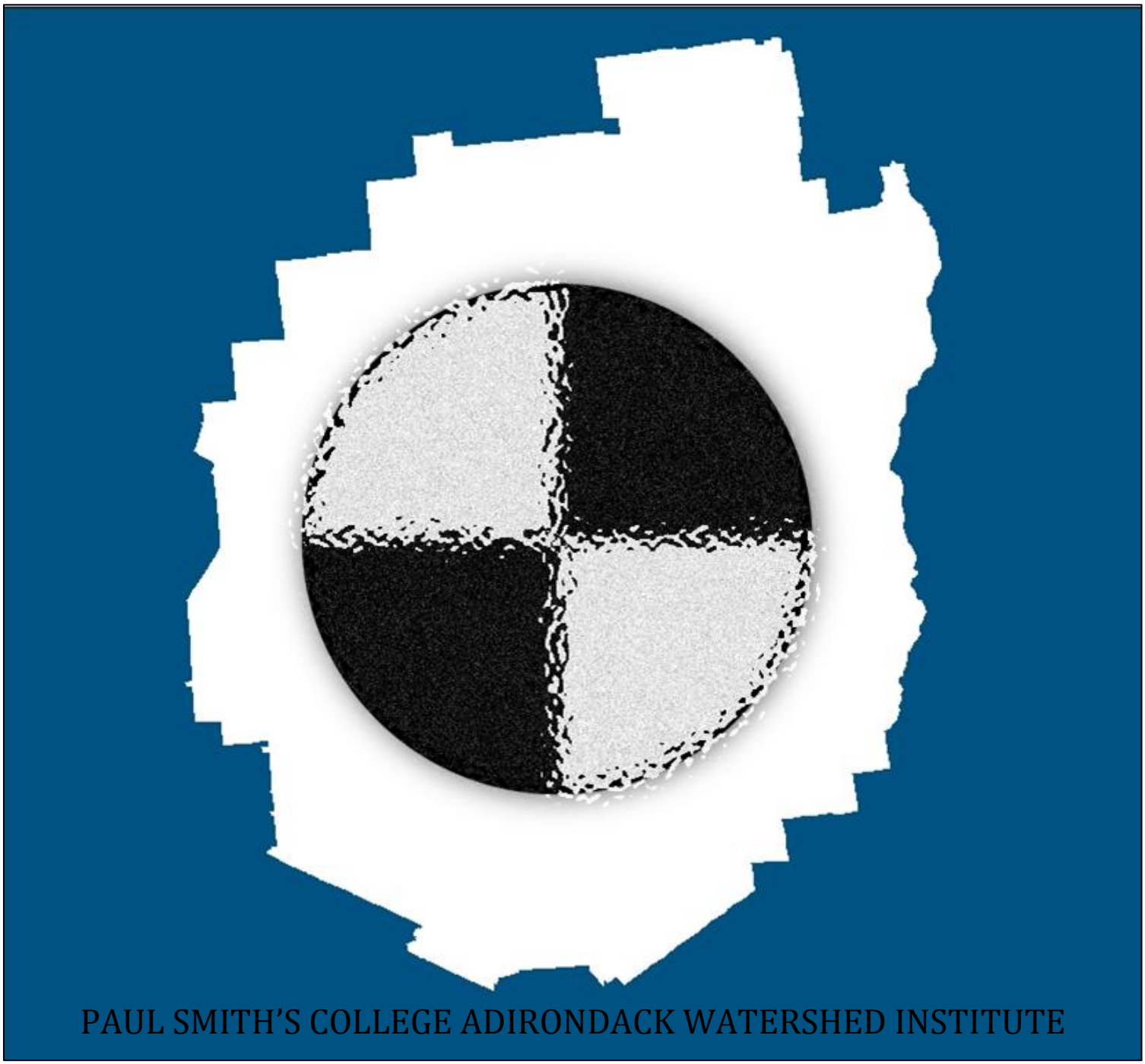
Adirondack Lake Assessment Program

2015 Report

ALAP



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Acknowledgments

The Adirondack Lake Assessment Program (ALAP) is a collaboration between the Paul Smith's College Adirondack Watershed Institute (www.adkwatershed.org) and Protect the Adirondacks (www.protectadks.org). 2015 marked the 18th year of ALAP. The narrative and results presented in this report were produced by Corey Laxson, Elizabeth Yerger, Sean Regalado, and Daniel L Kelting. Laboratory work on samples received from ALAP volunteers was conducted by Elizabeth Yerger, Sean Patton, Corey Laxson, Hunter Favreau, and Dan Kelting. Administrative support, volunteer coordination, and numerous program contributions were provided by Peter Bauer, Nancy Bernstein, Evelyn Greene, and Elizabeth Yerger.

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Special thanks to our ALAP 2015 Volunteers

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How to Use This Report

Welcome to the 2015 ALAP Report! Once again we have enacted a major change to the reporting format. Instead of issuing 75 individual lake reports we have designed a single report that encompasses all the information of the old style reports plus plenty of new material as well. We believe the move to a single report represents a substantial upgrade for the program for several reasons. First, a single report highlighting the water quality across the entire region will attract wider interest than dozens of lake specific reports; and it will be much more useful for academics, government agencies, non-profits, lake associations, and interested individuals. Secondly, ALAP participants will now have easy access to lake information from all of the participating lakes without having to search and download files from a website. Lastly, a single document greatly improves our reporting efficiency, allowing ALAP to be cost effective and affordable.

This report is designed to provide lake information to the informed lay person, scientific community, lake managers, and other interested individuals. As such, it is written in a way to provide something for everyone. New this year is a section titled "*Understanding and Interpreting ALAP Data"*. We hope this section will provide readers with greater appreciation for lake science as well as improved ability to interpret the data for their lake. The data for each participating lake has been reduced down to a 2-page description and can be found in the section titled "*Individual Lake Reports*". Participating lakes that wish to have a full stand-alone report produced for them are encouraged to contact the corresponding author.

The data in this document are reported in metric units. Although this system has not been fully adopted in the United States, it is the standard system of measurement used by scientists and lake managers throughout the world. Information on converting the metric units of measurements used in this report to English units are readily available through internet searches. The amount of chemical elements dissolved in the lake samples are always described using metric concentration units. The most common ways to express chemical data are milligrams per liter (mg/L) and micrograms per liter (µg/L). One milligram per liter is equal to one part analyte to one million parts water. One microgram per liter is equal to one part analyte to one billion parts water.

Image 1. Sunset on Middle Saranac Lake (photo courtesy of Brendan Wiltse).

Overview of ALAP

The Adirondack Lake Assessment Program (ALAP) is a highly successful citizen science lake monitoring program that combines the enthusiasm of volunteers with the technology and expertise of scientists in the environmental field. Citizen science programs like ALAP are quickly becoming the 21st century model for handling large scale research and monitoring projects. These collaborations are mutually beneficial in that they address the scientific communities need for more researchers, and provide citizens with the benefit of knowing they helped advance the understanding of a cherished resource (Toerpe 2013). There are many citizen science lake monitoring programs across the country, the vast majority of which are administered at the state level. ALAP is the only program to focus on a specific region.

Image 2. Young citizen scientists from Camp Whippoorwill preparing to collect an ALAP sample from Augur Lake (photo courtesy of Nancy Gucker-Birdsall).

ALAP is a cooperative effort between Protect the Adirondacks (Protect) and the Adirondack Watershed Institute (AWI). The objectives of ALAP are to (1) develop a long term water quality database for Adirondack lakes and ponds that can be used by multiple stakeholders, (2) document historical trends in their limnological condition, and (3) engender lake stewardship by providing opportunities for citizens to participate in scientific monitoring.

ALAP continues to be a highly successful program. Established in 1998 with 9 participating lakes, the program has grown to 75 participating lakes in 2015. ALAP lakes are from all across the Adirondack Region (Figure 1 and Table 1). For many lakes the ALAP dataset represents the only available source of information on water quality.

Methods

ALAP volunteers were trained in standard limnological sampling methods by AWI and PROTECT. Data was collected from the deepest location of the lake, 3 to 5 times during the summer months. During each sampling event volunteers observed the secchi transparency reading by lowering a standard 20 cm black and white secchi disk to a depth where it could no longer be seen. This process was repeated and the average secchi depth for that day was recorded. Surface water samples were collected using a 2-meter integrated tube sampler. The contents of the tube were poured into a 1 liter brown bottle and thoroughly mixed. A 250 mL aliquot of the integrated sample was collected for chemical analysis and a second 250 mL aliquot was filtered through a 0.45 µm cellulose membrane filter for chlorophyll-a analysis. The filter was retrieved and wrapped in foil. The water sample and chlorophyll filter were frozen immediately after collection and delivered frozen to the AWI Environmental Research Lab, generally within a 10 day period.

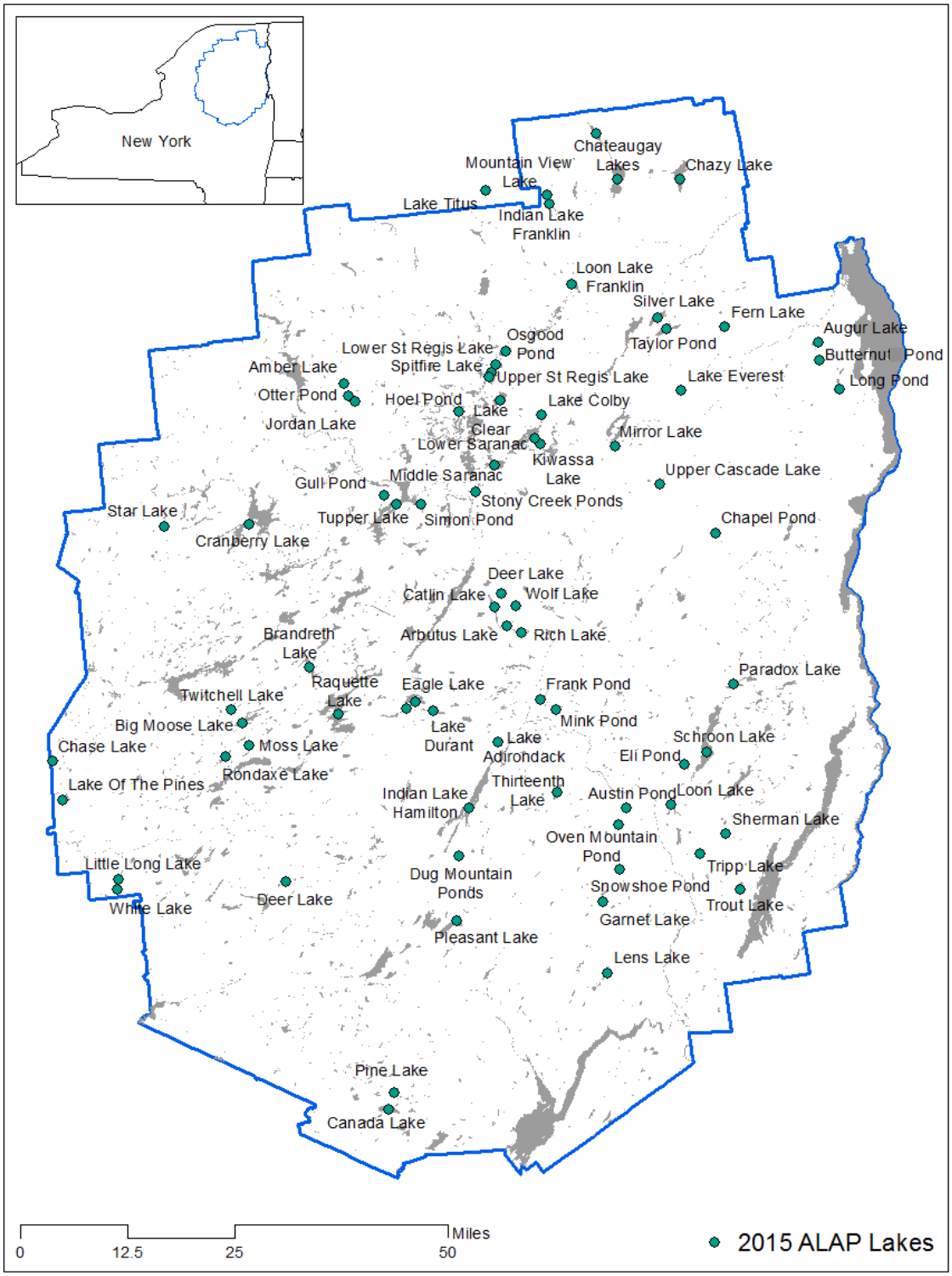


Figure 1 Location of ALAP participants in 2015.

Table 1. 2015 ALAP Lakes organized by the number of years of program participation.

Lake Name	Years	Lake Name	Years	Lake Name	Years
Blue Mt. Lake	18	Thirteenth Lake	15	Lake Adirondack	9
Cranberry Lake	18	Tripp Lake	15	Lower Chateaugay Lake	9
Eagle Lake	18	Twitchell Lake	15	Upper Chateaugay Lake	9
Loon Lake (FC)	18	Wolf Lake	15	Chapel Pond	8
Oven Mt. Pond	18	Garnet Lake	14	Simon Pond	7
Silver Lake	18	Lens Lake	14	Upper Cascade Lake	7
Brandreth Lake	17	Lower Saranac Lake	14	Augur Lake	6
Eli Pond	17	Lower St Regis Lake	14	Jordan Lake	6
Gull Pond	17	Upper St Regis Lake	14	Lake Titus	6
Little Long Lake	17	Canada Lake	13	Otter Pond	6
Austin Pond	16	Kiwassa Lake	13	Amber Lake	5
Middle Saranac Lake	16	Lake Colby	13	Lake Clear	5
Osgood Pond	16	Raquette Lake	13	Lake Durant	5
Stony Creek Ponds	16	Sherman Lake	13	Star Lake	5
Trout Lake	16	Snowshoe Pond	13	Loon Lake (WC)	4
White Lake	16	Spitfire Lake	13	Rondaxe Lake	3
Arbutus Lake	15	Tupper Lake	13	Mirror Lake	2
Catlin Lake	15	Fern Lake	12	Paradox Lake	2
Deer Lake	15	Indian Lake (HC)	12	Schroon Lake	2
Hoel Pond	15	Big Moose Lake	11	Butternut Pond	1
Lake of the Pines	15	Dug Mountain Ponds	11	Chase Lake	1
Long Pond	15	Indian Lake (FC)	11	Frank Pond	1
Pine Lake	15	Moss Lake	11	Lake Everest	1
Pleasant Lake	15	Mountain View Lake	11	Mink Lake	1
Rich Lake	15	Chazy Lake	9	Taylor Pond	1

Samples were analyzed for laboratory pH, conductivity, alkalinity, total phosphorus, nitrate, chlorophyll-a, chloride, calcium and sodium at the AWI Environmental Research Lab following the analytical methods listed in Appendix 1. Results for the current year were tabulated and time series charts were constructed from the annual average value for each indicator. Trend analysis was conducted on lakes with five or more years of data using Kendall's non-parametric regression to test the hypothesis "there is no relationship between the indicator and time". Simple linear trend lines were fit to data with significant trends (P<0.05) and displayed on the corresponding chart.

Understanding and Interpreting ALAP Data

Transparency

Transparency is a simple and inexpensive measurement of water clarity and light penetration. It is measured by lowering a 20 cm black and white disk, called a secchi disk, through the water to the depth where it is no longer visible from the surface. The secchi disk was created by the Italian astronomer Pietro Angelo Secchi in the mid-19th century (Image 3).

Transparency is a great indicator of lake condition because it is influenced by many factors related to water quality and human perception. Secchi data is used most often to interpret the productivity of a lake. In general, lakes that have low productivity and low algal abundance have greater transparency. As algal productivity increases the transparency of the water body tends to decreases (see Trophic State). There are a number of other water quality issues that can influence transparency depth such as turbidity (cloudiness of the water), suspended sediment, and dissolved chemicals. For example, the transparency of many lakes in the Adirondacks is influenced by the amount of colored dissolved organic material in the water (see Color).

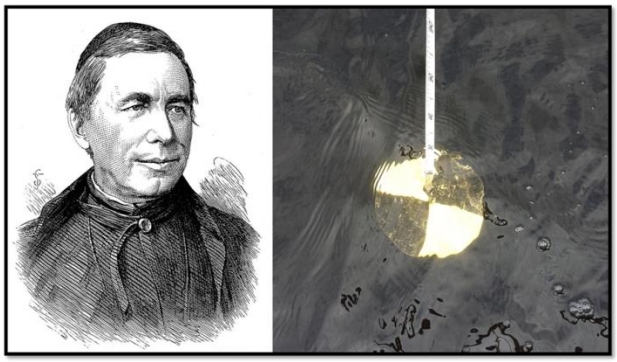


Image 3. Pietro Angelo Secchi (1818 - 1878) and the limnological tool named after him.

In 2015 average ALAP transparencies ranged from less than 1 meter to as high as 8.5 meters in depth. The majority of lakes (63%) had average transparency depths of 4.0 meters or less (Figure 2). Analysis of the historical data reveals that 90% of study lakes had no observable change over time and 9% had a decreasing trend in transparency (less transparent).

Chlorophyll-a

Chlorophyll-a is the primary photosynthetic pigment found in all freshwater species of algae and cyanobacteria. Studying actual algal productivity in a lake is a difficult and expensive undertaking. A measurement of chlorophyll-a however is relatively simple and inexpensive, and provides a surrogate measure of algal productivity (Wetzel 2001). Chlorophyll-a is not a direct measure of algal biomass as the concentration of chlorophyll varies somewhat by species and environmental conditions. This said, increases in chlorophyll are generally associated with increased algal production, and the concentration of chlorophyll is widely considered

as the most direct measure of the trophic state of lakes. Algal biomass is affected by the interaction of nutrient availability, light, water temperature, and grazing so there can be considerable variation in chlorophyll concentrations throughout the year depending on which of these factors is limiting growth at a particular time. Typically, major changes in algal biomass (e.g. an algae bloom), and thus chlorophyll, are usually related to changes in the availability of phosphorus, nitrogen, silica or inorganic carbon (Wetzel 2001; Klemer 1990).

Image 4. A chlorophyll filter clogged with algae. The sample was taken during a cyanobacteria bloom on Spitfire Lake in August, 2014.

Chlorophyll-a is analyzed by filtering a known volume of lake water through a fine (0.45µm) cellulose-acetate filter, which captures the small photosynthetic organisms (Image 4). In the laboratory the filter is macerated and the chlorophyll- is extracted into acetone and is then analyzed with a spectrophotometer.

In 2015 average chlorophyll-a concentrations ranged from less than 0.5 µg/L to as high as 18 µg/L. The majority of lakes (83%) had values between 1.5 and 6.5 µg/L (Figure 2). Analysis of the historical data reveals that 81% of participating lakes showed no statistical change in algal productivity over time and that 18% had a decreasing trend in chlorophyll-a concentration.

Phosphorus

Phosphorus is of major importance to structure and metabolism of all organisms. However, it exists in relatively small amounts in freshwater systems compared to other essential nutrients such as carbon, hydrogen, oxygen, and sulfur. The addition of extra phosphorus to an aquatic system allows production to increase greatly because all other essential elements are typically available in excess. Thus phosphorus is typically the limiting nutrient in aquatic systems, and widely considered as the most important contributor to reduced water quality in lakes (Schindler 1977; Søndergaard et al. 2003). Natural weathering releases phosphorus from rocks and soils, and it also enters our watersheds in fertilizers, human and animal waste, and atmospheric deposition. Phosphorus exists in a number of forms in aquatic systems, including readily available dissolved phosphorus, and organically and inorganically bound phosphorus. Total phosphorus is a measurement of all of the forms of phosphorus combined and serves as an important indicator of overall trophic status of a lake. Generally speaking, lakes of low productivity (oligotrophic) have total phosphorus concentrations less than 10 µg/L, while highly productive lakes (eutrophic) have total phosphorus concentrations greater than 20µg/L (NYSDEC Clean Lakes Assessment).

Total phosphorus is analyzed by digesting the lake water sample with a strong acid (sulfuric acid) and an oxidizing agent (ammonia persulfate). All of the numerous forms of phosphorus are converted to phosphate, which is then quantified with an automated spectrophotometer (Image 5)

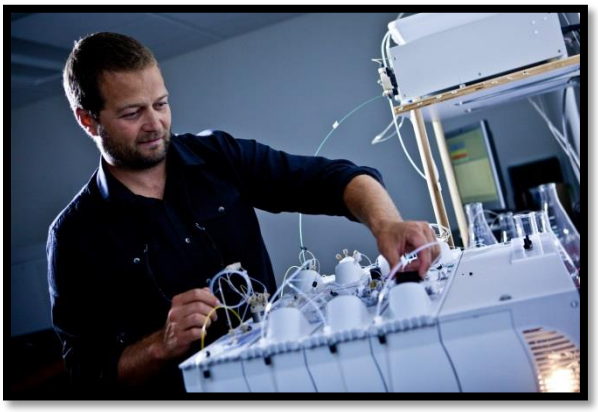


Image 5. Preparing the Lachat QC 8500 for chemical analysis of ALAP samples in the Environmental Research Lab of the AWI.

In 2015 the average total phosphorus concentrations ranged from below detection levels to as high as 30 µg/L. The majority of lakes (72%) had average values less than 12 µg/L (Figure 2). Analysis of the historical data reveals that 66% of participating lakes showed no statistical change in phosphorus concentration over time and that 33% exhibited a decreasing trend. Significant improvements were made to our phosphorus methodology in 2010. The method change may be partially responsible for the decreasing trend exhibited by some lakes.

Trophic State

Trophic status is a term derived from the Greek word *trophi*, meaning food or nourishment, and is used by limnologists to explain the overall productivity of a lake. Lake productivity is naturally influenced by the rate of nutrient supply from the watershed, climatic condition, and lake and watershed morphology. Human activities and development within a watershed have the potential to increase the rate of nutrient supply into the lake and thereby accelerate lake productivity, a process known as cultural eutrophication.

Most Lakes in the Adirondacks can be assigned into one of three trophic classes; oligotrophic, mesotrophic, or eutrophic based on their overall level of biological productivity.

Oligotrophic - From the Greek words *oligo*, meaning few and *trophi*, meaning nourishment; oligotrophic lakes have low biological productivity due to relatively low nutrient content. As a result of low nutrients oligotrophic lakes have high transparency, low algal abundance, low organic matter in the sediments, sparse aquatic plant growth, and abundant dissolved oxygen throughout the water column the entire year. Oligotrophic lakes are most likely to support a cold water fishery (trout and salmon).

Eutrophic - From the Greek words *Eu*, meaning good. Eutrophic lakes have high biological productivity due to abundant levels of nutrients. As a result of high nutrient availability eutrophic lakes are typified by high algal productivity, low transparency, high organic matter in the sediments, and periods of anoxia in the bottom of the water column (the hypolimnion). Eutrophic lakes tend to support dense aquatic plant growth in the littoral zone. Eutrophic lakes are unlikely to support a viable cold water fishery

Mesotrophic - from the Greek words *Meso*, is an intermediate trophic classification on the continuum between oligotrophy and eutrophy.

Trophic status is typically determined by analyzing lake data on transparency, chlorophyll and total phosphorus and employing one of the two most commonly used classification approaches, the fixed boundary method or the trophic index method. The fixed boundary method uses predetermined ranges of transparency, total phosphorus, and chlorophyll to classify the lakes trophic status. A good example of a fixed boundary is the traditional

method employed by the NYS DEC that appears in Table 2 (NYSDEC Clean Lakes Assessment).

Table 2. Fixed boundary trophic status determination employed by the NYSDEC.

Parameter	Oligotrophic	Mesotrophic	Eutrophic
Transparency	>5	2-5	<2
Total Phosphorus	<10	10-20	>20
Chlorophyll-a	<2	2-8	>8

The most commonly used tropic state index is Carlson's TSI (Carlson 1977). This index uses algal biomass as determined by the three variables of transparency, total phosphorus, and chlorophyll as the basis for the trophic state classification. The range of the index is from approximately zero to 100, although technically there are no upper or lower bounds. Each major TSI division (10, 20, 30, etc.) represents a doubling in algal biomass. The Traditional trophic classification scheme can be overlaid on the index as follows: TSI < 40 = oligotrophic, TSI 40-50 = mesotrophic, TSI > 50 = Eutrophic.

Regardless of the lakes trophic state, or the method used to classify it, it's important to remember that "trophic state" is just an organizing concept limnologists use to locate a particular waterbody on a continuum of productivity, thereby connecting the lake to previous information and knowledge from other lakes. An oligotrophic lake and its biota do not possess a distinct identity or wholeness that separates it from a mesotrophic lake. The physical variables of a lake system are dynamic and exist across a wide gradient and the biological components of a lake change continuously as well (Carlson and Simpson 1996).

Of the 76 lakes participating in 2015 we classified 58% as oligotrophic, 39% as mesotrophic, and 3% as eutrophic using Carlson's TSI value for chlorophyll-a (Figure 3).

Image 6. Paddling on Blue Mountain Lake, a classic oligotrophic lake (photo courtesy of Brendan Wiltse).

Color

The observed color of a lake is an optical property that results from light being scattered upwards after selective absorption by water molecules as well as dissolved (metallic ions, organic acids) and suspended materials (silt, plant pigments). For example, alkaline lakes with high concentrations of calcium carbonate scatter light in the green and blue wavelength and thus appear turquoise in color. Lakes rich in dissolved organic matter and humic compounds absorb shorter wavelengths of light such as green and blue and scatter the longer wavelengths of red and yellow, thus these lakes appear to be brown in color (Image 7; Wetzel 2001). Analysis of color can provide us with information about the quantity of dissolved organic matter (DOM) in the water. However, caution should be taken when using color as a surrogate for DOM as color has been shown to behave differently than the total DOM pool in a lake, making it a crude predictor of DOM (Dillon and Molot 1997; Thurman 1985).

Image 7. Dissolved organic matter can make a lake appear different shades of brown due to its selective light absorption.

For objective quantification of apparent color water samples are compared to standards of platinum-cobalt solution (PtCo units) via spectrophotometry. "True color" is the color transmitted by a solution after the removal of suspended material, "apparent color" is the color transmitted without any filtration.

In 2015 the average color values ranged from less than 10 to nearly 200 PtCo, with the majority of lakes (80%) falling between 10 and 50 PtCo units. (Figure 2). Analysis of the historical data reveals that 90% of participating lakes showed no statistical change in color over time and that 9% have exhibited an increasing trend.

pH

In chemistry, pH is used to communicate the acidity or alkalinity of a solution. Technically pH is a surrogate measure of the concentration of hydrogen ions in water (acidity). Hydrogen ions are very active, and their interaction with other molecules determines the solubility and biological activity of gasses, nutrients, and heavy metals; thus pH is considered a master variable for its influence on chemical processes and aquatic life. pH exists on a logarithmic scale from 0-14, with 7 being neutral. pH values less than 7 indicate increasing acidity, whereas pH values greater than 7 indicate increasingly alkaline conditions. Because pH exists on a logarithmic scale a decrease in 1 pH unit represents a 10 fold increase in hydrogen ion activity.

Table 3. Assessment of lake acidification based on pH

Lake acidity	Status
pH less than 5	Acidic: Critically Impaired
pH 5.0 – 6.0	Acidic: Threatened
pH 6 – 6.5	Acidic: Acceptable
pH 6.5 – 7.5	Circumneutral: non-impacted
pH >7.5	Alkaline: non-impacted

Lakes can become acidified when they are influenced by organic acids from wetlands and bogs or when acidic precipitation falls on a poorly buffered watershed (Driscoll et al. 2003, Wetzel 2001). In the Adirondacks acidification status can

be assed from pH values based on the guidelines outlined in Table 3.

In 2015 the average pH values ranged from 5.6 to 8.0. The majority of lakes (94%) fell in the circumneutral range between 6.5 and 7.5 (Figures 3 and 4). Analysis of the historical data reveals that 90% of participating lakes showed no statistical change in pH over time and that 10% have exhibited a increasing trend (less acidic).

Alkalinity

Alkalinity (or acid neutralizing ability) is the capacity of water body to neutralize acids and thereby resist changes in pH. The alkalinity of a lake plays a major role in whether or not a lake is impacted by acid deposition.

Alkalinity is a function of the amount of calcium carbonate in the water which is derived mainly from the watershed.

Most Adirondack lakes exist on slowly weathering granitic bedrock that has a slow rate of calcium carbonate generation, and therefore lower acid neutralizing ability. The opposite is true for lakes that exist on bedrock derived from ancient ocean deposits, such as limestone or dolomite. Soil depth also plays a role in acid neutralizing capacity, with deeper soils offering more buffering ability than shallower soils. Alkalinity is quantified by analyzing them amount of dilute acid is required to lower the pH of a lake sample to 4.3 pH units, the point at which all of the carbonate and bicarbonate alkalinity is consumed. The acid neutralizing ability of a lake can be generally assessed following the parameters presented in Table 4.

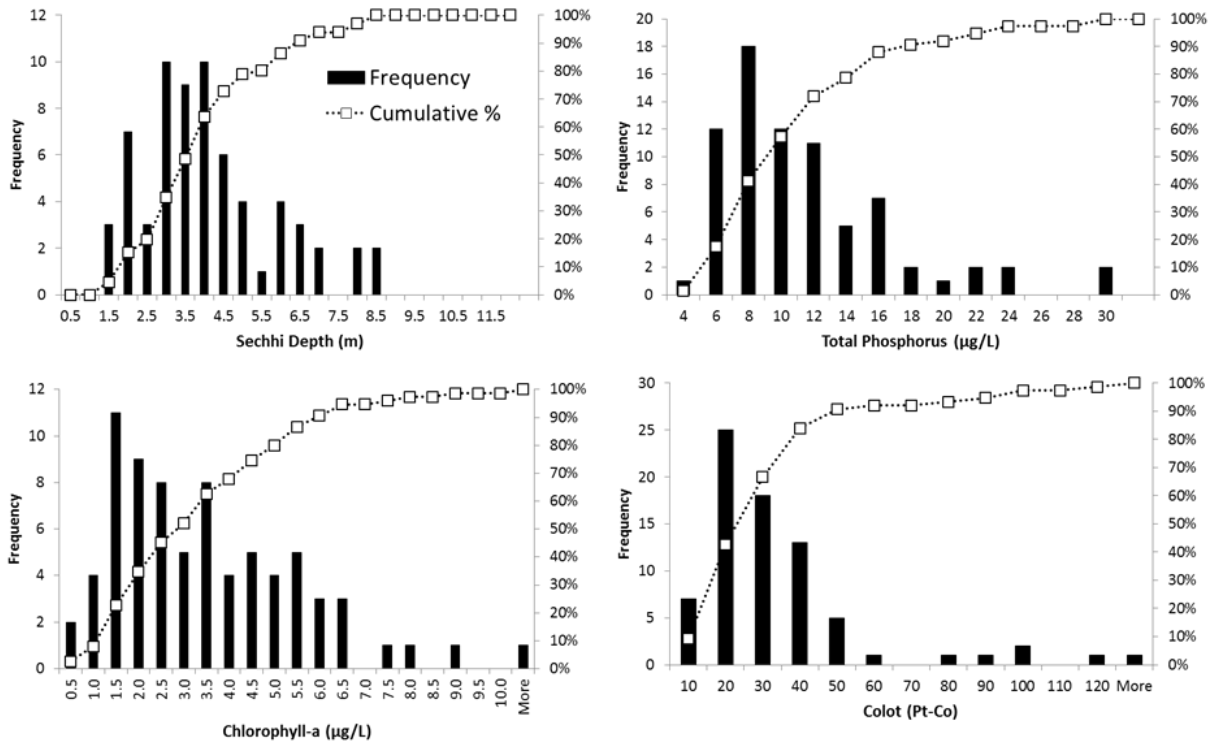


Figure 2. Frequency histograms of average 2015 ALAP values for transparency, total phosphorus, chlorophyll, and color.

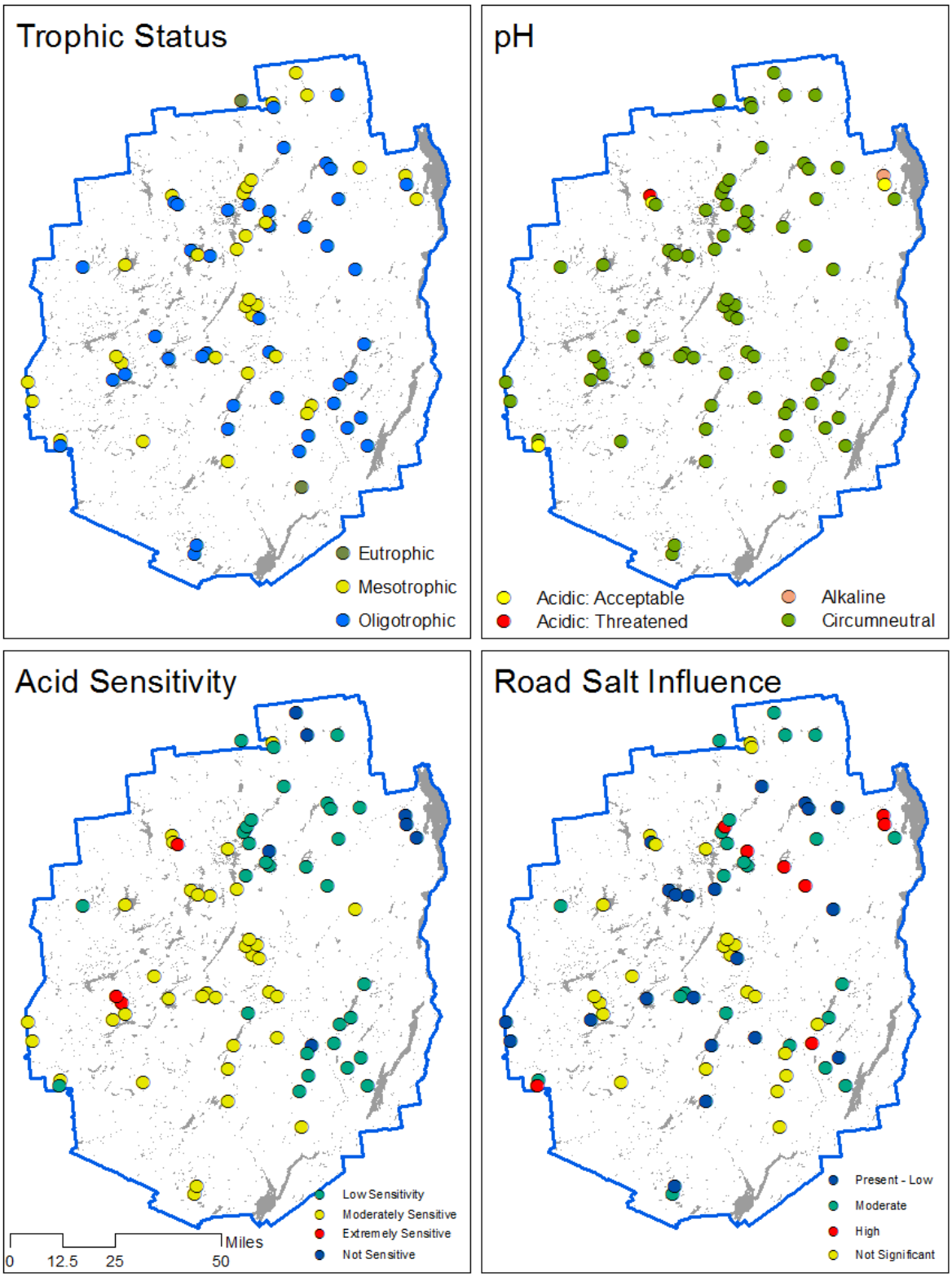


Figure 3. Condition of the 2015 ALAP lakes in terms of trophic state, acidity, acid sensitivity, and road salt influence.

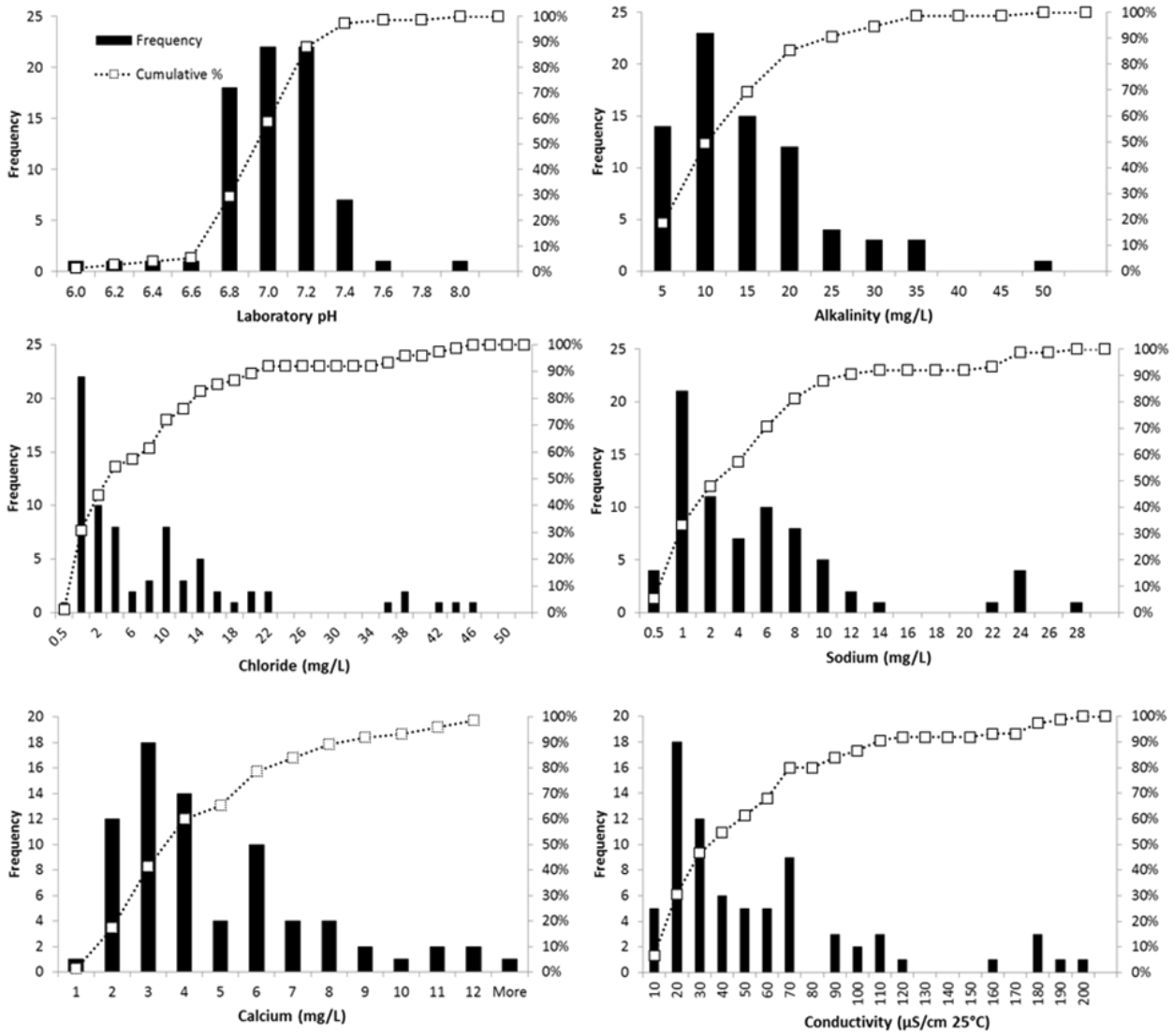


Figure 4. Frequency histograms of average 2015 ALAP values for pH, alkalinity, chloride, sodium, calcium and conductivity.

A wide range of buffering abilities exists across the Adirondack Region. In 2015 the average alkalinity values ranged from less than 2 mg/L to nearly 50 mg/L, with roughly 50% of the lakes exhibiting some acid sensitivity (Figures 3 and 4). Analysis of the historical data reveals that 64% of participating lakes showed no statistical change in alkalinity over time and that 36% have exhibited a negative trend.

Table 4. Acid neutralizing ability and acidification status assessment based on alkalinity concentration (mg/L as $CaCO_3$).

Alkalinity (mg/L)	Buffering Ability	Acidification status
< 0	none	acidified
0 - 2	low	extremely sensitive
2 - 10	moderate	moderately sensitive
10 - 25	adequate	low sensitivity
> 25	high	not sensitive

Sodium and Chloride

Lakes in the Adirondack region have naturally low concentrations of chloride and sodium, with average background concentrations of 0.2 mg/L and 0.5 mg/L respectively (Kelting et al. 2012). However, wide spread use of road deicers (primarily sodium chloride) have significantly increased the concentration of these chemicals in the environment. Each year approximately 98,000 metric tons of road deicers are spread across state roads in the Adirondacks. (Kelting and Laxson 2014). Recent research by Kelting et al. (2012) highlighted that concentrations of sodium and chloride in Adirondack Lakes are directly proportional to the density of state roads within the watershed.

Road salt can have direct and indirect effects on aquatic ecosystems. It is clear that the direct impact of road deicers on organisms is not well understood, and is highly variable across taxa. Based on laboratory studies the lethal concentration for most aquatic organisms is much higher than concentrations encountered in a lake environment. However, at times lethal concentrations can be encountered in near-road environments that receive direct run-off such as road side streams or vernal pools (reviewed by Findlay and Kelly 2011; Kelting and Laxson 2010).

Indirect effects to aquatic systems have also been documented. For example sodium actively displaces base cations (Ca, K, and Mg) as well as heavy metals from the soil, potentially elevating their concentration in surface waters. In some extreme cases excessive road salt pollution can interfere with lake stratification due to salts effect on water density (Bubeck et al. 1971; Kjensmo 1997). Sodium and chloride impart an undesirable taste to drinking water. The US EPA has guideline of 250 mg/L for chloride and 20 mg/L for sodium, but these are for drinking water only and are not enforceable standards.

Image 8. Road Salt (NaCl) being loaded into the back of a plow truck (photo by Paul Sancya/AP).

Although it is difficult to use sodium and chloride concentration to assess impact to the aquatic environment, the concentration of these chemicals serve as a reliable index for the level of hydrologic connectivity a lake has with salted roads in its watershed. We propose the boundaries presented in Table 5 as a general

guideline for gauging road salt influence on a lake.

Table 5. Assessment of road salt influence based on chloride concentration.

Chloride (mg/L)	Road Salt Influence
Less than 1.0	Not significant
1 - 5 mg/L	Present - Low
5 - 20	Moderate
20 - 50	High

Sodium and chloride are analyzed separately from each other in the laboratory using two automated methods. Chloride is measured by injecting the water sample through an ion chromatograph where the chloride is separated from other negatively charged ions by a selective resin and then quantified with a voltmeter. Sodium is analyzed with an atomic emission spectrophotometer. The water sample is introduced into a very hot argon plasma torch that excites the sodium ion into a higher energy state. When the ion relaxes it emits light in a characteristic wavelength, the intensity of which is proportional to the amount of sodium in the sample. Regular analysis of sodium and chloride was initiated by the AWI in 2010. Only a handful of lakes have chloride data that extends before 2010.

As expected, a wide range of salt concentrations existed across the region in 2015, driven primarily by the density of salted roads in the watershed. In 2015 the average chloride concentration ranged from less than 0.5 mg/L to as high as 46 mg/L. Based on these concentrations alone we believe that roughly 70% of the participating lakes are influenced by road salt (Figures 3 and 4). Analysis of the limited historical data reveals that 87% of participating lakes showed no statistical change in chloride over time and that 10% have exhibited an increasing trend.

Image 9. Direct road salt runoff coming off of NYS RT 30 during a thawing event in the spring of 2015. The chloride concentration of this melt water was approaching 5,000 mg/L which is ¼ the concentration of sea water.

Calcium

Calcium plays an important role in lake ecology because it is an essential element for the structure and physiology of all organisms. For example, calcium is needed for bones and teeth in vertebrates, exoskeletons and shells in invertebrates, and biochemical regulation in plants to name a few. The ultimate source of calcium in lakes is weathering of the bedrock, and to a lesser extent atmospheric deposition (dust). The majority of lakes in the Adirondacks have low concentrations of calcium, typically between 2 and 5 mg/L. The reason for the relatively low concentration is that the granite bedrock under the Adirondacks weathers slowly resulting in a low rate of calcium generation. There are however many lakes in the Adirondacks that reside on calcium rich bedrock resulting in much higher calcium concentrations, examples include Augur Lake (Ca = 12mg/L), Long Pond (Ca = 16 mg/L), and Lake Colby (Ca = 11mg/L).

Environmental stressors can affect the calcium concentration of lakes. Research on northeastern lakes has demonstrated that acid deposition has depleted calcium stores in soils leading to reduced calcium concentrations over time (Strock et al. 2014; Keller et al. 2001). The influence that road salting has on calcium concentrations is an emerging research area. Some municipalities utilize calcium chloride to deice roads, thereby increasing the calcium content of the watershed. When rock salt is used as a deicer the sodium can displace calcium in the soil, potentially leading to increase calcium concentrations in the ground and surfaces water. Kelting and Laxson (2014) observed that the combined concentration of calcium, magnesium and potassium in lakes with paved roads in the watershed was 62% greater than lakes with no paved roads.

Calcium concentration is a good indicator of the overall habitat suitability for the zebra mussel, a non-indigenous species from Eurasia that has been spreading through the world. Researchers have reported that the minimum calcium concentrations needed to support a viable zebra mussel population is in the range of 12-20 mg/L, lower than most, but not all lakes in the Adirondacks (Whittier et al. 2008).

Image 10. Zebra mussel distribution in NYS (left) and an aggregation of zebra mussels growing attached to a native mussel (from USFWS).

Calcium concentration is analyzed alongside sodium and other metals using an atomic emission spectrophotometer and has only been analyzed regularly since 2010 (see Sodium and Chloride). In 2015 the average calcium concentrations values ranged from 1 mg/L to 16 mg/L. The majority of lakes (65%) have calcium concentrations less than 5 mg/L (Figure 4). We found three lakes with calcium concentrations within the minimum range needed to support a viable zebra mussel population (Augur Pond, Austin Pond, and Long Pond). Trend analysis was not performed on calcium concentrations in 2015.

Conductivity

Conductivity is a measurement of the ability of a water sample to conduct electricity. Pure H_2O is a poor conductor of electricity. The ability of water to conduct electricity increases as the concentration of dissolved ions in the water increases. Thus, conductivity is considered a strong indicator of the amount of dissolved ions in water. Typically the conductivity of a clean undeveloped lake in the Adirondacks is in the range of 10-25 µS/cm. Elevated conductance may be indicative of road salt pollution, faulty septic systems or the influence of bogs and wetlands in the watershed. Conductivity is a very useful surrogate when the relationships between ion concentrations and conductivity are known. For example, conductivity can be used to estimate sodium and chloride concentrations in streams (Daley et al. 2009).

Conductivity is measured in the laboratory with a conductivity meter. The instrument applies an alternating electrical current to two electrodes immersed in the water sample and measures the resulting voltage. Electrical conductance is influenced by water temperature so all measurements are scaled to the conductance at 25° C, known as specific conductivity.

In 2015 the average conductance values ranged from 10µS/cm to 200 µS/cm (Figure 4). We found chloride concentration to be the main driver in lake conductance in the ALAP dataset, chloride concentration explained 91% of the variability in conductivity (Figure 5; $p < 0.001$, $r^2 = 0.91$).

Analysis of the historical data reveals that 70% of participating lakes showed no statistical change in conductivity over time and that 27% exhibited a significant downward trend in conductivity.

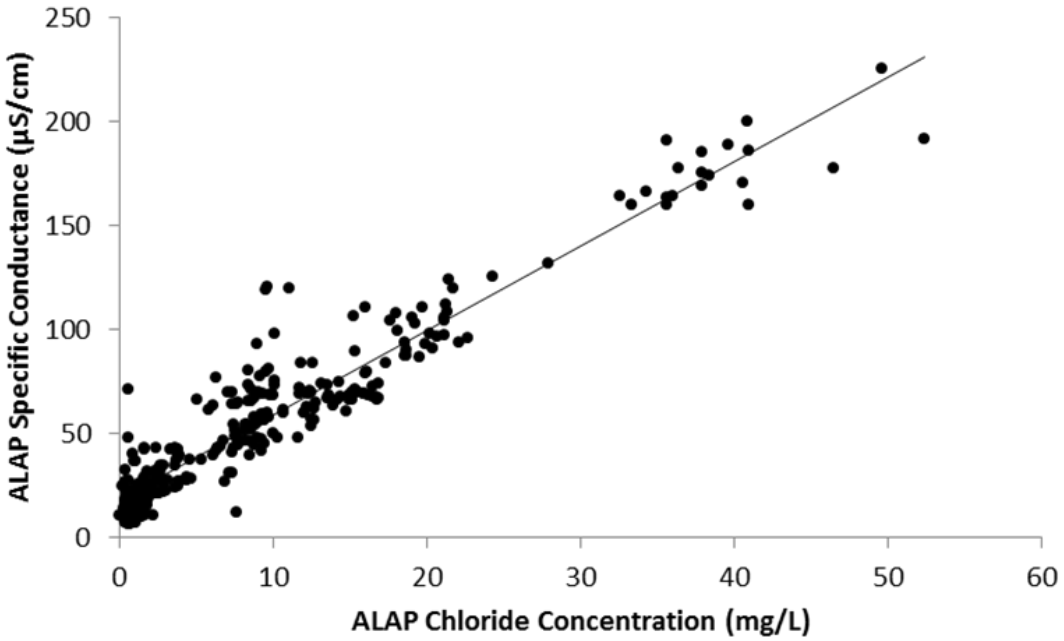
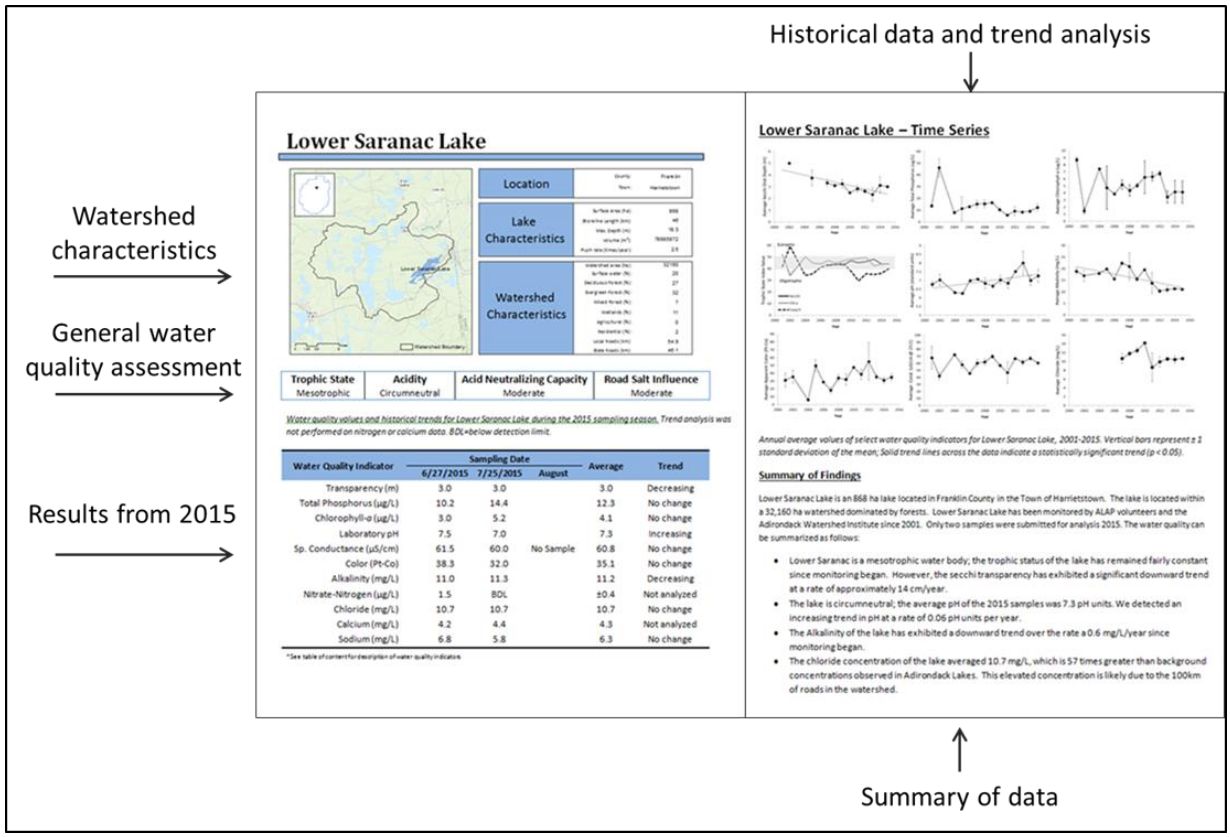


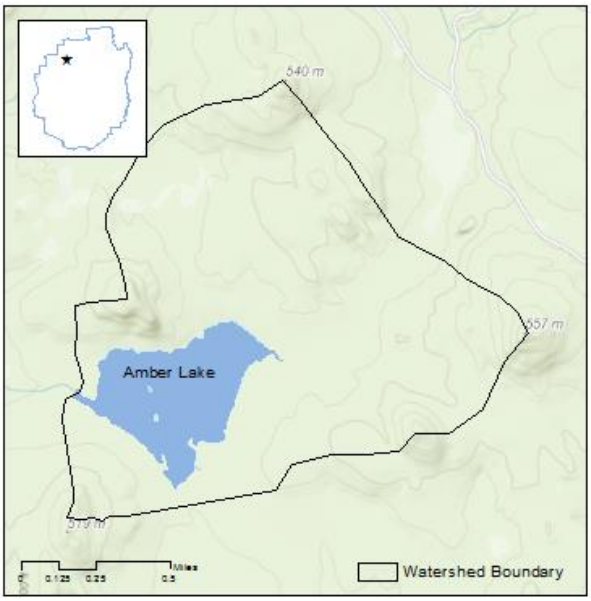
Figure 5. . Relationship between chloride concentration and specific conductance in ALAP lakes from 2015. ($p < 0.001$, $r^2 = 0.91$, $n = 305$).

Individual Lake Reports

The data and accompanying analysis provided in this report give insight into the water quality of the study lakes, more detailed limnological studies may be necessary to produce management recommendations or specific trend interpretations. Readers interested in additional information or accesses to the raw data are encouraged to contact the corresponding author. Each lake description includes lake and watershed characteristics, general water quality assessment, tabulated 2015 data, historical analysis and a brief summary. An example of the lake report format can be seen below.



Amber Lake



Location		
	County:	St Lawrence
	Town:	Hopkinton

Lake Characteristics		
	Surface Area (ha):	45
	Shoreline Length (km):	4
	Max. Depth (m):	2.1
	Volume (m^3):	451290
	Flush rate (times/year):	5.2

Watershed Characteristics		
	Watershed Area (ha):	370
	Surface water (%):	13
	Deciduous Forest (%):	25
	Evergreen Forest (%):	35
	Mixed Forest (%):	6
	Wetlands (%):	20
	Agricultural (%):	0
	Residential (%):	0
	Local Roads (km):	0
	State Roads (km):	0

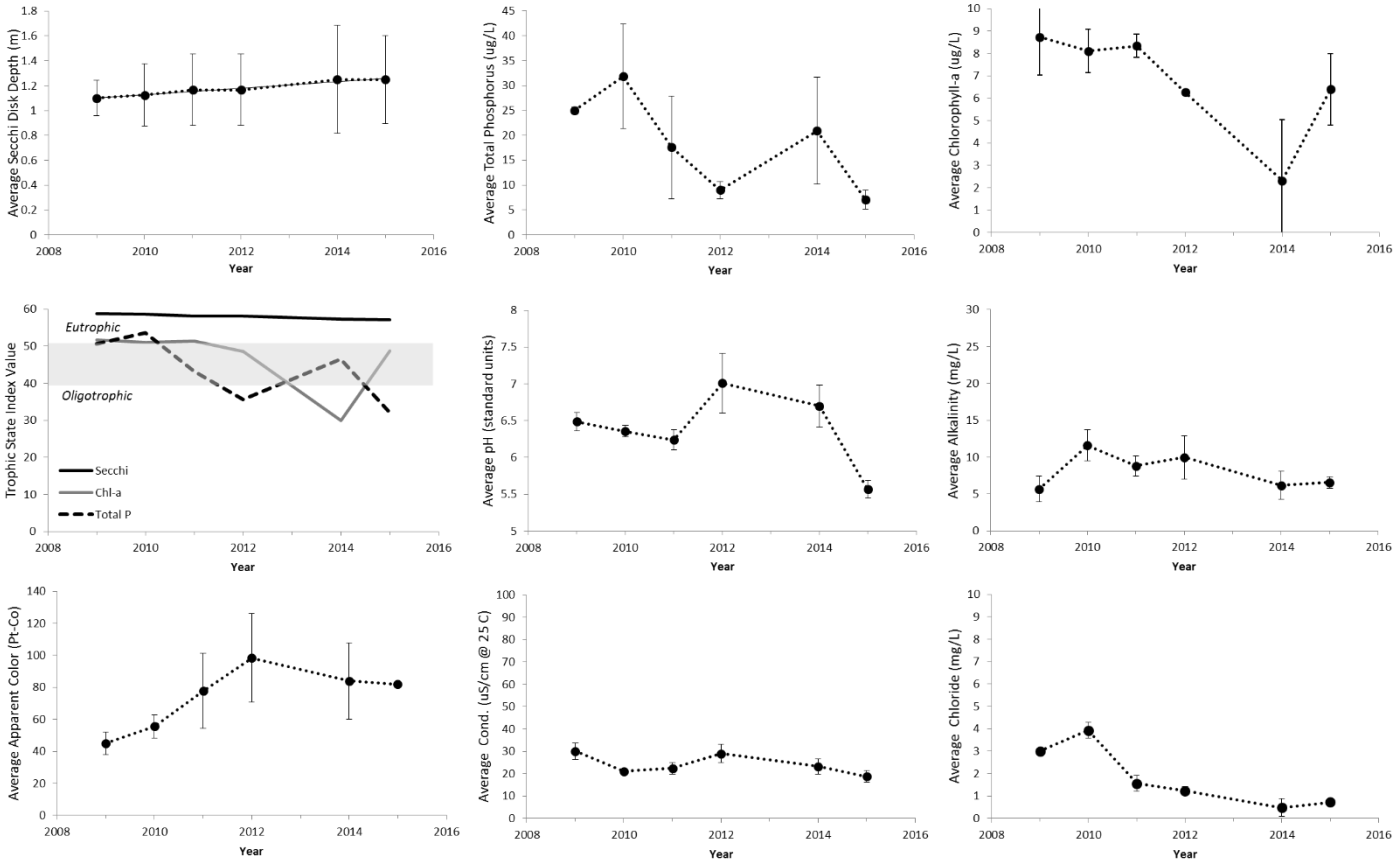
Trophic State	Acidity	Acid Neutralizing Capacity	Road Salt Influence
Mesotrophic	Acidic (Threatened)	Moderate	Not Significant

Water quality values and historical trends for Amber Lake during the 2015 sampling season. Trend analysis was not performed on nitrogen or calcium data.

Water Quality Indicator	Sampling Date			Average	Trend
	June	7/8/2015	8/21/2015		
Transparency (m)		1.5	1.0	1.3	Increasing
Total Phosphorus (µg/L)		5.7	8.4	7.1	No change
Chlorophyll-*a* (µg/L)		7.5	5.3	6.4	No change
Laboratory pH		5.7	5.5	5.6	No change
Sp. Conductance (µS/cm)	No Sample	16.9	20.5	18.7	No change
Color (Pt-Co)		81.9	81.9	81.9	No change
Alkalinity (mg/L)		6.0	7.1	6.6	No change
Nitrate-Nitrogen (µg/L)		23.3	16.1	19.7	Not analyzed
Chloride (mg/L)		0.7	0.8	0.7	No change
Calcium (mg/L)		2.5	2.7	2.6	Not analyzed
Sodium (mg/L)		0.9	0.9	0.9	No change

*See table of content for description of water quality indicators

Amber Lake- Time Series



Annual average values of select water quality indicators for Amber Lake 2009-2015. Vertical bars represent ± 1 standard deviation of the mean; Solid trend lines across the data indicate a statistically significant trend ($p < 0.05$).

Summary of Findings

Amber Lake is a 45 ha lake located in St. Lawrence County in the Town of Hopkington. The lake is located within a 370 ha watershed dominated by forests. Amber Lake has been monitored by ALAP volunteers and the Adirondack Watershed Institute since 2009.

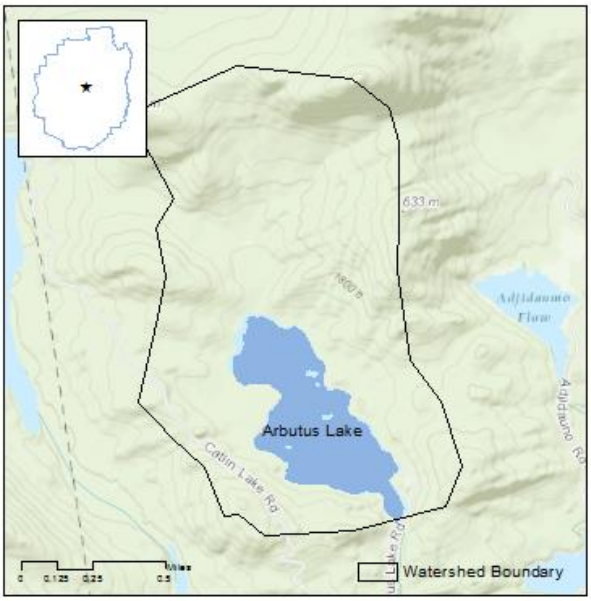
- Amber Lake is a mesotrophic lake of relatively low transparency compared to the ALAP dataset. The reduced transparency is likely the result of dissolved organic material from the surrounding wetland, which make up 20% of the watershed area.

- Concentrations of phosphorus and chlorophyll-a are highly variable in each sampling year and across the six year data set. This variability is likely related to the high flushing rate of the lake, calculated at 5.2 times/year

- Samples from 2015 were found be acidic, with an average pH of 5.6

- Only two samples were received in 2015. The chlorophyll-a data was flagged because s it was improperly packaged in the aluminum foil.

Arbutus Lake



Location		
	County:	Essex
	Town:	Newcomb

Lake Characteristics		
	Surface Area (ha):	48
	Shoreline Length (km):	5
	Max. Depth (m):	-
	Volume (m^3):	1530320
	Flush rate (times/year):	1.8

Watershed Characteristics		
	Watershed Area (ha):	353
	Surface water (%):	14
	Deciduous Forest (%):	46
	Evergreen Forest (%):	14
	Mixed Forest (%):	16
	Wetlands (%):	9
	Agricultural (%):	0
	Residential (%):	0
	Local Roads (km):	0
	State Roads (km):	0

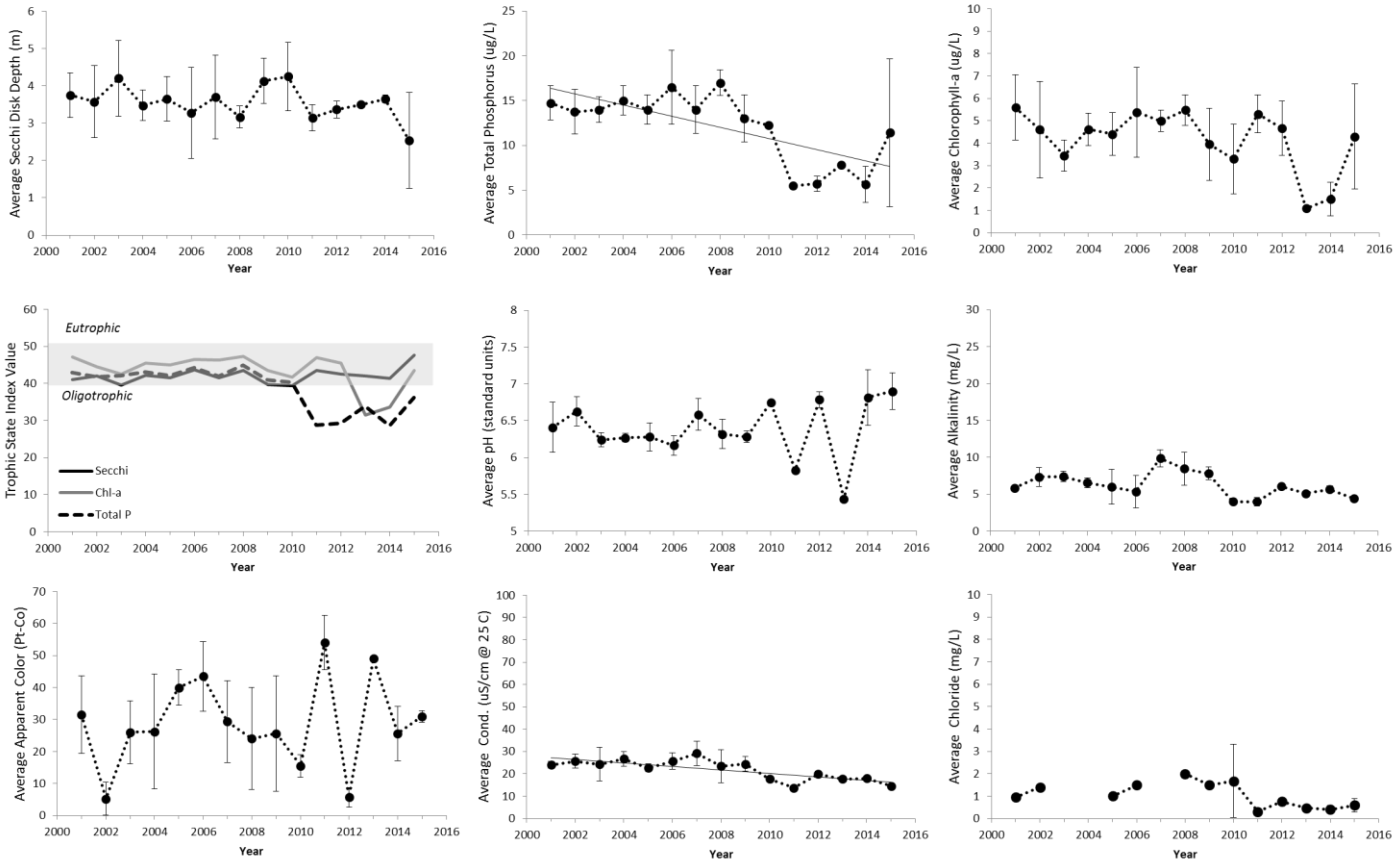
Trophic State	Acidity	Acid Neutralizing Capacity	Road Salt Influence
Mesotrophic	Circumneutral	Moderate	Not Significant

Water quality values and historical trends for Arbutus Lake during the 2015 sampling season. Trend analysis was not performed on calcium or nitrogen data. BDL=below detection limit.

Water Quality Indicator	Sampling Date			Average	Trend
	6/22/2015	7/22/2015	8/20/2015		
Transparency (m)	1.6	3.5	3.5	2.9	No change
Total Phosphorus (µg/L)	3.8	10.2	20.2	11.4	Decreasing
Chlorophyll-*a* (µg/L)	5.6	5.7	1.6	4.3	No change
Laboratory pH	6.7	7.2	6.8	6.9	No change
Sp. Conductance (µS/cm)	15.0	14.2	14.6	14.6	Decreasing
Color (Pt-Co)	32.0	28.9	32.0	31.0	No change
Alkalinity (mg/L)	4.1	4.6	4.6	4.4	No change
Nitrate-Nitrogen (µg/L)	18.1	BDL	1.7	±5.2	Not analyzed
Chloride (mg/L)	0.5	0.3	0.9	0.6	No change
Calcium (mg/L)	2.0	2.4	2.5	2.3	Not analyzed
Sodium (mg/L)	0.7	0.7	0.6	0.6	No change

*See table of content for description of water quality indicators

Arbutus Lake – Time Series



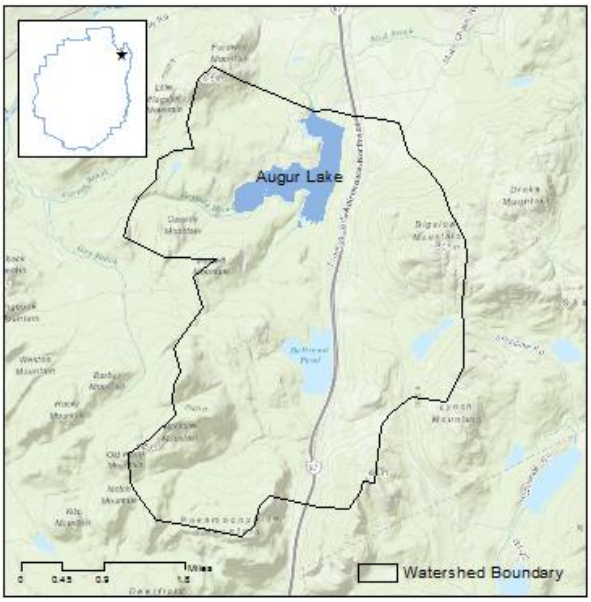
Annual average values of select water quality indicators for Arbutus Lake, 2001-2015. Vertical bars represent ± 1 standard deviation of the mean; Solid trend lines across the data indicate a statistically significant trend ($p < 0.05$).

Summary of Findings

Arbutus Lake is a 48 ha lake located in Essex County in the Town of Newcomb. The lake is located within a 353 ha watershed dominated by forests. Arbutus Lake has been monitored by ALAP volunteers and the Adirondack Watershed Institute since 2001.

- Arbutus Lake is best classified as a mesotrophic lake. Secchi disk transparency and chlorophyll-a concentrations have remained relatively stable since 2001 and have exhibited no significant trend. Conversely, total phosphorus has exhibited a significant downward trend. Some of this decrease may be attributed to methodology upgrades in 2010.
- Samples from 2015 were found to be circumneutral in terms of their acidity, with moderate sensitivity to acid deposition.
- Arbutus Lake serves as a good example of the inherently low concentrations of chloride and sodium found in watershed that lack maintained paved roads.

