



2023 VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS

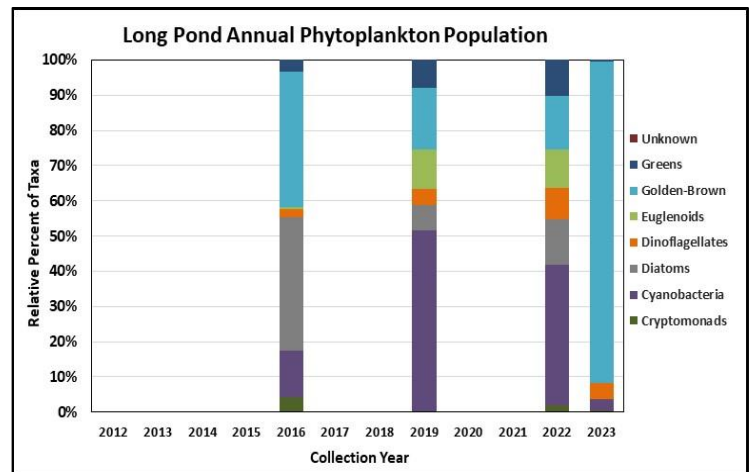
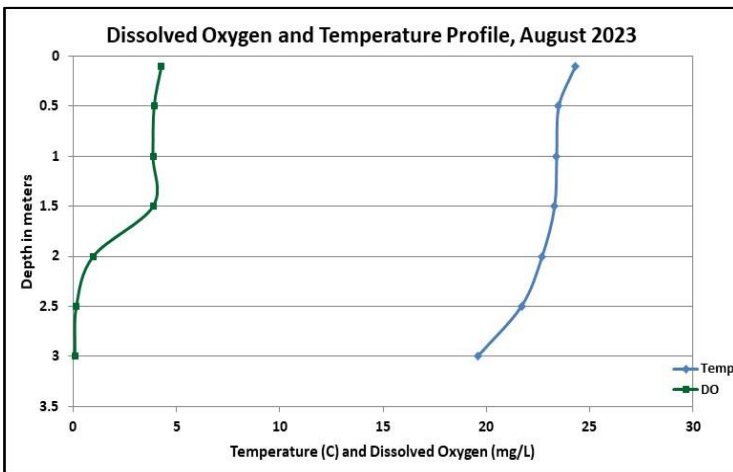
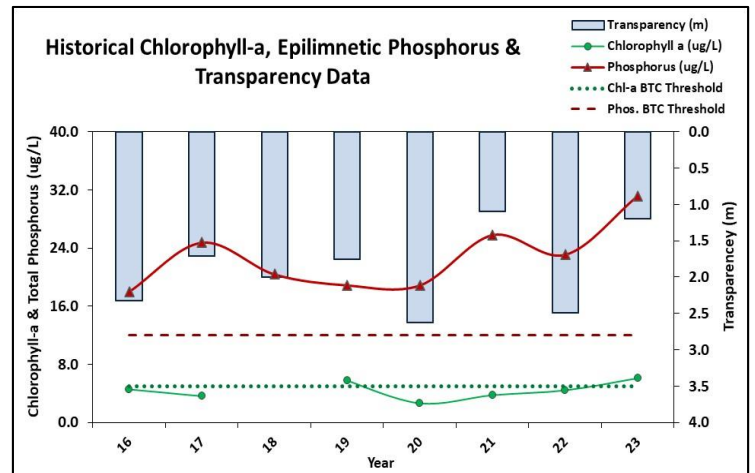
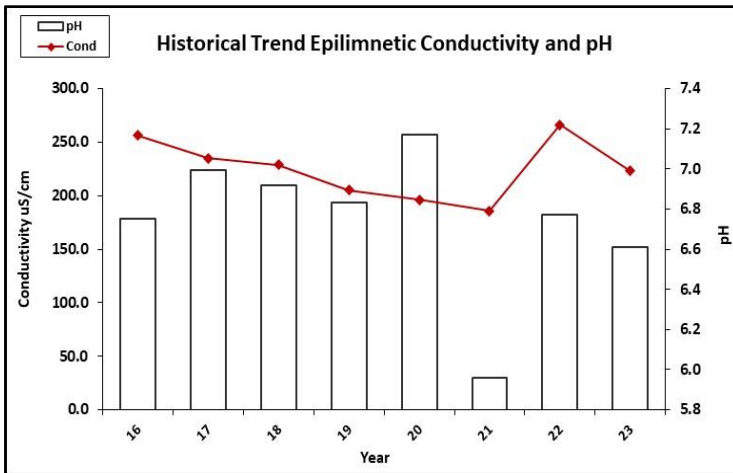
LONG POND, DANVILLE

