2025 Volunteer Lake Assessment Program

Individual Report: Canaan Street Lake – Canaan

Water Quality Summary: Lake quality is generally representative of oligotrophic, or high quality, conditions. with low levels of phosphorus and algal growth. Historical trend analysis indicates slightly improving epilimnetic (upper water layer) and hypolimnetic (bottom water layer) phosphorus levels, stable pH and transparency and improving (decreasing) chlorophyll-a levels. Slightly elevated phosphorus and conductivity levels in the tributaries suggest the potential for an external load of phosphorus from stormwater events. Median epilimnetic conductivity levels are slightly elevated but remain lower since a spike in 2022, though overall levels are worsening (increasing) since monitoring began. On average, Canaan Street Lake has better (higher) water quality compared to the median New Hampshire lake and doesn't exceed any NH water quality standards.

Recommended Actions: Factors related to climate change such as shorter periods of winter ice cover, warmer water temperatures, drought conditions and the increased intensity of storm events are creating an environment more suitable for cyanobacteria growth. Continue monitoring the pond in late spring/early summer for cyanobacteria blooms. The increased frequency and intensity of storm events highlights the negative impacts of stormwater runoff. Consider development of a watershed management plan to identify and quantify sources of nutrient loads from the watershed and make recommendations on ways to reduce nutrient loading to the lake. Conductivity remains elevated, emphasizing ongoing salt contamination in the watershed. Encourage local winter maintenance companies and road agents to obtain Green SnowPro Certification. For more information about road salt, refer to NHDES' fact sheet Road Salt and Water Quality. Encourage shoreline properties to be certified LakeSmart by NH LAKES lake-friendly living program. Keep up the great work and thank you for your continued participation in VLAP!

Historical Water Quality Trend Analysis

Table 1. Historical Water Quality Trends for Canaan Street Lake – Canaan

Parameter	Trend
Conductivity (Epilimnion)	Worsening
Chlorophyll-a (Composite)	Improving
pH (Epilimnion)	Stable
Transparency	Stable
Phosphorus (Epilimnion)	Slightly Improving
Phosphorus (Hypolimnion)	Slightly Improving

