EXETER PUBLIC WORKS DEPARTMENT

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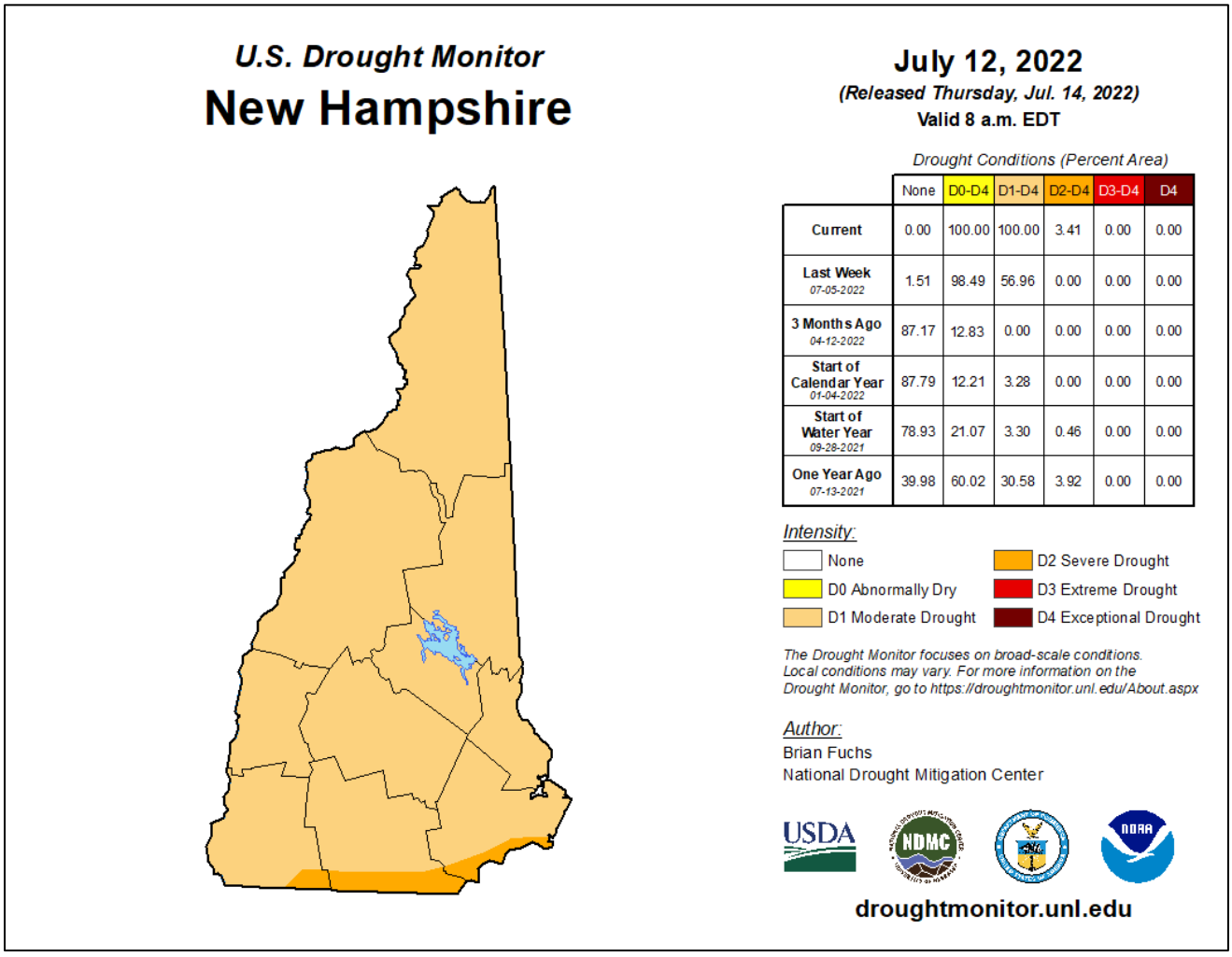
MEMO

DATE: July 14, 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 July 12, 2022, indicates 100% of the State of New Hampshire is in moderate (D1) or severe drought (D2) condition. The Town of Exeter and the upper reaches of the Exeter River watershed are in **moderate drought** and have been since July 5, 2022.

