

City of Portsmouth

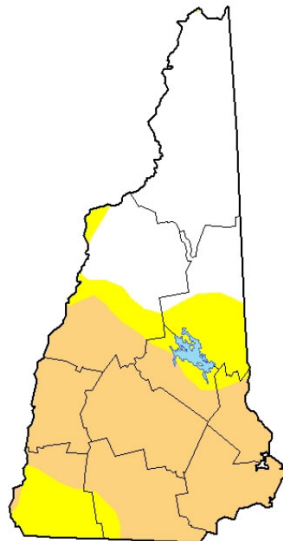
Department of Public Works



August 6, 2020 Portsmouth Water Supply Status Report

**U.S. Drought Monitor
New Hampshire**

August 4, 2020
(Released Thursday, Aug. 6, 2020)
Valid 8 a.m. EDT



Intensity:

- None
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to <https://droughtmonitor.unl.edu/About.aspx>

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National Drought Mitigation Center



droughtmonitor.unl.edu

<https://droughtmonitor.unl.edu/CurrentMap/StateDroughtMonitor.aspx?NH>

MODERATE DROUGHT CONTINUES FOR SEACOAST AREA

Despite some recent rain events, the Seacoast area remains in a **Moderate Drought**. One rain event, from June 30th to July 1st resulted in three inches of rain, which improved our conditions considerably. It also reduced water demand from a high of 6.15 million gallons delivered on June 21, 2020 to only 3.50 million gallons on June 30th. Water demand in the system picked up again later in July as the weather continued to be hot and dry.

City water operations staff continue to participate in the New Hampshire Drought Management Team meetings. The State Department of Environmental Services is implementing the State Drought Management Plan to coordinate the State Drought Management Team of state, federal, regional and municipal agencies, including the Portsmouth DPW Water Division. Ongoing actions include: assessing reservoir impacts and adjusting operations, working with drinking water systems statewide and ensuring the public is informed of the impacts and conservation measures that should be employed now to avoid serious problems later in the summer. As more households are watering lawns and new flower and vegetable gardens, the Water/Stormwater Division encourages residents to “Think Blue” and consider some of these water-saving measures you can practice at home:

www.cityofportsmouth.com/publicworks/water/water-efficiency-information

Water Use Restrictions

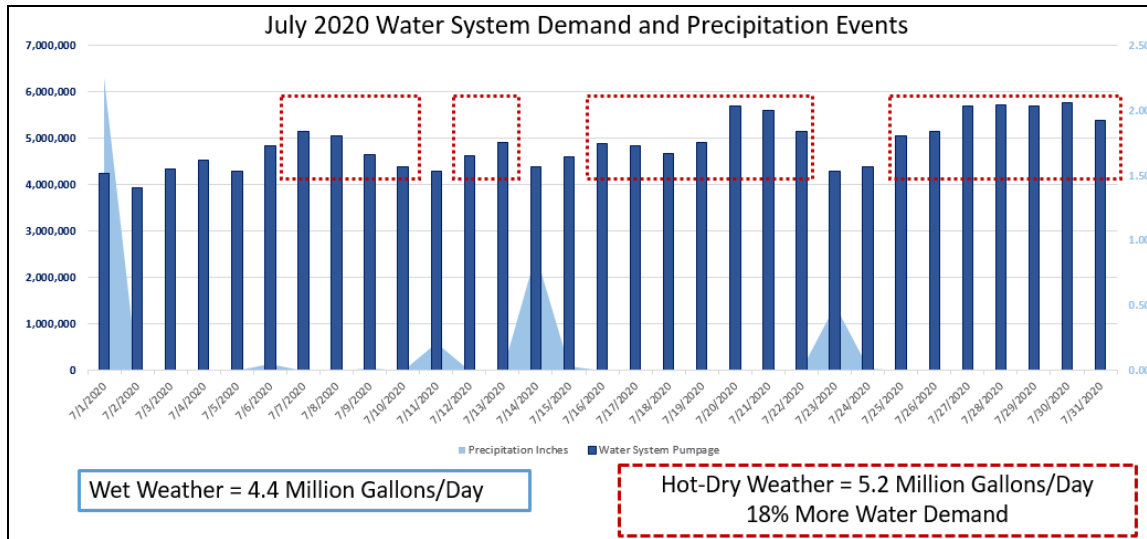
Customer Water Restrictions
N/A
None
Odd # Day Watering Only
Two-Days per Week Watering
No Lawn Watering
Essential Water Use Only

