



EXETER PUBLIC WORKS DEPARTMENT

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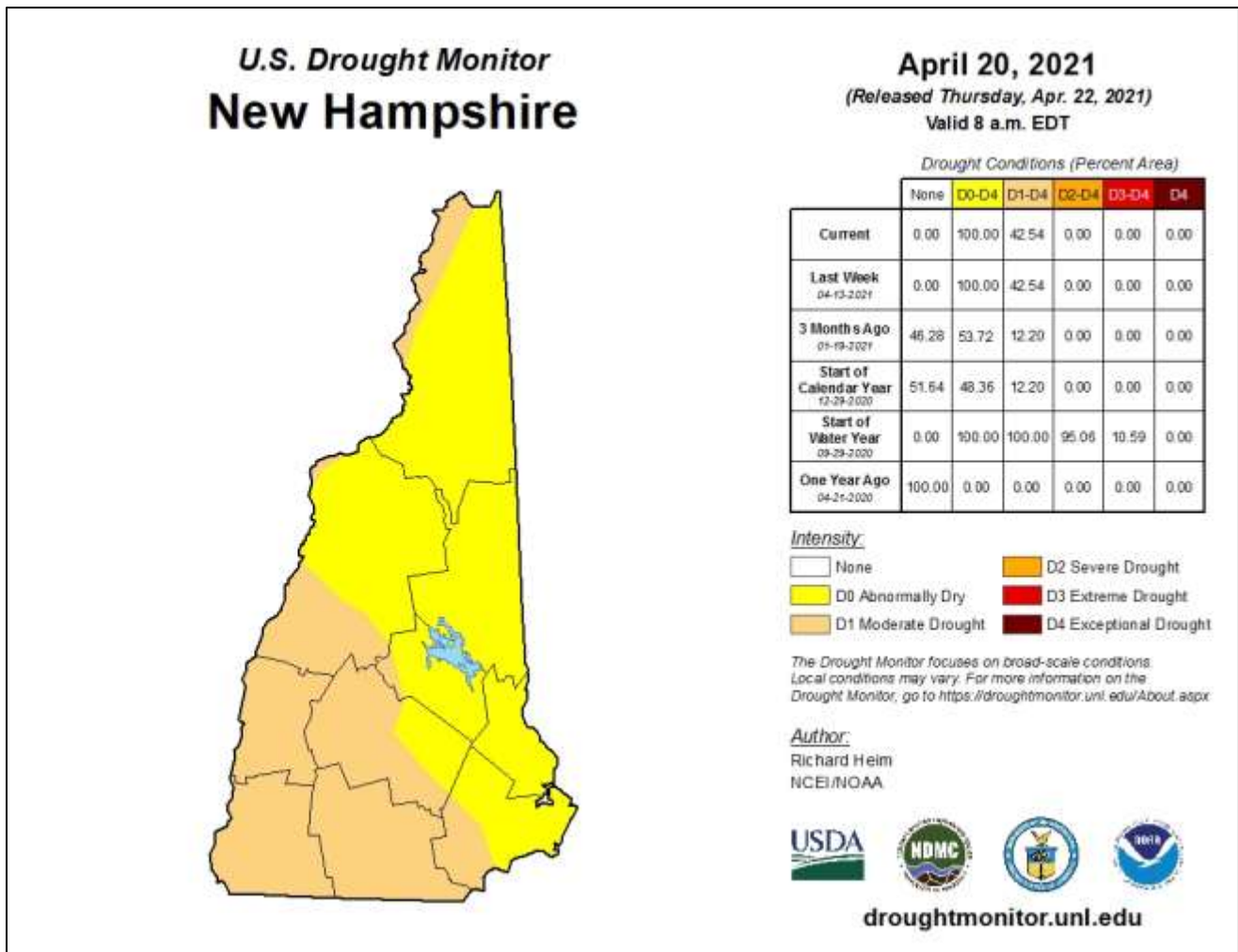
www.exeternh.gov

MEMO

DATE: April 23, 2021
 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 April 20, 2021, indicates the entire State of New Hampshire is now abnormally dry (D0) or in moderate drought (D1) conditions. The Town of Exeter and the upper reaches of the Exeter River watershed continue to be **abnormally dry** (D0); drought conditions have persisted here since May 2020.



