



2023 VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS

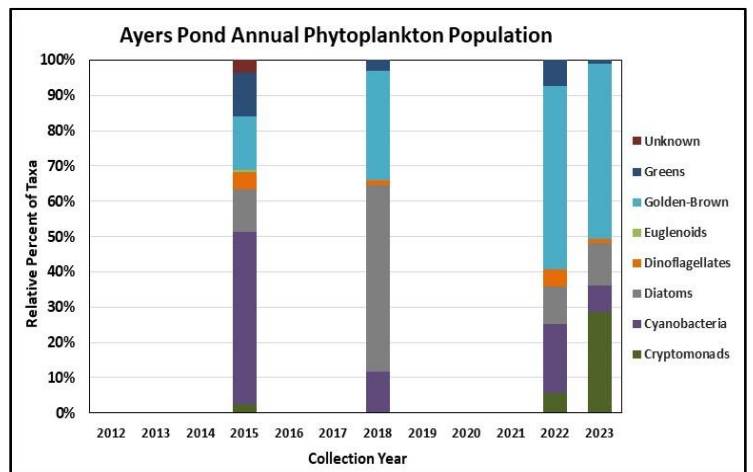
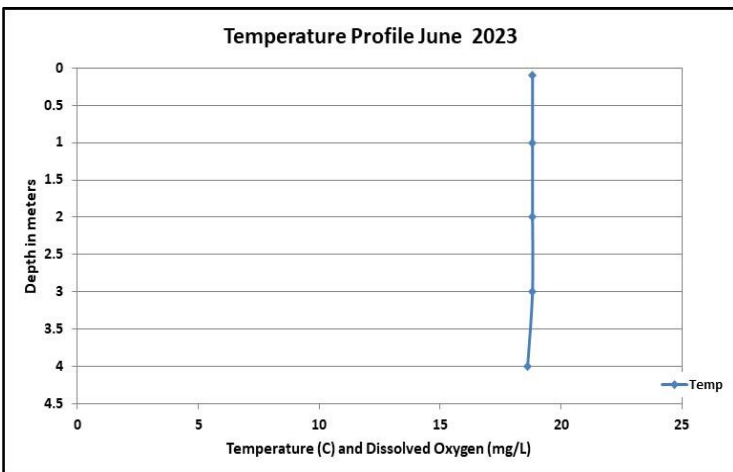
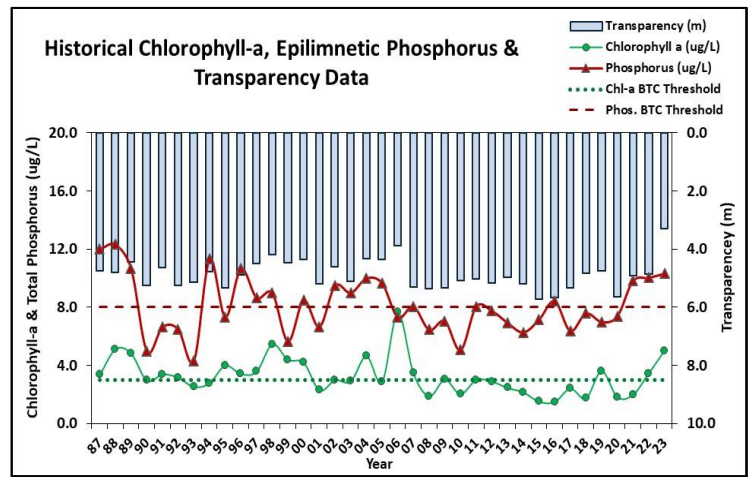
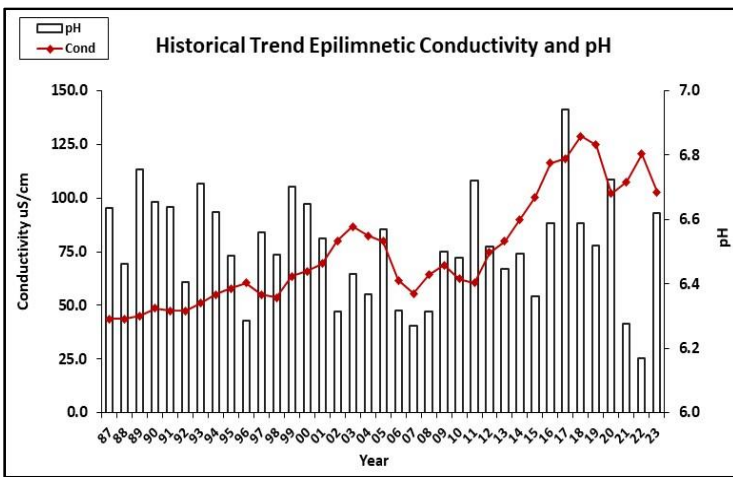
AYERS POND, BARRINGTON

