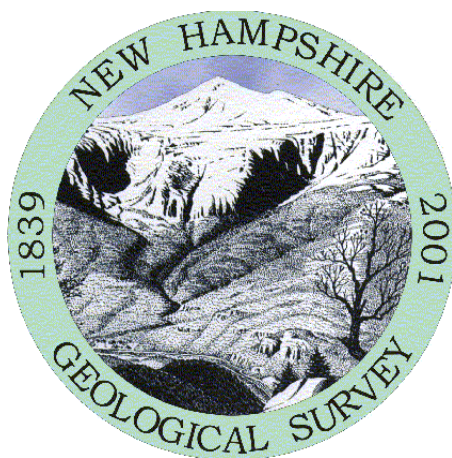


New Hampshire Groundwater Level Monitoring

January, 2020



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

February 6, 2020

GROUNDWATER CONDITIONS SUMMARY

According to the [Northeast Regional Climate Center](#) (NRCC) at Cornell University, New Hampshire received an average of 2.74 inches of precipitation during the month of January, which is -0.51 inches below normal or 84% of normal based on the 1981-2010 precipitation records. Precipitation was unevenly distributed between northern and southern portions of the state (right). The northern portion of the state received a normal amount of precipitation, or 103% of normal, this month. The southern portion of the state received 76% of normal. The state is currently free from drought and abnormally dry conditions according to data released by the [National Drought Mitigation Center](#).



The overburden wells, or wells that monitor the unconsolidated materials above bedrock, indicate that groundwater levels across the state are normal to high, with the exception of the well in Lancaster, which is low, and the wells in Newport, which are below normal. The one bedrock well that has over 10 years of data which we feel comfortable calculating statistics for (Hooksett) shows normal levels this month after being below normal since April. Groundwater conditions this month are effected by recent weather including precipitation and temperature. Both northern and southern portions of the state have seen temperatures about 7 degrees Fahrenheit above normal this month (NRCC), causing regional snow melt. Two factors may be helping Merrimack watershed aquifers maintain their normal to high groundwater levels in spite of the below normal precipitation this month. First, precipitation in December 2019 was 149% above normal (NRCC) and the groundwater levels this month may still be reflecting that period of aquifer recharge. Second, snowmelt is also likely recharging the aquifers in the Merrimack watershed. Low to normal groundwater levels in Newport and Lancaster reflect slightly below normal precipitation over the last few months and warmer temperatures this month.

Considering the 12-month hydrographs below, most wells indicate that groundwater levels across the state have been in the normal range throughout the summer and fall seasons. Exceptions are the overburden wells in Newport and Lancaster, which show below normal to low levels since June. Also an exception, the bedrock well in Hooksett, has shown below normal to low groundwater levels since April. The overburden well in Barnstead is the only well that has been high over the last 4-month period. Wells that have a period of record (POR) less than 10 years were not statistically analyzed. However, their six-month hydrographs are shown in the hydrograph section.

The New Hampshire Geological Survey's groundwater monitoring network (Figure 1) currently includes 11 bedrock and 20 overburden (Figure 2) 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 through 3, in the following hydrographs*, and in Table 1.

*The hydrographs show the following data over a period of six months: (1) current groundwater depths in red, (2) the monthly average over the POR of the well, 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.

January 2020 Groundwater Levels

Monthly Status

- High
- Above norm
- Normal
- Below norm
- Low
- Not Analyzed (<10 years of record)
- Counties

