



EXETER PUBLIC WORKS DEPARTMENT

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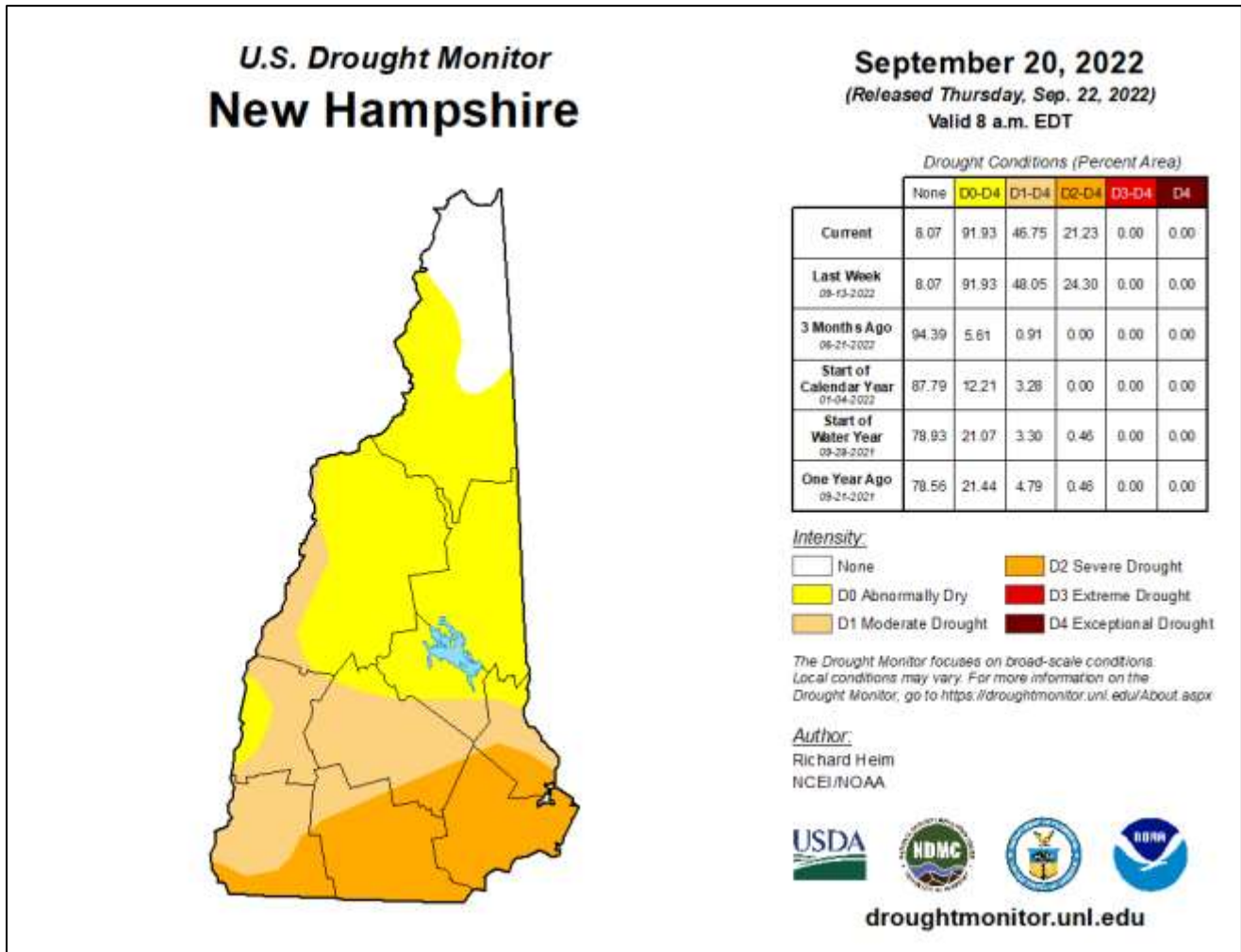
www.exeternh.gov

MEMO

DATE: September 22, 2022
 TO: Russell Dean, Town Manager
 Exeter Select Board
 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 September 20, 2022, indicates 92% of the State of New Hampshire is in abnormally dry (D0), moderate drought (D1) or severe drought (D2) condition. The Town of Exeter and the upper reaches of the Exeter River watershed continues to be in **severe drought** since August 2, 2022; moderate drought starting July 5, 2022; and abnormally dry starting May 17, 2022.



