



2024 VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS

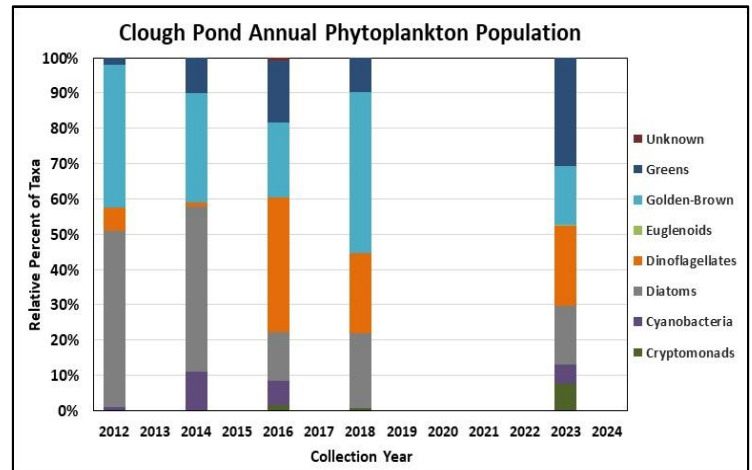
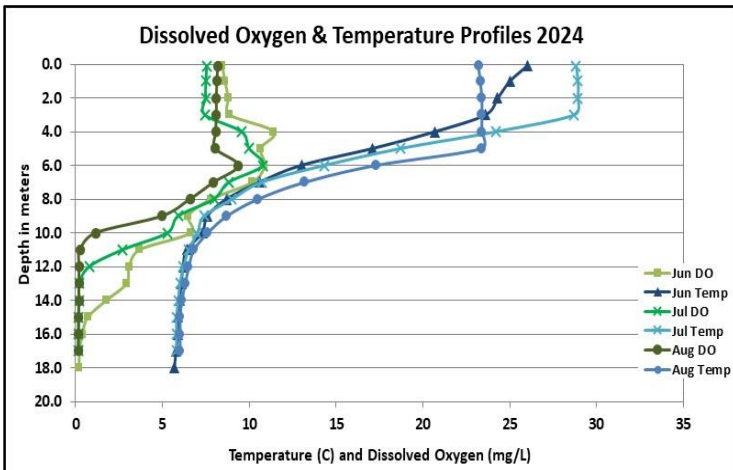
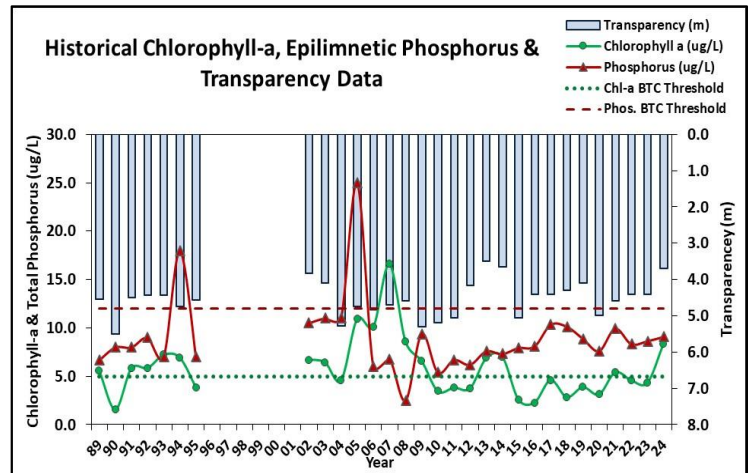
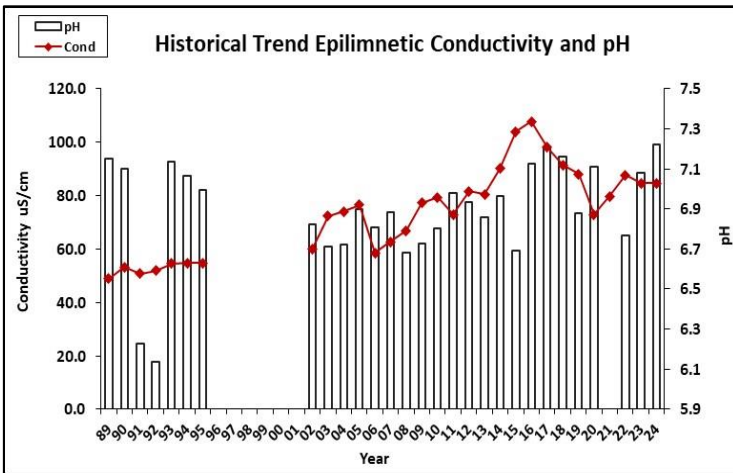
CLOUGH POND, LOUDON