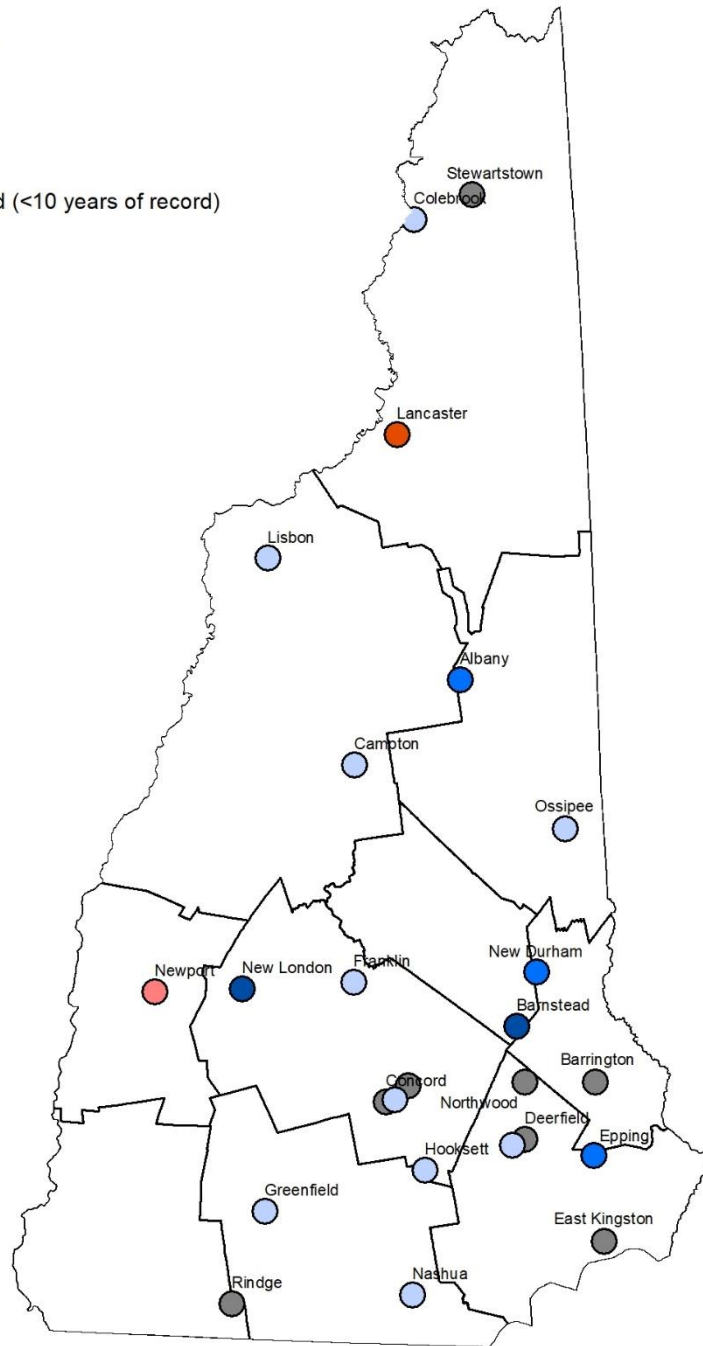
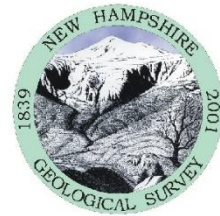
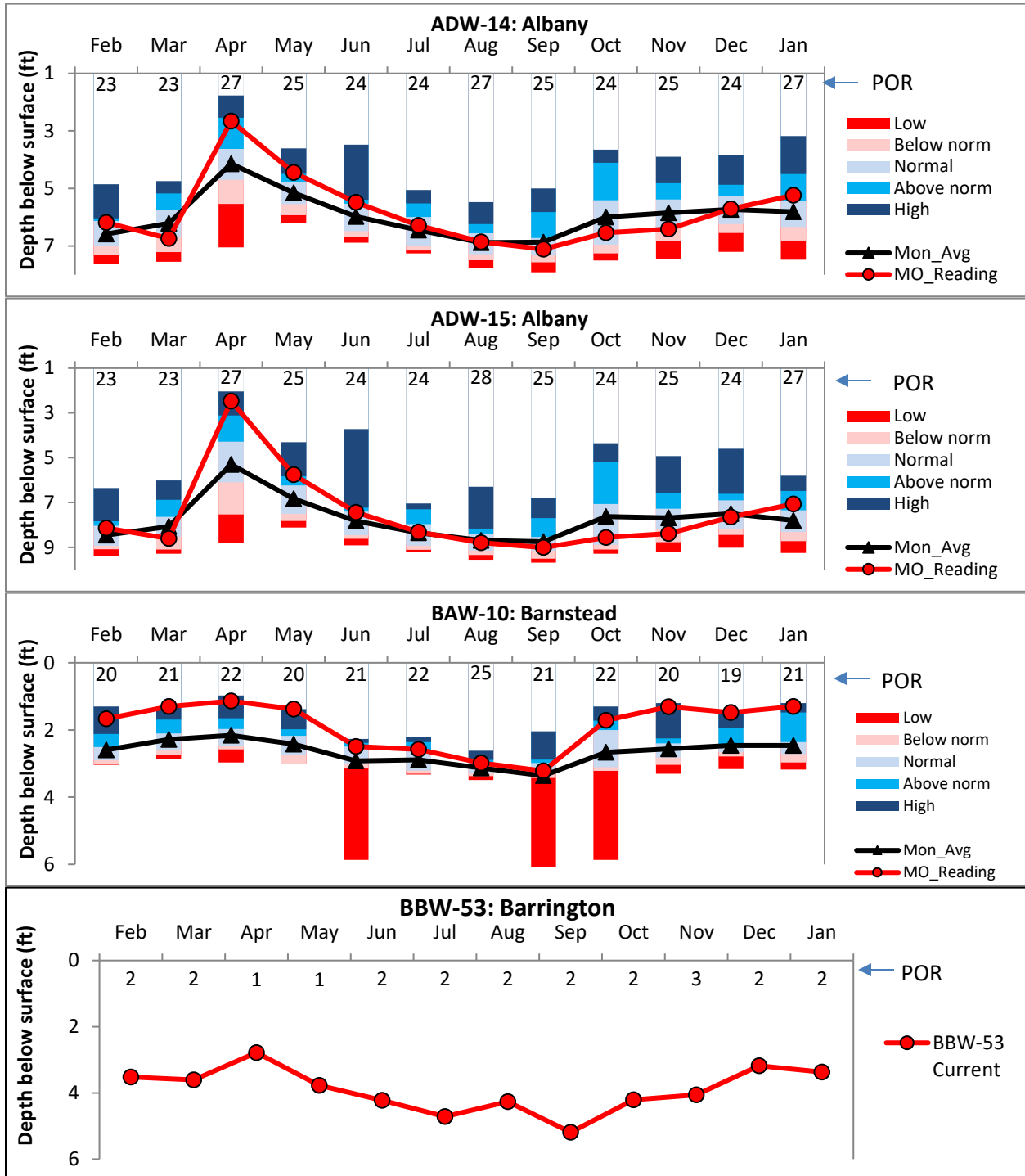
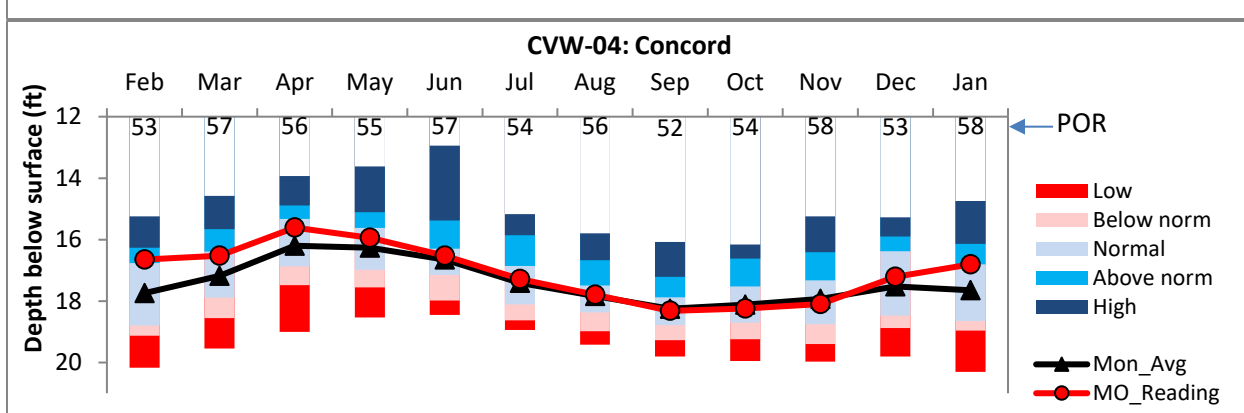
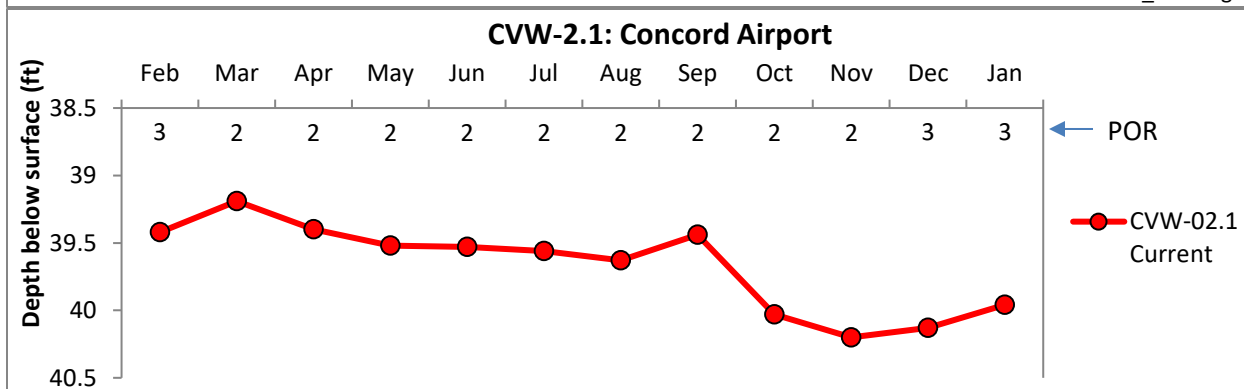
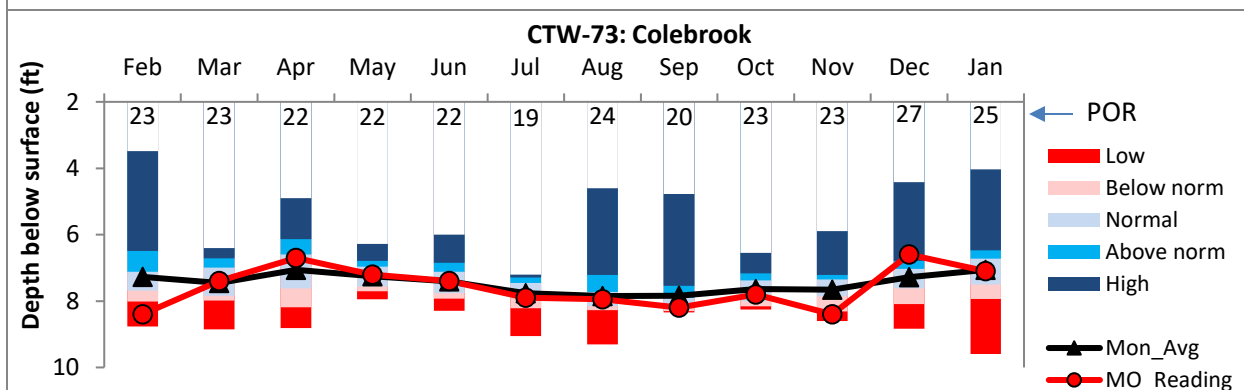
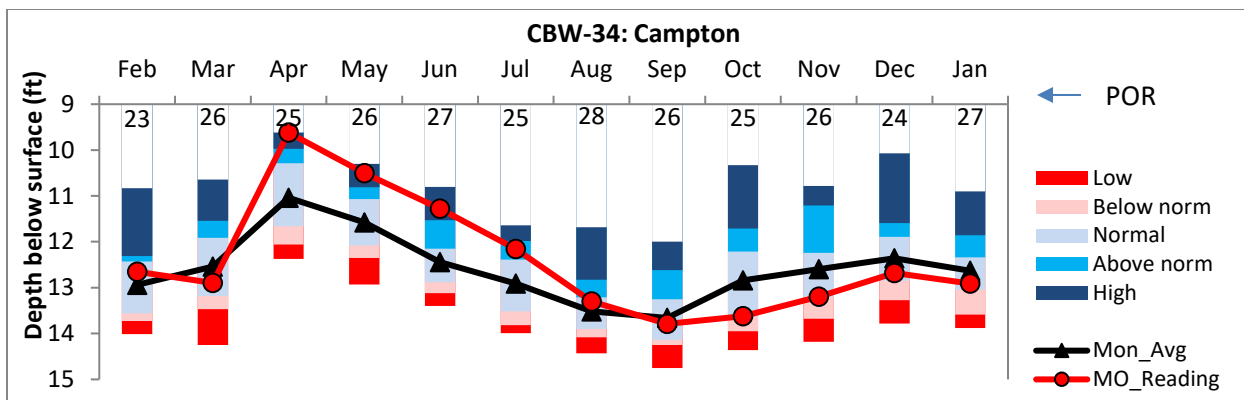
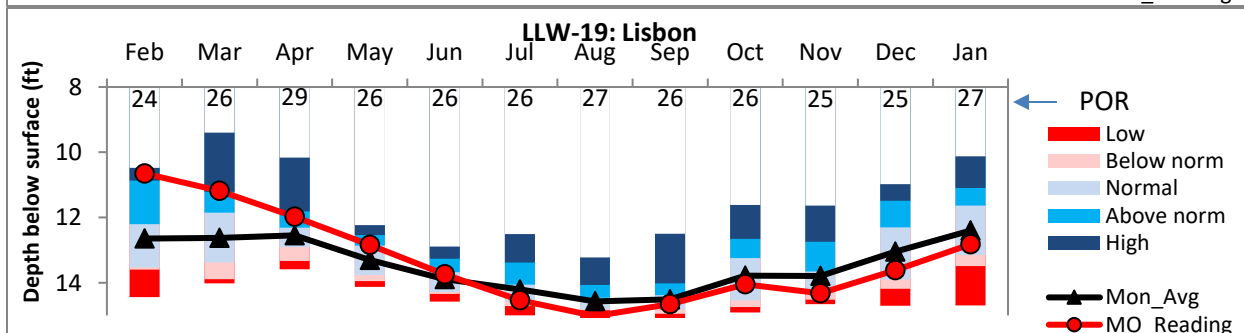
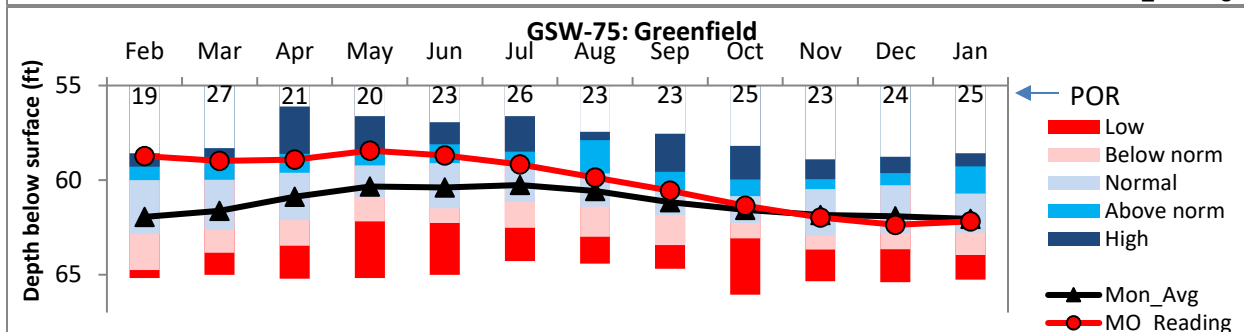
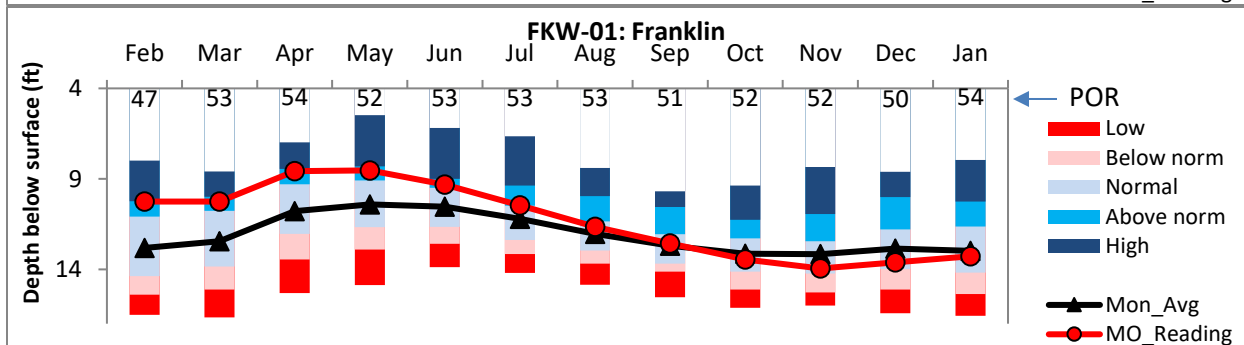
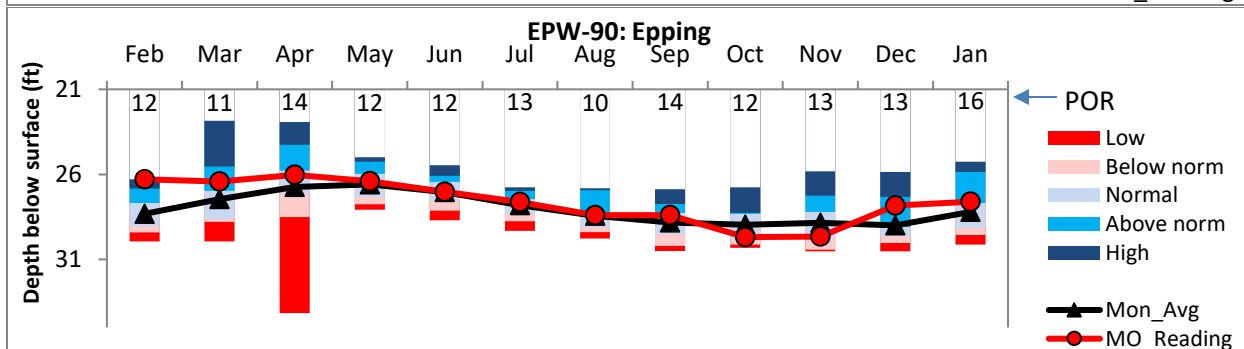
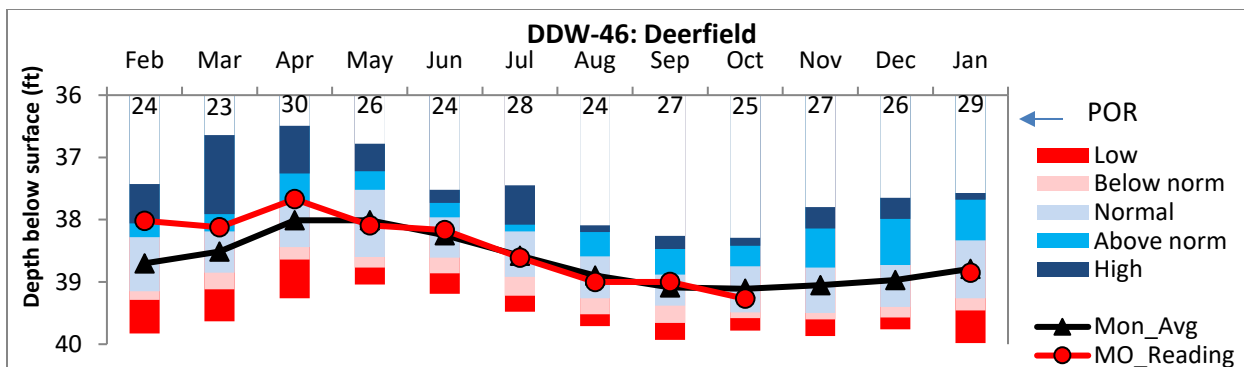


