



2024 VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS

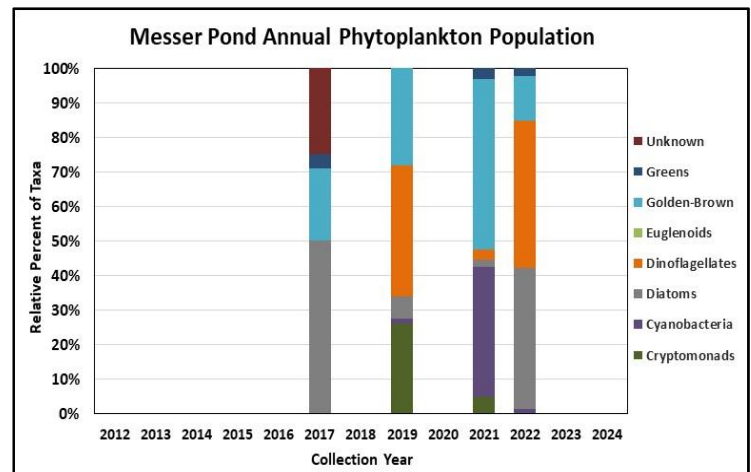
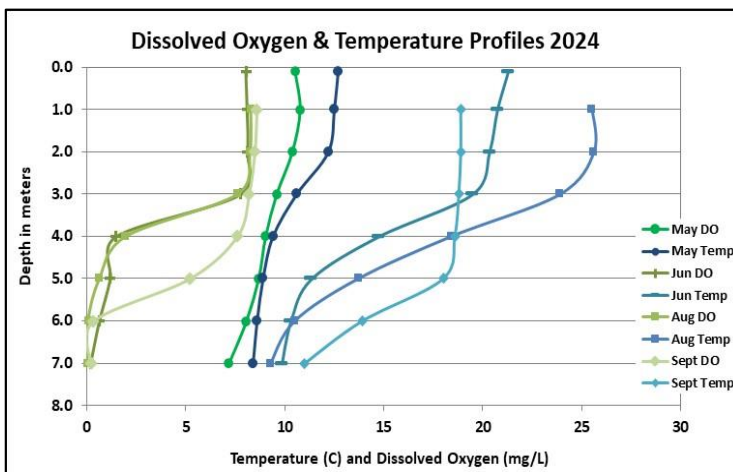
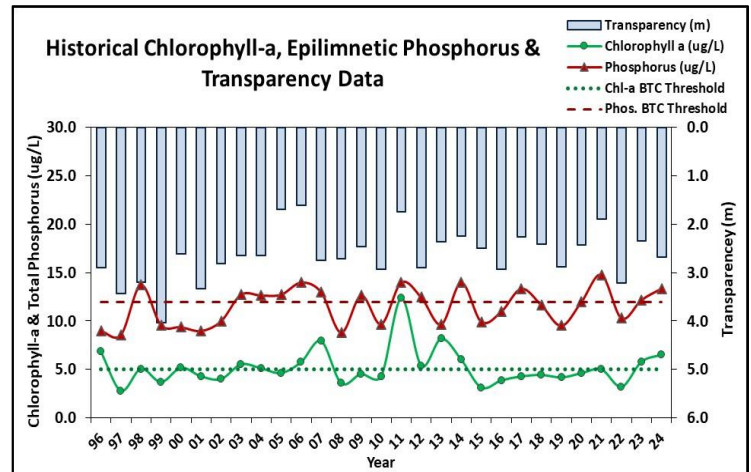
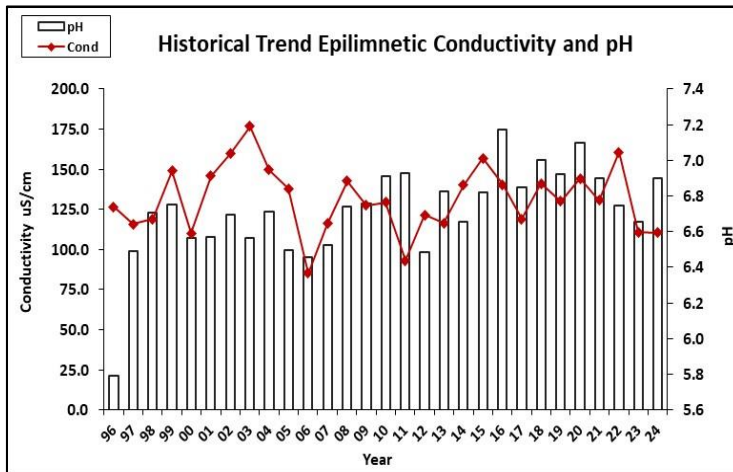
MESSER POND, NEW LONDON