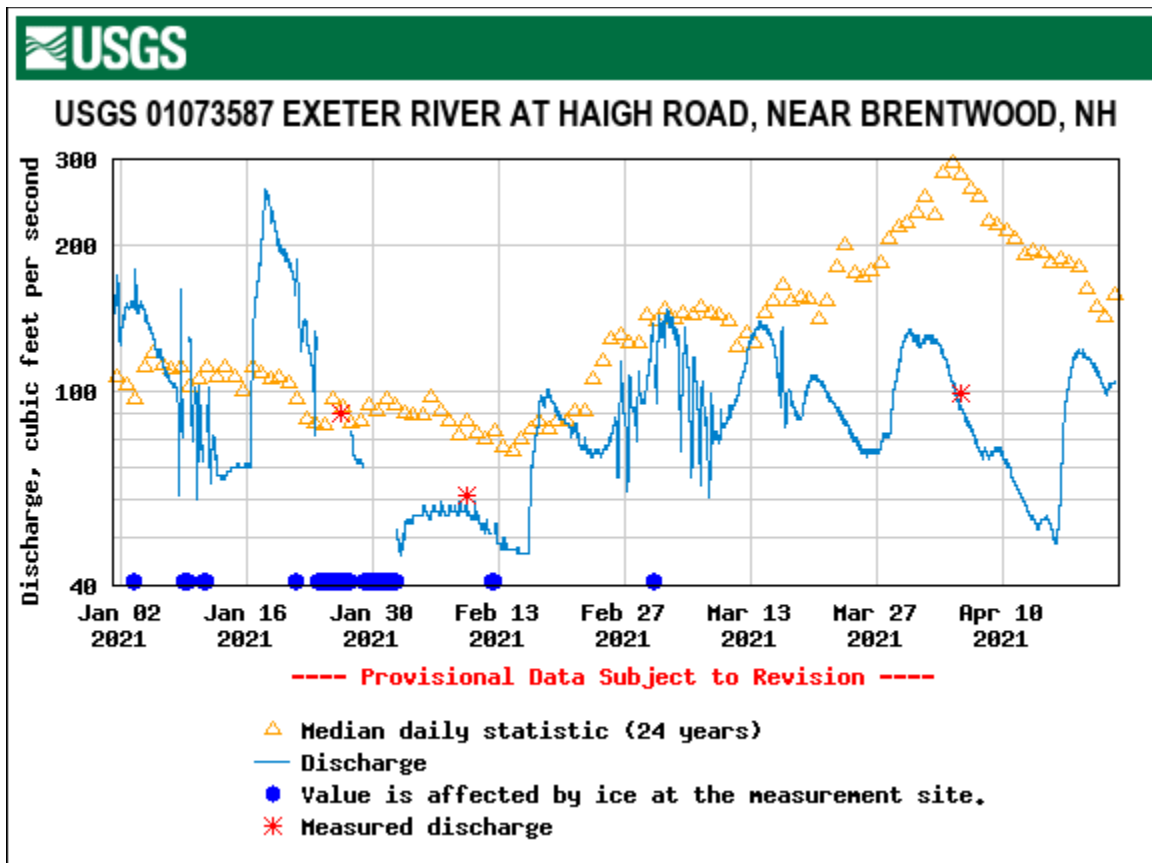
The U.S. Drought Monitor is jointly produced by National Drought Mitigation Center at University of Nebraska-Lincoln, U.S. Department of Agriculture, and National Oceanic and Atmospheric Administration. Map courtesy of NDMC.

<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 99.5 cubic feet per second (cfs) (at 10:15 on 4/23/2021) which is below the 25th percentile and considered below normal. The minimum flow on this date was 48.7 cfs in 2006 and the maximum was 792 cfs in 2000. 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 47 cfs (30.4 MGD).

