



## Volunteer Lake Assessment Program Individual Lake Reports

### CANAAN STREET LAKE, CANAAN, NH

#### MORPHOMETRIC DATA

Watershed Area (Ac.):	1,571	Max. Depth (m):	6.7	Flushing Rate (yr <sup>1</sup> )	0.7
Surface Area (Ac.):	303	Mean Depth (m):	3.4	P Retention Coef:	0.79
Shore Length (m):	6,400	Volume (m <sup>3</sup> ):	4,146,500	Elevation (ft):	1142

#### TROPHIC CLASSIFICATION

Year	Trophic class
2005	OLIGOTROPIC
2008	OLIGOTROPIC

#### KNOWN EXOTIC SPECIES


The Waterbody Report Card tables are generated from the DRAFT 2018 305(b) report on the status of N.H. waters, and are based on data collected from 2008-2017. Detailed waterbody assessment and report card information can be found at [www.des.nh.gov/organization/divisions/water/wmb/swqa/index.htm](http://www.des.nh.gov/organization/divisions/water/wmb/swqa/index.htm)

Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Good	Sampling data is better than the water quality standards or thresholds for this parameter.
	pH	Slightly Bad	Data periodically exceed water quality standards or thresholds for a given parameter by a small margin.
	Oxygen, Dissolved	Encouraging	Limited data for this parameter predicts water quality standards or thresholds are being met; however more data are necessary to fully assess the parameter.
	Dissolved oxygen satura	Encouraging	Limited data for this parameter predicts water quality standards or thresholds are being met; however more data are necessary to fully assess the parameter.
Primary Contact Recreation	Chlorophyll-a	Very Good	Sampling data is 50 percent better than the water quality standards or thresholds for this parameter.
	Escherichia coli	Very Good	All sampling data meet water quality standards or thresholds for this parameter.
	Chlorophyll-a	Very Good	All sampling data meet water quality standards or thresholds for this parameter.

#### BEACH PRIMARY CONTACT ASSESSMENT STATUS

CANAAN ST LAKE - CAMP WAR BONNET BEACH	Escherichia coli	No Data	No data for this parameter.
CANAAN STREET LAKE - TOWN BEACH	Escherichia coli	Bad	Data periodically exceed water quality standards or thresholds for this parameter by a large margin.
CANAAN ST LAKE - CRESCENT CAMPSITES	Escherichia coli	Very Good	All sampling data meet water quality standards or thresholds for this parameter.
CANAAN STREET LAKE - TOWN BEACH	Cyanobacteria	Slightly Bad	Cyanobacteria bloom(s).

#### WATERSHED LAND USE SUMMARY

Fry, J., Xian, G., Jin, S., Dewitz, J., Homer, C., Yang, L., Barnes, C., Herold, N., and Wickham, J., 2011. Completion of the 2006 National Land Cover Database for the Conterminous United States, PERS, Vol. 77(9):858-864. For larger image contact NHDES.



Land Cover Category	% Cover	Land Cover Category	% Cover	Land Cover Category	% Cover
Open Water	20.6	Barren Land	0	Grassland/Herbaceous	0.58
Developed-Open Space	2.26	Deciduous Forest	13.85	Pasture Hay	1.47
Developed-Low Intensity	0.78	Evergreen Forest	23.44	Cultivated Crops	0.77
Developed-Medium Intensity	0.46	Mixed Forest	31.11	Woody Wetlands	2.58
Developed-High Intensity	0	Shrub-Scrub	2.24	Emergent Wetlands	0



# VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS

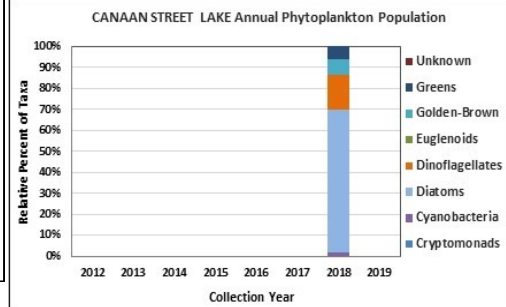
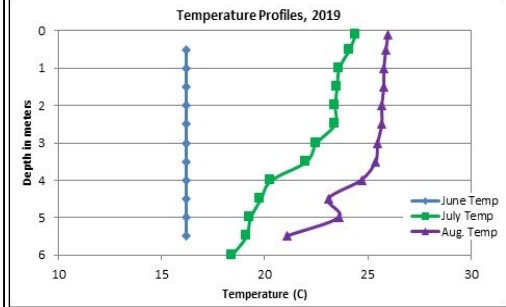
## CANAAN STREET LAKE, CANAAN

### 2019 DATA SUMMARY

**RECOMMENDED ACTIONS:** Lake quality is representative of oligotrophic, or high quality, conditions. However, epilimnetic turbidity levels have significantly increased since monitoring began and conductivity levels have almost doubled since monitoring began. Encourage local winter maintenance companies and Cardigan Mtn. School staff to obtain Voluntary Salt Applicator Licenses through UNH Technology Transfer Center's Green SnowPro Certification program. Stormwater runoff may be contributing to the increased turbidity levels. The increased frequency and intensity of storm events highlights the importance of managing stormwater runoff. Educate lake and watershed residents on ways to reduce stormwater runoff from their properties. DES' "NH's Homeowner's Guide to Stormwater Runoff" is a great resource. Keep up the great work!

