



## Volunteer Lake Assessment Program Individual Lake Reports

### MONOMONAC, LAKE, RINDGE, NH

#### MORPHOMETRIC DATA

Watershed Area (Ac.):	12,448	Max. Depth (m):	7.8	Flushing Rate (yr <sup>-1</sup> )	3.6
Surface Area (Ac.):	711	Mean Depth (m):	2.8	P Retention Coef:	0.55
Shore Length (m):	17,200	Volume (m <sup>3</sup> ):	8,093,500	Elevation (ft):	1044

#### TROPHIC CLASSIFICATION

Year	Trophic class
2008	MESOTROPHIC
1976	MESOTROPHIC

#### 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](http://www.des.nh.gov/organization/divisions/water/wmb/swqa/index.htm)

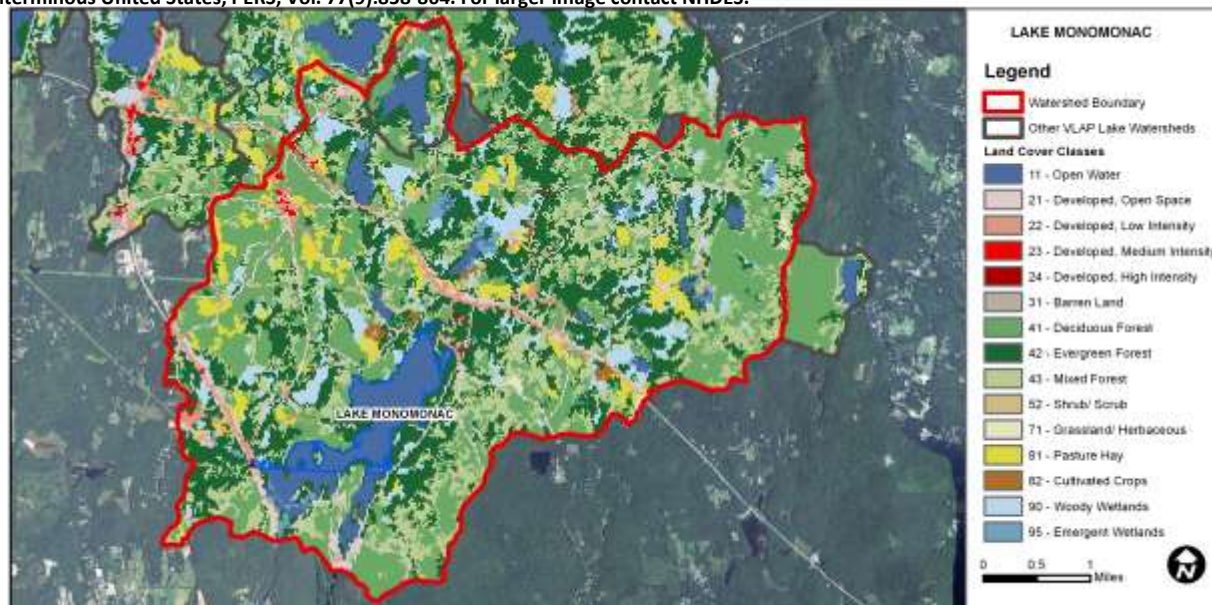
Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Slightly Bad	Data exceed water quality standards or thresholds for a given parameter by a small margin.
	pH	Bad	Data periodically exceed water quality standards or thresholds for this parameter by a large margin.
	Oxygen, Dissolved	Encouraging	Limited data for this parameter predicts water quality standards or thresholds are being met; however more data are necessary to fully assess the 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.
Primary Contact Recreation	Chlorophyll-a	Slightly Bad	Data exceed water quality standards or thresholds for a given parameter by a small margin.
	Escherichia coli	Very Good	All sampling data meet water quality standards or thresholds for this parameter.
	Cyanobacteria hepatoto	Slightly Bad	Cyanobacteria bloom(s).
	Chlorophyll-a	Very Good	All sampling data meet water quality standards or thresholds for this parameter.

#### BEACH PRIMARY CONTACT ASSESSMENT STATUS

MONOMONAC LAKE - CAMP MONOMONAC BEACH	Escherichia coli	Good	Sampling data commonly meet water quality standards or thresholds for this parameter.
MONOMONAC LAKE - CAMP MONOMONAC BEACH	Cyanobacteria	Slightly Bad	Cyanobacteria bloom(s).