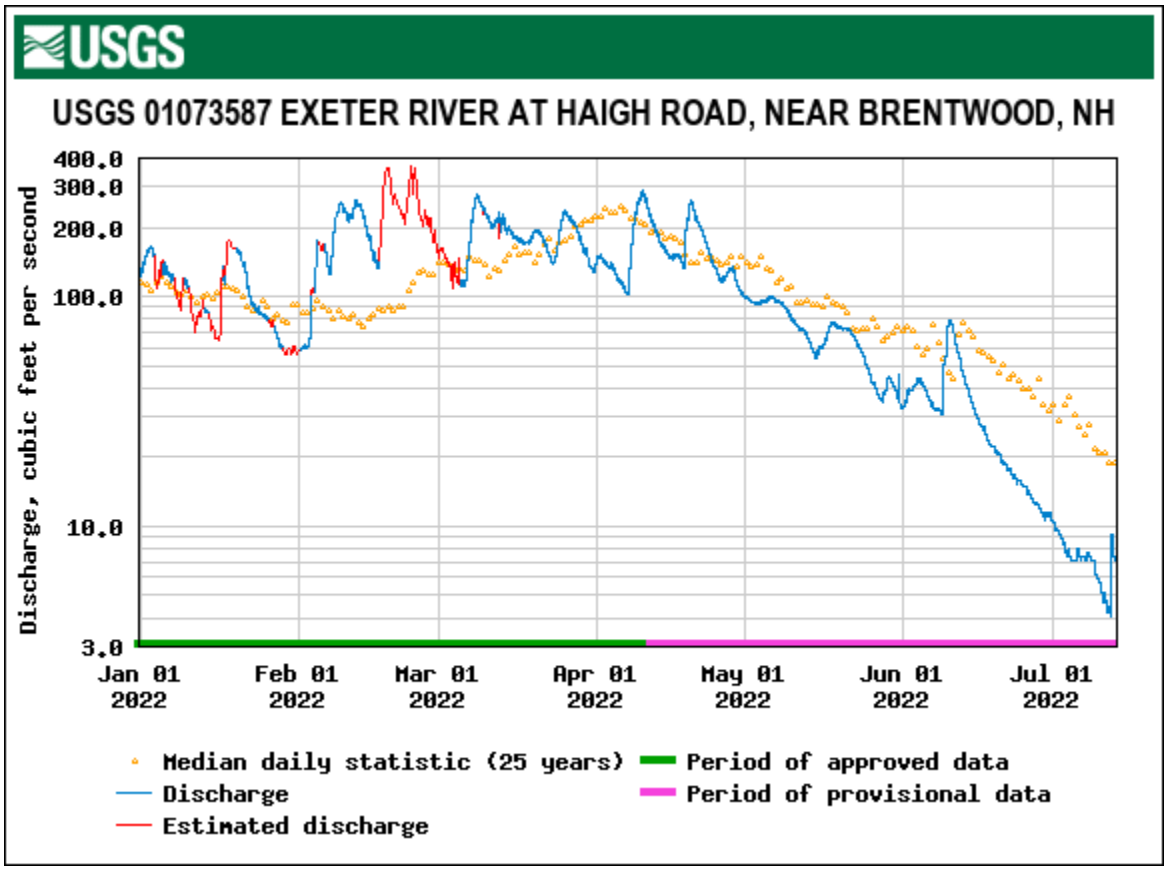


The U.S. Drought Monitor is jointly produced by National Drought Mitigation Center at University of Nebraska-Lincoln, U.S. Department of Agriculture, and National Oceanic and Atmospheric Administration. Map courtesy of NDMC.
https://droughtmonitor.unl.edu/CurrentMap/StateDroughtMonitor.aspx?NH

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 7 cubic feet per second (cfs) (at 15:15 on 7/13/2022) which is below 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 12 cfs (7.7 MGD).

