



VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS

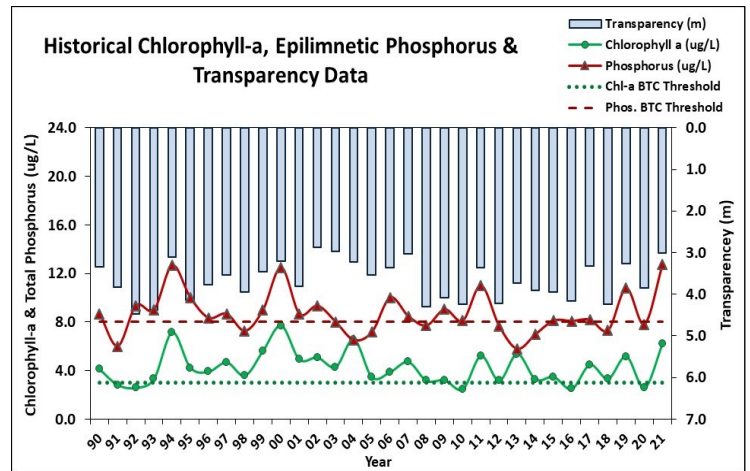
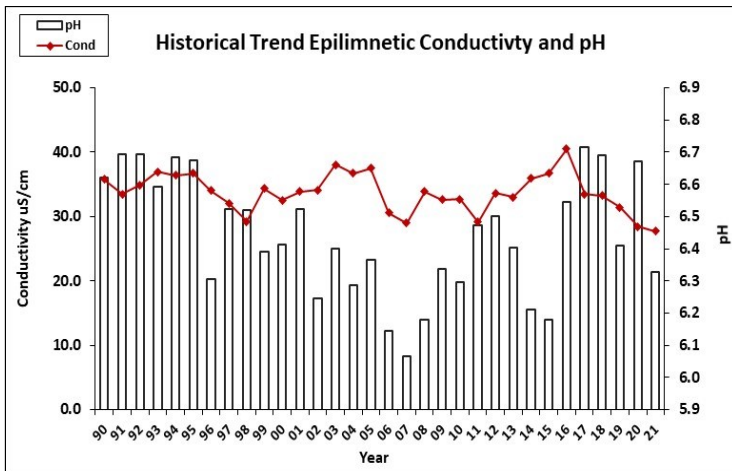
THORNDIKE POND, JAFFREY

2021 DATA SUMMARY

RECOMMENDED ACTIONS: Great job sampling in 2021! Pond quality is generally representative of oligotrophic, or high quality, conditions. However, algal growth continues to fluctuate above the threshold for oligotrophic lakes. Record summer rainfall in 2021 resulted in elevated nutrient (phosphorus) levels, algal growth (chlorophyll), and turbidity, poor water clarity, and moderately acidic conditions. Keep an eye on tributary flow in relation to nutrient retention during dry/wet years. Improvements in water quality during drought years (2020) and the increased frequency and intensity of storm events highlights the importance of managing stormwater runoff within the watershed. 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!

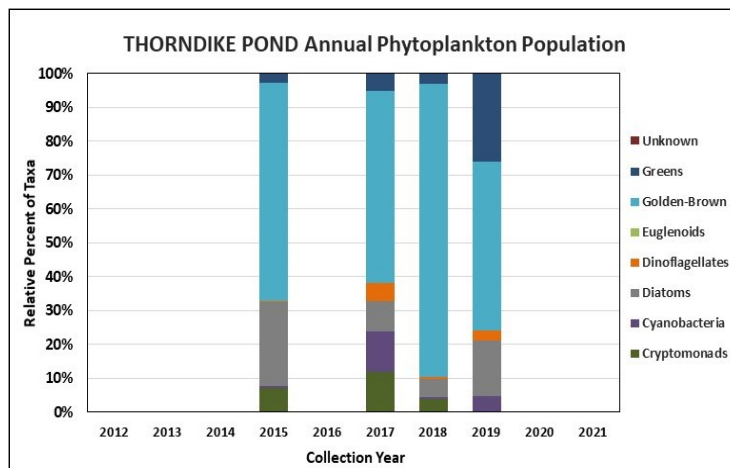
HISTORICAL WATER QUALITY TREND ANALYSIS

Parameter	Trend	Parameter	Trend
Conductivity	Stable	Chlorophyll-a	Stable
pH (epilimnion)	Stable	Transparency	Stable
		Phosphorus (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 low in June, increased to an elevated level in July, and decreased slightly in August but remained within an elevated range. Average chlorophyll level increased from 2020 and was greater than the state median and the threshold for oligotrophic lakes. Historical trend analysis indicates relatively stable chlorophyll levels since monitoring began.
- ◆ **CONDUCTIVITY/CHLORIDE:** Epilimnetic (upper water layer), Hypolimnetic (lower water layer), North West Inlet, Outlet, and South West Inlet conductivity levels were within a low range and less than the state median. Epilimnetic chloride level was also low and approximately equal to the state median. Historical trend analysis indicates stable epilimnetic conductivity levels since monitoring began.
- ◆ **COLOR:** Epilimnetic color was within a lightly tea colored, or light brown, range in June and July, and then increased to a moderately tea colored, or brown, range in August.
- ◆ **TOTAL PHOSPHORUS:** Epilimnetic phosphorus level was slightly elevated in June, increased in July, and then decreased slightly in August but remained within a slightly elevated range. Average epilimnetic phosphorus level increased from 2020, was greater than the state median and the threshold for oligotrophic lakes, and was the highest measured since 2000. Historical trend analysis indicates stable epilimnetic phosphorus levels since monitoring began. Hypolimnetic phosphorus level was slightly elevated in June and increased as the summer progressed. North West Inlet and Outlet phosphorus levels fluctuated within a low range. South West Inlet phosphorus levels fluctuated within a slightly elevated range and lab data noted colored water.
- ◆ **TRANSPARENCY:** Transparency measured with (VS) and without (NVS) the viewscope was within an average range in June, decreased (worsened) slightly in July, and decreased to a below average range in August likely due to wave action and darker water color. Average NVS transparency decreased from 2020 and was lower than the state median. Historical trend analysis indicates relatively stable NVS transparency since monitoring began.
- ◆ **TURBIDITY:** Epilimnetic and Hypolimnetic turbidity levels fluctuated within a slightly elevated range. North West Inlet turbidity level was slightly elevated in August during stagnant conditions. South West Inlet turbidity level was elevated in June and July and lab data noted colored water with low levels of organic material. Outlet turbidity level was slightly elevated in June.
- ◆ **pH:** Epilimnetic pH level was within the desirable range 6.5-8.0 units in June and gradually became more acidic as the summer progressed. Historical trend analysis indicates stable epilimnetic pH levels since monitoring began. Hypolimnetic, North West Inlet, South West Inlet, and Outlet pH levels were slightly acidic and less than desirable.

Station Name	Table 1. 2021 Average Water Quality Data for THORNDIKE POND - JAFFREY									
	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	3.2	6.21	6	37	27.7	13	3.00	3.37	1.18	6.33
Hypolimnion					25.1	16			2.00	5.82
North West Inlet					22.0	11			1.03	5.90
Outlet					27.3	10			1.08	6.30
South West Inlet					37.7	27			2.30	5.93

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)