Volunteer Lake Assessment Program Individual Lake Reports
ASHUELOT POND, WASHINGTON, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	16,000	Max. Depth (m):	7	Flushing Rate (yr[1])	16.2
Surface Area (Ac.):	299	Mean Depth (m):	1.8	P Retention Coef:	0.43
Shore Length (m):	8,400	Volume (m³):	2,229,500	Elevation (ft):	1445

TROPHIC CLASSIFICATION

Year	Trophic class
1986	MESOTROPHIC
2004	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)	Good	Sampling data is better than the water quality standards or thresholds for this parameter.
	pH	Bad	Data periodically exceed water quality standards or thresholds for a given parameter by a large 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	Cautionary	Limited data for this parameter predicts exceedance of water quality standards or thresholds; 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.

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.

Land Cover Category	% Cover	Land Cover Category	% Cover	Land Cover Category	% Cover
Open Water	5.63	Barren Land	0.05	Grassland/Herbaceous	0.09
Developed-Open Space	2.73	Deciduous Forest	41.1	Pasture Hay	0.86
Developed-Low Intensity	0.37	Evergreen Forest	19.28	Cultivated Crops	0.1
Developed-Medium Intensity	0	Mixed Forest	24.47	Woody Wetlands	2.59
Developed-High Intensity	0	Shrub-Scrub	1.17	Emergent Wetlands	1.54

RECOMMENDED ACTIONS: Pond quality is generally representative of mesotrophic, or average quality conditions, and the improving water quality parameters are encouraging. We hope to see this continue! Keep an eye on pond algal growth as chlorophyll levels have remained within a slightly higher range since 2015. This may be a result of excess nutrient inputs, warmer water temperatures, or a shift in predatory structure or algal populations. While conductivity levels are low and a decreasing trend exists, conductivity levels have remained within a higher range since 2015 and epilimnetic levels were the highest measured since 1993. Educate lake residents on proper boating practices, particularly around the shoreline as bottom sediments can be disturbed leading to increased turbidity and potential release of nutrients, and boat wakes can erode and de-stabilize shorelines. Keep up the great work!

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

- **CHLOROPHYLL-A:** Chlorophyll levels were low in July and then increased to slightly elevated levels in August. Average chlorophyll level remained stable with 2018 and was approximately equal to the state median and the threshold for mesotrophic lakes. Historical trend analysis indicates significantly decreasing (improving) chlorophyll levels since monitoring began.
- **CONDUCTIVITY/CHLORIDE:** Epilimnetic (upper water layer), Hypolimnetic (lower water layer), Marina Inlet, Millen Inlet, NB Crowley Cove, and River Inlet conductivity levels fluctuated within a low range and were less than the state median. Epilimnetic conductivity levels, while low, were the highest measured since 1993. Epilimnetic chloride levels were also low and approximately equal to the state median. Historical trend analysis indicates significantly decreasing (improving) epilimnetic conductivity levels since monitoring began.
- **COLOR:** Apparent color measured in the epilimnion indicates the pond water was moderately tea colored, or brown.
- **E. COLI:** LAE Beach Deep E. coli levels were very low and less than the state standard of 88 cts/100 mL. LAE Beach Shallow E. coli levels exceeded the state standard by a small amount in August.
- **TOTAL PHOSPHORUS:** Epilimnetic phosphorus levels were low in July and increased slightly in August. Average epilimnetic phosphorus level decreased from 2018 and was slightly less than the state median and the threshold for mesotrophic lakes. Historical trend analysis indicates significantly decreasing (improving) epilimnetic phosphorus levels since monitoring began. Hypolimnetic phosphorus levels were elevated in July and the turbidity of the sample was also slightly elevated. Marina Inlet, Millen Inlet, NB Crowley Cove, and River Inlet phosphorus levels fluctuated within a low range.
- **TRANSPARENCY:** Transparency measured without the viewscope (NVS) was high (good) in July and then decreased in August when algal growth was elevated. Average NVS transparency remained stable with 2018 and was slightly lower than the state median. Historical trend analysis indicates stable transparency since monitoring began. Viewscope transparency was slightly higher (better) than NVS transparency in August.
- **TURBIDITY:** Epilimnetic turbidity levels were low in July and increased slightly in August when algal growth was elevated. Hypolimnetic turbidity levels were slightly elevated in July and lab data noted organic matter in the sample. Marina Inlet, Millen Inlet, NB Crowley Cove, and River Inlet turbidity levels were within an average range for those stations.
- **PH:** Epilimnetic, Hypolimnetic, Marina Inlet, Millen Inlet, NB Crowley Cove, and River Inlet pH levels were slightly acidic an less than the desirable range 6.5-8.0 units. Historical trend analysis indicates significantly increasing (improving) epilimnetic pH levels since monitoring began.

Dissolved Oxygen & Temperature Profile, August 2019

ASHUELOT POND Annual Phytoplankton Population
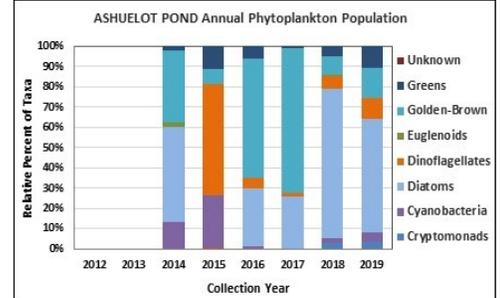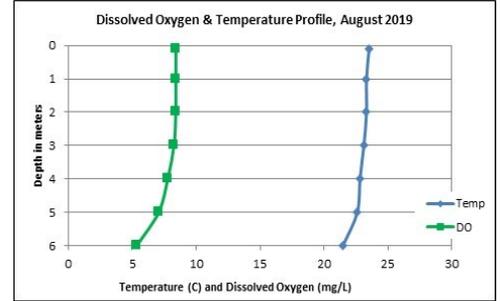
Station Name	Table 1. 2019 Average Water Quality Data for ASHUELOT POND - WASHINGTON										
	Alk. mg/l	Chlor-a ug/l	Chloride mg/l	Color pcu	Cond. us/cm	E. coli mpn/100ml	Total P mg/l	Trans. m NVS	Trans. m VS	Turb. ntu	pH
Epilimnion	0.9	4.80	5	50	32.7		10	2.90	3.00	0.90	6.09
Hypolimnion					30.2		15			1.23	5.79
LAE Beach Deep						1					
LAE Beach Shallow						56.3					
Marina Inlet					31.4		8			0.61	6.06
Millen Inlet					30.4		11			0.80	5.99
NB Crowley Cove					28.6		7			0.76	6.18
River Inlet					30.6		9			0.58	6.06

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)

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

HISTORICAL WATER QUALITY TREND ANALYSIS

Parameter	Trend	Explanation	Parameter	Trend	Explanation
Conductivity	Improving	Data significantly decreasing.	Chlorophyll-a	Improving	Data significantly decreasing.
pH (epilimnion)	Improving	Data significantly increasing.	Transparency	Stable	Trend not significant; data show low variability.
			Phosphorus (epilimnion)	Improving	Data significantly decreasing.

Historical Trend Epilimnetic Conductivty and pH

Historical Chlorophyll-a, Epilimnetic Phosphorus & Transparency Data