



## Volunteer Lake Assessment Program Individual Lake Reports

### ISLAND POND, DERRY, NH

#### MORPHOMETRIC DATA

Watershed Area (Ac.):	10,880	Max. Depth (m):	24.3	Flushing Rate (yr <sup>1</sup> )	2.4	Year	Trophic class	Fanwort
Surface Area (Ac.):	498	Mean Depth (m):	4.5	P Retention Coef:	0.54	1985	MESOTROPIC	Variable Milfoil
Shore Length (m):	14,600	Volume (m <sup>3</sup> ):	9,558,500	Elevation (ft):	205	2002	EUTROPHIC	

#### TROPIC CLASSIFICATION

#### KNOWN EXOTIC SPECIES

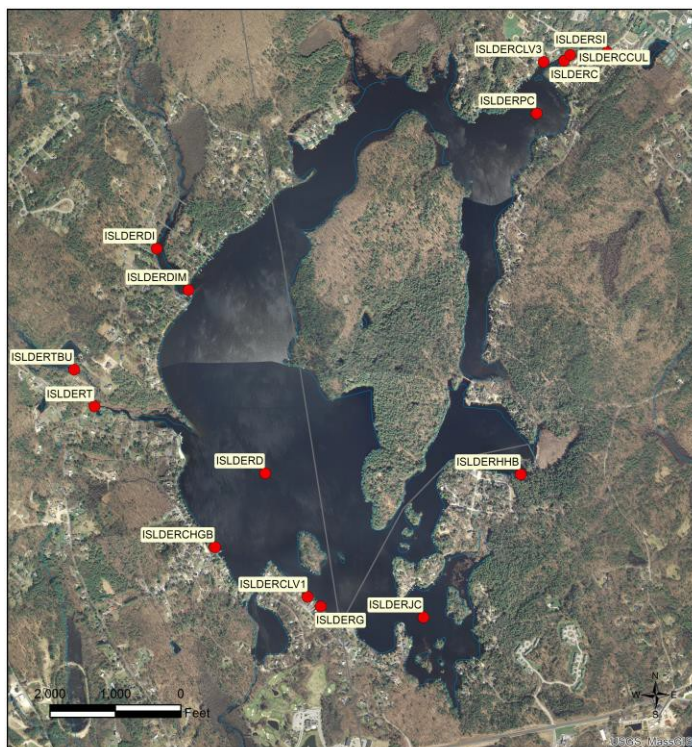
The Waterbody Report Card tables are generated from the DRAFT 2020 305(b) report on the status of New Hampshire waters, and are based on data collected from 2010- 2019. Detailed waterbody assessment and report card information can be found at [NHDES' Water Quality Assessment Website](#).

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 this parameter by a small margin.
	Oxygen, Dissolved	Cautionary	Limited data for this parameter predicts exceedance of water quality standards or thresholds; however more data are necessary to fully assess the parameter.
	Dissolved oxygen satura	Cautionary	Limited data for this parameter predicts exceedance of water quality standards or thresholds; 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.
	Cyanobacteria hepatoto	Slightly Bad	Cyanobacteria bloom(s).
	Chlorophyll-a	Very Good	All sampling data meet water quality standards or thresholds for this parameter.

#### BEACH PRIMARY CONTACT ASSESSMENT STATUS

ISLAND POND - SANBORN SHORE ACRES	Escherichia coli	Good	Sampling data commonly meet water quality standards or thresholds for this parameter.
ISLAND POND - CHASE'S GROVE	Escherichia coli	Bad	Data periodically exceed water quality standards or thresholds for this parameter by a large margin.

**VLAP SAMPLE STATION MAP:** This map depicts the location of routine sampling stations discussed on page two of the report.



