Volunteer Lake Assessment Program Individual Lake Reports
HARVEY LAKE, NORTHWOOD, NH

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

Watershed Area (Ac.):	1,553	Max. Depth (m):	6.1	Flushing Rate (yr¹)	2.7	Year	Trophic class	
Surface Area (Ac.):	105	Mean Depth (m):	3.1	P Retention Coef:	0.58	1990	EUTROPHIC	
Shore Length (m):	3,900	Volume (m³):	1,320,500	Elevation (ft):	613	2006	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.
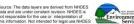
Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Good	Sampling data is better than the water quality standards or thresholds for this parameter.
	pH	Slightly Bad	Data periodically exceed water quality standards or thresholds for a given parameter by a small margin.
	Oxygen, 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	Slightly Bad	Data periodically exceed water quality standards or thresholds for this 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	Cautionary	Limited data for this parameter predicts exceedance of water quality standards or thresholds; however more data are necessary to fully assess the parameter.
	Cyanobacteria hepatoto	Slightly Bad	Cyanobacteria bloom(s).
	Chlorophyll-a	Slightly Bad	Data periodically exceed water quality standards or thresholds for this parameter by a small margin.

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

HARVEY LAKE
NORTHWOOD
VOLUNTEER LAKE ASSESSMENT PROGRAM

STATIONID	STATION NAME
HARNOR1	INLET 1
HARNORD	DEEP SPOT
HARNORO	OUTLET
HARNORBL	BOAT LAUNCH

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

Recommended Actions: Great job sampling in 2020! Lake phosphorus (nutrient) and chlorophyll (algal growth) levels have stabilized below the threshold for eutrophic lakes and we hope to see this continue! However, a cyanobacteria bloom occurred in September and lasted into November which highlights the delicate balance of the lake's ecosystem. Cyanobacteria growth requires ample nutrients, sunlight, warm and stagnant waters and climate and drought conditions in 2020 likely contributed to the bloom occurrence. Continue to monitor the lake for signs of cyanobacteria or algal blooms/scums and notify the NHDES Harmful Algal Bloom Program HAB@des.nh.gov. Lake conductivity levels have increased steadily since 2013 and efforts should be made to reduce impacts of winter de-icing materials applied to roads, parking lots, driveways, and walkways. Encourage local road agents and winter maintenance companies to obtain Voluntary NH Salt Applicator license through the Green SnowPro Certification program www.t2.unh.edu/road-salt-reduction. 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 increased to a slightly elevated level in August. Average chlorophyll level increased slightly from 2019, was greater than the state median, and was less than the threshold for eutrophic lakes. Historical trend analysis indicates relatively stable chlorophyll levels since monitoring began.

⬥ **Conductivity/Chloride:** Epilimnetic (upper water layer), Hypolimnetic (lower water layer), Inlet, and Outlet conductivity levels remained slightly elevated and greater than the state median. Epilimnetic and Inlet chloride levels were slightly elevated and greater than the state median yet much less than the state chronic chloride standard. Historical trend analysis indicates significantly increasing (worsening) 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 August.

⬥ **Total Phosphorus:** Epilimnetic and Hypolimnetic phosphorus levels fluctuated within a moderate range and were highest in June. Average epilimnetic phosphorus level decreased from 2019, was greater than the state median, and was less than the threshold for eutrophic lakes. Historical trend analysis indicates relatively stable epilimnetic phosphorus levels since monitoring began. Inlet 1 phosphorus levels were elevated in August following a significant storm event during drought conditions. Field data noted Inlet flow as a trickle while lab data noted organic matter in the sample. Outlet phosphorus levels fluctuated within a moderate range for that station.

⬥ **Transparency:** Transparency measured with (VS) and without (NVS) the viewscope was high (good) in June when algal growth was low and then decreased (worsened) in August when algal growth was elevated. Average NVS transparency increased (improved) slightly from 2019 however historical trend analysis indicates significantly decreasing (worsening) NVS transparency since monitoring began.

⬥ **Turbidity:** Epilimnetic and Hypolimnetic turbidity levels were low in June and increased in August when algal growth was elevated. Inlet 1 turbidity level was slightly elevated in August and lab data noted organic matter in the sample. Outlet turbidity levels were low.

⬥ **pH:** Epilimnetic pH level was within the desirable range 6.5-8.0 units and Hypolimnetic pH level was approximately equal to the low end of the desirable range. Historical trend analysis indicates stable epilimnetic pH levels since monitoring began. Inlet 1 and Outlet pH levels were slightly less than desirable.

Station Name	Table 1. 2020 Average Water Quality Data for HARVEY LAKE - NORTHWOOD									
	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	6.8	8.34	35	70	118.0	17	2.02	2.25	1.26	6.98
Hypolimnion					114.8	18			1.12	6.44
Inlet 1			20		77.0	49			1.67	6.22
Outlet					120.7	25			0.68	6.12

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)	Stable	Trend not significant; data show low variability.	Transparency	Worsening	Data significantly decreasing.
			Phosphorus (epilimnion)	Stable	Trend not significant; data moderately variable.

Historical Trend Epilimnetic Conductivty and pH

Historical Chlorophyll-a, Epilimnetic Phosphorus & Transparency Data