



Volunteer Lake Assessment Program Individual Lake Reports

ROCK POND, WINDHAM, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	425	Max. Depth (m):	8.2	Flushing Rate (yr ⁻¹):	2.5
Surface Area (Ac.):	35	Mean Depth (m):	3	P Retention Coef:	0.59
Shore Length (m):	1,800	Volume (m ³):	418,500	Elevation (ft):	153

TROPHIC CLASSIFICATION

Year	Trophic class
1978	OLIGOTROPIC
1987	MESOTROPIC

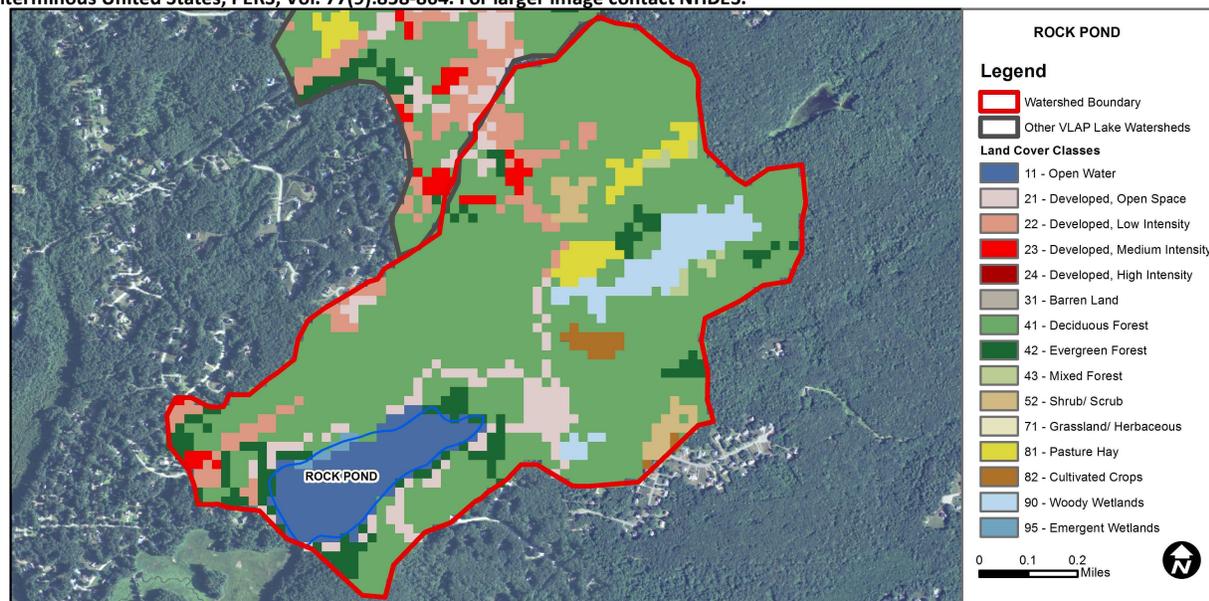
KNOWN EXOTIC SPECIES

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	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	D.O. (mg/L)	Encouraging	< 10 samples and no exceedance of criteria. More data needed.
	D.O. (% sat)	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	Chlorophyll-a	Good	>/=5 samples and median is < threshold but > 1/2 threshold value.
Primary Contact Recreation	E. coli	Encouraging	>2 samples exist that are > 75% of geometric mean criteria, but not enough samples to calculate geometric mean. No single sample exceedances. More data needed.
	Cyanobacteria	Slightly Bad	Cyanobacteria bloom(s).
	Chlorophyll-a	Very Good	At least 10 samples with 0 exceedances of 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	7.71	Barren Land	0	Grassland/Herbaceous	0
Developed-Open Space	5.93	Deciduous Forest	64.23	Pasture Hay	2.3
Developed-Low Intensity	4.55	Evergreen Forest	5.98	Cultivated Crops	0.96
Developed-Medium Intensity	0.96	Mixed Forest	0.67	Woody Wetlands	4.69
Developed-High Intensity	0	Shrub-Scrub	1.77	Emergent Wetlands	0.38



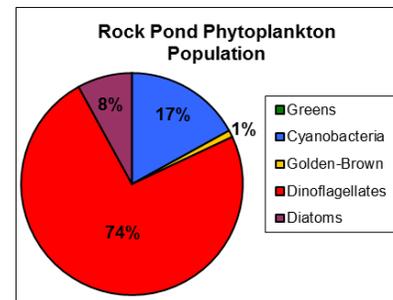
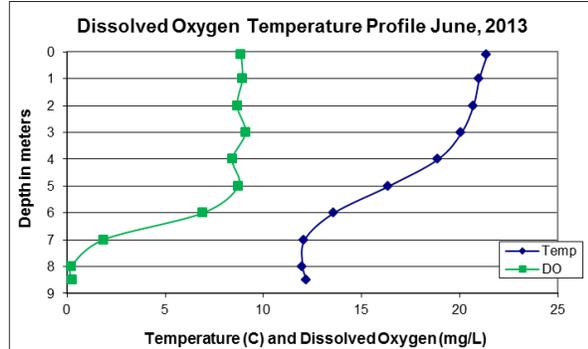
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2013 DATA SUMMARY

