Volunteer Lake Assessment Program Individual Lake Reports

LEES POND, MOULTONBORO, NH

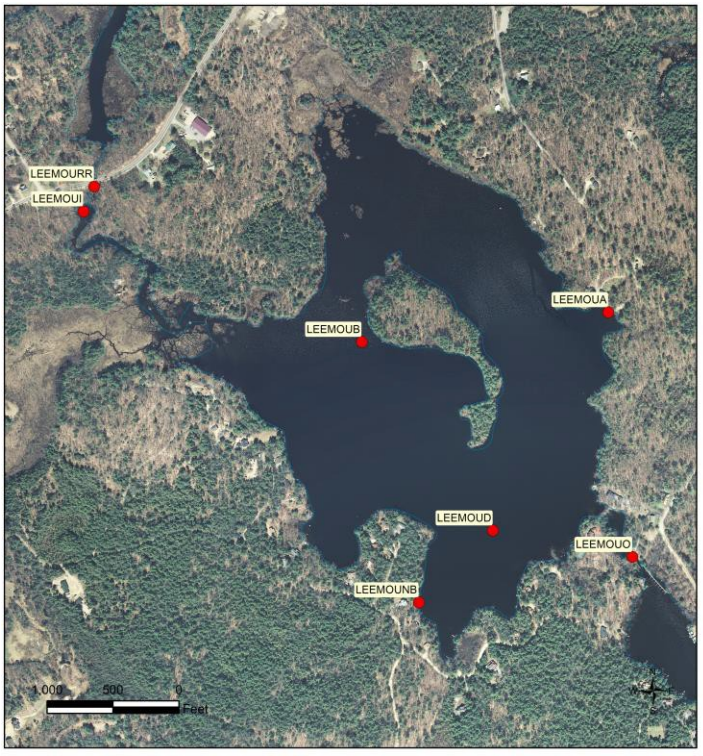
MORPHOMETRIC DATA | **TROPHIC CLASSIFICATION** | **KNOWN EXOTIC SPECIES**

Watershed Area (Ac.):	17,664	**Max. Depth (m):**	11.3	**Flushing Rate (yr^{-1}):**	12.9	**Year**	**Trophic class**	Variable Milfoil
Surface Area (Ac.):	179	**Mean Depth (m):**	3.7	**P Retention Coef:**	0.37	1992	MESOTROPHIC	
Shore Length (m):	4,000	**Volume (m^3):**	2,675,000	**Elevation (ft):**	508	2009	EUTROPHIC	

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	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	Cautionary	Limited data for this parameter predicts exceedance of water quality standards or thresholds; 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.
	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.



LEES POND
MOULTONBOROUGH
VOLUNTEER LAKE ASSESSMENT PROGRAM

STATIONID	STATION NAME
LEEMOUD	DEEP SPOT
LEEMOUI	INLET
LEEMOUO	OUTLET
LEEMOUB	NEIGHBOR BEACH
LEEMOUNB	NELSON BEACH
LEEMOUA	PUBLIC ACCESS
LEEMOURR	RED RIVER

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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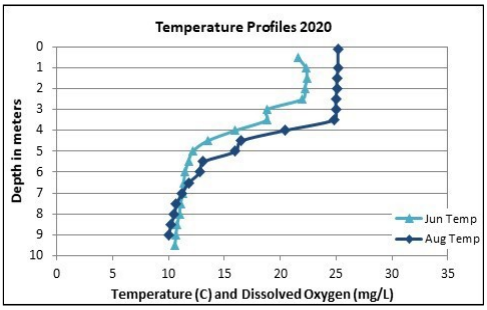
Lees Pond, Moultonborough
2020 Data Summary

Recommended Actions: Great job sampling in 2020! Pond quality is generally representative of mesotrophic, or average conditions. However, nutrient (phosphorus) levels and algal (chlorophyll) growth tend to fluctuate above the threshold for mesotrophic lakes and cyanobacteria blooms have been observed in recent years. Drought conditions and the lack of stormwater runoff and flushing of systems rich in dissolved organic matter likely led to overall lower levels of nutrients from those measured in 2019 and much lighter water color. The lighter color likely helped to improve pond clarity (transparency) and we will continue to evaluate how water color affects clarity. Continue to monitor water levels and try to maintain a consistent level to minimize variability in water quality. Continue efforts to manage beaver activity in the Inlet to help improve the quality of water entering the pond. Keep up the great work!

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

- **Chlorophyll-a:** Chlorophyll level was within a low range in June and increased to slightly elevated level in August. Average chlorophyll level increased from 2019, was slightly greater than the state median, and was approximately equal to the threshold for mesotrophic 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), Inlet, and Outlet conductivity and/or chloride levels were slightly greater than the state medians, yet less than a level of concern. However, historical trend analysis indicates significantly increasing (worsening) epilimnetic conductivity levels since monitoring began.
- **Color:** Apparent color measured in the epilimnion indicates the water fluctuated within a moderately tea colored, or brown, range and was darkest in June and lightest in August.
- **Total Phosphorus:** Epilimnetic phosphorus level was within a moderate range in June and decreased to a low level in August. Average epilimnetic phosphorus level decreased from 2019 and was less than the state median and the threshold for mesotrophic lakes. Historical trend analysis indicates relatively stable epilimnetic phosphorus levels since monitoring began. Metalimnetic phosphorus level fluctuated within a moderate range. Hypolimnetic phosphorus level was elevated in August and lab data noted colored water indicating the decomposition of bottom sediments and potential release of phosphorus from bottom sediments under anoxic (low dissolved oxygen) conditions. Inlet and Outlet phosphorus levels fluctuated within a low to moderate range.
- **Transparency:** Transparency measured without the viewscope (NVS) was below average for the pond (worse) in June and then increased (improved) to an average range in August. Average NVS transparency increased (improved) from 2019 and was slightly less than the state median. Historical trend analysis indicates stable, yet variable, NVS transparency since monitoring began. Viewscope transparency (VS) was slightly higher (better) than NVS transparency and likely a better measure of actual conditions.
- **Turbidity:** Epilimnetic, Metalimnetic, Hypolimnetic, Inlet, and Outlet turbidity levels fluctuated within a low range.
- **pH:** Epilimnetic, Metalimnetic, Inlet, and Outlet pH levels were within the desirable range 6.5-8.0 units. Historical trend analysis indicates relatively stable epilimnetic pH levels since monitoring began. Hypolimnetic pH level was slightly acidic and less than desirable.



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)

Station Name	Table 1. 2020 Average Water Quality Data for LEES 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	10.7	5.06	14	50	64.2	10	3.06	3.81	0.50	7.16
Metalimnion					62.0	12			0.64	6.58
Hypolimnion					59.2	22			0.94	6.24
Inlet			14		64.2	10			0.35	6.96
Outlet			14		64.0	9			0.37	6.98

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