



Volunteer Lake Assessment Program Individual Lake Reports

ANGLE POND, SANDOWN, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	1,511	Max. Depth (m):	11.6	Flushing Rate (yr ⁻¹)	1.5
Surface Area (Ac.):	150	Mean Depth (m):	3	P Retention Coef:	0.68
Shore Length (m):	4,000	Volume (m ³):	1,924,500	Elevation (ft):	220

TROPHIC CLASSIFICATION

Year	Trophic class
1984	EUTROPHIC
2002	MESOTROPHIC

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

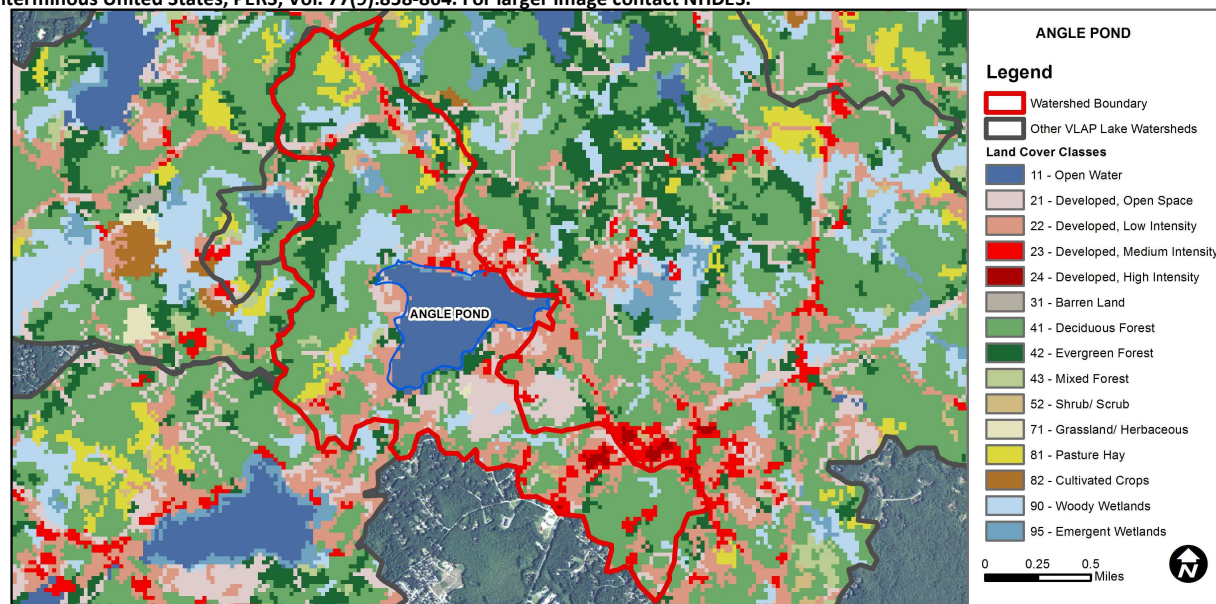
Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Slightly Bad	The calculated median is from 5 or more samples and is > indicator and the chlorophyll a indicator is exceeded.
	pH	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	Oxygen, Dissolved	Encouraging	There are < 10 samples with 0 exceedances of criteria. More data needed.
	Dissolved oxygen saturation	Encouraging	There are < 10 samples with 0 exceedances of criteria. More data needed.
	Chlorophyll-a	Slightly Bad	The calculated median is from 5 or more samples and is > indicator.
Primary Contact Recreation	Escherichia coli	No Data	No data for this parameter.
	Cyanobacteria hepatotoxin	Slightly Bad	Cyanobacteria bloom(s).
	Chlorophyll-a	Good	There are at least 10 samples with one, but < 10% of samples, exceeding indicator.

BEACH PRIMARY CONTACT ASSESSMENT STATUS

ANGLE POND - ANGLE POND GROVE BEACH	Escherichia coli	Good	There are geometric means and all geometric means are < geometric mean criteria; and there has been a single sample exceedance.
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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	11.9	Barren Land	0	Grassland/Herbaceous	0.17
Developed-Open Space	8.55	Deciduous Forest	38.36	Pasture Hay	3.27
Developed-Low Intensity	15.6	Evergreen Forest	7.11	Cultivated Crops	0
Developed-Medium Intensity	4.03	Mixed Forest	0.64	Woody Wetlands	7.93
Developed-High Intensity	0.45	Shrub-Scrub	0.75	Emergent Wetlands	0.86



