

Interpreting Your Water Quality Report

Purpose: build your knowledge & confidence



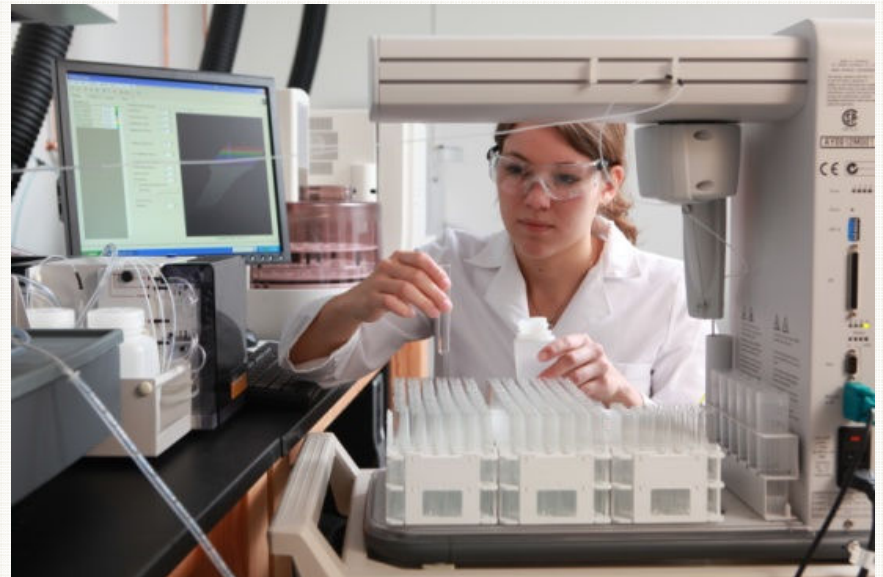
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Paul Smith's College

Adirondack Watershed Institute

Common Water Quality Indicators

- Trophic Indicators
 - Secchi transparency
 - Total phosphorus
 - Chlorophyll a
- Acidification Indicators
 - pH
 - Alkalinity
- Road Salt Pollution Indicators
 - Sodium (also Ca, Mg, K)
 - Chloride
 - Conductivity



Data Summary Types

- **Tables:** raw data and summary statistics, useful for examining variation in current year
- **Time Series:** displays data over time, useful for examining trends
- **Histograms:** displays range and distribution of data, useful for comparing lakes

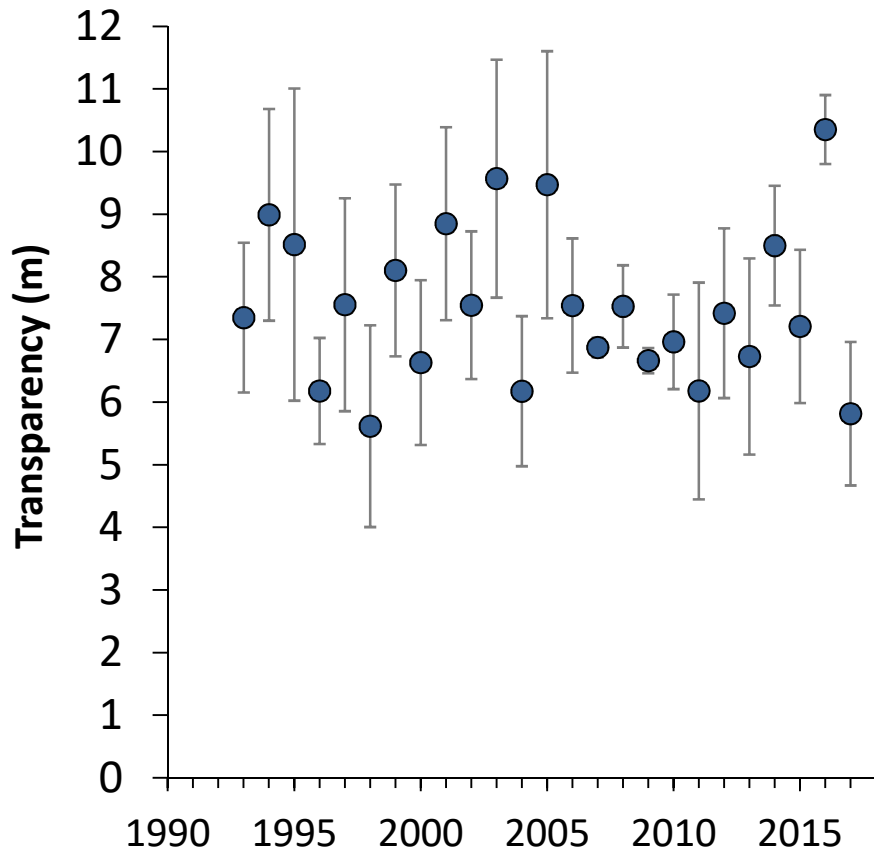
Tables

Water Quality Indicator	6/24/2018	7/22/2018	8/27/2018	Average	Trend
Transparency (m)	2.6	3.4	3.5	3.1	No Trend
Total Phosphorus ($\mu\text{g/L}$)	18.5	9.0	9.8	12.5	Decreasing
Chlorophyll- <i>a</i> ($\mu\text{g/L}$)	5.9	2.4	3.1	3.8	No Trend
Laboratory pH	8.3	7.9	7.4	7.9	No Trend
Conductance ($\mu\text{S/cm}$)	140.4	139.0	133.4	137.6	No Trend
Alkalinity (mg/L)			51.3	51.3	Decreasing
Chloride (mg/L)			11.4	11.4	No Trend
Calcium (mg/L)			13.1	13.1	Not Analyzed
Sodium (mg/L)			8.7	8.7	No Trend

