

**SHELTER ISLAND WATER ADVISORY COMMITTEE –
May 2023, Height data report **DRAFT****

Summary/Conclusion - “Guarded”

Islanders should maintain *voluntary water conservation measures*.

The average percentile rank of the Big 4 wells dipped below the 20th percentile, for the first time since summer of 2016. The primary concern now is that the aquifer levels are entering the summer months at low levels. If rainfall continues in the current pattern of low precipitation an increased potential for saltwater intrusion in near shore wells may be projected.

Discussion:

Section 1A and 1B - National Drought Monitoring and OUTLOOK Forecasting:

Shelter Island remains classified as “D0 Abnormally Dry”. The Drought Intensity level in the U.S. Drought Severity Monitor Report has characterized Shelter Island as “Abnormally Dry” or “Moderate Drought” every week since July 2022.

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 average of the Big 4 wells dropped to the 19th percentile – from the previous month’s 25% of median. This meets the “Guarded” level of the drought monitor plan criteria for drought reaction.

Average > 20.%	Normal Precautions
Average 20% to 15%	Guarded
Average 15% to 10 %	Warning
Average 10% to 5%	Emergency
Average < 5 %	Disaster

Voluntary actions recommended to conserve water are described on the Town website under the Water Advisory Committee tab “Drought Status”.

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

Table “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 chart illustrates the positive effect of the April and May rainfall for the shallower wells [they are near their median values for May], but the Big 4 well results do not share this effect [they are about 6 inches below their historic median value].

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 chart illustrates a near normal month-to-month change in all of the wells, April to May.

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 raw well height Big 4 well data shows a consistent lowering of the seasonable recharge maximum over the past 5 years, as well as the lowering of aquifer level during the strong drawdown in the summer months.

Rainfall Status: Ken Reports:

Precipitation Report – Date: April 12, 2023						
Year	2023	2022	2021	2020	2019	2018
Month to date	1.82	2.75	5.41	2.58	5.09	2.26
Year to date	17.00	17.46	18.70	15.81	22.31	19.56

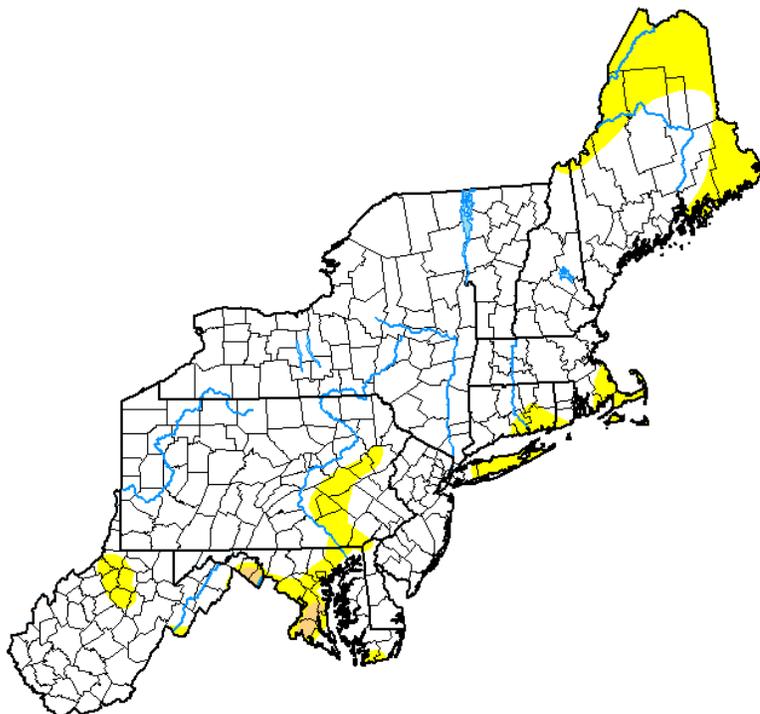
Shelter Island Water Advisory Committee May 31, 2023

Section 1 National Drought Monitoring

A: CURRENT CONDITONS: Shelter Island remains classified as “D0 Abnormally Dry”.

