New Hampshire Groundwater Level Monitoring

September, 2021

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

October 1, 2021

GROUNDWATER CONDITIONS SUMMARY

According to the Northeast Regional Climate Center (NRCC) at Cornell University, precipitation for the month of September was above normal across much of the state (Figure 1). Small pockets in northern and western New Hampshire were below normal and southern New Hampshire received greater than average precipitation. Figure 1 shows the distribution of percent precipitation and water levels in the well network.

According to the National Drought Management current conditions web page, drought conditions have contracted slightly since last month. All of southern and much of central New Hampshire (79% of the state) are not in a classified drought condition (see Figure 2.) Abnormally Dry (D0), Moderate Drought(D1) and Severe Drought(D2) occupy the remaining northern 25% of the state, which is 5% less than last month.

In general, this month's readings show that groundwater levels in the southern to central parts of the state are normal to high, whereas levels in the upper central to northern regions of the state are normal to low. Groundwater levels in Barnstead, Concord, East Kingston, and Nashua are at or just below record-high levels for those wells over their POR. Ossipee levels rose since last month from low to below normal levels. Greenfield also rose to normal. Epping rose from normal to high levels. The overburden well at Deerfield rose from normal to above normal. One bedrock well at Stewartstown (SOWB-2) rose from low to normal. The well at Campton fell from above normal to normal. Of the wells analyzed for statistics, 11 wells are showing high levels this month while 4 wells have below normal or low groundwater levels. For wells that don't have full statistics calculated, all 6 wells are at or above last year's monthly groundwater level: The wells in Barrington, Northwood, and Rindge are on average 2.4 feet higher, while one bedrock well in Stewartstown (SOWB-01) and the well at the Concord Airport are about the same.

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 into the unconsolidated materials above bedrock.

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.

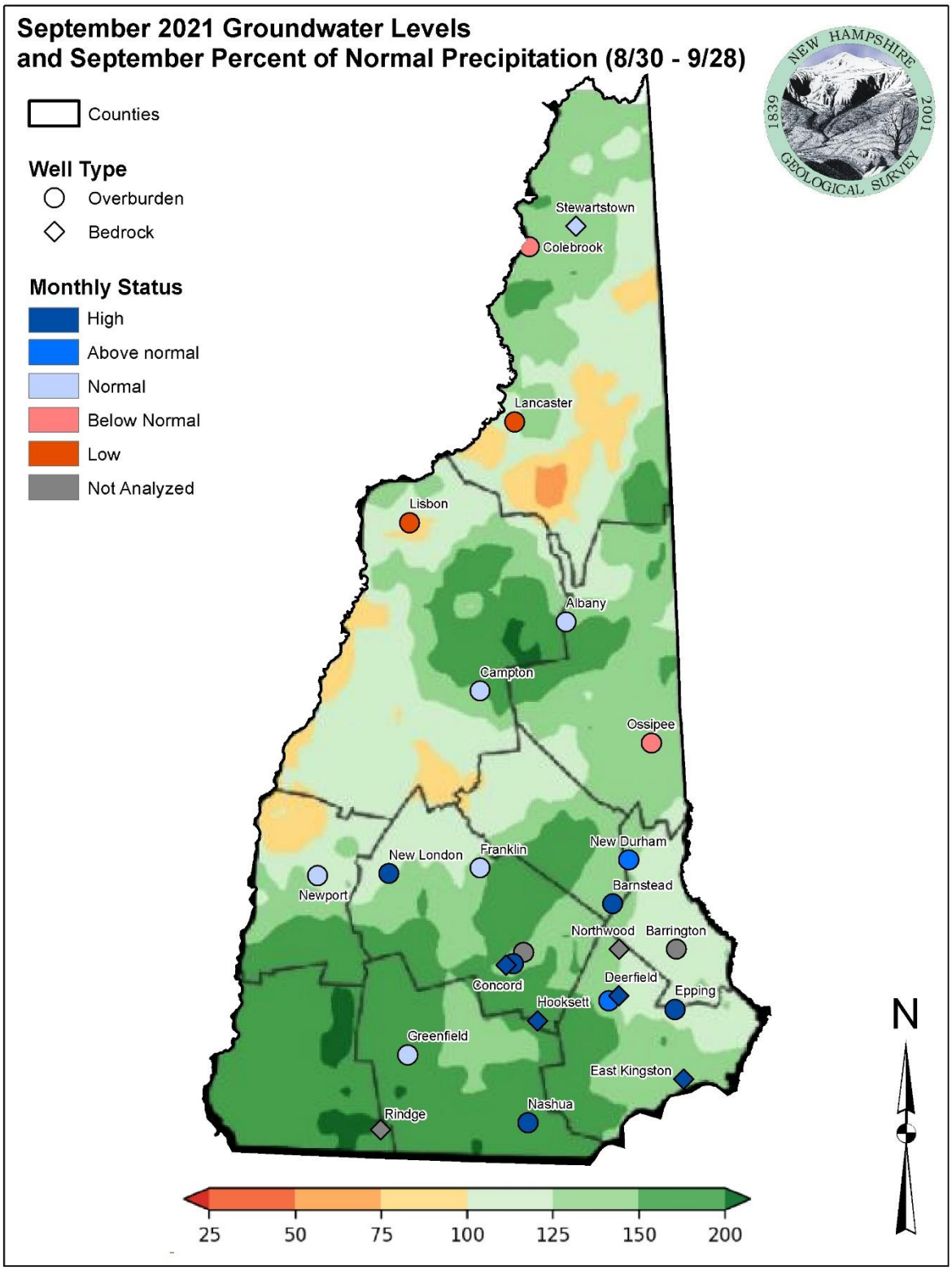


Figure 1. Groundwater Monitoring Network showing groundwater levels relative to statistical envelopes calculated over each well's period of record (POR) and percent normal precipitation map for September, 2021 (Northeast Regional Climate Center).

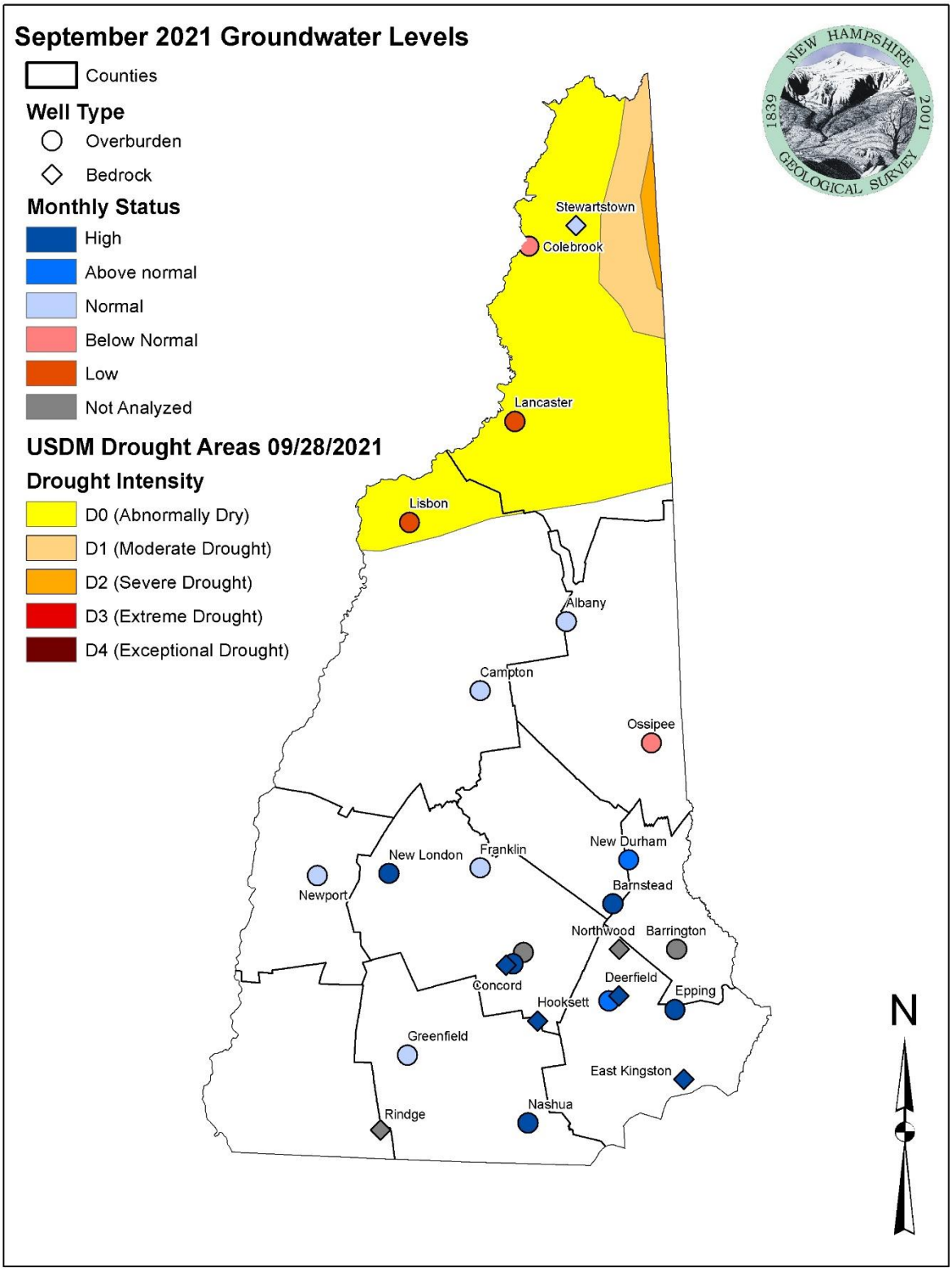
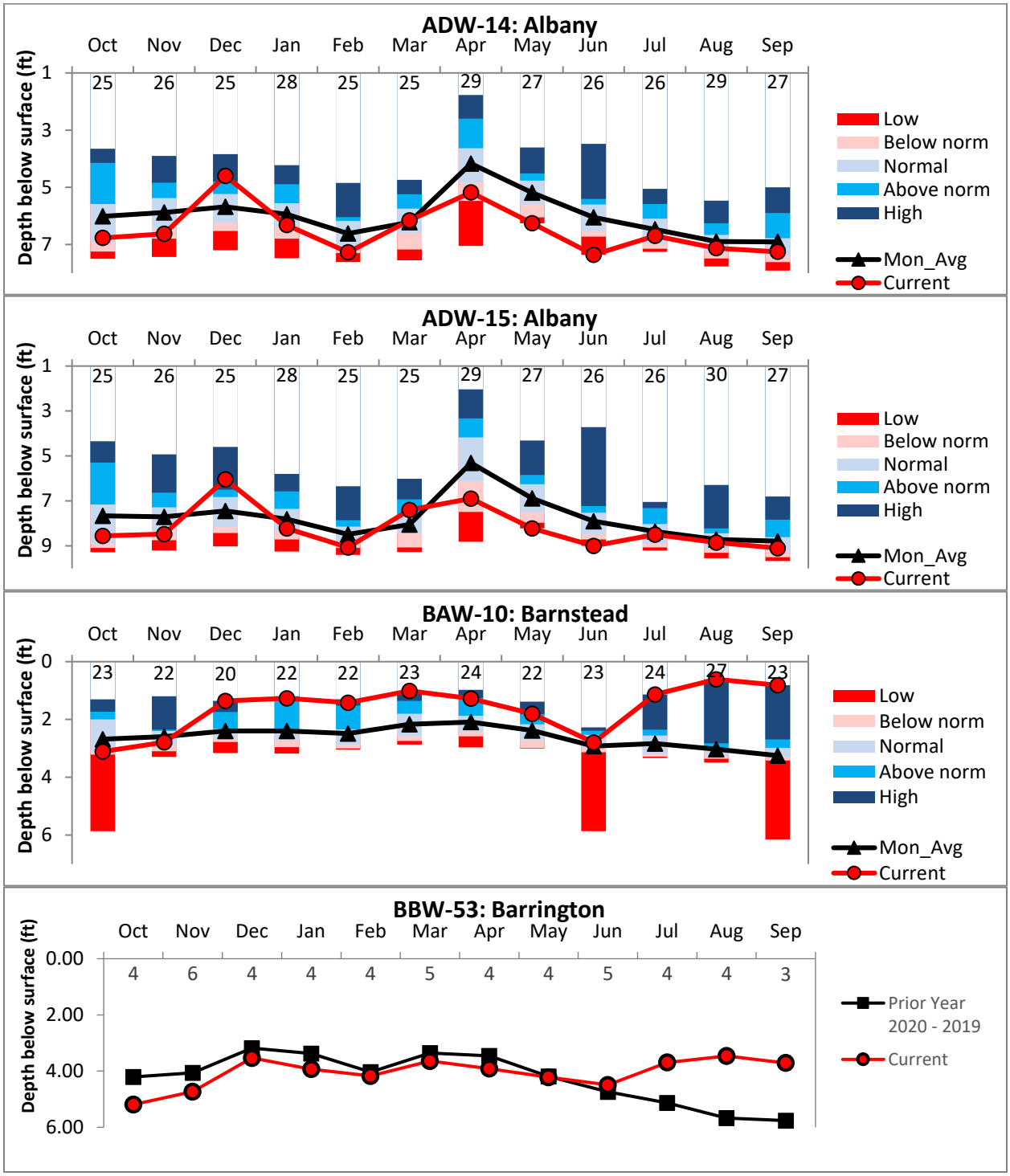


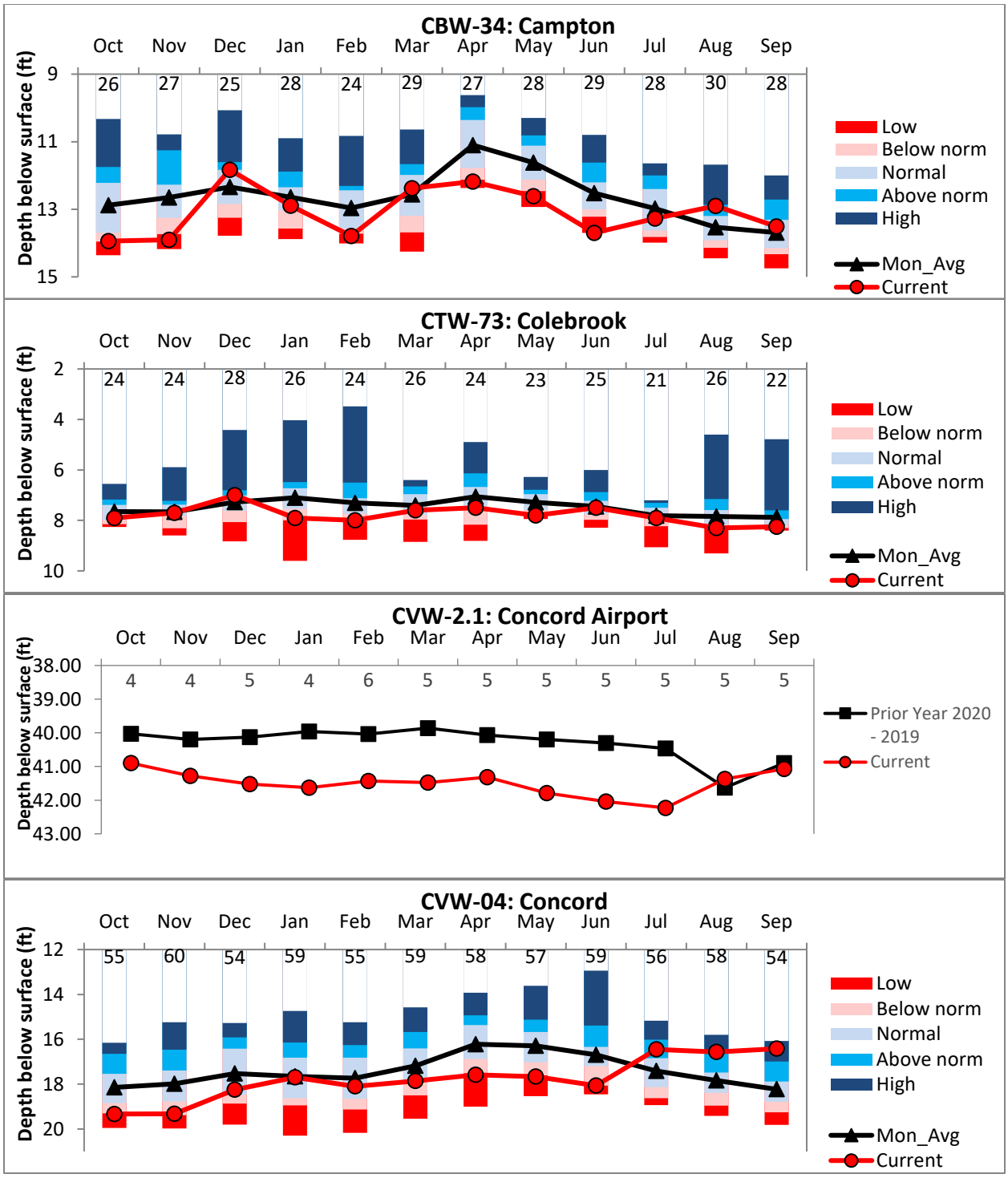
Figure 2. Groundwater Monitoring Network showing groundwater levels relative to statistical envelopes calculated over each well's period of record (POR) and drought areas according to data released by the U.S. Drought Monitor on September 28, 2021.

