



# VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS

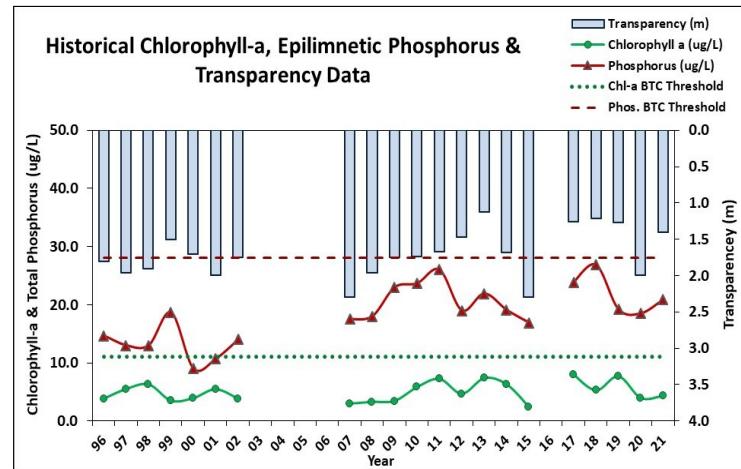
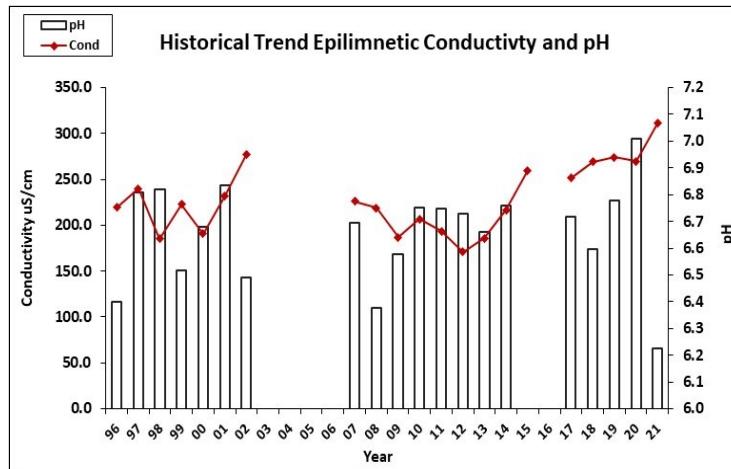
## TUREE POND, BOW

### 2021 DATA SUMMARY

**RECOMMENDED ACTIONS:** Great job sampling in 2021! Pond phosphorus and chlorophyll levels remained stable with that measured in 2020 despite record summer rainfall amounts, however water clarity (transparency) worsened likely due to flushing of wetland systems rich in dissolved organic matter that imparts a tea, or brown, color to the water. Monitors noted severe erosion at the boat launch and it is recommended to work with the NH Fish and Game Department to implement stormwater improvement projects at the launch. NHDES' [NH Homeowner's Guide to Stormwater Management](#) and Maine DEP's Camp Road website are great resources 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!

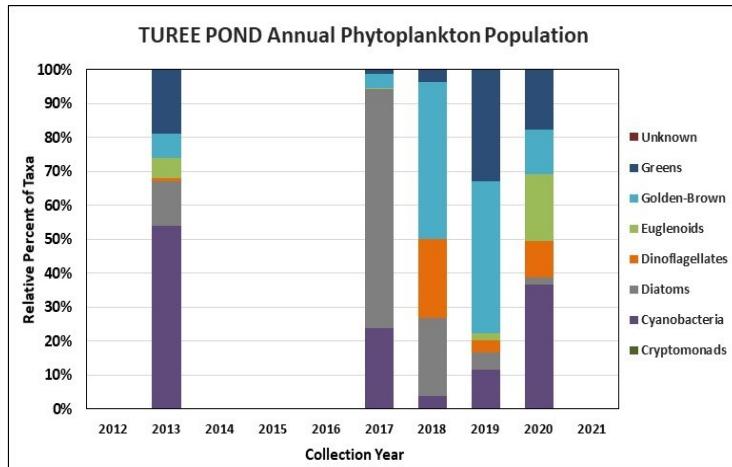
#### HISTORICAL WATER QUALITY TREND ANALYSIS

