



Volunteer Lake Assessment Program Individual Lake Reports

MOUNTAINVIEW LAKE, SUNAPEE, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	832	Max. Depth (m):	6.7	Flushing Rate (yr ⁻¹)	1
Surface Area (Ac.):	105	Mean Depth (m):	4.1	P Retention Coef:	0.69
Shore Length (m):	3,700	Volume (m ³):	1,758,000	Elevation (ft):	1116

TROPHIC CLASSIFICATION

Year	Trophic class
1978	OLIGOTROPHIC
1992	OLIGOTROPHIC

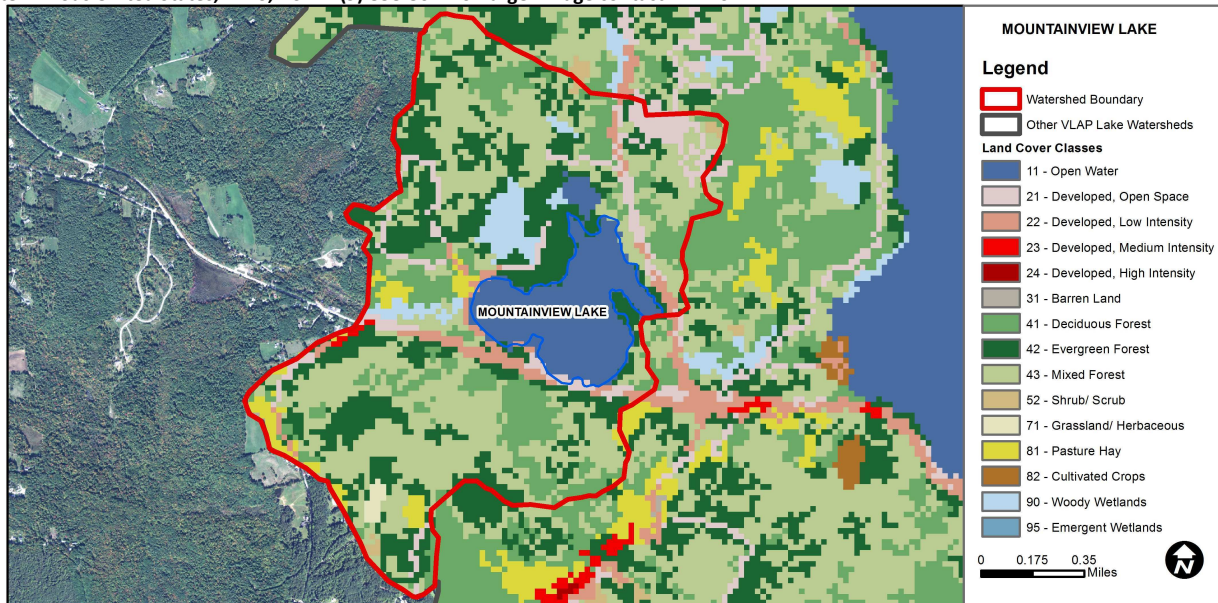
KNOWN EXOTIC SPECIES

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)	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 this parameter by a small 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.
	Chlorophyll-a	Good	Sampling data is better than the water quality standards or thresholds for this parameter.
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	11.7	Barren Land	0.04	Grassland/Herbaceous	0.45
Developed-Open Space	6.05	Deciduous Forest	13.62	Pasture Hay	2.57
Developed-Low Intensity	3.09	Evergreen Forest	23.9	Cultivated Crops	0
Developed-Medium Intensity	0.21	Mixed Forest	34.41	Woody Wetlands	3.09
Developed-High Intensity	0	Shrub-Scrub	0.39	Emergent Wetlands	0



VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS

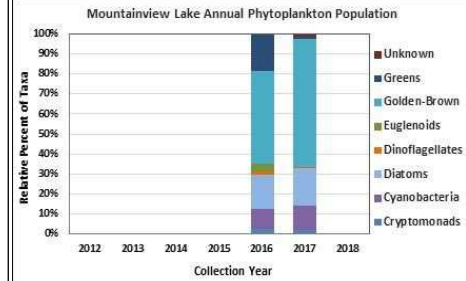
MOUNTAINVIEW LAKE, SUNAPEE

2018 DATA SUMMARY

RECOMMENDED ACTIONS: The improving chlorophyll levels are a great sign, however algal growth and phosphorus levels continue to fluctuate above the threshold for oligotrophic lakes. Several tributary stations experienced elevated phosphorus and turbidity levels and it's important to only collect samples if there is sufficient flow to obtain a sample free of sediment and organic matter. The worsening conductivity levels are likely a result of the application of road salt to roads, parking lots, driveways and walkways during winter months. Encourage local road agents and private winter maintenance companies to obtain a Voluntary Salt Applicator license through UNH Technology Transfer Center's Green SnowPro Certification program. Conduct monthly chloride monitoring to build a baseline data set for the lake. This can be offered for a small fee at the Colby Sawyer College Laboratory in 2019. Continue to monitor water color to better evaluate how this impacts water clarity. Pay close attention to sample bottle labeling, and if it helps, you could make your own labels on the computer, print and affix them to the sample bottles to avoid confusion. Keep up the great work and contact the VLAP Coordinator for a biologist visit in 2019.