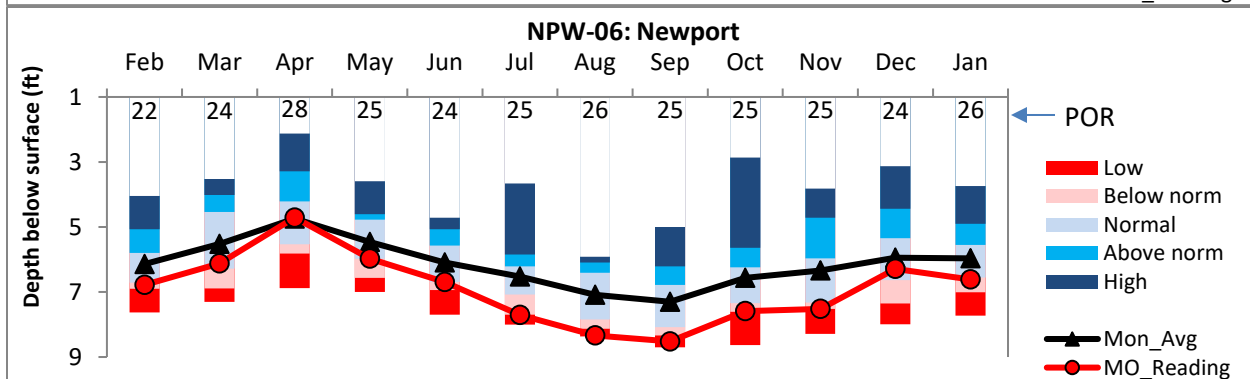
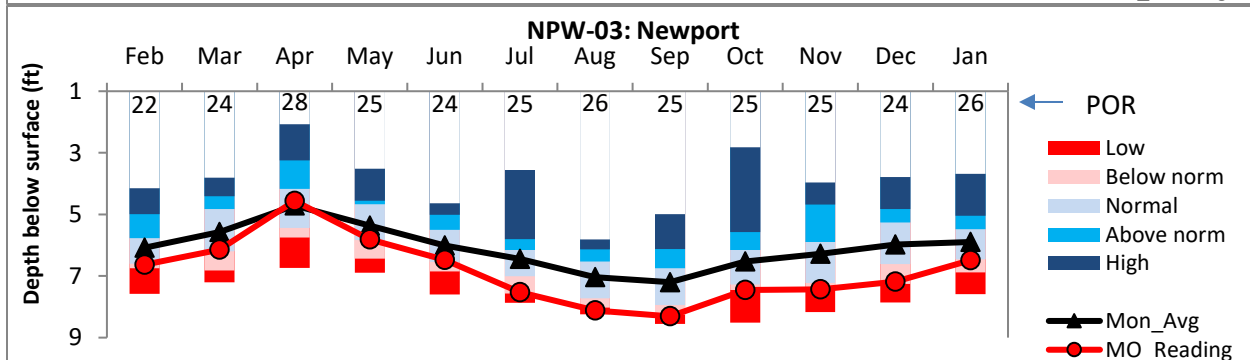
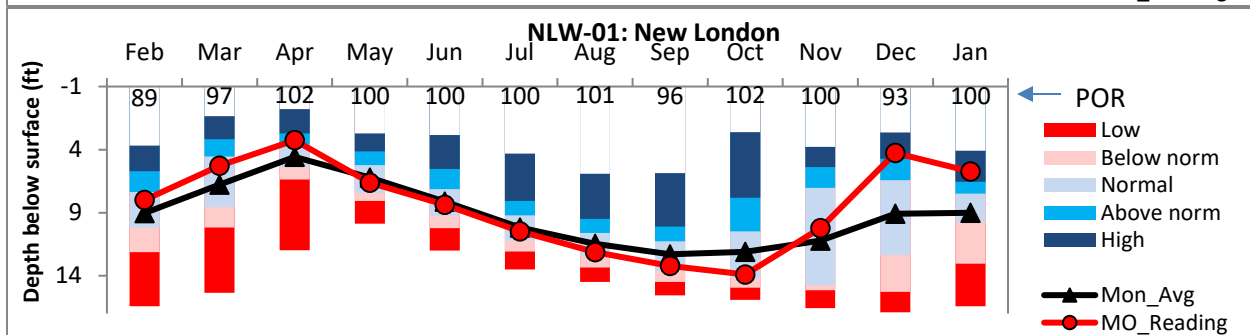
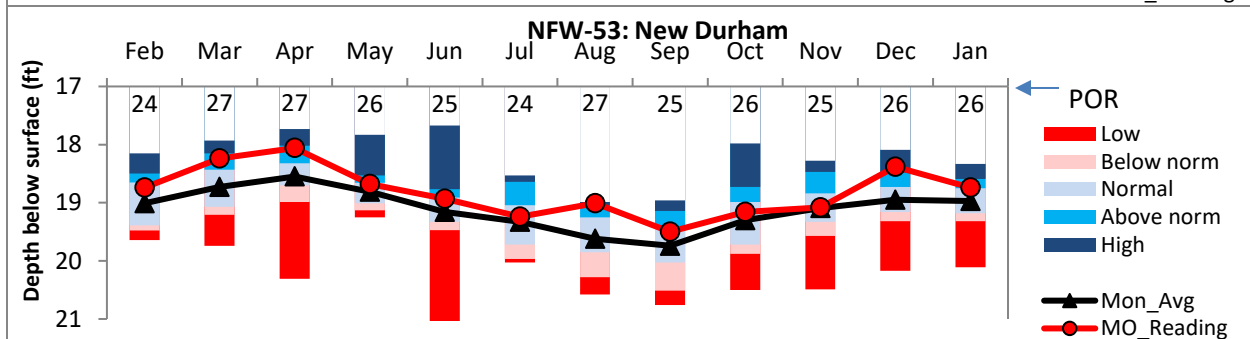
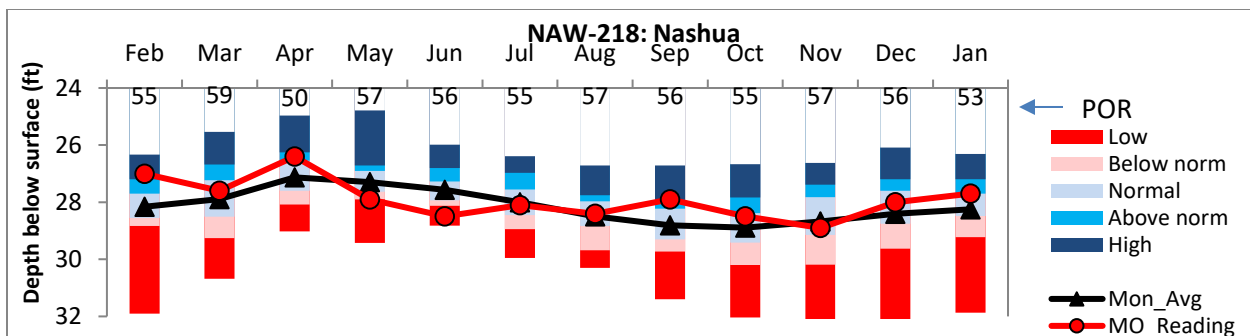
Figure 1. Groundwater Monitoring Network showing groundwater levels relative to statistical envelopes calculated over each well's period of record (POR).