**U.S. Drought Monitor
Northeast**

May 23, 2023
(Released Thursday, May. 25, 2023)
Valid 8 a.m. EDT



Intensity:

- None
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to <https://droughtmonitor.unl.edu/About.aspx>

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droughtmonitor.unl.edu

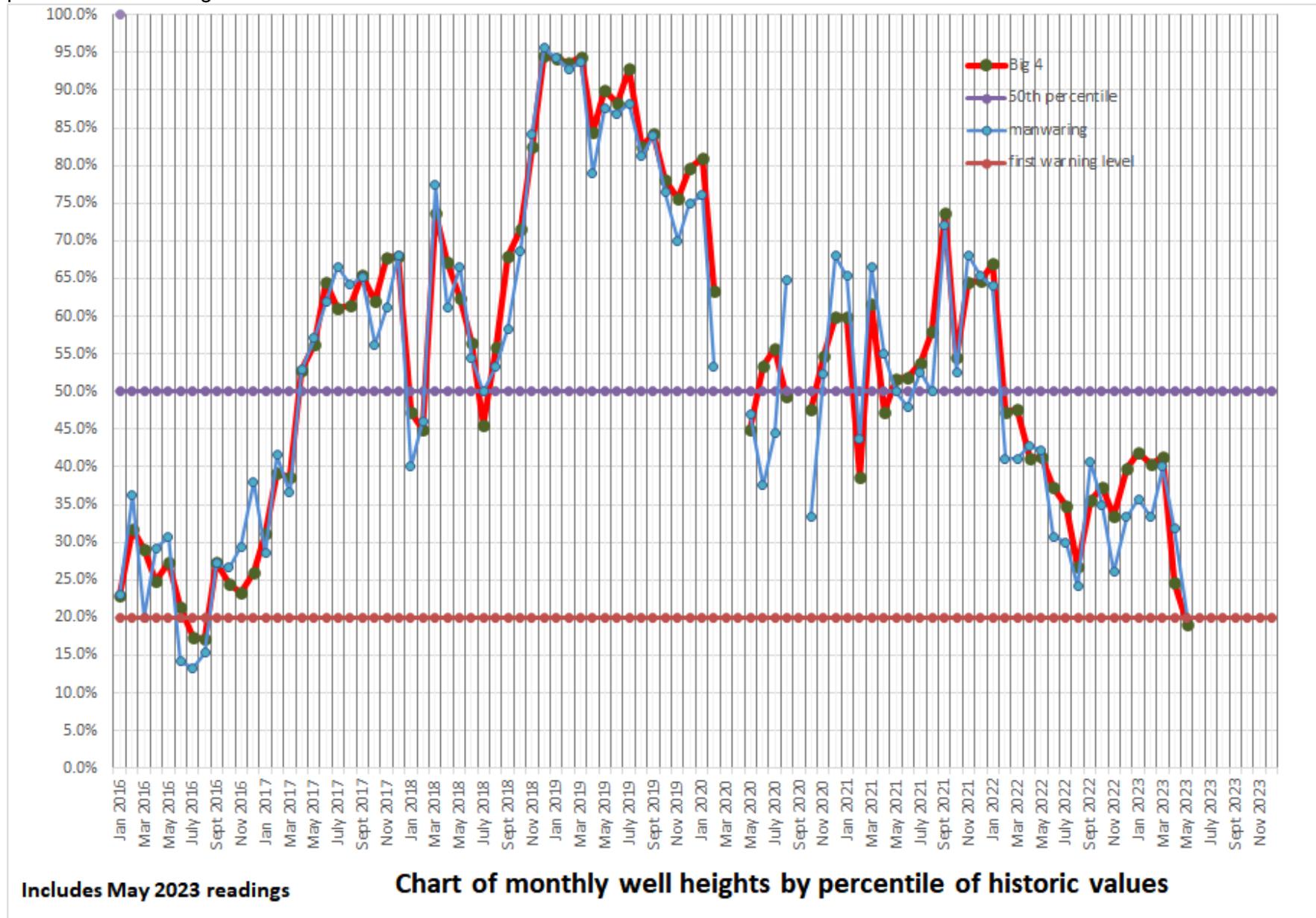
B: ONE- and THREE-MONTH DROUGHT OUTLOOK:

[Forecast per NIDIS [National Integrated Drought Information System]]

No forecast is available as the NIDIS [National Integrated Drought Information System] system does not forecast changes for areas in the “D0 Abnormally Dry” status.

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

Big 4 wells dropped to the 19 th percentile – from the previous month’s 25% of median. This meets the “Guarded” level of the drought monitor plan criteria for drought reaction.



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

The chart illustrates the positive effect of the April and May rainfall for the shallower wells [they are near their median values for May], but the big 4 well results do not share this effect [they are about 6 inches below their historic range].

