Volunteer Lake Assessment Program Individual Lake Reports

AYERS POND, BARRINGTON, NH

MORPHOMETRIC DATA **TROPHIC CLASSIFICATION** **KNOWN EXOTIC SPECIES**

Watershed Area (Ac.):	1,987	**Max. Depth (m):**	9.1	**Flushing Rate (yr^{-1}):**	1	**Year**	**Trophic class**	
Surface Area (Ac.):	228	**Mean Depth (m):**	4.4	**P Retention Coef:**	0.69	1979	OLIGOTROPHIC	
Shore Length (m):	7,400	**Volume (m^3):**	4,030,500	**Elevation (ft):**	233	1995	OLIGOTROPHIC	

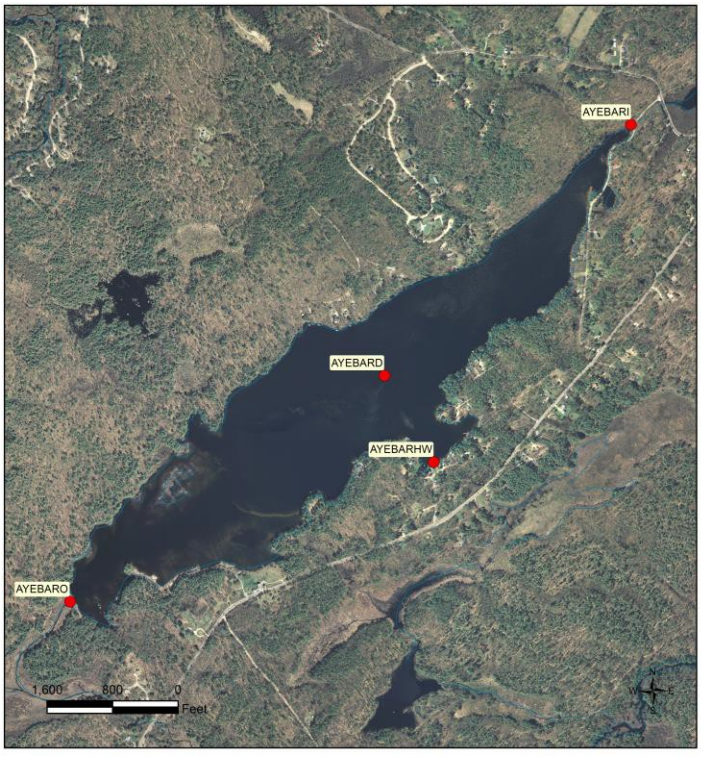
The Waterbody Report Card tables are generated from the DRAFT 2020 305(b) report on the status of New Hampshire waters, and are based on data collected from 2010- 2019. Detailed waterbody assessment and report card information can be found at NHDES' Water Quality Assessment Website.

Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	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	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	Very Good	All sampling data meet water quality standards or thresholds for this parameter.

BEACH PRIMARY CONTACT ASSESSMENT STATUS

AYERS POND - CAMP FIRESIDE BEACH	Escherichia coli	Good	Sampling data commonly 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.



AYERS POND
BARRINGTON
VOLUNTEER LAKE ASSESSMENT PROGRAM

STATIONID	STATION NAME
AYEBARD	DEEP SPOT
AYEBARI	INLET
AYEBARO	OUTLET
AYEBARHW	HERON WAY

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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Ayers Pond, Barrington
2020 Data Summary

Recommended Actions: Great job sampling in 2020! Pond nutrient levels, algal growth and clarity continue to be representative of oligotrophic, or high quality, conditions and the improving water quality trends are a positive sign. The dedication by lake and watershed residents to protect and maintain the health of the lake is measured in the improving conditions and we hope to see this continue! However, pond conductivity levels have doubled in the past seven years and Inlet conductivity levels have doubled in the past four years. This accelerated rate of change is a concern. Evaluate any changes in the watershed and Inlet sub-watershed with regards to the application of road salt, dust suppressant usage on dirt roads, water softener usage and discharge to dry wells and septic systems, directional flow of stormwater runoff from roadways, and anything that could be related to the sudden increase in conductivity levels. Conduct sampling at a small tributary located at the northwestern corner of the pond to evaluate how it impacts water quality. Encourage local road agents and private winter maintenance companies to obtain Voluntary NH Salt Applicator licenses through UNH Technology Transfer Center's Green SnowPro Certification program. 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 June and increased slightly in August. Average chlorophyll level decreased from 2019 and was less than the state median and the threshold for oligotrophic lakes. Historical trend analysis indicates significantly decreasing (improving) chlorophyll levels since monitoring began.
- **Conductivity/Chloride:** Epilimnetic (upper water layer), Metalimnetic (middle water layer), Hypolimnetic (lower water layer), and Outlet conductivity levels were slightly elevated and greater than the state median. Epilimnetic chloride level was also slightly elevated and greater than the state median yet chloride levels were much less than the state chronic chloride standard. Historical trend analysis indicates significantly increasing (worsening) epilimnetic conductivity levels since monitoring began. Inlet conductivity and chloride levels were slightly elevated and greater than the deep spot and Outlet levels.
- **Color:** Apparent color measured in the epilimnion indicates the water was lightly tea colored, or light brown, in June and then lightened to within a clear, or no tea color, range in August.
- **Total Phosphorus:** Epilimnetic and Metalimnetic phosphorus levels were within a low range in June and remained stable in August. Average epilimnetic phosphorus level remained stable with 2019 and was less than the state median and the threshold for oligotrophic lakes. Historical trend analysis indicates significantly decreasing (improving) epilimnetic phosphorus levels since monitoring began. Hypolimnetic phosphorus levels were within a moderate range and increased slightly from June to August. Inlet phosphorus levels were elevated in June and volunteers noted very low flow conditions. Outlet phosphorus levels were moderate in June and decreased slightly in August.
- **Transparency:** Transparency measured without (NVS) the viewscope was high (good) in June and increased (improved) in August. Average NVS transparency increased (improved) from 2019 and was higher (better) than the state median. Historical trend analysis indicates significantly increasing (improving) NVS transparency since monitoring began. Viewscope (VS) transparency was higher (better) than NVS transparency in June but decreased slightly in August. VS transparency is generally higher (better) than NVS transparency and likely a better measure of actual conditions.
- **Turbidity:** Epilimnetic, Metalimnetic, Hypolimnetic, Inlet, and Outlet turbidity levels fluctuated within a low range.
- **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 and Inlet pH levels were slightly acidic. Outlet pH levels were slightly less than desirable.

Table 1. 2020 Average Water Quality Data for AYERS POND - BARRINGTON

Station Name	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	3.2	1.84	30	25	102.2	7	5.65	5.74	0.32	6.72
Metalimnion					98.4	7			0.26	6.50
Hypolimnion					97.2	11			0.31	6.11
Inlet			46		157.9	25			0.35	6.19
Outlet					105.5	10			0.44	6.34

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