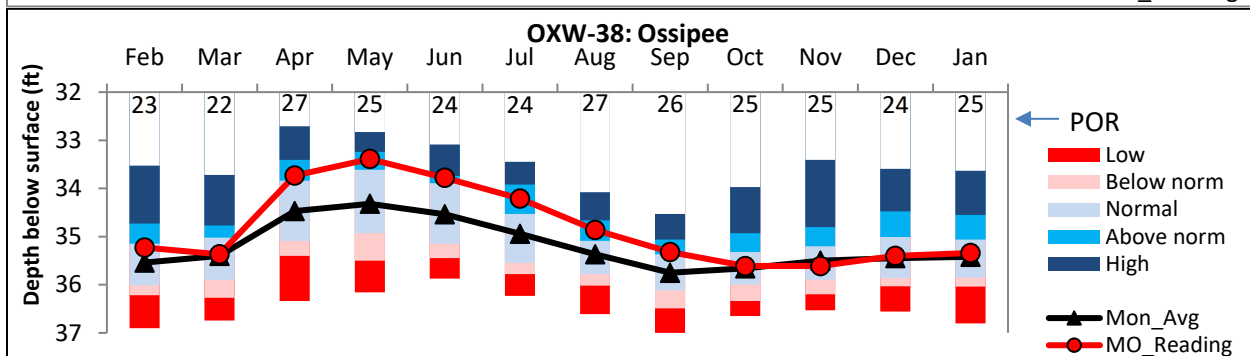
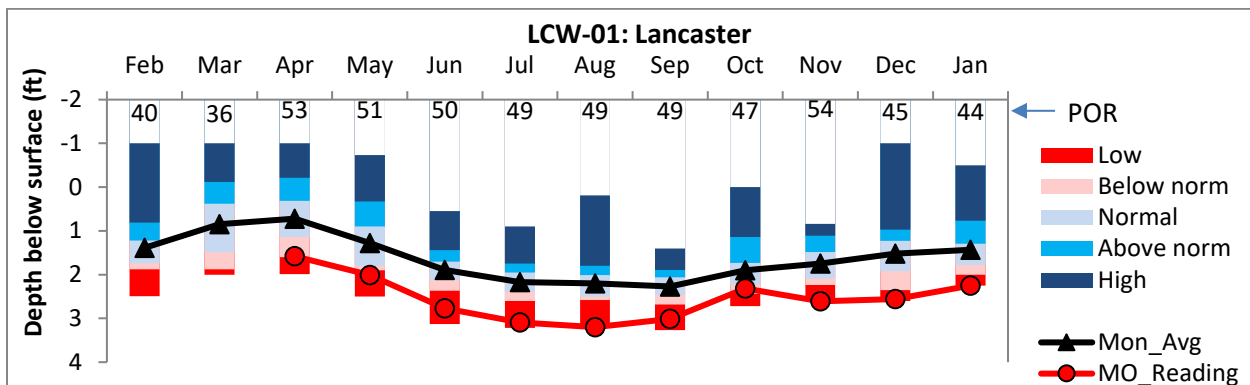
OVERBURDEN WELL HYDROGRAPHS (Showing statistics for wells with ≥ 10 years of data)



