



Volunteer Lake Assessment Program Individual Lake Reports

MOUNTAIN LAKE, LOWER, HAVERHILL, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	2,318	Max. Depth (m):	9	Flushing Rate (yr ⁻¹)	4.1
Surface Area (Ac.):	60	Mean Depth (m):	3.8	P Retention Coef:	0.5
Shore Length (m):	2,000	Volume (m ³):	917,000	Elevation (ft):	774

TROPHIC CLASSIFICATION

Year	Trophic class
1991	OLIGOTROPIC
2006	OLIGOTROPIC

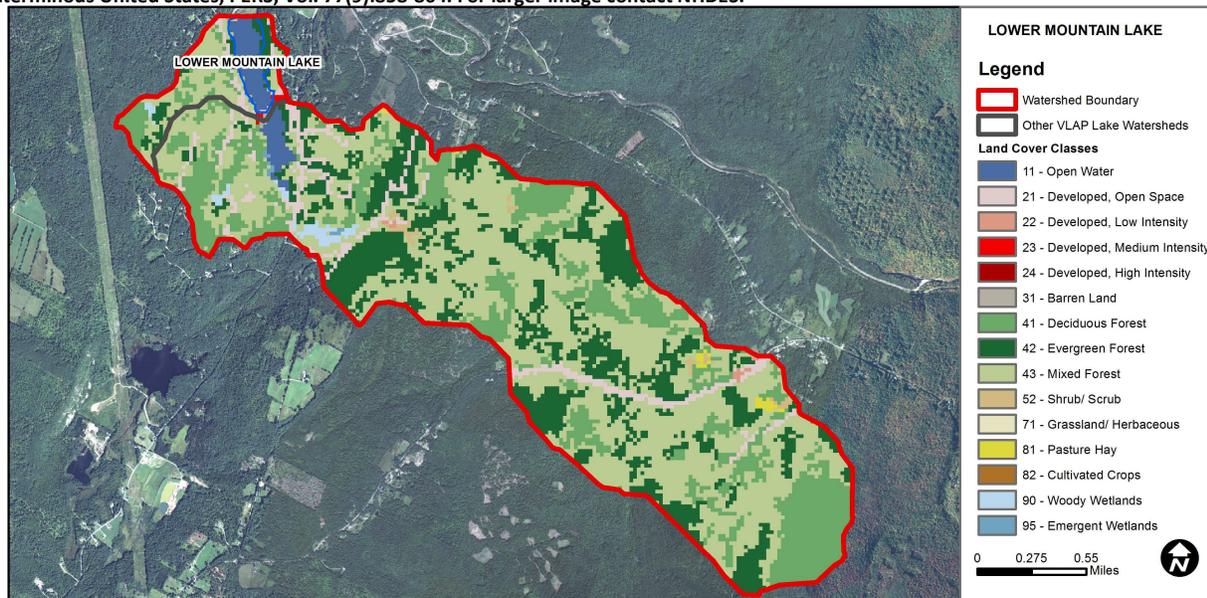
KNOWN EXOTIC SPECIES

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)	Slightly Bad	The calculated median is from 5 or more samples and is > indicator and the chlorophyll a indicator is exceeded.
	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	Slightly Bad	The calculated median is from 5 or more samples and is > indicator.
Primary Contact Recreation	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.
	Chlorophyll-a	Very Good	There are a total of at least 10 samples with 0 exceedances of indicator.

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

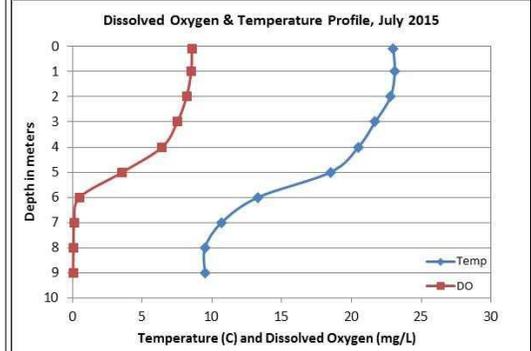
NORTH (LOWER) MOUNTAIN LAKE, HAVERHILL

2015 DATA SUMMARY

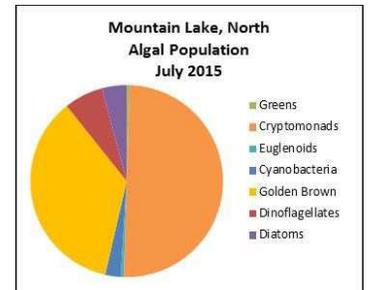
RECOMMENDED ACTIONS: Water quality was good in 2015, however deep spot phosphorus, chlorophyll and turbidity levels have remained within a higher range since 2006. The relatively dry conditions in 2015 and lack of stormwater runoff and wetland flushing may have helped to improve water clarity. This highlights the importance of managing stormwater runoff from the surrounding watershed and maintaining vegetative buffers along the shoreline. DES' "N.H. Homeowner's Guide to Stormwater Management" as well as UNH Cooperative Extension's "Landscaping at the Water's Edge" are great resources. Increase monitoring frequency to once per month during the summer to better assess seasonal and historical water quality trends and reduce variability within the data set. Keep up the great work!

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

- **CHLOROPHYLL-A:** Chlorophyll levels remained slightly elevated in 2015 and were greater than the state median. Historical trend analysis indicates highly variable chlorophyll levels since monitoring began.
- **CONDUCTIVITY/CHLORIDE:** Epilimnetic (upper water layer), Hypolimnetic (lower water layer), Beach, and Outlet conductivity levels remained slightly elevated in 2015 and were greater than the state median. Historical trend analysis indicates relatively stable epilimnetic conductivity with moderate variability between years.
- **TOTAL PHOSPHORUS:** Epilimnetic phosphorus was within an average range and increased slightly from 2014, yet remained less than the state median. Historical trend analysis indicates highly variable epilimnetic phosphorus since monitoring began. Hypolimnetic, Beach and Outlet phosphorus levels were also within a low to average range.
- **TRANSPARENCY:** Transparency (NVS) was high (good) in 2015, was better than the state median, and was the best measured since 2005! Historical trend analysis indicates relatively stable transparency with moderate variability between years. Transparency measured with the viewscope (VS) was better than NVS transparency and likely a better representation of actual conditions.
- **TURBIDITY:** Epilimnetic, Beach and Outlet turbidities were within a low to moderate range. Hypolimnetic turbidity was slightly elevated yet within an average range for that station.
- **pH:** Epilimnetic, Beach and Outlet pH levels were within the desirable range 6.5-8.0 units however hypolimnetic pH was slightly less than desirable. Historical trend analysis indicates highly variable epilimnetic pH since monitoring began.



Station Name	Table 1. 2015 Average Water Quality Data for MOUNTAIN LAKE, LOWER							
	Alk. mg/l	Chlor-a ug/l	Cond. uS/cm	Total P ug/l	Trans. m		Turb. ntu	pH
					NVS	VS		
Epilimnion	15.1	6.47	102.5	9	4.50	5.15	1.14	6.61
Hypolimnion			103.7	10			2.71	6.33
Beach			101.6	7			0.98	6.98
Outlet			101.5	6			0.90	7.00



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	Stable	Trend not significant; data moderately variable.	Chlorophyll-a	Stable	Trend not significant; data highly variable.
pH (epilimnion)	Stable	Trend not significant; data highly variable.	Transparency	Stable	Trend not significant; data moderately variable.
			Phosphorus (epilimnion)	Stable	Trend not significant; data highly variable.

