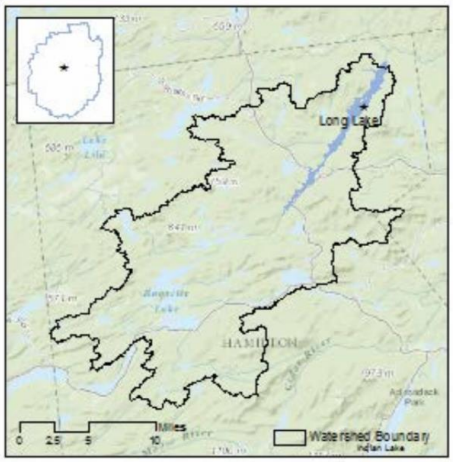
LONG LAKE



Location	County:	Hamilton
	Town:	Long Lake
Lake Characteristics	Surface Area (ha):	1685
	Shoreline Length (km):	78
	Max. Depth (m):	13.7
	Volume (m^3):	65403234
	Flush rate (times/year):	10
Watershed Characteristics	Watershed Area (ha):	76376
	Surface water (%):	2
	Deciduous Forest (%):	41
	Evergreen Forest (%):	19
	Mixed Forest (%):	8
	Wetlands (%):	17
	Agricultural (%):	0
	Residential (%):	1
	Local Roads (km):	62
	State Roads (km):	60

Trophic State	Acidity	Acid Neutralizing Capacity	Road Salt Influence
Mesotrophic	*Circumneutral*	*Moderate*	*Present - Low*

Long Lake began lake quality testing through ALAP (Adirondack Lake Assessment Program) in 2016. ALAP's goal is to establish long term water quality trends on individual lakes and ponds throughout the Adirondacks.

ALAP is a collaboration between Protect the Adirondacks, the Adirondack Watershed Institute at Paul Smith College and volunteers. Volunteers across the region gather samples of water during specified intervals and submit for analysis and interpretation by AWI.

2020 will be the fifth year that the Long Lake Association has sponsored the lake quality testing through ALAP. Trend reporting commences after five consecutive years of analysis and will be available for review in the spring of 2021.

Summary:

Long Lake Average transparency measured:
3.4 M in 2016
3.2 M in 2017
3.7 M in 2018
3.4 M in 2019

Transparency is a great indicator of lake condition and can be influenced by many things including dissolved organic matter, turbidity of lake, algal productivity, suspended sediment and dissolved chemicals.

Phosphorus averaged:
4.4 micrograms/ L in 2016
5.9 micrograms/L in 2017
5.0 micrograms/L in 2018
8.3 micrograms/L in 2019

Phosphorus is widely considered to be the most important contributor to reduced

water quality in lakes. Phosphorus can enter watersheds from fertilizers, human waste as well as natural weathering.

Sodium and chloride concentrations were: 3.3 mg/L and 3.0 mg/L respectively in 2016
2.3mg/L and 4.1mg/L in 2017
3.1mg/L and 3.8 mg/L in 2018
4.0 mg/L and 5.7 mg/L in 2019.

This indicates that Long Lake is influenced by road salt but the influence is low. 1-5 mg/L indicates road salt is present but low. Influence likely caused by 122 kilometers of road in the watershed.

Calcium measured: 2.3 mg/L in 2016
2.0 mg/L in 2017
2.4mg/L in 2018
2.3mg/L in 2019.
Calcium is a naturally occurring buffering material but is generally in short supply in the Adirondacks.

Lab pH averaged: 7.3 (2016)
6.8 (2017)
7.2 (2018)
7.4 (2019)
pH of 6.5-7.5 is considered circumneutral: non-impacted
Analysis of the historical data reveals that 25% of the lakes with long-term data have exhibited an increasing trend in pH (less acidic).

Alkalinity measured: 7.3 mg/L in 2016
6.4mg/L in 2017
6.4 mg/L in 2018
6.4 mg/L in 2019
2-10 mg/L indicates moderate buffering ability) Alkalinity is a function of the amount of calcium carbonate in the water which is mainly derived from the watershed.

Conductivity averaged: 25.5 uS/c (microsiemens/ centimeter) in 2016
24.5 uS/c in 2017
29.2 uS/c in 2018
31.4 uS/c in 2019.

10-25 uS/c is considered a clean, undeveloped lake in the Adirondacks. High conductivity reading may be attributed to road salts, faulty septic systems, or wetlands.

Chlorophyll-a average: 3.6 microgram/L in 2017
3.8 micrograms/L in 2018
3.7 micrograms/L in 2019

There are several variables that can contribute to chlorophyll-a. Increases in chlorophyll are generally associated with increased algal production which is influenced by nutrient availability, water temperature, light, and grazing.

Other measurements:
(2017) HCSW aluminum (.054)mg/L
(2017) HCSW Nitrates .92 mg/L
(2018) Color 30.0
(2019) Color 38.6

References:

1) https://adirondacklakeassessmentprogram.org/wp-content/uploads/2020/04/ALAP-Update-2019.pdf
2) http://www.adkwatershed.org/sites/default/files/alap_2018_report.pdf