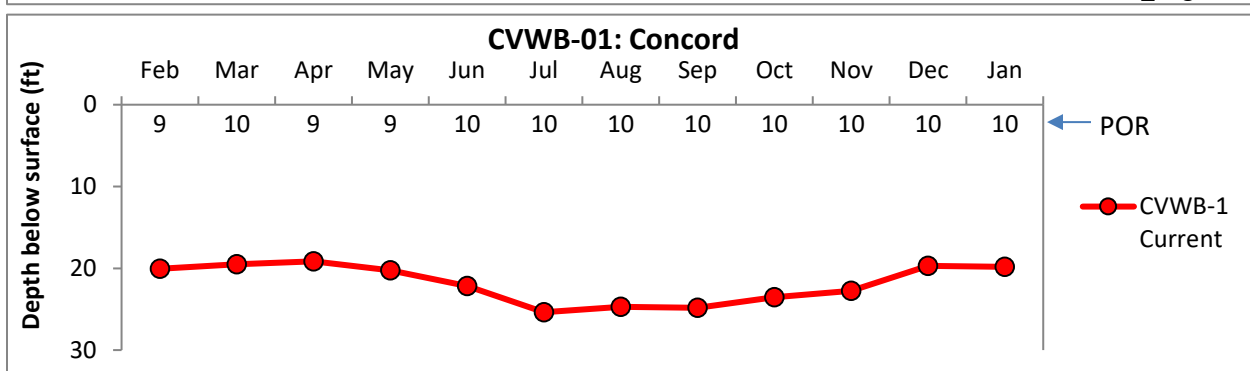
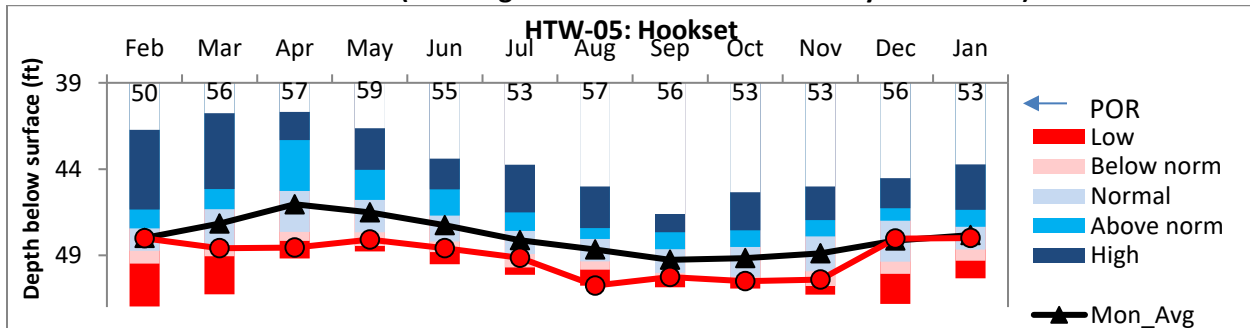


