

SHELTER ISLAND WATER ADVISORY COMMITTEE – November 2024, Height data report DRAFT

Summary/Conclusion - “Guarded”

While aquifer water levels remain near historical mean levels, the regional Drought status change to Severe Drought Intensity suggests the potential for continued degradation of Shelter Islands water supply.

WAC recommends that Islanders should continue to follow normal voluntary water conservation measures.

Discussion:

Section 1 - National Drought Monitoring:

This month the U.S. Drought Monitor service downgraded the classification for Suffolk County to a **Severe Drought** intensity level. Approximately 80% of the Northeast region is under some level of drought warning.

Section 2 – Chart showing “ranking of monthly well heights by percentile of historic values.” *The chart is a graphic of the data for the Big Four feeder wells showing the percentile rank for the current month versus history for each month.*

The Big Four dropped from the 71st percentile to the 61st percentile. Rainfall in December will determine whether the aquifer will remain over the median.

Section 3 - Table of well readings compared to historic and median values.

“Well readings compared to the month’s Median for each well.” Current month readings compared to the month history for each well in the month.

The change in aquifer height over mean sea level this month illustrates the difference in the speed of rainfall percolation when the deeper wells are compared to the near shore wells. The rainfall late in November had a rapid impact on aquifer height for 7 of 8 of the near shore wells - aquifer height increased. The height of the deeper Big 4 wells all dropped.

Section 4 - “Comparison of the size of the change in current well readings compared to the historic Median change for that month.” *Table showing the current month’s change in well height from previous and comparison to change history.*

The change in aquifer height over mean sea level this month illustrates the difference in the speed of rainfall percolation when the deeper wells are compared to the near shore wells. The rainfall late in November had a rapid impact on aquifer height for 7 of 8 of the near shore wells - aquifer height increased. The height of the deeper Big 4 wells all dropped.

Section 5 – Raw well height readings for the Big 4 wells

Raw well height graph is independent of the median history. It presents a direct comparison of aquifer heights.

The drop in the height of the aquifer over mean sea level continued, although the drop per month was less than the previous 5 months. The slight hook in the Goat Hill and Condon wells, and significant rainfall could be the start of the seasonal recharge. All wells are slightly above the low point in 2023.

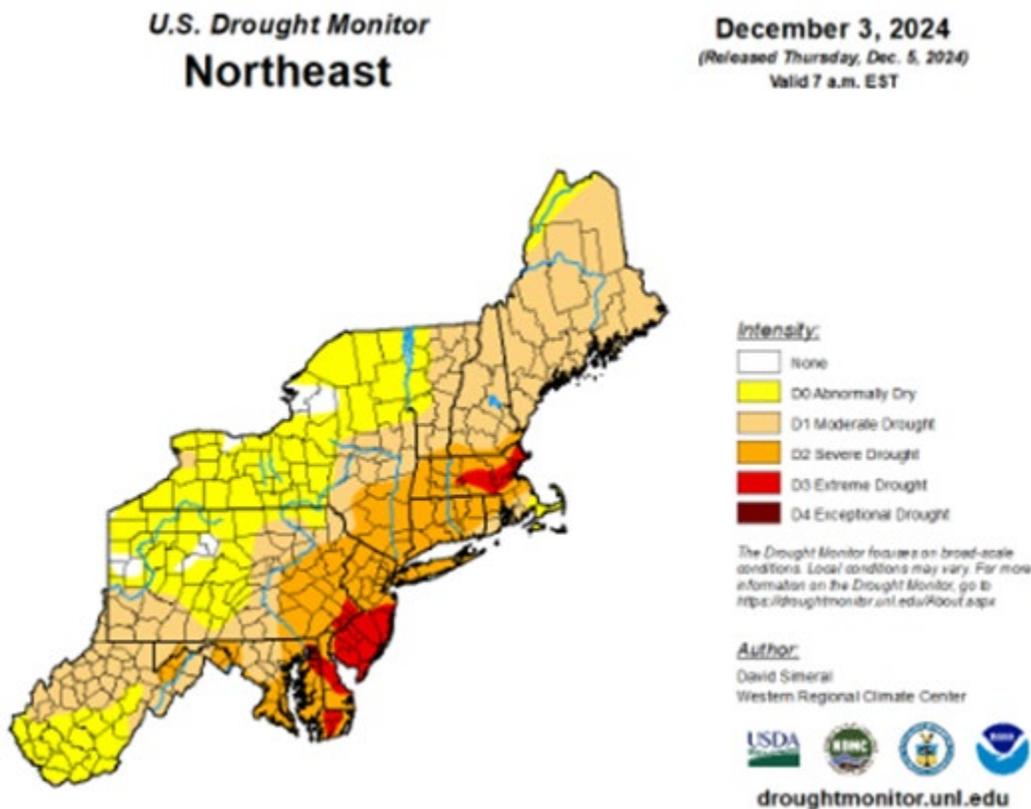
Rainfall Status: Ken Reports:

