



November 8, 2017

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](http://www.Cityofportsmouth.com/publicworks-water)

Water Use Restrictions

Customer Water Restrictions
N/A
None
Voluntary Measures
Odd/Even Watering
Two-Days per Week Watering
No Lawn Watering

There are **no water use restrictions** at this time. The storm over the last week of October helped conditions rebound from the past four months of slightly below normal precipitation. The total precipitation over the past twelve months is slightly less than the 30-year average, reservoir levels and river flow rates are within typical ranges for this time of year. Groundwater levels are just above normal levels for this time of year.

We continue to ask our water customers to please use water wisely, minimize waste, and incorporate water efficient fixtures and appliances whenever possible. In an effort to support this goal, the City offers all residential water customers rebates for the installation of low-flow toilets and high-efficiency washing machines. More details can be found in the Public Works Billing Information section of the City’s website.

Additional updates and tips regarding water efficiency can be accessed at the cityofportsmouth.com.

Water operations staff continue to assess the supply conditions and will provide updates at least monthly.

Current Customer Water Demand

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

Water demand is **Below Normal** for this time of year. Water efficiency efforts by the City and water system customers and leak detection and repairs have resulted in the decrease of daily demand for indoor water use throughout the water system.

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. Average daily water demand was 4.00 million gallons per day (MGD) in October 2017, which is 4.5% below the 10-year normal for October.

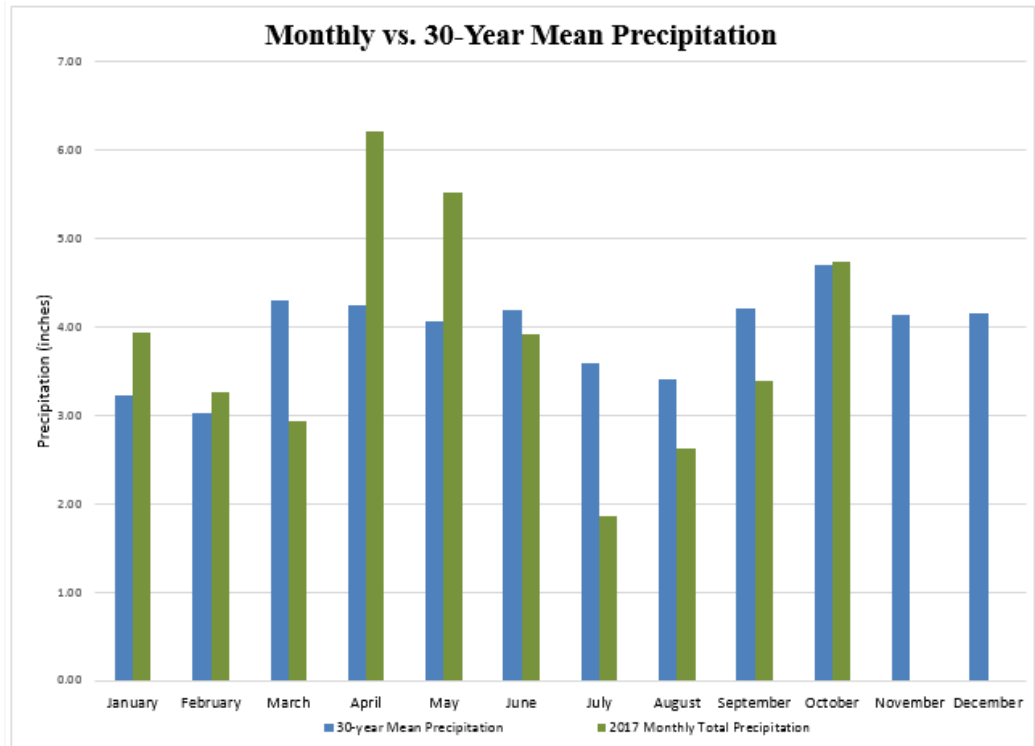
Month	Monthly Demand (Million Gallons per Day (MGD))	Historic Average Demand (ten-year average (MGD))
October 2016	3.89	4.23
November 2016	3.59	4.01
December 2016	3.72	3.93
January 2017	3.69	4.11
February 2017	3.54	4.20
March 2017	3.68	4.18
April 2017	4.01	4.14
May 2017	4.14	4.73
June 2017	4.83	5.15
July 2017	5.15	5.46
August 2017	5.34	5.43
September 2017	4.45	4.92
October 2017	4.00	4.19

Precipitation Status

Precipitation
Above Average
Average
Below Average
Dry
Very Dry
Drought

Total October precipitation in Portsmouth was 4.73 inches. This is 0.04 inches greater than normal for the month. Over the past four months there has been a total deficit of 3.58 inches from normal; however, the storm events that yielded 3.80 inches of precipitation over the last week of October has helped maintain hydrologic conditions within normal ranges for the month.

Precipitation over the past 12-months totaled 46.04 inches, which is 98% of the the mean annual amount of 47.20 inches.



Groundwater Levels

Groundwater Levels
Above Average
Average
Below Average
Low
Very Low
Drought

Currently the groundwater levels are considered **Above Average**. Groundwater levels in the aquifers used for the Portsmouth water supply are higher than typically occur during this time of year. This is attributed to the wetter conditions experienced early this year but also due to the operating parameters that water system operators are following whereby we utilize as much surface water as possible during wetter periods to rest our groundwater sources and allow them to recover and store water for dry periods.

