Volunteer Lake Assessment Program Individual Lake Reports

GRANITE LAKE, STODDARD, NH

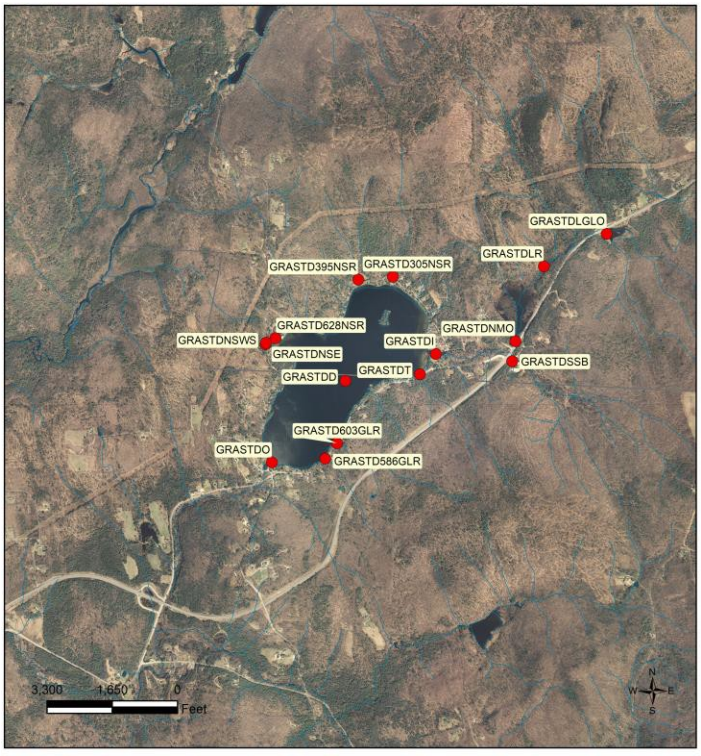
MORPHOMETRIC DATA | **TROPHIC CLASSIFICATION** | **KNOWN EXOTIC SPECIES**

Watershed Area (Ac.):	2,432	**Max. Depth (m):**	28.9	**Flushing Rate (yr^{1})**	0.7	**Year**	**Trophic class**	
Surface Area (Ac.):	228	**Mean Depth (m):**	9.8	**P Retention Coef:**	0.61	1996	OLIGOTROPHIC	
Shore Length (m):	4,500	**Volume (m^3):**	9,027,000	**Elevation (ft):**	1278	2006	OLIGOTROPHIC	

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	Bad	Data periodically exceed water quality standards or thresholds for this parameter by a large margin.
	Oxygen, Dissolved	Encouraging	Limited data for this parameter predicts water quality standards or thresholds are being met; however more data are necessary to fully assess the parameter.
	Dissolved oxygen satura	Encouraging	Limited data for this parameter predicts water quality standards or thresholds are being met; however more data are necessary to fully assess the parameter.
	Chlorophyll-a	Very Good	Sampling data is 50 percent better than the water quality standards or thresholds for this parameter.
Primary Contact Recreation	Escherichia coli	No Data	No data for this parameter.
	Chlorophyll-a	Very Good	All sampling data meet water quality standards or thresholds for this parameter.

VLAP SAMPLE STATION MAP: This map depicts the location of routine sampling stations discussed on page two of the report.



GRANITE LAKE
STODDARD
VOLUNTEER LAKE ASSESSMENT PROGRAM

STATIONID	STATION NAME
GRASTDD	DEEP SPOT
GRASTDO	OUTLET IN STREAM
GRASTDI	INLET
GRASTDT	TOWNLINE INLET
GRASTD603GLR	603 GRANITE LAKE RD
GRASTD586GLR	586 GRANITE LAKE RD
GRASTD305NSR	305 NORTH SHORE RD
GRASTD395NSR	395 NORTH SHORE RD
GRASTDNSWS	NORTH SHORE WEST SHORE
GRASTDNSE	NORTH SHORE END
GRASTDLGLO	LITTLE GRANITE LAKE OUTLET
GRASTDLR	LOGGING ROAD
GRASTDNMO	NYE MEADOW OUTLET
GRASTD628NSR	628 NORTH SHORE RD
GRASTDSSB	SOUTH ST BRIDGE