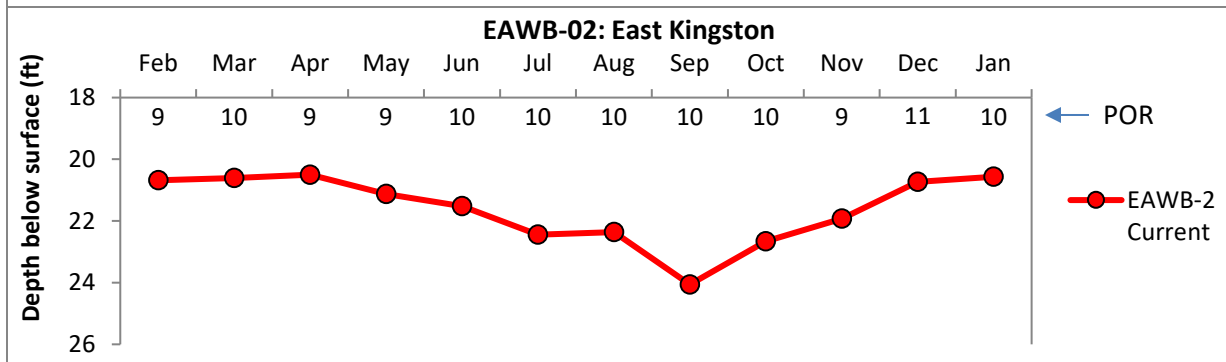
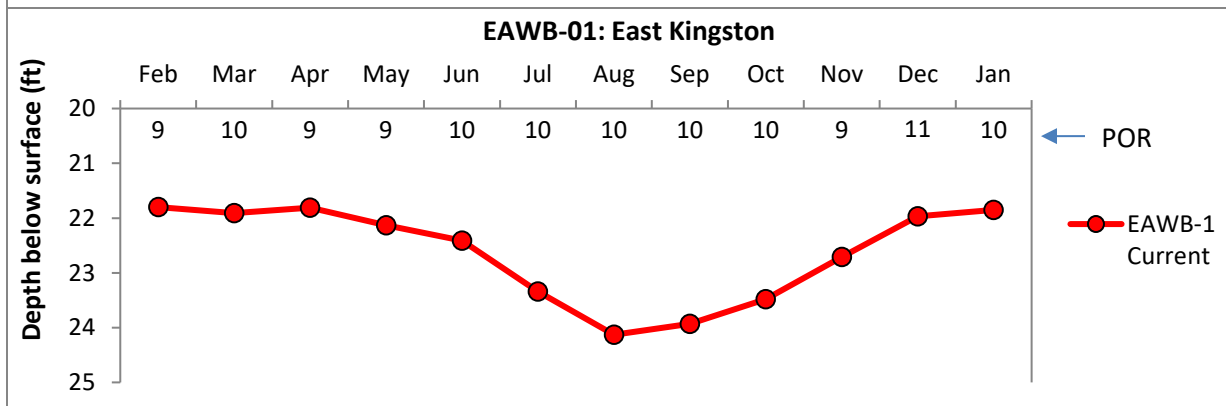
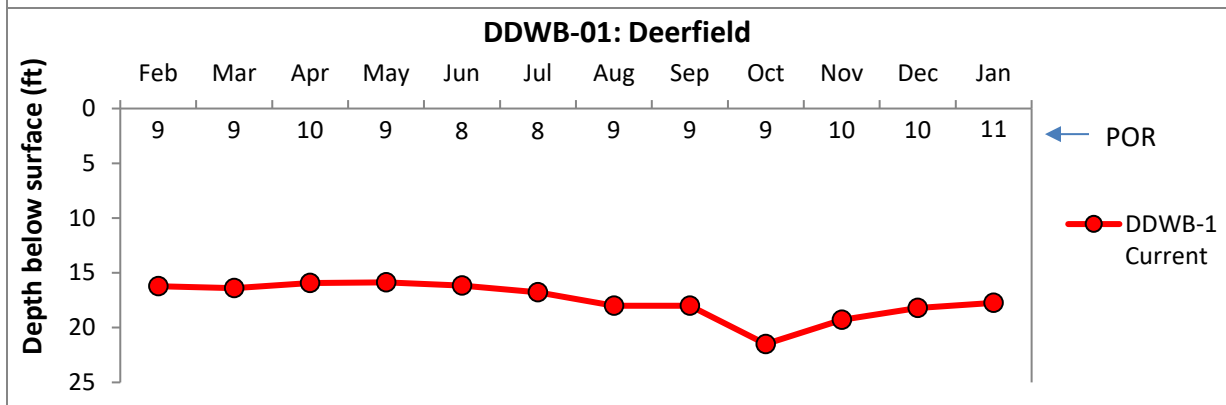
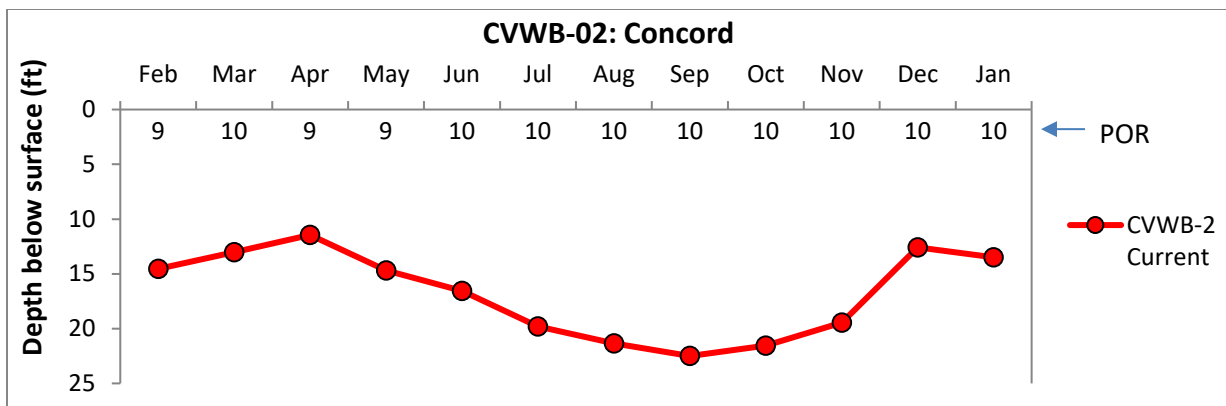


