



Volunteer Lake Assessment Program Individual Lake Reports

GREGG LAKE, ANTRIM, NH

MORPHOMETRIC DATA
TROPIC CLASSIFICATION
KNOWN EXOTIC SPECIES

Watershed Area (Ac.):	2,944	Max. Depth (m):	11	Flushing Rate (yr ¹)	1.6	Year	Trophic class	
Surface Area (Ac.):	195	Mean Depth (m):	5.3	P Retention Coef:	0.57	1978	OLIGOTROPIC	
Shore Length (m):	6,400	Volume (m ³):	4,199,000	Elevation (ft):	1053	1994	OLIGOTROPIC	

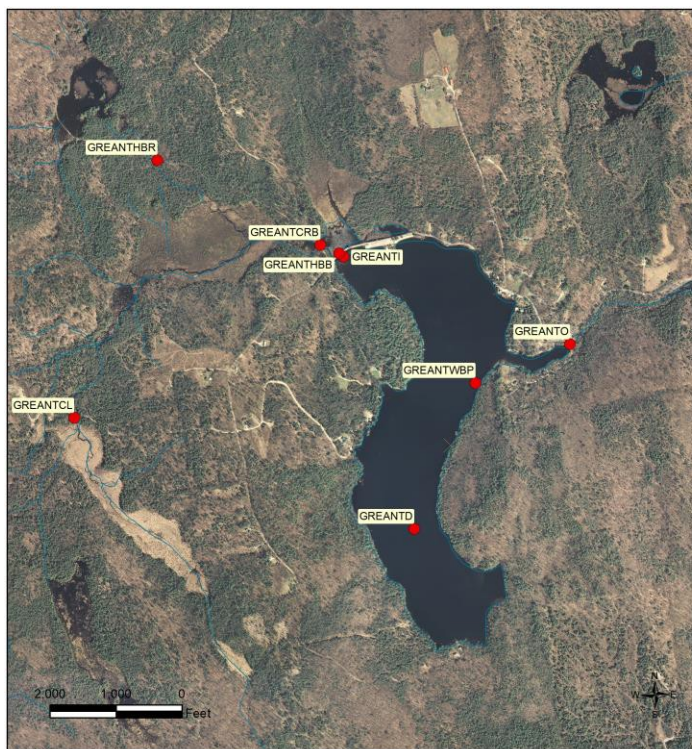
The Waterbody Report Card tables are generated from the DRAFT 2020 305(b) report on the status of N.H. waters, and are based on data collected from 2010-2019. Detailed waterbody assessment and report card information can be found at [NHDES' Water Quality Assessment Website](#).

Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Slightly Bad	Data exceed water quality standards or thresholds for a given parameter by a small margin.
	pH	Slightly Bad	Data periodically exceed water quality standards or thresholds for this parameter by a small margin.
	Oxygen, Dissolved	Good	Sampling data commonly meet water quality standards or thresholds for this 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	Slightly Bad	Data exceed water quality standards or thresholds for a given parameter by a small margin.
Primary Contact Recreation	Escherichia coli	Very Good	All sampling data meet water quality standards or thresholds for this parameter.
	Chlorophyll-a	Very Good	All sampling data meet water quality standards or thresholds for this parameter.

BEACH PRIMARY CONTACT ASSESSMENT STATUS

GREGG LAKE - TOWN BEACH	Escherichia coli	Good	Sampling data commonly meet water quality standards or thresholds for this parameter.
GREGG LAKE - CAMP CHENOA BEACH	Escherichia coli	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.



**GREGG LAKE
ANTRIM**
VOLUNTEER LAKE ASSESSMENT PROGRAM

STATIONID	STATION NAME
GREANTD	DEEP SPOT
GREANTI	INLET
GREANTO	OUTLET
GREANTWBP	WHITE BIRCH POINT
GREANTHBR	HATTIE BROWN RD
GREANTCL	CASTOR LANE
GREANTCRB	CRAIG RD BRIDGE
GREANTHBB	HATTIE BROWN BROOK

Source: The data layers are derived from NHDES data and are under constant revision. NHDES is not responsible for the use or interpretation of this information. Not intended for legal use. NHDES Watershed Management Bureau. Date: 3/11/2021





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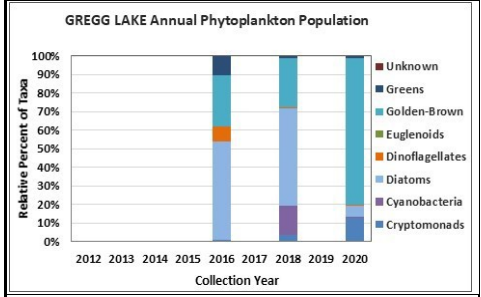
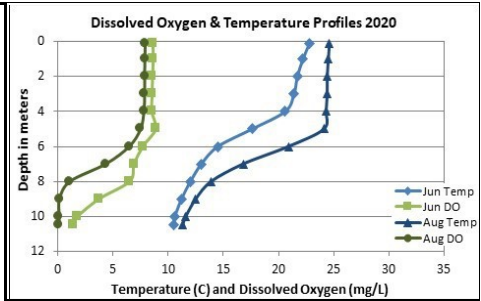
Gregg Lake, Antrim