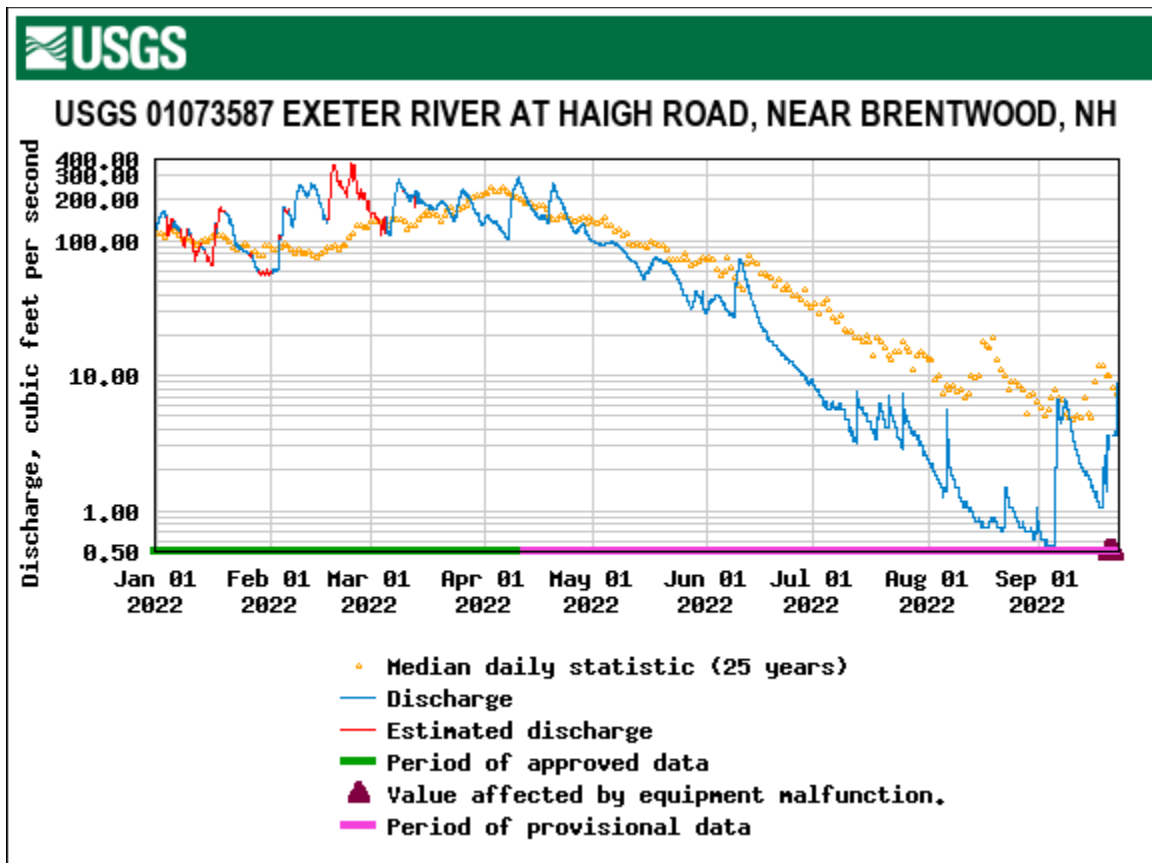
The U.S. Drought Monitor is jointly produced by National Drought Mitigation Center at University of Nebraska-Lincoln, U.S. Department of Agriculture, and National Oceanic and Atmospheric Administration. Map courtesy of NDMC.

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

River Flow

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 8.79 cubic feet per second (cfs) (at 12:15 on 9/22/2022) which is slightly above the median. The water supply intake for the Town of Exeter is located several miles downstream of the gauging station, 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 14.8 cfs (9.6 MGD).

The instantaneous Exeter River flow rate is **average for this time of year**.