RECOMMENDED ACTIONS: Great job monitoring water quality in 2024! Pond quality is generally representative of mesotrophic, or average, conditions. Pond phosphorus and chlorophyll levels were above the thresholds for mesotrophic lakes in 2023 and 2024, and could be related to excessive summer rainfall in 2023, drought conditions in 2024, and lack of flushing of nutrients out of the pond due to beaver activity. This highlights the negative impacts of stormwater runoff and the need to managing water levels to ensure flow out of the pond. Monthly dissolved oxygen and temperature profiles indicate anoxic conditions in late summer and further support the potential for release of phosphorus from bottom sediments in late summer. This could fuel late summer algal/cyanobacteria blooms. Be alert for any changes in water color, reduced clarity or visible surface cyanobacteria blooms. Notify NHDES' [Harmful Algal Bloom Program](#) if observed. Continue to work with a consultant to address flow at the Outlet to help improve flushing rate and maintain a normal water level. Investigate the source of elevated chloride levels in Haas Brook if not directly related to winter road salting. Keep up the great work!

HISTORICAL WATER QUALITY TREND ANALYSIS

PARAMETER	TREND	PARAMETER	TREND
Conductivity	Stable	Chlorophyll-a	Stable
pH (epilimnion)	Improving	Transparency	Worsening
Phosphorus (hypolimnion)	Worsening	Phosphorus (epilimnion)	Worsening

HISTORICAL WATER QUALITY GRAPHICS





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OBSERVATIONS *(Refer to Table 1 and Historical Deep Spot Data Graphics)*