Augur Lake



Location		
	County:	Essex
	Town:	Chesterfield

Lake Characteristics		
	Surface Area (ha):	146
	Shoreline Length (km):	10
	Max. Depth (m):	6.4
	Volume (m^3):	4242477
	Flush rate (times/year):	3.8

Watershed Characteristics		
	Watershed Area (ha):	3397
	Surface water (%):	7
	Deciduous Forest (%):	44
	Evergreen Forest (%):	13
	Mixed Forest (%):	21
	Wetlands (%):	3
	Agricultural (%):	1
	Residential (%):	7
	Local Roads (km):	9.9
	State Roads (km):	25.4

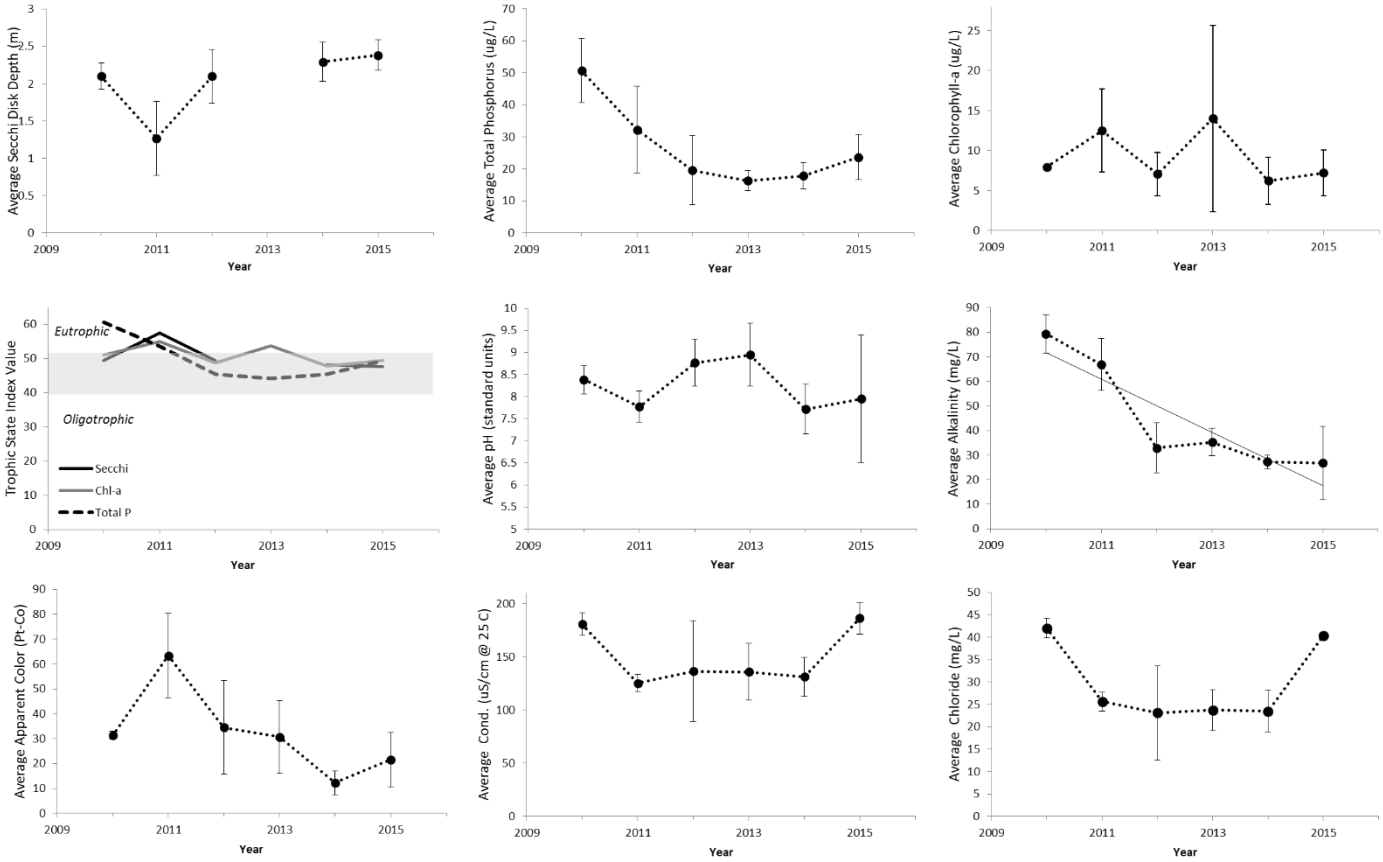
Trophic State	Acidity	Acid Neutralizing Capacity	Road Salt Influence
Mesotrophic	Alkaline	Adequate – low sensitivity	High

Water quality values and historical trends for Augur Lake during the 2015 sampling season. Trend analysis was not performed on nitrogen of calcium data. BDL=below detection limit.

Water Quality Indicator	Sampling Date			Average	Trend
	7/2/2015	7/23/2015	8/23/2015		
Transparency (m)	2.5	2.2	2.5	2.4	No change
Total Phosphorus (µg/L)	30.7	16.6	23.6	23.6	No change
Chlorophyll-*a* (µg/L)	4.1	7.9	9.6	7.2	No change
Laboratory pH	8.9	8.6	6.3	8.0	No change
Sp. Conductance (µS/cm)	170.5	200.0	188.4	186.3	No change
Color (Pt-Co)	10.2	22.7	32.0	21.6	No change
Alkalinity (mg/L)	17.9	18.3	44.1	26.8	Decreasing
Nitrate-Nitrogen (µg/L)	BDL	BDL	BDL	BDL	Not analyzed
Chloride (mg/L)	40.6	40.8	39.6	40.3	No change
Calcium (mg/L)	7.1	14.5	13.2	11.6	Not analyzed
Sodium (mg/L)	22.8	24.6	20.2	22.6	No change

*See table of content for description of water quality indicators

Augur Lake – Time Series



Annual average values of select water quality indicators for Augur Lake, 2010-2015. Vertical bars represent ± 1 standard deviation of the mean; Solid trend lines across the data indicate a statistically significant trend ($p < 0.05$).

Summary of Findings

Augur Lake is a 146 ha lake located in Essex County in the Town of Chesterfield. This lake is located within a 3,397 ha watershed dominated by forests. Augur Lake has been monitored by ALAP volunteers and the Adirondack Watershed Institute since 2010.

- Augur Lake is best classified as a mesotrophic lake. Total phosphorus concentrations have been very similar over the past 5 years, and lower than they were in 2010, the first year of ALAP participation.
- Augur Lake is one of the few alkaline water bodies in the ALAP data set. The Alkalinity of the lake averaged 26.8 mg/L in 2015 and is well buffered against changes in pH. We did detect a significant downward trend in alkalinity. Alkalinity concentrations have been stable for the past four years, and we suspect the values for 2010-2011 are an error.
- The 2015 sodium and chloride concentrations in Augur Lake are the highest in the ALAP dataset and averaged 22.6 mg/L and 40.3 mg/L respectively, demonstrating that the lake's chemistry is influenced by the 35.4 km of salted roads in the watershed.
- Calcium concentrations in the lake averaged 11.6 mg/L, just below the suggested threshold for a variable zebra mussel population.

Austin Pond

Location		
	County:	Warren
	Town:	Johnsburg

Lake Characteristics		
	Surface Area (ha):	9
	Shoreline Length (km):	2
	Max. Depth (m):	-
	Volume (m^3):	138289
	Flush rate (times/year):	4.9

Watershed Characteristics		
	Watershed Area (ha):	121
	Surface water (%):	10
	Deciduous Forest (%):	26
	Evergreen Forest (%):	18
	Mixed Forest (%):	37
	Wetlands (%):	4
	Agricultural (%):	0
	Residential (%):	6
	Local Roads (km):	0.9
	State Roads (km):	0.5

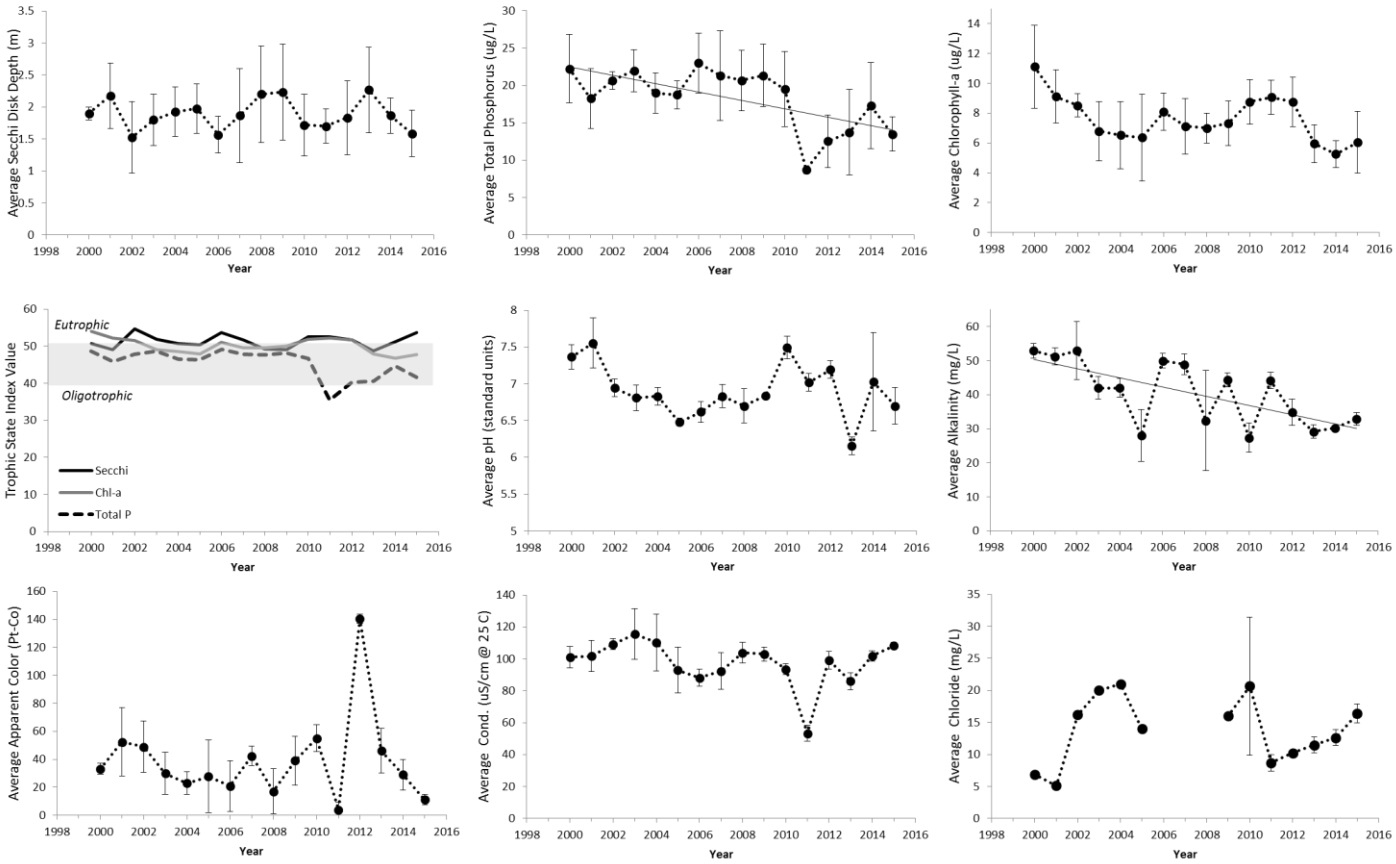
Trophic State	Acidity	Acid Neutralizing Capacity	Road Salt Influence
Mesotrophic	Circumneutral	Well buffered – not sensitive	Moderate

Water quality values and historical trends for Austin Pond during the 2015 sampling season. Trend analysis was not performed on calcium or nitrogen data. BDL=below detection limit.

Water Quality Indicator	Sampling Date			Average	Trend
	6/20/2015	7/24/2015	8/17/2015		
Transparency (m)	1.6	1.2	2.0	1.6	No change
Total Phosphorus (µg/L)	10.9	15.2	14.4	13.5	Decreasing
Chlorophyll-*a* (µg/L)	3.7	7.5	7.0	6.0	No change
Laboratory pH	6.8	6.4	6.9	6.7	No change
Sp. Conductance (µS/cm)	106.1	110.3	108.0	108.1	No change
Color (Pt-Co)	13.3	13.3	7.1	11.2	No change
Alkalinity (mg/L)	30.8	34.3	33.6	32.9	Decreasing
Nitrate-Nitrogen (µg/L)	BDL	BDL	BDL	BDL	Not analyzed
Chloride (mg/L)	15.2	16.0	18.0	16.4	No change
Calcium (mg/L)	11.7	11.3	11.8	11.6	Not analyzed
Sodium (mg/L)	9.6	8.2	8.3	8.7	No change

*See table of content for description of water quality indicators

Austin Pond – Time Series



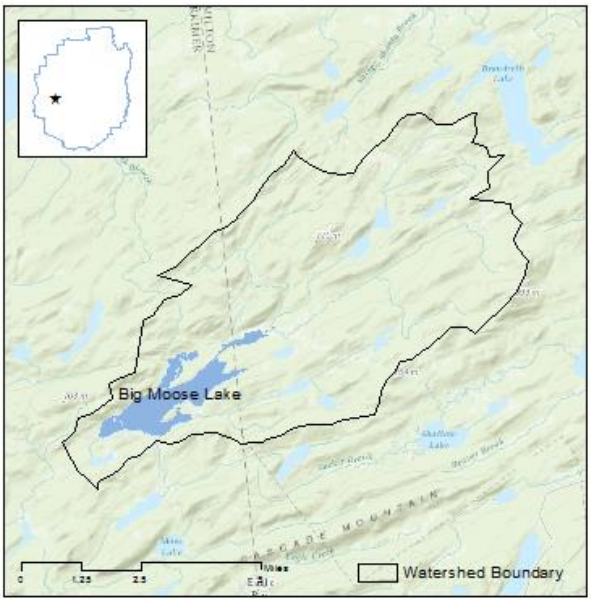
Annual average values of select water quality indicators for Austin Pond, 2000-2015. Vertical bars represent ± 1 standard deviation of the mean; Solid trend lines across the data indicate a statistically significant trend ($p < 0.05$).

Summary of Findings

Austin Pond is an 8.6 ha lake located in Warren County in the Town of North Creek. The lake is located within a 120 ha watershed dominated by forests. Austin Pond has been monitored by ALAP volunteers and the Adirondack Watershed Institute since 2000.

- Austin pond is best classified as a mesotrophic lake. The transparency and chlorophyll-a concentration have been relatively stable over time. The total phosphorus concentration has exhibited a significant downward trend at a rate of approximately 0.6 µg/L/year.
- The pond is circumneutral in terms of its acidity (pH = 6.7) and well buffered against changes in pH. However, we did detect a slight yet statistically significant downward trend in alkalinity at a rate of approximately 0.5 mg/L/year.
- Sodium and chloride concentrations averaged 8.7 mg/L and 16.4 mg/L respectively in 2015, demonstrating that the chemistry of the pond is influenced by NYS Rt. 28. The chloride concentration of Austin Pond is greater than 86% of the participating ALAP lakes. Although we did not detect a statistical trend in the historical chloride concentration, the values have been steadily increasing since 2011.
- Calcium concentration averaged 11.6 mg/L in 2015 which is just below the suggested lower threshold required for a viable zebra mussel population.

Big Moose Lake



Location	County:	Herkimer
	Town:	Webb
Lake Characteristics	Surface Area (ha):	499
	Shoreline Length (km):	32
	Max. Depth (m):	21.3
	Volume (m^3):	38400000
	Flush rate (times/year):	2
Watershed Characteristics	Watershed Area (ha):	9685
	Surface water (%):	10
	Deciduous Forest (%):	29
	Evergreen Forest (%):	27
	Mixed Forest (%):	8
	Wetlands (%):	24
	Agricultural (%):	0
	Residential (%):	0
	Local Roads (km):	9
	State Roads (km):	0

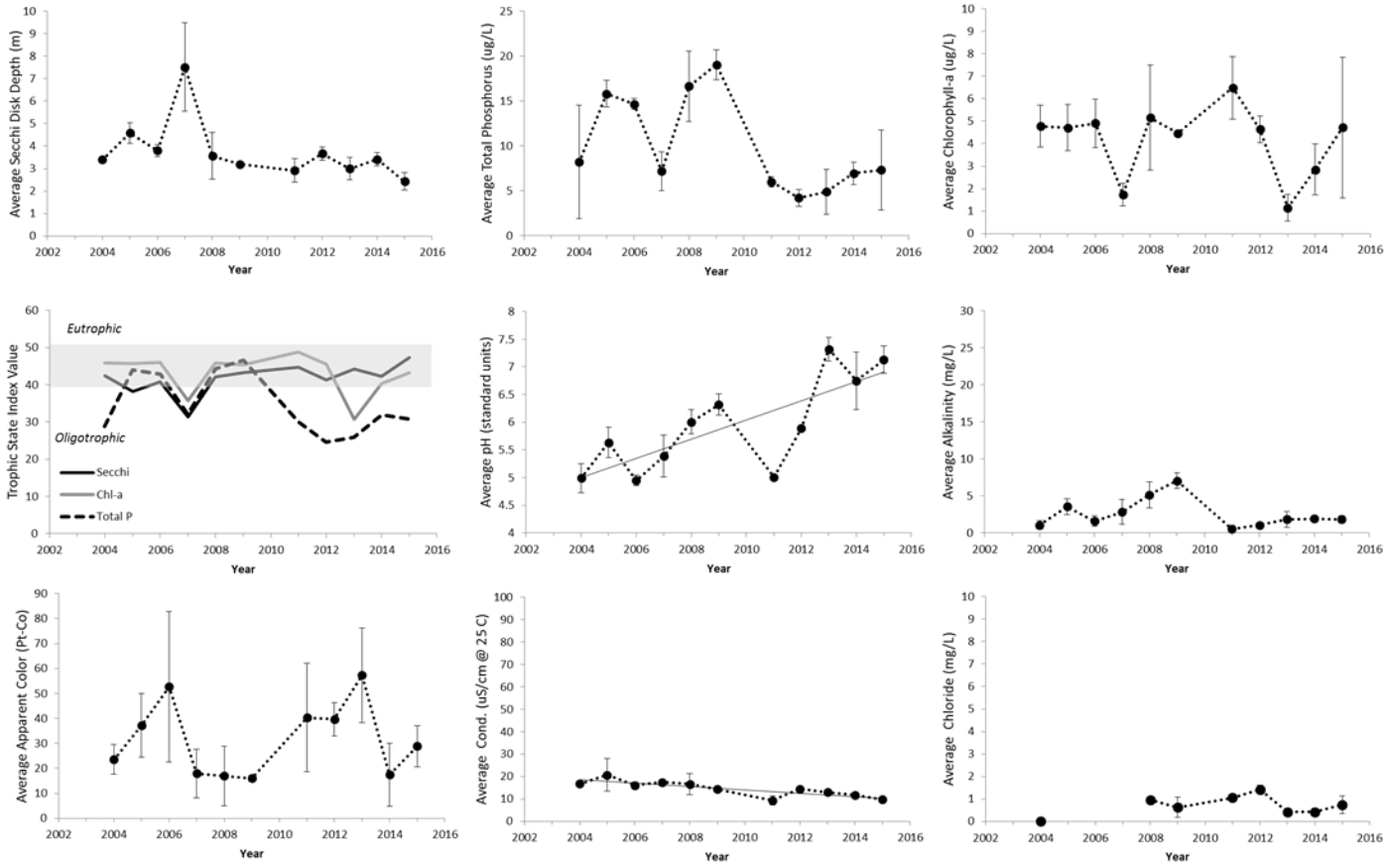
Trophic State	Acidity	Acid Neutralizing Capacity	Road Salt Influence
Mesotrophic	Circumneutral	Low	Not Significant

Water quality values and historical trends for Big Moose Lake during the 2015 sampling season. Trend analysis was not performed on calcium or nitrogen data. BDL=below detection limit.

Water Quality Indicator	Sampling Date			Average	Trend
	6/27/2015	7/25/2015	8/22/2015		
Transparency (m)	2.0	2.5	2.8	2.4	No change
Total Phosphorus (µg/L)	3.1	12.0	6.9	7.3	No change
Chlorophyll-*a* (µg/L)	1.1	6.9	6.2	4.7	No change
Laboratory pH	7.4	6.9	7.0	7.1	Increasing
Sp. Conductance (µS/cm)	10.5	8.9	9.6	9.7	Decreasing
Color (Pt-Co)	38.3	22.7	25.8	28.9	No change
Alkalinity (mg/L)	1.7	1.4	2.4	1.9	No change
Nitrate-Nitrogen (µg/L)	85.4	50.3	17.8	51.2	Not analyzed
Chloride (mg/L)	0.6	0.5	1.2	0.7	No change
Calcium (mg/L)	1.1	1.3	1.5	1.3	Not analyzed
Sodium (mg/L)	0.6	0.5	0.7	0.6	No change

*See table of content for description of water quality indicators

Big Moose Lake – Time Series



Annual average values of select water quality indicators for Big Moose Lake, 2004-2015. Vertical bars represent ± 1 standard deviation of the mean; Solid trend lines across the data indicate a statistically significant trend ($p < 0.05$).

Summary of Findings

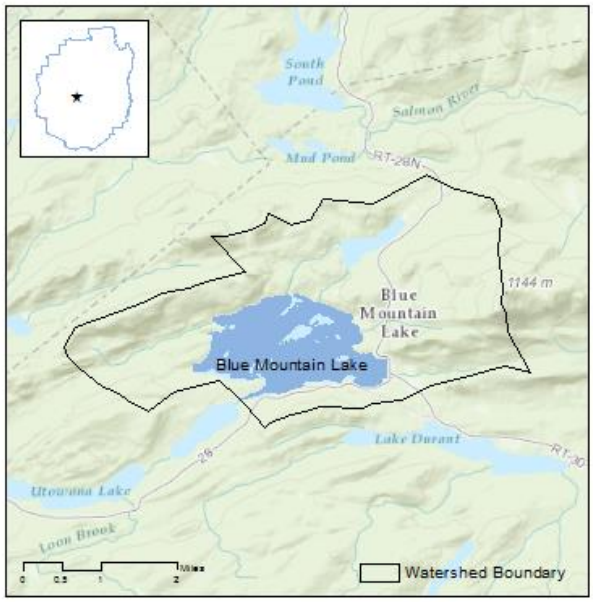
Big Moose Lake is a 499 ha lake located in Herkimer County in the Town of Webb. The lake is located within a 9,685 ha watershed dominated by forests. Big Moose Lake has been monitored by ALAP volunteers and the Adirondack Watershed Institute since 2004.

- Big Moose Lake is best classified as a mesotrophic lake. Average water transparency has been relatively stable over time. However, chlorophyll-a and total phosphorus values have exhibited considerable variability. No statistical trend was detected in the trophic indicators.

- The acid neutralizing ability of Big Moose is low, with alkalinity values typically in the range 1 – 2 mg/L. Despite the low alkalinity the pH of the lake has been significantly increasing since 2004. This trend is likely part of a regional decrease in acid deposition rate.

- Sodium and chloride concentration in Big Moose averaged 0.6 and 0.7 mg/L in 2015. These values are within the range expected for a lake lacking salted state roads in the watershed.

Blue Mountain Lake



Location		
	County:	Hamilton
	Town:	Indian Lake

Lake Characteristics		
	Surface Area (ha):	500
	Shoreline Length (km):	25
	Max. Depth (m):	30.5
	Volume (m^3):	75723176
	Flush rate (times/year):	0.28

Watershed Characteristics		
	Watershed Area (ha):	2972
	Surface water (%):	21
	Deciduous Forest (%):	42
	Evergreen Forest (%):	16
	Mixed Forest (%):	11
	Wetlands (%):	6
	Agricultural (%):	0
	Residential (%):	3
	Local Roads (km):	4
	State Roads (km):	9

Trophic State	Acidity	Acid Neutralizing Capacity	Road Salt Influence
Oligotrophic	Circumneutral	Moderate	Moderate

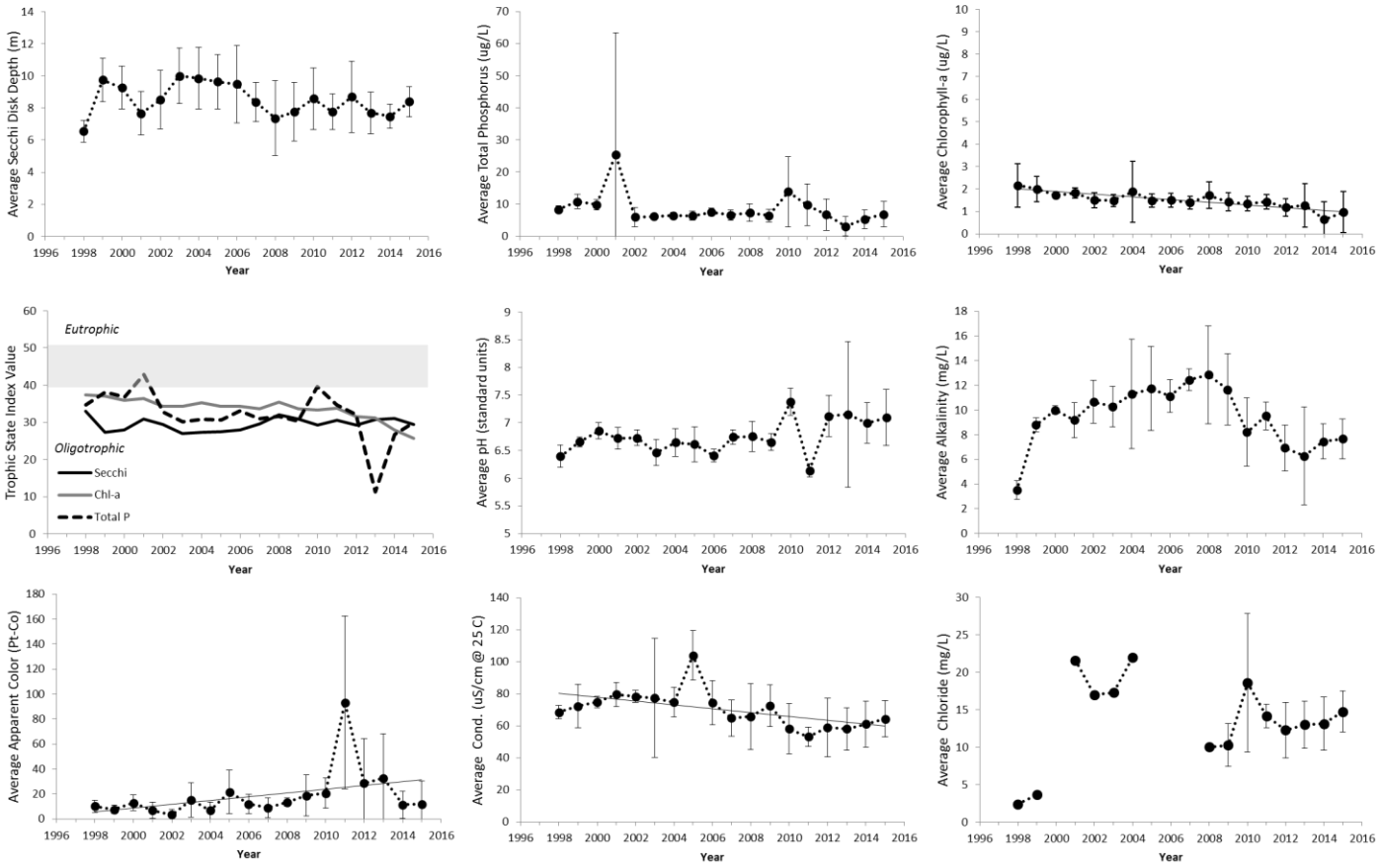
Water quality values and historical trends for Blue Mountain Lake during the 2015 sampling season. Trend analysis was not performed on nitrogen or calcium data. BDL=below detection limit, ± = estimated vale (less than quantitation limit).

Water Quality Indicator	Sampling Date					Average	Trend
	5/26	6/26	7/25	8/17	9/23		
Town Bay							
Transparency (m)	Visible on Bottom						No change
Total Phosphorus (µg/L)	5.8	4.7	7.1	6.6	4.6	5.7	No change
Chlorophyll-*a* (µg/L)	0.3	0.9	3.9	±0.1	±0.1	1.0	Decreasing
Laboratory pH	7.8	6.9	6.5	7.2	7.3	7.1	No change
Sp. Conductance (µS/cm)	49.9	68.1	69.5	67.3	68.9	64.7	Decreasing
Color (Pt-Co)	BDL	10.2	BDL	25.8	7.1	±5.2	Increasing
Alkalinity (mg/L)	8.0	7.5	9.2	8.1	8.5	8.2	No change
Nitrate-Nitrogen (µg/L)	32.2	30.3	4.1	BDL	BDL	±13.4	Not analyzed
Chloride (mg/L)	10.0	15.0	15.2	16.6	15.9	14.5	No change
Calcium (mg/L)	3.1	3.5	3.4	3.6	3.4	3.4	Not analyzed
Sodium (mg/L)	7.5	10.9	9.0	9.4	8.8	9.1	No change

*See table of content for description of water quality indicators

Water Quality Indicator	Sampling Date					Average
	5/26	6/26	7/25	8/17	9/23	
			East Bay			
Transparency (m)	9.8	7.9	8.4	7.6	9.1	8.6
Total Phosphorus (µg/L)	4.4	3.8	5.1	17.1	15.5	9.2
Chlorophyll-*a* (µg/L)	0.6	1.4	1.3	0.6	0.3	0.8
Laboratory pH	7.7	7.0	6.5	7.1	7.2	7.1
Sp. Conductance (µS/cm)	71.0	66.4	66.2	66.5	73.9	68.8
Color (Pt-Co)	81.9	13.3	7.1	7.1	10.2	23.9
Alkalinity (mg/L)	4.2	7.3	8.3	8.2	10.0	7.6
Nitrate-Nitrogen (µg/L)	51.0	31.4	6.0	BDL	14.6	±20.5
Chloride (mg/L)	15.3	14.2	15.0	16.7	16.9	15.6
Calcium (mg/L)	3.2	3.2	3.4	3.6	3.8	3.4
Sodium (mg/L)	10.8	10.7	9.4	9.4	9.5	10.0
			West Bay			
Transparency (m)	10.1	7.3	8.2	7.9	7.6	8.2
Total Phosphorus (µg/L)	10.0	4.6	4.0	6.1	6.3	6.2
Chlorophyll-*a* (µg/L)	0.6	1.6	±0.1	0.4	0.8	0.7
Laboratory pH	7.8	6.3	6.6	7.4	7.3	7.1
Sp. Conductance (µS/cm)	69.6	67.5	26.7	67.6	68.6	60.0
Color (Pt-Co)	22.7	10.2	10.2	10.2	7.1	12.1
Alkalinity (mg/L)	8.3	7.2	4.3	8.2	8.8	7.4
Nitrate-Nitrogen (µg/L)	49.9	29.4	2.1	BDL	BDL	±16.5
Chloride (mg/L)	15.5	14.4	6.8	16.5	16.2	13.9
Calcium (mg/L)	3.2	3.4	1.6	3.5	3.5	3.0
Sodium (mg/L)	10.4	10.8	3.6	9.4	8.8	8.6
			Halsch Bay			
Transparency (m)			Visible on Bottom			
Total Phosphorus (µg/L)	10.9	4.6	4.5	9.3	±2.1	6.3
Chlorophyll-a (µg/L)	0.8	1.9	2.2	0.9	0.8	1.3
Laboratory pH	7.8	6.3	6.4	7.5	7.3	7.1
Sp. Conductance (µS/cm)	72.4	45.0	66.5	67.2	68.9	64.0
Color (Pt-Co)	BDL	7.1	10.2	7.1	10.2	±6.5
Alkalinity (mg/L)	8.1	4.1	8.1	8.1	8.6	7.4
Nitrate-Nitrogen (µg/L)	48.2	22.0	±1.6	±1.1	±1.3	14.9
Chloride (mg/L)	16.5	9.4	15.2	16.9	15.9	14.8
Calcium (mg/L)	3.0	2.4	3.3	3.6	3.4	3.2
Sodium (mg/L)	10.8	7.1	9.3	9.6	8.8	9.1

Blue Mountain Lake – Time Series



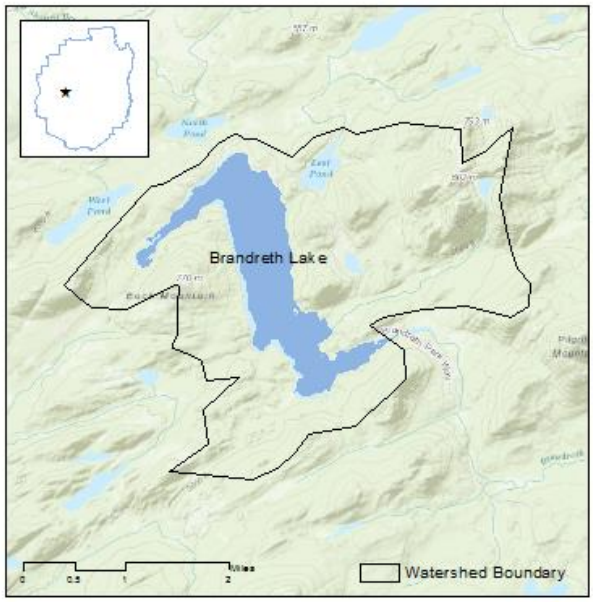
Lake wide annual average values of select water quality indicators for Blue Mountain Lake, 1998-2015. Vertical bars represent ± 1 standard deviation of the mean; Solid trend lines across the data indicate a statistically significant trend ($p < 0.05$).

Summary of Findings

Blue Mountain Lake is a 500 ha lake located in Hamilton County in the Town of Indian Lake. The lake is located within a 2,972 ha watershed dominated by forests. Blue Mountain Lake has been monitored by ALAP volunteers and the Adirondack Watershed Institute since 1998.

- Blue Mountain Lake is an oligotrophic lake. The average transparency was 8.4 meters which is greater than all of the other participating 2015 ALAP lakes. No statistical trend was detected in transparency or total phosphorus over the 18 year data set. The chlorophyll-a concentration has exhibited a slight yet significant downward trend at a rate of approximately 0.06 µg/L/year.
- The samples from 2015 were found to be circumneutral in terms of their acidy, averaging 7.1 pH units. The water is moderately sensitive to acid deposition.
- Sodium and chloride concentrations average 9.2 mg/L and 14.7 mg/L respectively, indicating that the chemistry of the lake is influenced by salted roads in the watershed. Chloride concentration is greater than 85% of participating ALAP lakes and is approximately 73 times higher than background concentration.

Brandreth Lake



Location		
	County:	Hamilton
	Town:	Long Lake

Lake Characteristics		
	Surface Area (ha):	362
	Shoreline Length (km):	18
	Max. Depth (m):	54
	Volume (m^3):	90379940
	Flush rate (times/year):	0.18

Watershed Characteristics		
	Watershed Area (ha):	2298
	Surface water (%):	19
	Deciduous Forest (%):	44
	Evergreen Forest (%):	7
	Mixed Forest (%):	16
	Wetlands (%):	13
	Agricultural (%):	0
	Residential (%):	1
	Local Roads (km):	0
	State Roads (km):	0

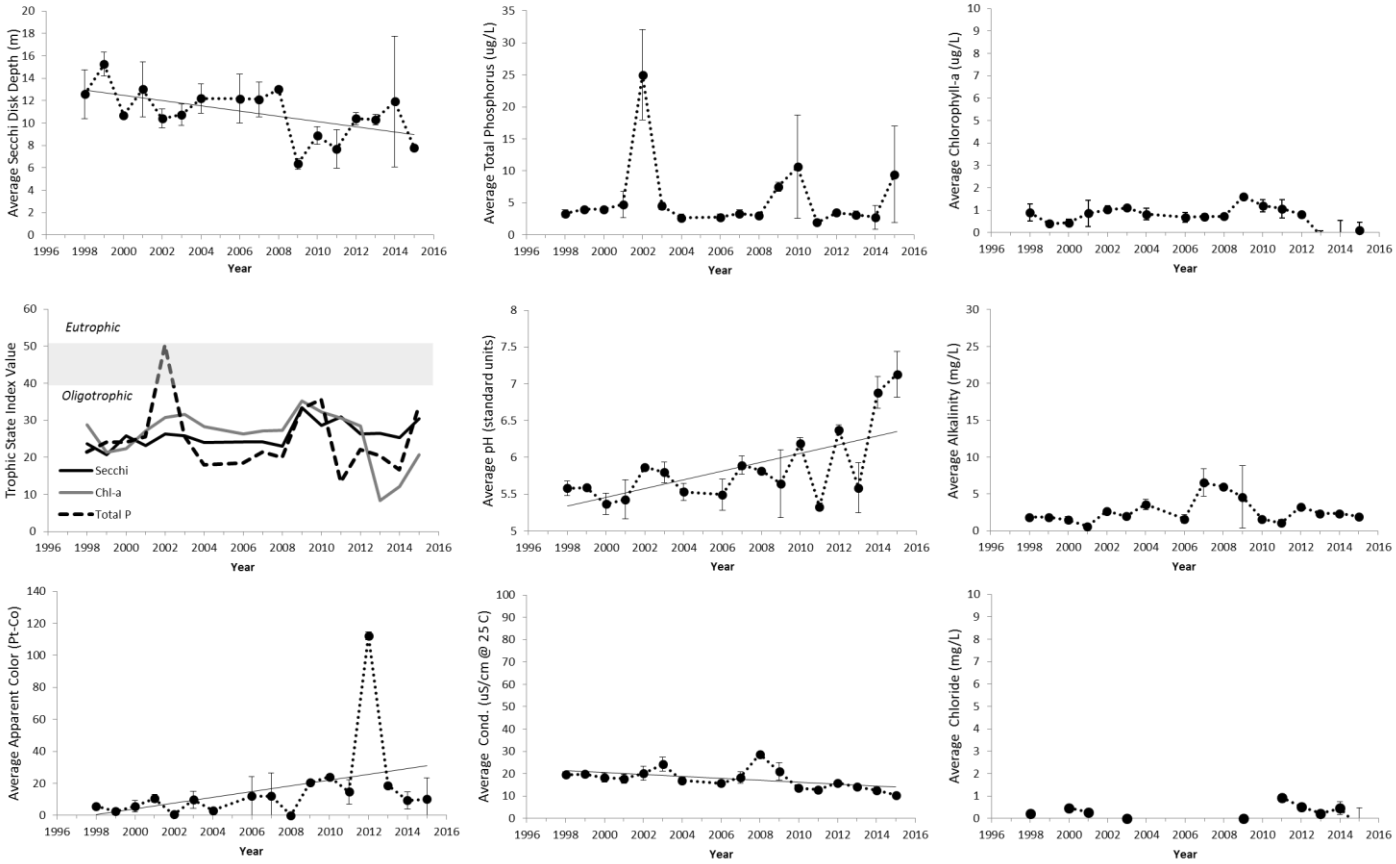
Trophic State	Acidity	Acid Neutralizing Capacity	Road Salt Influence
Oligotrophic	Circumneutral	Low	Not Significant

Water quality values and historical trends for Brandreth Lake during the 2015 sampling season. Trend analysis was not performed on calcium or nitrogen data. BDL=below detection limit.

Water Quality Indicator	Sampling Date			Average	Trend
	June	7/20/2015	8/17/2015		
Transparency (m)	No Sample	8.0	7.6	7.8	Decreasing
Total Phosphorus (µg/L)		14.8	4.1	9.4	No change
Chlorophyll-*a* (µg/L)		0.4	BDL	±0.1	No change
Laboratory pH		6.9	7.4	7.1	Increasing
Sp. Conductance (µS/cm)		10.1	10.5	10.3	Decreasing
Color (Pt-Co)		0.8	19.6	10.2	Increasing
Alkalinity (mg/L)		1.9	2.0	2.0	No change
Nitrate-Nitrogen (µg/L)		170.0	174.0	172.0	Not analyzed
Chloride (mg/L)		0.2	BDL	BDL	No change
Calcium (mg/L)		1.3	1.5	1.4	Not analyzed
Sodium (mg/L)		0.6	0.6	0.6	No change

*See table of content for description of water quality indicators

Brandreth Lake – Time Series



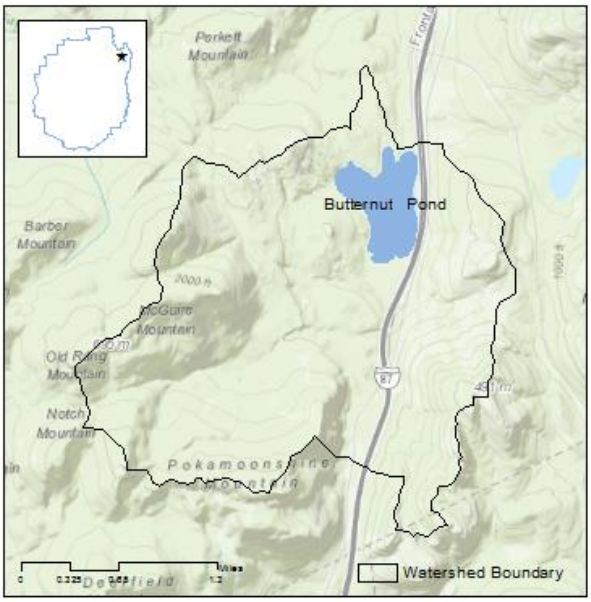
Annual average values of select water quality indicators for Brandreth Lake, 1998-2015. Vertical bars represent ± 1 standard deviation of the mean; Solid trend lines across the data indicate a statistically significant trend ($p < 0.05$).

Summary of Findings

Brandreth Lake is a 362 ha lake located in Hamilton County in the Town of Long Lake. The lake is located within a 2,298 ha watershed dominated by forests. Brandreth Lake has been monitored by ALAP volunteers and the Adirondack Watershed Institute since 1998.

- Only two samples were received by the laboratory in 2015.
- Brandreth Lake is an oligotrophic lake with low concentrations of phosphorus and chlorophyll-a. The transparency of the lake averaged nearly 8 meters in 2015, and was greater than the transparency of 97% of participating ALAP lakes. We detected a slight, yet significant decrease in the transparency of the lake at a rate of approximately 23 cm/year. This trend may be related to the increase observed in color, as greater color tends to result in lower transparencies.
- The acid neutralizing ability of Brandreth Lake is low, with alkalinity values typically ≤ 2 mg/L. Despite the low alkalinity the pH of the lake has been significantly increasing since 1998. This trend is likely part of a regional decrease in acid deposition rate.
- Sodium and chloride concentration in the lake averaged 0.6 and 0.2 mg/L in 2015. These values are within the range expected for a lake lacking salted state roads in the watershed.

Butternut Pond



Location		
	County:	Essex
	Town:	Chesterfield

Lake Characteristics		
	Surface Area (ha):	66
	Shoreline Length (km):	4
	Max. Depth (m):	-
	Volume (m^3):	-
	Flush rate (times/year):	-

Watershed Characteristics		
	Watershed Area (ha):	1347
	Surface water (%):	5
	Deciduous Forest (%):	45
	Evergreen Forest (%):	12
	Mixed Forest (%):	24
	Wetlands (%):	4
	Agricultural (%):	0
	Residential (%):	6
	Local Roads (km):	0
	State Roads (km):	10.8

Trophic State	Acidity	Acid Neutralizing Capacity	Road Salt Influence
Mesotrophic	Acidic (acceptable)	Well buffered – not sensitive	High

Water quality values and historical trends for Butternut Pond during the 2015 sampling season. Trend analysis was not performed on calcium or nitrogen data. BDL=below detection limit.

Water Quality Indicator	Sampling Date			Average	Trend
	6/26/2015	7/21/2015	8/18/2015		
Transparency (m)	3.5	3.8	4.4	3.9	Not analyzed
Total Phosphorus (µg/L)	13.3	9.1	9.4	10.6	
Chlorophyll-*a* (µg/L)	2.7	1.7	2.1	2.2	
Laboratory pH	5.8	7.0	6.3	6.4	
Sp. Conductance (µS/cm)	191.0	163.9	177.2	177.4	
Color (Pt-Co)	22.7	28.9	22.7	24.8	
Alkalinity (mg/L)	29.4	29.0	34.7	31.0	
Nitrate-Nitrogen (µg/L)	BDL	2.8	35.7	±12.5	
Chloride (mg/L)	35.6	32.6	36.4	34.9	
Calcium (mg/L)	10.6	9.6	10.5	10.2	
Sodium (mg/L)	26.4	22.2	23.1	23.9	

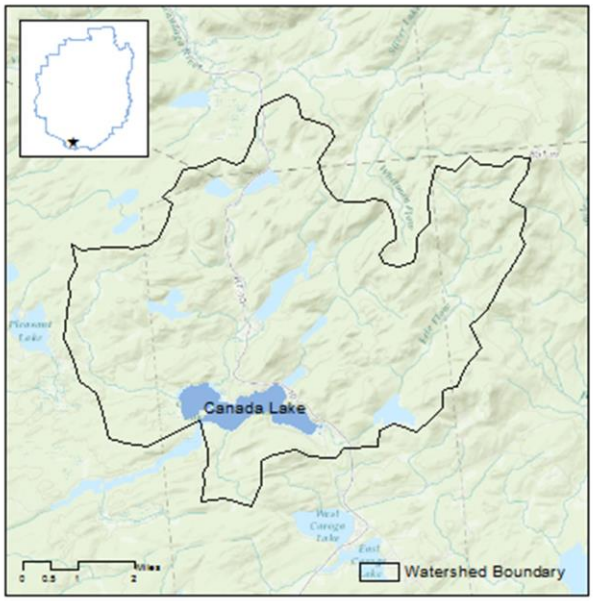
*See table of content for description of water quality indicators

Butternut Pond -Summary of Findings

Butternut Pond is a 66 ha pond located in Essex County in the Town of Chesterfield. The pond is located within a 1,347 ha watershed dominated by forests. This is Butternut Ponds first year in ALAP. Trend analysis will be performed on water quality indicators after five years of data have been collected.

- Butternut Pond is best classified as a mesotrophic waterbody. The transparency of the lake averaged 3.9 meters, which is greater than 63% of the participating lakes.
- The pH of the 2015 samples fluctuated widely, from a low of 5.8 to a high of 7.0. The average pH was 6.4, which would classify this pond a slightly acidic. The alkalinity of the pond averaged 31.0 mg/L as $CaCO_3$, which is greater than 96% of participating lakes. Given what we know about the alkalinity and bedrock geology of the watershed, the "slightly acidic" assessment seems suspect. We have not received enough samples from this pond to accurately ascertain the acidity.
- The 2015 sodium and chloride concentrations in Butternut Pond are among the highest in the ALAP dataset and averaged 23.9 mg/L and 34.9 mg/L respectively. The high concentration of salt demonstrates that the lake's chemistry is influenced by the 10.8 km of US Rt 87.
- Calcium concentrations in the lake averaged 10.2 mg/L, a few mg/l below the suggested threshold for a viable zebra mussel population.

Canada Lake



Location	County:	Fulton
	Town:	Caroga
Lake Characteristics	Surface Area (ha):	294
	Shoreline Length (km):	14
	Max. Depth (m):	45.7
	Volume (m^3):	
	Flush rate (times/year):	
Watershed Characteristics	Watershed Area (ha):	9040
	Surface water (%):	8
	Deciduous Forest (%):	52
	Evergreen Forest (%):	5
	Mixed Forest (%):	12
	Wetlands (%):	19
	Agricultural (%):	0
	Residential (%):	1
	Local Roads (km):	16.5
	State Roads (km):	18.7

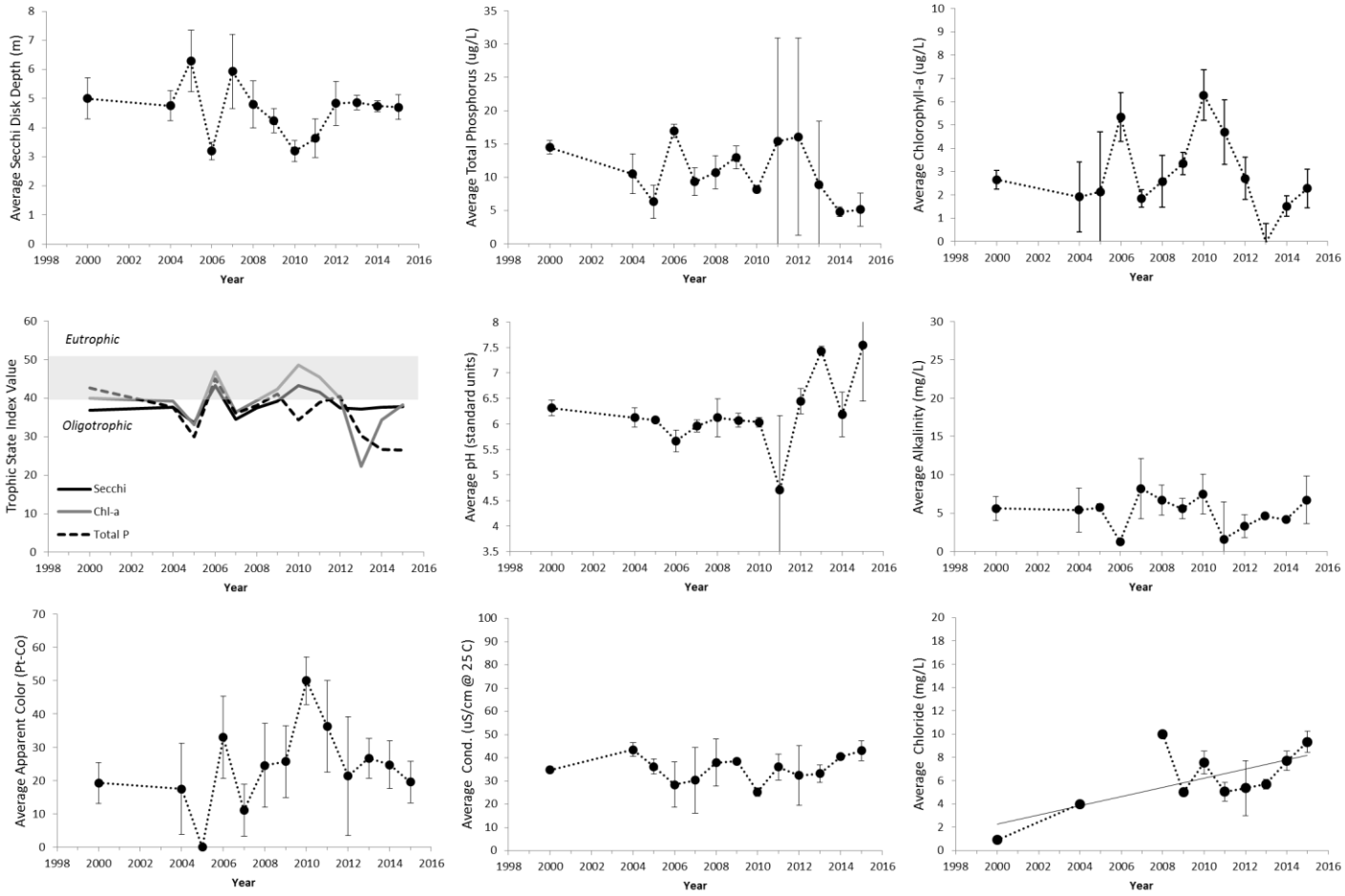
Trophic State	Acidity	Acid Neutralizing Capacity	Road Salt Influence
Oligotrophic	Circumneutral	Moderate	Moderate

Water quality values and historical trends for Canada Lake during the 2015 sampling season. Trend analysis was not performed on nitrogen or calcium data. BDL=below detection limit.

Water Quality Indicator	Sampling Date			Average	Trend
	6/23/2015	7/21/2015	8/17/2015		
Transparency (m)	4.3	4.7	5.1	4.7	No change
Total Phosphorus (µg/L)	5.0	7.7	2.7	5.1	No change
Chlorophyll-*a* (µg/L)	2.0	3.2	1.6	2.3	No change
Laboratory pH	7.5	8.7	6.5	7.5	No change
Sp. Conductance (µS/cm)	39.6	41.7	47.7	43.0	No change
Color (Pt-Co)	13.3	19.6	25.8	19.6	No change
Alkalinity (mg/L)	4.4	5.6	10.2	6.7	No change
Nitrate-Nitrogen (µg/L)	170.0	86.2	157.0	137.7	Not analyzed
Chloride (mg/L)	8.5	9.2	10.3	9.3	Increasing
Calcium (mg/L)	1.6	2.3	3.5	2.5	Not analyzed
Sodium (mg/L)	5.5	6.4	6.2	6.0	No change

*See table of content for description of water quality indicators

Canada Lake – Time Series



Annual average values of select water quality indicators for Canada Lake, 2000-2015. Vertical bars represent ± 1 standard deviation of the mean; Solid trend lines across the data indicate a statistically significant trend ($p < 0.05$).

Summary of Findings

Canada Lake is a 294 ha lake located in Fulton County in the Town of Caroga. This lake is located within a 9,040 ha watershed dominated by forests. Canada Lake has been monitored by ALAP volunteers and the Adirondack Watershed Institute since 1999.

- Canada Lake is an oligotrophic lake. We did not detect a significant trend in any of the trophic indicators. Secchi transparency averaged 4.7 meters in 2015, which is greater than 79% of the participating ALAP lakes.
- Water samples from 2015 were found to be circumneutral in terms of their acidity, with an average pH 7.5. The alkalinity of the samples averaged 6.7 mg/L in 2015, suggesting that the lake has moderate sensitivity to acid deposition.
- Sodium and chloride concentrations in 2015 averaged 6.0 and 9.3 mg/L respectively, suggesting that the chemistry of the lake is influenced by the 35.2 km of roads in the watershed. Chloride concentration of Canada Lake is greater than 61% of participating lakes.

Catlin Lake

Location		
	County:	Hamilton
	Town:	Long Lake

Lake Characteristics		
	Surface Area (ha):	261
	Shoreline Length (km):	16
	Max. Depth (m):	-
	Volume (m^3):	19303122
	Flush rate (times/year):	2.5

Watershed Characteristics		
	Watershed Area (ha):	6390
	Surface water (%):	9
	Deciduous Forest (%):	57
	Evergreen Forest (%):	13
	Mixed Forest (%):	7
	Wetlands (%):	13
	Agricultural (%):	0
	Residential (%):	0
	Local Roads (km):	0
	State Roads (km):	0

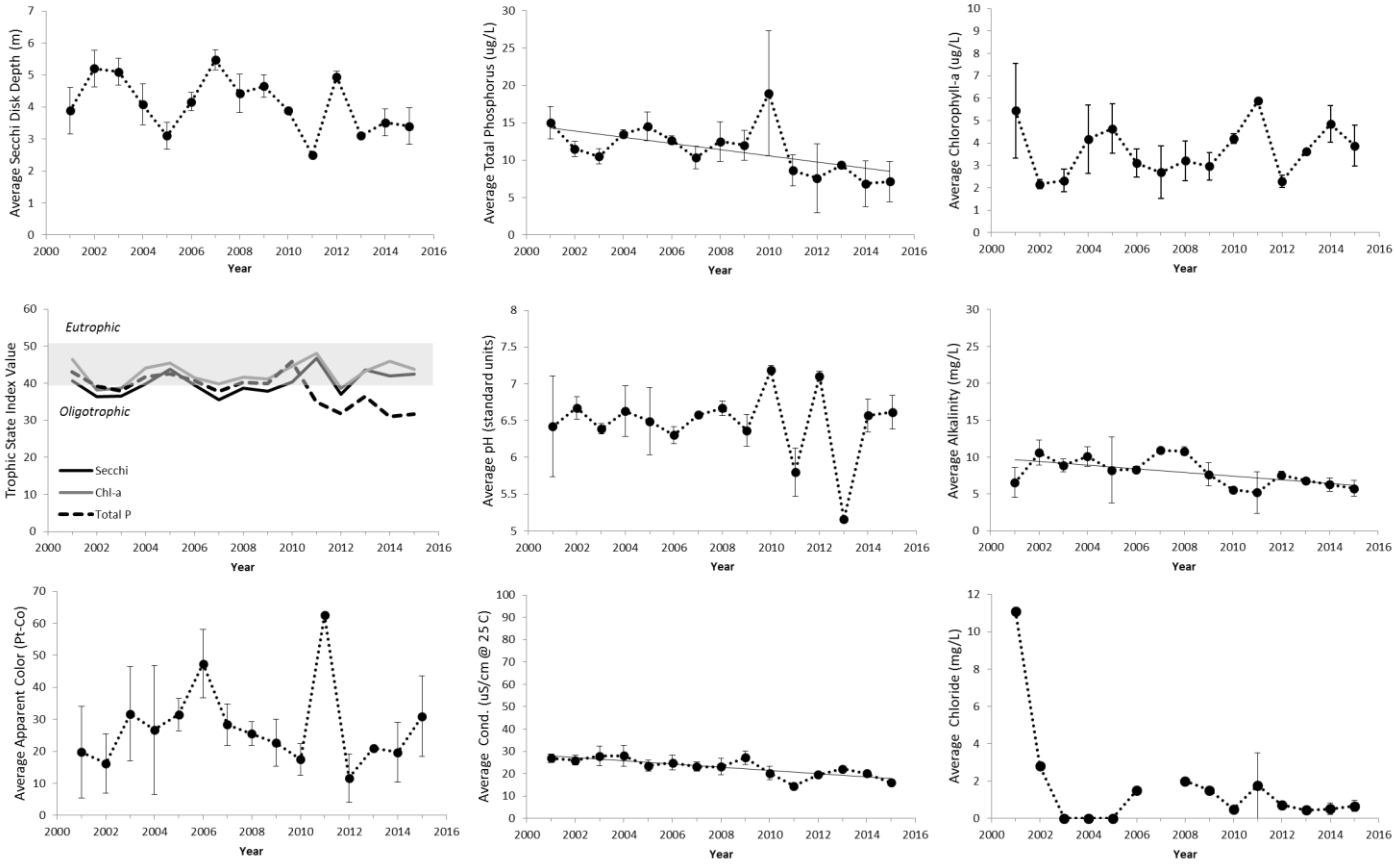
Trophic State	Acidity	Acid Neutralizing Capacity	Road Salt Influence
Mesotrophic	Circumneutral	Moderate	Not Significant

Water quality values and historical trends for Catlin Lake during the 2015 sampling season. Trend analysis was not performed on calcium or nitrogen data. BDL=below detection limit.

Water Quality Indicator	Sampling Date			Average	Trend
	6/25/2015	7/20/2015	8/17/2015		
Transparency (m)	2.8	3.8	3.7	3.4	No change
Total Phosphorus (µg/L)	4.1	8.0	9.3	7.1	Decreasing
Chlorophyll-*a* (µg/L)	3.7	3.1	4.9	3.9	No change
Laboratory pH	6.8	6.7	6.4	6.6	No change
Sp. Conductance (µS/cm)	15.9	15.8	16.5	16.0	Decreasing
Color (Pt-Co)	44.5	28.9	19.6	31.0	No change
Alkalinity (mg/L)	4.6	6.2	6.6	5.8	Decreasing
Nitrate-Nitrogen (µg/L)	71.7	BDL	BDL	±23.1	Not analyzed
Chloride (mg/L)	0.5	0.5	1.0	0.7	No change
Calcium (mg/L)	2.3	2.3	2.8	2.5	Not analyzed
Sodium (mg/L)	0.8	0.8	0.8	0.8	No change

*See table of content for description of water quality indicators

Catlin Lake – Time Series



Annual average values of select water quality indicators for Catlin Lake, 2001-2015. Vertical bars represent ± 1 standard deviation of the mean; Solid trend lines across the data indicate a statistically significant trend ($p < 0.05$).

Summary of Findings

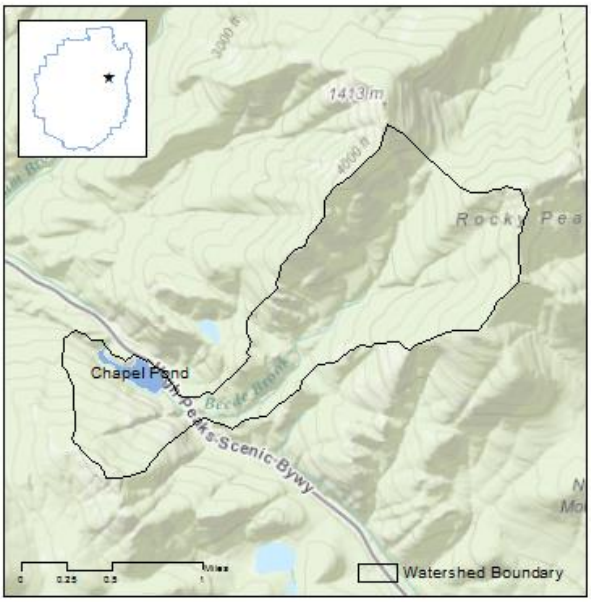
Catlin Lake is a 261 ha lake located in Hamilton County in the Town of Long Lake. The lake is located within a 6,390 ha watershed dominated by forests. Catlin Lake has been monitored by ALAP volunteers and the Adirondack Watershed Institute since 2001.

- Catlin Lake is a mesotrophic lake. Secchi disk transparency and chlorophyll values have remained relatively constant over the length of the study and shown no significant positive or negative trend. Average total phosphorous concentration has exhibited a statistically significant downward trend over the 15 years of ALAP participation, with an annual decrease at the rate of 0.3 µg/L.

- Catlin Lake is a circumneutral water body in terms of its acidity, with moderate sensitivity to acid deposition. The alkalinity has exhibited a decreasing trend at a rate of 0.3 mg/L/year.

- The sodium and chloride concentrations averaged 0.8 mg/L and 0.7 mg/L respectively and are within the range expected for a lake that lacks salted state roads in the watershed. Elevated chloride levels in 2001 occurred before major methodological improvements were made in our ability to quantify chloride, and are thus highly suspect.

Chapel Pond



Location		
	County:	Essex
	Town:	Keene

Lake Characteristics		
	Surface Area (ha):	8
	Shoreline Length (km):	2
	Max. Depth (m):	23.8
	Volume (m^3):	685476
	Flush rate (times/year):	4.1

Watershed Characteristics		
	Watershed Area (ha):	449
	Surface water (%):	2
	Deciduous Forest (%):	11
	Evergreen Forest (%):	51
	Mixed Forest (%):	33
	Wetlands (%):	1
	Agricultural (%):	0
	Residential (%):	1
	Local Roads (km):	0
	State Roads (km):	0.6

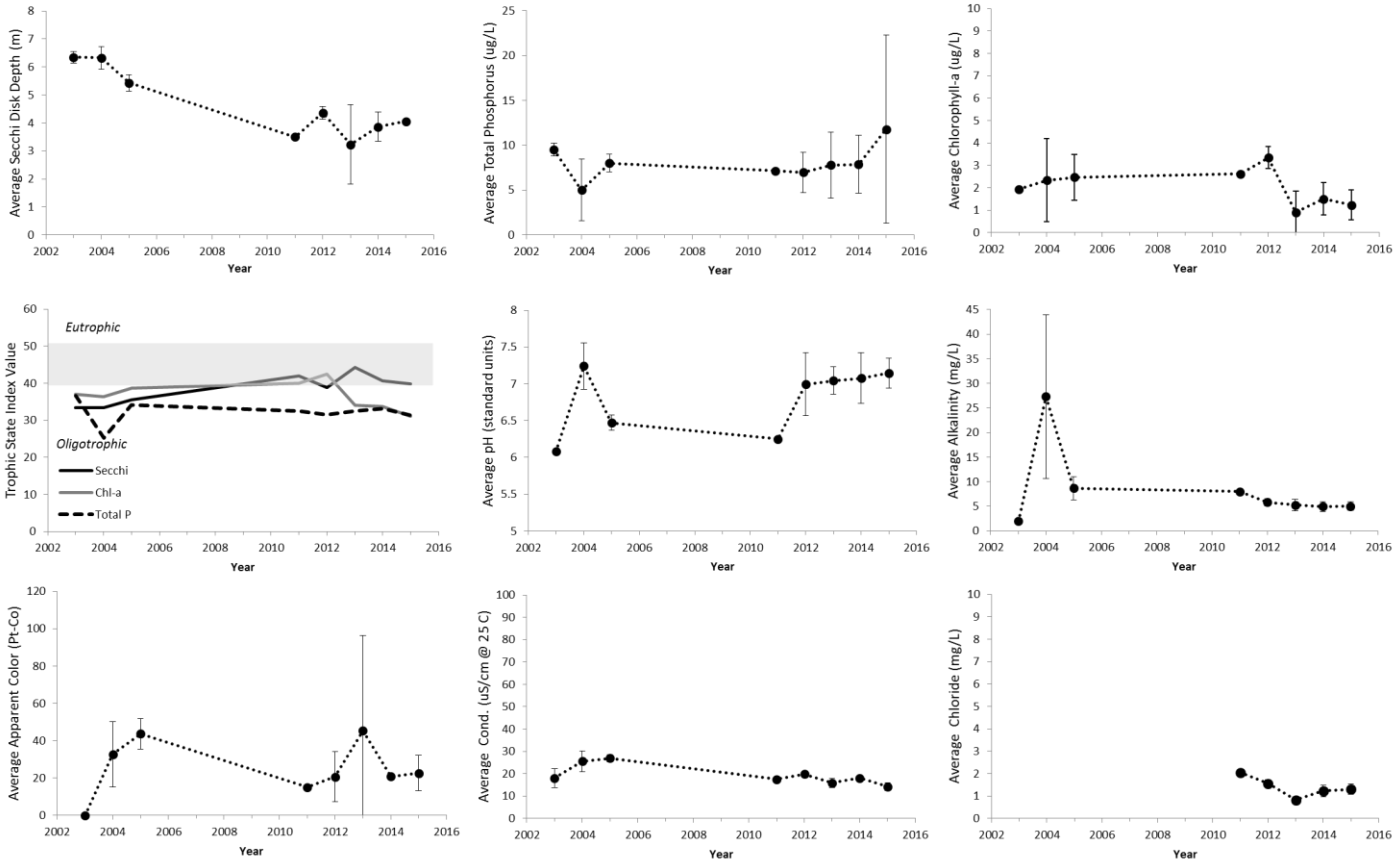
Trophic State	Acidity	Acid Neutralizing Capacity	Road Salt Influence
Oligotrophic	Circumneutral	Moderate	Present - Low

Water quality values and historical trends for Chapel Pond during the 2015 sampling season. Trend analysis was not performed on nitrogen or calcium data. BDL=below detection limit.

Water Quality Indicator	Sampling Date			Average	Trend
	6/26/2015	7/25/2015	10/6/2015		
Transparency (m)		4.0	4.1	4.1	No change
Total Phosphorus (µg/L)	12.3	1.1	22.0	11.8	No change
Chlorophyll-*a* (µg/L)	0.5	1.6	1.6	1.2	No change
Laboratory pH	7.4	7.0	7.0	7.1	No change
Sp. Conductance (µS/cm)	13.0	13.2	16.3	14.1	No change
Color (Pt-Co)	32.0	13.3	22.7	22.7	No change
Alkalinity (mg/L)	4.2	4.9	6.0	5.0	No change
Nitrate-Nitrogen (µg/L)	25.7	10.0	25.5	20.4	Not analyzed
Chloride (mg/L)	1.2	1.1	1.6	1.3	No change
Calcium (mg/L)	1.8	1.7	2.2	1.9	Not analyzed
Sodium (mg/L)	1.2	1.1	1.2	1.2	No change

*See table of content for description of water quality indicators

Chapel Pond – Time Series



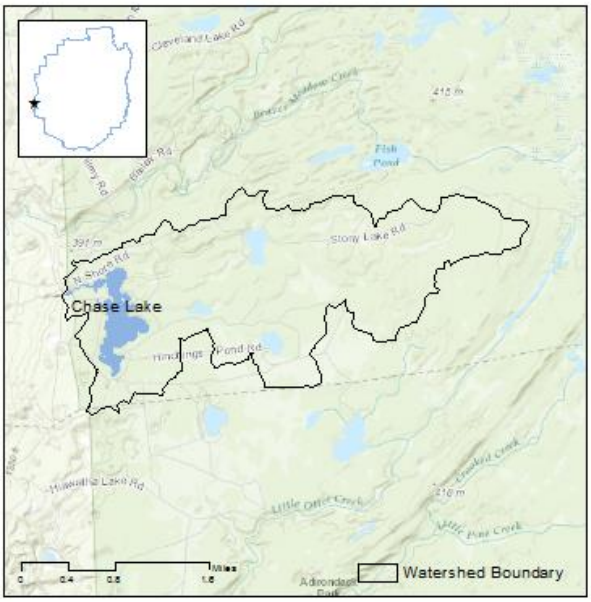
Annual average values of select water quality indicators for Chapel Pond, 2003-2015. Vertical bars represent ± 1 standard deviation of the mean; Solid trend lines across the data indicate a statistically significant trend ($p < 0.05$).

Summary of Findings

Chapel Pond is an 8 ha lake located in Essex County in the Town of Keene. The lake is located within a highly sloped 449 ha watershed dominated by forests. Chapel Pond has been monitored by ALAP volunteers and the Adirondack Watershed Institute from 2003 to 2005 and 2011 to 2014.

- Chapel Pond is an oligotrophic lake. The trophic indicators (transparency, TP, and chlorophyll) of Chapel Pond have been highly variable over the period of ALAP participation. For example, average annual transparency values have ranged from 3.2 to 6.5 meters, and total phosphorus concentrations have ranged from 5.0 to 9.5 µg/L. Despite the range of data observed over the 8 years of monitoring no statistical positive or negative trend was detected. Annual and inter-annual variability in the trophic indicator values is likely related to the high turnover rate of the pond, which has been estimated to flush over four times per year.
- The pond is circumneutral with moderate sensitivity to acid deposition.
- The sodium and chloride concentration in chapel pond was 1.2 mg/L and 1.3 mg/L respectively, suggesting that road salt influence is present in the pond, but it is fairly low.

Chase Lake



Location		
	County:	Lewis
	Town:	Watson

Lake Characteristics		
	Surface Area (ha):	47
	Shoreline Length (km):	7
	Max. Depth (m):	-
	Volume (m^3):	-
	Flush rate (times/year):	-

Watershed Characteristics		
	Watershed Area (ha):	1041
	Surface water (%):	7
	Deciduous Forest (%):	13
	Evergreen Forest (%):	46
	Mixed Forest (%):	4
	Wetlands (%):	14
	Agricultural (%):	0
	Residential (%):	0
	Local Roads (km):	5.6
	State Roads (km):	0

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

Water quality values and historical trends for Chase's Lake during the 2015 sampling season. Trend analysis will be performed after five years of data have been analyzed. BDL=below detection limit.

Water Quality Indicator	Sampling Date			Average	Trend
	6/20/2015	7/29/2015	8/16/2015		
Transparency (m)	0.8	2.8	2.5	2.0	Not analyzed
Total Phosphorus (µg/L)	5.9	10.4	7.1	7.8	
Chlorophyll-*a* (µg/L)	4.2	4.3	3.5	4.0	
Laboratory pH	6.6	6.9	6.8	6.8	
Sp. Conductance (µS/cm)	18.6	17.3	18.3	18.1	
Color (Pt-Co)	38.3	38.3	32.0	36.2	
Alkalinity (mg/L)	4.9	6.3	6.1	5.8	
Nitrate-Nitrogen (µg/L)	BDL	BDL	BDL	BDL	
Chloride (mg/L)	1.0	1.6	1.0	1.2	
Calcium (mg/L)	2.6	2.3	2.6	2.5	
Sodium (mg/L)	1.3	0.9	1.1	1.1	

*See table of content for description of water quality indicators

Chase Lake -Summary of Findings

Chase Lake is a 47 ha pond located in Lewis County in the Town of Watson. The pond is located within a 1,041 ha watershed dominated by forests. This is Chases Ponds first year in ALAP. Trend analysis will be performed on water quality indicators after five years of data have been collected.

- Currently we have very little information on morphology of the pond.
- The pond is best classified as mesotrophic, although the transparency of the pond is more indicative of a eutrophic lake. The transparency of the pond ranged from 0.8 to 2.8 meters and averaged 2.0 meters in 2015, which is less than 85% of the participating ALAP lakes. We speculate that the optical characteristics of the lake are influenced by relatively high amounts of dissolved organic material. The color value of the samples averaged 36 Pt-Co units which is greater than 70% of participating lakes.
- The samples analyzed in 2015 were circumneutral in terms of their pH, with an average pH value of 6.8. The alkalinity of the samples exhibited little variability and averaged 5.8, indicating that the pond has moderate sensitivity to acid deposition.
- Sodium and chloride concentration averaged 1.1 and 1.2 mg/L respectively. These values are slightly higher than background values in the Adirondack region, suggesting that road salt influence is present, but low.