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

Groundwater Levels

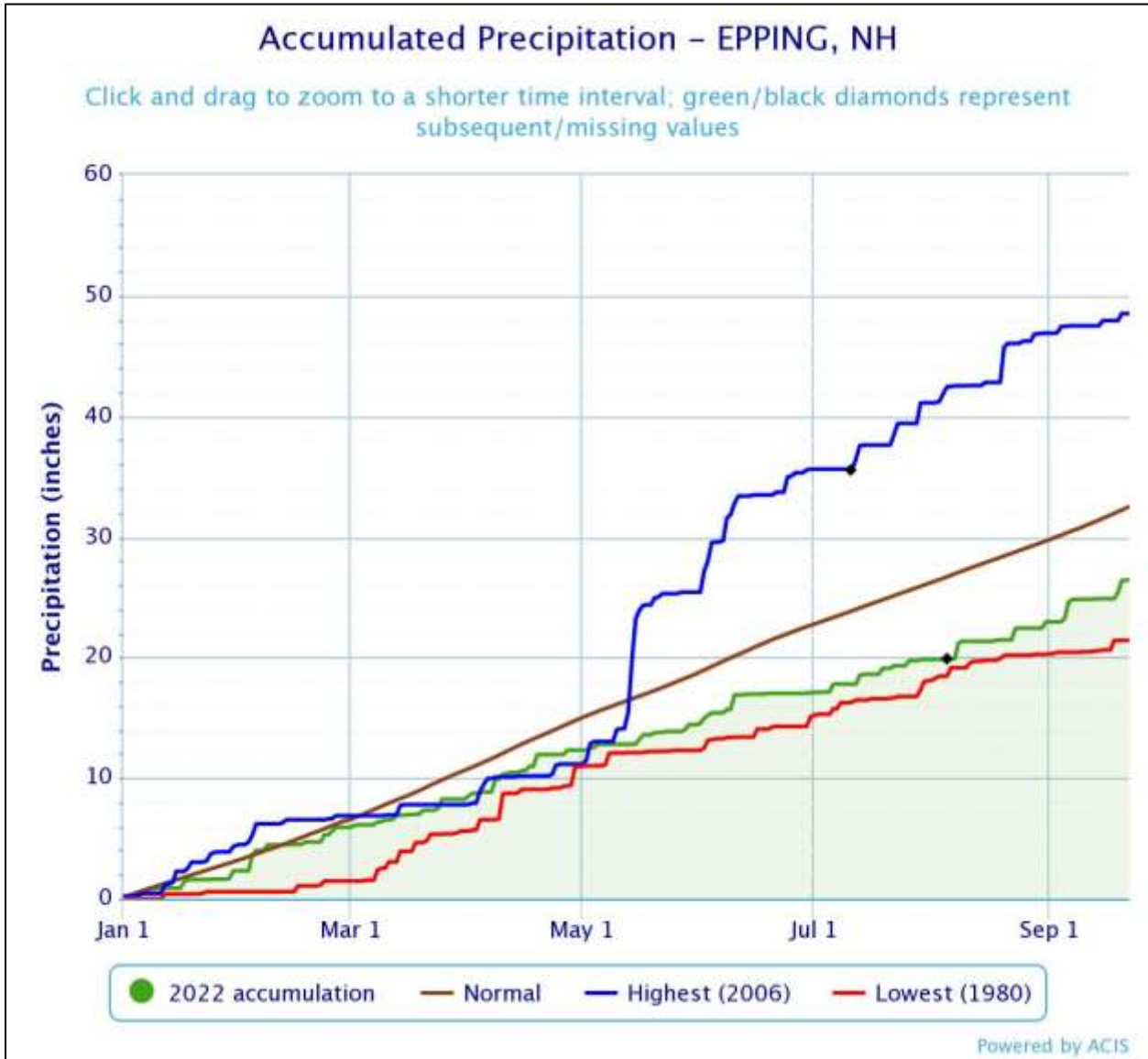
At the end of August, long-term monitoring wells in the southeastern region of the state indicated low to below normal groundwater levels. Groundwater levels in bedrock wells in Northwood and East Kingston were low (below lowest monthly mean); bedrock wells in East Kingston and Hooksett were much below normal (<10th percentile) and bedrock and overburden wells in Deerfield and an overburden well in Epping were below normal (10th to 25th percentile) (see <https://www.des.nh.gov/sites/g/files/ehbemt341/files/documents/nhgs-gwlevels-aug2022.pdf>)

Current groundwater levels in the region are **low to below normal**.

Precipitation

Total precipitation received since January 1 through September 21 is 26.39 inches. There is a rainfall deficit of 5.96 inches below the average of 32.35 inches for this time of year (Source: National Weather Service NOWData for Epping, NH). The total annual precipitation mean is 45.17 inches for this site (records started 1963).

