



VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS

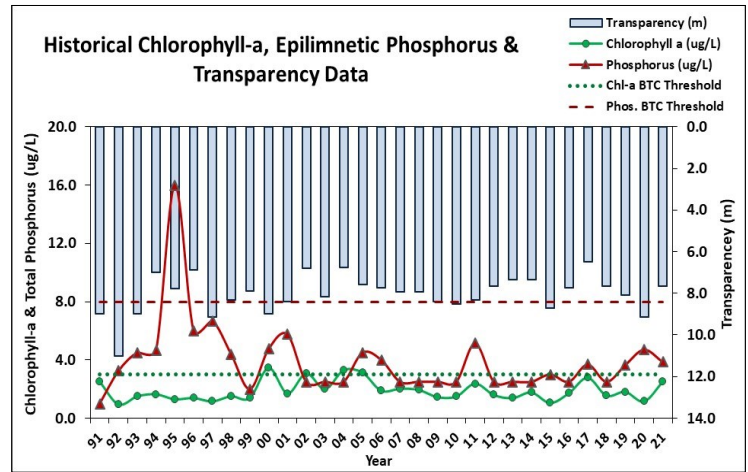
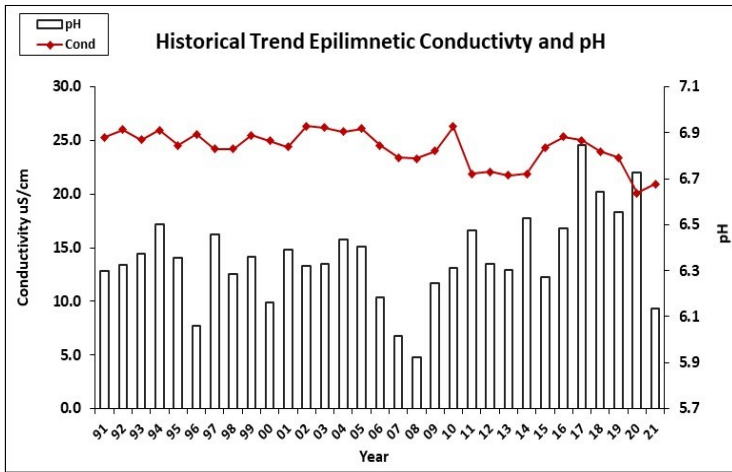
SILVER LAKE, HARRISVILLE

2021 DATA SUMMARY

RECOMMENDED ACTIONS: Great job sampling in 2021! Record rainfall amounts did not seem to negatively impact water quality with the exception of decreased water clarity (transparency) in August. The decreased clarity may be related to flushing of wetland systems rich in dissolved organic matter that impart a tea, or brown, color to the water. We will continue to measure the relationship between water color and clarity in the future. Lake quality remains representative of oligotrophic, or high quality, conditions. Lake pH levels have improved in recent years, although the record rainfall amounts in 2021 resulted in moderately acidic conditions, historical data indicate recovery of surface waters from impacts of acid rain. For more information on NH surface water recovery consult NHDES' [Acid Rain Status and Trends Report](#). Continue boater education on potential impacts to shallow waters and shorelines. NHDES Fact Sheet WD-WMB-25 [Impacts of Motorized Craft on New Hampshire's Waterbodies](#) is a great resource. Encourage shoreline property owners to be certified [LakeSmart](#) through NH LAKES lake-friendly living program. Continue to evaluate water quality at Boathouse Inlet in future years. Keep up the great work!

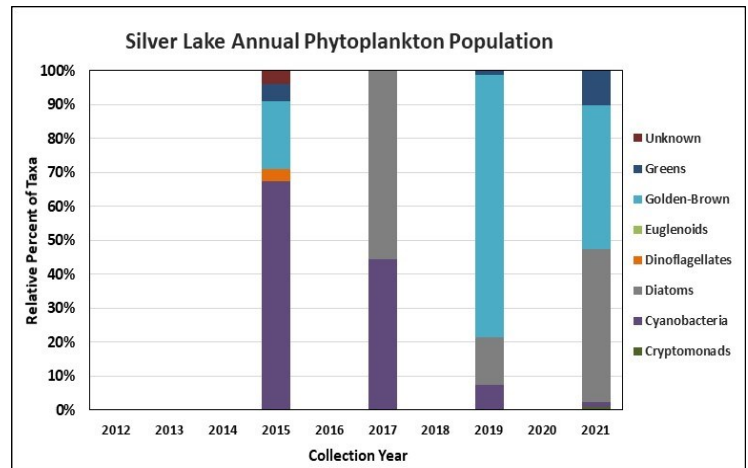
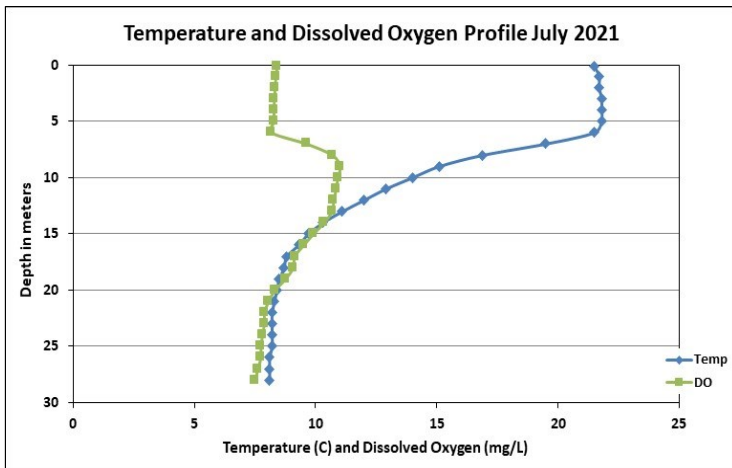
HISTORICAL WATER QUALITY TREND ANALYSIS

