



Volunteer Lake Assessment Program Individual Lake Reports

BAXTER LAKE, FARMINGTON, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	2,439	Max. Depth (m):	4.6	Flushing Rate (yr ¹):	1.9
Surface Area (Ac.):	295	Mean Depth (m):	2.1	P Retention Coef:	0.7
Shore Length (m):	7,200	Volume (m ³):	2,452,500	Elevation (ft):	405

TROPHIC CLASSIFICATION

Year	Trophic class
1979	MESOTROPHIC
1995	MESOTROPHIC

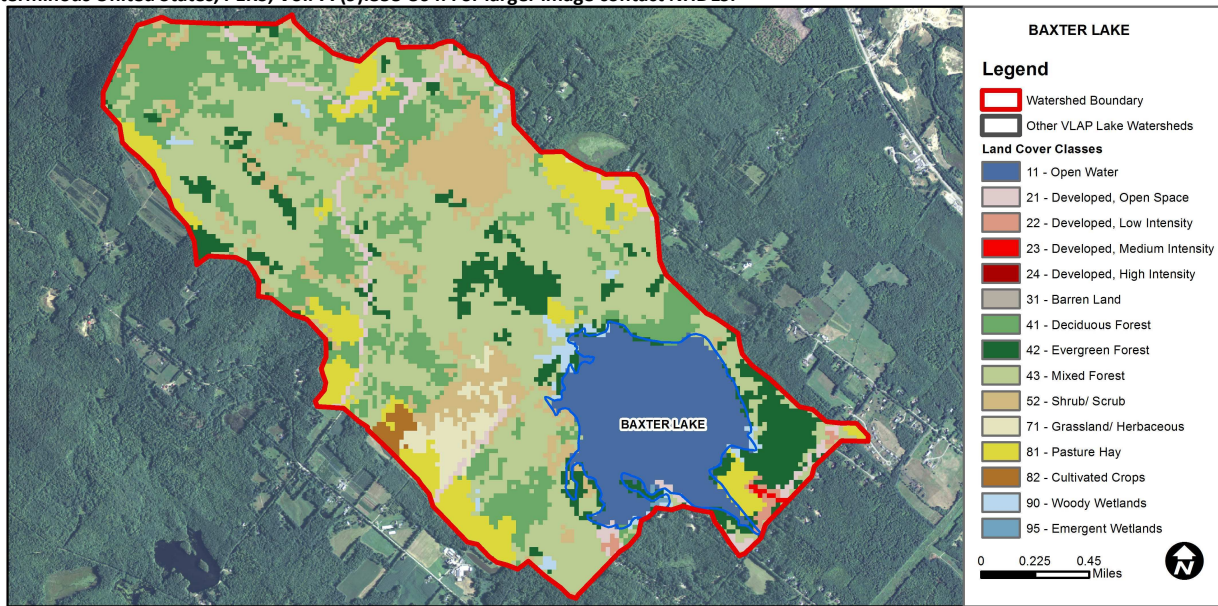
KNOWN EXOTIC SPECIES

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)	Cautionary	Limited data for this parameter predicts exceedance of water quality standards or thresholds; 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	Slightly Bad	Data periodically exceed water quality standards or thresholds for this 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.

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	12.1	Barren Land	0	Grassland/Herbaceous	1.76
Developed-Open Space	2.97	Deciduous Forest	16.84	Pasture Hay	8.1
Developed-Low Intensity	0.46	Evergreen Forest	8.75	Cultivated Crops	0.53
Developed-Medium Intensity	0.1	Mixed Forest	37.43	Woody Wetlands	1.17
Developed-High Intensity	0	Shrub-Scrub	9.71	Emergent Wetlands	0.07



VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS

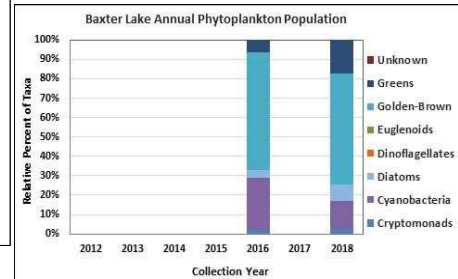
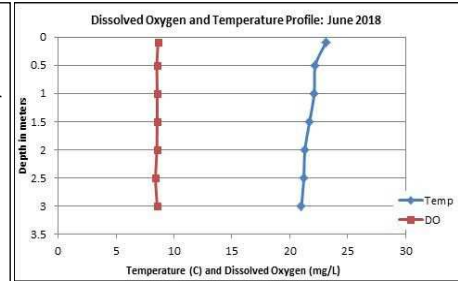
BAXTER LAKE, FARMINGTON

