



Volunteer Lake Assessment Program Individual Lake Reports

MOUNTAIN LAKE, LOWER, HAVERHILL, NH

MORPHOMETRIC DATA

TROPHIC CLASSIFICATION

KNOWN EXOTIC SPECIES

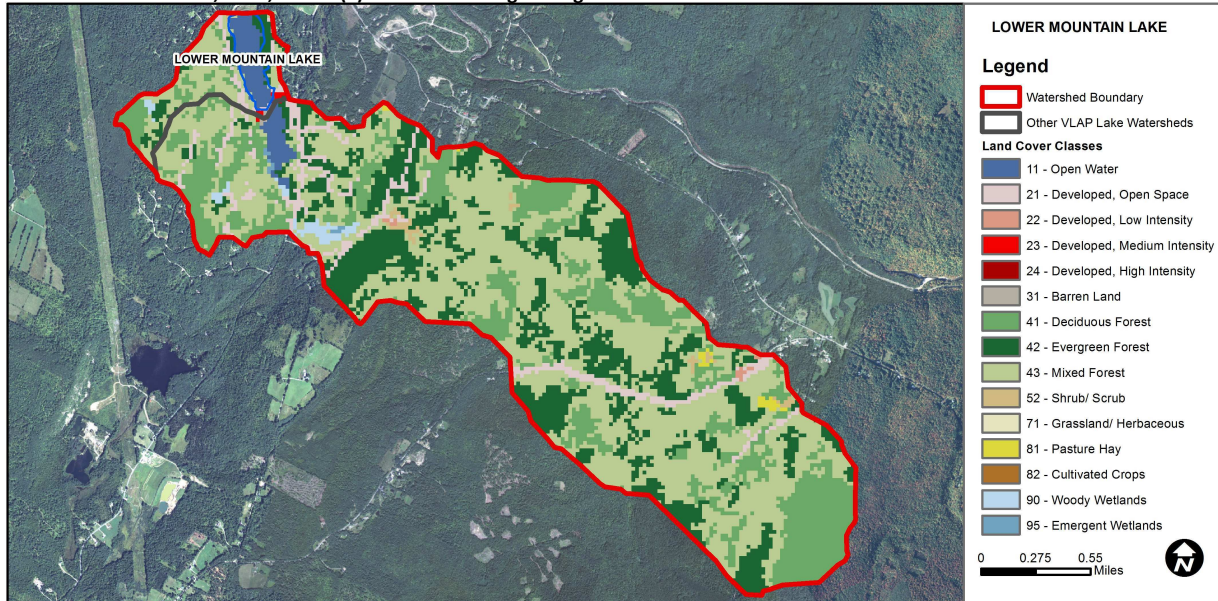
Watershed Area (Ac.):	2,318	Max. Depth (m):	8.5	Flushing Rate (yr ¹):	4.1	Year	Trophic class	
Surface Area (Ac.):	60	Mean Depth (m):	3.8	P Retention Coef:	0.5	1991	OLIGOTROPIC	
Shore Length (m):	2,000	Volume (m ³):	917,000	Elevation (ft):	774	2006	OLIGOTROPIC	

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	Slightly Bad	Data periodically exceed water quality standards or thresholds for a given parameter by a small margin.
	Oxygen, Dissolved	Very Good	All sampling data meet water quality standards or thresholds for this 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.
	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	2.4	Barren Land	0.05	Grassland/Herbaceous	0
Developed-Open Space	4.95	Deciduous Forest	21.32	Pasture Hay	0.33
Developed-Low Intensity	0.17	Evergreen Forest	22.51	Cultivated Crops	0
Developed-Medium Intensity	0.13	Mixed Forest	46.42	Woody Wetlands	0.78
Developed-High Intensity	0	Shrub-Scrub	0.55	Emergent Wetlands	0.12



VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS

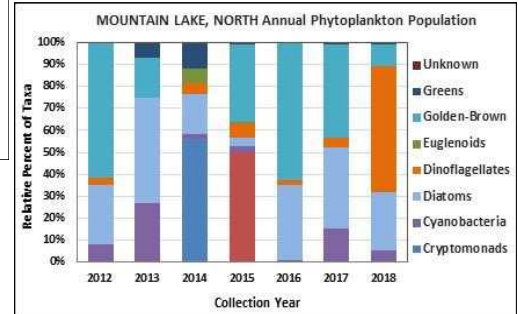
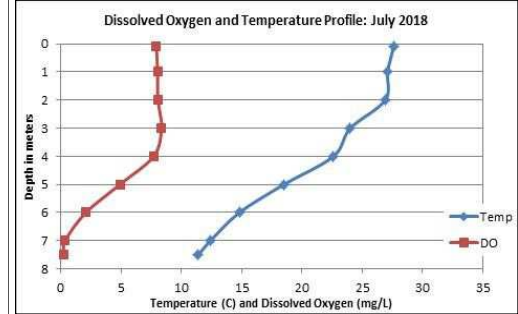
LOWER (NORTH) MOUNTAIN LAKE, HAVERHILL

2018 DATA SUMMARY

RECOMMENDED ACTIONS: Lake water quality improved in 2018 with decreases in phosphorus and chlorophyll levels below the thresholds for oligotrophic lakes. This resulted in improved water clarity. We hope to see these levels remain below the thresholds in future years. If possible, increase monitoring frequency to once per month, typically June, July, and August, to better assess monthly and annual variations in water quality over time. Continue measuring apparent color to evaluate relationships between water color and water clarity. Keep up the good work!

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

- ◆ **CHLOROPHYLL-A:** July chlorophyll levels were within a low range, decreased from 2017, and were less than the state median and the threshold for oligotrophic lakes. Historic trend analysis indicates highly variable chlorophyll levels since monitoring began.
- ◆ **CONDUCTIVITY/CHLORIDE:** Epilimnetic (upper water layer), Metalimnetic (middle water layer) and Hypolimnetic (bottom water layer), and Outlet conductivity levels were slightly elevated and greater than the state median. Epilimnetic chloride level was greater than the state median, however within a low range and much less than the state chronic chloride standard. Historical trend analysis indicates moderately stable epilimnetic conductivity levels since monitoring began.
- ◆ **COLOR:** Apparent color was measured in the epilimnion and indicates the water is lightly tea colored, or light brown.
- ◆ **E. COLI:** Beach E. coli levels were very low and below the state standard of 88 cts/100 mL for public beaches.
- ◆ **TOTAL PHOSPHORUS:** Epilimnetic phosphorus level was within a low range, decreased sharply from 2017, and was less than the state median and the threshold for oligotrophic lakes. Metalimnetic and Hypolimnetic phosphorus levels were within a moderate range and slightly greater than the threshold for oligotrophic lakes. Outlet phosphorus levels were low. Historical trend analysis indicates highly variable epilimnetic phosphorus levels since monitoring began.
- ◆ **TRANSPARENCY:** Transparency measured with (VS) and without (NVS) the viewscope was above average and much higher (better) than that measured in 2017. However, historical trend analysis indicates significantly decreasing (worsening) transparency since monitoring began.
- ◆ **TURBIDITY:** Epilimnetic, Metalimnetic, Hypolimnetic, and Outlet turbidity levels were below average compared to their historic values.
- ◆ **pH:** Epilimnetic, Metalimnetic and Outlet pH levels were within the desirable range 6.5–8.0 units. Hypolimnetic pH levels were slightly less than desirable. Historical trend analysis indicates moderately stable pH levels since



Station Name	Table 1. 2018 Average Water Quality Data for LOWER MOUNTAIN LAKE - HAVERHILL										
	Alk. mg/l	Chlor-a ug/l	Chloride mg/l	Color pcu	Cond. us/cm	E. coli mpn/100ml	Total P ug/l	Trans. m		Turb. ntu	pH
								NVS	VS		
Epilimnion	12.3	2.60	12	40	82.4		6	4.33	5.18	0.44	7.43
Metalimnion					83.7		9			0.64	6.98
Hypolimnion					86.8		13			1.89	6.32
Beach						16					
Outlet					83.5		7			1.07	7.24

NH Median Values: Median values for specific parameters generated from historic lake monitoring data.
Alkalinity: 4.5 mg/L
Chlorophyll-a: 4.39 mg/m³
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	Stable	Trend not significant; data moderately 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 highly variable.

