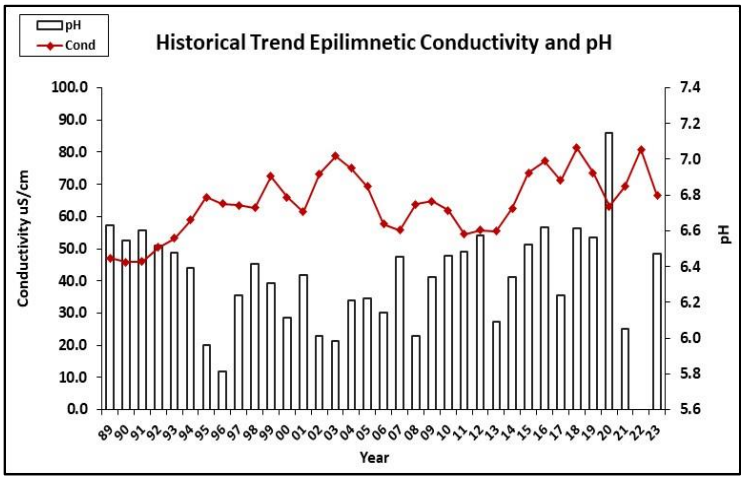
2023 VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS
GRANITE LAKE, STODDARD

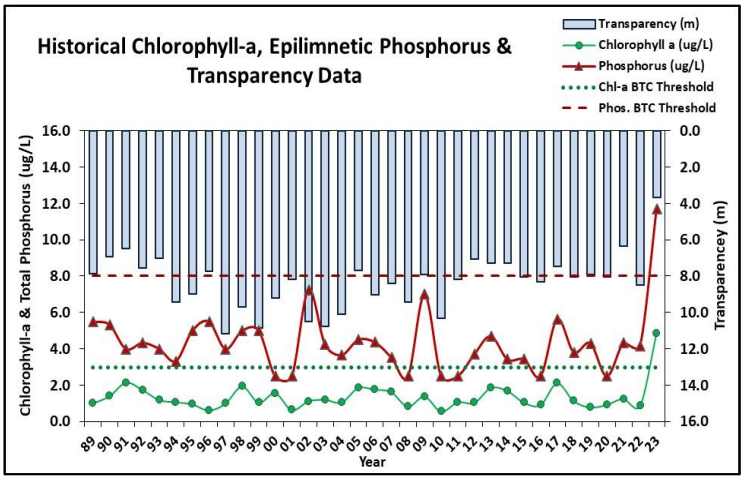
Recommended Actions: Great job sampling in 2023! Lake quality remains representative of oligotrophic, or high quality, waters with low levels of nutrients (phosphorus) and algal (chlorophyll-a) growth. However, excessive summer rainfall and severe flooding around the lake in July resulted in the highest levels of nutrients (phosphorus), algal growth (chlorophyll) and turbidity measured in the lake and the lowest water clarity (transparency). By August, the lake had recovered somewhat, but water and algal growth remained poor. We hope to see the lake fully recovered by 2024. This highlights the delicate balance of the lake ecosystem and the sensitivity to changes in climate and water quality. The increased frequency and intensity of storm events highlights the importance of continually managing stormwater runoff within the watershed by stabilizing dirt/gravel roads, stream banks and shorelines to minimize erosion and sedimentation during extreme storm events. Continue to inventory culverts around the lake and prioritize culvert replacement to ensure properly sized culverts that can handle 100-year storm events on a regular basis. Encourage shoreline property owners to be certified LakeSmart through NH LAKES' lake-friendly living program. Keep up the great work!

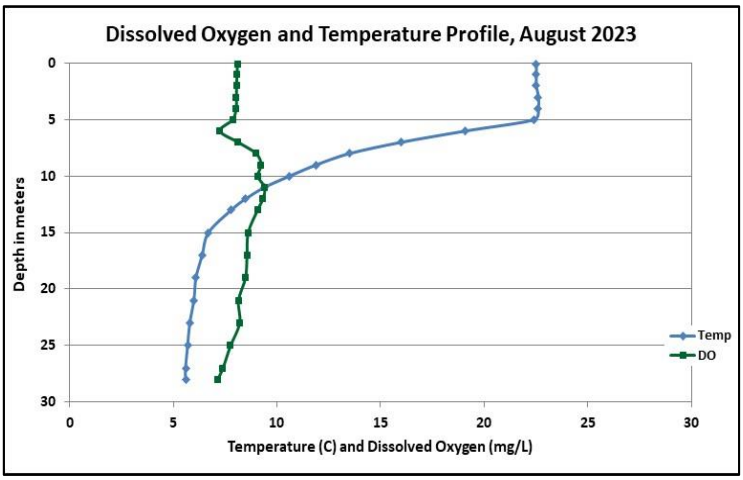
HISTORICAL WATER QUALITY TREND ANALYSIS

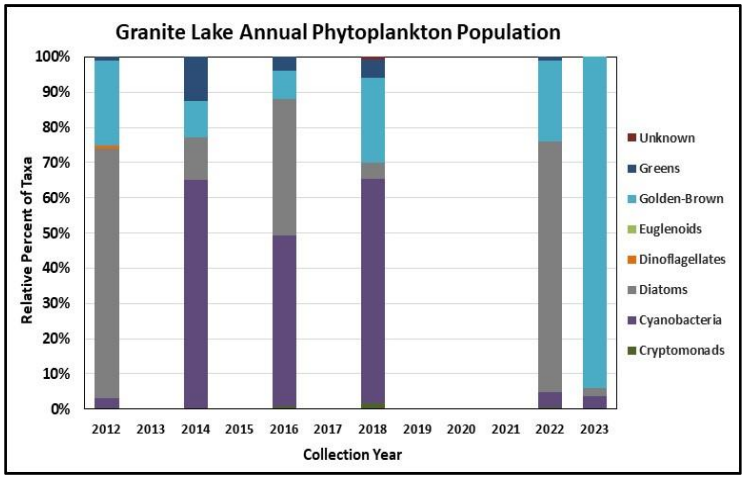
PARAMETER	TREND	PARAMETER	TREND
Conductivity	Worsening	**Chlorophyll-a**	Stable
pH (epilimnion)	Stable	**Transparency**	Stable
Phosphorus (hypolimnion)	Stable	**Phosphorus (epilimnion)**	Stable

