



## Volunteer Lake Assessment Program Individual Lake Reports

### WAUKEWAN, LAKE, NEW HAMPTON, NH

#### MORPHOMETRIC DATA

#### TROPIC CLASSIFICATION

#### KNOWN EXOTIC SPECIES

<b>Watershed Area (Ac.):</b>	7,551	<b>Max. Depth (m):</b>	21.4	<b>Flushing Rate (yr<sup>1</sup>)</b>	0.6	<b>Year</b>	1982	<b>Trophic class</b>	Variable Milfoil
<b>Surface Area (Ac.):</b>	913	<b>Mean Depth (m):</b>	6.7	<b>P Retention Coef:</b>	0.7			<b>OLIGOTROPIC</b>	
<b>Shore Length (m):</b>	13,000	<b>Volume (m<sup>3</sup>):</b>	24,809,000	<b>Elevation (ft):</b>	539		1994	<b>OLIGOTROPIC</b>	

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)	Good	Sampling data is better than the water quality standards or thresholds for this parameter.
	pH	Slightly Bad	Data periodically exceed water quality standards or thresholds for this parameter by a small margin.
	Oxygen, Dissolved	Bad	Data periodically exceed water quality standards or thresholds for this parameter by a large margin.
	Dissolved oxygen satura	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 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

LAKE WAUKEWAN - TOWN BEACH	Escherichia coli	Good	Sampling data commonly meet water quality standards or thresholds for this parameter.
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**VLAP SAMPLE STATION MAP:** This map depicts the location of routine sampling stations discussed on page two of the report.



**LAKE WAUKEWAN  
MEREDITH  
VOLUNTEER LAKE ASSESSMENT PROGRAM**

STATIONID	STATION NAME
WAUMERO	OUTLET
WAUMERP	PERKINS COVE
WAUMERWD	WINONA STATION S
WAUMERI	INLET
WAUMERMD	MAYO STATION N
WAUMER7	SAYWARD BK
WAUMER9	EE BROOK
WAUMER6	MAYO FARM BK
WAUMER10	BROOKSIDE LANE STREAM
WAUMER1	BOAT LAUNCH
WAUMERCRT	CAMP RD TRIB
WAUMER7A	SAYWARD BK UPPER
WAUMER7B	SAYWARD BK AT ROCK RIDGE

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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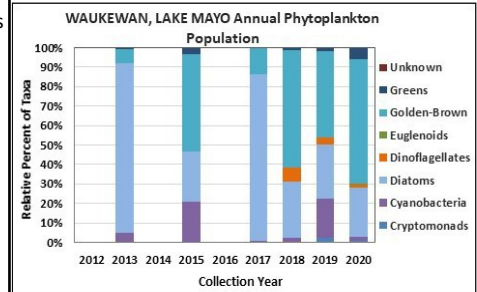
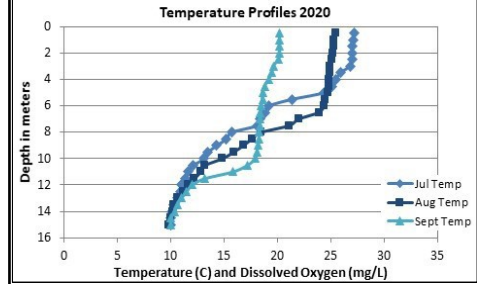
## Waukewan Lake, Mayo Stn., Meredith

### 2020 Data Summary

**Recommended Actions:** Great job sampling in 2020! Lake quality remained representative of oligotrophic, or high quality conditions, and the improving trends are a great sign. Algal growth (chlorophyll) was elevated in August likely due to drought conditions, warmer water temperatures and above average clarity. Monitor the increasing conductivity and chloride trends as chloride can negatively impact drinking water and aquatic life. Encourage local and private winter maintenance companies to obtain NH Voluntary Salt Applicator License through the Green SnowPro Certification program. Clean up roadside ditches and culverts of any leftover sa nd/salt mixtures applied to roads during winter months. Continue watershed management efforts to reduce nutrient loads and stormwater runoff. Keep up the great work!

