



February 9, 2018

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. However, data we have been tracking show that there has been considerably less precipitation during the fall and winter months this year than average. Intermittent storms have provided some recharge to the reservoir and aquifers; however, the lack of snow-pack may result in lower than normal spring recharge if this trend continues. At this time, the groundwater levels, reservoir levels and river flow rates are within typical ranges 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 monthly.

Current Customer Water Demand

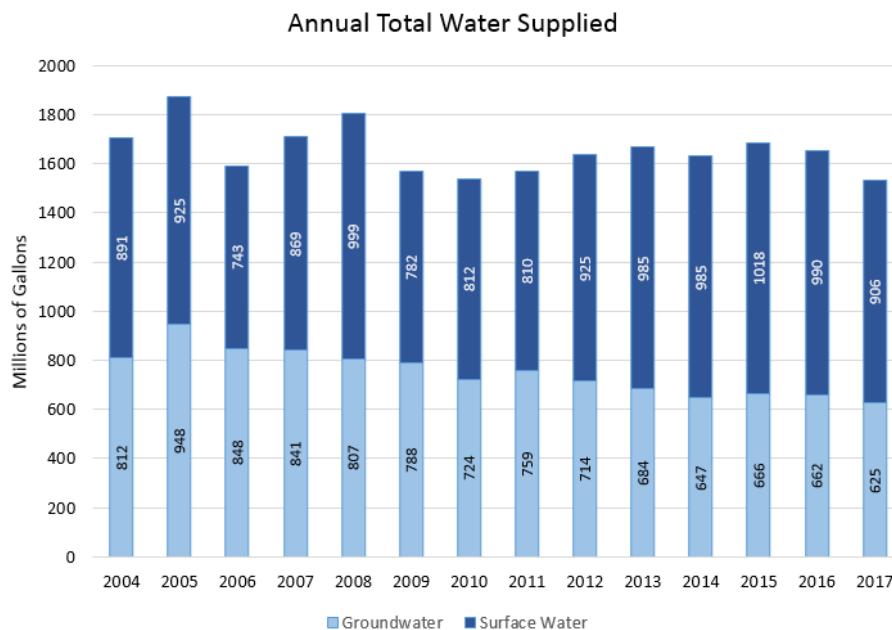
Current Water Demand
Below Normal
Normal
Above Normal
High
Very High
Historic High

Water demand for January was **Above Normal**. This was due in part to higher than normal demands because of the increased need for water at power generation facilities due to the persistent cold temperatures. It was also likely higher due to customers running taps to keep pipes from freezing.

Average daily water demand was 4.36 million gallons per day (MGD) in January 2018, which was 8.1% higher than the 10-year normal for January.

Month	Monthly Demand (Million Gallons per Day (MGD))	Historic Average Demand (ten-year average (MGD))
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
November 2017	3.64	3.94
December 2017	3.81	3.86
January 2018	4.36	4.03

The following chart illustrates the total water annual water demand over the past 14 years and the proportions of water from our groundwater and surface water sources. Note the relatively flat overall trend which may be attributed to water efficiency, infrastructure improvements, and leak repair efforts.

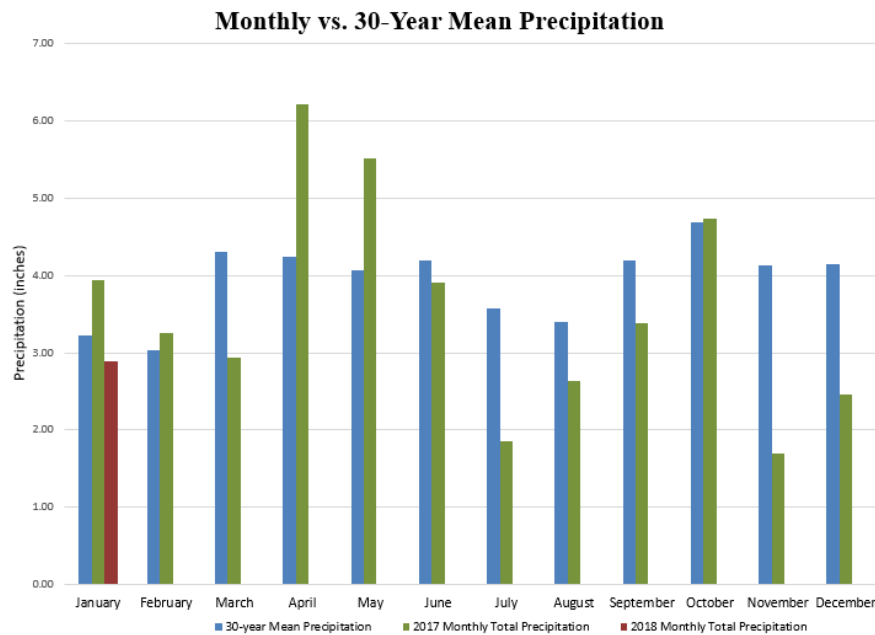


Precipitation Status

Precipitation
Above Average
Average
Below Average
Dry
Very Dry
Drought

Total January precipitation in Portsmouth was 2.89 inches. This is 0.33 inches less than normal for the month. Over the past six months there has been a total deficit of 5.99 inches from normal. There were seven snow or rain events in January which yielded between 0.05 and 0.67 inches per storm in rain equivalents.

