



## 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> )	0.8
Surface Area (Ac.):	303	Mean Depth (m):	3	P Retention Coef:	0.78
Shore Length (m):	6,400	Volume (m <sup>3</sup> ):	3,587,000	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](http://www.des.nh.gov/organizations/divisions/water/wmb/swqa/index.htm)

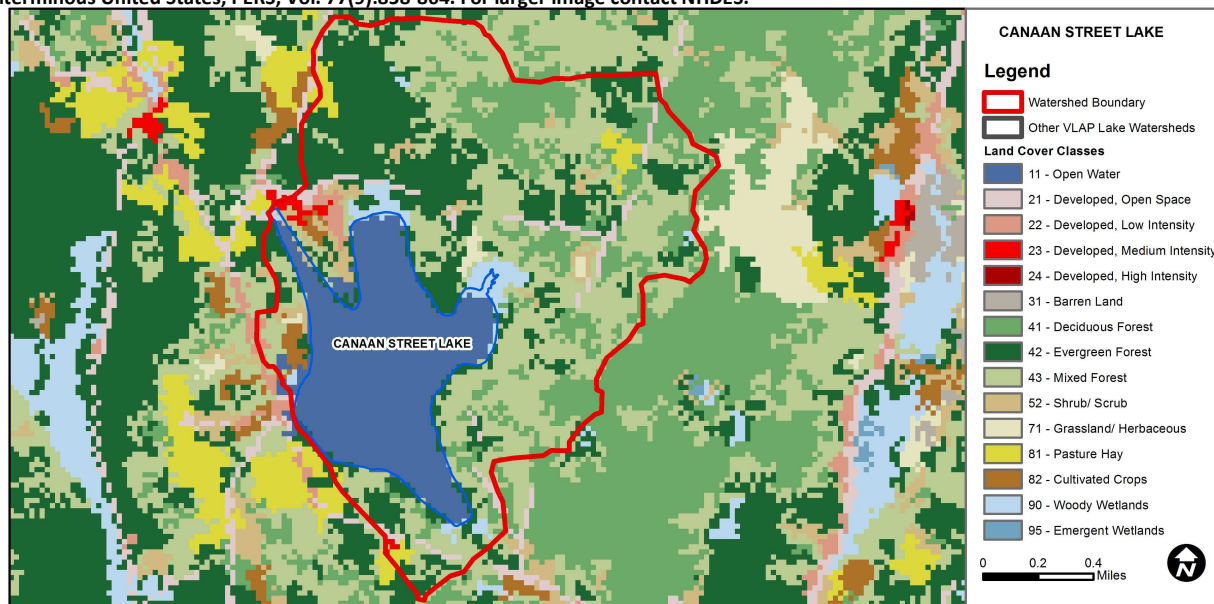
Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Good	The calculated median is from 5 or more samples and is < indicator and > 1/2 indicator and the chlorophyll a indicator is okay.
	pH	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	Oxygen, Dissolved	Encouraging	There are < 10 samples with 0 exceedances of criteria. More data needed.
	Dissolved oxygen satura	Encouraging	There are < 10 samples with 0 exceedances of criteria. More data needed.
	Chlorophyll-a	Very Good	The calculated median is from 5 or more samples and is <= 1/2 indicator.
Primary Contact Recreation	Escherichia coli	Very Good	Where there are no geometric means, all bacteria samples are < 75% of the geometric mean. Where there are geometric means all single bacteria samples are < the SSMC and all geometric means are < geometric mean criteria.
	Chlorophyll-a	Very Good	There are a total of at least 10 samples with 0 exceedances of indicator.

#### BEACH PRIMARY CONTACT ASSESSMENT STATUS

Location	Parameter	Category	Comments
CANAAN ST LAKE - CRESCENT CAMPSITES	Escherichia coli	Very Good	Where there are no geometric means, all bacteria samples are < 75% of the geometric mean. Where there are geometric means all single bacteria samples are < the SSMC and all geometric means are < geometric mean criteria.
CANAAN STREET LAKE - TOWN BEACH	Escherichia coli	Bad	There are >=1 exceedance(s) of the geometric mean and/or >=2 single sample criterion exceedances. One or more exceedance is >2X criteria.
CANAAN ST LAKE - CAMP WAR BONNET BEACH	Escherichia coli	No Data	No data 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