- mg/L = milligrams of substance (mass) per liter of water (also referred to as ppm)
 - 1 mg/L equivalent to 1 inch in 16 miles or 1 second in 11.5 days
- $\mu\text{g/L}$ = micrograms of substance per liter of water (also referred to as ppb)
 - 1 $\mu\text{g/L}$ equivalent to 1 inch in 15,783 miles or 1 second in 32 years

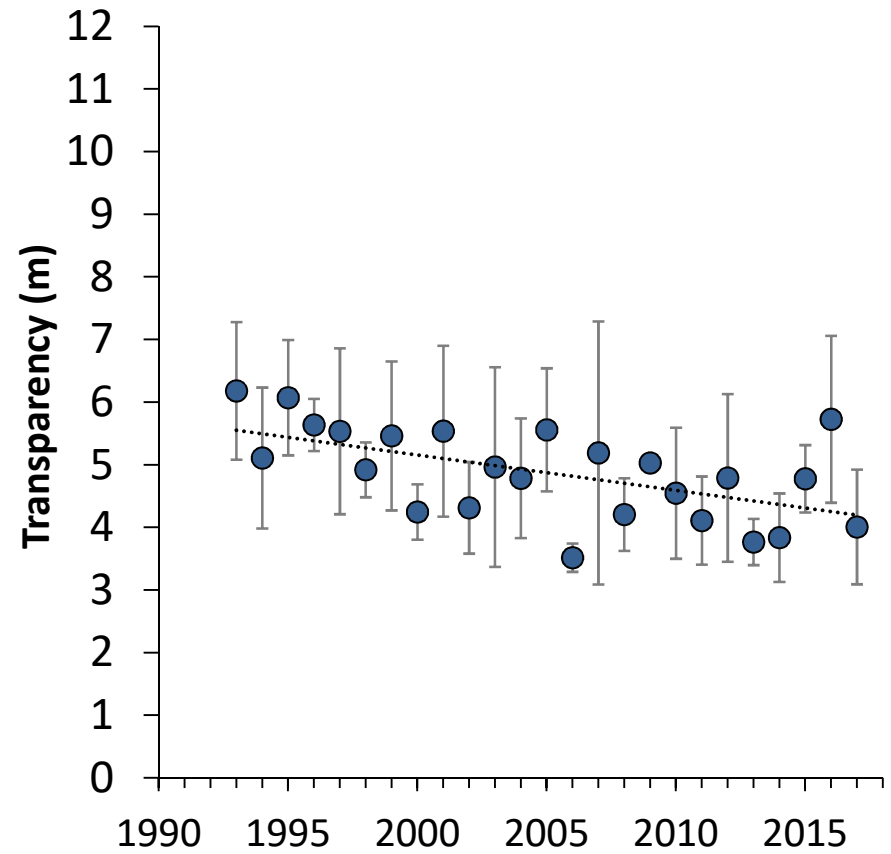
Time Series

Blue Mountain Lake



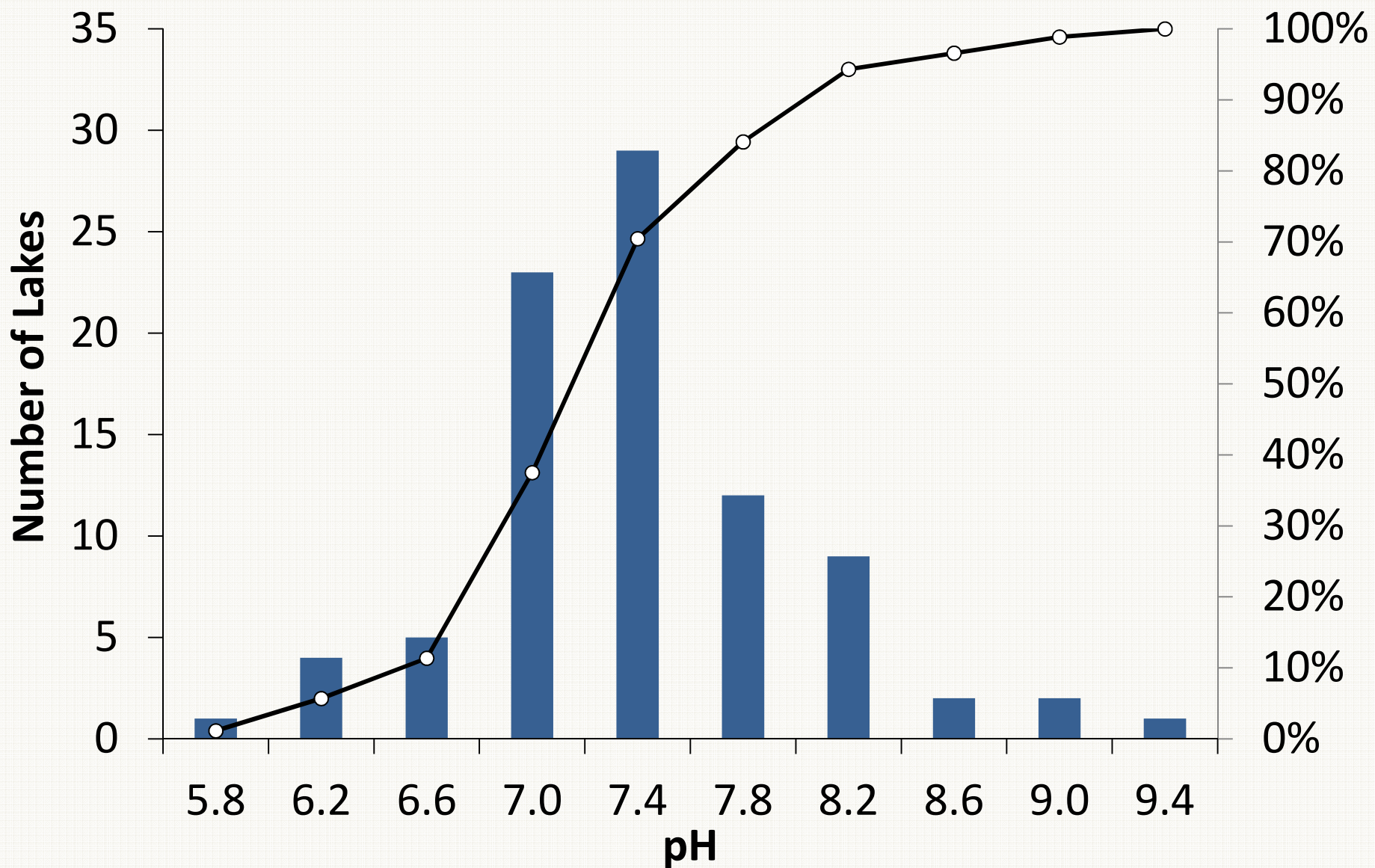
No trend
(transparency is not changing)

