



# EXETER PUBLIC WORKS DEPARTMENT

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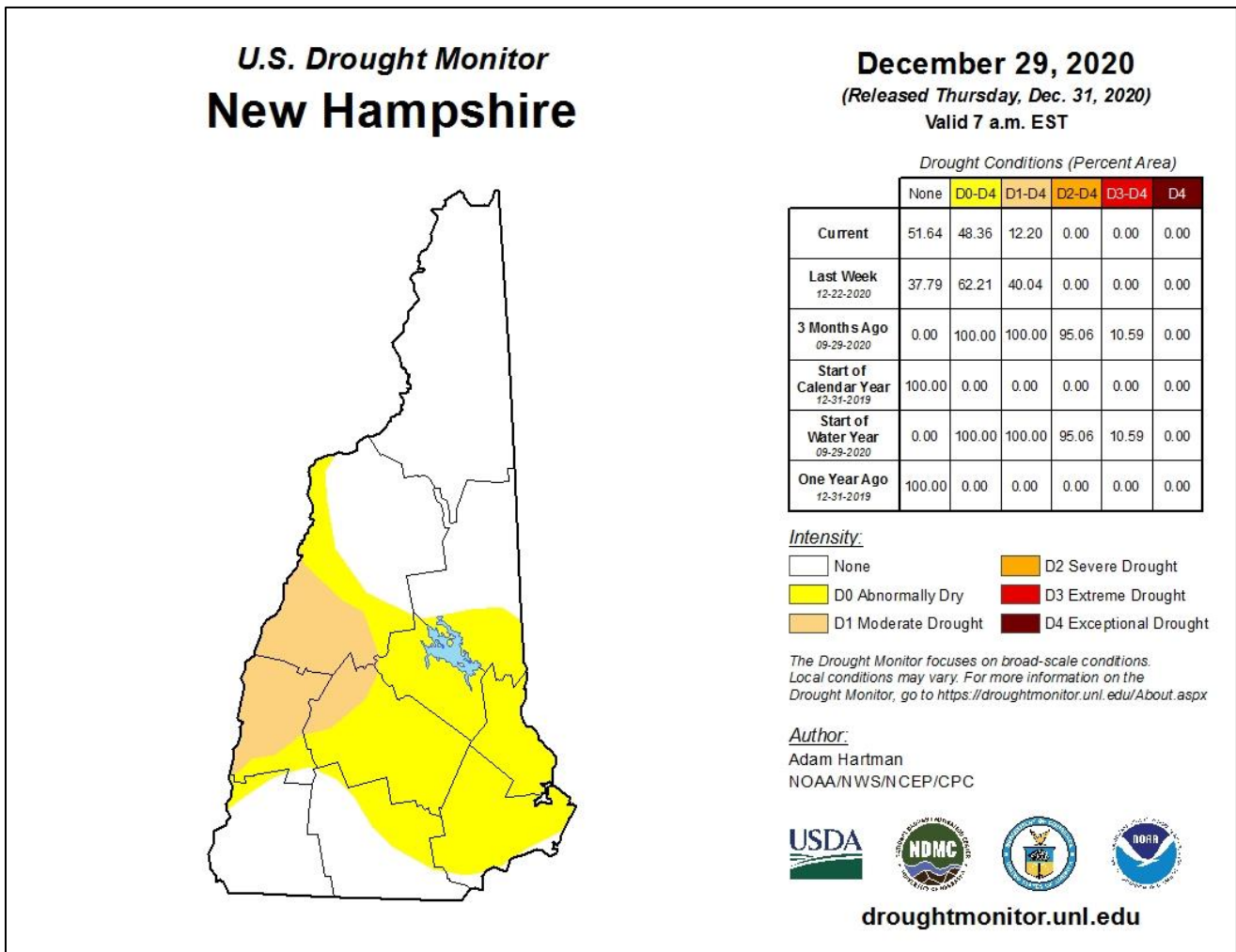
[www.exeternh.gov](http://www.exeternh.gov)