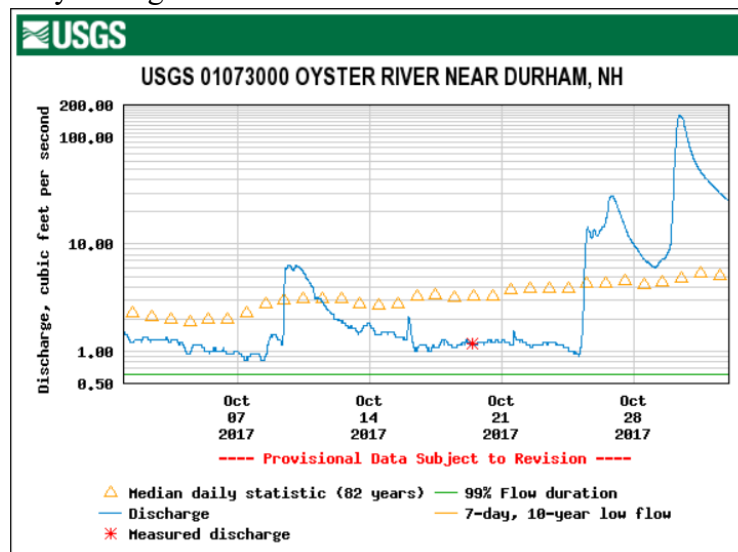
Groundwater from wells in Madbury, Portsmouth and Greenland typically provide between 34% and 45% of the water supply to Portsmouth customers, with the remaining 55% to 66% from the Bellamy Reservoir. In October 2017, 31% of the supply came from wells, 69% from the reservoir.

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. These gauged watersheds are used to assess the relative recharge to the Bellamy Reservoir through its tributaries, the Bellamy River and Mallego Brook.

Flow in the Oyster River was below average during most of October, however the storms over the last week of October caused a substantial increase in stream flow as recorded on the following USGS graph. The peak daily average flow in October was 111 cfs.



The monthly mean stream flow in the Oyster River at the USGS gauge was 8.29 cfs in October. This is 1.23 cfs (17%) higher than the 30-year October median flow rate of 7.07 cfs.

The monthly mean October stream flow in the Lamprey River at the USGS gauge was 120.4 cfs, which is 9.7 cfs (7.5%) lower than the 30-year October median flow rate of 130.1 cfs.

The current river flow conditions are considered **Average**.

Reservoir Level

Reservoir Level
Above Average
Average
Below Average
Low
Very Low
Drought

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 current stage of the reservoir is considered to be **Average** for this time of year. The precipitation that occurred in late October caused the reservoir level to rise over the spillway. The reservoir is flowing over the spillway as it typically does this time of year.

Water flow past the dam is controlled by an outlet valve. The flow into the Bellamy River is adjusted to rates that correlate with the Oyster River flow rate. The reservoir currently has approximately 670 million gallons of water above the lower surface water intake.

Water Supply Capability

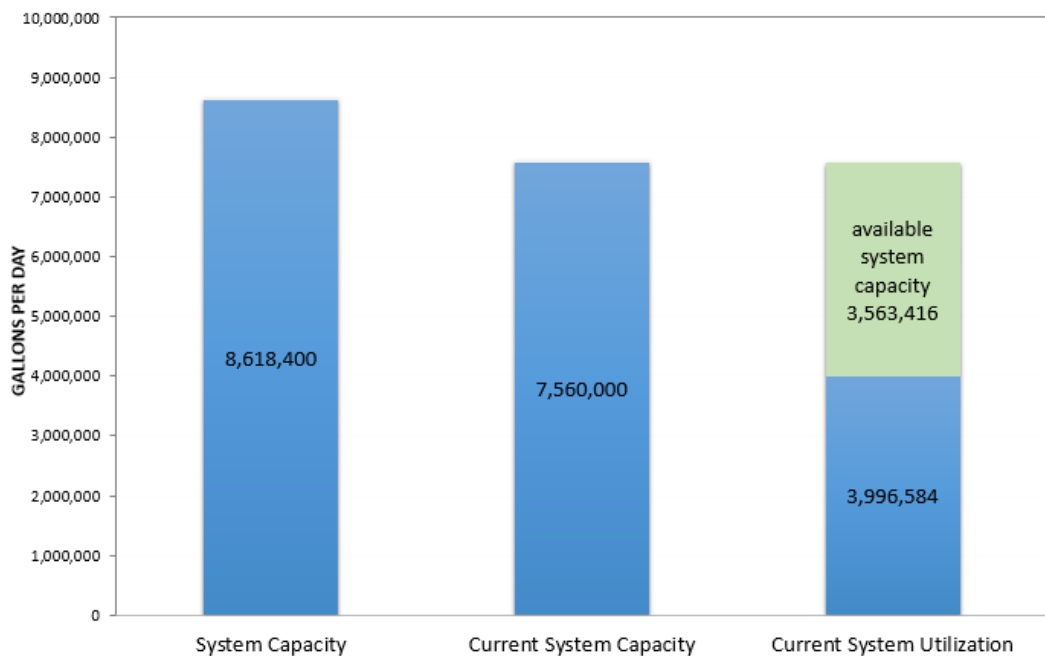
Water Supply Capability
Above Normal
Normal
Below Normal
Restrictions Necessary
Additional Restrictions Necessary
Emergency

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. As a result of this reduced capacity, the water supply capability is considered **Below Normal** at this time.

All of the other wells and the treatment facility are in excellent operational conditions, thus the water demand is currently being met with conservative protections and redundancy in the system. Average daily demand is currently 53% of the current system capability.

System Capacity & Utilization (October 2017)



Further Updates and Information

This information will be distributed electronically on the City of Portsmouth's website in the Department of Public Works > Operations > 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 520-0622.