#### 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.





# VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS

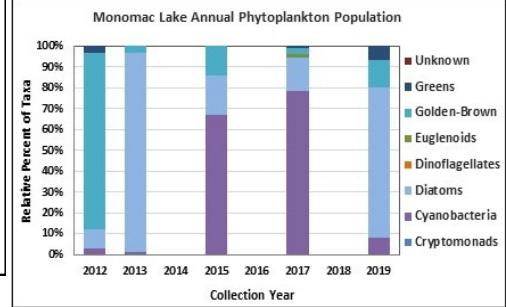
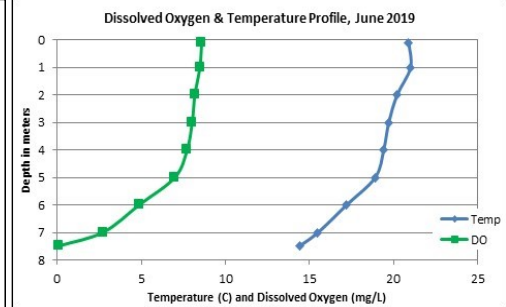
## MONOMONAC LAKE, RINDGE

### 2019 DATA SUMMARY

**RECOMMENDED ACTIONS:** Lake quality is generally representative of mesotrophic, or average conditions, however algal growth tends to spike above the threshold for mesotrophic lakes. This highlights the importance of trying to minimize nutrient pollution from stormwater runoff within the watershed. NHDES' "NH Homeowner's Guide to Stormwater Management" is a great resource. Water clarity has declined since monitoring began, however this cannot be explained by an increase in algal growth. Continue to measure apparent color to evaluate the relationship between color, turbidity and water clarity. Keep up the great work!

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

- ◆ **CHLOROPHYLL-A:** Chlorophyll levels were low in June and decreased slightly in July. Average chlorophyll level decreased sharply from 2018 and was less than the state median and the threshold for mesotrophic lakes. Historical trend analysis indicates relatively stable chlorophyll levels since monitoring began.
- ◆ **CONDUCTIVITY/CHLORIDE:** Epilimnetic (upper water layer), Hypolimnetic (lower water layer) and tributary conductivity and chloride levels were greater than the state medians, yet less than a level of concern. 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 is highly tea colored, or dark brown.
- ◆ **E. COLI:** Marina Inlet and 48 Dolly Lane E. coli levels were very low and much less than the state standards for public beaches and surface waters.
- ◆ **TOTAL PHOSPHORUS:** Epilimnetic and Hypolimnetic phosphorus levels were within a moderate range and remained stable from June to July. Average epilimnetic phosphorus level increased slightly from 2018 and was approximately equal to the state median and the threshold for mesotrophic lakes. Historical trend analysis indicates stable epilimnetic phosphorus levels since monitoring began. Begun and Colburn Inlet phosphorus levels were within a low to moderate range. Dapkas, Goddard, Loon Bay, State Line, State Line Int., and Swan Point Inlet phosphorus levels were higher in June during a storm event and then decreased to a low levels in July. Converse Inlet phosphorus levels were slightly elevated for that station on each sampling event.
- ◆ **TRANSPARENCY:** Transparency measured with (VS) and without (NVS) the viewscope was higher (better) in June and then decreased (worsened) in July. Average NVS transparency decreased slightly from 2018, was less than the state median, and was the lowest (worst) measured since 2007. Historical trend analysis indicates significantly decreasing (worsening) transparency since monitoring began.
- ◆ **TURBIDITY:** Epilimnetic, Hypolimnetic, Begun Inlet, Loon Bay, Marina Inlet, State Line Int., and Swan Point Inlet turbidity levels fluctuated within a low range for those stations. Converse, Dapkas, Goddard, and State Line Inlet turbidity levels were slightly elevated in June during a storm event and when pollen levels were noted as high, and then decreased to within a low range in July.
- ◆ **pH:** Epilimnetic and tributary pH levels were slightly less than the desirable range 6.5-8.0 units. Historical trend analysis indicates relatively stable epilimnetic pH levels since monitoring began. Hypolimnetic pH levels were slightly acidic and less than desirable.



Station Name	Table 1. 2019 Average Water Quality Data for LAKE MONOMONAC - RINDGE									
	Alk. mg/l	Chlor-a ug/l	Chloride mg/l	Color pcu	Cond. us/cm	E. coli mpn/100ml	Total P mg/l	Trans. m	Turb. ntu	pH
Epilimnion	3.3	3.08	19	90	82.2	12	1.94	2.65	0.76	6.30
Hypolimnion					82.1	14			1.54	5.87
Begun Inlet			20		80.4	11			0.80	6.36
Colburn Inlet			23		79.5	10			2.20	6.38
Converse Inlet			16		70.1	19			1.19	6.22
Dapkas Inlet			20		81.8	13			1.13	6.40
Goddard Inlet			26		100.3	13			1.34	6.40
Loon Bay			19		81.6	15			0.72	6.37
Marina Inlet			23		87.8	13			1.39	6.18
48 Dolly Lane						10				
State Line Inlet			18		81.3				2.37	6.24
State Line Int. Stream			19		82.5				1.07	6.32
Swan Point Inlet			20		84.1				0.85	6.29

**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)

**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

### HISTORICAL WATER QUALITY TREND ANALYSIS

Parameter	Trend	Explanation	Parameter	Trend	Explanation
Conductivity	Worsening	Data significantly increasing.	Chlorophyll-a	Stable	Trend not significant; data moderately variable.
pH (epilimnion)	Stable	Trend not significant; data moderately variable.	Transparency	Worsening	Data significantly decreasing.
			Phosphorus (epilimnion)	Stable	Trend not significant; data show low variability.