Recommended Actions: Great job sampling in 2023! The excessive summer rainfall and associated stormwater runoff and flushing of systems high in nutrients (phosphorus) and color resulted in elevated pond nutrient levels, elevated algal growth and poor water clarity (transparency). This highlights the delicate balance of the pond ecosystem and the importance of stormwater management within the watershed. Timber harvesting activities could contribute to nutrient inputs from groundwater as well as surface runoff for years to come. Northwest Cove nutrient levels were elevated in July and the harvesting area feeds that cove. If possible, add tributary sampling stations within the timber harvest sub-watershed to better understand nutrient loading from the area. The above average pond nutrient levels measured in the past three years are a concern and residents should continue to be on alert for [Cyanobacteria](#) surface scums and blooms and [notify](#) NHDES' Harmful Algal Bloom Program if observed. In-lake conductivity levels have doubled in the past eight years and Inlet conductivity levels have doubled in the past five years. Evaluate any changes in the watershed with regards to the application of road salt, dust suppressants, water softener usage and discharge to dry wells and septic systems, directional flow of stormwater runoff from roadways, and anything that could be related to the sudden increase in conductivity levels. Encourage local road agents and private winter maintenance companies to obtain [Green SnowPro Certification](#). Refer to fact sheet [WMB-4 Road Salt and Water Quality](#) for additional information. 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 (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, increased in July, and decreased in August but remained within a slightly elevated range. Average chlorophyll level increased from 2022, was greater than the state median and the threshold for oligotrophic lakes, and was the highest measured since 2007. Historical trend analysis indicates relatively stable 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 were slightly elevated and greater than the state medians, yet chloride levels were much less than the state chronic chloride standard. Historical trend analysis indicates significantly increasing (worsening) epilimnetic conductivity levels since monitoring began, and significantly increasing epilimnetic chloride levels since 2008.
- ◆ **COLOR:** Apparent color measured in the epilimnion indicates the water was lightly tea colored, or light brown.
- ◆ **TOTAL PHOSPHORUS:** Epilimnetic phosphorus level was slightly elevated in June, decreased in July, and increased slightly in August. Average epilimnetic phosphorus level remained stable with 2022, was less than the state median, and was greater than the threshold for oligotrophic lakes. Metalimnetic and Hypolimnetic phosphorus levels were slightly elevated and increased gradually as the summer progressed. Historical trend analysis indicates relatively stable epilimnetic and hypolimnetic phosphorus levels since monitoring began. Northwest Cove phosphorus levels were also within a slightly elevated range for the pond and increased in July following excessive rainfall. Outlet phosphorus level was slightly elevated in August. Inlet phosphorus levels were elevated on each sampling event, particularly in August and the turbidity of the sample was also elevated.
- ◆ **TRANSPARENCY:** Transparency measured with and without the viewscope (NVS) was below average (worse) in June and remained relatively stable through August. Average NVS transparency decreased (worsened) from 2022, was approximately equal to the state median, and was the lowest (worst) measured since monitoring began. Historical trend analysis indicates stable NVS transparency since monitoring began. Viewscope transparency (VS) was higher (better) than NVS transparency but was also below average and the lowest VS transparency measured since 2006.
- ◆ **TURBIDITY:** Epilimnetic, Metalimnetic, Hypolimnetic, and Northwest Cove turbidity levels were slightly elevated in July following excessive rainfall. Inlet turbidity level was slightly elevated in June and August and colored water was noted. Outlet turbidity levels fluctuated with a low range.
- ◆ **pH:** Epilimnetic and Northwest Cove pH levels were within the desirable range of 6.5-8.0 units. Historical trend analysis indicates stable, yet variable, epilimnetic pH levels since monitoring began. Metalimnetic, Hypolimnetic, Inlet, and Outlet pH levels were slightly acidic and less than desirable.

Table 1. 2023 Average Water Quality Data for AYERS POND - BARRINGTON

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	3.6	5.01	29	39	102.8	10	3.30	3.83	0.79	6.62
Metalimnion	-	-	-	-	106.9	10	-	-	0.77	6.10
Hypolimnion	-	-	-	-	109.3	13	-	-	0.86	5.94
Inlet	-	-	25	-	104.6	35	-	-	1.87	6.06
Northwest Cove	-	-	26	-	102.6	12	-	-	1.24	6.52
Outlet	-	-	-	-	99.7	11	-	-	0.70	6.31

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)