



# Volunteer Lake Assessment Program Individual Lake Reports

## PEA PORRIDGE POND, BIG, MADISON, NH

### MORPHOMETRIC DATA

Watershed Area (Ac.):	1,431	Max. Depth (m):	13.7	Flushing Rate (yr <sup>-1</sup> ):	1.5	Year:	1979	Trophic class:	MESOTROPHIC
Surface Area (Ac.):	142	Mean Depth (m):	4	P Retention Coef:	0.63	Year:	2001	Trophic class:	OLIGOTROPHIC
Shore Length (m):	3,900	Volume (m <sup>3</sup> ):	2,295,500	Elevation (ft):	648	Year:	2001	Trophic class:	OLIGOTROPHIC

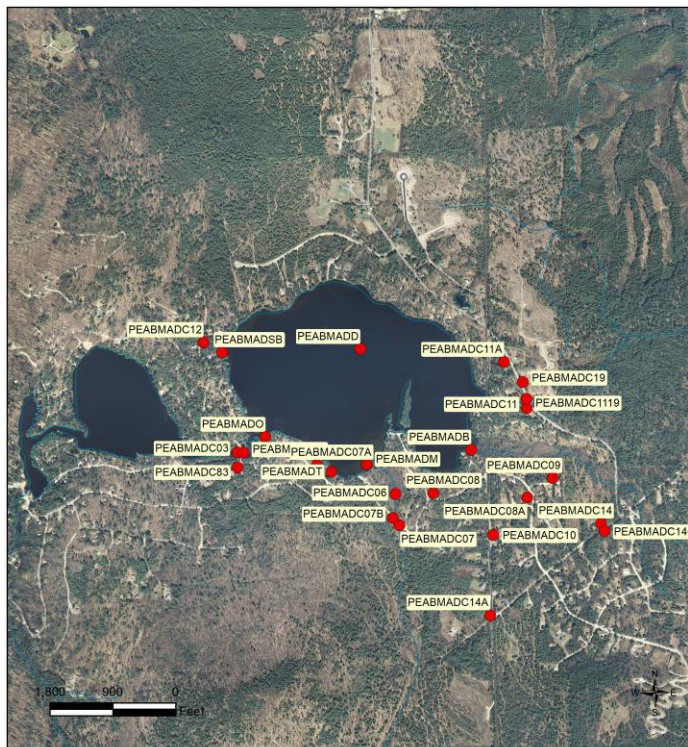
### TROPIC CLASSIFICATION

### 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)	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	Very Good	All sampling data meet water quality standards or thresholds for this parameter.
	Chlorophyll-a	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.



### BIG PEA PORRIDGE POND MADISON

#### VOLUNTEER LAKE ASSESSMENT PROGRAM

STATIONID	STATION NAME
PEABMADB	BIG ROCK INLET
PEABMADD	DEEP SPOT
PEABMADM	MUDDY BEACH INLET
PEABMADO	OUTLET
PEABMADC03	#3 BIG LOOP DRIVE
PEABMADC06	#5 EIDELWEISS CAUSEWAY
PEABMADC12	#12 PORRIDGE SHORE DRI
PEABMADC07	#7 EIDELWEISS DRIVE
PEABMADC06	#6 EIDELWEISS DRIVE
PEABMADC08	#8 BRENNER DRIVE
PEABMADC14A	#14A BICKFORD RD
PEABMADC10	#10 ARLBERG
PEABMADC09	#9 LIZUM PLACE
PEABMADC14	#14 MODOCK HILL RD
PEABMADC11	#11 ALLARD HILL ROAD
PEABMADC11A	#11A ALLARD
PEABMADC07B	#7B LOT 99 ED
PEABMADC19	#19 TASKER HILL RD
PEABMADSB	SHORE BEACH
PEABMADT	THUSIS BEACH
PEABMADC07A	#7A EIDELWEISS DRIVE
PEABMADC14C	#14C MODOCK HILL RD
PEABMADC83	LOT 83 EIDELWEISS DR
PEABMADC08A	#8A BRENNER DR
PEABMADC119	#19 ALLARD HILL RD

