert Research Institute, University and Community College System of Nevada) 1-Month Standardized Precipitation Index values for Massachusetts at the end of July were near normal/moderately dry (central). The 3-month values were moderately wet/very wet (west). The 6 and 12-month values were very wet (west) to near normal.

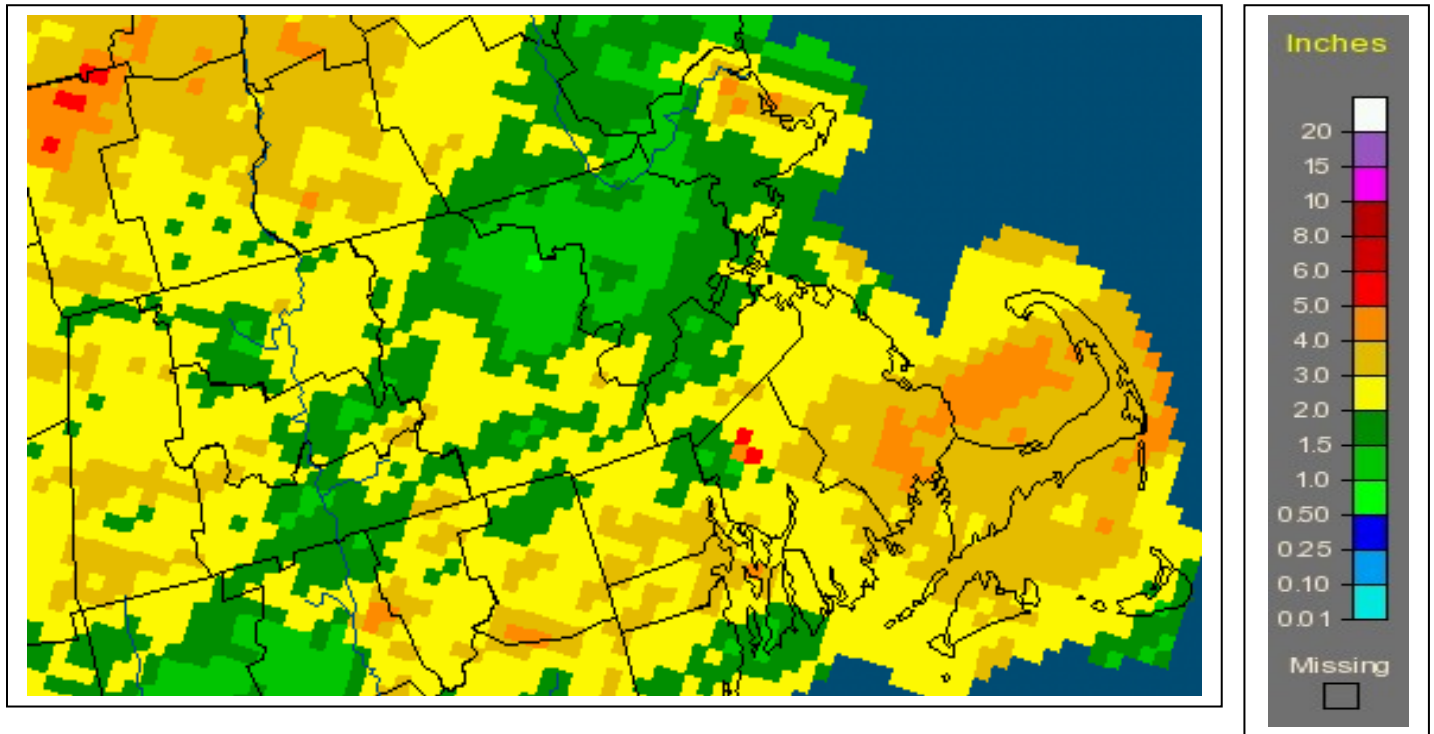
NWS/NOAA's Climate Prediction Center

The U.S. Seasonal Drought Outlook dated August 4, 2011, predicts no tendency for drought conditions to develop in Massachusetts through October 2011.

