



## Volunteer Lake Assessment Program Individual Lake Reports

### CAPTAIN POND, SALEM, NH

#### MORPHOMETRIC DATA

Watershed Area (Ac.):	960	Max. Depth (m):	8.6	Flushing Rate (yr <sup>-1</sup> ):	2.3	Year	Trophic class	Variable Milfoil
Surface Area (Ac.):	90	Mean Depth (m):	2.2	P Retention Coef:	0.65	1987	MESOTROPHIC	
Shore Length (m):	2,600	Volume (m <sup>3</sup> ):	788,500	Elevation (ft):	156	2002	MESOTROPHIC	

#### TROPHIC CLASSIFICATION

#### KNOWN EXOTIC SPECIES

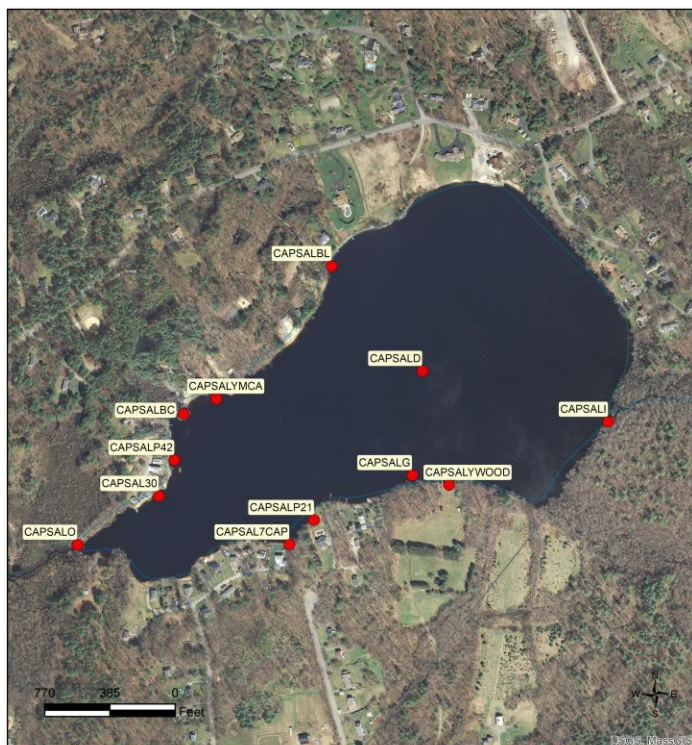
The Waterbody Report Card tables are generated from the DRAFT 2020 305(b) report on the status of N.H. waters, and are based on data collected from 2010-2019. Detailed waterbody assessment and report card information can be found at [NHDES' Water Quality Assessment webpage](#).

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	Slightly Bad	Data periodically exceed water quality standards or thresholds for a given parameter by a small margin.
	Chlorophyll-a	Slightly Bad	Data exceed water quality standards or thresholds for this parameter by a small margin.
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	Good	Sampling data commonly meet water quality standards or thresholds for this parameter.

#### BEACH PRIMARY CONTACT ASSESSMENT STATUS

Beach Name	Parameter	Category	Comments
CAPTAIN POND - GIRLS INC OF HAVERHILL BEACH	Escherichia coli	No Data	No data for this parameter.
CAPTAIN POND - CAMP Y WOOD 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.
CAPTAIN POND - CAMP HADAR	Escherichia coli	Bad	Data periodically exceed water quality standards or thresholds for this parameter by a large margin.
CAPTAIN POND - CAMP OTTER SWIM AREA BEACH	Escherichia coli	Bad	Data periodically exceed water quality standards or thresholds for this parameter by a large margin.
CAPTAIN POND - CAPTAIN'S BEACH	Escherichia coli	Bad	Data periodically exceed water quality standards or thresholds for this parameter by a large margin.

