



Volunteer Lake Assessment Program Individual Lake Reports

PHILLIPS POND, SANDOWN, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	2,006	Max. Depth (m):	5.8	Flushing Rate (yr ⁻¹)	3.7	Year	Trophic class	Fanwort
Surface Area (Ac.):	85	Mean Depth (m):	3.1	P Retention Coef:	0.54	1977	MESOTROPHIC	
Shore Length (m):	2,600	Volume (m ³):	1,058,500	Elevation (ft):	212	1990	MESOTROPHIC	

TROPIC CLASSIFICATION

KNOWN EXOTIC SPECIES

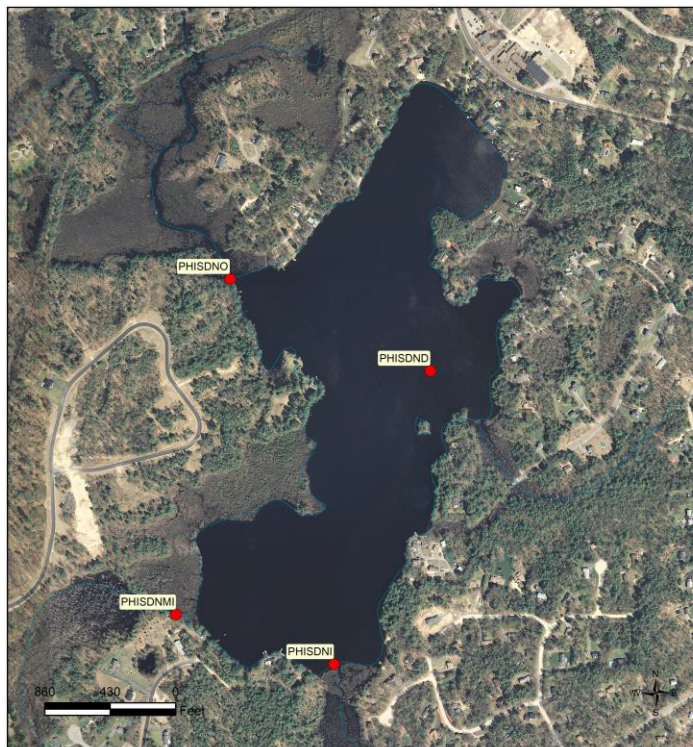
The Waterbody Report Card tables are generated from the DRAFT 2020 305(b) report on the status of N.H. waters, and are based on data collected from 2010-2019. Detailed waterbody assessment and report card information can be found at [NHDES' Water Quality Assessment Website](#).

Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Slightly Bad	Data exceed water quality standards or thresholds for this 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	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	Slightly Bad	Data exceed water quality standards or thresholds for this parameter by a small margin.
Primary Contact Recreation	Escherichia coli	No Data	No data for this parameter.
	Cyanobacteria hepatoto	Slightly Bad	Cyanobacteria bloom(s).
	Chlorophyll-a	Good	Sampling data commonly meet water quality standards or thresholds for this parameter.

BEACH PRIMARY CONTACT ASSESSMENT STATUS

PHILLIPS POND - SEELEY TOWN BEACH	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.
PHILLIPS POND - SEELEY TOWN BEACH	Cyanobacteria	Slightly Bad	Cyanobacteria bloom(s).

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



PHILLIPS POND SANDOWN

VOLUNTEER LAKE ASSESSMENT PROGRAM

STATIONID	STATION NAME
PHISDND	DEEP SPOT
PHISDNI	INLET
PHISDNO	OUTLET
PHISDNMI	METACOMET 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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2020 Data Summary