Parameter	Trend	Parameter	Trend
Conductivity	Improving	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 within a low range in July and remained stable in August. Average chlorophyll level increased slightly from 2020 but remained less 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), Metalimnetic (middle water layer), Hypolimnetic (lower water layer), Eastside Inlet, Lead Mine Inlet 1 and 2, Sandy Bch. Inlet 1, and Sucker Brook conductivity and/or chloride levels were low and less than the state medians. Historical trend analysis indicates significantly decreasing (improving) epilimnetic conductivity levels since monitoring began. Boathouse Inlet conductivity and chloride levels were slightly greater than the state medians yet less than a level of concern.
- ◆ **COLOR:** Apparent color measured in the epilimnion indicates the water was clear with little to no tea, or brown, coloring.
- ◆ **E. COLI:** New Beach, Sandy Bch. Inlet 1, Southeast Cove, and Sucker Brook E. coli levels were low and less than the state standards for public beaches and surface waters.
- ◆ **TOTAL PHOSPHORUS:** Epilimnetic, Metalimnetic, Hypolimnetic, and Outlet phosphorus levels fluctuated within a low range. Average epilimnetic phosphorus level increased from 2020 but remained less than the state median and the threshold for oligotrophic lakes. Historical trend analysis indicates stable, yet variable, epilimnetic phosphorus levels since monitoring began. Eastside Inlet phosphorus level was elevated in June and the turbidity of the sample was also elevated. Boathouse Inlet, Lead Mine Inlet 1 and 2, Sandy Bch. Inlet, and Sucker Brook phosphorus levels fluctuated within a moderate and average range for those stations.
- ◆ **TRANSPARENCY:** Transparency measured without the viewscope (NVS) was high (good) in June, decreased (worsened) slightly in July but remained high, and then decreased significantly in August. Average NVS transparency decreased slightly in 2020 but remained higher (better) than the state median. Historical trend analysis indicates stable NVS transparency since monitoring began. Viewscope (VS) transparency was much higher (better) than NVS transparency and likely a better measure of actual conditions.
- ◆ **TURBIDITY:** Epilimnetic, Metalimnetic, Hypolimnetic, Lead Mine Inlet 2, Outlet, Sandy Bch. Inlet, and Sucker Brook turbidity levels fluctuated within a low range. Eastside Inlet turbidity level was elevated in June. Boathouse Inlet turbidity level was slightly elevated in July following storm event. Lead Mine Inlet 1 turbidity level was greatly elevated in August due to organic matter.
- ◆ **pH:** Epilimnetic, Metalimnetic and Outlet pH levels fluctuated around the low end of the desirable range 6.5-8.0 units. Historical trend analysis indicates relatively stable epilimnetic pH levels since monitoring began. Hypolimnetic, Boathouse Inlet, Eastside Inlet, Lead Mine Inlet 1 and 2, and Sandy Bch. Inlet pH levels were slightly acidic and less than desirable. Sucker Brook pH level was acidic and potentially critical to aquatic life.

Station Name	Table 1. 2021 Average Water Quality Data for SILVER LAKE - HARRISVILLE										
	Alk. (mg/L)	Chlor-a (ug/L)	Chloride (mg/L)	Color (pcu)	Cond. (us/cm)	E. coli (mpn/100mL)	Total P (ug/L)	Trans. (m)		Turb. (ntu)	pH
								NVS	VS		
Epilimnion	2.4	2.50	3	13	20.9		4	7.67	8.46	0.32	6.13
Metalimnion					21.5		5			0.36	6.30
Hypolimnion					22.2		7			0.36	5.80
Boathouse Inlet			7		46.5		10			2.69	5.69
Eastside Inlet					18.6		18			3.89	5.34
Lead Mine Inlet 1					15.0		11			31.47	5.54
Lead Mine Inlet 2			3		16.1		8			0.58	5.67
New Beach						4					
Outlet In Stream					22.1		4			0.22	6.34
Sandy Bch. Inlet 1					20.8	73	11			0.54	5.73
Southeast Cove						28					
Sucker Brook					14.5	8	12			0.51	4.81

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)