



Volunteer Lake Assessment Program Individual Lake Reports

STONE POND, MARLBOROUGH, NH

MORPHOMETRIC DATA

TROPIC CLASSIFICATION

KNOWN EXOTIC SPECIES

Watershed Area (Ac.):	704	Max. Depth (m):	14.6	Flushing Rate (yr ⁻¹)	1	Year	Trophic class	
Surface Area (Ac.):	65	Mean Depth (m):	6	P Retention Coef:	0.63	1979	OLIGOTROPIC	
Shore Length (m):	2,400	Volume (m ³):	1,570,500	Elevation (ft):	1296	1993	OLIGOTROPIC	

The Waterbody Report Card tables are generated from the 2012 305(b) report on the status of N.H. waters, and are based on data collected from 2001-2011.

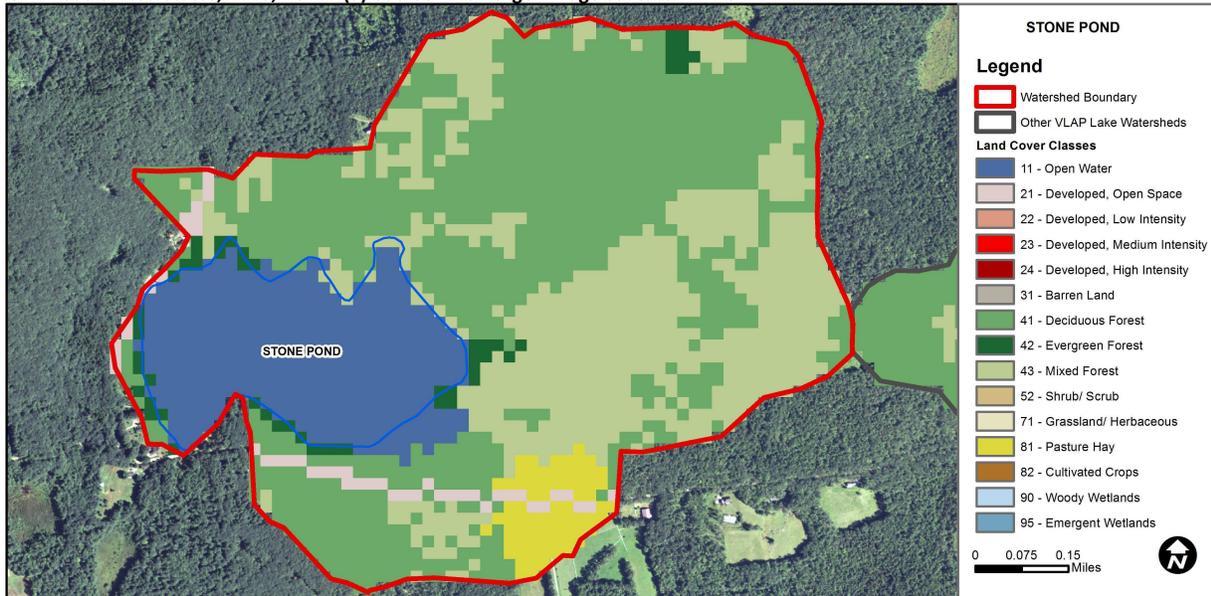
Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Good	>=5 samples and median is < threshold but > 1/2 threshold value.
	pH	Bad	>10%, with a minimum of 2, samples exceed criteria, with 1 or more by a large margin.
	D.O. (mg/L)	Encouraging	< 10 samples and no exceedance of criteria. More data needed.
	D.O. (% sat)	Encouraging	< 10 samples and no exceedance of criteria. More data needed.
	Chlorophyll-a	Good	>=5 samples and median is < threshold but > 1/2 threshold value.
Primary Contact Recreation	E. coli	No Data	No Data for this parameter.
	Chlorophyll-a	Very Good	At least 10 samples with 0 exceedances of criteria.

