



Volunteer Lake Assessment Program Individual Lake Reports

WAUKEWAN, LAKE, NEW HAMPTON, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	7,551	Max. Depth (m):	21.4	Flushing Rate (yr ⁻¹)	0.6
Surface Area (Ac.):	913	Mean Depth (m):	6.7	P Retention Coef:	0.7
Shore Length (m):	13,000	Volume (m ³):	24,809,000	Elevation (ft):	539

TROPIC CLASSIFICATION

Year	Trophic class
1982	OLIGOTROPIC
1994	OLIGOTROPIC

KNOWN EXOTIC SPECIES

Variable Milfoil

The Waterbody Report Card tables are generated from the 2012 305(b) report on the status of N.H. waters, and are based on data collected from 2001-2011.

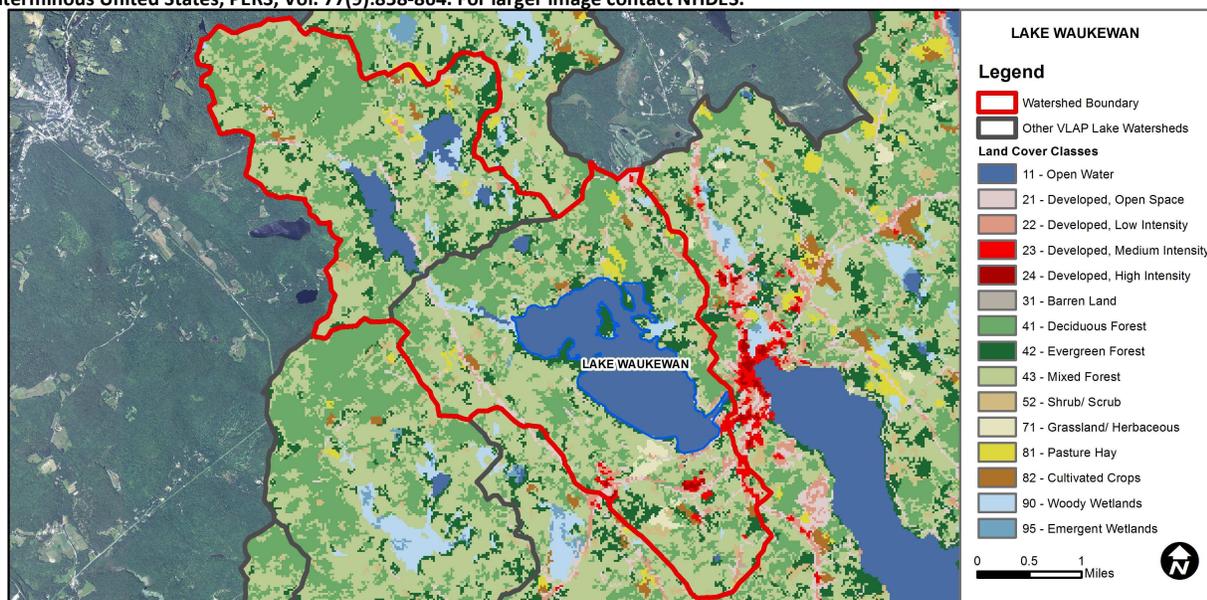
Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Good	>/=5 samples and median is < threshold but > 1/2 threshold value.
	pH	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	D.O. (mg/L)	Bad	>10%, with a minimum of 2, samples exceed criteria, with 1 or more by a large margin.
	D.O. (% sat)	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	Chlorophyll-a	Good	>/=5 samples and median is < threshold but > 1/2 threshold value.
Primary Contact Recreation	E. coli	Encouraging	>2 samples exist that are > 75% of geometric mean criteria, but not enough samples to calculate geometric mean. No single sample exceedances. More data needed.
	Cyanobacteria	Slightly Bad	Cyanobacteria bloom(s).
	Chlorophyll-a	Very Good	At least 10 samples with 0 exceedances of criteria.