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Granite Lake, Stoddard
2020 Data Summary

Recommended Actions: Great job sampling in 2020! Lake quality remains representative of oligotrophic, or high quality, waters with low levels of nutrients (phosphorus) and algal (chlorophyll-a) growth. However, a cyanobacteria bloom was observed in the lake in 2020 which highlights the delicate balance of the lake ecosystem and the sensitivity to small changes in climate and water quality during drought conditions. Lake turbidity levels, while historically significantly increasing, were the lowest measured since monitoring began likely due to drought conditions and the lack of stormwater runoff. This highlights the importance of managing stormwater runoff within the watershed by stabilizing dirt/gravel roads, stream banks and shorelines to minimize erosion and sedimentation during extreme storm events. If not already done, 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 NHLAKES lake-friendly living program www.nhlakes.org/lakesmart/. Keep up the great work!

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

- **Chlorophyll-a:** Chlorophyll level was very low in August, remained stable with 2019, and was much less than the state median and the threshold for oligotrophic lakes. Historical trend analysis indicates relatively stable chlorophyll levels since monitoring began.
- **Conductivity/Chloride:** Epilimnetic (upper water layer), Metalimnetic (middle water layer), Hypolimnetic (lower water layer), and Outlet conductivity levels were slightly greater than the state median yet less than a level of concern. Epilimnetic chloride levels were also slightly greater than the state median yet much less than the state chronic chloride standard. However, historical trend analysis indicates significantly increasing (worsening) epilimnetic conductivity levels since monitoring began. Inlet conductivity and chloride levels were slightly elevated and much greater than the state medians. North Shore End conductivity levels were within a low range.
- **Color:** Apparent color measured in the epilimnion indicates the water was clear with no tea, or brown, coloring.
- **Total Phosphorus:** Epilimnetic, Metalimnetic, Hypolimnetic, and Outlet phosphorus levels were within a low range. Epilimnetic phosphorus level decreased from 2019 and was much less than the state median and the threshold for oligotrophic lakes. Historical trend analysis indicates relatively stable epilimnetic phosphorus levels since monitoring began. North Shore End phosphorus levels were slightly elevated for that station and Inlet phosphorus levels were elevated likely due to very low flow conditions.
- **Transparency:** Transparency measured without the viewscope (NVS) was within an average range for the lake, remained stable with 2019, and was much higher (better) than the state median. Historical trend analysis indicates relatively stable NVS transparency since monitoring began. Viewscope (VS) transparency was much higher (better) than NVS transparency and likely a better measure of actual conditions.
- **Turbidity:** Epilimnetic, Metalimnetic and Hypolimnetic turbidity levels were within a low range and were the lowest measured since monitoring began. Inlet, North Shore End and Outlet turbidity levels were also within a low range for NH lakes.
- **pH:** Epilimnetic, Metalimnetic, North Shore End, and Outlet pH levels were within the desirable range 6.5-8.0 units. Historical trend analysis indicates stable, yet variable, epilimnetic pH levels since monitoring began. Inlet pH levels were slightly less than desirable. Hypolimnetic pH levels were slightly acidic and potentially critical to aquatic life.

Table 1. 2020 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	3.3	0.94	18	0	63.2	3	8.05	9.30	0.08	7.15
Metalimnion					59.6	6			0.21	6.80
Hypolimnion					61.5	5			0.08	6.13
Inlet			55		167.0	49			1.09	6.40
North Shore End					19.3	19			0.42	6.64
Outlet In Stream					64.2	5			0.21	6.69

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

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)

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 highly variable.	Transparency	Stable	Trend not significant; data moderately variable.
			Phosphorus (epilimnion)	Stable	Trend not significant; data moderately variable.