



Volunteer Lake Assessment Program Individual Lake Reports

ANGLE POND, SANDOWN, NH

MORPHOMETRIC DATA

TROPHIC CLASSIFICATION

KNOWN EXOTIC SPECIES

Watershed Area (Ac.):	1,511	Max. Depth (m):	11.6	Flushing Rate (yr ¹):	1.6	Year	Trophic class	
Surface Area (Ac.):	150	Mean Depth (m):	3	P Retention Coef:		1984	EUTROPHIC	
Shore Length (m):	4,000	Volume (m ³):	1,849,000	Elevation (ft):	220	2002	MESOTROPHIC	

The Waterbody Report Card tables are generated from the DRAFT 2020 305(b) report on the status of New Hampshire 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)	Cautionary	Limited data for this parameter predicts exceedance of water quality standards or thresholds; however more data are necessary to fully assess the 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	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	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

ANGLE POND - ANGLE POND GROVE BEACH	Escherichia coli	Good	Sampling data commonly meet water quality standards or thresholds for this parameter.
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VLAP SAMPLE STATION MAP: This map depicts the location of routine sampling stations discussed on page two of the report.



**ANGLE POND
SANDOWN**
VOLUNTEER LAKE ASSESSMENT PROGRAM

STATIONID	STATION NAME
ANGSDND	DEEP SPOT
ANGSDNO	OUTLET
ANGSDNLP	EAST LANE PIPE
ANGSDNWI	WEST INLET
ANGSDNNI	NORTH INLET
ANGSDNSYI	SAYRE INLET
ANGSDNSYIE	SAYRE INLET EAST FORK
ANGSDNSYIW	SAYRE INLET WEST FORK
ANGSDNWD	WEST SHORE DRAINAGE PIPE
ANGSDNH	HYNDS INLET
ANGSDNSMI	SMITH 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! Pond quality is generally representative of mesotrophic, or average, conditions. However, epilimnetic phosphorus levels and algal growth have remained above or equal to the threshold for mesotrophic lakes since 2017 and water clarity (transparency) has remained almost a meter lower. Hypolimnetic nutrient levels are indicative of phosphorus release from bottom sediments that provide an internal load of nutrients available for algal and cyanobacteria growth. This highlights the delicate balance between nutrients, algae and clarity and could be indicative of more permanent changes to water quality in the future. Due to these changes, development and implementation of a watershed management plan is recommended. A management plan will identify and quantify nutrient loading to the pond and make recommendations on ways to reduce loading. For more information contact the NHDES Watershed Assistance Section at Katherine.Zink@des.nh.gov. Keep up the great work!

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

- ◆ **Chlorophyll-a:** Chlorophyll level was slightly elevated in June and then decreased to a low level by August. Average chlorophyll level decreased slightly from 2019 and was slightly greater than the state median and threshold for mesotrophic lakes. Historical trend analysis indicates highly variable chlorophyll levels since monitoring began.
- ◆ **Conductivity/Chloride:** Epilimnetic (upper water layer), Metalimnetic (middle water layer), Hypolimnetic (lower water layer), and Sayre Inlet conductivity and/or chloride levels remained elevated and much greater than the state medians, however chloride levels did not exceed 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 water was borderline high to moderately tea colored in June following spring snowmelt and runoff and then decreased to borderline light to moderately tea colored in August following drought conditions.
- ◆ **Total Phosphorus:** Epilimnetic phosphorus levels were within a moderate range and remained stable from June to August. Average epilimnetic phosphorus level decreased slightly from 2019 and was approximately equal to the state median and the threshold for mesotrophic lakes. Historical trend analysis indicates stable epilimnetic phosphorus levels since monitoring began. Metalimnetic and Hypolimnetic phosphorus levels were moderate in June and increased to elevated levels in August. The turbidity levels of the samples was also slightly elevated and lab data note clumps of decaying algae in the metalimnetic sample and cloudy water with organic matter in the hypolimnetic sample indicating potential release of phosphorus from bottom sediments under anoxic (no dissolved oxygen) conditions. Sayre Inlet phosphorus levels were greatly elevated and field data noted stagnant conditions and lab data noted high levels of sediment in the sample.
- ◆ **Transparency:** Transparency measured with (VS) and without (NVS) the viewscope was lower (worse) in June likely due to slightly elevated algal growth as well as wind and wave conditions, and then increased (improved) to average levels in August. Average NVS transparency remained stable with 2019 and was less (worse) than the state median. Historical trend analysis indicates highly variable NVS transparency since monitoring began.
- ◆ **Turbidity:** Epilimnetic turbidity levels fluctuated within a low range and were highest in June when algal growth was higher and during strong wind/wave conditions. Metalimnetic and Hypolimnetic turbidity levels were low in June and elevated in August due to layers of algal growth and organic matter. Sayre Inlet turbidity levels were extremely elevated and stagnant, low flow conditions were noted and the sampled contained high amounts of sediment.
- ◆ **pH:** Epilimnetic, Metalimnetic and Hypolimnetic 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. We hope to see this continue! Sayre Inlet pH levels were slightly less than desirable.

Station Name	Table 1. 2020 Average Water Quality Data for ANGLE 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	20.2	5.52	55	55	205.0	12	2.56	3.26	0.58	7.48
Metalimnion					196.2	20			1.18	6.50
Hypolimnion			50		198.6	20			1.76	6.54
Sayre Inlet			122		388.0	744			106.00	6.29

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