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



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

Groundwater Levels

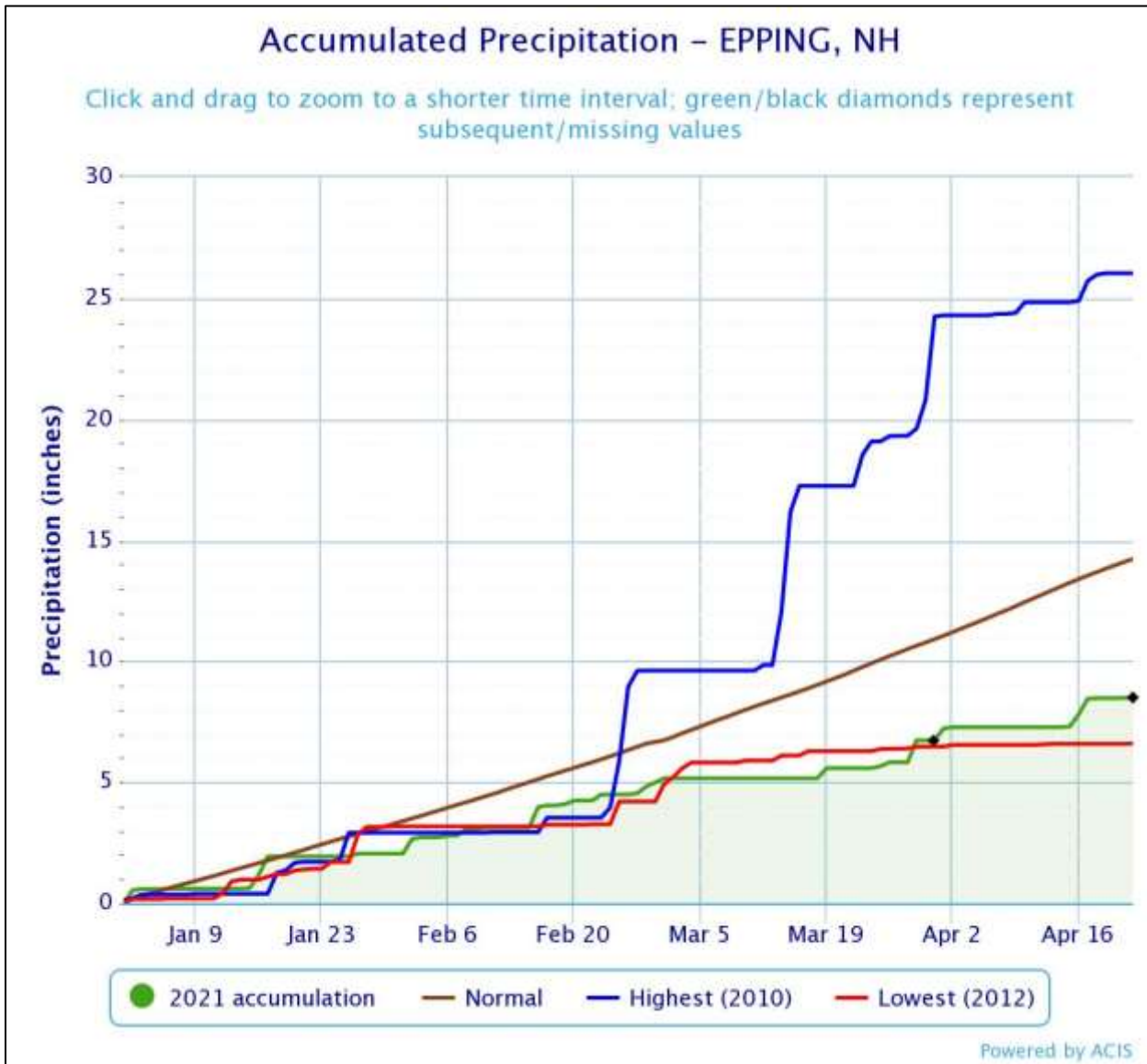
Groundwater levels in many parts of the state have not fully recovered to normal from the dry conditions that began in May 2020 and have been in a steady decline since December. Groundwater levels for long-term monitoring wells in the region vary by location. The USGS wells in Epping, Concord and Nashua are experiencing normal to above average groundwater levels; Deerfield (overburden), Franklin, Greenfield, and Ossipee are below average.

Current groundwater levels are ranging from **below normal to above average**.

Precipitation

April is typically the rainiest month of the year for this region. However, total precipitation received since January 1 through April 22 is 8.48 inches which is 5.74 inches below the mean of 14.22 inches (Source: National Weather Service NOWData for Epping, NH). Total annual precipitation averages 46.95 inches for this site (57 years of record).

