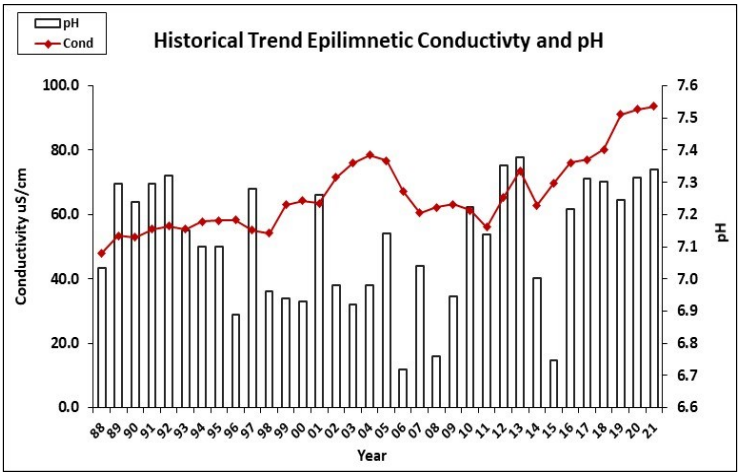
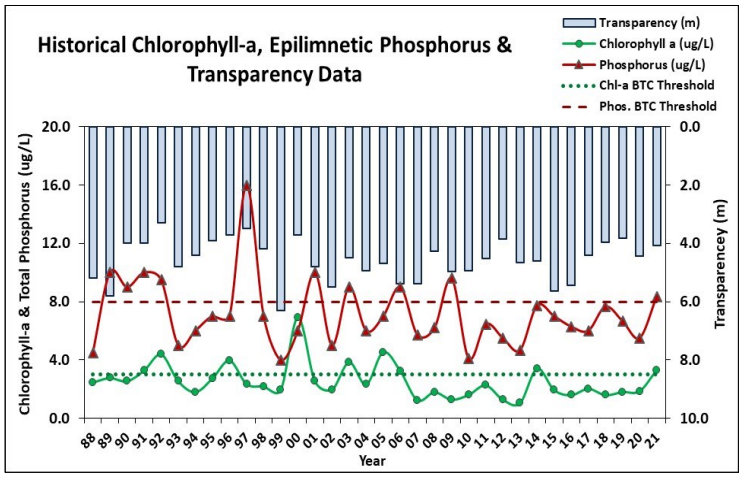
Volunteer Lake Assessment Program Individual Lake Reports
Canaan Street Lake, Canaan
2021 Data Summary

Recommended Actions: Great job sampling in 2021! Lake quality is generally representative of oligotrophic, or high quality, conditions. However, deep spot turbidity levels have significantly increased since monitoring began which may be due to an increase in dissolved organic matter flushing into the pond as a result of the increased frequency and intensity of storm events experienced in the Northeast. Continue to measure the relationship between water color, clarity (transparency) and turbidity. Temperature profiles collected in 2021 indicate hypolimnetic samples should be collected deeper in the water column, ideally at a depth of 5.5 meters in the future. The increasing conductivity levels are concerning and likely a result of road salt usage within the watershed. Encourage local winter maintenance companies and Cardigan Mtn. School staff to obtain Green SnowPro Certification. Encourage shoreline properties to be certified LakeSmart by NH LAKES lake-friendly living program. Keep up the great work!

Historical Water Quality Trend Analysis

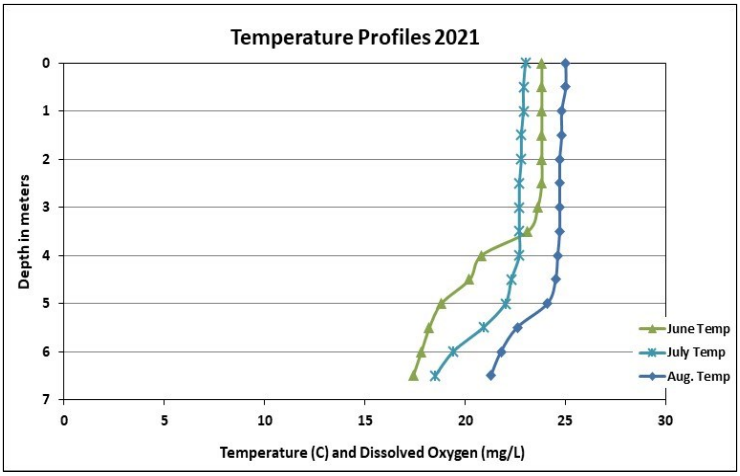
Parameter	Trend	Parameter	Trend
Conductivity	Worsening	**Chlorophyll-a**	Stable
pH (epilimnion)	Stable	**Transparency**	Stable
		Phosphorus (epilimnion)	Stable