Historical Water Quality Graphics - Deep Spot

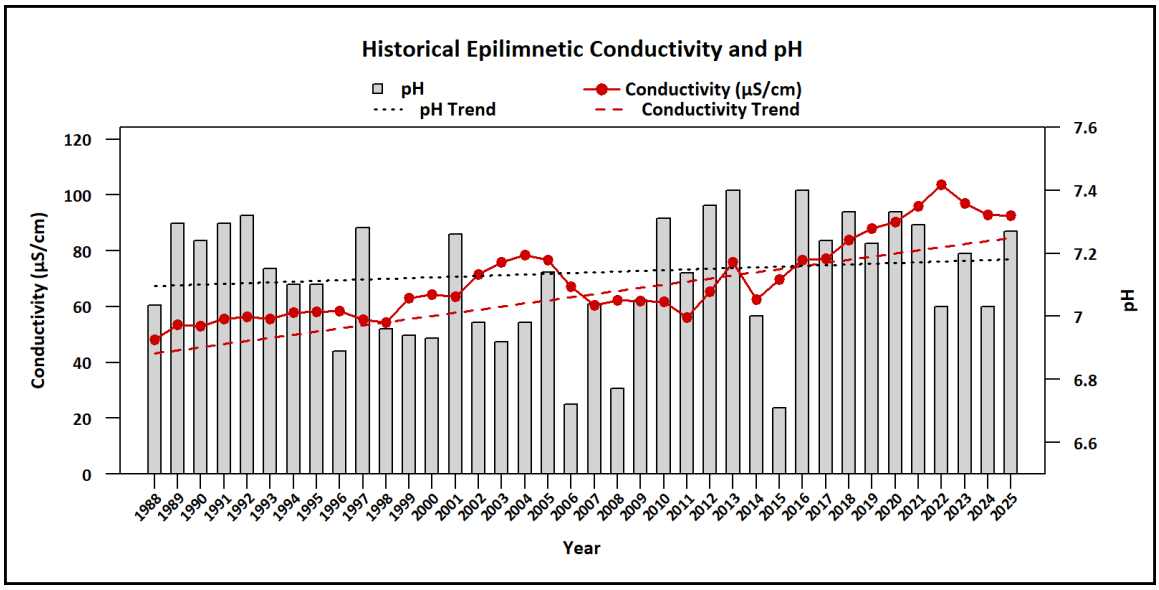

Figure 1. Median epilimnetic pH (gray bars) and conductivity (red points) by year, with corresponding trend lines shown as black and red dashed lines, respectively. Epilimnetic pH is stable and conductivity is worsening since monitoring began.

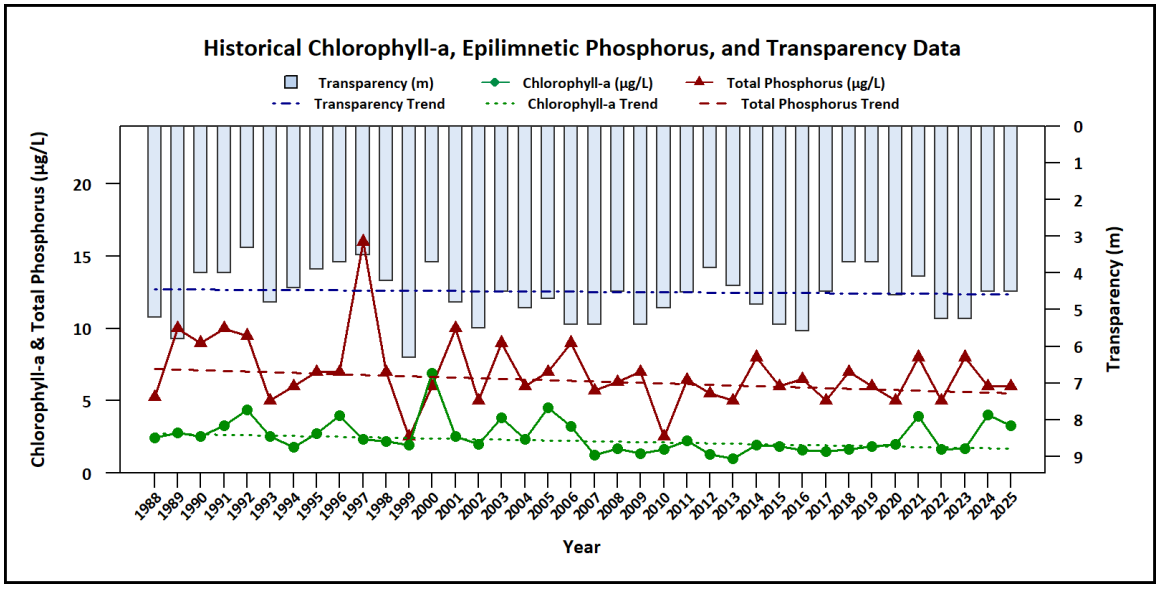

Figure 2. Median Secchi disk transparency (blue bars), epilimnetic phosphorus (red triangles), and chlorophyll-a (green points) by year, with corresponding trend lines shown as blue, red, and green dashed lines, respectively. Water transparency is stable, phosphorus is slightly improving, and chlorophyll-a is improving since monitoring began.

