



# VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS

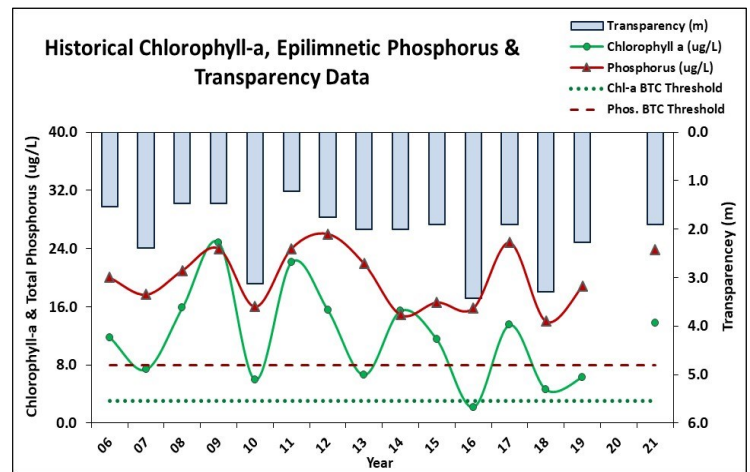
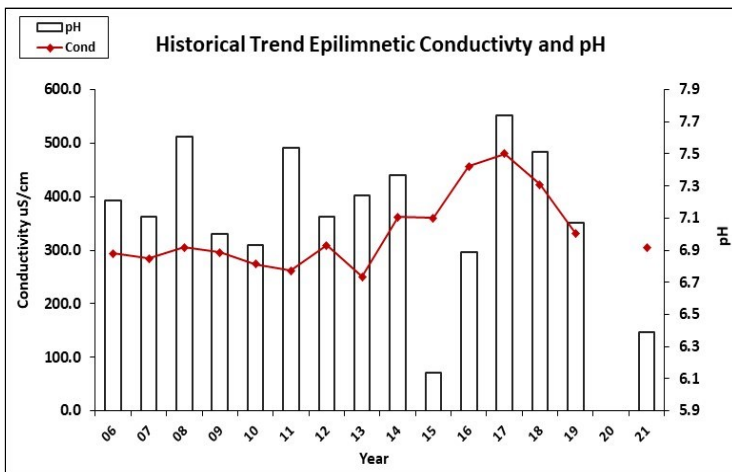
## LONG POND, PELHAM

### 2021 DATA SUMMARY

**RECOMMENDED ACTIONS:** Long Pond phosphorus and chlorophyll levels remained elevated in 2021, however chlorophyll levels have generally remained within a lower range since 2016 and water clarity has remained higher, which is encouraging. Record summer rainfall amounts resulted in elevated pond phosphorus levels which fueled elevated algal growth and a cyanobacteria bloom in late summer. Due to the history of cyanobacteria blooms, efforts should be made to develop and implement a watershed management plan to identify, quantify and reduce nutrient loads to the pond. Conductivity and chloride levels remain elevated and indicate impacts from road salt. Continue to educate and encourage watershed property owners and local winter maintenance companies on the [Green SnowPro Certification](#) program to help reduce amount of road salt applied to roads, parking lots, driveways, and walkways during winter months. Increase monitoring frequency to once per month, typically June, July and August, to better understand seasonal and annual variations in water quality. Keep up the great work!