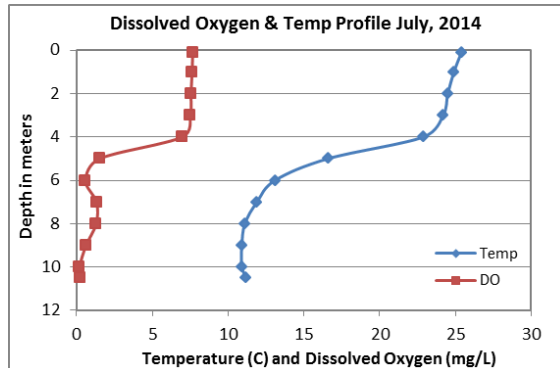
VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS

ANGLE POND, SANDOWN

2014 DATA SUMMARY

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

- ◆ **CHLOROPHYLL-A:** Chlorophyll levels remained stable throughout the summer and decreased from 2013. Historical trend analysis indicates stable chlorophyll levels with moderate variability between years.
- ◆ **CONDUCTIVITY/CHLORIDE:** Deep spot and tributary conductivity and chloride levels were elevated and much greater than the state medians. Sayre Inlet has a history of elevated conductivity levels potentially due to historical water softener discharge upstream of sample station. Historical trend analysis indicates relatively stable epilimnetic (upper water layer) conductivity with low variability between years.
- ◆ **E. COLI:** E. coli levels at Sayre Inlet were low in June and much less than the state standard of 406 cts/100 mL for surface waters.
- ◆ **TOTAL PHOSPHORUS:** Epilimnetic phosphorus levels were relatively low throughout the summer. Historical trend analysis indicates stable epilimnetic phosphorus since monitoring began. Metalimnetic (middle water layer) and Hypolimnetic (lower water layer) phosphorus levels increased as the summer progresses potentially due to algal growth and the lack of oxygen in the hypolimnion. As the summer progresses, dissolved oxygen levels get depleted in hypolimnetic waters due to biological activity in sediments causing phosphorus to be released; a process known as internal loading. North Inlet phosphorus was elevated in July likely due to wetland influences. Sayre Inlet phosphorus was greatly elevated in June and July and turbidity was also elevated suggesting a source of organic material and phosphorus upstream.
- ◆ **TRANSPARENCY:** Transparency was relatively stable throughout the summer and improved slightly from 2013. Historical trend analysis indicates relatively stable transparency with moderate variability between years.
- ◆ **TURBIDITY:** Epilimnetic turbidity was low, Metalimnetic turbidity increased slightly from June through August likely due to algal growth, and Hypolimnetic turbidity was slightly elevated throughout the summer. Sayre Inlet turbidity was elevated in June and July indicating a potential source of sediment and/or organic material upstream.
- ◆ **pH:** Deep spot and tributary pH levels were good throughout the season, however hypolimnetic pH levels have historically been less than desirable. Historical trend analysis indicates stable epilimnetic pH since monitoring began.
- ◆ **RECOMMENDED ACTIONS:** 2014 marked the tenth year of monitoring by Angle Pond, great job! Statistical analyses were performed on deep spot monitoring data indicating stable water quality trends since monitoring began. Sayre Inlet continues to demonstrate poor water quality with elevated chloride, conductivity, phosphorus and turbidity. Actions should be taken to address upstream sources of pollution and implement best management practices where necessary. Contact the Department of Agriculture to assist with best management practice recommendations.



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/m³

Conductivity: 40.0 uS/cm

Chloride: 4 mg/L

Total Phosphorus: 12 ug/L

Transparency: 3.2 m

pH: 6.6

Station Name	Alk. mg/l	Chlor-a ug/l	Chloride mg/l	Cond. uS/cm	E. Coli #/100ml	Total P ug/l	Trans. m		Turb. ntu	pH
							NVS	VS		
Epilimnion	17.6	4.16	39	194.8		10	3.63	3.83	0.93	7.23
Metalimnion				192.8		13			1.35	6.70
Hypolimnion				191.7		18			2.59	6.57
North Inlet			30	153.5		44			0.90	6.31
Outlet				195.3		14			1.47	7.00
Sayre Inlet			78	323.3	20	158			9.35	6.68

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)	Stable	Trend not significant, data show low variability.	Transparency	Stable	Trend not significant, data moderately variable.
			Phosphorus (epilimnion)	Stable	Trend not significant, data show low variability.

