



# Volunteer Lake Assessment Program Individual Lake Reports

## TUREE POND, BOW, NH

### MORPHOMETRIC DATA

Watershed Area (Ac.):	1,953	Max. Depth (m):	3	Flushing Rate (yr <sup>1</sup> )	9.5
Surface Area (Ac.):	47	Mean Depth (m):	1.9	P Retention Coef:	0.49
Shore Length (m):	1,800	Volume (m <sup>3</sup> ):	357,000	Elevation (ft):	328

### TROPHIC CLASSIFICATION

Year	Trophic class
1989	EUTROPHIC

### 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](http://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	Good	Sampling data commonly meet water quality standards or thresholds for this parameter.
	Oxygen, Dissolved	Cautionary	Limited data for this parameter predicts exceedance of water quality standards or thresholds; however more data are necessary to fully assess the parameter.
	Dissolved oxygen satura	Slightly Bad	Data periodically exceed water quality standards or thresholds for a given parameter by a small margin.
	Chlorophyll-a	Good	Sampling data is better than the water quality standards or thresholds for this parameter.
Primary Contact Recreation	Escherichia coli	No Data	No data for this parameter.
	Chlorophyll-a	Very Good	All sampling data meet water quality standards or thresholds for this parameter.

### VLAP SAMPLE SITE MAP



### TUREE POND

#### BOW

#### VOLUNTEER LAKE ASSESSMENT PROGRAM

STATIONID	STATION NAME
TURBOW1C	1C
TURBOWD	DEEP SPOT
TURBOWVI	VILLAGE INLET
TURBOWFPI	FIREHOUSE POND INLET
TURBOWFPO	FIREHOUSE POND OUTLET
TURBOWWRC	WHITE ROCK HILL RD CULVERT
TURBOWSI	SEASONAL INLET

Source: The data layers are derived from NHDES data and are under constant revision. NHDES is not responsible for the use or interpretation of this information. Not intended for legal use. NHDES Watershed Management Bureau Date: 2/17/2021





# VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS

## TUREE POND, BOW

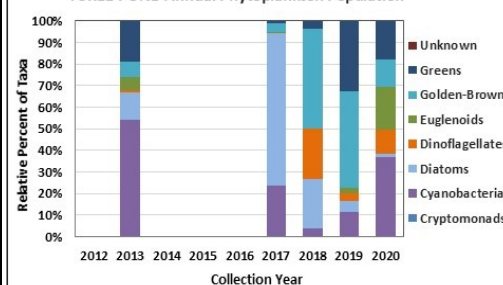
### 2020 DATA SUMMARY

**RECOMMENDED ACTIONS:** Great job sampling in 2020! Pond phosphorus, chlorophyll and clarity (transparency) improved in 2020 likely due to drought conditions and the overall lack of stormwater runoff and flushing of wetland systems rich in dissolved organic matter. However, a significant storm event in July resulted in higher pond and tributary phosphorus levels indicating stormwater runoff is a potential issue within the watershed. Water color also was darkest in July following the storm event indicating flushing of waters rich in dissolved organic matter that impart a tea, or brown color to the water. Identify areas prone to stormwater runoff that may be affecting water quality and implement best practices to minimize runoff at those sites. NHDES' "NH Homeowner's Guide to Stormwater Management" is a great resource and this may be a good project to collaborate on with Bow High School. Conductivity and chloride levels remained elevated and were the highest at White Rock Hill Rd. Culvert and further downstream at Firehouse Pond Inlet. Continue chloride monitoring program to better assess contributions to the pond and identify areas to implement best practices for application of winter de-icing materials. Keep up the great work!

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

- CHLOROPHYLL-A:** Chlorophyll level was within a low range in July and decreased in September. Average chlorophyll level decreased from 2019, was slightly less than the state median, and was much less than the threshold for eutrophic lakes. Historical trend analysis indicates relatively stable chlorophyll levels since 2007.
- CONDUCTIVITY/CHLORIDE:** Epilimnetic (deep spot), 1B, Firehouse Pond Inlet and Outlet, and Seasonal Inlet conductivity and chloride levels fluctuated within an elevated range, however chloride levels did not exceed the state chronic chloride standard. Historical trend analysis indicates significantly increasing (worsening) epilimnetic conductivity levels since 2007. White Rock Hill Rd. Culvert conductivity and chloride levels were elevated and spiked in September during low flow conditions causing chloride levels to exceed the state chronic chloride standard.
- COLOR:** Apparent color measured in the epilimnion indicates the water was highly tea colored, or dark brown, in July following a significant storm event and flushing of wetland systems, and then lightened to within a moderately tea colored range in September.
- TOTAL PHOSPHORUS:** Epilimnetic, Firehouse Pond Inlet and Outlet, and White Rock Hill Rd. Culvert phosphorus levels fluctuated within a low to moderate range and were highest in July following the significant storm event. Average epilimnetic phosphorus level decreased slightly from 2019, was greater than the state median, and was much less than the threshold for eutrophic lakes. Historical trend analysis indicates stable epilimnetic phosphorus levels since 2007. Station 1B phosphorus level was elevated in July following the storm event. Seasonal Inlet phosphorus level was elevated in September during low flows and lab data noted sediment in the sample.
- TRANSPARENCY:** Transparency measured without the viewscope (NVS) was within an average range for the pond in July and increased (improved) to an above average range in September. Average NVS transparency increased (improved) from 2019 and historical trend analysis indicates stable, yet variable, NVS transparency since 2007. Viewscope (VS) transparency was higher (better) than NVS transparency, remained stable from July to September, and likely a better measure of actual conditions.
- TURBIDITY:** Epilimnetic, Station 1B, Firehouse Pond Inlet and Outlet, and White Rock Hill Rd. Culvert turbidity levels fluctuated within a low range. Seasonal Inlet turbidity levels were elevated in September and lab data noted sediment in the sample.
- PH:** Epilimnetic, Station 1B, Firehouse Pond Inlet and Outlet, Seasonal Inlet, and White Rock Hill Rd. Culvert pH levels were within the desirable range 6.5-8.0 units. Historical trend analysis indicates stable epilimnetic pH levels since 2007.

#### TUREE POND Annual Phytoplankton Population



**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

Station Name	Table 1. 2020 Average Water Quality Data for TUREE POND - BOW								
	Alk. (mg/L)	Chlor-a (ug/L)	Chloride (mg/L)	Color (pcu)	Cond. (us/cm)	Total P (ug/L)	Trans. (m) NVS	Trans. (m) VS	pH
Epilimnion	14	3.95	88	85	270.0	18	2.00	2.25	7.01
1B			54		210.6	50			0.77 6.90
Firehouse Pond Inlet			87		271.0	16			0.68 6.89
Firehouse Pond Outlet			44		181.8	17			0.50 6.70
Seasonal Inlet			41		134.0	33			4.01 7.07
White Rock Hill Rd. Culvert			137		550.8	12			0.46 6.64

#### HISTORICAL WATER QUALITY TREND ANALYSIS

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

