

City of Portsmouth

Department of Public Works



August 1, 2016

Portsmouth Water Supply Status Report

Overview

The following Portsmouth Water Supply Status Report provides the Portsmouth Water customers an assessment of the current water supply conditions. This report is distributed routinely via the City of Portsmouth's website at:

www.Cityofportsmouth.com/publicworks - water

Water Conservation Status

Customer Water Restrictions
N/A
None
Voluntary Measures
Odd/Even Watering
Two-days/Week Watering
No Outdoor Use

Based on current supply versus demand the public is requested to:

- i. **Refrain voluntarily from landscape watering** and to limit the amount of water used outdoors for other purposes.
- ii. **Landscape watering shall not occur between the hours of 10AM and 6PM**

Water use restrictions are requested at this time due to the current severe drought conditions and higher than normal water demands for this time of year. As the accompanying information shows, the recent weather conditions continue to be very dry. This has caused lower than typical reservoir levels, stream flow, and in some locations below average groundwater levels.

Additional updates and tips regarding water efficiency can be accessed at the following website link:

www.cityofportsmouth.com/publicworks

Current Customer Water Demand

Current Water Demand
Below Normal
Normal
Above Normal
High
Very High
Historic High

Water demand is considered **High** at this time.

Customer water demand is a factor in the supply status assessment that is measured by the amount of water delivered through the water system. This factor reflects customer usage and variations caused by daily, weekly and seasonal changes in business, residential and irrigation demands.

Month	Current Demand (Million Gallons per Day (MGD))	Average Demand (ten-year average (MGD))
January 2016	3.97	4.16
February 2016	4.07	4.17
March 2016	4.09	4.18
April 2016	4.21	4.19
May 2016	4.77	4.73
June 2016	5.62	5.07
July 2016	6.09	5.49

Average daily water demand was 6.09 million gallons per day (MGD) in July, which is considerably higher than the ten-year mean July demand of 5.49.

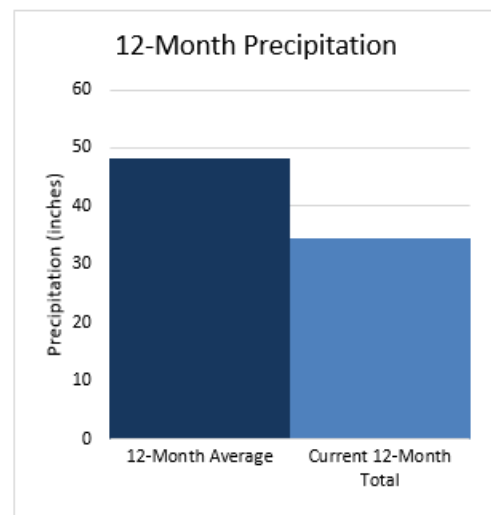
Precipitation Status

Precipitation
Above Average
Average
Below Average
Dry
Very Dry
Drought

Total July precipitation in Portsmouth was 3.00 inches. This is 0.26 inches less than the historic July average. A storm on July 23rd yielded 1.03 inches. Three other rain events over the month of July totaled 1.97 inches. This is the tenth consecutive month with less than average precipitation.

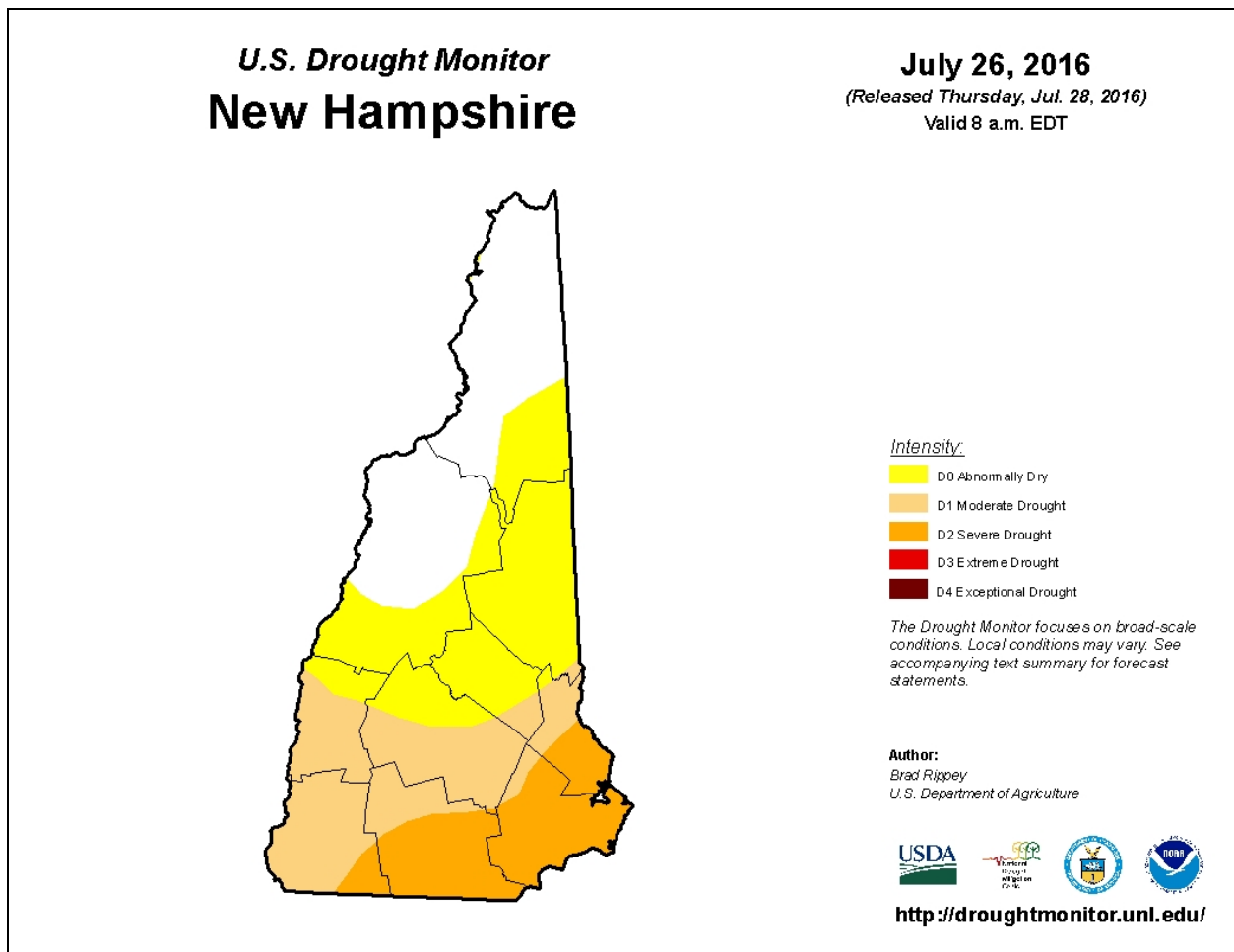
In order to assess annual precipitation conditions, total precipitation over a rolling 12-month period is compared to the normal annual precipitation of 48.19 inches. As the accompanying graphic shows, precipitation over the past 12-months equals 34.70 inches which is 13.5 inches below normal, or just 72% of the normal annual amount.

