



Volunteer Lake Assessment Program Individual Lake Reports

SUNCOOK POND, LOWER, BARNSTEAD, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	35,071	Max. Depth (m):	4.9	Flushing Rate (yr ⁻¹)	22.2
Surface Area (Ac.):	245	Mean Depth (m):	2.9	P Retention Coef:	0.31
Shore Length (m):	5,800	Volume (m ³):	2,916,500	Elevation (ft):	551

TROPHIC CLASSIFICATION

Year	Trophic class
1979	MESOTROPHIC
1992	OLIGOTROPHIC

KNOWN EXOTIC SPECIES

Variable Milfoil

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)	Cautionary	The calculated median is fewer than 5 samples but > indicator and the chlorophyll a indicator is okay. More data needed.
	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	Slightly Bad	There are >10% of samples (minimum of 2), exceeding criteria.
	Chlorophyll-a	Good	The calculated median is from 5 or more samples and is < indicator and > 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

UPPER SUNCOOK LAKE - TOWN BEACH	Escherichia coli	Good	There are geometric means and all geometric means are < geometric mean criteria; and there has been a single sample exceedance.
UPPER SUNCOOK LAKE - CAMP FATIMA BEACH	Escherichia coli	Slightly Bad	There are >=1 exceedance(s) of the geometric mean and/or >=2 single sample criterion exceedances. Exceedances are <2X criteria.

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	5.17	Barren Land	0.06	Grassland/Herbaceous	0.37
Developed-Open Space	1.9	Deciduous Forest	24.31	Pasture Hay	2.86
Developed-Low Intensity	0.3	Evergreen Forest	13.22	Cultivated Crops	0.45
Developed-Medium Intensity	0.02	Mixed Forest	45.37	Woody Wetlands	2.83
Developed-High Intensity	0.01	Shrub-Scrub	2.44	Emergent Wetlands	0.67



VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS

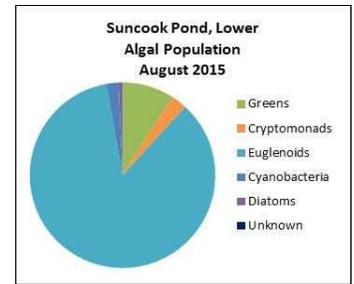
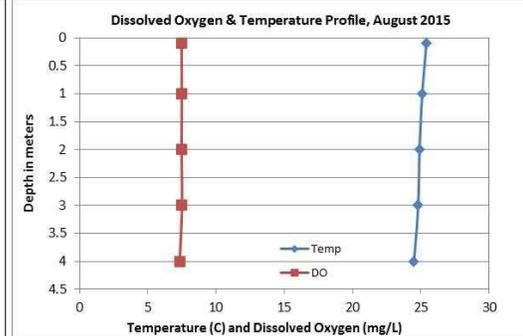
LOWER SUNCOOK POND, BARNSTEAD

2015 DATA SUMMARY

RECOMMENDED ACTIONS: Increase monitoring frequency to once per month during the summer, typically June, July and August, to better assess seasonal variability in water quality and historical water quality trends. Water quality was good in 2015 and the improving epilimnetic phosphorus level is a great sign. Continue to educate lake and watershed residents on ways to reduce pollution sources and manage stormwater runoff from their properties. Keep up the great work!

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

- CHLOROPHYLL-A:** Chlorophyll levels were low in August and much less than the state median. Historical trend analysis indicates relatively stable chlorophyll levels with moderate variability since monitoring began.
- CONDUCTIVITY/CHLORIDE:** Epilimnetic (upper water layer), Narrows Rd. Inlet and Outlet conductivity and chloride levels were within a low to average range and slightly greater than the state medians. Historical trend analysis indicates stable epilimnetic conductivity since monitoring began.
- TOTAL PHOSPHORUS:** Epilimnetic, Narrows Rd. Inlet and Outlet phosphorus levels were low and epilimnetic phosphorus was less than the state median. Historical trend analysis indicates significantly decreasing (improving) epilimnetic phosphorus since monitoring began. We hope to see this continue!
- TRANSPARENCY:** Transparency was good, improved slightly from 2014, and was slightly better than the state median. Historical trend analysis indicates relatively stable transparency with high variability between years.
- TURBIDITY:** Epilimnetic, Narrows Rd. Inlet and Outlet turbidities were slightly above average in 2015. Low water levels and tributary flows could have contributed to the slightly elevated turbidities.
- pH:** Epilimnetic, Narrows Rd. Inlet and Outlet pH levels were within the desirable range 6.5-8.0 units. However, historical trend analysis indicates significantly decreasing (worsening) epilimnetic pH since monitoring began.



Station Name	Table 1. 2015 Average Water Quality Data for LOWER SUNCOOK POND								
	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	6.8	2.64	9	49.0	9	3.38	3.38	1.45	6.61
Narrows Rd. Inlet			8	48.9	9			1.22	6.64
Outlet				48.8	9			1.21	6.65

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	Stable	Trend not significant; data show low variability.	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)	Improving	Data significantly decreasing