## MEMO

DATE: December 31, 2020  
 TO: Russell Dean, Town Manager  
 FROM: Jennifer R. Perry, P.E., Public Works Director  
 RE: Water Resources Status Update & Recommended Water Use Restrictions

### New Hampshire Drought Conditions

The U.S. Drought Monitor dated December 29, 2020, indicates there has been improvement to current drought conditions; the Town of Exeter and the upper reaches of the Exeter River watershed are abnormally dry (D0). The Exeter Select Board issued Level 4 outdoor watering ban on August 24 when drought conditions were extreme. We recommend **reducing the Level 4 restrictions, which ban outdoor watering, to Level 2 restrictions which allow landscape watering every other day and do not restrict other outdoor water uses.**



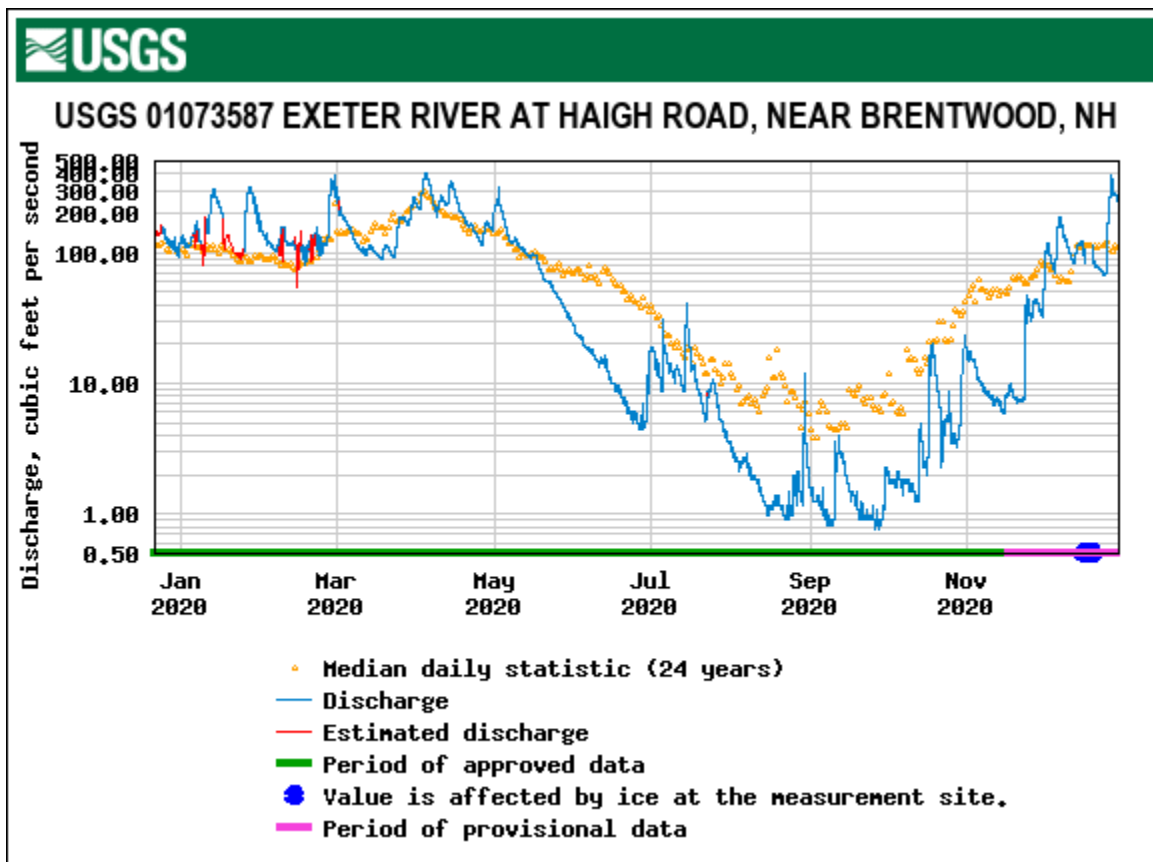
The U.S. Drought Monitor is jointly produced by National Drought Mitigation Center at University of Nebraska-Lincoln, U.S. Department of Agriculture, and National Oceanic and Atmospheric Administration. Map courtesy of NDMC.