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

- ◆ **CHLOROPHYLL-A:** Chlorophyll levels were low in June and decreased as the summer progressed. Average chlorophyll level decreased from 2017, was less than the state median, and was slightly less than the threshold for oligotrophic lakes. Historical trend analysis indicates significantly decreasing (improving) chlorophyll levels since monitoring began.
- ◆ **CONDUCTIVITY/CHLORIDE:** Epilimnetic (upper water layer), Hypolimnetic (lower water layer), North Brook, and Outlet conductivity levels remained slightly elevated and greater than the state median. Historical trend analysis indicates significantly increasing (worsening) epilimnetic conductivity levels since monitoring began. Hamel Bk. and Hamel Bk. at 103 conductivity levels remained greatly elevated and were the highest measured since monitoring began. Rt. 103 Inlet conductivity levels were within the normally low range for this station.
- ◆ **COLOR:** Apparent color was measured in the epilimnion and indicates the lake water is lightly tea colored, or light brown.
- ◆ **E. COLI:** Mt. View Shores Beach E. coli levels were low in July and much less than the state standard for public beaches.
- ◆ **TOTAL PHOSPHORUS:** Epilimnetic phosphorus levels were slightly greater than the threshold for oligotrophic lakes in June and July and then decreased to a low level in August. Average epilimnetic phosphorus level decreased slightly from 2017, was less than the state median, and only slightly greater than the threshold for oligotrophic lakes. Historical trend analysis indicates relatively stable epilimnetic phosphorus levels since monitoring began. Hypolimnetic phosphorus levels were within a moderate range and stable from June through August. Hamel Bk. At 103 (upstream) and Hamel Bk. (downstream) phosphorus levels were elevated in June when flows were higher and sediment was noted in the samples, and then decreased to moderate levels by August. North Brook phosphorus levels were elevated on each sampling event, particularly in June when water was stagnant. Outlet phosphorus levels were elevated in June. Rt. 103 Inlet phosphorus levels were elevated in July following a significant storm event that occurred after dry conditions.
- ◆ **TRANSPARENCY:** Transparency measured with (VS) and without (NVS) the viewscope was high (good) and remained relatively stable from June through August. Average NVS transparency increased (improved) slightly from 2017 and was higher (better) than the state median. Historical trend analysis indicate significantly decreasing (worsening) transparency since monitoring began. VS transparency was higher (better) than NVS transparency and likely a better measure of actual conditions.
- ◆ **TURBIDITY:** Epilimnetic and Hypolimnetic turbidity levels fluctuated within a low to moderate range for those stations and were highest in July following a significant storm event. Hamel Bk. at 103 and Hamel Bk. turbidity levels were elevated on each sampling event and above average for these stations. North Brook turbidity levels were greatly elevated in August and lab data note high amounts of sediment in the sample. Outlet turbidity levels were slightly elevated in June. Rt. 103 Inlet turbidity levels were slightly elevated in July.
- ◆ **pH:** Epilimnetic, Hamel Bk. at 103, Hamel Bk., Outlet, and Rt. 103 Inlet pH levels were within the desirable range 6.5-8.0 units, however epilimnetic pH levels have historically fluctuated below the desirable range. Historical trend analysis indicates significantly decreasing (worsening) epilimnetic pH levels since monitoring began. Hypolimnetic and North Brook pH levels were slightly less than desirable.



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 mg/m³
- Conductivity:** 42.3 uS/cm
- Chloride:** 5 mg/L
- Total Phosphorus:** 11 ug/L
- Transparency:** 3.3 m
- pH:** 6.6

Station Name	Table 1. 2018 Average Water Quality Data for MOUNTAINVIEW LAKE - SUNAPEE									
	Alk. mg/l	Chlor-a ug/l	Color pcu	Cond. us/cm	E. coli #/100ml	Total P ug/l	Trans. m		Turb. ntu	pH
							NVS	VS		
Epilimnion	8	2.83	30	169.4		9	3.73	4.40	1.04	6.86
Hypolimnion				150.3		14			1.50	6.33
Hamel Bk. At 103				545.7		33			5.45	7.22
Hamel Brook				396.7		23			15.8	7.04
Mt. View Shores Beach					17					
North Brook				71.9		82			9.71	6.14
Outlet				153.1		19			2.03	6.93
Route 103 Inlet				38.5		56			1.63	6.54

HISTORICAL WATER QUALITY TREND ANALYSIS

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