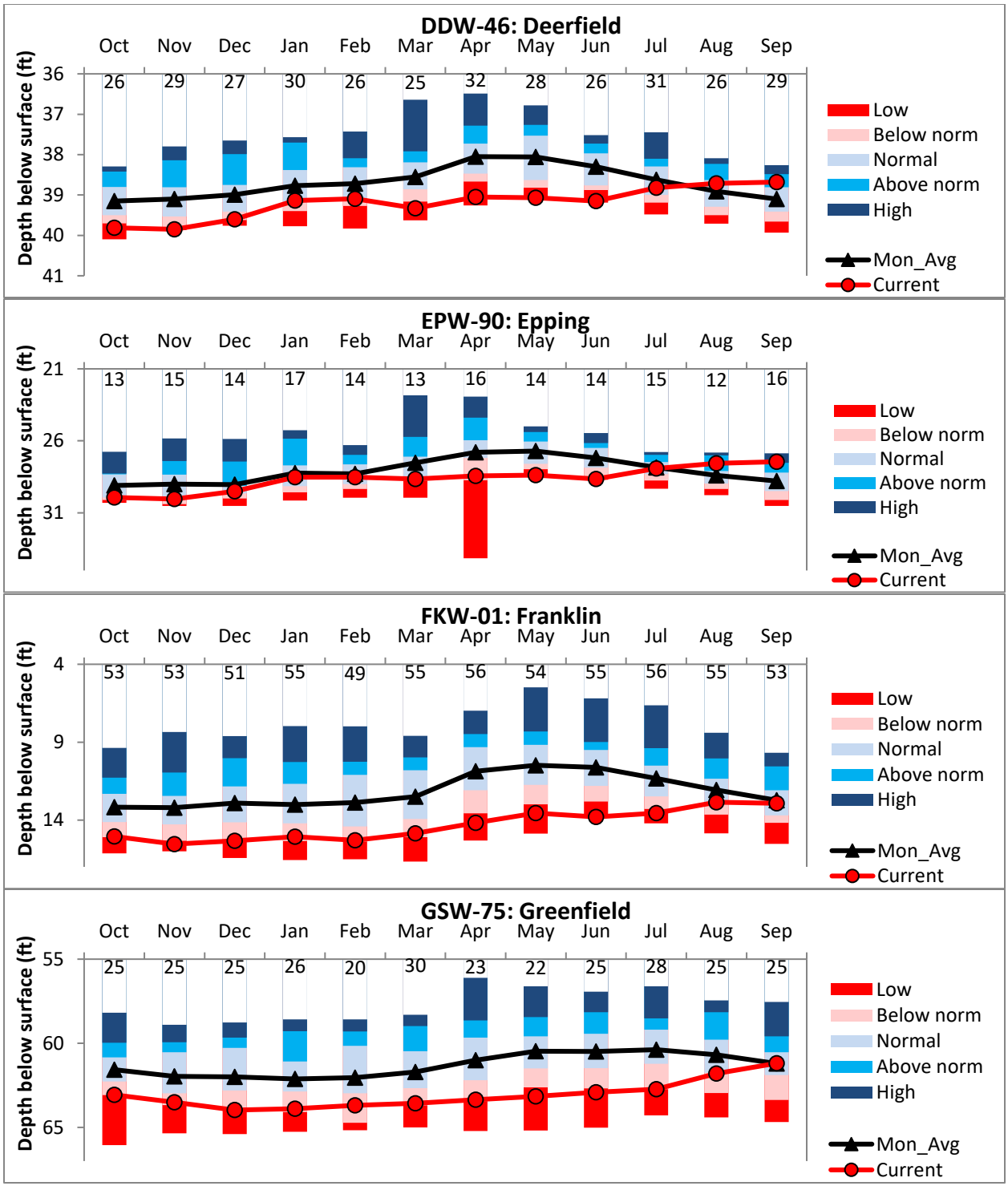
Table 1. Summary of groundwater levels sorted by region (dark blue – high, blue – above normal, light blue – normal, pink – below normal, red – low.

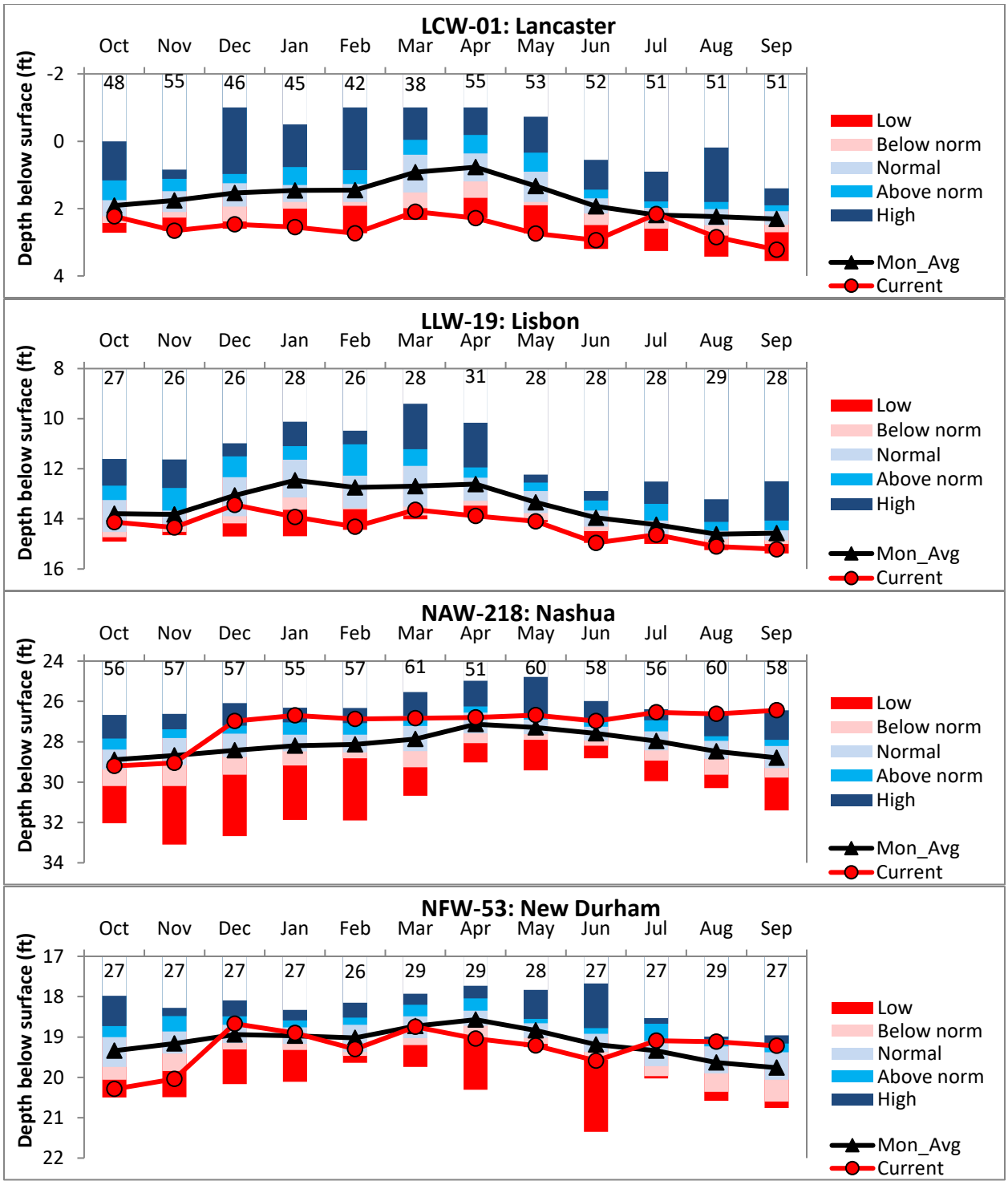
Well	Town	Well type	Screen/ open Interval (ft)	Depth to Water (ft)	Monthly Average (ft)	Current Status	Departure from Avg. (ft)	Change since last month (ft)
ADW-14	Albany	Overburden	77.5-79.5	7.26	6.91	Normal	-0.35	-0.13
ADW-15	Albany	Overburden	16-18	9.1	8.79	Normal	-0.31	-0.25
BAW-10	Barnstead	Overburden	23-25	0.81	3.25	High	2.44	-0.2
BBW-53	Barrington	Overburden	21-23	3.71		Not Analyzed	-	-0.25
CBW-34	Campton	Overburden	21-23	13.51	13.69	Normal	0.18	-0.61
CTW-73	Colebrook	Overburden	105-107	8.25	7.88	Below norm	-0.37	0.05
CVW-02.1	Concord	Overburden	59.8-61.8	41.07		Not Analyzed	-	0.3
CVW-04	Concord	Overburden	25-27	16.42	18.23	High	1.81	0.15
DDW-46	Deerfield	Overburden	59.8-61.8	38.68	39.1	Above norm	0.42	0.03
EPW-90	Epping	Overburden	39.45-40.7	27.45	28.79	High	1.34	0.11
FKW-01	Franklin	Overburden	45.5-47.5	12.92	12.72	Normal	-0.2	-0.07
GSW-75	Greenfield	Overburden	35.8-37.8	61.19	61.21	Normal	0.02	0.61
LCW-01	Lancaster	Overburden	28-30	3.22	2.31	Low	-0.91	-0.37
LLW-19	Lisbon	Overburden	49.8-52.3	15.21	14.57	Low	-0.64	-0.11
NAW-218	Nashua	Overburden	66-68	26.44	28.8	High	2.36	0.18
NFW-53	New Durham	Overburden	28-30	19.22	19.76	Above norm	0.54	-0.1
NLW-01	New London	Overburden	40-42	8.09	12.27	High	4.18	-0.96
NPW-03	Newport	Overburden	40.5-42.5	7.17	7.25	Normal	0.08	-0.41
NPW-06	Newport	Overburden	58-60	7.75	7.37	Normal	-0.38	-0.42
OXW-38	Ossipee	Overburden	0-22.55	36.47	35.79	Below norm	-0.68	-0.09
CVWB-01	Concord	Bedrock	470-480	20.16	25.21	High	5.05	0.67
CVWB-02	Concord	Bedrock	0-315	15.76	22.08	High	6.32	-0.07
DDWB-01	Deerfield	Bedrock	0-300	17.03	18.31	High	1.28	-0.03
EAWB-01	East Kingston	Bedrock	463-473	22.5	24.36	High	1.86	-0.08
EAWB-02	East Kingston	Bedrock	0-323	21.87	24.28	High	2.41	-0.1
HTW-05	Hooksett	Bedrock	0-102.7	47.17	49.25	High	2.08	-0.18
NWWB-01	Northwood	Bedrock	0-130	5.04		Not Analyzed	-	0.55
RGWB-01	Rindge	Bedrock	391-401	13.86		Not Analyzed	-	0.58
RGWB-02	Rindge	Bedrock	0-285	16.57		Not Analyzed	-	0.58
SOWB-01	Stewartstown	Bedrock	443-453	18.95		Not Analyzed	-	-1.15
SOWB-02	Stewartstown	Bedrock	0-303	26.36	25.22	Normal	-1.14	-0.06

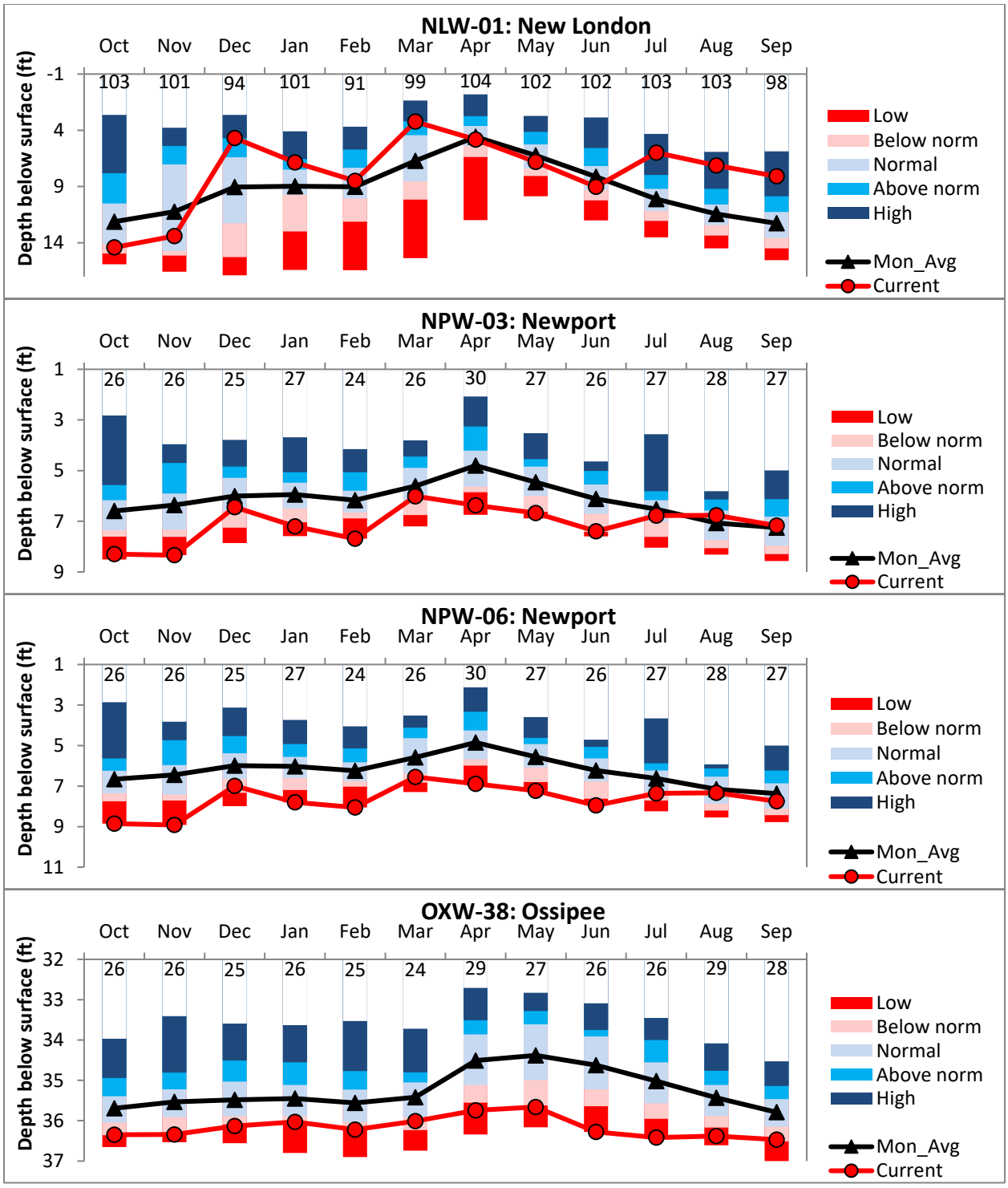
OVERBURDEN WELL HYDROGRAPHS (Showing statistics for wells with ≥ 10 years of data)



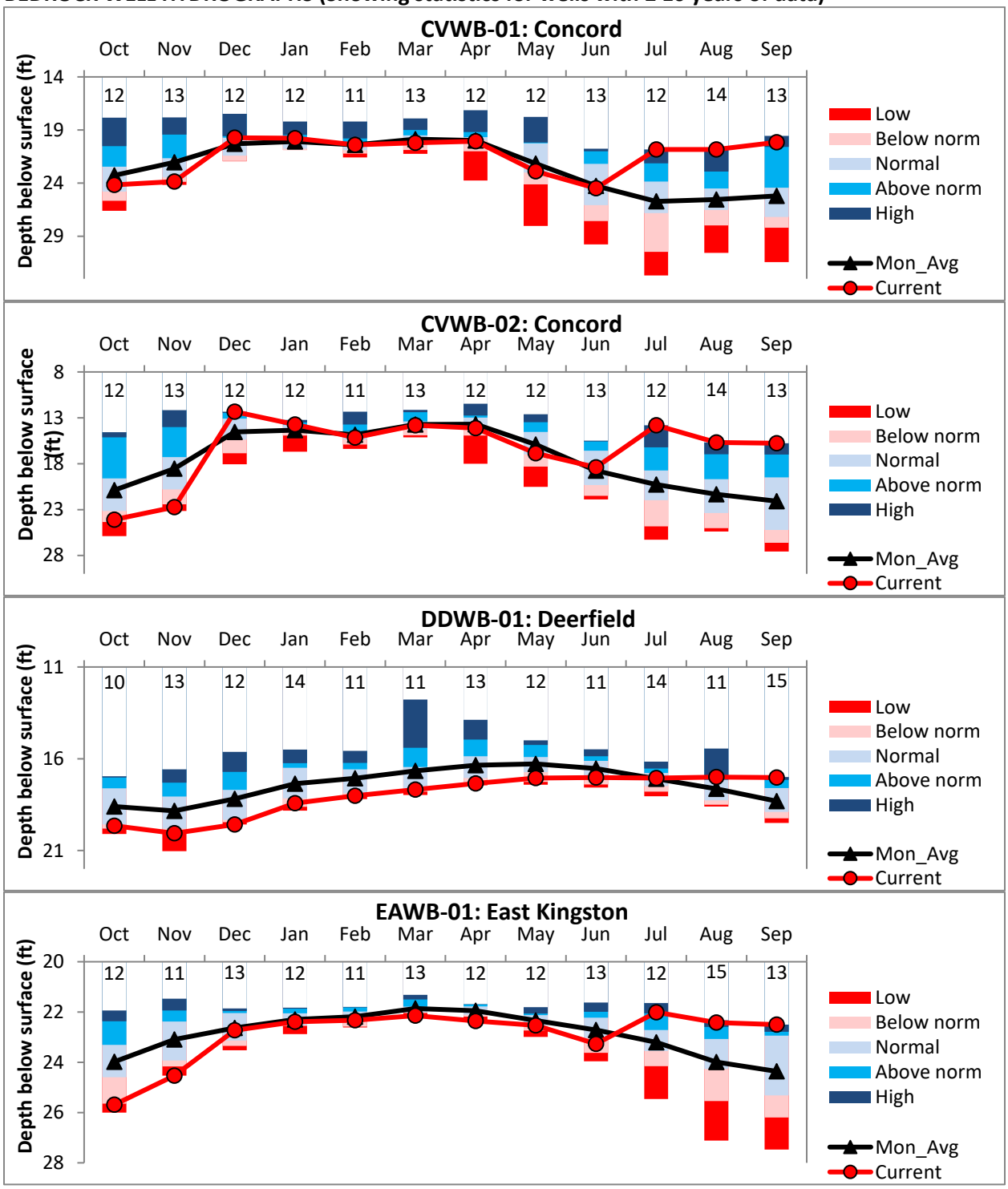

CBW-34: Campton
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
Depth below surface (ft)
9 11 13 15
26 27 25 28 24 29 27 28 29 28 30 28
Low
Below norm
Normal
Above norm
High
Mon_Avg
Current
CTW-73: Colebrook
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
Depth below surface (ft)
2 4 6 8 10
24 24 28 26 24 26 24 23 25 21 26 22
Low
Below norm
Normal
Above norm
High
Mon_Avg
Current
CVW-2.1: Concord Airport
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
Depth below surface (ft)
38.00 39.00 40.00 41.00 42.00 43.00
4 4 5 4 6 5 5 5 5 5 5 5
Prior Year 2020 - 2019
Current
CVW-04: Concord
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
Depth below surface (ft)
12 14 16 18 20
55 60 54 59 55 59 58 57 59 56 58 54
Low
Below norm
Normal
Above norm
High
Mon_Avg
Current

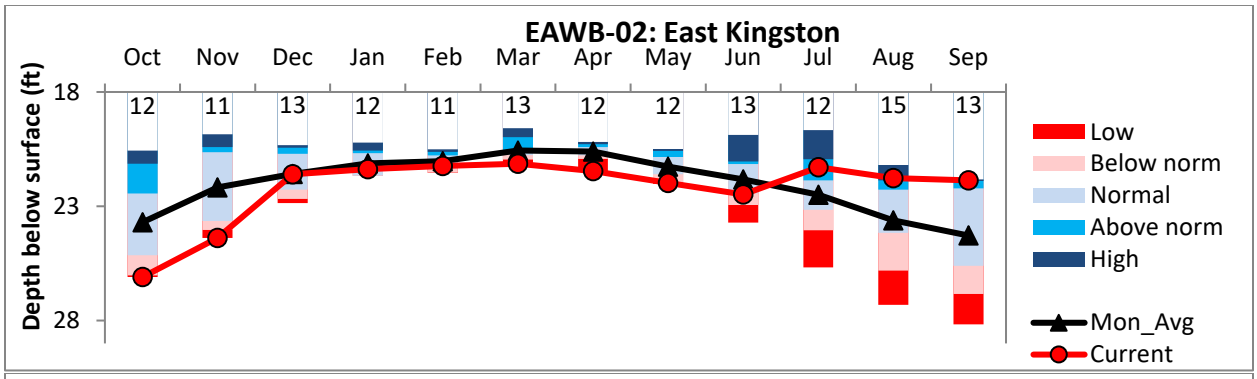

DDW-46: Deerfield
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
Depth below surface (ft)
36 37 38 39 40 41
26 29 27 30 26 25 32 28 26 31 26 29
Low
Below norm
Normal
Above norm
High
Mon_Avg
Current
EPW-90: Epping
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
Depth below surface (ft)
21 26 31
13 15 14 17 14 13 16 14 14 15 12 16
Low
Below norm
Normal
Above norm
High
Mon_Avg
Current
FKW-01: Franklin
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
Depth below surface (ft)
4 9 14
53 53 51 55 49 55 56 54 55 56 55 53
Low
Below norm
Normal
Above norm
High
Mon_Avg
Current
GSW-75: Greenfield
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
Depth below surface (ft)
55 60 65
25 25 25 26 20 30 23 22 25 28 25 25
Low
Below norm
Normal
Above norm
High
Mon_Avg
Current