BEACH PRIMARY CONTACT ASSESSMENT STATUS

LAKE WAUKEWAN - TOWN BEACH	E. coli	Very Good	All bacteria samples <75% of geometric mean criteria, but not enough to calculate geometric mean. Or, all bacteria samples are < single sample criteria and calculated Geometric means are less than geometric mean criteria.
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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	14.6	Barren Land	0.02	Grassland/Herbaceous	0.79
Developed-Open Space	3	Deciduous Forest	25.15	Pasture Hay	1.08
Developed-Low Intensity	1.29	Evergreen Forest	9.6	Cultivated Crops	0.74
Developed-Medium Intensity	0.56	Mixed Forest	39.35	Woody Wetlands	1.81
Developed-High Intensity	0.14	Shrub-Scrub	1.83	Emergent Wetlands	0.05



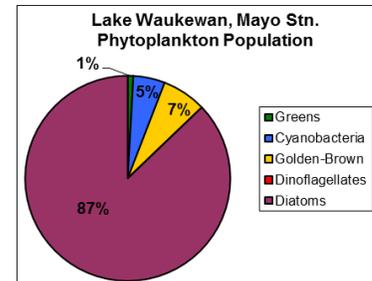
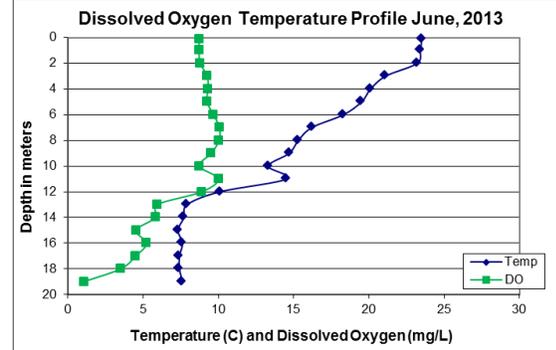
VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS

WAUKEWAN LAKE, MAYO STN, MEREDITH, NH

2013 DATA SUMMARY

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

- ♣ **CHLOROPHYLL-A:** Chlorophyll levels decreased from June through August, were much less than the state median, and were less than the 2012 average. Historical trend analysis indicates relatively stable chlorophyll levels with moderate variability between years.
- ♣ **CONDUCTIVITY/CHLORIDE:** Spring chloride and conductivity monitoring indicates low chloride and conductivity levels at Mayo Farm Bk. and EE Brook. Sayward Bk. chloride and conductivity levels were slightly elevated but not greater than state standards. Deep spot, Inlet and Perkins Cove conductivity and chloride were also slightly elevated and historical trend analysis indicates significantly increasing (worsening) epilimnetic conductivity since monitoring began.
- ♣ **TOTAL PHOSPHORUS:** Deep spot phosphorus levels were low from June through August and much less than the state median. Historical trend analysis indicates significantly decreasing (improving) epilimnetic phosphorus since monitoring began. We hope to see this continue! Inlet and Perkins Cove phosphorus remained low from June through August. Spring runoff monitoring indicates slightly above average phosphorus at Sayward Bk.
- ♣ **TRANSPARENCY:** Transparency was low in June due to high winds, average in July, and above average in August due to low levels of algal growth. Historical trend analysis indicates stable transparency with low variability between years.
- ♣ **TURBIDITY:** Turbidity was low at all stations.
- ♣ **pH:** pH levels were within desirable range 6.5 – 8.0 units however historically have fluctuated below the desirable range. Historical trend analysis indicates relatively stable epilimnetic pH with moderate variability between years.
- ♣ **RECOMMENDED ACTIONS:** The increasing conductivity trend is likely due to winter maintenance activities and road salting. Encourage local road agents and winter maintenance companies to obtain a NH Voluntary Salt Applicator License through the UNH Technology Transfer Center's Green SnowPro Certification. Continue spring chloride monitoring to identify areas of chloride input to the lake, and expand the monitoring program to collect monthly water quality data at major tributaries to the lake to help assess watershed pollutant loads. Keep up the great work!



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: 6.5-8.0 (unless naturally occurring)

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

Station	Alk.	Chlor-a	Chloride	Cond.	Total P	Trans.	Turb.	pH	
	mg/l	ug/l	mg/l	uS/cm	ug/l	m	ntu		
Ee Brook			3	30.0	9	NVS	0.18	6.59	
Inlet			15	77.1	6	VS	0.65	6.87	
Mayo Farm Bk			3	33.4	8		0.46	6.63	
Epilimnion	8.57	1.32	20	97.1	3	7.63	6.35	0.31	7.17
Metalimnion				97.9	6			0.76	6.96
Hypolimnion				92.8	6			0.65	6.51
Perkins Cove			20	101.7	5		0.61	7.12	
Sayward Bk			18	99.7	11		0.86	6.79	

HISTORICAL WATER QUALITY TREND ANALYSIS

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