Fourth Lake

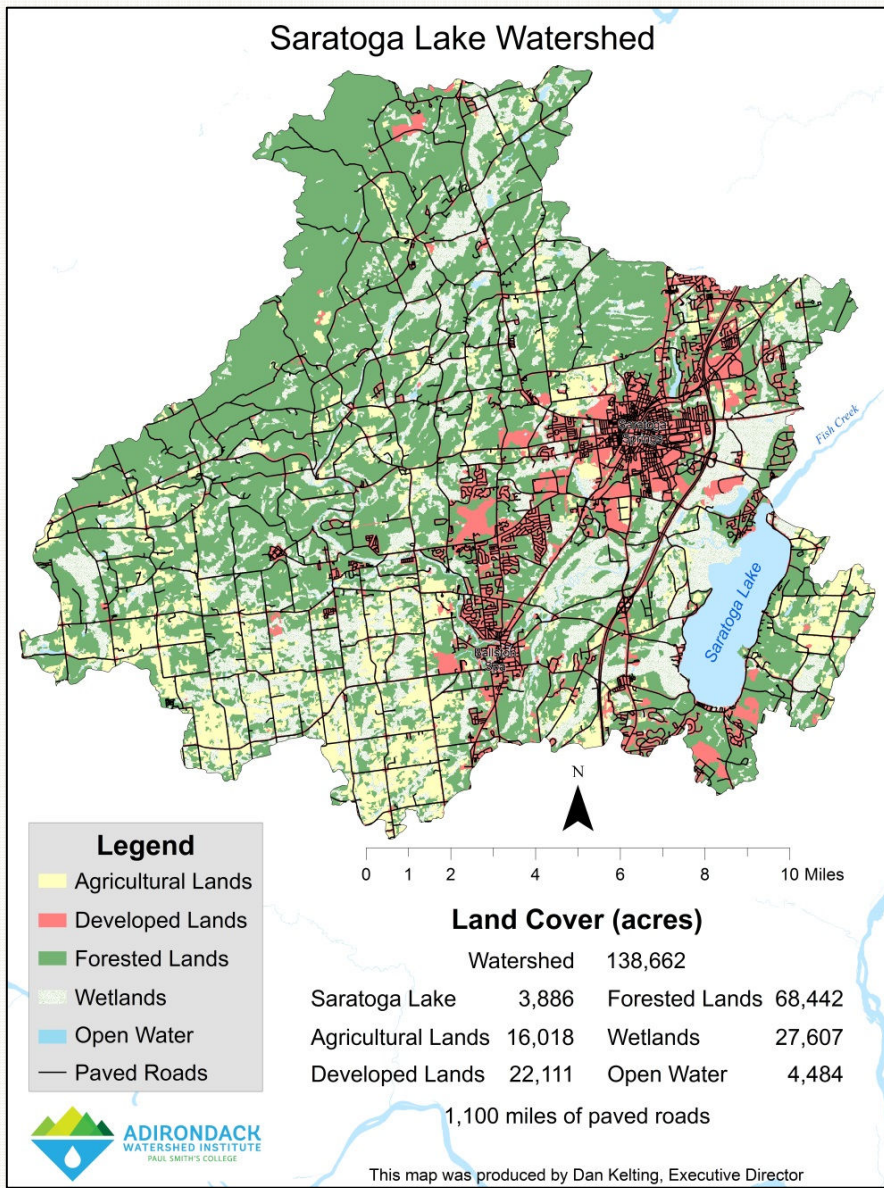


Significant downward trend
(transparency is declining)

Histograms



Watershed Based Interpretation



- Soils
- Geology
- Watershed
- Land Uses

Soil & Water Characteristics



Low Fertility

- Granitic parent material
- Sandy & rocky
- Low water & nutrients
- Majority of surface area