BEACH PRIMARY CONTACT ASSESSMENT STATUS

STONE POND - TOWN BEACH	E. coli	Very Good	All bacteria samples <75% of geometric mean criteria, but not enough to calculate geometric mean. Or, all bacteria samples are < single sample criteria and calculated Geometric means are less than geometric mean criteria.
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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	17.1	Barren Land	0	Grassland/Herbaceous	0
Developed-Open Space	2.18	Deciduous Forest	45.64	Pasture Hay	3.34
Developed-Low Intensity	0	Evergreen Forest	2.46	Cultivated Crops	0
Developed-Medium Intensity	0	Mixed Forest	29.5	Woody Wetlands	0
Developed-High Intensity	0	Shrub-Scrub	0	Emergent Wetlands	0



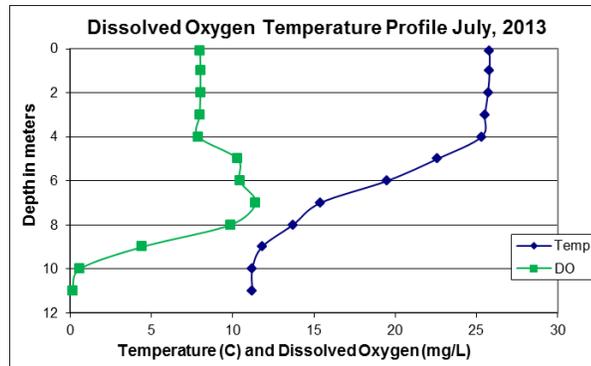
VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS

STONE POND, MARLBOROUGH, NH

2013 DATA SUMMARY

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

- ♣ **CHLOROPHYLL-A:** Chlorophyll levels decreased from a spike in 2012 and were much less than the state median. Historical trend analysis indicates relatively stable chlorophyll with moderate variability between years.
- ♣ **CONDUCTIVITY/CHLORIDE:** Deep spot and tributary conductivity and chloride were low and less than the state median. Historical trend analysis indicates significantly decreasing (improving) epilimnetic conductivity since monitoring began. We hope to see this continue!
- ♣ **TOTAL PHOSPHORUS:** Epilimnetic phosphorus levels decreased from a spike in 2012 and were low on each sampling event. Hypolimnetic phosphorus was slightly elevated in July. Historical trend analysis indicates relatively stable epilimnetic phosphorus with moderate variability between years. Inlet phosphorus levels were slightly elevated in June and July, and Outlet phosphorus levels were elevated in June following a period of significant storm events and high water levels.
- ♣ **TRANSPARENCY:** Average transparency was high and better than the state median. Historical trend analysis indicates stable transparency with low variability between years.
- ♣ **TURBIDITY:** Hypolimnetic turbidity was slightly elevated in July and August potentially due to organic compounds released under anoxic conditions or bottom sediment contamination. Inlet turbidity was slightly elevated in June and July likely due to stormwater runoff from significant rain events and high flows.
- ♣ **pH:** Deep spot and tributary pH levels decreased to undesirable levels as the summer progressed. Historical trend analysis indicates significantly decreasing (worsening) epilimnetic pH since monitoring began.
- ♣ **DISSOLVED OXYGEN:** Dissolved oxygen levels decreased to below 1.0 mg/L in the couple of meters above the pond bottom. This indicates the potential for phosphorus to be released into the hypolimnion from bottom sediments.
- ♣ **RECOMMENDED ACTIONS:** Inlet phosphorus and turbidity levels were elevated following periods of significant storm events. Identify potential areas of erosion and nutrient pollutions and implement best management practices to minimize stormwater runoff. The increased frequency of high volume and intensity storm events highlights the importance of managing stormwater runoff to reduce its impact on water quality.



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:** 6.5-8.0 (unless naturally occurring)

Table 1. 2013 Average Water Quality Data for STONE POND									
Station Name	Alk.	Chlor-a	Chloride	Cond.	Total P	Trans.		Turb.	pH
	mg/l	ug/l	mg/l	uS/cm	ug/l	m		ntu	
						NVS	VS		
Epilimnion	1.97	1.66	3	23.7	6	4.85	5.00	0.68	6.33
Metalimnion				23.6	8			0.73	6.32
Hypolimnion				26.2	13			1.57	6.04
Inlet				22.6	11			1.29	6.16
Outlet				24.4	9			0.64	6.22

HISTORICAL WATER QUALITY TREND ANALYSIS

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