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



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

Groundwater Levels

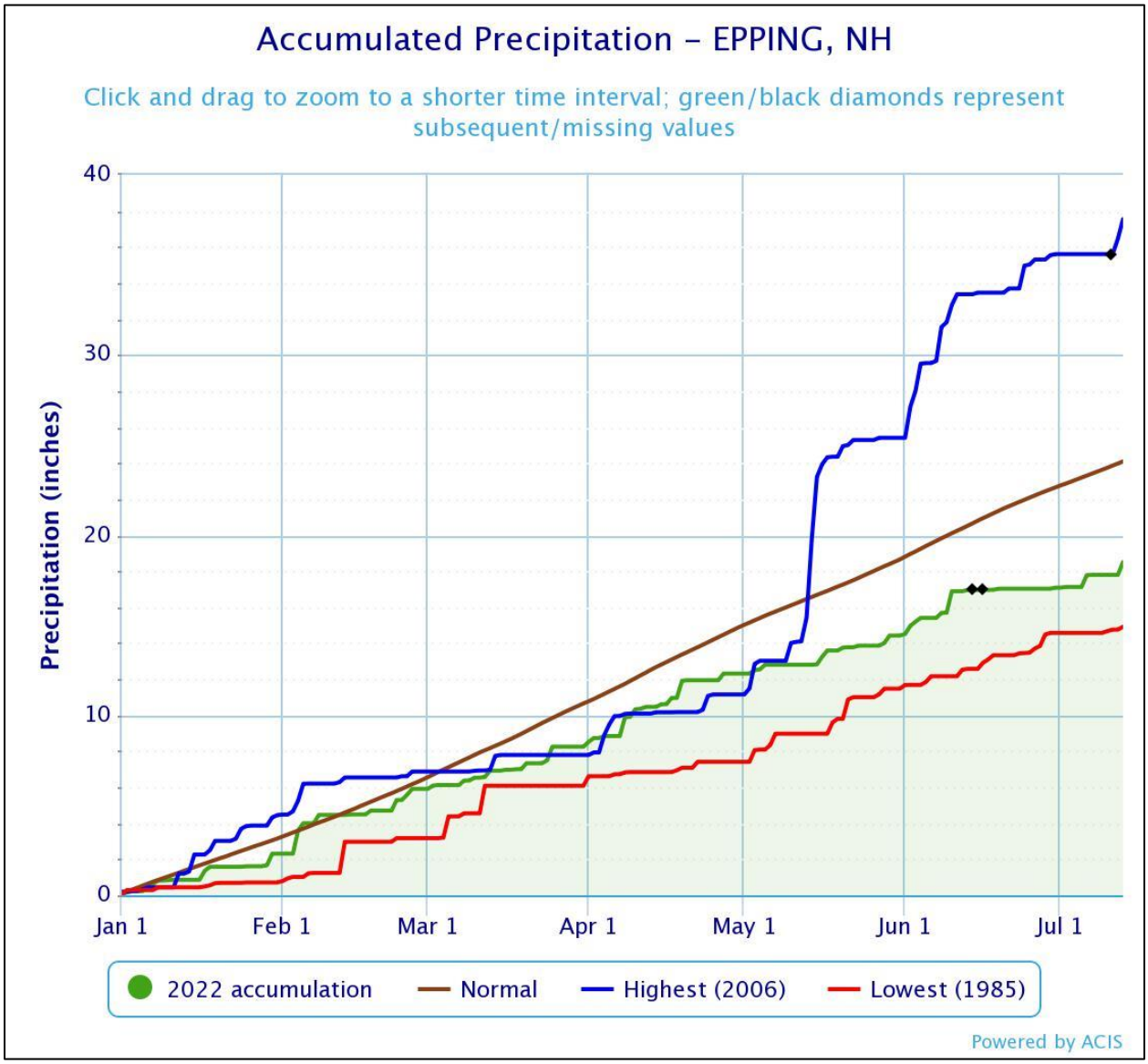
During the month of June, long-term monitoring wells in the southeastern region of the state indicated decreasing groundwater levels. Groundwater levels in bedrock wells in Hooksett and Northwood were low (<10th percentile), two bedrock wells in East Kingston were below normal (10th to 25th percentile) and bedrock and overburden wells in Deerfield and an overburden well in Epping were normal (see https://www.des.nh.gov/sites/g/files/ehbemt341/files/documents/nhgs-gwlevels-jun2022.pdf)

Current groundwater levels in the region are **decreasing, and range from low to normal.**

Precipitation

Total precipitation received since January 1 through July 13 is 18.5 inches. This is a rainfall deficit of 5.59 inches below the average of 24.09 inches for this time of year (Source: National Weather Service NOWData for Epping, NH). Total annual precipitation averages 46.95 inches for this site (57 years of record).

