Volunteer Lake Assessment Program Individual Lake Reports

BROAD BAY, OSSIPEE, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	224,432	**Max. Depth (m):**	22.3	**Flushing Rate (yr^{-1})**	34.1	**Year**	**Trophic class**	**KNOWN EXOTIC SPECIES**
Surface Area (Ac.):	464	**Mean Depth (m):**	8.3	**P Retention Coef:**	0.04	1987	OLIGOTROPHIC	Variable Milfoil
Shore Length (m):	10,600	**Volume (m^3):**	15,573,500	**Elevation (ft):**	406	2003	OLIGOTROPHIC	

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)	Good	Sampling data is better than the water quality standards or thresholds for this parameter.
	pH	Slightly Bad	Data periodically exceed water quality standards or thresholds for this parameter by a small margin.
	Oxygen, Dissolved	Very Good	All sampling data meet water quality standards or thresholds for this parameter.
	Dissolved oxygen satura	Very Good	All sampling data meet water quality standards or thresholds for this parameter.
	Chlorophyll-a	Good	Sampling data is better than the water quality standards or thresholds for this parameter.
Primary Contact Recreation	Escherichia coli	No Data	No data for this parameter.
	Chlorophyll-a	Very Good	All sampling data meet water quality standards or thresholds for this parameter.

BEACH PRIMARY CONTACT ASSESSMENT STATUS

BROAD BAY - CAMP HUCKINS BEACH	Escherichia coli	Cautionary	Limited data for this parameter predicts exceedance of water quality standards or thresholds; however more data are necessary to fully assess the parameter.
BROAD BAY - CAMP ROBIN HOOD BEACH	Escherichia coli	Very Good	All sampling data meet water quality standards or thresholds for this parameter.
LEAVITT BAY - CAMP MARIST BEACH	Escherichia coli	Very Good	All sampling data meet water quality standards or thresholds for this parameter.

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

BROAD BAY
FREEDOM
VOLUNTEER LAKE ASSESSMENT PROGRAM

STATIONID	STATION NAME
BROOSSD	DEEP SPOT

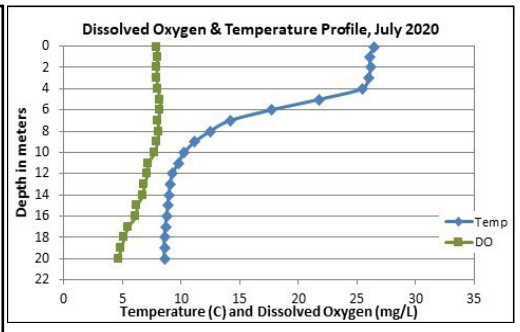
Source: The data layers are derived from NHDES data and are under constant revision. NHDES is not responsible for the use or interpretation of this information. Not intended for legal use.NHDES Watershed Management Bureau Date: 2/17/2021

Volunteer Lake Assessment Program Individual Lake Reports
Broad Bay, Ossipee
2020 Data Summary

Recommended Actions: Great job sampling in 2020! The improving algal (chlorophyll) growth is encouraging and both phosphorus and chlorophyll levels have remained below the threshold for oligotrophic lakes in recent years. Drought conditions and the lack of flushing of waters rich in dissolved organic matter that impart a tea, or brown, color to the water likely helped to improve water clarity in 2020. The increasing conductivity levels likely reflects road salting impacts from Rt. 25 and residential development within the sub-watershed. Educate watershed residents on the proper application of de-icing products and encourage the use of Green SnowPro certified companies for residential and commercial winter road maintenance. Continue efoorts to implement the watershed management plan and reduce stormwater runofo and erosion throughout the watershed. Encourage shoreline property owners to be certified LakeSmart through NHLAKES lake-friendly living program 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 within a low range in July, increased slightly from 2019, and was less than the state median and the threshold for oligotrophic lakes. Historical trend analysis indicates significantly decreasing (improving) chlorophyll levels since monitoring began.
- **Conductivity/Chloride:** Epilimnetic (upper water layer), Metalimnetic (middle water layer) and Hypolimnetic (lower water layer) conductivity levels remained within a low range and were approximately equal to the state median. Epilimnetic chloride level was also within a low range and slightly greater than the state median. Historical trend analysis indicates significantly increasing (worsening) epilimnetic conductivity levels since monitoring began.
- **Color:** Apparent color measured in the epilimnion indicates the water was lightly tea colored, or light brown.
- **Total Phosphorus:** Epilimnetic, Metalimnetic and Hypolimnetic phosphorus levels were within a low range. Epilimnetic phosphorus level increased slightly from 2019 and was less than the state median and the threshold for oligotrophic lakes. Historical trend analysis indicates relatively stable epilimnetic phosphorus levels since monitoring began.
- **Transparency:** Transparency measured without the viewscope (NVS) was high (good) for the lake in July, increased (improved) greatly from 2019, was much higher (better) than the state median, and was the best measured since 1997. However, historical trend analysis indicates significantly decreasing (worsening) NVS transparency since monitoring began. Viewscope transparency (VS) is typically higher than NVS transparency however was much lower potentially due to wave action and boat movement during sampling.
- **Turbidity:** Epilimnetic, Metalimnetic and Hypolimnetic turbidity levels were within a low range.
- **pH:** Epilimnetic pH level was within the desirable range 6.5-8.0 units and historical trend analysis indicates stable epilimnetic pH levels since monitoring began. Metalimnetic and Hypolimnetic pH levels were acidic and potentially critical to aquatic life.



Station Name	Table 1. 2020 Average Water Quality Data for BROAD BAY - OSSIPEE									
	Alk. (mg/L)	Chlor-a (ug/L)	Chloride (mg/L)	Color (pcu)	Cond. (us/cm)	Total P (ug/L)	Trans. (m)		Turb. (ntu)	pH
							NVS	VS		
Epilimnion	5.9	1.74	9	30	43.6	7	6.00	4.70	0.30	6.75
Metalimnion					39.2	8			0.55	5.41
Hypolimnion					39.9	7			0.31	5.27

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