Well readings compared to the months Median for each well for:	Manhansett Well #1	Rocky Pt. /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 #13	
May 22 2023	22	21	20	21	25	22	22	22	15	15	18	20	20	
Median Value	3.77	2.22	1.54	4.93	6.24	2.16	1.85	3.79	1.39	2.00	2.59	6.95	1.76	
Reading MAY 22 2023	3.27	2.10	1.63	4.19	5.55	2.21	1.87	3.75	1.45	2.00	2.58	6.35	1.64	
Previous Month reading	3.22	2.07	1.45	4.07	5.46	2.28	1.86	3.57	1.11	1.94	2.47	6.42	1.62	
Change from prev. month	0.05	0.03	0.18	0.12	0.09	(0.07)	0.01	0.18	0.34	0.06	0.11	(0.07)	0.02	
	Big 4			Big 4	Big 4							Big 4		
					9.62									
current month value	5.63				8.27	2.72	2.39	4.98						
	4.71	2.74	2.24	7.87	7.81	2.6	2.31	4.69			3.61	9.92	2.27	
	4.68	2.69	2.13	6.41	7.8	2.55	2.27	4.64			3.31	8.34	2.16	
	4.59	2.57	1.9	6.37	7.36	2.45	2.24	4.34			3.08	7.87	2.12	
	4.46	2.49	1.88	6.26	7.33	2.45	2.19	4.32	2.25	2.5	2.98	7.83	2.00	
	3.96	2.38	1.87	6.02	6.81	2.31	2.17	4.29	1.94	2.36	2.85	7.68	1.91	
	3.95	2.37	1.74	5.58	6.73	2.29	2.14	4.19	1.84	2.29	2.82	7.18	1.90	
	3.92	2.33	1.71	5.29	6.67	2.26	2.07	4.04	1.68	2.18	2.69	7.17	1.90	
	3.92	2.32	1.63	5.17	6.62	2.24	2.02	4.01	1.62	2.13	2.63	7.09	1.83	
	3.91	2.3	1.62	5.16	6.34	2.21	1.9	3.89	1.45	2.05	2.6	6.99	1.83	
	3.83	2.27	1.57	5.06	6.29	2.18	1.87	3.83	1.45	2.00	2.58	6.95	1.77	
Median Value		2.22		4.93	6.24				1.39	2		6.95		
	3.71	2.19	1.51	4.63	6.2	2.14	1.83	3.75	1.34	1.88	2.58	6.92	1.75	
	3.46	2.13	1.47	4.57	6.11	2.14	1.81	3.71	1.25	1.86	2.48	6.89	1.72	
	3.44	2.10	1.46	4.49	5.9	2.1	1.8	3.68	1.24	1.83	2.46	6.76	1.64	
	3.38	2.06	1.44	4.32	5.68	2.1	1.77	3.65	1.23	1.82	2.39	6.6	1.62	
	3.32	2.02	1.32	4.22	5.64	2.08	1.74	3.62	1.04	1.76	2.39	6.38	1.6	
	3.27	1.98	1.32	4.19	5.61	2.08	1.64	3.54	0.95	1.67	2.34	6.35	1.47	
	3.24	1.96	1.29	4.1	5.55	1.96	1.58	3.38	0.90	1.65	2.34	6.25	1.42	
	3.21	1.91	1.28	4.03	5.55	1.85	1.51	3.37			2.06	5.71	1.39	
	3.08	1.8	1.12	3.62	5.45	1.83	1.51	3.36				4.95	1.39	
	3.00	1.52	1.11	2.76	5.4	1.75	1.47	3.27					1.33	
	2.00				5.05	1.65	1.33	2.73						
					4.34									
	Big 4			Big 4	Big 4							Big 4		
CURRENT MONTH ANALYSIS														Big 4 wells
percentrank current read to historic range	24%	35%	63%	20%	17%	57%	52%	48%	57%	50%	41%	16%	37%	19%
Current month well reading compared to median (in feet)	-0.50	-0.12	0.09	-0.74	-0.69	0.05	0.02	-0.04	0.06	0.00	-0.01	-0.60	-0.12	-0.63
Percent to median	-13%	-5%	6%	-15%	-11%	2%	1%	-1%	4%	0%	0%	-9%	-7%	-12%
historic minimum	2.00	1.52	1.11	2.76	4.34	1.65	1.33	2.73	0.90	1.65	2.06	4.95	1.33	3.51
percent above minimum	64%	38%	47%	52%	28%	34%	41%	37%	61%	21%	25%	28%	23%	43%

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 chart shows a minor positive change from the prior month (all wells were near the median change).