Chazy Lake

Location		
	County:	Clinton
	Town:	Dannemora

Lake Characteristics		
	Surface Area (ha):	740
	Shoreline Length (km):	20
	Max. Depth (m):	21.9
	Volume (m^3):	65399532
	Flush rate (times/year):	0.33

Watershed Characteristics		
	Watershed Area (ha):	6896
	Surface water (%):	11
	Deciduous Forest (%):	61
	Evergreen Forest (%):	16
	Mixed Forest (%):	4
	Wetlands (%):	2
	Agricultural (%):	0
	Residential (%):	1
	Local Roads (km):	16.4
	State Roads (km):	8.3

Trophic State	Acidity	Acid Neutralizing Capacity	Road Salt Influence
Oligotrophic	Circumneutral	Adequate – low sensitivity	Moderate

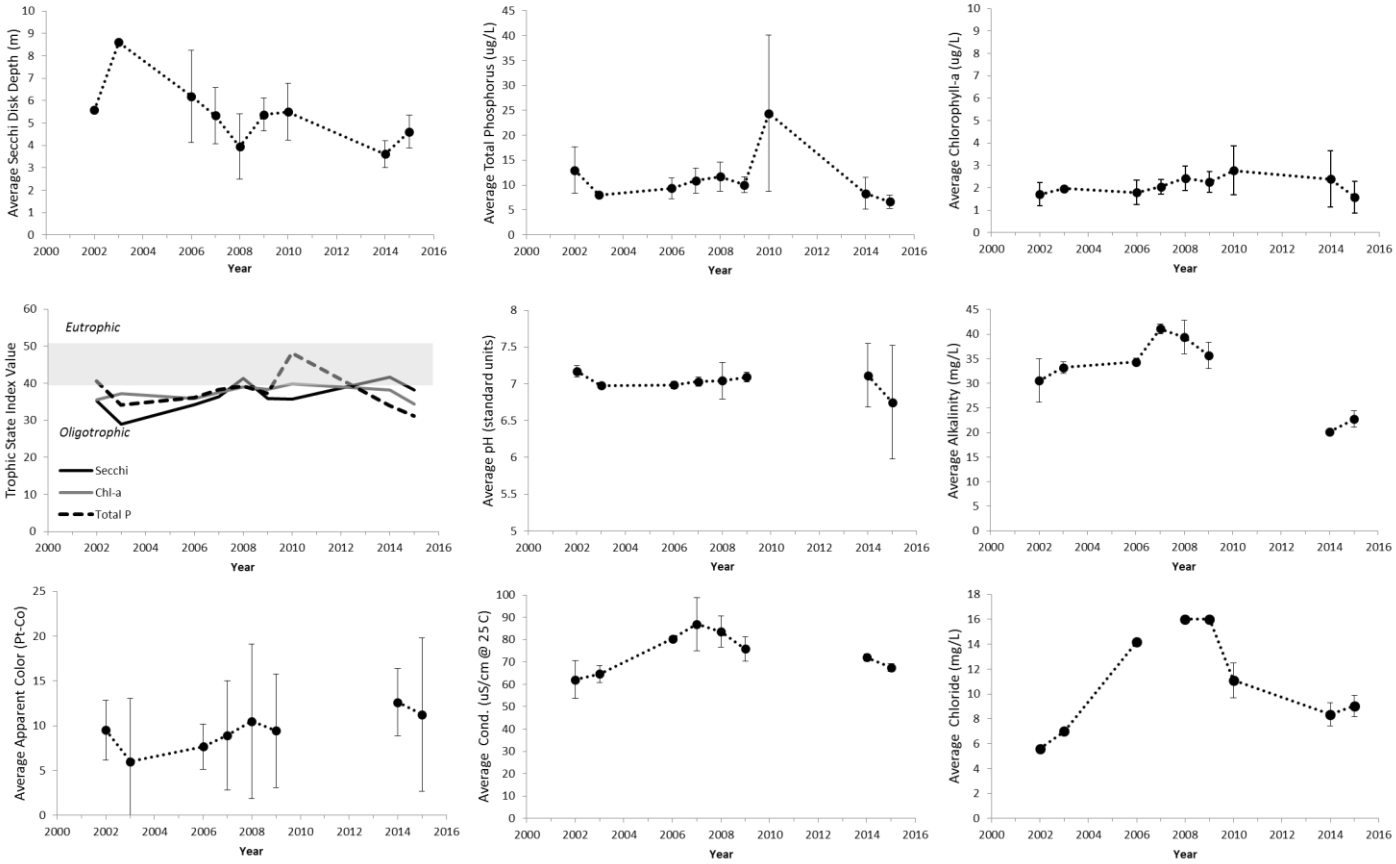
Water quality values and historical trends for Chazy Lake during the 2015 sampling season. Trend analysis was not performed on calcium or nitrogen data. BDL=below detection limit.

Water Quality Indicator	Sampling Date			Average	Trend
	6/20/2015	7/21/2015	8/19/2015		
	Eagle Point				
Transparency (m)	4.2	4.1	5.5	4.6	No change
Total Phosphorus (µg/L)	6.5	5.6	7.2	6.4	No change
Chlorophyll-*a* (µg/L)	1.1	1.6	1.1	1.3	No change
Laboratory pH	7.7	6.2	6.1	6.7	No change
Sp. Conductance (µS/cm)	66.8	68.2	68.7	67.9	No change
Color (Pt-Co)	13.3	32.0	10.2	18.5	No change
Alkalinity (mg/L)	21.3	23.0	25.5	23.3	No change
Nitrate-Nitrogen (µg/L)	BDL	BDL	56.7	±17.6	Not analyzed
Chloride (mg/L)	8.7	8.9	9.9	9.2	No change
Calcium (mg/L)	5.9	6.5	6.6	6.3	Not analyzed
Sodium (mg/L)	5.7	6.1	6.1	6.0	No change

Water Quality Indicator	Sampling Date			Average
	6/20/2015	7/21/2015	8/19/2015	
	Halfway Point			
Transparency (m)	4.8	5.5	4.3	4.9
Total Phosphorus (µg/L)	7.4	5.6	9.2	7.4
Chlorophyll-*a* (µg/L)	1.8	2.4	0.9	1.7
Laboratory pH	7.7	6.8	5.9	6.8
Sp. Conductance (µS/cm)	65.6	68.7	68.0	67.4
Color (Pt-Co)	13.3	4.0	4.0	7.1
Alkalinity (mg/L)	20.7	22.6	23.6	22.3
Nitrate-Nitrogen (µg/L)	1.5	BDL	38.1	±12.6
Chloride (mg/L)	8.4	9.0	10.0	9.2
Calcium (mg/L)	6.2	6.5	6.9	6.5
Sodium (mg/L)	5.8	6.1	6.3	6.1
		South Inlet		
Transparency (m)	3.4	5.4	4.4	4.4
Total Phosphorus (µg/L)	7.6	5.7	5.0	6.1
Chlorophyll-*a* (µg/L)	1.1	3.0	1.2	1.8
Laboratory pH	7.7	6.4	6.2	6.8
Sp. Conductance (µS/cm)	64.1	69.2	68.0	67.1
Color (Pt-Co)	10.2	7.1	7.1	8.1
Alkalinity (mg/L)	20.7	22.8	24.5	22.7
Nitrate-Nitrogen (µg/L)	BDL	BDL	78.9	±25.2
Chloride (mg/L)	7.3	9.1	9.8	8.7
Calcium (mg/L)	6.2	6.2	6.6	6.3
Sodium (mg/L)	5.5	5.9	6.0	5.8

*See table of content for description of water quality indicators

Chazy Lake – Time Series



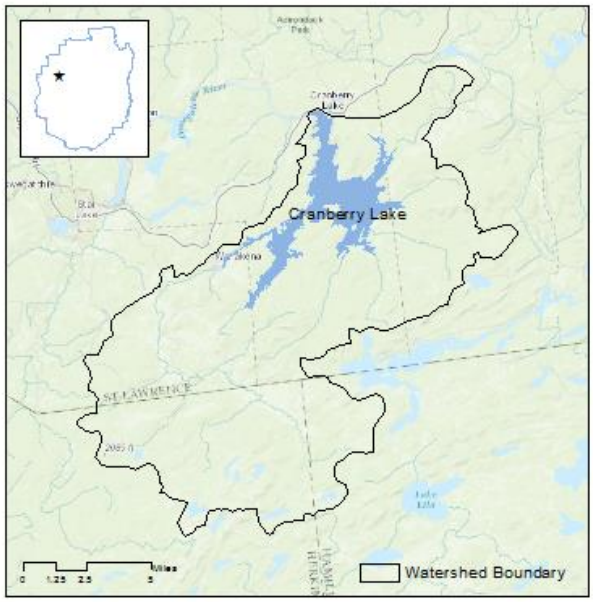
Lake wide annual average values of select water quality indicators for Chazy Lake, 2002-2015. Vertical bars represent ± 1 standard deviation of the mean; Solid trend lines across the data indicate a statistically significant trend ($p < 0.05$).

Summary of Findings

Chazy Lake is a 740 ha lake located in Clinton County in the Town of Dannemora. The lake is located within a 6,896 ha watershed dominated by forests. Chazy Lake has been monitored by ALAP volunteers and the Adirondack Watershed Institute off and on since 2002.

- Chazy Lake is an oligotrophic lake. Although there is some variability in trophic indicators over time, transparency, chlorophyll-a and total phosphorus have exhibited no statistical positive or negative trend since 2002.
- Water samples analyzed in 2015 were circumneutral in terms of their acidity, with a lake wide average of 6.8. The alkalinity of the water averaged 22 mg/L indicating that the lake is adequately buffered and not sensitive to acid deposition.
- Sodium and chloride concentrations averaged 6.0 and 9.0 mg/L respectively, indicating that the chemistry of the lake is influenced by the 25 km of roads in the watershed. The chloride concentration of Chazy is greater than 67% of participating ALAP lakes.

Cranberry Lake



Location		
	County:	St Lawrence
	Town:	Clifton

Lake Characteristics		
	Surface Area (ha):	2750
	Shoreline Length (km):	128
	Max. Depth (m):	11.6
	Volume (m^3):	52200000
	Flush rate (times/year):	4.35

Watershed Characteristics		
	Watershed Area (ha):	37478
	Surface water (%):	10
	Deciduous Forest (%):	60
	Evergreen Forest (%):	8
	Mixed Forest (%):	3
	Wetlands (%):	18
	Agricultural (%):	0
	Residential (%):	0
	Local Roads (km):	17
	State Roads (km):	1.3

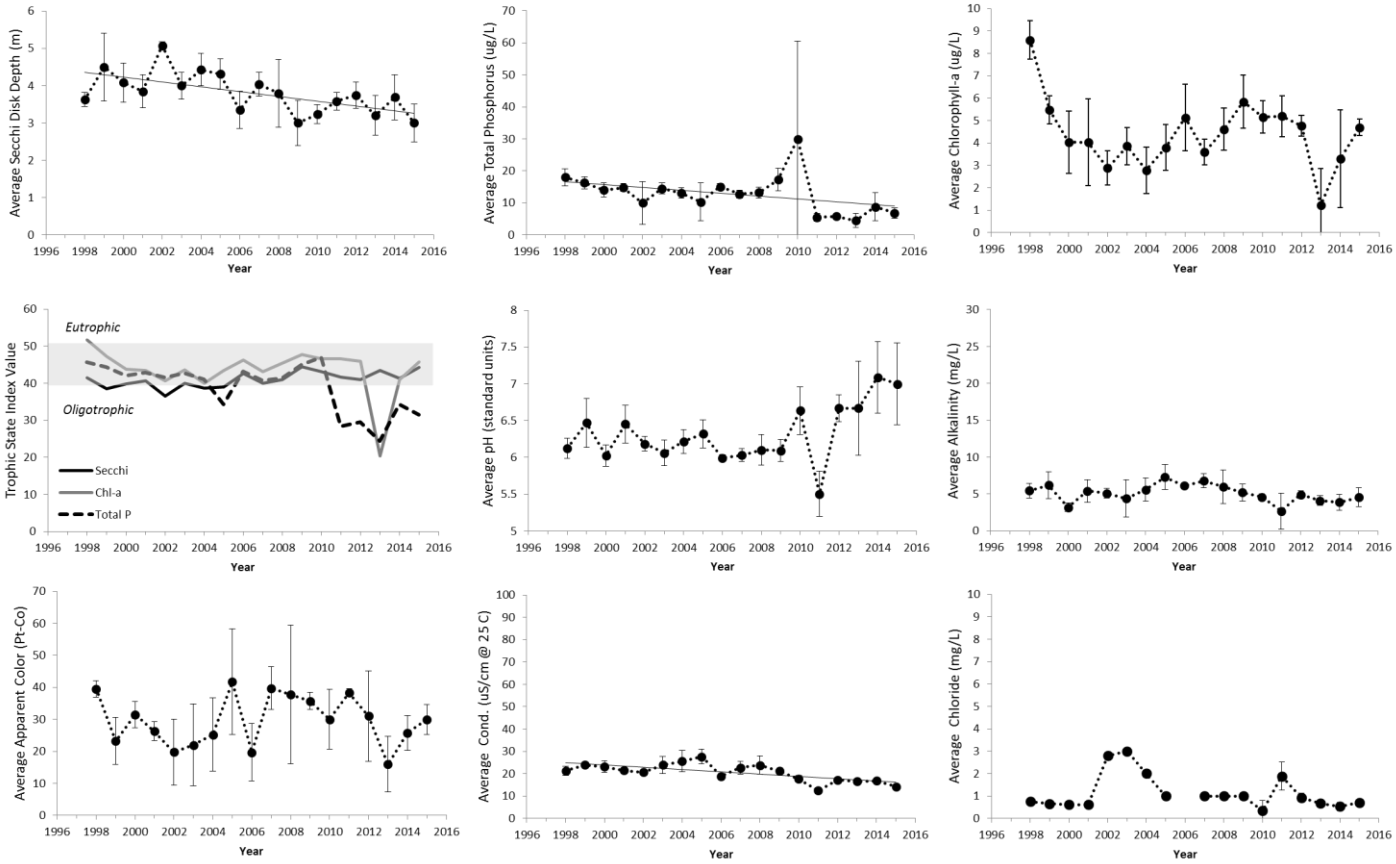
Trophic State	Acidity	Acid Neutralizing Capacity	Road Salt Influence
Mesotrophic	Circumneutral	Moderate	Not Significant

Water quality values and historical trends for Cranberry Lake during the 2015 sampling season. Trend analysis was not performed on calcium or nitrogen data. BDL=below detection limit.

Water Quality Indicator	Sampling Date			Average	Trend
	6/22/2015	7/20/2015	8/18/2015		
Transparency (m)	2.5	3.0	3.5	3.0	Decreasing
Total Phosphorus (µg/L)	7.0	8.4	5.1	6.8	Decreasing
Chlorophyll-*a* (µg/L)	4.7	4.3	5.1	4.7	No change
Laboratory pH	7.6	6.8	6.6	7.0	No change
Sp. Conductance (µS/cm)	14.0	13.4	15.0	14.2	Decreasing
Color (Pt-Co)	25.8	35.1	28.9	29.9	No change
Alkalinity (mg/L)	3.1	4.9	5.7	4.6	No change
Nitrate-Nitrogen (µg/L)	132.0	51.1	102.0	95.0	Not analyzed
Chloride (mg/L)	0.6	0.6	0.9	0.7	No change
Calcium (mg/L)	1.6	1.8	2.0	1.8	Not analyzed
Sodium (mg/L)	0.8	1.0	0.9	0.9	No change

*See table of content for description of water quality indicators

Cranberry Lake – Time Series



Annual average values of select water quality indicators for Cranberry Lake, 1998-2015. Vertical bars represent ± 1 standard deviation of the mean; Solid trend lines across the data indicate a statistically significant trend ($p < 0.05$).

Summary of Findings

Cranberry Lake is a 2,750 ha lake located in St. Lawrence County in the Town of Clifton. The lake is located within a 37,478 ha watershed dominated by forests. Cranberry Lake has been monitored by ALAP volunteers and the Adirondack Watershed Institute since 1998.

- Cranberry Lake is a mesotrophic lake. The transparency of the lake has exhibited a slight, yet significant downward trend at a rate of 6 cm/year. Total phosphorus is also trending down, at a rate of approximately 0.4 µg/L/year. Chlorophyll concentration has been variable over the length of the study and have showed no significant positive or negative trend.

- The samples analyzed in 2015 were circumneutral in terms of their pH, with an average pH value of 7.0. The alkalinity of the samples averaged 4.6, indicating that the pond has moderate sensitivity to acid deposition.

- The average sodium and chloride concentration of Cranberry averaged 0.9 and 0.7 mg/L respectively, indicating that the lake is not significantly influenced by road salt.

Deer Lake

Location		
	County:	Hamilton
	Town:	Morehouse

Lake Characteristics		
	Surface Area (ha):	13
	Shoreline Length (km):	2
	Max. Depth (m):	-
	Volume (m^3):	720060
	Flush rate (times/year):	5.6

Watershed Characteristics		
	Watershed Area (ha):	203
	Surface water (%):	9
	Deciduous Forest (%):	63
	Evergreen Forest (%):	3
	Mixed Forest (%):	5
	Wetlands (%):	17
	Agricultural (%):	0
	Residential (%):	0
	Local Roads (km):	0
	State Roads (km):	0

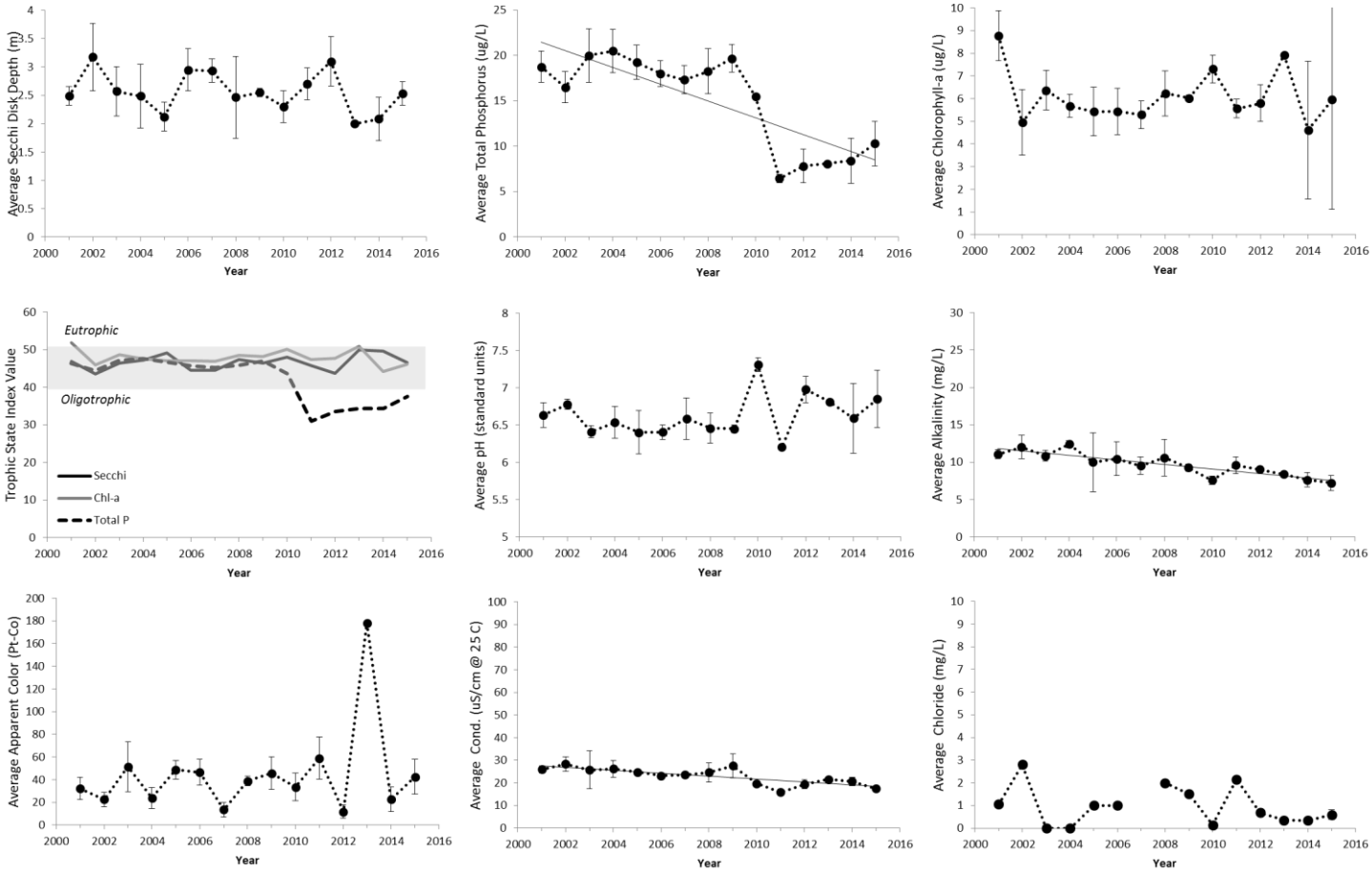
Trophic State	Acidity	Acid Neutralizing Capacity	Road Salt Influence
Mesotrophic	Circumneutral	Moderate	Not Significant

Water quality values and historical trends for Deer Lake during the 2015 sampling season. Trend analysis was not performed on calcium or nitrogen data. BDL=below detection limit.

Water Quality Indicator	Sampling Date			Average	Trend
	6/22/2015	7/24/2015	8/17/2015		
Transparency (m)	2.8	2.4	2.5	2.5	No change
Total Phosphorus (µg/L)	8.9	13.1	8.8	10.3	Decreasing
Chlorophyll-*a* (µg/L)	11.5	2.7	3.6	6.0	No change
Laboratory pH	6.4	7.2	6.9	6.9	No change
Sp. Conductance (µS/cm)	17.1	17.3	18.2	17.5	Decreasing
Color (Pt-Co)	35.1	32.0	60.1	42.4	No change
Alkalinity (mg/L)	6.1	8.0	7.7	7.2	Decreasing
Nitrate-Nitrogen (µg/L)	BDL	BDL	BDL	BDL	Not analyzed
Chloride (mg/L)	0.6	0.4	0.8	0.6	No change
Calcium (mg/L)	2.6	2.8	3.0	2.8	Not analyzed
Sodium (mg/L)	1.1	0.8	0.8	0.9	No change

*See table of content for description of water quality indicators

Deer Lake – Time Series



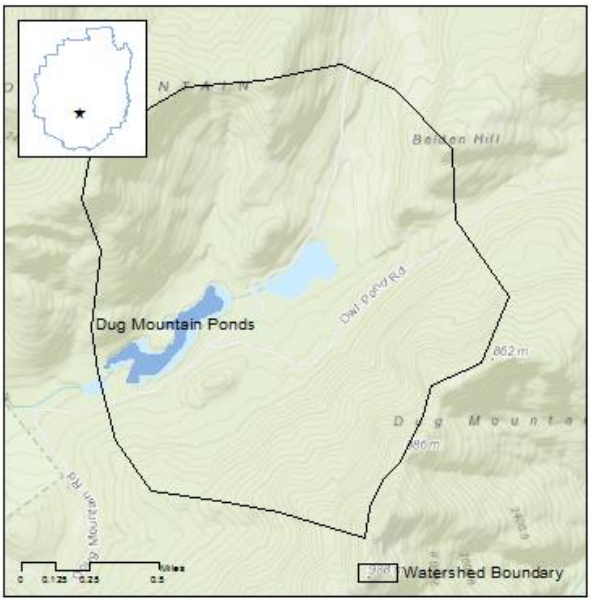
Annual average values of select water quality indicators for Deer Lake, 2001-2015. Vertical bars represent ± 1 standard deviation of the mean; Solid trend lines across the data indicate a statistically significant trend ($p < 0.05$).

Summary of Findings

Deer Lake is a 13 ha lake located in Essex County in the Town of Newcomb. The lake is located within a 550 ha watershed dominated by forests. Deer Lake has been monitored by ALAP volunteers and the Adirondack Watershed Institute since 2001.

- Deer Lake is mesotrophic. Secchi disk transparency has remained relatively constant of the 15 years of monitoring with no significant trend detected in the data. Chlorophyll –a concentration (a surrogate for algal productivity) has been variable over time but also exhibits no statistical trend.
- The pH of the 2015 water samples were 6.9, indicating that the lake is circumneutral. The alkalinity averaged 7.2 mg/L with moderate sensitivity to acid deposition.
- Sodium and chloride concentrations averaged 0.9 and 0.6 mg/L respectively which is in the range expected for a watershed lacking salted roads.

Dug Mountain Pond



Location		
	County:	Hamilton
	Town:	Lake Pleasant

Lake Characteristics		
	Surface Area (ha):	9
	Shoreline Length (km):	2
	Max. Depth (m):	-
	Volume (m^3):	-
	Flush rate (times/year):	-

Watershed Characteristics		
	Watershed Area (ha):	503
	Surface water (%):	5
	Deciduous Forest (%):	68
	Evergreen Forest (%):	3
	Mixed Forest (%):	5
	Wetlands (%):	16
	Agricultural (%):	0
	Residential (%):	0
	Local Roads (km):	0
	State Roads (km):	0

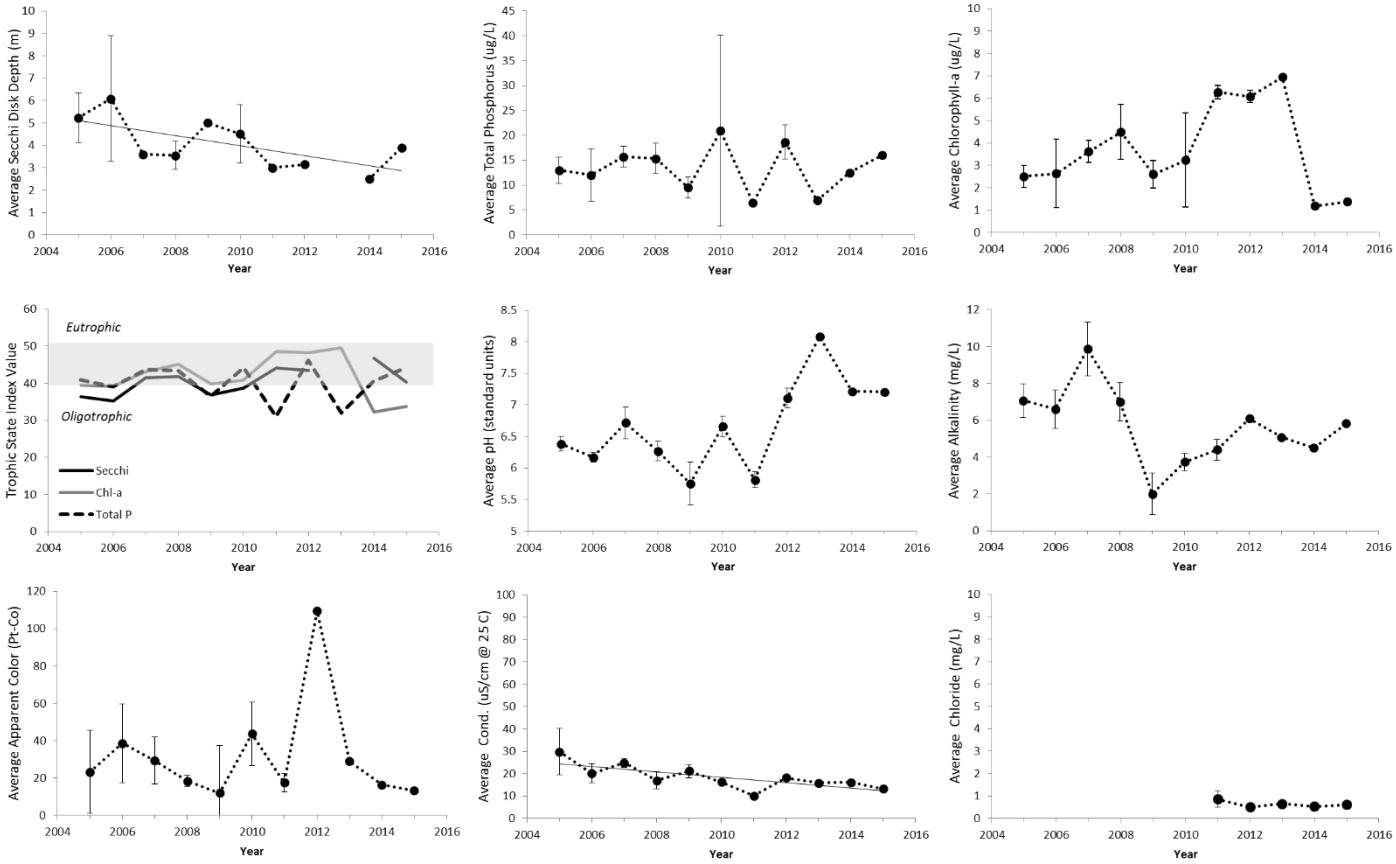
Trophic State	Acidity	Acid Neutralizing Capacity	Road Salt Influence
Mesotrophic	Circumneutral	Moderate	Not Significant

Water quality values and historical trends for Upper Dug Mountain Pond during the 2015 sampling season. Trend analysis was not performed on calcium nitrogen data. BDL=below detection limit.

Water Quality Indicator	Sampling Date			Average	Trend
	June	July	9/5/2015		
Transparency (m)			3.9		Decreasing
Total Phosphorus (µg/L)			16.0		No change
Chlorophyll-*a* (µg/L)			1.4		No change
Laboratory pH			7.2		No change
Sp. Conductance (µS/cm)			13.3		Decreasing
Color (Pt-Co)			13.3		No change
Alkalinity (mg/L)			5.8		No change
Nitrate-Nitrogen (µg/L)			BDL		Not analyzed
Chloride (mg/L)			0.6		No change
Calcium (mg/L)			1.9		No change
Sodium (mg/L)			0.6		No change

*See table of content for description of water quality indicators

Dug Mountain Pond – Time Series



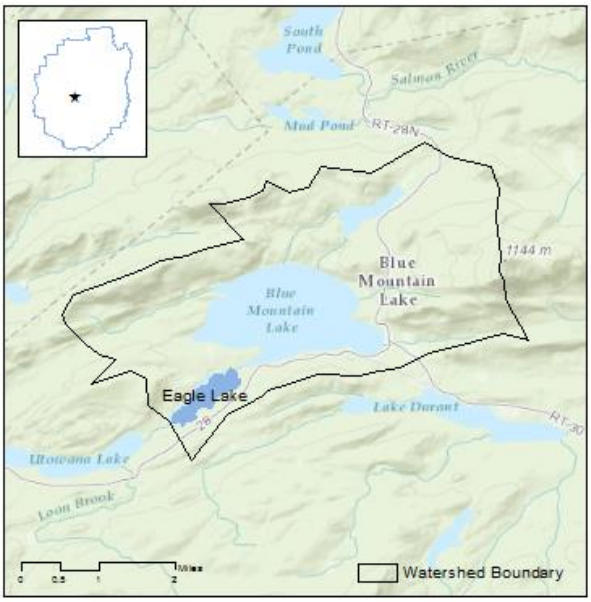
Annual average values of select water quality indicators for Upper Dug Mountain Pond, 2005-2015. Vertical bars represent ± 1 standard deviation of the mean; Solid trend lines across the data indicate a statistically significant trend ($p < 0.05$).

Summary of Findings

Dug Mountain Pond is a 9 ha lake located in Hamilton County in the Town of Speculator. The lake is located within a 503 ha watershed dominated by forests. Dug Mountain Pond has been monitored by ALAP volunteers and the Adirondack Watershed Institute since 2005.

- Only one sample has been received for Dug Mountain Pond in each of the last three years. The low sampling frequency influences the accuracy of the trend data.
- The pond is mesotrophic. The transparency of the pond has exhibited a significant decrease since 2005 at a rate of approximately 5 cm/year. Chlorophyll and total phosphorus have been variable, with no trend detected.
- The water sample received in 2015 was circumneutral in terms of its acidy, with a pH of 7.2. The alkalinity of the water was 5.8 mg/L, indicating that the lake is moderately sensitive to acid deposition.
- The sodium and chloride concentrations were low, and within the range we expect for a lake that lacks salted roads in the watershed.

Eagle Lake



Location		
	County:	Hamilton
	Town:	Indian Lake

Lake Characteristics		
	Surface Area (ha):	64
	Shoreline Length (km):	4
	Max. Depth (m):	9.4
	Volume (m^3):	3169395
	Flush rate (times/year):	7.7

Watershed Characteristics		
	Watershed Area (ha):	3290
	Surface water (%):	21
	Deciduous Forest (%):	42
	Evergreen Forest (%):	15
	Mixed Forest (%):	10
	Wetlands (%):	7
	Agricultural (%):	0
	Residential (%):	4
	Local Roads (km):	4
	State Roads (km):	11

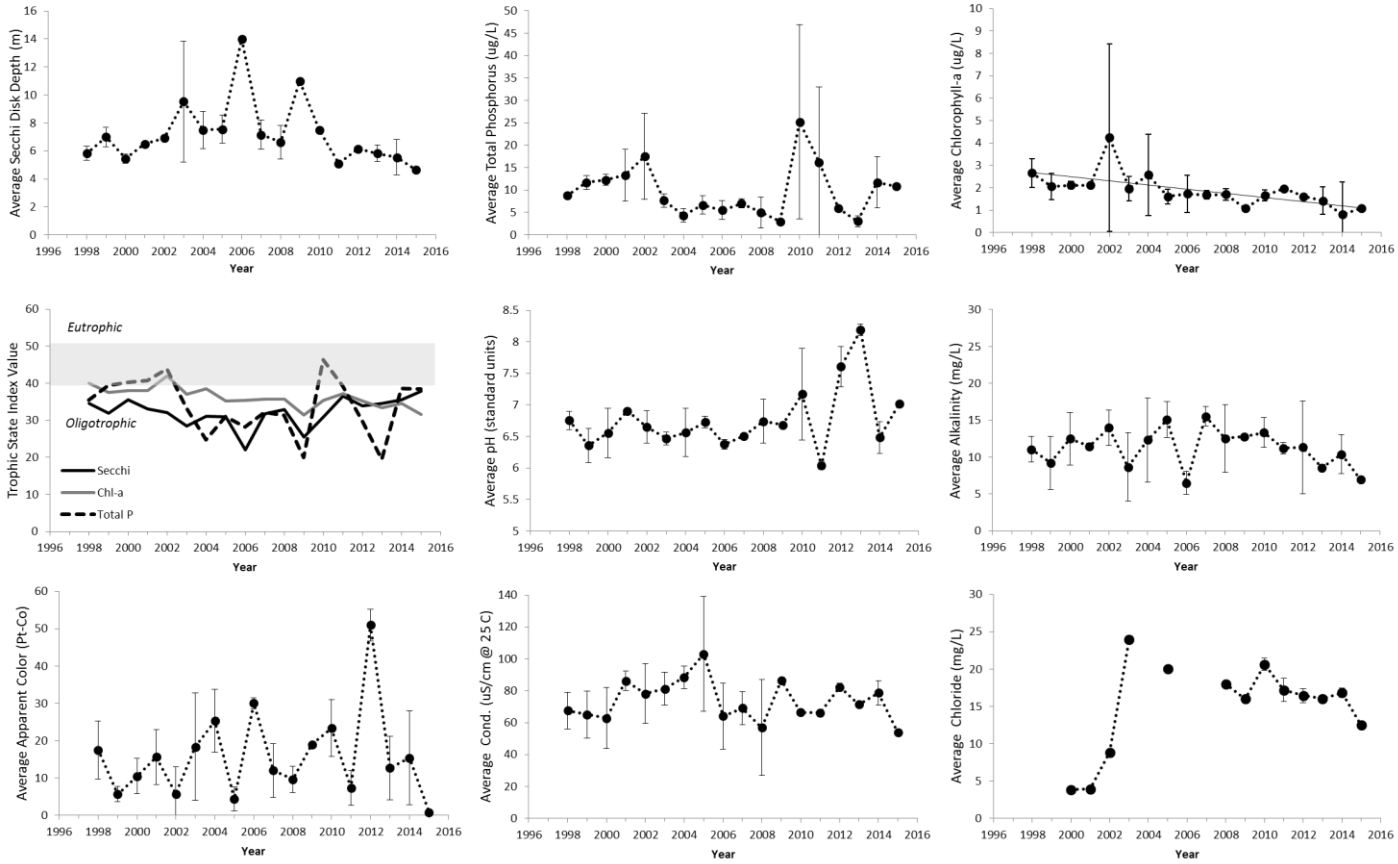
Trophic State	Acidity	Acid Neutralizing Capacity	Road Salt Influence
Oligotrophic	Circumneutral	Moderate	Moderate

Water quality values and historical trends for Eagle Lake during the 2015 sampling season. Trend analysis was not performed on calcium or nitrogen data. BDL=below detection limit.

Water Quality Indicator	Sampling Date			Average	Trend
	6/27/2015	July	August		
Transparency (m)	4.7				No change
Total Phosphorus (µg/L)	10.8				No change
Chlorophyll-*a* (µg/L)	1.1				Decreasing
Laboratory pH	7.0				No change
Sp. Conductance (µS/cm)	53.7	No Sample			No change
Color (Pt-Co)	0.8				No change
Alkalinity (mg/L)	7.0				No change
Nitrate-Nitrogen (µg/L)	7.0				Not analyzed
Chloride (mg/L)	12.5				No change
Calcium (mg/L)	2.7				No change
Sodium (mg/L)	7.0				No change

*See table of content for description of water quality indicators

Eagle Lake – Time Series



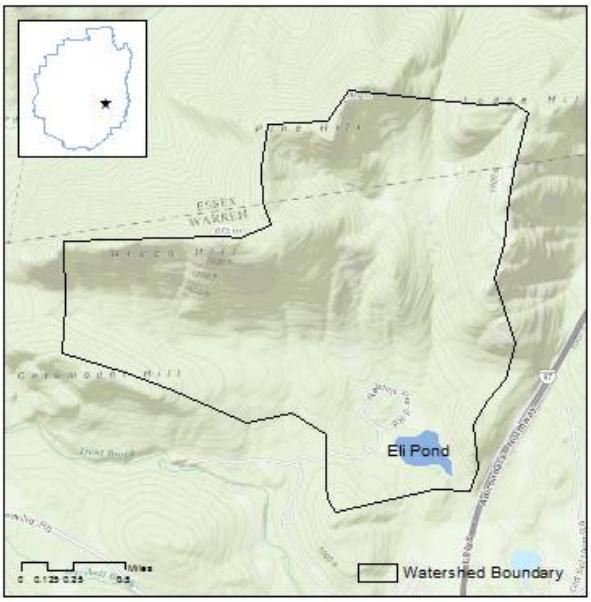
Annual average values of select water quality indicators for Eagle Lake, 1998-2015. Vertical bars represent ± 1 standard deviation of the mean; Solid trend lines across the data indicate a statistically significant trend ($p < 0.05$).

Summary of Findings

Eagle Lake is a 64 ha lake located in Hamilton County in the Town of Indian Lake. The lake is located within a 3,289 ha watershed dominated by forests. Eagle Lake has been monitored by ALAP volunteers and the Adirondack Watershed Institute since 1998.

- Only one sample was received in time for 2015 analysis. Low sampling frequency accuracy of trend analysis.
- Eagle Lake is an oligotrophic lake. Chlorophyll-a has exhibited a slight yet significant downward trend at a rate of approximately 0.1 µg/L/year. Total phosphorus has been variable, and exhibited no positive of negative trend.
- The water sample analyzed in 2015 was found to be circumneutral in terms of its acidity. The alkalinity averaged 7.0 mg/L, indicating moderate sensitivity to acid deposition.
- Sodium and chloride concentration averaged 12.5 and 7.0 mg/L respectively, indicating that the chemistry of the lake is influenced by the 15 km of roads in the watershed. Chloride concentration of Eagle lake was greater than 83% of participating lakes.

Eli Pond



Location		
	County:	Warren
	Town:	Chester

Lake Characteristics		
	Surface Area (ha):	9
	Shoreline Length (km):	1
	Max. Depth (m):	-
	Volume (m^3):	159105
	Flush rate (times/year):	26

Watershed Characteristics		
	Watershed Area (ha):	714
	Surface water (%):	2
	Deciduous Forest (%):	68
	Evergreen Forest (%):	17
	Mixed Forest (%):	11
	Wetlands (%):	2
	Agricultural (%):	0
	Residential (%):	1
	Local Roads (km):	0
	State Roads (km):	0

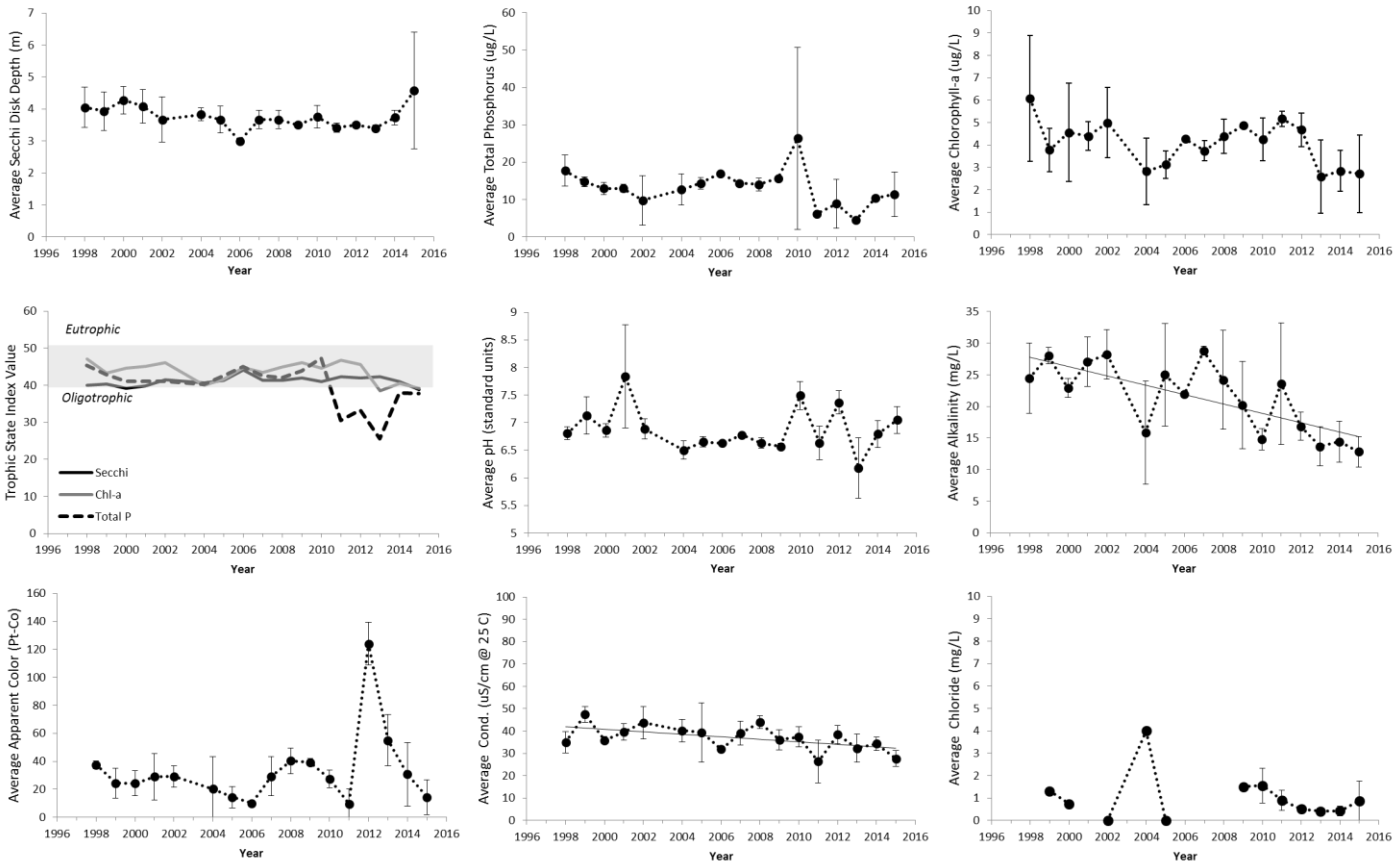
Trophic State	Acidity	Acid Neutralizing Capacity	Road Salt Influence
Oligotrophic	Circumneutral	Adequate – low sensitivity	Not Significant

Water quality values and historical trends for Eli Pond during the 2015 sampling season. Trend analysis was not performed on calcium nitrogen data. BDL=below detection limit.

Water Quality Indicator	Sampling Date			Average	Trend
	6/20/2015	7/10/2015	8/8/2015		
Transparency (m)	6.7	3.6	3.5	4.6	No change
Total Phosphorus (µg/L)	5.8	10.6	17.7	11.4	No change
Chlorophyll-*a* (µg/L)	1.7	1.7	4.7	2.7	No change
Laboratory pH	7.3	6.8	7.1	7.0	No change
Sp. Conductance (µS/cm)	27.2	24.4	31.4	27.7	Decreasing
Color (Pt-Co)	16.4	0.8	25.8	14.4	No change
Alkalinity (mg/L)	12.1	10.9	15.5	12.8	Decreasing
Nitrate-Nitrogen (µg/L)	BDL	BDL	BDL	BDL	Not analyzed
Chloride (mg/L)	0.6	0.2	1.9	0.9	No change
Calcium (mg/L)	4.4	4.3	5.4	4.7	No change
Sodium (mg/L)	1.2	1.1	1.0	1.1	No change

*See table of content for description of water quality indicators

Eli Pond – Time Series



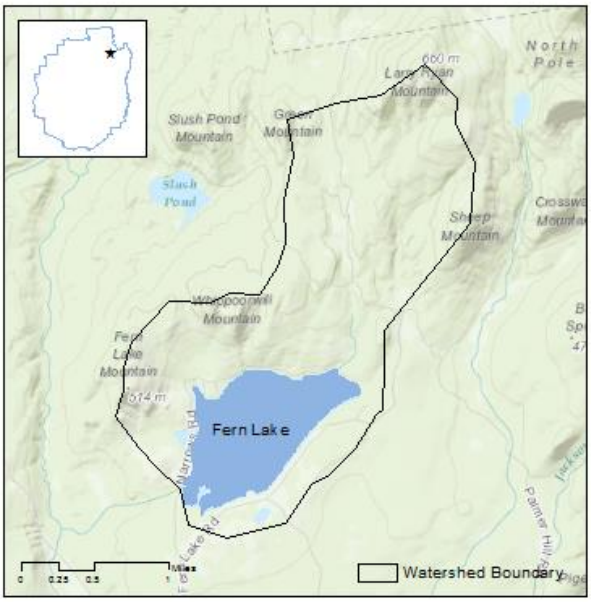
Annual average values of select water quality indicators for Eli Pond, 1998-2015. Vertical bars represent ± 1 standard deviation of the mean; Solid trend lines across the data indicate a statistically significant trend ($p < 0.05$).

Summary of Findings

Eli Pond is a 9 ha lake located in Warren County in the Town of Chester. The lake is located within a 714 ha watershed dominated by forests. Eli Pond has been monitored by ALAP volunteers and the Adirondack Watershed Institute since 1998.

- Eli Pond is an oligotrophic lake. Transparency has been fairly stable since monitoring began, ranging between 4 and 5 meters. Chlorophyll-a and total phosphorus has been variable, and have exhibited no positive of negative trend.
- The water sample analyzed in 2015 was found to be circumneutral in terms of its acidity. The alkalinity averaged 12.8 mg/L, indicating low sensitivity to acid deposition. We did detect a decreasing trend in alkalinity at a range of 0.7 mg/L. There is considerable variability in alkalinity; this is likely related to the flushing rate of the pond, which is estimated at 20 times per year on average.
- Sodium and chloride concentration averaged 0.2 and 1.1 mg/L respectively, these values are within the range we would expect for a lake that lacks salted roads in the watershed.

Fern Lake



Location		
	County:	Clinton
	Town:	Black Brook

Lake Characteristics		
	Surface Area (ha):	169
	Shoreline Length (km):	7
	Max. Depth (m):	-
	Volume (m^3):	3887513
	Flush rate (times/year):	1.9

Watershed Characteristics		
	Watershed Area (ha):	1014
	Surface water (%):	17
	Deciduous Forest (%):	59
	Evergreen Forest (%):	8
	Mixed Forest (%):	10
	Wetlands (%):	3
	Agricultural (%):	0
	Residential (%):	1
	Local Roads (km):	4.3
	State Roads (km):	0

Trophic State	Acidity	Acid Neutralizing Capacity	Road Salt Influence
Mesotrophic	Circumneutral	Adequate – low sensitivity	Present - Low

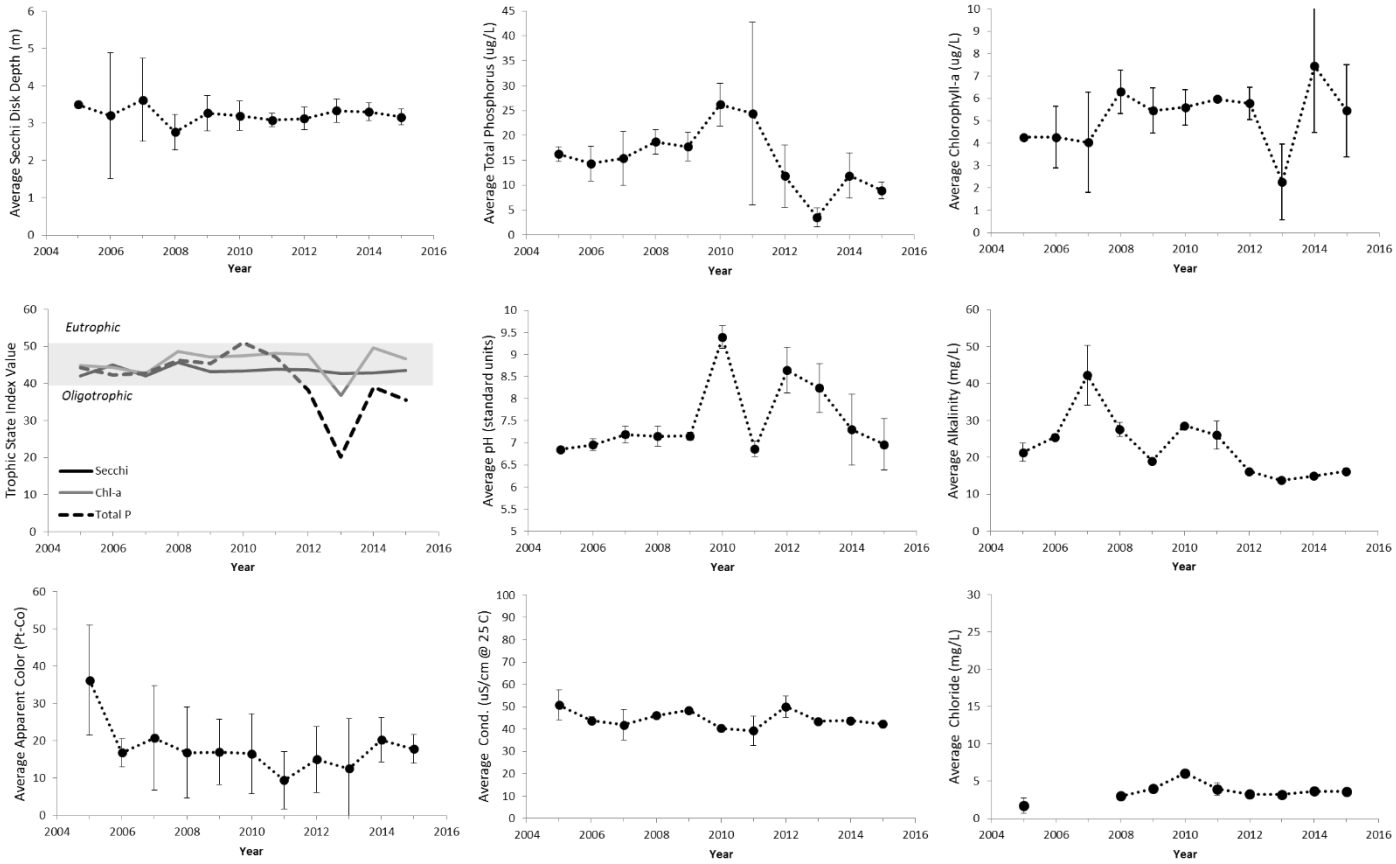
Water quality values and historical trends for Fern Lake during the 2015 sampling season. Trend analysis was not performed on calcium or nitrogen data. BDL=below detection limit.

Water Quality Indicator	Sampling Date			Average	Trend
	7/20/2015	8/22/2015	9/25/2015		
	Deep Hole				
Transparency (m)	3.5	3.0	3.5	3.3	No change
Total Phosphorus (µg/L)	6.5	7.6	11.7	8.6	No change
Chlorophyll-*a* (µg/L)	4.1	5.9	8.2	6.1	No change
Laboratory pH	6.7	6.5	7.7	7.0	No change
Sp. Conductance (µS/cm)	42.3	42.1	42.2	42.2	No change
Color (Pt-Co)	22.7	22.7	16.4	20.6	No change
Alkalinity (mg/L)	16.2	17.4	16.1	16.6	No change
Nitrate-Nitrogen (µg/L)	6.1	111.0	70.0	62.4	Not analyzed
Chloride (mg/L)	3.4	3.8	3.7	3.6	No change
Calcium (mg/L)	4.5	4.2	4.6	4.5	Not analyzed
Sodium (mg/L)	2.6	2.4	2.3	2.4	No change

Water Quality Indicator	Sampling Date			Average
	7/20/2015	8/22/2015	9/25/2015	
		Beach		
Transparency (m)	3.3	3.0	3.0	3.1
Total Phosphorus (µg/L)	10.4	8.2	9.3	9.3
Chlorophyll-*a* (µg/L)	3.6	3.4	7.2	4.7
Laboratory pH	6.7	6.4	7.7	6.9
Sp. Conductance (µS/cm)	42.2	42.0	42.3	42.2
Color (Pt-Co)	22.7	16.4	13.3	17.5
Alkalinity (mg/L)	15.3	18.0	16.0	16.4
Nitrate-Nitrogen (µg/L)	2.5	86.5	3.3	30.8
Chloride (mg/L)	3.6	3.7	3.7	3.6
Calcium (mg/L)	4.6	4.6	4.5	4.6
Sodium (mg/L)	2.6	2.7	2.2	2.5
		Marsh		
Transparency (m)	3.3	3.0	3.0	3.1
Total Phosphorus (µg/L)	9.6	9.7	7.5	8.9
Chlorophyll-*a* (µg/L)	3.5	4.6	8.5	5.6
Laboratory pH	6.8	6.4	7.8	7.0
Sp. Conductance (µS/cm)	42.6	42.0	43.2	42.6
Color (Pt-Co)	13.3	16.4	16.4	15.4
Alkalinity (mg/L)	15.2	15.4	16.0	15.5
Nitrate-Nitrogen (µg/L)	1.7	78.7	6.5	29.0
Chloride (mg/L)	3.4	3.6	3.7	3.6
Calcium (mg/L)	4.5	4.7	4.5	4.6
Sodium (mg/L)	2.6	2.7	2.2	2.5

*See table of content for description of water quality indicators

Fern Lake – Time Series



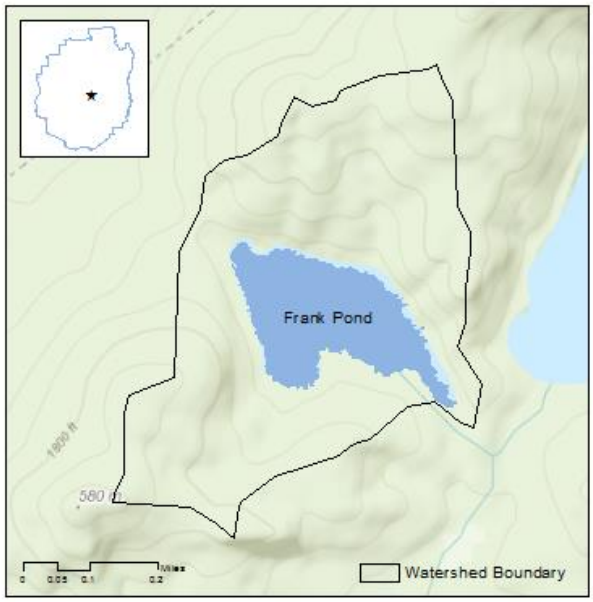
Lake wide annual average values of select water quality indicators for Fern Lake, 2005-2015. Vertical bars represent ± 1 standard deviation of the mean; Solid trend lines across the data indicate a statistically significant trend ($p < 0.05$).

Summary of Findings

Fern Lake is a 169 ha lake located in Clinton County in the Town of Black Brook. The lake is located within a 1,014 ha watershed dominated by forests. Fern Lake has been monitored by ALAP volunteers and the Adirondack Watershed Institute since 2005.

- Fern Lake is a mesotrophic lake. Transparency has been fairly stable since monitoring began, ranging between 3 and 4 meters. Chlorophyll-a and total phosphorus has been variable, and have exhibited no positive of negative trend.
- The water sample analyzed in 2015 was found to be circumneutral in terms of its acidity. The alkalinity averaged approximately 16 mg/L, indicating low sensitivity to acid deposition
- Sodium and chloride concentration averaged 2.4 and 3.6 mg/L respectively, these values indicate that the lake is influenced by road salt, but the influence is relatively low.

Frank Pond



Location		
	County:	Essex
	Town:	Minerva

Lake Characteristics		
	Surface Area (ha):	10
	Shoreline Length (km):	2
	Max. Depth (m):	-
	Volume (m^3):	-
	Flush rate (times/year):	-

Watershed Characteristics		
	Watershed Area (ha):	61
	Surface water (%):	22
	Deciduous Forest (%):	70
	Evergreen Forest (%):	0
	Mixed Forest (%):	6
	Wetlands (%):	3
	Agricultural (%):	0
	Residential (%):	0
	Local Roads (km):	0
	State Roads (km):	0

Trophic State	Acidity	Acid Neutralizing Capacity	Road Salt Influence
Oligotrophic	Circumneutral	Moderate	Not Significant

Water quality values and historical trends for Frank Pond during the 2015 sampling season. Trend analysis will be performed after five years of data collection. BDL=below detection limit.

Water Quality Indicator	Sampling Date			Average	Trend
	6/27/2015	7/27/2015	8/17/2015		
Transparency (m)	3.2	4.2	5.3	4.2	Not analyzed
Total Phosphorus (µg/L)	11.4	12.4	4.1	9.3	
Chlorophyll-*a* (µg/L)		1.3	2.5	1.9	
Laboratory pH	7.1	7.0	7.1	7.1	
Sp. Conductance (µS/cm)	11.7	12.4	12.5	12.2	
Color (Pt-Co)	19.6	7.1	13.3	13.3	
Alkalinity (mg/L)	3.7	4.0	3.9	3.8	
Nitrate-Nitrogen (µg/L)	6.9	BDL	BDL	±1.8	
Chloride (mg/L)	0.5	0.4	0.9	0.6	
Calcium (mg/L)	1.7	1.8	1.8	1.8	
Sodium (mg/L)	0.6	0.7	0.5	0.6	

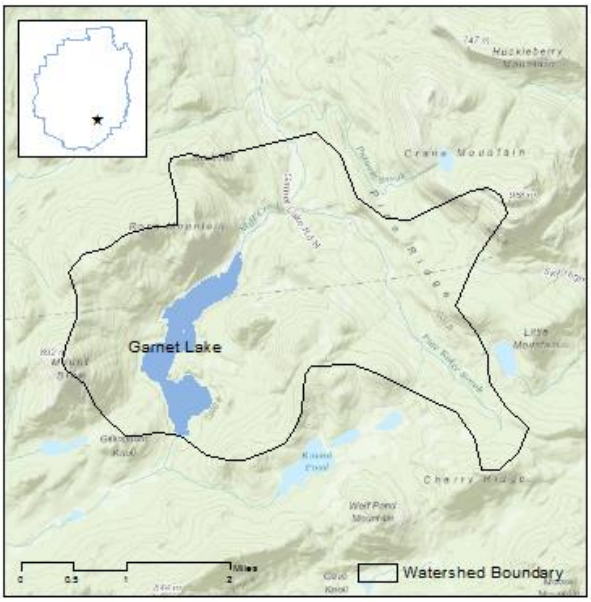
*See table of content for description of water quality indicators

Frank Pond -Summary of Findings

Frank Pond is a 10 ha pond located in Essex County in the Town of Minerva. The pond is located within a 61 ha watershed dominated by forests. This is Frank Ponds first year in ALAP. Time series data will be constructed after two years of data collection, trend analysis will be performed on water quality indicators after five years of data collection.

- Currently little data exists on the morphology of the pond.
- Frank Pond is best classified as a mesotrophic pond.
- The pH of the water samples received in 2015 were found to be circumneutral in terms of its acidity. The alkalinity averaged 3.8 mg/L, indicating moderate sensitivity to acid deposition.
- Sodium and chloride concentration averaged 0.6 mg/L respectively, These values are within the range we would expect for a pond with no salted roads in the watershed.

Garnet Lake



Location		
	County:	Warren
	Town:	Thurman

Lake Characteristics		
	Surface Area (ha):	133
	Shoreline Length (km):	10
	Max. Depth (m):	-
	Volume (m^3):	4250058
	Flush rate (times/year):	3.8

Watershed Characteristics		
	Watershed Area (ha):	2261
	Surface water (%):	6
	Deciduous Forest (%):	48
	Evergreen Forest (%):	25
	Mixed Forest (%):	15
	Wetlands (%):	5
	Agricultural (%):	0
	Residential (%):	1
	Local Roads (km):	10.1
	State Roads (km):	0

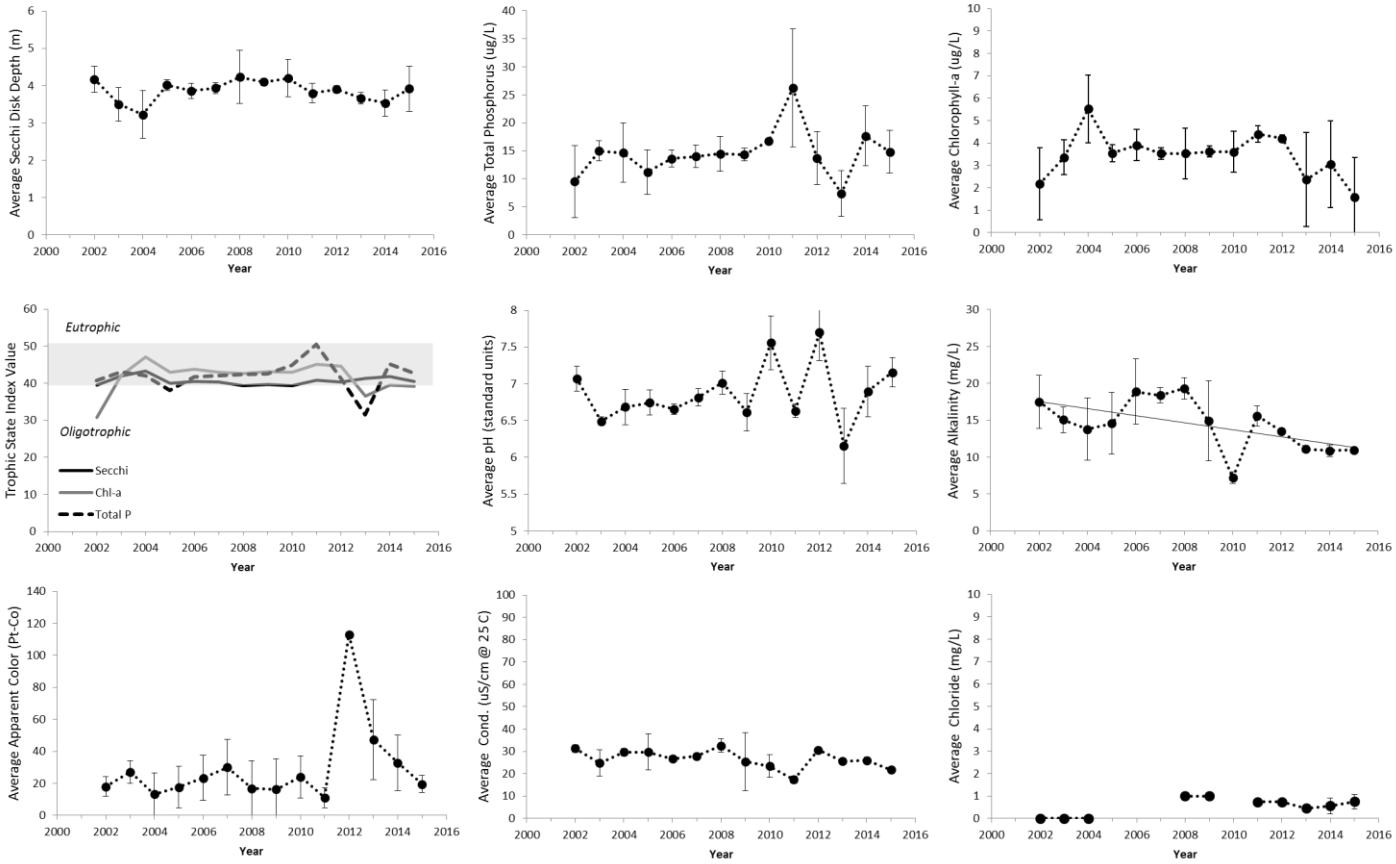
Trophic State	Acidity	Acid Neutralizing Capacity	Road Salt Influence
Mesotrophic	Circumneutral	Adequate – low sensitivity	Not Significant

Water quality values and historical trends for Garnet Lake during the 2015 sampling season. Trend analysis was not performed on calcium or nitrogen data. BDL=below detection limit.

Water Quality Indicator	Sampling Date			Average	Trend
	6/22/2015	7/23/2015	8/22/2015		
Transparency (m)	3.5	3.7	4.6	3.9	No change
Total Phosphorus (µg/L)	10.9	18.5	15.0	14.8	No change
Chlorophyll-*a* (µg/L)	1.7	BDL	3.3	±1.6	No change
Laboratory pH	7.4	7.0	7.1	7.2	No change
Sp. Conductance (µS/cm)	22.8	21.6	20.6	21.7	No change
Color (Pt-Co)	16.4	16.4	25.8	19.6	No change
Alkalinity (mg/L)	10.9	11.3	10.7	11.0	Decreasing
Nitrate-Nitrogen (µg/L)	BDL	BDL	BDL	BDL	Not analyzed
Chloride (mg/L)	0.6	0.5	1.1	0.7	No change
Calcium (mg/L)	3.1	3.2	3.0	3.1	Not analyzed
Sodium (mg/L)	0.8	0.7	0.6	0.7	No change

*See table of content for description of water quality indicators

Garnet Lake – Time Series



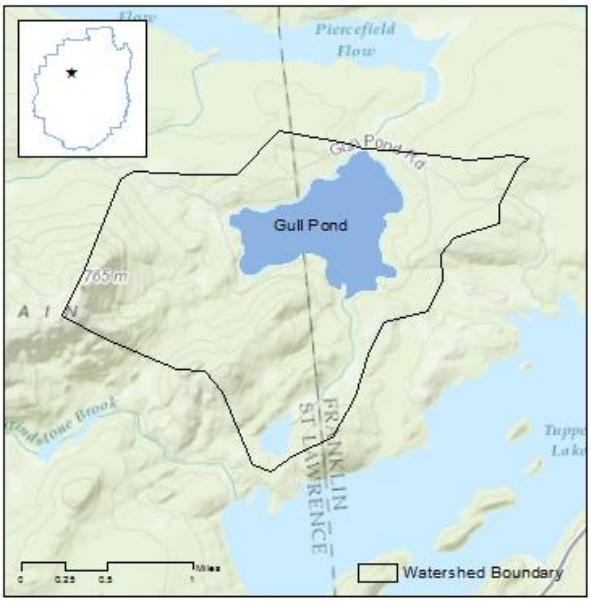
Annual average values of select water quality indicators for Garnet Lake, 2002-2015. Vertical bars represent ± 1 standard deviation of the mean; Solid trend lines across the data indicate a statistically significant trend ($p < 0.05$).

Summary of Findings

Garnet Lake is a 133 ha lake located in Warren County. The lake is located within a 2,121 ha watershed dominated by forests. Garnet Lake has been monitored by ALAP volunteers and the Adirondack Watershed Institute since 2002.

- Garnet Lake is a mesotrophic lake. Transparency has been fairly stable since monitoring began, ranging between 3 and 4 meters. Chlorophyll-a and total phosphorus has been variable, and have exhibited no positive of negative trend.
- The water sample analyzed in 2015 was found to be circumneutral in terms of its acidity. The alkalinity averaged 11.0 mg/L, indicating low sensitivity to acid deposition. We did detect a decreasing trend in alkalinity at a range of 0.5 mg/L.
- Sodium and chloride concentration averaged 0.7 mg/L respectively, these values are within the range we would expect for a lake that lacks salted state roads in the watershed.

Gull Pond



Location		
	County:	Franklin
	Town:	Tupper Lake

Lake Characteristics		
	Surface Area (ha):	117
	Shoreline Length (km):	6
	Max. Depth (m):	23.2
	Volume (m^3):	11975150
	Flush rate (times/year):	0.4

Watershed Characteristics		
	Watershed Area (ha):	738
	Surface water (%):	18
	Deciduous Forest (%):	73
	Evergreen Forest (%):	2
	Mixed Forest (%):	0
	Wetlands (%):	5
	Agricultural (%):	0
	Residential (%):	2
	Local Roads (km):	0
	State Roads (km):	0

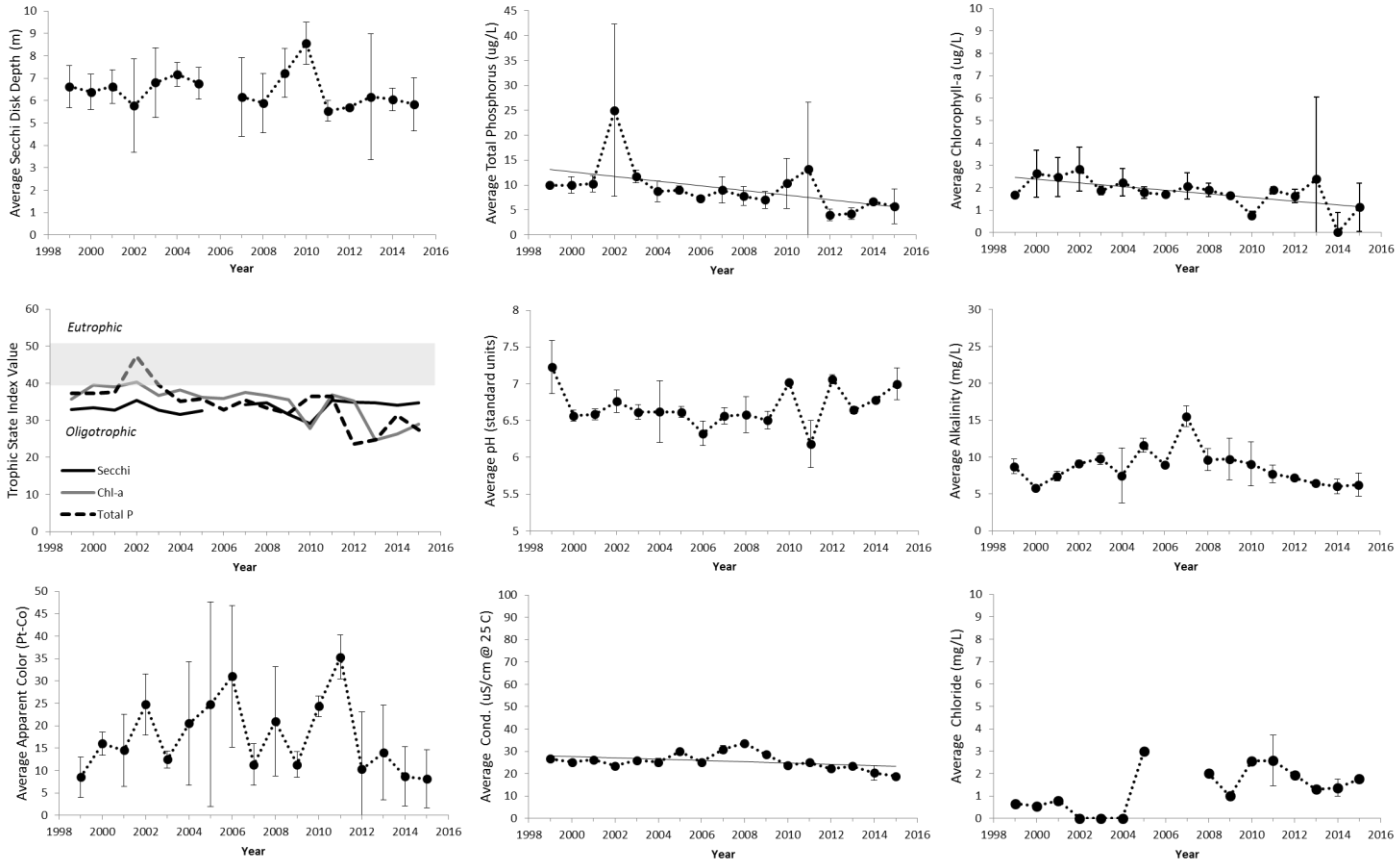
Trophic State	Acidity	Acid Neutralizing Capacity	Road Salt Influence
Oligotrophic	Circumneutral	Moderate	Present - Low

Water quality values and historical trends for Gull Pond during the 2015 sampling season. Trend analysis was not performed on calcium or nitrogen data. BDL=below detection limit.