Table 2. 2025 Average Water Quality Data for Canaan Street Lake – Canaan

Station	Alk. (mg/L)	Chlor-a (µg/L)	Chloride (mg/L)	Color (pcu)	Cond. (µS/cm)	Total P (µg/L)	Trans. NVS (m)	Trans. VS (m)	Turb. (ntu)	pH
Epilimnion	12.1	3.22	13.5	25	93.18	5.50	4.5	5	0.60	7.26
Hypolimnion	No Value	No Value	No Value	No Value	93.64	5.17	No Value	No Value	0.85	7.17
Back Bay Rd	No Value	No Value	No Value	No Value	32.26	16.00	No Value	No Value	0.28	6.62
Inlet At Fernwood Farms	No Value	No Value	No Value	No Value	73.85	14.00	No Value	No Value	1.49	6.85
Outlet	No Value	No Value	No Value	No Value	109.54	8.33	No Value	No Value	0.69	6.54

Observations *(Refer to Table 2 and Historical Deep Spot Data Graphics)*:

- **Chlorophyll-a (Chlor-a)**: Chlorophyll level was slightly elevated in June, decreased to a low level in July and increased to a slightly elevated level in August. The median chlorophyll level decreased slightly from 2024, was less than the state median and was slightly greater than the threshold for oligotrophic lakes. Historical trend analysis indicates improving (decreasing) chlorophyll levels since monitoring began.
- **Conductivity (Cond.)/Chloride:** Epilimnetic, Hypolimnetic, Inlet at Fernwood Farms and Outlet conductivity levels were slightly elevated and greater than the state median. Historical trend analysis indicates worsening (increasing) epilimnetic conductivity levels since monitoring began. Back Bay Rd conductivity levels were low. Epilimnetic chloride levels were slightly elevated, with the highest concentrations observed in July, exceeding the state median but remaining well below the state chronic chloride standard.
- **Color**: Apparent color measured in the epilimnion indicates the water was lightly tea colored, or light brown, throughout the summer.
- **Total Phosphorus (Total P)**: Epilimnetic and Hypolimnetic phosphorus levels were low all summer, with subtle increases in June. The median epilimnetic phosphorus level was similar to 2024 and was less than the state median and the threshold for oligotrophic lakes. Historical trend analysis indicates slightly improving (decreasing) epilimnetic and hypolimnetic phosphorus levels since monitoring began. Outlet phosphorus levels were moderate and Back Bay Rd and Inlet at Fernwood Farms levels were slightly elevated.
- **Transparency (Trans.)**: Transparency measured without the viewscope (NVS) was highest (good) in June, decreased (worsened) slightly in July and increased (improved) in August. The median NVS transparency was similar to 2024 and was higher (better) than the state median. Historical trend analysis indicates stable NVS transparency since monitoring began. Viewscope (VS) transparency was slightly higher (better) than NVS transparency.
- **Turbidity (Turb.):** Epilimnetic and Hypolimnetic turbidity levels remained in a low range throughout the summer but were slightly elevated in June in the Hypolimnion. Inlet at Fernwood Farms turbidity levels were elevated at each sampling event due to storm events and low flows. Outlet and Back Bay Rd turbidity levels were low.
- **pH:** Epilimnetic, Hypolimnetic, Back Bay Rd., Inlet at Fernwood Farms and Outlet pH levels were within the desirable range of 6.5-8.0 units. Historical trend analysis indicates relatively stable epilimnetic pH levels since monitoring began.

How does your lake compare to New Hampshire lakes and water quality standards?

Table 3. New Hampshire Median Lake Water Quality Values. Median values generated from historic lake monitoring data.

Parameter	Median Value
Alkalinity	4.5 mg/L
Chlorophyll-a	4.39 µg/L
Chloride	5 mg/L
Conductivity	42.3 µS/cm
Total Phosphorus	11 µg/L
Transparency	3.3 m
pH	6.6

Table 4. New Hampshire Water Quality Standards. Numeric criteria for specific parameters. Water quality violation occurs if thresholds are exceeded.

Parameter	Threshold
Chloride	> 230 mg/L (chronic)
E. coli (beach)	> 88 cts/100 mL
E. coli (surface water)	> 406 cts/100 mL
pH	between 6.5-8.0 (unless naturally occurring)
Turbidity	> 10 NTU above natural