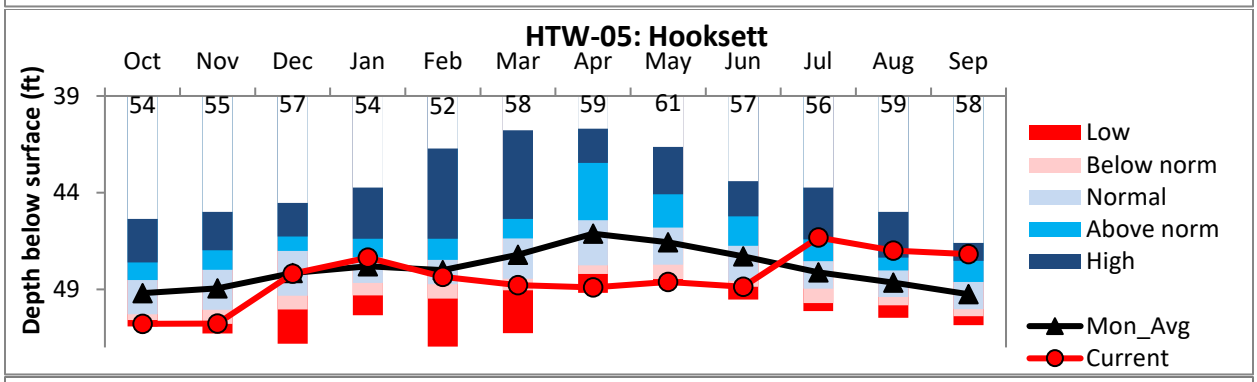

LCW-01: Lancaster
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
Depth below surface (ft)
-2 0 2 4
48 55 46 45 42 38 55 53 52 51 51 51
Low
Below norm
Normal
Above norm
High
Mon_Avg
Current
LLW-19: Lisbon
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
Depth below surface (ft)
8 10 12 14 16
27 26 26 28 26 28 31 28 28 28 29 28
Low
Below norm
Normal
Above norm
High
Mon_Avg
Current
NAW-218: Nashua
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
Depth below surface (ft)
24 26 28 30 32 34
56 57 57 55 57 61 51 60 58 56 60 58
Low
Below norm
Normal
Above norm
High
Mon_Avg
Current
NFW-53: New Durham
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
Depth below surface (ft)
17 18 19 20 21 22
27 27 27 27 26 29 29 28 27 27 29 27
Low
Below norm
Normal
Above norm
High
Mon_Avg
Current

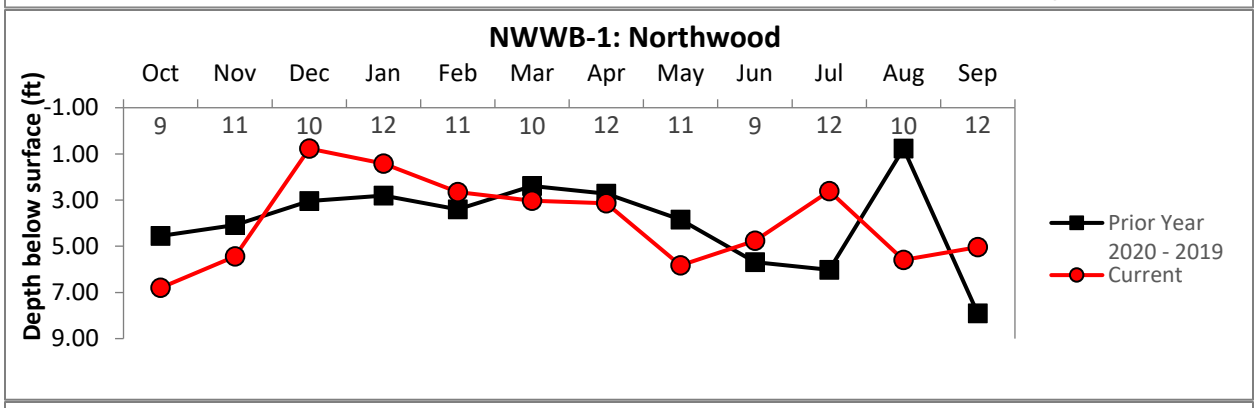

NLW-01: New London
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
Depth below surface (ft)
-1
4
9
14
103 101 94 101 91 99 104 102 102 103 103 98
Low
Below norm
Normal
Above norm
High
Mon_Avg
Current
NPW-03: Newport
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
Depth below surface (ft)
1
3
5
7
9
26 26 25 27 24 26 30 27 26 27 28 27
Low
Below norm
Normal
Above norm
High
Mon_Avg
Current
NPW-06: Newport
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
Depth below surface (ft)
1
3
5
7
9
11
26 26 25 27 24 26 30 27 26 27 28 27
Low
Below norm
Normal
Above norm
High
Mon_Avg
Current
OXW-38: Ossipee
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
Depth below surface (ft)
32
33
34
35
36
37
26 26 25 26 25 24 29 27 26 26 29 28
Low
Below norm
Normal
Above norm
High
Mon_Avg
Current

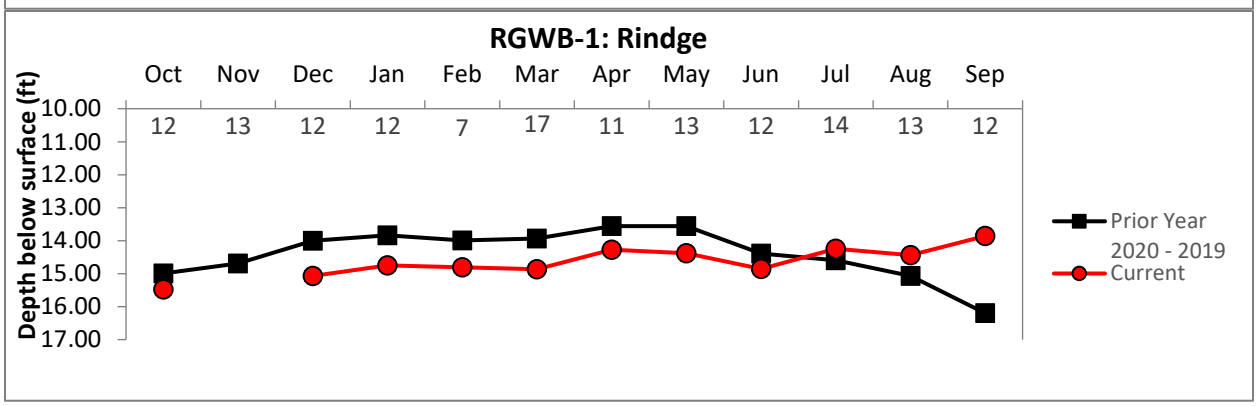
BEDROCK WELL HYDROGRAPHS (Showing statistics for wells with ≥ 10 years of data)

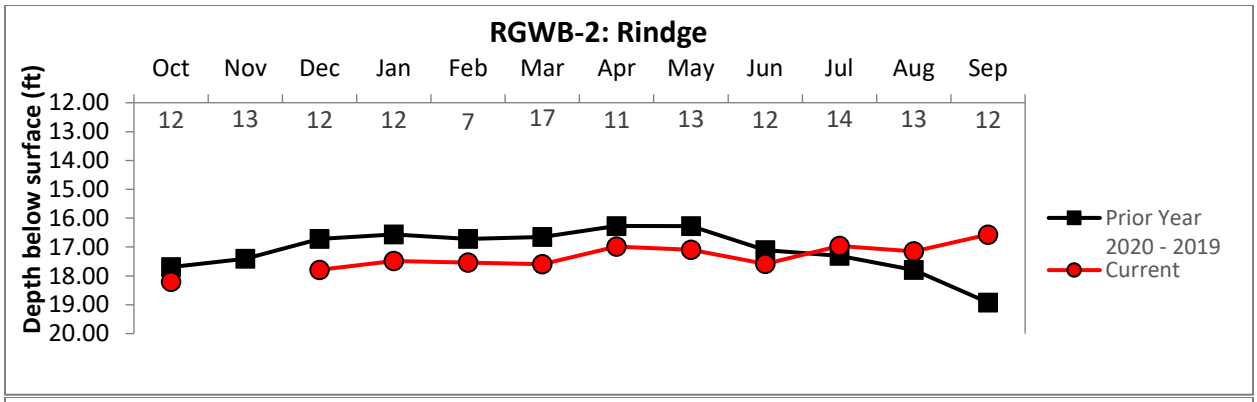


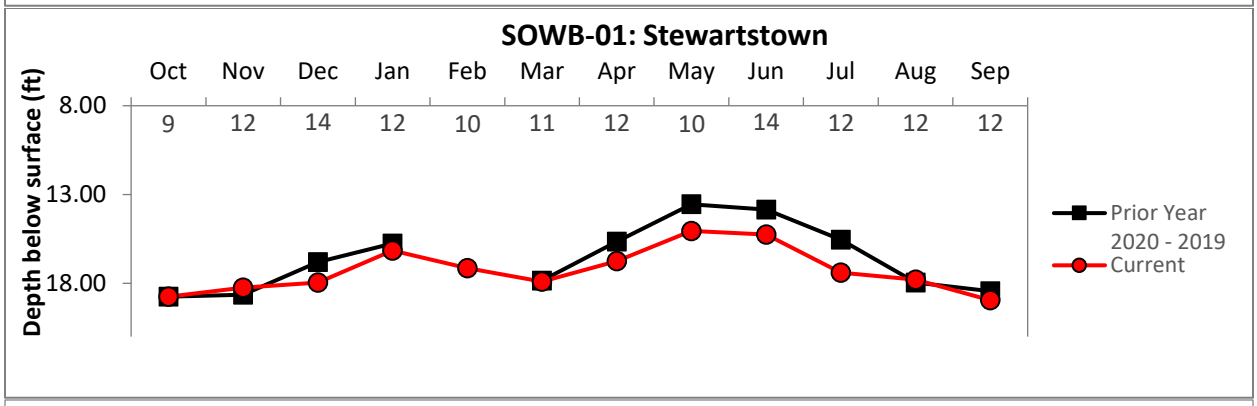

EAWB-02: East Kingston
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
Depth below surface (ft)
18
23
28
12 11 13 12 11 13 12 12 13 12 15 13
Low
Below norm
Normal
Above norm
High
Mon_Avg
Current

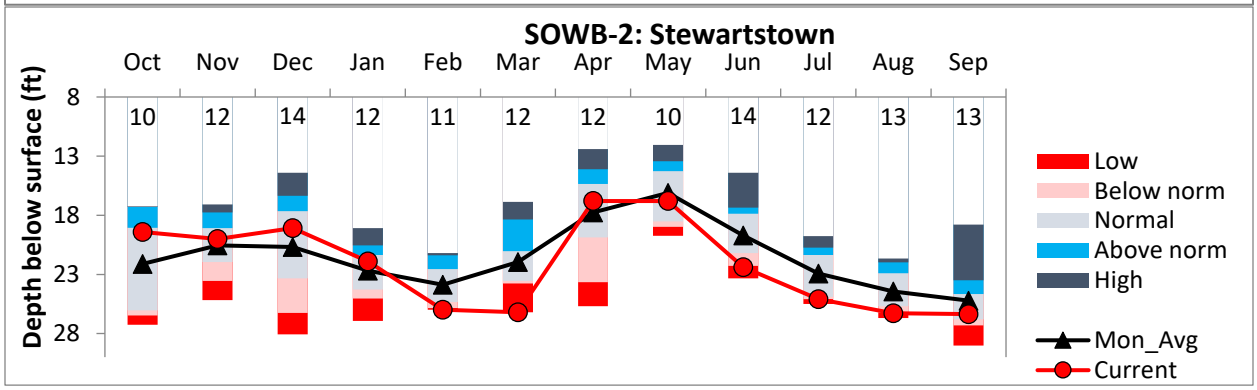

HTW-05: Hooksett
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
Depth below surface (ft)
39
44
49
54 55 57 54 52 58 59 61 57 56 59 58
Low
Below norm
Normal
Above norm
High
Mon_Avg
Current


NWWB-1: Northwood
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
Depth below surface (ft)
-1.00
1.00
3.00
5.00
7.00
9.00
9 11 10 12 11 10 12 11 9 12 10 12
Prior Year
2020 - 2019
Current

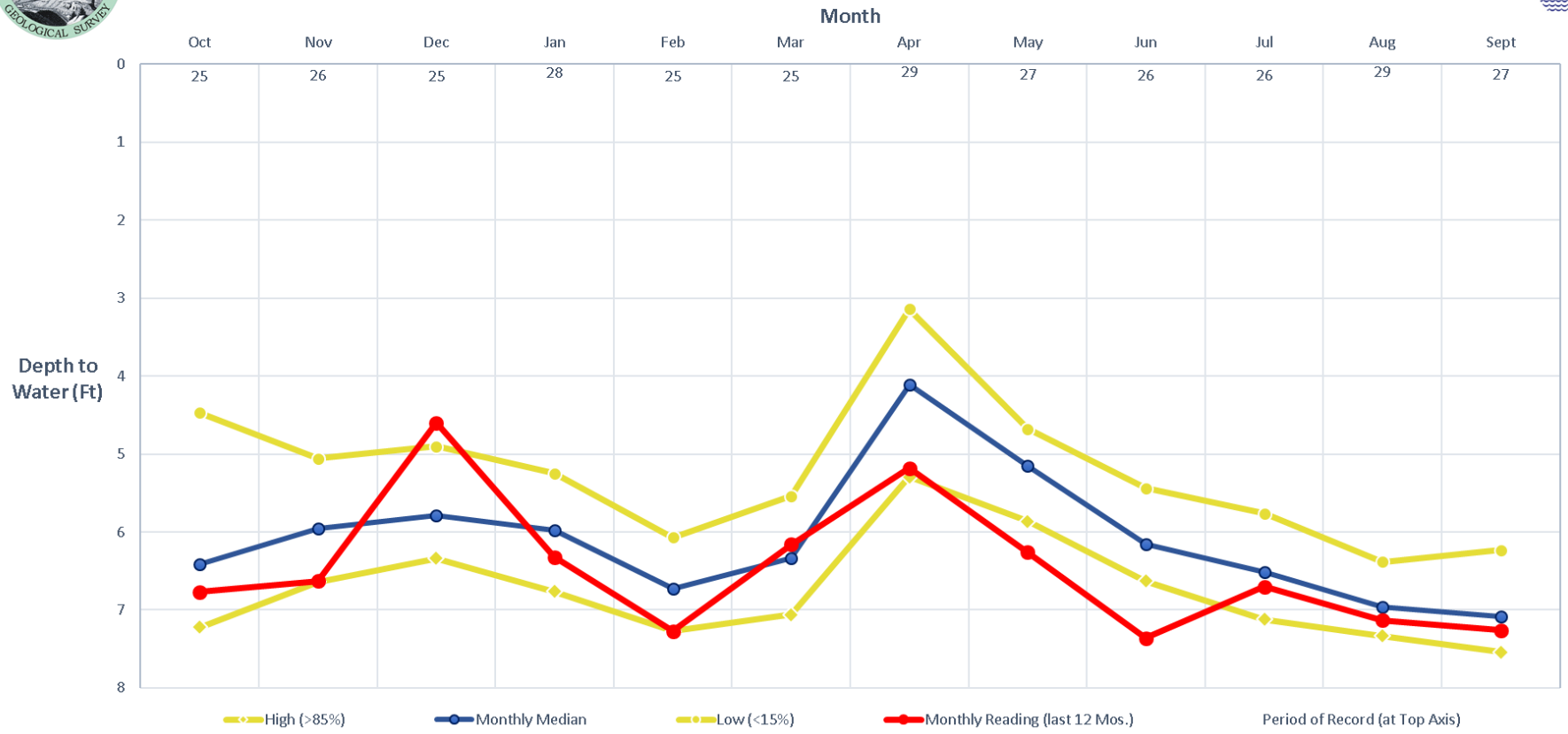

RGWB-1: Rindge
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
Depth below surface (ft)
10.00
11.00
12.00
13.00
14.00
15.00
16.00
17.00
12 13 12 12 7 17 11 13 12 14 13 12
Prior Year
2020 - 2019
Current


RGWB-2: Rindge
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
12 13 12 12 7 17 11 13 12 14 13 12
Depth below surface (ft)
12.00
13.00
14.00
15.00
16.00
17.00
18.00
19.00
20.00
Prior Year
2020 - 2019
Current

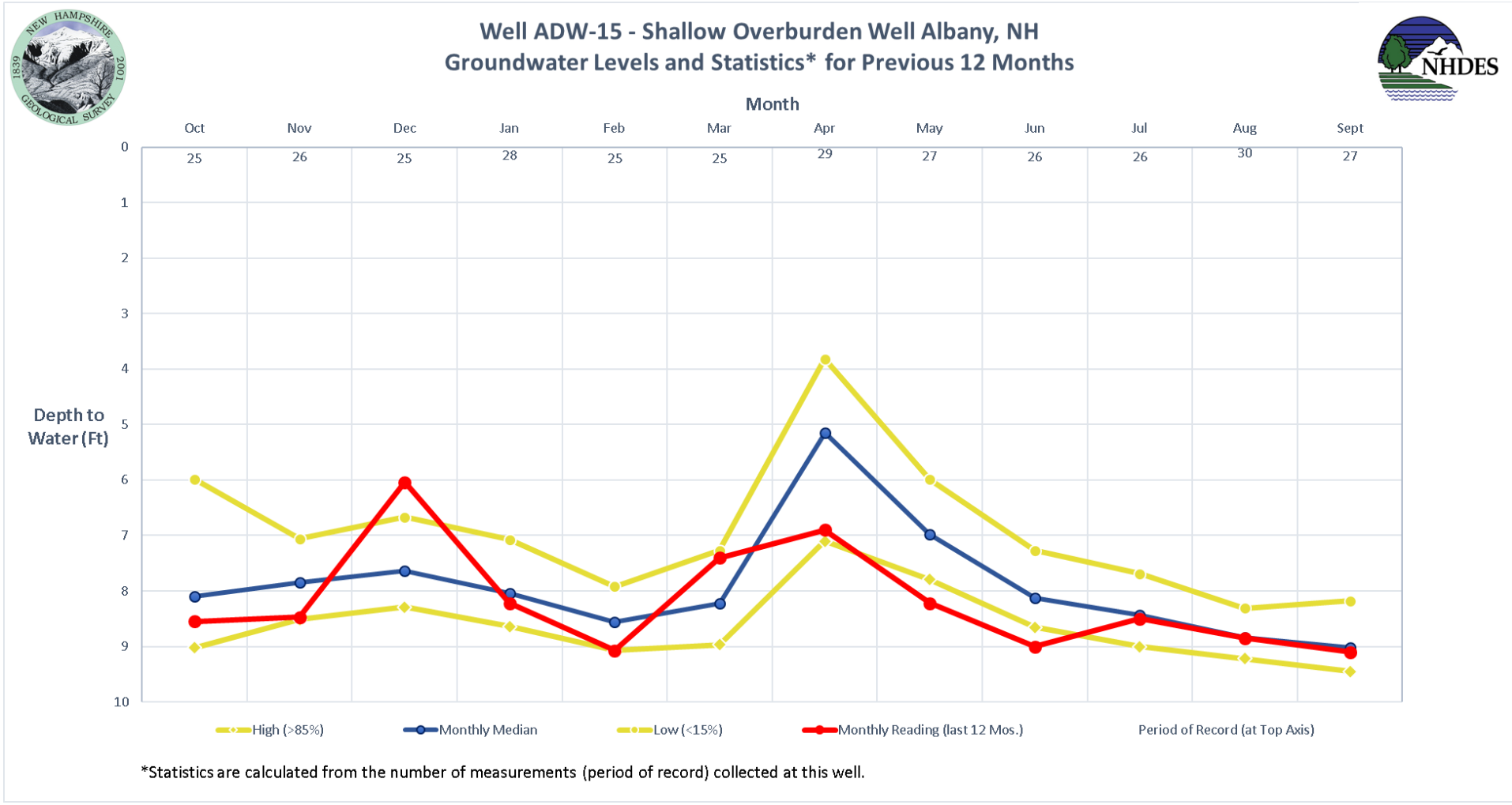

SOWB-01: Stewartstown
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
9 12 14 12 10 11 12 10 14 12 12 12
Depth below surface (ft)
8.00
13.00
18.00
Prior Year
2020 - 2019
Current


SOWB-2: Stewartstown
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
10 12 14 12 11 12 12 10 14 12 13 13
Depth below surface (ft)
8
13
18
23
28
Low
Below norm
Normal
Above norm
High
Mon_Avg
Current

Well ADW-14 - Deep Overburden Well Albany, NH
Groundwater Levels and Statistics* for Previous 12 Months



*Statistics are calculated from the number of measurements (period of record) collected at this well.



