New Hampshire Department of Environmental Services

MORPHOMETRIC DATA

Watershed Area (Ac.):	1,600	Max. Depth (m):	16.8	Flushing Rate (yr[1])	1
Surface Area (Ac.):	202	Mean Depth (m):	5.6	P Retention Coef:	0.64
Shore Length (m):	5,800	Volume (m³):	4,574,000	Elevation (ft):	1407

TROPHIC CLASSIFICATION

Year	Trophic class
2001	MESOTROPHIC
2007	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	Bad	Data periodically exceed water quality standards or thresholds for this parameter by a large 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	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.
	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.

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	13.3	Barren Land	0	Grassland/Herbaceous	1.92
Developed-Open Space	1.99	Deciduous Forest	12.45	Pasture Hay	0
Developed-Low Intensity	0.4	Evergreen Forest	28.03	Cultivated Crops	0
Developed-Medium Intensity	0	Mixed Forest	36.68	Woody Wetlands	2.65
Developed-High Intensity	0	Shrub-Scrub	2.41	Emergent Wetlands	0.19

RECOMMENDED ACTIONS: Pond phosphorus levels were the lowest measured since monitoring began and we hope to see this continue! In turn, algal growth was low and clarity (transparency) was high. However, clarity has worsened over time and may be influenced by the water becoming darker due to the increased frequency and intensity of storm events flushing systems rich in dissolved organic matter that imparts a tea color to the water. Continue to evaluate the relationship between water color and clarity. Boathouse Inlet phosphorus and turbidity levels were elevated and E. coli levels were elevated following a significant storm event. This tributary is likely influenced by wetland systems upstream, however keep an eye out for anything unusual in the watershed. Keep up the great work!

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

- **CHLOROPHYLL-A:** Chlorophyll levels were low in July and increased slightly in August but remained within a low range. Average chlorophyll level decreased slightly from 2018 and was slightly less than the state median and the threshold for oligotrophic lakes. Historical trend analysis indicates highly variable chlorophyll levels since monitoring began.
- **CONDUCTIVITY/CHLORIDE:** Deep spot and tributary conductivity levels fluctuated within a low to average range for NH lakes. Epilimnetic (upper water layer) chloride levels were also within a low range and much less than the state chronic chloride standard. Historical trend analysis indicates highly variable epilimnetic conductivity levels since monitoring began.
- **COLOR:** Apparent color measured in the epilimnion indicates the pond water is lightly tea colored, or light brown.
- **E. COLI:** Beach E. coli levels were very low and much less than the state standard for public beaches. Boathouse Inlet E. coli levels were low in July and slightly elevated in August following a significant storm event.
- **TOTAL PHOSPHORUS:** Epilimnetic, Metalimnetic (middle water layer) and Hypolimnetic (lower water layer) phosphorus levels fluctuated within a low range. Average epilimnetic phosphorus level decreased from 2018, was much less than the state median and the threshold for oligotrophic lakes, and was the lowest measured since monitoring began. Historical trend analysis indicates relatively stable epilimnetic phosphorus levels since monitoring began. Bodnars Cove, Outlet and Journeys End Inlet phosphorus levels fluctuated within low to moderate levels for those stations. Boathouse Inlet phosphorus levels were elevated on each sampling event and the turbidity of the samples was also slightly elevated.
- **TRANSPARENCY:** Transparency measured with (VS) and without (NVS) the viewscope was high (good) in July and increased (improved) in August. Average NVS transparency increased from 2018, was higher (better) than the state median, and was the best measured since 2003. Historical trend analysis indicates significantly decreasing (worsening) transparency since monitoring began.
- **TURBIDITY:** Epilimnetic, Metalimnetic, Bodnars Cove, and Outlet turbidity levels were within a low range. Hypolimnetic, and Journeys End Inlet turbidity levels were higher than normal in August, however were within an average range for NH lakes. Boathouse Inlet turbidity levels were elevated in July and August.
- **pH:** Deep spot and tributary pH levels were slightly acidic and less than the desirable range 6.5-8.0 units. Historical trend analysis indicates relatively stable epilimnetic pH levels since monitoring began.

ISLAND POND Annual Phytoplankton Population
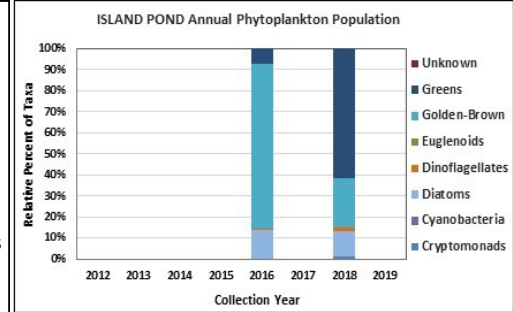
NH Water Quality Standards: Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.

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: 4.5 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

Station Name	Table 1. 2019 Average Water Quality Data for ISLAND POND - WASHINGTON										
	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	2.0	2.89	9	40	43.6		3	5.35	5.90	0.30	6.18
Metalimnion					41.6		7			0.43	5.66
Hypolimnion					41.9		8			1.09	5.53
Beach						4					
Boathouse Inlet					59.7	224	51			2.70	5.56
Bodnars Cove					43.5		3			0.28	6.28
Dam Outlet					52.5		5			0.33	6.20
Journeys End Inlet					23.8		11			0.86	6.37

HISTORICAL WATER QUALITY TREND ANALYSIS

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

Historical Trend Epilimnetic Conductivity and pH

Historical Chlorophyll-a, Epilimnetic Phosphorus & Transparency Data