

**New Hampshire Groundwater Level Monitoring**  
**October, 2020**



**New Hampshire Geological Survey**  
**29 Hazen Drive, PO Box 95**  
**Concord, New Hampshire 03302-0095**

**November 4, 2020**

## GROUNDWATER CONDITIONS SUMMARY

Neither NOAA nor the [Northeast Regional Climate Center](#) (NRCC) at Cornell University have yet released their October precipitation statistics, which are expected to be released next week and will be crucial data to consider during the current drought. In the absence of those summaries, NRCC reports that precipitation across New Hampshire between September 28<sup>th</sup> and October 27<sup>th</sup> was much above average in the northern portion of the state, above average in the central portion, and slightly below average in the southeast portion (Figure 1).

As of October 27<sup>th</sup>, percentages of drought intensity across the state are: 99% in moderate drought, 33% in severe drought, and 16% in extreme drought (Figure 2). Over the course of October, extreme drought had expanded into southern Merrimack Valley to affect a fifth of the state. Thanks to October precipitation, extreme drought has contracted in the southeast, and severe drought has left a large portion of the northern portion of the state.

Figures 1 and 2 show the monthly status of groundwater levels for both bedrock and overburden wells in the network. Only wells with a period of record (POR) 10 years or more are placed within statistical categories of low through high (symbols red through blue, respectively). Bedrock wells are installed into bedrock and overburden wells are installed in the unconsolidated materials above bedrock.

The majority of the wells in the network are experiencing below normal to low groundwater levels. Recent precipitation has raised groundwater levels in many of the wells in the northern portion of the state from low to normal ([see precipitation figures here](#)). The overburden well in Lancaster has recovered to normal after over a year of low readings. In the southern portion of the state, Nashua has also recovered to normal levels. While this has been an improvement, many of the wells are below their long-term monthly average.

In contrast, with slightly below average precipitation in the central and southeast portions of the state, falling or below normal to low groundwater levels continue there. In particular, the dug well in New London has fallen below normal, and the overburden wells in Ossipee, New Durham and Deerfield have fallen below normal or low. The overburden wells in Concord have also fallen since last month while the bedrock wells there have risen.

The New Hampshire Geological Survey's groundwater monitoring network (Figures 1 and 2) currently includes 11 bedrock and 20 overburden observation wells, all of which are measured monthly by hand. Using the monthly hand readings, monthly averages and percentile statistics were calculated and are summarized in Figures 1 and 2, the following hydrographs\*, and in Table 1.

\*The hydrographs show the following data over a period of 12 months: (1) monthly groundwater depths in red, (2) the monthly average over the period of record (POR) of the well in black, and (3) color-coded statistical ranges over the POR of the well. Note the POR is listed below each month's column on the chart and reported as the number of measurements for that respective month. This might include multiple readings in the same month and does not include any gaps in data so therefore may not represent a continuous period.

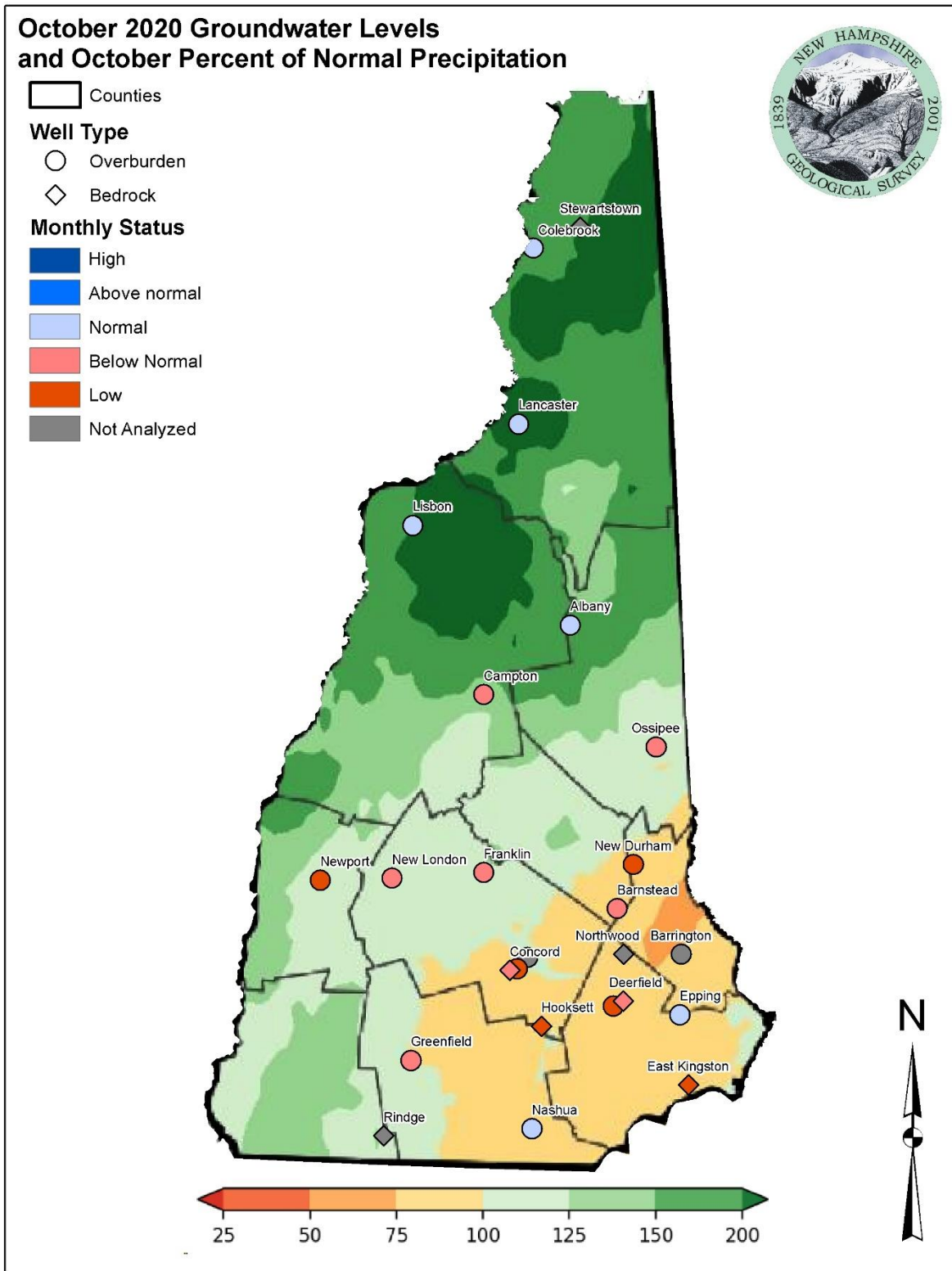


Figure 1. Groundwater Monitoring Network showing groundwater levels relative to statistical envelopes calculated over each well's period of record (POR) and percent normal precipitation map for September 28 – October 27, 2020 ([Northeast Regional Climate Center](#)).