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

- ♣ **CHLOROPHYLL-A:** Chlorophyll levels were low and less than the state median. Historical trend analysis indicates significantly decreasing (improving) chlorophyll levels since monitoring began. We hope to see this continue!
- ♣ **CONDUCTIVITY/CHLORIDE:** Deep spot and tributary conductivity were slightly elevated and greater than the state median. Historical trend analysis indicates significantly increasing (worsening) epilimnetic conductivity since monitoring began.
- ♣ **E. COLI:** Burgess E. coli levels were slightly elevated but not greater than the state standard for surface waters. All other E. coli samples were well below state standard for surface waters.
- ♣ **TOTAL PHOSPHORUS:** Epilimnetic phosphorus levels were low and less than the state median. Historical trend analysis indicates relatively stable epilimnetic phosphorus with low variability between years. Hypolimnetic phosphorus was low and Inlet and Outlet phosphorus levels were average.
- ♣ **TRANSPARENCY:** Transparency decreased from 2012 likely due to significant late spring/early summer storm events; however was still better than the state median. Transparency measured with the viewscope was much better than without the non-viewscope and likely a better representation of conditions. Historical trend analysis indicates significant increasing (improving) transparency since monitoring began.
- ♣ **TURBIDITY:** Deep spot and Inlet turbidities were low and Outlet turbidity was slightly elevated.
- ♣ **PH:** Deep spot pH levels were sufficient to support aquatic life however have been below desirable range of 6.5 – 8.0 units in the past. Historical trend analysis indicates significantly decreasing (worsening) epilimnetic pH since monitoring began.
- ♣ **RECOMMENDED ACTIONS:** Increase monitoring frequency to three times per summer, typically June, July and August, to better assess seasonal and historical water quality trends. The increased frequency and intensity of storm events highlights the importance of managing stormwater runoff in the watershed. DES' "Homeowner's Guide to Stormwater Management" is a great resource. The improving chlorophyll and transparency trends are a great sign; however epilimnetic pH and conductivity are worsening. Winter road maintenance activities may be contributing to the slightly elevated and increasing conductivity. Consider adopting low salt zones around the pond. Keep up the great work!



Station Name	Alk.	Chlor-a	Cond.	E. Coli	Total P	Trans.		Turb.	pH
	mg/l	ug/l	uS/cm	#/100ml	ug/l	NVS	VS	ntu	
Burgess				210					
Carpenter				10					
Epilimnion	12.3	3.80	96.0		9	3.93	4.83	0.56	7.06
Hypolimnion			98.1		7			0.97	6.87
Inlet			86.1		13			0.40	6.15
Ivers Brook				30					
Outlet			96.3		13			2.41	7.04
Swett				10					

NH Water Quality Standards: Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.

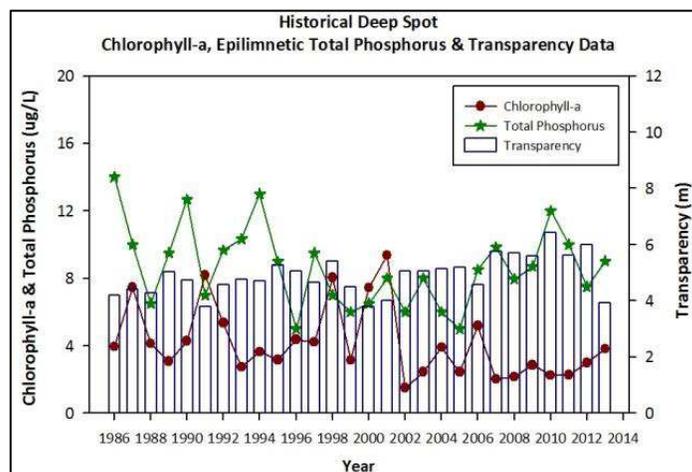
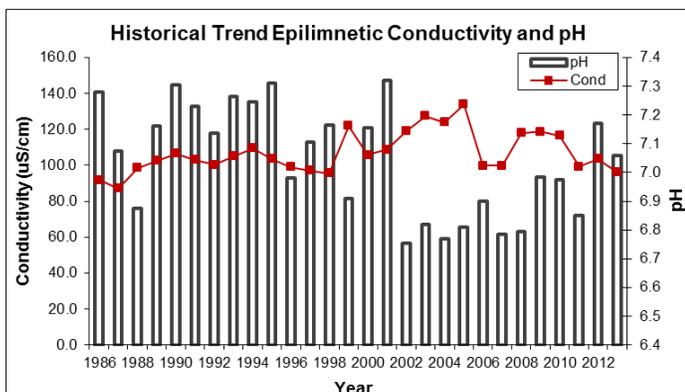
- Chloride:** < 230 mg/L (chronic)
- E. coli:** > 88 cts/100 mL – public beach
- E. coli:** > 406 cts/100 mL – surface waters
- Turbidity:** > 10 NTU above natural level
- pH:** 6.5-8.0 (unless naturally occurring)

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

HISTORICAL WATER QUALITY TREND ANALYSIS

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





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