



# VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS

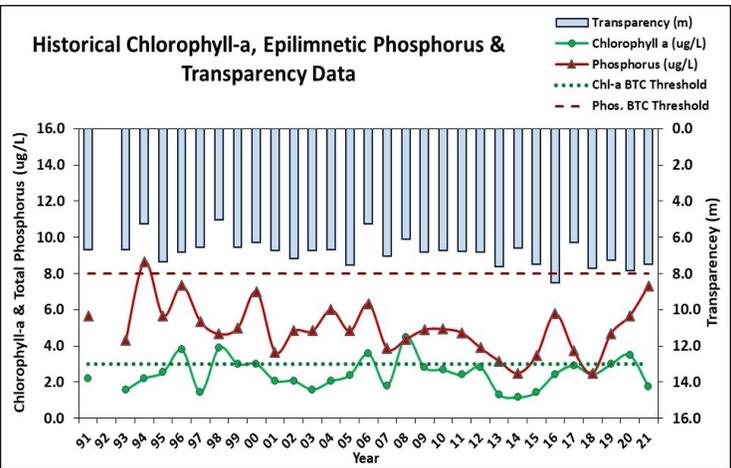
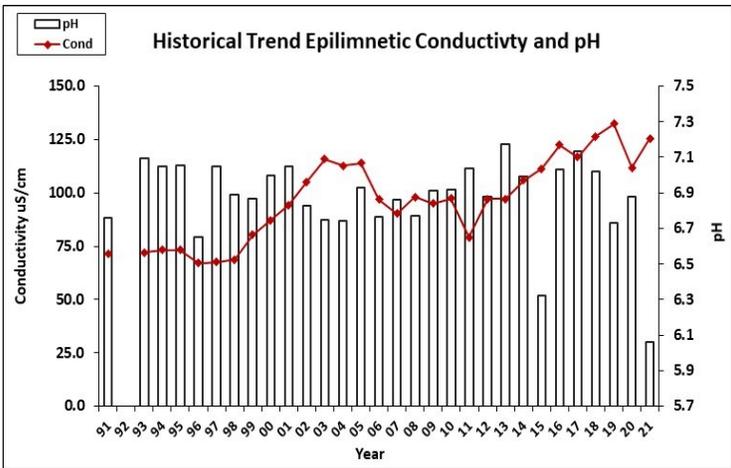
## LAKE WAUKEWAN, MAYO STN., MEREDITH

### 2021 DATA SUMMARY

**RECOMMENDED ACTIONS:** Great job sampling in 2021! Lake quality remained representative of oligotrophic, or high quality conditions, however Epilimnetic (upper water layer) phosphorus (nutrient) levels have increased steadily since 2018 and were the highest measured since 1996. Nutrient levels were generally elevated in June following spring snowmelt and runoff. Clean up roadside ditches and culverts of any leftover sand/salt mixtures applied to roads during winter months. Continue watershed management efforts to reduce nutrient loads and stormwater run-off. 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 Green SnowPro Certification. Continue efforts to monitor water quality in spring, fall and winter to better understand nutrient dynamics and affects on cyanobacteria growth. Keep up the great work!

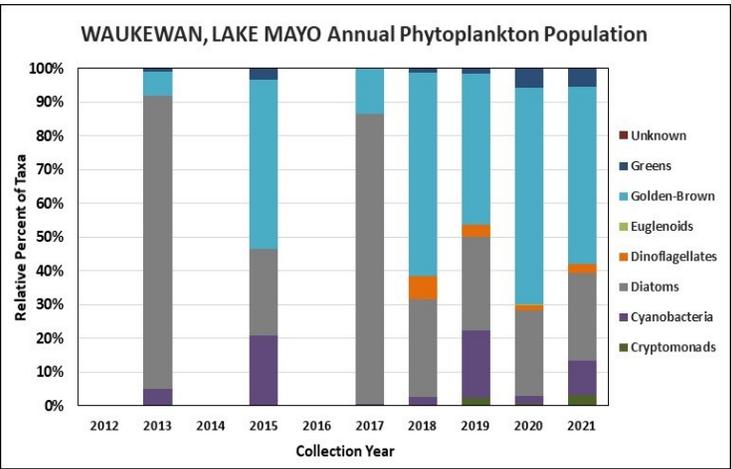
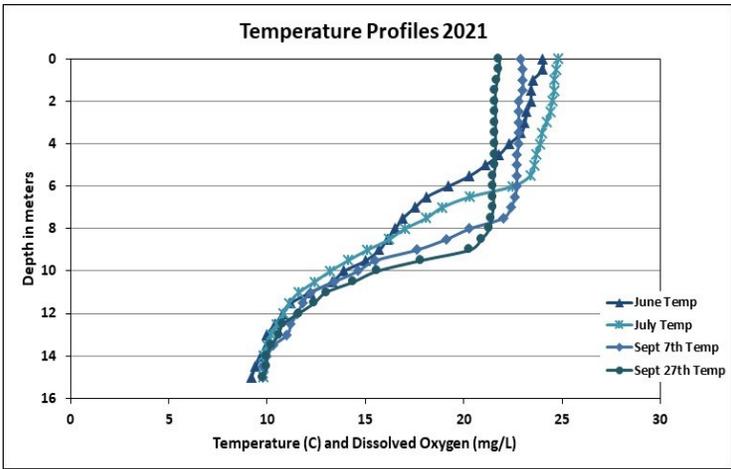
### HISTORICAL WATER QUALITY TREND ANALYSIS