Currently the Portsmouth and Pease Tradeport drinking water systems are able to meet the current water supply demands. City staff are continually monitoring the weather and our water supplies and will revise projections as needed. Water use restrictions are currently not in effect. However, as the accompanying information shows, prior to the rainfall on June 30th, recent weather conditions were very dry. This has caused lower than normal stream flows and recharge to our water supplies. If dry conditions persist, mandatory restrictions on non-essential water use may be required. They could include odd/even or two-days/week watering schedules.

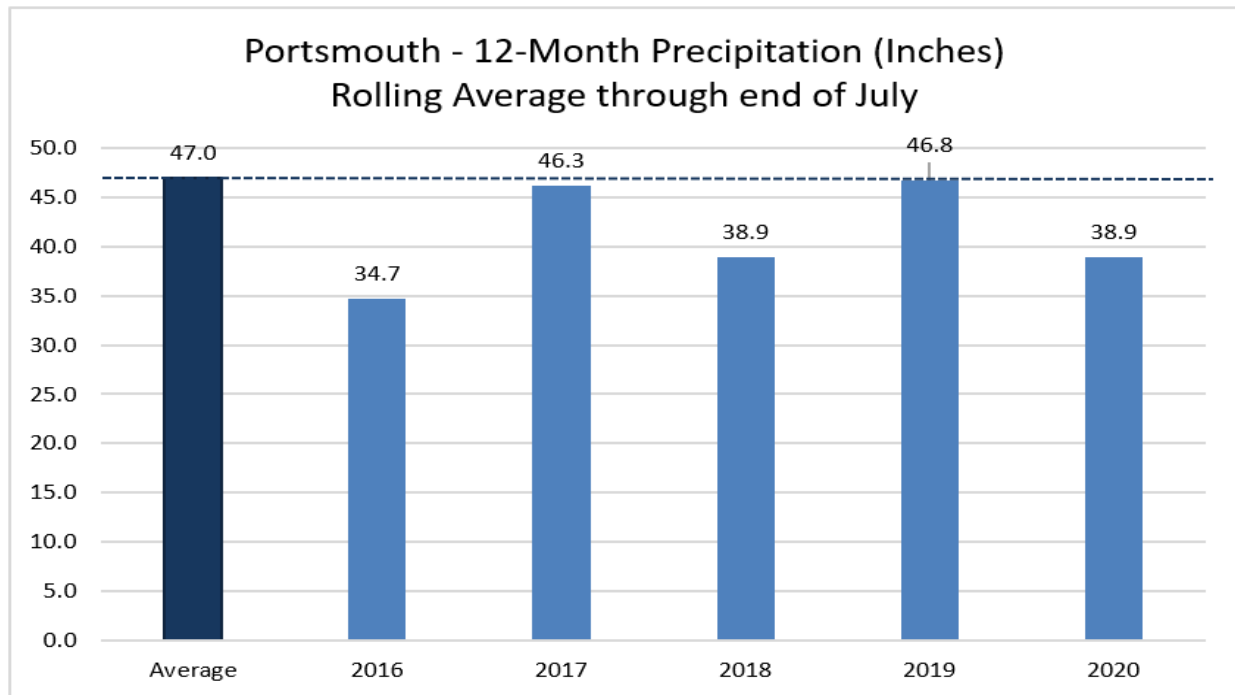
We continue to ask our water customers to please use water wisely, minimize waste, irrigate only when necessary and incorporate water efficient fixtures and appliances whenever possible. If hot a dry conditions persist we may need to ask our customers to start limiting non-essential water usage such as irrigating lawns.