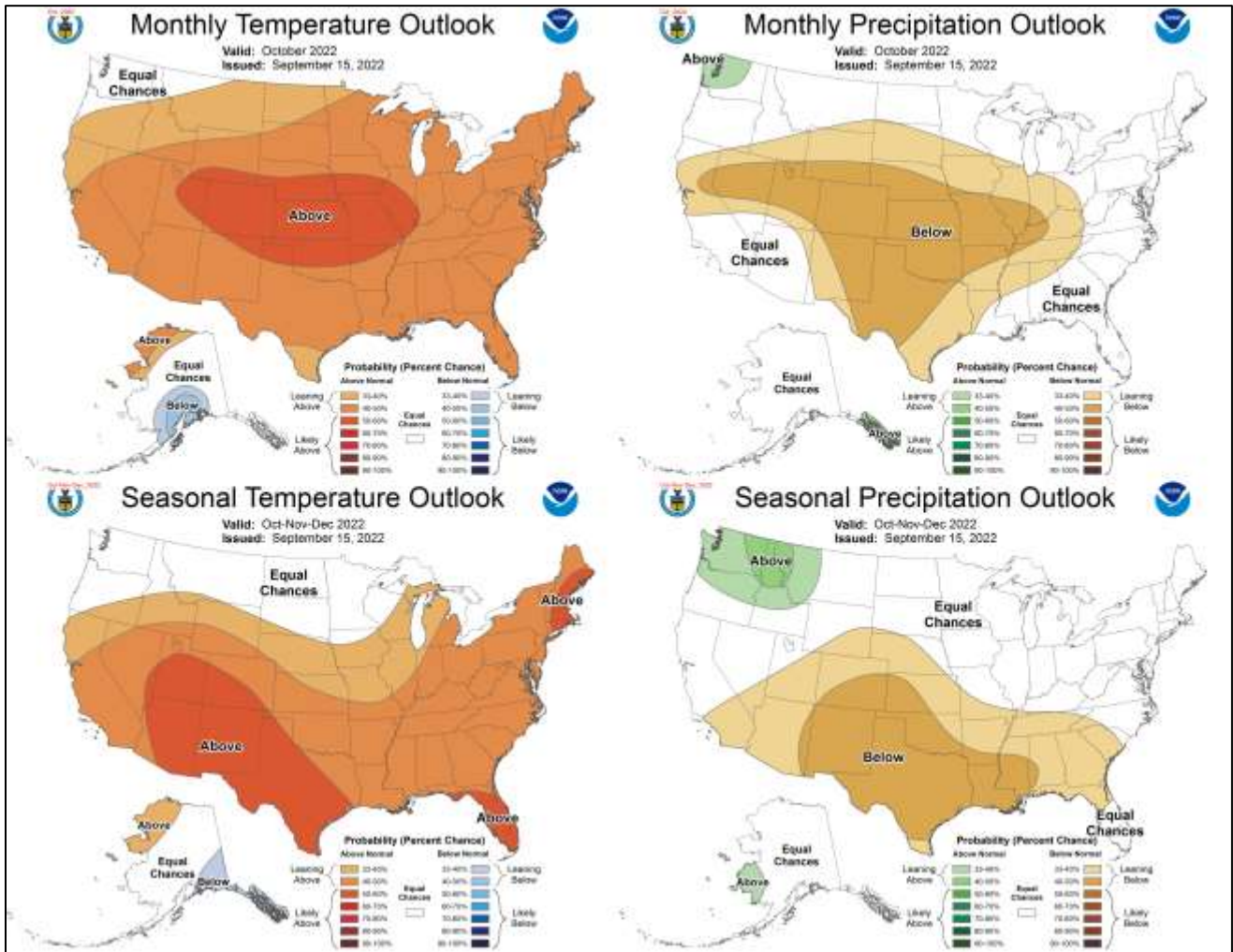
Precipitation is **below average** with a **5.96 inch precipitation deficit** for the year to date.



