



# Volunteer Lake Assessment Program Individual Lake Reports

## LAUREL LAKE, FITZWILLIAM, NH

### MORPHOMETRIC DATA

Watershed Area (Ac.):	768	Max. Depth (m):	13.4	Flushing Rate (yr <sup>-1</sup> )	0.4
Surface Area (Ac.):	155	Mean Depth (m):	6.1	P Retention Coef:	0.78
Shore Length (m):	3,500	Volume (m <sup>3</sup> ):	3,826,000	Elevation (ft):	1099

### TROPHIC CLASSIFICATION

Year	Trophic class
1992	MESOTROPHIC
2006	OLIGOTROPHIC

### KNOWN EXOTIC SPECIES

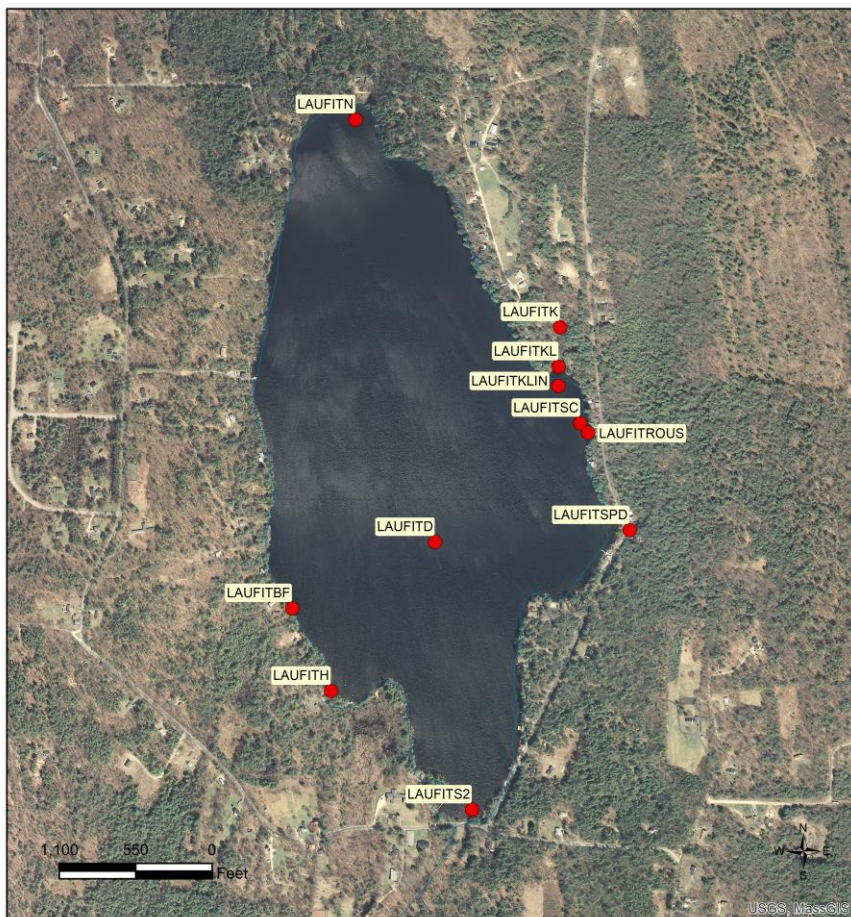

The Waterbody Report Card tables are generated from the DRAFT 2018 305(b) report on the status of N.H. waters, and are based on data collected from 2008-2017. Detailed waterbody assessment and report card information can be found at [www.des.nh.gov/organization/divisions/water/wmb/swqa/index.htm](http://www.des.nh.gov/organization/divisions/water/wmb/swqa/index.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	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	Very Good	All sampling data meet water quality standards or thresholds for this parameter.
	Chlorophyll-a	Very Good	All sampling data meet water quality standards or thresholds for this parameter.

### BEACH PRIMARY CONTACT ASSESSMENT STATUS

LAUREL LAKE - TOWN BEACH	Escherichia coli	Good	Sampling data commonly meet water quality standards or thresholds for this parameter.
LAUREL LAKE - CAMP FLEUR DE LIS BEACH	Escherichia coli	Very Good	All sampling data meet water quality standards or thresholds for this parameter.