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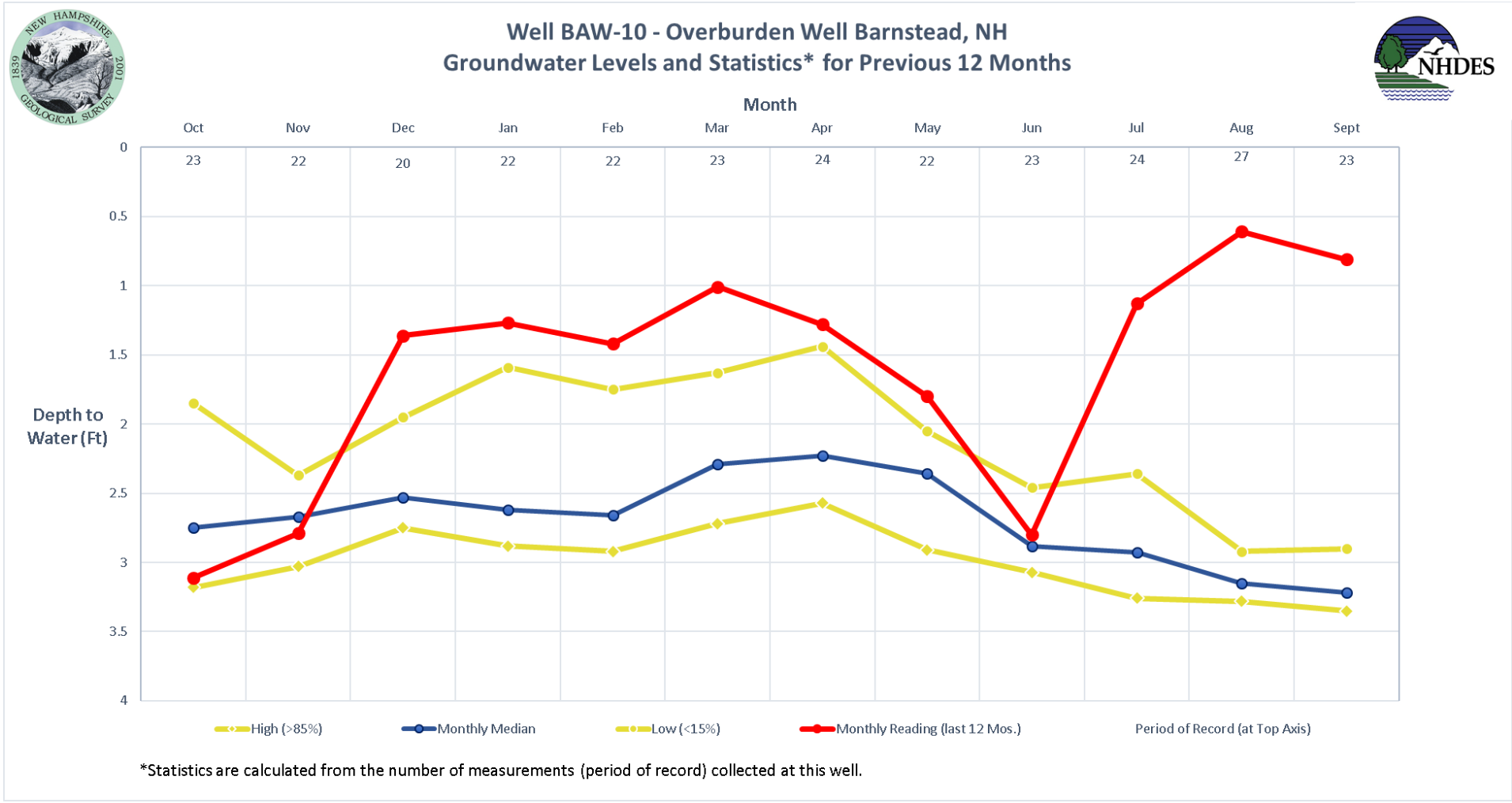
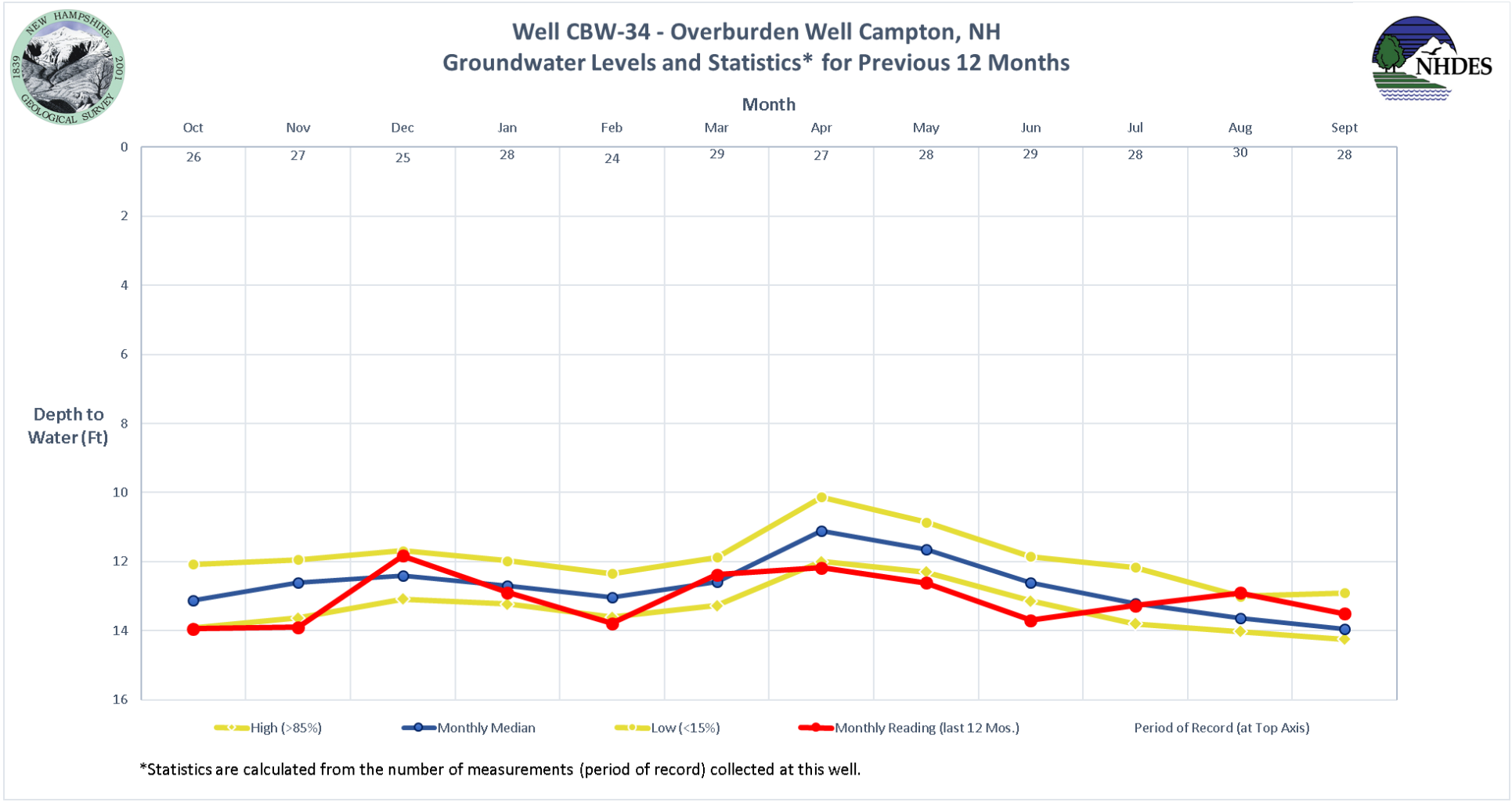
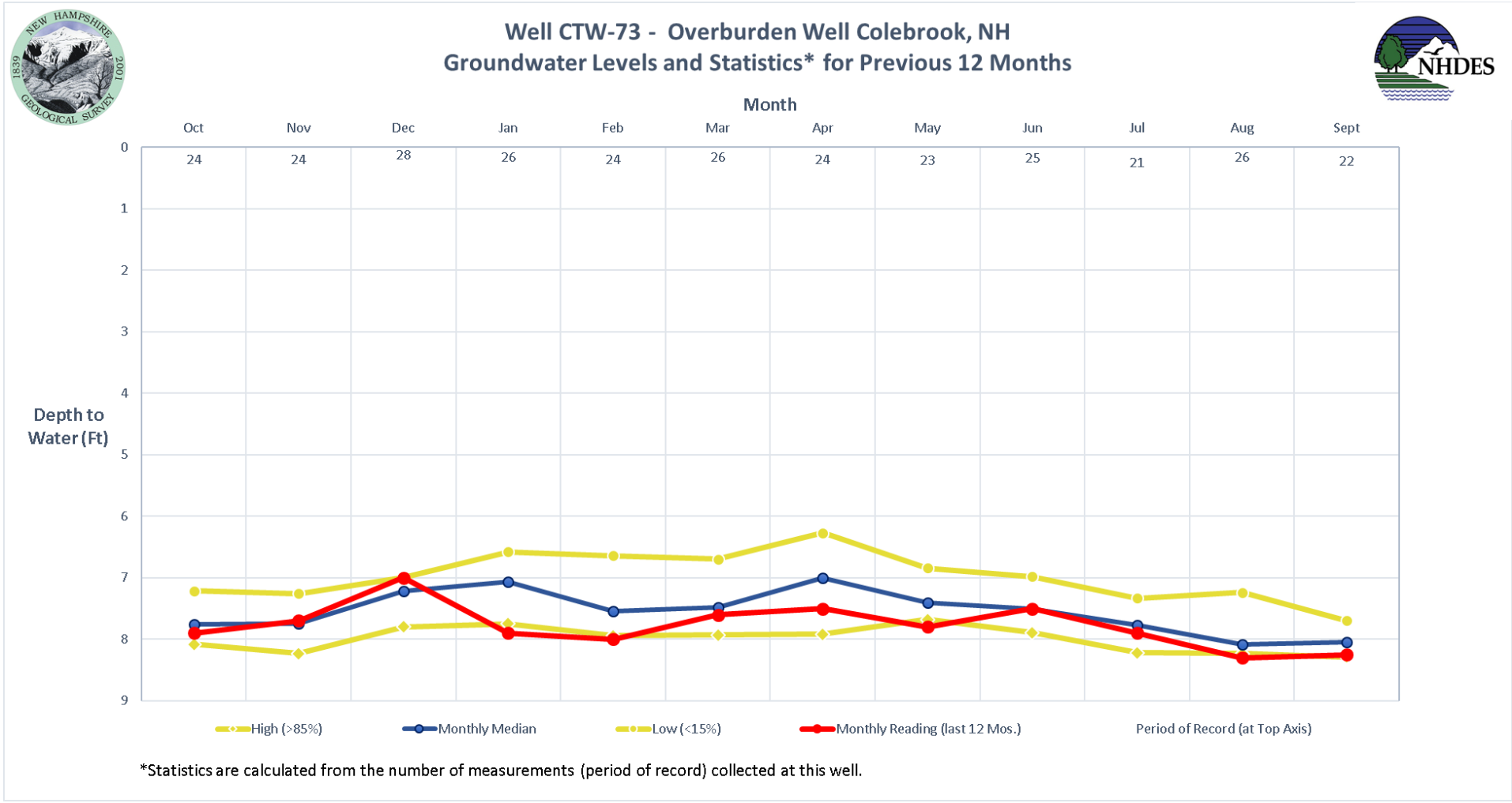
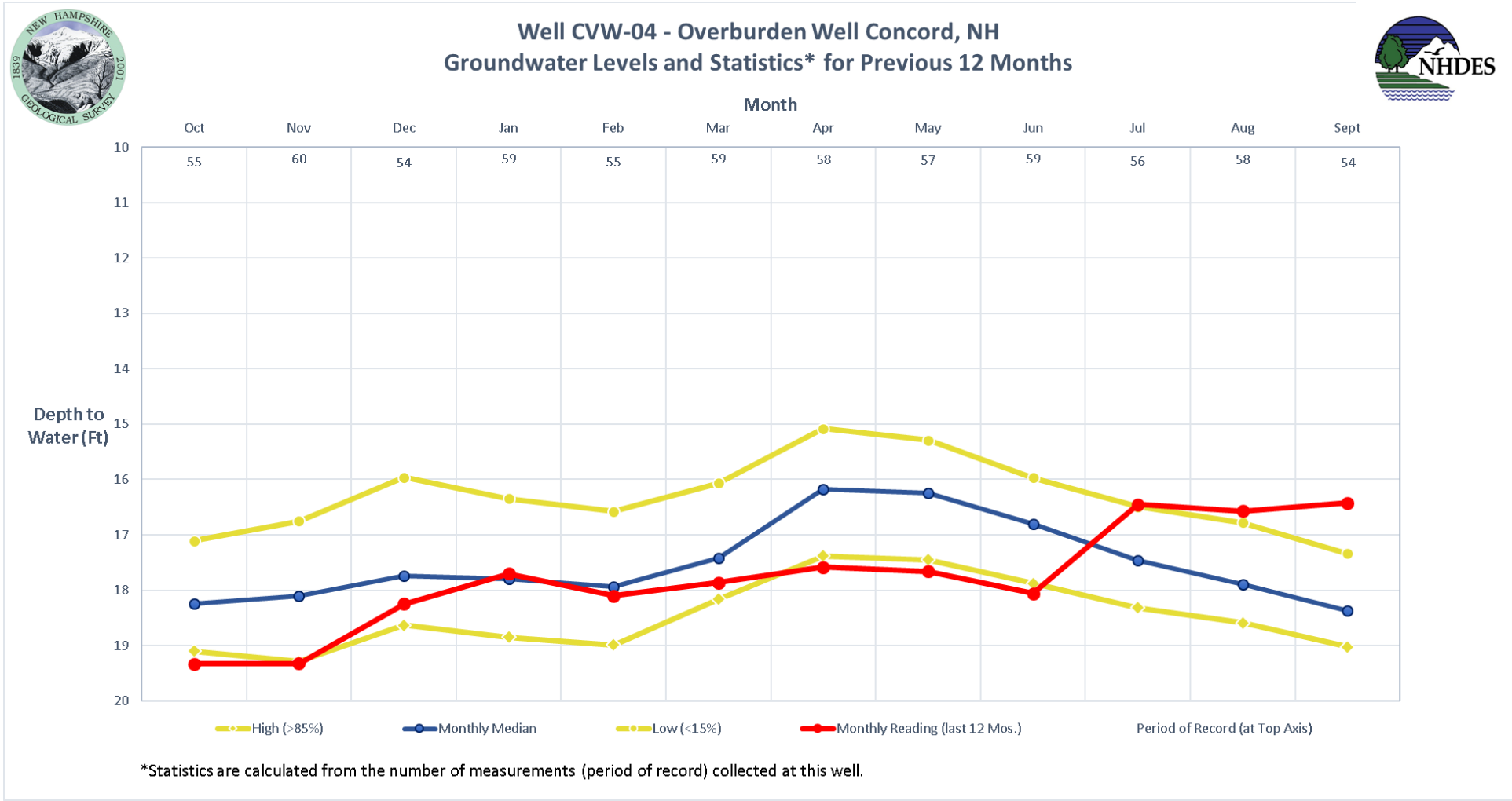


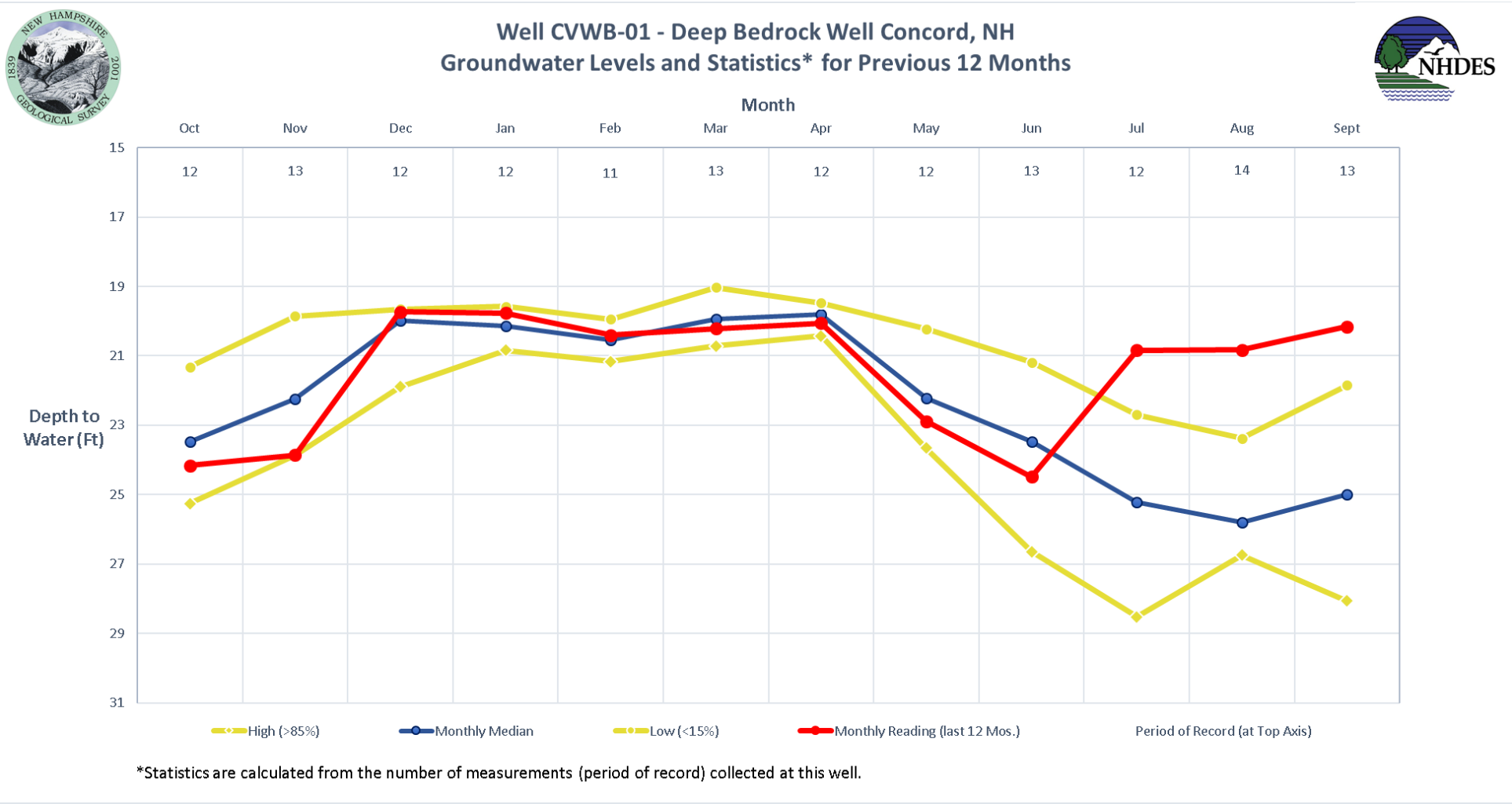
*Statistics are calculated from the number of measurements (period of record) collected at this well.