Parameter	Trend	Parameter	Trend
Conductivity	Worsening	Chlorophyll-a	Stable
pH (epilimnion)	Stable	Transparency	Improving
		Phosphorus (epilimnion)	Stable



### DISSOLVED OXYGEN AND PHYTOPLANKTON

(Note: Information may not be collected annually)





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

- ◆ **CHLOROPHYLL-A:** Chlorophyll level was within a low range in June, increased slightly through early September, and then decreased in late September. Average chlorophyll level decreased from 2020 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 chloride levels remained slightly elevated and greater than the state medians. Historical trend analysis indicates significantly increasing (worsening) epilimnetic conductivity levels since monitoring began. Camp Rd. Trib., EE Brook and Mayo Farm Brook conductivity and chloride levels were within a low range.
- ◆ **COLOR:** Epilimnetic color data indicate the water was clear in June and then darkened to lightly tea colored, or light brown, conditions from July through September.
- ◆ **TOTAL PHOSPHORUS:** Epilimnetic phosphorus level was elevated in June, decreased to a low level in July and remained stable through September. Average epilimnetic phosphorus level increased from 2020 but remained less than the state median and the threshold for oligotrophic lakes. Historical trend analysis indicates relatively stable epilimnetic phosphorus level since monitoring began. Metalimnetic phosphorus level was slightly elevated in June and early September. Hypolimnetic phosphorus level was slightly elevated, but within an average range for the station, from June through early September. Outlet and Perkins Cove phosphorus levels were within a low range, and were highest in June. Inlet phosphorus levels were lowest in July. Camp Rd. Trib., EE Brook, and Mayo Farm Bk. phosphorus levels were low. Sayward Bk. and Sayward at Rock Ridge phosphorus levels were within a moderate and average range for those stations.
- ◆ **TRANSPARENCY:** Transparency measured with (VS) and without (NVS) the viewscope was above average (good) for the lake in June, decreased slightly in July, decreased further in early September when algal growth was higher, and then increased in late September. Average NVS transparency remained stable with 2020 and was much higher (better) than the state median. Historical trend analysis indicates significantly increasing (improving) transparency since monitoring began.
- ◆ **TURBIDITY:** Epilimnetic, Hypolimnetic, EE Brook, Inlet, Outlet, Perkins Cove, and Sayward Bk. at Rock Ridge turbidity levels fluctuated within a low range. Metalimnetic turbidity level was slightly elevated in early September when algal growth was higher and transparency was lower. Mayo Farm Bk., Camp Rd. Trib. and Sayward Bk. turbidity levels were slightly elevated and lab data noted sediment and/or organic matter is Mayo Farm and Camp Rd.
- ◆ **PH:** Deep spot, Camp Rd. Trib., EE Brook, and Inlet pH levels were slightly less than desirable range 6.5-8.0 units. Historical trend analysis indicates relatively stable epilimnetic pH levels since monitoring began. Mayo Farm Bk., Outlet, Perkins Cove, Sayward Bk., and Sayward Bk. at Rock Ridge pH levels were within the desirable range.

Station Name	Table 1. 2021 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
							NVS	VS		
Epilimnion	7.9	1.76	32	20	125.6	7	7.48	7.64	0.46	6.06
Metalimnion					130.8	9			0.72	6.45
Hypolimnion					129.8	13			0.86	6.06
Camp Rd. Trib.			3		28.8	6			4.00	6.35
EE Brook			3		31.0	8			0.27	6.45
Inlet			22		98.4	9			0.48	6.14
Mayo Farm Bk.			7		41.4	9			1.06	6.49
Outlet			34		132.8	7			0.39	6.70
Perkins Cove			34		134.4	8			0.51	6.56
Sayward Bk.			32		125.5	12			1.41	6.81
Sayward Bk. Rock Ridge			36		138.8	14			0.64	6.64

#### NH Median Values

Median values 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

#### NH Water Quality Standards

Numeric criteria for specific parameters. Water quality violation if thresholds exceeded.

**Chloride:** > 230 mg/L (chronic) **Turbidity:** > 10 NTU above natural

**E. coli:** > 88 cts/100 mL (beach)

**E. coli:** > 406 cts/100 mL (surface waters)

**pH:** between 6.5-8.0 (unless naturally occurring)