Water Quality Indicator	Sampling Date			Average	Trend
	6/22/2015	7/23/2015	8/19/2015		
Transparency (m)	4.8	5.7	7.1	5.8	No change
Total Phosphorus (µg/L)	4.8	9.6	2.8	5.7	Decreasing
Chlorophyll-*a* (µg/L)	0.6	2.4	0.5	1.1	Decreasing
Laboratory pH	6.9	6.8	7.2	7.0	No change
Sp. Conductance (µS/cm)	19.7	18.9	17.9	18.8	Decreasing
Color (Pt-Co)	13.3	0.8	10.2	8.1	No change
Alkalinity (mg/L)	5.8	5.0	8.0	6.3	No change
Nitrate-Nitrogen (µg/L)	BDL	BDL	1.1	BDL	Not analyzed
Chloride (mg/L)	1.8	1.7	1.9	1.8	No change
Calcium (mg/L)	2.1	2.2	2.3	2.2	Not analyzed
Sodium (mg/L)	1.4	1.2	1.3	1.3	No change

*See table of content for description of water quality indicators

Gull Pond – Time Series



Annual average values of select water quality indicators for Gull Pond, 1999-2015. Vertical bars represent ± 1 standard deviation of the mean; Solid trend lines across the data indicate a statistically significant trend ($p < 0.05$).

Summary of Findings

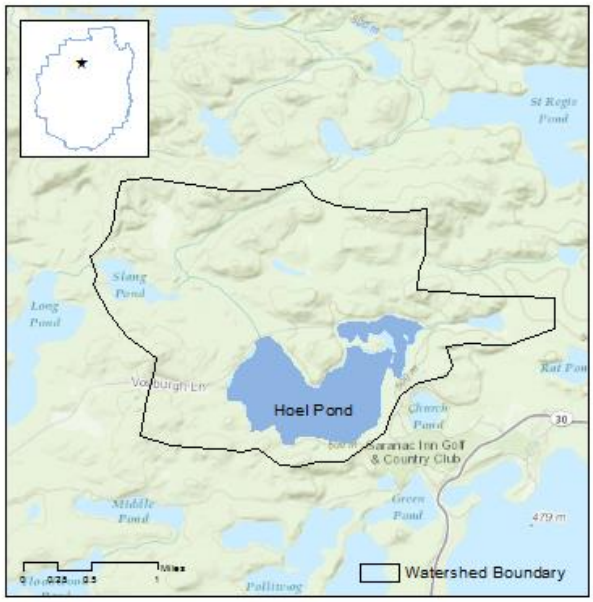
Gull Pond is a 117 ha lake located in Franklin County in the Town of Tupper Lake. This 117 ha lake is located within a 737 ha watershed dominated by forests. Gull Pond has been monitored by ALAP volunteers and the Adirondack Watershed Institute since 1999.

- Gull Pond is an oligotrophic waterbody. Transparency has been relatively stable since monitoring began. Chlorophyll-a has exhibited a slight yet significant downward trend at a rate of approximately 0.1 µg/L/year. Total phosphorus has also exhibited a decreasing trend at a rate of approximately 0.5 µg/L/year.

- The water samples analyzed in 2015 were found to be circumneutral in terms of its acidity. The alkalinity averaged 6.3 mg/L, indicating moderate sensitivity to acid deposition.

- Sodium and chloride concentration averaged 1.3 and 1.8 mg/L respectively. These values are slightly higher than we would expect for a watershed that lacks salted roads.

Hoel Pond



Location		
	County:	Franklin
	Town:	Santa Clara

Lake Characteristics		
	Surface Area (ha):	185
	Shoreline Length (km):	10
	Max. Depth (m):	24.2
	Volume (m^3):	14777670
	Flush rate (times/year):	0.3

Watershed Characteristics		
	Watershed Area (ha):	1174
	Surface water (%):	23
	Deciduous Forest (%):	46
	Evergreen Forest (%):	15
	Mixed Forest (%):	3
	Wetlands (%):	12
	Agricultural (%):	0
	Residential (%):	0
	Local Roads (km):	0
	State Roads (km):	0

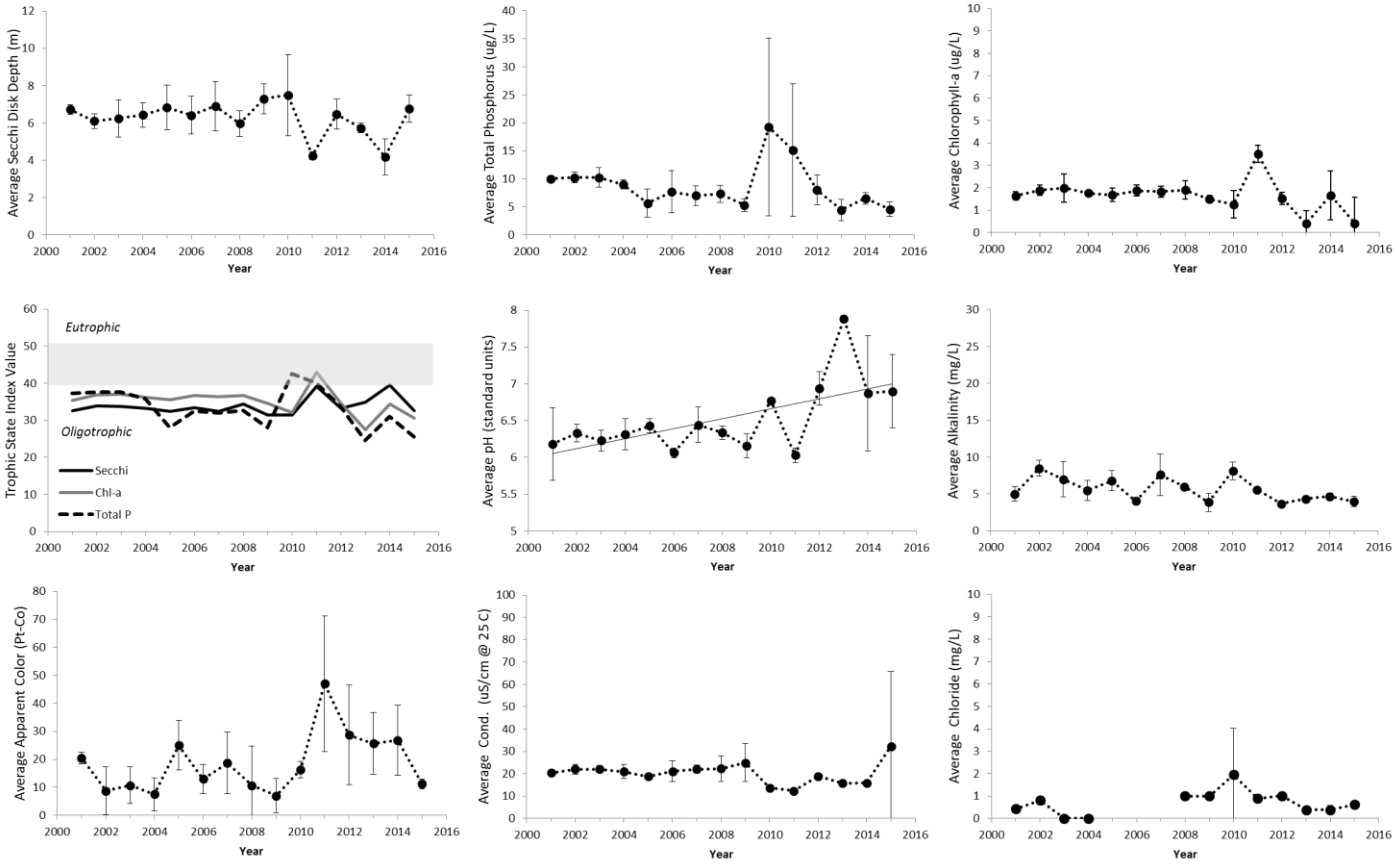
Trophic State	Acidity	Acid Neutralizing Capacity	Road Salt Influence
Oligotrophic	Circumneutral	Moderate	Not Significant

Water quality values and historical trends for Hoel Pond during the 2015 sampling season. Trend analysis was not performed on calcium or nitrogen data. BDL=below detection limit.

Water Quality Indicator	Sampling Date			Average	Trend
	6/26/2015	7/11/2015	8/18/2015		
Transparency (m)	6.8	6.0	7.5	6.8	No change
Total Phosphorus (µg/L)	6.0	4.2	3.4	4.6	No change
Chlorophyll-*a* (µg/L)	1.4	0.7	BDL	±0.4	No change
Laboratory pH	7.5	6.5	6.7	6.9	Increasing
Sp. Conductance (µS/cm)	13.5	70.9	12.5	32.3	No change
Color (Pt-Co)	10.2	10.2	13.3	11.2	No change
Alkalinity (mg/L)	4.3	4.5	3.2	4.0	No change
Nitrate-Nitrogen (µg/L)	BDL	0.8	49.7	±16.7	Not analyzed
Chloride (mg/L)	0.5	0.6	0.7	0.6	No change
Calcium (mg/L)	1.2	1.7	2.0	1.6	Not analyzed
Sodium (mg/L)	0.7	0.7	0.7	0.7	No change

*See table of content for description of water quality indicators

Hoel Pond – Time Series



Annual average values of select water quality indicators for Hoel Pond, 2001-2015. Vertical bars represent ± 1 standard deviation of the mean; Solid trend lines across the data indicate a statistically significant trend ($p < 0.05$).

Summary of Findings

Hoel Pond is a 185 ha lake located in Franklin County in the Town of Santa Clara. The lake is located within a 1,174 ha watershed dominated by forests. Hoel Pond has been monitored by ALAP volunteers and the Adirondack Watershed Institute since 2001.

- Hoel Pond is an oligotrophic lake. Transparency, chlorophyll-a and total phosphorus have been relatively stable, and exhibited no significant trends. The transparency of Hoel Pond is greater than 95% of ALAP participating lakes.
- The water samples analyzed in 2015 were found to be circumneutral in terms of their acidity. The pH of the water has exhibited a significant upward trend at a rate of approximately 0.4 pH units/year. The alkalinity averaged 4.0 mg/L, indicating moderate sensitivity to acid deposition.
- Sodium and chloride concentration averaged 0.7 and 0.6 mg/L respectively, these values are within the range we would expect for a pond with no salted roads in the watershed.

Indian Lake- Franklin County

Location		
	County:	Franklin
	Town:	Bellmont

Lake Characteristics		
	Surface Area (ha):	134
	Shoreline Length (km):	5
	Max. Depth (m):	4.9
	Volume (m^3):	3769281
	Flush rate (times/year):	1.2

Watershed Characteristics		
	Watershed Area (ha):	651
	Surface water (%):	21
	Deciduous Forest (%):	54
	Evergreen Forest (%):	16
	Mixed Forest (%):	2
	Wetlands (%):	5
	Agricultural (%):	0
	Residential (%):	2
	Local Roads (km):	1.5
	State Roads (km):	0

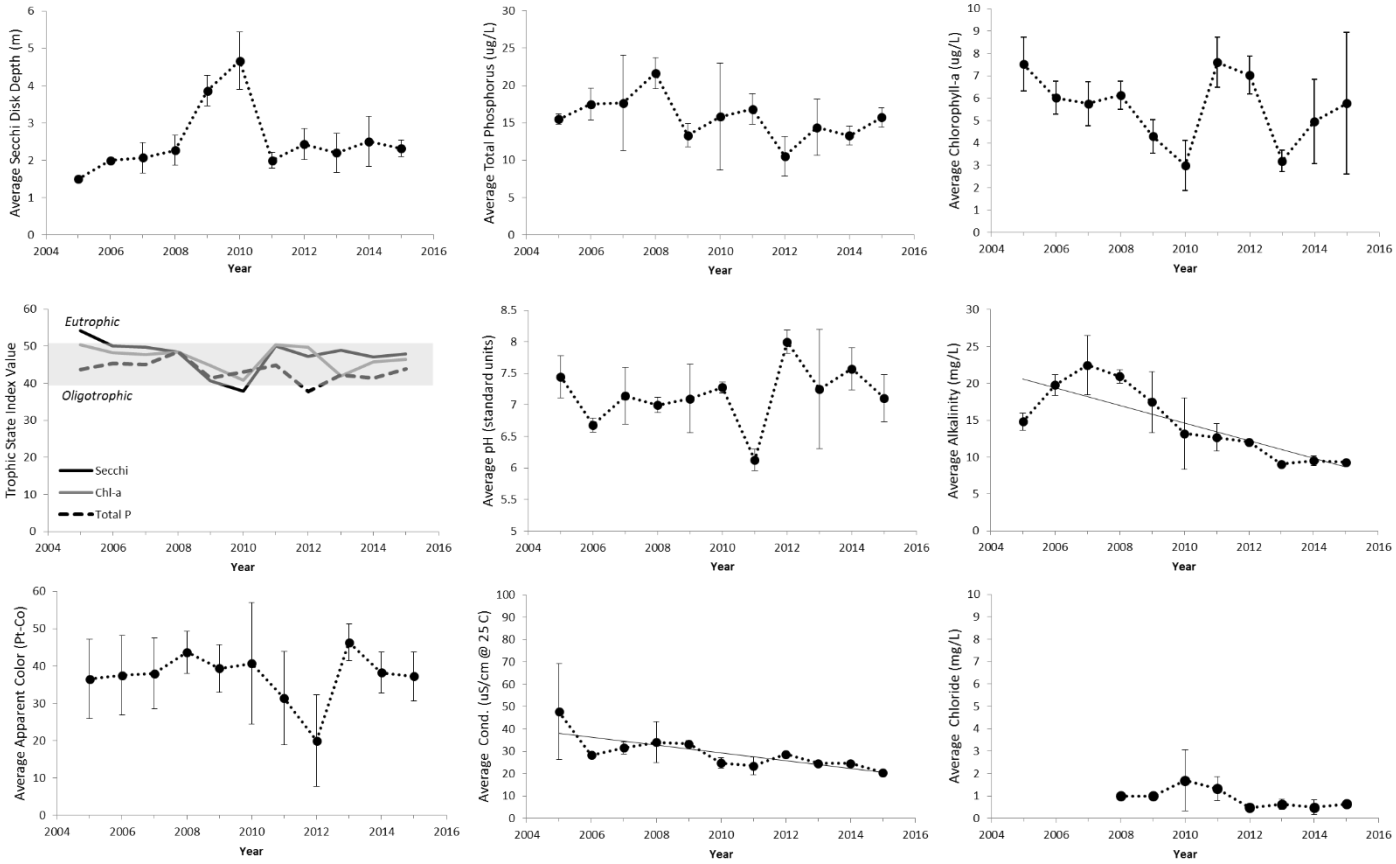
Trophic State	Acidity	Acid Neutralizing Capacity	Road Salt Influence
Mesotrophic	Circumneutral	Moderate	Not Significant

Water quality values and historical trends for Indian Lake during the 2015 sampling season. Trend analysis was not performed on calcium or nitrogen data. BDL=below detection limit.

Water Quality Indicator	Sampling Date			Average	Trend
	6/25/2015	7/20/2015	8/16/2015		
Transparency (m)	2.3	2.1	2.6	2.3	No change
Total Phosphorus (µg/L)	14.5	15.6	17.1	15.7	No change
Chlorophyll-*a* (µg/L)	8.4	6.7	2.2	5.8	No change
Laboratory pH	7.5	6.8	7.1	7.1	No change
Sp. Conductance (µS/cm)	21.4	20.3	19.8	20.5	Decreasing
Color (Pt-Co)	32.0	35.1	44.5	37.2	No change
Alkalinity (mg/L)	9.5	9.2	9.2	9.3	Decreasing
Nitrate-Nitrogen (µg/L)	BDL	BDL	29.9	±8.7	Not analyzed
Chloride (mg/L)	0.6	0.5	0.8	0.6	No change
Calcium (mg/L)	2.9	2.7	2.5	2.7	Not analyzed
Sodium (mg/L)	0.9	1.0	0.8	0.9	No change

*See table of content for description of water quality indicators

Indian Lake Franklin County – Time Series



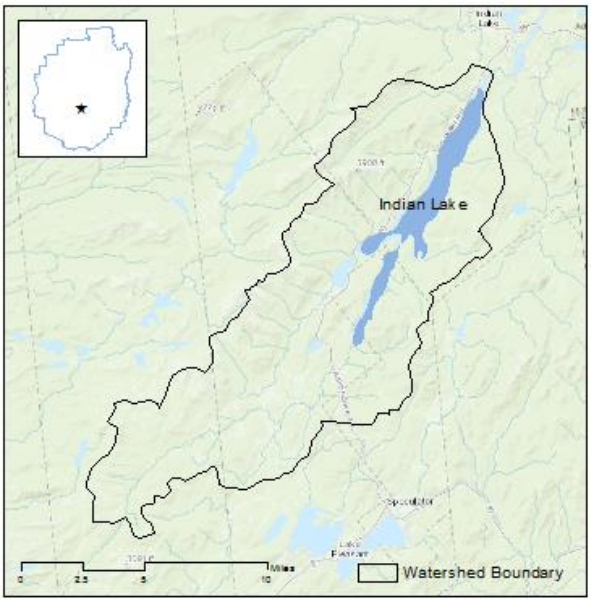
Annual average values of select water quality indicators for Indian Lake, 2005-2015. Vertical bars represent ± 1 standard deviation of the mean; Solid trend lines across the data indicate a statistically significant trend ($p < 0.05$).

Summary of Findings

Indian Lake is a 134 ha lake located in Franklin County in the Town of Bellmont. The lake is located within a 651 ha watershed dominated by forests. Indian Lake has been monitored by ALAP volunteers and the Adirondack Watershed Institute since 2005.

- Indian Lake is a mesotrophic lake. Transparency, total phosphorus, and chlorophyll-a have not exhibited any significant positive of negative trends since monitoring began in 2005.
- The water samples analyzed in 2015 were found to be circumneutral in terms of their acidity. The alkalinity averaged 9.3 mg/L, indicating moderate sensitivity to acid deposition. We detected a significant downward trend in alkalinity at a rate of approximately 1.1 mg/L/year.
- Sodium and chloride concentration averaged 0.9 and 0.6 mg/L respectively, these values are within the range we would expect for a pond with few salted roads in the watershed.

Indian Lake- Hamilton County



Location		
	County:	Hamilton
	Town:	Indian Lake

Lake Characteristics		
	Surface Area (ha):	2155
	Shoreline Length (km):	51
	Max. Depth (m):	25.9
	Volume (m^3):	210069990
	Flush rate (times/year):	1.11

Watershed Characteristics		
	Watershed Area (ha):	33838
	Surface water (%):	7
	Deciduous Forest (%):	63
	Evergreen Forest (%):	12
	Mixed Forest (%):	5
	Wetlands (%):	10
	Agricultural (%):	0
	Residential (%):	1
	Local Roads (km):	10.3
	State Roads (km):	28.7

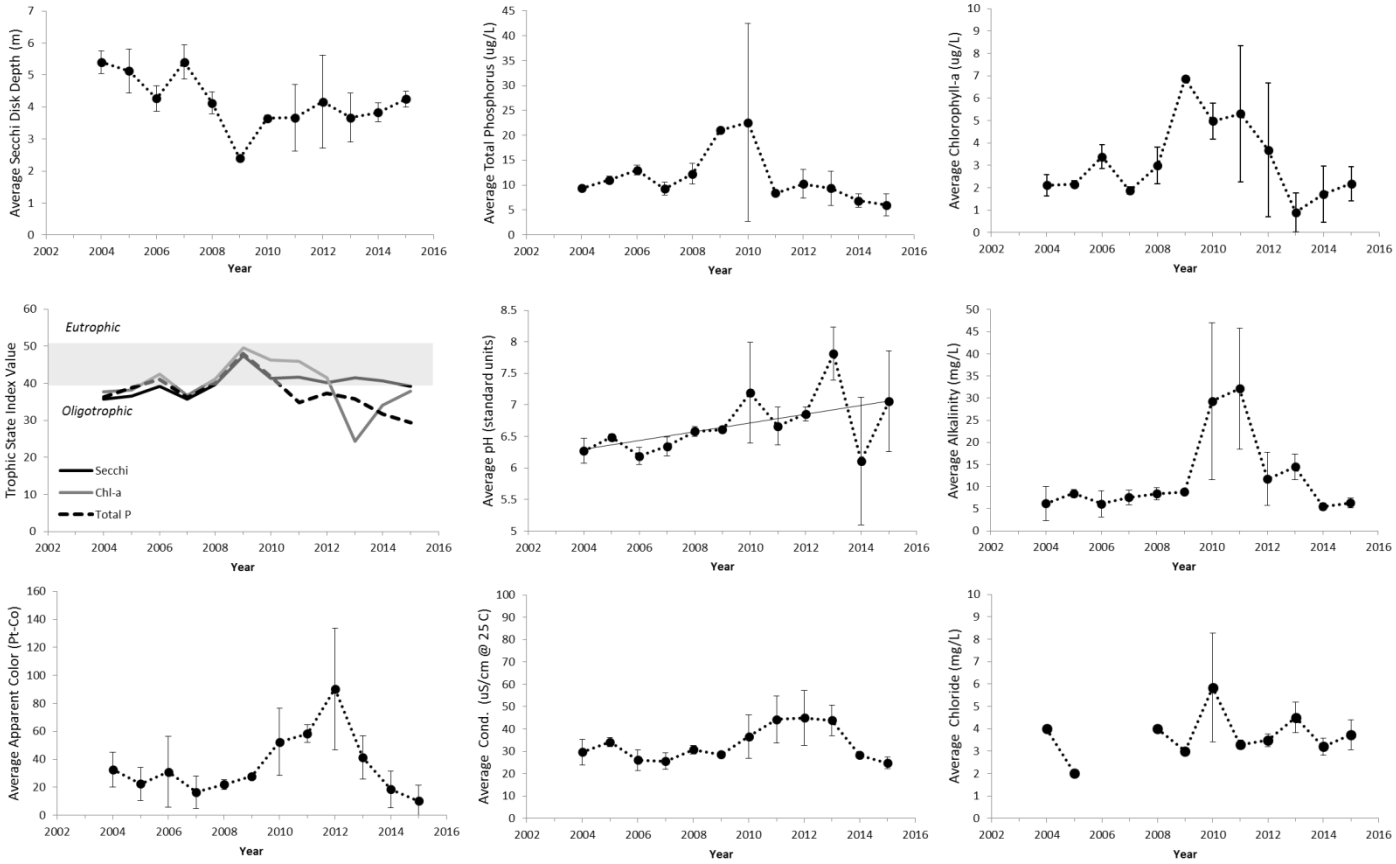
Trophic State	Acidity	Acid Neutralizing Capacity	Road Salt Influence
Oligotrophic	Circumneutral	Moderate	Present - Low

Water quality values and historical trends for Indian Lake during the 2015 sampling season. Trend analysis was not performed on calcium or nitrogen data. BDL=below detection limit.

Water Quality Indicator	Sampling Date			Average	Trend
	7/5/2015	8/8/2015	9/12/2015		
Transparency (m)	4.3	4.5	4.0	4.3	No change
Total Phosphorus (µg/L)	4.3	8.5	5.1	6.0	No change
Chlorophyll-*a* (µg/L)	3.0	2.0	1.6	2.2	No change
Laboratory pH	8.0	6.8	6.4	7.1	Increasing
Sp. Conductance (µS/cm)	22.6	27.7	24.0	24.8	No change
Color (Pt-Co)	BDL	19.6	13.3	±10.2	No change
Alkalinity (mg/L)	5.2	7.3	6.6	6.3	No change
Nitrate-Nitrogen (µg/L)	120.0	76.5	32.5	76.3	Not analyzed
Chloride (mg/L)	3.1	4.4	3.7	3.7	No change
Calcium (mg/L)	2.0	2.3	2.3	2.2	Not analyzed
Sodium (mg/L)	2.4	3.1	2.1	2.5	No change

*See table of content for description of water quality indicators

Indian Lake Hamilton County – Time Series



Annual average values of select water quality indicators for Indian Lake, 2004-2015. Vertical bars represent ± 1 standard deviation of the mean; Solid trend lines across the data indicate a statistically significant trend ($p < 0.05$).

Summary of Findings

Indian Lake is a 2,155 ha lake located in Hamilton County in the Town of Indian Lake. The lake is located within a 33,838 ha watershed dominated by forests. Indian Lake has been monitored by ALAP volunteers and the Adirondack Watershed Institute since 2004.

- Indian Lake is an oligotrophic lake, on the boundary of mesotrophic. Transparency, chlorophyll-a and total phosphorus have been variable over time, and have exhibited no significant trends.
- The water samples analyzed in 2015 were found to be circumneutral in terms of their acidity. The pH of the water has exhibited a significant upward trend at a rate of approximately 0.07 pH units/year. The alkalinity averaged 6.3 mg/L, indicating moderate sensitivity to acid deposition.
- Sodium and chloride concentration averaged 2.5 and 3.7 mg/L respectively, indicating that the chemistry of the lake is influenced by the 39 km of roads in the watershed, but the influence is relatively low.

Jordan Lake

Location		
	County:	St Lawrence
	Town:	Hopkinton

Lake Characteristics		
	Surface Area (ha):	72
	Shoreline Length (km):	5
	Max. Depth (m):	9.8
	Volume (m^3):	2684394
	Flush rate (times/year):	2

Watershed Characteristics		
	Watershed Area (ha):	862
	Surface water (%):	10
	Deciduous Forest (%):	16
	Evergreen Forest (%):	49
	Mixed Forest (%):	9
	Wetlands (%):	17
	Agricultural (%):	0
	Residential (%):	0
	Local Roads (km):	0
	State Roads (km):	0

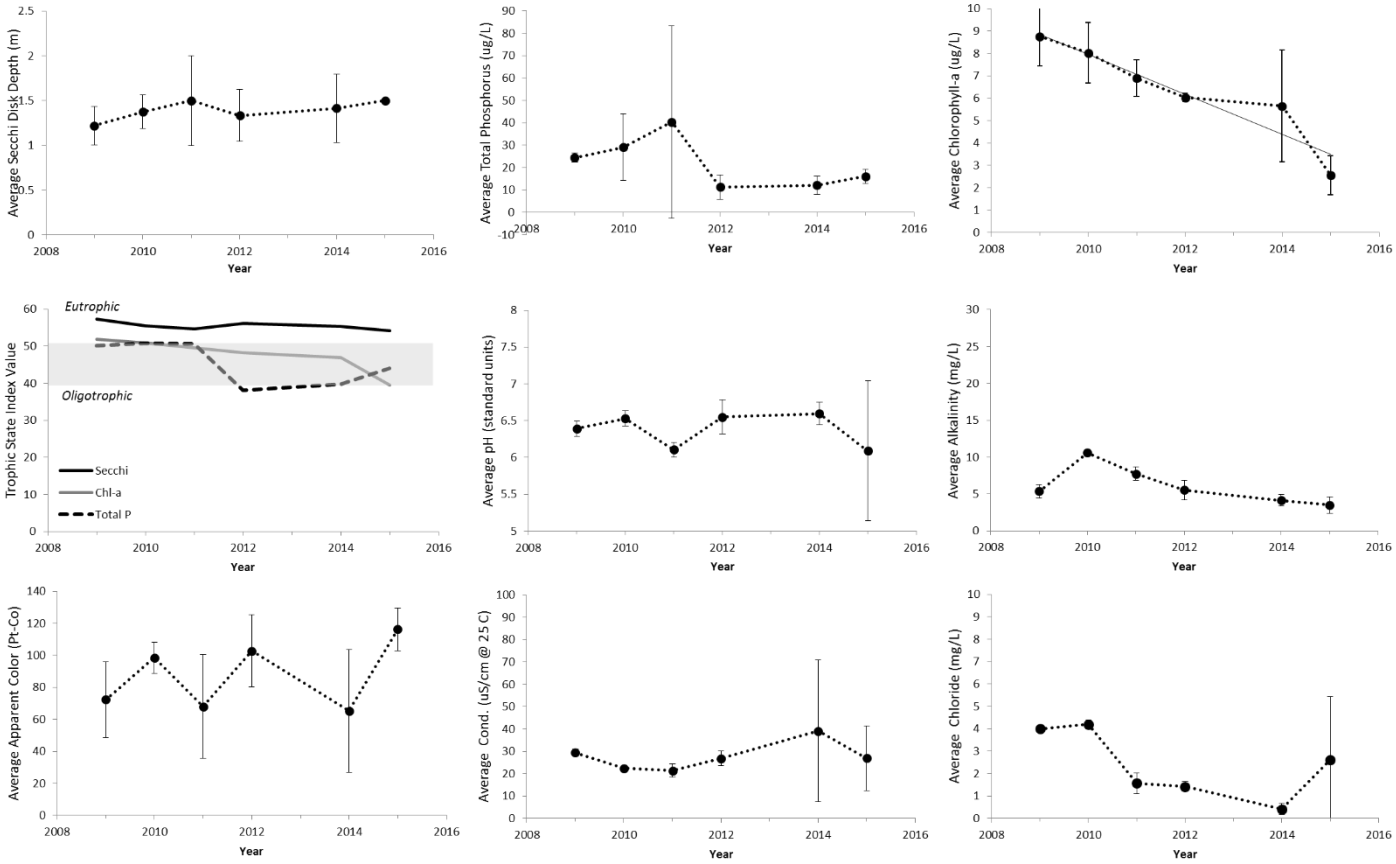
Trophic State	Acidity	Acid Neutralizing Capacity	Road Salt Influence
Mesotrophic	Acidic (acceptable)	Moderate	Present - Low

Water quality values and historical trends for Jordan Lake during the 2015 sampling season. Trend analysis was not performed on calcium or nitrogen data. BDL=below detection limit.

Water Quality Indicator	Sampling Date			Average	Trend
	June	7/9/2015	8/21/2015		
Transparency (m)	No Sample	1.5	1.5	1.5	No change
Total Phosphorus (µg/L)		18.3	13.8	16.1	No change
Chlorophyll-*a* (µg/L)		3.2	2.0	2.6	Decreasing
Laboratory pH		6.8	5.4	6.1	No change
Sp. Conductance (µS/cm)		16.7	37.1	26.9	No change
Color (Pt-Co)		125.6	106.9	116.3	No change
Alkalinity (mg/L)		2.7	4.3	3.5	No change
Nitrate-Nitrogen (µg/L)		3.4	7.4	5.4	Not analyzed
Chloride (mg/L)		0.6	4.6	2.6	No change
Calcium (mg/L)		2.7	2.8	2.7	Not analyzed
Sodium (mg/L)		0.8	0.9	0.8	No change

*See table of content for description of water quality indicators

Jordan Lake – Time Series



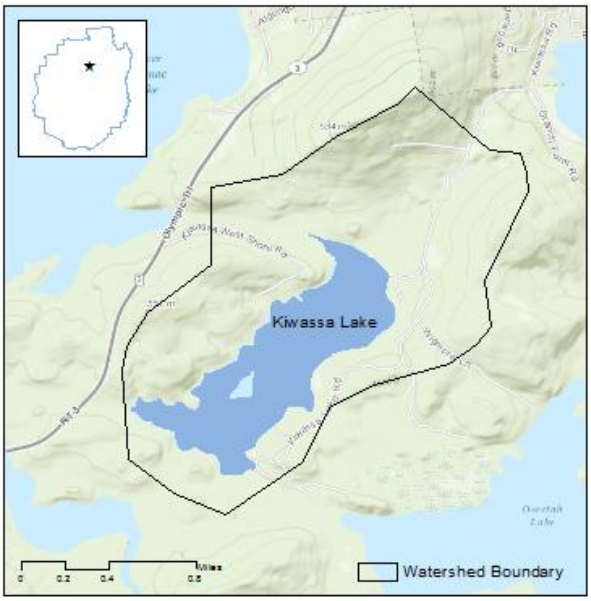
Annual average values of select water quality indicators for Jordan Lake, 2009-2015. Vertical bars represent ± 1 standard deviation of the mean; Solid trend lines across the data indicate a statistically significant trend ($p < 0.05$).

Summary of Findings

Jordan Lake is a 72 ha lake located in St. Lawrence County in the Town of Hopkington. The lake is located within an 862 ha watershed dominated by forests. Jordan Lake has been monitored by ALAP volunteers and the Adirondack Watershed Institute since 2009.

- No sample was received from Jordon Lake for the month of June.
- Jordon lake is classified as mesotrophic based on the concentrations of total phosphorus and chlorophyll-a. However, the transparency of the lake is low, and more characteristic of a eutrophic lake. The low transparency is undoubtedly related to the color of the water, which is greater than 98% of participating ALAP lakes. Chlorophyll-a has exhibited a significant downward trend at a rate of approximately 0.9 µg/L/year.
- Water samples received in 2015 were slightly acidic in terms of their acidity, with moderate sensitivity to acid deposition.
- Chloride concentrations averaged 2.7 mg/L, which is higher than we would expect for a lake that lacks salted roads in the watershed.

Kiwassa Lake



Location		
	County:	Franklin
	Town:	Harrietstown

Lake Characteristics		
	Surface Area (ha):	114
	Shoreline Length (km):	8
	Max. Depth (m):	13.7
	Volume (m^3):	7307748
	Flush rate (times/year):	0.1

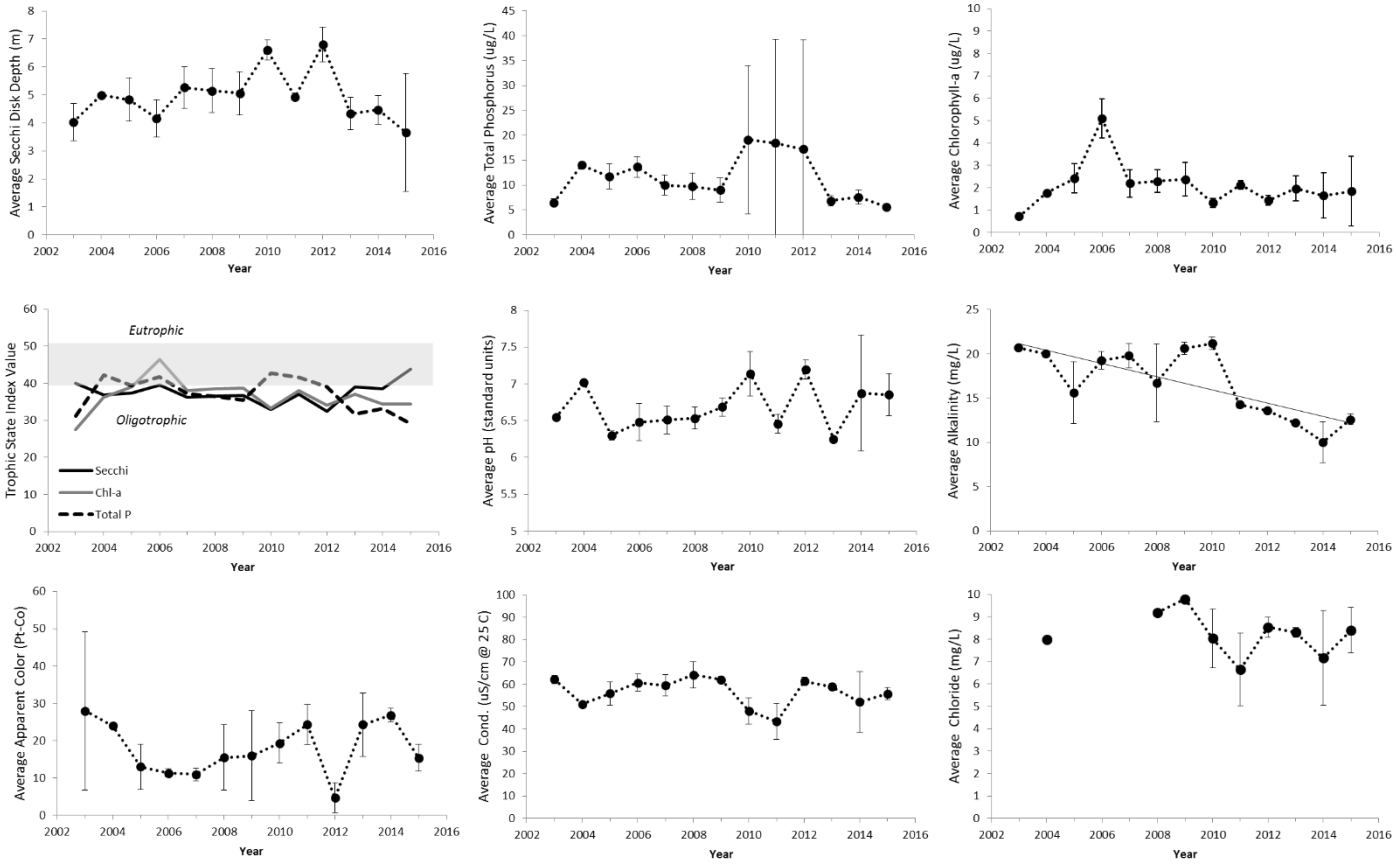
Watershed Characteristics		
	Watershed Area (ha):	549
	Surface water (%):	22
	Deciduous Forest (%):	37
	Evergreen Forest (%):	16
	Mixed Forest (%):	15
	Wetlands (%):	6
	Agricultural (%):	0
	Residential (%):	2
	Local Roads (km):	3.4
	State Roads (km):	0.5

Trophic State	Acidity	Acid Neutralizing Capacity	Road Salt Influence
Oligotrophic	Circumneutral	Adequate – low sensitivity	Moderate

Water quality values and historical trends for Kiwassa Lake during the 2015 sampling season. Trend analysis was not performed on calcium or nitrogen data. BDL=below detection limit.

Water Quality Indicator	Sampling Date			Average	Trend
	6/30/2015	7/25/2015	9/3/2015		
Transparency (m)	1.3	4.6	5.1	3.7	No change
Total Phosphorus (µg/L)	5.5	6.3	5.1	5.6	No change
Chlorophyll-*a* (µg/L)	3.6	1.2	0.7	1.8	No change
Laboratory pH	6.5	7.1	6.9	6.9	No change
Sp. Conductance (µS/cm)	54.3	54.1	59.1	55.8	No change
Color (Pt-Co)	19.6	13.3	13.3	15.4	No change
Alkalinity (mg/L)	11.9	13.1	12.8	12.6	Decreasing
Nitrate-Nitrogen (µg/L)	BDL	BDL	24.6	±6.9	Not analyzed
Chloride (mg/L)	7.5	8.3	9.5	8.4	No change
Calcium (mg/L)	4.6	5.8	4.9	5.1	Not analyzed
Sodium (mg/L)	5.3	6.5	5.0	5.6	No change

Kiwassa Lake – Time Series



Annual average values of select water quality indicators for Kiwassa Lake, 2003-2015. Vertical bars represent ± 1 standard deviation of the mean; Solid trend lines across the data indicate a statistically significant trend ($p < 0.05$).

Summary of Findings

Kiwassa Lake is a 114 ha lake located in Franklin County in the Town of Harrietstown. The lake is located within a 549 ha watershed dominated by forests. Kiwassa Lake has been monitored by ALAP volunteers and the Adirondack Watershed Institute since 2004.

- Kiwassa Lake is oligotrophic in terms of its concentration of total phosphorus and chlorophyll-a. However, its transparency is more indicative of a mesotrophic lake. Historically the trophic status of the lake has fluctuated around the oligo-mesotrophic boundary. Transparency, total phosphorus, and chlorophyll-a have not exhibited any significant positive of negative trends since monitoring began in 2003.

- The water samples analyzed in 2015 were found to be circumneutral in terms of their acidity. The alkalinity averaged 12.6 mg/L, indicating low sensitivity to acid deposition. We detected a significant downward trend in alkalinity at a rate of approximately 0.7 mg/L/year.

- Sodium and chloride concentration averaged 5.6 and 8.4 mg/L respectively, indicating moderate influence from road salting.

Lake Adirondack

Location		
	County:	Hamilton
	Town:	Indian Lake

Lake Characteristics		
	Surface Area (ha):	78
	Shoreline Length (km):	10
	Max. Depth (m):	5.8
	Volume (m^3):	1772330
	Flush rate (times/year):	1.9

Watershed Characteristics		
	Watershed Area (ha):	469
	Surface water (%):	19
	Deciduous Forest (%):	11
	Evergreen Forest (%):	12
	Mixed Forest (%):	4
	Wetlands (%):	39
	Agricultural (%):	1
	Residential (%):	13
	Local Roads (km):	6.6
	State Roads (km):	2.6

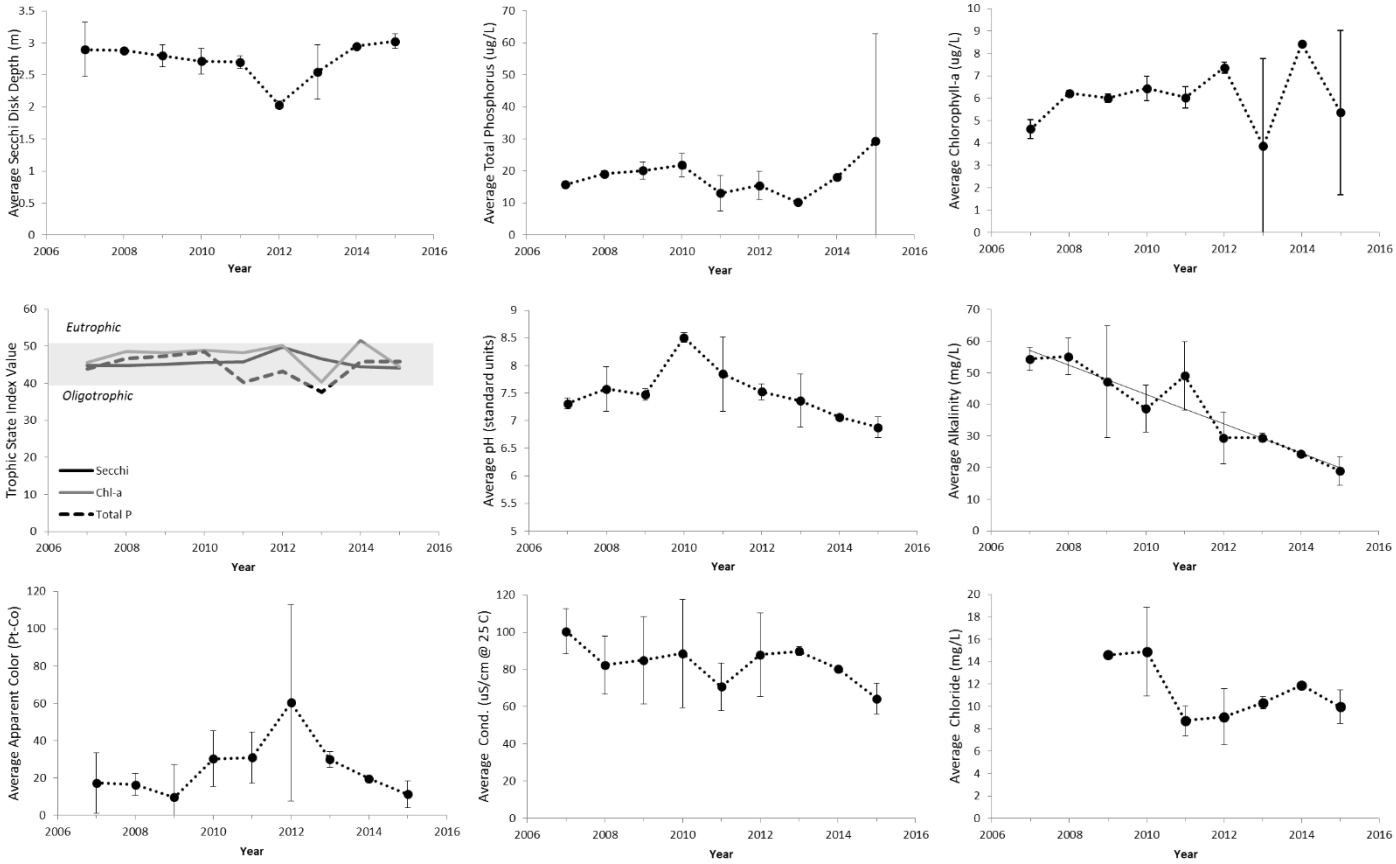
Trophic State	Acidity	Acid Neutralizing Capacity	Road Salt Influence
Mesotrophic	Circumneutral	Adequate – low sensitivity	Moderate

Water quality values and historical trends for Lake Adirondack during the 2015 sampling season. Trend analysis was not performed on calcium or nitrogen data. BDL=below detection limit.

Water Quality Indicator	Sampling Date			Average	Trend
	7/5/2015	8/29/2015	9/26/2015		
Transparency (m)	2.9	3.0	3.2	3.0	No change
Total Phosphorus (µg/L)	67.7	13.8	6.4	29.3	No change
Chlorophyll-*a* (µg/L)	8.4	1.3	6.3	5.4	No change
Laboratory pH	6.8	6.7	7.1	6.9	No change
Sp. Conductance (µS/cm)	69.0	69.3	54.4	64.2	No change
Color (Pt-Co)	7.1	7.1	19.6	11.2	No change
Alkalinity (mg/L)	22.9	20.1	14.0	19.0	Decreasing
Nitrate-Nitrogen (µg/L)	7.1	BDL	10.5	±5.7	Not analyzed
Chloride (mg/L)	9.4	11.7	8.9	10.0	No change
Calcium (mg/L)	7.3	7.4	5.1	6.6	Not analyzed
Sodium (mg/L)	5.0	6.0	4.2	5.1	No change

*See table of content for description of water quality indicators

Lake Adirondack – Time Series



Annual average values of select water quality indicators for Lake Adirondack, 2007-2015. Vertical bars represent ± 1 standard deviation of the mean; Solid trend lines across the data indicate a statistically significant trend ($p < 0.05$).

Summary of Findings

Lake Adirondack is a 78 ha lake located in Hamilton County in the Town of Indian Lake. The lake is located within a 469 ha watershed dominated by forests. Lake Adirondack has been monitored by ALAP volunteers and the Adirondack Watershed Institute since 2007.

- Lake Adirondack is a mesotrophic lake. The lake has fluctuated within the mesotrophic range since monitoring began. Transparency, total phosphorus, and chlorophyll-a have not exhibited any significant positive of negative trends.

- The water samples analyzed in 2015 were found to be circumneutral in terms of their acidity. The alkalinity averaged 19 mg/L, indicating low sensitivity to acid deposition. We detected a significant downward trend in alkalinity at a rate of approximately 4.6 mg/L/year.

- Sodium and chloride concentration averaged 5.1 and 10.0 mg/L respectively, indicating that the chemistry of the lake is influenced by the 9.2 km of roads in the watershed. Chloride concentration of Lake Adirondack is greater than 72% of the lakes participating in the program.

Lake Clear

Location		
	County:	Franklin
	Town:	Harrietstown

Lake Characteristics		
	Surface Area (ha):	395
	Shoreline Length (km):	11
	Max. Depth (m):	8.5
	Volume (m^3):	34482896
	Flush rate (times/year):	0.35

Watershed Characteristics		
	Watershed Area (ha):	1952
	Surface water (%):	22
	Deciduous Forest (%):	37
	Evergreen Forest (%):	23
	Mixed Forest (%):	4
	Wetlands (%):	8
	Agricultural (%):	0
	Residential (%):	3
	Local Roads (km):	0.8
	State Roads (km):	5.5

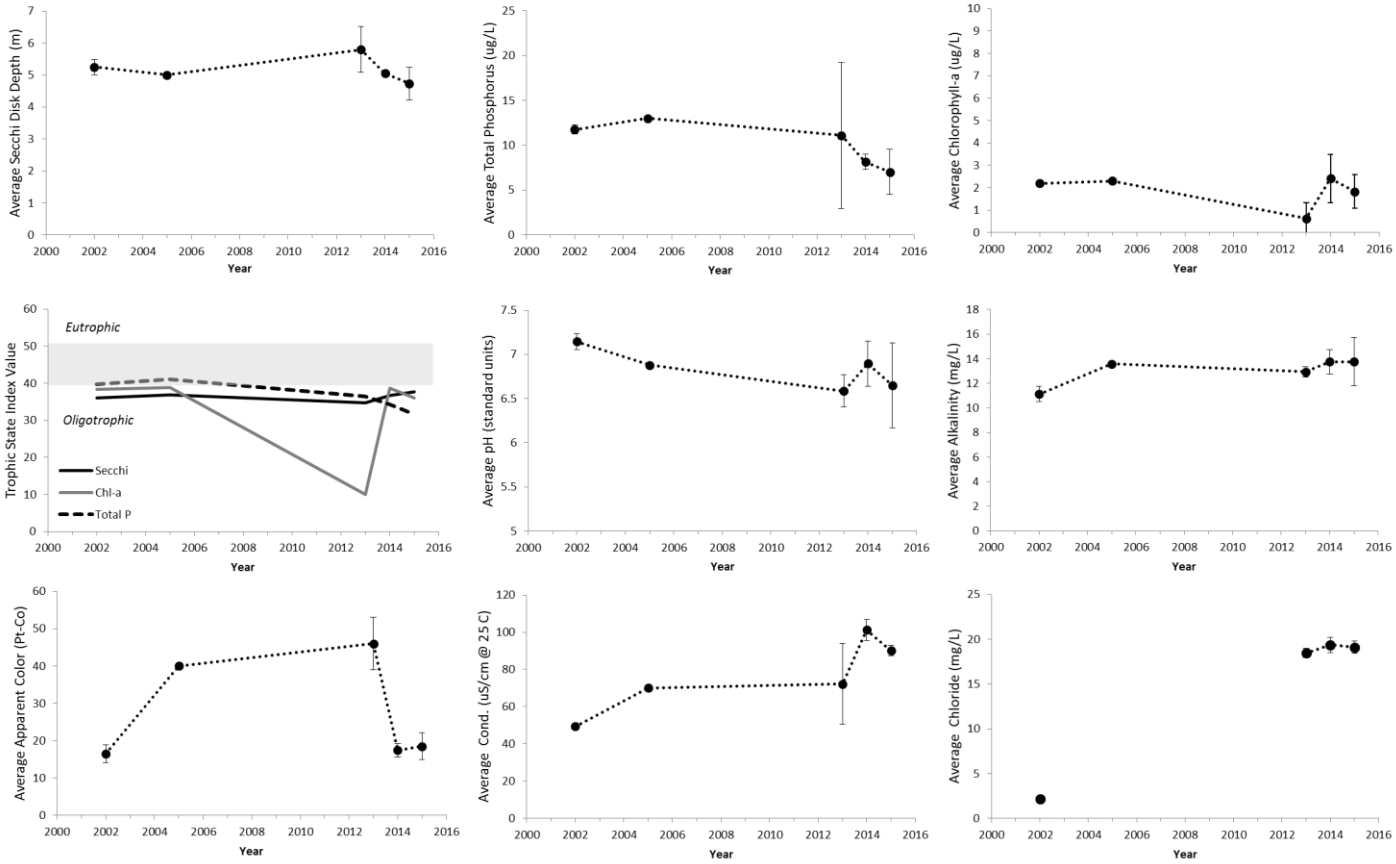
Trophic State	Acidity	Acid Neutralizing Capacity	Road Salt Influence
Oligotrophic	Circumneutral	Adequate – low sensitivity	Moderate

Water quality values and historical trends for Lake Clear during the 2015 sampling season. Trend analysis was not performed on calcium or nitrogen data. BDL=below detection limit.

Water Quality Indicator	Sampling Date			Average	Trend
	6/26/2015	7/19/2015	8/17/2015		
Transparency (m)	4.3	5.3	4.7	4.8	No change
Total Phosphorus (µg/L)	9.7	6.6	4.7	7.0	No change
Chlorophyll-*a* (µg/L)	2.7	1.4	1.4	1.8	No change
Laboratory pH	7.1	6.6	6.2	6.6	No change
Sp. Conductance (µS/cm)	90.4	87.2	92.7	90.1	No change
Color (Pt-Co)	22.7	16.4	16.4	18.5	No change
Alkalinity (mg/L)	14.8	11.5	15.0	13.8	No change
Nitrate-Nitrogen (µg/L)	BDL	BDL	42.4	±12.9	Not analyzed
Chloride (mg/L)	18.7	18.7	19.9	19.1	No change
Calcium (mg/L)	5.3	5.2	5.2	5.2	Not analyzed
Sodium (mg/L)	11.3	11.3	11.5	11.4	No change

*See table of content for description of water quality indicators

Lake Clear – Time Series



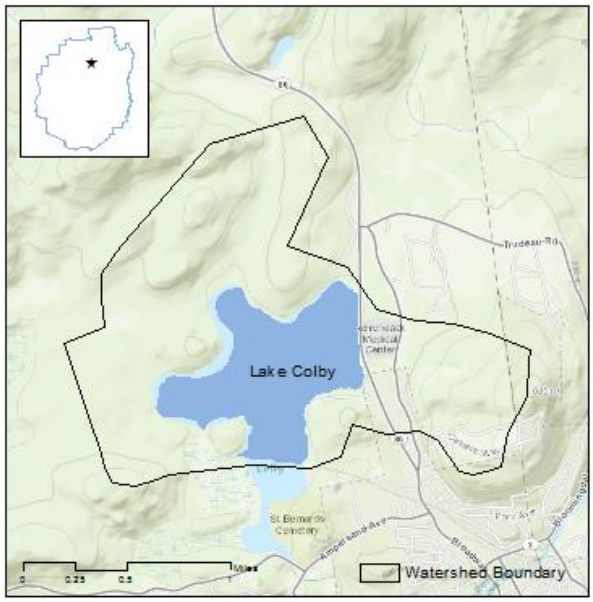
Annual average values of select water quality indicators for Lake Clear, 2002-2015. Vertical bars represent ± 1 standard deviation of the mean; Solid trend lines across the data indicate a statistically significant trend ($p < 0.05$).

Summary of Findings

Lake Clear is a 395 ha lake located in Franklin County in the Town of Harrietstown. The lake is located within a 1,952 ha watershed dominated by forests. ALAP monitoring of Lake Clear began in 2002, again in 2005 and most recently 2013-2015.

- Lake Clear is an oligotrophic lake. Transparency, total phosphorus, and chlorophyll-a have not exhibited any significant positive of negative trends since monitoring began in 2002.
- The water samples analyzed in 2015 were found to be circumneutral in terms of their acidity. The alkalinity averaged 13.8 mg/L, indicating low sensitivity to acid deposition.
- Sodium and chloride concentration averaged 11.2 and 19.1 mg/L respectively, indicating that the chemistry of the lake is influenced by the 6.3 km of roads in the watershed. The chloride concentration of Lake Clear is greater than 89% of participating ALAP lakes.

Lake Colby



Location		
	County:	Franklin
	Town:	Harrietstown

Lake Characteristics		
	Surface Area (ha):	119
	Shoreline Length (km):	6
	Max. Depth (m):	14.3
	Volume (m^3):	7873631
	Flush rate (times/year):	0.7

Watershed Characteristics		
	Watershed Area (ha):	577
	Surface water (%):	22
	Deciduous Forest (%):	25
	Evergreen Forest (%):	25
	Mixed Forest (%):	3
	Wetlands (%):	20
	Agricultural (%):	0
	Residential (%):	5
	Local Roads (km):	1.4
	State Roads (km):	1.2

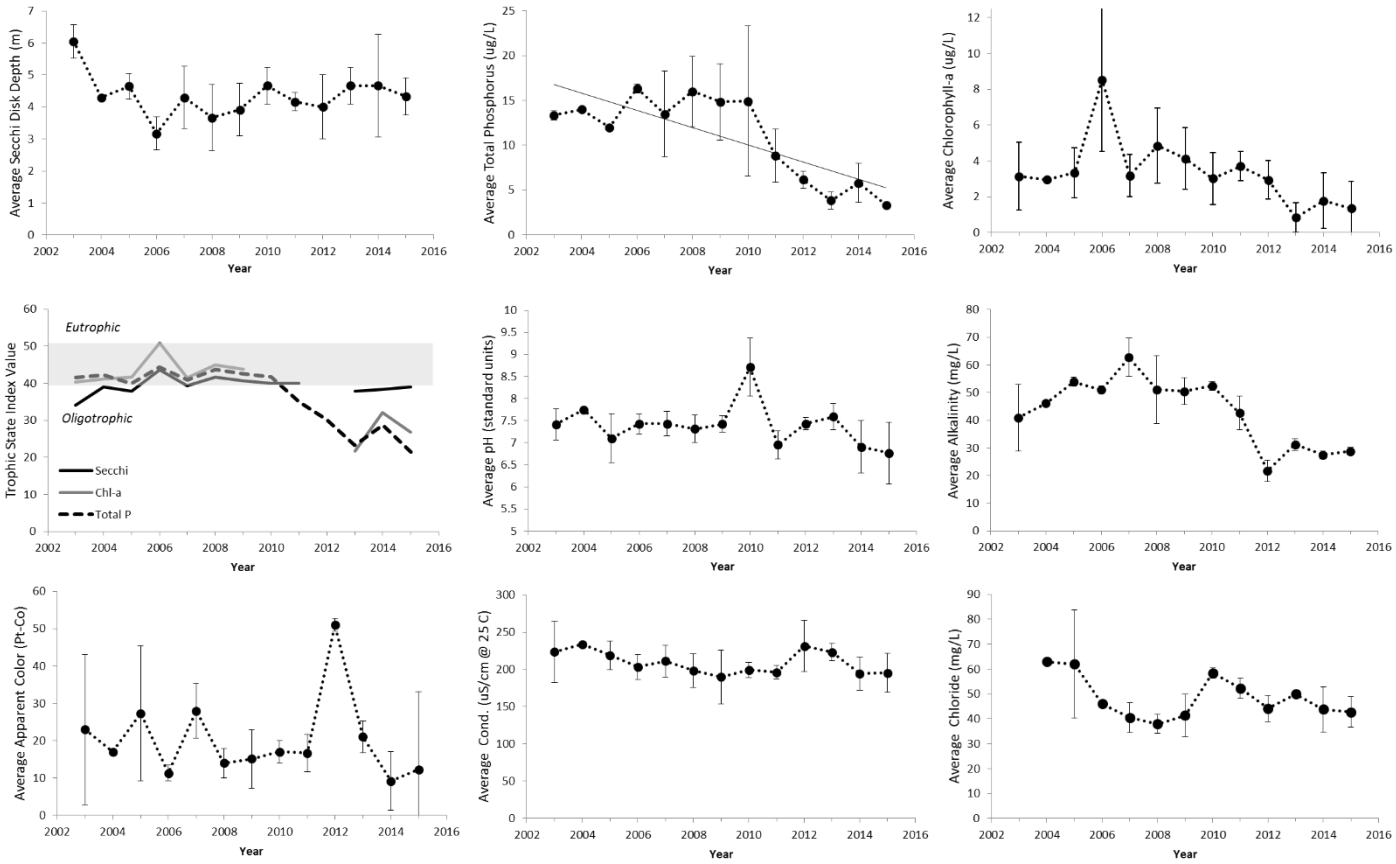
Trophic State	Acidity	Acid Neutralizing Capacity	Road Salt Influence
Oligotrophic	Circumneutral	Well buffered – not sensitive	High

Water quality values and historical trends for Lake Colby during the 2015 sampling season. Trend analysis was not performed on calcium or nitrogen data. BDL=below detection limit.

Water Quality Indicator	Sampling Date			Average	Trend
	7/24/2015	8/20/2015	9/22/2015		
Transparency (m)	4.0	4.0	5.0	4.3	No change
Total Phosphorus (µg/L)	3.3	3.3	3.4	3.3	Decreasing
Chlorophyll-*a* (µg/L)	0.9	0.1	3.0	1.3	No change
Laboratory pH	6.3	6.5	7.6	6.8	No change
Sp. Conductance (µS/cm)	175.3	185.9	225.0	195.4	No change
Color (Pt-Co)	22.7	25.8	BDL	±12.3	No change
Alkalinity (mg/L)	27.8	28.2	30.4	28.8	No change
Nitrate-Nitrogen (µg/L)	59.0	40.8	14.2	38.0	Not analyzed
Chloride (mg/L)	37.9	40.9	49.6	42.8	No change
Calcium (mg/L)	10.0	10.2	11.3	10.5	Not analyzed
Sodium (mg/L)	20.8	23.0	24.5	22.8	No change

*See table of content for description of water quality indicators

Lake Colby – Time Series



Annual average values of select water quality indicators for Lake Colby, 2003-2015. Vertical bars represent ± 1 standard deviation of the mean; Solid trend lines across the data indicate a statistically significant trend ($p < 0.05$).

Summary of Findings

Lake Colby is a 119 ha lake located in Franklin County in the Town of Harrietstown. The lake is located within a 577 ha watershed dominated by forests, but with significant residential and commercial development in the eastern portion of the watershed. Lake Colby has been monitored by ALAP volunteers and the Adirondack Watershed Institute since 2003.

- Lake Colby is an oligotrophic lake. The transparency depth and chlorophyll concentrations have not exhibited a significant positive or negative trend since 2003. Total phosphorus concentrations have been reduced for the past 5 years and have exhibited a downward trend at a rate of approximately 0.9µg/L/year. We believe some of this reduction may be related to laboratory improvements initiated in 2010.
- Water samples received in 2015 were circumneutral in terms of their acidity. The alkalinity of Lake Colby averaged 38mg/L, indicating the lake is not sensitive to acid deposition. The alkalinity of Lake Colby is greater than 97% of participating ALAP lakes.
- Sodium and chloride concentration averaged 22.8 and 42.8 mg/L respectively, indicating that the chemistry of the lake is highly influenced by the salted roads in the watershed. The chloride concentration of Lake Colby is greater than 97% of participating ALAP lakes.

Lake Durant

Location		
	County:	Hamilton
	Town:	Indian Lake

Lake Characteristics		
	Surface Area (ha):	142
	Shoreline Length (km):	17
	Max. Depth (m):	6.1
	Volume (m^3):	-
	Flush rate (times/year):	-

Watershed Characteristics		
	Watershed Area (ha):	6044
	Surface water (%):	5
	Deciduous Forest (%):	41
	Evergreen Forest (%):	20
	Mixed Forest (%):	7
	Wetlands (%):	25
	Agricultural (%):	0
	Residential (%):	1
	Local Roads (km):	1
	State Roads (km):	3.8

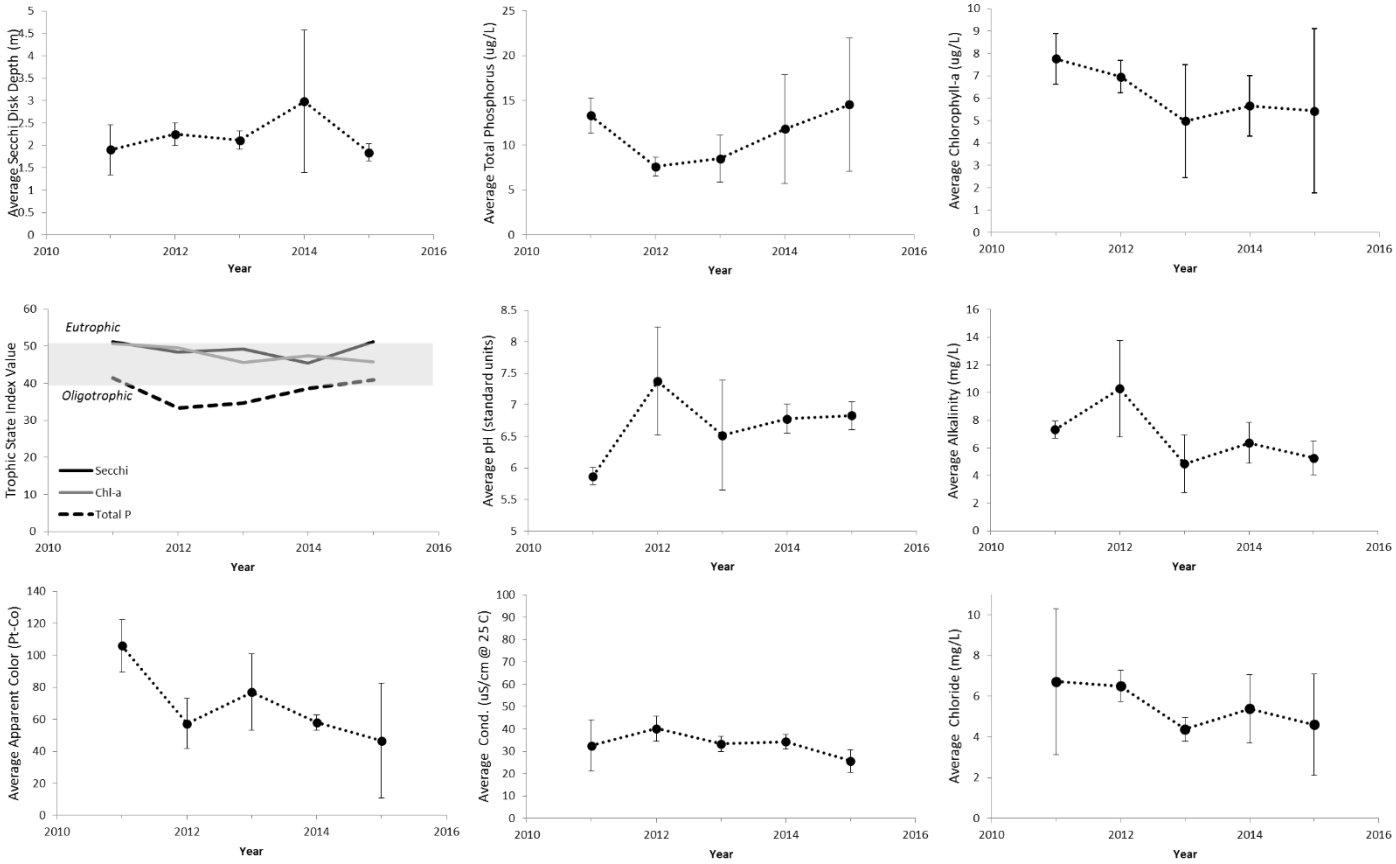
Trophic State	Acidity	Acid Neutralizing Capacity	Road Salt Influence
Mesotrophic	Circumneutral	Moderate	Present - Low

Water quality values and historical trends for Lake Durant during the 2015 sampling season. Trend analysis was not performed on calcium or nitrogen data. BDL=below detection limit.

Water Quality Indicator	Sampling Date			Average	Trend
	6/24/2015	7/22/2015	8/17/2015		
Transparency (m)	1.6	2.0	2.0	1.8	No change
Total Phosphorus (µg/L)	6.0	18.5	19.1	14.5	No change
Chlorophyll-*a* (µg/L)	3.9	9.6	2.8	5.4	No change
Laboratory pH	7.1	6.7	6.7	6.8	No change
Sp. Conductance (µS/cm)	21.0	24.9	31.0	25.6	No change
Color (Pt-Co)	81.9	47.6	10.2	46.6	No change
Alkalinity (mg/L)	3.9	6.1	5.8	5.3	No change
Nitrate-Nitrogen (µg/L)	0.6	BDL	BDL	±0.6	Not analyzed
Chloride (mg/L)	2.6	3.8	7.4	4.6	No change
Calcium (mg/L)	2.2	2.6	2.9	2.5	Not analyzed
Sodium (mg/L)	2.3	3.0	3.6	3.0	No change

*See table of content for description of water quality indicators

Lake Durant – Time Series



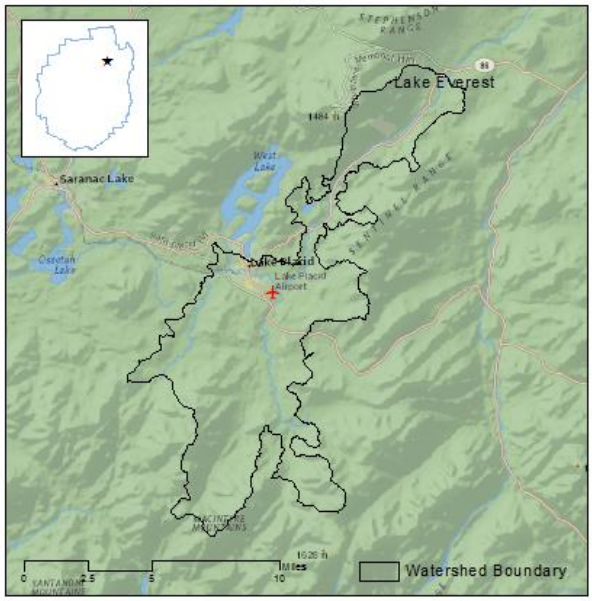
Annual average values of select water quality indicators for Lake Durant, 2011-2015. Vertical bars represent ± 1 standard deviation of the mean; Solid trend lines across the data indicate a statistically significant trend ($p < 0.05$).

Summary of Findings

Lake Durant is a 142 ha lake located in Hamilton County in the Town of Indian Lake. The lake is located within a 6,044 ha watershed dominated by forests. Lake Durant has been monitored by ALAP volunteers and the Adirondack Watershed Institute since 2011.

- Lake Durant is a mesotrophic lake. The lake has fluctuated around the mesotrophic range since monitoring began. Transparency, total phosphorus, and chlorophyll-a have not exhibited any significant positive of negative trends.
- The transparency of the lake is relatively low. The low transparency is likely related to the color of the water which averaged 46 Pt-co units in 2015. Elevated color is indicative of high amounts of dissolved organic material.
- The water samples analyzed in 2015 were found to be circumneutral in terms of their acidity. The alkalinity averaged 5.3 mg/L, indicating moderate sensitivity to acid deposition.
- Sodium and chloride concentration averaged 3.0 and 4.6 mg/L respectively, indicating that the chemistry of the lake is slightly influenced by the 3.8 km of roads in the watershed.