Precipitation over the past 12-months totaled 41.48 inches, which is 88% of 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 **Average**. Groundwater levels in the Portsmouth and Greenland aquifers are within ranges that are typical for this time of year. The groundwater levels at the well field in Madbury are above normal. This is a result of the City's Integrated Management of all water resources resulting in a reduction in the groundwater withdrawals and a slight increase in the withdrawal from the reservoir. Since the water quality in the reservoir is very good and there is sufficient volume in the reservoir to sustain seasonable downstream flow, we are utilizing the surface water resource more and resting our groundwater sources to allow for aquifer recovery and greater storage for drier seasons.

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 January 2018, 38% of the supply came from wells, 62% 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.

The stream gauge in the Oyster River was frozen for much of January so no flow data is available for this period. The gauge in the Lamprey River was also frozen for the first half of January. The flow in the Lamprey River over the second half of January averaged above normal.

The monthly mean January (January 13th-31st) stream flow in the Lamprey River at the USGS gauge was 411 cfs, which is 106 cfs (35%) higher than the 30-year January median flow rate of 305 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 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

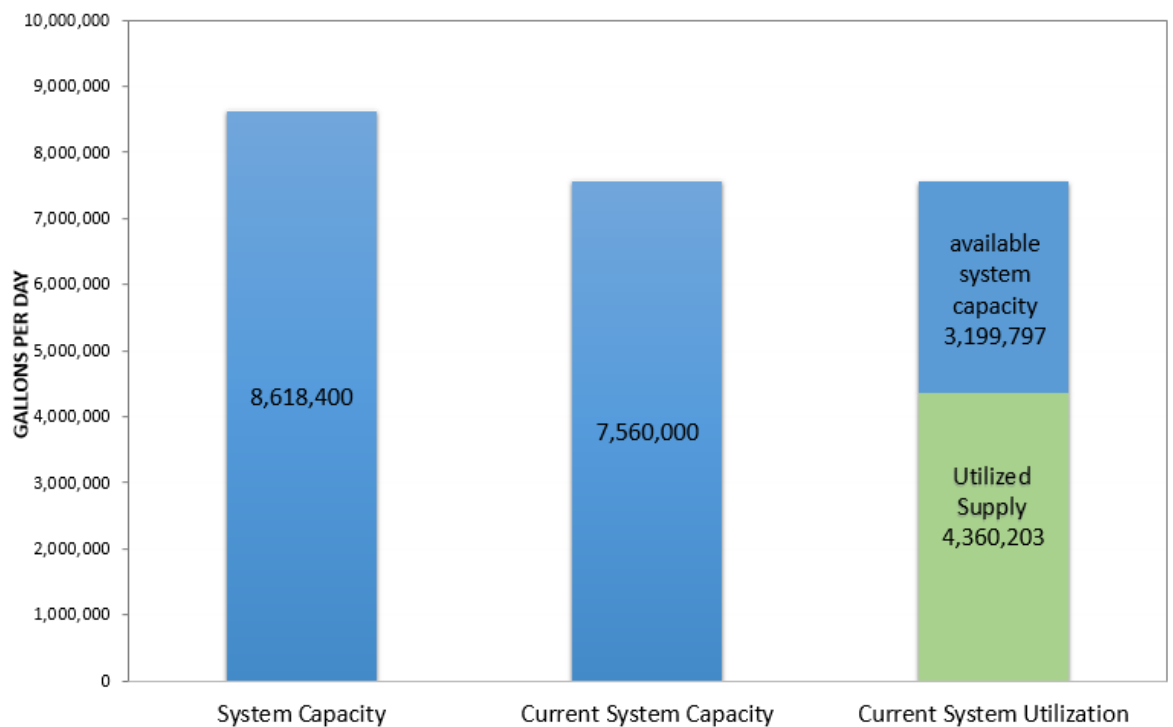
Water Supply Capability
Above Normal
Normal
Below Normal
Restrictions Necessary
Additional Restrictions Necessary
Emergency

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 58% of the current system capability.

System Capacity & Utilization (January 2018)



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.