Extended Forecasts

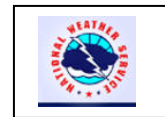
Clear mild weather with low humidity today will continue through Saturday. Unsettled weather will move into the area on Sunday and will result in showers and possibly heavy rain in parts of the State. Clear seasonable weather should return Tuesday and last for several days. The National Weather Service Climate Prediction Center's extended 6 to 10 day, 8 to 14 day and 1 month extended forecasts for temperature and precipitation are normal except the 8-14 day forecast for temperature which is above normal. The NWS Climate Prediction Center Information can be found at: <http://www.cpc.noaa.gov/index.php>





<http://water.weather.gov/precip/>

**TOTAL RAINFALL
JULY 2011**



GENERAL WATER CONDITIONS IN MASSACHUSETTS - JULY 2011
EOEEA and MEMA DROUGHT MANAGEMENT PLAN REGIONS

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

Note: Surface- and ground-water conditions for individual streamflow-gaging stations and wells may differ from general conditions. ND, no data

Weather Ramblings --- MIAMI (Reuters) - Colorado State University's forecasting team on Wednesday maintained its 2011 Atlantic storm season forecast at nine hurricanes, with five of them expected to be major.

The research team, founded by hurricane forecast pioneer William Gray, said the six-month hurricane season which started on June 1 would see 16 tropical storms. That was unchanged from its June 1 projection.

There have been five tropical storms but no hurricanes so far this season, which is now approaching its traditional busy phase from mid-August to October. Major" storms are Category 3 or above on the five-step Saffir-Simpson scale of intensity and have top winds of more than 110 miles per hour (177 km per hour).

The CSU team gave a 70 percent probability of a major hurricane making landfall along the U.S. coastline.

There was a 45 percent chance that a major hurricane would make landfall along the U.S. coast of the Gulf of Mexico, where major oil and gas facilities are located, according to the team.

(Reporting by Kevin Gray; Editing by John Picinich)

NOAA's Atlantic hurricane season update calls for increase in named storms; Forecasters have higher confidence for an active season

NOAA issued its updated 2011 Atlantic hurricane season outlook today raising the number of expected named storms from its pre-season outlook issued in May. Forecasters also increased their confidence that 2011 will be an active Atlantic hurricane season. [NOAA's Climate Prediction Center](#), a division of the [National Weather Service](#), updates its Atlantic hurricane season outlook every August.

"The atmosphere and Atlantic Ocean are primed for high hurricane activity during August through October," said Gerry Bell, Ph.D., lead seasonal hurricane forecaster at the Climate Prediction Center. "Storms through October will form more frequently and become more intense than we've seen so far this season."

Key climate factors predicted in May continue to support an active season. These include: the tropical multi-decadal signal, which since 1995 has brought favorable ocean and atmospheric conditions, leading to more active seasons; exceptionally warm Atlantic Ocean temperatures (the third warmest on record); and the possible redevelopment of La Niña. Reduced vertical wind shear and lower air pressure across the tropical Atlantic also favor an active season.

Based on these conditions and on climate model forecasts, the confidence for an above-normal season has increased from 65 percent in May to 85 percent. Also, the expected number of named storms has increased from 12-18 in May to 14-19, and the expected number of hurricanes has increased from 6-10 in May to 7-10.

Across the entire Atlantic Basin for the whole season – June 1 to November 30 – NOAA's updated seasonal outlook projects, with a 70 percent probability, a total of:

- 14 to 19 named storms (top winds of 39 mph or higher), including:
- **7 to 10 hurricanes (top winds of 74 mph or higher), of which:**
- **3 to 5 could be major hurricanes (Category 3, 4 or 5; winds of at least 111 mph)**

These ranges are indicative of an active season, and extend well above the long-term seasonal averages of 11 named storms, six hurricanes and two major hurricanes.

The Atlantic basin has already produced five tropical storms this season: Arlene, Bret, Cindy, Don and Emily. All eyes this week are on Emily, which dissipated and the remnants are far out in the Atlantic.

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/>