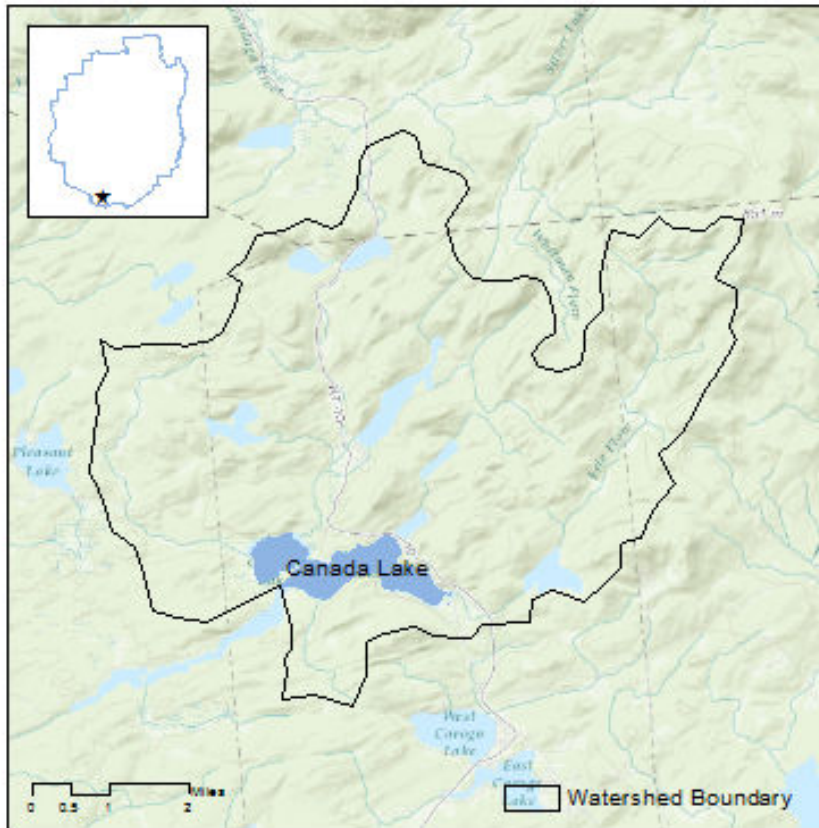


Oligotrophic

- High visibility
- Low nutrients
- Sparse plant growth
- Brook & Lake trout

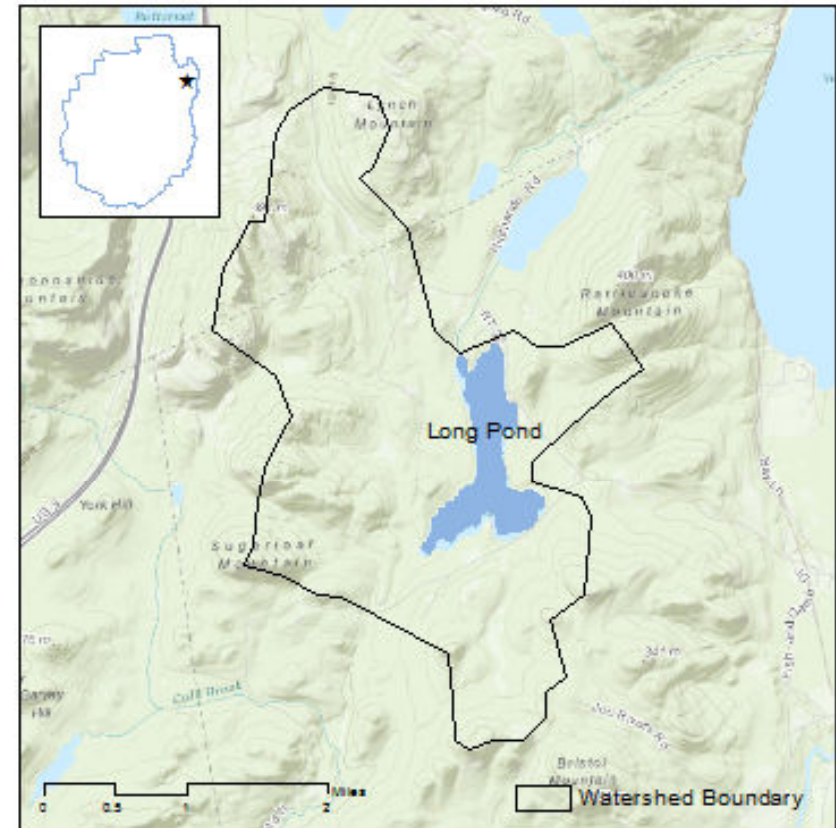
Parent Material - Geology

Canada Lake



Granitic Parent Material
Calcium = 2.3 mg/L
pH = 6.7

Long Pond



Limestone Parent Material
Calcium = 13.1 mg/L
pH = 7.9

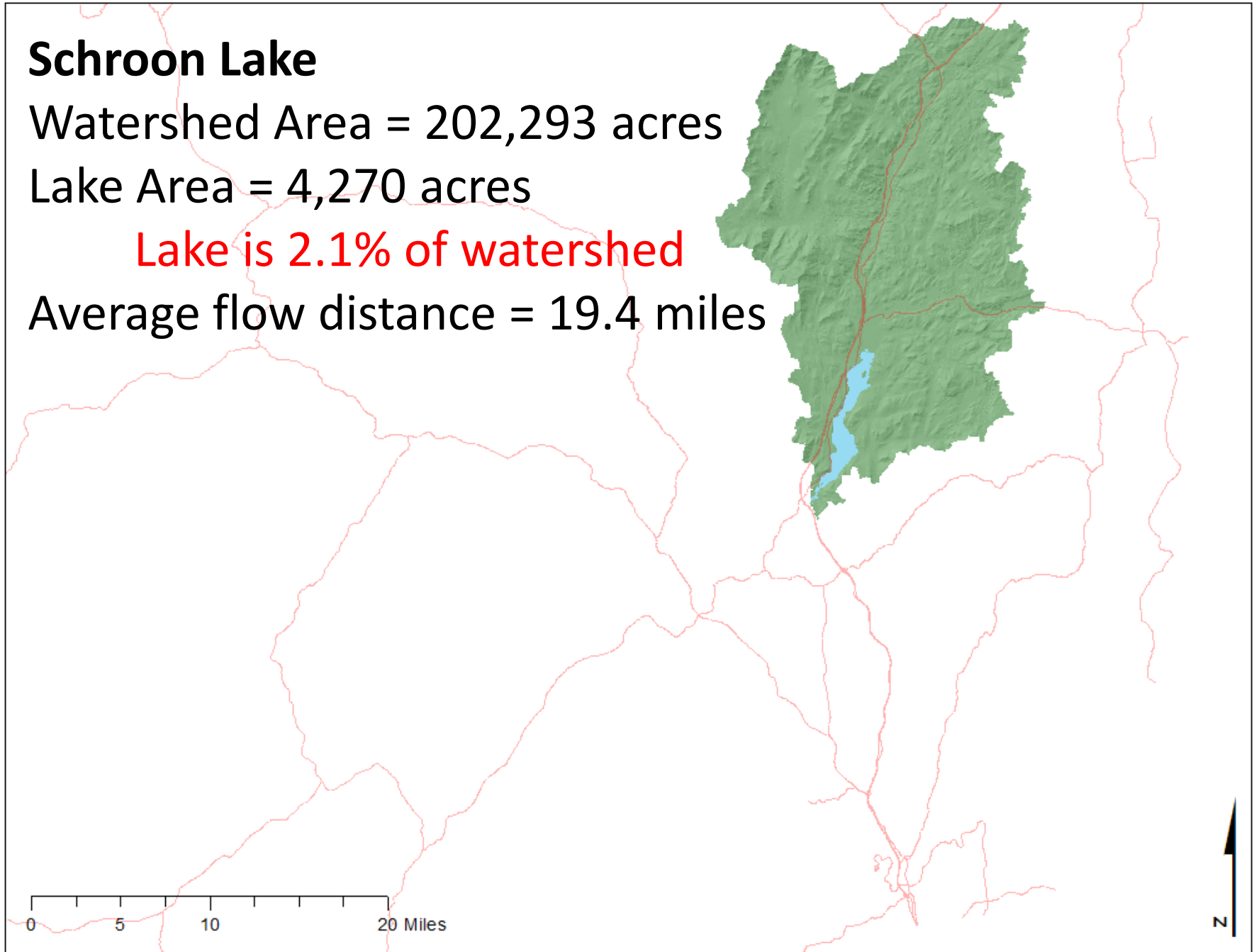
Schroon Lake

Watershed Area = 202,293 acres