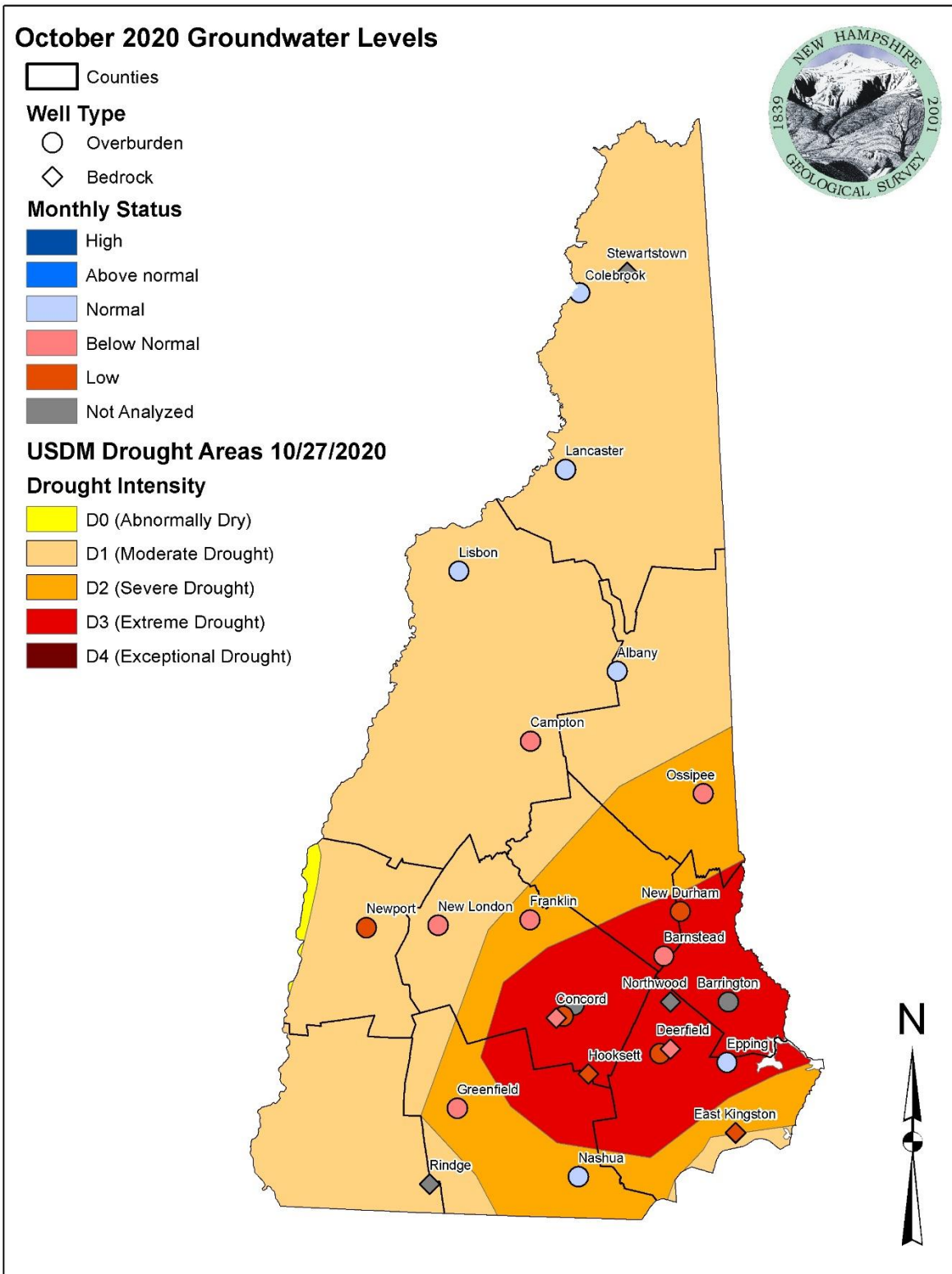
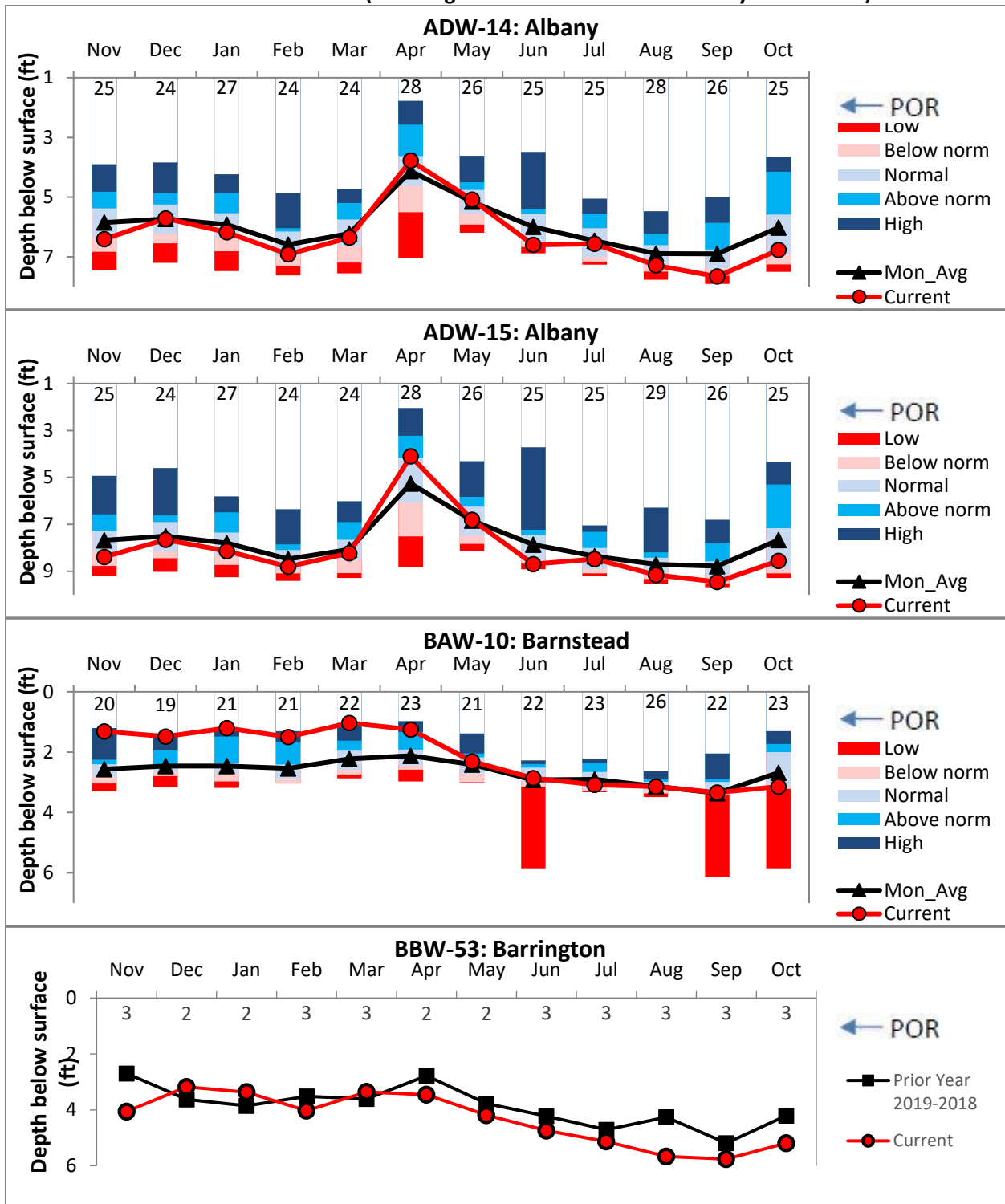
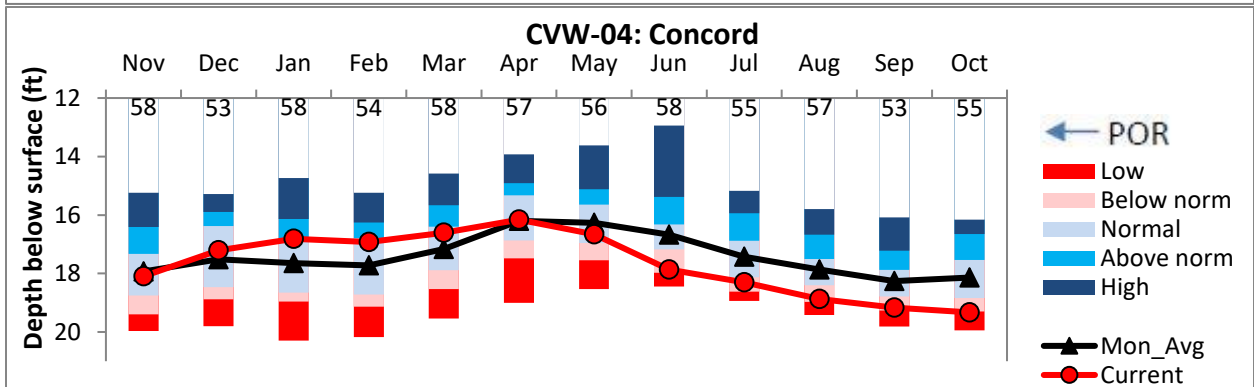