Due to these conditions, the precipitation status is currently considered **Very Dry**.



New Hampshire Drought Monitor

The following graphic summarizes the drought conditions in New Hampshire:



New Hampshire's Drought Management Team met on Friday July 22, 2016 in Concord to discuss the latest drought and climate conditions. The City of Portsmouth is a member of the Drought Team and Brian Goetz, Deputy Director of Public Works, attended the meeting. There were updates at this meeting about current status of the drought and projections through the rest of the summer. Neither were too promising, especially for the Seacoast. The Seacoast is currently in a **Severe Drought**. Based on the data they provided we have only received 52% of our normal precipitation during the last four months and we are at a 14 inch deficit for the last 12 months. Streamflows are very low and groundwater levels are dropping. The state climatologist gave an overview of these conditions and also said that the outlook for the rest of the summer looks like a pattern of continued above normal temperatures and below normal precipitation.

Groundwater Levels

Groundwater Levels
Above Average
Average
Below Average
Low
Very Low
Drought

Currently the groundwater levels considered **Average** as most of the water levels in the supply wells are within the range of levels that typically occur in the month of July. By increasing our winter and early spring withdrawal from the Bellamy Reservoir, we have reserved our groundwater supply sources for greater use during high demand periods over the summer.

Overall conditions of aquifer water levels are assessed with respect to water levels that are continuously monitored in the Portsmouth Water Supply wells. Based on historic water-level data, average water levels have been identified for a representative well in each well-field area for each month of the year. Assessments of the aquifer levels are made relative to average levels, historic low levels, and available drawdown in the wells.

River Flow

River Flow
Above Average
Average
Below Average
Low
Very Low
Drought

Portsmouth Water System operators track the USGS stream flow gauges in the Oyster River and Lamprey River to assess flow conditions. The monthly mean stream flow in the Oyster River at the USGS gauge is 1.71 cfs as of July 28th. This is 5.40 cfs (24%) lower than the 30-year July mean flow rate. The monthly mean stream flow in the Lamprey River at the USGS gauge is 14.5 cfs, which is 91 cfs (14%) lower than the 30-year July mean flow rate.

At this time the current river flow rates are considered **Very Low** for this assessment. This condition affects the recharge of the Bellamy Reservoir, thus is a consideration in planning for summer withdrawals from our surface water supply.

Reservoir Level

Reservoir Level
Above Average
Average
Below Average
Low
Very Low
Drought

The current stage of the reservoir is considered **Low** for this time of year.

As the surface water source for the Madbury Water Treatment Facility, the Bellamy Reservoir is monitored to assess and predict the overall amount of water available for the Treatment Facility. Reservoir water levels are compared to typical monthly levels to assess the reservoir conditions.

The Bellamy Reservoir ceased flowing over the spillway during the last week of May. This typically occurs at the end of June or early July. This is a result of the ongoing deficit in precipitation. Generally, recharge to the reservoir can occur with storm events that produce substantial runoff from the 22 square mile watershed. Currently the reservoir level is 1.5 feet below the spillway.

Water Supply Capability

Water Supply Capability
Above Normal
Normal
Below Normal
Restrictions Necessary
Additional Restrictions Necessary
Emergency

Water Supply Capability is a measure used to identify any issues with the Portsmouth Water Supply System that would result in a limitation to the amount of water that could be supplied. These could be lack of supply, issues with source water quality, or mechanical failures of system components.

The loss of the Haven Well as a water source (which contributed approximately 10% of the water system's overall capability) has reduced the amount of water that can be provided to the system. At this time the water supply capability is considered **Below Normal**.

Further Updates and Information

This information will be distributed electronically on the City of Portsmouth's website in the Department of Public Work's "Water" section. If anyone needs additional information or has questions contact Brian Goetz, Deputy Director of Public Works at 766-1420 or Al Pratt, Water Resource Manager at 520-062