**OBSERVATIONS** (Refer to Table 1 and Historical Deep Spot Data Graphics)

- ◆ **CHLOROPHYLL-A:** Chlorophyll levels were low in June and decreased slightly as the summer progressed. Average chlorophyll level remained stable with 2018 and was much less than the state median and the threshold for oligotrophic lakes. Historical trend analysis indicates significantly decreasing (improving) chlorophyll levels since monitoring began.
- ◆ **CONDUCTIVITY/CHLORIDE:** Epilimnetic (upper water layer), Hypolimnetic (lower water layer) and Outlet conductivity and chloride levels remained greater than the state medians and were the highest measured since monitoring began. Historical trend analysis indicates significantly increasing (worsening) epilimnetic conductivity levels since monitoring began. Inlet and Inlet at Fernwood Farms conductivity and chloride levels were less than or approximately equal to the state medians.
- ◆ **COLOR:** Apparent color measured in the epilimnion indicated the lake was lightly tea colored in June and July and then increased to moderately tea colored, darker brown, in August.
- ◆ **TOTAL PHOSPHORUS:** Epilimnetic phosphorus levels were slightly elevated in June and then decreased to low levels in July and August. Average epilimnetic phosphorus level decreased slightly from 2018, was less than the state median, and was slightly less than the threshold for oligotrophic lakes. Historical trend analysis indicates relatively stable epilimnetic phosphorus levels since monitoring began. Hypolimnetic and Outlet phosphorus levels fluctuated within a low range. Inlet and Inlet at Fernwood Farms phosphorus levels were within a low range for those stations.
- ◆ **TRANSPARENCY:** Transparency measured without the viewscope (NVS) was below average (worse) in June due to wave conditions, and then increased (improved) gradually as the summer progressed. Average NVS transparency remained stable with 2018 and was slightly higher (better) than the state median. Viewscope transparency (VS) was much higher (better) than NVS transparency and likely a better measure of actual conditions.
- ◆ **TURBIDITY:** Epilimnetic and Outlet turbidity levels were slightly elevated following a significant storm event in July. Epilimnetic turbidity levels were also slightly elevated in June and lab data noted organic matter in the sample potentially indicating the presence of pollen or algae. Historical trend analysis indicates significantly increasing (worsening) epilimnetic turbidity levels since monitoring began. Hypolimnetic and Inlet turbidity levels were within a normal range for those stations. Inlet at Fernwood Farms turbidity levels were slightly elevated in August during low flows.
- ◆ **PH:** Epilimnetic, Hypolimnetic, Inlet, Inlet at Fernwood Farms, and Outlet pH levels were within the desirable range 6.5 -8.0 units. Historical trend analysis indicates stable epilimnetic pH levels since monitoring began.



Station Name	Table 1. 2019 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 mg/l	Trans. m	Turb. ntu	pH	
Epilimnion	12.1	1.80	17	37	91.1	7	3.83	4.80	1.01	7.25
Hypolimnion			15		92.8	6			0.64	7.19
Inlet			3		32.4	11			0.66	6.67
Inlet at Fernwood Farms			5		56.9	6			1.23	6.87
Outlet			23		119.1	8			0.82	6.83

**NH Water Quality Standards:** Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.

**Chloride:** > 230 mg/L (chronic)

**E. coli:** > 88 cts/100 mL – public beach

**E. coli:** > 406 cts/100 mL – surface waters

**Turbidity:** > 10 NTU above natural level

**pH:** between 6.5-8.0 (unless naturally occurring)

**NH Median Values:** Median values for specific parameters 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

### HISTORICAL WATER QUALITY TREND ANALYSIS

Parameter	Trend	Explanation	Parameter	Trend	Explanation
Conductivity	Worsening	Data significantly increasing.	Chlorophyll-a	Improving	Data significantly decreasing.
pH (epilimnion)	Stable	Trend not significant; data show low variability.	Transparency	Stable	Trend not significant; data moderately variable.
			Phosphorus (epilimnion)	Stable	Trend not significant; data moderately variable.