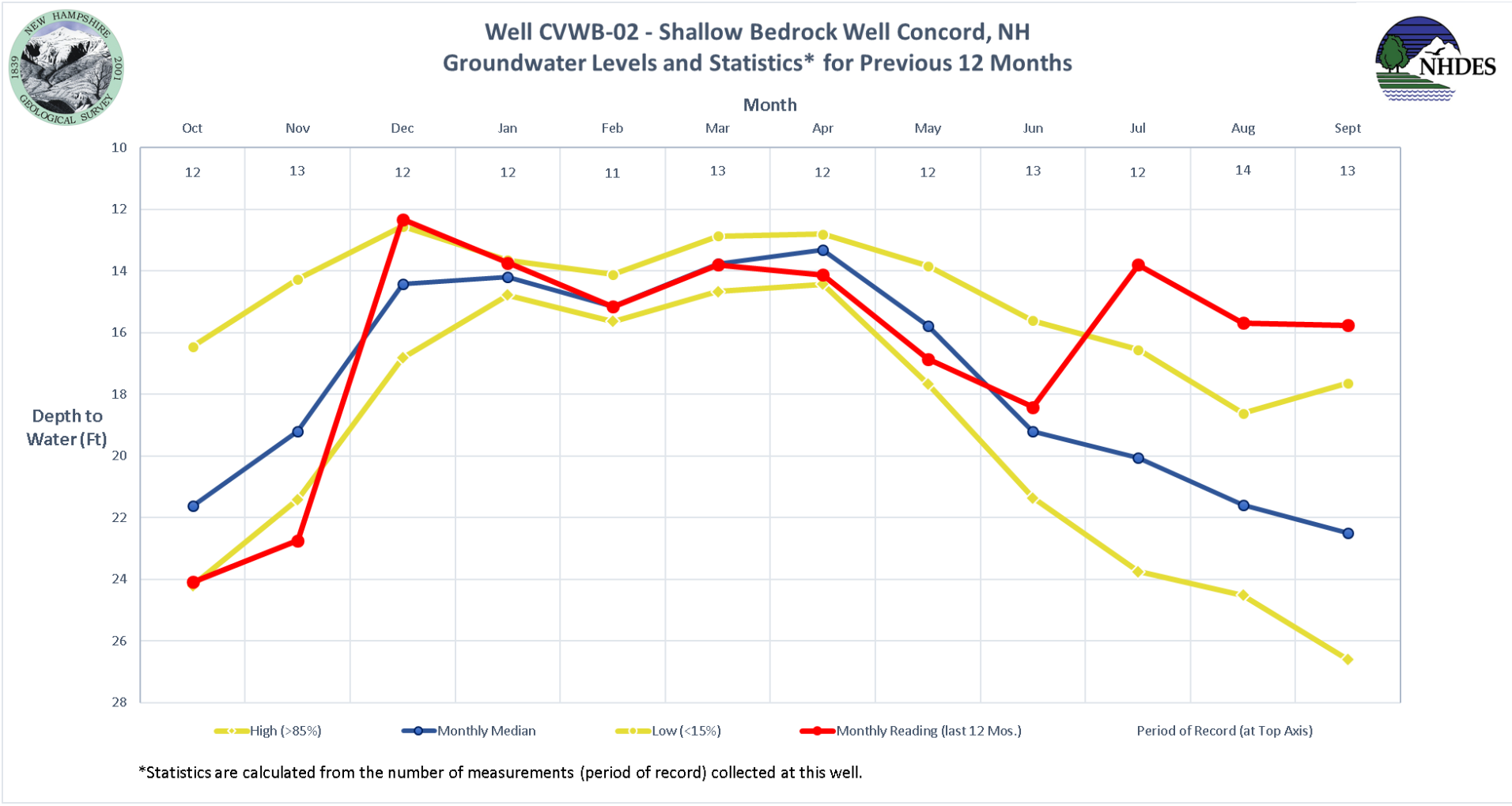

Well CBW-34 - Overburden Well Campton, NH
Groundwater Levels and Statistics* for Previous 12 Months
NHDES
Month
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sept
26 27 25 28 24 29 27 28 29 28 30 28
Depth to Water (Ft)
0 2 4 6 8 10 12 14 16
High (>85%)
Monthly Median
Low (<15%)
Monthly Reading (last 12 Mos.)
Period of Record (at Top Axis)
*Statistics are calculated from the number of measurements (period of record) collected at this well.



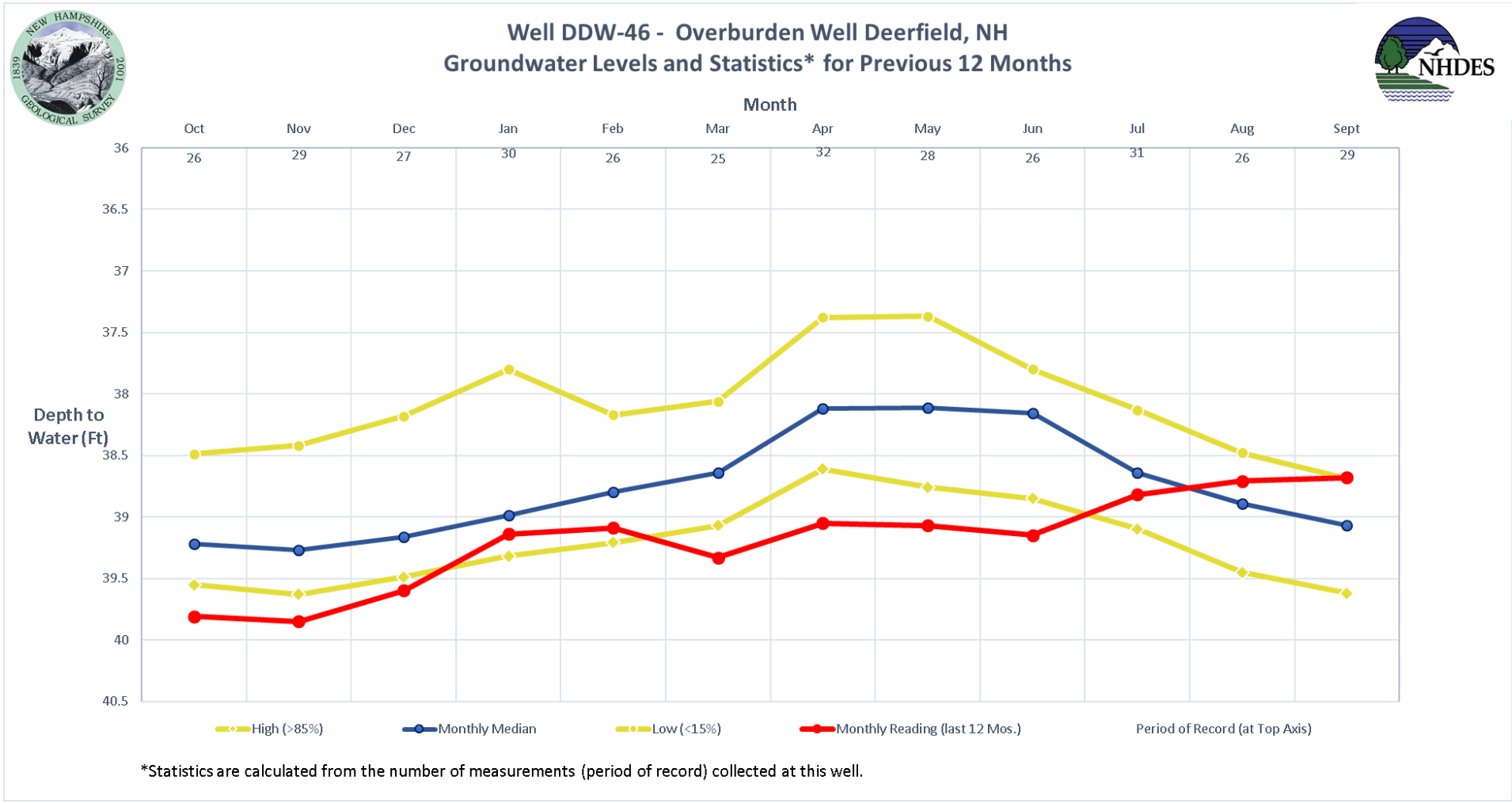
*Statistics are calculated from the number of measurements (period of record) collected at this well.


Well CVW-04 - Overburden Well Concord, NH
Groundwater Levels and Statistics* for Previous 12 Months
Month
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sept
55
60
54
59
55
59
58
57
59
56
58
54
Depth to Water (Ft)
10
11
12
13
14
15
16
17
18
19
20
High (>85%)
Monthly Median
Low (<15%)
Monthly Reading (last 12 Mos.)
Period of Record (at Top Axis)
*Statistics are calculated from the number of measurements (period of record) collected at this well.

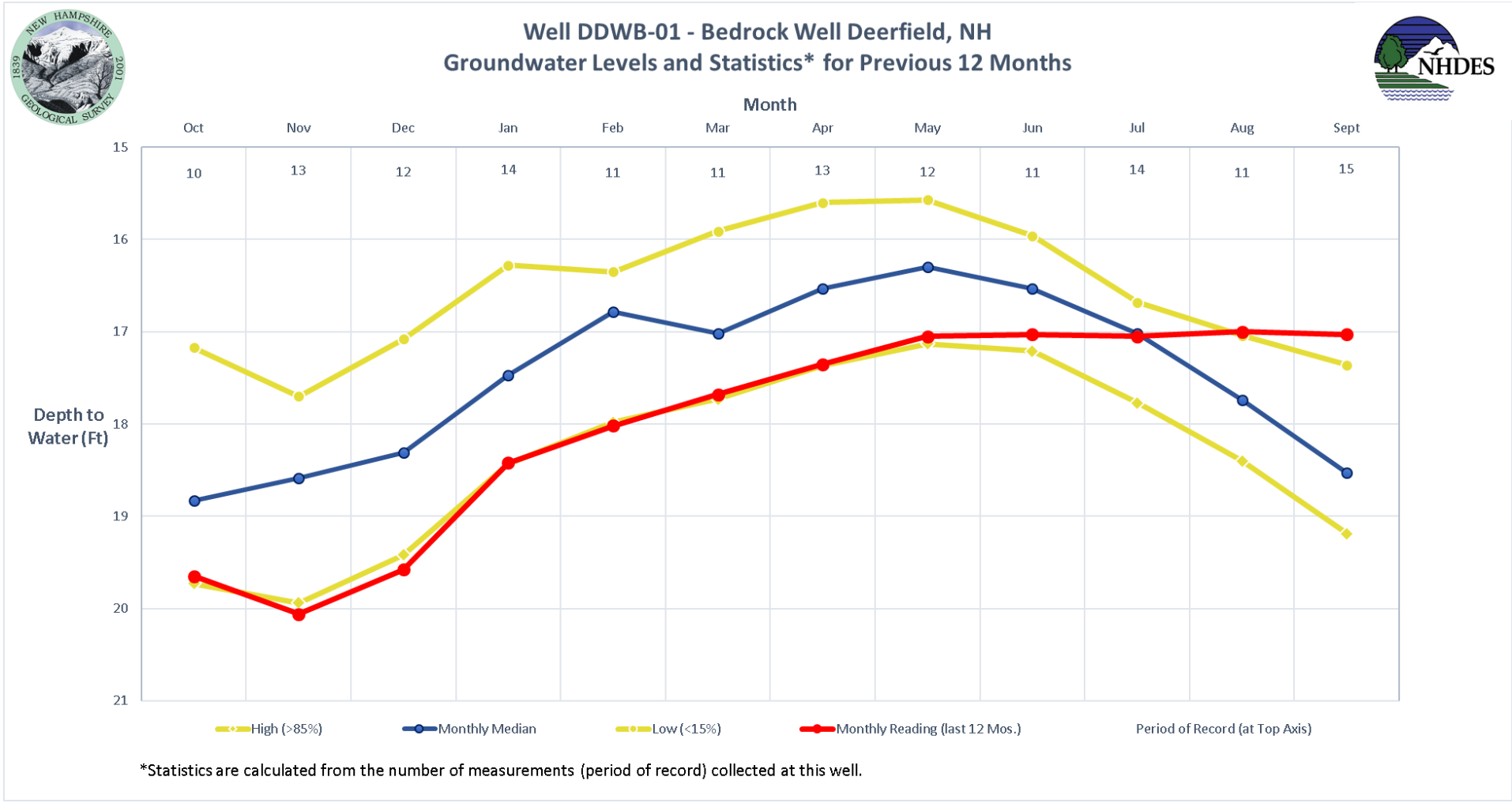

Well CVWB-01 - Deep Bedrock Well Concord, NH
Groundwater Levels and Statistics* for Previous 12 Months
Month
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sept
12 13 12 12 11 13 12 12 13 12 14 13
15 17 19 21 23 25 27 29 31
Depth to Water (Ft)
High (>85%)
Monthly Median
Low (<15%)
Monthly Reading (last 12 Mos.)
Period of Record (at Top Axis)
*Statistics are calculated from the number of measurements (period of record) collected at this well.



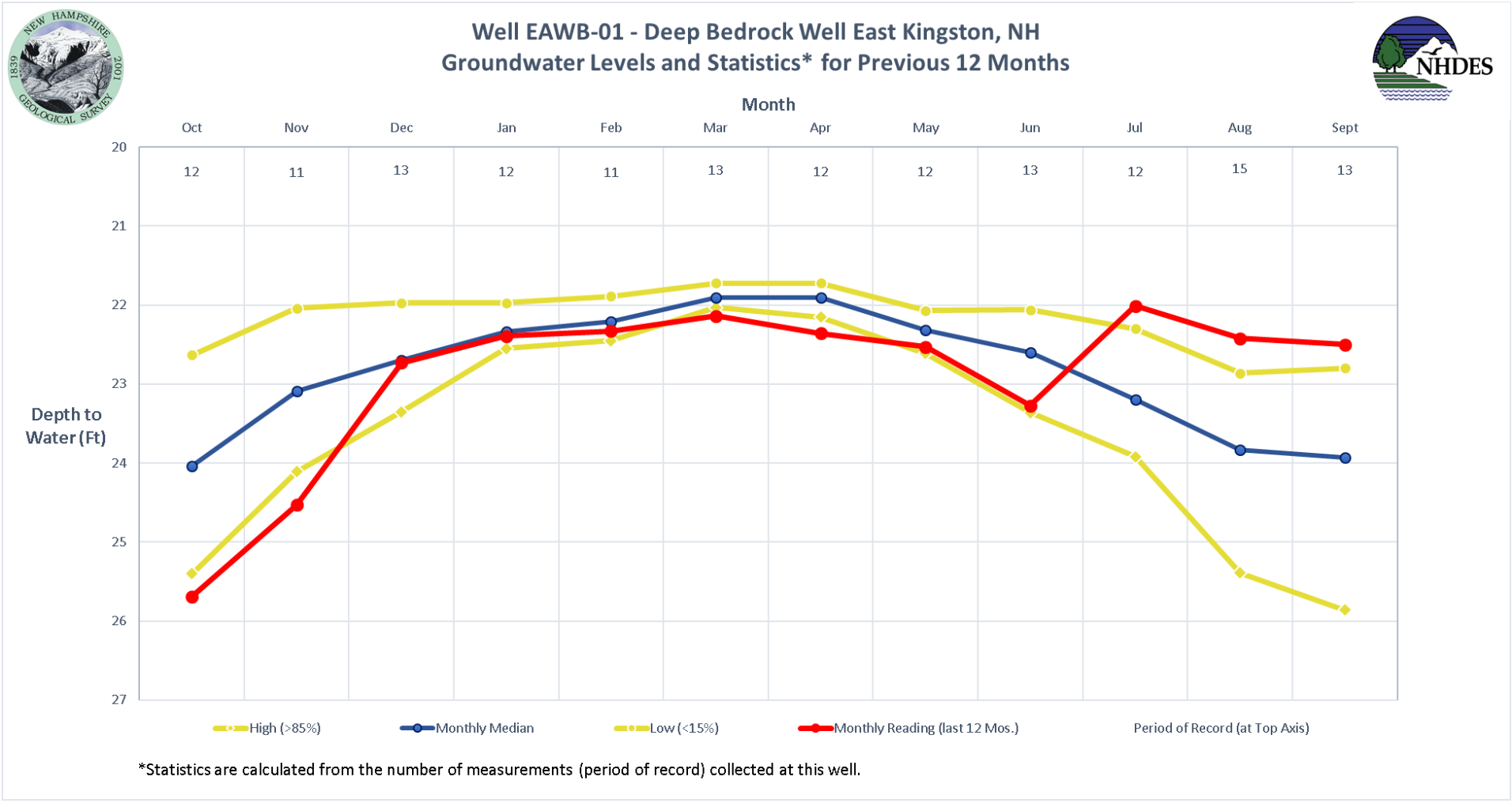
*Statistics are calculated from the number of measurements (period of record) collected at this well.