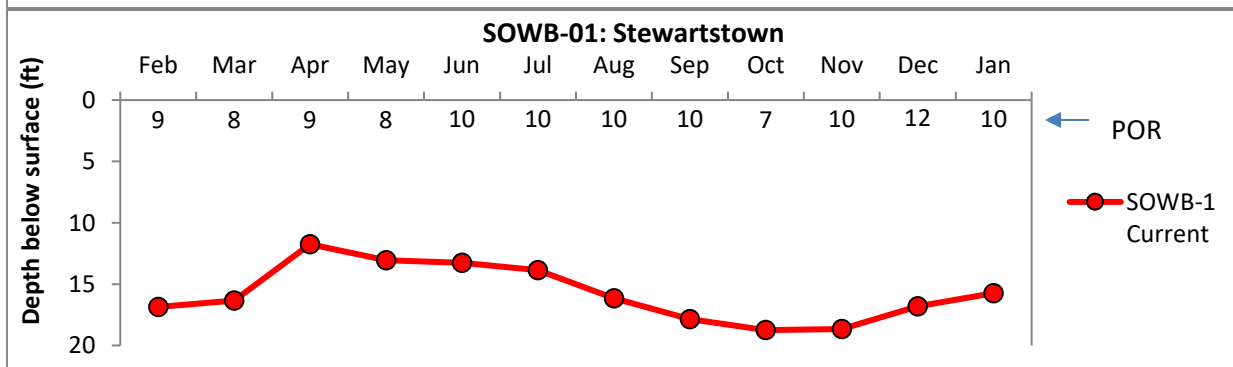
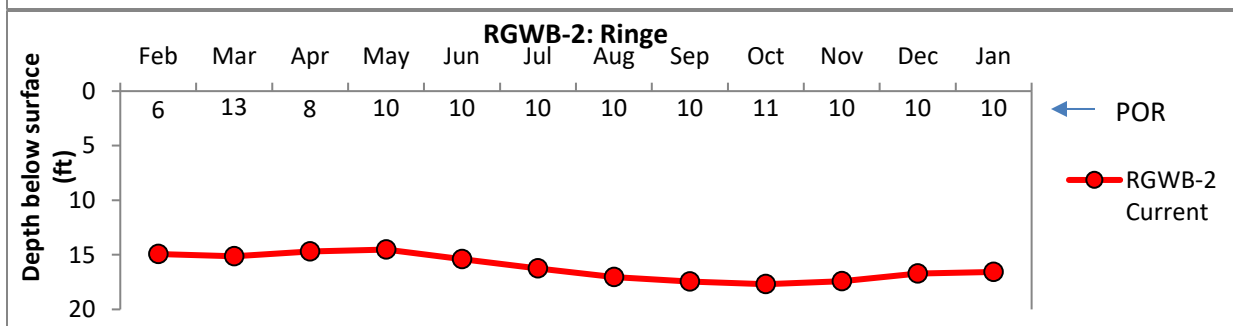
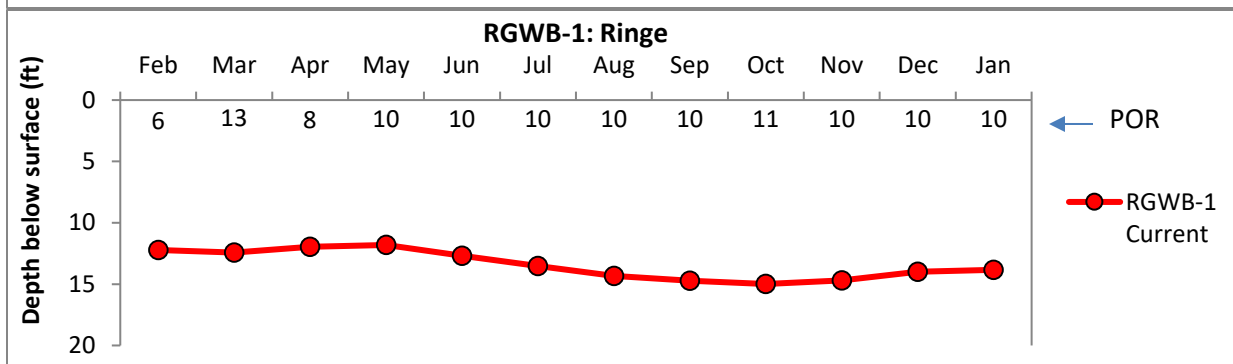
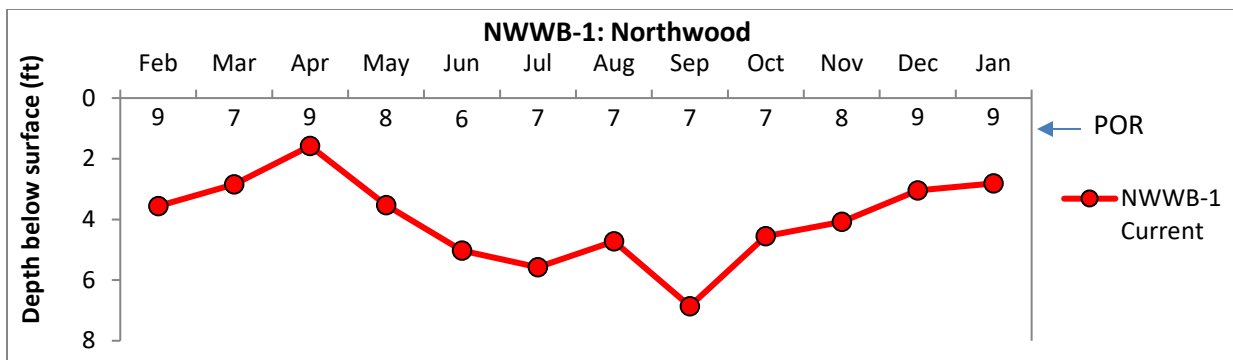