May 22 2023 SIZE OF CHANGE FROM PREVIOUS MONTH													
Measure in FEET	Manhansett, Well #1	Rocky Point Ave/Belvedere Well #2	Big Ram Island Well #3	Manwaring Rd Well #4	Congdon Well #5	Brander/Liliput 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 this month	0.05	0.03	0.18	0.12	0.09	(0.07)	0.01	0.18	0.34	0.06	0.11	(0.07)	0.02
Med Change	0.19	0.03	0.14	0.14	0.09	(0.14)	0.05	0.04	0.17	0.06	0.11	(0.05)	0.01
	Big 4			Big 4	Big 4							Big 4	
	1.23	0.66	1.90	0.66	1.67	0.80		0.81					
	0.53	0.43	0.84	0.59	0.90	1.22	1.19	0.60					1.22
	0.51	0.39	0.67	0.57	0.50	0.46	0.55	0.31				0.46	0.58
	0.45	0.33	0.58	0.40	0.42	0.39	0.46	0.22		1.88	0.40	0.19	0.51
	0.44	0.30	0.42	0.24	0.40	0.24	0.40	0.20	1.64	0.55	0.39	0.18	0.40
	0.31	0.29	0.40	0.22	0.27	0.18	0.33	0.18	1.26	0.36	0.36	0.10	0.27
	0.30	0.26	0.32	0.20	0.23	(0.02)	0.21	0.17	0.73	0.26	0.30	0.07	0.22
	0.26	0.22	0.27	0.19	0.21	(0.05)	0.11	0.08	0.51	0.21	0.28	0.01	0.11
	0.23	0.06	0.26	0.17	0.13	(0.07)	0.10	0.07	0.34	0.17	0.17	(0.01)	0.10
	0.20	0.03	0.18	0.15	0.09	(0.07)	0.07	0.05	0.28	0.06	0.12	(0.01)	0.02
MEDIAN	0.19				0.09	(0.14)	0.06	0.04			0.11	(0.05)	0.01
	0.15	0.00	0.09	0.13	0.08	(0.16)	0.05	(0.05)	0.06	(0.09)	0.11	(0.05)	0.00
	0.12	(0.07)	0.00	0.12	0.04	(0.20)	0.01	(0.07)	0.02	(0.14)	0.09	(0.06)	(0.08)
	0.10	(0.08)	(0.01)	0.12	0.00	(0.22)	0.00	(0.11)	0.01	(0.17)	0.07	(0.07)	(0.15)
	0.09	(0.15)	(0.06)	0.07	0.00	(0.39)	0.00	(0.36)	(0.34)	(0.24)	(0.06)	(0.07)	(0.24)
	0.05	(0.23)	(0.10)	0.05	(0.03)	(0.41)	(0.11)	(0.37)	(0.44)	(0.33)	(0.13)	(0.11)	(0.30)
	(0.04)	(0.26)	(0.13)	0.03	(0.15)	(0.50)	(0.18)	(0.41)	(0.61)	(1.47)	(0.24)	(0.14)	(0.31)
	(0.07)	(0.32)	(0.21)	(0.05)	(0.32)	(0.51)	(0.20)	(0.43)			(2.04)	(0.17)	(0.53)
	(0.18)	(0.36)	(0.31)	(0.15)	(0.36)	(0.62)	(0.29)	(0.54)				(0.20)	(0.62)
	(1.42)	(1.12)	(0.31)	(0.84)	(0.37)	(0.93)	(0.99)	(0.56)				(0.23)	(0.89)
	(1.51)		(1.91)	(1.01)	(0.60)	(1.42)	(0.99)	(1.28)					
	Big 4			Big 4	Big 4							Big 4	
History of Change on record in Current month from Previous month													
# of tests	21	15	15	16	16	17	14	16	3	6	7	13	14
# with gain in height	16	10	11	16	13	6	12	11	9	7	11	6	10
History # times well gained in April	16/21	10/15	11/15	16/16	13/16	6/17	12/14	11/16	9/3	7/6	11/7	6/13	10/14
Current change compared to Median change	(0.14)	0.00	0.04	(0.02)	0.00	0.07	(0.04)	0.14	0.17	0.00	(0.00)	(0.02)	0.01

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

The raw well height Big 4 well data shows the lowering of the seasonable recharge maximum over the past 5 years, as well as the lowering of aquifer level during the strong drawdown in the summer months.