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

### River Flow

November and December witnessed several significant rain events and increasing flows in the Exeter River. The USGS stream flow gauge on the Exeter River at Haigh Road in Brentwood (drainage area 63.5 square miles) indicates current instantaneous discharge is 201 cubic feet per second (cfs) (at 10:15 am on 12/31/2020) which is above the 75<sup>th</sup> percentile. The minimum flow on this date was 11.3 cfs in 2002 and the maximum was 490 cfs in 2006. The water supply intake for the Town of Exeter is located several miles downstream, with a contributing watershed of 107 square miles. The flow rates at the intake location are estimated to be 1.69 times higher than at Haigh Road, or approximately 340 cfs (220 MGD).

Exeter River flow rates are **above normal** for this time of year.



<https://waterdata.usgs.gov/usa/nwis/uv?01073587>

### Groundwater Levels

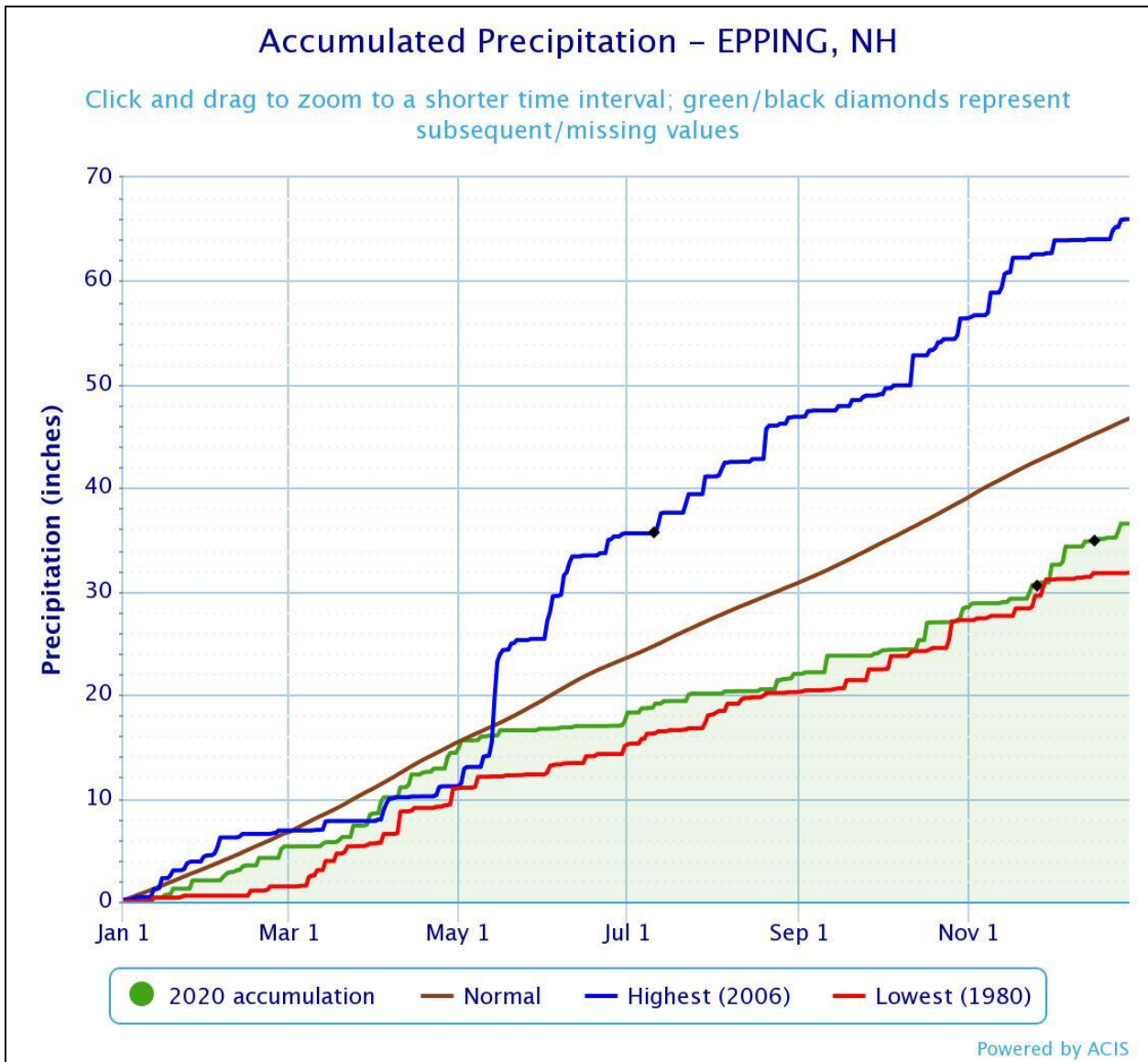
Groundwater levels for long-term monitoring wells in the region vary by location. The USGS wells in Epping, Concord and Nashua range from below normal to low.