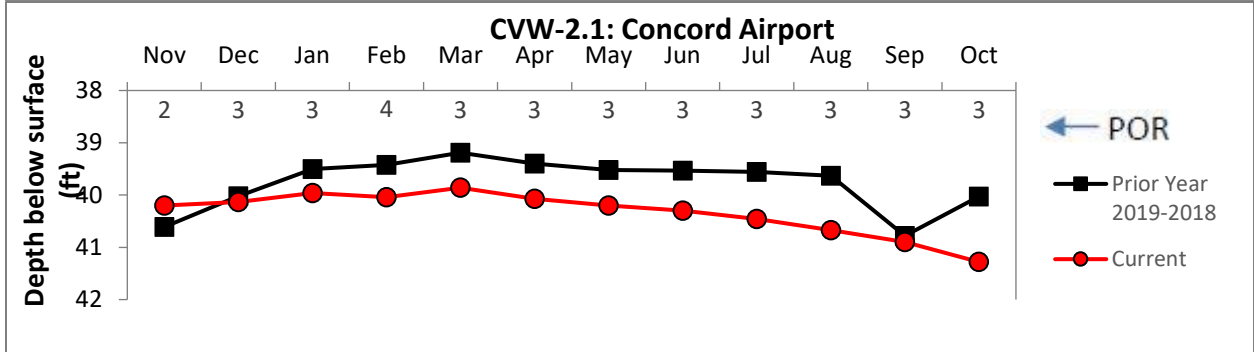
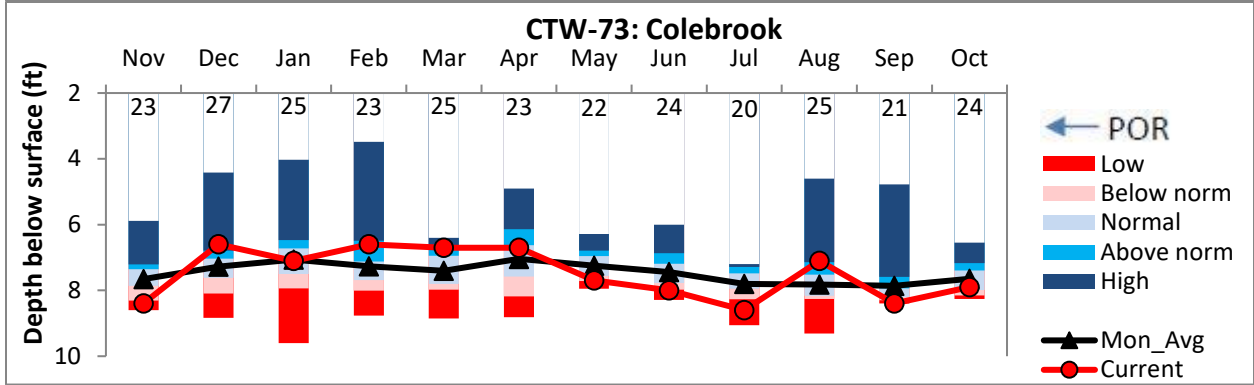
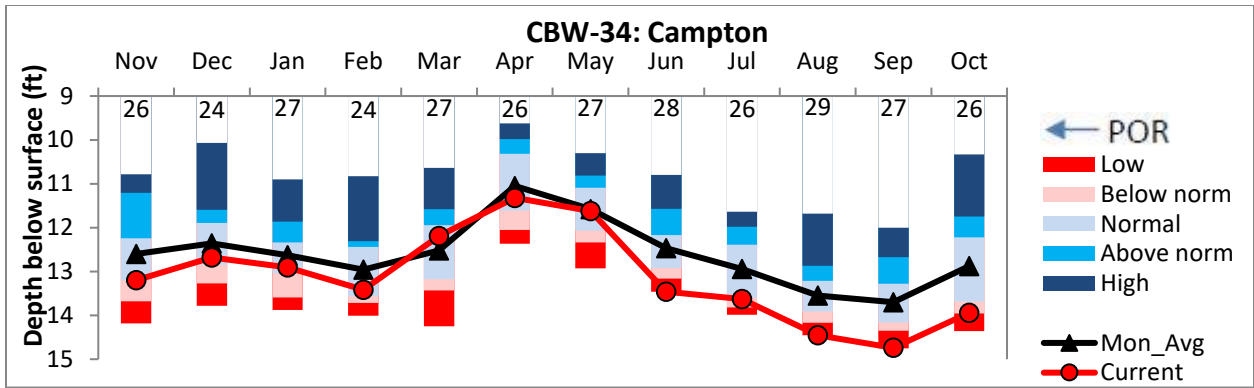
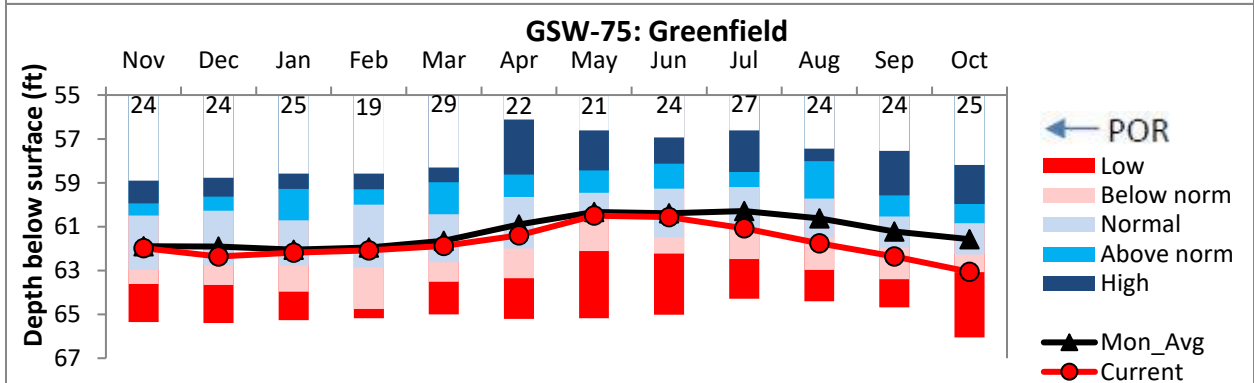