Parameter	Trend	Parameter	Trend
<b>Conductivity</b>	Worsening	<b>Chlorophyll-a</b>	Stable
<b>pH (epilimnion)</b>	Stable	<b>Transparency</b>	Stable
		<b>Phosphorus (epilimnion)</b>	Stable



#### DISSOLVED OXYGEN AND PHYTOPLANKTON

(Note: Information may not be collected annually)





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## TUREE POND, BOW

### 2021 DATA SUMMARY

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

- ◆ **CHLOROPHYLL-A:** Chlorophyll level was within a low range for NH lakes in June and increased gradually to a moderate level by August. Average chlorophyll level remained stable with 2020, was approximately equal to the state median, and was much less than the threshold for eutrophic lakes. Historical trend analysis indicates relatively stable chlorophyll levels since monitoring began.
- ◆ **CONDUCTIVITY/CHLORIDE:** Epilimnetic (deep spot) conductivity and chloride levels were elevated and much greater than the state medians, particularly in March. Historical trend analysis indicates significantly increasing (worsening) epilimnetic conductivity levels since monitoring began. Seasonal Inlet and 1B conductivity and chloride levels remained elevated but were within a lower range. Conductivity and chloride levels increase from Firehouse Pond Outlet to Bow Center Rd. and White Rock Hill Rd. Culvert before generally decreasing in Firehouse Pond Inlet where it enters Turee Pond. Levels were elevated at all stations during spring snowmelt/runoff and during low flow conditions in mid-summer.
- ◆ **COLOR:** Epilimnetic color data indicates highly tea colored, or dark brown, conditions in June and July. Water then became twice as dark in August following over three inches of rainfall.
- ◆ **TOTAL PHOSPHORUS:** Epilimnetic phosphorus level was within a moderate range in June, remained stable in July, and increased in August following significant storm event. Average epilimnetic phosphorus level increased slightly from 2020, was greater than the state median, and was less than the threshold for eutrophic lakes. Historical trend analysis indicates stable epilimnetic phosphorus levels since monitoring began. Station 1B phosphorus levels fluctuated within an elevated range and were highest in August following significant storm event. Firehouse Pond Inlet, Seasonal Inlet and White Rock Hill Rd. Culvert phosphorus levels fluctuated within a low to moderate range for those stations. Firehouse Pond Outlet phosphorus level was elevated in June and lab data noted colored water with sediment.
- ◆ **TRANSPARENCY:** Transparency measured with (VS) and without (NVS) the viewscope was below average (worse) in June, increased (improved) slightly in July, and then decreased (worsened) in August following significant rainfall that resulted in darker water color. Average NVS transparency decreased from 2020 and historical trend analysis indicates stable, yet variable, transparency since monitoring began.
- ◆ **TURBIDITY:** Epilimnetic, 1B, Firehouse Pond Inlet, Firehouse Pond Outlet, Seasonal Inlet, and White Rock Hill Rd. Culvert turbidity levels fluctuated within a low range for those stations.
- ◆ **pH:** Epilimnetic pH level was within the desirable range 6.5-8.0 units in June, and became more acidic in July and August following significant rainfall amounts. Historical trend analysis indicates stable epilimnetic pH levels since monitoring began. Station 1B and Firehouse Pond Inlet pH levels fluctuated around the low end of the desirable range. Firehouse Pond Outlet, Seasonal Inlet and White Rock Hill Rd. Culvert pH levels were slightly less than desirable.

Station Name	Table 1. 2021 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)		Turb. (ntu)	pH
							NVS	VS		
Epilimnion	11.4	4.31	81	150	311.0	21	1.41	1.69	0.95	6.23
1B			56		187.5	38			0.53	6.56
Bow Center Rd.			82							
Firehouse Pond Inlet			98		365.6	23			1.16	6.43
Firehouse Pond Outlet			44		176.2	27			0.58	6.17
Seasonal Inlet			38		182.2	15			0.26	6.41
White Rock Hill Rd. Culvert			94		294.4	16			0.49	6.36

#### **NH Median Values**

Median values 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. Water quality violation if thresholds exceeded.

**Chloride:** > 230 mg/L (chronic) **Turbidity:** > 10 NTU above natural

**E. coli:** > 88 cts/100 mL (beach)

**E. coli:** > 406 cts/100 mL (surface waters)

**pH:** between 6.5-8.0 (unless naturally occurring)