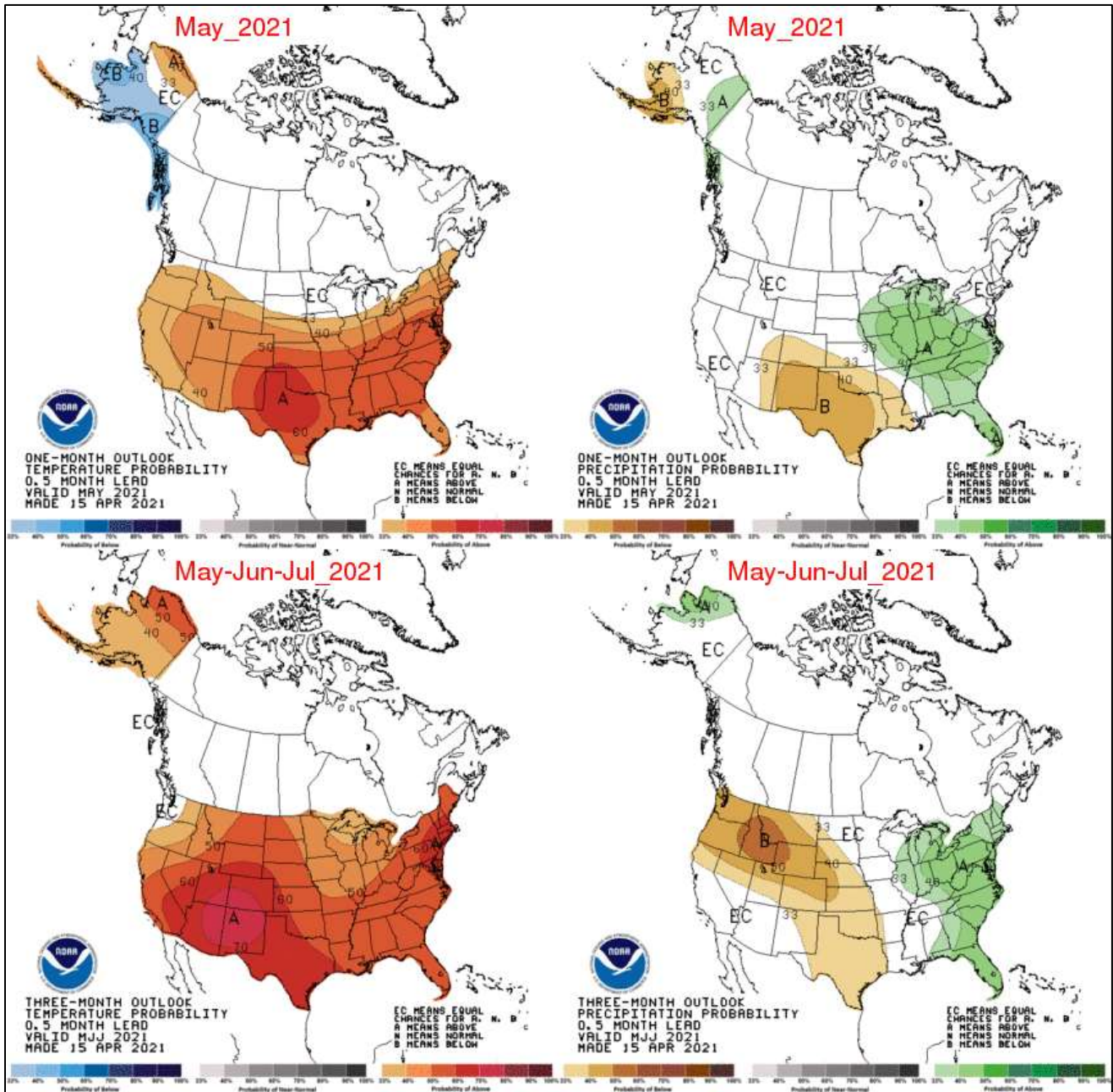
There is a **5.74 inch precipitation deficit** so far in 2021; precipitation is **below normal** for the year.