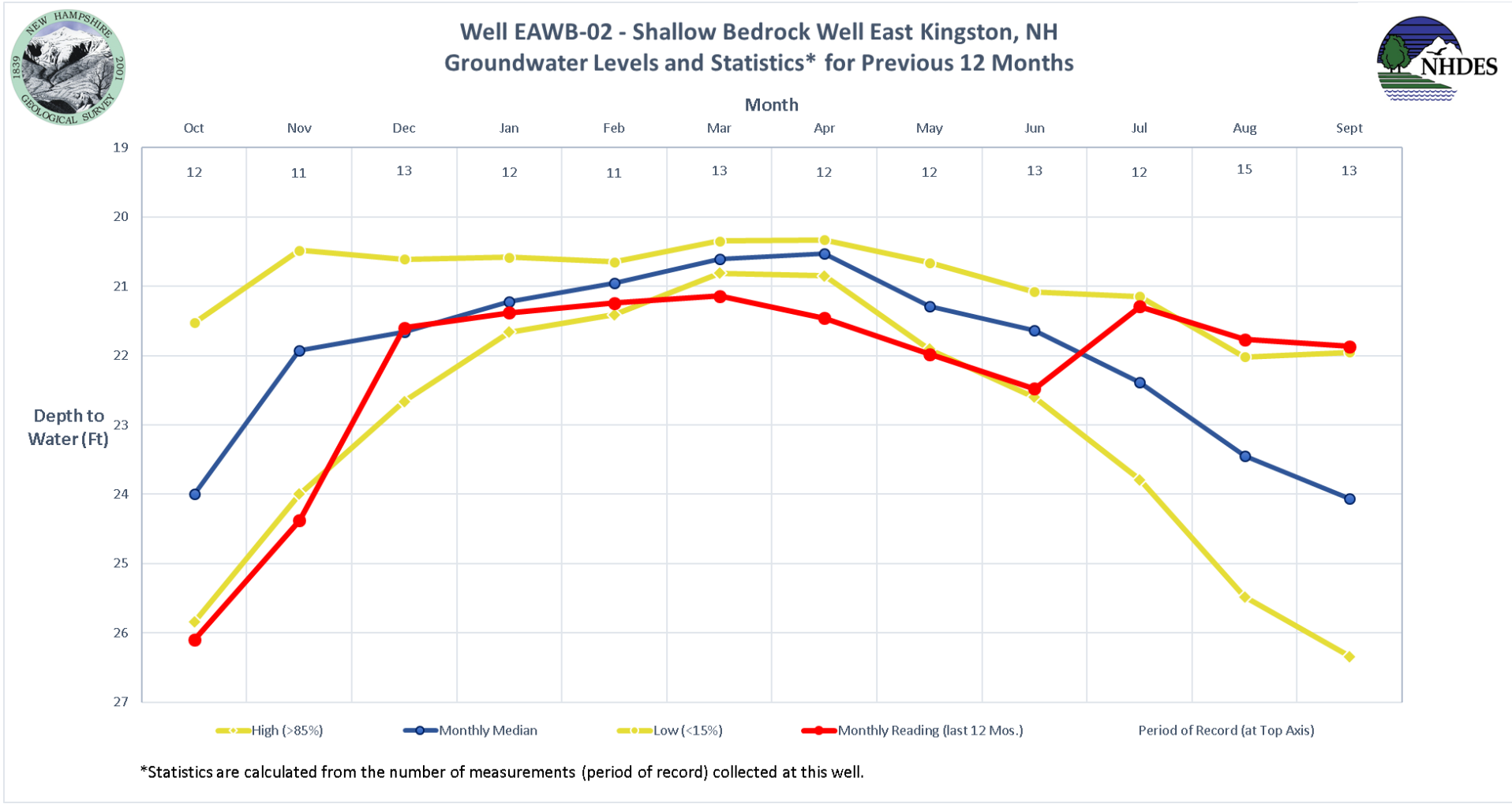
*Statistics are calculated from the number of measurements (period of record) collected at this well.

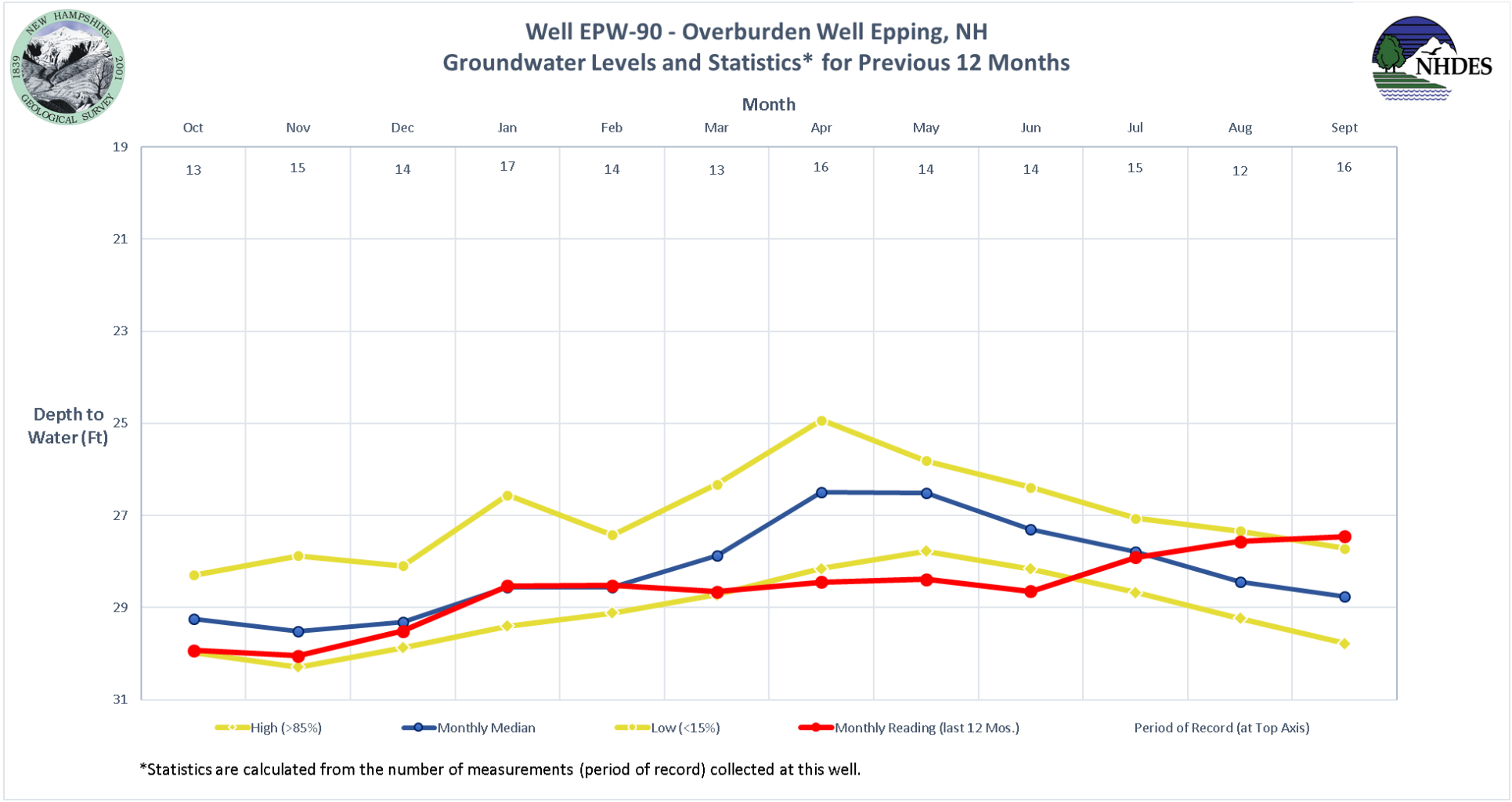


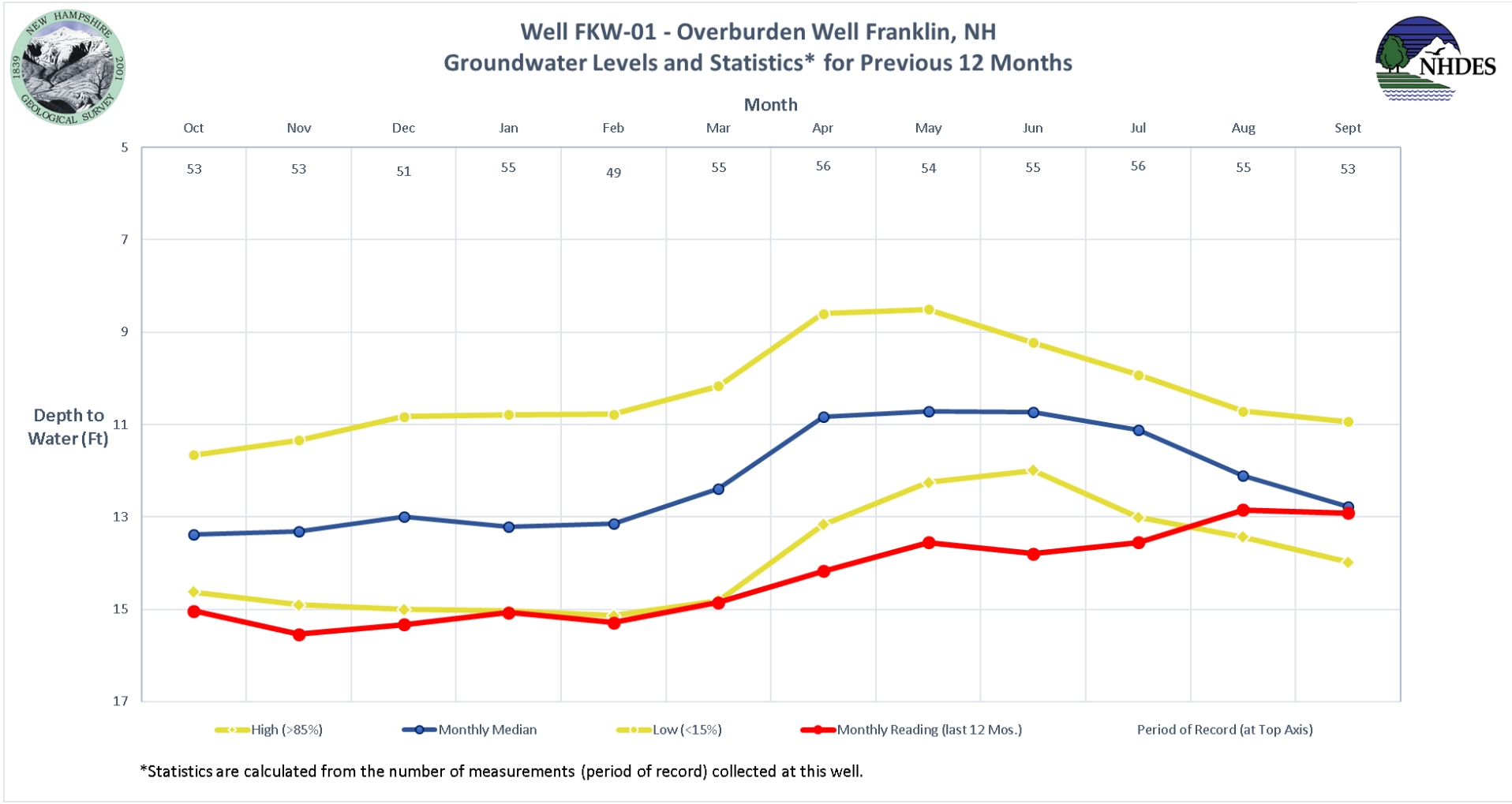
*Statistics are calculated from the number of measurements (period of record) collected at this well.



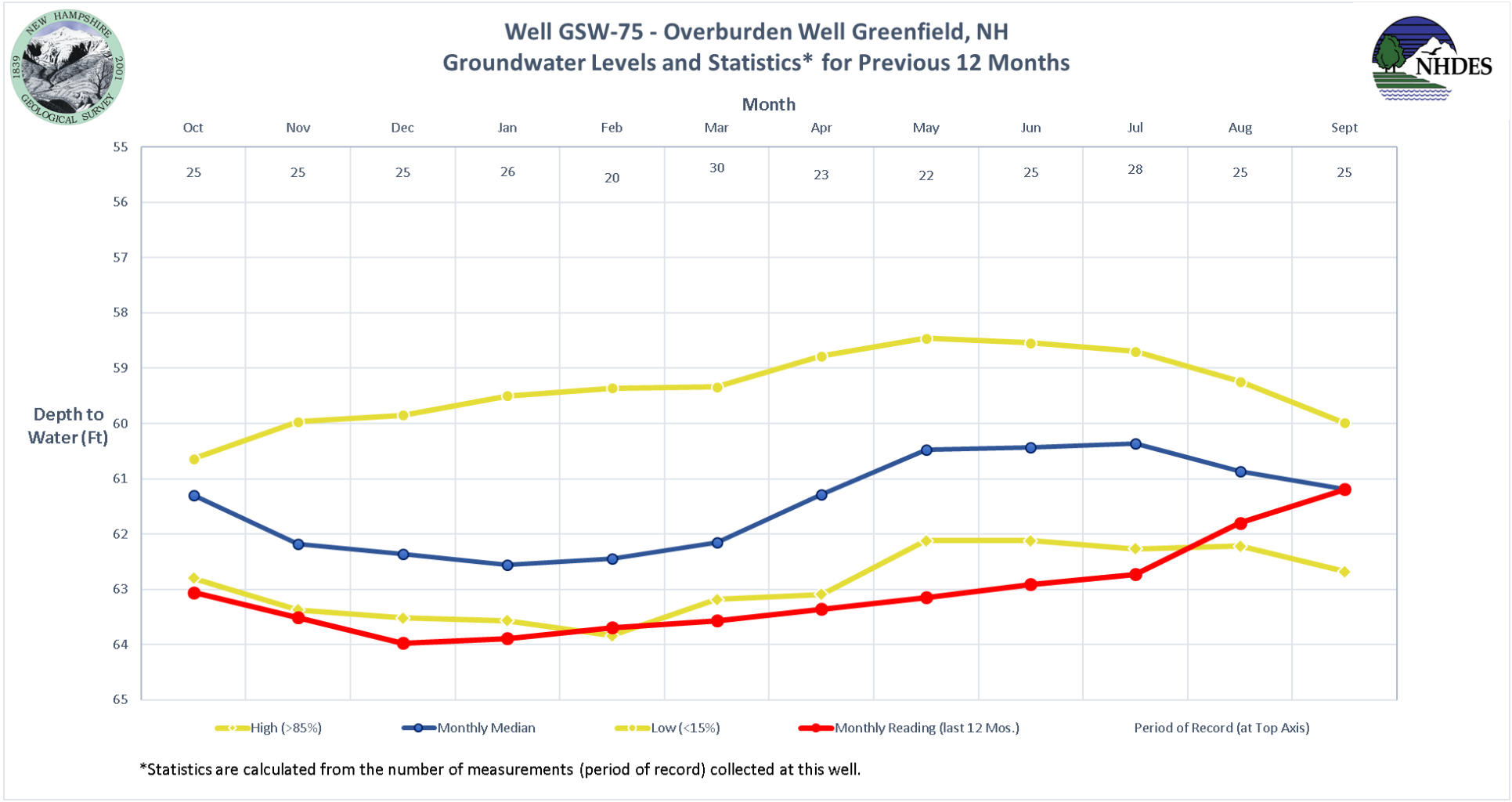
*Statistics are calculated from the number of measurements (period of record) collected at this well.

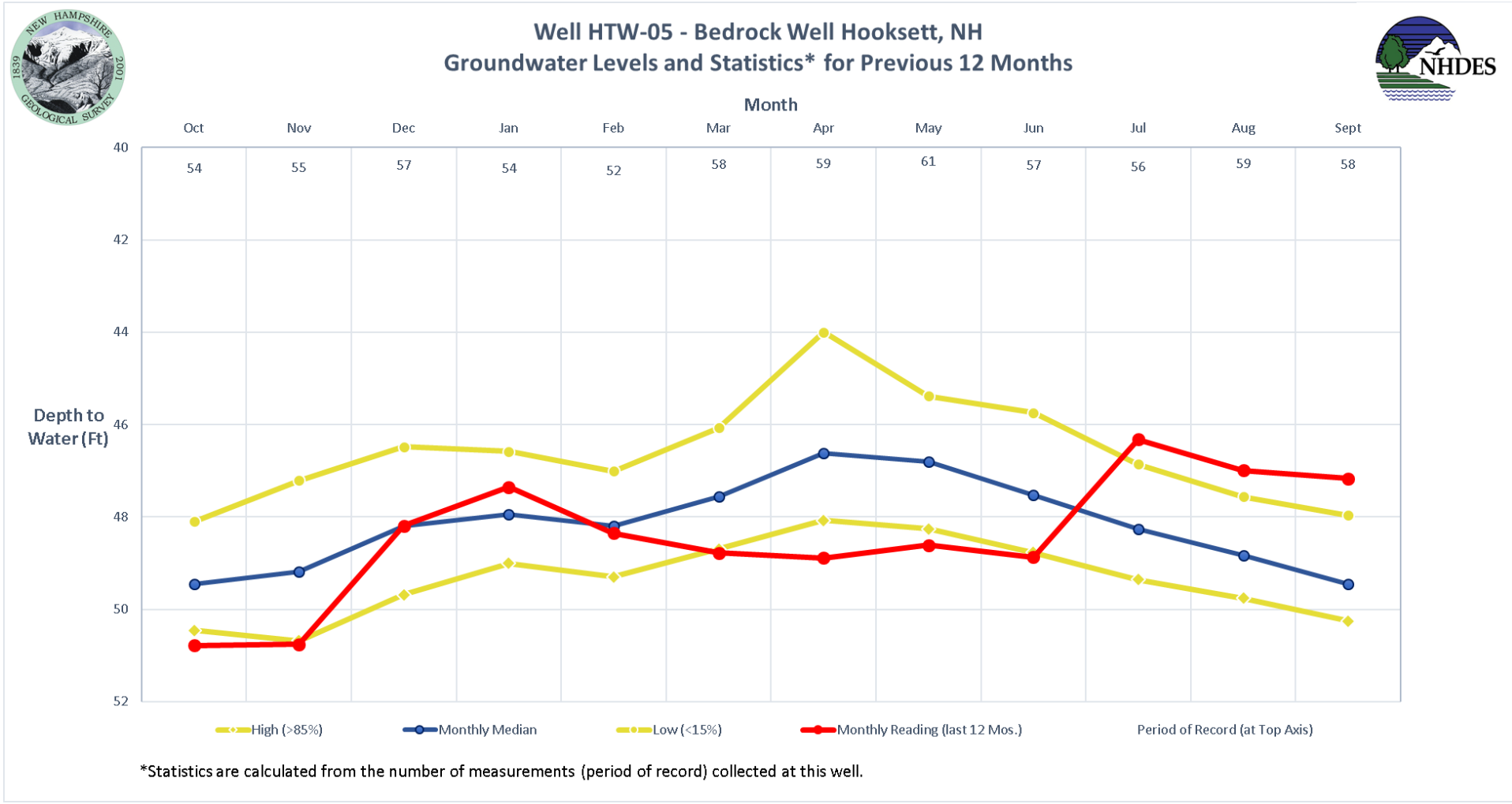

Well EAWB-02 - Shallow Bedrock Well East Kingston, NH
Groundwater Levels and Statistics* for Previous 12 Months
Month
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sept
12 11 13 12 11 13 12 12 13 12 15 13
19 20 21 22 23 24 25 26 27
Depth to Water (Ft)
High (>85%)
Monthly Median
Low (<15%)
Monthly Reading (last 12 Mos.)
Period of Record (at Top Axis)
*Statistics are calculated from the number of measurements (period of record) collected at this well.

