Volunteer Lake Assessment Program Individual Lake Reports

NORWAY POND, HANCOCK, NH

MORPHOMETRIC DATA

						TROPHIC CLASSIFICATION		**KNOWN EXOTIC SPECIES**
Watershed Area (Ac.):	4,546	**Max. Depth (m):**	5.5	**Flushing Rate (yr^{1})**	19.2	**Year**	**Trophic class**	
Surface Area (Ac.):	49	**Mean Depth (m):**	2.5	**P Retention Coef:**	0.36	1980	MESOTROPHIC	
Shore Length (m):	1,900	**Volume (m^3):**	509,000	**Elevation (ft):**	825	1995	MESOTROPHIC	

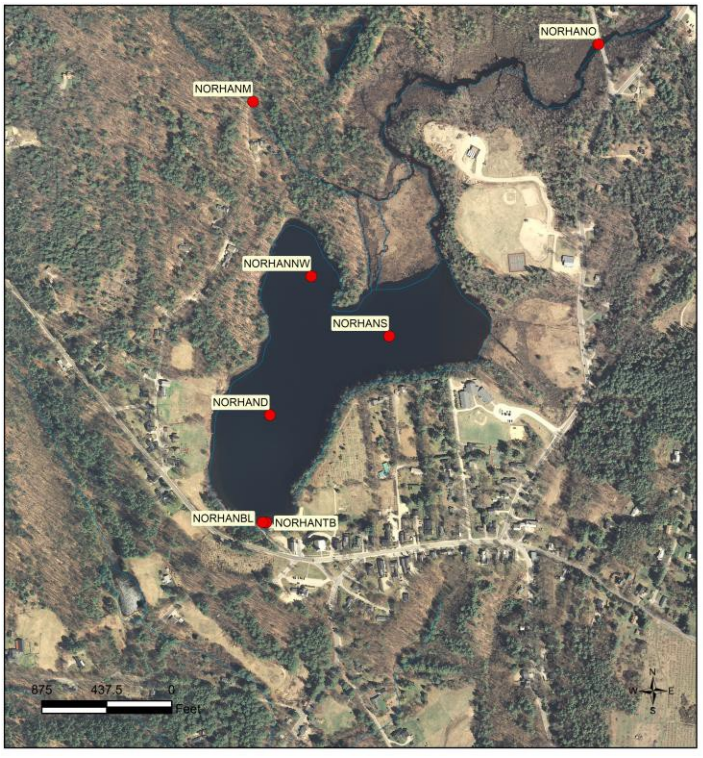
The Waterbody Report Card tables are generated from the DRAFT 2020 305(b) report on the status of N.H. waters, and are based on data collected from 2010-2019. Detailed waterbody assessment and report card information can be found at NHDES' Water Quality Assessment Website.

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	Slightly Bad	Data periodically exceed water quality standards or thresholds for a given parameter by a small margin.
	Oxygen, Dissolved	Cautionary	Limited data for this parameter predicts exceedance of water quality standards or thresholds; 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.

BEACH PRIMARY CONTACT ASSESSMENT STATUS

NORWAY POND - TOWN 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.



NORWAY POND
HANCOCK
VOLUNTEER LAKE ASSESSMENT PROGRAM

STATIONID	STATION NAME
NORHANO	OUTLET
NORHAND	DEEP SPOT
NORHANTB	TOWN BEACH
NORHANBL	BOAT LAUNCH
NORHANM	MOOSE BROOK
NORHANNW	NW COVE
NORHANS	NE ARM

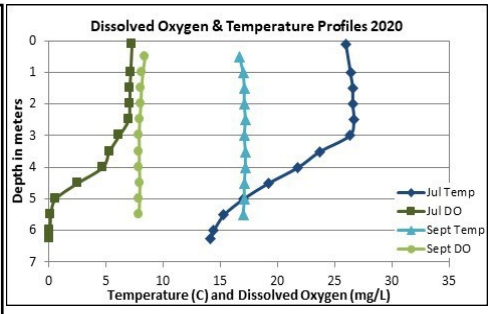
Source: The data layers are derived from NHDES data and are under constant revision. NHDES is not responsible for the use or interpretation of this information. Not intended for legal use.NHDES Watershed Management Bureau Date: 2/17/2021

Volunteer Lake Assessment Program Individual Lake Reports
Norway Pond, Hancock
2020 Data Summary

Recommended Actions: Great job sampling in 2020! Drought conditions and the lack of stormwater runoff and tributary flow into the pond helped to keep nutrient levels, algal growth, color, and turbidity low resulting in improved lake clarity (transparency). Nutrient levels and algal growth appear to be stabilizing below the thresholds for mesotrophic lakes and we hope to see this continue. The improving epilimnetic pH levels are encouraging and a result of the recovery of surface waters from the historical impacts of acid rain. Maintain the monthly monitoring program with enhanced features such as phytoplankton and dissolved oxygen/temperature measurements. Great job installing the water level gauge and reporting water level measurements to the Lake Observations by Citizen Satellites and Scientists (LOCSS) project. Keep up the great work!

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

- **Chlorophyll-a:** Chlorophyll level was low in June and decreased in September. Average chlorophyll level remained stable with 2019 and was less than the state median and the threshold for mesotrophic lakes. Historical trend analysis indicates relatively stable chlorophyll levels since 2006.
- **Conductivity/Chloride:** Epilimnetic (upper water layer), Hypolimnetic (lower water layer) and Moose Brook conductivity levels were within a low range and slightly less than the state median. Epilimnetic chloride level was also low and slightly greater than the state median. Historical trend analysis indicates significantly increasing epilimnetic conductivity levels since 2006. Outlet conductivity level was within a low range and slightly greater than the state median.
- **Color:** Apparent color measured in the epilimnion indicates the water was borderline clear to lightly tea colored, or light brown, in July and remained stable in September.
- **Total Phosphorus:** Epilimnetic phosphorus level was low in July and increased slightly in September but remained within a low range. Average epilimnetic phosphorus level remained stable with 2019 and was less than the state median and the threshold for mesotrophic lakes. Historical trend analysis indicates stable epilimnetic phosphorus levels since 2006. Hypolimnetic phosphorus level was moderate in July and increased slightly in September but remained within an average range for that station. Moose Brook phosphorus levels were low. Outlet phosphorus levels were slightly elevated in July and September potentially due to low flow conditions.
- **Transparency:** Transparency measured without the viewscope (NVS) was high within an average range for the pond in July and remained stable in September. Average NVS transparency increased (improved) slightly from 2019 and was higher (better) than the state median. Historical trend analysis indicates stable NVS transparency since 2006. Viewscope (VS) transparency 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 and were the lowest measured since 2006. Moose Brook turbidity level was slightly elevated in September and lab data noted low levels of sediment in the sample. Outlet turbidity levels were also within a low range.
- **pH:** Epilimnetic pH level was within the desirable range 6.5-8.0 units and historical trend analysis indicates significantly increasing (improving) epilimnetic pH levels since 2006. Moose Brook pH level was slightly less than desirable. Hypolimnetic and Outlet pH levels were slightly acidic and potentially critical to aquatic life.



Station Name	Table 1. 2020 Average Water Quality Data for NORWAY POND - HANCOCK									
	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	5.7	3.98	8	30	37.7	10	3.65	4.14	0.38	6.69
Hypolimnion					38.0	14			0.56	5.88
Moose Brook					40.8	12			1.02	6.40
Outlet					51.1	22			0.72	5.82

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