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: 2/23/2021





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## Big Pea Porridge Pond, Madison

### 2020 Data Summary

**Recommended Actions:** Great job sampling in 2020! Pond quality is indicative of oligotrophic, or high quality, conditions. However, a significant storm event resulted in elevated phosphorus levels in all tributaries. Efforts should be made to evaluate areas prone to stormwater runoff within the watershed and implement best practices to control runoff before entering the pond. NHDES' "NH Homeowner's Guide to Stormwater Management" and Maine DEP's "Camp Road Maintenance Manual" are great resources. Encourage shoreline property owner's to become certified LakeSmart through NHLAKES lake-friendly living program [www.nhlake.org/lakesmart/](http://www.nhlake.org/lakesmart/). Continue efforts to develop a watershed management plan and to conduct spring chloride monitoring. Keep up the great work!

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

- ◆ **Chlorophyll-a:** Chlorophyll level was within a low range in July and then decreased in September. Average chlorophyll level decreased slightly from 2019 and was less than the state median and the threshold for oligotrophic lakes. Historical trend analysis indicates stable chlorophyll levels since monitoring began.
- ◆ **Conductivity/Chloride:** Epilimnetic (upper water layer), Metalimnetic (middle water layer), Hypolimnetic (lower water layer), Muddy Beach Inlet, and Outlet conductivity levels were within a low range for NH lakes and approximately equal to or slightly greater than the state median. Epilimnetic, Big Rock Inlet and Muddy Beach Inlet chloride levels were within a low range and slightly greater than the state median. However, historical trend analysis indicates significantly increasing (worsening) epilimnetic conductivity levels since monitoring began. Big Rock Inlet conductivity levels were also within a low range however slightly greater than the state median and levels measured at other stations.
- ◆ **Color:** Apparent color measured in the epilimnion indicates the water was clear, with no tea, or brown, coloring in July and September.
- ◆ **Total Phosphorus:** Epilimnetic and Metalimnetic phosphorus levels fluctuated within a low range. Average epilimnetic phosphorus level increased from 2019 but remained less than the state median and the threshold for oligotrophic lakes. Historical trend analysis indicates relatively stable epilimnetic phosphorus levels since monitoring began. Hypolimnetic phosphorus level was low in July and slightly elevated in September. Big Rock Inlet, Muddy Beach Inlet and Outlet phosphorus levels were elevated in July following a significant storm event.
- ◆ **Transparency:** Transparency measured without the viewscope (NVS) was within an average range for the pond in July and increased (improved) in September. Average NVS transparency remained stable with 2019 and was higher (better) than the state median. Historical trend analysis indicates relatively stable 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, Metalimnetic, Hypolimnetic, and Muddy Beach Inlet turbidity levels fluctuated within a low range. Big Rock Inlet turbidity level was elevated in July following the storm event. Outlet turbidity level was slightly elevated in September and lab data noted low levels of organic matter in the sample.
- ◆ **pH:** Epilimnetic and Big Rock Inlet 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. Metalimnetic and Outlet pH levels were slightly less than desirable. Hypolimnetic and Muddy Beach Inlet pH levels were slightly acidic and less than desirable.

Station Name	Table 1. 2020 Average Water Quality Data for BIG PEA PORRIDGE POND - MADISON									
	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	4.8	1.87	12	10	49.5	7	4.85	6.70	0.30	6.78
Metalimnion					49.0	9			0.34	6.38
Hypolimnion					47.6	14			0.81	5.72
Big Rock Inlet			18		71.1	13			1.09	6.51
Muddy Beach Inlet			7		38.2	13			0.44	6.12
Outlet					48.2	20			1.05	6.32

**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.

