



Volunteer Lake Assessment Program Individual Lake Reports

RAND POND, GOSHEN, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	326	Max. Depth (m):	8.2	Flushing Rate (yr ⁻¹)	1.4
Surface Area (Ac.):	39	Mean Depth (m):	3.4	P Retention Coef:	0.66
Shore Length (m):	1,800	Volume (m ³):	534,000	Elevation (ft):	1257

TROPIC CLASSIFICATION

Year	Trophic class
1979	OLIGOTROPIC
1994	OLIGOTROPIC

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.

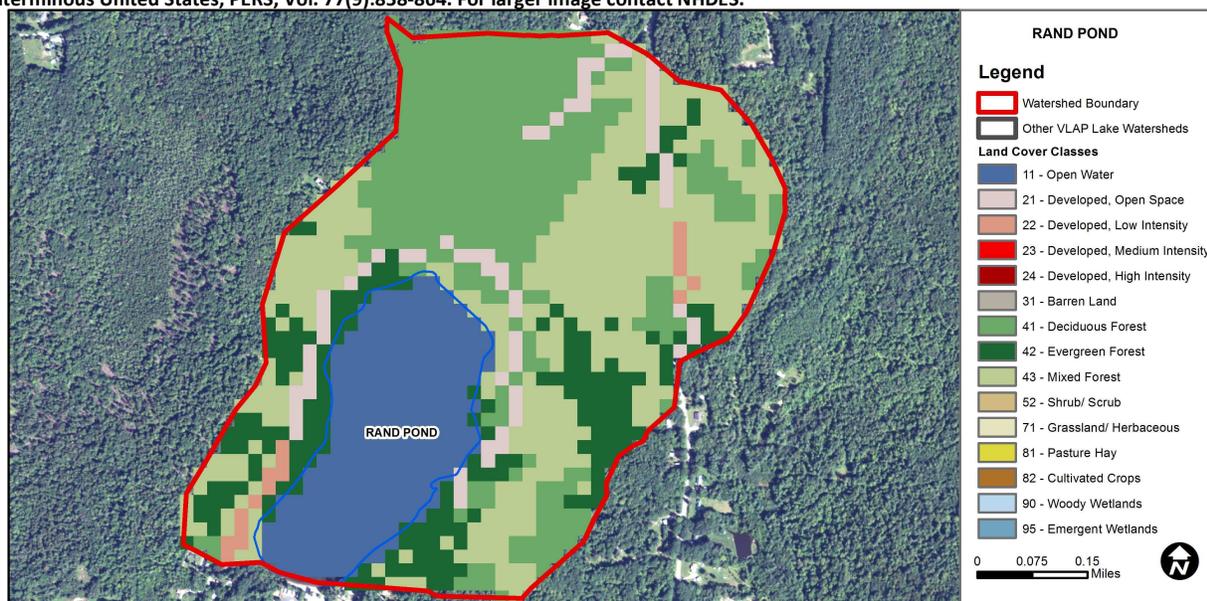
Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Good	>/=5 samples and median is < threshold but > 1/2 threshold value.
	pH	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	D.O. (mg/L)	Encouraging	< 10 samples and no exceedance of criteria. More data needed.
	D.O. (% sat)	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	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.
	Chlorophyll-a	Very Good	At least 10 samples with 0 exceedances of criteria.

BEACH PRIMARY CONTACT ASSESSMENT STATUS

RAND POND - PUBLIC WAY BEACH	E. coli	Bad	>/=1 exceedance(s) of geometric mean criterion and/or >/=2 exceedances of single sample criterion, with 1 or more >2X 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	17.8	Barren Land	0	Grassland/Herbaceous	0
Developed-Open Space	5.5	Deciduous Forest	28.43	Pasture Hay	0
Developed-Low Intensity	1.42	Evergreen Forest	15.09	Cultivated Crops	0
Developed-Medium Intensity	0	Mixed Forest	32.02	Woody Wetlands	0
Developed-High Intensity	0	Shrub-Scrub	0	Emergent Wetlands	0



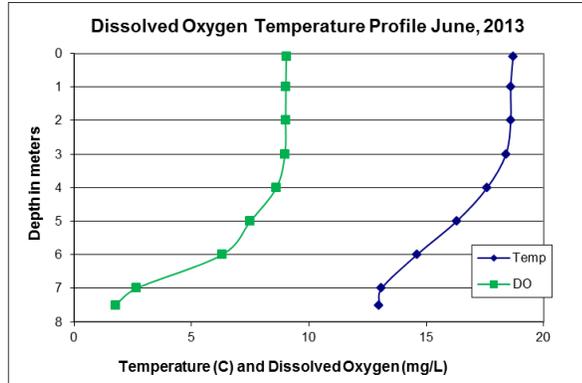
VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS

RAND POND, GOSHEN, NH

2013 DATA SUMMARY

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

- ♣ **CHLOROPHYLL-A:** Chlorophyll levels were low on each sampling event and below the state median. Historical trend analysis indicates relatively stable chlorophyll with moderate variability between years.
- ♣ **CONDUCTIVITY/CHLORIDE:** Deep spot conductivity levels were relatively low yet remained slightly greater than the state median. Inlet conductivity was elevated. Historical trend analysis indicates a significantly decreasing (improving) conductivity since monitoring began.
- ♣ **E. COLI:** Inlet E. coli levels were well below the state standard for surface waters.
- ♣ **TOTAL PHOSPHORUS:** Deep spot phosphorus levels were relatively low throughout the summer and less than the state median. Tributary phosphorus levels were also low throughout the summer. Historical trend analysis indicates relatively stable epilimnetic phosphorus with moderate variability between years.
- ♣ **TRANSPARENCY:** Transparency improved slightly as the summer progressed and was slightly greater than the state median. Historical trend analysis indicates relatively stable transparency with moderate variability between years.
- ♣ **TURBIDITY:** Deep spot and Inlet turbidity were average for the pond. Outlet turbidity was elevated in July following a significant rain event. Sediment erosion of the boat launch or public beach area may have contributed to the elevated turbidity.
- ♣ **PH:** Deep spot pH levels tend to decrease to undesirable levels as the summer progresses. Historical trend analysis indicates significantly decreasing (worsening) epilimnetic pH since monitoring began.
- ♣ **DISSOLVED OXYGEN:** Dissolved oxygen levels decreased significantly in the meter directly above the bottom which is due to the decomposition of organic material on the lake bottom.
- ♣ **RECOMMENDED ACTIONS:** Significant storm events appear to be causing erosion near the Outlet. Identify areas of erosion and work with residents to implement best management practices to reduce stormwater erosion. Utilize DES' "Homeowner's Guide to Stormwater Management" as a resource.



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

Station Name	Table 1. 2013 Average Water Quality Data for RAND POND								
	Alk.	Chlor-a	Cond.	E. Coli	Total P	Trans.		Turb.	pH
	mg/l	ug/l	uS/cm	#/100ml	ug/l	m		ntu	
						NVS	VS		
Epilimnion	7.90	2.91	57.0		10	3.57	4.04	1.13	6.74
Hypolimnion			57.8		11			1.59	6.51
Inlet			94.1	6	9			0.94	6.57
Inlet Above Rd				22					
Outlet			57.0		8			1.63	6.77

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 moderately variable.
			Phosphorus (epilimnion)	Stable	Trend not significant; data moderately variable.