Our 5-year average November precipitation was 3.36" (mostly due to 2018) which is more than this year's November precipitation of 2.14". However, our YTD Nov. precipitation of 43.53" is already above our past 5-year average of 40.71". It will be interesting to see what the water levels are in our near-shore monitor wells. (see section #4)

Precipitation Report for November 2024						
Year	2024	2023	2022	2021	2020	2019
This Month	2.14	1.61	1.70	2.11	3.98	1.49
Year to date	43.53	35.33	37.09"	42.43	34.14	42.90

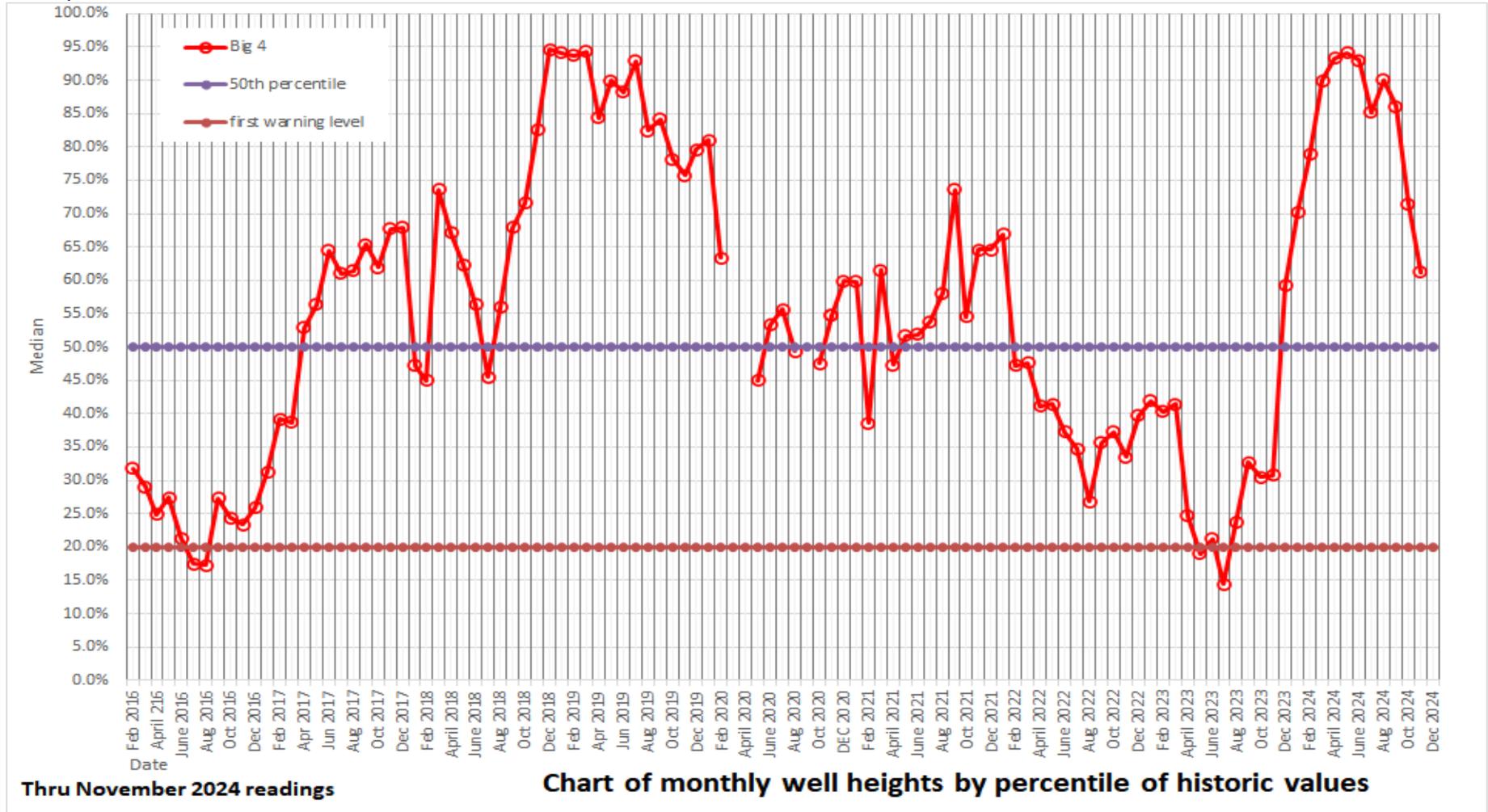
Section 1 National Drought Monitoring

This month the U.S. Drought Monitor service downgraded the classification for Suffolk County to a **Severe Drought** intensity level. Approximately 80% of the Northeast region is under some level of drought warning. The full summary of the drought status is described below.



Section 2 - Ranking of monthly well heights by percentile of historic values.

The Big Four dropped from October's readings, from the 71st percentile to the 61st percentile. Rainfall in December will determine whether the aquifer will remain over the median.



Section 3 – Comparison showing readings for the month compared to the median value history

Despite the Severe Drought conditions the aquifer height for most wells remains above their median value. The aquifer has been slowly losing water from the strong annual precipitation from the first half of the year during the extremely dry second half of the year.