Lake Area = 4,270 acres

Lake is 2.1% of watershed

Average flow distance = 19.4 miles



Schroon Lake

Watershed Area = 202,293 acres

Lake Area = 4,270 acres

Lake is 2.1% of watershed

Average flow distance = 19.4 miles

Lake George

Watershed Area = 147,944 acres

Lake Area = 28,523 acres

Lake is 19.3% of watershed

Average flow distance = 5.8 miles

Response to an Event

- More rainfall captured
- More total runoff
- Longer response time
- More nutrient input
- More sediment input

0 5 10 20 Miles



Land Use



Lake Clear

- Paved Roads = 2.4 mi/mi²
- Chloride = 21.8 mg/L



Catlin Lake

- Paved Roads = 0 mi/mi²
- Chloride = 0.6 mg/L



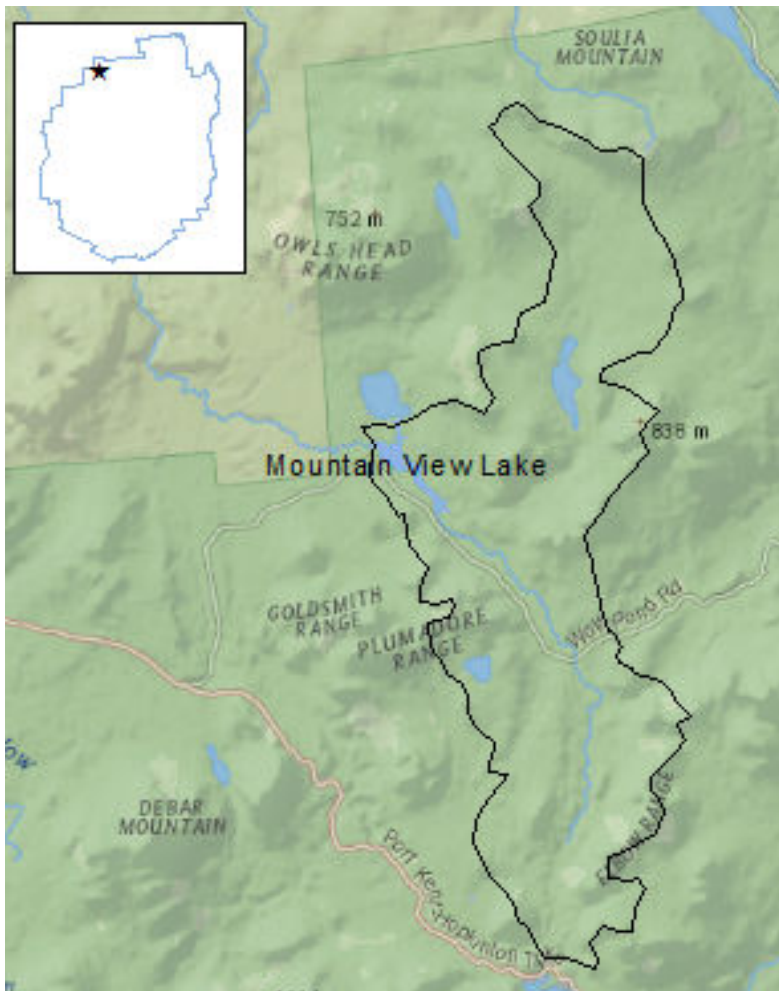
Chazy Lake

- Paved Roads = 0.4 mi/mi²
- Chloride = 10.1 mg/L

Case Studies in Interpretation

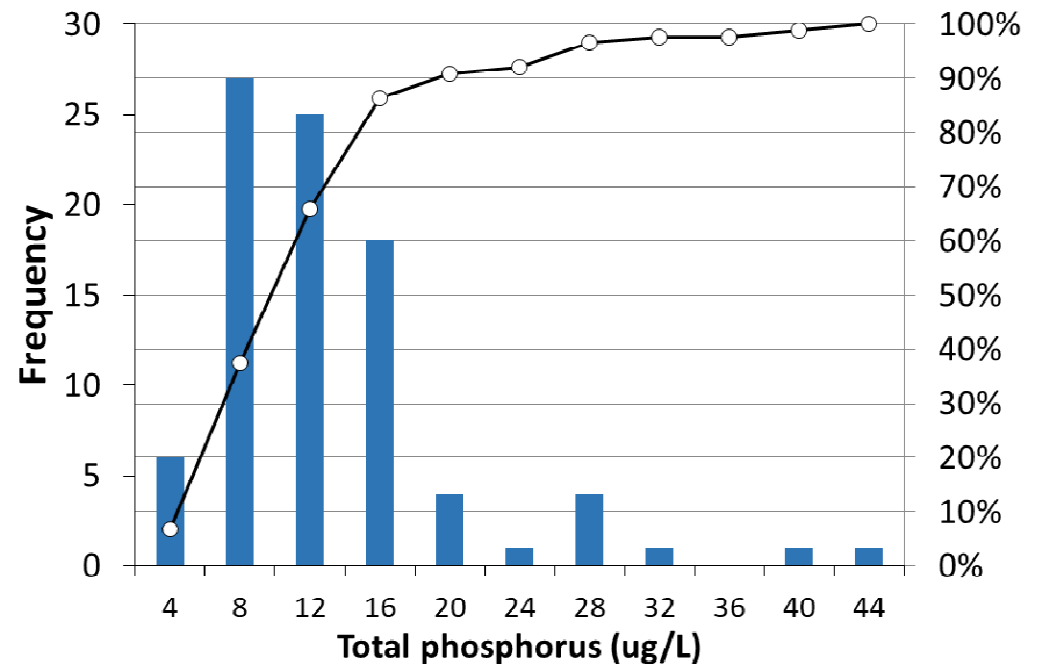
- Mountain View Lake
- Morehouse Lake
- Lower St. Regis Lake

