



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:	-0.01
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 2014 305(b) report on the status of N.H. waters, and are based on data collected from 2004-2013. Detailed waterbody assessment and report card information can be found at www.des.nh.gov/organizations/divisions/water/wmb/swqa/index.htm

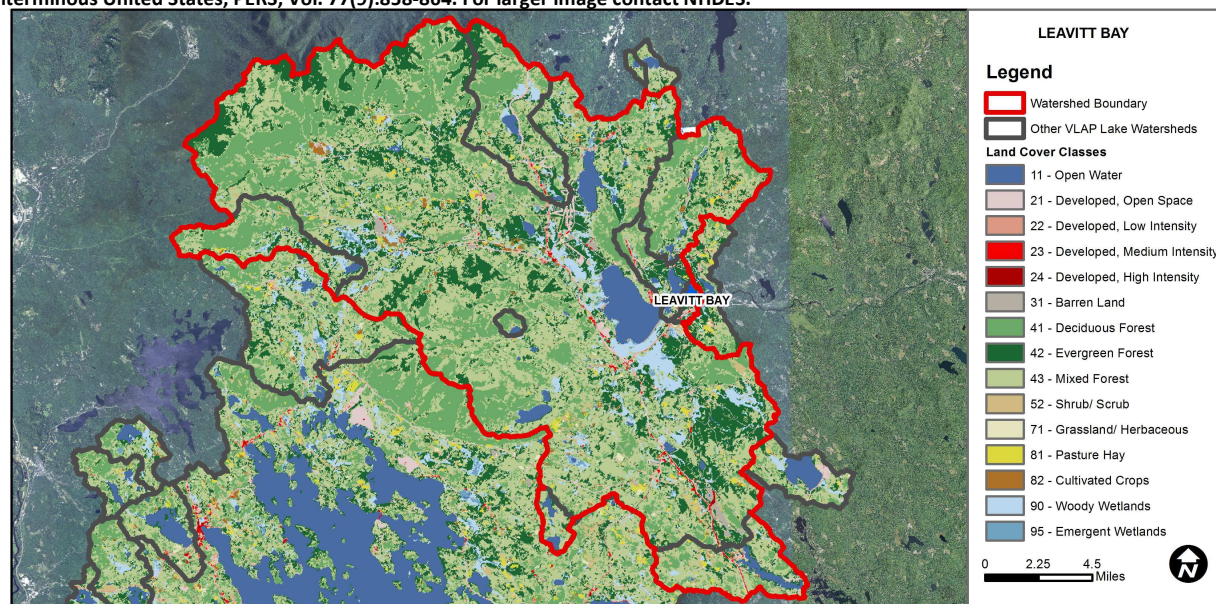
Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Good	The calculated median is from 5 or more samples and is < indicator and > 1/2 indicator and the chlorophyll a indicator is okay.
	pH	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	Oxygen, Dissolved	Very Good	There are a total of at least 10 samples with 0 exceedances of criteria.
	Dissolved oxygen saturation	Slightly Bad	There are >10% of samples (minimum of 2), exceeding criteria.
	Chlorophyll-a	Good	The calculated median is from 5 or more samples and is < indicator and > 1/2 indicator.
Primary Contact Recreation	Escherichia coli	No Data	No data for this parameter.
	Chlorophyll-a	Very Good	There are a total of at least 10 samples with 0 exceedances of indicator.

BEACH PRIMARY CONTACT ASSESSMENT STATUS

BROAD BAY - CAMP ROBIN HOOD BEACH	Escherichia coli	Very Good	Where there are no geometric means, all bacteria samples are < 75% of the geometric mean. Where there are geometric means all single bacteria samples are < the SSMC and all geometric means are < geometric mean criteria.
LEAVITT BAY - CAMP MARIST BEACH	Escherichia coli	Very Good	Where there are no geometric means, all bacteria samples are < 75% of the geometric mean. Where there are geometric means all single bacteria samples are < the SSMC and all geometric means are < geometric mean criteria.
BROAD BAY - CAMP HUCKINS BEACH	Escherichia coli	Cautionary	There are no geometric means and there is one single sample exceedance. More data needed.

