



Volunteer Lake Assessment Program Individual Lake Reports

GARDNER, LAKE, BATH, NH

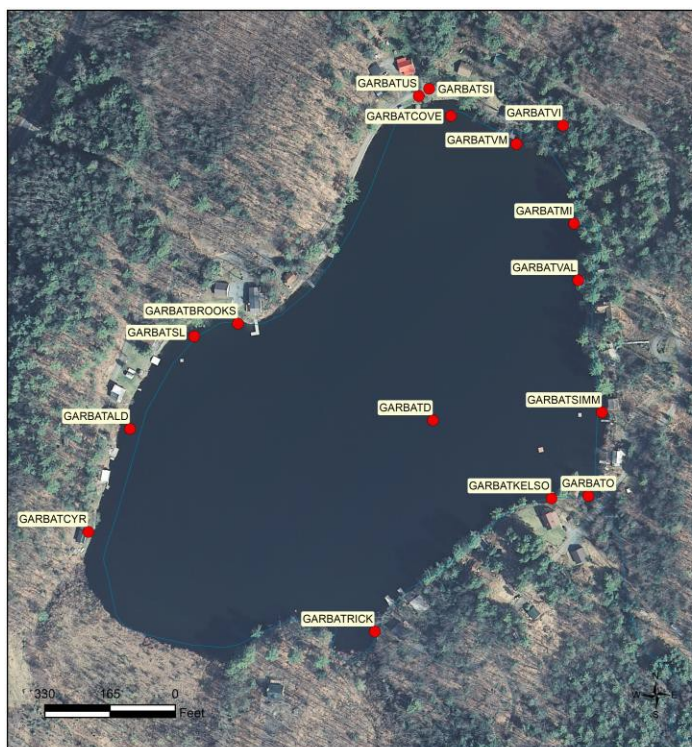
MORPHOMETRIC DATA
TROPIC CLASSIFICATION
KNOWN EXOTIC SPECIES

Watershed Area (Ac.):	141	Max. Depth (m):	4.7	Flushing Rate (yr¹)	0.8	Year	Trophic class	
Surface Area (Ac.):	25	Mean Depth (m):	2.6	P Retention Coef:	0.81	1985	OLIGOTROPHIC	
Shore Length (m):	1,100	Volume (m³):	256,500	Elevation (ft):	665			

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)	Cautionary	Limited data for this parameter predicts exceedance of water quality standards or thresholds; however more data are necessary to fully assess the parameter.
	pH	Very Good	All sampling data meet water quality standards or thresholds for this parameter.
	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	Good	Sampling data is better than the water quality standards or thresholds for this parameter.
Primary Contact Recreation	Escherichia coli	Very Good	All sampling data meet water quality standards or thresholds for this parameter.
	Cyanobacteria hepatoto	Slightly Bad	Cyanobacteria bloom(s).
	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.



LAKE GARDNER BATH

VOLUNTEER LAKE ASSESSMENT PROGRAM

STATIONID	STATION NAME
GARBATD	DEEP SPOT
GARBATO	OUTLET
GARBATUS	UNDERGROUND SPRING
GARBATSI	SCRUGGS INLET
GARBATBROOKS	O BROOKS
GARBATCYR	CYR
GARBATKELSO	KELSO
GARBATSIMM	SIMMONDS
GARBATRICK	RICKER
GARBATVAL	VALENTIN
GARBATMI	MINOT INLET
GARBATVI	VESILIND INLET
GARBATCOVE	COVE
GARBATSL	SHADY LANE
GARBATVM	VESILIND-MINOT
GARBATALD	ALDRICH

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





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Gardner Lake, Bath

2020 Data Summary

Recommended Actions: The improving lake clarity (transparency) is encouraging and we hope to see this continue! However, in-lake phosphorus levels are higher than desirable and chlorophyll levels have slowly increased since 2016. Be alert for potential cyanobacteria growth and notify NHDES' Harmful Algal Bloom Program at HAB@des.nh.gov if cyanobacteria are observed. Encourage property owners to become certified LakeSmart through NHLAKES lake-friendly living program www.nhlakes.org/lakesmart/ to help reduce stormwater runoff and stabilize shorelines. DelBanco Inlet conductivity levels were much higher than background levels for the lake and tributaries. Add chloride monitoring to this station in 2021 to better assess conductivity levels here. Keep up the great work!

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

- ◆ **Chlorophyll-a:** Chlorophyll level was elevated in June and then decreased to a slightly elevated level in September. Average chlorophyll level increased from 2019 and was greater than the state median and the threshold for oligotrophic lakes. Historical trend analysis indicates stable, yet variable, chlorophyll levels since monitoring began.
- ◆ **Conductivity/Chloride:** Epilimnetic (upper water layer), Hypolimnetic (lower water layer), Minot Inlet, Scruggs Inlet, and Vesilind Inlet conductivity levels were low and approximately equal to the state medians. Epilimnetic chloride level was also very low and less than the state median. Historical trend analysis indicates stable epilimnetic conductivity levels since monitoring began. DelBanco Inlet conductivity levels were slightly elevated and much greater than the state median.
- ◆ **Color:** Apparent color measured in the epilimnion indicates the water was lightly tea colored in June and September.
- ◆ **E. coli:** O Brooks and Ricker E. coli levels were very low and much less than the state standards for public beaches and surface waters.
- ◆ **Total Phosphorus:** Epilimnetic phosphorus level was slightly elevated in June and remained stable in September. Average epilimnetic phosphorus level remained stable with 2019 and was greater than the state median and the threshold for oligotrophic lakes. Historical trend analysis indicates stable epilimnetic phosphorus levels since monitoring began. Hypolimnetic phosphorus level was also slightly elevated in September. DelBanco Inlet, Scruggs Inlet and Vesilind Inlet phosphorus levels were within a low to average range. Minot Inlet phosphorus level was elevated in June during high flows and low levels of sediment and organic matter were noted in the sample.
- ◆ **Transparency:** Transparency measured with (VS) and without (NVS) the viewscope was within an average range for the lake in June and increased (improved) in September when the Secchi disk was visible on the lake bottom. Average NVS transparency decreased from 2019 and was slightly less than the state median. Historical trend analysis indicates significantly increasing (improving) NVS transparency since monitoring began.
- ◆ **Turbidity:** Epilimnetic turbidity level was slightly elevated in June when algal growth was elevated and then decreased to a low level in September. Hypolimnetic, DelBanco Inlet and Vesilind Inlet turbidity levels were within a low range. Scruggs Inlet turbidity level was slightly elevated in June. Minot Inlet turbidity level was slightly elevated in June during high flows and elevated in September during low flows and lab data noted sediment and/or organic matter in the samples.
- ◆ **pH:** Epilimnetic, Hypolimnetic, DelBanco Inlet, Minot Inlet, Scruggs Inlet, and Vesilind Inlet pH levels were within the desirable range 6.5-8.0 units. Historical trend analysis indicates stable epilimnetic pH levels since monitoring began.

Station Name	Table 1. 2020 Average Water Quality Data for LAKE GARDNER - BATH										
	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	15.15	5.79	3	40	45.0		15	3.00	3.25	1.31	7.55
Hypolimnion					38.5		16			1.06	7.14
DelBanco Inlet					158.7		5			0.6	7.62
Minot Inlet					42.5		35			5.83	6.82
O Brooks						1					
Ricker						1					
Scruggs Inlet					46.8		9			1.75	6.96
Vesilind Inlet					38.1		12			1.15	6.53

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