Mountain View Lake

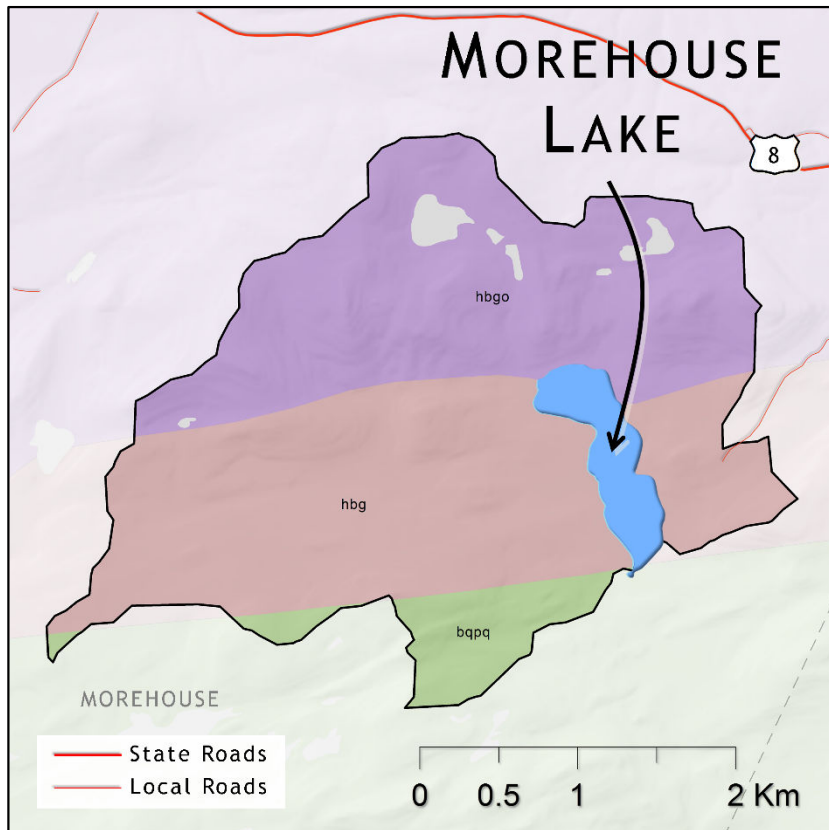


Adirondack Lake Assessment Report (2019)
PSC Adirondack Watershed Institute

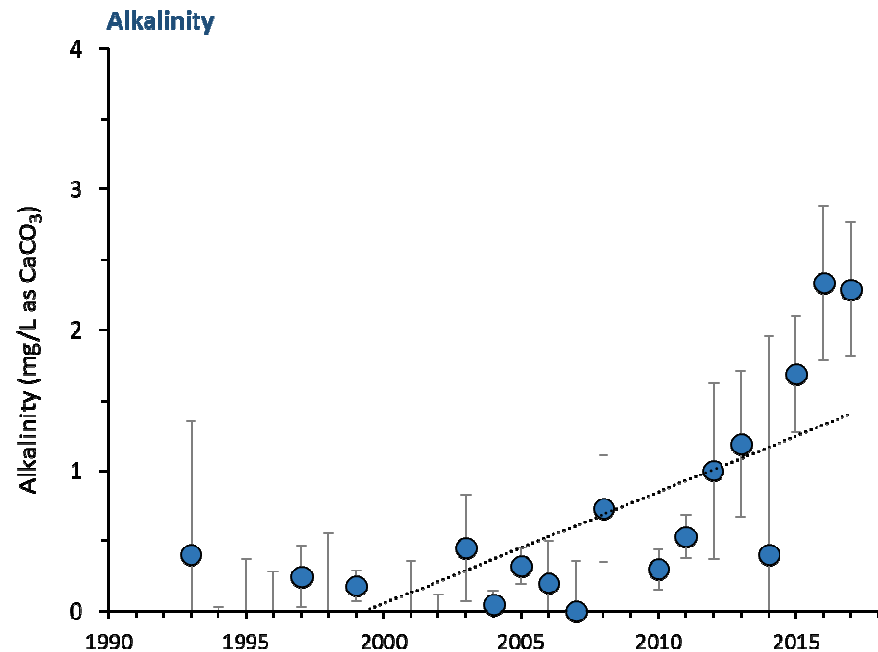
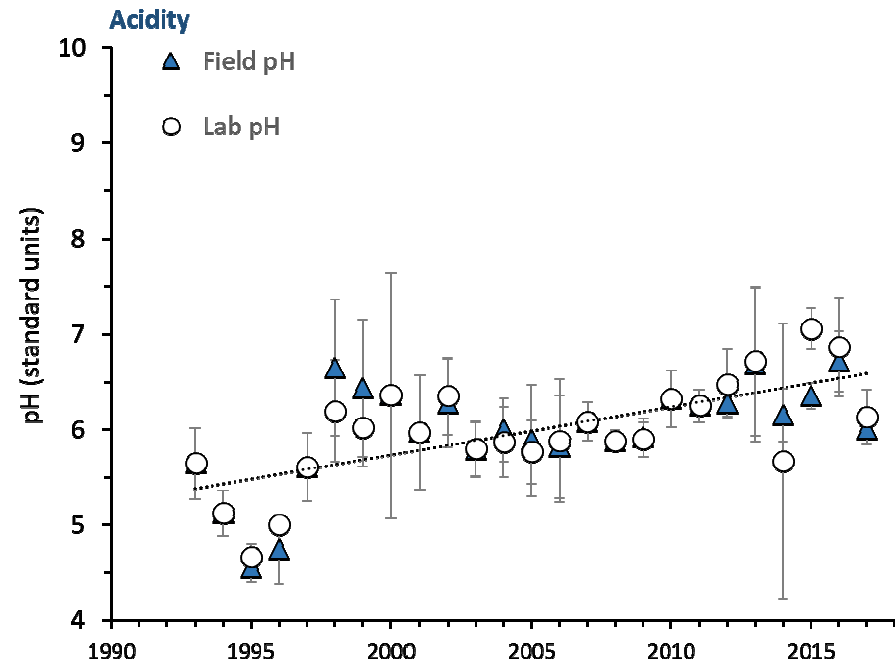
Watershed Area	28,600 ac
Lake surface area	238 ac
Flush Rate	136 times/year