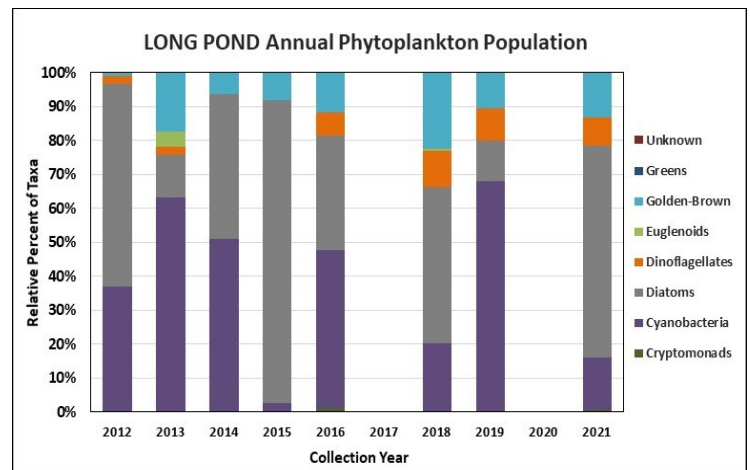
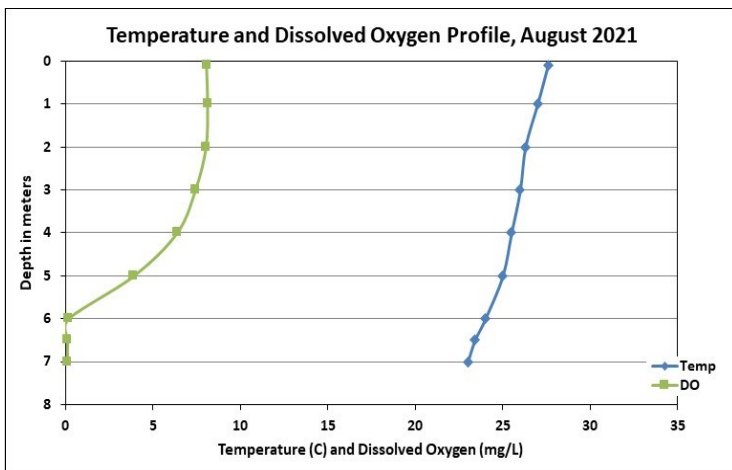
### HISTORICAL WATER QUALITY TREND ANALYSIS

Parameter	Trend	Parameter	Trend
Conductivity	Worsening	Chlorophyll-a	Stable
pH (epilimnion)	Stable	Transparency	Stable
		Phosphorus (epilimnion)	Stable



### DISSOLVED OXYGEN AND PHYTOPLANKTON

(Note: Information may not be collected annually)





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

- **CHLOROPHYLL-A:** Chlorophyll level was elevated in August, was higher than that measured in 2019, and was much greater than the state median and the threshold for oligotrophic lakes. Historical trend analysis indicates stable, yet variable, chlorophyll levels since monitoring began.
- **CONDUCTIVITY/CHLORIDE:** Epilimnetic (upper water layer), Hypolimnetic (lower water layer) and Jones Rd. conductivity and chloride levels were greatly elevated and much greater than the state medians. Historical trend analysis indicates significantly increasing (worsening) epilimnetic conductivity levels since monitoring began. Point Source conductivity and chloride levels were also greatly elevated and chloride levels approached the state chronic chloride standard.
- **COLOR:** Epilimnetic color data indicates the water was moderately tea colored, or brown, in August.
- **TOTAL PHOSPHORUS:** Epilimnetic phosphorus level was elevated in August, was higher than that measured in 2019, and was much greater than the state median and the threshold for oligotrophic lakes. Historical trend analysis indicates stable epilimnetic phosphorus levels since monitoring began. Hypolimnetic phosphorus level was elevated likely due to release of phosphorus from bottom sediments under anoxic (no dissolved oxygen) conditions. Jones Rd. phosphorus level was within a low range. Point Source phosphorus level was elevated.
- **TRANSPARENCY:** Transparency measured without the viewscope (NVS) was within an average range for the pond, was lower (worse) than that measured in 2019, and was lower than the state median. Historical trend analysis indicates stable, yet variable, NVS transparency since monitoring began. Transparency measured with the viewscope (VS) was higher (better) than NVS transparency and a better measure of actual conditions.
- **TURBIDITY:** Epilimnetic and Hypolimnetic turbidity levels were elevated likely due to elevated algal growth and formation and accumulation of organic compounds in hypolimnetic waters under anoxic conditions. Jones Rd. and Point Source turbidity levels were within a low range.
- **pH:** Epilimnetic and Jones Rd. pH levels were slightly less than desirable range 6.5-8.0 units and epilimnetic pH levels were more acidic likely due to record summer rainfall amounts. Historical trend analysis indicates stable, yet variable, epilimnetic pH levels since monitoring began. Hypolimnetic and Point Source pH levels were within the desirable range.

Station Name	Table 1. 2021 Average Water Quality Data for LONG POND - PELHAM									
	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	25.3	13.76	92	50	304.0	24	1.90	2.25	2.45	6.39
Hypolimnion					337.5	58			2.95	6.61
Jones Rd.			125		436.5	8			0.83	6.28
Point Source			188		679.0	44			0.90	7.30

#### 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)