Lake Everest



Location		
	County:	Essex
	Town:	Wilmington

Lake Characteristics		
	Surface Area (ha):	3
	Shoreline Length (km):	1
	Max. Depth (m):	
	Volume (m^3):	
	Flush rate (times/year):	

Watershed Characteristics		
	Watershed Area (ha):	17876
	Surface water (%):	12
	Deciduous Forest (%):	33
	Evergreen Forest (%):	21
	Mixed Forest (%):	3
	Wetlands (%):	15
	Agricultural (%):	2
	Residential (%):	0
	Local Roads (km):	16
	State Roads (km):	24

Trophic State	Acidity	Acid Neutralizing Capacity	Road Salt Influence
-----	Circumneutral	Adequate – low sensitivity	Moderate

Water quality values and historical trends for Lake Everest during the 2015 sampling season. Trend analysis was not performed on calcium or nitrogen data. BDL=below detection limit.

Water Quality Indicator	Sampling Date					Average	Trend
	5/18	6/26	7/23	8/19	9/25		
Transparency (m)	Visible on Bottom						Not analyzed
Total Phosphorus (µg/L)	11.7	5.1	7.9	14.6	7.7	9.4	
Chlorophyll-*a* (µg/L)	1.2	3.2	2.6	2.1	1.6	2.2	
Laboratory pH	8.2	6.6	6.5	6.6	7.5	7.1	
Sp. Cond. (µS/cm)	69.7	54.2	71.6	103.9	125.4	85.0	
Color (Pt-Co)	4.0	50.7	35.1	13.3	16.4	23.9	
Alkalinity (mg/L)	11.9	9.6	14.1	23.4	26.9	17.2	
Nitrate-Nitrogen (µg/L)	226.0	128.0	139.0	245.0	185.0	184.6	
Chloride (mg/L)	12.5	8.3	11.8	17.7	24.3	14.9	
Calcium (mg/L)	5.3	4.3	5.6	8.8	10.6	6.9	
Sodium (mg/L)	8.4	6.2	7.7	10.6	11.8	8.9	

*See table of content for description of water quality indicators

Summary of Findings

Lake Everest is a 3 ha pond located in Essex County in the Town of Wilmington. The pond is located within the 17,867 ha Ausable River Watershed. This is Lake Everest's first year in ALAP. Trend analysis will be performed on water quality indicators after five years of data have been collected.

- Trophic classification is difficult for Lake Everest because of its shallow depth and hydrologic connectivity to a large river system. The ponds connection with the Ausable River is likely the cause of the high variability in many of the water quality indicators.

- The water samples analyzed in 2015 were found to be circumneutral in terms of its acidity. The alkalinity averaged 17.2 mg/L, indicating low sensitivity to acid deposition.
- The 2015 sodium and chloride concentrations in Everest were 8.9 mg/L and 14.9 mg/L respectively, indicating that the lake is moderately influenced by the salted roads in the watershed.

Lake of the Pines

Location		
	County:	lewis
	Town:	Greig

Lake Characteristics		
	Surface Area (ha):	3
	Shoreline Length (km):	1
	Max. Depth (m):	
	Volume (m^3):	
	Flush rate (times/year):	

Watershed Characteristics		
	Watershed Area (ha):	1315
	Surface water (%):	12
	Deciduous Forest (%):	34
	Evergreen Forest (%):	21
	Mixed Forest (%):	3
	Wetlands (%):	1
	Agricultural (%):	2
	Residential (%):	0
	Local Roads (km):	16
	State Roads (km):	0

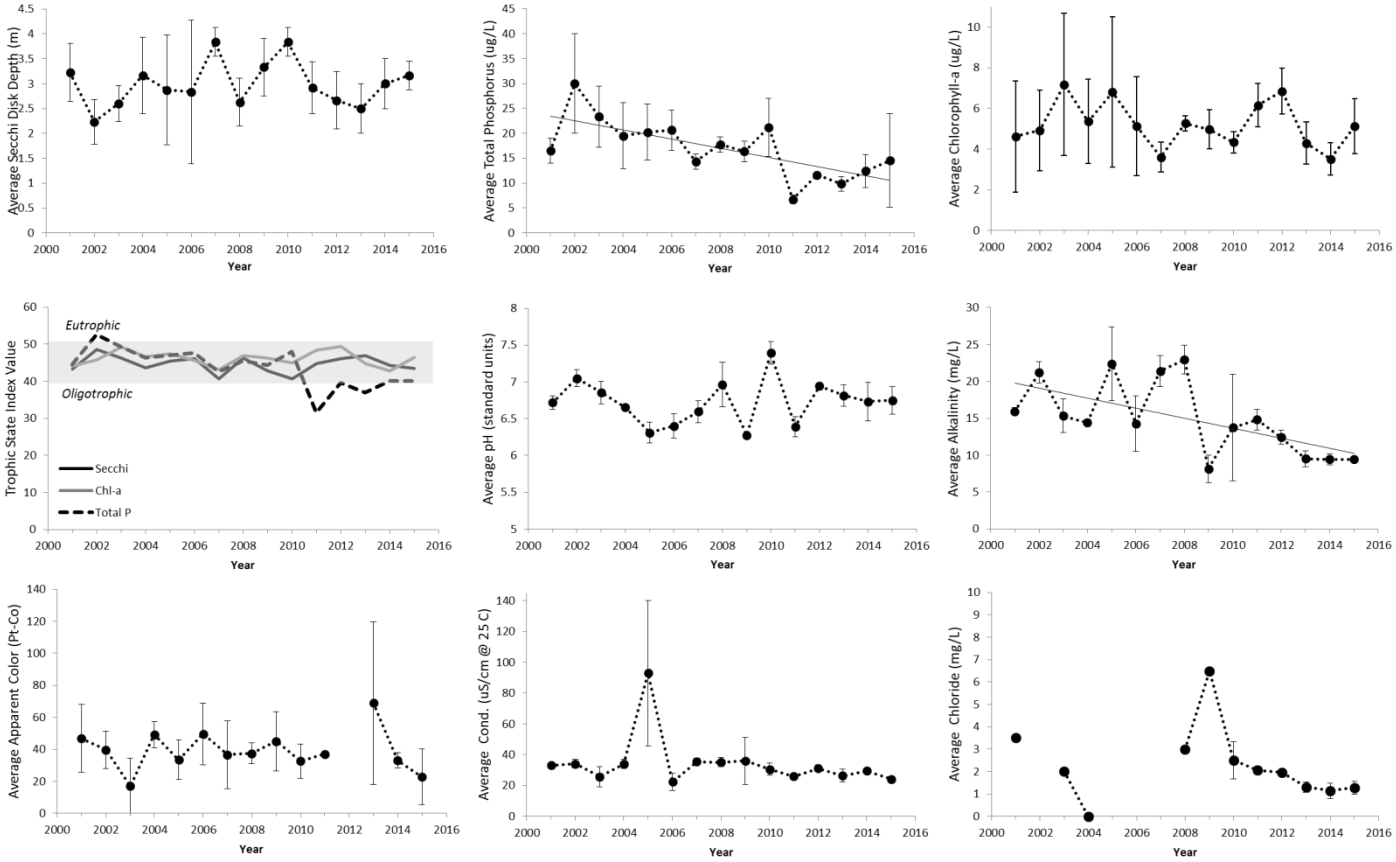
Trophic State	Acidity	Acid Neutralizing Capacity	Road Salt Influence
Mesotrophic	Circumneutral	Moderate	Present - low

Water quality values and historical trends for Lake of the Pines during the 2015 sampling season. Trend analysis was not performed on calcium or nitrogen data. BDL=below detection limit.

Water Quality Indicator	Sampling Date			Average	Trend
	6/22/2015	7/20/2015	8/18/2015		
Transparency (m)	3.5	3.0	3.0	4.4	No change
Total Phosphorus (µg/L)	4.9	23.7	14.9	20.2	Decreasing
Chlorophyll-*a* (µg/L)	5.0	3.9	6.6	1.8	No change
Laboratory pH	6.8	6.5	6.9	7.4	No change
Sp. Conductance (µS/cm)	25.6	24.6	22.4	23.7	No change
Color (Pt-Co)	7.1	41.4	19.6	18.5	No change
Alkalinity (mg/L)	9.7	9.5	9.1	7.6	Decreasing
Nitrate-Nitrogen (µg/L)	7.7	BDL	33.0	±35.4	Not analyzed
Chloride (mg/L)	1.1	1.1	1.6	1.1	No change
Calcium (mg/L)	3.2	3.2	3.1	2.5	Not analyzed
Sodium (mg/L)	1.8	1.5	1.2	0.9	No change

*See table of content for description of water quality indicators

Lake of the Pines – Time Series



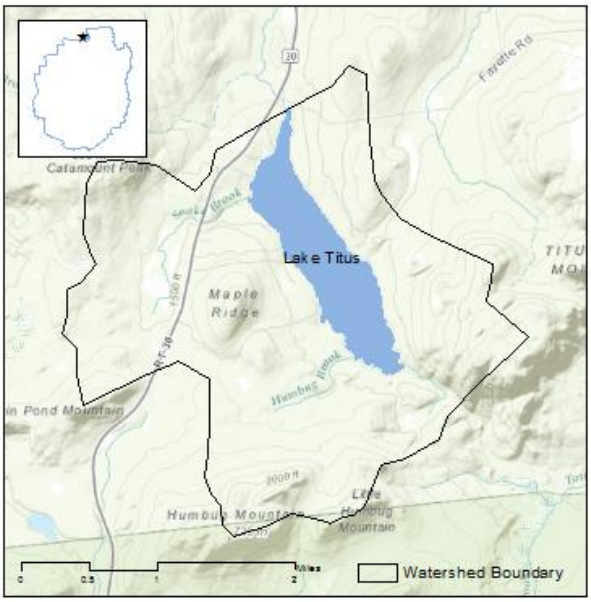
Annual average values of select water quality indicators for Lake of the Pines, 2001-2015. Vertical bars represent ± 1 standard deviation of the mean; Solid trend lines across the data indicate a statistically significant trend ($p < 0.05$).

Summary of Findings

Lake of the Pines is a 3 ha lake located in Lewis County in the Town of Greig. The lake is located within a 1,315 ha watershed dominated by forests. Lake of the Pines has been monitored by ALAP volunteers and the Adirondack Watershed Institute since 2001.

- Lake of the Pines is a mesotrophic lake. The trophic indicators of the lake have been fairly stable over time with the exception of total phosphorus, which has exhibited a significant downward trend at a rate of approximately 0.9µg/L/year.
- Water samples from 2015 were found to be circumneutral in terms of their acidity. The alkalinity of the Lake averaged 7.6 mg/L, indicating that the lake has moderate sensitivity to acid deposition.
- Sodium and chloride concentrations averaged 0.9 and 1.1 mg/L respectively. These concentrations suggest that the chemistry of the lake is influenced by the 16 km of roads in the watershed, but the influence is relatively low.

Lake Titus



Location		
	County:	Franklin
	Town:	Malone

Lake Characteristics		
	Surface Area (ha):	177
	Shoreline Length (km):	8
	Max. Depth (m):	9.1
	Volume (m^3):	8637690
	Flush rate (times/year):	1.2

Watershed Characteristics		
	Watershed Area (ha):	1658
	Surface water (%):	12
	Deciduous Forest (%):	64
	Evergreen Forest (%):	9
	Mixed Forest (%):	3
	Wetlands (%):	8
	Agricultural (%):	1
	Residential (%):	3
	Local Roads (km):	0
	State Roads (km):	0

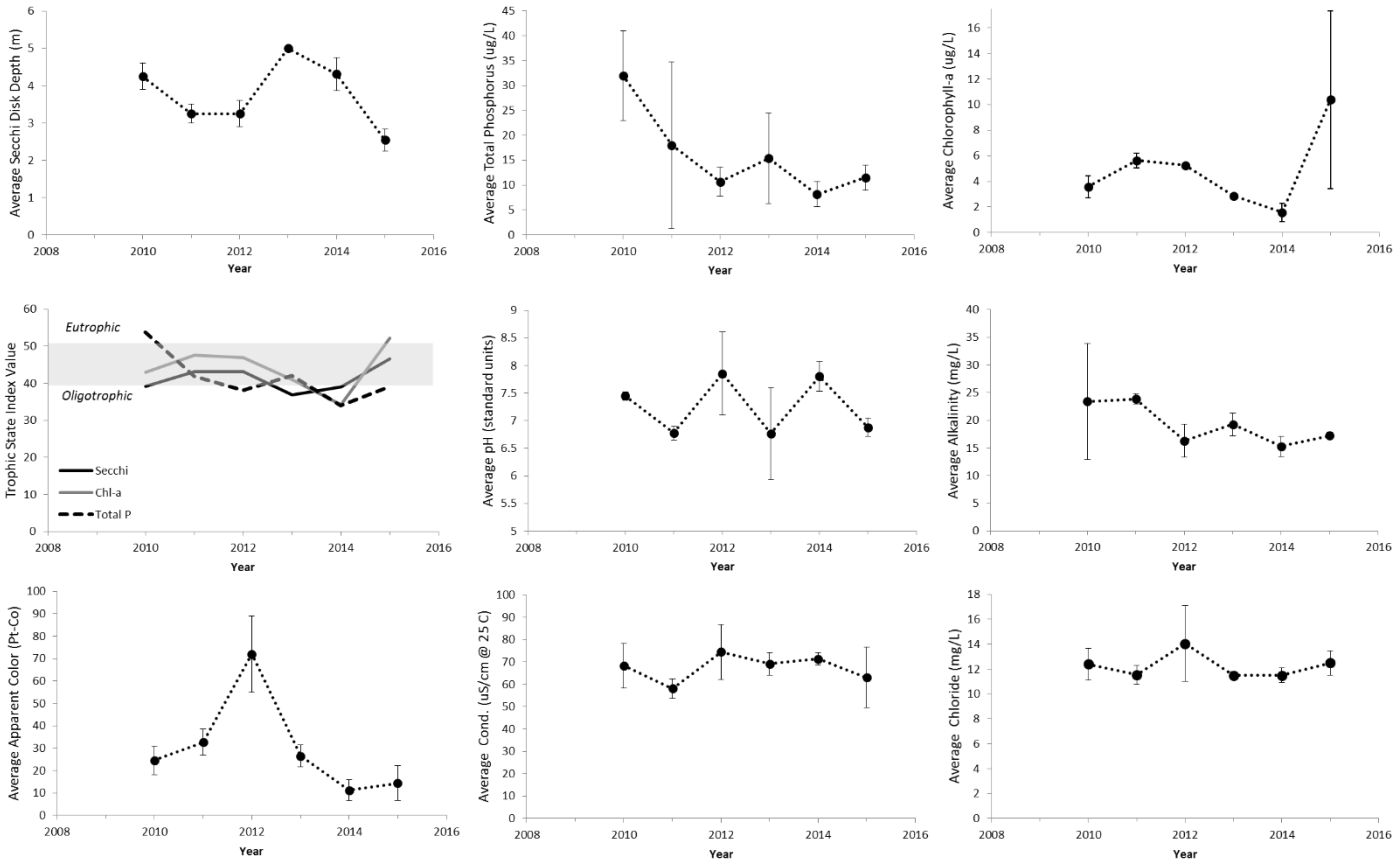
Trophic State	Acidity	Acid Neutralizing Capacity	Road Salt Influence
Mesotrophic	Circumneutral	Adequate – low sensitivity	Moderate

Water quality values and historical trends for Lake Titus during the 2015 sampling season. Trend analysis was not performed on calcium or nitrogen data. BDL=below detection limit.

Water Quality Indicator	Sampling Date			Average	Trend
	7/12/2015	8/29/2015	10/11/2015		
Transparency (m)	2.9	2.4	2.4	2.5	No change
Total Phosphorus (µg/L)	8.6	13.2	12.7	11.5	No change
Chlorophyll-*a* (µg/L)	5.8	7.0	18.4	10.4	No change
Laboratory pH	6.7	6.9	7.1	6.9	No change
Sp. Conductance (µS/cm)	47.6	72.9	68.7	63.1	No change
Color (Pt-Co)	7.1	13.3	22.7	14.4	No change
Alkalinity (mg/L)	16.8	17.9	16.9	17.2	No change
Nitrate-Nitrogen (µg/L)	0.4	BDL	BDL	±0.4	Not analyzed
Chloride (mg/L)	11.7	13.6	12.3	12.5	No change
Calcium (mg/L)	4.7	5.7	5.1	5.2	No change
Sodium (mg/L)	7.9	7.3	6.5	7.2	Decreasing

*See table of content for description of water quality indicators

Lake Titus – Time Series



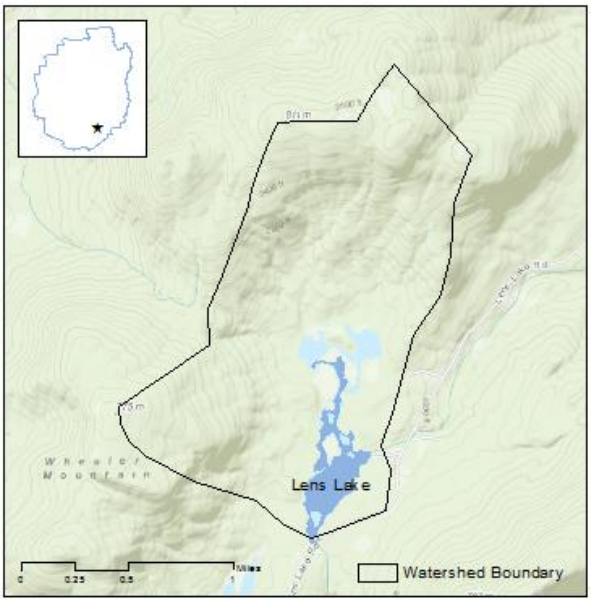
Annual average values of select water quality indicators for Lake Titus, 2010-2015. Vertical bars represent ± 1 standard deviation of the mean; Solid trend lines across the data indicate a statistically significant trend ($p < 0.05$).

Summary of Findings

Lake Titus is a 177 ha lake located in Franklin County in the Town of Malone. The lake is located within a 1,658 ha watershed dominated by forests. Lake Titus has been monitored by ALAP volunteers and the Adirondack Watershed Institute since 2010.

- Lake Titus is a mesotrophic lake. The lake has fluctuated around the mesotrophic range since monitoring began. Transparency, total phosphorus, and chlorophyll-a have not exhibited any significant positive of negative trends.
- The water samples analyzed in 2015 were found to be circumneutral in terms of their acidity. The alkalinity averaged 17.2 mg/L, indicating low sensitivity to acid deposition.
- Sodium and chloride concentration averaged 7.2 and 12.5 mg/L respectively, indicating that the chemistry of the lake is influenced by the 3.8 km of roads in the watershed.

Lens Lake



Location		
	County:	Warren
	Town:	Stony Creek

Lake Characteristics		
	Surface Area (ha):	22
	Shoreline Length (km):	6
	Max. Depth (m):	-
	Volume (m^3):	201674
	Flush rate (times/year):	17.3

Watershed Characteristics		
	Watershed Area (ha):	514
	Surface water (%):	7
	Deciduous Forest (%):	64
	Evergreen Forest (%):	8
	Mixed Forest (%):	10
	Wetlands (%):	12
	Agricultural (%):	0
	Residential (%):	0
	Local Roads (km):	0.2
	State Roads (km):	0

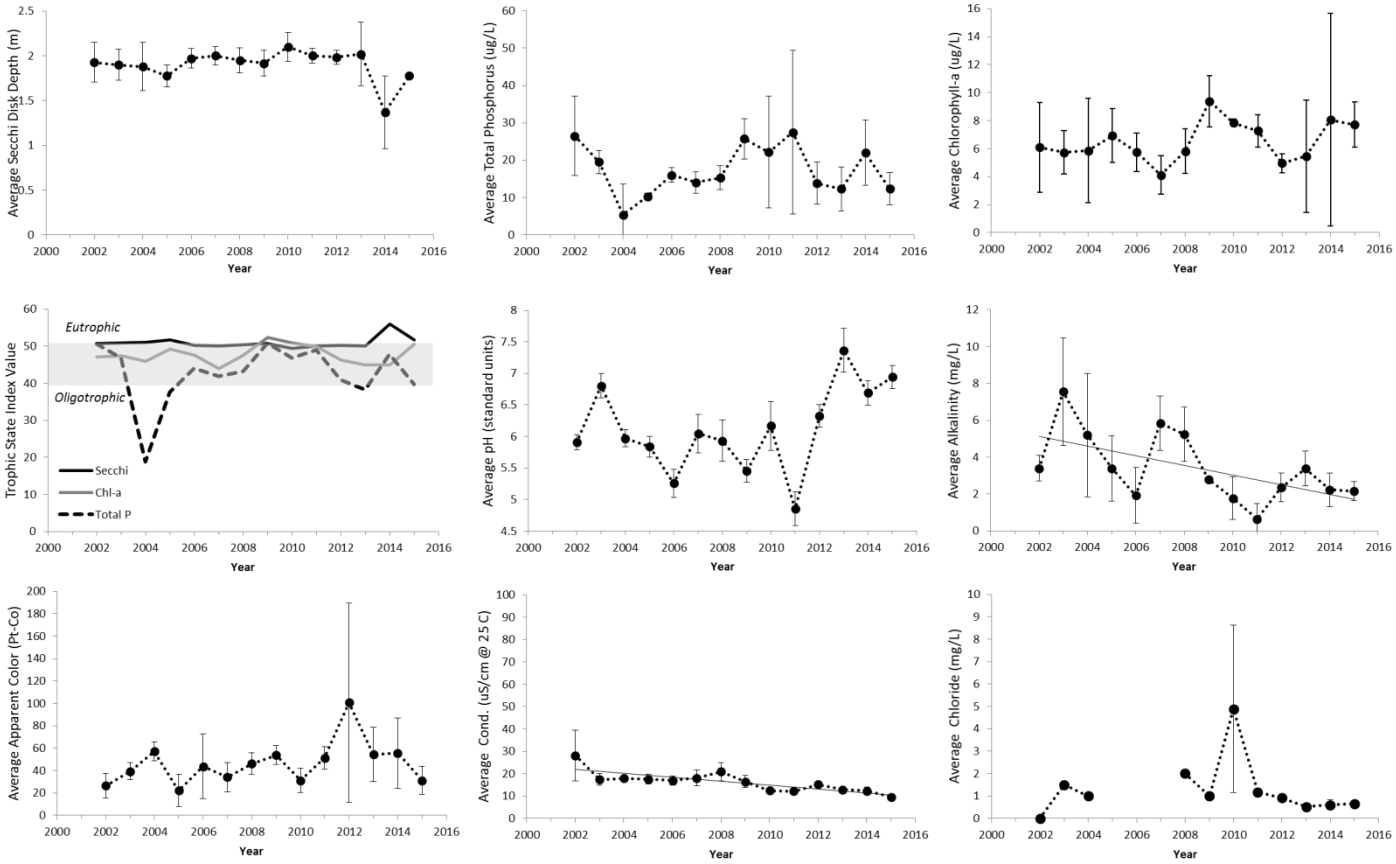
Trophic State	Acidity	Acid Neutralizing Capacity	Road Salt Influence
Mesotrophic	Circumneutral	Low	Not Significant

Water quality values and historical trends for Lens Lake during the 2015 sampling season. Trend analysis was not performed on calcium or nitrogen data. BDL=below detection limit. VOB=Visible on bottom.

Water Quality Indicator	Sampling Date					Average	Trend
	5/25	6/21	7/15	8/9	September		
Transparency (m)	VOB	1.8	1.8	VOB		±1.8	No change
Total Phosphorus (µg/L)	10.7	7.5	17.9	13.3		12.3	No change
Chlorophyll-*a* (µg/L)	6.0	8.8	9.3	6.8		7.7	No change
Laboratory pH	7.1	7.0	6.9	6.7		6.9	No change
Sp. Cond. (µS/cm)	9.9	9.6	9.5	9.4	No Sample	9.6	Decreasing
Color (Pt-Co)	44.5	25.8	38.3	16.4		31.2	No change
Alkalinity (mg/L)	1.8	2.2	1.8	2.9		2.2	Decreasing
Nitrate-Nitrogen (µg/L)	BDL	BDL	BDL	BDL		BDL	Not analyzed
Chloride (mg/L)	0.8	0.6	0.6	0.7		0.7	No change
Calcium (mg/L)	1.0	1.1	1.2	1.4		1.2	Not analyzed
Sodium (mg/L)	0.7	0.6	0.5	0.5		0.6	No change

*See table of content for description of water quality indicators

Lens Lake – Time Series



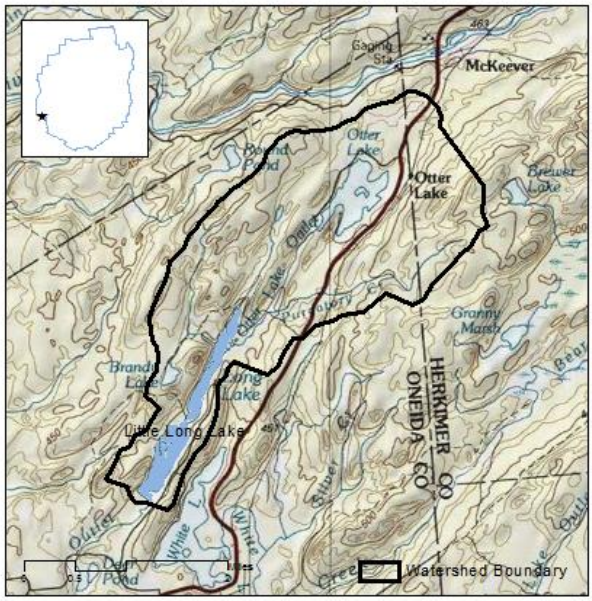
Annual average values of select water quality indicators for Lens Lake, 2002-2015. Vertical bars represent ± 1 standard deviation of the mean; Solid trend lines across the data indicate a statistically significant trend ($p < 0.05$).

Summary of Findings

Lens Lake is a 22 ha lake located in Warren County in the Town of Stony Creek. The lake is located within a 514 ha watershed dominated by forests. Lens Lake has been monitored by ALAP volunteers and the Adirondack Watershed Institute since 2002.

- Lens Lake is a mesotrophic lake. Transparency, total phosphorus, and chlorophyll-a have not exhibited any significant positive of negative trends since monitoring began in 2002. Due to the shallow depth of the lake, transparency is not a good indicator of trophic state.
- The water samples analyzed in 2015 were found to be circumneutral in terms of their acidity. The alkalinity averaged 2.2 mg/L, indicating that the lake is sensitive to acid deposition. We detected a significant downward trend in alkalinity at a rate of approximately 0.3 mg/L/year.
- Sodium and chloride concentration averaged 0.6 and 0.7 mg/L respectively, these values are within the range we would expect for a lake that lacks salted roads in the watershed.

Little Long Lake



Location		
	County:	Oneida
	Town:	Forestport

Lake Characteristics		
	Surface Area (ha):	64
	Shoreline Length (km):	11
	Max. Depth (m):	10.7
	Volume (m^3):	1600000
	Flush rate (times/year):	9.1

Watershed Characteristics		
	Watershed Area (ha):	1637
	Surface water (%):	8
	Deciduous Forest (%):	64
	Evergreen Forest (%):	3
	Mixed Forest (%):	1
	Wetlands (%):	14
	Agricultural (%):	0
	Residential (%):	1
	Local Roads (km):	6.3
	State Roads (km):	4.5

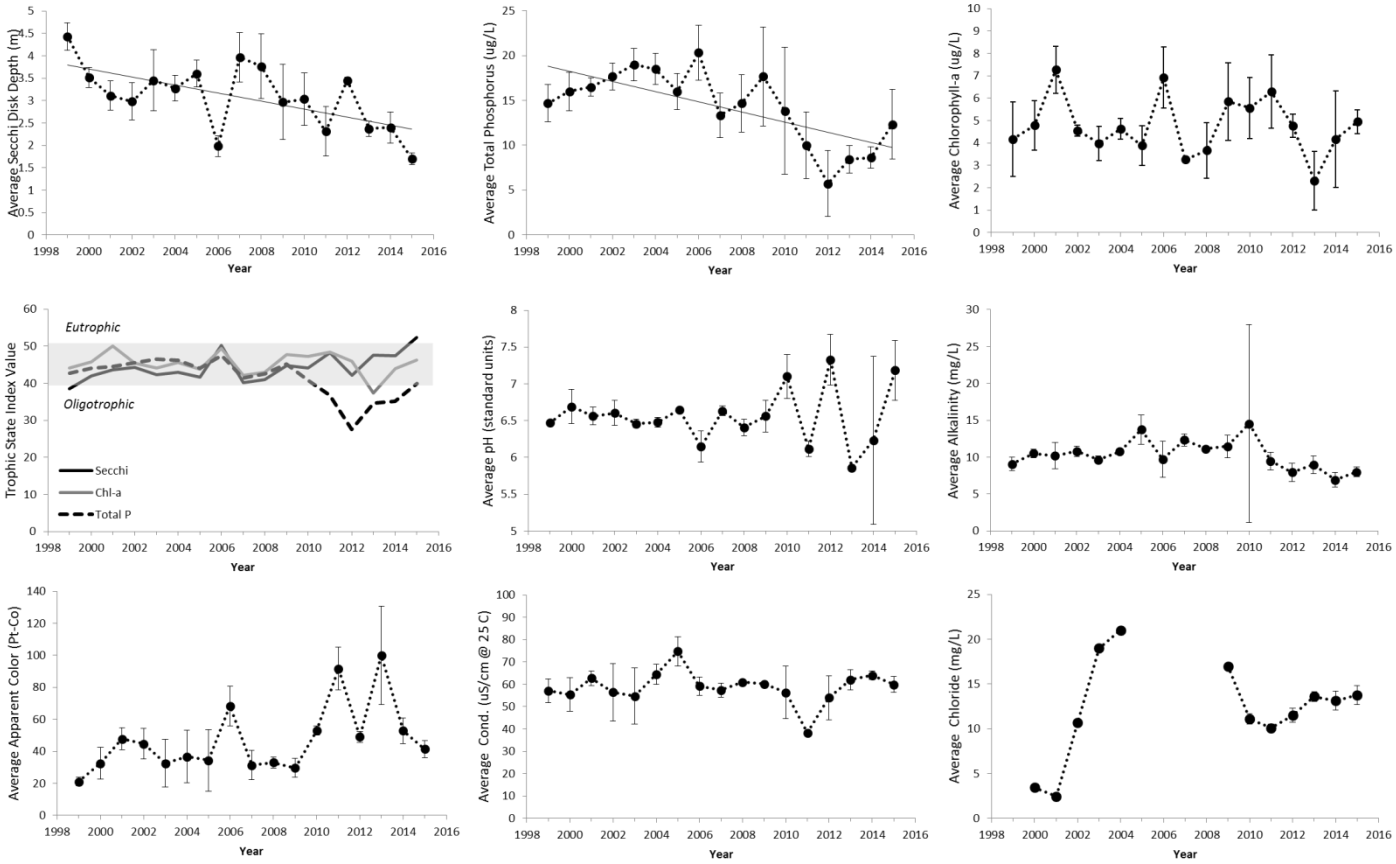
Trophic State	Acidity	Acid Neutralizing Capacity	Road Salt Influence
Mesotrophic	Circumneutral	Moderate	Moderate

Water quality values and historical trends for Little Long Lake during the 2015 sampling season. Trend analysis was not performed on calcium or nitrogen data. BDL=below detection limit.

Water Quality Indicator	Sampling Date			Average	Trend
	7/24/2015	8/20/2015	9/22/2015		
Transparency (m)	1.6	1.9	1.6	1.7	Decreasing
Total Phosphorus (µg/L)	16.8	10.0	10.2	12.3	Decreasing
Chlorophyll-*a* (µg/L)	4.4	4.9	5.5	4.9	No change
Laboratory pH	6.9	7.0	7.7	7.2	No change
Sp. Conductance (µS/cm)	56.2	60.4	63.2	59.9	No change
Color (Pt-Co)	38.3	38.3	47.6	41.4	No change
Alkalinity (mg/L)	7.4	7.9	8.7	8.0	No change
Nitrate-Nitrogen (µg/L)	BDL	BDL	BDL	BDL	Not analyzed
Chloride (mg/L)	12.6	14.8	14.0	13.8	No change
Calcium (mg/L)	3.6	3.8	4.0	3.8	Not analyzed
Sodium (mg/L)	6.9	7.1	7.4	7.1	No change

*See table of content for description of water quality indicators

Little Long Lake – Time Series



Annual average values of select water quality indicators for Little Long Lake, 1999-2015. Vertical bars represent ± 1 standard deviation of the mean; Solid trend lines across the data indicate a statistically significant trend ($p < 0.05$).

Summary of Findings

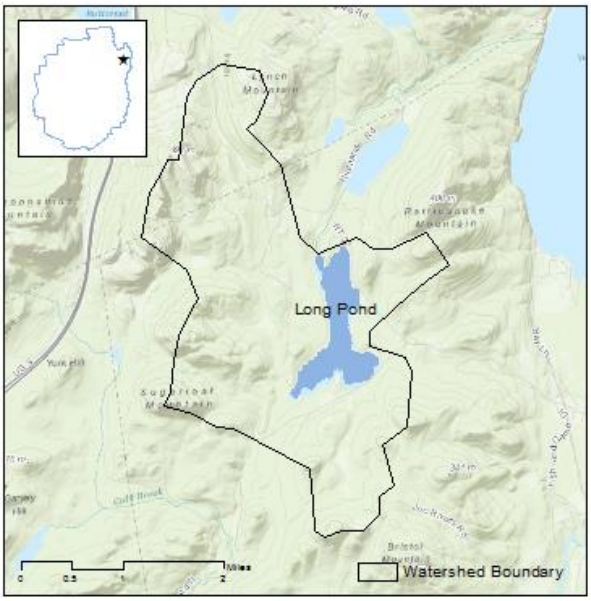
Little Long Lake is a 64 ha lake located in Oneida County in the Town of Forestport. The lake is located within a 1,637 ha watershed dominated by forests. Little Long Lake has been monitored by ALAP volunteers and the Adirondack Watershed Institute since 1999.

- Little Long Lake is a mesotrophic lake. Transparency depth has exhibited a significant downward trend at a rate of approximately 56 cm/year. Total phosphorus concentrations have also been trending down at a rate of approximately 0.09 µg/L/year.

- The water samples analyzed in 2015 were found to be circumneutral in terms of their acidity. The alkalinity averaged 8 mg/L, indicating that the lake is moderately sensitive to acid deposition.

- Sodium and chloride concentration averaged 7.1 and 13.8 mg/L respectively, indicating that the chemistry of the lake is influenced by the 11 km of roads in the watershed.

Long Pond



Location		
	County:	Essex
	Town:	Willsboro

Lake Characteristics		
	Surface Area (ha):	120
	Shoreline Length (km):	8
	Max. Depth (m):	-
	Volume (m^3):	2767201
	Flush rate (times/year):	3.7

Watershed Characteristics		
	Watershed Area (ha):	1757
	Surface water (%):	7
	Deciduous Forest (%):	24
	Evergreen Forest (%):	29
	Mixed Forest (%):	30
	Wetlands (%):	4
	Agricultural (%):	0
	Residential (%):	3
	Local Roads (km):	4.2
	State Roads (km):	4.2

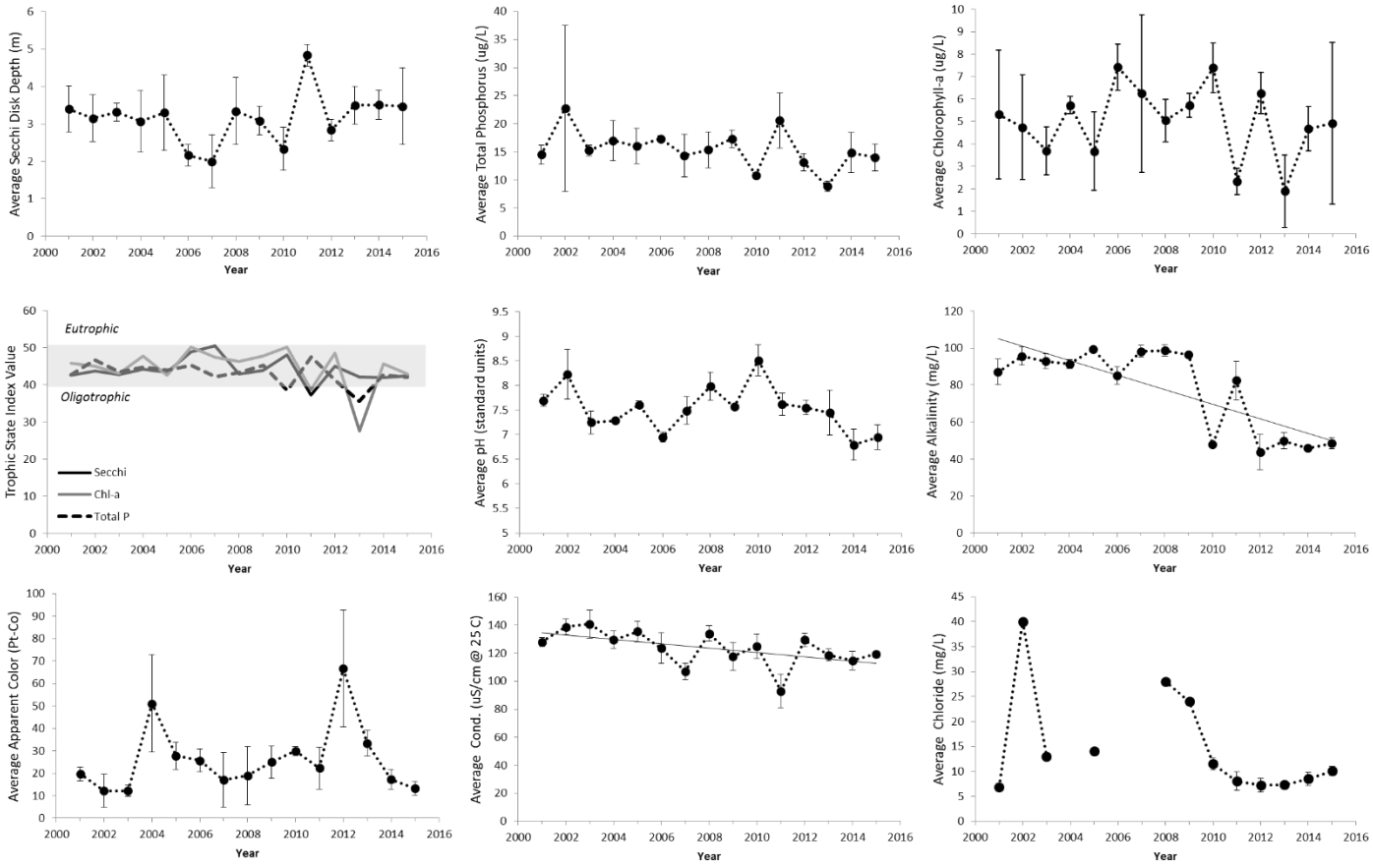
Trophic State	Acidity	Acid Neutralizing Capacity	Road Salt Influence
Mesotrophic	Circumneutral	Well buffered – not sensitive	Moderate

Water quality values and historical trends for Long Pond during the 2015 sampling season. Trend analysis was not performed on calcium or nitrogen data. BDL=below detection limit.

Water Quality Indicator	Sampling Date			Average	Trend
	6/30/2015	7/26/2015	8/23/2015		
Transparency (m)	2.9	2.9	4.7	3.5	No change
Total Phosphorus (µg/L)	16.6	13.7	11.8	14.0	No change
Chlorophyll-*a* (µg/L)	5.9	7.9	0.9	4.9	No change
Laboratory pH	6.7	7.0	7.2	6.9	No change
Sp. Conductance (µS/cm)	120.2	118.6	119.8	119.5	Decreasing
Color (Pt-Co)	16.4	10.2	13.3	13.3	No change
Alkalinity (mg/L)	49.3	51.0	45.3	48.5	Decreasing
Nitrate-Nitrogen (µg/L)	0.6	BDL	BDL	BDL	Not analyzed
Chloride (mg/L)	9.6	9.6	11.1	10.1	No change
Calcium (mg/L)	14.4	14.9	14.9	14.7	Not analyzed
Sodium (mg/L)	6.4	6.5	6.7	6.5	No change

*See table of content for description of water quality indicators

Long Pond – Time Series



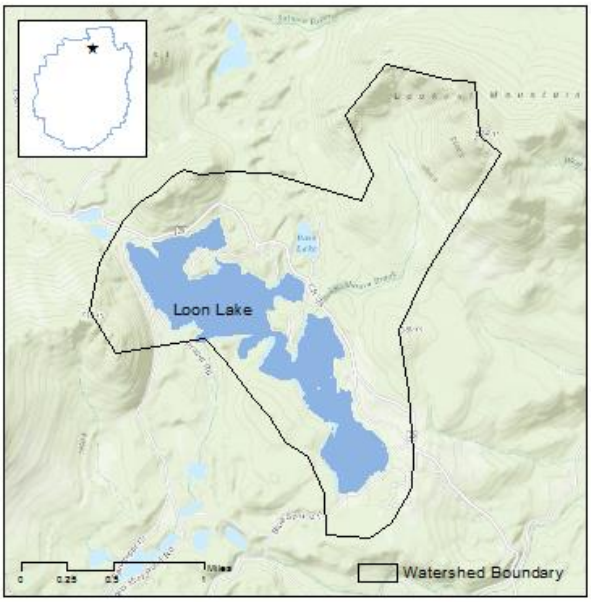
Annual average values of select water quality indicators for Long Pond, 2001-2015. Vertical bars represent ± 1 standard deviation of the mean; Solid trend lines across the data indicate a statistically significant trend ($p < 0.05$).

Summary of Findings

Long Pond is a 120 ha lake located in Essex County in the Town of Willsboro. The lake is located within a 1,757 ha watershed dominated by forests. Long Pond has been monitored by ALAP volunteers and the Adirondack Watershed Institute since 2001.

- Long Pond is a mesotrophic lake. Transparency, total phosphorus, and chlorophyll-a have not exhibited any significant positive of negative trends since monitoring began in 2001.
- The water samples analyzed in 2015 were found to be circumneutral in terms of their acidity. The alkalinity averaged 48.5 mg/L, indicating that the lake is not sensitive to acid deposition. The alkalinity of the pond is greater than any of the other participating ALAP lakes. We detected a significant downward trend in alkalinity at a rate of approximately 3.9 mg/L/year.
- Sodium and chloride concentration averaged 6.5 and 10.1 mg/L respectively, these values indicate that the chemistry of the lake is influenced by salted roads in the watershed.
- Calcium concentration averaged 14.7 mg/L in 2015, greater than any of the other participating ALAP lakes. The concentration of calcium is within the minimum range needed to support a viable zebra mussel population.

Loon Lake Franklin County



Location		
	County:	Franklin
	Town:	Franklin

Lake Characteristics		
	Surface Area (ha):	144
	Shoreline Length (km):	13
	Max. Depth (m):	16.5
	Volume (m^3):	7399735
	Flush rate (times/year):	0.7

Watershed Characteristics		
	Watershed Area (ha):	692
	Surface water (%):	23
	Deciduous Forest (%):	49
	Evergreen Forest (%):	12
	Mixed Forest (%):	1
	Wetlands (%):	6
	Agricultural (%):	1
	Residential (%):	4
	Local Roads (km):	6.7
	State Roads (km):	0

Trophic State	Acidity	Acid Neutralizing Capacity	Road Salt Influence
Oligotrophic	Circumneutral	Adequate – low sensitivity	Present - Low

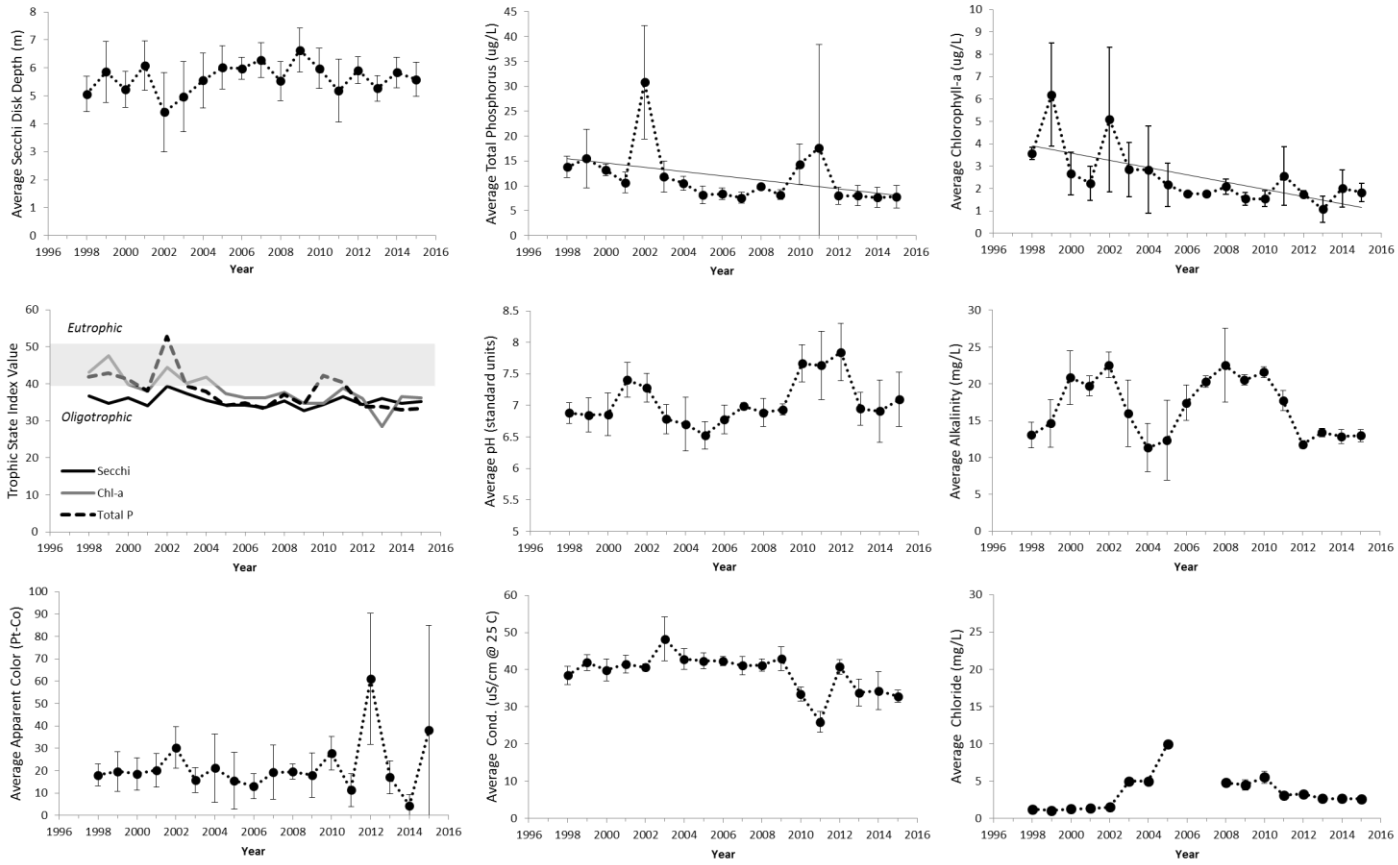
Water quality values and historical trends for Loon Lake during the 2015 sampling season. Trend analysis was not performed on calcium or nitrogen data. BDL=below detection limit.

North Basin					
Water Quality Indicator	Sampling Date			Average	Trend
	6/14/2015	8/2/2015	9/7/2015		
Transparency (m)	6.7	5.2	5.8	5.9	No change
Total Phosphorus (µg/L)	11.2	5.8	7.3	8.1	Decreasing
Chlorophyll-*a* (µg/L)	1.1	1.9	1.6	1.5	Decreasing
Laboratory pH	7.6	6.9	6.7	7.1	No change
Sp. Conductance (µS/cm)	32.6	34.9	34.2	33.9	No change
Color (Pt-Co)	131.8	13.3	13.3	52.8	No change
Alkalinity (mg/L)	12.3	14.0	12.8	13.0	No change
Nitrate-Nitrogen (µg/L)	2.5	4.2	BDL	±1.9	Not analyzed
Chloride (mg/L)	2.7	2.7	2.9	2.8	No change
Calcium (mg/L)	3.2	3.3	3.5	3.4	Not analyzed
Sodium (mg/L)	2.2	2.0	1.8	2.0	No change

South Basin					
Water Quality Indicator	Sampling Date			Average	Trend
	6/14/2015	8/2/2015	9/7/2015		
Transparency (m)	5.3	5.0	5.7	5.3	No change
Total Phosphorus (µg/L)	9.5	5.1	8.1	7.5	Decreasing
Chlorophyll-*a* (µg/L)	2.0	2.2	2.1	2.1	Decreasing
Laboratory pH	7.4	6.5	7.3	7.1	No change
Sp. Conductance (µS/cm)	30.2	32.0	33.1	31.8	No change
Color (Pt-Co)	35.1	16.4	19.6	23.7	No change
Alkalinity (mg/L)	11.8	13.8	13.2	12.9	No change
Nitrate-Nitrogen (µg/L)	2.5	BDL	BDL	±0.3	Not analyzed
Chloride (mg/L)	2.3	2.3	2.6	2.4	No change
Calcium (mg/L)	3.4	3.5	3.4	3.4	Not analyzed
Sodium (mg/L)	2.1	1.9	1.7	1.9	No change

*See table of content for description of water quality indicators

Loon Lake Franklin County– Time Series



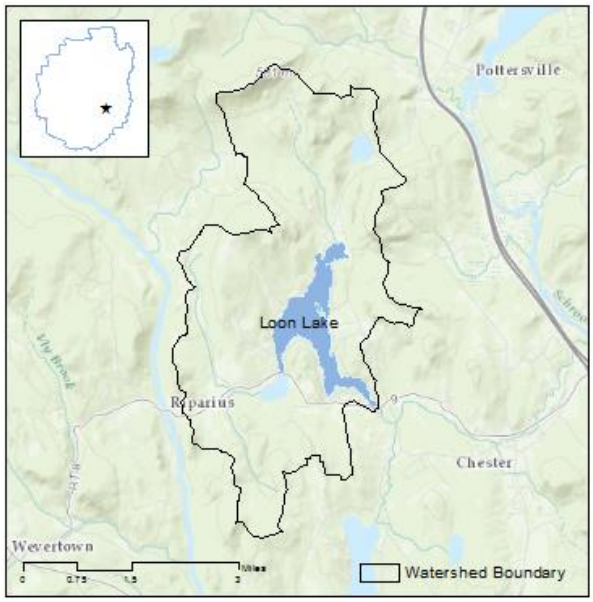
Annual average values of select water quality indicators for Loon Lake, 1998-2015. Vertical bars represent ± 1 standard deviation of the mean; Solid trend lines across the data indicate a statistically significant trend ($p < 0.05$).

Summary of Findings

Loon Lake is a 144 ha lake located in Franklin County in the Town of Franklin. The lake is located within a 692 ha watershed dominated by forests. Loon Lake has been monitored by ALAP volunteers and the Adirondack Watershed Institute since 1998.

- Loon Lake is an oligotrophic lake. The transparency has been relatively stable over the past 18 years. However, the total phosphorus and chlorophyll-a concentrations have exhibited a significant downward trend at a rate of approximately 0.4 and 0.2 µg/L/year respectively.
- Water samples from 2015 were found to be circumneutral in terms of their acidity. The alkalinity of the Lake averaged 13 mg/L, indicating that the lake has low sensitivity to acid deposition.
- Sodium and chloride concentrations averaged 2.0 and 2.5 mg/L respectively. These concentrations suggest that the chemistry of the lake is influenced by the 6.7 km of roads in the watershed.

Loon Lake Warren County



Location		
	County:	Warren
	Town:	Chester

Lake Characteristics		
	Surface Area (ha):	212
	Shoreline Length (km):	20
	Max. Depth (m):	-
	Volume (m^3):	-
	Flush rate (times/year):	-

Watershed Characteristics		
	Watershed Area (ha):	3363
	Surface water (%):	9
	Deciduous Forest (%):	16
	Evergreen Forest (%):	35
	Mixed Forest (%):	24
	Wetlands (%):	10
	Agricultural (%):	0
	Residential (%):	6
	Local Roads (km):	22
	State Roads (km):	10.6

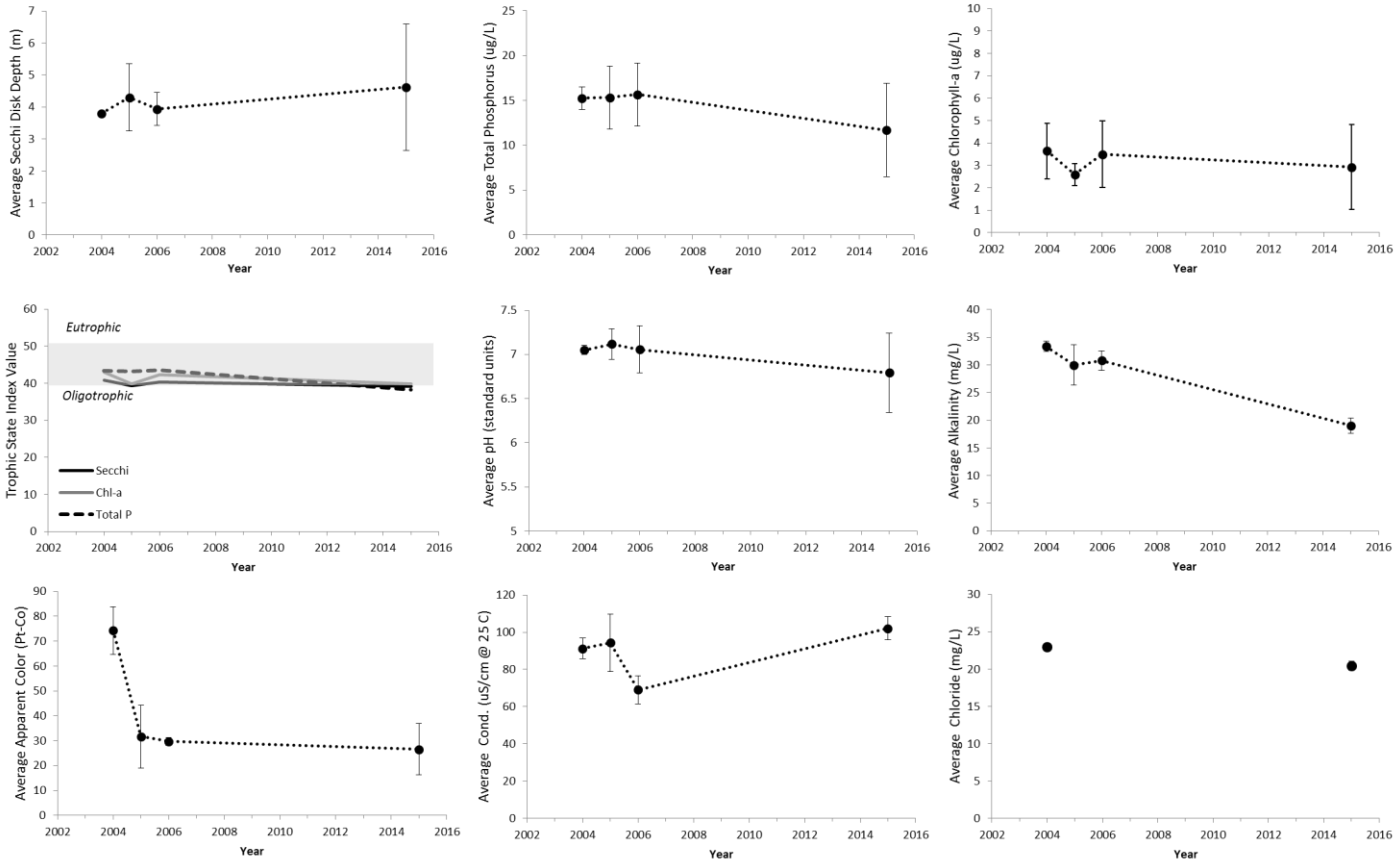
Trophic State	Acidity	Acid Neutralizing Capacity	Road Salt Influence
Mesotrophic	Circumneutral	Adequate – low sensitivity	High

Water quality values and historical trends for Loon Lake during the 2015 sampling season. Trend analysis was not performed on calcium or nitrogen data. BDL=below detection limit.

Water Quality Indicator	Sampling Date				Average	Trend
	7/16/2015	7/29/2015	8/22/2015	9/16/2015		
Transparency (m)		2.4	5.6	5.9	4.6	Not Analyzed
Total Phosphorus (µg/L)	17.6	9.4	5.7	14.0	11.7	
Chlorophyll-*a* (µg/L)	5.7	2.5	1.9	1.6	2.9	
Laboratory pH	6.4	6.4	7.2	7.1	6.8	
Sp. Conductance (µS/cm)	110.2	97.6	96.5	104.2	102.1	
Color (Pt-Co)	28.9	13.3	38.3	25.8	26.6	
Alkalinity (mg/L)	19.4	20.7	18.7	17.4	19.1	
Nitrate-Nitrogen (µg/L)	BDL	BDL	1.1	BDL	BDL	
Chloride (mg/L)	19.7	20.1	20.7	21.1	20.4	
Calcium (mg/L)	7.0	7.2	7.4	6.7	7.1	
Sodium (mg/L)	12.8	12.8	11.0	11.5	12.0	

*See table of content for description of water quality indicators

Loon Lake Warren County – Time Series



Annual average values of select water quality indicators for Loon Lake, 2004-2015. Vertical bars represent ± 1 standard deviation of the mean; Solid trend lines across the data indicate a statistically significant trend ($p < 0.05$).

Summary of Findings

Loon Lake is a 212 ha lake located in Warren County in the Town of Franklin. The lake is located within a 3,363 ha watershed dominated by forests. Loon Lake participated in ALAP from 2004-2006, and again in 2015. Trend analysis will be performed on the data after five consecutive years of collection.

- Loon Lake is a mesotrophic water body. The average transparency depth as well as total phosphorus and chlorophyll-concentrations are similar to the values observed in the early 2000's.
- Water sample from 2015 were found to be circumneutral in terms of their acidity. The alkalinity averaged 19.1 mg/L, indicating that the lake has low sensitivity to acid deposition. The alkalinity is greater than 82% of participating ALAP Lakes.
- Sodium and chloride concentrations averaged 12.0 and 20.4 mg/L respectively in 2015, indicating that the chemistry of the lake is highly influenced by the 32.6 km of roads in the watershed. The chloride concentration of Loon Lake is greater than 89% of participating lakes.

Lower Chateaugay Lake

Location		
	County:	Franklin
	Town:	Bellmont

Lake Characteristics		
	Surface Area (ha):	234
	Shoreline Length (km):	10
	Max. Depth (m):	7.6
	Volume (m^3):	8410944
	Flush rate (times/year):	16.67

Watershed Characteristics		
	Watershed Area (ha):	26000
	Surface water (%):	6
	Deciduous Forest (%):	54
	Evergreen Forest (%):	17
	Mixed Forest (%):	8
	Wetlands (%):	9
	Agricultural (%):	0
	Residential (%):	2
	Local Roads (km):	73.8
	State Roads (km):	20.3

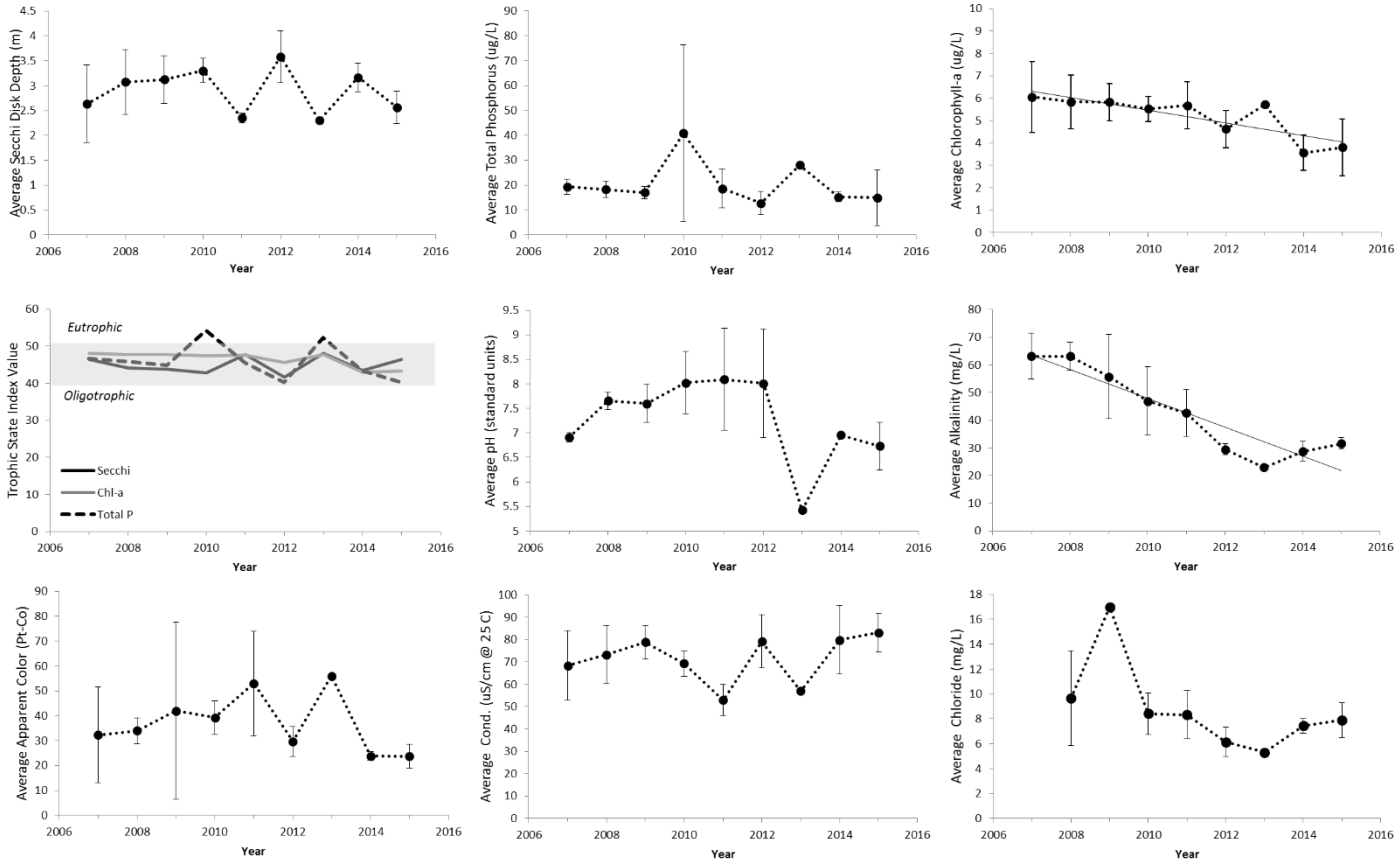
Trophic State	Acidity	Acid Neutralizing Capacity	Road Salt Influence
Mesotrophic	Circumneutral	Well buffered – not sensitive	Moderate

Water quality values and historical trends for Lower Chateaugay Lake during the 2015 sampling season. Trend analysis was not performed on calcium or nitrogen data. BDL=below detection limit.

Water Quality Indicator	Sampling Date			Average	Trend
	6/25/2015	7/19/2015	8/21/2015		
Transparency (m)	2.3	2.6	2.9	2.6	No change
Total Phosphorus (µg/L)	6.0	27.5	11.1	14.9	No change
Chlorophyll-*a* (µg/L)	4.1	4.9	2.4	3.8	Decreasing
Laboratory pH	7.2	6.8	6.2	6.7	No change
Sp. Conductance (µS/cm)	76.4	92.9	80.1	83.1	No change
Color (Pt-Co)	19.6	28.9	22.7	23.7	No change
Alkalinity (mg/L)	29.1	33.1	32.6	31.6	Decreasing
Nitrate-Nitrogen (µg/L)	23.7	3.6	55.7	27.7	Not analyzed
Chloride (mg/L)	6.3	8.9	8.4	7.9	No change
Calcium (mg/L)	8.7	10.4	8.9	9.3	Not analyzed
Sodium (mg/L)	5.0	6.5	5.2	5.6	No change

*See table of content for description of water quality indicators

Lower Chateaugay Lake – Time Series



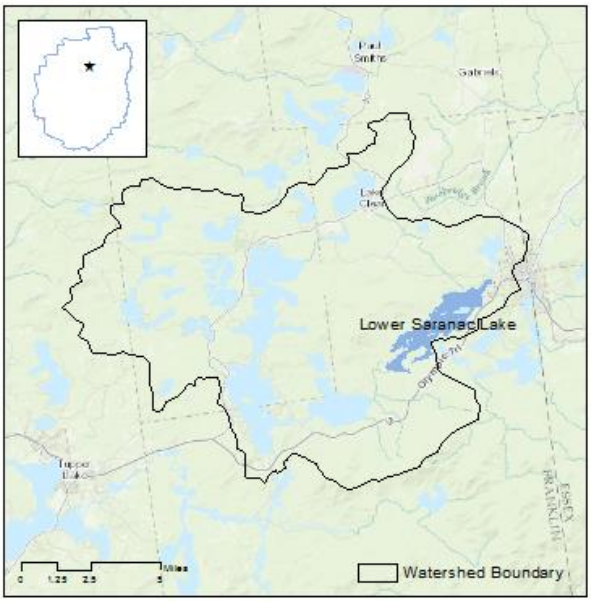
Annual average values of select water quality indicators for Lower Chateaugay Lake, 2007-2015. Vertical bars represent ± 1 standard deviation of the mean; Solid trend lines across the data indicate a statistically significant trend (p < 0.05).

Summary of Findings

Lower Chateaugay Lake is a 234 ha lake located in Franklin County in the Town of Bellmont. The lake is located within a 26,000 ha watershed dominated by forests. Lower Chateaugay Lake has been monitored by ALAP volunteers and the Adirondack Watershed Institute since 2007.

- Lower Chateaugay is a mesotrophic lake; the trophic status has been fairly stable over the nine years of monitoring. Transparency depth and total phosphorus concentration have not exhibited a positive or negative trend since 2007. Chlorophyll-a concentration has been trending down at a rate of approximately 0.3 µg/L/year.
- The water samples analyzed in 2015 were found to be circumneutral in terms of their acidity. The alkalinity of the lake averaged 31.6 mg/L, indicating that the lake is not sensitive to acid deposition. The alkalinity of Lower Chateaugay is greater than 96% of participating ALAP lakes.
- Sodium and chloride concentrations of the lake averaged 5.6 and 7.9 mg/L respectively. These values indicate that the chemistry of the lake is influenced by the 94km of roads in the watershed.
- Calcium concentrations averaged 9.3 mg/L in 2015. These values are below the minimum zebra mussel threshold range suggested by researchers (12-20 mg/L).

Lower Saranac Lake



Location		
	County:	Franklin
	Town:	Harrietstown

Lake Characteristics		
	Surface Area (ha):	868
	Shoreline Length (km):	46
	Max. Depth (m):	18.3
	Volume (m^3):	78985872
	Flush rate (times/year):	2.6

Watershed Characteristics		
	Watershed Area (ha):	32160
	Surface water (%):	20
	Deciduous Forest (%):	27
	Evergreen Forest (%):	32
	Mixed Forest (%):	7
	Wetlands (%):	11
	Agricultural (%):	0
	Residential (%):	2
	Local Roads (km):	54.9
	State Roads (km):	46.1

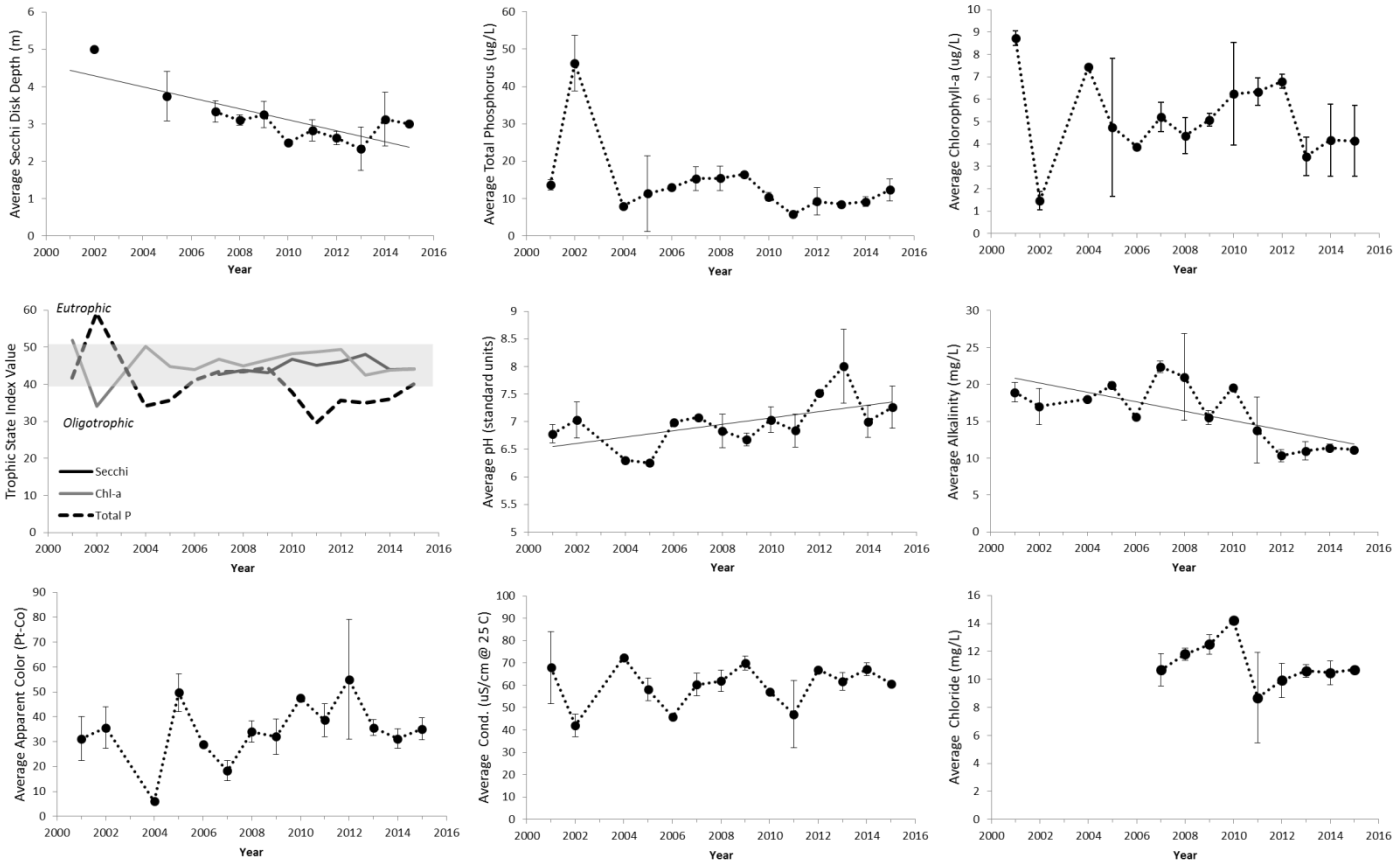
Trophic State	Acidity	Acid Neutralizing Capacity	Road Salt Influence
Mesotrophic	Circumneutral	Moderate	Moderate

Water quality values and historical trends for Lower Saranac Lake during the 2015 sampling season. Trend analysis was not performed on nitrogen or calcium data. BDL=below detection limit.

