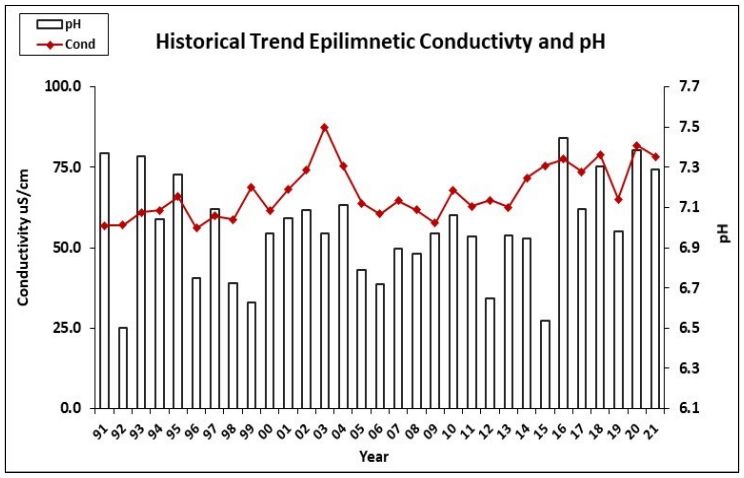
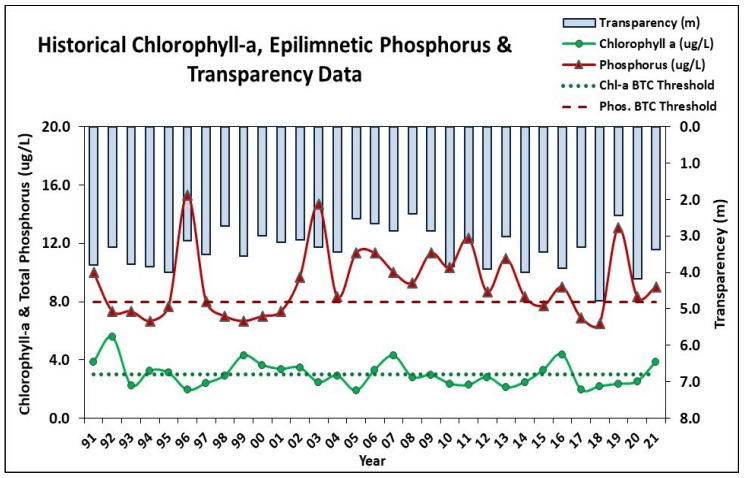
Volunteer Lake Assessment Program Individual Lake Reports
Mascoma Lake, Enfield
2021 Data Summary

Recommended Actions: Great job sampling in 2021! Lake quality is generally representative of oligotrophic, or high quality, conditions. However, the lake has a history of elevated nutrient (phosphorus) levels and decreased water clarity, particularly following significant storm events. Several tributaries also experience elevated phosphorus and turbidity levels, particularly Browns and Shaker Brooks, following significant storm events. This highlights the importance of managing stormwater runoff within the watershed. Consider partnering with Soak Up the Rain NH to implement stormwater improvement projects along the shoreline. Encourage shorefront property owners to become certified LakeSmart through NH LAKES lake-friendly living program. Based upon monthly temperature profiles, the Metalimnion sample depth should be adjusted to six meters for future sampling events. Continue collaboration with the Mascoma River Local Advisory Committee in developing a River Corridor Management Plan. Keep up the great work!

Historical Water Quality Trend Analysis

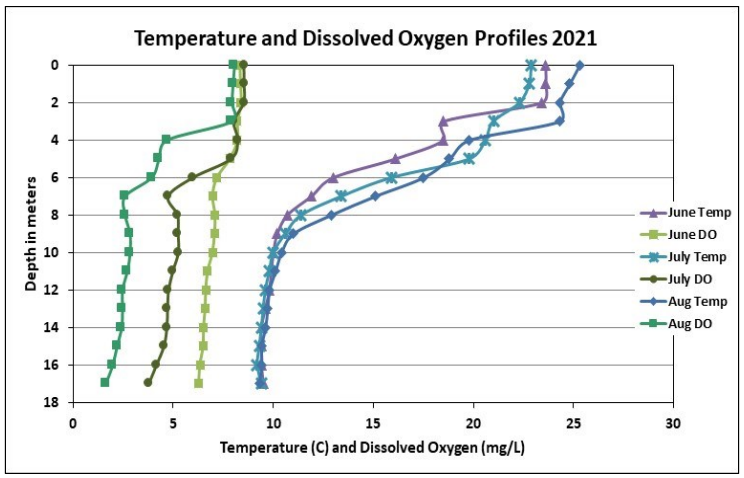
Parameter	Trend	Parameter	Trend
Conductivity	Worsening	**Chlorophyll-a**	Stable
pH (epilimnion)	Stable	**Transparency**	Stable
		Phosphorus (epilimnion)	Stable