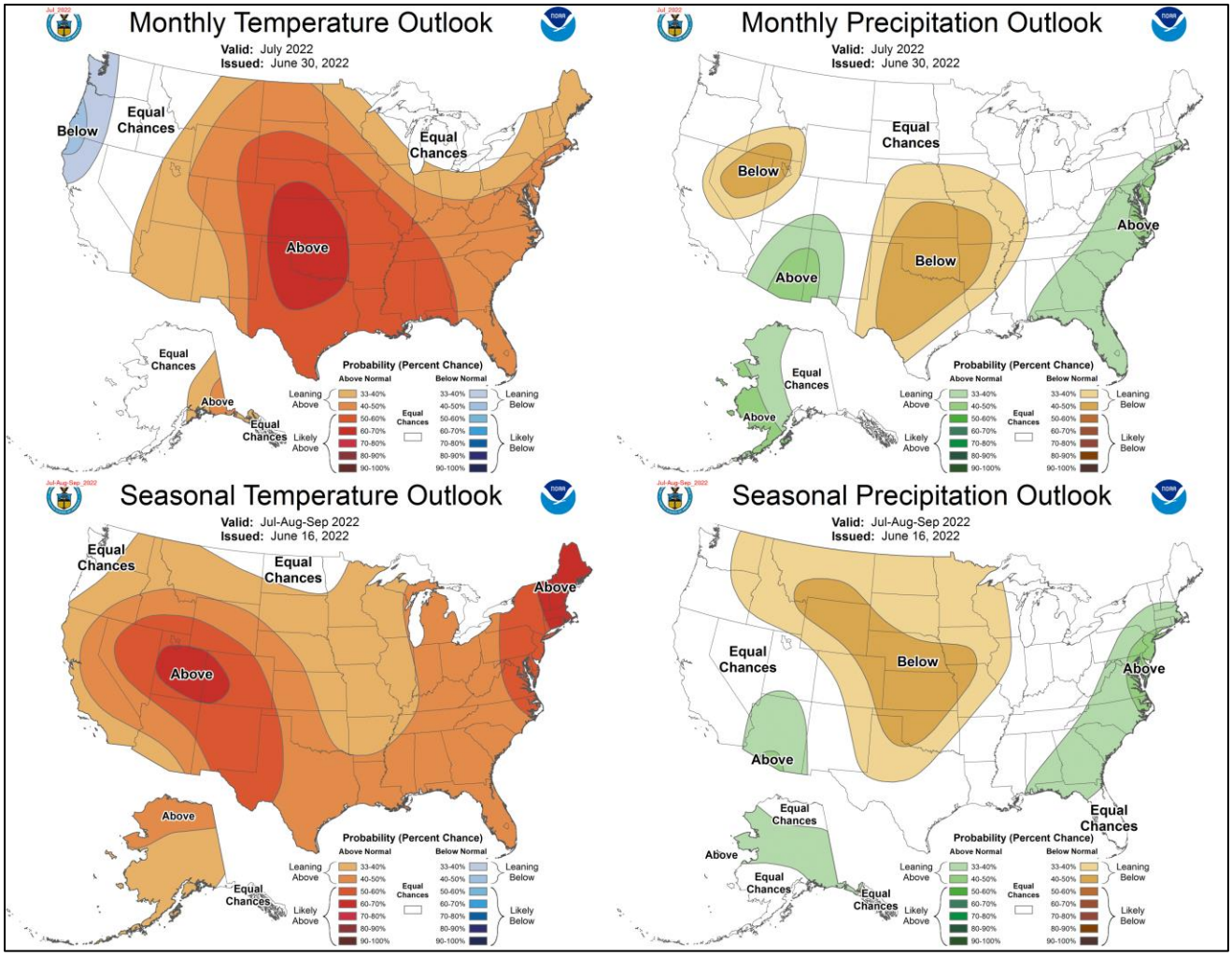
Precipitation is **below average** with a **5.59 inch precipitation deficit** for the year.