2020 Data Summary

Recommended Actions: Great job sampling in 2020! Lake quality is generally representative of borderline oligotrophic/mesotrophic conditions with nutrient levels and algal growth fluctuating around the thresholds for oligotrophic lakes. Water quality has stabilized since 2016 due to more frequent monitoring which better assesses seasonal and annual variations. Lake turbidity levels have significantly increased likely as a result of increased frequency and intensity of storm events and associated stormwater runoff and flushing of wetlands rich in dissolved organic matter which imparts a “tea” or brown color to the water. Drought conditions in 2020 led to water color conditions being assessed as “clear” with no tea coloring in August which resulted in improved water clarity. Continue to assess how water color impacts turbidity and clarity levels in the lake. Continue watershed management plan development and implementation efforts to improve and maintain water quality. Keep up the great work!

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

- ◆ **Chlorophyll-a:** Chlorophyll level was within a borderline low to moderate range in June and remained stable in August. Average chlorophyll level decreased slightly from 2019, was less than the state median, and was slightly greater than the threshold for oligotrophic lakes. Historical trend analysis indicates relatively stable chlorophyll levels since monitoring began.
- ◆ **Conductivity/Chloride:** Deep spot and tributary conductivity and/or chloride levels were very low and less than the state medians. Historical trend analysis indicates relatively stable epilimnetic (upper water layer) conductivity levels since monitoring began.
- ◆ **Color:** Apparent color measured in the epilimnion indicates the water was lightly tea colored, or light brown, in June and then the color decreased to within a clear range in August.
- ◆ **Total Phosphorus:** Epilimnetic and Outlet phosphorus levels were moderate in June and decreased to a low level in August. Average epilimnetic phosphorus level increased slightly from 2019, was less than the state median, and was approximately equal to the threshold for oligotrophic lakes. Historical trend analysis indicates stable, yet variable, epilimnetic phosphorus levels since monitoring began. Metalimnetic (middle water layer), Craig Rd. Bridge, Hattie Brown Brook and Rd., and Inlet phosphorus levels fluctuated within a moderate range and were higher in August during low levels and flows. Hypolimnetic (lower water layer) phosphorus level was elevated in June and August potentially due to phosphorus release from bottom sediments under anoxic (low dissolved oxygen) conditions. Castor Lane phosphorus levels were elevated on each sampling event and the turbidity was also slightly elevated in August.
- ◆ **Transparency:** Transparency measured with (VS) and without (NVS) the viewscope was average for the lake in June and then increased (improved) greatly in August when water color was much lighter. Average NVS transparency increased (improved) slightly from 2019 and was higher (better) than the state median. Historical trend analysis indicates stable, yet variable, NVS transparency since monitoring began.
- ◆ **Turbidity:** Epilimnetic, Metalimnetic, Craig Rd. Bridge, Hattie Brown Brook and Rd., Inlet, and Outlet turbidity levels fluctuated within a low range. Hypolimnetic turbidity level was slightly elevated in August likely due to the formation and accumulation of organic compounds under anoxic conditions. Castor Lane turbidity level was slightly elevated in August likely due to low flow conditions.
- ◆ **pH:** Epilimnetic pH level was within the desirable range 6.5-8.0 units and historical trend analysis indicates stable, yet variable, epilimnetic pH levels since monitoring began. Metalimnetic, Hypolimnetic, Castor Lane, Craig Rd. Bridge, Hattie Brown Brook and Rd., Inlet, and Outlet pH levels were slightly acidic and potentially critical to aquatic life.



Station Name	Table 1. 2020 Average Water Quality Data for GREGG LAKE - ANTRIM									
	Alk.	Chlor-a	Chloride	Color	Cond.	Total P	Trans.		Turb.	pH
	mg/l	ug/l	mg/l	pcu	us/cm	ug/l	NVS	VS	ntu	
Epilimnion	2.7	3.66	3	30	15.8	8	4.75	5.28	0.62	6.74
Metalimnion					16.2	10			0.61	5.64
Hypolimnion					20.6	28			1.72	5.56
Castor Lane			3		17.8	36			1.53	5.56
Craig Rd. Bridge			3		14.0	19			0.40	5.83
Hattie Brown Brook					14.4	15			0.59	5.86
Hattie Brown Rd.			3		12.8	13			0.35	5.96
Inlet					14.8	16			0.55	5.88
Outlet					16.4	8			0.48	6.24

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 ug/L
- 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	Stable	Trend not significant; data moderately variable.	Chlorophyll-a	Stable	Trend not significant; data moderately variable.
pH (epilimnion)	Stable	Trend not significant; data highly variable.	Transparency	Stable	Trend not significant; data highly variable.
			Phosphorus (epilimnion)	Stable	Trend not significant; data highly variable.