Water Quality Indicator	Sampling Date			Average	Trend
	6/27/2015	7/25/2015	August		
Transparency (m)	3.0	3.0		3.0	Decreasing
Total Phosphorus (µg/L)	10.2	14.4		12.3	No change
Chlorophyll-*a* (µg/L)	3.0	5.2		4.1	No change
Laboratory pH	7.5	7.0		7.3	Increasing
Sp. Conductance (µS/cm)	61.5	60.0	No Sample	60.8	No change
Color (Pt-Co)	38.3	32.0		35.1	No change
Alkalinity (mg/L)	11.0	11.3		11.2	Decreasing
Nitrate-Nitrogen (µg/L)	1.5	BDL		±0.4	Not analyzed
Chloride (mg/L)	10.7	10.7		10.7	No change
Calcium (mg/L)	4.2	4.4		4.3	Not analyzed
Sodium (mg/L)	6.8	5.8		6.3	No change

*See table of content for description of water quality indicators

Lower Saranac Lake – Time Series



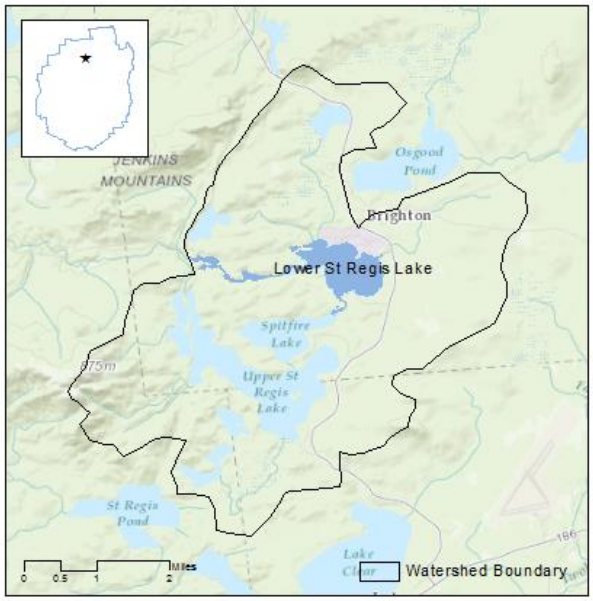
Annual average values of select water quality indicators for Lower Saranac Lake, 2001-2015. Vertical bars represent ± 1 standard deviation of the mean; Solid trend lines across the data indicate a statistically significant trend ($p < 0.05$).

Summary of Findings

Lower Saranac Lake is an 868 ha lake located in Franklin County in the Town of Harrietstown. The lake is located within a 32,160 ha watershed dominated by forests. Lower Saranac Lake has been monitored by ALAP volunteers and the Adirondack Watershed Institute since 2001. Only two samples were submitted for analysis 2015. The water quality can be summarized as follows:

- Lower Saranac is a mesotrophic water body; the trophic status of the lake has remained fairly constant since monitoring began. However, the secchi transparency has exhibited a significant downward trend at a rate of approximately 14 cm/year.
- The lake is circumneutral; the average pH of the 2015 samples was 7.3 pH units. We detected an increasing trend in pH at a rate of 0.06 pH units per year.
- The Alkalinity of the lake has exhibited a downward trend over the rate a 0.6 mg/L/year since monitoring began.
- The chloride concentration of the lake averaged 10.7 mg/L, which is 57 times greater than background concentrations observed in Adirondack Lakes. This elevated concentration is likely due to the 100km of roads in the watershed.

Lower St. Regis Lake



Location	County:	Franklin
	Town:	Brighton
Lake Characteristics	Surface Area (ha):	185
	Shoreline Length (km):	18
	Max. Depth (m):	11.6
	Volume (m^3):	7606124
	Flush rate (times/year):	3.7
Watershed Characteristics	Watershed Area (ha):	5363
	Surface water (%):	17
	Deciduous Forest (%):	35
	Evergreen Forest (%):	28
	Mixed Forest (%):	3
	Wetlands (%):	13
	Agricultural (%):	0
	Residential (%):	3
	Local Roads (km):	10
	State Roads (km):	13.4

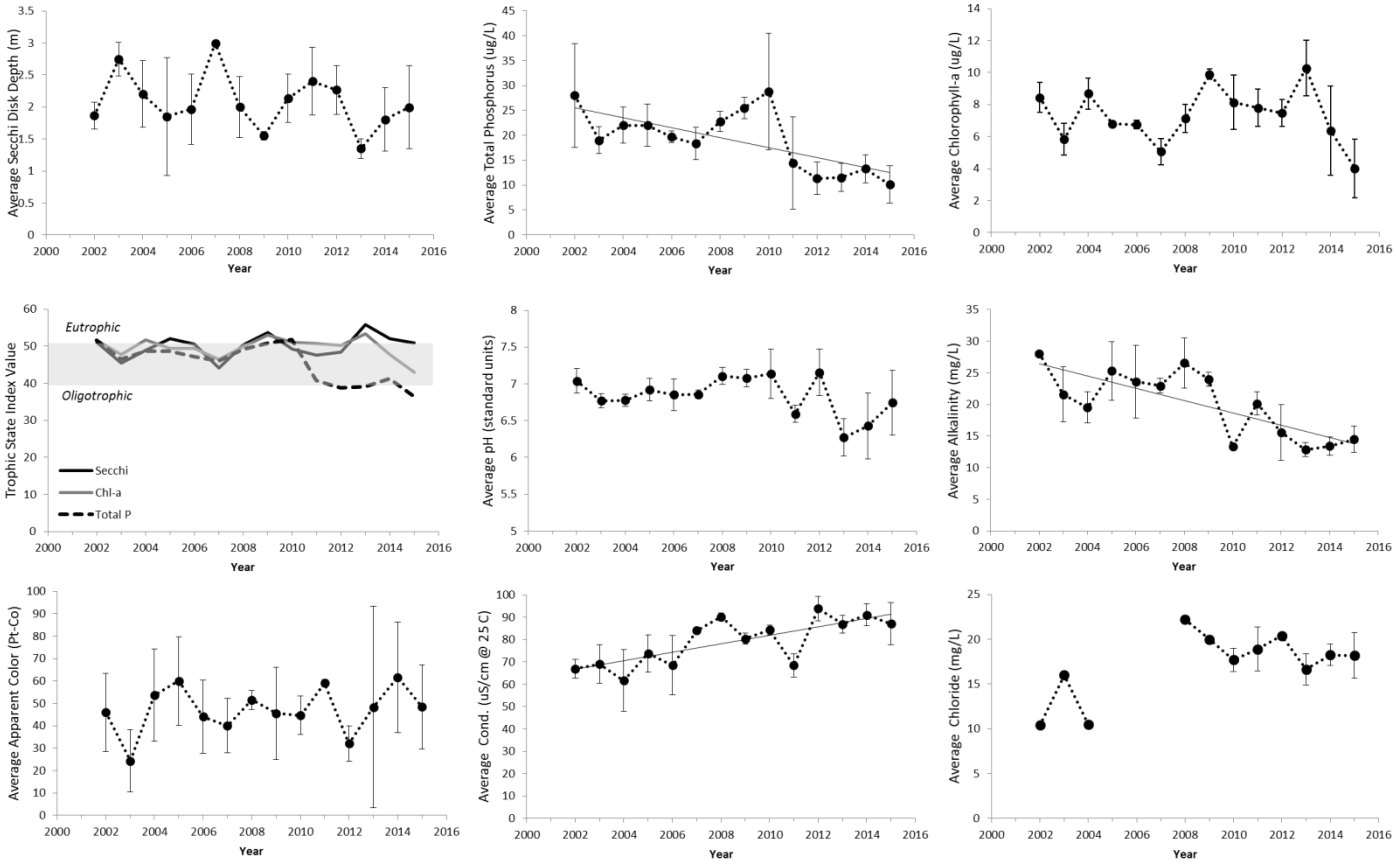
Trophic State	Acidity	Acid Neutralizing Capacity	Road Salt Influence
Mesotrophic	Circumneutral	Adequate – low sensitivity	Moderate

Water quality values and historical trends for Lower St. Regis Lake during the 2015 sampling season. Trend analysis was not performed on calcium or nitrogen data. BDL=below detection limit.

Water Quality Indicator	Sampling Date							Average	Trend
	5/8	6/10	7/10	7/28	8/24	9/25	10/21		
Transparency (m)	2.0	2.3	1.4	2.2	2.8	2.4	0.9	2.0	No change
Total Phosphorus (µg/L)	12.2	14.3	13.7	7.9	7.1	4.5	14.5	10.6	Decreasing
Chlorophyll-*a* (µg/L)	4.5	5.0	7.0	1.3	4.9	4.3	5.0	4.6	No change
Laboratory pH	7.0	7.5	7.1	6.6	6.4	6.6	6.0	6.7	No change
Sp. Cond. (µS/cm)	93.9	87.5	79.4	84.0	86.9	105.8	93.4	90.1	Increasing
Color (Pt-Co)	32.0	38.3	44.5	57.0	41.4	50.7	94.4	51.2	No change
Alkalinity (mg/L)	14.1	13.3	11.7	19.3	15.2	14.6	13.5	14.5	Decreasing
Nitrate-Nitrogen (µg/L)	10.3	BDL	BDL	BDL	BDL	BDL	4.1	BDL	Not analyzed
Chloride (mg/L)	18.5	18.6	16.1	17.3	19.5	21.2	22.1	19.1	No change
Calcium (mg/L)	5.6	5.2	4.1	4.6	4.8	4.9	5.6	5.0	Not analyzed
Sodium (mg/L)	12.1	12.3	9.8	10.6	10.2	9.9	10.8	10.8	No change

*See table of content for description of water quality indicators

Lower St. Regis Lake – Time Series



Annual average values of select water quality indicators for Lower St. Regis Lake, 2002-2015. Vertical bars represent ± 1 standard deviation of the mean; Solid trend lines across the data indicate a statistically significant trend ($p < 0.05$).

Summary of Findings

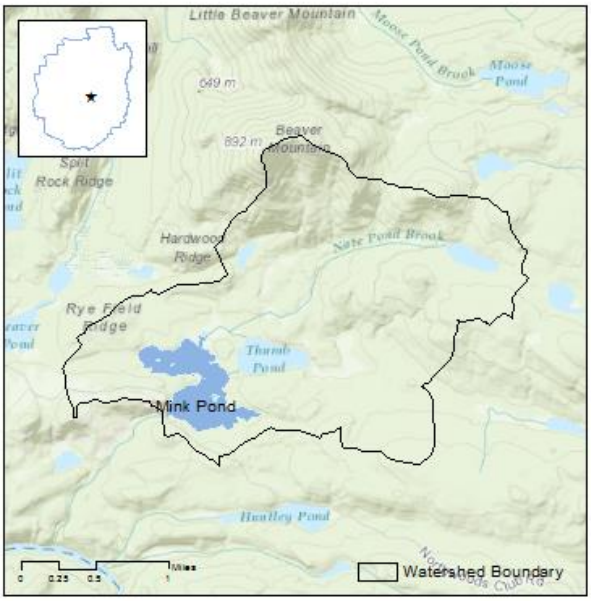
Lower St Regis Lake is a 185 ha lake located in Franklin County in the Town of Brighton. The lake is located within a 5,363 ha watershed dominated by forests. Lower St Regis Lake has been monitored by ALAP volunteers and the Adirondack Watershed Institute since 2002.

- Lower St. Regis Lake is a mesotrophic lake. The transparency depth and chlorophyll-a concentration have not exhibited any significant trend since 2002. The total phosphorus concentration has exhibited a significant downward trend at a rate of approximately 1.0 µg/L/year.

- Water samples analyzed from 2015 were circumneutral in terms of their acidity. The alkalinity averaged 14.5 mg/L indicating low sensitivity to acid deposition. The alkalinity has exhibited a significant downward trend at a rate of approximately 1.0 mg/L/year.

- Sodium and chloride concentration averaged 10.8 and 19.1 mg/L respectively, indicating that the chemistry of the lake is influenced by the 23 km of roads in the watershed. The chloride concentration of the lake is greater than 89% of participating ALAP lakes.

Mink Pond



Location		
	County:	Essex
	Town:	Minerva

Lake Characteristics		
	Surface Area (ha):	56
	Shoreline Length (km):	9
	Max. Depth (m):	-
	Volume (m^3):	-
	Flush rate (times/year):	-

Watershed Characteristics		
	Watershed Area (ha):	1024
	Surface water (%):	10
	Deciduous Forest (%):	54
	Evergreen Forest (%):	18
	Mixed Forest (%):	16
	Wetlands (%):	2
	Agricultural (%):	0
	Residential (%):	1
	Local Roads (km):	0
	State Roads (km):	0

Trophic State	Acidity	Acid Neutralizing Capacity	Road Salt Influence
Mesotrophic	Circumneutral	Moderate	Not Significant

Water quality values and historical trends for Mink Pond during the 2015 sampling season. Trend analysis will be performed after five years of consecutive data collection. BDL=below detection limit.

Water Quality Indicator	Sampling Date			Average	Trend
	6/27/2015	7/27/2015	8/17/2015		
Transparency (m)	2.7	2.3	2.7	2.5	Not analyzed
Total Phosphorus (µg/L)	12.1	13.2	5.5	10.3	
Chlorophyll-*a* (µg/L)	2.9	2.7	11.9	5.9	
Laboratory pH	6.9	6.8	6.6	6.8	
Sp. Conductance (µS/cm)	17.8	18.1	18.5	18.1	
Color (Pt-Co)	47.6	57.0	35.1	46.6	
Alkalinity (mg/L)	6.5	7.9	8.0	7.5	
Nitrate-Nitrogen (µg/L)	BDL	BDL	BDL	BDL	
Chloride (mg/L)	0.4	0.4	1.7	0.8	
Calcium (mg/L)	2.7	3.0	3.5	3.0	
Sodium (mg/L)	0.8	0.7	0.6	0.7	

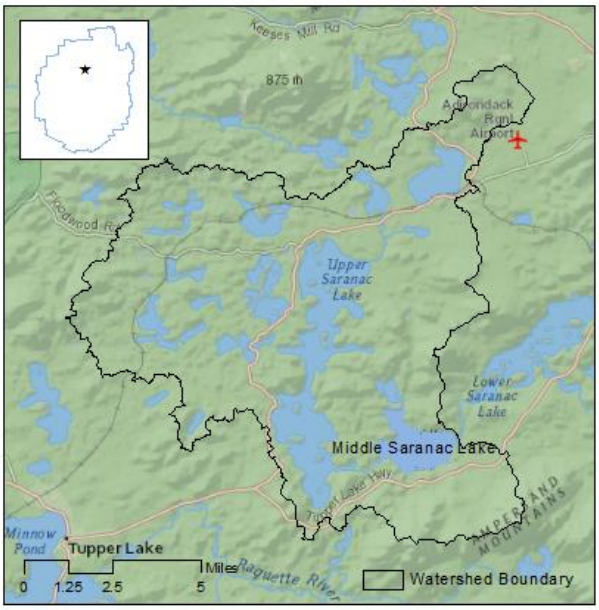
*See table of content for description of water quality indicators

Mink Pond -Summary of Findings

Mink Pond is a 56 ha pond located in Essex County in the Town of Minerva. The pond is located within a 1,024 ha watershed dominated by forests. This is Mink Ponds first year in ALAP. Time series data will be constructed after two years of data collection, trend analysis will be performed on water quality indicators after five years of data collection.

- Currently little data exists on the morphology of the pond.
- Mink Pond is best classified as a mesotrophic pond.
- The pH of the water samples received in 2015 were found to be circumneutral in terms of their acidity. The alkalinity averaged 7.5 mg/L, indicating moderate sensitivity to acid deposition.
- Sodium and chloride concentration averaged 0.7 and 0.8 mg/L respectively, these values are within the range we would expect for a pond with no salted roads in the watershed.

Middle Saranac Lake



Location		
	County:	Franklin
	Town:	Harrietstown

Lake Characteristics		
	Surface Area (ha):	572
	Shoreline Length (km):	18
	Max. Depth (m):	
	Volume (m^3):	
	Flush rate (times/year):	

Watershed Characteristics		
	Watershed Area (ha):	24007
	Surface water (%):	22
	Deciduous Forest (%):	28
	Evergreen Forest (%):	30
	Mixed Forest (%):	6
	Wetlands (%):	10
	Agricultural (%):	0
	Residential (%):	0
	Local Roads (km):	30
	State Roads (km):	34

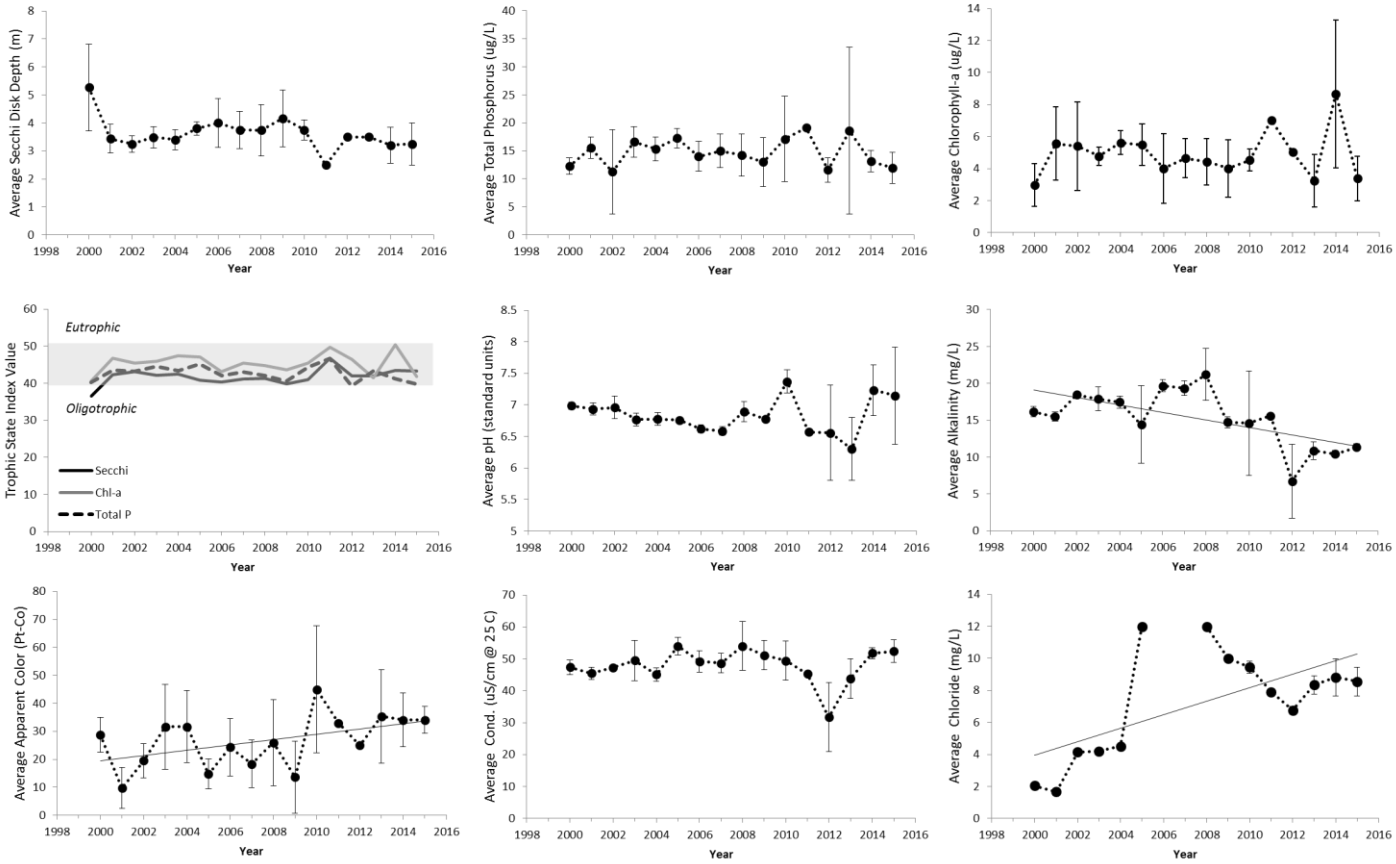
Trophic State	Acidity	Acid Neutralizing Capacity	Road Salt Influence
Mesotrophic	Circumneutral	Adequate – low sensitivity	Moderate

Water quality values and historical trends for Middle Saranac Lake during the 2015 sampling season. Trend analysis was not performed on calcium or nitrogen data. BDL=below detection limit.

Water Quality Indicator	Sampling Date			Average	Trend
	6/22/2015	7/21/2015	8/17/2015		
Transparency (m)	3.3	2.5	4.0	3.3	No change
Total Phosphorus (µg/L)	15.1	11.1	9.7	12.0	No change
Chlorophyll-*a* (µg/L)	4.0	4.4	1.8	3.4	No change
Laboratory pH	8.0	6.8	6.6	7.1	No change
Sp. Conductance (µS/cm)	49.2	51.8	56.1	52.4	No change
Color (Pt-Co)	28.9	35.1	38.3	34.1	Increasing
Alkalinity (mg/L)	10.8	11.6	11.6	11.3	Decreasing
Nitrate-Nitrogen (µg/L)	-0.5	1.1	0.0	0.2	Not analyzed
Chloride (mg/L)	7.7	8.6	9.4	8.6	Increasing
Calcium (mg/L)	3.8	3.8	4.1	3.9	Not analyzed
Sodium (mg/L)	5.5	5.3	5.1	5.3	No change

*See table of content for description of water quality indicators

Middle Saranac Lake – Time Series



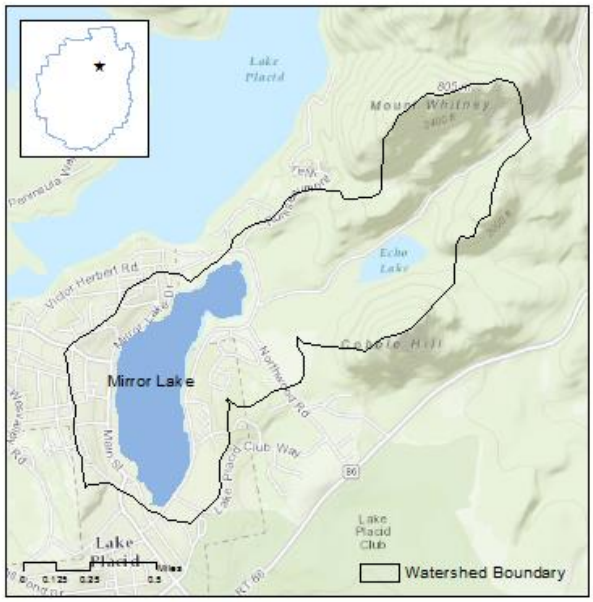
Annual average values of select water quality indicators for Middle Saranac Lake, 2000-2015. Vertical bars represent ± 1 standard deviation of the mean; Solid trend lines across the data indicate a statistically significant trend ($p < 0.05$).

Summary of Findings

Middle Saranac Lake is a 572 ha lake located in Franklin County in the Town of Harrietstown. The lake is located within a 24,000 ha watershed dominated by forests. Middle Saranac Lake has been monitored by ALAP volunteers and the Adirondack Watershed Institute since 2000.

- Middle Saranac Lake is a stable mesotrophic lake. The transparency depths as well as the total phosphorus and chlorophyll concentrations have not exhibited any significant trend since 2000.
- Water samples analyzed from 2015 were circumneutral in terms of their acidity. The alkalinity averaged 11.3 mg/L indicating low sensitivity to acid deposition. The alkalinity has exhibited a significant down ward trend at a rate of approximately 0.5 mg/L/year.
- Sodium and chloride concentration averaged 5.8 and 8.6 mg/L respectively, indicating that the chemistry of the lake is influenced by the 64 km of roads in the watershed. Chloride concentration has exhibited a significant trend since 2000, increasing at a rate of approximately 0.4 mg/L/year. This trend is driven largely by low concentrations observed 2000-2004. Our methodology for analyzing chloride greatly improved in 2010 and chloride values have been fairly similar since then.

Mirror Lake



Location		
	County:	Essex
	Town:	North Elba

Lake Characteristics		
	Surface Area (ha):	50
	Shoreline Length (km):	4
	Max. Depth (m):	18.288
	Volume (m^3):	2211328
	Flush rate (times/year):	0.588

Watershed Characteristics		
	Watershed Area (ha):	301
	Surface water (%):	19
	Deciduous Forest (%):	28
	Evergreen Forest (%):	9
	Mixed Forest (%):	13
	Wetlands (%):	4
	Agricultural (%):	0
	Residential (%):	26
	Local Roads (km):	7.6
	State Roads (km):	1.1

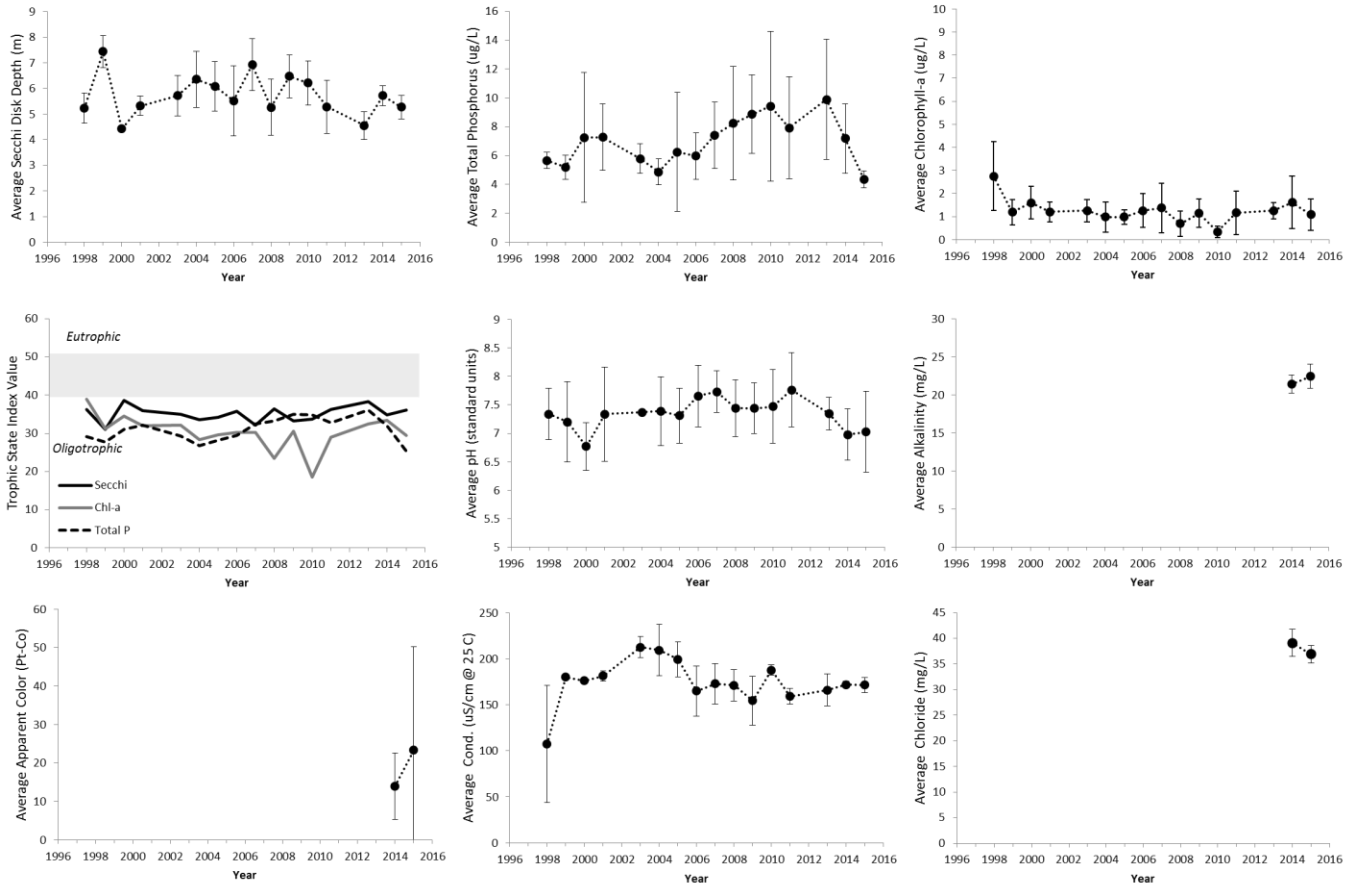
Trophic State	Acidity	Acid Neutralizing Capacity	Road Salt Influence
Oligotrophic	Circumneutral	Adequate – low sensitivity	High

Water quality values and historical trends for Mirror Lake during the 2015 sampling season. Trend analysis was not performed on calcium or nitrogen data. BDL=below detection limit.

Water Quality Indicator	Sampling Date					Average	Trend
	5/18	6/26	7/23	8/19	9/25		
Transparency (m)	5.7	5.9	4.9	4.9	5.2	5.3	No change
Total Phosphorus (µg/L)	5.0	4.0	3.7	4.7	**84.8***	4.4	No change
Chlorophyll-*a* (µg/L)	1.6	0.4	1.9	1.1	0.5	1.1	No change
Laboratory pH	8.1	6.5	6.6	6.5	7.3	7.0	No change
Sp. Cond. (µS/cm)	185.1	166.4	163.6	173.6	168.6	171.5	No change
Color (Pt-Co)	66.3	28.9	13.3	13.3	BDL	±23.3	No change
Alkalinity (mg/L)	22.1	20.6	22.0	25.0	22.6	22.5	No change
Nitrate-Nitrogen (µg/L)	1.6	16.0	0.9	74.5	BDL	±18.6	Not analyzed
Chloride (mg/L)	37.9	34.3	36.0	38.3	37.9	36.9	No change
Calcium (mg/L)	8.8	8.0	8.0	8.5	8.6	8.4	Not analyzed
Sodium (mg/L)	25.2	22.0	20.8	20.3	19.4	21.5	No change

See table of content for description of water quality indicators, *indicates unusually high value, not included in the average.

Mirror Lake – Time Series



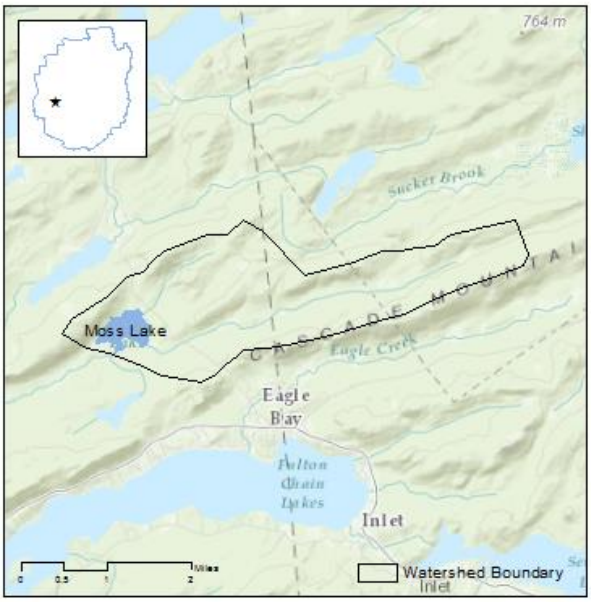
Annual average values of select water quality indicators for Mirror Lake, 1998-2015. Data from 1998-2013 from CSLAP. Vertical bars represent ± 1 standard deviation of the mean; Solid trend lines across the data indicate a statistically significant trend ($p < 0.05$).

Summary of Findings

Mirror Lake is a 50 ha lake located in Essex County in the Town of North Elba. The lake is located within a 301 ha watershed. Approximately 26% of the watershed area is occupied by commercial and residential space, the greatest proportion of any Adirondack lake. The lake has been participating in CSLAP since 1998. In this analysis we have combined the ALAP and CSLAP data sets.

- Mirror Lake is an oligotrophic Lake. Transparency, total phosphorus, and chlorophyll-a have not exhibited any significant trends since 1998. The average total phosphorus concentration has been lower during the past two years compared to historical data, but not from a statistical perspective.
- Water samples from 2015 were found to be circumneutral in terms of their acidity. The lake is not sensitive to acid deposition.
- Sodium and chloride concentration averaged 21.5 and 36.9 mg/L in 2015, indicating the chemistry of the lake is highly influenced by the urban environment within the watershed. Chloride concentration in Mirror Lake is greater than 96% of participating ALAP lakes, sodium is greater than 93% of participating lakes.

Moss Lake



Location		
	County:	Herkimer
	Town:	Webb

Lake Characteristics		
	Surface Area (ha):	49
	Shoreline Length (km):	4
	Max. Depth (m):	15.2
	Volume (m^3):	2597578
	Flush rate (times/year):	1.6

Watershed Characteristics		
	Watershed Area (ha):	1312
	Surface water (%):	9
	Deciduous Forest (%):	37
	Evergreen Forest (%):	4
	Mixed Forest (%):	9
	Wetlands (%):	38
	Agricultural (%):	0
	Residential (%):	0
	Local Roads (km):	2.7
	State Roads (km):	0

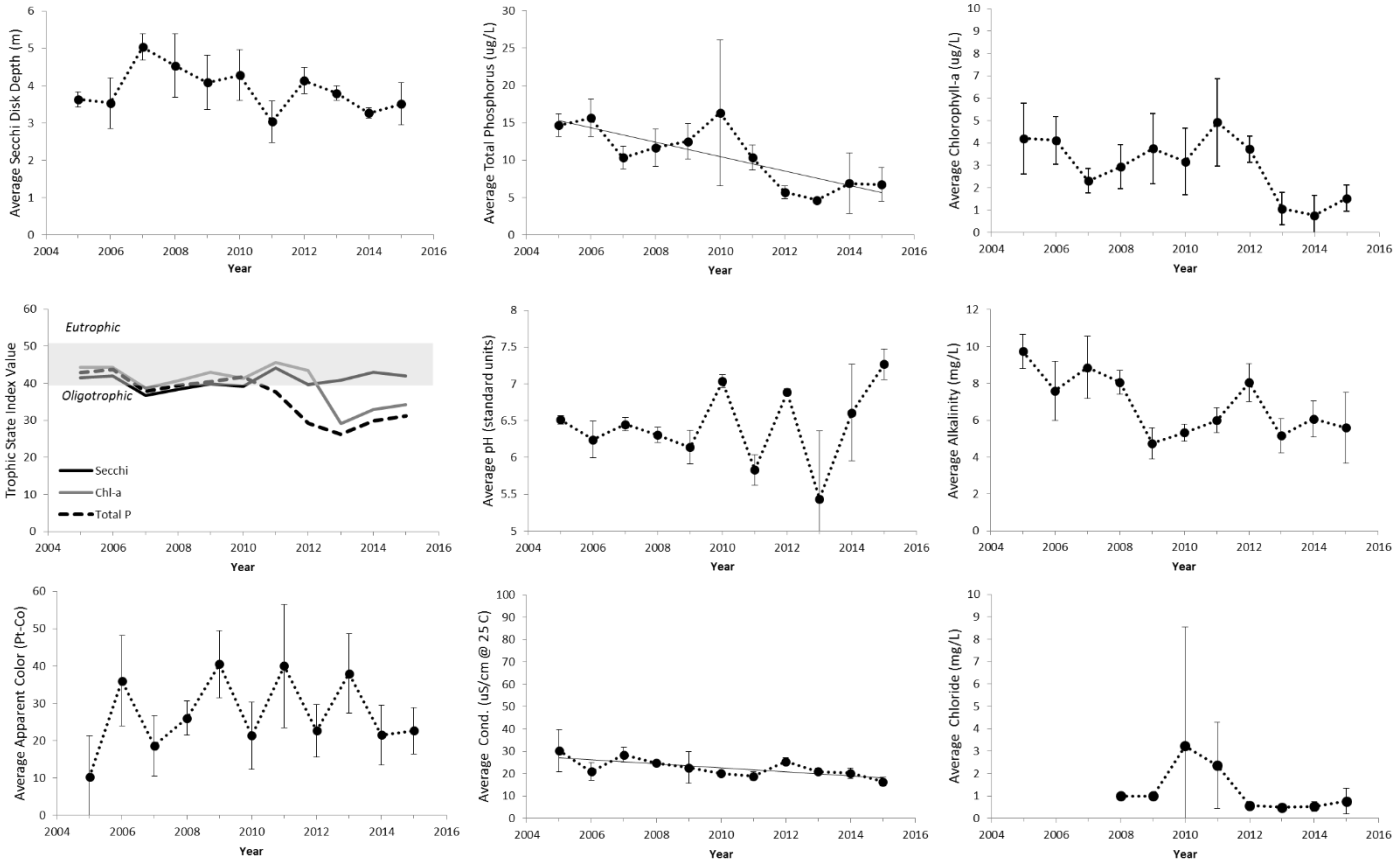
Trophic State	Acidity	Acid Neutralizing Capacity	Road Salt Influence
Oligotrophic	Circumneutral	Moderate	Not Significant

Water quality values and historical trends for Moss Lake during the 2015 sampling season. Trend analysis was not performed on calcium or nitrogen data. BDL=below detection limit.

Water Quality Indicator	Sampling Date			Average	Trend
	6/25/2015	7/25/2015	8/17/2015		
Transparency (m)	2.9	3.9	3.8	3.5	No change
Total Phosphorus (µg/L)	4.6	9.1	6.6	6.7	Decreasing
Chlorophyll-*a* (µg/L)	2.0	1.7	0.9	1.5	No change
Laboratory pH	7.4	7.4	7.0	7.3	No change
Sp. Conductance (µS/cm)	15.5	15.0	18.7	16.4	Decreasing
Color (Pt-Co)	28.9	16.4	22.7	22.7	No change
Alkalinity (mg/L)	3.9	5.2	7.7	5.6	No change
Nitrate-Nitrogen (µg/L)	133.0	92.0	68.2	97.7	Not analyzed
Chloride (mg/L)	0.5	0.4	1.4	0.8	No change
Calcium (mg/L)	1.8	2.3	2.6	2.2	Not analyzed
Sodium (mg/L)	0.9	0.8	0.9	0.9	No change

*See table of content for description of water quality indicators

Moss Lake – Time Series



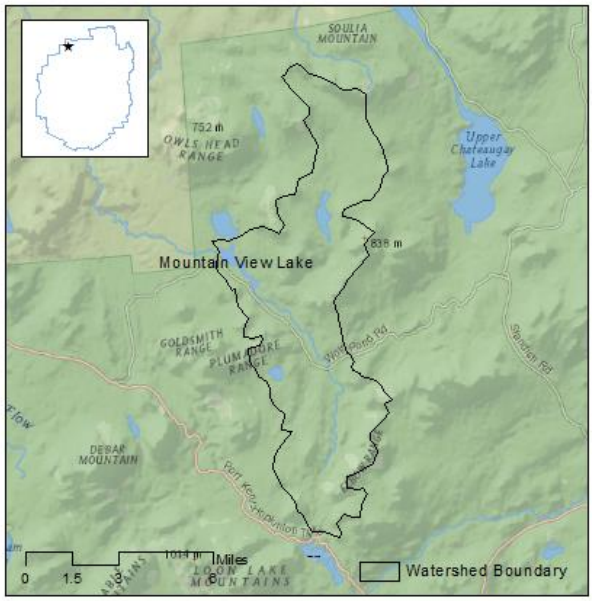
Annual average values of select water quality indicators for Moss Lake, 2005-2015. Vertical bars represent ± 1 standard deviation of the mean; Solid trend lines across the data indicate a statistically significant trend ($p < 0.05$).

Summary of Findings

Moss Lake is a 49 ha lake located in Herkimer County in the Town of Webb. The lake is located within a 1,312 ha watershed dominated by forests. Moss Lake has been monitored by ALAP volunteers and the Adirondack Watershed Institute since 2005.

- Moss Lake is classified as oligotrophic based on phosphorus and chlorophyll concentrations. However, the secchi transparency is more indicative of a mesotrophic lake. A disparity of this nature is typically the result of elevated dissolved organic material of non-algal turbidity; since the watershed of Moss Lake is composed of 38% wetland, it is likely the former. Total phosphorus has exhibited a significant downward trend at a rate of approximately 1.0 µg/L/year. Secchi transparency and chlorophyll-a have been variable, and exhibited so significant trend.
- The water samples analyzed in 2015 were found to be circumneutral in terms of their acidity. The alkalinity averaged 5.6 mg/L, indicating moderate sensitivity to acid deposition.
- Sodium and chloride concentration averaged 0.9 and 0.8 mg/L, these values are within the range expected for lake with few roads in the watershed.

Mountain View Lake



Location		
	County:	St Lawrence
	Town:	Bellmont

Lake Characteristics		
	Surface Area (ha):	95
	Shoreline Length (km):	12
	Max. Depth (m):	2.7
	Volume (m^3):	542542
	Flush rate (times/year):	135.4

Watershed Characteristics		
	Watershed Area (ha):	11448
	Surface water (%):	5
	Deciduous Forest (%):	60
	Evergreen Forest (%):	12
	Mixed Forest (%):	2
	Wetlands (%):	16
	Agricultural (%):	0
	Residential (%):	1
	Local Roads (km):	12.8
	State Roads (km):	0

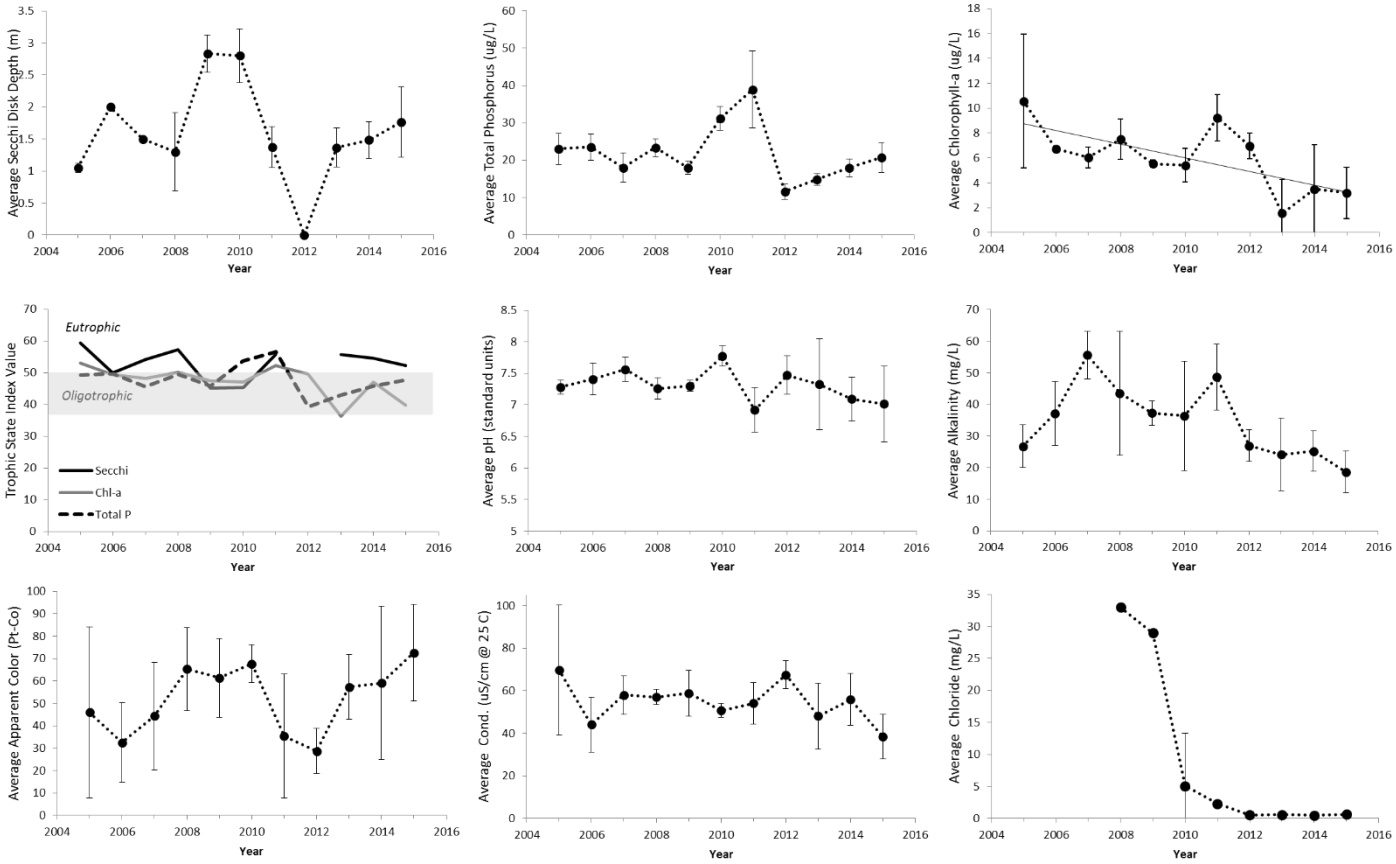
Trophic State	Acidity	Acid Neutralizing Capacity	Road Salt Influence
Mesotrophic	Circumneutral	Adequate – low sensitivity	Not Significant

Water quality values and historical trends for Mountain View Lake during the 2015 sampling season. Trend analysis was not performed on calcium or nitrogen data. BDL=below detection limit.

Water Quality Indicator	Sampling Date			Average	Trend
	6/25/2015	7/20/2015	8/16/2015		
Transparency (m)	1.2	1.8	2.3	1.8	No change
Total Phosphorus (µg/L)	25.4	18.4	18.4	20.7	No change
Chlorophyll-*a* (µg/L)	4.8	0.9	3.9	3.2	Decreasing
Laboratory pH	7.6	6.4	7.0	7.0	No change
Sp. Conductance (µS/cm)	26.9	47.6	40.5	38.3	No change
Color (Pt-Co)	85.0	47.6	85.0	72.6	No change
Alkalinity (mg/L)	11.7	24.9	19.4	18.7	No change
Nitrate-Nitrogen (µg/L)	9.5	BDL	15.9	±8.6	Not analyzed
Chloride (mg/L)	0.4	0.6	0.9	0.6	No change
Calcium (mg/L)	4.1	6.6	5.8	5.5	Not analyzed
Sodium (mg/L)	0.9	1.4	1.2	1.2	Decreasing

*See table of content for description of water quality indicators

Mountain View Lake – Time Series



Annual average values of select water quality indicators for Mountain View Lake, 2005-2015. Vertical bars represent ± 1 standard deviation of the mean; Solid trend lines across the data indicate a statistically significant trend ($p < 0.05$).

Summary of Findings

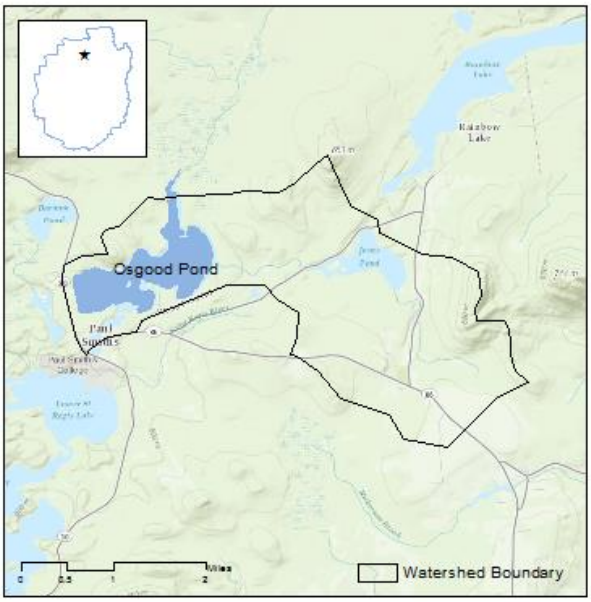
Mountain View Lake is a 95 ha lake located in Franklin County in the Town of Bellmont. The lake is located within a 11,448 ha watershed dominated by forests. Mountain View Lake has been monitored by ALAP volunteers and the Adirondack Watershed Institute since 2005.

- Mountain View Lake is best classified as a mesotrophic lake. Water quality indicators of the lake are highly variable within years and across years. This variability is probably related to the high flushing rate, estimated to be 135 times/year. The lake is highly colored and as a result the transparency is relatively low. The color of the water averaged 72.6 Pt-Co units, greater than 93% of the participating ALAP lakes.

- The water samples analyzed in 2015 were found to be circumneutral in terms of their acidity. The alkalinity averaged 18.7 mg/L, indicating low sensitivity to acid deposition.

- Sodium and chloride concentration averaged 1.2 and 0.6 mg/L respectively, indicating that the chemistry of the lake is not significantly influenced by road salt. Elevated chloride concentrations detected in 2008-2009 are almost certainly an error.

Osgood Pond



Location		
	County:	Franklin
	Town:	Brighton

Lake Characteristics		
	Surface Area (ha):	108
	Shoreline Length (km):	12
	Max. Depth (m):	-
	Volume (m^3):	8277726
	Flush rate (times/year):	1.4

Watershed Characteristics		
	Watershed Area (ha):	1871
	Surface water (%):	15
	Deciduous Forest (%):	22
	Evergreen Forest (%):	43
	Mixed Forest (%):	2
	Wetlands (%):	10
	Agricultural (%):	2
	Residential (%):	4
	Local Roads (km):	8.9
	State Roads (km):	4.7

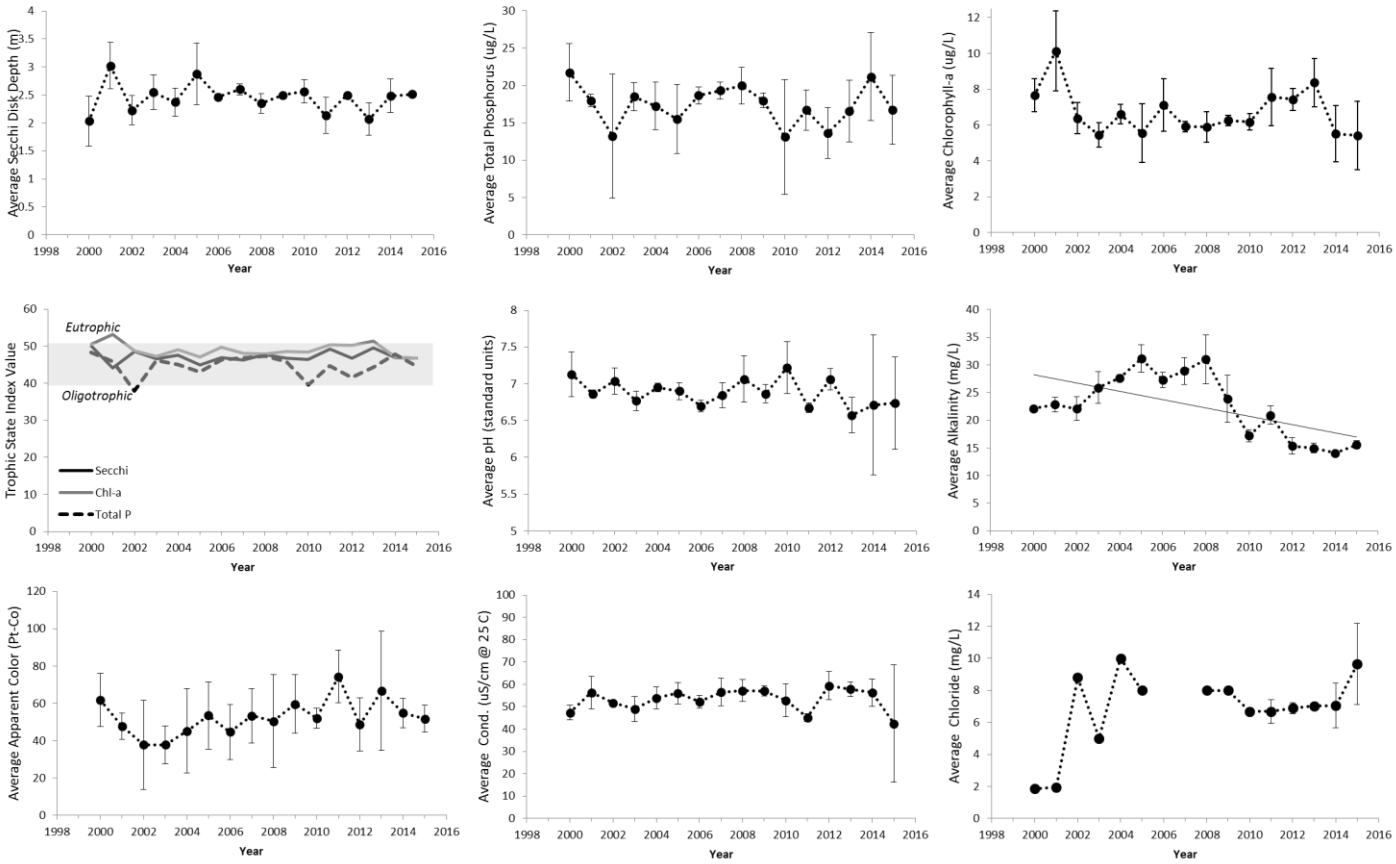
Trophic State	Acidity	Acid Neutralizing Capacity	Road Salt Influence
Mesotrophic	Circumneutral	Adequate – low sensitivity	Moderate

Water quality values and historical trends for Osgood Pond during the 2015 sampling season. Trend analysis was not performed on calcium or nitrogen data. BDL=below detection limit.

Water Quality Indicator	Sampling Date			Average	Trend
	6/17/2015	7/13/2015	8/18/2015		
Transparency (m)	2.5	2.6	2.5	2.5	No change
Total Phosphorus (µg/L)	22.1	14.2	14.0	16.8	No change
Chlorophyll-*a* (µg/L)	7.5	4.9	3.8	5.4	No change
Laboratory pH	6.7	7.4	6.1	6.7	No change
Sp. Conductance (µS/cm)	56.9	12.1	58.1	42.4	No change
Color (Pt-Co)	47.6	47.6	60.1	51.8	No change
Alkalinity (mg/L)	15.1	15.2	16.4	15.6	Decreasing
Nitrate-Nitrogen (µg/L)	11.0	BDL	22.6	±10.4	Not analyzed
Chloride (mg/L)	12.5	7.6	8.8	9.7	No change
Calcium (mg/L)	5.1	5.3	5.0	5.1	Not analyzed
Sodium (mg/L)	4.6	4.6	4.2	4.5	No change

*See table of content for description of water quality indicators

Osgood Pond – Time Series



Annual average values of select water quality indicators for Osgood Pond, 2000-2015. Vertical bars represent ± 1 standard deviation of the mean; Solid trend lines across the data indicate a statistically significant trend ($p < 0.05$).

Summary of Findings

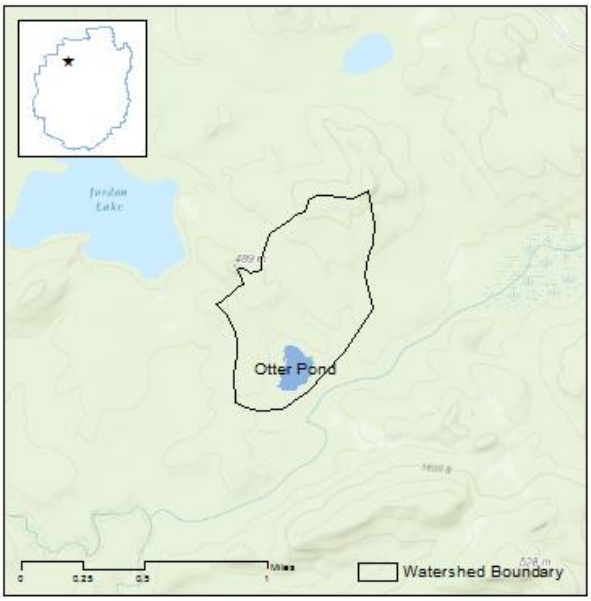
Osgood Pond is a 108 ha lake located in Franklin County in the Town of Brighton. The lake is located within a 1,871 ha watershed dominated by forests. Osgood Pond has been monitored by ALAP volunteers and the Adirondack Watershed Institute since 2000.

- Osgood Pond is a mesotrophic lake; the trophic status has been fairly stable over the 16 years of monitoring. Transparency depth, chlorophyll-a, and total phosphorus concentration have not exhibited a positive or negative trends.

- The water samples analyzed in 2015 were found to be circumneutral in terms of their acidity, averaging 6.7 pH units. The alkalinity of the lake averaged 15.6 mg/L, indicating that the lake has low sensitivity to acid deposition. The alkalinity of Osgood Pond has exhibited a downward trend at a rate of approximately 0.8 mg/L/year.

- Sodium and chloride concentrations of the lake averaged 4.5 and 9.7 mg/L respectively. These values indicate that the chemistry of the lake is moderately influenced by the 13.6 km of roads in the watershed. Low chloride concentrations recorded in 2000 and 2001 are likely an error. Chloride methodology was greatly improved in 2010.

Otter Pond



Location		
	County:	St Lawrence
	Town:	Hopkinton

Lake Characteristics		
	Surface Area (ha):	4
	Shoreline Length (km):	1
	Max. Depth (m):	2.4
	Volume (m^3):	32967
	Flush rate (times/year):	22.5

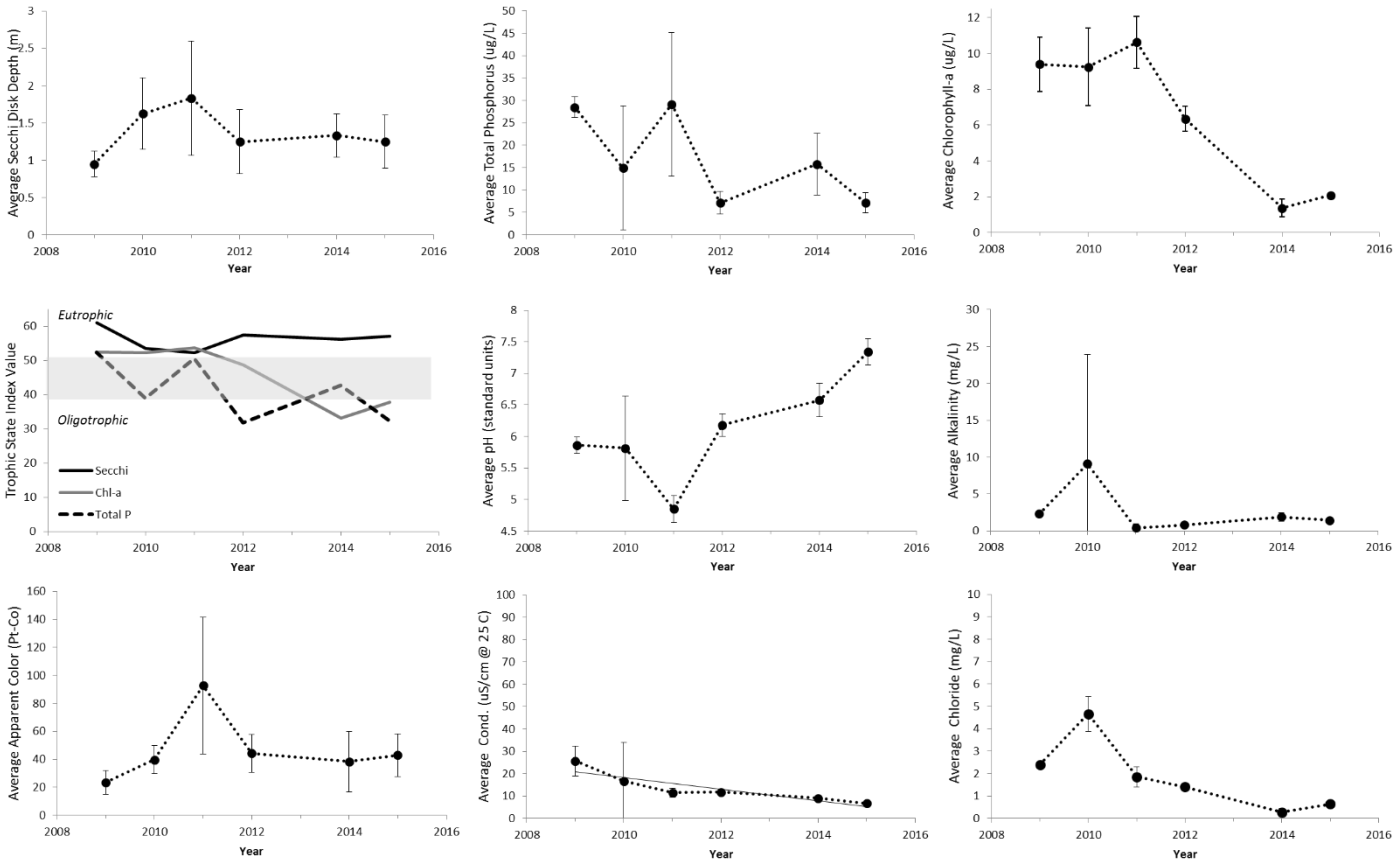
Watershed Characteristics		
	Watershed Area (ha):	95
	Surface water (%):	5
	Deciduous Forest (%):	0
	Evergreen Forest (%):	35
	Mixed Forest (%):	43
	Wetlands (%):	17
	Agricultural (%):	0
	Residential (%):	0
	Local Roads (km):	0
	State Roads (km):	0

Trophic State	Acidity	Acid Neutralizing Capacity	Road Salt Influence
Mesotrophic	Circumneutral	Low	Not Significant

Water quality values and historical trends for Otter Pond during the 2015 sampling season. Trend analysis was not performed on calcium or nitrogen data.

Water Quality Indicator	Sampling Date			Average	Trend
	June	7/9/2015	8/21/2015		
Transparency (m)		1.0	1.5	1.3	No change
Total Phosphorus (µg/L)		8.8	5.6	7.2	No change
Chlorophyll-*a* (µg/L)			2.1	2.1	No change
Laboratory pH		7.5	7.2	7.3	No change
Sp. Conductance (µS/cm)	No Sample	6.6	6.7	6.7	Decreasing
Color (Pt-Co)		53.9	32.0	42.9	No change
Alkalinity (mg/L)		1.6	1.4	1.5	No change
Nitrate-Nitrogen (µg/L)		1.1	14.0	7.5	Not analyzed
Chloride (mg/L)		0.7	0.6	0.6	No change
Calcium (mg/L)		0.8	0.8	0.8	Not analyzed
Sodium (mg/L)		0.3	0.3	0.3	No change

Otter Pond- Time Series



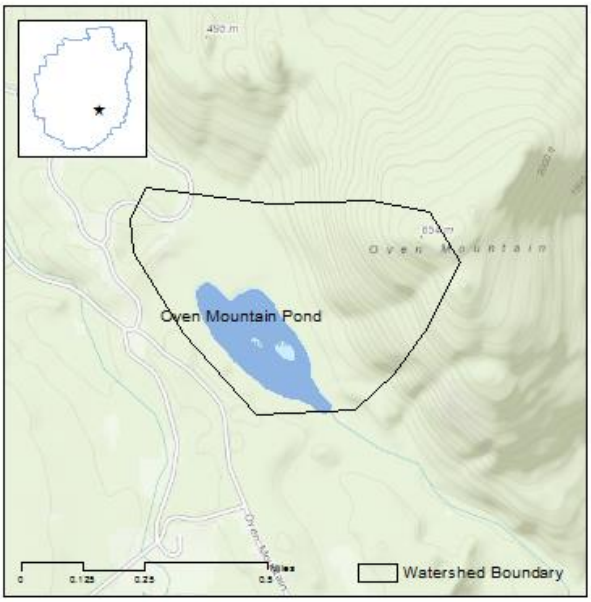
Annual average values of select water quality indicators for Otter Pond 2009-2015. Vertical bars represent ± 1 standard deviation of the mean; Solid trend lines across the data indicate a statistically significant trend ($p < 0.05$).

Summary of Findings

Otter Pond is a 4 ha pond located in St. Lawrence County in the Town of Hopkington. The lake is located within a 95 ha watershed dominated by forests. Otter Pond has been monitored by ALAP volunteers and the Adirondack Watershed Institute since 2009. A sample was not received during the month of June. The July chlorophyll-a sample could not be analyzed because it was packaged incorrectly.

- Trophic indicators of Otter Pond are highly variable within years and across years. This variability is likely due to the high flushing rate of the pond, which is estimated to be 22 times per year.
- Total phosphorus and chlorophyll-concentrations suggest an oligotrophic classification of the lake. However, transparency depth suggests a eutrophic classification. A disparity of this nature is typically due to elevated amounts of dissolved organic material that attenuate light and result in decreased transparency. The source of this material is likely wetlands, which comprised 17% of the watershed area.
- The pH of the water samples were circumneutral in terms of their acidity. The alkalinity of the pond averaged 1.5, indicating that the lake is sensitive to acid deposition.
- Sodium and chloride concentration averaged 0.3 and 0.6 mg/L respectively, and are within the range we would expect for a watershed that lacks roads.

Oven Mountain Pond



Location		
	County:	Warren
	Town:	Johnsburg

Lake Characteristics		
	Surface Area (ha):	8
	Shoreline Length (km):	2
	Max. Depth (m):	2.4
	Volume (m^3):	58241
	Flush rate (times/year):	4.6

Watershed Characteristics		
	Watershed Area (ha):	57
	Surface water (%):	18
	Deciduous Forest (%):	28
	Evergreen Forest (%):	22
	Mixed Forest (%):	14
	Wetlands (%):	18
	Agricultural (%):	0
	Residential (%):	0
	Local Roads (km):	0
	State Roads (km):	0

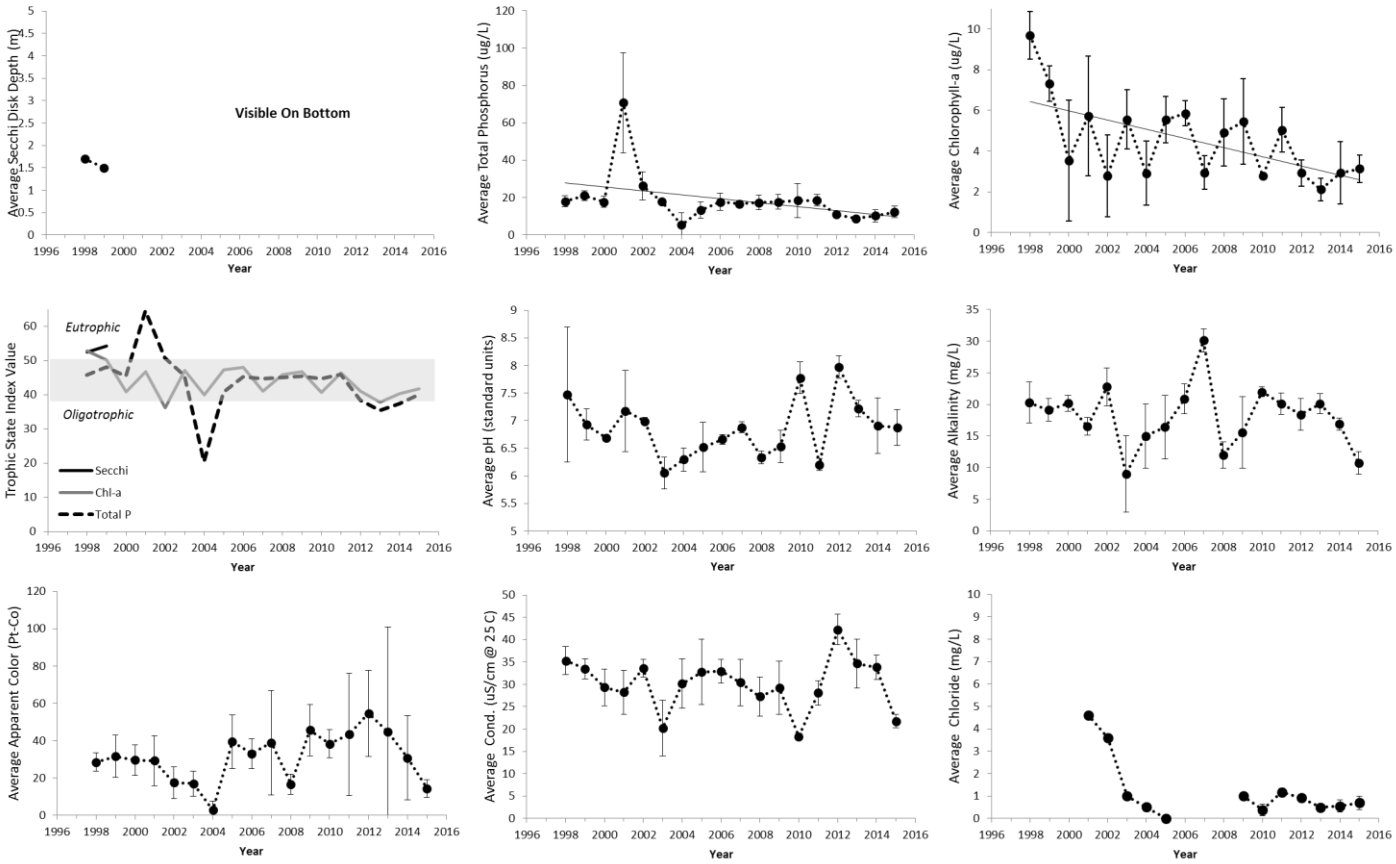
Trophic State	Acidity	Acid Neutralizing Capacity	Road Salt Influence
Mesotrophic	Circumneutral	Adequate – low sensitivity	Not Significant

Water quality values and historical trends for Oven Mountain Pond during the 2015 sampling season. Trend analysis was not performed on calcium or nitrogen data. BDL=below detection limit.

Water Quality Indicator	Sampling Date			Average	Trend
	6/20/2015	7/18/2015	8/19/2015		
Transparency (m)		Visible on Bottom			No change
Total Phosphorus (µg/L)	9.1	12.3	15.4	12.3	Decreasing
Chlorophyll-*a* (µg/L)	3.9	2.8	2.7	3.1	Decreasing
Laboratory pH	7.2	6.6	6.8	6.9	No change
Sp. Conductance (µS/cm)	22.8	22.5	20.0	21.8	No change
Color (Pt-Co)	13.3	10.2	19.6	14.4	No change
Alkalinity (mg/L)	10.8	12.5	8.9	10.7	No change
Nitrate-Nitrogen (µg/L)	BDL	BDL	1.5	±0.7	Not analyzed
Chloride (mg/L)	0.5	0.5	1.0	0.7	No change
Calcium (mg/L)	3.7	4.1	3.7	3.8	Not analyzed
Sodium (mg/L)	0.4	0.4	0.3	0.4	No change

*See table of content for description of water quality indicators

Oven Mountain Pond – Time Series



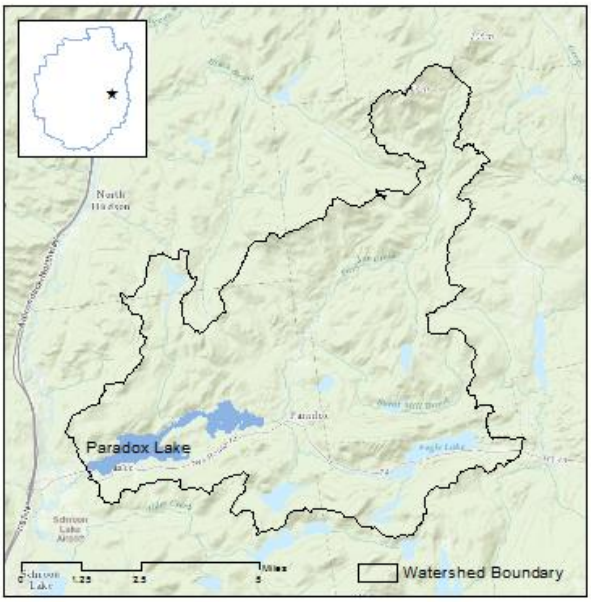
Annual average values of select water quality indicators for Oven Mountain Pond, 1998-2015. Vertical bars represent ± 1 standard deviation of the mean; Solid trend lines across the data indicate a statistically significant trend ($p < 0.05$).