Precipitation and Water Demand

The following graphic shows how water demand in our combined systems increase on hot and dry days and decrease when we experience rain events:



As shown on the graphic, water demand when it is hot and dry increases by nearly 20%. Therefore, rain events not only help the water system by replenishing our water supplies, they also cut water demand. The good news is that conditions in 2020 are better than they were at this time during the extreme and historic drought of 2016. The following graphic shows the 12-month rolling average at this time back to that 2016 event:



We currently have 12% more precipitation at this time than we did in 2016. Overall water supply conditions in our system reflect this, with both our surface and groundwater supplies doing a bit better than they were at this time in 2016. However, the drought of 2016 ended in October when

storms contributed over 7 inches of rainfall that year. Unfortunately, the recent tropical storm event Isaias tracked mostly to the west and we received less than a quarter of an inch of rain.

According to the Pease NOAA data, precipitation in Portsmouth was 3.95 inches in July. For the year so far, 2020 remains fairly dry with only April precipitation being above normal for the month. Therefore, our current status is “below average.”

Precipitation	Status Criteria	Explanation
Above Average	Above 110% Rolling 12-month	Total precipitation over a rolling 12-month period is compared to the normal annual precipitation in Portsmouth of 48.19” to evaluate deviations and support the evaluation of the water sources with respect to groundwater and reservoir levels. Precipitation is a factor that also assists with the prediction of seasonal variations in source water storage. The categories are divided by percentage of the normal annual precipitation. Average conditions are considered to exist between 90% and 110% of the annual normal.
Average	90 to 110% Rolling 12-month	
Below Average	80 to 90% Rolling 12-month	
Dry	70 to 80% Rolling 12-month	
Very Dry	60 to 70% Rolling 12-month	
Drought	Below 60% Rolling 12-month	

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 at levels that are typical for this time of year and in some cases, a little bit above average. The groundwater levels in the Madbury wells are higher than average. By utilizing a greater proportion of surface water from the Bellamy Reservoir during the winter and spring, we have been able to reserve the groundwater for the drier summer period. We are entering the summer with considerable storage of groundwater.

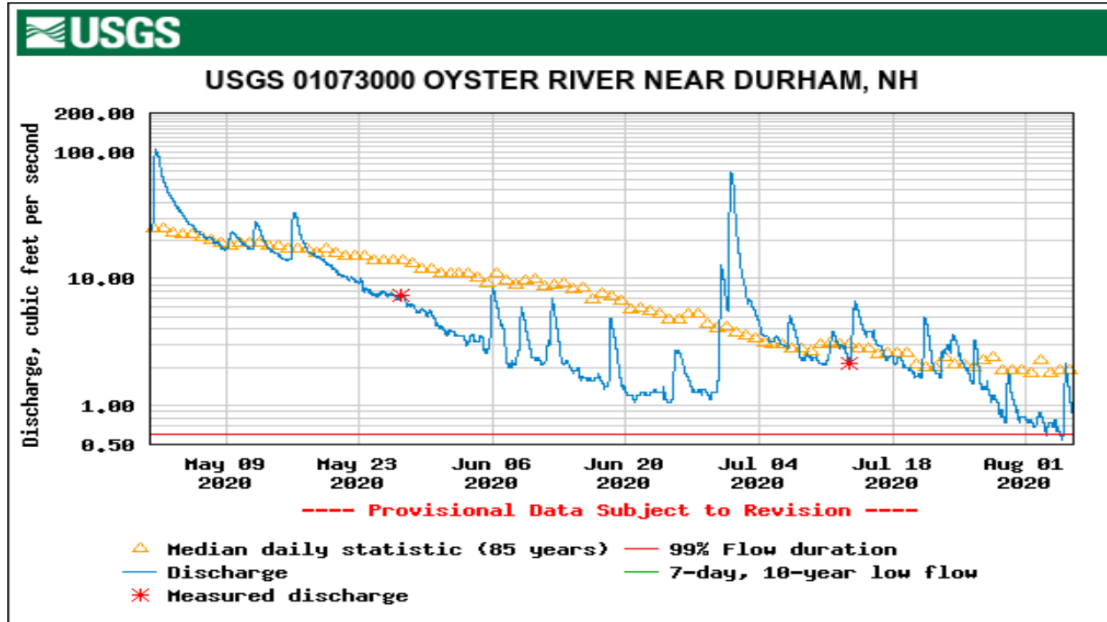
Groundwater from wells in Madbury, Portsmouth and Greenland typically provide between 23% and 42% of the water supply to Portsmouth customers, with the remaining 58% to 77% from the Bellamy Reservoir. In July 2020, 32% of the supply came from wells, 68% from the reservoir.

