



VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS

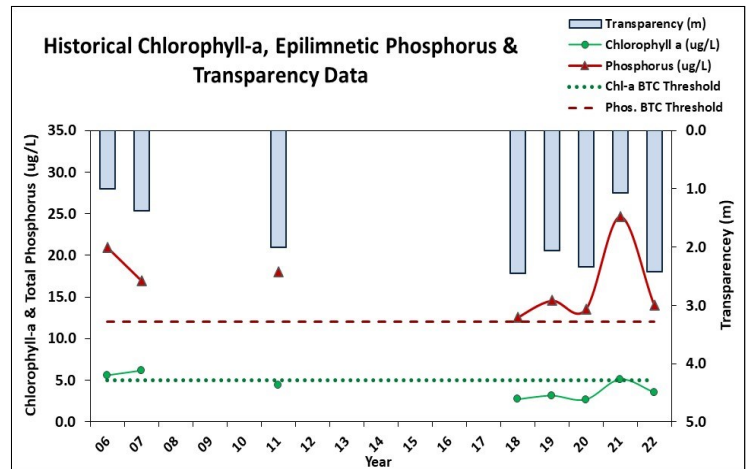
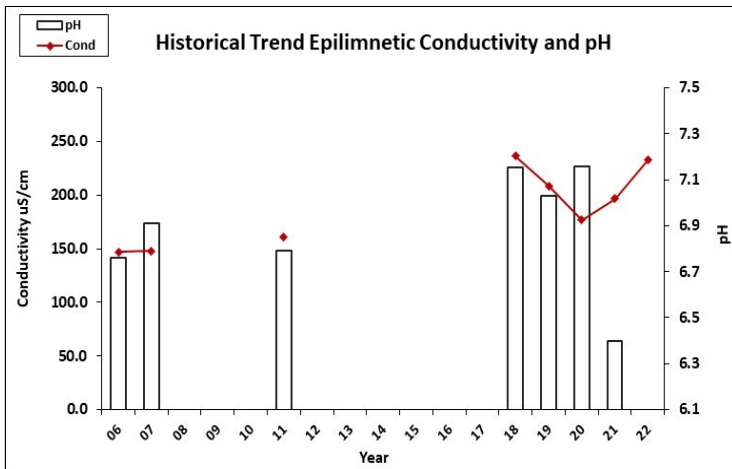
COUNTRY POND, NEWTON

2022 DATA SUMMARY

RECOMMENDED ACTIONS: Great job sampling in 2022! This will help to build a baseline data set to assess seasonal and annual trends in water quality. In contrast with record summer rainfall in 2021, drought conditions in 2022 resulted in lower Epilimnetic phosphorus levels, lower levels of algal growth, much lighter water color, and improved pond clarity (transparency). This highlights the importance of managing and minimizing [stormwater](#) runoff from the surrounding watershed, particularly shoreline properties and impervious surface such as roads, driveways, and roof tops. Consult the Watershed Management Plan for recommendations on high priority areas and target these for remediation. Great job conducting monthly dissolved oxygen and temperature profiles. The data reveal the pond experiences severe depletion of dissolved oxygen in Metalimnetic and Hypolimnetic waters resulting in release of phosphorus from bottom sediments (internal nutrient load). This internal load can fuel excess algal, and particularly [cyanobacteria](#) growth. A cyanobacteria alert was issued in May of 2022. Be on the lookout for the presence of cyanobacteria blooms and/or surface scums and [notify](#) NHDES' Harmful Algal Bloom Program if observed. Encourage local road agents and private winter maintenance companies to obtain [Green SnowPro Certification](#). Educate shorefront property owners on ways to reduce stormwater runoff using the [NH Homeowner's Guide to Stormwater Management](#) and encourage them to become certified [LakeSmart](#) through NH LAKES' lake-friendly living program. Keep up the great work!