Summary of Findings

Oven Mountain Pond is an 8 ha lake located in Warren County in the Town of Johnsburg. The lake is located within a 57 ha watershed dominated by forests. Oven Mountain Pond has been monitored by ALAP volunteers and the Adirondack Watershed Institute since 1998.

- Oven Mountain Pond is a mesotrophic lake. Total phosphorus has exhibited a significant downward trend at a rate of approximately 1.0 µg/L/year. Chlorophyll-a has also been trending down, at a rate of 0.22 µg/L/year.
- The water sample analyzed in 2015 was found to be circumneutral in terms of its acidity. The alkalinity averaged 10.7 mg/L, indicating low sensitivity to acid deposition.
- Sodium and chloride concentration averaged 0.4 and 0.7 mg/L respectively, these values are within the range we would expect for a watershed that lacks salted roads.

Paradox Lake



Location		
	County:	Essex
	Town:	Schroon

Lake Characteristics		
	Surface Area (ha):	377
	Shoreline Length (km):	23
	Max. Depth (m):	18.5
	Volume (m^3):	29745000
	Flush rate (times/year):	0.4

Watershed Characteristics		
	Watershed Area (ha):	11978
	Surface water (%):	8
	Deciduous Forest (%):	21
	Evergreen Forest (%):	42
	Mixed Forest (%):	20
	Wetlands (%):	7
	Agricultural (%):	0
	Residential (%):	1
	Local Roads (km):	34
	State Roads (km):	16.4

Trophic State	Acidity	Acid Neutralizing Capacity	Road Salt Influence
Oligotrophic	Circumneutral	Adequate – low sensitivity	Moderate

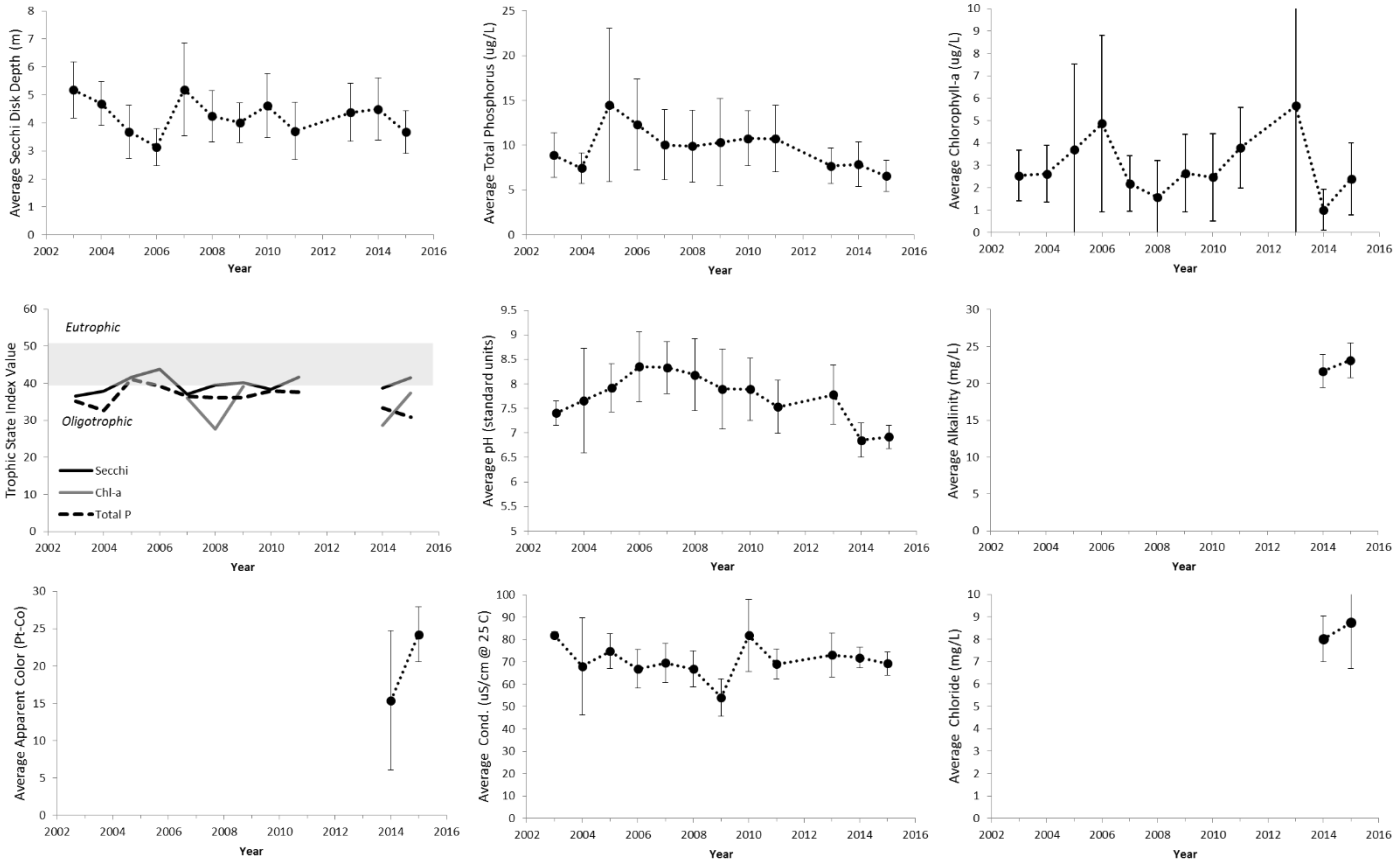
Water quality values and historical trends for Paradox Lake during the 2015 sampling season. Trend analysis was not performed on calcium or nitrogen data. BDL=below detection limit.

Water Quality Indicator	Sampling Date					Average	Trend
	5/17	6/26	7/23	8/20	9/25		
	Upper Basin						
Transparency (m)	3.0	2.5	3.0	3.5	4.0	3.2	No change
Total Phosphorus (µg/L)	5.0	6.9	4.7	9.1	6.0	6.3	No change
Chlorophyll-*a* (µg/L)	1.4	2.7	4.4	1.1	1.0	2.1	No change
Laboratory pH	6.9	7.1	6.6	7.1	6.7	6.9	No change
Sp. Cond. (µS/cm)	69.6	61.5	73.5	75.1	77.3	71.4	No change
Color (Pt-Co)	16.4	25.8	25.8	25.8	25.8	23.9	No change
Alkalinity (mg/L)	22.8	21.8	26.1	26.6	26.6	24.8	No change
Nitrate-Nitrogen (µg/L)	BDL	BDL	BDL	BDL	1.6	BDL	Not analyzed
Chloride (mg/L)	7.3	5.9	8.4	10.1	9.2	8.2	No change
Calcium (mg/L)	7.8	7.3	8.5	9.3	8.7	8.3	Not analyzed
Sodium (mg/L)	5.3	4.5	6.1	5.2	4.9	5.2	No change

Water Quality Indicator	Sampling Date					Average
	5/20	6/24	7/23	8/17	9/21	
	Lower Basin					
Transparency (m)	4.2	3.9	3.4	4.2	5.1	4.1
Total Phosphorus (µg/L)	8.0	7.2	5.9	8.9	4.0	6.8
Chlorophyll-*a* (µg/L)	1.1	3.8	5.5	1.2	1.9	2.7
Laboratory pH	7.1	7.1	6.5	7.1	7.0	7.0
Sp. Cond. (µS/cm)	64.6	71.1	63.9	66.7	69.5	67.2
Color (Pt-Co)	22.7	28.9	25.8	25.8	19.6	24.5
Alkalinity (mg/L)	20.7	22.1	22.5	21.6	20.5	21.5
Nitrate-Nitrogen (µg/L)	BDL	BDL	BDL	BDL	BDL	BDL
Chloride (mg/L)	7.7	8.6	7.7	13.6	9.0	9.3
Calcium (mg/L)	7.1	8.2	7.4	7.4	7.2	7.5
Sodium (mg/L)	5.3	6.2	5.4	4.7	4.8	5.3

*See table of content for description of water quality indicators

Paradox Lake– Time Series



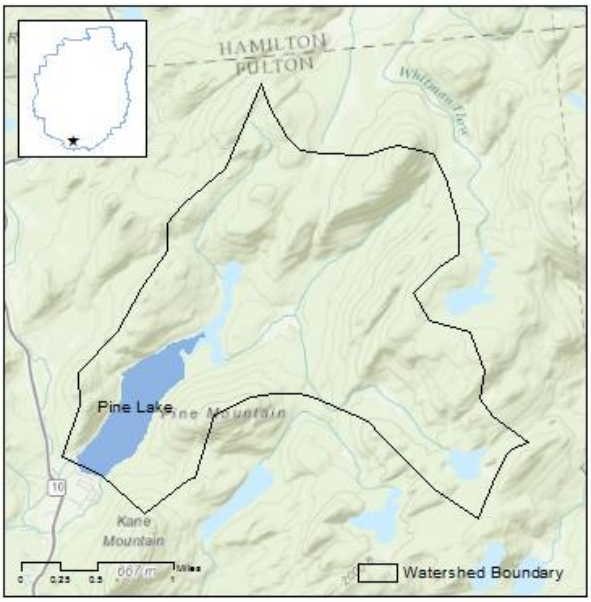
Lake wide annual average values of select water quality indicators for Paradox Lake, 2003-2015. Vertical bars represent ± 1 standard deviation of the mean; Solid trend lines across the data indicate a statistically significant trend ($p < 0.05$).Data from 2003-2013 from CSLAP, Data from 2014-2015 from ALAP.

Summary of Findings

Paradox Lake is a 377 ha lake located in Essex County in the Town of Schroon. The lake is located within an 11,978 ha watershed dominated by forests. This is the second year Paradox Lake is participating in ALAP, having been enrolled in CSLAP since 2003.

- Paradox Lake is an oligotrophic Lake. Transparency, total phosphorus, and chlorophyll-a have not exhibited any significant trends since monitoring began 1998.
- Water samples from 2015 were found to be circumneutral in terms of their acidity. Alkalinity averaged 23 mg/L, indicating that the lake is not sensitive to acid deposition.
- Sodium and chloride concentration averaged 5.2 and 8.8 mg/L in 2015, indicating the chemistry of the lake is moderately influenced by the 50 km of roads in the watershed.
- Calcium concentration averaged 8.3 mg/l in 2015, greater than 92% of participating lakes.

Pine Lake



Location		
	County:	Fulton
	Town:	Caroga

Lake Characteristics		
	Surface Area (ha):	67
	Shoreline Length (km):	5
	Max. Depth (m):	-
	Volume (m^3):	2490981
	Flush rate (times/year):	3.5

Watershed Characteristics		
	Watershed Area (ha):	1129
	Surface water (%):	8
	Deciduous Forest (%):	49
	Evergreen Forest (%):	5
	Mixed Forest (%):	15
	Wetlands (%):	21
	Agricultural (%):	0
	Residential (%):	0
	Local Roads (km):	0.8
	State Roads (km):	0

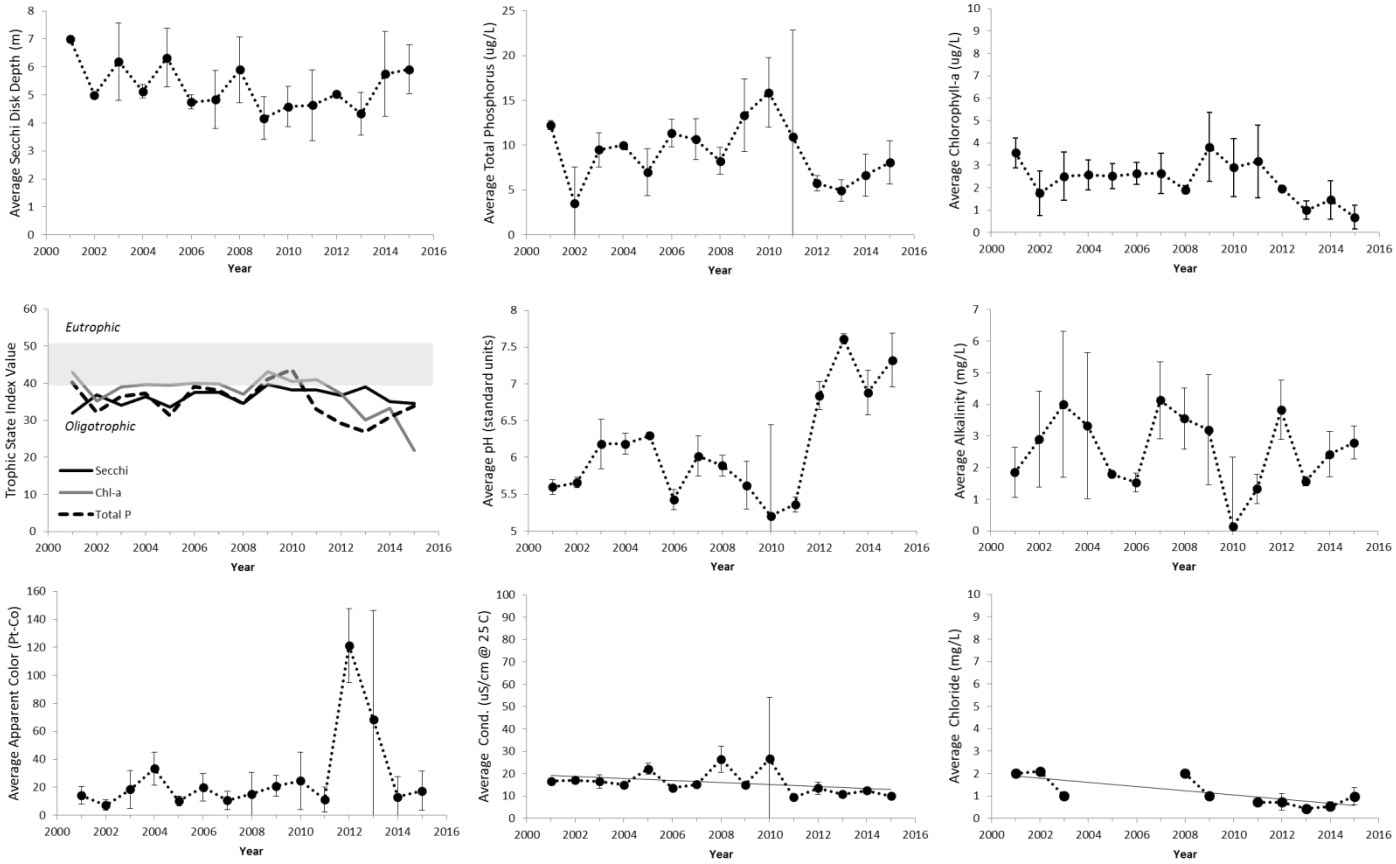
Trophic State	Acidity	Acid Neutralizing Capacity	Road Salt Influence
Oligotrophic	Circumneutral	Moderate	Not Significant

Water quality values and historical trends for Pine Lake during the 2015 sampling season. Trend analysis was not performed on calcium or nitrogen data. BDL=below detection limit.

Water Quality Indicator	Sampling Date			Average	Trend
	6/25/2015	7/23/2015	8/20/2015		
Transparency (m)	5.0	6.0	6.8	5.9	No change
Total Phosphorus (µg/L)	9.2	9.7	5.3	8.1	No change
Chlorophyll-*a* (µg/L)	1.1	0.9	0.1	0.7	No change
Laboratory pH	7.6	7.4	6.9	7.3	No change
Sp. Conductance (µS/cm)	10.0	10.1	9.8	10.0	Decreasing
Color (Pt-Co)	16.4	4.0	32.0	17.5	No change
Alkalinity (mg/L)	2.4	2.5	3.4	2.8	No change
Nitrate-Nitrogen (µg/L)	89.7	13.4	4.0	35.7	Not analyzed
Chloride (mg/L)	0.8	0.8	1.4	1.0	Decreasing
Calcium (mg/L)	1.1	1.2	1.4	1.2	Not analyzed
Sodium (mg/L)	0.7	0.8	0.6	0.7	No change

*See table of content for description of water quality indicators

Pine Lake – Time Series



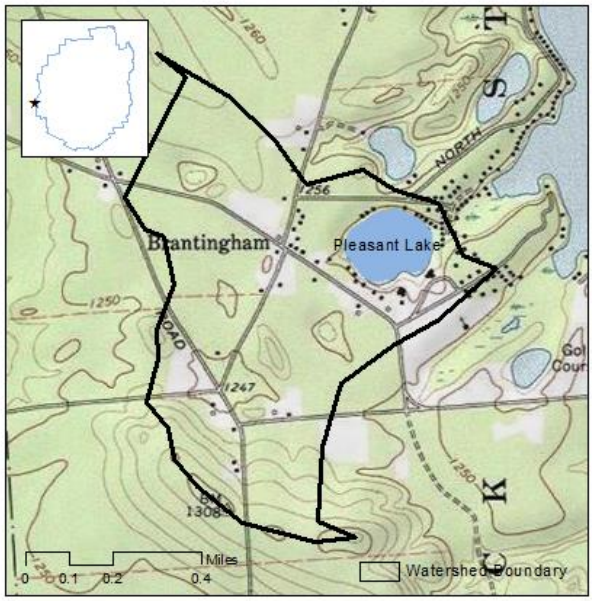
Annual average values of select water quality indicators for Pine Lake, 2001-2015. Vertical bars represent ± 1 standard deviation of the mean; Solid trend lines across the data indicate a statistically significant trend ($p < 0.05$).

Summary of Findings

Pine Lake is a 67 ha lake located in Fulton County in the Town of Caroga. The lake is located within a 1,129 ha watershed dominated by forests. Pine Lake has been monitored by ALAP volunteers and the Adirondack Watershed Institute since 2001.

- Pine Lake is an oligotrophic Lake. Transparency, total phosphorus, and chlorophyll-a have not exhibited any significant trends since monitoring began 2001. The secchi transparency of Pine Lake was greater than 86% of participating lakes.
- Water samples from 2015 were found to be circumneutral in terms of their acidity. Alkalinity averaged 2.8 mg/L, indicating that the lake is sensitive to acid deposition.
- Sodium and chloride concentration averaged 0.7 and 1.0 mg/L in 2015, indicating the chemistry of the lake is not significantly influenced by road salt.

Pleasant Lake



Location		
	County:	Lewis
	Town:	Greig

Lake Characteristics		
	Surface Area (ha):	6
	Shoreline Length (km):	1
	Max. Depth (m):	10.4
	Volume (m^3):	264475
	Flush rate (times/year):	0.9

Watershed Characteristics		
	Watershed Area (ha):	117
	Surface water (%):	6
	Deciduous Forest (%):	8
	Evergreen Forest (%):	59
	Mixed Forest (%):	3
	Wetlands (%):	3
	Agricultural (%):	0
	Residential (%):	3
	Local Roads (km):	4.3
	State Roads (km):	0

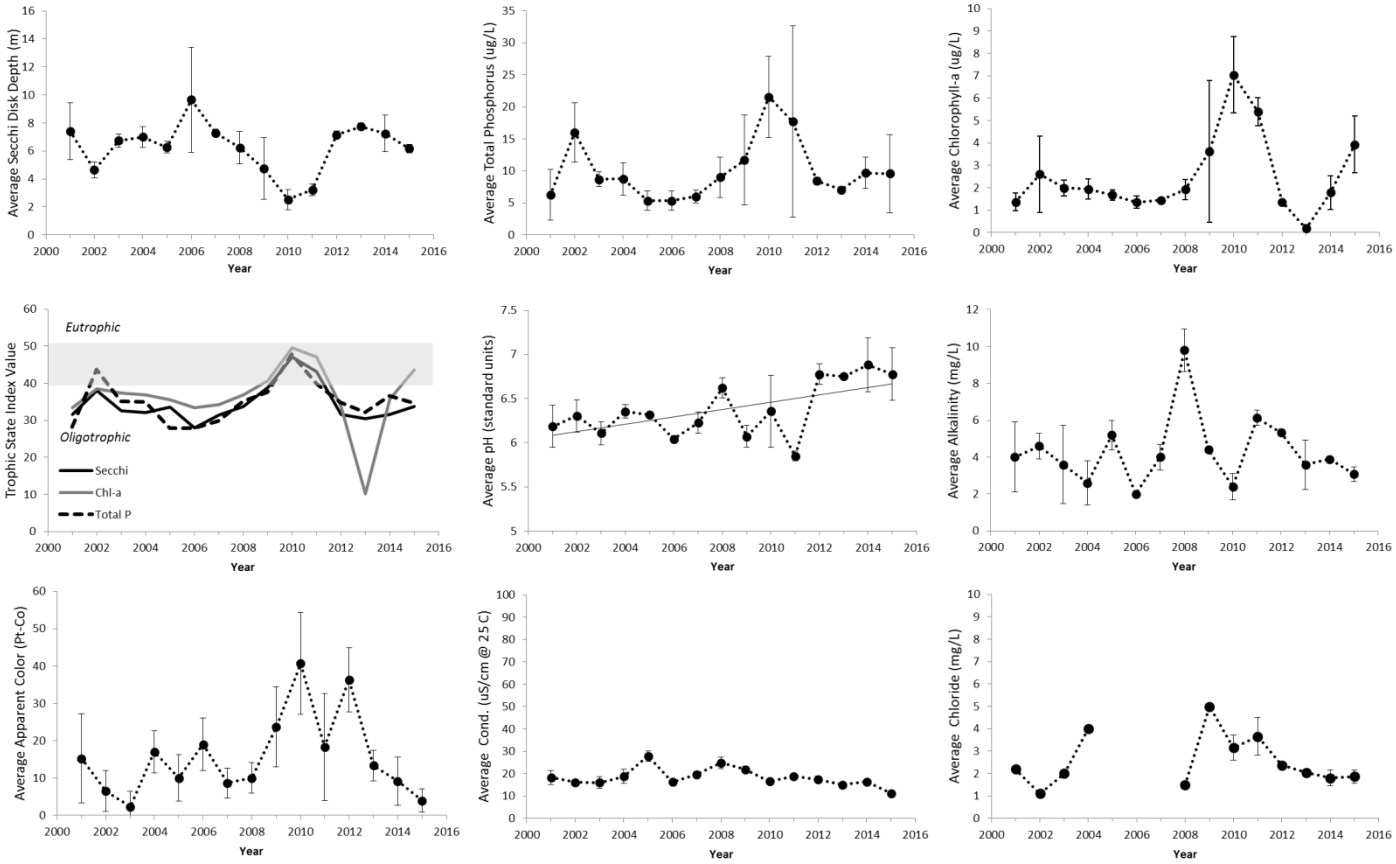
Trophic State	Acidity	Acid Neutralizing Capacity	Road Salt Influence
Oligotrophic	Circumneutral	Moderate	Present - Low

Water quality values and historical trends for Pleasant Lake during the 2015 sampling season. Trend analysis was not performed on cakcium or nitrogen data. BDL=below detection limit.

Water Quality Indicator	Sampling Date			Average	Trend
	6/22/2015	7/20/2015	8/17/2015		
Transparency (m)	6.0	6.0	6.5	6.2	No change
Total Phosphorus (µg/L)	8.1	16.3	4.3	9.6	No change
Chlorophyll-*a* (µg/L)	3.9	5.2	2.7	3.9	No change
Laboratory pH	6.5	6.8	7.1	6.8	Increasing
Sp. Conductance (µS/cm)	12.3	10.3	10.9	11.2	No change
Color (Pt-Co)	7.1	0.8	4.0	4.0	No change
Alkalinity (mg/L)	3.5	3.1	2.7	3.1	No change
Nitrate-Nitrogen (µg/L)	BDL	BDL	BDL	BDL	Not analyzed
Chloride (mg/L)	1.8	1.6	2.2	1.9	No change
Calcium (mg/L)	1.1	1.4	1.2	1.2	Not analyzed
Sodium (mg/L)	1.0	0.9	0.7	0.9	No change

*See table of content for description of water quality indicators

Pleasant Lake – Time Series



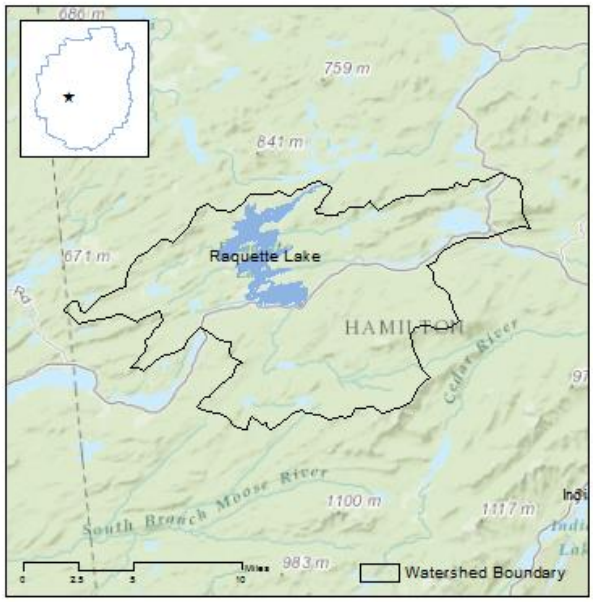
Annual average values of select water quality indicators for Pleasant Lake, 2001-2015. Vertical bars represent ± 1 standard deviation of the mean; Solid trend lines across the data indicate a statistically significant trend ($p < 0.05$).

Summary of Findings

Pleasant Lake is a 6 ha lake located in Lewis County in the Town of Greig. The lake is located within a 108 ha watershed dominated by forests. Pleasant Lake has been monitored by ALAP volunteers and the Adirondack Watershed Institute since 1999.

- Pleasant Lake is an oligotrophic lake. Trophic indicators have been variably since 2001 and have exhibited no positive of negative trend.
- The water samples analyzed in 2015 were found to be circumneutral in terms of their acidity, averaging 6.8 pH units. We detected an increasing trend in pH at a rate of 0.04 pH units/year. The alkalinity averaged 3.1 mg/L, indicating moderate sensitivity to acid deposition.
- Sodium and chloride concentration averaged 0.9 and 1.9 mg/L respectively, indicating that the chemistry of the lake is influenced by the 4.3km of roads in the watershed, but the influence is relatively low.

Raquette Lake



Location		
	County:	Hamilton
	Town:	Long Lake

Lake Characteristics		
	Surface Area (ha):	2183
	Shoreline Length (km):	78
	Max. Depth (m):	29
	Volume (m^3):	285759848
	Flush rate (times/year):	0.91

Watershed Characteristics		
	Watershed Area (ha):	33147
	Surface water (%):	12
	Deciduous Forest (%):	32
	Evergreen Forest (%):	20
	Mixed Forest (%):	7
	Wetlands (%):	26
	Agricultural (%):	0
	Residential (%):	1
	Local Roads (km):	26.8
	State Roads (km):	31.1

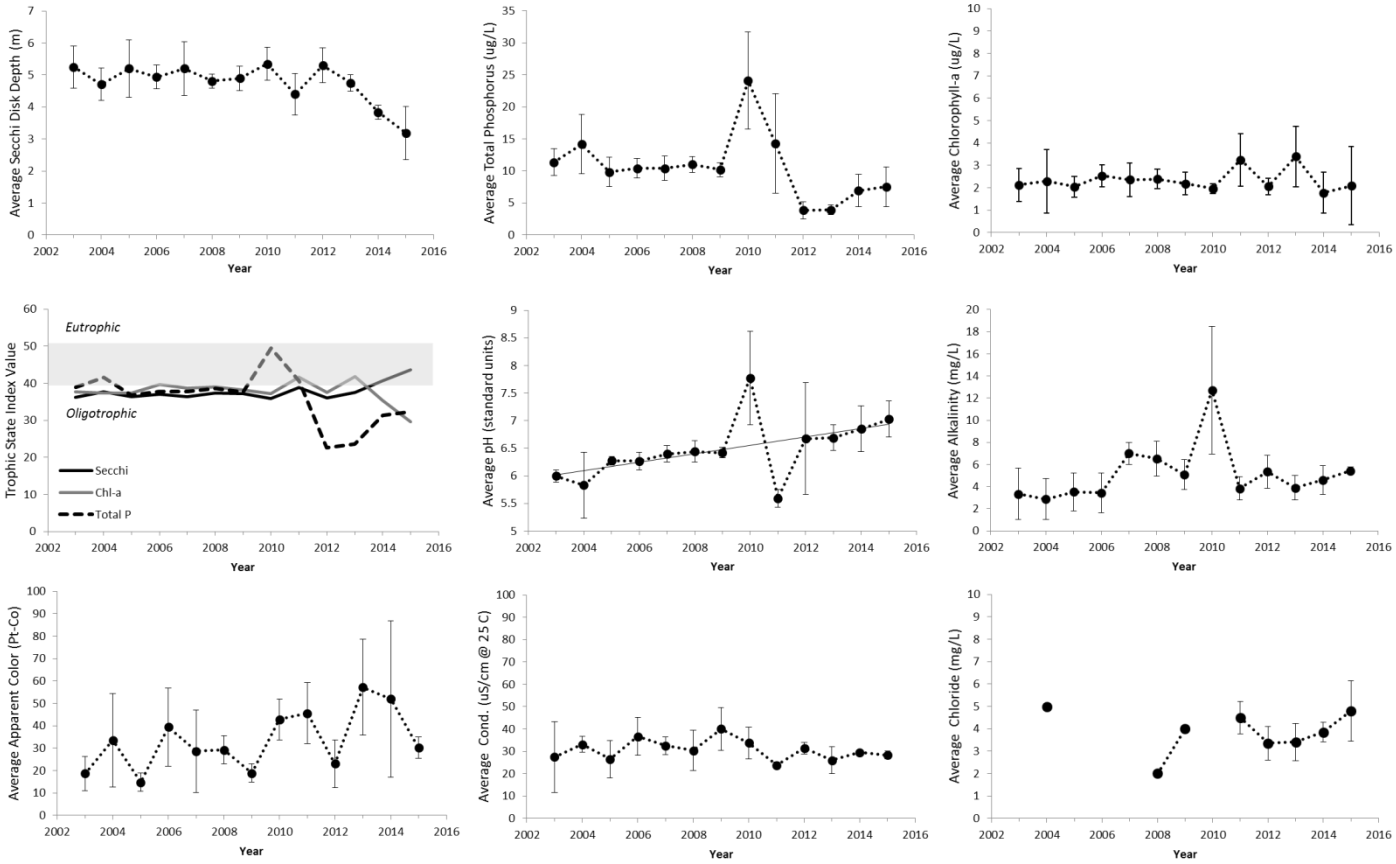
Trophic State	Acidity	Acid Neutralizing Capacity	Road Salt Influence
Oligotrophic	Circumneutral	Moderate	Moderate

Water quality values and historical trends for Raquette Lake during the 2015 sampling season. Trend analysis was not performed on calcium or nitrogen data. BDL=below detection limit.

Water Quality Indicator	Sampling Date			Average	Trend
	6/17/2015	7/23/2015	8/21/2015		
Transparency (m)	4.1	2.9	2.6	3.2	No change
Total Phosphorus (µg/L)	4.0	9.0	7.8	7.5	No change
Chlorophyll-*a* (µg/L)	3.2	0.1	3.0	2.1	No change
Laboratory pH	7.4	6.7	7.2	7.0	Increasing
Sp. Conductance (µS/cm)	26.8	27.7	29.9	28.4	No change
Color (Pt-Co)	28.9	30.5	30.5	30.2	No change
Alkalinity (mg/L)	5.0	5.6	5.6	5.4	No change
Nitrate-Nitrogen (µg/L)	132.0	76.2	35.3	71.0	Not analyzed
Chloride (mg/L)	3.8	4.2	5.9	4.8	No change
Calcium (mg/L)	2.1	2.3	2.6	2.4	Not analyzed
Sodium (mg/L)	2.9	2.9	2.8	2.9	No change

*See table of content for description of water quality indicators

Raquette Lake – Time Series



Annual average values of select water quality indicators for Raquette Lake, 2003-2015. Vertical bars represent ± 1 standard deviation of the mean; Solid trend lines across the data indicate a statistically significant trend ($p < 0.05$).

Summary of Findings

Raquette Lake is a 2,183 ha lake located in Hamilton County in the Town of Long Lake. The lake is located within a 33,147 ha watershed dominated by forests. Raquette Lake has been monitored by ALAP volunteers and the Adirondack Watershed Institute since 2003.

- The trophic state of Raquette Lake is classified as oligotrophic based on total phosphorus and chlorophyll-a concentration. However, the transparency depth is more indicative of a mesotrophic state. A disparity of this nature is typically due to non-algal turbidity and dissolved organic matter. The trophic status has been fairly stable over the 13 years of monitoring. Average transparency has been decreasing over the last three years, but no statistical trend has been detected.
- The water samples analyzed in 2015 were found to be circumneutral in terms of their acidity, averaging 6.7 pH units. The pH of the lake has exhibited a slight increasing trend at a rate of approximately 0.07 pH units/year. The alkalinity of the lake averaged 5.4 mg/L, indicating that the lake has moderate sensitivity to acid deposition.
- Sodium and chloride concentrations of the lake averaged 2.9 and 4.8 mg/L respectively. These values indicate that the chemistry of the lake is moderately influenced by the 68 km of roads in the watershed.

Rich Lake

Location	County:	Essex
	Town:	Newcomb
Lake Characteristics	Surface Area (ha):	154
	Shoreline Length (km):	11
	Max. Depth (m):	19.8
	Volume (m^3):	12660840
	Flush rate (times/year):	10
Watershed Characteristics	Watershed Area (ha):	16883
	Surface water (%):	6
	Deciduous Forest (%):	56
	Evergreen Forest (%):	18
	Mixed Forest (%):	7
	Wetlands (%):	11
	Agricultural (%):	0
	Residential (%):	1
	Local Roads (km):	0.8
	State Roads (km):	17

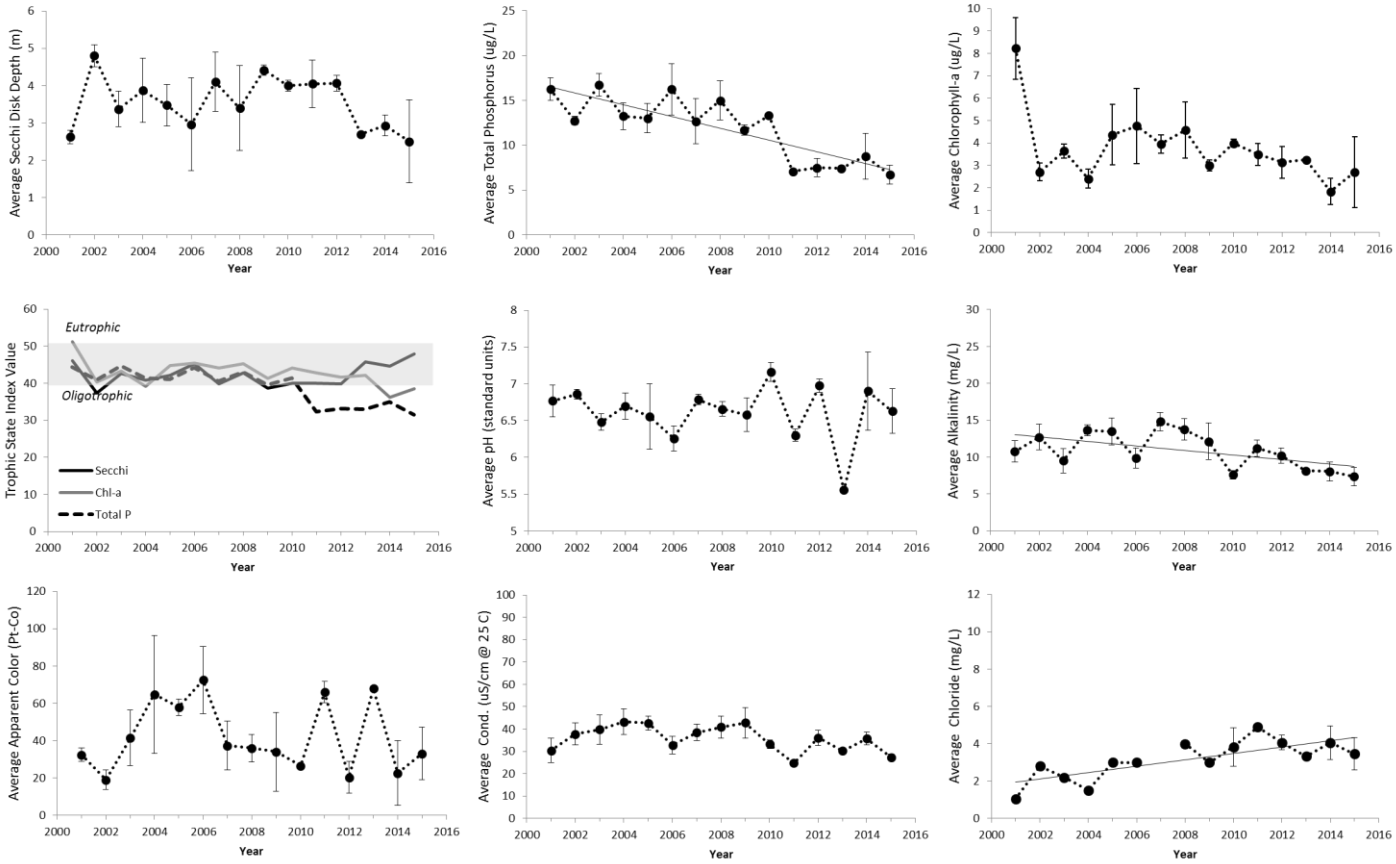
Trophic State	Acidity	Acid Neutralizing Capacity	Road Salt Influence
mesotrophic	Circumneutral	Moderate	Present - Low

Water quality values and historical trends for Rich Lake during the 2015 sampling season. Trend analysis was not performed on calcium or nitrogen data. BDL=below detection limit.

Water Quality Indicator	Sampling Date			Average	Trend
	6/24/2015	7/22/2015	8/24/2015		
Transparency (m)	1.4	2.6	3.6	2.5	No change
Total Phosphorus (µg/L)	5.8	7.9	6.4	6.7	Decreasing
Chlorophyll-*a* (µg/L)	3.3	0.9	3.9	2.7	No change
Laboratory pH	6.4	6.5	7.0	6.6	No change
Sp. Conductance (µS/cm)	27.8	25.9	28.4	27.4	No change
Color (Pt-Co)	47.6	32.0	19.6	33.1	No change
Alkalinity (mg/L)	6.2	7.2	8.7	7.4	Decreasing
Nitrate-Nitrogen (µg/L)	52.1	24.8	BDL	±24.9	Not analyzed
Chloride (mg/L)	3.2	2.8	4.4	3.5	Increasing
Calcium (mg/L)	2.8	2.8	3.5	3.1	Not analyzed
Sodium (mg/L)	2.6	2.0	2.3	2.3	No change

*See table of content for description of water quality indicators

Rich Lake – Time Series



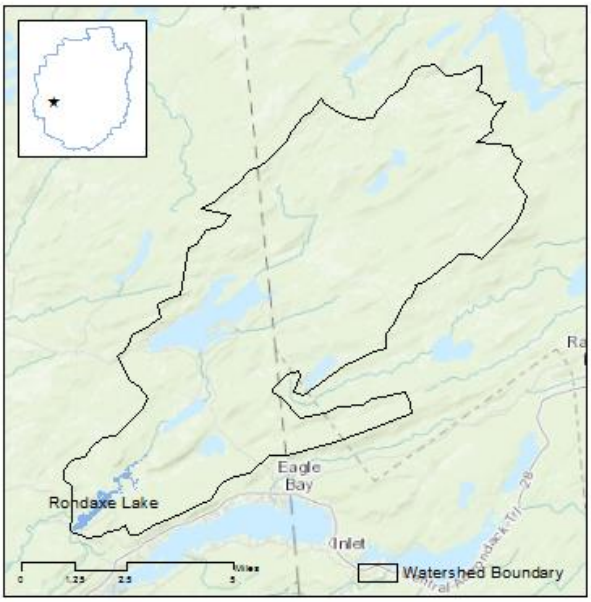
Annual average values of select water quality indicators for Rich Lake, 2001-2015. Vertical bars represent ± 1 standard deviation of the mean; Solid trend lines across the data indicate a statistically significant trend ($p < 0.05$).

Summary of Findings

Rich Lake is a 154 ha lake located in Essex County in the Town of Newcomb. The lake is located within a 16,883 ha watershed dominated by forests. Rich Lake has been monitored by ALAP volunteers and the Adirondack Watershed Institute since 1999.

- Rich Lake is a mesotrophic lake. Total phosphorus has exhibited a significant downward trend at a rate of approximately 0.7 µg/L/year.
- The water samples analyzed in 2015 were found to be circumneutral in terms of their acidity. The alkalinity averaged 7.4 mg/L, indicating moderate sensitivity to acid deposition. The alkalinity has exhibited a downward trend at a rate of approximately 0.3 mg/L/year.
- Sodium and chloride concentration averaged 2.3 and 3.5 mg/L respectively, indicating that the chemistry of the lake is influenced by the 18 km of roads in the watershed, but that influence is relatively low. We detected an increasing trend in chloride concentration at a rate of approximately 0.2 mg/L/year.

Rondaxe Lake



Location		
	County:	Herkimer
	Town:	Webb

Lake Characteristics		
	Surface Area (ha):	100
	Shoreline Length (km):	17
	Max. Depth (m):	10.1
	Volume (m^3):	2733263
	Flush rate (times/year):	39.4

Watershed Characteristics		
	Watershed Area (ha):	14378
	Surface water (%):	10
	Deciduous Forest (%):	33
	Evergreen Forest (%):	20
	Mixed Forest (%):	8
	Wetlands (%):	27
	Agricultural (%):	0
	Residential (%):	0
	Local Roads (km):	20.4
	State Roads (km):	0

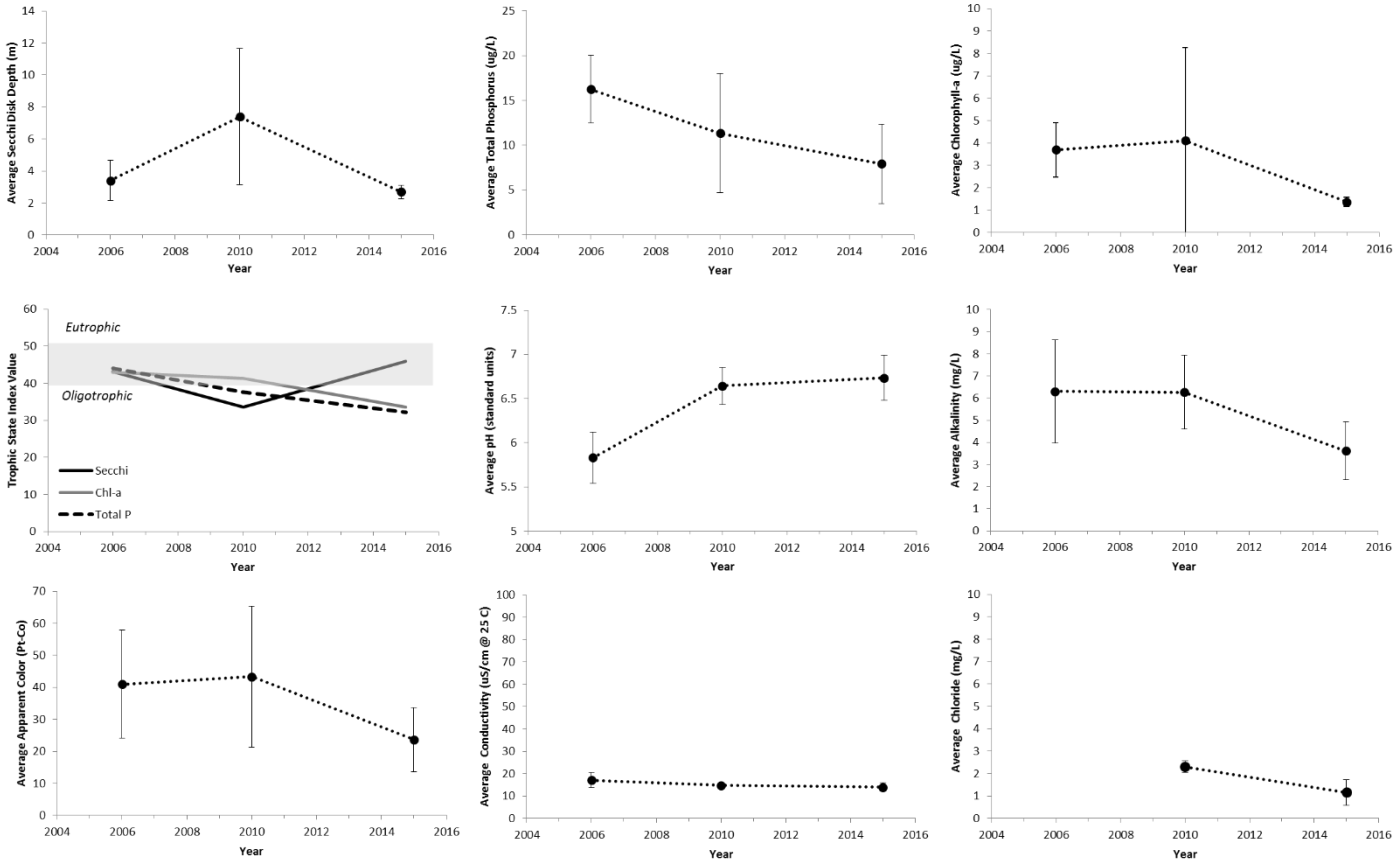
Trophic State	Acidity	Acid Neutralizing Capacity	Road Salt Influence
Oligotrophic	Circumneutral	Moderate	Present - Low

Water quality values and historical trends for Rondaxe Lake during the 2015 sampling season. Trend analysis was not performed on calcium or nitrogen data. BDL=below detection limit.

Water Quality Indicator	Sampling Date			Average	Trend
	6/14/2015	7/25/2015	8/15/2015		
Transparency (m)	2.3	3.2	2.6	2.7	Not analyzed
Total Phosphorus (µg/L)	3.6	12.4	7.8	7.9	
Chlorophyll-*a* (µg/L)	1.1	1.4	1.5	1.4	
Laboratory pH	6.5	6.7	7.0	6.7	
Sp. Conductance (µS/cm)	11.8	14.5	15.5	13.9	
Color (Pt-Co)	35.1	19.6	16.4	23.7	
Alkalinity (mg/L)	2.2	3.8	4.8	3.6	
Nitrate-Nitrogen (µg/L)	143.0	50.1	BDL	±63.8	
Chloride (mg/L)	0.7	1.0	1.8	1.2	
Calcium (mg/L)	1.3	1.9	2.1	1.8	
Sodium (mg/L)	0.8	1.1	0.8	0.9	

*See table of content for description of water quality indicators

Rondaxe Lake – Time Series



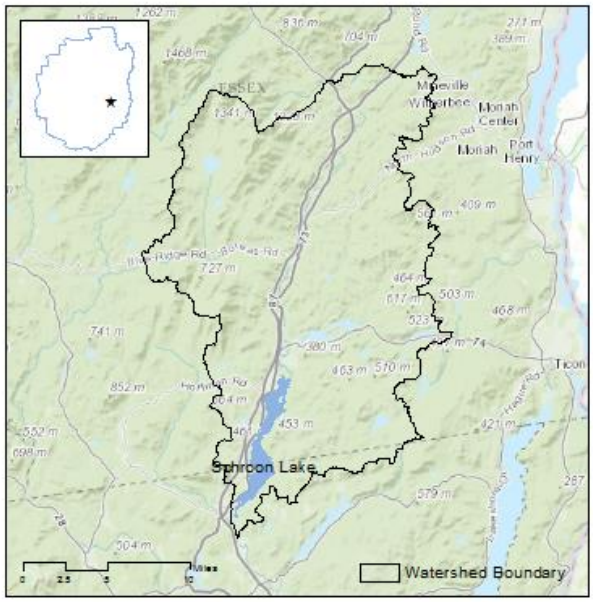
Annual average values of select water quality indicators for Rondaxe Lake, 2006-2015. Vertical bars represent ± 1 standard deviation of the mean; Solid trend lines across the data indicate a statistically significant trend ($p < 0.05$).

Summary of Findings

Rondaxe Lake is a 100ha lake located in Herkimer County in the Town of Webb. The lake is located within a 14,378 ha watershed dominated by forests. Rich Lake has been monitored by ALAP volunteers and the Adirondack Watershed Institute on three occasions since 2006. Trend analysis will be completed after five years of consecutive data.

- Total phosphorus and chlorophyll concentrations of Rondaxe Lake classify it as oligotrophic. However, transparency depth is more indicative of a mesotrophic classification. A disparity of this nature is typically related to non-algal turbidity and dissolved organic matter.
- The water samples analyzed in 2015 were found to be circumneutral in terms of their acidity. The alkalinity averaged 3.6 mg/L, indicating moderate sensitivity to acid deposition.
- Sodium and chloride concentration averaged 0.93 and 1.2 mg/L respectively, indicating that the chemistry of the lake is influenced by the 20 km of roads in the watershed, but that influence is relatively low.

Schroon Lake



Location		
	County:	Warren
	Town:	Horicon

Lake Characteristics		
	Surface Area (ha):	1722
	Shoreline Length (km):	53
	Max. Depth (m):	46.4
	Volume (m^3):	276623312
	Flush rate (times/year):	2.5

Watershed Characteristics		
	Watershed Area (ha):	81866
	Surface water (%):	5
	Deciduous Forest (%):	30
	Evergreen Forest (%):	37
	Mixed Forest (%):	17
	Wetlands (%):	8
	Agricultural (%):	0
	Residential (%):	2
	Local Roads (km):	167.8
	State Roads (km):	160.7

Trophic State	Acidity	Acid Neutralizing Capacity	Road Salt Influence
Oligotrophic	Circumneutral	Adequate – low sensitivity	Moderate

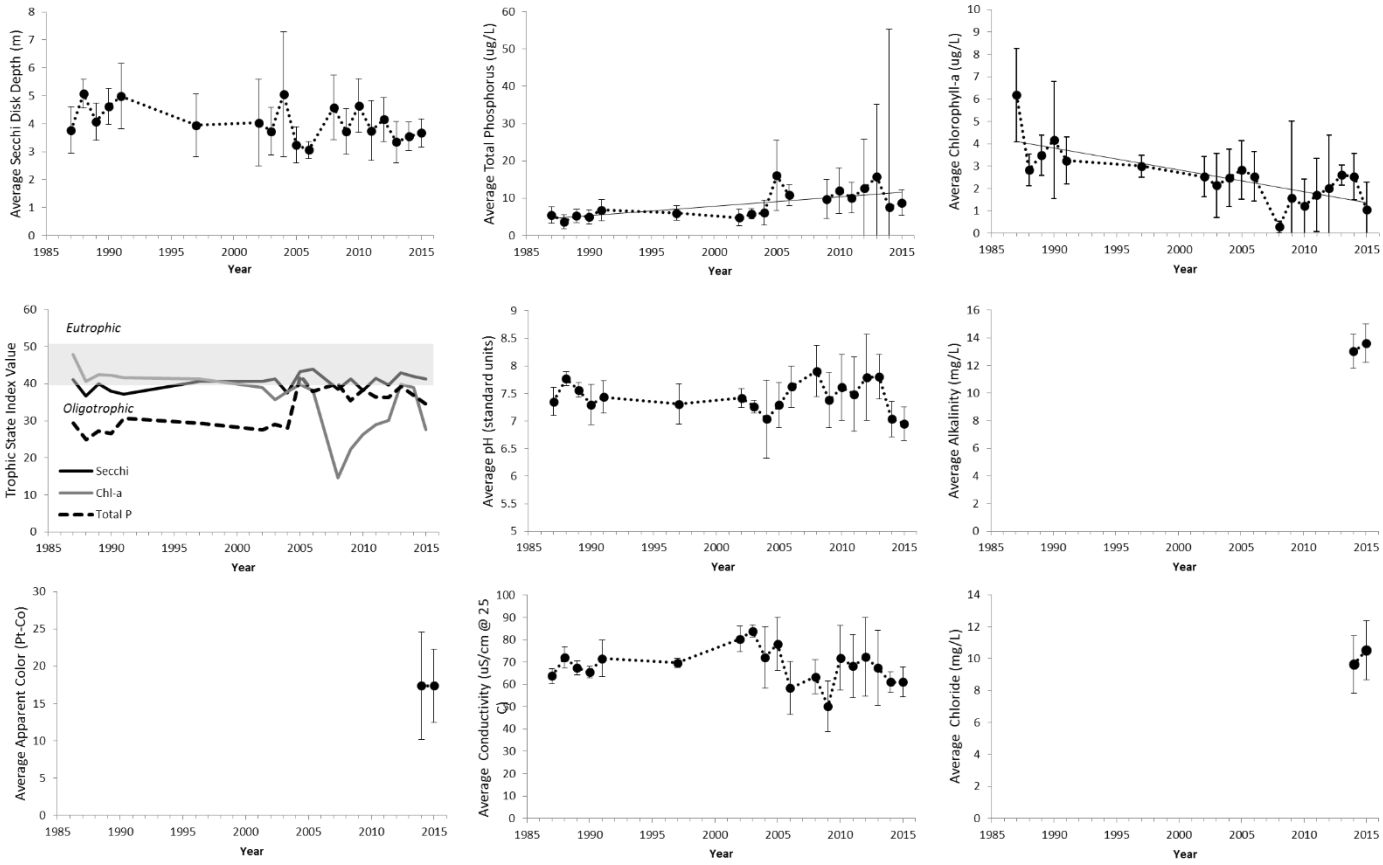
Water quality values and historical trends for Schroon Lake during the 2015 sampling season. Trend analysis was not performed on calcium or nitrogen data. BDL=below detection limit.

Water Quality Indicator	Sampling Date					Average	Trend
	5/21	6/22	7/24	8/20	9/24		
	North Basin						
Transparency (m)	3.4	3.2	4.2	3.6	4.6	3.8	No change
Total Phosphorus (µg/L)	4.3	6.9	11.8	7.2	9.6	7.9	Increasing
Chlorophyll-*a* (µg/L)	1.2	2.3	3.9	BDL	1.1	±1.7	Decreasing
Laboratory pH	6.8	7.2	7.0	7.2	6.5	6.9	No change
Sp. Cond. (µS/cm)	58.7	52.5	57.8	64.5	74.0	61.5	No change
Color (Pt-Co)	13.3	19.6	13.3	19.6	19.6	17.1	No change
Alkalinity (mg/L)	12.1	11.6	13.7	15.5	14.9	13.6	No change
Nitrate-Nitrogen (µg/L)	105.0	39.9	10.0	BDL	6.6	±32.0	Not analyzed
Chloride (mg/L)	9.3	8.2	9.7	12.8	13.2	10.7	No change
Calcium (mg/L)	5.1	4.5	5.2	5.8	5.7	5.3	Not analyzed
Sodium (mg/L)	6.4	5.9	5.7	6.6	6.9	6.3	No change

Water Quality Indicator	Sampling Date					Average
	5/21	6/22	7/24	8/20	9/24	
	South Basin					
Transparency (m)	3.4	3.2	3.5	3.5	4.4	3.6
Total Phosphorus (µg/L)	5.2	5.5	14.9	10.8	11.9	9.7
Chlorophyll-*a* (µg/L)	0.3	0.3	0.6	0.1	1.0	0.5
Laboratory pH	7.2	7.1	7.0	7.2	6.3	7.0
Sp. Cond. (µS/cm)	59.7	57.0	55.9	59.9	70.4	60.6
Color (Pt-Co)	16.4	28.9	13.3	13.3	16.4	17.7
Alkalinity (mg/L)	12.8	12.2	13.8	14.5	15.0	13.7
Nitrate-Nitrogen (µg/L)	116.0	57.1	12.6	2.1	3.6	38.3
Chloride (mg/L)	9.6	8.9	9.1	12.1	12.4	10.4
Calcium (mg/L)	5.1	5.2	5.0	5.7	5.8	5.3
Sodium (mg/L)	6.5	6.7	5.4	6.2	6.6	6.3

*See table of content for description of water quality indicators

Schroon Lake– Time Series



Lake wide annual average values of select water quality indicators for Schroon Lake, 1985-2015. Vertical bars represent ± 1 standard deviation of the mean; Solid trend lines across the data indicate a statistically significant trend ($p < 0.05$). Data from 1987-2013 form CSLAP, data from 2014-2015 from ALAP.

Summary of Findings

Schroon Lake is a 1,722 ha lake located within an 81,866 ha watershed dominated by forests. This is the second year Schroon Lake is participating in ALAP, having been enrolled in CSLAP periodically since 1987.

- Schroon Lake is an oligotrophic Lake. Total phosphorus has exhibited an upward trend at a rate of approximately 0.7 µg/L/year. Chlorophyll-a concentration has exhibited a slight downward trend at a rate of approximately 0.05 µg/L/year.
- Water samples from 2015 were found to be circumneutral in terms of their acidity. Alkalinity averaged 14 mg/L, indicating that the lake is not sensitive to acid deposition.
- Sodium and chloride concentration averaged 6.5 and 11.5 mg/L in 2015, indicating the chemistry of the lake is influenced by the 329 km of roads in the watershed.

Sherman Lake

Location		
	County:	Warren
	Town:	Horicon

Lake Characteristics		
	Surface Area (ha):	42
	Shoreline Length (km):	4
	Max. Depth (m):	14
	Volume (m^3):	464363
	Flush rate (times/year):	6.4

Watershed Characteristics		
	Watershed Area (ha):	235
	Surface water (%):	20
	Deciduous Forest (%):	16
	Evergreen Forest (%):	44
	Mixed Forest (%):	11
	Wetlands (%):	9
	Agricultural (%):	0
	Residential (%):	1
	Local Roads (km):	0.2
	State Roads (km):	0

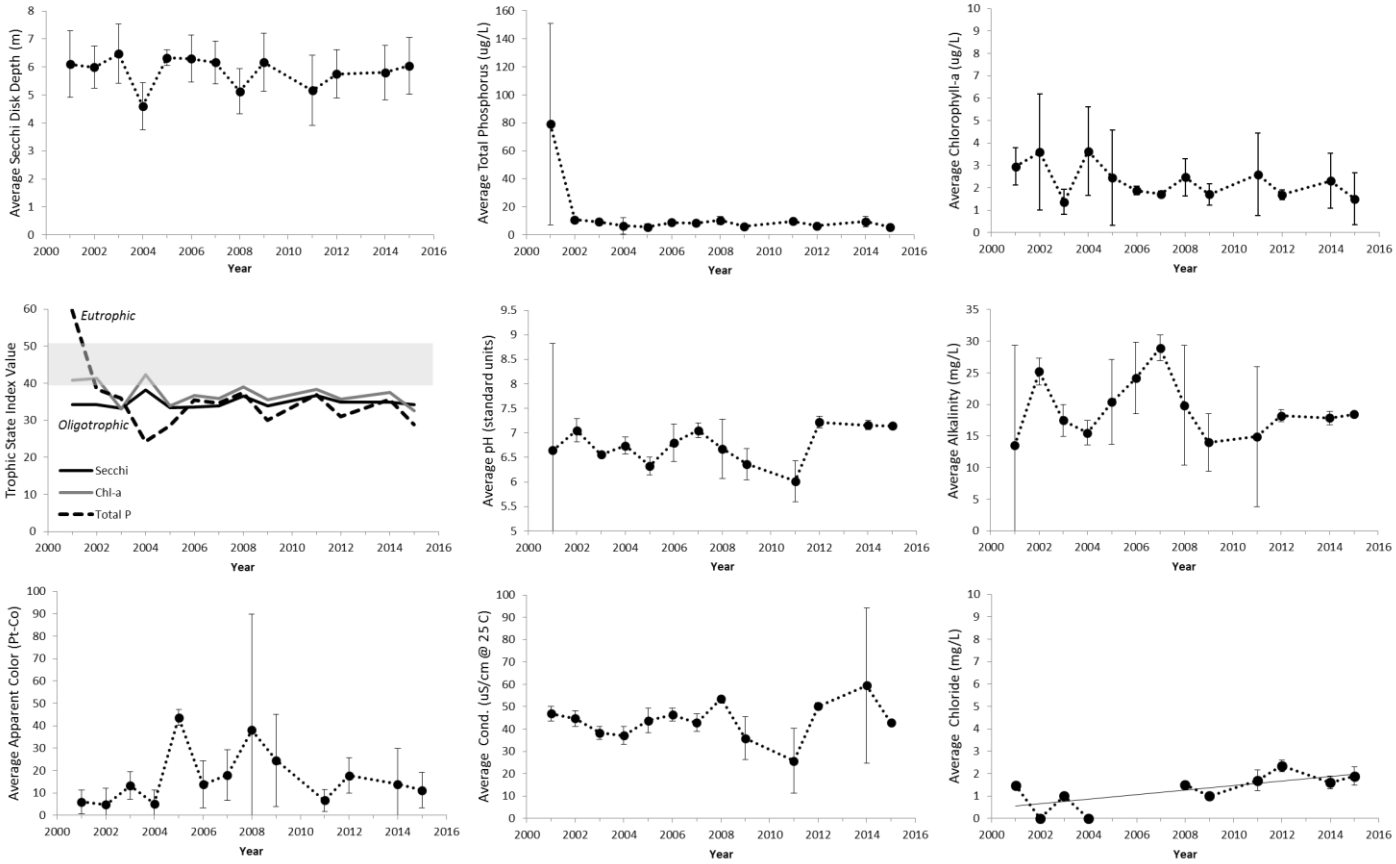
Trophic State	Acidity	Acid Neutralizing Capacity	Road Salt Influence
Oligotrophic	Circumneutral	Adequate – low sensitivity	Present - Low

Water quality values and historical trends for Sherman Lake during the 2015 sampling season. Trend analysis was not performed on calcium or nitrogen data. BDL=below detection limit.

Water Quality Indicator	Sampling Date					Average	Trend
	5/25	6/29	July	8/24	September		
Transparency (m)	6.5	4.9		6.8		6.0	No change
Total Phosphorus (µg/L)	5.3	6.1		5.2		5.6	No change
Chlorophyll-*a* (µg/L)	0.6	2.8		1.1		1.5	No change
Laboratory pH	7.2	7.1		7.1		7.1	No change
Sp. Cond. (µS/cm)	42.4	42.7	No Sample	43.1	No Sample	42.7	No change
Color (Pt-Co)	10.2	4.0		19.6		11.2	No change
Alkalinity (mg/L)	18.3	18.4		18.7		18.5	No change
Nitrate-Nitrogen (µg/L)	BDL	8.1		2.4		±3.0	Not analyzed
Chloride (mg/L)	1.7	1.6		2.4		1.9	Increasing
Calcium (mg/L)	5.6	5.7		6.1		5.8	Not analyzed
Sodium (mg/L)	1.7	1.7		1.4		1.6	No change

*

Sherman Lake – Time Series



Annual average values of select water quality indicators for Sherman Lake, 2001-2015. Vertical bars represent ± 1 standard deviation of the mean; Solid trend lines across the data indicate a statistically significant trend ($p < 0.05$).

Summary of Findings

Sherman Lake is a 42 ha lake located in Warren County in the Town of Warrensburg. The lake is located within a 235 ha watershed dominated by forests. Sherman Lake has been monitored by ALAP volunteers and the Adirondack Watershed Institute since 2001. Samples were not received from Sherman Lake for the months of July and September.

- Sherman Lake is an oligotrophic lake. The trophic status has been fairly stable over the 13 years of monitoring.
- The water samples analyzed in 2015 were found to be circumneutral in terms of their acidity, averaging 7.1 pH units. The alkalinity of the lake averaged 18.5 mg/L, indicating that the lake has low sensitivity to acid deposition.
- Sodium and chloride concentrations of the lake averaged 1.6 and 1.9 mg/L respectively. These values indicate that the chemistry of the lake is influenced by the 0.2km of roads in the watershed, but that influence is relatively low. We detected a significant increase in chloride concentration at a rate of approximately 0.1 mg/L/year.

Silver Lake

Location		
	County:	Clinton
	Town:	Black Brook

Lake Characteristics		
	Surface Area (ha):	324
	Shoreline Length (km):	11
	Max. Depth (m):	-
	Volume (m^3):	25613064
	Flush rate (times/year):	0.3

Watershed Characteristics		
	Watershed Area (ha):	1245
	Surface water (%):	26
	Deciduous Forest (%):	44
	Evergreen Forest (%):	14
	Mixed Forest (%):	9
	Wetlands (%):	3
	Agricultural (%):	0
	Residential (%):	3
	Local Roads (km):	5.6
	State Roads (km):	0

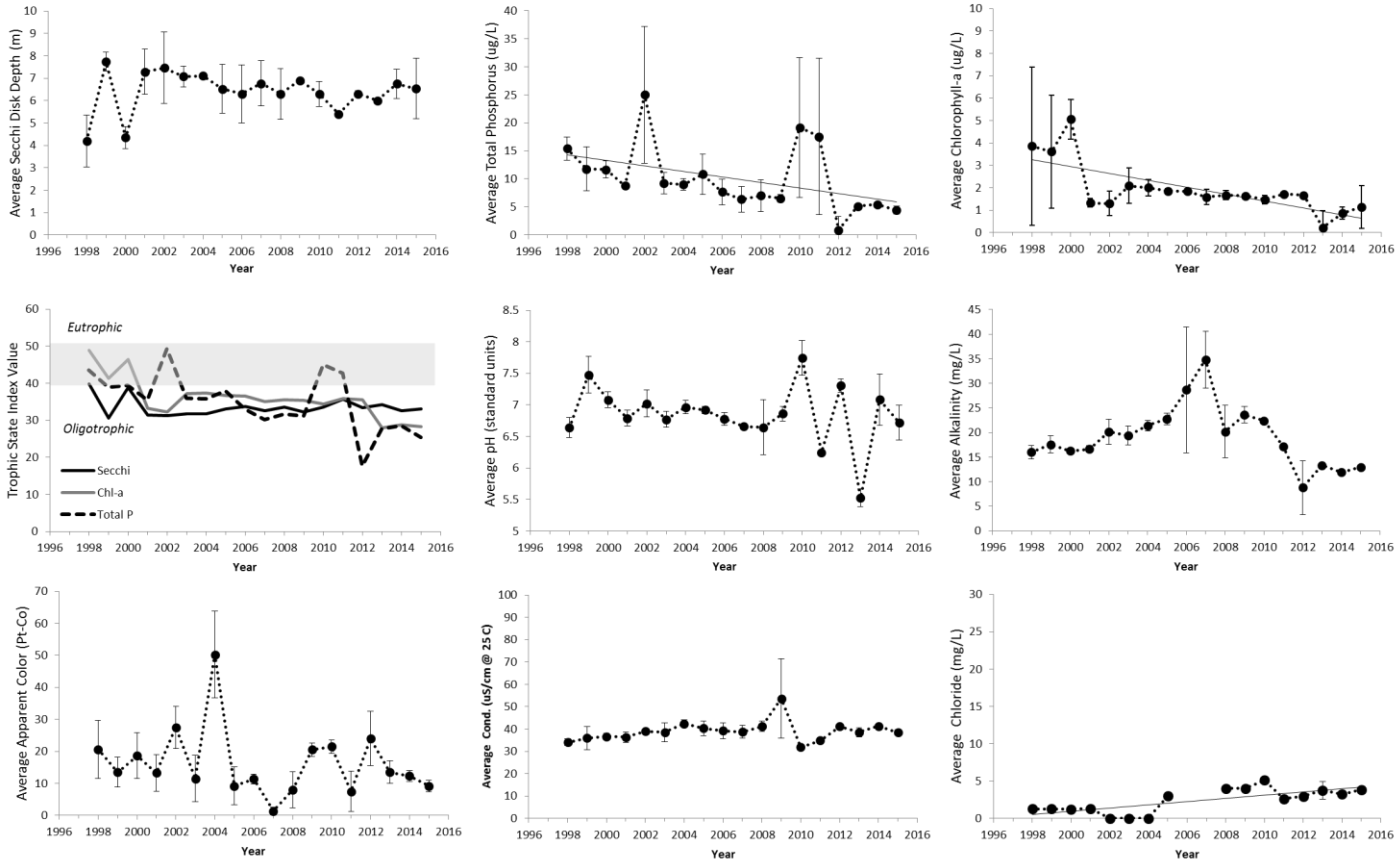
Trophic State	Acidity	Acid Neutralizing Capacity	Road Salt Influence
Oligotrophic	Circumneutral	Adequate – low sensitivity	Moderate

Water quality values and historical trends for Silver Lake during the 2015 sampling season. Trend analysis was not performed on calcium or nitrogen data. BDL=below detection limit.

Water Quality Indicator	Sampling Date			Average	Trend
	6/22/2015	7/22/2015	8/25/2015		
Transparency (m)	6.3	8.0	5.4	6.5	No change
Total Phosphorus (µg/L)	4.4	3.7	5.1	4.4	Decreasing
Chlorophyll-*a* (µg/L)	1.1	2.1	0.2	1.1	Decreasing
Laboratory pH	7.0	6.8	6.4	6.7	No change
Sp. Conductance (µS/cm)	38.1	37.5	39.8	38.5	No change
Color (Pt-Co)	10.2	10.2	7.1	9.2	No change
Alkalinity (mg/L)	12.6	13.1	13.2	13.0	No change
Nitrate-Nitrogen (µg/L)	BDL	BDL	2.1	±0.9	Not analyzed
Chloride (mg/L)	3.8	3.8	3.9	3.8	Increasing
Calcium (mg/L)	4.0	4.1	3.9	4.0	Not analyzed
Sodium (mg/L)	2.3	2.3	2.2	2.3	No change

*See table of content for description of water quality indicators

Silver Lake – Time Series



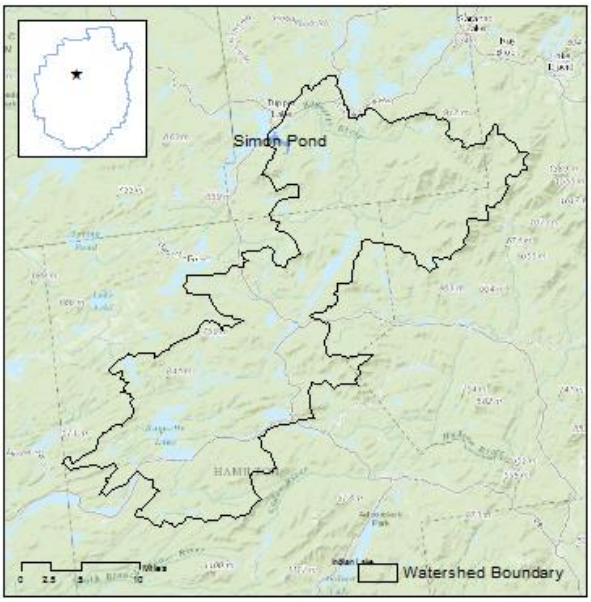
Annual average values of select water quality indicators for Silver Lake, 1998-2015. Vertical bars represent ± 1 standard deviation of the mean; Solid trend lines across the data indicate a statistically significant trend ($p < 0.05$).