Avg. Total Phosphorus	24 $\mu\text{g/L}$



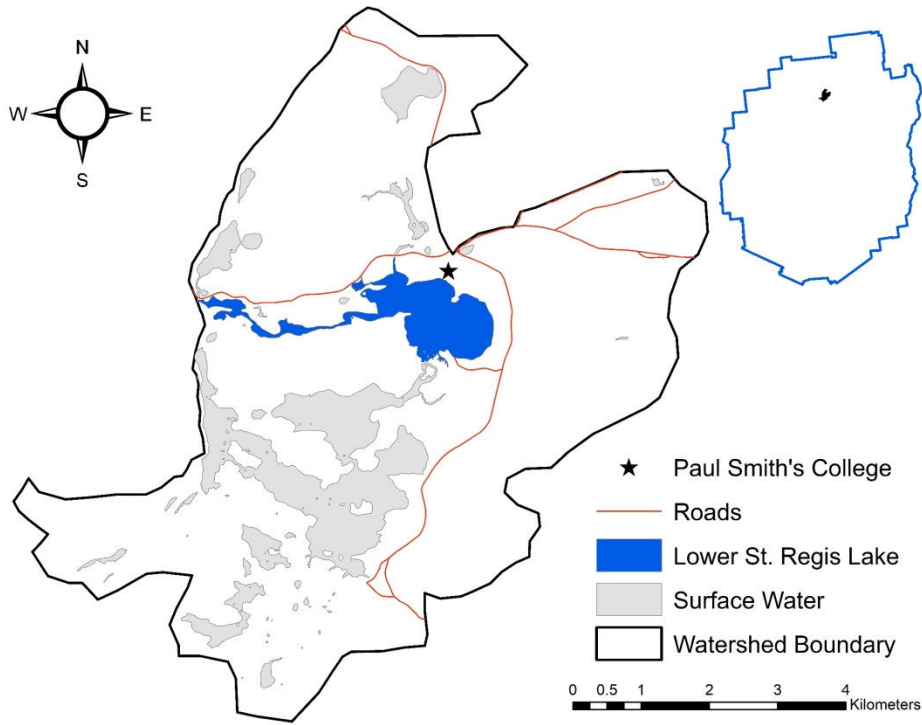
Morehouse Lake



The State of Hamilton County Lakes (2019)
PSC Adirondack Watershed Institute
Hamilton County SWCD



Lower St. Regis Lake



St. Regis: State of the Lakes Report (2018)
PSC Adirondack Watershed Institute