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

Drought Outlook

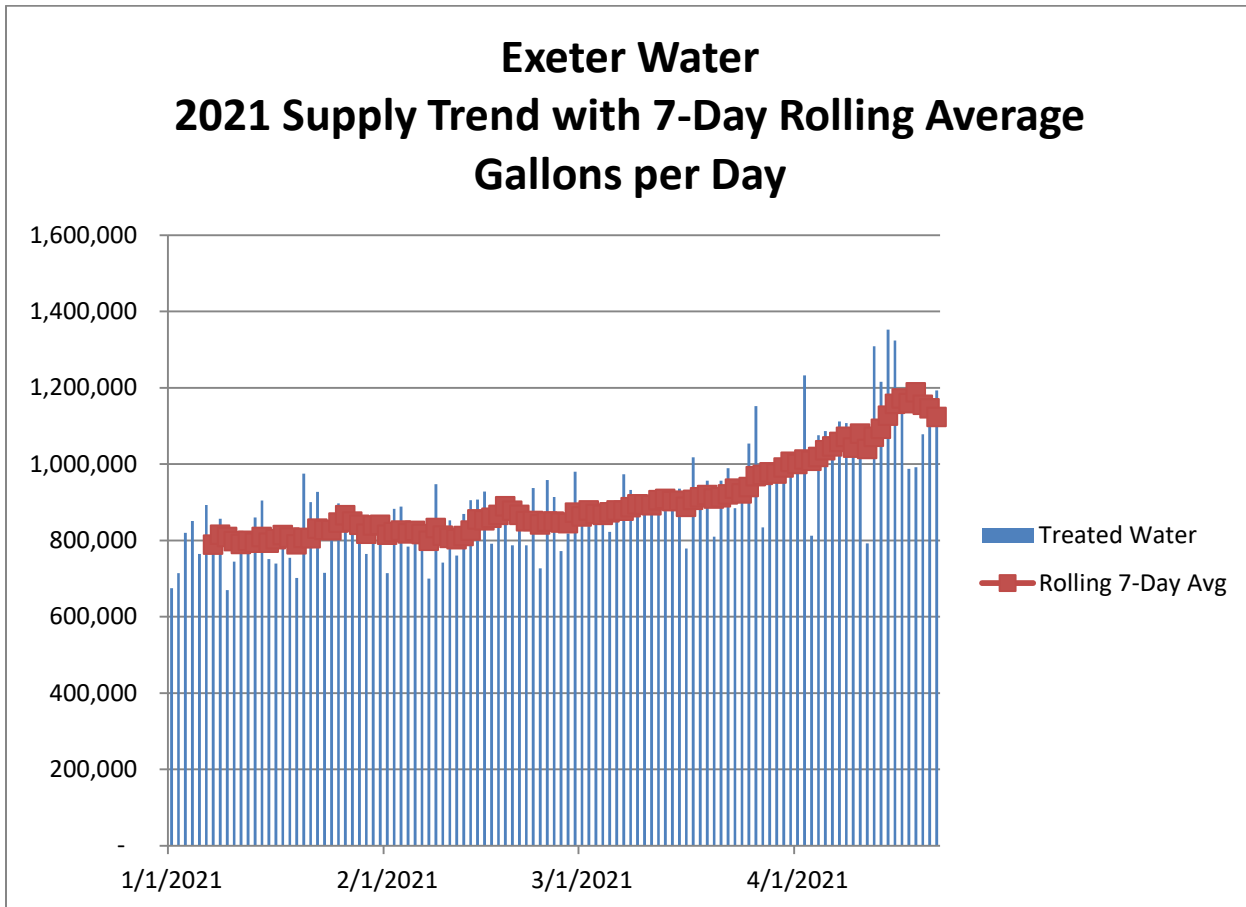
May and the 3 month outlook (May, June, July) **temperatures** are predicted to continue to be **above normal**. May precipitation is predicted equal chance for above, normal or below normal precipitation; the **three month precipitation outlook (May, June, July)** is predicted to be **above normal** for the New England region.



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 is climbing toward summer, irrigated flows. Twice yearly distribution system hydrant flushing commenced April 11 and will be complete by April 30. The seven day average on April 21 is 1.12 MGD. To date in 2021 the surface water treatment plant (SWTP) produced 68 MG, supplying 68% of demand. The groundwater treatment plant (GWTP) produced 32 MG, supplying 32% of demand.



Summary

Exeter and the upper reaches of the Exeter River watershed have been in drought since May 2020 and remain abnormally dry (D0). Temperatures have been above average since May 2020 and are predicted to continue to be above average through July 2021. Precipitation has been below normal with a 5.74 inch rainfall deficit for the calendar year. Surface water flows are below normal (below 25th percentile). Groundwater levels range from below average to above average. Exeter water usage is climbing toward summer flows at 1.12 MGD. Short-term, the precipitation received last Friday and Saturday and showers expected this week will help to prevent drought conditions from worsening, however precipitation forecasts for May do not provide assurance that enough precipitation will be received to turn conditions around.

Recommendations

We recommend continuing the 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 encouraged to practice effective water conservation. For helpful tips on water use and conservation go to <https://www.epa.gov/watersense>.