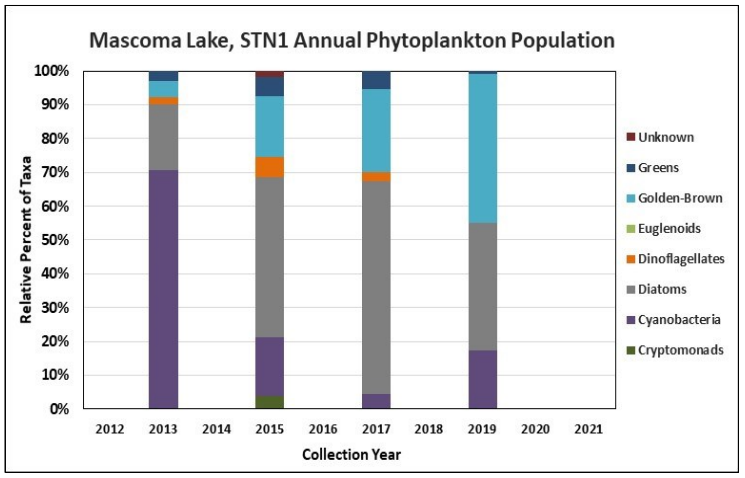




Dissolved Oxygen and Phytoplankton

(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 slightly elevated in June and decreased to a low level as the summer progressed. Average chlorophyll level increased slightly from 2020, was less than the state median, and was slightly greater than the threshold for oligotrophic lakes. Historical trend analysis indicates stable chlorophyll levels since monitoring began.
- **Conductivity/Chloride:** Epilimnetic (upper water layer), Metalimnetic (middle water layer), Hypolimnetic (lower water layer), Outlet, Knox, and Mascoma River Inlet conductivity and/or chloride levels remained slightly greater than the state medians, yet less than a level of concern. Historical trend analysis indicates significantly increasing (worsening) epilimnetic conductivity levels since monitoring began. Browns Bk. conductivity and chloride levels were slightly elevated. Shaker Bk. conductivity and chloride levels remained elevated particularly in June during low flow conditions. LaSalette Bk. conductivity and chloride levels were very low.
- **Color:** Apparent color measured in the epilimnion indicates the water was moderately tea colored, or brown, and gradually darkened from June through August.
- **E. coli:** Knox River and Mascoma River E. coli levels were less than the state standard for surface waters in July following significant storm events and record rainfall.
- **Total Phosphorus:** Epilimnetic phosphorus level was low in June, increased to a slightly elevated level in July following record rainfall, and then decreased slightly in August. Average epilimnetic phosphorus level increased slightly from 2020, was less than the state median, and was slightly greater than the threshold for oligotrophic lakes. Historical trend analysis indicates relatively stable epilimnetic phosphorus levels since monitoring began. Metalimnetic phosphorus level was slightly elevated. Hypolimnetic phosphorus level fluctuated within an average range for that station. Browns and Shaker Brook phosphorus levels were elevated in July and August following significant storm events. LaSalette Brook phosphorus levels were elevated in June during low flow conditions. Knox and Mascoma River phosphorus levels were slightly above average but fairly stable from June through August. Outlet phosphorus levels were low.
- **Transparency:** Transparency measured with (VS) and without (NVS) the viewscope was high (good) in June, decreased (worsened) in July following significant storm events and record rainfall, and then increased (improved) in August. Average NVS transparency decreased from 2020 and was slightly higher (better) than the state median. Historical trend analysis indicates relatively stable NVS transparency since monitoring began, and significant increasing (improving) VS transparency since 2006.
- **Turbidity:** Epilimnetic and Outlet turbidity levels were stable and low. Metalimnetic and Hypolimnetic turbidity levels increased gradually as the summer progressed but were within an average range for those stations. Browns Bk. turbidity level was slightly elevated in August. LaSalette Bk., Shaker Bk., Knox and Mascoma River turbidity levels were slightly elevated in July and August following significant storm events.
- **pH:** Epilimnetic, Browns Bk., Outlet, LaSalette Bk., Shaker Bk., Knox, and Mascoma River Inlet pH levels were within the desirable range 6.5-8.0 units. Historical trend analysis indicates relatively stable epilimnetic pH levels since monitoring began. Metalimnetic and Hypolimnetic pH levels were slightly less than desirable.

Station Name	Table 1. 2021 Average Water Quality Data for MASCOMA LAKE - ENFIELD										
	Alk. (mg/L)	Chlor-a (ug/L)	Chloride (mg/L)	Color (pcu)	Cond. (us/cm)	E. coli (cts/100mL)	Total P (ug/L)	Trans. (m)		Turb. (ntu)	pH
								NVS	VS		
Epilimnion	11.73	3.87	9	60	78.4		9	3.37	4.35	0.81	7.29
Metalimnion					70.4		11			1.09	6.46
Hypolimnion					70.0		15			2.52	6.38
Browns Brook			34		204.6		50			1.78	6.57
Dam Outlet			17		79.1		9			1.04	7.30
Knox River Inlet			16		124.5	87	19			2.08	7.13
LaSalette Brook			3		31.7		15			1.22	7.14
Mascoma River Inlet			10		89.8	272	23			3.90	7.03
Shaker Brook			89		525.0		26			1.76	7.54

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)