Current groundwater levels are considered **below normal to low** for this time of year.

### Precipitation

Several significant precipitation events occurred in November and December, totaling 8.08 inches which is slightly above the 2-month normal of 7.78 inches. However, total precipitation received since January 1 through December 31 is 36.54 inches which is 10.41 inches below the mean of 46.95 inches (Source: National Weather Service NOWData for Epping, NH). Total annual precipitation averages 48.11 inches for this site (55 years of record).

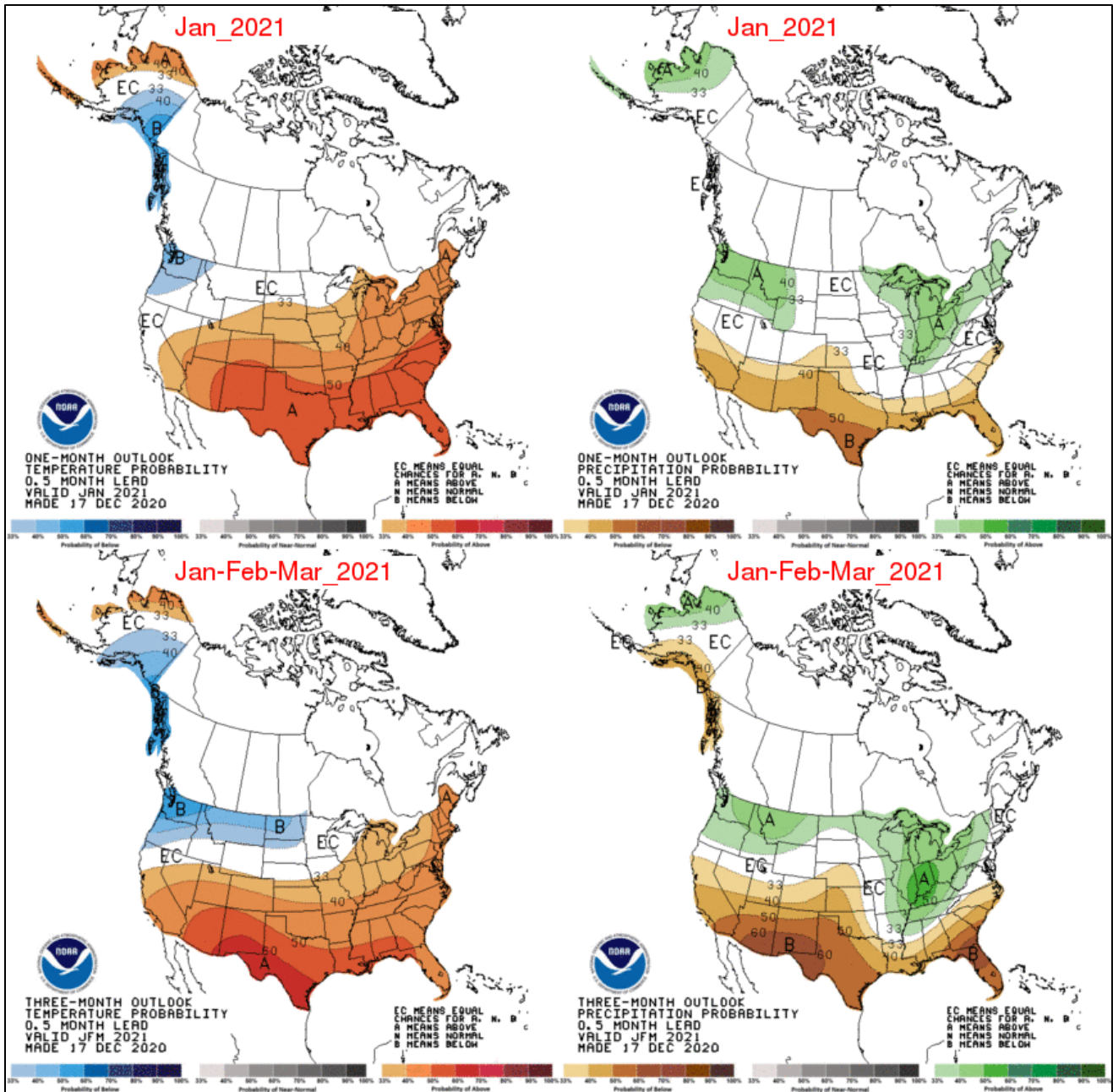
There is a **10.41 inch precipitation deficit** for the year; precipitation is **much below normal** for the year. November and December precipitation is above normal.