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

Drought Outlook

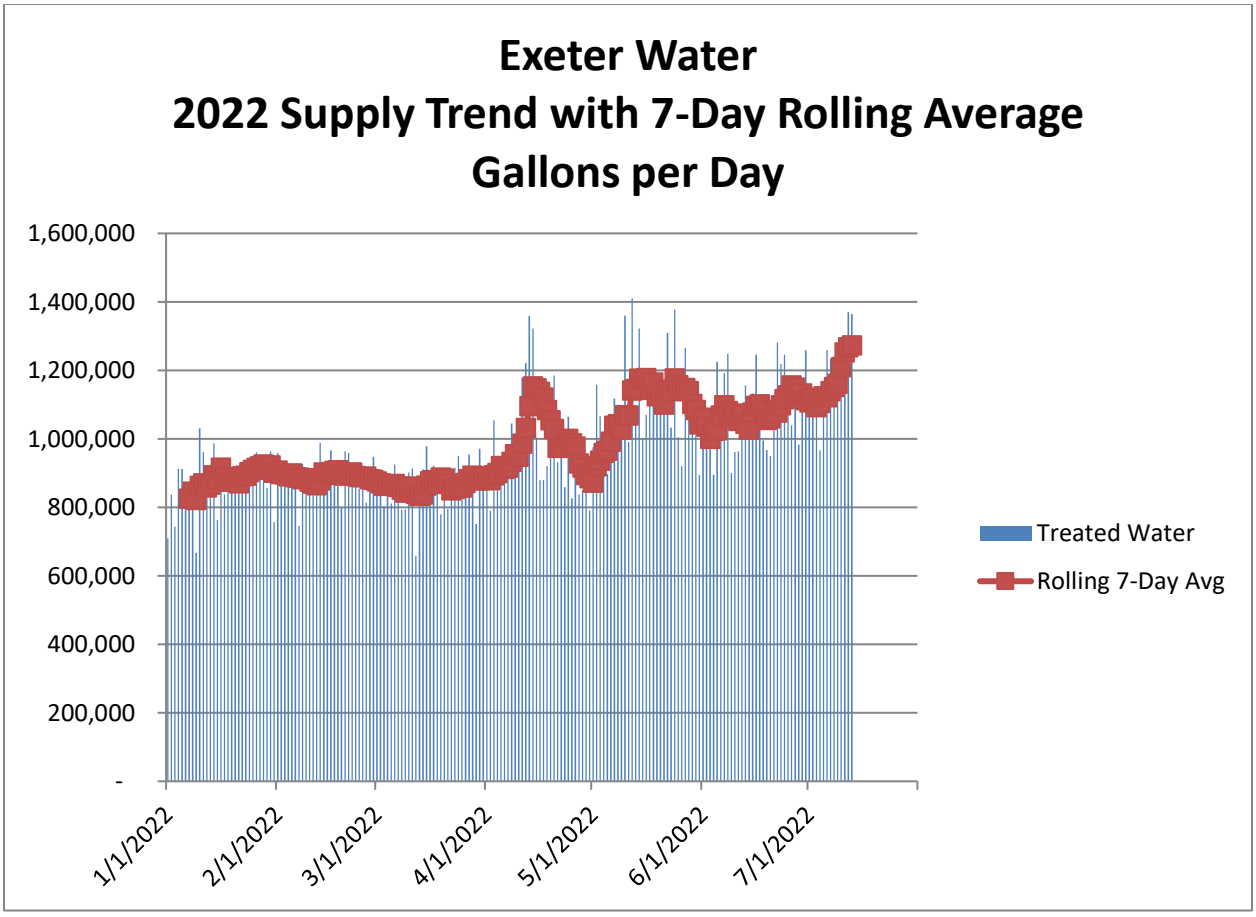
July and the 3 month outlook (July, August, September) **temperatures** are predicted to continue to be **above normal**. July precipitation is predicted to be equal chance for above, normal or below and the 3 month precipitation outlook (July, August, September) is predicted to be slightly above normal precipitation.



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, irrigated flows. The seven day average on July 13 was 1.36 MGD. To date in 2022 the surface water treatment plant (SWTP) produced 125 MG, supplying 65% of demand. The groundwater treatment plant (GWTP) produced 66 MG, supplying 35% of demand.



Summary

Exeter and the upper reaches of the Exeter River watershed are in moderate drought. Temperatures have been above average and are predicted to continue to be above normal through September. Precipitation has been below average and there is a 5.59 inch precipitation deficit for the year. Surface water flows are low and estimated to be 12 cfs (7.7 MGD) at the Exeter River intake. Groundwater levels are decreasing and range from low to normal. Exeter water usage reflects summer irrigated demands with the most recent 7 day average of 1.36 MGD.

Recommendations

We recommend implementing Level 2 outdoor water use restrictions which allow landscape watering every other day (even/odd watering) and do not restrict other outdoor water uses. 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.