Recommended Actions: Great job sampling in 2023! Maintain an annual monitoring program and try to increase monitoring frequency to once per month, typically June, July and August, to establish a baseline data set and to better assess water quality trends. In contrast with drought conditions in 2022, record summer rainfall in 2023 resulted in elevated in-lake and tributary phosphorus (nutrient) levels, elevated chlorophyll levels, higher turbidity, darker water color, and poor water clarity (transparency). The increased frequency and intensity of high-volume storm events highlights the importance of managing stormwater runoff from the watershed and shoreline properties. Educate lake and watershed residents on ways to reduce stormwater runoff from their properties by utilizing NHDES' [NH Homeowner's Guide to Stormwater Management](#). Pine St. Inlet nutrient levels are generally elevated following storm events. Consider bracketing the tributary to identify potential pollution sources contributing to the elevated levels. Keep up the great work!

HISTORICAL WATER QUALITY TREND ANALYSIS

PARAMETER	TREND	PARAMETER	TREND
Conductivity	N/A	Chlorophyll-a	N/A
pH (epilimnion)	N/A	Transparency	N/A
		Phosphorus (epilimnion)	N/A

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 August, increased from 2022, and was slightly greater than the state median and the threshold for mesotrophic lakes. Visual inspection of historical data indicates relatively stable chlorophyll levels since monitoring began.
- ◆ **CONDUCTIVITY/CHLORIDE:** Epilimnetic (upper water layer), Hypolimnetic (lower water layer), Inlet, Outlet, and Pine St. Inlet conductivity and/or chloride levels remained greater than the state medians. Visual inspection of historical data indicates relatively stable epilimnetic conductivity levels since monitoring began. Long Pond Rd. Inlet conductivity and chloride levels were greatly elevated, yet chloride levels were less than the state chronic chloride standard.
- ◆ **COLOR:** Apparent color measured in the epilimnion indicates the water was highly tea colored, or dark brown, and was four times darker than that measured in 2022.
- ◆ **E. COLI:** Inlet, Long Pond Rd. Inlet and Pine St. Inlet E. coli levels were within a low range and much less the state standard of 406 cts/100 mL for surface waters.
- ◆ **TOTAL PHOSPHORUS:** Epilimnetic and Hypolimnetic phosphorus levels were greatly elevated and increased from 2022. Average epilimnetic phosphorus level was much greater than the state median and the threshold for mesotrophic lakes, and was the highest measured since monitoring began. Visual inspection of historical data indicates increasing (worsening) epilimnetic phosphorus levels since monitoring began. Inlet, Long Pond Rd. Inlet and Outlet phosphorus levels were within an elevated range but were lower (better) than that measured in 2022. Pine St. Inlet phosphorus levels were elevated following a significant storm event.
- ◆ **TRANSPARENCY:** Transparency measured with (VS) and without (NVS) the viewscope was below average (worse) in August likely due to elevated algal growth and darker water conditions. Average NVS transparency decreased from 2022 and was lower (worse) than the state median. Visual inspection of historical data indicates stable, yet variable, NVS transparency since monitoring began.
- ◆ **TURBIDITY:** Epilimnetic and Hypolimnetic turbidity levels were elevated and increased from 2023 likely due to excessive summer rainfall, darker water color and elevated algal growth. Inlet turbidity level was elevated following a storm event. Outlet, Long Pond Rd. Inlet and Pine St. Inlet turbidity levels were slightly elevated.
- ◆ **pH:** Epilimnetic, Outlet, Pine St. Inlet, and Long Pond Rd. Inlet pH levels were within the desirable range 6.5-8.0 units. Visual inspection of historical data indicates relatively stable epilimnetic pH levels since monitoring began. Hypolimnetic and Inlet pH levels were slightly acidic and less than desirable.

Table 1. 2023 Average Water Quality Data for LONG POND - DANVILLE

Station Name	Alk. (mg/L)	Chlor-a (ug/L)	Chloride (mg/L)	Color (pcu)	Cond. (us/cm)	E. coli (mpn/100mL)	Total P (ug/L)	Trans. (m)		Turb. (ntu)	pH
								NVS	VS		
Epilimnion	18.1	6.13	45	234	223.0	-	31	1.20	1.56	2.45	6.61
Hypolimnion	-	-	-	-	227.0	-	34	-	-	7.92	6.29
Inlet	-	-	58	-	266.0	86	37	-	-	6.88	6.23
Outlet	-	-	-	-	218.0	-	22	-	-	1.52	6.54
Pine St. Inlet	-	-	58	-	250.5	26	70	-	-	2.94	6.60
Long Pond Rd. Inlet	-	-	104	-	464.0	48	34	-	-	1.51	6.76

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)