Volunteer Lake Assessment Program Individual Lake Reports

HIGHLAND LAKE, STODDARD, NH

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

Watershed Area (Ac.):	19,008	**Max. Depth (m):**	9.1	**Flushing Rate (yr^{-1})**	7	**Year**	**Trophic class**	
Surface Area (Ac.):	712	**Mean Depth (m):**	2.4	**P Retention Coef:**	0.49	1993	MESOTROPHIC	
Shore Length (m):	25,300	**Volume (m^3):**	6,971,500	**Elevation (ft):**	1294	2004	MESOTROPHIC	

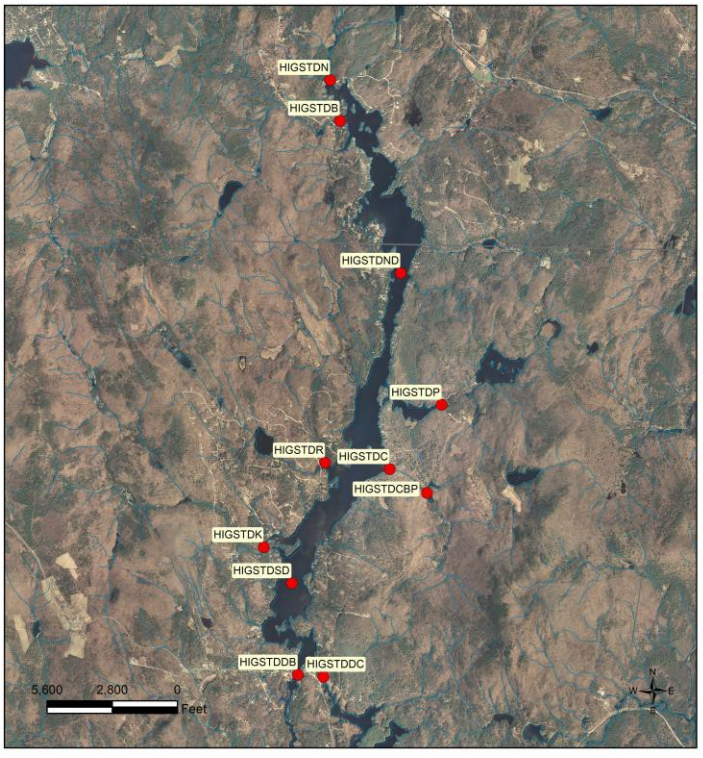
The Waterbody Report Card tables are generated from the DRAFT 2020 305(b) report on the status of N.H. waters, and are based on data collected from 2010-2019. Detailed waterbody assessment and report card information can be found at NHDES' Water Quality Assessment Website.

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 a given parameter by a large margin.
	Oxygen, Dissolved	Very Good	All sampling data meet water quality standards or thresholds for this parameter.
	Dissolved oxygen satura	Slightly Bad	Data periodically exceed water quality standards or thresholds for a given parameter by a small margin.
	Chlorophyll-a	Good	Sampling data is 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.

BEACH PRIMARY CONTACT ASSESSMENT STATUS

HIGHLAND LAKE-HIGHLAND LAKE BOAT LAUNCH	Escherichia coli	Bad	Data periodically exceed water quality standards or thresholds for this parameter by a large margin.

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



HIGHLAND LAKE
STODDARD
VOLUNTEER LAKE ASSESSMENT PROGRAM

STATIONID	STATION NAME
HIGSTDC	CARR BROOK
HIGSTDDB	DEAD BROOK
HIGSTDDC	DAM COMPOSITE
HIGSTDK	KENNEDY BROOK
HIGSTDND	STATION N DEEP SPOT
HIGSTDP	PICKEREL COVE BROOK
HIGSTDR	RICE BROOK
HIGSTDSD	STATION S
HIGSTDB	BARDEN POND BROOK
HIGSTDN	NORTH INLET
HIGSTDCBP	CARR BROOK POND

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: 2/17/2021

Volunteer Lake Assessment Program Individual Lake Reports
Highland Lake, South Stn., Stoddard
2020 Data Summary

Recommended Actions: Great job sampling in 2020! Lake quality is representative mesotrophic, or average, conditions. The improving phosphorus levels are encouraging however algal growth (chlorophyll) has remained within a higher range since 2014 and occasionally spikes above the threshold for mesotrophic lakes. The improving pH levels are also a great sign and indicates recovery from historical acid rain impacts. Drought conditions in 2020 did not negatively impact lake water quality, however tributaries ran dry. Focus on stormwater management within the watershed and particularly from shoreline properties. Encourage property owners to become 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 moderate in June and increased slightly in August. Average chlorophyll level increased from 2019 and was slightly greater than the state median and the threshold for mesotrophic lakes. Historical trend analysis indicates relatively stable chlorophyll levels since monitoring began.
- **Conductivity/Chloride:** Epilimnetic (deep spot) conductivity level was within a low range for NH lakes and less than the state median. Epilimnetic chloride level was also low and approximately equal to the state median. Historical trend analysis indicates indicate stable, yet variable, epilimnetic conductivity levels since monitoring began.
- **Color:** Apparent color measured in the epilimnion indicates the water was moderately tea colored, or brown, in June and then decreased to a lightly tea colored, or light brown, range in August.
- **Total Phosphorus:** Epilimnetic phosphorus level was low in June and increased slightly in August but remained within a low range. Average epilimnetic phosphorus level decreased slightly from 2019 and was less than the state median and the threshold for mesotrophic lakes. Historical trend analysis indicates significantly decreasing (improving) epilimnetic phosphorus levels since monitoring began.
- **Transparency:** Transparency measured with (VS) and without (NVS) the viewscope was high (good) in June and decreased slightly in August. Average NVS transparency decreased slightly from 2019 and was slightly less than the state median. Historical trend analysis indicates relatively stable NVS transparency since monitoring began.
- **Turbidity:** Epilimnetic turbidity level was within a low range and remained stable from June to August.
- **pH:** Epilimnetic pH level was slightly less than the desirable range 6.5-8.0 units, however historical trend analysis indicates significantly increasing (improving) epilimnetic pH levels since monitoring began.

Station Name	Table 1. 2020 Average Water Quality Data for HIGHLAND LAKE - SOUTH 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	2.6	5.36	5	45	26.3	9	2.52	2.81	0.48	6.32

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	Stable	Trend not significant; data highly variable.	Chlorophyll-a	Stable	Trend not significant; data moderately variable.
pH (epilimnion)	Improving	Data significantly increasing.	Transparency	Stable	Trend not significant; data moderately variable.
			Phosphorus (epilimnion)	Improving	Data significantly decreasing.