

Table 1: Lake Massapoag -Water Quality Analytical Data

Sampling Date	Sampling Location	Depth	Total Nitrogen	Total Kjeldahl Nitrogen	Nitrite-N	Nitrate-N	Total Phosphorus P	Dissolved Phosphorus P	pH	Turbidity	Chlorophyll a
		(m)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(pH)	(NTU)	(mg/m3)
5/17/2023	DH-surface	0.5	0.54	0.39	<.01	0.15	0.029		7.51	0.08	5.28
	DH-bottom	13	0.46	0.27	<.01	0.18	0.025		7.20	0.17	
	DH-middle	7							7.12	0.09	
7/17/2023	DH-surface	0.5	0.4	0.4	<0.010	<0.02	0.016	0.008	7.64	0.15	2.93
	DH-bottom	13	0.52	0.52	<0.010	<0.02	0.03	0.022	7.37	2.06	
7/26/2023	DH-middle	6							7.55*	2.07*	
9/19/2023	DH-surface	0.5	0.33	0.33	<0.010	<0.02	0.024	0.013	7.78	0.28	7.07
	DH-bottom	13	0.89	0.89	<0.010	<0.02	0.129	0.107	7.13	0.07	
	DH-middle	7							7.32	0.42	
	South Cove	0.5	0.32	0.32	<0.010	<0.02	0.023	0.012	7.15	0.19	5.49
	Fletcher's	0.5						0.019	7.21	0.57	

Source: TRC

Lake samples with excess phosphorus (>.025).

*Collected 7/26/23

Table 2: Lake Massapoag - Water Quality Profile at Deep Hole Sampling Location

DATE:	Wednesday, May 17, 2023					Monday, July 17, 2023					Tuesday, September 19, 2023				
Depth (m)	DO (mg/L)	DO (%)	Specific Conduct. (µS/cm)	Temp (C)	Temp (F)	DO (mg/L)	DO (%)	Specific Conduct. (µS/cm)	Temp (C)	Temp (F)	DO (mg/L)	DO (%)	Specific Conduct. (µS/cm)	Temp (C)	Temp (F)
0.5	9.13	97.4	174.7	17.7	63.9	7.69	97.6	172.6	27	80.6	8.36	95.3	167.2	20.8	69.4
1	8.94	96.3	175.1	17.7	63.9	7.59	95.2	173.1	26.4	79.5	8.31	94.3	167.2	20.8	69.4
2	8.95	95.3	175.1	17.7	63.9	7.78	98.1	173.5	26.2	79.2	8.34	94.4	167.3	20.8	69.4
3	8.93	95.5	174.9	17.6	63.7	7.9	99.5	173.9	26	78.8	8.36	94.8	167.3	20.8	69.4
4	8.84	93.6	175	17.4	63.3	6.02	73.5	176.7	24.9	76.8	8.27	93.6	167.4	20.8	69.4
5	7.80	76.3	173.1	13.5	56.3	2.53	28.6	181.5	20.9	69.6	8.11	91.9	167.5	20.8	69.4
6	7.52	73.1	173.1	13.4	56.1	0.4	4.3	185.2	18	64.4	8.26	93.5	167.9	20.8	69.4
7	7.41	72	173.4	13.3	55.9	0.16	1.6	187.5	16.9	62.4	8.09	91.6	168.0	20.8	69.4
8	7.49	71.7	173.3	13.3	55.9	0.14	1.4	183.7	16	60.8	0.15	1.8	199.8	18.2	64.8
9	7.38	71.2	173.5	13.2	55.8	0.12	1.2	184.2	15.1	59.2	0.13	1.3	207.6	16	60.8
10	7.08	67.9	173.3	12.8	55.0	0.11	1.1	184.6	14.4	57.9	0.12	1.2	210.9	14.3	57.7
11	7.05	67.3	173.4	12.6	54.7	0.11	1.0	189.5	13.4	56.1	0.10	1.0	220.1	14.2	57.6
12	6.83	65.2	173.6	12.5	54.5	0.1	1.0	191.3	13.2	55.8	0.09	0.9	239.3	14.2	57.6
13	6.47	60.7	173.7	12.6	54.7	0.09	0.9	193.0	13.1	55.6	0.08	0.8	241.8	14.2	57.6
14	5.78	54.4	173.9	12.3	54.1	0.08	0.8	202.5	13	55.4	0.08	0.8	242.8	14.2	57.6

DEPTH: meters feet
 Total Depth 13.55 44.5
 Secchi Disk 2.5 8.2

DEPTH: meters feet
 Total 13.72 45.0
 Secchi Disk 2.0 6.6

DEPTH: meters feet
 Total 0.0
 Secchi Disk 2.25 7.4

Source: TRC

< DO % state standard for warmwater fish:

< 5mg/L

< 5mg/L

Table 3: Water Quality at Fletcher's Cove Sampling Location

DATE:	Wednesday, May 17, 2023					Monday, July 17, 2023					Tuesday, September 19, 2023				
Depth	DO	DO	Specific Conduct.	Temp	Temp	DO	DO	Specific Conduct.	Temp	Temp	DO	DO	Specific Conduct.	Temp	Temp
(m)	(mg/L)	(%)	(μ S/cm)	(C)	(F)	(mg/L)	(%)	(μ S/cm)	(C)	(F)	(mg/L)	(%)	(μ S/cm)	(C)	(F)
0.5											8.66	89.7	165.9	17.5	63.5
1											8.33	86.1	165.5	17.4	63.3

Source: TRC

DEPTH:	meters	feet
Total		0.0
Secchi Disk	1.0	3.3

Table 4: Water Quality at South Cove Sampling Location

DATE:	Wednesday, May 17, 2023					Monday, July 17, 2023					Tuesday, September 19, 2023				
Depth	DO	DO	Specific Conduct.	Temp	Temp	DO	DO	Specific Conduct.	Temp	Temp	DO	DO	Specific Conduct.	Temp	Temp
(m)	(mg/L)	(%)	(μ S/cm)	(C)	(F)	(mg/L)	(%)	(μ S/cm)	(C)	(F)	(mg/L)	(%)	(μ S/cm)	(C)	(F)
0.5											9.75	110.3	159.1	20.3	68.54
1											10.13	112.5	160.7	19.9	67.8
2											4.51	48.9	122.5	18.8	65.84
3											0.47	4.9	91.0	17.9	64.2

Source: TRC

Values greater than 100% indicate that the DO at the surface of the South Cove was likely super saturated with dissolved oxygen. A likely cause of this could be the presence of algae in the water that is generating oxygen faster than it can leave the water through diffusion.

DEPTH:	meters	feet
Total		0.0
Secchi Disk	1.5	4.9
	< 5mg/L	

Table 1: Lake Massapoag -Water Quality Analytical Data

Sampling Date	Sampling Location	Depth (m)	Total Nitrogen (mg/L)	Total Kjeldahl Nitrogen (mg/L)	Ammonia - N (mg/L)	Nitrite-N (mg/L)	Nitrate-N (mg/L)	Total Phos-phorus P	Dissolved Phos-phorus P	Iron (mg/L)	pH (pH)	Turbidity (NTU)
								(mg/L)	(mg/L)			
6/2/2022	DH-surface	0.5	0.44	0.44		<0.010	<0.02	0.045	0.046		7.2	0.005
	DH-bottom	12	0.65	0.60		<0.010	0.05	0.057	0.091		6.3	0.32
	Fletcher's	0.5	0.41	0.41		<0.010	<0.02	0.057	0.018		6.9	0.40
	South Cove	0.5	0.40	0.40		<0.010	<0.02	0.056	0.052		6.3	0.18
7/26/2022	DH-surface	0.5	0.41	0.41		<0.010	<0.02	0.017	0.010		7.2	1.95
	DH-bottom	12	0.70	0.89		0.014	<0.02	0.022	0.013		6.9	1.58
	Fletcher's	0.5	0.41	0.41		<0.010	<0.02	0.022	0.007		7.0	1.72
	South Cove	0.5	0.41	0.41		<0.010	<0.02	0.014	0.006		7.2	1.67
10/3/2022	Horton's	0.5	0.47	0.47		<0.010	<0.02	0.014	0.005		7.1	1.98
	DH-surface	0.5	0.54	0.54	0.07	<0.010	<0.02	0.018	0.017	0.293	7.2	1.89
	DH-bottom	12	0.46	0.46	<0.05	<0.010	<0.02	0.031	0.013	0.263	7.0	1.76
	Fletcher's	0.5	0.87	0.87	0.36	<0.010	<0.02	0.027	0.021	0.222	7.6	2.21
	South Cove	0.5	0.51	0.51	<0.05	<0.010	<0.02	0.087	0.012	0.196	7.4	1.65
	Horton's	0.5	0.51	0.51	0.1	<0.010	<0.02	0.021	0.02	0.216	8.2	0.06

Source: TRC Lake samples with excess phosphorus (>.025).