NOAA/National Weather Service, Gray/Portland Office. NOWData for Epping, NH.

### Temperature and Precipitation Forecast

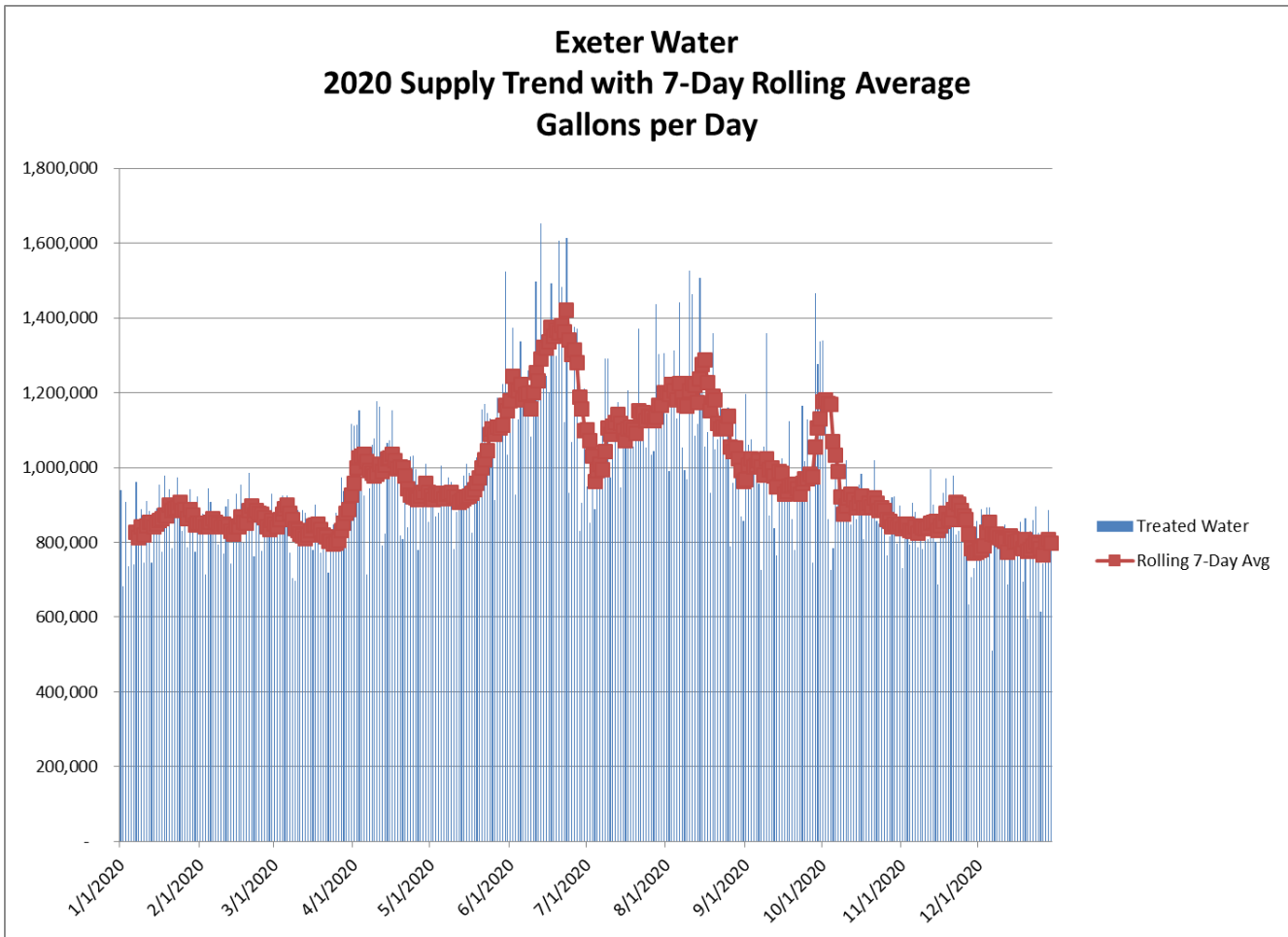
January and the 3 month outlook (January, February, March) **temperatures** are predicted to continue to be **above normal**. **January precipitation is predicted to be above normal**; the three month outlook (January, February, March) indicates equal chances for above, normal or below normal precipitation for the New England region.



[http://www.cpc.ncep.noaa.gov/products/predictions/multi\\_season/13\\_seasonal\\_outlooks/color/churchill.php](http://www.cpc.ncep.noaa.gov/products/predictions/multi_season/13_seasonal_outlooks/color/churchill.php)  
[https://www.cpc.ncep.noaa.gov/products/predictions/multi\\_season/13\\_seasonal\\_outlooks/color/page2.gif](https://www.cpc.ncep.noaa.gov/products/predictions/multi_season/13_seasonal_outlooks/color/page2.gif)

### Exeter Water Supply

Overall, water usage or demand in the Exeter public water system has decreased and returned to pre-summer non-irrigated flows. The seven day average in early May was 0.93 million gallons per day (MGD); on December 29 it was 0.80 MGD. To date in 2020 the surface water treatment plant (SWTP) produced 237 MG, supplying 67% of demand. The groundwater treatment plant (GWTP) produced 116 MG, supplying 33% of demand.



### Summary

Exeter and the upper reaches of the Exeter River watershed are abnormally dry (D0). Temperatures have been above average since May and are predicted to continue to be above average through March. Although precipitation events occurred in November and December, precipitation is still well below normal with a 10.41 inch rainfall deficit for the year. Surface waters currently are above normal flow, however groundwater levels are recovering more slowly and are still below normal. Water usage has decreased to 0.80 MGD.

### Recommendations

We recommend reducing the Level 4 restrictions, which ban outdoor watering, to Level 2 restrictions which allow landscape watering every other day and do not restrict other outdoor water uses. Water users are encouraged to continue to practice effective water conservation. For helpful tips on water use and conservation go to <https://www.epa.gov/watersense>.