#### BIG ISLAND POND HAMPSTEAD

#### VOLUNTEER LAKE ASSESSMENT PROGRAM

STATIONID	STATION NAME
ISLDERSI	CAMPGROUND INLET AT SHOP ROA
ISLDERD	DEEP SPOT
ISLDERDI	DREW INLET
ISLDERT	TAYLOR INLET
ISLDERC	CAMPGROUND INLET
ISLDERTBU	TAYLOR BROOK UPSTREAM
ISLDERCLV1	CULVERT #1
ISLDERCLV3	CULVERT #3
ISLDERHNB	HEMLOCK HEIGH BEACH
ISLDERDIM	DREW INLET MOUTH
ISLDERCCUL	SHOP BK CULVERT
ISLDERPC	PERCH (CAMP) COVE
ISLDERJC	JOHNSON COVE
ISLDERCHGB	CHASES GROVE BEACH
ISLDERG	GILL

Source: The data layers are derived from NHDES data and are under constant revision. NHDES is not responsible for the use or interpretation of this information. Not intended for legal use. NHDES Watershed Management Bureau Date: 2/17/2021





# Volunteer Lake Assessment Program Individual Lake Reports

## Big Island Pond, Derry

### 2020 Data Summary

**Recommended Actions:** Great job sampling in 2020! Pond quality is generally representative of mesotrophic conditions, however chlorophyll levels (algal growth) have remained slightly above the threshold for mesotrophic lakes since 2017. Epilimnetic phosphorus levels have become increasingly variable since 2004 and generally spike above the threshold for mesotrophic lakes every two to three years and may coincide with other lake management activities or climate patterns. Keep an eye on nutrient levels and algal/cyanobacteria growth and report any algal blooms or surface scums. Consider development of a watershed management plan to identify, quantify and remediate nutrient sources. For more information contact NHDES' Watershed Assistance Section at Katherine.zink@des.nh.gov. 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 and then increased slightly in August. Average chlorophyll level remained stable with 2019 and was slightly greater 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), Metalimnetic (middle water layer), Hypolimnetic (lower water layer), and tributary conductivity and chloride levels remained elevated and greater than the state medians. Historical trend analysis indicates significantly increasing (worsening) epilimnetic conductivity levels since monitoring began.
- ◆ **Color:** Apparent color measured in the epilimnion indicates the water was borderline light to moderately tea colored, or brown, and was darkest in June.
- ◆ **Total Phosphorus:** Epilimnetic phosphorus level fluctuated within a low to moderate range and was higher in June. Average epilimnetic phosphorus increased slightly from 2019, was approximately equal to the state median, and was slightly less than the threshold for mesotrophic lakes. Historical trend analysis indicates highly variable epilimnetic phosphorus levels since monitoring began. Metalimnetic and Hypolimnetic phosphorus levels were low in June and increased to a moderate level in August. Campground Inlet, Drew Inlet and Taylor Brook phosphorus levels were within a moderate range in June and decreased slightly in August.
- ◆ **Transparency:** Transparency measured with (VS) and without (NVS) the viewscope was lower (worse) in June due to wind and wave action and then increased (improved) in August. Average NVS transparency decreased slightly from 2019 but remained higher (better) than the state median. Historical trend analysis indicates highly variable transparency since monitoring began. VS transparency was much higher (better) than NVS transparency and likely a better measure of actual conditions.
- ◆ **Turbidity:** Epilimnetic and Metalimnetic turbidity levels fluctuated within a low range. Hypolimnetic turbidity level was low in June and increased to a slightly elevated range in August. Campground Inlet, Drew Inlet and Taylor Brook turbidity levels were slightly higher in June due to stagnant conditions and a surface scum was noted, and then decreased in August.
- ◆ **pH:** Epilimnetic, Campground Inlet, Drew Inlet, and Taylor Brook pH levels were within the desirable range 6.5-8.0 units. Historical trend analysis indicates stable epilimnetic pH levels since monitoring began. Metalimnetic and Hypolimnetic pH levels were slightly less than desirable.

Station Name	Table 1. 2020 Average Water Quality Data for BIG ISLAND POND - DERRY									
	Alk.	Chlor-a	Chloride	Color	Cond.	Total P	Trans. (m)		Turb.	pH
	(mg/L)	(ug/L)	(mg/L)	(pcu)	(us/cm)	(ug/L)	NVS	VS	(ntu)	
Epilimnion	16.2	6.26	44	40	168.0	11	3.88	4.87	0.46	7.29
Metalimnion					159.8	12			0.56	6.46
Hypolimnion					159.8	13			2.07	6.37
Campground Inlet			49		192.6	18			0.70	6.94
Drew Inlet			45		181.0	19			0.62	6.75
Taylor Brook			44		179.3	16			0.63	6.84

**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	Worsening	Data significantly increasing.	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 highly variable.
			Phosphorus (epilimnion)	Stable	Trend not significant; data highly variable.

