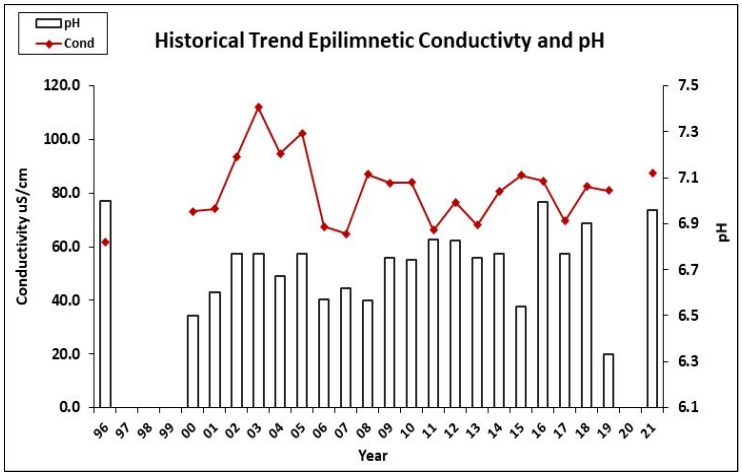
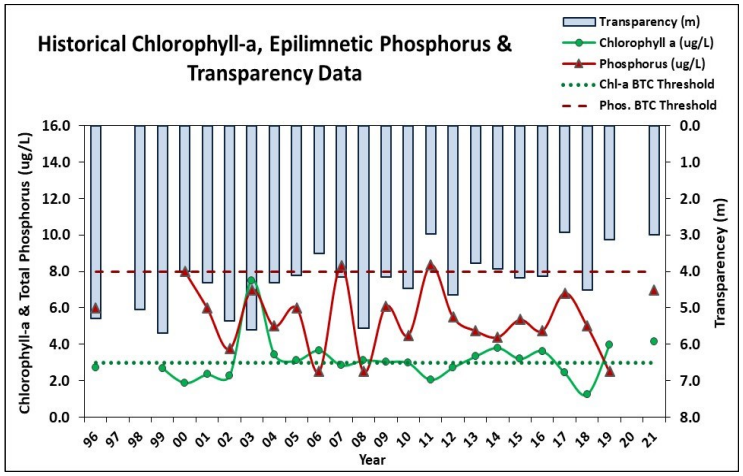
Volunteer Lake Assessment Program Individual Lake Reports
Little Lake Sunapee, New London
2021 Data Summary

Recommended Actions: Great job sampling in 2021! Lake nutrient (phosphorus) levels and algal growth (chlorophyll), while variable, are generally representative of oligotrophic, or high quality conditions. Continue to measure apparent color to evaluate the relationship between water color and it's affect on lake clarity (transparency). The increased frequency and intensity of storm events can influence water color as well as nutrients and turbidity levels. Evaluate areas within the watershed that are prone to stormwater erosion and runoff and implement best practices outlined in NHDES' NH Homeowner's Guide to Stormwater Management. Increase monitoring frequency to once per month, typically June, July and August, to better assess seasonal and annual variations in water quality. Keep up the great work!

Historical Water Quality Trend Analysis

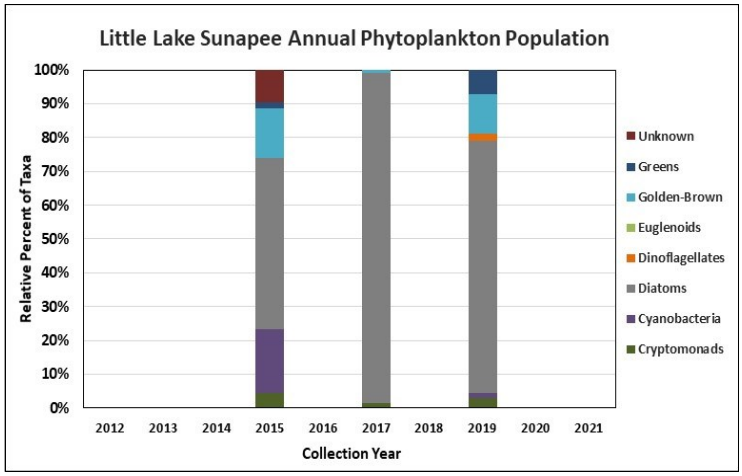
Parameter	Trend	Parameter	Trend
Conductivity	Stable	**Chlorophyll-a**	Stable
pH (epilimnion)	Stable	**Transparency**	Worsening
		Phosphorus (epilimnion)	Stable





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 slightly elevated in June, remained stable with 2019, was slightly less than the state median, and was slightly greater than the threshold for oligotrophic lakes. Historical trend analysis indicates relatively stable chlorophyll levels since monitoring began.
- **Conductivity/Chloride:** Epilimnetic (upper water layer), Metalimnetic (middle water layer) and Hypolimnetic (lower water layer) conductivity and chloride levels remained greater than the state medians, however were not above a level of concern. Historical trend analysis indicates relatively stable epilimnetic conductivity levels since monitoring began.
- **Color:** Apparent color measured in the epilimnion indicates the water was lightly tea colored, or light brown.
- **Total Phosphorus:** Epilimnetic phosphorus level was within a low range, increased from 2019, but remained less than the state median and the threshold for oligotrophic lakes. Historical trend analysis indicates relatively stable epilimnetic phosphorus levels since monitoring began. Metalimnetic and Hypolimnetic phosphorus levels were within a moderate range for those stations.
- **Transparency:** Transparency measured without the viewscope (NVS) was below average (worse) in June, remained stable with 2019, and was slightly lower (worse) than the state median. Historical trend analysis indicates significantly decreasing (worsening) NVS transparency since monitoring began. Viewscope (VS) transparency was much higher (better) than NVS transparency and a better measure of actual conditions.
- **Turbidity:** Epilimnetic and Hypolimnetic turbidity levels were within an average range for those stations. Metalimnetic turbidity level was slightly elevated potentially due to a layer of algal growth.
- **pH:** Epilimnetic pH level was within the desirable range 6.5-8.0 units and historical trend analysis indicates relatively stable epilimnetic pH levels since monitoring began. Metalimnetic and Hypolimnetic pH levels were slightly acidic and less than desirable.

Station Name	Table 1. 2021 Average Water Quality Data for LITTLE SUNAPEE LAKE - NEW LONDON									
	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	4.4	4.16	7	40	87.4	7	3.00	5.00	0.70	6.96
Metalimnion					85.9	9			1.43	6.37
Hypolimnion					85.5	9			1.14	6.22

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)