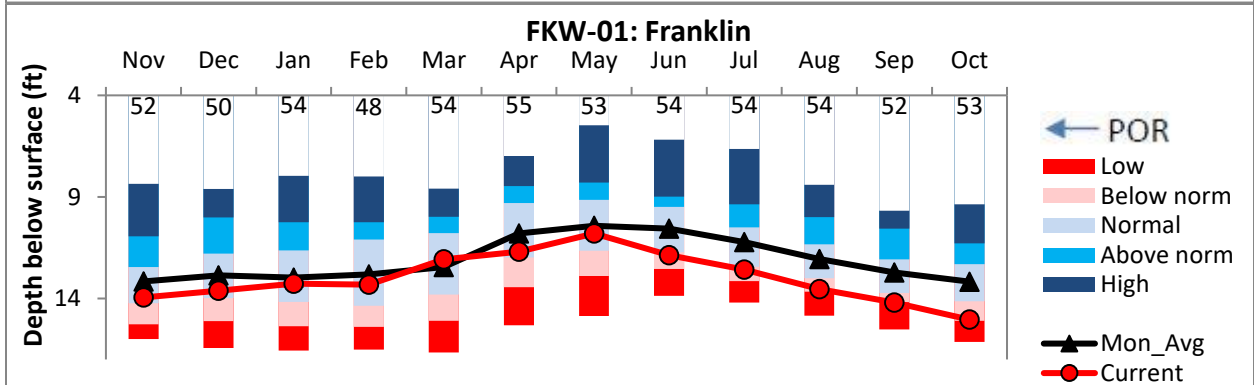
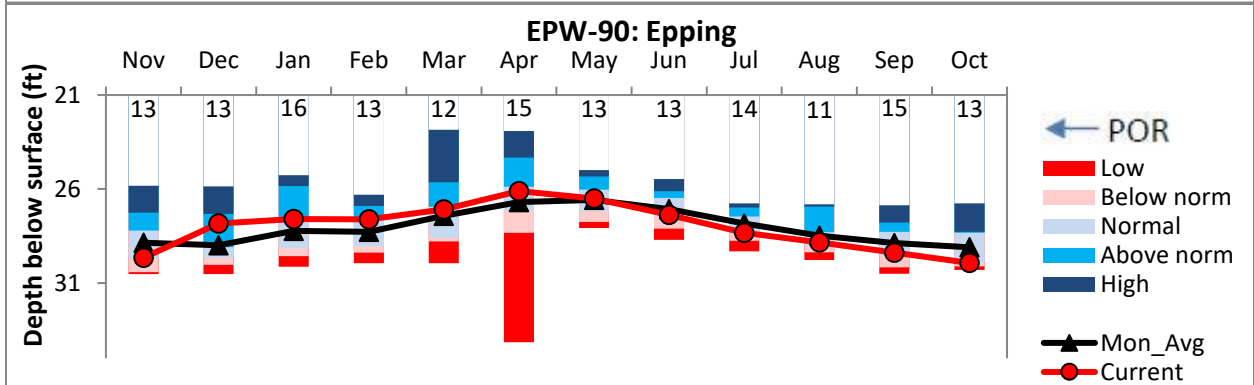
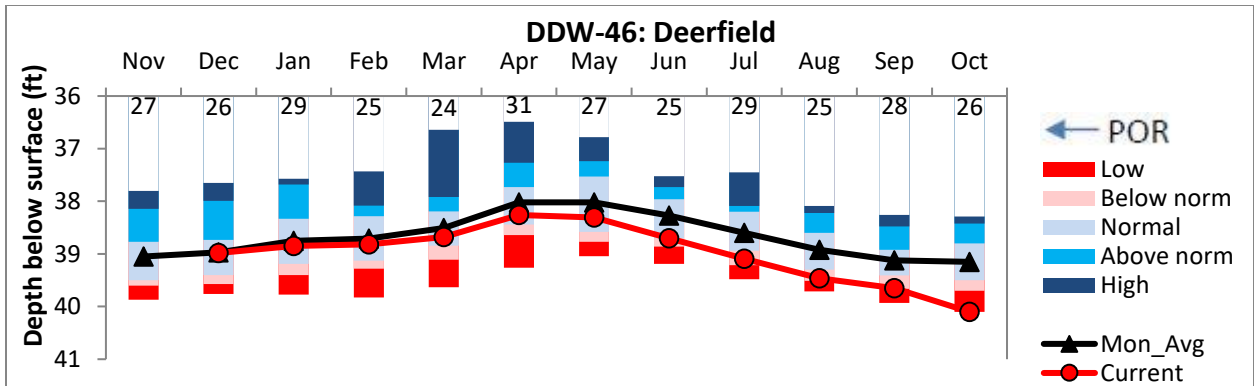