RECOMMENDED ACTIONS: Great job monitoring water quality in 2024! The pond experienced a nuisance Cyanobacteria bloom in June, and the chlorophyll, phosphorus, and turbidity levels, as well as dissolved oxygen profiles indicates a layer of cyanobacteria growth in Metalimnetic waters. Cyanobacteria are adapted to take advantage of warmer water temperatures and lower light conditions to take up nutrients from deeper in the water column. The internal load of nutrients from bottom sediments likely helps to fuel this growth. Continue to report any suspicious algal/cyanobacteria growth to NHDES' [Harmful Algal Bloom Program](#). Significant storm events in July and August resulted in debris entering the pond from the Inlet and the phosphorus and turbidity levels were also elevated. It could indicate a beaver dam upstream was compromised. Investigate other potential upstream sources that could have contributed to the elevated levels measured following the storm events. Continue efforts to manage stormwater runoff in the watershed. Encourage shoreline property owners to be certified [LakeSmart](#) through NH LAKES' lake-friendly living program. Educate shoreline property owners on proper [septic system](#) maintenance to further help reduce nutrient loading to the pond. Keep up the great work!

HISTORICAL WATER QUALITY TREND ANALYSIS

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

HISTORICAL WATER QUALITY GRAPHICS





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

- ◆ **CHLOROPHYLL-A:** Chlorophyll level was slightly elevated in June when a cyanobacteria watch was issued, decreased to a low level in July, and increased to an elevated level in August. Average chlorophyll level increased from 2023 and was greater than the state median and the threshold for mesotrophic lakes. Historical trend analysis indicates significantly decreasing (improving) chlorophyll levels since monitoring began.
- ◆ **CONDUCTIVITY/CHLORIDE:** Epilimnetic (upper water layer), Metalimnetic (middle water layer), Hypolimnetic (lower water layer), Inlet, and Outlet conductivity and/or chloride levels remained greater than the state medians, yet less than a level of concern. However, historical trend analysis indicates significantly increasing (worsening) epilimnetic conductivity levels since monitoring began.
- ◆ **COLOR:** Apparent color measured in the epilimnion indicates the water was lightly tea colored from June through August.
- ◆ **TOTAL PHOSPHORUS:** Epilimnetic phosphorus level was slightly elevated in June when algal/cyanobacteria growth was slightly elevated, and then decreased to low levels in July and August. Average epilimnetic phosphorus level remained stable with 2023 and was less than the state median and the threshold for mesotrophic lakes. Metalimnetic phosphorus levels were elevated from June through August potentially due to layers of algae/cyanobacteria. Hypolimnetic phosphorus levels were also elevated and highest in July potentially due to release of phosphorus from bottom sediments under anoxic (no dissolved oxygen) conditions. Historical trend analysis indicates relatively stable epilimnetic and hypolimnetic phosphorus levels since monitoring began. Inlet phosphorus levels were elevated in July and August following significant storm events and field data noted heavy amounts of debris in the water. Outlet phosphorus level was elevated in June potentially due to pollen or cyanobacteria accumulation at the Outlet.
- ◆ **TRANSPARENCY:** Transparency measured without the viewscope (NVS) was below average (worse) in June likely due to cyanobacteria growth, increased (improved) in July, and then decreased (worsened) in August when algal growth was elevated. Average NVS transparency decreased (worsened) from 2023 but remained higher (better) than the state median. Historical trend analysis indicates relatively stable NVS transparency since monitoring began. Viewscope (VS) transparency was also below average in June and August but was higher (better) than NVS transparency.
- ◆ **TURBIDITY:** Epilimnetic turbidity level was slightly elevated in June. Metalimnetic turbidity level was elevated in June likely due to a layer of cyanobacteria and slightly elevated in July and August also likely due to layers of algae/cyanobacteria. Hypolimnetic turbidity levels were slightly elevated and stable from June through August. Inlet turbidity levels were elevated in July and August following storm events that potentially breached upstream beaver dam. Outlet turbidity level was elevated in June likely due to accumulation of cyanobacteria.
- ◆ **pH:** Epilimnetic, Metalimnetic, Inlet, and Outlet 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 pH levels were slightly acidic and less than desirable.

Table 1. 2024 Average Water Quality Data for CLOUGH POND - LOUDON

Station Name	Alk. (mg/L)	Chlor-a (ug/L)	Chloride (mg/L)	Color (pcu)	Cond. (us/cm)	Total P (ug/L)	Trans. (m)		Turb. (ntu)	pH
							NVS	VS		
Epilimnion	8.4	8.36	20	29	84.6	9	3.71	4.38	0.87	7.22
Metalimnion	-	-	-	-	82.5	19	-	-	2.34	6.67
Hypolimnion	-	-	-	-	89.0	32	-	-	2.59	6.34
Inlet	-	-	19	-	81.7	33	-	-	14.04	6.86
Outlet	-	-	20	-	83.9	10	-	-	1.04	7.19

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)