- ◆ **CHLOROPHYLL-A:** Chlorophyll level was elevated in May, increased in June, and decreased to low levels in August and September. Average chlorophyll level increased slightly from 2023 and remained greater than the state median and the threshold for mesotrophic lakes. Historical trend analysis indicates relatively stable chlorophyll levels since monitoring began.
- ◆ **CONDUCTIVITY/CHLORIDE:** Epilimnetic (upper water layer), Hypolimnetic (lower water layer), Columbus Ave., County Rd. 2, County Rd. Inlet, and Outlet conductivity and chloride levels remained greater than the state medians. Historical trend analysis indicates relatively stable epilimnetic conductivity levels since monitoring began. 89 Culvert, Brown Inlet, Nutter Inlet, Top Brown, and Upper Brown conductivity and chloride levels were elevated and much greater than the state medians. Haas Bk. conductivity and chloride levels were greatly elevated, and Haas Bk. chloride levels approached the state chronic chloride standard in April.
- ◆ **COLOR:** Apparent color measured in the epilimnion indicates the water was highly colored in May and June when algal growth was elevated, and lightly colored in August and September. Average color was twice as light as that measured in 2023.
- ◆ **E. COLI:** Brown Inlet, Haas Bk., and Nutter Inlet E. coli levels were low and much less than the state standard for surface waters.
- ◆ **TOTAL PHOSPHORUS:** Epilimnetic phosphorus level was slightly elevated in May, increased in June, decreased slightly in August, and decreased to a low level in September. Average epilimnetic phosphorus level increased slightly from 2023 and remained greater than the state median and the threshold for mesotrophic lakes. Hypolimnetic phosphorus level was elevated from June through August. Historical trend analysis indicates significantly increasing (worsening) epilimnetic and hypolimnetic phosphorus levels since monitoring began. Columbus Ave., Brown Inlet, Nutter Inlet, and Top Brown phosphorus levels fluctuated within low to average ranges. Haas Bk. phosphorus level was low. County Rd. 2 and County Rd. Inlet phosphorus levels were elevated in August and September during low flow/stagnant conditions. Outlet phosphorus level was elevated in June. Upper Brown and 89 Culvert phosphorus levels were elevated in April and the turbidity of the sample was also greatly elevated due to sediment and organic matter.
- ◆ **TRANSPARENCY:** Transparency measured without the viewscope (NVS) was below average (worse) in May and June when algal growth was elevated and water levels were high, and increased (improved) by over a meter in August and September. Average NVS transparency improved from 2023 but remained lower than the state median. Historical trend analysis indicates significantly decreasing (worsening) NVS transparency since monitoring began.
- ◆ **TURBIDITY:** Epilimnetic turbidity level was elevated in May likely due to algal growth. Hypolimnetic turbidity was slightly elevated on each event. 89 Culvert and Upper Brown turbidity levels were elevated in May due to sediment/organic matter. Columbus Ave., County Rd. 2, Country Rd. Inlet, Brown Inlet, Haas Bk., and Top Brown turbidity levels fluctuated within slightly elevated ranges. Nutter Inlet and Outlet turbidity levels were slightly elevated in February.
- ◆ **PH:** Epilimnetic, 89 Culvert, Columbus Ave, County Rd. 2, Haas Bk., Nutter Inlet, Outlet, and Top and Upper Brown pH levels were within the desirable range of 6.5-8.0 units. Historical trend analysis indicates significantly increasing (improving) epilimnetic pH levels since monitoring began. Hypolimnetic, Brown Inlet, and County Rd. Inlet pH levels were slightly acidic and less than desirable.



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Table 1. 2024 Average Water Quality Data for MESSER POND - NEW LONDON

Station Name	Alk. (mg/L)	Chlor-a (ug/L)	Chloride (mg/L)	Color (pcu)	Cond. (us/cm)	E. coli (mpn/100 mL)	Total P (ug/L)	Trans. (m)		Turb. (ntu)	pH
								NVS	VS		
Epilimnion	9.3	6.51	26	62	110.5	-	13	2.67	2.75	1.15	6.90
Hypolimnion	-	-	25	-	109.2	-	20	-	-	2.04	6.29
89 Culvert	-	-	88	-	318.0	-	34	-	-	34.70	6.73
Brown Inlet	-	-	79	-	340.5	13	19	-	-	2.23	6.19
Columbus Ave.	-	-	10	-	76.8	-	19	-	-	2.94	7.14
County Rd. 2	-	-	15	-	100.4	-	23	-	-	4.12	6.79
County Rd. Inlet	-	-	12	-	75.6	-	21	-	-	2.09	6.37
Haas Bk.	-	-	146	-	569.0	4	6	-	-	1.64	7.02
Nutter Inlet	-	-	63	-	240.2	1	19	-	-	1.28	6.98
Outlet at Bog Rd.	-	-	23	-	105.8	-	17	-	-	1.51	6.70
Top Brown at Bog Rd.	-	-	87	-	342.0	-	13	-	-	1.99	7.11
Upper Brown at Bog Rd.	-	-	72	-	278.0	-	38	-	-	54.30	7.18

NH Median Values

Median values generated from historic lake monitoring data.

Alkalinity: 4.5 mg/L **Chlorophyll-a:** 4.39 ug/L
Conductivity: 42.3 uS/cm **Chloride:** 5 mg/L
Total phosphorus: 11 ug/L **Transparency:** 3.3 m
pH: 6.6

NH Water Quality Standards

Numeric criteria for specific parameters. Water quality violation if thresholds exceeded.

Chloride: > 230 mg/L (chronic) **Turbidity:** > 10 NTU above natural
E. coli: > 88 cts/100 mL (beach)
E. coli: > 406 cts/100 mL (surface waters)
pH: between 6.5-8.0 (unless naturally occurring)