HISTORICAL WATER QUALITY GRAPHICS









2023 Volunteer Lake Assessment Program Individual Lake Reports

Granite Lake, Stoddard

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

- **Chlorophyll-a:** Chlorophyll level was low in July and increased to an elevated level in August. Average chlorophyll level increased from 2022, was greater than the state median and the threshold for oligotrophic lakes, and was the highest measured since monitoring began. Historical trend analysis indicates stable chlorophyll levels since monitoring began.
- **Conductivity/Chloride:** Deep Spot, 586 and 603 Granite Lk. Rd., Inlet, Nye Meadow Outlet, Outlet, and Townline Inlet conductivity and/or chloride levels were slightly greater than the state medians yet less than a level of concern. However, historical trend analysis indicates significantly increasing (worsening) epilimnetic (upper water layer) conductivity levels since monitoring began. 210, 305 and 395 North Shore Rd., Foxweldon, North Shore West Shore, North Shore End, and Warren Dr. conductivity and/or chloride levels were low and less than the state median. 58 West Shore Rd. conductivity and chloride levels were elevated, and chloride levels approached the state chronic chloride standard.
- **Color:** Apparent color measured in the epilimnion indicates the water was lightly tea colored, or light brown, and was twice as dark as that measured in 2022.
- **Total Phosphorus:** Epilimnetic, Metalimnetic and Outlet phosphorus levels were elevated in July following flooding and decreased to a low level by August. Average epilimnetic phosphorus level increased from 2022, was greater than the state median and the threshold for oligotrophic lakes, and was the highest measured since monitoring began. Hypolimnetic phosphorus level was low. Historical trend analysis indicates relatively stable epilimnetic and hypolimnetic phosphorus levels since monitoring began. 305 and 395 North Shore Rd., 586 and 603 Granite Lk. Rd., 58 West Shore Rd., Foxweldon, North Shore West Shore, Townline Inlet, and Warren Dr. phosphorus levels were low. 210 North Shore Rd., Inlet, Nye Meadow Outlet, and North Shore End phosphorus levels were elevated in August following a rain event and during low flow conditions.
- **Transparency:** Transparency measured with (VS) and without (NVS) the viewscope was very low (worse) in July following floods and increased (improved) in August but remained below average. NVS transparency decreased (worsened) from 2022, remained higher (better) than the state median, yet was the lowest (worst) measured since monitoring began. Historical trend analysis indicates relatively stable NVS transparency since monitoring began.
- **Turbidity:** Epilimnetic, Metalimnetic, Outlet, and Nye Meadow Outlet turbidity levels were elevated in July following flooding. Hypolimnetic, 305 and 395 North Shore Rd., 586 and 603 Granite Lk. Rd., Foxweldon, North Shore End, North Shore West Shore, Townline Inlet, and Warren Dr. turbidity levels were low. 201 North Shore Rd. and 58 West Shore Rd. turbidity levels were slightly elevated in August.
- **pH:** Deep spot and tributary pH levels were acidic to slightly acidic and fluctuated below the desirable range of 6.5-8.0 units. Historical trend analysis indicates stable, yet variable, epilimnetic pH levels since monitoring began.

Table 1. 2023 Average Water Quality Data for GRANITE LAKE - STODDARD

Station Name	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	2.6	4.84	14	30	66.5	12	3.68	3.88	3.40	6.47
Metalimnion	-	-	-	-	82.4	9	-	-	2.44	6.32
Hypolimnion	-	-	-	-	91.1	6	-	-	0.85	6.05
210 North Shore Rd.	-	-	3	-	28.0	15	-	-	1.46	6.48
305 North Shore Rd.	-	-	3	-	21.0	3	-	-	0.24	6.24
395 North Shore Rd.	-	-	3	-	22.1	7	-	-	0.51	6.28
58 West Shore Rd.	-	-	175	-	628.0	7	-	-	1.46	6.17
586 Granite Lake Rd.	-	-	32	-	145.8	6	-	-	0.44	6.37
603 Granite Lake Rd.	-	-	20	-	130.4	3	-	-	0.18	4.73
Foxweldon	-	-	3	-	32.7	7	-	-	0.59	6.51
Inlet	-	-	19	-	85.4	13	-	-	1.46	6.36
North Shore End	-	-	-	-	18.9	10	-	-	0.38	6.14
North Sh. West Sh.	-	-	-	-	16.0	6	-	-	0.34	5.42
Nye Meadow Outlet	-	-	7	-	43.0	16	-	-	1.66	5.81
Outlet In Stream	-	-	-	-	64.9	14	-	-	4.62	6.29
Townline Inlet	-	-	32	-	147.0	7	-	-	0.68	5.97
Warren Dr.	-	-	2	-	19.7	8	-	-	0.59	6.07

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)