Volunteer Lake Assessment Program Individual Lake Reports
CHILDS BOG, HARRISVILLE, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	896	Max. Depth (m):	5.4	Flushing Rate (yr[1])	1.7		
Surface Area (Ac.):	105	Mean Depth (m):	2.8	P Retention Coef:	0.67		
Shore Length (m):	3,400	Volume (m³):	1,176,500	Elevation (ft):	1375		

TROPHIC CLASSIFICATION

Year	Trophic class
1984	OLIGOTROPHIC
1998	OLIGOTROPHIC

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 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	Cautionary	Limited data for this parameter predicts exceedance of water quality standards or thresholds; 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.
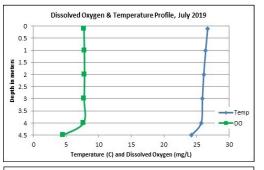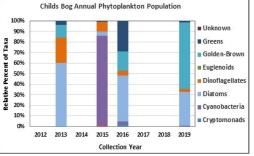
RECOMMENDED ACTIONS: Welcome back to VLAP! pond nutrient (phosphorus) levels and algal (chlorophyll) growth are slightly higher than desirable for oligotrophic waters, however levels fluctuate very close to the thresholds. It is recommended to increase monitoring frequency to better assess seasonal and annual variations in nutrient levels and algal growth. Conductivity levels appear to be increasing likely due to the use of winter de-icing materials (road salt) along local roads. Encourage local road agents to obtain a Voluntary NH Salt Applicator license through UNH T2'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 moderate range for NH lakes, was approximately equal to the state median, and was slightly greater than the threshold for oligotrophic lakes.
- **CONDUCTIVITY/CHLORIDE:** Epilimnetic (upper water layer) and Outlet conductivity and/or chloride levels were slightly greater than the state medians yet much less than a level of concern. However, visual inspection of historical data indicates increasing epilimnetic conductivity levels. Miller-Gline Inlet conductivity and chloride levels were very low and less than the state medians.
- **COLOR:** Apparent color measured in the epilimnion indicates the pond water is moderately tea colored, or brown.
- **TOTAL PHOSPHORUS:** Epilimnetic and Outlet phosphorus levels were within a low range. Epilimnetic phosphorus level was less than the state median and slightly greater than the threshold for oligotrophic lakes. Miller-Gline Inlet phosphorus level was elevated and the turbidity of the sample was also slightly elevated which may have influenced phosphorus levels.
- **TRANSPARENCY:** Transparency measured with (VS) and without (NVS) the viewscope was high (good) and was higher (better) than the state median.
- **TURBIDITY:** Epilimnetic and Outlet turbidity levels were within a low range. Miller-Gline Inlet turbidity levels were slightly elevated likely due to low flow conditions.
- **PH:** Epilimnetic, Miller-Gline Inlet and Outlet pH levels were slightly less than desirable range 6.5-8.0 units. Epilimnetic pH level has historically fluctuated around the low end of the desirable range.

Dissolved Oxygen & Temperature Profile, July 2019

Childs Bog Annual Phytoplankton Population

Station Name	Table 1. 2019 Average Water Quality Data for CHILDS BOG - HARRISVILLE									
	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	2.5	4.70	20	40	84.8	9	4.00	4.50	0.46	6.30
Miller-Gline Inlet			3		20.2	17			1.43	6.10
Outlet					85.6	7			0.35	6.42

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.

Historical Trend Epilimnetic Conductivty and pH

Historical Chlorophyll-a, Epilimnetic Phosphorus & Transparency Data