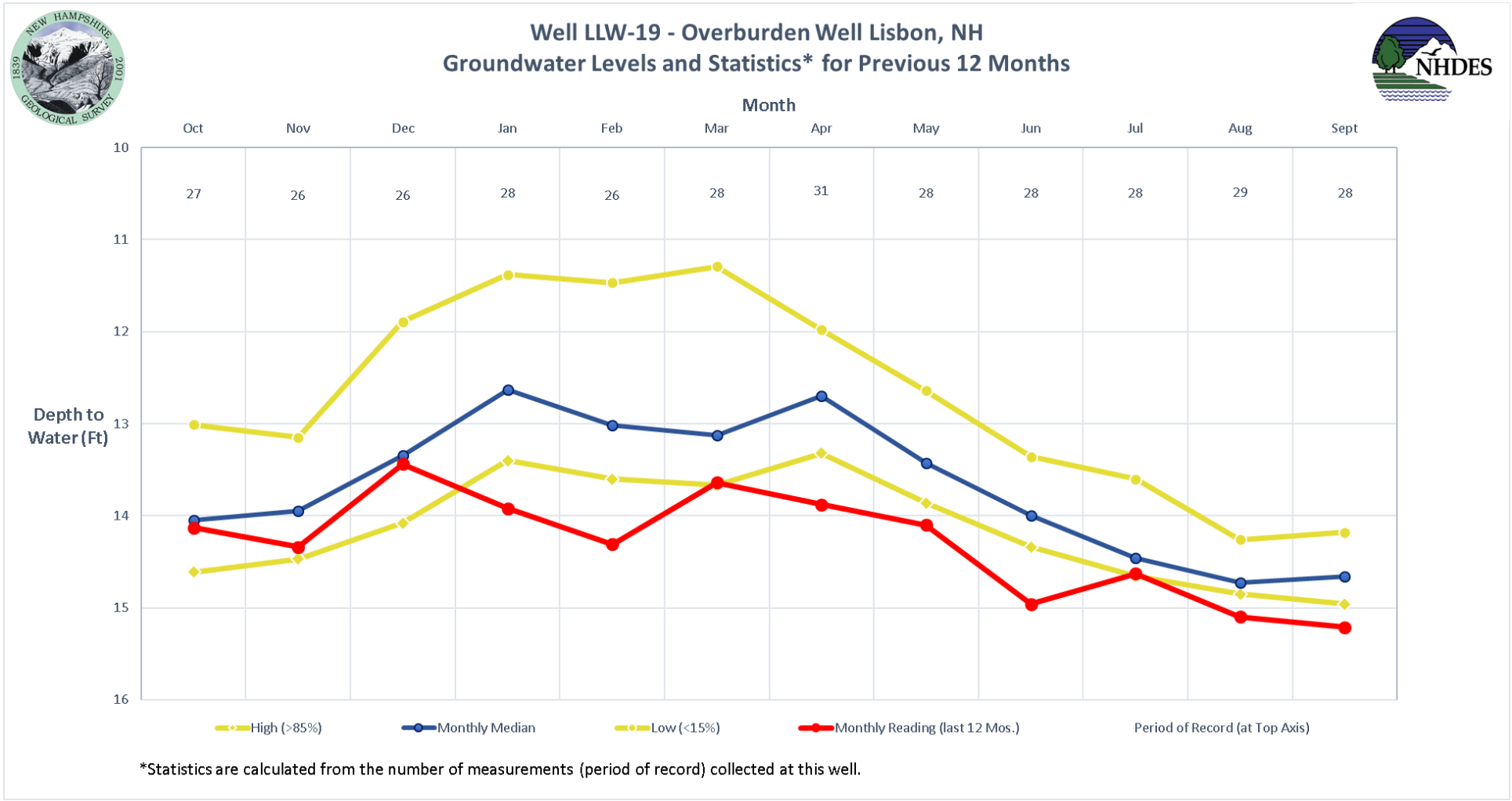

Well EPW-90 - Overburden Well Epping, NH
Groundwater Levels and Statistics* for Previous 12 Months
NHDES
Month
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sept
13
15
14
17
14
13
16
14
14
15
12
16
19
21
23
25
27
29
31
Depth to Water (Ft)
High (>85%)
Monthly Median
Low (<15%)
Monthly Reading (last 12 Mos.)
Period of Record (at Top Axis)
*Statistics are calculated from the number of measurements (period of record) collected at this well.

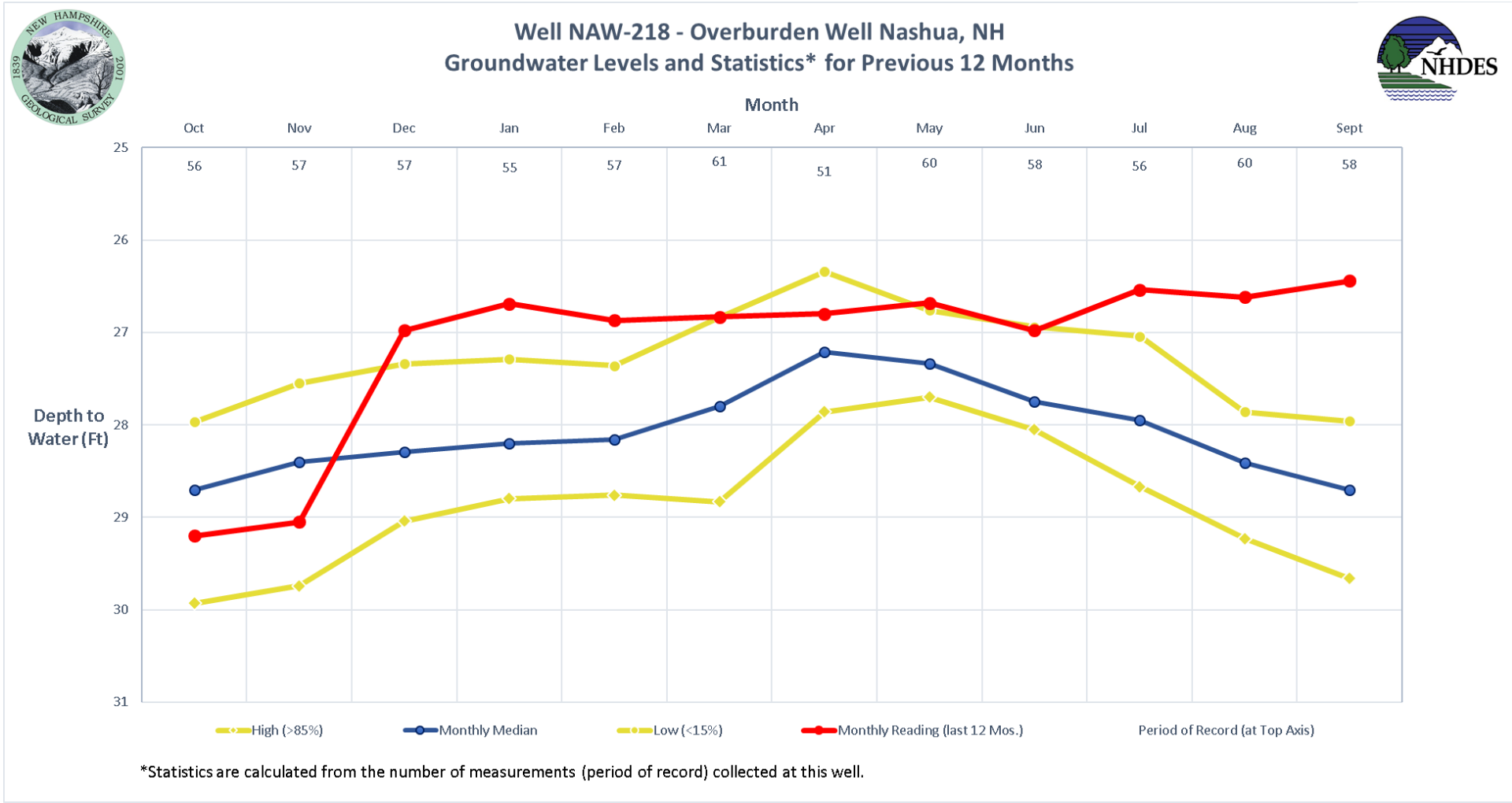


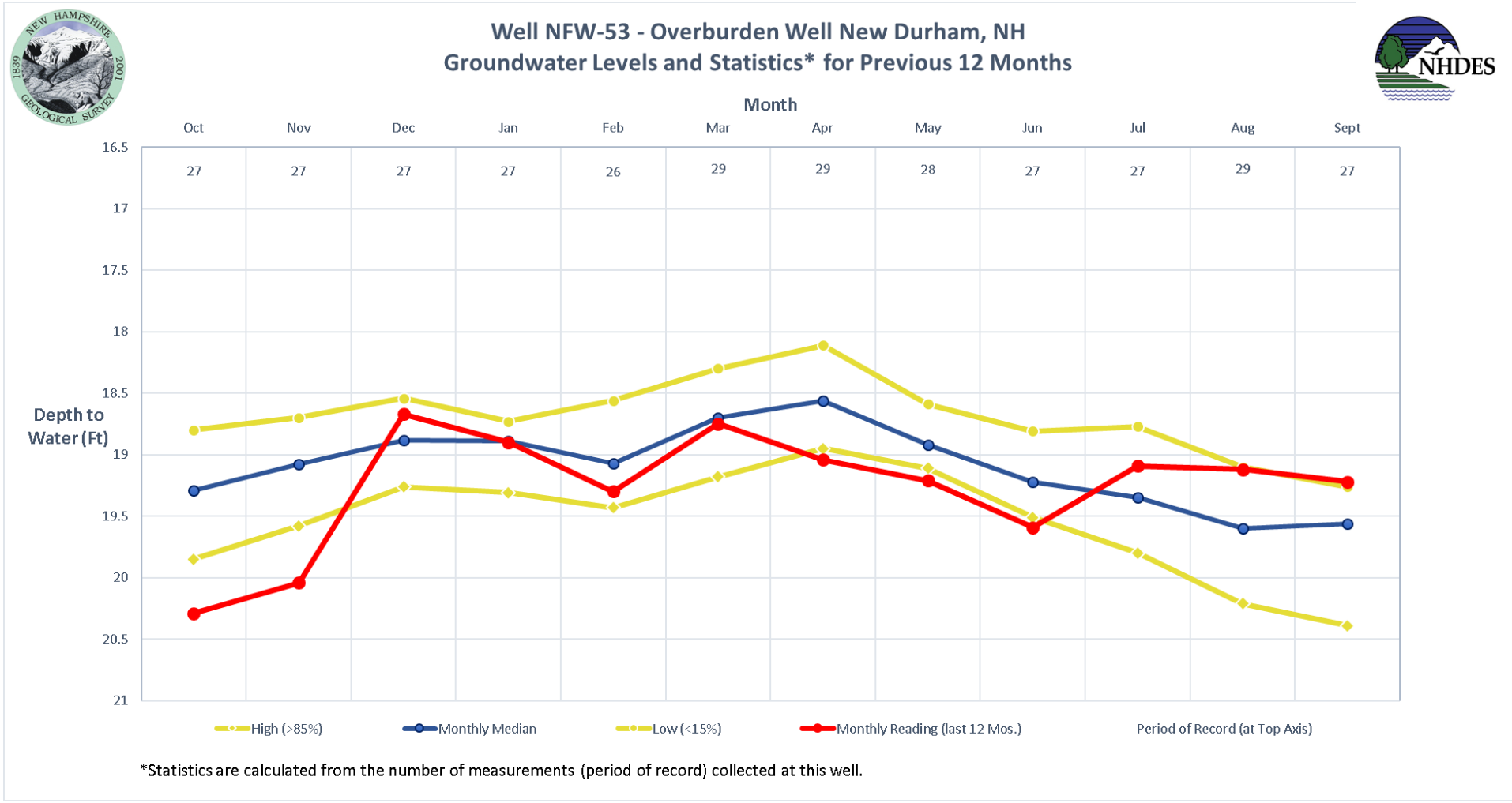
*Statistics are calculated from the number of measurements (period of record) collected at this well.


Well GSW-75 - Overburden Well Greenfield, NH
Groundwater Levels and Statistics* for Previous 12 Months
NHDES
Month
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sept
25 25 25 26 20 30 23 22 25 28 25 25
Depth to Water (Ft)
55 56 57 58 59 60 61 62 63 64 65
High (>85%)
Monthly Median
Low (<15%)
Monthly Reading (last 12 Mos.)
Period of Record (at Top Axis)
*Statistics are calculated from the number of measurements (period of record) collected at this well.

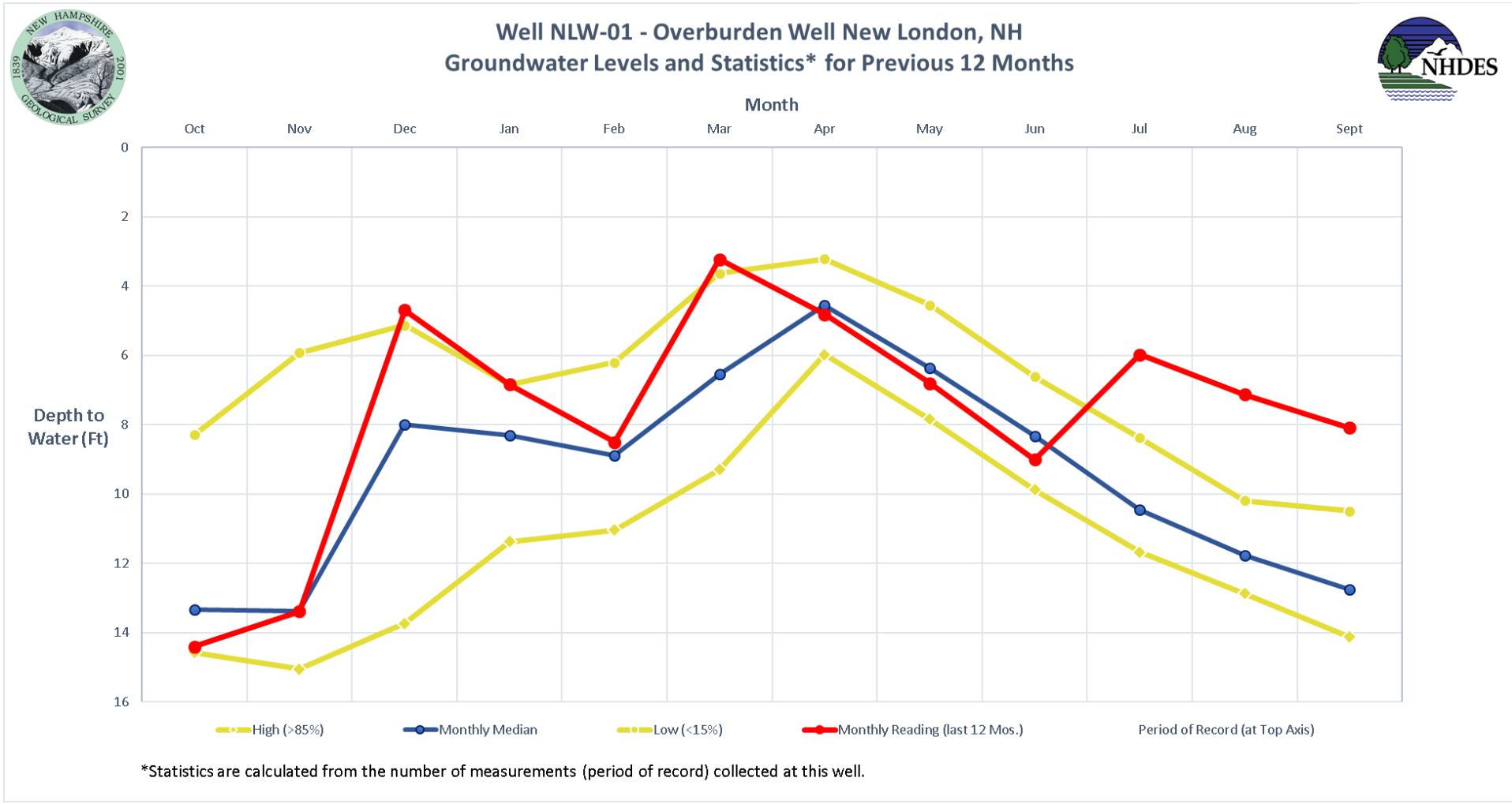

Well HTW-05 - Bedrock Well Hooksett, NH
Groundwater Levels and Statistics* for Previous 12 Months
Month
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sept
54 55 57 54 52 58 59 61 57 56 59 58
Depth to Water (Ft)
40 42 44 46 48 50 52
High (>85%)
Monthly Median
Low (<15%)
Monthly Reading (last 12 Mos.)
Period of Record (at Top Axis)
*Statistics are calculated from the number of measurements (period of record) collected at this well.


Well LLW-19 - Overburden Well Lisbon, NH
Groundwater Levels and Statistics* for Previous 12 Months
Month
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sept
27
26
26
28
26
28
31
28
28
28
29
28
Depth to Water (Ft)
10
11
12
13
14
15
16
High (>85%)
Monthly Median
Low (<15%)
Monthly Reading (last 12 Mos.)
Period of Record (at Top Axis)
*Statistics are calculated from the number of measurements (period of record) collected at this well.

