



2023 VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS

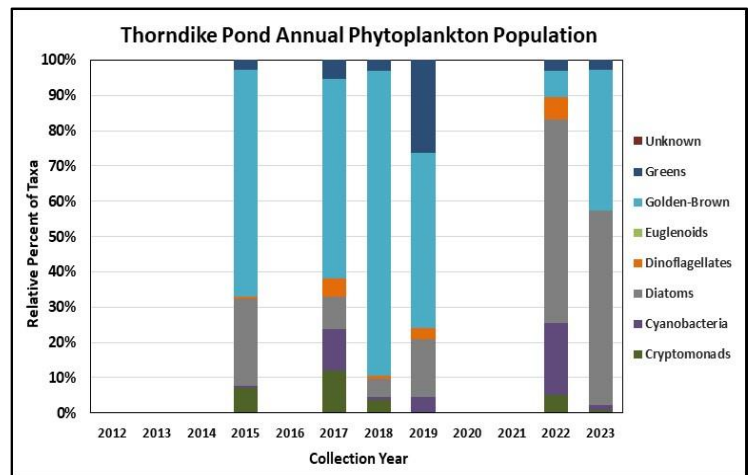
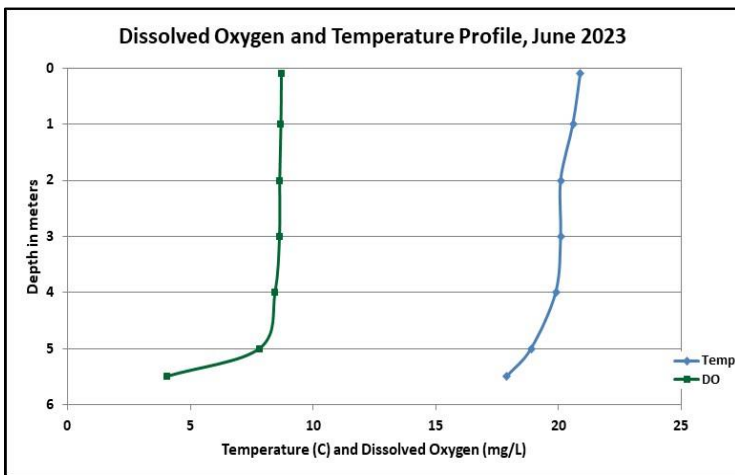
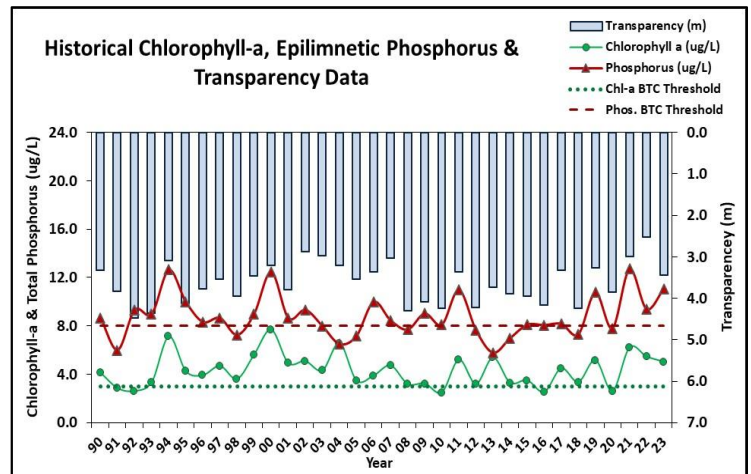
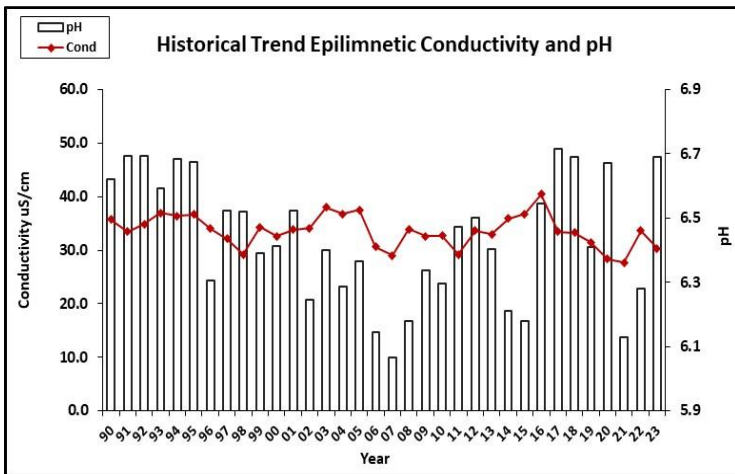
THORNDIKE POND, JAFFREY