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

Drought Outlook

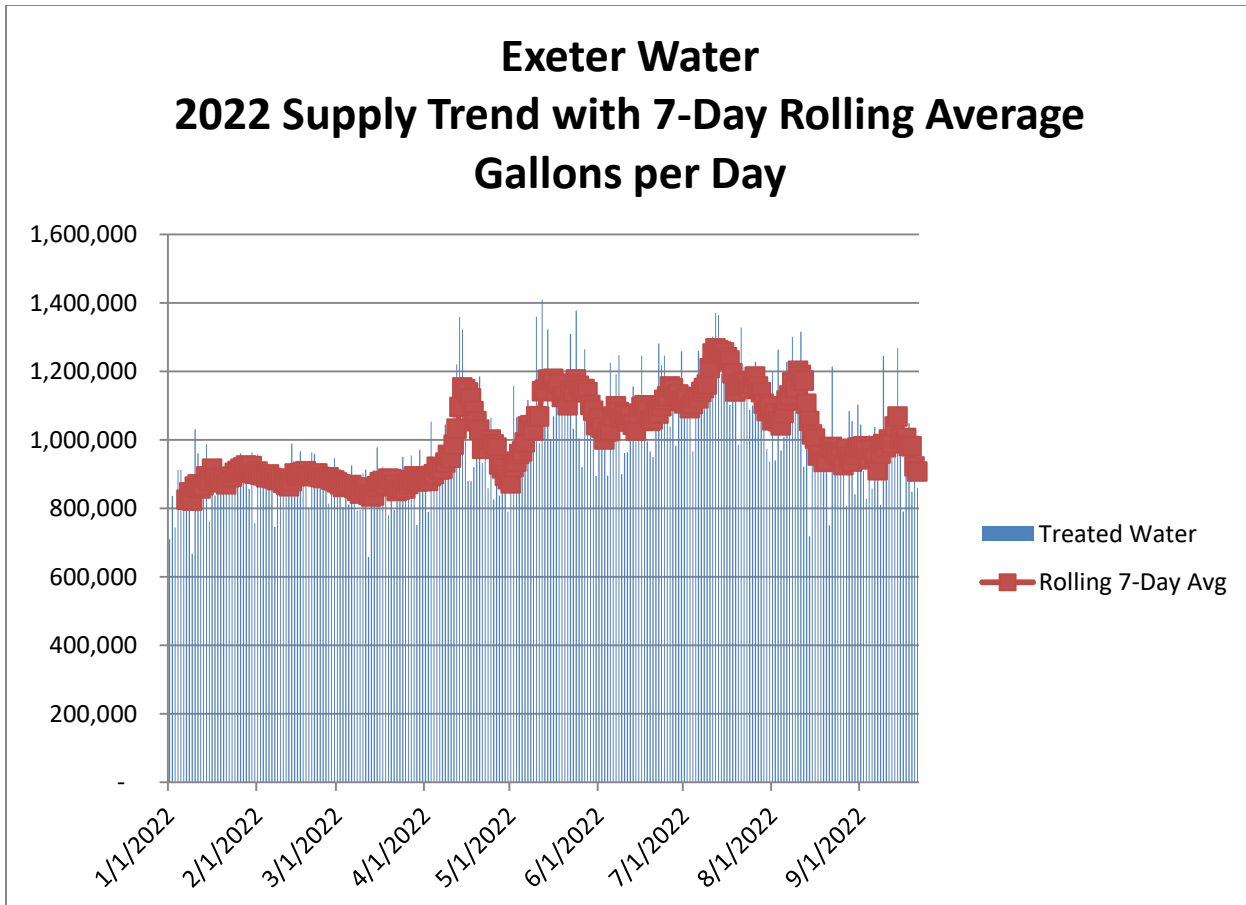
October and the 3 month outlook (October through December) **temperatures** are predicted to continue to be **above normal**. October and the 3 month outlook (October through December) precipitation are predicted to be equal chance for above, normal or below normal.



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

Exeter Water Supply

Water usage or demand in the Exeter public water system reflect summer flows with outdoor water use restrictions. The seven day average on September 21 was 0.91 MGD. To date in 2022 the surface water treatment plant (SWTP) produced 174 MG, supplying 66% of demand. The groundwater treatment plant (GWTP) produced 89 MG, supplying 34% of demand.



Summary

Exeter and the upper reaches of the Exeter River watershed are in severe drought. Temperatures have been above average and are predicted to continue to be above normal through December. Precipitation is below average and there is a 5.96 inch precipitation deficit for the year to date. Surface water flows are just now approaching median and estimated to be 14.8 cfs (9.6 MGD) at the Exeter River intake. Groundwater levels are low to below normal. Exeter water usage reflects summer flows with outdoor water restrictions with the most recent 7 day average of 0.91 MGD.

Recommendations

We recommend leaving the Level 4 outdoor water use restrictions in place for now. Although recent rain events have provided a much-needed relief pulse to surface waters, the groundwater deficit suggests that the recent relief has been, and may continue to be short lived. Water users are always encouraged to practice effective water conservation. For helpful tips on water use and conservation go to <https://www.epa.gov/watersense>.