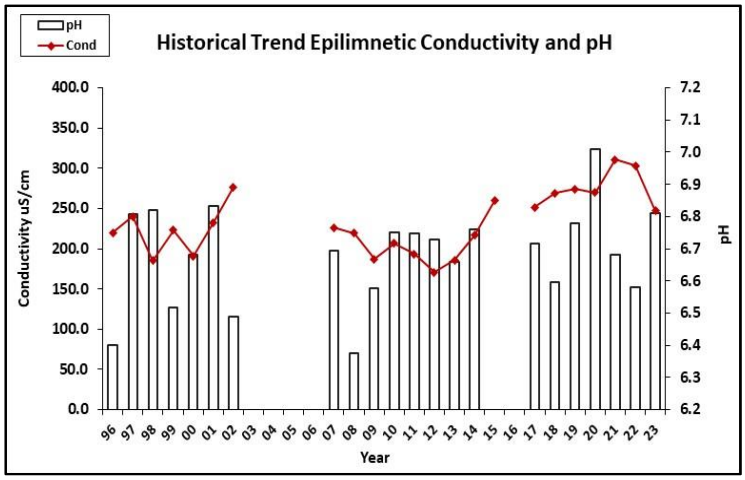
2023 VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS
TUREE POND, BOW

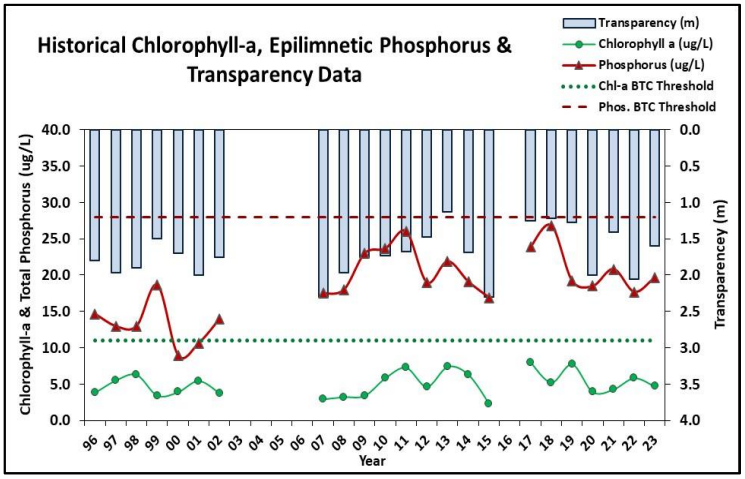
Recommended Actions: Great job sampling in 2023! Excessive summer rainfall amounts resulted in elevated phosphorus and turbidity levels in several tributaries, however in-lake phosphorus levels and algal growth remained within an average range for the pond which was good. The increased frequency and intensity of storm events highlights the importance of stormwater management within the watershed. Erosion continues to be an issue 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 students such as installing water bars to divert stormwater from eroding the launch area. Conductivity and chloride levels remained elevated and chloride levels exceeded the state chronic chloride standard at the Drainage Ditch and Bow Center Rd. East locations. 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!

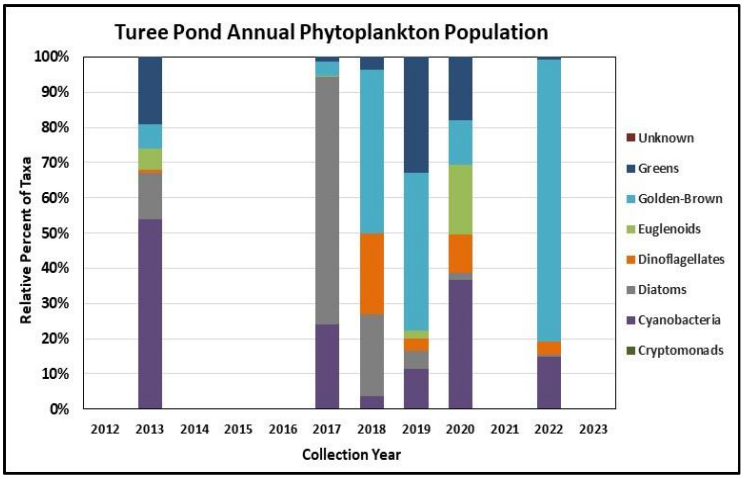
HISTORICAL WATER QUALITY TREND ANALYSIS

PARAMETER	TREND	PARAMETER	TREND
Conductivity	Worsening	**Chlorophyll-a**	Stable
pH (epilimnion)	Stable	**Transparency**	Stable
		Phosphorus (epilimnion)	Stable

