Volunteer Lake Assessment Program Individual Lake Reports
ISLAND POND, STODDARD, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	21,874	**Max. Depth (m):**	4.5	**Flushing Rate (yr[1])**	353	
Surface Area (Ac.):	158	**Mean Depth (m):**	2.4	**P Retention Coef:**	0	
Shore Length (m):	6,300	**Volume (m³):**	1,529,500	**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 2018 305(b) report on the status of N.H. waters, and are based on data collected from 2008-2017. Detailed waterbody assessment and report card information can be found at www.des.nh.gov/organization/divisions/water/wmb/swqa/index.htm

Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Slightly Bad	Data exceed water quality standards or thresholds for a given parameter by a small margin.
	pH	Slightly Bad	Data periodically exceed water quality standards or thresholds for a given parameter by a small margin.
	Oxygen, Dissolved	Encouraging	Limited data for this parameter predicts water quality standards or thresholds are being met; however more data are necessary to fully assess the parameter.
	Dissolved oxygen satura	Slightly Bad	Data periodically exceed water quality standards or thresholds for a given parameter by a small margin.
	Chlorophyll-a	Slightly Bad	Data exceed water quality standards or thresholds for a given parameter by a small margin.
Primary Contact Recreation	Escherichia coli	Very Good	All sampling data meet water quality standards or thresholds for this parameter.
	Chlorophyll-a	Very Good	All sampling data meet water quality standards or thresholds for this parameter.

BEACH PRIMARY CONTACT ASSESSMENT STATUS

ISLAND POND - PUBLIC BEACH	Escherichia coli	Good	Sampling data commonly meet water quality standards or thresholds for this parameter.

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

RECOMMENDED ACTIONS: Pond nutrient (phosphorus) levels are representative of mesotrophic conditions and have significantly decreased since monitoring began and we hope to see this continue! However, algal (chlorophyll) growth has generally remained above the mesotrophic threshold potentially due to the presence of other micronutrients. Inlet phosphorus levels, pond clarity and turbidity levels were influenced following spring snowmelt and runoff and the flushing wetland systems rich in dissolved organic matter that imparts a tea color to the water. Continue monitoring of the relationship between water color, clarity and turbidity. Work with NH LAKES to certify shorefront property as LakeSmart to reduce stormwater runoff and erosion. For more information visit www. nhlakes.org/lakesmart/. Keep up the great work!

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

- **CHLOROPHYLL-A:** Chlorophyll level was low in June, increased in July, and then decreased to a low level in August. Average chlorophyll level decreased from 2018 and was less than the state median and threshold for mesotrophic lakes. Historical trend analysis indicates stable chlorophyll levels since monitoring began.
- **CONDUCTIVITY/CHLORIDE:** Epilimnetic (upper water layer), Hypolimnetic (lower water layer), Inlet, and Outlet conductivity levels were within a low range and were less than the state median. Epilimnetic chloride levels were also low and approximately equal to the state median. Historical trend analysis indicates stable epilimnetic conductivity levels since monitoring began.
- **COLOR:** Apparent color measured in the epilimnion indicates the pond water was moderately tea colored, and was darkest in June and became lighter as the summer progressed.
- **E. COLI:** Epilimnetic, Inlet and Outlet E. coli levels were low in June and July and increased in August following a significant storm event, however levels remained much less than the state standard of 406 cts/100 mL for surface waters.
- **TOTAL PHOSPHORUS:** Epilimnetic phosphorus levels fluctuated within a low range. Average epilimnetic phosphorus level decreased slightly from 2018 and was less than the state median and the threshold for mesotrophic lakes. Historical trend analysis indicates significantly decreasing (improving) epilimnetic phosphorus levels since monitoring began. Hypolimnetic phosphorus levels were slightly elevated in June and July but decreased to a low level in August. Inlet phosphorus levels fluctuated within a low to moderate range and were highest in June following spring snowmelt and runoff. Outlet phosphorus levels remained low.
- **TRANSPARENCY:** Transparency measured with (VS) and without (NVS) the viewscope was lower in June when water color was darkest and then increased (improved) steadily as the summer progressed and water color decreased. Average NVS transparency increased (improved) from 2018 and was slightly higher (better) than the state median. Historical trend analysis indicates relatively stable transparency since monitoring began.
- **TURBIDITY:** Epilimnetic, Hypolimnetic, Inlet, and Outlet turbidity levels were slightly elevated in June following spring snowmelt and runoff and when water color was darkest, and then decreased to within a low range in July and August.
- **PH:** Epilimnetic, Inlet and Outlet pH levels were slightly less than the desirable range 6.5-8.0 units. Historical trend analysis indicates stable epilimnetic pH levels since monitoring began. Hypolimnetic pH levels were slightly acidic and potentially critical to aquatic life.

Temperature Profiles, 2019

ISLAND POND Annual Phytoplankton Population
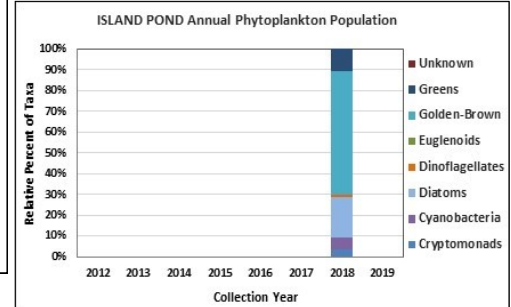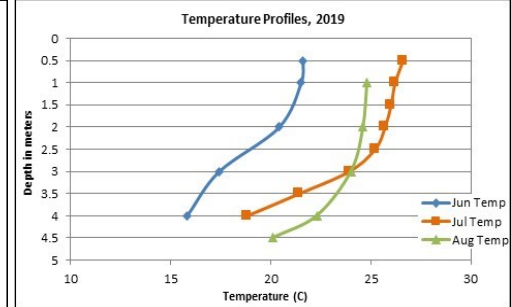
Station Name	Table 1. 2019 Average Water Quality Data for ISLAND POND - STODDARD									
	Alk. mg/l	Chlor-a ug/l	Chloride mg/l	Color pcu	Cond. us/cm	E. coli mpn/100ml	Total P mg/l	Trans. m		Turb. ntu	pH
								NVS	VS		
Epilimnion	3.2	3.89	5	60	33.0	10	10	3.39	3.55	0.59	6.40
Hypolimnion					32.4		13			1.56	5.80
Inlet					33.9	37	12			0.68	6.30
Outlet					33.5	3	10			0.58	6.43

NH Median Values: Median values for specific parameters generated from historic lake monitoring data.
Alkalinity: 4.5 mg/L
Chlorophyll-a: 4.39 ug/L
Conductivity: 42.3 uS/cm
Chloride: 5 mg/L
Total Phosphorus: 11 ug/L
Transparency: 3.3 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: between 6.5-8.0 (unless naturally occurring)

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 show low variability.
pH (epilimnion)	Stable	Trend not significant; data show low variability.	Transparency	Stable	Trend not significant; data moderately variable.
			Phosphorus (epilimnion)	Improving	Data significantly decreasing.

Historical Trend Epilimnetic Conductivty and pH

Historical Chlorophyll-a, Epilimnetic Phosphorus & Transparency Data

This report was generated by the NHDES Volunteer Lake Assessment Program (VLAP). For more information contact VLAP at (603) 271-2658 or sara.steiner@des.nh.gov