



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 ⁻¹)	0.7
Surface Area (Ac.):	303	Mean Depth (m):	3.4	P Retention Coef:	0.79
Shore Length (m):	6,400	Volume (m ³):	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 2014 305(b) report on the status of N.H. waters, and are based on data collected from 2004-2013. Detailed waterbody assessment and report card information can be found at www.des.nh.gov/organizations/divisions/water/wmb/swqa/index.htm

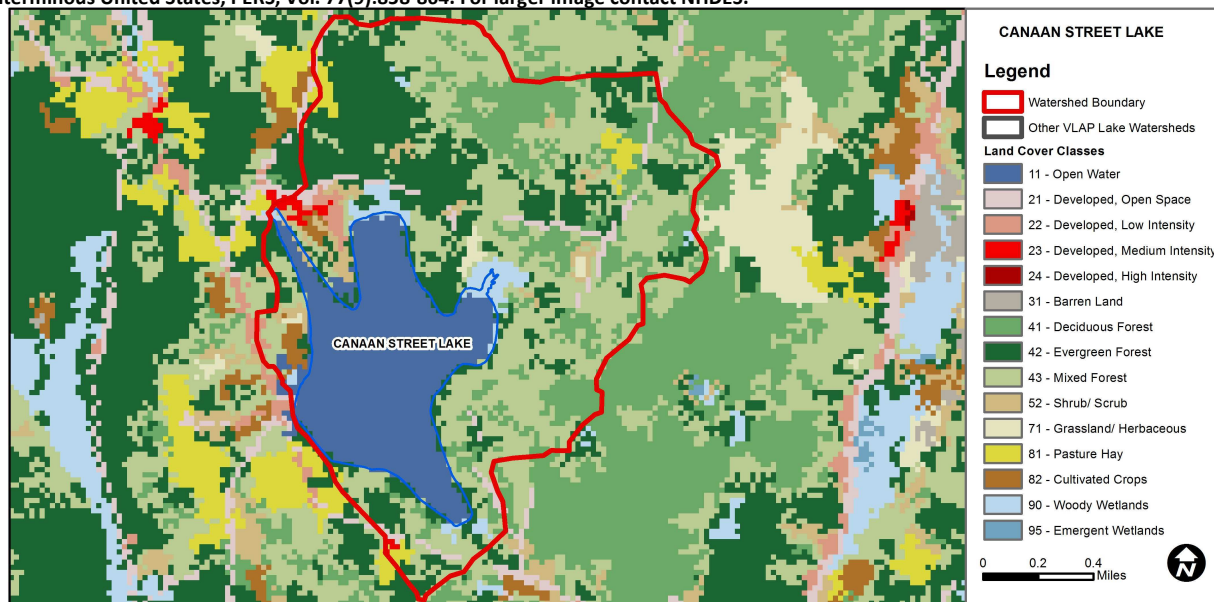
Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Good	Sampling data is better than the water quality standards or thresholds for this parameter.
	pH	Slightly Bad	Data periodically exceed water quality standards or thresholds for a given parameter by a small margin.
	Oxygen, 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.
	Chlorophyll-a	Very Good	Sampling data is 50 percent better than the water quality standards or thresholds for this parameter.
Primary Contact Recreation	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