HISTORICAL WATER QUALITY GRAPHICS







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

- **CHLOROPHYLL-A:** Chlorophyll level was low in June, remained stable in July, and increased slightly in August. Average chlorophyll level decreased from 2022, 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 2007.
- **CONDUCTIVITY/CHLORIDE:** Epilimnetic (deep spot) conductivity and chloride levels were elevated and much greater than the state medians. Historical trend analysis indicates significantly increasing (worsening) epilimnetic conductivity levels since 2007. Seasonal Inlet, 1B, Bow Center Rd., Firehouse Pond Inlet, Firehouse Pond Outlet, Outlet, and White Rock Hill Rd. Culvert conductivity and/or chloride levels were also elevated however chloride levels did not exceed the state chronic chloride standard. Bow Center Rd. East and Drainage Ditch conductivity levels were greatly elevated and chloride levels exceeded the state chronic chloride standard.
- **COLOR:** Apparent color measured in the epilimnion indicates the water was highly tea colored, or dark brown, particularly in August following excessive summer rainfall.
- **TOTAL PHOSPHORUS:** Epilimnetic phosphorus level was within a moderate range in June, increased in July, and decreased in August. Average epilimnetic phosphorus level increased from 2022, was greater than the state median, and was less than the threshold for eutrophic lakes. Historical trend analysis indicates relatively stable epilimnetic phosphorus levels since 2007. Stations 1B, Bow Center Rd., Outlet, and White Rock Hill Rd. Culvert phosphorus levels were elevated in July following significant rainfall. Bow Center Rd. East and Drainage Ditch phosphorus levels fluctuated within a low to moderate range. Firehouse Pond Inlet phosphorus levels were elevated on each sampling event, particularly in July. Firehouse Pond Outlet phosphorus level was elevated in June and organic matter was noted in the sample.
- **TRANSPARENCY:** Transparency measured with (VS) and without (NVS) the viewscope was average in June, decreased (worsened) in July following significant rainfall, and increased (improved) slightly in August. Average NVS transparency decreased from 2022 and historical trend analysis indicates relatively stable NVS transparency since 2007.
- **TURBIDITY:** Epilimnetic, Drainage Ditch and Outlet turbidity levels were within a low to average range. Station 1B, Bow Center Rd. and Firehouse Pond Inlet turbidity levels were slightly elevated in July following significant rainfall. Bow Center Rd. East and Firehouse Pond Inlet and Outlet turbidity levels were elevated in June and lab data noted sediment/organic matter in samples. White Rock Hill Rd. Culvert turbidity samples were slightly elevated in June and July.
- **PH:** Deep spot and tributary stations, except Bow Center Rd. East, pH levels were within or approximately equal to the low end of the desirable range of 6.5-8.0 units. Historical trend analysis indicates relatively stable epilimnetic pH levels since 2007. Bow Center Rd. East pH level was slightly acidic.

Table 1. 2023 Average Water Quality Data for TUREE POND - BOW

Station Name	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	14.2	4.73	63	144	247.0	20	1.60	1.90	1.13	6.81
1B	-	-	38	-	169.5	31	-	-	1.16	6.96
Bow Center Rd.	-	-	59	-	236.4	18	-	-	1.51	6.59
Bow Center Rd. East	-	-	267	-	910.3	13	-	-	3.05	6.10
Drainage Ditch	-	-	628	-	1998.0	6	-	-	0.42	6.52
Firehouse Pond Inlet	-	-	78	-	279.3	38	-	-	3.82	6.49
Firehouse Pond Outlet	-	-	54	-	222.0	18	-	-	2.15	6.46
Outlet	-	-	62	-	246.3	18	-	-	1.13	6.72
Seasonal Inlet	-	-	28	-	-	-	-	-	-	-
White Rock Hill Rd. Culvert	-	-	68	-	266.0	21	-	-	1.32	6.74

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 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)