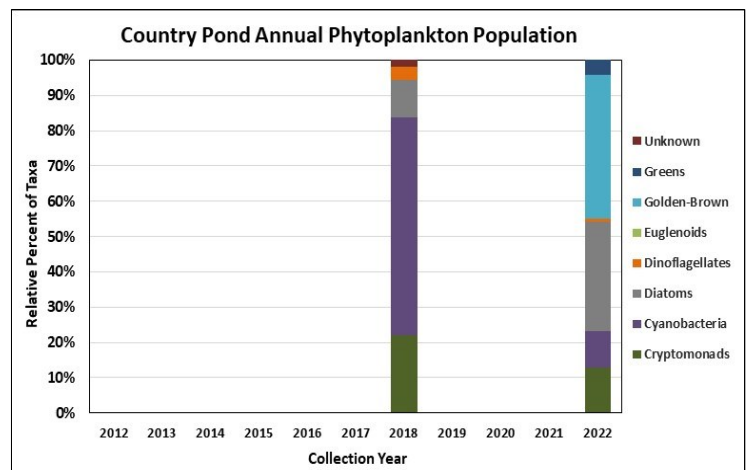
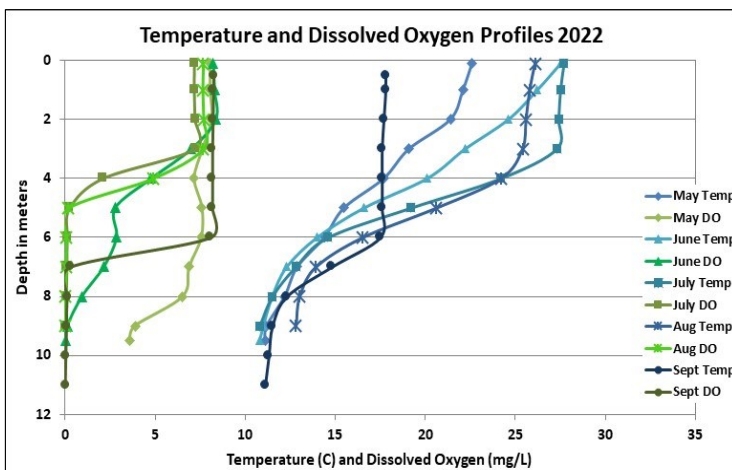
HISTORICAL WATER QUALITY TREND ANALYSIS

Parameter	Trend	Parameter	Trend
Conductivity	N/A	Chlorophyll-a	N/A
pH (epilimnion)	N/A	Transparency	N/A
		Phosphorus (epilimnion)	N/A



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 low in May, increased slightly in June, remained stable through August, and then increased to a slightly elevated level in September. Average chlorophyll level decreased slightly from 2021 and was less 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), Metalimnetic (middle water layer), Hypolimnetic (lower water layer), Northwest Inlet, Outlet, and South Inlet conductivity levels remained elevated and greater than the state median. Epilimnetic, Hypolimnetic, Northwest Inlet, and South Inlet chloride levels were elevated and much greater than the state median, yet were less than the state chronic chloride standard. Visual inspection of historical data indicates increased epilimnetic conductivity levels since 2006.
- ◆ **COLOR:** Apparent color measured in the epilimnion indicates the water was highly tea colored, or dark brown, from May through July, and then lightened to a moderately tea colored range in August and September.
- ◆ **TOTAL PHOSPHORUS:** Epilimnetic phosphorus level was slightly elevated in May, remained stable in June, decreased to a moderate level in July and remained stable through September. Average epilimnetic phosphorus level decreased from 2021 and was slightly greater than the state median and the threshold for mesotrophic lakes. Visual inspection of historical data indicates variable epilimnetic phosphorus levels since monitoring began. Metalimnetic and Hypolimnetic phosphorus levels were elevated from July through September due to phosphorus release from bottom sediments under severe anoxic conditions that extend into Metalimnetic waters. Northwest Inlet, South Inlet and Outlet phosphorus levels fluctuated within a low range for those stations.
- ◆ **TRANSPARENCY:** Transparency measured without the viewscope (NVS) was below average (worse) in May due to wave conditions, increased (improved) gradually through August, and then decreased in September when algal growth was elevated. Average NVS transparency increased (improved) from 2021 and was lower (worse) than the state median. Visual inspection of historical data indicates variable NVS transparency since monitoring began. Viewscope (VS) transparency was generally higher (better) than NVS transparency and a better measure of actual conditions.
- ◆ **TURBIDITY:** Epilimnetic turbidity level was within a low range in May and gradually increased through September but remained low. Metalimnetic turbidity level was slightly elevated in August and September likely due to algal growth, colored water, and effects of severe anoxia. Hypolimnetic turbidity levels were elevated from June through September due to colored water and accumulation of organic compounds under anoxic conditions. Northwest Inlet, Outlet and South Inlet turbidity levels fluctuated within a low range.
- ◆ **PH:** Epilimnetic pH data were invalidated due to a laboratory instrument error and we apologize for this inconvenience. Metalimnetic, Northwest Inlet, Outlet, and South Inlet pH levels were within the desirable range 6.5-8.0 units. Hypolimnetic pH level fluctuated around the low end of the desirable range.

Station Name	Table 1. 2022 Average Water Quality Data for COUNTRY POND - KINGSTON									
	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	15.1	3.57	60	72	232.8	14	2.43	2.84	0.72	
Metalimnion					226.0	18			2.65	6.61
Hypolimnion			52		222.8	44			6.24	6.49
Northwest Inlet			59		233.6	13			0.79	6.98
Outlet					232.8	13			0.72	7.04
South Inlet			58		231.3	13			0.82	7.07

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)