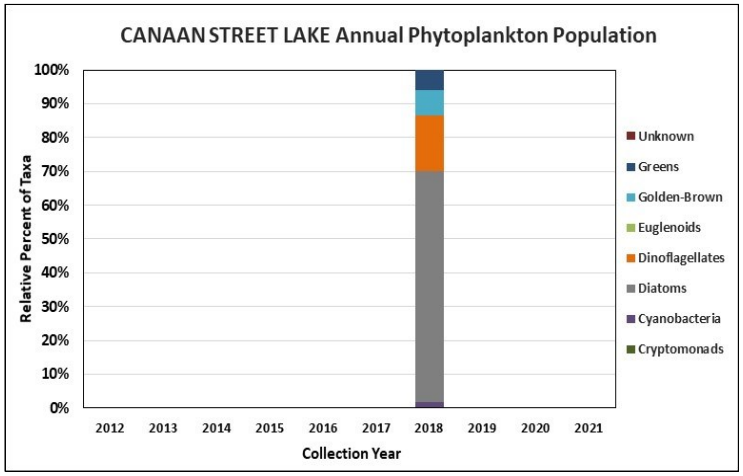




Dissolved Oxygen and Phytoplankton

(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, decreased to a low level in July, and increased to a slightly elevated level in August. Average chlorophyll level increased slightly from 2020, was 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) and Hypolimnetic (lower water layer) conductivity and/or chloride levels were greater than the state median, yet not above a level of concern. However, historical trend analysis indicates significantly increasing (worsening) epilimnetic conductivity levels since monitoring began. Inlet at Fernwood Farms conductivity levels were within an average range for NH lakes. Outlet conductivity levels were slightly elevated and greater than deep spot and Inlet levels.
- **Color:** Apparent color measured in the epilimnion indicates the water was borderline clear to lightly tea colored, or light brown, from June to August.
- **Total Phosphorus:** Epilimnetic and Hypolimnetic phosphorus levels were within a low to moderate range and fluctuated around the threshold for oligotrophic lakes from June through August. Average epilimnetic phosphorus level increased from 2020, was less than the state median, and was approximately equal to the threshold for oligotrophic lakes. Historical trend analysis indicates stable epilimnetic phosphorus levels since monitoring began. Inlet at Fernwood Farms phosphorus levels were low and decreased from July to August. Outlet phosphorus levels were slightly elevated in June.
- **Transparency:** Transparency measured without the viewscope (NVS) was within an average range for the lake in June, increased (improved) slightly in July, and then decreased slightly in August. Average NVS transparency decreased slightly from 2020 and was higher (better) than the state median. Historical trend analysis indicates stable NVS transparency since monitoring began. Viewscope transparency (VS) was higher (better) than NVS transparency and increased (improved) from June to August.
- **Turbidity:** Epilimnetic and Hypolimnetic turbidity levels were slightly above average in June, remained stable in July, and then increased to elevated levels in August when chlorophyll levels were slightly elevated and lab data noted low levels of organic matter in the samples. Historical trend analysis indicates significantly increasing (worsening) deep spot turbidity levels since monitoring began. Inlet at Fernwood Farms and Outlet turbidity levels were also slightly elevated in August.
- **pH:** Epilimnetic, Hypolimnetic, Inlet at Fernwood Farms, and Outlet pH levels fluctuated within the desirable range 6.5-8.0 units. Historical trend analysis indicates relatively stable epilimnetic pH levels since monitoring began.

Station Name	Table 1. 2021 Average Water Quality Data for CANAAN STREET LAKE - CANAAN									
	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	12.05	3.31	13	30	93.6	8	4.07	5.28	1.01	7.34
Hypolimnion					94.5	9			0.94	7.26
Inlet at Fernwood Farms					56.2	8			1.28	7.02
Outlet					122.0	11			1.02	6.72

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)