



Volunteer Lake Assessment Program Individual Lake Reports

MASCOMA LAKE, ENFIELD, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	97,918	Max. Depth (m):	20.1	Flushing Rate (yr ⁻¹):	4.6	Year:	2000	Trophic class:	Eurasian Milfoil
Surface Area (Ac.):	1115	Mean Depth (m):	8.7	P Retention Coef:	0.39	Year:	2008	Trophic class:	MESOTROPHIC
Shore Length (m):	15,100	Volume (m ³):	39,458,000	Elevation (ft):	751	Year:	2008	Trophic class:	OLIGOTROPHIC

TROPIC CLASSIFICATION

KNOWN EXOTIC SPECIES

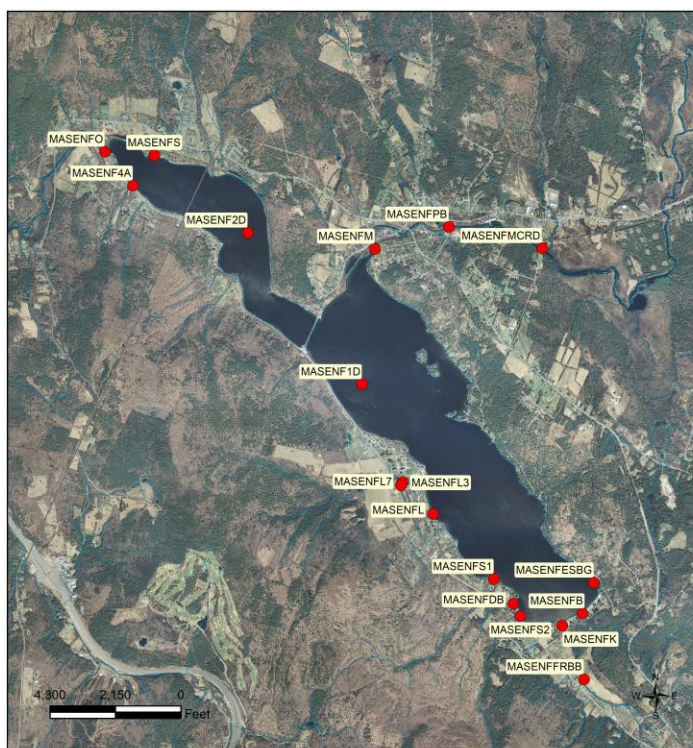
The Waterbody Report Card tables are generated from the DRAFT 2020 305(b) report on the status of N.H. waters, and are based on data collected from 2010-2019. Detailed waterbody assessment and report card information can be found at [NHDES' Water Quality Assessment Website](#).

Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Cautionary	Limited data for this parameter predicts exceedance of water quality standards or thresholds; however more data are necessary to fully assess the parameter.
	pH	Slightly Bad	Data periodically exceed water quality standards or thresholds for a given parameter by a small margin.
	Oxygen, Dissolved	Good	Sampling data commonly 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.
	Cyanobacteria hepatotoxin	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

Beach Name	Parameter	Category	Comments
MASCOMA LAKE - DARTMOUTH COLLEGE BEACH	Escherichia coli	Good	Sampling data commonly meet water quality standards or thresholds for this parameter.
MASCOMA LAKE - SHAKOMA BEACH	Escherichia coli	Good	Sampling data commonly meet water quality standards or thresholds for this parameter.
MASCOMA LAKE - CRESCENT BEACH	Escherichia coli	No Data	No data for this parameter.
MASCOMA LAKE - DARTMOUTH COLLEGE BEACH	Cyanobacteria	Slightly Bad	Cyanobacteria bloom(s).
MASCOMA LAKE - SHAKOMA BEACH	Cyanobacteria	Slightly Bad	Cyanobacteria bloom(s).

VLAP SAMPLE STATION MAP: This map depicts the location of routine sampling stations discussed on page two of the report.



MASCOMA LAKE ENFIELD

VOLUNTEER LAKE ASSESSMENT PROGRAM

STATIONID	STATION NAME
MASENF4A	4A LEBANON BROOK
MASENF0	DAM OUTLET
MASENFS	SUCKER BROOK
MASENF1D	STATION 1 DEEP SPOT
MASENF2D	STATION 2
MASENFB	BROWNS BROOK
MASENFDB	DULACS BROOK
MASENFK	KNOX RIVER INLET
MASENFL	LASALETTE BROOK
MASENFM	MASCOMA RIVER INLET
MASENFS1	SHAKER BROOK
MASENFS2	SMITH POND BROOK
MASENFPB	PATTEN BRIDGE
MASENFMCRD	MCCONNELL RD
MASENFRBB	RED BARN BRIDGE
MASENFESBG	ESSENBERG
MASENFL3	LASALETTE #3
MASENFL7	LASALETTE #7

Source: The data layers are derived from NHDES data and are under constant revision. NHDES is not responsible for the use or interpretation of this information. Not intended for legal use. NHDES Watershed Management Bureau Date: 2/17/2021





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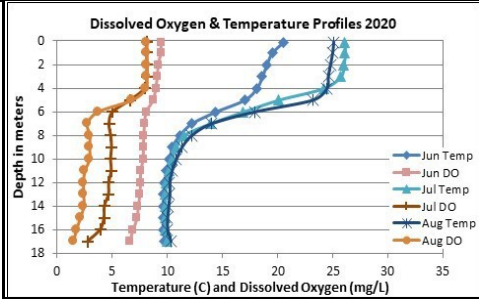
Mascoma Lake, Enfield

