



## Volunteer Lake Assessment Program Individual Lake Reports

### CRESCENT LAKE, ACWORTH, NH

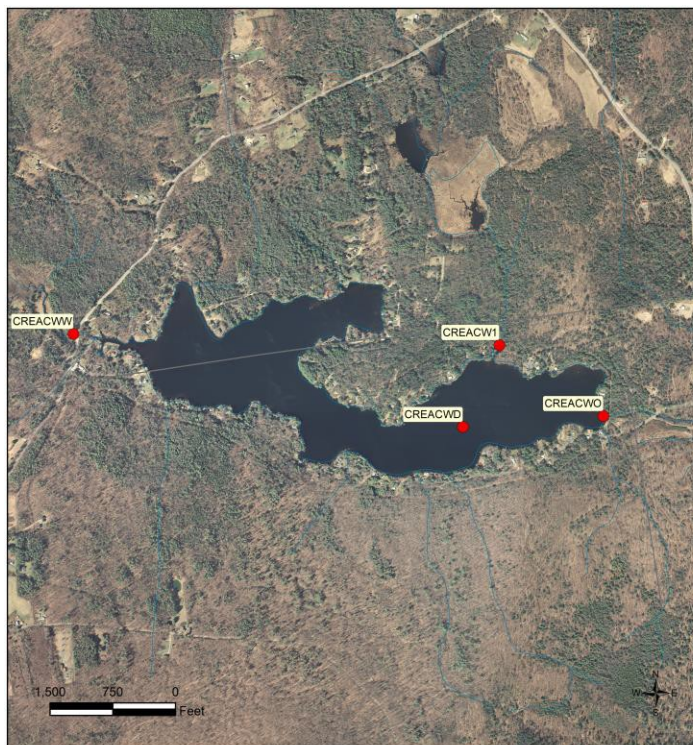
**MORPHOMETRIC DATA**

MORPHOMETRIC DATA				TROPIC CLASSIFICATION		KNOWN EXOTIC SPECIES	
Watershed Area (Ac.):	2,925	Max. Depth (m):	7.3	Flushing Rate (yr <sup>1</sup> )	3.7	Year	Trophic class
Surface Area (Ac.):	116	Mean Depth (m):	3.2	P Retention Coef:	0.53	1979	MESOTROPHIC
Shore Length (m):	5,100	Volume (m <sup>3</sup> ):	1,526,500	Elevation (ft):	1215	1992	MESOTROPHIC

The Waterbody Report Card tables are generated from the DRAFT 2020 305(b) report on the status of N.H. waters, and are based on data collected from 2010-2019. Detailed waterbody assessment and report card information can be found at [NHDES' Water Quality Assessment Website](#).

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	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	Good	Sampling data is better than the water quality standards or thresholds for this parameter.
Primary Contact Recreation	Escherichia coli	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	Very Good	All sampling data meet water quality standards or thresholds for this parameter.

**VLAP SAMPLE STATION MAP:** This map depicts the location of routine sampling stations discussed on page two of the report.



#### CRESCENT LAKE ACWORTH VOLUNTEER LAKE ASSESSMENT PROGRAM

STATIONID	STATION NAME
CREACW1	NORTHEAST INLET
CREACWD	DEEP SPOT
CREACWO	DAM OUTLET
CREACWW	WEST 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



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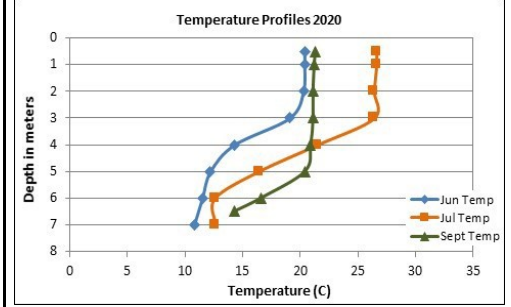
## Crescent Lake, Acworth

### 2020 Data Summary

**Recommended Actions:** Great job sampling in 2020! Lake quality is representative of borderline oligotrophic/mesotrophic, or high quality to average, conditions. Drought conditions in 2020 helped to keep nutrient levels and algal growth low and improve lake clarity due to the lack of stormwater runoff and flushing of wetland systems rich in dissolved organic matter that impart a tea color to the water. Lake nutrient levels and algal growth appear to have stabilized within a slightly lower range since 2014 and we hope to see this continue. Lake pH levels appear to be recovering from the impacts of historical acid precipitation. For more information on New Hampshire surface water recovery see the NHDES "Acid Rain Status and Trends" report available on the website. Continue to build a baseline chloride data set to better understand what's driving the increasing lake conductivity levels. Keep up the great work!

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

- ◆ **Chlorophyll-a:** Chlorophyll level was low in June, increased slightly in July but remained within a low range, and remained stable in September. Average chlorophyll level decreased from 2019 and was less than the state median and the threshold for mesotrophic lakes. Historical trend analysis indicates stable chlorophyll levels since monitoring began.
- ◆ **Conductivity/Chloride:** Epilimnetic (upper water layer), Hypolimnetic (lower water layer), Outlet, and Northeast Inlet conductivity and/or chloride levels were slightly greater than the state medians, yet less than a level of concern. However, historical trend analysis indicates significantly increasing (worsening) epilimnetic conductivity levels since monitoring began. West Inlet conductivity and chloride levels were slightly greater than the other stations and increased as the summer progressed and flows decreased.
- ◆ **Color:** Apparent color measured in the epilimnion indicates the water was lightly tea colored, or light brown.
- ◆ **Total Phosphorus:** Epilimnetic and Outlet phosphorus levels were low in June and decreased as the summer progressed. Average epilimnetic phosphorus level decreased slightly from 2019 and was less than the state median and the threshold for mesotrophic lakes. Historical trend analysis indicates relatively stable epilimnetic phosphorus levels since monitoring began. Hypolimnetic phosphorus level was slightly elevated in June and the decreased to within a low to moderate range. Northeast Inlet phosphorus levels were also elevated in June and decreased gradually as the summer progressed. West Inlet phosphorus levels were elevated in July and September when flows were very low and lab data indicated colored water with organic matter.
- ◆ **Transparency:** Transparency measured with (VS) and without (NVS) the viewscope was high (good) in June and then decreased slightly as the summer progressed but remained within an above average (good) range for the lake. Average NVS transparency increased (improved) from 2019 and was higher (better) than the state median. However, historical trend analysis indicates significantly decreasing (worsening) transparency since monitoring began.
- ◆ **Turbidity:** Epilimnetic, Outlet and Northeast Inlet turbidity levels fluctuated within a low range. Hypolimnetic turbidity level was slightly elevated in September likely due to the formation and release of organic compounds under anoxic (low dissolved oxygen) conditions. West Inlet turbidity level was slightly elevated on each sampling event due to low flows, tea colored water and organic matter.
- ◆ **pH:** Epilimnetic, West Inlet, Outlet, and Northeast Inlet pH levels were within the desirable range 6.5-8.0 units. Historical trend analysis indicates stable epilimnetic pH levels since monitoring began. Hypolimnetic pH level was slightly less than desirable.



**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)

Station Name	Table 1. 2020 Average Water Quality Data for CRESCENT LAKE - ACWORTH									
	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	4.13	3.26	8	40	47.9	8	3.63	4.12	1.00	6.71
Hypolimnion					52.0	16			2.00	6.30
#4 West Inlet			12		79.2	25			3.64	6.58
Dam Outlet					48.3	8			0.90	6.67
Northeast Inlet			10		58.6	17			1.07	6.55

**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

### Historical Water Quality Trend Analysis

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