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

- ◆ **Chlorophyll-a:** Chlorophyll level was low in July, increased to an elevated level in August, and then decreased to a low level in September. Average chlorophyll level increased slightly from 2019, was less than the state median, and was slightly greater than the threshold for oligotrophic lakes. Historical trend analysis indicates relatively stable chlorophyll levels since monitoring began.
- ◆ **Conductivity/Chloride:** Deep spot, Inlet, Outlet, Perkins Cove, Sayward Bk., and Sayward Bk. at Rock Ridge conductivity and/or chloride levels remained slightly elevated and greater than the state medians. Historical trend analysis indicates significantly increasing (worsening) epilimnetic (upper water layer) conductivity levels since monitoring began. Camp Rd. Trib., EE Brook and Mayo Farm Bk. conductivity and chloride levels were low and less than the state medians.
- ◆ **Color:** Apparent color measured in the epilimnion indicates the water was clear, with little to no tea coloring, from July through September.
- ◆ **Total Phosphorus:** Epilimnetic phosphorus level was low in July, decreased in August and then increased slightly in September. Average epilimnetic phosphorus level increased slightly from 2019 and was less than the state median and the threshold for oligotrophic lakes. Historical trend analysis indicates significantly decreasing (improving) epilimnetic phosphorus levels since monitoring began. Metalimnetic (middle water layer) phosphorus levels fluctuated within a low range and were highest in August when algal growth was elevated. Hypolimnetic (lower water layer) phosphorus level was slightly elevated in July and August. Inlet, Outlet and Perkins Cove phosphorus levels were moderate in July during low flows and decreased to low levels in August and September. Sayward Bk. and Sayward at Rock Ridge phosphorus levels were moderate and within an average range for those stations. Camp Rd. Trib. phosphorus level was elevated and the turbidity of the sample was also elevated due to sediment. EE Brook phosphorus levels were slightly elevated and sediment was noted in the sample.
- ◆ **Transparency:** Transparency measured with (VS) and without (NVS) the viewscope fluctuated within a high (good) range for the lake and was lowest (worse) in September. Average NVS transparency increased (improved) from 2019 and was much higher (better) than the state median. Historical trend analysis indicates significantly increasing (improving) NVS transparency since monitoring began.
- ◆ **Turbidity:** Deep spot, Inlet, Mayo Farm Bk., Outlet, Perkins Cove, and Sayward Bk. at Rock Ridge turbidity levels fluctuated within a low range. Camp Rd. Trib. turbidity levels were elevated and moderate levels of sediment were noted in the sample. EE Brook and Sayward Bk. turbidity levels were slightly elevated and low levels of sediment were noted in the sample.
- ◆ **pH:** Epilimnetic, Metalimnetic, EE Brook, Inlet, Mayo Farm Bk., Outlet, Perkins Cove, Sayward Bk. and Sayward at Rock Ridge pH levels were within the desirable range 6.5-8.0 units. Historical trend analysis indicates stable epilimnetic pH levels since monitoring began. Hypolimnetic and Camp Rd. Trib. 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 ug/L
- 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. 2020 Average Water Quality Data for LAKE WAUKEWAN - MAYO STN.									
	Alk. (mg/L)	Chlor-a (ug/L)	Chloride (mg/L)	Color (pcu)	Cond. (us/cm)	Total P (ug/L)	Trans. (m)		Turb. (ntu)	pH
Epilimnion	8.1	3.50	32	7	111.9	6	NVS 7.85	VS 7.83	0.26	6.88
Metalimnion					111.4	8			0.32	6.69
Hypolimnion					108.6	13			0.41	6.10
Camp Rd. Trib.			7		34.8	65			11.20	6.40
EE Brook			3		21.5	23			1.32	6.51
Inlet			31		110.9	7			0.29	6.72
Mayo Farm Bk.			5		30.7	7			0.89	6.61
Outlet			32		112.7	8			0.36	6.80
Perkins Cove			31		113.4	9			0.22	6.67
Sayward Bk.			26		89.1	15			1.89	6.72
Sayward Bk. at Rock Ridge			24		83.3	14			0.93	6.75

### 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 show low variability.	Transparency	Improving	Data significantly increasing.
			Phosphorus (epilimnion)	Improving	Data significantly decreasing.