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

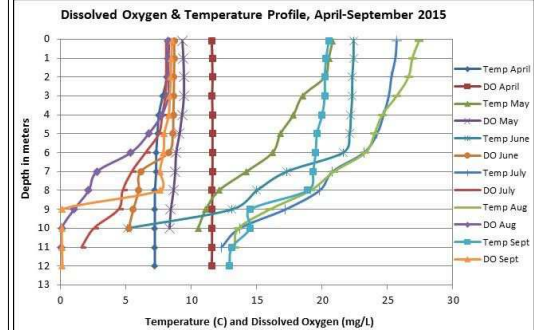
LEAVITT BAY, OSSISPEE

2015 DATA SUMMARY

RECOMMENDED ACTIONS: Water quality is generally representative of Oligotrophic, or high quality water, conditions. Spring snow melt and high water levels likely contributed to the low clarity and slightly higher turbidity in April. The above average snowfall, snowmelt and sand/salt application to local roadways and driveways likely contributed to the elevated turbidity and low water clarity. Road agents should be encouraged to remove any sand accumulated along roadsides, and to clean culverts and catch basins after the winter months to prevent any sediment and debris from entering nearby streams and the lake. Stormwater runoff and boating activity may also impact lake clarity. Encourage shorefront property owners to implement stormwater best practices and maintain vegetated shoreline buffers. Educate boaters on best boating practices in shallow areas and near the shoreline. The DES fact sheet "WD-WMB-25 Impacts of Motorized Craft on New Hampshire's Waterbodies" is a great educational resource. Keep up the great work!

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

- **CHLOROPHYLL-A:** Chlorophyll levels were very low in April, increased to moderate levels in May, decreased to low levels in June and July, increased in August, and decreased again in September. The 2015 average chlorophyll level was in a low range, remained stable with 2014 and was less than the state median. 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 and chloride levels remained relatively stable from May to September and were approximately equal to the state medians. Historical trend analysis indicates significantly increasing (worsening) epilimnetic conductivity since monitoring began.
- **TOTAL PHOSPHORUS:** Epilimnetic phosphorus remained stable and low from May to September. Average epilimnetic phosphorus increased slightly from 2014 and was much less than the state median. Historical trend analysis indicates highly variable epilimnetic phosphorus since monitoring began. Metalimnetic phosphorus levels were slightly elevated in July. Hypolimnetic phosphorus levels were also slightly elevated in July and September. The turbidity of the September sample was also elevated and dissolved oxygen profiles suggests the formation and accumulation of organic compounds in hypolimnetic waters as the summer progresses and dissolved oxygen levels are depleted.
- **TRANSPARENCY:** Transparency (NVS) was the lowest (worst) in April following spring snow melt and July following a significant storm event. Transparency in May, June, August, and September was generally higher (better) and within a good range. Average NVS transparency increased (improved) from 2014 and was better than the state median. Transparency measured with the viewscope (VS) was also low in April but was generally much better than that measured without the viewscope (NVS) and likely a better representation of actual conditions.
- **TURBIDITY:** Epilimnetic turbidity was slightly elevated in April following spring snowmelt and July following a significant storm event. Metalimnetic turbidity was generally within a low to average range. Hypolimnetic turbidity was within a low to average range from April to August and elevated in September suggesting the accumulation of organic compounds in the hypolimnion as dissolved oxygen levels are depleted.
- **pH:** Epilimnetic and metalimnetic pH levels fluctuated below the desirable range 6.5-8.0 units and hypolimnetic pH remained less than the desirable. Historical trend analysis indicates significantly decreasing (worsening) epilimnetic pH since monitoring began.



Station Name	Table 1. 2015 Average Water Quality Data for LEAVITT BAY								
	Alk. mg/l	Chlor-a ug/l	Chloride mg/l	Cond. uS/cm	Total P ug/l	Trans. m		Turb. ntu	pH
						NVS	VS		
Epilimnion	6.7	1.94	6	46.8	6	3.95	4.48	0.82	6.48
Metalimnion				47.8	8			0.78	6.38
Hypolimnion				49.2	9			3.85	6.13

NH Median Values: Median values for specific parameters generated from historic lake monitoring data.

Alkalinity: 4.9 mg/L
Chlorophyll-a: 4.58 mg/m³
Conductivity: 40.0 uS/cm
Chloride: 4 mg/L
Total Phosphorus: 12 ug/L
Transparency: 3.2 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)	Worsening	Data significantly decreasing.	Transparency	Worsening	Data significantly decreasing.
			Phosphorus (epilimnion)	Stable	Trend not significant; data highly variable.