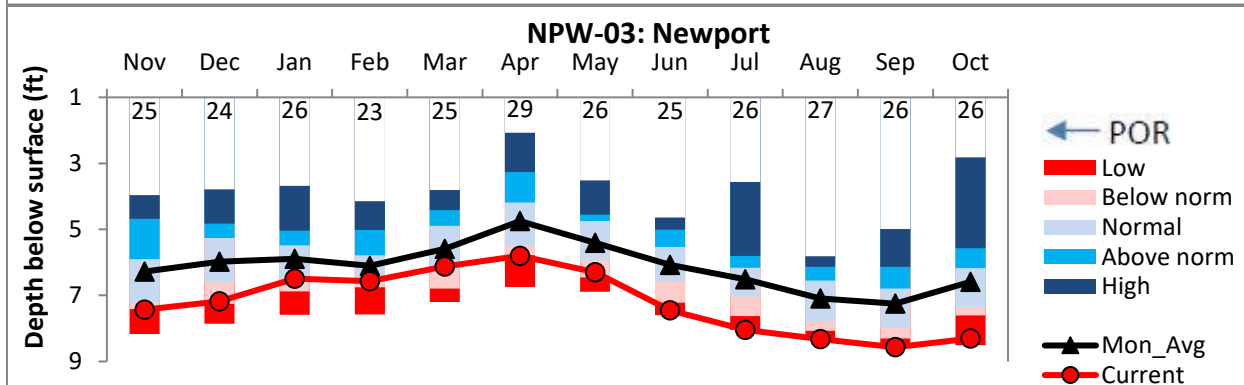
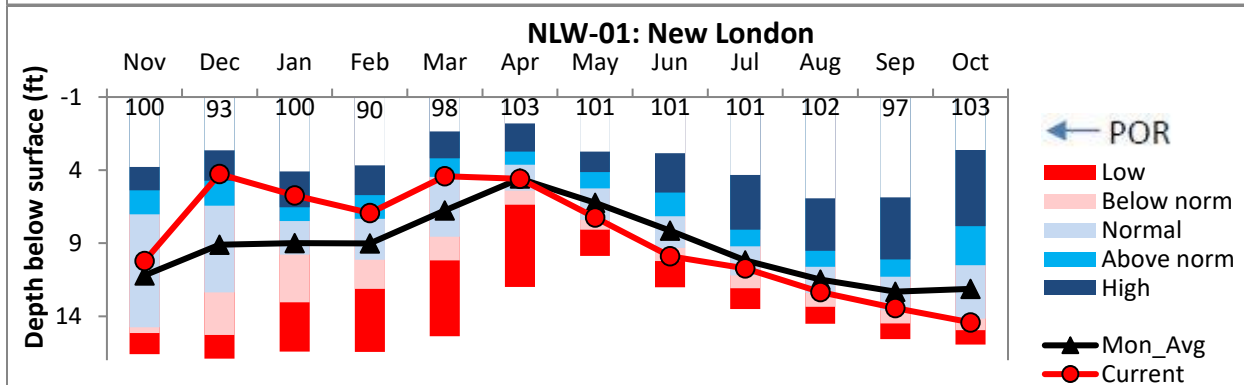
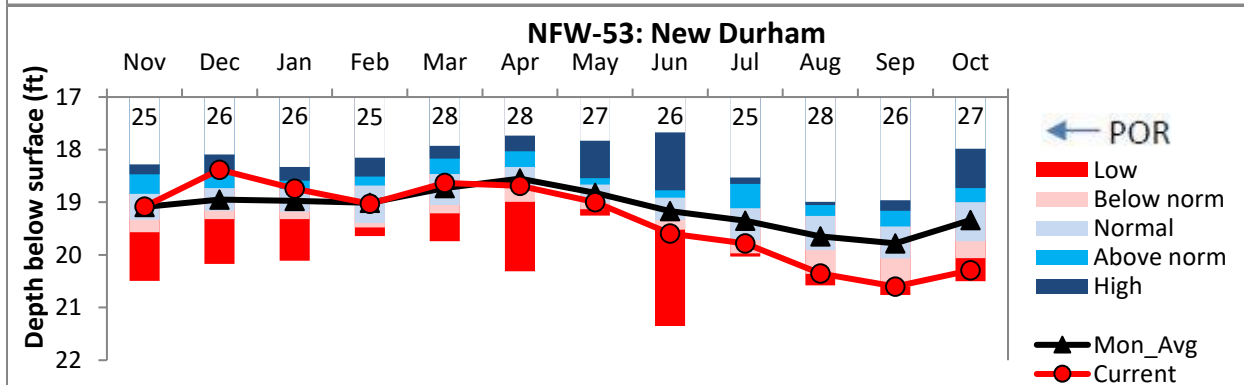
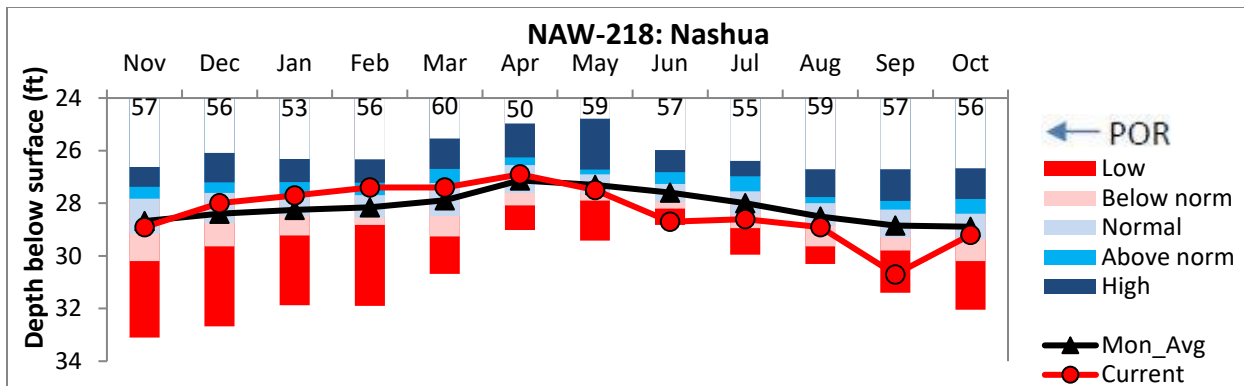
Figure 2. Groundwater Monitoring Network showing groundwater levels relative to statistical envelopes calculated over each well’s period of record (POR) and drought areas according to data released by the [U.S. Drought Monitor](#) on October 27, 2020.