2018 DATA SUMMARY

RECOMMENDED ACTIONS: Increase monitoring frequency to once per month, typically June, July and August, during the summer and continue to do this on an annual basis. This will help to better assess seasonal and historical water quality trends. Lake quality is generally representative of mesotrophic, or average, conditions and water quality has remained relatively stable, and we hope to see this continue. The increased frequency and intensity of storm events highlights the importance of managing stormwater runoff from roads, driveways, steep slopes and beaches. DES' "NH Homeowner's Guide to Stormwater Runoff" is a great resource. Consider converting beach areas to perched beaches to reduce runoff. DES fact sheet WD-WB-18 "Perching Beaches to Lessen Impacts to Lake Quality" is another good resource. Keep up the great work and contact the VLAP Coordinator in the spring to schedule a sampling refresher.

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

- ◆ **CHLOROPHYLL-A:** Chlorophyll levels were low in June and increased slightly in July but remained within a low range. Average chlorophyll level was less than the state median and threshold for mesotrophic lakes and was the lowest measured since monitoring began. Historical trend analysis indicates stable chlorophyll levels since monitoring began.
- ◆ **CONDUCTIVITY/CHLORIDE:** Epilimnetic (upper water layer) and Outlet conductivity and/or chloride levels were slightly greater than the state medians but much less than a level of concern. Historical trend analysis indicates relatively stable epilimnetic conductivity levels since monitoring began. Cruze and Dinneen Brook conductivity and chloride levels were also greater than the state medians, and Dinneen Brook levels are likely influenced by winter road salting activities.
- ◆ **COLOR:** Apparent color was measured in the epilimnion and indicates the lake water is moderately tea colored, or brown.
- ◆ **E. COLI:** All beaches experienced very low E. coli levels that were much less than the state standard of 88 cts/100 mL for public beaches. Cruze Brook and Dinneen Brook E. coli levels were higher than the beaches, however much less than the state standard of 406 cts/100 mL for surface waters.
- ◆ **TOTAL PHOSPHORUS:** Epilimnetic phosphorus levels were within a moderate range and decreased from June to July. Average epilimnetic phosphorus level was slightly greater than the state median and the threshold for mesotrophic lakes. Historical trend analysis indicates relatively stable epilimnetic phosphorus levels since monitoring began. Cruze Brook, Dinneen Brook and Outlet phosphorus levels were within low to moderate ranges in June.
- ◆ **TRANSPARENCY:** Transparency measured without the viewscope (NVS) was within an average range for the lake in June and decreased slightly (worsened) in July. Average NVS transparency was less than the state median. Historical trend analysis indicates stable transparency since monitoring began. Transparency measured with the viewscope (VS) was much higher (better) than NVS transparency and likely a better measured of actual conditions.
- ◆ **TURBIDITY:** Epilimnetic, Dinneen Brook and Outlet turbidity levels were within a low range. Cruze Brook turbidity levels were slightly elevated in June during low flow conditions.
- ◆ **pH:** Epilimnetic and tributary pH levels were within the desirable range 6.5-8.0 units, however epilimnetic pH has historically fluctuated below the desirable range. Historical trend analysis indicates relatively stable epilimnetic pH levels since monitoring began.



Station Name	Table 1. 2018 Average Water Quality Data for BAXTER LAKE - FARMINGTON										
	Alk. mg/l	Chlor-a ug/l	Chloride mg/l	Color pcu	Cond. us/cm	E. coli mpn/100ml	Total P ug/l	Trans. m		Turb. ntu	pH
								NVS	VS		
Epilimnion	4.9	2.78	11	63	60.7		13	2.44	3.56	0.70	6.84
Beach 1						4					
Beach 2						3					
Beach 3						19					
Cruze Brook			14		110.6	86	8			2.28	6.78
Dinneen Brook			27		151.6	41	7			0.33	6.62
Grandview Beach 1						5					
Grandview Beach 2						4					
Grandview Beach 3						5					
Outlet					63.8		13			0.64	6.70

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 mg/m³
- 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	Stable	Trend not significant; data moderately variable.	Chlorophyll-a	Stable	Trend not significant; data show low variability.
pH (epilimnion)	Stable	Trend not significant; data moderately variable.	Transparency	Stable	Trend not significant; data show low variability.
			Phosphorus (epilimnion)	Stable	Trend not significant; data moderately variable.