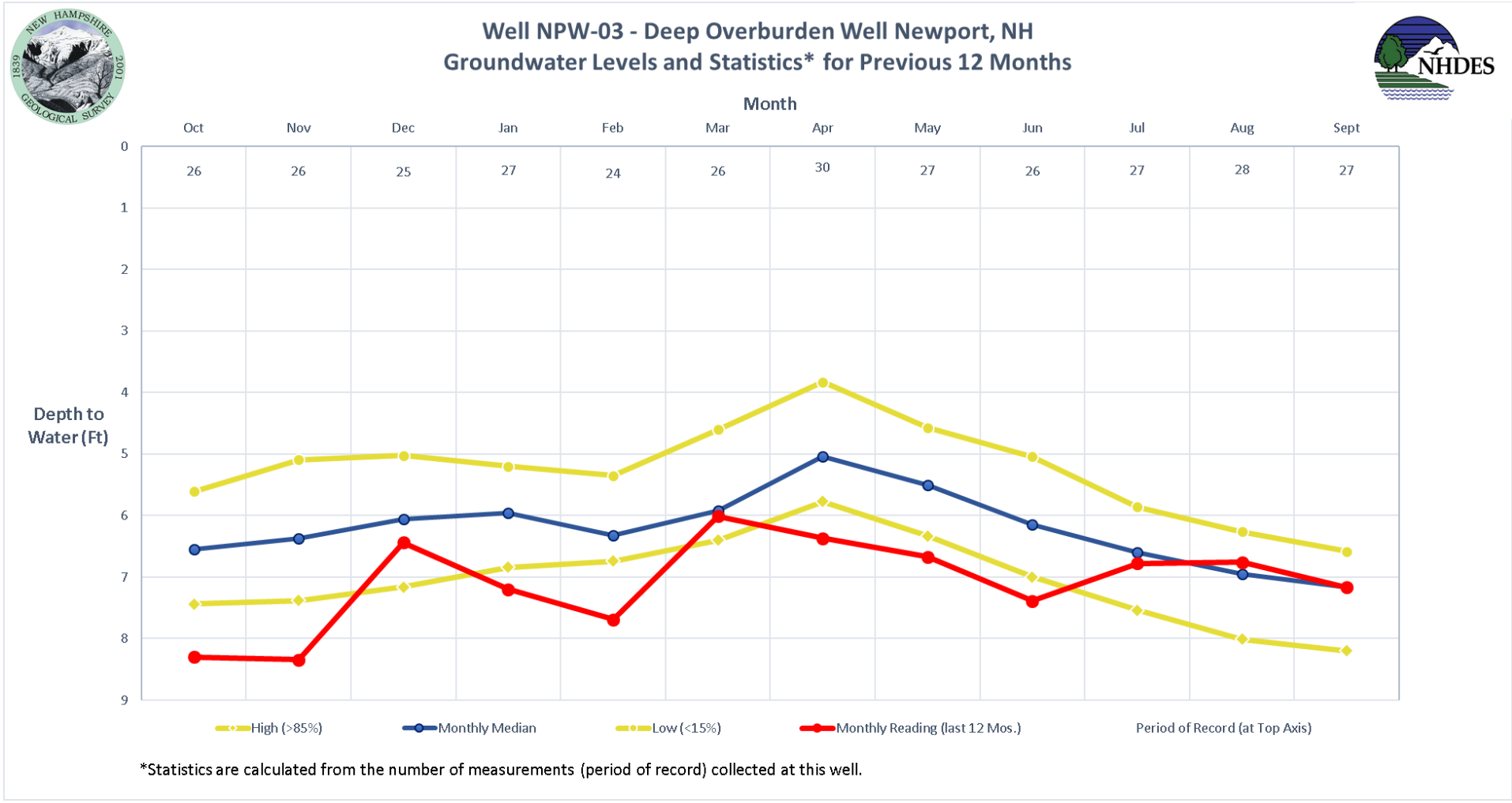

Well NAW-218 - Overburden Well Nashua, NH
Groundwater Levels and Statistics* for Previous 12 Months
Month
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sept
56
57
57
55
57
61
51
60
58
56
60
58
25
26
27
28
29
30
31
Depth to Water (Ft)
High (>85%)
Monthly Median
Low (<15%)
Monthly Reading (last 12 Mos.)
Period of Record (at Top Axis)
*Statistics are calculated from the number of measurements (period of record) collected at this well.



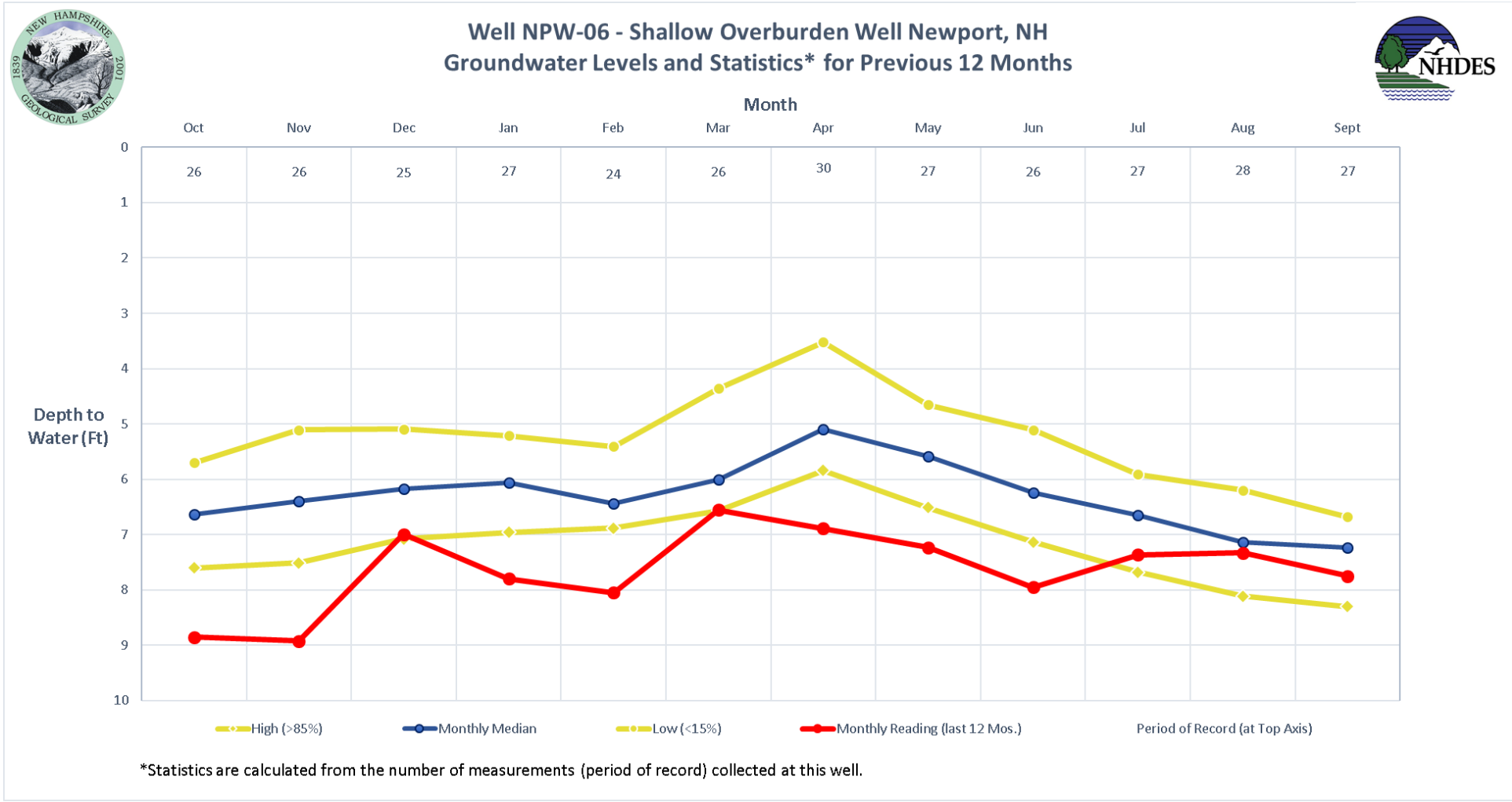
*Statistics are calculated from the number of measurements (period of record) collected at this well.

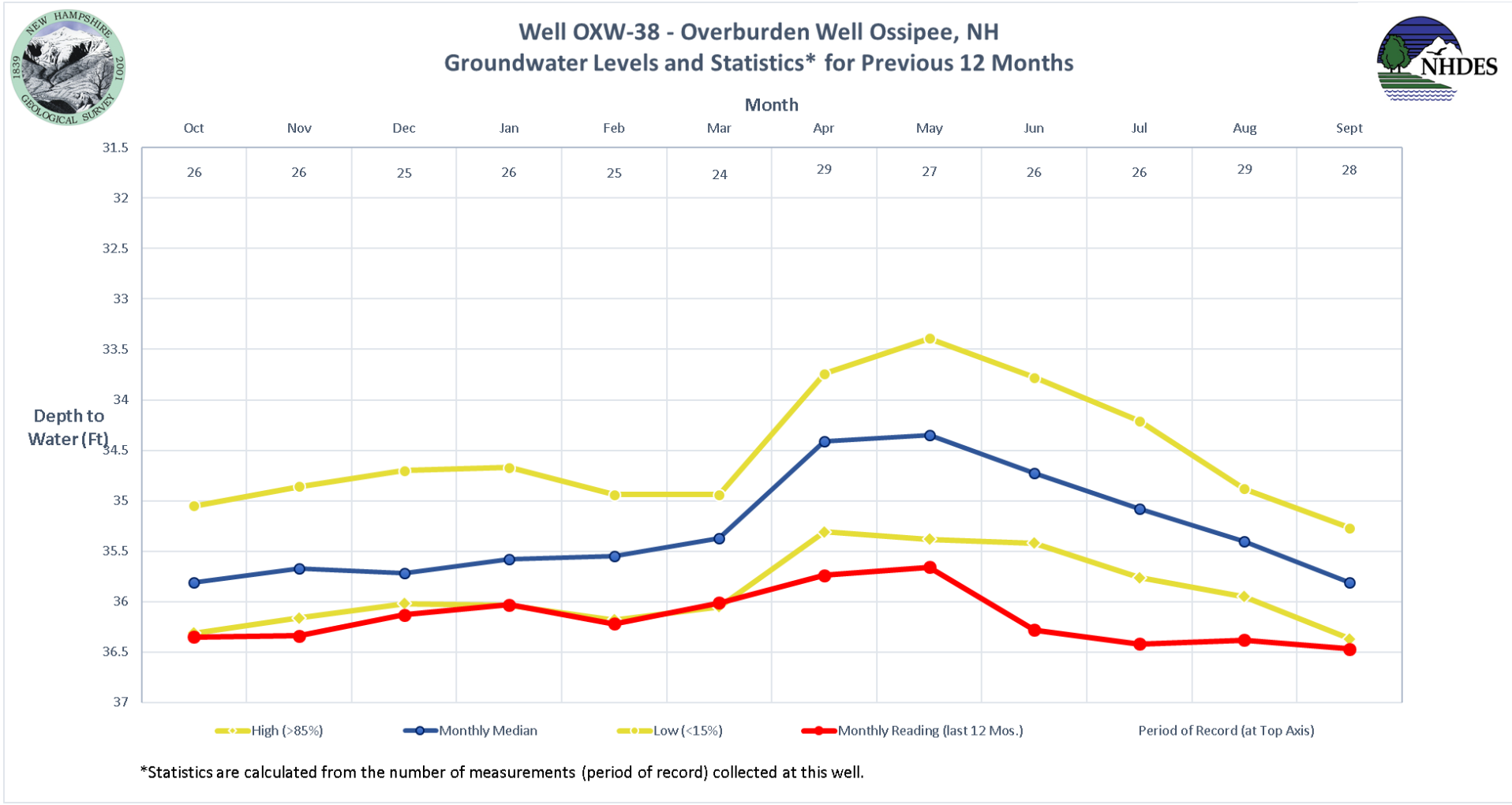


*Statistics are calculated from the number of measurements (period of record) collected at this well.

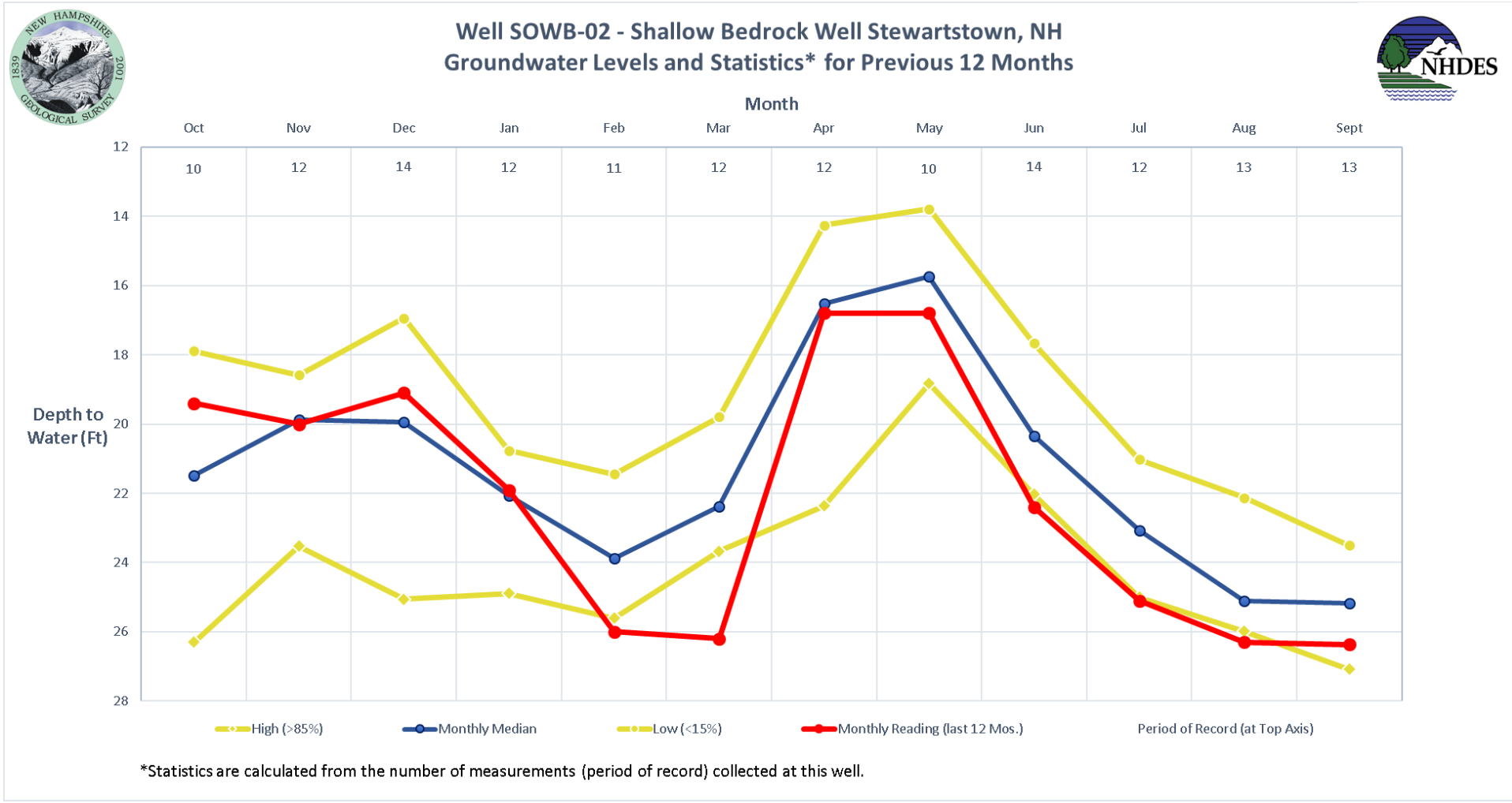


*Statistics are calculated from the number of measurements (period of record) collected at this well.

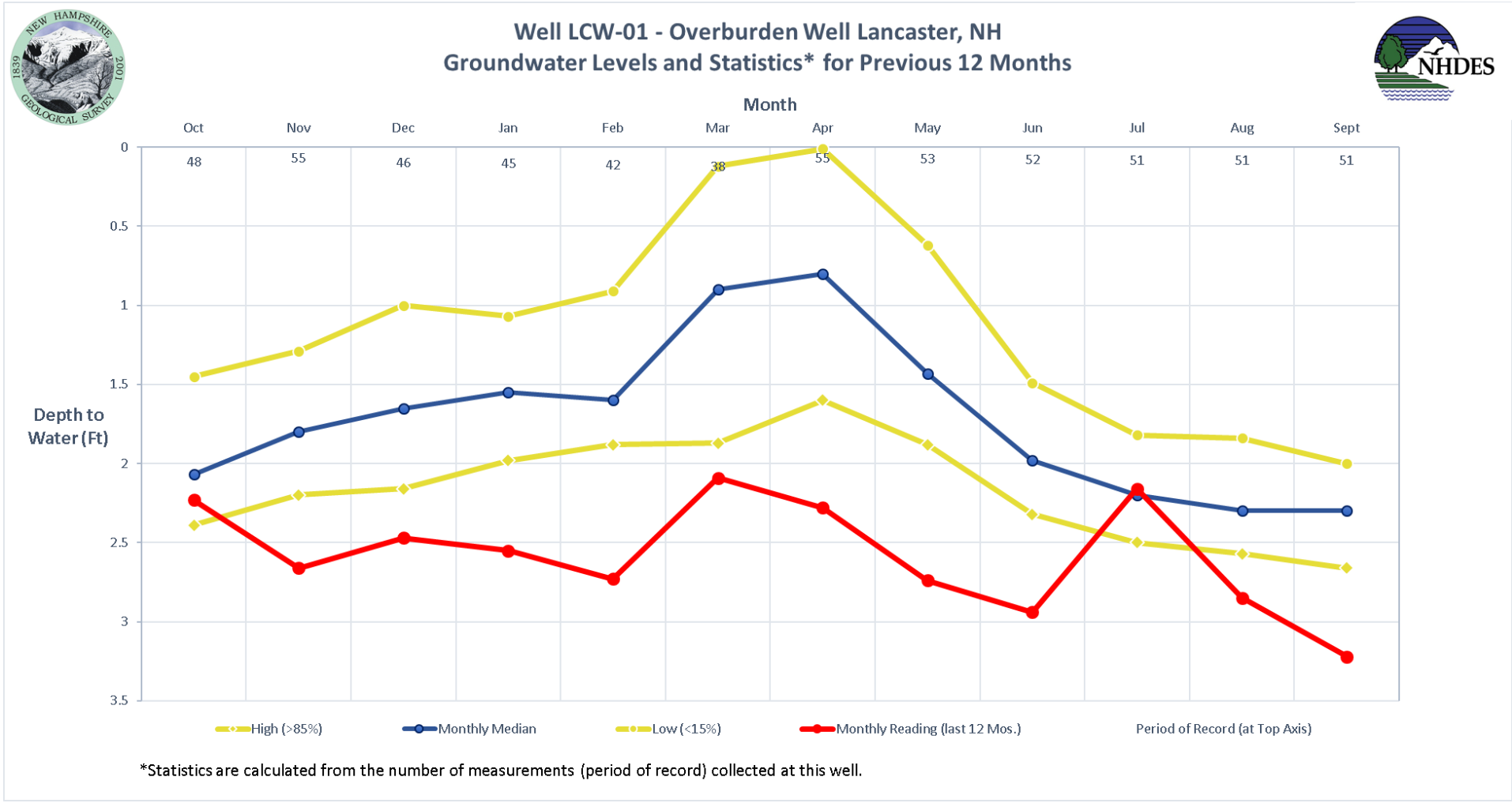

Well NPW-06 - Shallow Overburden Well Newport, NH
Groundwater Levels and Statistics* for Previous 12 Months
NHDES
Month
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sept
26 26 25 27 24 26 30 27 26 27 28 27
Depth to Water (Ft)
0 1 2 3 4 5 6 7 8 9 10
High (>85%)
Monthly Median
Low (<15%)
Monthly Reading (last 12 Mos.)
Period of Record (at Top Axis)
*Statistics are calculated from the number of measurements (period of record) collected at this well.



*Statistics are calculated from the number of measurements (period of record) collected at this well.



*Statistics are calculated from the number of measurements (period of record) collected at this well.



*Statistics are calculated from the number of measurements (period of record) collected at this well.