Volunteer Lake Assessment Program Individual Lake Reports

GARLAND POND, MOULTONBORO, NH

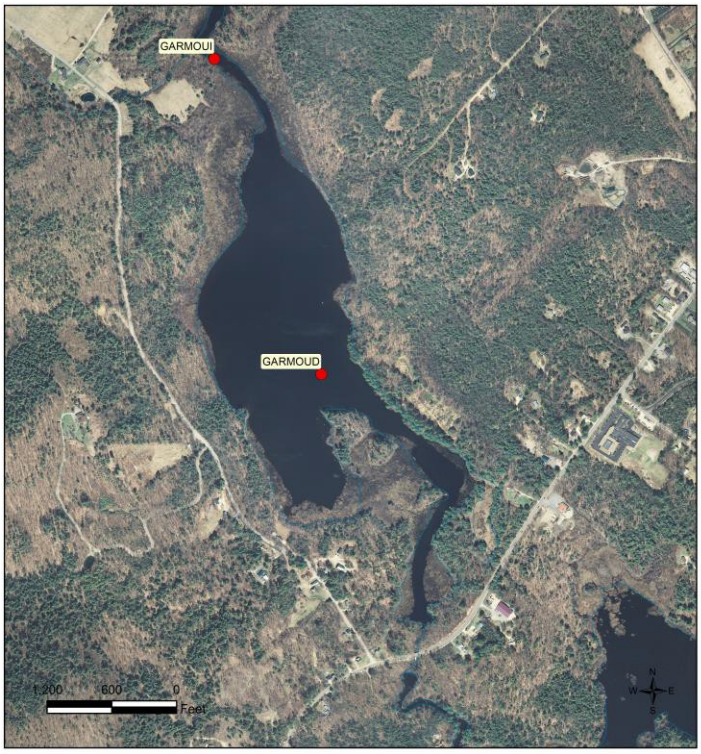
MORPHOMETRIC DATA | **TROPHIC CLASSIFICATION** | **KNOWN EXOTIC SPECIES**

Watershed Area (Ac.):	14,016	**Max. Depth (m):**	4.9	**Flushing Rate (yr^{1})**		**Year**	**Trophic class**	
Surface Area (Ac.):	80	**Mean Depth (m):**		**P Retention Coef:**		1983	MESOTROPHIC	
Shore Length (m):	2,900	**Volume (m^{3}):**		**Elevation (ft):**	527	2003	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)	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 a given parameter by a small 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	Slightly Bad	Data periodically exceed water quality standards or thresholds for a given parameter by a small margin.
	Chlorophyll-a	Slightly Bad	Data exceed water quality standards or thresholds for a given parameter by a small margin.
Primary Contact Recreation	Escherichia coli	No Data	No data for this parameter.
	Chlorophyll-a	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.

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



GARLAND POND
MOULTONBOROUGH
VOLUNTEER LAKE ASSESSMENT PROGRAM

STATIONID	STATION NAME
GARMOUD	DEEP SPOT
GARMOUI	INLET

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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Garland Pond, Moultonborough
2020 Data Summary

Recommended Actions: Great job sampling in 2020! Pond nutrient levels were elevated in 2020 potentially due to drought conditions, low water levels, and lack of flushing of nutrients out of the system. The improving pH levels are encouraging and indicate the recovering of surface waters from historical impacts of acid rain. For more information read NHDES' "Acid Rain Status and Trends Report" located on the website. Conductivity levels have increased potentially due to road salt usage in winter months. Encourage local winter maintenance companies to obtain Voluntary NH Salt Applicator license through the Green SnowPro Certification program. Maintain monthly monitoring program to build a baseline data set and track water quality trends over time. Keep up the great work!

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

- **Chlorophyll-a:** Chlorophyll level was slightly elevated in June and remained stable in August. Average chlorophyll level increased slightly from 2019 and was slightly greater than the state median and the threshold for mesotrophic lakes. Visual inspection of historical data indicates relatively stable chlorophyll levels since monitoring began.
- **Conductivity/Chloride:** Epilimnetic (upper water layer), Hypolimnetic (lower water layer) and Inlet conductivity and/or chloride levels remained slightly greater than the state medians, yet were less than a level of concern. Visual inspection of historical data indicates increasing (worsening) epilimnetic conductivity levels since monitoring began.
- **Color:** Apparent color measured in the epilimnion indicates the water was highly tea colored, or dark brown, in June and lightened to moderately tea colored conditions in August.
- **Total Phosphorus:** Epillimnetic and Hypolimnetic phosphorus levels were elevated in June potentially due to low water levels and wind and wave action and mixing of nutrients through the water column, and then decreased to slightly elevated levels in August. Average epilimnetic phosphorus level increased from 2019 and was much greater than the state median and the threshold for mesotrophic lakes. Visual inspection of historical data indicates relatively stable epilimnetic phosphorus levels since monitoring began. Inlet phosphorus levels were within a moderate and average range for this station.
- **Transparency:** Transparency measured without the viewscope (NVS) was slightly above average (good) for the pond in June despite wave action, and then remained stable in August. Average NVS transparency increased (improved) slightly from 2019 and visual inspection of historical data indicates relatively stable transparency since monitoring began. Viewscope transparency (VS) was slightly higher (better) than NVS transparency and likely a better measure of actual conditions.
- **Turbidity:** Epilimnetic and Hypolimnetic turbidity levels fluctuated within a low range. Inlet turbidity level was slightly elevated in June.
- **pH:** Epilimnetic, Hypolimnetic and Inlet pH levels were within the desirable range 6.5-8.0 units. Visual inspection of historical data indicates increasing (improving) epilimnetic pH levels since monitoring began.

Station Name	Table 1. 2020 Average Water Quality Data for GARLAND POND - MOULTONBOROUGH									
	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	14.4	6.32	13	80	68.0	21	2.32	2.62	0.76	6.99
Hypolimnion					67.5	17			0.86	6.94
Inlet					79.3	15			0.97	6.66

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	N/A	Ten years of data necessary for trend analysis.	Chlorophyll-a	N/A	Ten years of data necessary for trend analysis.
pH (epilimnion)	N/A	Ten years of data necessary for trend analysis.	Transparency	N/A	Ten years of data necessary for trend analysis.
			Phosphorus (epilimnion)	N/A	Ten years of data necessary for trend analysis.