



VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS

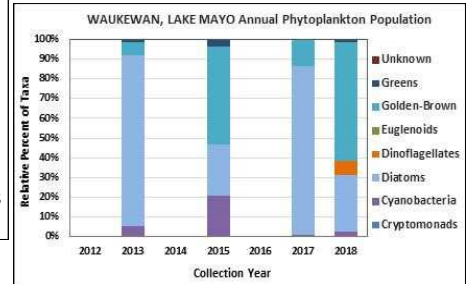
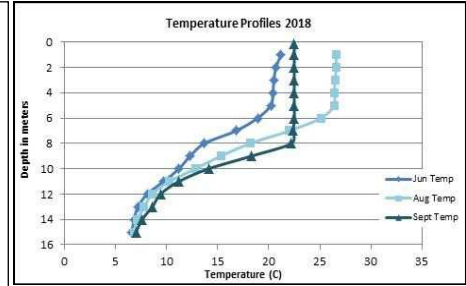
LAKE WAUKEWAN, MAYO STN., MEREDITH

2018 DATA SUMMARY

RECOMMENDED ACTIONS: Lake quality is representative of oligotrophic, or high quality, conditions, and the improving trends are a great sign. Conductivity has increased in the lake likely due to the application of winter de-icing materials on roads, parking lots, driveways, and walkways. Encourage local road agents and winter maintenance companies to obtain a NH Voluntary Salt Applicators License through UNH Technology Transfer Center's Green SnowPro Certification program. Encourage road agents and homeowner's to clean up roadside ditches and culverts of any leftover sand/salt mixtures applied 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 levels were low in June and increased gradually into September but remained within a low range. Average chlorophyll level decreased slightly from 2017 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:** Deep spot, Inlet, Outlet, Perkins Cove, Sayward Bk., and Sayward Bk. At Rock Ridge conductivity and/or chloride levels were slightly elevated and greater than the state medians, but chloride levels remained much less than the state chronic chloride standard. Historical trend analysis indicates significantly increasing (worsening) epilimnetic conductivity levels since monitoring began. Camp Rd. Trib., EE Brook and Mayo Farm Bk. conductivity levels were low and approximately equal to the state median.
- ◆ **COLOR:** Apparent color was measured in the epilimnion and indicated the lake water was clear with little to no tea coloring.
- ◆ **TOTAL PHOSPHORUS:** Epilimnetic phosphorus level was invalidated in June, and was within a very low range in August and September. Average epilimnetic phosphorus level decreased slightly from 2017 and was much 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 and Hypolimnetic phosphorus levels were slightly elevated in August potentially due to above average rainfall in the days and weeks prior to sampling. Tributary phosphorus levels were within a low range, and Sayward Bk. At Rock Ridge phosphorus level was within a moderate range.
- ◆ **TRANSPARENCY:** Transparency measured with (VS) and without (NVS) the viewscope was lower in June, increased (improved) in August, and then decreased slightly in September. Average NVS transparency increased (improved) from 2017 and was much higher (better) than the state median. Historical trend analysis indicates significantly increasing (improving) transparency since monitoring began.
- ◆ **TURBIDITY:** Deep spot, EE Brook, Inlet, Outlet, Perkins Cove, and Sayward Bk. At Rock Ridge turbidity levels were within a low range. Camp Rd. Trib. turbidity level was elevated in April and it was noted to contain particulate matter. Mayo Farm Bk. And Sayward Bk. turbidity levels were slightly elevated in April.
- ◆ **PH:** Epilimnetic, Metalimnetic and tributary pH levels were within the desirable range 6.5-8.0 units. Historical trend analysis indicates stable epilimnetic pH levels since monitoring began. Hypolimnetic pH levels were slightly less than desirable.



Station Name	Table 1. 2018 Average Water Quality Data for LAKE WAUKEWAN, MAYO STN. - MEREDITH									
	Alk. mg/l	Chlor-a ug/l	Chloride mg/l	Color pcu	Cond. us/cm	Total P mg/l	Trans. m		Turb. ntu	pH
							NVS	VS		
Epilimnion	8.3	2.43	31	23	126.4	3	7.73	7.78	0.35	7.02
Metalimnion					125.1	10			0.64	6.75
Hypolimnion					127.8	12			0.73	6.30
Camp Rd. Trib.			7		43.5	8			6.05	6.51
EE Brook			3		33.5	6			0.23	6.64
Inlet			26		116.0	6			0.58	6.71
Mayo Farm Bk.			5		38.8	6			1.86	6.73
Outlet			27		133.3	5			0.49	6.97
Perkins Cove			30		128.0	8			0.43	6.90
Sayward Bk.			35		138.8	8			1.63	6.86
Sayward Bk. at Rock Ridge			39		150.3	11			0.43	6.84

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

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.