**OVERBURDEN WELL HYDROGRAPHS (Showing statistics for wells with ≥ 10 years of data)**

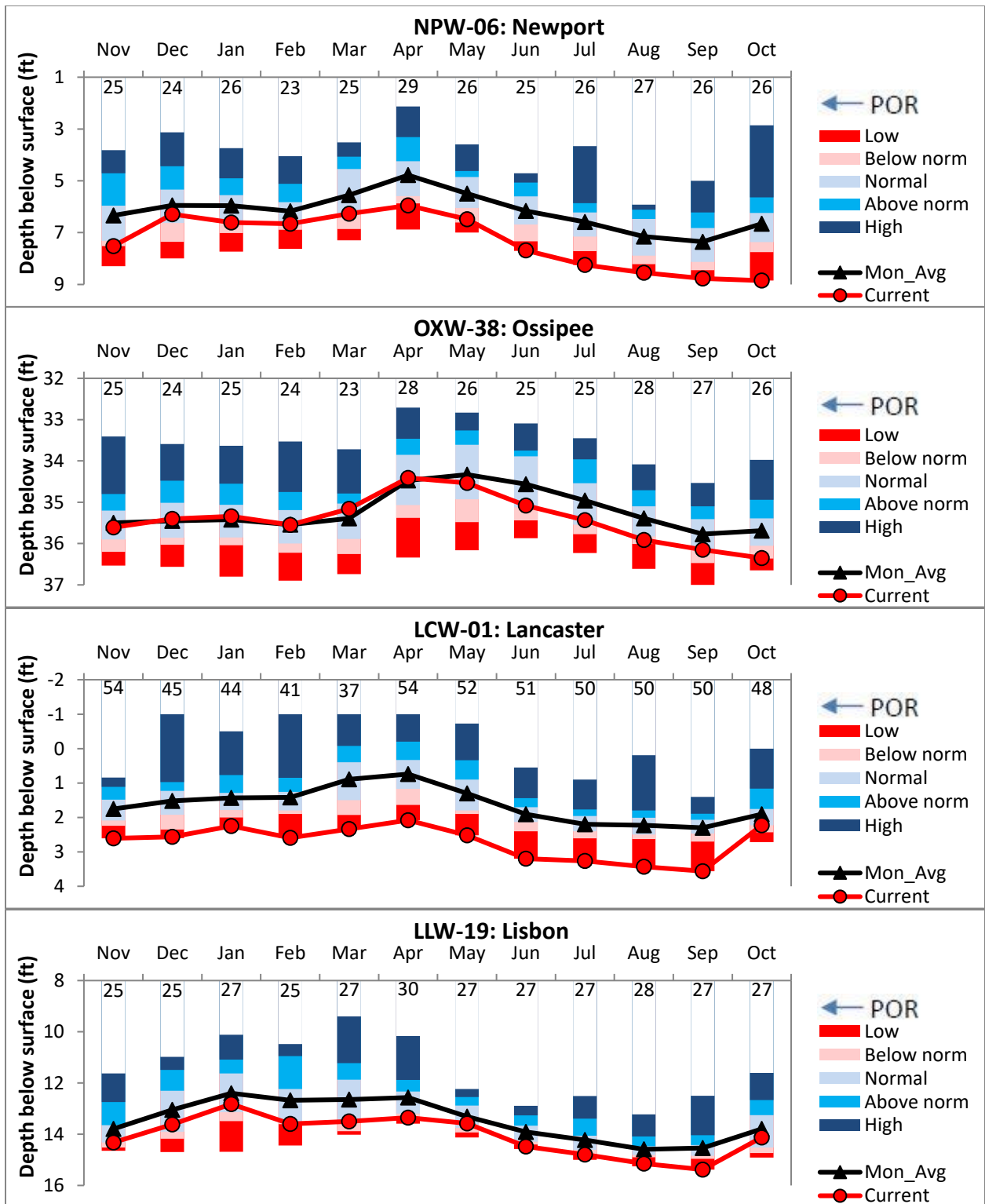




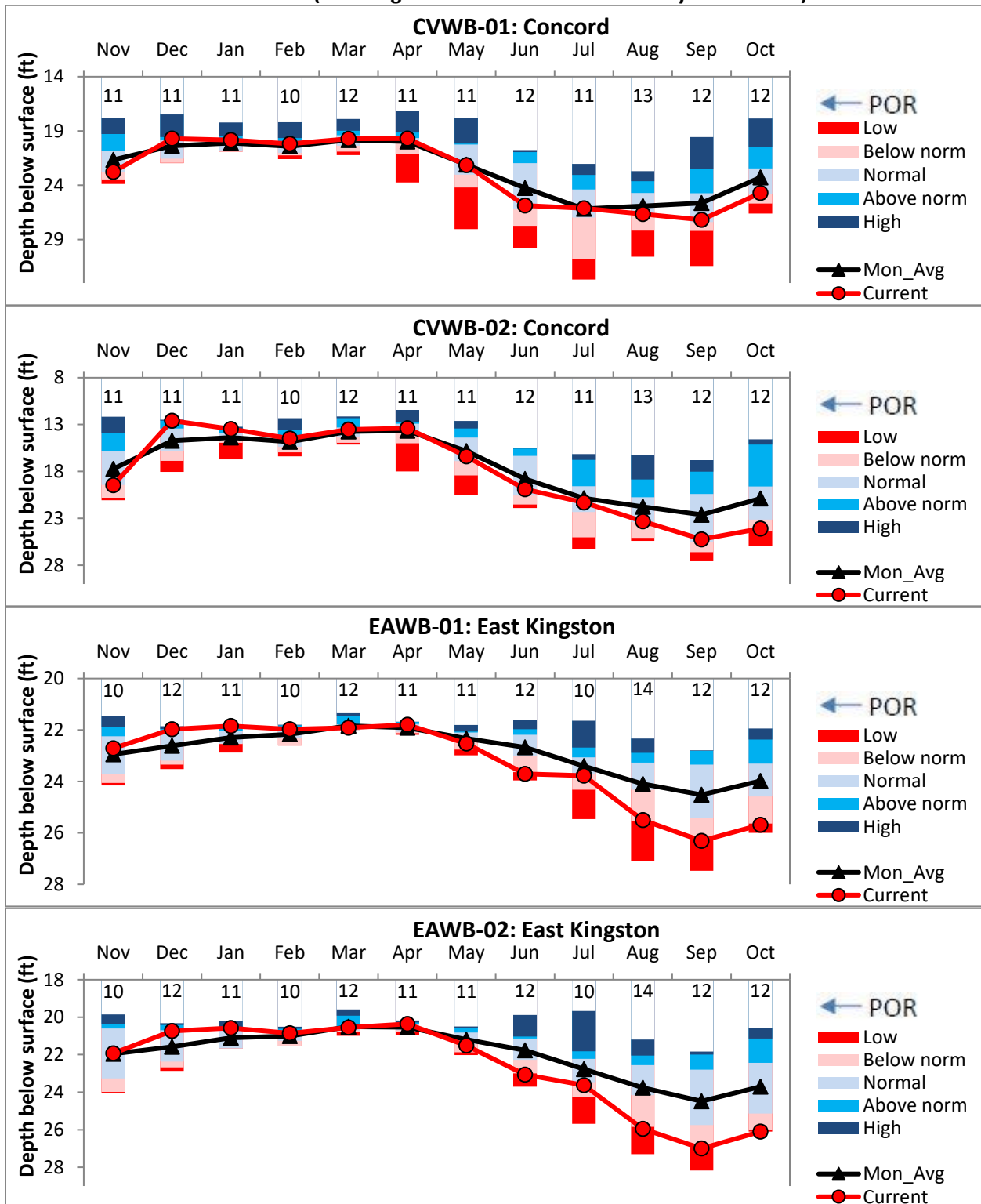


