Volunteer Lake Assessment Program Individual Lake Reports

AKERS POND, ERROL, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	5,888	**Max. Depth (m):**	7.9	**Flushing Rate (yr^{-1})**	3.6
Surface Area (Ac.):	309	**Mean Depth (m):**	3	**P Retention Coef:**	
Shore Length (m):	5,600	**Volume (m^3):**	3,809,500	**Elevation (ft):**	1231

TROPHIC CLASSIFICATION

Year	Trophic class
1984	MESOTROPHIC
2003	MESOTROPHIC

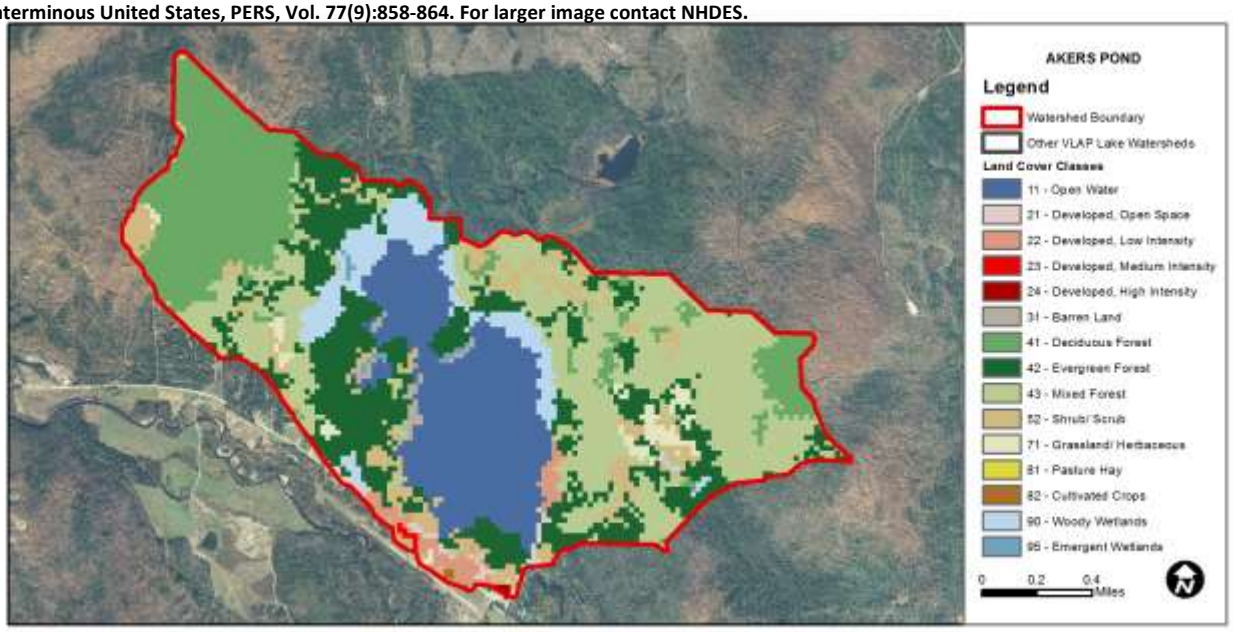
KNOWN EXOTIC SPECIES

The Waterbody Report Card tables are generated from the DRAFT 2018 305(b) report on the status of N.H. waters, and are based on data collected from 2008-2017. Detailed waterbody assessment and report card information can be found at www.des.nh.gov/organization/divisions/water/wmb/swqa/index.htm

Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	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.
	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	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.
Primary Contact Recreation	Escherichia coli	No Data	No data for this parameter.
	Chlorophyll-a	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.

WATERSHED LAND USE SUMMARY

Fry, J., Xian, G., Jin, S., Dewitz, J., Homer, C., Yang, L., Barnes, C., Herold, N., and Wickham, J., 2011. Completion of the 2006 National Land Cover Database for the Conterminous United States, PERS, Vol. 77(9):858-864. For larger image contact NHDES.