Recommended Actions: Great job sampling in 2023! Pond nutrient (phosphorus) levels and algal growth have gradually increased since 2016 and have generally remained above the threshold for oligotrophic lakes, which is a concern. The increased frequency of droughts and high intensity storm events highlights the importance of reducing nutrient loads from the watershed with a focus on reducing [stormwater runoff](#). NHDES' [NH Homeowner's Guide to Stormwater Management](#) is a great resource. Consider development of a [watershed management plan](#) to identify and quantify pollutant loads within the watershed and make recommendations on management strategies to minimize impacts of stormwater runoff. Encourage shoreline property owners to be certified [LakeSmart](#) through NH LAKES' lake-friendly living program. Evaluate dirt/gravel roads for areas of stormwater runoff and erosion and consult Maine DEP's Camp Road [website](#) for solutions. Keep up the great work!

HISTORICAL WATER QUALITY TREND ANALYSIS

PARAMETER	TREND	PARAMETER	TREND
Conductivity	Stable	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 September but remained within a slightly elevated range. Average chlorophyll level decreased slightly from 2022 but remained 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), North West Inlet, and Outlet conductivity levels were low and less than the state median. Epilimnetic chloride level was also low and less than the state median. Historical trend analysis indicates relatively stable epilimnetic conductivity levels since monitoring began. Southwest Inlet conductivity levels were slightly elevated and greater than the state median.
- ◆ **COLOR:** Apparent color measured in the epilimnion indicates the water was clear in June, darkened to a moderately tea colored range in July, and lightened slightly in September.
- ◆ **TOTAL PHOSPHORUS:** Epilimnetic phosphorus level was slightly elevated in June, remained stable in July, and increased to an elevated level in September. Average epilimnetic phosphorus level increased from 2022, was approximately equal to the state median, and was greater than the threshold for oligotrophic lakes. Hypolimnetic phosphorus level was slightly elevated in June and July and decreased in September. Historical trend analysis indicates relatively stable epilimnetic and hypolimnetic phosphorus levels since monitoring began. Northwest Inlet and Outlet phosphorus levels were slightly elevated in June and decreased gradually as the summer progressed. Southwest Inlet phosphorus level was elevated in September.
- ◆ **TRANSPARENCY:** Transparency measured without the viewscope (NVS) was average in June, decreased (worsened) slightly in July, and increased (improved) in September. Average NVS transparency increased (improved) from 2022 and was slightly higher (better) than the state median. Historical trend analysis indicates relatively stable NVS transparency since monitoring began. Viewscope (VS) transparency was high (good) in June and increased (improved) gradually as the summer progressed.
- ◆ **TURBIDITY:** Epilimnetic and Outlet turbidity levels were stable and low from June through September. Hypolimnetic turbidity level was slightly elevated in July. Northwest Inlet turbidity level was elevated in June following significant rainfall. Southwest turbidity level was slightly elevated in September but within a normal range for this station.
- ◆ **PH:** Epilimnetic and Outlet 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. Hypolimnetic and Northwest Inlet pH levels were slightly acidic and less than desirable. Southwest pH level was acidic and potentially critical to aquatic life.

Table 1. 2023 Average Water Quality Data for THORNDIKE POND - JAFFREY

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	3.4	5.04	4	35	30.4	11	3.45	3.97	0.96	6.69
Hypolimnion	-	-	-	-	31.5	11	-	-	1.28	6.36
Northwest Inlet	-	-	-	-	29.5	13	-	-	1.68	6.36
Outlet	-	-	-	-	30.7	8	-	-	0.86	6.61
Southwest Inlet	-	-	-	-	113.6	53	-	-	1.91	5.79

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)