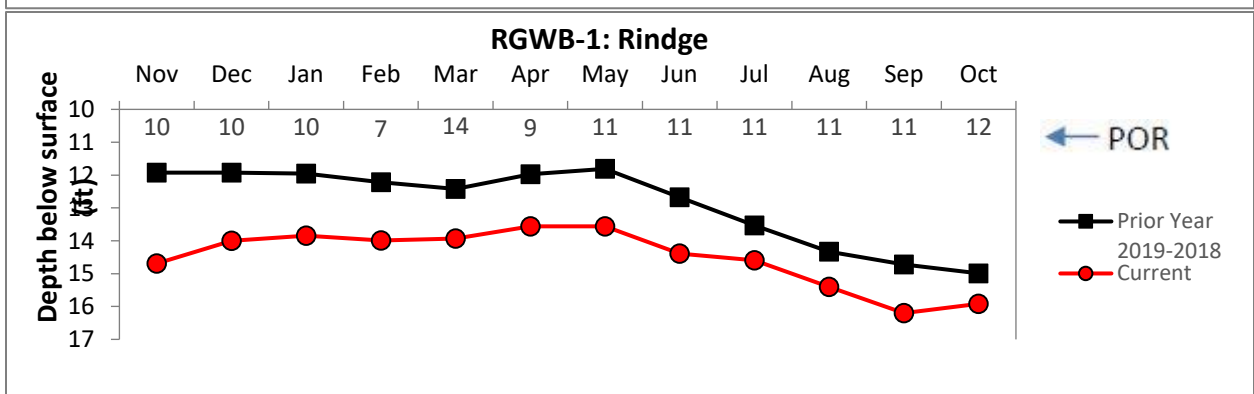
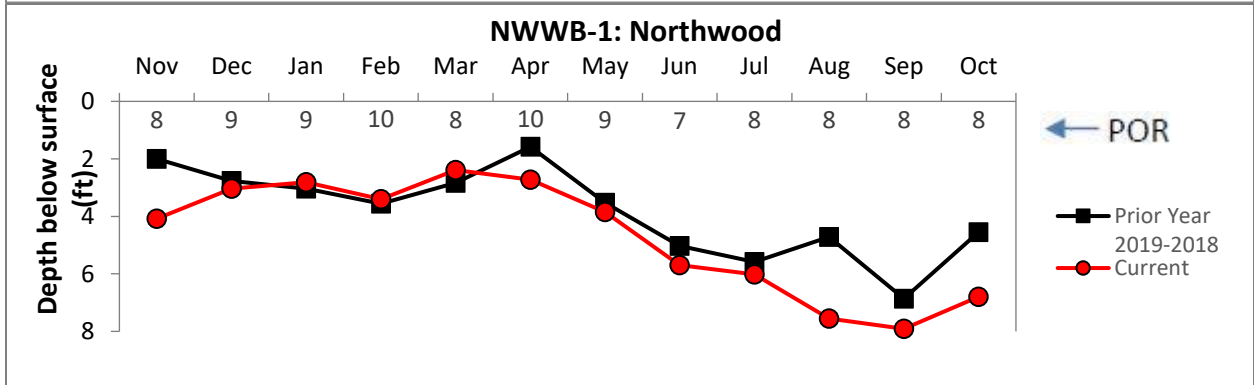
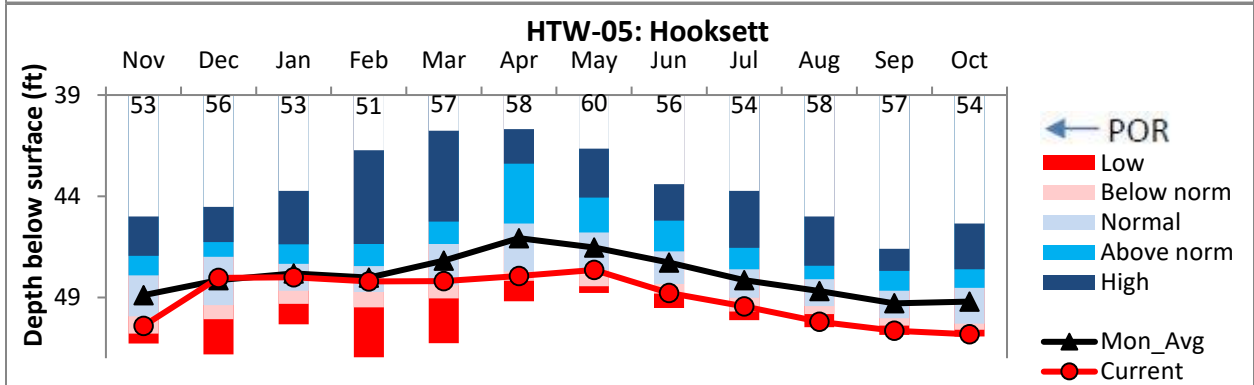
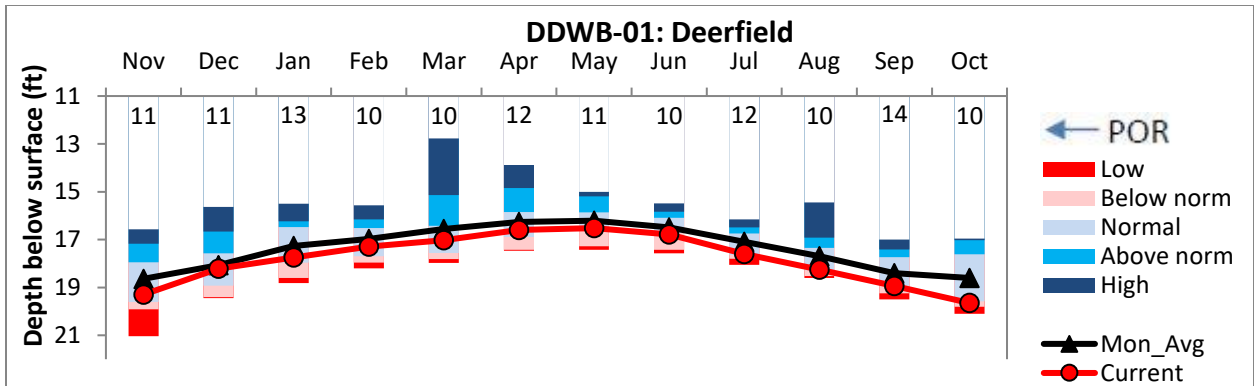