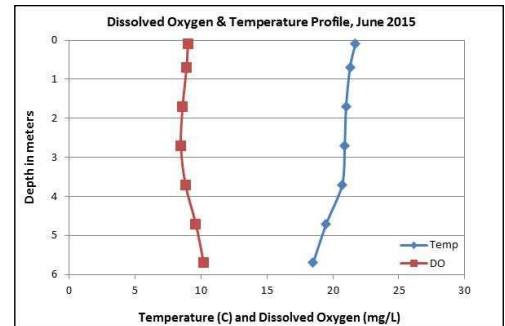
### 2015 DATA SUMMARY

**RECOMMENDED ACTIONS:** Conductivity has significantly increased in the lake. Canaan St. Lake is a public drinking water supply and efforts should be made to address the increasing conductivity. The use of winter de-icing products on roads, parking lots, driveways, and walkways can negatively impact the lake. Encourage and educate local road agents and winter maintenance companies to obtain a NH Voluntary Salt Applicator license through UNH's Technology Transfer Center's Green SnowPro certification program. Volunteers noted heavy boat traffic during the weekend impacts turbidity and clarity of the water and that was reflected in the data. Educate boaters on best boating practices to decrease agitation of bottom sediments and shoreline erosion. DES' new fact sheet WD-WMB-25 "Impacts of Motorized Craft on New Hampshire's Waterbodies" is a good educational resource for boaters. 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 to July and increased slightly in August. Average chlorophyll levels decreased from 2014 and were much less than the state median. Historical trend analysis indicates relatively stable chlorophyll levels with moderate variability between years.
- **CONDUCTIVITY/CHLORIDE:** Deep spot, Inlet at Fernwood Farms and Outlet conductivity levels remained slightly greater than the state median. Historical trend analysis indicates significantly increasing (worsening) epilimnetic (upper water layer) and Outlet conductivity levels since monitoring began.
- **TOTAL PHOSPHORUS:** Epilimnetic phosphorus was low in June, increased to slightly elevated levels in July, and then decreased to low levels in August. Sediment was noted in the July sample which likely contributed to the elevated phosphorus and it was noted in August that the lake becomes very turbid during and after weekend boating. Historical trend analysis indicates relatively stable epilimnetic phosphorus with moderate variability between years. Hypolimnetic (lower water layer) phosphorus levels were low in June and July and slightly elevated in August due to sediment in the sample. Inlet at Fernwood Farms phosphorus levels were low in June. Outlet phosphorus levels were slightly elevated in June but decreased to lower levels in July and August.
- **TRANSPARENCY:** Transparency was very good in June and the Secchi disk was visible on the lake bottom. Transparency decreased in July and August, but remained at a high (good) level. Transparency was lowest in August during the period of high boating activity. Average transparency improved from 2014 and was much better than the state median. Historical trend analysis indicates highly variable transparency between years.
- **TURBIDITY:** Deep spot and Inlet at Fernwood Farms turbidity were low on each sampling event. Outlet turbidity was slightly elevated in June and a small amount of sediment was noted in the sample.
- **pH:** Deep spot pH was lower in June likely due to effects of spring snow melt and runoff. Deep spot pH improved to within the desirable range 6.5-8.0 units in July and August. Historical trend analysis indicates significantly decreasing (worsening) epilimnetic pH since monitoring began. Inlet at Fernwood Farms and Outlet pH levels were within the desirable range.

Station Name	Table 1. 2015 Average Water Quality Data for CANAAN STREET LAKE							
	Alk. mg/l	Chlor-a ug/l	Cond. uS/cm	Total P ug/l	Trans. m		Turb. ntu	pH
					NVS	VS		
Epilimnion	11.4	1.94	69.6	7	5.65	5.93	0.63	6.75
Hypolimnion			69.4	8			0.60	6.79
Inlet at Fernwood Farms			64.8	5			0.63	6.59
Outlet			75.7	9			0.72	6.68



**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:** 4.9 mg/L

**Chlorophyll-a:** 4.58 mg/m<sup>3</sup>

**Conductivity:** 40.0 uS/cm

**Chloride:** 4 mg/L

**Total Phosphorus:** 12 ug/L

**Transparency:** 3.2 m

**pH:** 6.6

#### HISTORICAL WATER QUALITY TREND ANALYSIS

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