### VLAP SAMPLE SITE MAP



### LAUREL LAKE FITZWILLIAM

#### VOLUNTEER LAKE ASSESSMENT PROGRAM

STATIONID	STATION NAME
LAUFITH	HODGKINS
LAUFITD	DEEP SPOT
LAUFITN	NORTH BEACH
LAUFITS2	SOUTH BEACH
LAUFITSC	SWIM CLUB
LAUFITSPD	SPAULDING
LAUFITK	KEENE AVE TRIB
LAUFITKL	KEENE AVE TRIB AT LAKE
LAUFITBF	BUTLER FEY TRIB
LAUFITKLN	KEENE AVE TRIB IN LAKE
LAUFITROUS	ROUSSEAU

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

## LAUREL LAKE, FITZWILLIAM

### 2020 DATA SUMMARY

**RECOMMENDED ACTIONS:** Great job sampling in 2020! Drought conditions and the lack of stormwater runoff and flushing of wetland systems rich in dissolved organic matter led to decreased nutrient (phosphorus) levels, algal growth, color, and turbidity which resulted in increased (improved) water clarity (transparency). This highlights the importance of managing stormwater runoff within the watershed. Consider development of a watershed management plan to identify and quantify pollutant loads and make recommendations on management activities to reduce pollutant loading to the lake. For more information contact the NHDES Watershed Assistance Section at [katherine.zink@des.nh.gov](mailto:katherine.zink@des.nh.gov). The improving pH levels are a positive sign and indicate recovery of the lake from historical impacts of acid precipitation. For more information read NHDES' "Acid Rain Status and Trends Report" found on the website. 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 June and remained stable in August. Average chlorophyll level decreased sharply from 2019 and was less than the state median and the threshold for oligotrophic lakes. Historical trend analysis indicates significantly decreasing (improving) chlorophyll levels since monitoring began.
- **CONDUCTIVITY/CHLORIDE:** Epilimnetic (upper water layer), Metalimnetic (middle water layer) and Hypolimnetic (lower water layer) conductivity levels were within a low range and approximately equal to the state median. Epilimnetic chloride level was also low and slightly greater than the state median, yet much less than the state chronic chloride standard. Historical trend analysis indicates stable epilimnetic conductivity levels since monitoring began.
- **COLOR:** Apparent color measured in the epilimnion indicates the water was lightly tea colored, or light brown in June and then became clear with little to no tea coloring present in August.
- **TOTAL PHOSPHORUS:** Epilimnetic and Metalimnetic phosphorus levels were within a low range in June and remained stable in August. Average epilimnetic phosphorus level decreased from 2019 and was less than the state median and the threshold for oligotrophic lakes. Historical trend analysis indicates relatively stable epilimnetic phosphorus levels since monitoring began. Hypolimnetic phosphorus level was moderate in June and slightly elevated in August.
- **TRANSPARENCY:** Transparency measured without the viewscope (NVS) was high (good) in June and remained stable in August. Average NVS transparency increased (improved) from 2019 and was higher (better) than the state median. Historical trend analysis indicates significantly decreasing (worsening) transparency since monitoring began. Viewscope transparency (VS) was higher (better) than NVS transparency and likely a better measure of actual conditions.
- **TURBIDITY:** Epilimnetic, Metalimnetic and Hypolimnetic turbidity levels fluctuated within a low range. Average epilimnetic turbidity level was the lowest measured since monitoring began, and Metalimnetic and Hypolimnetic turbidity levels were the lowest measured since 2001 and 2002.
- **pH:** Epilimnetic pH level was within the desirable range 6.5-8.0 units and historical trend analysis indicates significantly increasing (improving) epilimnetic pH levels since monitoring began. Metalimnetic pH level was approximately equal to the low end of the desirable range. Hypolimnetic pH level was slightly acidic and potentially critical to aquatic life.

Station Name	Table 1. 2020 Average Water Quality Data for LAUREL LAKE - FITZWILLIAM									
	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	4.2	1.86	10	20	43.3	5	6.25	6.99	0.19	6.96
Metalimnion					42.2	7			0.36	6.46
Hypolimnion					44.2	17			0.92	5.78

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