Table 2: Lake Massapoag - Water Quality Profile at Deep Hole Sampling Location

DATE:	June 2, 2022				July 26, 2022				October 3, 2022			
Depth (m)	DO (mg/L)	DO (%)	Specific Conduct. (µS/cm)	Temp (C)	DO (mg/L)	DO (%)	Specific Conduct. (µS/cm)	Temp (C)	DO (mg/L)	DO (%)	Specific Conduct. (µS/cm)	Temp (C)
0.5	9.52	109.0	164.7	21.6	7.23	92.5	172.6	27.5	8.70	87.8	170.6	15.9
1	9.48	109.4	164.7	21.6	7.21	91.8	172.6	27.5	8.56	86.5	170.7	15.9
2	9.56	109.8	164.6	21.6	7.15	89.8	172.4	27.3	8.57	86.5	170.6	15.9
3	9.66	111.1	164.5	21.6	6.88	86.0	172.4	27.2	8.6	86.7	170.7	15.9
4	8.91	101.7	165.6	21.1	6.55	82.9	172.6	26.9	8.56	87.0	170.6	15.9
5	7.50	79.0	164.3	17.2	2.97	34.4	172.6	25.0	8.67	87.3	170.6	15.9
6	6.80	66.7	162.5	14.3	0.14	1.4	183.3	21.3	8.63	87.0	170.6	15.9
7	7.08	68.6	162.2	13.3	0.05	0.5	185.1	17.6	8.57	86.2	170.6	15.9
8	7.03	67.8	162.2	13.1	0.04	0.4	180.0	15.0	8.53	86.3	170.6	15.9
9	6.81	65.5	162.5	12.8	0.04	0.4	179.2	14.7	8.59	86.6	170.6	15.9
10	6.61	63.3	163.2	12.7	0.03	0.3	176.8	12.9	8.65	87.1	170.6	15.8
11	2.19	21.4	163.6	12.6	0.03	0.3	179.8	12.6	8.68	87.4	170.6	15.8
12	0.59	6.0	163.4	12.7	0.02	0.2	186.1	12.5	3.38	3.4	172.1	15.4
13	0.40	4.0	202.7	13.0	0.02	0.2	187.1	12.4	0.10	0.9	179.8	15.2

DEPTH: meters feet
 Total Depth: 13.4 m (44 ft)
 Secchi Depth: 2.0 m (6.6 ft)

DEPTH: meters feet
 Total Depth: 13.4 m (44 ft)
 Secchi Depth: 3.0 m (9.8 ft)

DEPTH: meters feet
 Total Depth: 13.4 m (44 ft)
 Secchi Depth: 2.0 m (6.6 ft)

Source: TRC < DO % state standard for warmwater fish < 5mg/L

Table 3: Water Quality at Fletcher's Cove Sampling Location

DATE:	June 2, 2022				July 26, 2022				October 3, 2022			
Depth (m)	DO (mg/L)	DO (%)	Specific Conduct. (µS/cm)	Temp (C)	DO (mg/L)	DO (%)	Specific Conduct. (µS/cm)	Temp (C)	DO (mg/L)	DO (%)	Specific Conduct. (µS/cm)	Temp (C)
0.5	9.7	115.3	164.8	23	7.33	94.4	172.8	27.4	9.52	91.1	170.9	13.3
1					7.18	89.9	173.2	27.4	9.46	90.1	170.9	13.4
Total Depth: 0.5 m (1.6 ft)				Total Depth: 1.3 m (4.3 ft)				Total Depth: 1.2 m (4.0 ft)				

Table 4: Water Quality at Lagoon Inlet/South Cove Sampling Location

DATE:	June 2, 2022				July 26, 2022				October 3, 2022			
Depth (m)	DO (mg/L)	DO (%)	Specific Conduct. (µS/cm)	Temp (C)	DO (mg/L)	DO (%)	Specific Conduct. (µS/cm)	Temp (C)	DO (mg/L)	DO (%)	Specific Conduct. (µS/cm)	Temp (C)
0.5	8.4	99.3	165.4	23.2	7.13	91.5	172.1	27.6	9.2	88.7	170.8	13.9
1					7.34	93.8	172.4	27.6	9.17	88.5	170.8	13.9
Total Depth: 0.6 m (1.9 ft)				Total Depth: 1.5 m (4.9 ft)				Total Depth: 1.8 m (5.8 ft)				

Table 5: Water Quality at Horton's Cove Sampling Location

DATE:	June 2, 2022				July 26, 2022				October 3, 2022			
Depth (m)	DO (mg/L)	DO (%)	Specific Conductance (µS/cm)	Temperature (C)	DO (mg/L)	DO (%)	Specific Conductance (µS/cm)	Temperature (C)	DO (mg/L)	DO (%)	Specific Conductance (µS/cm)	Temperature (C)
0.5									8.98	88.1	170.6	14.5
1									9.12	89.3	170.7	14.5
2									9.08	88.6	170.7	14.5
Total Depth: 2.0 m (6.6 ft)												Secchi Depth: on bottom

Source: TRC