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



**CAPTAIN POND  
SALEM**  
VOLUNTEER LAKE ASSESSMENT PROGRAM

STATIONID	STATION NAME
CAPSALBC	BUZZELL COVE
CAPSALD	DEEP SPOT
CAPSALI	INLET
CAPSALO	OUTLET
CAPSALYMCA	YMCA
CAPSALP42	42 PLAISTED
CAPSALBL	BOAT LAUNCH
CAPSALYWOOD	CAMP Y WOOD
CAPSAL7CAP	7 CAPTAIN'S DR
CAPSAL30	30 PLAISTED CIRCLE
CAPSALG	GALLOW
CAPSALP21	21 PLAISTED EXT

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

## Captains Pond, Salem

### 2020 Data Summary

**Recommended Actions:** Great job sampling in 2020! Pond quality improved in 2020 potentially due to drought conditions and lack of stormwater runoff to the pond. However, nutrient levels and algal growth remain elevated and above the thresholds for mesotrophic lakes. This highlights the importance of managing stormwater runoff from the watershed and development of a watershed management plan to identify and quantify nutrient loads as well remediation activities. The town was awarded a grant to help assist with development of a management plan for Captains Pond which is encouraging. Continue waterfowl management efforts to reduce nutrient and bacteria loads. Educate shorefront property owners on becoming certified LakeSmart through NHLAKES' LakeSmart lake-friendly living program [www.nhlakes.org/lakesmart/](http://www.nhlakes.org/lakesmart/). Keep up the great work!

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

- ◆ **Chlorophyll-a:** Chlorophyll level was low in June, decreased from 2019, and was less than the state median and the threshold for mesotrophic lakes. Historical trend analysis indicates highly variable chlorophyll levels since monitoring.
- ◆ **Conductivity/Chloride:** Epilimnetic (upper water layer), Hypolimnetic (lower water layer), Inlet, Outlet, and nearshore station conductivity and/or chloride levels remained elevated and much greater than the state medians. Conductivity and chloride levels were fairly uniform across the pond. Historical trend analysis indicates highly variable epilimnetic conductivity levels since monitoring began.
- ◆ **Color:** Apparent color measured in the epilimnion indicates the water was moderately tea colored or brown.
- ◆ **Total Phosphorus:** Epilimnetic phosphorus level was within a moderate range in June, decreased from 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 slightly elevated and within a normal range for that station. Boat Launch and Inlet phosphorus levels were within a low to moderate range for those stations. Outlet phosphorus level was slightly elevated. Buzzell Cove and 7 Captains Dr. phosphorus levels were elevated and above average for those stations.
- ◆ **Transparency:** Transparency measured without the viewscope (NVS) was within an average range for the pond, increased (improved) slightly from 2019, but was less (worse) than the state median. Historical trend analysis indicates relatively stable transparency since monitoring began. Viewscope transparency (VS) was much higher (better) than NVS transparency and likely a better measure of actual conditions.
- ◆ **Turbidity:** Deep spot, Inlet, Outlet, and nearshore station turbidity levels were within low ranges for each station and decreased from 2019.
- ◆ **pH:** Deep spot, Inlet, Outlet, and nearshore station pH levels were within the desirable range 6.5-8.0 units. Historical trend analysis indicates relatively stable epilimnetic pH levels since monitoring began.

Station Name	Table 1. 2020 Average Water Quality Data for CAPTAINS POND - SALEM									
	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	19.3	3.75	48	70	198.0	16	2.12	3.25	0.40	7.31
Hypolimnion					185.5	23			0.92	6.54
7 Captains Dr.			49		192.2	41			1.02	7.11
Boat Launch			48		199.0	18			0.74	7.68
Buzzell Cove			49		184.4	33			1.09	6.73
Inlet			47		202.0	17			0.43	7.22
Outlet					197.0	24			0.65	6.86

**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	Stable	Trend not significant; data highly variable.	Chlorophyll-a	Stable	Trend not significant; data highly variable.
pH (epilimnion)	Stable	Trend not significant; data moderately variable.	Transparency	Stable	Trend not significant; data moderately variable.
			Phosphorus (epilimnion)	Stable	Trend not significant; data show low variability.