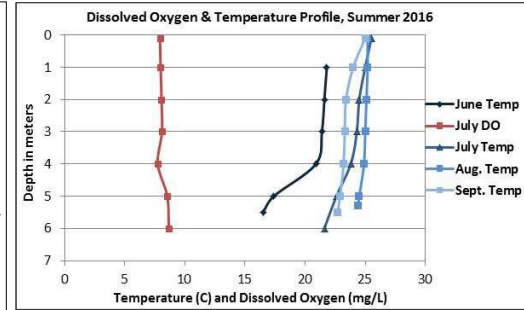
CANAAN ST. LAKE, CANAAN

2016 DATA SUMMARY

RECOMMENDED ACTIONS: Lake water quality is representative of Oligotrophic, or high quality water, conditions. However, conductivity levels have increased and this is likely indicative of road salt usage during winter months. Salt products applied to roads, parking lots, driveways and walkways can impact conductivity levels. Encourage local road agents and Cardigan Mt. School maintenance staff to obtain NH Voluntary Salt Applicator Licenses through UNH Technology Transfer Center's Green SnowPro Certification program. Outlet and Hypolimnetic phosphorus levels were elevated following the Fourth of July weekend suggesting boating activity and/or fireworks, combined with low water levels, may have caused temporary spikes in phosphorus levels. Educate lake users on proper boating practices and utilizing fireworks a safe distance from the lake so fall out of firework materials do not enter the lake. Keep up the great work!

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

- ◆ **CHLOROPHYLL-A:** Chlorophyll levels remained stable and low from June through September. The 2016 average chlorophyll level decreased slightly from 2015 and was much less than the state median. Historical trend analysis indicates stable epilimnetic chlorophyll levels with high variability between years.
- ◆ **CONDUCTIVITY/CHLORIDE:** Deep spot and Outlet conductivity and chloride levels remained slightly greater than the state medians and historical trend analysis indicates significantly increasing (worsening) epilimnetic (upper water layer) and Outlet conductivity levels since monitoring began. Inlet at Fernwood Farms conductivity level was less than the deep spot and Outlet and only sampled in June due to the drought conditions.
- ◆ **TOTAL PHOSPHORUS:** Epilimnetic phosphorus levels were low and decreased slightly as the summer progressed and average phosphorus levels decreased from 2015 and were much less than the state median. Historical trend analysis indicates stable epilimnetic phosphorus levels with high variability between years. Hypolimnetic phosphorus was low in June, increased slightly in July, and then decreased to low levels through September. Inlet at Fernwood Farms phosphorus level was very low. Outlet phosphorus levels were low in June, August and September, yet elevated in July. Samples were collected following the Fourth of July weekend where higher than normal boat traffic and/or fireworks could have impacted phosphorus levels in the lake.
- ◆ **TRANSPARENCY:** Transparency measured without the viewscope (NVS) was low in June following a significant storm event, increased (improved) in July and August where the Secchi disk was visible on the lake bottom, and decreased slightly in September. Average NVS transparency decreased slightly from 2015 but remained much higher (better) than the state median. Historical trend analysis indicates stable transparency since monitoring began. Transparency measured with the viewscope (VS) resulted in the Secchi disk being visible on the lake bottom from June through September.
- ◆ **TURBIDITY:** Deep spot, Inlet at Fernwood Farms and Outlet turbidity levels were low on each sampling event.
- ◆ **pH:** Deep spot, Inlet at Fernwood Farms and Outlet pH levels were within the desirable range 6.5-8.0 units, however pH has historically fluctuated below the desirable range. Historical trend analysis indicates significantly decreasing (worsening) epilimnetic pH levels since monitoring began.



Station Name	Table 1. 2016 Average Water Quality Data for CANAAN STREET LAKE-CANAAN								
	Alk. mg/l	Chlor-a ug/l	Chloride mg/l	Cond. uS/cm	Total P ug/l	Trans. m		Turb. ntu	pH
						NVS	VS		
Epilimnion	12.8	1.59	11	76.1	6	5.44	5.85	0.67	7.22
Hypolimnion				77.5	8			0.84	7.38
Inlet At Fernwood Farms				58.5	5			0.47	6.99
Outlet			13	87.0	10			0.68	6.64

NH Median Values: Median values for specific parameters generated from historic lake monitoring data.

- Alkalinity:** 4.9 mg/L
- Chlorophyll-a:** 4.58 mg/m³
- Conductivity:** 40.0 uS/cm
- Chloride:** 4 mg/L
- Total Phosphorus:** 12 ug/L
- Transparency:** 3.2 m
- pH:** 6.6

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)

HISTORICAL WATER QUALITY TREND ANALYSIS

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