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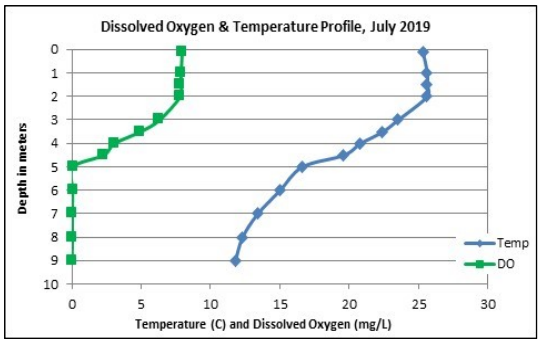
Akers Pond, Errol
2019 Data Summary

Recommended Actions: Water quality is generally indicative of borderline oligotrophic/mesotrophic, or high to average quality conditions which supports a healthy lake ecosystem. Continue the annual monitoring program to establish a base line set of water quality data to assess seasonal and historical water quality trends. Consider adding tributary stations to evaluate the quality of water entering the pond. Collect an annual phytoplankton sample to better understand the algal population within the lake. VLAP can loan a plankton net for collection. Keep an eye on dissolved oxygen levels in hypolimnetic waters as it could cause phosphorus to be released from bottom sediments, a process referred to as internal loading. We look forward to learning more about the health of Akers Pond!

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

- **Chlorophyll-a:** Chlorophyll level was slightly elevated in July, increased from 2018, and was slightly greater than the state median and the threshold for mesotrophic lakes. Visual inspection of historical data indicates relatively stable chlorophyll levels since monitoring began.
- **Conductivity/Chloride:** Epilimnetic (upper water layer), Metalimnetic (middle water layer) and Hypolimnetic (lower water layer) conductivity and/or chloride levels were low and less than the state medians. Visual inspection of historical data indicates stable epilimnetic conductivity levels since monitoring began.
- **Color:** Apparent color measured in the epilimnion indicates the lake water was moderately tea colored, or brown.
- **Total Phosphorus:** Epilimnetic and Metalimnetic phosphorus levels were within a low range, and were less than the state median and the threshold for mesotrophic lakes. Visual inspection of historical data indicates stable epilimnetic phosphorus levels since monitoring began. Hypolimnetic phosphorus level was slightly elevated and the turbidity of the sample was also elevated indicating the potential formation and accumulation of organic compounds under anoxic (no dissolved oxygen) conditions.
- **Transparency:** Transparency measured with (VS) and without (NVS) the viewscope was within an average range for the lake, increased slightly from 2018, and was slightly higher (better) than the state median. Visual inspection of historical data indicates stable transparency since monitoring began.
- **Turbidity:** Epilimnetic and Metalimnetic turbidity levels were the lowest measured since monitoring began. Hypolimnetic turbidity level was elevated potentially due to the formation and accumulation of organic compounds under anoxic conditions.
- **pH:** Epilimnetic and Metalimnetic pH levels were within the desirable range 6.5-8.0 units. Visual inspection of historical data indicates stable epilimnetic pH levels since monitoring began. Hypolimnetic pH levels were slightly less than desirable.



Station Name	Table 1. 2019 Average Water Quality Data for AKERS POND - ERROL									
	Alk. mg/l	Chlor-a ug/l	Chloride mg/l	Color pcu	Cond. us/cm	Total P mg/l	Trans. m		Turb. ntu	pH
							NVS	VS		
Epilimnion	6.9	5.61	3	60	30.6	10	3.50	3.80	0.71	6.76
Metalimnion					31.1	8			0.51	6.82
Hypolimnion					39.1	15			11.70	6.21

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	N/A	Ten consecutive years of data necessary for analysis.	Chlorophyll-a	N/A	Ten consecutive years of data necessary for analysis.
pH (epilimnion)	N/A	Ten consecutive years of data necessary for analysis.	Transparency	N/A	Ten consecutive years of data necessary for analysis.
			Phosphorus (epilimnion)	N/A	Ten consecutive years of data necessary for analysis.