Well readings compared to the months Median for each well for:	Manhasset Well #1	Rocky Point /Belvedere Well #2	Big Ram Island Well #3	Manwaring Rd Well #4	Congdon Well #5	Brander/ Lilliput Well #6	Menantic Rd Well #7	Deer Park Lane Well #8	LITTLE RAM Well #9	DERING HARBOR Well #10	HAY BEACH Well #11	Goat Hill Well #12	Shorewood Well #13
NOVEMBER 2024	25	21	23	23	31	23	23	23	15	15	19	19	19
Median Value	2.89	2.04	1.58	3.61	4.69	1.91	1.73	2.82	1.52	1.99	2.27	5.85	1.52
Current Month	2.85	2.09	1.68	3.89	4.92	2.03	1.95	nb	1.38	2.01	3.38	6.31	1.52
Previous reading	3.02	1.92	1.61	4.20	5.10	1.78	1.81	2.96	1.42	1.84	2.38	6.41	1.37
Change from Prev. Month	(0.17)	0.17	0.07	(0.31)	(0.18)	0.25	0.14		(0.04)	0.17	1.00	6.31	0.15
Measurement date: Nov 26 2024	Big 4			Big 4	Big 4							Big 4	
					7.00								
					6.95								
					6.28								
	4.40				5.85								
	3.50		2.23	5.19	5.70	3.82	3.53	nb					
	3.33	2.81	1.99	4.91	5.62	2.48	2.15	4.72					
	3.29	2.34	1.85	4.79	5.37	2.14	2.06	3.82			3.38	6.93	2.72
Readings are feet above Mean Sea Level NGVD29	3.18	2.31	1.83	4.45	5.35	2.13	2.04	3.42			2.61	6.88	2.31
	3.14	2.23	1.83	4.33	5.21	2.12	1.98	3.37	2.47	2.24	2.59	6.82	1.81
	3.09	2.16	1.82	4.23	5.20	2.11	1.95	3.34	1.84	2.21	2.56	6.74	1.80
	3.03	2.15	1.70	4.05	4.96	2.07	1.94	3.12	1.80	2.10	2.47	6.40	1.74
	3.00	2.13	1.70	3.97	4.92	2.03	1.94	3.04	1.77	2.06	2.47	6.31	1.66
	2.99	2.11	1.68	3.89	4.89	2.03	1.92	3.03	1.67	2.05	2.46	6.17	1.66
	2.95	2.10	1.68	3.86	4.77	1.99	1.90	2.97	1.64	2.03	2.44	6.16	1.61
	2.92	2.09	1.67	3.83	4.72	1.93	1.75	2.87	1.62	2.01	2.42	6.14	1.58
Median	2.89	2.04	1.58	3.61	4.69	1.91	1.73		1.52	1.99	2.27	5.85	1.52
	2.85	2.01	1.48	3.57	4.41	1.80	1.70	2.83	1.50	1.89	2.21	5.34	1.51
	2.77	1.96	1.47	3.46	4.39	1.77	1.66	2.80	1.38	1.87	2.18	5.26	1.46
	2.74	1.95	1.45	3.44	4.38	1.71	1.65	2.76	1.37	1.82	2.17	5.20	1.34
	2.73	1.91	1.42	3.42	4.37	1.70	1.65	2.74	1.35	1.76	2.14	5.20	1.32
	2.68	1.90	1.40	3.39	4.35	1.70	1.58	2.67	1.34	1.75	2.10	5.18	1.28
	2.58	1.85	1.38	3.33	4.34	1.67	1.58	2.63	1.34	1.70	2.05	5.11	1.27
	2.51	1.84	1.38	3.28	4.31	1.49	1.56	2.55	1.27	1.56	2.00	4.87	1.26
	2.47	1.77	1.30	3.25	4.29	1.49	1.54	2.55			1.94	4.86	1.00
	2.46	1.75	1.07	3.20	4.15	1.49	1.46	2.47			1.81	4.75	0.92
	2.45	1.66	1.05	3.15	4.09	1.43	1.41	2.45					
	2.30		0.82	2.85	4.08	1.29	1.23	2.38					
	2.30				3.97			2.35					
					3.97								
					3.77								
					3.25								
	Big 4			Big 4	Big 4							Big 4	
CURRENT MONTH ANALYSIS													
percentrank current read to historic range	46%	55%	59%	64%	63%	64%	77%		36%	57%	100%	72%	50%
Percent to median historic minimum	-1%	2%	6%	8%	5%	6%	13%		-9%	1%	49%	8%	0%
	2.30	1.66	0.82	2.85	3.25	1.29	1.23	2.35	1.27	1.56	1.81	4.75	0.92

Section 4 - "Comparison of the size of the change in current well readings compared to the historic Median change for that month."

Table showing the current month's change in well height from previous and comparison to change history.

The change in aquifer height over mean sea level this month illustrates the difference in the speed of rainfall percolation when the deeper wells are compared to the near shore wells. The rainfall late in November (approximately on November 21, 5 days before the wells were tested) had a rapid impact on aquifer height for 7 of 8 of the near shore wells - aquifer height increased. The height of the deeper big 4 wells all dropped.