Recommended Actions: Great job sampling in 2020! The improving chlorophyll levels are a great sign and transparency (clarity) also appears to be improving, however phosphorus levels have not changed which indicates another variable influencing algal growth besides nutrient levels. The decreased algal growth could be related to water color as darker water inhibits sunlight penetration into the water column. The Asian clam, an exotic species may also be present and we recommend surveying shoreline areas for presence of the clam in 2021. The Asian clam is a filter feeder and feeds on phytoplankton (algae) which has resulted in decreased algal growth and improved clarity in NH waterbodies infested with the clam. The pond also experiences periods of elevated cyanobacteria growth during the summer. This is likely due to the increasing phosphorus levels in hypolimnetic waters and a layer of cyanobacteria was noted in the hypolimnion sample in September. The increasing hypolimnetic phosphorus levels indicate an internal load of phosphorus to the pond and may be accelerated by management of exotic aquatic plants. Epilimnetic conductivity and chloride levels have significantly increased since monitoring began indicating the negative affects of winter road salt application to various surfaces. Encourage local road agents and private winter maintenance companies to obtain Voluntary Salt Applicator license through the Green SnowPro Certification program. Encourage shoreline property owners to be certified LakeSmart through NHLAKES lake-friendly living program www.nhlakes.org/lakesmart/. Consult the 2018 Total Maximum Daily Load (TMD) report for Phillips Pond for recommendations on ways to reduce nutrient (phosphorus) loading to pond. Keep up the great work!

- Observations** (Refer to Table 1 and Historical Deep Spot Data Graphics)
- ◆ **Chlorophyll-a:** Chlorophyll level was low in May and increased gradually as the summer progressed but remained within a low range. Average chlorophyll level increased slightly from 2019 and was less than the state median and the threshold for mesotrophic lakes. Historical trend analysis indicates significantly decreasing (improving) chlorophyll levels since monitoring began.
 - ◆ **Conductivity/Chloride:** Epilimnetic (upper water layer), Hypolimnetic (lower water layer), Inlet, Metacomet Inlet, and Outlet conductivity and/or chloride levels remained elevated and much greater than the state medians. Historical trend analysis indicates significantly increasing (worsening) epilimnetic conductivity levels since monitoring began.
 - ◆ **Color:** Apparent color measured in the epilimnion indicates the water was highly tea colored, dark brown, in May and then lightened gradually as the summer progressed to a moderately tea colored range.
 - ◆ **Total Phosphorus:** Epilimnetic phosphorus level was elevated in June and decreased gradually as the summer progressed to a slightly elevated range. Average epilimnetic phosphorus level remained stable with 2019 and was greater than the state median and the threshold for mesotrophic lakes. Historical trend analysis indicates stable epilimnetic phosphorus levels since monitoring began. Hypolimnetic phosphorus level was low in May and increased to elevated levels in July and September and indicative of release of phosphorus from bottom sediments under anoxic (no dissolved) oxygen conditions. Historical trend analysis indicates significantly increasing (worsening) hypolimnetic phosphorus levels since monitoring began. Inlet phosphorus level was low. Metacomet Inlet and Outlet phosphorus levels were moderate and within an average range for those stations.
 - ◆ **Transparency:** Transparency measured without the viewscope (NVS) was average for the pond in May when water color was darkest, increased (improved) in July, and then decreased slightly in September. Average NVS transparency increased (improved) from 2019 and was lower than the state median. Historical trend analysis indicates stable, yet variable, NVS transparency since monitoring began. Viewscope (VS) transparency was much higher (better) than NVS transparency and likely a better measure of actual conditions.
 - ◆ **Turbidity:** Epilimnetic turbidity level fluctuated within a low range. Hypolimnetic turbidity level was low in May, slightly elevated in July, and elevated in September due to a layer of cyanobacteria noted in the sample. Inlet and Metacomet Inlet turbidity levels were low. Outlet turbidity level was slightly elevated due to stagnant flow conditions and low levels of sediment in the sample.
 - ◆ **pH:** Epilimnetic, Metacomet Inlet and Outlet pH levels were within the desirable range 6.5-8.0 units. Historical trend analysis indicates stable epilimnetic pH levels since monitoring began. Hypolimnetic and Inlet pH levels were slightly 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 PHILLIPS POND - SANDOWN									
	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	14.1	3.66	56	107	192.1	17	2.48	3.17	0.82	7.05
Hypolimnion					181.6	35			3.45	6.35
Inlet			49		165.0	12			0.66	6.26
Metacomet Inlet			36		170.2	24			0.50	6.70
Outlet			56		215.0	24			2.65	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

Historical Water Quality Trend Analysis

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

