



Volunteer Lake Assessment Program Individual Lake Reports

PEA PORRIDGE POND, MIDDLE, MADISON, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	1,856	Max. Depth (m):	13.4	Flushing Rate (yr¹)	5.3	Year	Trophic class	
Surface Area (Ac.):	43	Mean Depth (m):	4.7	P Retention Coef:	0.45	1989	OLIGOTROPHIC	
Shore Length (m):	1,400	Volume (m³):	831,500	Elevation (ft):	636	2001	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](https://www.nhdes.gov/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.



**MIDDLE PEA PORRIDGE POND
MADISON
VOLUNTEER LAKE ASSESSMENT PROGRAM**

STATIONID	STATION NAME
PEAMMADD	DEEP SPOT
PEAMMADI	INLET
PEAMMADO	OUTLET
PEAMMADC13	#13 LITTLE SHORE DR
PEAMMADC15	#15 LITTLE SHORE DR
PEAMMADC01A	#1A
PEAMMADC01	#1 EIDELWEISS DRIVE
PEAMMADC02	#2 EIDELWEISS DRIVE
PEAMMADBB	BOULDER BCH
PEAMMADGB	GENEVA BCH
PEAMMADC16	#16 EIDELWEISS DRIVE
PEAMMADC01B	#1B EIDELWEISS DR
PEAMMADC04	#4 MIDDLE SHORE PL
PEAMMADC15M	#15 MIDDLE SHORE PL
PEAMMADC73	LOT 73 EIDELWEISS DR

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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Middle 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 slightly elevated phosphorus levels in the pond. 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 DEPs' "Camp Road Maintenance Manual" are great resources. Hypolimnetic phosphorus levels have significantly increased since monitoring began suggesting an internal load of phosphorus to the pond. This highlights the importance of managing phosphorus loading from external sources within the watershed. Encourage shoreline property owner's to become certified LakeSmart through NHLAKES lake-friendly living program 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 decreased in September. Average chlorophyll level decreased from 2019 and was less than the state median and the threshold for oligotrophic lakes, Historical trend analysis indicates relatively stable chlorophyll levels since monitoring began.
- ◆ **Conductivity/Chloride:** Epilimnetic (upper water layer), Metalimnetic (middle water layer), Hypolimnetic (lower water layer), Inlet, and Outlet conductivity and/or chloride levels were slightly greater than the state medians, yet less than a level of concern. However, historical trend analysis indicates significantly increasing (worsening) epilimnetic conductivity levels since monitoring began.
- ◆ **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 were slightly elevated in July following a significant storm event, and then decreased to a low level in September. Average epilimnetic phosphorus level increased from 2019, was less than the state median, and was approximately equal to the threshold for mesotrophic lakes. Historical trend analysis indicates relatively stable epilimnetic phosphorus levels since monitoring began. Hypolimnetic phosphorus level was slightly elevated in July and increased in September. Historical trend analysis indicates significantly increasing (worsening) hypolimnetic phosphorus levels since monitoring began suggesting phosphorus release from bottom sediments under anoxic (low dissolved oxygen) conditions, a process call internal loading. Inlet phosphorus level was elevated in July and September. Outlet phosphorus level was low.
- ◆ **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 increased (improved) slightly from 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 Outlet turbidity levels fluctuated within a low range. Inlet turbidity levels fluctuated within a low to moderate range for that station.
- ◆ **pH:** Epilimnetic and Metalimnetic pH levels were within the desirable range 6.5-8.0 units. Historical trend analysis indicates stable epilimnetic pH levels since monitoring began. Hypolimnetic, Inlet and Outlet pH levels were slightly acidic and less than desirable.

Station Name	Table 1. 2020 Average Water Quality Data for MIDDLE 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	6.2	1.34	15	10	55.2	8	5.28	6.75	0.32	6.97
Metalimnion					54.2	11			0.52	6.50
Hypolimnion					56.6	19			0.64	6.14
Inlet			14		62.6	20			1.12	5.98
Outlet					79.8	8			0.36	6.38

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