2020 Data Summary

Recommended Actions: Great job sampling in 2020! Lake chlorophyll levels (algal growth) are generally representative of oligotrophic, or high quality conditions, however nutrient (phosphorus) levels tend to spike above the threshold for oligotrophic lakes, particularly in wet years. Drought conditions in 2020 led to improved phosphorus levels and higher water clarity (transparency) which highlights the importance of managing stormwater runoff within the watershed. Consider development of a watershed management plan to help identify and quantify nutrient loads to the lake and make recommendations for remediation activities. For more information contact the NHDES Watershed Assistance Section. Consider partnering with Soak Up the Rain NH to implement stormwater remediation projects within the watershed. For more information visit www.soaknh.org. Keep up the great work!

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

- ◆ **Chlorophyll-a:** Chlorophyll level was low in June, decreased slightly in July, and remained stable in August. Average chlorophyll level remained stable with 2019 and was less than the state median and the threshold for oligotrophic lakes. Historical trend analysis indicates relatively stable chlorophyll levels since monitoring began.
- ◆ **Conductivity/Chloride:** Epilimnetic (upper water layer), Metalimnetic (middle water layer), Hypolimnetic (lower water layer), Outlet, and Mascoma River Inlet conductivity and/or chloride levels remained slightly greater than the state medians, yet less than a level of concern. Historical trend analysis indicates significantly increasing (worsening) epilimnetic conductivity levels since monitoring began. LaSalette Brook conductivity and chloride levels were low and approximately equal to or less than the state medians. Browns Brook and Knox River conductivity and chloride levels were elevated and greater than the state medians. Shaker Brook conductivity and chloride levels were greatly elevated and chloride levels approached the state chronic chloride standard in June.
- ◆ **Color:** Apparent color measured in the epilimnion indicates the water was borderline light to moderately tea colored, or light brown.
- ◆ **Total Phosphorus:** Epilimnetic phosphorus level was slightly elevated in June and then decreased to a low level in July and August. Average epilimnetic phosphorus level decreased from 2019, was less than the state median, and was approximately equal to the threshold for oligotrophic lakes. Historical trend analysis indicates relatively stable epilimnetic phosphorus levels since monitoring began. Metalimnetic, Outlet, LaSalette Brook, and Knox River phosphorus levels were low. Hypolimnetic and Mascoma River Inlet phosphorus levels fluctuated within a moderate range. Browns Brook phosphorus levels fluctuated within a slightly elevated range but were normal for that station. Shaker Brook phosphorus level was elevated in August during low flows and lab data noted organic matter in the sample.
- ◆ **Transparency:** Transparency measured with (VS) and without (NVS) the viewscope was within an average range for the lake in June and then increased (improved) steadily to an above average (good) range by August. Average NVS transparency increased (improved) greatly from 2019 and was higher (better) than the state median. Historical trend analysis indicates relatively stable NVS transparency since monitoring began and significantly increasing (improving) VS transparency since 2006. We hope to see this continue!
- ◆ **Turbidity:** Epilimnetic and Outlet turbidity levels were slightly elevated in June and the Outlet sample contained low levels of organic matter. Metalimnetic and Hypolimnetic turbidity levels were slightly elevated in July and August potentially due to layers of algal growth and the formation and accumulation of organic compounds in hypolimnetic waters. Shaker Brook turbidity levels were elevated in July and August due to low flows and organic matter. Browns Brook turbidity levels were elevated on each sampling event. Mascoma River Inlet turbidity levels were within an average range for this station. Knox River and LaSalette Brook turbidity levels were slightly elevated in August during low flows.
- ◆ **pH:** Epilimnetic, Outlet, Knox River, LaSalette Brook, Mascoma River Inlet, and Shaker Brook pH levels were within the desirable range 6.5-8.0 units. Historical trend analysis indicates stable, yet variable, epilimnetic pH levels since monitoring began. Metalimnetic, Hypolimnetic and Browns Brook pH levels were slightly less than desirable.



Station Name	Table 1. 2020 Average Water Quality Data for MASCOMA LAKE - ENFIELD										
	Alk. (mg/L)	Chlor-a (ug/L)	Chloride (mg/L)	Color (pcu)	Cond. (us/cm)	E. coli (cts/100 ml)	Total P (ug/L)	Trans. (m)		Turb. (ntu)	pH
								NVS	VS		
Epilimnion	11.87	2.51	13	47	81.7	8	4.17	4.80	1.01	7.38	
Metalimnion					68.3	8			1.46	6.48	
Hypolimnion					68.4	16			3.00	6.39	
Browns Brook			51		230.9	25			4.06	6.33	
Dam Outlet					85.6	7			1.12	7.39	
Knox River Inlet			33		198.2	61	8		1.46	7.29	
LaSalette Brook			3		48.6	8			1.44	7.06	
Mascoma River Inlet			15		97.3	108	14		2.84	7.22	
Shaker Brook			161		782.7	23			1.47	7.07	

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 highly variable.	Transparency	Stable	Trend not significant; data moderately variable.
			Phosphorus (epilimnion)	Stable	Trend not significant; data moderately variable.

