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

MORPHOMETRIC DATA

|					TROPHIC CLASSIFICATION	KNOWN EXOTIC SPECIES
Watershed Area (Ac.):	15,384	Max. Depth (m):	6.3	Flushing Rate (yr¹)	3.9	Year	Trophic class	Variable Milfoil
Surface Area (Ac.):	687	Mean Depth (m):	3.1	P Retention Coef:	0.53	2000	MESOTROPHIC	
Shore Length (m):	13,000	Volume (m³):	8,488,000	Elevation (ft):	514	2000	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 this 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	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	Slightly Bad	Data periodically exceed water quality standards or thresholds for this parameter by a small margin.
	Chlorophyll-a	Very Good	All sampling data meet water quality standards or thresholds for this parameter.

BEACH PRIMARY CONTACT ASSESSMENT STATUS

NORTHWOOD LAKE - LYNN GROVE ASSOCIATION BEACH	Escherichia coli	Bad	Data periodically exceed water quality standards or thresholds for this parameter by a large margin.
NORTHWOOD LAKE - TOWN BEACH	Escherichia coli	Bad	Data periodically exceed water quality standards or thresholds for this parameter by a large margin.
NORTHWOOD LAKE - CAMP WAH-TUT-CA 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.
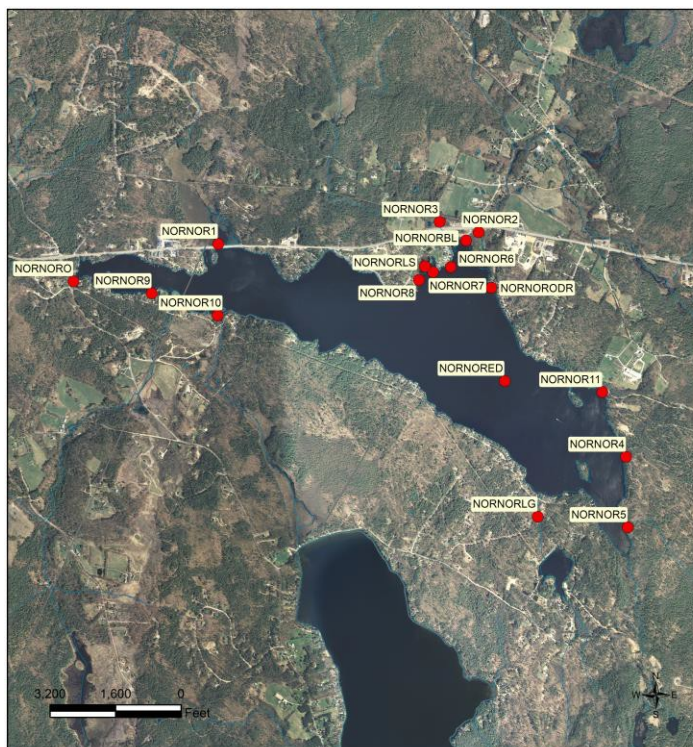
NORTHWOOD LAKE
NORTHWOOD
VOLUNTEER LAKE ASSESSMENT PROGRAM

STATIONID	STATION NAME
NORNOR10	PLEASANT PD INLET
NORNOR9	RTE 107 INLET
NORNORO	OUTLET
NORNOR1	RTE 4 W INLET
NORNOR2	RTE 4 E INLET
NORNOR4	BRIDGE INLET
NORNOR5	LOWER WTC INLET
NORNORED	STATION 1 DEEP SPOT
NORNORODR	OLD DUMP ROAD
NORNORLG	LYNN GROVE INLET
NORNOR8	TOWN BEACH
NORNOR7	TOWN BEACH COVE
NORNOR6	ESTHER LANE DOCKS
NORNOR3	FLAT MEADOWS BROOK INLET
NORNOR11	HORSE FARM
NORNORLS	113 LAKE SHORE DR
NORNORBL	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

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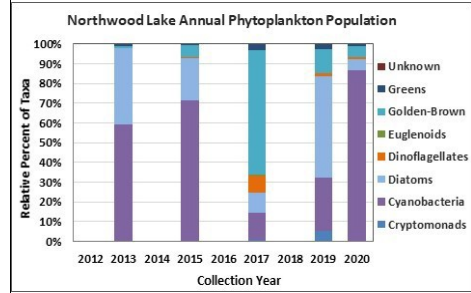## Northwood Lake, Northwood
2020 Data Summary

Recommended Actions: Great job sampling in 2020! The improving pH levels are encouraging and indicate recovery from historical impacts of acid rain. Several tributaries exhibit elevated phosphorus and turbidity levels following storm events. Consider developing a watershed management plan to help identify and quantify pollutant loads to the lake and make recommendations on remediation activities. Contact the NHDES Watershed Assistance Section for more information. Cyanobacteria generally dominate the phytoplankton composition in the lake. Be on the lookout for cyanobacteria blooms or surface scums and notify the NHDES Harmful Algal Bloom Program HAB@des.nh.gov of anything suspicious. Keep up the great work!