NOVEMBER 2024 SIZE OF CHANGE FROM PREVIOUS MONTH													
Measure Date November 26 2024	Manhansett, Well #1	Rocky Point Ave/Belveder e Well #2	Big Ram Island Well #3	Manwaring Rd Well #4	Congdon Well #5	Brander/Lilip ut Well #6	Menantic Rd Well #7	Deer Park Lane Well #8	Little Ram Well #9	Dering Harbor Well #10	Hay Beach Well #11	Goat Hill Well #12	Shorewood Well #13
Well #	1	2	3	4	5	6	7	8	9	10	11	12	13
Change from previous reading	(0.17)	0.17	0.07	(0.31)	(0.18)	0.25	0.14		(0.04)	0.17	1.00	(0.10)	0.15
Med Change	(0.09)	0.09	0.07	(0.18)	(0.11)	0.14	0.15	0.05	(0.04)	0.13	0.02	(0.03)	0.12
	Big 4			Big 4	Big 4							Big 4	
	0.41	1.06	1.05	0.28	1.67	0.50	0.69	2.25					
	0.27	0.29	0.89	0.17	0.43	0.39	0.40	0.54			1.00		1.66
	0.12	0.24	0.45	0.09	0.39	0.39	0.29	0.29	1.42		0.90	0.68	0.43
	0.12	0.18	0.32	0.05	0.37	0.35	0.29	0.22	0.70	0.41	0.16	0.48	0.25
	0.07	0.18	0.27	0.00	0.24	0.33	0.27	0.17	0.30	0.19	0.15	0.24	0.25
	0.06	0.17	0.24	(0.09)	0.15	0.30	0.24	0.16	0.26	0.18	0.10	0.08	0.25
	0.04	0.16	0.19	(0.09)	0.00	0.26	0.21	0.16	0.22	0.17	0.08	0.08	0.24
	0.03	0.16	0.14	(0.13)	(0.06)	0.25	0.19	0.14	0.04	0.17	0.08	0.01	0.22
	0.01	0.15	0.09	(0.15)	(0.06)	0.21	0.17	0.12	0.03	0.16	0.05	0.01	0.15
	(0.01)	0.13	0.09	(0.15)	(0.09)	0.20	0.16	0.05	(0.04)	0.16	0.05	(0.02)	0.15
MEDIAN	(0.09)	0.09	0.07	(0.18)	(0.11)	0.14		0.05	(0.04)	0.13	0.02	(0.03)	0.12
	(0.09)	0.07	0.07	(0.18)	(0.17)	0.12	0.14	0.01	(0.05)	0.04	0.00	(0.03)	0.03
	(0.09)	0.06	0.00	(0.22)	(0.18)	0.11	0.04	(0.02)	(0.05)	0.01	(0.02)	(0.07)	0.02
	(0.11)	0.05	0.00	(0.30)	(0.23)	0.11	0.03	(0.04)	(0.09)	0.01	(0.05)	(0.10)	(0.04)
	(0.15)	0.04	(0.02)	(0.31)	(0.25)	0.07	0.02	(0.09)	(0.11)	(0.01)	(0.07)	(0.10)	(0.09)
	(0.17)	0.04	(0.05)	(0.31)	(0.27)	0.05	(0.04)	(0.10)	(0.25)	(0.03)	(0.09)	(0.11)	(0.11)
	(0.19)	0.03	(0.10)	(0.38)	(0.33)	(0.03)	(0.06)	(0.15)	(0.27)	(0.05)	(0.10)	(0.16)	(0.11)
	(0.24)	(0.02)	(0.10)	(0.42)	(0.35)	(0.06)	(0.08)	(0.17)		(0.10)	(0.11)	(0.18)	(0.11)
	(0.26)	(0.07)	(0.12)	(0.42)	(0.50)	(0.06)	(0.10)	(0.19)			(0.12)	(0.19)	(0.11)
	(0.28)	(0.11)	(0.14)	(0.46)	(0.53)	(0.07)	(0.11)	(0.40)			(0.15)	(0.23)	(0.52)
	(0.33)	(0.45)	(0.22)	(0.66)	(0.60)	(0.09)	(0.12)	(0.47)					
	(0.67)		(0.77)	(1.08)	(0.74)	(0.41)	(0.81)						
			(1.07)										
	Big 4			Big 4	Big 4							Big 4	
# of tests	23	21	23	23	23	23	16	18	15	15	19	19	19
# with gain in height	10	17	12	5	7	17	9	9	7	11	10	8	12
% with increase from previous month	43%	81%	52%	22%	30%	74%	56%	50%	47%	73%	53%	42%	63%

Section 5 - "Raw" aquifer readings for the Big 4 wells.

Raw well height graph is independent of the median history. It presents a direct comparison of aquifer heights.

The drop in the height of the aquifer over mean sea level continued, although the drop per month was less than the previous 5 months. The slight hook in the Goat Hill and Condon wells, and significant rainfall could be the start of the seasonal recharge. All wells are slightly above the low point in 2023.

