Volunteer Lake Assessment Program Individual Lake Reports
CHASE POND, WILMOT, NH

MORPHOMETRIC DATA

						TROPHIC CLASSIFICATION		**KNOWN EXOTIC SPECIES**
Watershed Area (Ac.):	9,002	Max. Depth (m):	3.4	Flushing Rate (yr¹)	62.5	Year	Trophic class	
Surface Area (Ac.):	39	Mean Depth (m):	1.9	P Retention Coef:	0.19	1989	OLIGOTROPHIC	
Shore Length (m):	1,800	Volume (m³):	296,000	Elevation (ft):	704	1998	OLIGOTROPHIC	

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)	Slightly Bad	Data exceed water quality standards or thresholds for a given parameter by a small margin.
	pH	Good	Sampling data commonly meet water quality standards or thresholds for this parameter.
	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	Slightly Bad	Data exceed water quality standards or thresholds for a given parameter by a small margin.
Primary Contact Recreation	Escherichia coli	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	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.

RECOMMENDED ACTIONS: The improving chlorophyll levels are a positive sign, however phosphorus levels have remained slightly elevated since 2016 and pond clarity (transparency) has remained below average. The increased frequency and intensity of storm events and associated stormwater runoff and flushing of upstream wetland systems rich in dissolved organic matter may be impacting turbidity and phosphorus levels and causing the water to become darker or browner. This highlights the importance of managing stormwater runoff from the watershed and waterfront properties to minimize shoreline erosion and phosphorus loads. The DES "NH Homeowner's Guide to Stormwater Management" is a great resource. Continue to measure apparent color to better understand the relationship between water color, nutrients, turbidity and clarity. 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, was less than the state median, and was slightly greater than the threshold for oligotrophic lakes. Historical trend analysis indicates significantly decreasing (improving) chlorophyll levels since monitoring began.
- **CONDUCTIVITY/CHLORIDE:** Epilimnetic, Inlet and Outlet conductivity and/or chloride levels remained slightly greater than the state median, yet were less than a level of concern. Historical trend analysis indicates stable, yet variable, epilimnetic conductivity levels since monitoring began.
- **COLOR:** Apparent color measured in the epilimnion indicates the pond water was moderately tea colored, or brown.
- **TOTAL PHOSPHORUS:** Epilimnetic phosphorus level remained slightly elevated, decreased slightly from 2018, was approximately equal to the state median, and was greater than the threshold for oligotrophic lakes. Historical trend analysis indicates relatively stable epilimnetic phosphorus levels since monitoring began. Inlet and Outlet phosphorus levels were within a low range for those stations.
- **TRANSPARENCY:** Transparency measured without the viewscope (NVS) was below average (worse) for the pond, however did improve from that measured in 2018. Historical trend analysis indicates relatively stable transparency since monitoring began. Viewscope transparency (VS) was higher (better) than NVS transparency and within a more normal range for the pond.
- **TURBIDITY:** Epilimnetic, Inlet and Outlet turbidity levels were within an average range for those stations.
- **PH:** Epilimnetic, Inlet and Outlet pH levels were within the desirable range 6.5-8.0 units. Historical trend analysis indicates stable epilimnetic pH levels since monitoring began.

Dissolved Oxygen & Temperature Profile, July 2019

CHASE POND Annual Phytoplankton Population
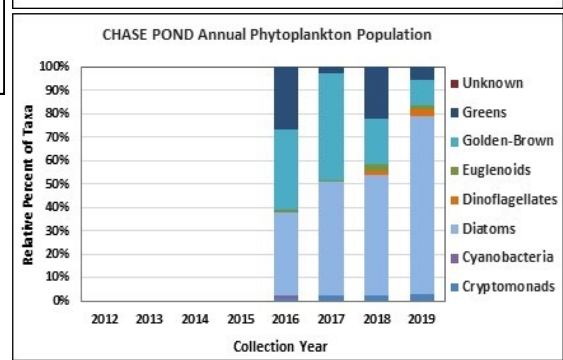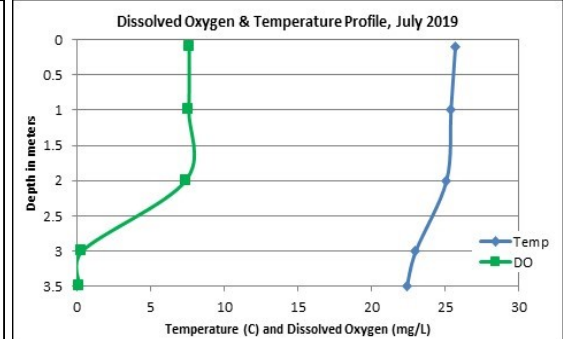
Station Name	Table 1. 2019 Average Water Quality Data for CHASE POND - WILMOT									
	Alk. mg/l	Chlor-a ug/l	Chloride mg/l	Color pcu	Cond. us/cm	Total P mg/l	Trans. m		Turb. ntu	pH
							NVS	VS		
Epilimnion	9.3	3.81	14	50	80.5	11	2.18	2.68	0.90	6.69
Inlet			14		83.7	9			0.83	6.73
Outlet					80.8	9			0.82	6.92

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	Stable	Trend not significant; data highly variability.	Chlorophyll-a	Improving	Data significantly decreasing.
pH (epilimnion)	Stable	Trend not significant; data show low variability.	Transparency	Stable	Trend not significant; data moderately variable.
			Phosphorus (epilimnion)	Stable	Trend not significant; data moderately variable.

Historical Trend Epilimnetic Conductivty and pH

Historical Chlorophyll-a, Epilimnetic Phosphorus & Transparency Data

This report was generated by the NHDES Volunteer Lake Assessment Program (VLAP). For more information contact VLAP at (603) 271-2658 or sara.steiner@des.nh.gov