



Volunteer Lake Assessment Program Individual Lake Reports

ISLAND POND, STODDARD, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	21,874	Max. Depth (m):	5.5	Flushing Rate (yr ⁻¹)	32.3
Surface Area (Ac.):	158	Mean Depth (m):	2.3	P Retention Coef:	0.28
Shore Length (m):	6,300	Volume (m ³):	1,668,500	Elevation (ft):	1281

TROPHIC CLASSIFICATION

Year	Trophic class
1993	MESOTROPHIC
2004	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

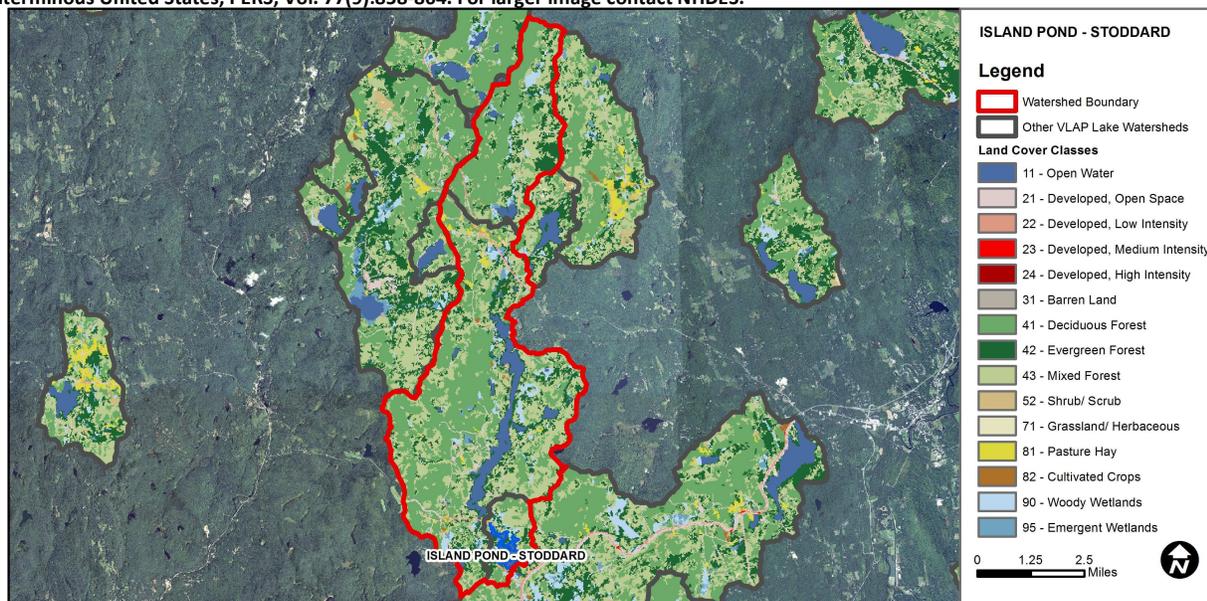
Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Slightly Bad	The calculated median is from 5 or more samples and is > indicator and the chlorophyll a indicator is exceeded.
	pH	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	Oxygen, Dissolved	Encouraging	There are < 10 samples with 0 exceedances of criteria. More data needed.
	Dissolved oxygen saturation	Slightly Bad	There are >10% of samples (minimum of 2), exceeding criteria.
	Chlorophyll-a	Slightly Bad	The calculated median is from 5 or more samples and is > 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

ISLAND POND - PUBLIC BEACH	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.
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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	5.84	Barren Land	0	Grassland/Herbaceous	0.05
Developed-Open Space	2.62	Deciduous Forest	38.21	Pasture Hay	0.91
Developed-Low Intensity	0.67	Evergreen Forest	15.24	Cultivated Crops	0.09
Developed-Medium Intensity	0.01	Mixed Forest	31.12	Woody Wetlands	3.58
Developed-High Intensity	0	Shrub-Scrub	0.57	Emergent Wetlands	0.91



VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS

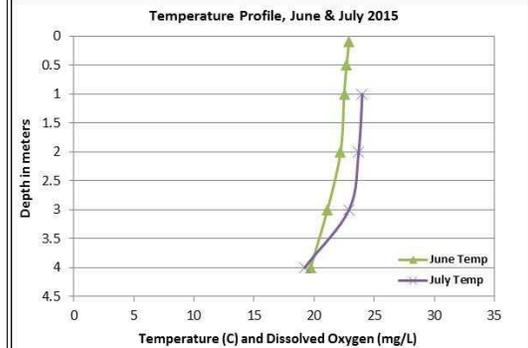
ISLAND POND, STODDARD

2015 DATA SUMMARY

RECOMMENDED ACTIONS: Pond phosphorus levels have significantly decreased (improved) since monitoring began which is a great sign. However, chlorophyll levels (algal growth) have increased and remained at a slightly elevated level since 2010. Further analysis of deep spot phosphorus and chlorophyll levels show a correlation between whole water column (combined epilimnetic and hypolimnetic) phosphorus levels and chlorophyll growth. Managing external sources of phosphorus and sediment to the pond is critical to managing algal growth. Eliminating fertilizing use, maintaining septic systems, and managing stormwater runoff are all ways to reduce phosphorus loadings. Algae can also utilize phosphorus released into the water column when bottom sediment is disturbed. Encourage boat operators to minimize impacts of motors on bottom sediments in shallow areas of the pond. The new DES fact sheet *WD-WMB-25 Impacts of Motorized Watercraft on New Hampshire's Waterbodies* is a good resource. Keep up the great work!

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

- CHLOROPHYLL-A:** Chlorophyll levels were slightly elevated in June, decreased to an average range in July, and then increased to elevated levels in August. The 2015 average chlorophyll level decreased slightly from 2014 but remained greater than the state median. Historical trend analysis indicates stable chlorophyll levels since monitoring began, however since 2010 chlorophyll levels have increased.
- CONDUCTIVITY/CHLORIDE:** Deep spot, Inlet and Outlet conductivity levels remained low and less than the state median. Historical trend analysis indicates significantly decreasing (improving) epilimnetic (upper water layer) conductivity since monitoring began. We hope to see this continue!
- E. COLI:** Epilimnetic, Inlet and Outlet E. coli levels were very low and much less than the state standards for public beaches (88 cts/100 mL) and surface waters (406 cts/100 mL).
- TOTAL PHOSPHORUS:** Epilimnetic phosphorus levels remained stable from June to July and decreased in August. Average epilimnetic phosphorus was slightly less than the state median and historical trend analysis indicates significantly decreasing (improving) epilimnetic phosphorus since monitoring began. We hope to see this continue! Hypolimnetic (lower water layer) phosphorus levels were average in June, increased to elevated levels in July, and then decreased to average levels in August. Inlet and Outlet phosphorus levels remained stable and within a low to average range from June through August.
- TRANSPARENCY:** Transparency measured without the viewscope (NVS) was average in June and decreased slightly in August. Average NVS transparency increased (improved) from 2014 and was approximately equal to the state median. Historical trend analysis indicates stable transparency since monitoring began. Transparency measured with the viewscope (VS) was good in June, decreased slightly in July, and then increased (improved) in August. VS transparency was generally better than NVS transparency and likely a better representation of actual conditions. The elevated algal growth in June and August did not appear to impact pond transparency which suggest the algae were in a distinct layer below three meters.
- TURBIDITY:** Epilimnetic turbidity was within a low to average range from June through August. Hypolimnetic turbidity was slightly elevated in July. Inlet and Outlet turbidities were within a low to average range.
- pH:** Deep spot, Inlet and Outlet pH levels were less than the desirable range 6.5-8.0 units and slightly acidic. Historical trend analysis indicates relatively stable epilimnetic pH with moderate variability between years.



Station Name	Table 1. 2015 Average Water Quality Data for ISLAND POND								
	Alk. mg/l	Chlor-a ug/l	Cond. uS/cm	E. Coli #/100ml	Total P ug/l	Trans. m		Turb. ntu	pH
						NVS	VS		
Epilimnion	3.7	6.60	33.5	10	11	3.23	3.56	0.93	6.30
Hypolimnion			33.9		13			1.44	5.79
Inlet			33.4	10	10			0.86	6.14
Outlet			34.0	10	9			0.85	6.33

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

HISTORICAL WATER QUALITY TREND ANALYSIS

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