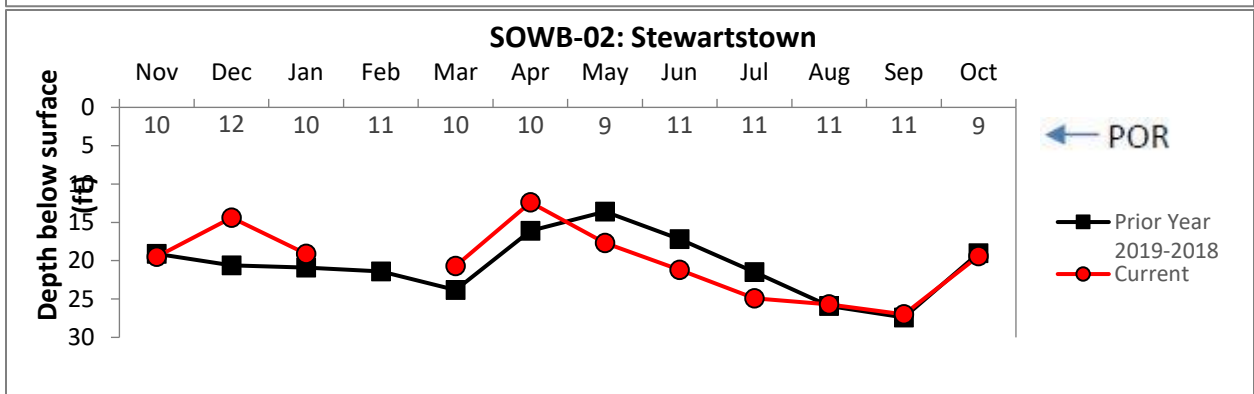
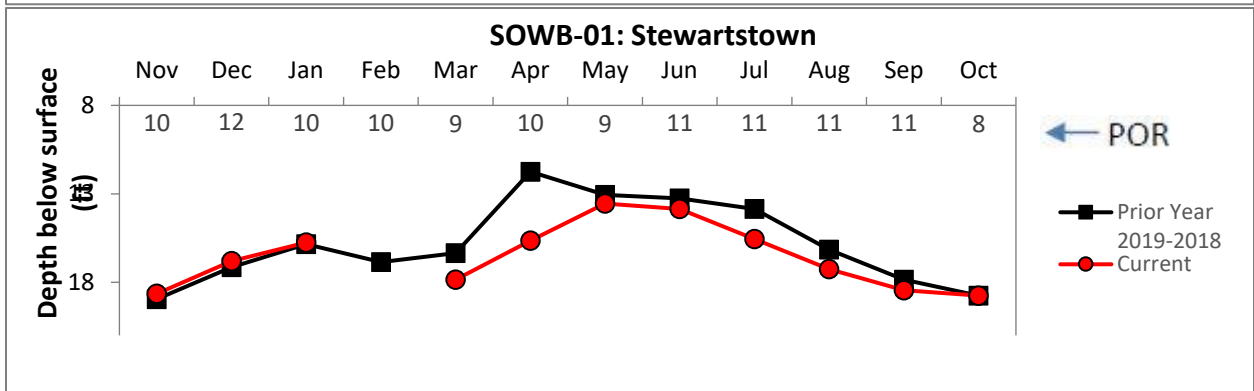
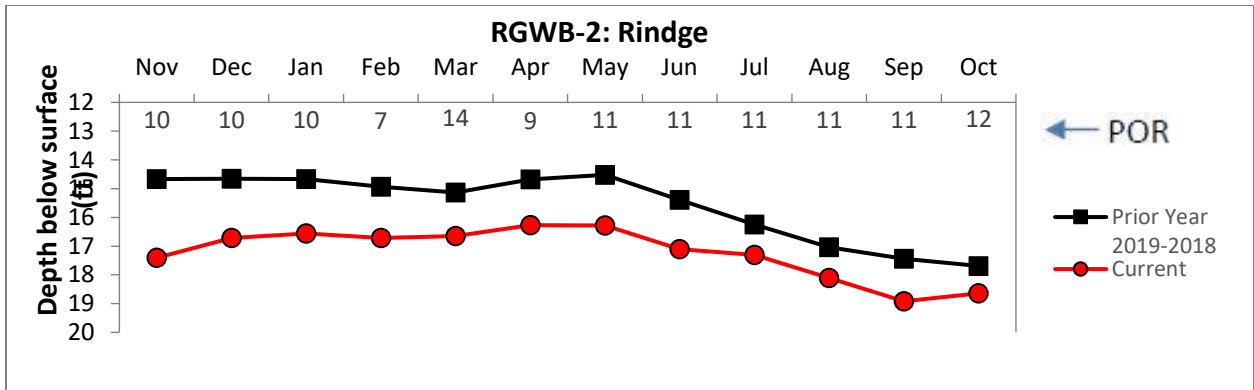




**BEDROCK WELL HYDROGRAPHS (Showing statistics for wells with ≥ 10 years of data)**







**Table 1.** Summary of groundwater levels sorted by region (dark blue – high, blue – above normal, light blue – normal, pink – below normal, red – low).

Well	Town	Well type	Screen/ open Interval (ft)	Depth to Water (ft)	Monthly Average (ft)	Current Status	Departure from Avg. (ft)	Change since last month (ft)
ADW-14	Albany	Overburden	77.5-79.5	6.77	6.02	Normal	-0.75	0.89
ADW-15	Albany	Overburden	16-18	8.55	7.66	Normal	-0.89	0.9
BAW-10	Barnstead	Overburden	23-25	3.14	2.68	Below norm	-0.46	0.2
BBW-53	Barrington	Overburden	21-23	5.19	-	Not Analyzed	-	0.57
CBW-34	Campton	Overburden	21-23	13.94	12.88	Below norm	-1.06	0.8
CTW-73	Colebrook	Overburden	105-107	7.9	7.65	Normal	-0.25	0.5
CVW-02.1	Concord	Overburden	59.8-61.8	41.28	-	Not Analyzed	-	-0.38
CVW-04	Concord	Overburden	25-27	19.33	18.14	Low	-1.19	-0.16
DDW-46	Deerfield	Overburden	59.8-61.8	40.1	39.15	Low	-0.95	-0.45
EPW-90	Epping	Overburden	39.45-40.7	29.93	29.1	Normal	-0.83	-0.55
FKW-01	Franklin	Overburden	45.5-47.5	15.04	13.17	Below norm	-1.87	-0.84
GSW-75	Greenfield	Overburden	35.8-37.8	63.06	61.57	Below norm	-1.49	-0.7
LCW-01	Lancaster	Overburden	28-30	2.23	1.91	Normal	-0.32	1.33
LLW-19	Lisbon	Overburden	49.8-52.3	14.13	13.79	Normal	-0.34	1.25
NAW-218	Nashua	Overburden	66-68	29.2	28.89	Normal	-0.31	1.5
NFW-53	New Durham	Overburden	28-30	20.29	19.34	Low	-0.95	0.31
NLW-01	New London	Overburden	40-42	14.41	12.12	Below norm	-2.29	-0.97
NPW-03	Newport	Overburden	40.5-42.5	8.3	6.59	Low	-1.71	0.27
NPW-06	Newport	Overburden	58-60	8.85	6.66	Low	-2.19	-0.08
OXW-38	Ossipee	Overburden	0-22.55	36.35	35.69	Below norm	-0.66	-0.2
CVWB-01	Concord	Bedrock	470-480	24.72	23.28	Normal	-1.44	2.46
CVWB-02	Concord	Bedrock	0-315	24.09	20.89	Below norm	-3.2	1.14
DDWB-01	Deerfield	Bedrock	0-300	19.65	18.61	Below norm	-1.04	-0.71
EAWB-01	East Kingston	Bedrock	463-473	25.69	23.98	Low	-1.71	0.62
EAWB-02	East Kingston	Bedrock	0-323	26.1	23.7	Low	-2.4	0.9
HTW-05	Hooksett	Bedrock	0-102.7	50.82	49.2	Low	-1.62	-0.18
NWWB-01	Northwood	Bedrock	0-130	6.8	-	Not Analyzed	-	1.11
RGWB-01	Rindge	Bedrock	391-401	15.92	-	Not Analyzed	-	0.28
RGWB-02	Rindge	Bedrock	0-285	18.64	-	Not Analyzed	-	0.28
SOWB-01	Stewartstown	Bedrock	443-453	18.75	-	Not Analyzed	-	-0.3
SOWB-02	Stewartstown	Bedrock	0-303	19.4	-	Not Analyzed	-	7.6