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

◆ **Chlorophyll-a:** Chlorophyll level was low in July and increased slightly in September but remained within a low range. Average chlorophyll level remained stable with 2019 and was less than the state median and the threshold for mesotrophic lakes. Historical trend analysis indicates stable chlorophyll levels since monitoring began.

◆ **Conductivity/Chloride:** Epilimnetic (upper water layer), Hypolimnetic (lower water layer), Boat Launch, Horse Farm, Lower WTC, Old Dump Rd., Outlet, Pleasant Pd. Inlet, Rte. 107 Inlet, Rte. 4 W Inlet, Town Beach, and Town Beach Cove conductivity and/or chloride levels were slightly elevated and greater than the state medians, yet chloride levels were much less than the state chronic chloride standard. However, historical trend analysis indicates significantly increasing (worsening) epilimnetic conductivity levels since monitoring began. Flat Meadows Bk. conductivity levels were greatly elevated in September. Rte. 4 E Inlet conductivity and chloride levels were elevated in July.

◆ **Color:** Apparent color measured in the epilimnion indicates the water was lightly tea colored, or light brown.

◆ **E. coli:** Boat Launch, Flat Meadows Bk., Old Dump Rd., and Town Beach E. coli levels were much less than the state standard of 406 cts/100mL for surface waters in September.

◆ **Total Phosphorus:** Epilimnetic, Hypolimnetic, Flat Meadows Bk., Horse Farm, Town Beach, Rte. 107 Inlet, and Outlet phosphorus levels fluctuated within a moderate range. Average epilimnetic phosphorus level increased from 2019 and was slightly greater than the state median and the threshold for mesotrophic lakes. Historical trend analysis indicates relatively stable epilimnetic phosphorus levels since monitoring began. Boat Launch phosphorus levels were greatly elevated in September and the turbidity of the sample was also elevated and lab data noted sediment in the sample. Lower WTC phosphorus level was greatly elevated in July during very low flow conditions following a storm event. Old Dump Rd. phosphorus level was slightly elevated in September and organic matter was noted in the sample. Rte. 4 W Inlet, Pleasant Pd. Inlet, Rte. 4 E Inlet, and Town Beach Cove phosphorus levels were slightly elevated in July and flow was noted as stagnant or very low at all stations.

◆ **Transparency:** Transparency measured with (VS) and without (NVS) the viewscope was high (good) in July and decreased (worsened) in September due to wave action. Average NVS transparency increased (improved) slightly from 2019 and historical trend analysis indicates relatively stable NVS transparency since monitoring began.

◆ **Turbidity:** Epilimnetic turbidity level was slightly elevated in September likely due to wave action. Hypolimnetic, Horse Farm, Lower WTC Inlet, Outlet, Pleasant Pd. Inlet, Rte. 4 E and W Inlet, and Town Beach turbidity levels fluctuated within a low range. Boat Launch turbidity level was greatly elevated in September. Flat Meadows Bk. and Old Dump Rd. turbidity levels were slightly elevated in September during low flow/stagnant conditions. Rte. 107 Inlet and Town Beach Cove turbidity levels were slightly elevated in July following a storm event during drought conditions.

◆ **pH:** Epilimnetic, Boat Launch, Flat Meadows Bk., Old Dump Rd., Outlet, Rte. 107 Inlet, Rte. 4 E Inlet, and Town Beach pH levels were within the desirable range 6.5-8.0 units. Historical trend analysis indicates significantly increasing (improving) epilimnetic pH levels since monitoring began. Hypolimnetic and Horse Farm pH levels were slightly less than desirable. Pleasant Pd. Inlet, Rte. 4 W Inlet, and Town Beach Cove pH levels were slightly acidic.

Station Name	Table 1. 2020 Average Water Quality Data for NORTHWOOD LAKE - NORTHWOOD										
	Alk. mg/l	Chlor-a ug/l	Chloride mg/l	Color pcu	Cond. us/cm	E. coli mpn/100ml	Total P ug/l	Trans. m		Turb. ntu	pH
								NVS	VS		
Epilimnion	4.9	2.98	25	35	87.8		13	2.95	4.00	0.98	7.48
Hypolimnion					87.4		14			0.80	6.20
Boat Launch					92.1	153	132			41.50	6.61
Flat Meadows Bk.					650.0	34	17			7.58	6.64
Horse Farm			24		90.9		15			1.04	6.16
Lower WTC Inlet			25		92.0		118			0.53	6.37
Old Dump Rd.			27		88.5	100	26			4.09	6.92
Outlet			26		93.2		15			1.00	6.66
Pleasant Pd. Inlet			38		137.1		36			0.69	5.92
Rte. 107 Inlet			21		89.6		16			1.33	6.68
Rte. 4 E Inlet			61		218.0		41			0.76	6.49
Rte. 4 W Inlet			36		120.0		23			0.90	5.78
Town Beach					90.8	25	12			0.81	6.60
Town Beach Cove					156.1		34			2.72	5.85

Northwood Lake Annual Phytoplankton Population

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

Historical Trend Epilimnetic Conductivty and pH

Historical Chlorophyll-a, Epilimnetic Phosphorus & Transparency Data