



Volunteer Lake Assessment Program Individual Lake Reports

LEAVITT BAY, OSSIPEE, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	227,357	Max. Depth (m):	12.8	Flushing Rate (yr ⁻¹)	221
Surface Area (Ac.):	176	Mean Depth (m):	3.4	P Retention Coef:	0
Shore Length (m):	4,800	Volume (m ³):	2,429,000	Elevation (ft):	406

TROPHIC CLASSIFICATION

Year	Trophic class
1987	MESOTROPHIC
2003	OLIGOTROPHIC

KNOWN EXOTIC SPECIES

Variable Milfoil

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

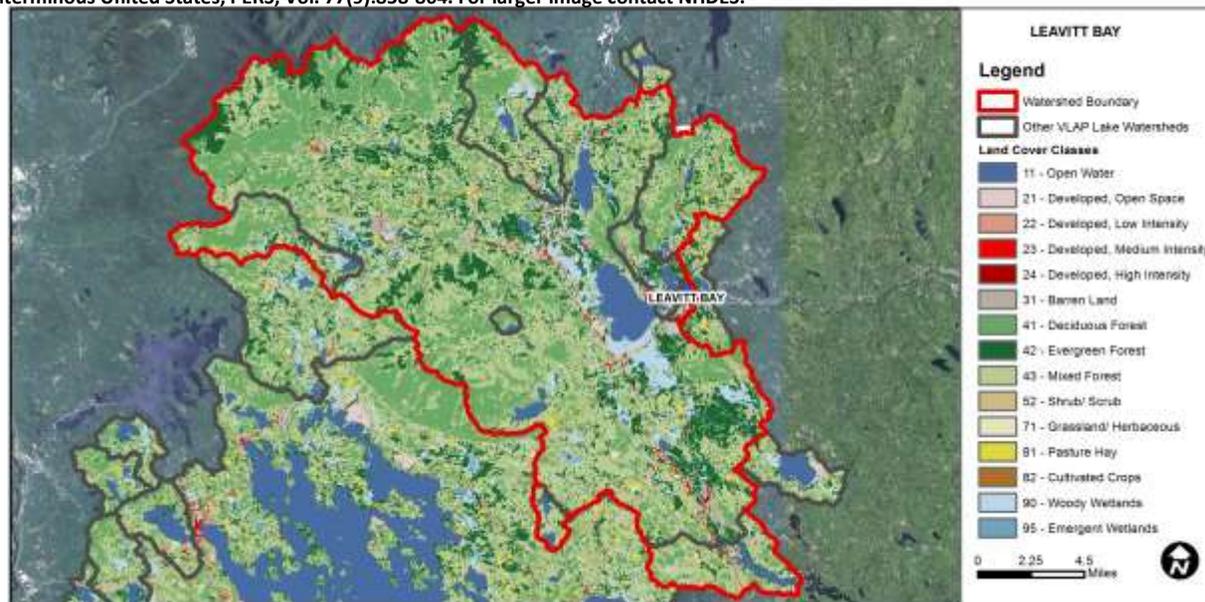
Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Good	Sampling data is better than the water quality standards or thresholds for this parameter.
	pH	Slightly Bad	Data periodically exceed water quality standards or thresholds for this parameter by a small margin.
	Oxygen, Dissolved	Very Good	All sampling data meet water quality standards or thresholds for this parameter.
	Dissolved oxygen saturation	Slightly Bad	Data periodically exceed water quality standards or thresholds for a given parameter by a small margin.
	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

Location	Parameter	Category	Comments
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.

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	3.64	Barren Land	0.64	Grassland/Herbaceous	0.36
Developed-Open Space	2.95	Deciduous Forest	23.25	Pasture Hay	0.85
Developed-Low Intensity	0.77	Evergreen Forest	20.38	Cultivated Crops	0.5
Developed-Medium Intensity	0.25	Mixed Forest	38.4	Woody Wetlands	4.65
Developed-High Intensity	0.04	Shrub-Scrub	2.67	Emergent Wetlands	0.6



VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS

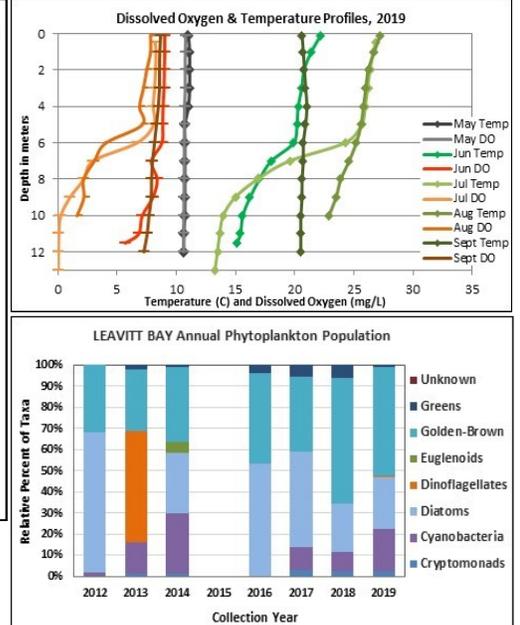
LEAVITT BAY, OSSIPEE

2019 DATA SUMMARY

RECOMMENDED ACTIONS: Leavitt Bay phosphorus and chlorophyll levels are representative of oligotrophic, or high quality, conditions and have generally remained within a lower range since 2014. However, water clarity (transparency) continues to experience years of decline potentially due to periods of darker water color or increased turbidity. Continue to measure the relationship between water color and clarity as the increased frequency and intensity of storm events flushes waters rich in dissolved organic matter that imparts a tea color to the water. Conductivity levels, while low, have significantly increased (worsened) since monitoring began. This potentially reflects the impacts of de-icing materials and dust suppressants applied to roads, parking lots, driveways, and walkways in the watershed. Educating road agents and watershed residents on ways to minimize the use of these materials can help reduce the pollutant load. NHDES's Watershed Assistance website is an excellent resource for information on road salt reduction and stormwater management. Keep up the great work!

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

- ◆ **CHLOROPHYLL-A:** Chlorophyll level was low in May, increased to slightly elevated in June, then decreased to a low level in July and remained stable through September. Average chlorophyll level remained stable with 2018 and was slightly less than the state median and the threshold for oligotrophic lakes. Historical trend analysis indicates stable chlorophyll levels since monitoring began.
- ◆ **CONDUCTIVITY/CHLORIDE:** Epilimnetic (upper water layer), Metalimnetic (middle water layer) and Hypolimnetic (lower water layer) conductivity levels were slightly greater than the state median and increased slightly as the summer progressed, but remained less than a level of concern. Epilimnetic chloride levels were slightly greater than the state median yet much less than the state chronic chloride standard. However, historical trend analysis indicates significantly increasing (worsening) epilimnetic conductivity levels since monitoring began.
- ◆ **COLOR:** Apparent color measured in the epilimnion indicates the lake water was lightly to moderately tea colored, or brown, and was darkest in May and September.
- ◆ **TOTAL PHOSPHORUS:** Epilimnetic, Metalimnetic and Hypolimnetic phosphorus levels fluctuated within a low range from May through September. Average epilimnetic phosphorus level increased from 2018 but remained much less than the state median and slightly less than the threshold for oligotrophic lakes. Historical trend analysis indicates highly variable epilimnetic phosphorus levels since monitoring began.
- ◆ **TRANSPARENCY:** Transparency measured with (VS) and without (NVS) the viewscope was low (worse) in May, increased (improved) slightly in June and July, decreased in August, and then increased (improved) to within an average range for the lake in September. Average NVS transparency decreased from 2018 and was approximately equal to the state median. Historical trend analysis indicates significantly decreasing (worsening) transparency since monitoring began.
- ◆ **TURBIDITY:** Epilimnetic, Metalimnetic and Hypolimnetic turbidity levels fluctuated within a low range.
- ◆ **PH:** Epilimnetic pH levels fluctuated around the low end of 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. 2019 Average Water Quality Data for LEAVITT BAY - OSSIPEE									
	Alk. mg/l	Chlor-a ug/l	Chloride mg/l	Color pcu	Cond. us/cm	Total P mg/l	Trans. m		Turb. ntu	pH
							NVS	VS		
Epilimnion	5.4	2.28	9	52	50.4	7	3.40	3.90	0.41	6.56
Metalimnion					50.1	6			0.65	6.37
Hypolimnion					52.3	7			0.72	6.34

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