BEDROCK WELL HYDROGRAPHS (Showing statistics for wells with ≥ 10 years of data)







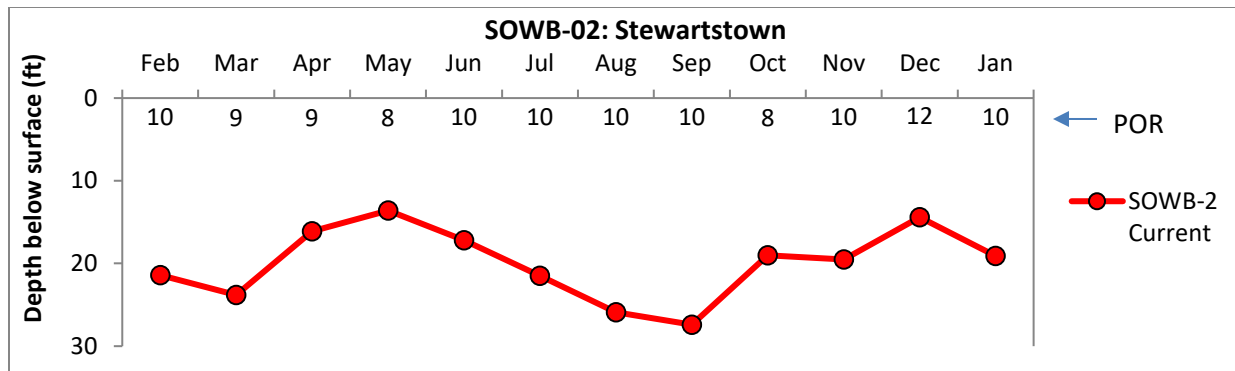


Table 1. Summary of groundwater levels sorted by region

Well	Region	Well type	Screen/ open Interval (ft)	Depth to Water (ft)	Monthly Average (ft)	Current Status	Departure from Avg. (ft)	No. of meas.
BAW-10	Lakes	Overburden	23-25	1.3	2.46	High	1.16	21
FKW-01	Lakes	Overburden	45.5-47.5	13.27	12.97	Normal	-0.3	54
NFW-53	Lakes	Overburden	28-30	18.74	18.97	Above norm	0.23	26
OXW-38	Lakes	Overburden	0-22.55	35.34	35.42	Normal	0.08	25
CVW-02.1	Merrimack	Overburden	59.8-61.8	-	-	Not Analyzed	-	-
CVW-04	Merrimack	Overburden	25-27	16.81	17.65	Normal	0.84	58
DDW-46	Merrimack	Overburden	59.8-61.8	38.85	38.79	Normal	-0.06	29
NAW-218	Merrimack	Overburden	66-68	27.7	28.25	Normal	0.55	53
CVWB-01	Merrimack	Bedrock	470-480	-	-	Not Analyzed	-	-
CVWB-02	Merrimack	Bedrock	0-315	-	-	Not Analyzed	-	-
DDWB-01	Merrimack	Bedrock	0-300	-	-	Not Analyzed	-	-
HTW-05	Merrimack	Bedrock	0-102.7	48	47.82	Normal	-0.18	53
NWWB-01	Merrimack	Bedrock	0-130	-	-	Not Analyzed	-	-
GSW-75	Monadnock	Overburden	35.8-37.8	62.18	62.05	Normal	-0.13	25
RGWB-01	Monadnock	Bedrock	391-401	-	-	Not Analyzed	-	-
RGWB-02	Monadnock	Bedrock	0-285	-	-	Not Analyzed	-	-
CTW-73	North Woods	Overburden	105-107	7.1	7.06	Normal	-0.04	25
LCW-01	North Woods	Overburden	28-30	2.25	1.43	Low	-0.82	44
SOWB-01	North Woods	Bedrock	443-453	-	-	Not Analyzed	-	-
SOWB-02	North Woods	Bedrock	0-303	-	-	Not Analyzed	-	-
BBW-53	Seacoast	Overburden	21-23	-	-	Not Analyzed	-	-
EPW-90	Seacoast	Overburden	39.45-40.7	27.6	28.22	Above norm	0.62	16
EAWB-01	Seacoast	Bedrock	463-473	-	-	Not Analyzed	-	-
EAWB-02	Seacoast	Bedrock	0-323	-	-	Not Analyzed	-	-
NLW-01	Sunapee	Overburden	40-42	5.74	9	High	3.26	100
NPW-03	Sunapee	Overburden	40.5-42.5	6.49	5.89	Below norm	-0.6	26
NPW-06	Sunapee	Overburden	58-60	6.61	5.96	Below norm	-0.65	26
ADW-14	White Mtns	Overburden	77.5-79.5	5.24	5.81	Above norm	0.57	27
ADW-15	White Mtns	Overburden	16-18	7.06	7.8	Above norm	0.74	27
CBW-34	White Mtns	Overburden	21-23	12.91	12.63	Normal	-0.28	27
LLW-19	White Mtns	Overburden	49.8-52.3	12.82	12.4	Normal	-0.42	27