River Flow

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 monthly mean July stream flow in the Oyster River at the USGS gauge was 3.95 cfs, which is 0.44 cfs (10%) lower than the 30-year July median flow rate of 4.40 cfs. The mean flow in June was tracking 75 to 95% lower than the 30-year June median flow rate until the rainfall on June

30th. The following graphic shows the effect of that rain. Flow through July were close to normal; however, they have declined in early August to flows that are lower than normal for this time of year.



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 water level is 1.1 feet higher than it was at this time in 2016 when the drought was affecting the region.

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 527 million gallons of water above the lower surface water intake.

Water Supply Capability

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 combined Portsmouth/Pease 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 good condition, thus the water demand is currently being met. However, if hot a dry conditions persist we may need to ask our customers to start limiting non-essential water usage such as irrigating lawns.

Water Quality Information

The Portsmouth Water Division routinely monitors water quality parameters and performs water quality sampling and analysis as directed by the Federal Safe Drinking Water Act and the New Hampshire Department of Environmental Services. Water sources are monitored for radioactive, biological, inorganic, volatile organic, or synthetic organic contaminants. Critical water treatment parameters for turbidity, pH, chlorine, orthophosphate and fluoride are continually monitored and tracked by our system operators. The regulations require us to monitor for certain substances less often than once per year because the concentrations of these substances do not change frequently. In these cases, the most recent sample data are reported, along with the year in which the sample was taken. Annual Water Quality Reports for both water systems detail these efforts. The reports for 2019 were recently mailed to each water system customer. They are also available at:

cityofportsmouth.com/publicworks/water/drinking-water-quality

PFAS Tracking



July 2020 Photo of Pease Grafton Road PFAS Water Treatment Facility Construction

Our efforts to track and treat the PFAS contamination at the Pease International Tradeport continue. PFAS stands for a broad group of perfluoroalkyl and polyfluoroalkyl substances, produced and found in many commercial products and also used in firefighting foam. Per- and

polyfluoroalkyl substances (PFAS) are currently unregulated by the Safe Drinking Water Act. However, the EPA Health Advisory concentration standard is 70 parts per trillion (ppt) for perfluorooctane-sulfonic acid (PFOS) and perfluorooctanoic acid (PFOA). In response to the discovery of PFOS in the Haven Well in May 2014 at levels that exceeded the EPA Provisional Health Advisory (200 ppt at that time), the Haven Well was removed from service. This well has remained disconnected from the Pease Tradeport water system since this finding. The source of the PFAS at the Tradeport was aqueous film-forming foam that had been used to extinguish fires and in training exercises at the former Air Force Base. Since 2014, the Harrison Well and Smith Well on the Pease Tradeport water system, and Portsmouth Well #1 and Collins Well in the Portsmouth water system, have been routinely monitored for PFAS by the Air Force.

Activated carbon filters continue to treat the Harrison and Smith wells at Pease. A new treatment facility is currently under construction to treat those two wells together with the reactivation of the Haven well when the construction is completed in the summer of 2021. PFAS tracking of the other Portsmouth surface and groundwater drinking sources continues on a quarterly basis and all data is posted on the city's website.

The State of New Hampshire recently passed legislation to enforce their maximum contaminant level (MCL) regulations for four compounds (PFOA, PFOS, PFHxS and PFNA) that were originally set in 2019. The City has been and will continue to sample PFAS quarterly according to these regulations and post that data on the City's website.

Further Updates and Information

This information will be distributed electronically on the City of Portsmouth's website at:

www.cityofportsmouth.com/publicworks/water.

If anyone needs additional information or has questions contact Al Pratt, Water Supply Operations Manager at 520-0622 or Brian Goetz, Deputy Director of Public Works at 766-1420.