Summary of Findings

Silver Lake is a 324 ha lake located in Clinton County in the Town of Black Brook. The lake is located within a 1,245 ha watershed dominated by forests. Silver Lake has been monitored by ALAP volunteers and the Adirondack Watershed Institute since 1998.

- Silver Lake is an oligotrophic Lake. Total phosphorus has exhibited a downward trend at a rate of approximately 0.5 µg/L/year. Chlorophyll-a concentration have also been trending down at a rate of approximately 0.15 µg/L/year.
- Water samples from 2015 were found to be circumneutral in terms of their acidity. Alkalinity averaged 13 mg/L, indicating that the lake is not sensitive to acid deposition.
- Sodium and chloride concentration averaged 2.3 and 3.8 mg/L in 2015, indicating the chemistry of the lake is influenced by the 5.5 km of roads in the watershed. Chloride concentration has exhibited an increasing trend at a rate of approximately 0.4 mg/L/year.

Simon Pond



Location	County:	Franklin
	Town:	Tupper Lake
Lake Characteristics	Surface Area (ha):	287
	Shoreline Length (km):	16
	Max. Depth (m):	-
	Volume (m^3):	15534637
	Flush rate (times/year):	53.6
Watershed Characteristics	Watershed Area (ha):	132235
	Surface water (%):	8
	Deciduous Forest (%):	40
	Evergreen Forest (%):	27
	Mixed Forest (%):	9
	Wetlands (%):	14
	Agricultural (%):	0
	Residential (%):	1
	Local Roads (km):	76.4
	State Roads (km):	71.3

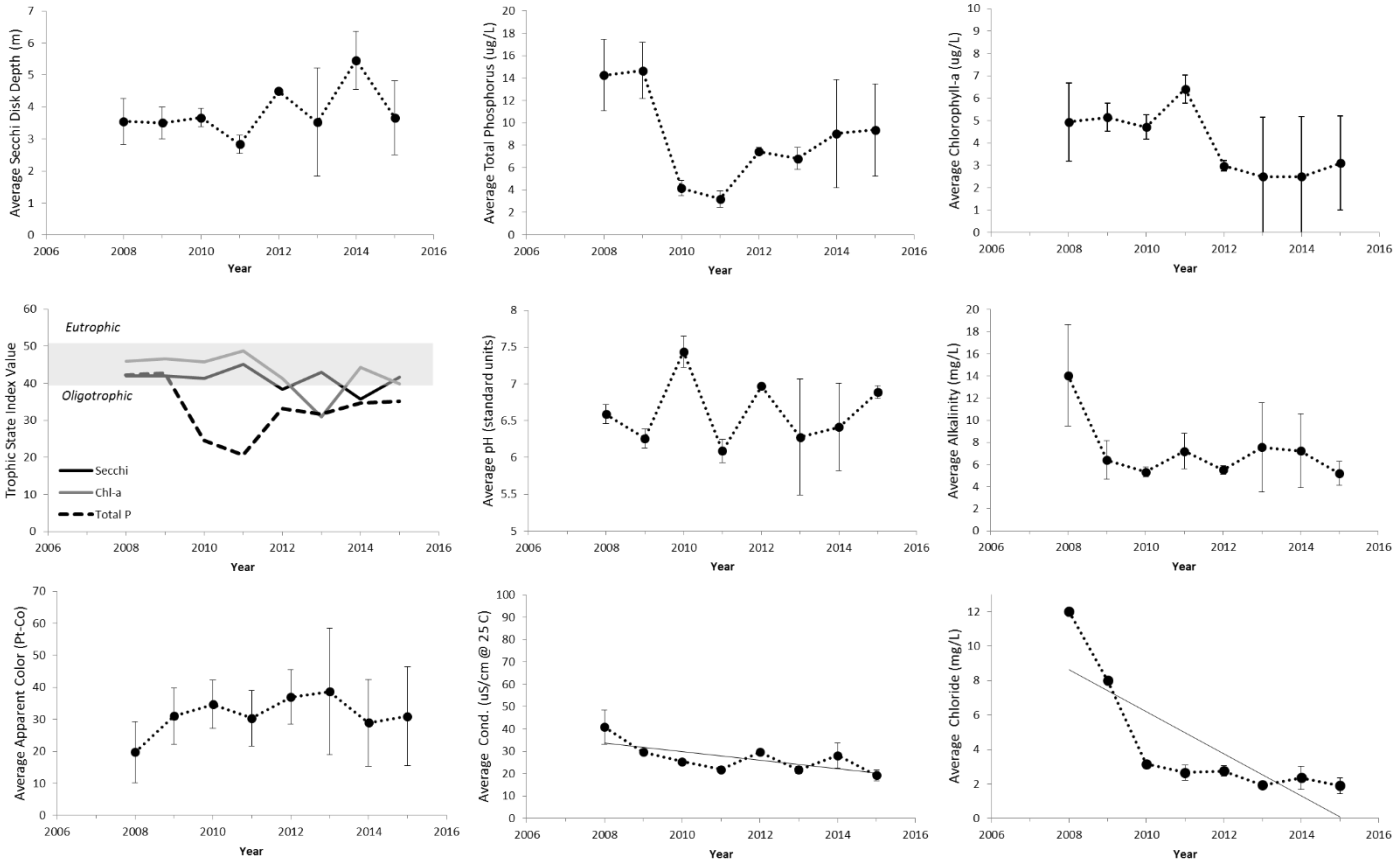
Trophic State	Acidity	Acid Neutralizing Capacity	Road Salt Influence
Mesotrophic	Circumneutral	Moderate	Present - Low

Water quality values and historical trends for Simon Pond during the 2015 sampling season. Trend analysis was not performed on calcium or nitrogen data. BDL=below detection limit.

Water Quality Indicator	Sampling Date			Average	Trend
	6/25/2015	7/20/2015	8/21/2015		
Transparency (m)	3.0	3.0	5.0	3.7	No change
Total Phosphorus (µg/L)	12.3	11.1	4.7	9.4	No change
Chlorophyll-*a* (µg/L)	3.0	5.3	1.1	3.1	No change
Laboratory pH	6.9	6.8	7.0	6.9	No change
Sp. Conductance (µS/cm)	16.8	19.3	21.6	19.2	Decreasing
Color (Pt-Co)	13.3	41.4	38.3	31.0	No change
Alkalinity (mg/L)	4.1	5.2	6.3	5.2	No change
Nitrate-Nitrogen (µg/L)	86.3	10.8	9.5	35.5	Not analyzed
Chloride (mg/L)	1.4	1.9	2.4	1.9	Decreasing
Calcium (mg/L)	1.9	2.4	2.5	2.3	Not analyzed
Sodium (mg/L)	1.7	1.4	1.7	1.6	No change

*See table of content for description of water quality indicators

Simon Pond – Time Series



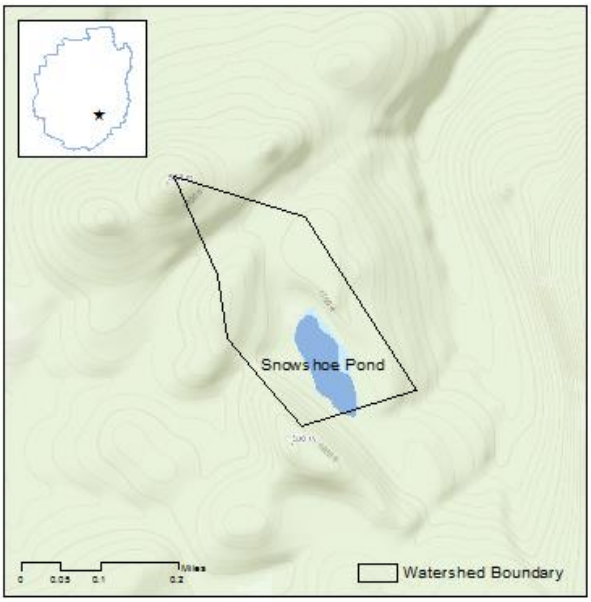
Annual average values of select water quality indicators for Simon Pond, 2008-2015. Vertical bars represent ± 1 standard deviation of the mean; Solid trend lines across the data indicate a statistically significant trend ($p < 0.05$).

Summary of Findings

Simon Pond is a 287 ha lake located in Franklin County in the Town of Tupper Lake. The lake is located within a 132,235 ha watershed dominated by forests. Simon Pond has been monitored by ALAP volunteers and the Adirondack Watershed Institute since 2008.

- Simon Pond is a mesotrophic lake. Trophic indicators and water quality variables have been highly variable. This variability is likely related to flushing rate, which is estimated to be 54 times per year.
- The water samples analyzed in 2015 were found to be circumneutral in terms of their acidity, averaging 7.1 pH units. The alkalinity of the lake averaged 5.2 mg/L, indicating that the lake has moderate sensitivity to acid deposition.
- Sodium and chloride concentrations of the lake averaged 1.6 and 1.9 mg/L respectively. These values indicate that the chemistry of the lake is influenced by the 147 km of roads in the watershed, but that influence is relatively low. We detected a significant decrease in chloride concentration. This trend is primarily driven by unusually high values in 2008-2009. Chloride concentrations have been fairly consistent since 2010.

Snow shoe Pond



Location	County:	Warren
	Town:	Johnsburg
Lake Characteristics	Surface Area (ha):	1
	Shoreline Length (km):	1
	Max. Depth (m):	12
	Volume (m^3):	57640
	Flush rate (times/year):	1.5
Watershed Characteristics	Watershed Area (ha):	12
	Surface water (%):	9
	Deciduous Forest (%):	53
	Evergreen Forest (%):	22
	Mixed Forest (%):	11
	Wetlands (%):	5
	Agricultural (%):	0
	Residential (%):	0
	Local Roads (km):	0
	State Roads (km):	0

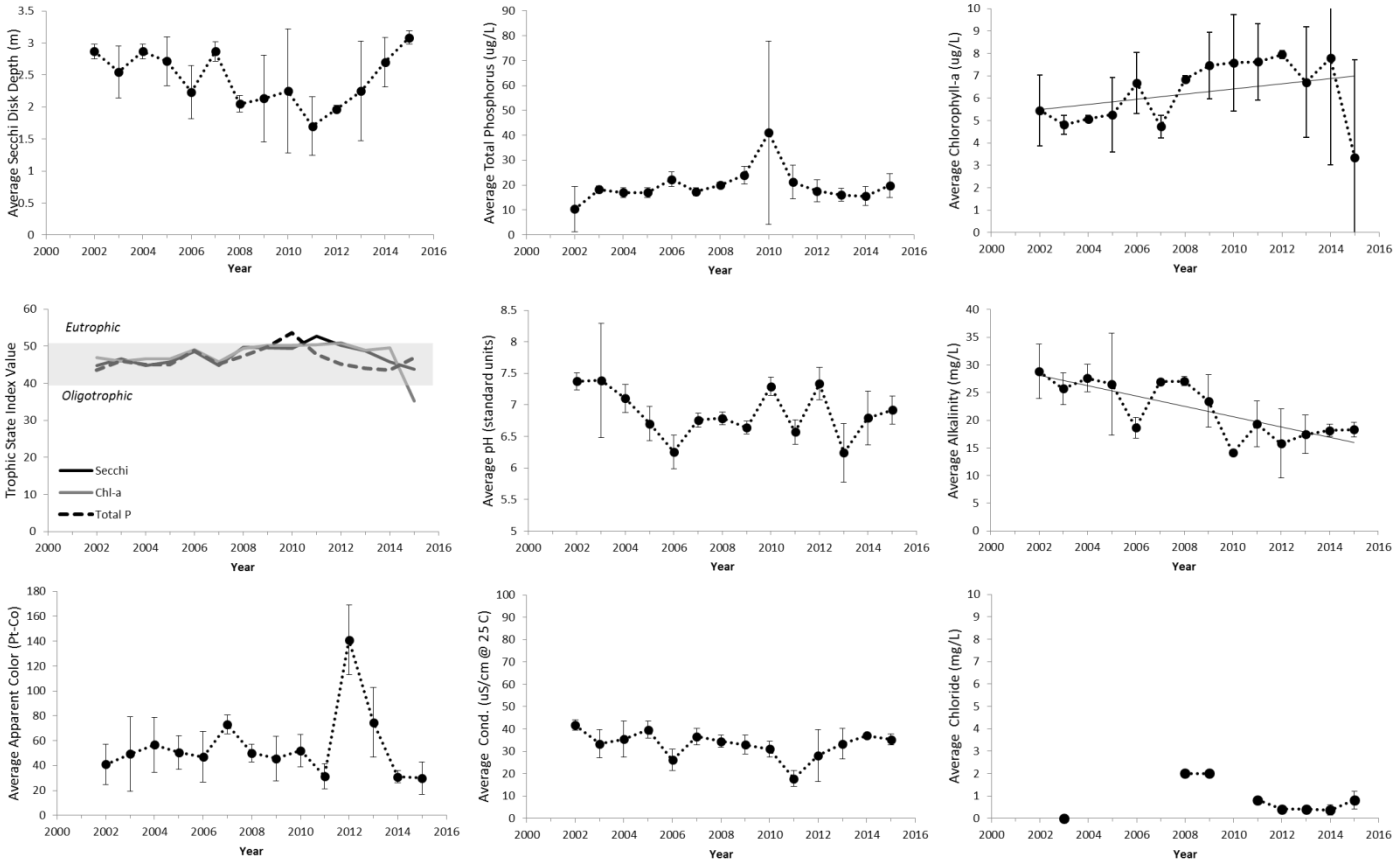
Trophic State	Acidity	Acid Neutralizing Capacity	Road Salt Influence
Mesotrophic	Circumneutral	Adequate – low sensitivity	Not Significant

Water quality values and historical trends for Snowshoe Pond during the 2015 sampling season. Trend analysis was not performed on calcium or nitrogen data. BDL=below detection limit.

Water Quality Indicator	Sampling Date			Average	Trend
	7/5/2015	8/9/2015	8/23/2015		
Transparency (m)	3.1	3.2	3.0	3.1	No change
Total Phosphorus (µg/L)	16.3	25.3	17.7	19.8	No change
Chlorophyll-*a* (µg/L)	0.4	8.4	1.3	3.3	Increasing
Laboratory pH	6.7	7.1	6.9	6.9	No change
Sp. Conductance (µS/cm)	32.4	37.0	36.4	35.3	No change
Color (Pt-Co)	25.8	44.5	19.6	29.9	No change
Alkalinity (mg/L)	18.0	17.2	19.8	18.3	Deceasing
Nitrate-Nitrogen (µg/L)	BDL	BDL	BDL	BDL	Not analyzed
Chloride (mg/L)	0.4	1.0	1.1	0.8	No change
Calcium (mg/L)	5.1	6.2	6.3	5.9	Not analyzed
Sodium (mg/L)	0.3	0.3	0.4	0.4	No change

*See table of content for description of water quality indicators

Snowshoe Pond – Time Series



Annual average values of select water quality indicators for Snowshoe Pond, 2002-2015. Vertical bars represent ± 1 standard deviation of the mean; Solid trend lines across the data indicate a statistically significant trend ($p < 0.05$).

Summary of Findings

Snowshoe Pond is a 1 ha lake located in Warren County in the Town of Johnsburg. The lake is located within a 12 ha watershed dominated by forests. Snowshoe Pond has been monitored by ALAP volunteers and the Adirondack Watershed Institute since 2002.

- Snowshoe is a mesotrophic water body. The lake has fluctuated within the mesotrophic range since monitoring began. Transparency and total phosphorus have been variable, with no significant trend detected. Chlorophyll-a has exhibited a significant positive trend at a rate of approximately 0.1 ug/L/year.
- The water samples analyzed in 2015 were found to be circumneutral in terms of their acidity. The alkalinity averaged 18.3 mg/L, indicating low sensitivity to acid deposition. We detected a significant downward trend in alkalinity at a rate of approximately 0.5 mg/L/year.
- Sodium and chloride concentration averaged 0.4 and 0.8 mg/L respectively, these values are within the range we would expect for a watershed that lacks salted roads.

Spitfire Lake

Location	County:	Franklin
	Town:	Brighton
Lake Characteristics	Surface Area (ha):	109
	Shoreline Length (km):	7
	Max. Depth (m):	9.4
	Volume (m^3):	5036554
	Flush rate (times/year):	2.7
Watershed Characteristics	Watershed Area (ha):	2800
	Surface water (%):	22
	Deciduous Forest (%):	43
	Evergreen Forest (%):	18
	Mixed Forest (%):	4
	Wetlands (%):	12
	Agricultural (%):	0
	Residential (%):	2
	Local Roads (km):	1
	State Roads (km):	4.3

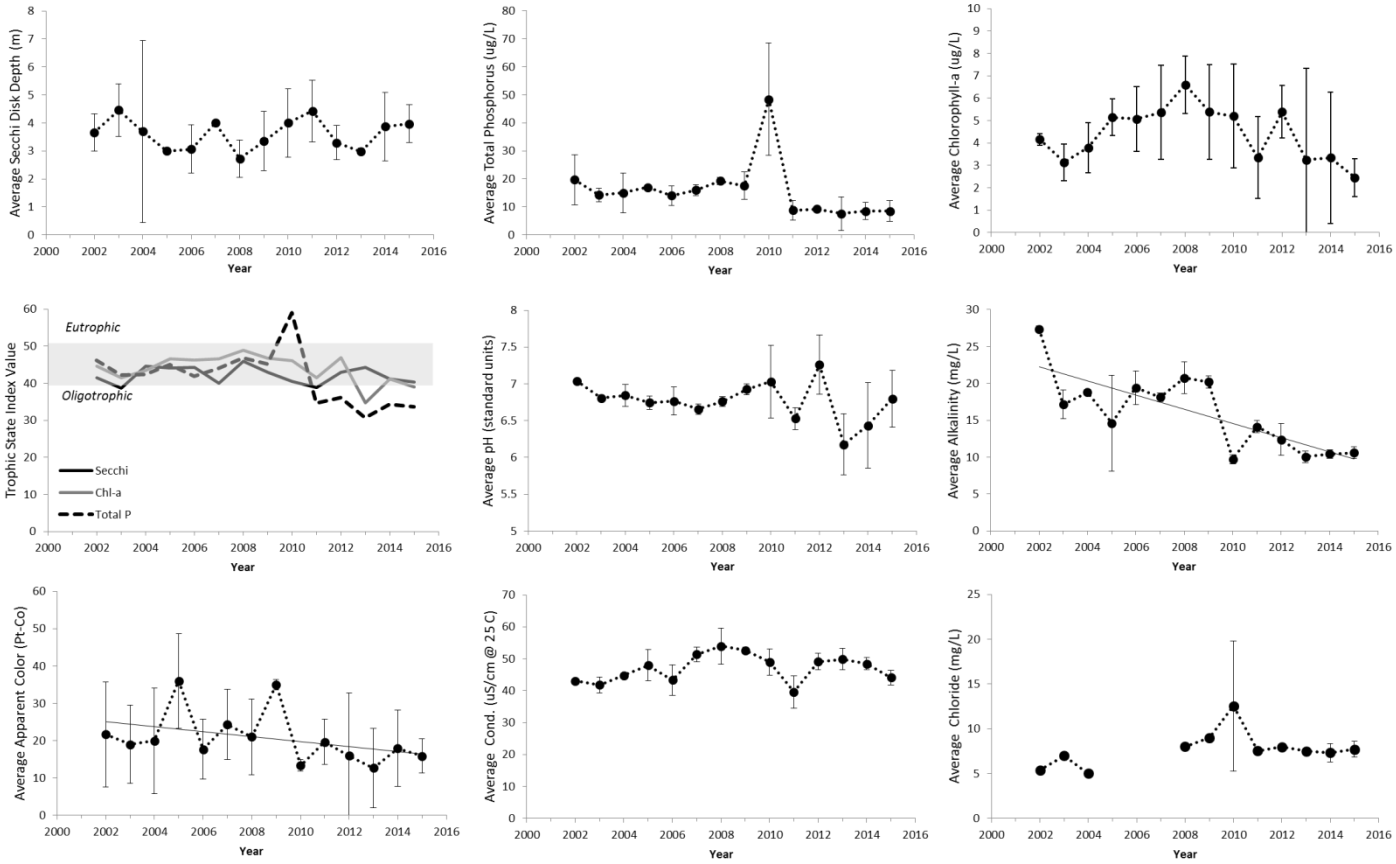
Trophic State	Acidity	Acid Neutralizing Capacity	Road Salt Influence
Mesotrophic	Circumneutral	Adequate – low sensitivity	Moderate

Water quality values and historical trends for Spitfire Lake during the 2015 sampling season. Trend analysis was not performed on calcium or nitrogen data. BDL=below detection limit.

Water Quality Indicator	Sampling Date						Average	Trend
	5/8	6/10	7/10	7/28	8/24	9/25		
Transparency (m)	2.8	4.3	4.2	4.2	4.7	3.7	4.0	No change
Total Phosphorus (µg/L)	10.4	10.9	13.5	5.7	6.2	4.1	8.5	No change
Chlorophyll-*a* (µg/L)	5.3	3.9	2.0	2.0	2.5	1.9	2.9	No change
Laboratory pH	7.3	7.1	7.0	6.7	6.2	6.6	6.8	No change
Sp. Cond. (µS/cm)	41.5	41.2	46.3	44.7	44.3	46.5	44.1	No change
Color (Pt-Co)	22.7	13.3	13.3	16.4	10.2	19.6	15.9	Decreasing
Alkalinity (mg/L)	10.1	9.8	10.6	10.3	11.9	11.0	10.6	Decreasing
Nitrate-Nitrogen (µg/L)	5.2	BDL	BDL	BDL	BDL	4.3	±-1.9	Not analyzed
Chloride (mg/L)	6.3	7.3	7.7	7.7	8.8	8.5	7.7	No change
Calcium (mg/L)	3.7	3.0	3.0	3.0	3.3	3.1	3.2	Not analyzed
Sodium (mg/L)	5.8	5.2	5.1	5.0	4.9	4.1	5.0	No change

*See table of content for description of water quality indicators

Spitfire Lake– Time Series



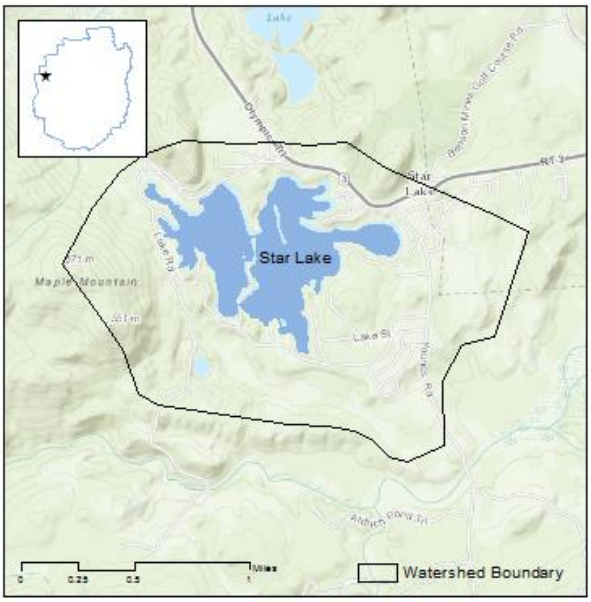
Annual average values of select water quality indicators for Spitfire Lake, 2002-2015. Vertical bars represent ± 1 standard deviation of the mean; Solid trend lines across the data indicate a statistically significant trend ($p < 0.05$).

Summary of Findings

Spitfire Lake is a 109 ha lake located in Franklin County in the Town of Brighton. The lake is located within a 2,800 ha watershed dominated by forests. Spitfire Lake has been monitored by ALAP volunteers and the Adirondack Watershed Institute since 2002.

- Spitfire Lake is a mesotrophic lake. Trophic indicators have been variable over time, and have not exhibited any significant trends.
- The water samples analyzed in 2015 were found to be circumneutral in terms of their acidity. The alkalinity averaged 10.6 mg/L, indicating low sensitivity to acid deposition. We detected a significant downward trend in alkalinity at a rate of approximately 1.0 mg/L/year.
- Sodium and chloride concentration averaged 5.0 and 7.7 mg/L respectively, indicating that the chemistry of the lake is moderately influenced by the 5.3 km of roads in the watershed.

Star Lake



Location		
	County:	St Lawrence
	Town:	Fine

Lake Characteristics		
	Surface Area (ha):	83
	Shoreline Length (km):	11
	Max. Depth (m):	19.8
	Volume (m^3):	5288762
	Flush rate (times/year):	0.4

Watershed Characteristics		
	Watershed Area (ha):	509
	Surface water (%):	20
	Deciduous Forest (%):	61
	Evergreen Forest (%):	2
	Mixed Forest (%):	2
	Wetlands (%):	3
	Agricultural (%):	2
	Residential (%):	9
	Local Roads (km):	12.2
	State Roads (km):	1.3

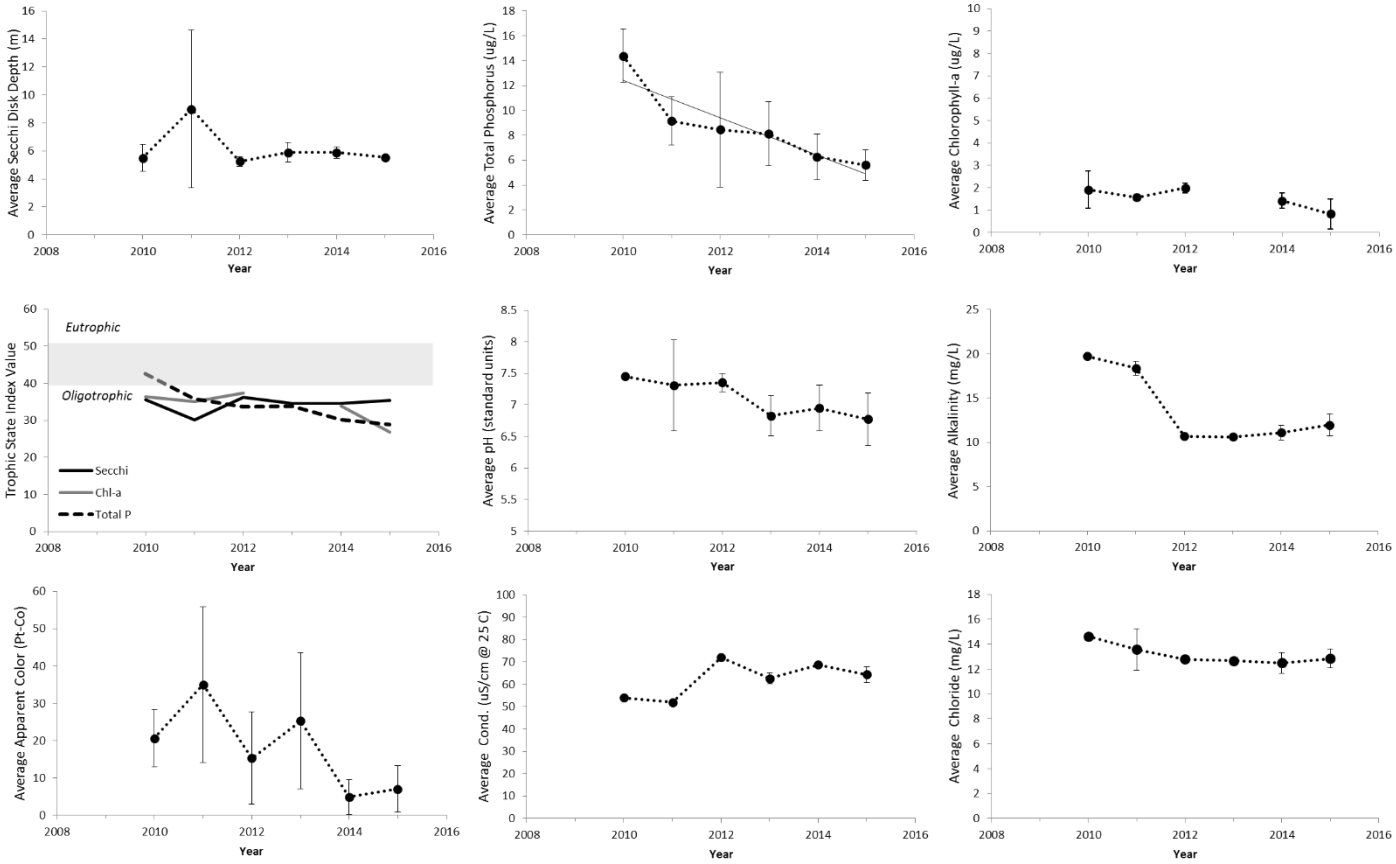
Trophic State	Acidity	Acid Neutralizing Capacity	Road Salt Influence
Oligotrophic	Circumneutral	Adequate – low sensitivity	Moderate

Water quality values and historical trends for Star Lake during the 2015 sampling season. Trend analysis was not performed on calcium or nitrogen data. BDL=below detection limit.

Water Quality Indicator	Sampling Date			Average	Trend
	6/25/2015	7/20/2015	8/23/2015		
Transparency (m)	5.4	5.8	5.5	5.5	No change
Total Phosphorus (µg/L)	5.0	7.0	4.8	5.6	Decreasing
Chlorophyll-*a* (µg/L)	1.6	0.5	0.4	0.8	No change
Laboratory pH	7.2	6.7	6.4	6.8	No change
Sp. Conductance (µS/cm)	62.8	61.8	68.4	64.3	No change
Color (Pt-Co)	13.3	0.8	7.1	7.1	No change
Alkalinity (mg/L)	10.7	12.0	13.2	12.0	No change
Nitrate-Nitrogen (µg/L)	37.8	BDL	24.3	±19.9	Not analyzed
Chloride (mg/L)	12.2	12.7	13.7	12.9	No change
Calcium (mg/L)	3.8	4.2	4.1	4.0	Not analyzed
Sodium (mg/L)	7.8	8.9	8.5	8.4	No change

*See table of content for description of water quality indicators

Star Lake – Time Series



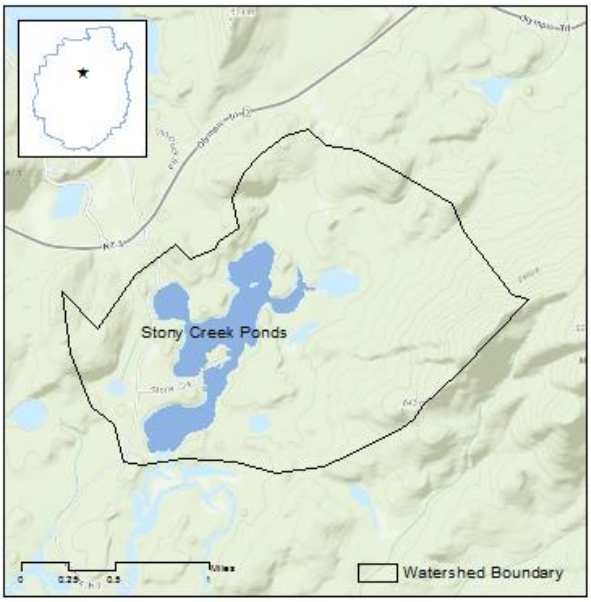
Annual average values of select water quality indicators for Star Lake, 2010-2015. Vertical bars represent ± 1 standard deviation of the mean; Solid trend lines across the data indicate a statistically significant trend ($p < 0.05$).

Summary of Findings

Star Lake is an 83 ha lake located in St. Lawrence County in the Town of Fine. The lake is located within a 509 ha watershed dominated by forests. Star Lake has been monitored by ALAP volunteers and the Adirondack Watershed Institute since 2010.

- Star Lake is an oligotrophic lake. Total phosphorus concentration has exhibited a significant downward trend s at a rate of approximately 1.5 µg/L/year.
- The water samples analyzed in 2015 were found to be circumneutral in terms of their acidity. The alkalinity averaged 12.0 mg/L, indicating low sensitivity to acid deposition.
- Sodium and chloride concentration averaged 8.4 and 12.9 mg/L respectively, indicating that the chemistry of the lake is influenced by the 13.5 km of roads in the watershed.

Stony Creek Pond



Location		
	County:	Franklin
	Town:	Harrietstown

Lake Characteristics		
	Surface Area (ha):	76
	Shoreline Length (km):	9
	Max. Depth (m):	12.5
	Volume (m^3):	2825129
	Flush rate (times/year):	1.5

Watershed Characteristics		
	Watershed Area (ha):	710
	Surface water (%):	13
	Deciduous Forest (%):	26
	Evergreen Forest (%):	38
	Mixed Forest (%):	10
	Wetlands (%):	12
	Agricultural (%):	0
	Residential (%):	1
	Local Roads (km):	1.8
	State Roads (km):	0

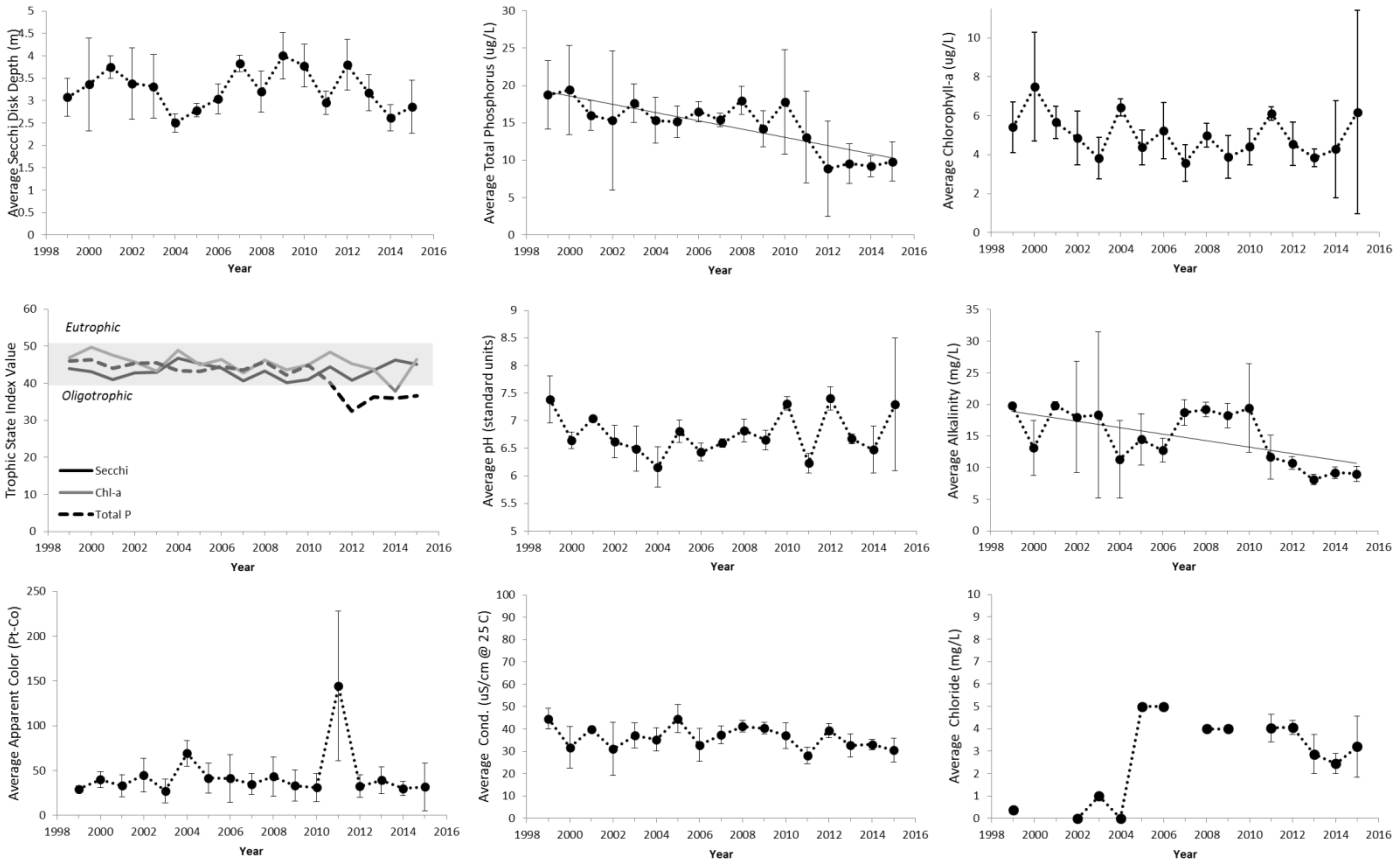
Trophic State	Acidity	Acid Neutralizing Capacity	Road Salt Influence
Mesotrophic	Circumneutral	Moderate	Present - Low

Water quality values and historical trends for Stony Creek Pond during the 2015 sampling season. Trend analysis was not performed on calcium or nitrogen data. BDL=below detection limit.

Water Quality Indicator	Sampling Date					Average	Trend
	5/6	6/3	7/2	8/1	9/1		
Transparency (m)	3.1	3.1	3.0	1.9	3.4	2.9	No change
Total Phosphorus (µg/L)	13.5	11.4	7.3	9.3	7.6	9.8	Decreasing
Chlorophyll-*a* (µg/L)	3.1	3.2	4.8	15.4	4.4	6.2	No change
Laboratory pH	7.4	8.0	8.8	6.3	5.9	7.3	No change
Sp. Cond. (µS/cm)	37.5	34.6	25.0	26.0	29.5	30.5	No change
Color (Pt-Co)	13.3	0.8	36.2	69.4	38.3	31.6	No change
Alkalinity (mg/L)	10.0	9.4	7.5	8.1	10.2	9.0	Decreasing
Nitrate-Nitrogen (µg/L)	250.0	125.0	54.1	BDL	15.1	±88.1	Not analyzed
Chloride (mg/L)	5.4	3.7	2.0	2.3	2.7	3.2	No change
Calcium (mg/L)	4.0	3.5	3.0	3.4	3.6	3.5	Not analyzed
Sodium (mg/L)	2.7	2.3	1.6	1.7	1.8	2.0	No change

*See table of content for description of water quality indicators

Stony Creek Pond – Time Series



Annual average values of select water quality indicators for Stony Creek Pond, 1999-2015. Vertical bars represent ± 1 standard deviation of the mean; Solid trend lines across the data indicate a statistically significant trend ($p < 0.05$).

Summary of Findings

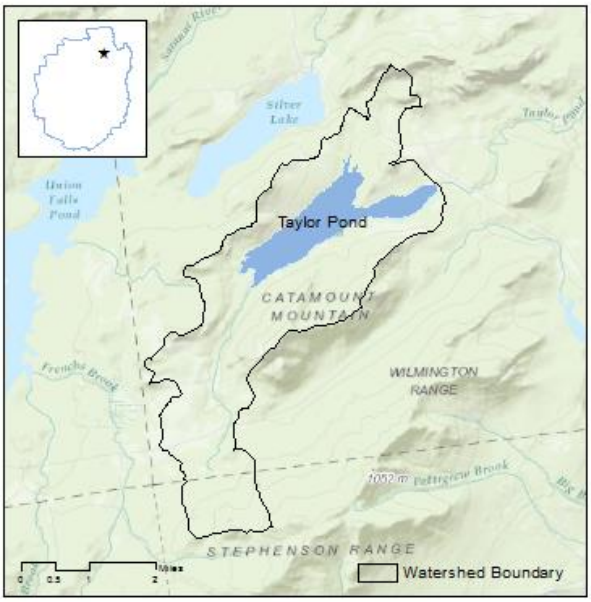
Stony Creek Ponds is a 76 ha lake located in Franklin County in the Town of Harrietstown. The lake is located within a 710 ha watershed dominated by forests. Stony Creek Ponds has been monitored by ALAP volunteers and the Adirondack Watershed Institute since 1999.

- Stony Creek Pond is a mesotrophic lake. Transparency depth and chlorophyll concentration have been variable over time, and have not exhibited any positive or negative trend. Total phosphorus concentration has exhibited a significant downward trend s at a rate of approximately 0.6 µg/L/year.

- The water samples analyzed in 2015 were found to be circumneutral in terms of their acidity. The alkalinity averaged 9.0 mg/L, indicating moderate sensitivity to acid deposition. Alkalinity has exhibited a significant downward trend at a rate of 0.5 mg/L/year.

- Sodium and chloride concentration averaged 2.0 and 3.2 mg/L respectively, indicating that the chemistry of the lake is influenced by the 1.8 km of roads in the watershed, but the influence is relatively low.

Taylor Pond



Location		
	County:	Clinton
	Town:	Black Brook

Lake Characteristics		
	Surface Area (ha):	358
	Shoreline Length (km):	16
	Max. Depth (m):	-
	Volume (m^3):	-
	Flush rate (times/year):	-

Watershed Characteristics		
	Watershed Area (ha):	2892
	Surface water (%):	13
	Deciduous Forest (%):	49
	Evergreen Forest (%):	23
	Mixed Forest (%):	8
	Wetlands (%):	4
	Agricultural (%):	0
	Residential (%):	1
	Local Roads (km):	3
	State Roads (km):	0

Trophic State	Acidity	Acid Neutralizing Capacity	Road Salt Influence
Oligotrophic	Circumneutral	Adequate – low sensitivity	Present - low

Water quality values and historical trends for Taylor Pond during the 2015 sampling season. Trend analysis was not performed on calcium or nitrogen data. BDL=below detection limit.

Water Quality Indicator	Sampling Date					Average	Trend
	May	6/26	7/23	8/19	9/25		
Transparency (m)	No Sample	4.8	5.4	6.2	5.4	5.4	Not Analyzed
Total Phosphorus (µg/L)		3.9	4.3	3.5	9.4	5.3	
Chlorophyll-*a* (µg/L)		2.7	0.6	0.6	1.5	1.3	
Laboratory pH		7.0	6.9	6.7	7.6	7.0	
Sp. Cond. (µS/cm)		27.7	27.5	27.1	29.0	27.8	
Color (Pt-Co)		10.2	10.2	16.4	4.0	10.2	
Alkalinity (mg/L)		9.8	10.3	11.7	10.8	10.6	
Nitrate-Nitrogen (µg/L)		23.6	5.2	99.0	BDL	±31.7	
Chloride (mg/L)		1.8	1.6	1.8	1.7	1.7	
Calcium (mg/L)		3.1	3.3	3.3	3.3	3.3	
Sodium (mg/L)		1.8	1.5	1.4	1.2	1.5	

*See table of content for description of water quality indicators

Summary of Findings

Taylor Pond is a 358 ha pond located in Clinton County in the Town of Black Brook. The pond is located within a 2,892 ha watershed dominated by forests. This is Taylor Ponds first year in ALAP. Time series data will be constructed after two years of data collection, trend analysis will be performed on water quality indicators after five years of data collection.

- A sample was not received during the month of May
- Taylor Pond is best classified as an oligotrophic lake
- The pH of the water samples received in 2015 were found to be circumneutral in terms of their acidity, with an average value of 7.0. The alkalinity averaged 10.6 mg/L, indicating low sensitivity to acid deposition.
- Sodium and chloride concentration averaged 1.5 and 1.7 mg/L respectively, these values indicate that the chemistry of the lake is influenced by the 3 km of roads in the watershed, but the influence is relatively low.

Thirteenth Lake

Location		
	County:	Warren
	Town:	Johnsburg

Lake Characteristics		
	Surface Area (ha):	128
	Shoreline Length (km):	7
	Max. Depth (m):	14.9
	Volume (m^3):	7961956
	Flush rate (times/year):	2.3

Watershed Characteristics		
	Watershed Area (ha):	2915
	Surface water (%):	6
	Deciduous Forest (%):	62
	Evergreen Forest (%):	12
	Mixed Forest (%):	19
	Wetlands (%):	1
	Agricultural (%):	0
	Residential (%):	0
	Local Roads (km):	5.1
	State Roads (km):	0

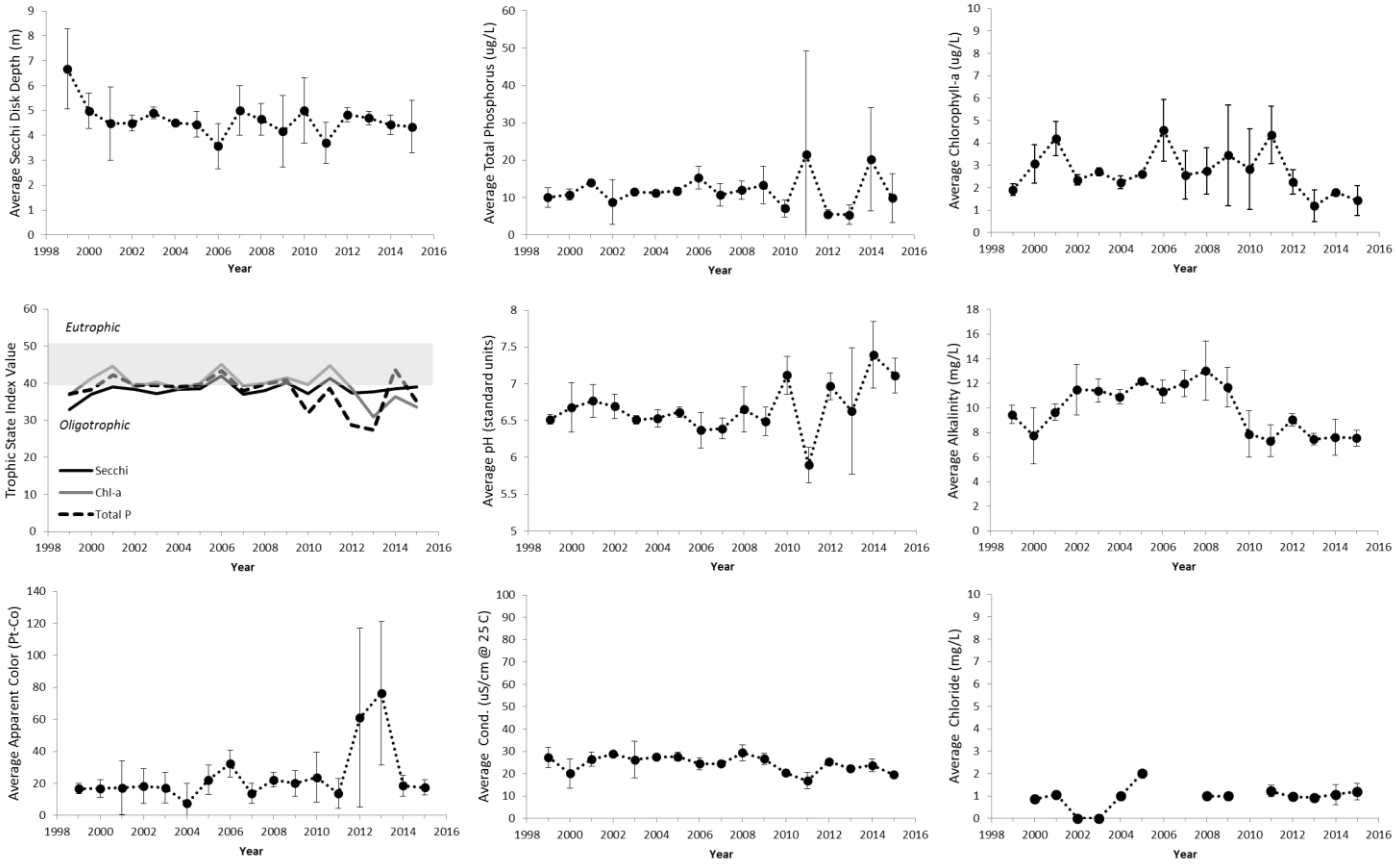
Trophic State	Acidity	Acid Neutralizing Capacity	Road Salt Influence
Oligotrophic	Circumneutral	Moderate	Present - Low

Water quality values and historical trends for Thirteenth Lake during the 2015 sampling season. Trend analysis was not performed on calcium or nitrogen data. BDL=below detection limit.

Water Quality Indicator	Sampling Date			Average	Trend
	6/20/2015	7/26/2015	8/18/2015		
Transparency (m)		3.6	5.1	4.4	No change
Total Phosphorus (µg/L)	4.3	17.0	8.2	9.8	No change
Chlorophyll-*a* (µg/L)	2.2	1.1	1.0	1.4	No change
Laboratory pH	7.3	6.8	7.2	7.1	No change
Sp. Conductance (µS/cm)	19.3	19.6	19.8	19.5	No change
Color (Pt-Co)	13.3	22.7	16.4	17.5	No change
Alkalinity (mg/L)	6.8	7.8	8.0	7.5	No change
Nitrate-Nitrogen (µg/L)	50.3	BDL	BDL	±15.8	Not analyzed
Chloride (mg/L)	0.9	1.0	1.6	1.2	No change
Calcium (mg/L)	2.5	2.6	2.8	2.6	Not analyzed
Sodium (mg/L)	1.1	1.0	0.8	1.0	No change

*See table of content for description of water quality indicators

Thirteenth Lake – Time Series



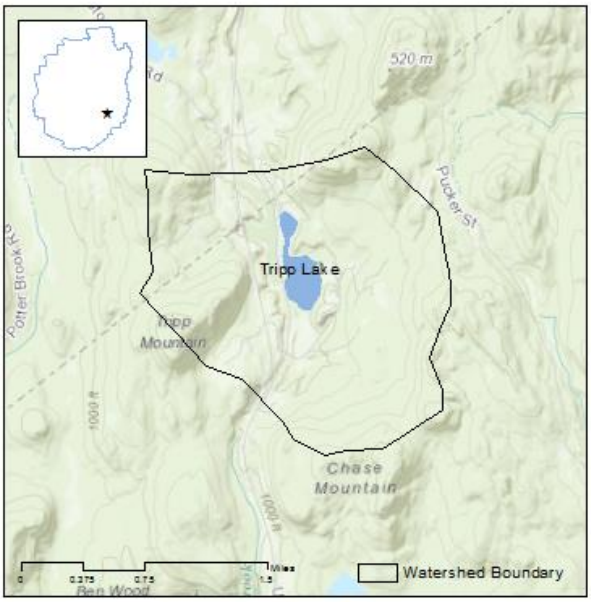
Annual average values of select water quality indicators for Thirteenth Lake, 1999-2015. Vertical bars represent ± 1 standard deviation of the mean; Solid trend lines across the data indicate a statistically significant trend ($p < 0.05$).

Summary of Findings

Thirteenth Lake is a 128 ha lake located in Warren County in the Town of Johnsburg. This lake is located within a 2,915 ha watershed dominated by forests. Thirteenth Lake has been monitored by ALAP volunteers and the Adirondack Watershed Institute since 1999.

- Thirteenth Lake is an oligotrophic lake, on the boundary of mesotrophic. Trophic indicators have been fairly stable over time, and have not exhibited any significant trends.
- The water samples analyzed in 2015 were found to be circumneutral in terms of their acidity. The alkalinity averaged 7.5 mg/L, indicating moderate sensitivity to acid deposition.
- Sodium and chloride concentration averaged 1.0 and 1.2 mg/L respectively, indicating that the chemistry of the lake is influenced by the 5.1 km of roads in the watershed, but the influence is relatively low.

Tripp Pond



Location		
	County:	Warren
	Town:	Warrensburg

Lake Characteristics		
	Surface Area (ha):	19
	Shoreline Length (km):	3
	Max. Depth (m):	-
	Volume (m^3):	623980
	Flush rate (times/year):	8

Watershed Characteristics		
	Watershed Area (ha):	668
	Surface water (%):	3
	Deciduous Forest (%):	15
	Evergreen Forest (%):	36
	Mixed Forest (%):	28
	Wetlands (%):	5
	Agricultural (%):	2
	Residential (%):	10
	Local Roads (km):	5.6
	State Roads (km):	2.3

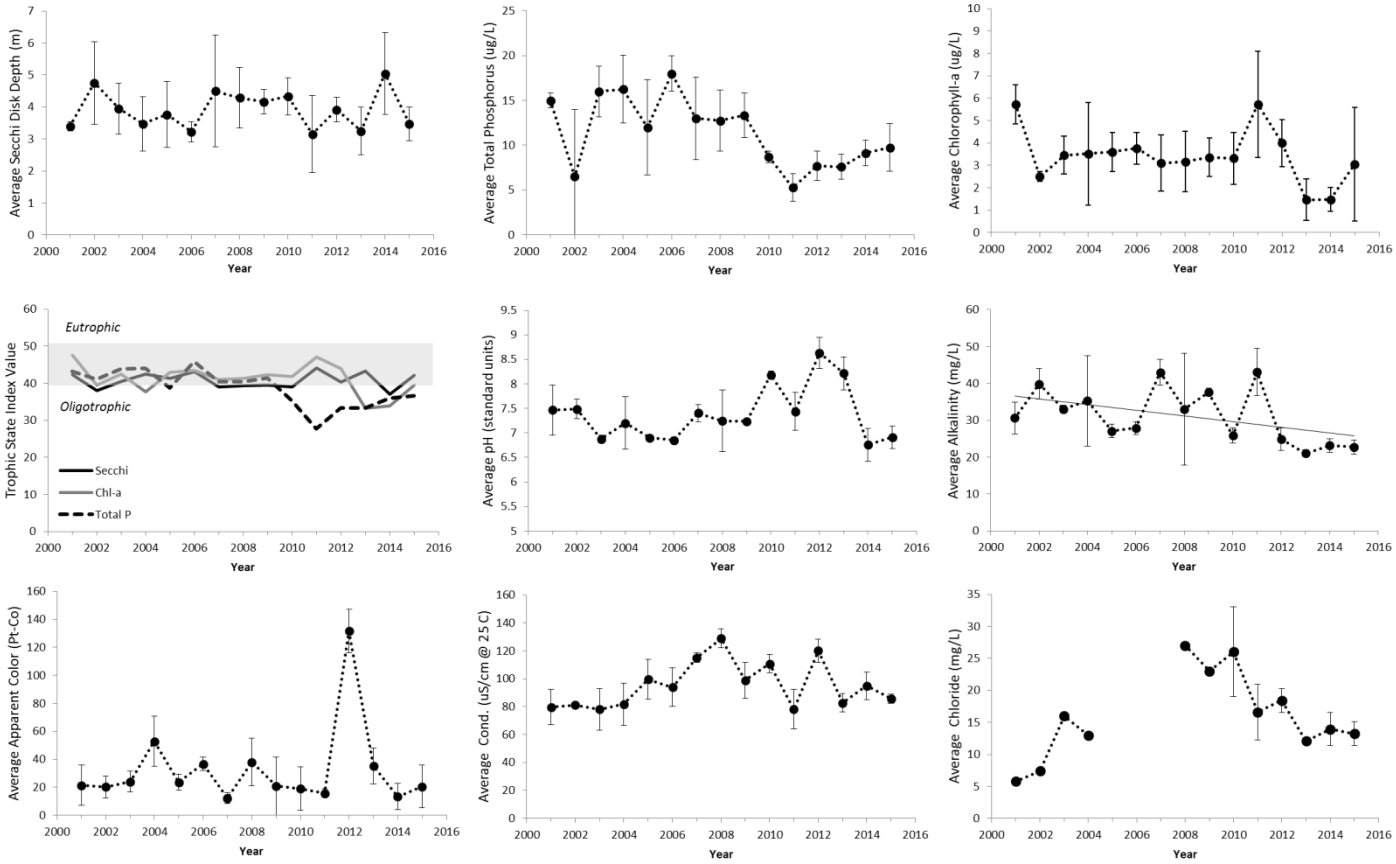
Trophic State	Acidity	Acid Neutralizing Capacity	Road Salt Influence
Oligotrophic	Circumneutral	Adequate – low sensitivity	Moderate

Water quality values and historical trends for Tripp Lake during the 2015 sampling season. Trend analysis was not performed on calcium or nitrogen data. BDL=below detection limit.

Water Quality Indicator	Sampling Date			Average	Trend
	6/26/2015	7/18/2015	8/20/2015		
Transparency (m)	3.8	2.9	3.8	3.5	No change
Total Phosphorus (µg/L)	8.2	12.8	8.2	9.7	No change
Chlorophyll-*a* (µg/L)	1.5	6.0	1.7	3.1	No change
Laboratory pH	7.0	7.1	6.7	6.9	No change
Sp. Conductance (µS/cm)	83.7	84.0	89.4	85.7	No change
Color (Pt-Co)	13.3	10.2	38.3	20.6	No change
Alkalinity (mg/L)	21.2	22.3	24.9	22.8	Decreasing
Nitrate-Nitrogen (µg/L)	3.6	BDL	BDL	±0.0	Not analyzed
Chloride (mg/L)	11.8	12.5	15.4	13.2	No change
Calcium (mg/L)	8.2	8.7	9.2	8.7	Not analyzed
Sodium (mg/L)	8.2	7.4	7.4	7.7	No change

*See table of content for description of water quality indicators

Tripp Lake – Time Series



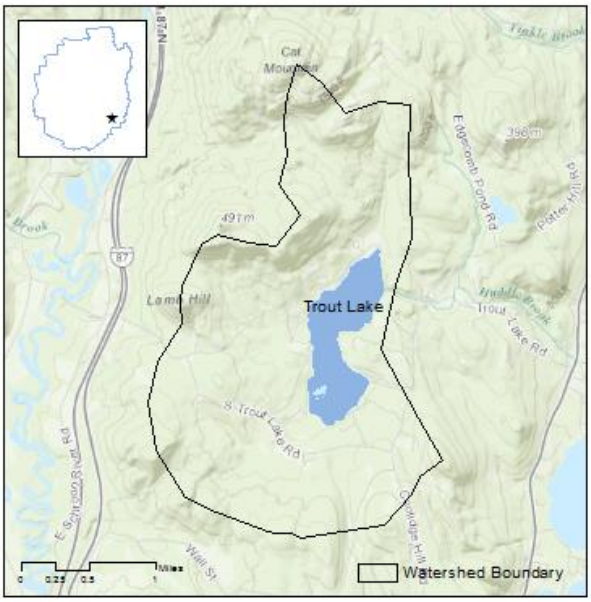
Annual average values of select water quality indicators for Tripp Lake, 2001-2015. Vertical bars represent ± 1 standard deviation of the mean; Solid trend lines across the data indicate a statistically significant trend ($p < 0.05$).

Summary of Findings

Tripp Pond is a 19 ha lake located in Warren County in the Town of Warrensburg. The lake is located within a 668 ha watershed dominated by forests. Tripp Pond has been monitored by ALAP volunteers and the Adirondack Watershed Institute since 1999.

- Tripp Pond is an oligotrophic lake, on the boundary of mesotrophic. Transparency depth has been fairly stable over time, total phosphorus and chlorophyll-a concentrations have been more variable. None of the trophic indicators have exhibited any significant trends.
- The water samples analyzed in 2015 were found to be circumneutral in terms of their acidity. The alkalinity averaged 22.8 mg/L, indicating low sensitivity to acid deposition.
- Sodium and chloride concentration averaged 7.7 and 13.2 mg/L respectively, indicating that the chemistry of the lake is moderately influenced by the 8 km of roads in the watershed.

Trout Lake



Location		
	County:	Warren
	Town:	Bolton

Lake Characteristics		
	Surface Area (ha):	103
	Shoreline Length (km):	7
	Max. Depth (m):	22.9
	Volume (m^3):	6646143
	Flush rate (times/year):	0.9

Watershed Characteristics		
	Watershed Area (ha):	1211
	Surface water (%):	9
	Deciduous Forest (%):	31
	Evergreen Forest (%):	33
	Mixed Forest (%):	15
	Wetlands (%):	5
	Agricultural (%):	0
	Residential (%):	5
	Local Roads (km):	9.3
	State Roads (km):	0

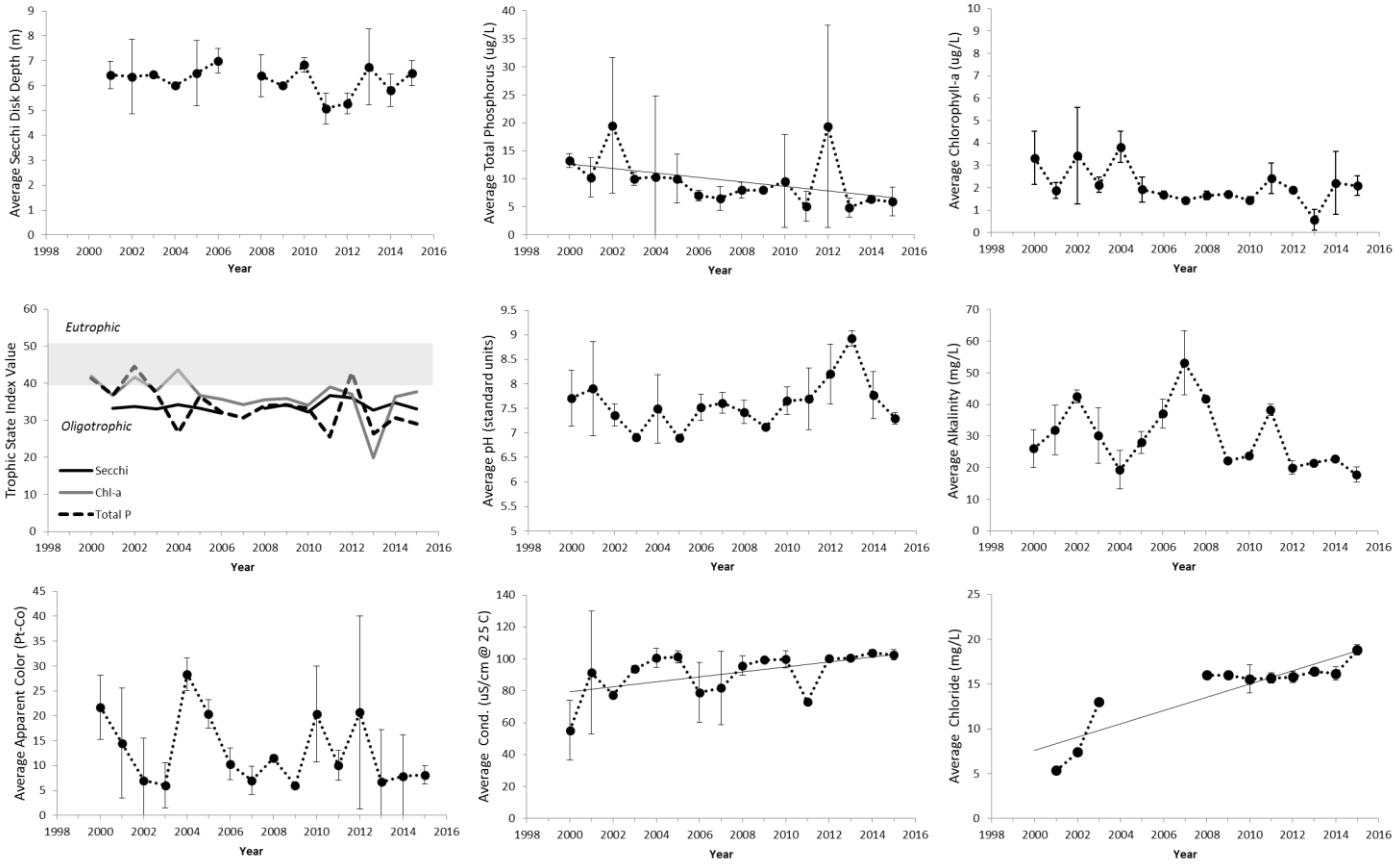
Trophic State	Acidity	Acid Neutralizing Capacity	Road Salt Influence
Oligotrophic	Circumneutral	Adequate – low sensitivity	Moderate

Water quality values and historical trends for Trout Lake during the 2015 sampling season. Trend analysis was not performed on calcium or nitrogen data. BDL=below detection limit.

Water Quality Indicator	Sampling Date			Average	Trend
	6/28/2015	7/31/2015	8/31/2015		
Transparency (m)	6.0	7.0	6.5	6.5	No change
Total Phosphorus (µg/L)	4.5	4.5	8.9	5.9	Decreasing
Chlorophyll-*a* (µg/L)	1.7	2.0	2.6	2.1	No change
Laboratory pH	7.2	7.4	7.4	7.3	No change
Sp. Conductance (µS/cm)	98.9	103.0	105.4	102.4	Increasing
Color (Pt-Co)	7.1	7.1	10.2	8.1	No change
Alkalinity (mg/L)	15.8	17.0	20.5	17.8	No change
Nitrate-Nitrogen (µg/L)	BDL	BDL	BDL	BDL	Not analyzed
Chloride (mg/L)	18.1	19.2	19.0	18.8	Increasing
Calcium (mg/L)	6.2	6.7	7.6	6.8	Not analyzed
Sodium (mg/L)	8.7	9.5	9.2	9.1	No change

*See table of content for description of water quality indicators

Trout Lake – Time Series



Annual average values of select water quality indicators for Trout Lake, 2000-2015. Vertical bars represent ± 1 standard deviation of the mean; Solid trend lines across the data indicate a statistically significant trend ($p < 0.05$).

Summary of Findings

Trout Lake is a 103 ha lake located in Warren County in the Town of Bolton. The lake is located within a 1,211 ha watershed dominated by forests. Trout Lake has been monitored by ALAP volunteers and the Adirondack Watershed Institute since 2000.

- Trout Lake is a mesotrophic lake. Transparency depth has been relatively stable. Trout Lake has greater transparency that 90% of ALAP Lakes. Total phosphorus concentration has exhibited a significant downward trend s at a rate of approximately 0.4 µg/L/year.

- The water samples analyzed in 2015 were found to be circumneutral in terms of their acidity. The alkalinity averaged 17.8 mg/L, indicating low sensitivity to acid deposition.

- Sodium and chloride concentration averaged 9.1 and 18.8 mg/L respectively, indicating that the chemistry of the lake is moderately influenced by the 9.3 km of roads in the watershed. The chloride concentration of Trout Lake is greater than 85% of participating ALAP Lakes, and is trending up at a rate of 0.7 mg/L/year. The trend is largely driven by relatively low chloride concentrations in 2001-2002.

Tupper Lake

Location		
	County:	Franklin
	Town:	Tupper Lake

Lake Characteristics		
	Surface Area (ha):	2447
	Shoreline Length (km):	118
	Max. Depth (m):	25.9
	Volume (m^3):	299680602
	Flush rate (times/year):	1

Watershed Characteristics		
	Watershed Area (ha):	178856
	Surface water (%):	10
	Deciduous Forest (%):	44
	Evergreen Forest (%):	23
	Mixed Forest (%):	7
	Wetlands (%):	14
	Agricultural (%):	0
	Residential (%):	1
	Local Roads (km):	131.2
	State Roads (km):	108.4

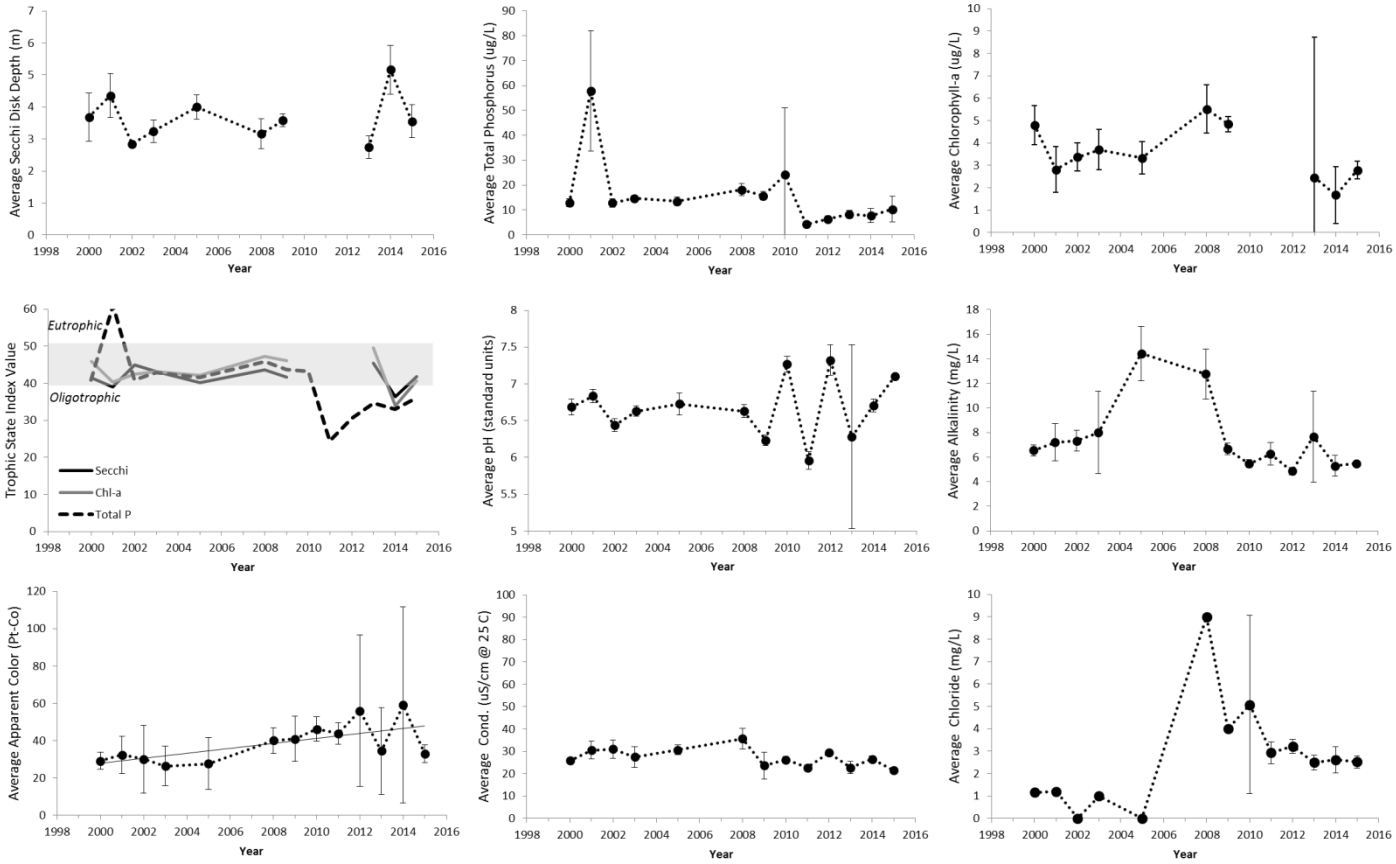
Trophic State	Acidity	Acid Neutralizing Capacity	Road Salt Influence
Mesotrophic	Circumneutral	Moderate	Present - Low

Water quality values and historical trends for Tupper Lake during the 2015 sampling season. Trend analysis was not performed on calcium or nitrogen data. BDL=below detection limit.

Water Quality Indicator	Sampling Date			Average	Trend
	7/7/2015	7/20/2015	8/21/2015		
Transparency (m)	3.7	4.0	3.0	3.6	No change
Total Phosphorus (µg/L)	14.5	12.0	4.4	10.3	No change
Chlorophyll-*a* (µg/L)	3.2	2.4	2.7	2.8	No change
Laboratory pH	7.1	7.1	7.1	7.1	No change
Sp. Conductance (µS/cm)	21.0	21.5	21.7	21.4	No change
Color (Pt-Co)	32.0	28.9	38.3	33.1	Increasing
Alkalinity (mg/L)	5.3	5.5	5.7	5.5	No change
Nitrate-Nitrogen (µg/L)	91.3	75.1	74.1	80.2	Not analyzed
Chloride (mg/L)	2.3	2.4	2.8	2.5	No change
Calcium (mg/L)	2.3	2.3	2.6	2.4	Not analyzed
Sodium (mg/L)	1.7	1.7	2.0	1.8	No change

*See table of content for description of water quality indicators

Tupper Lake – Time Series



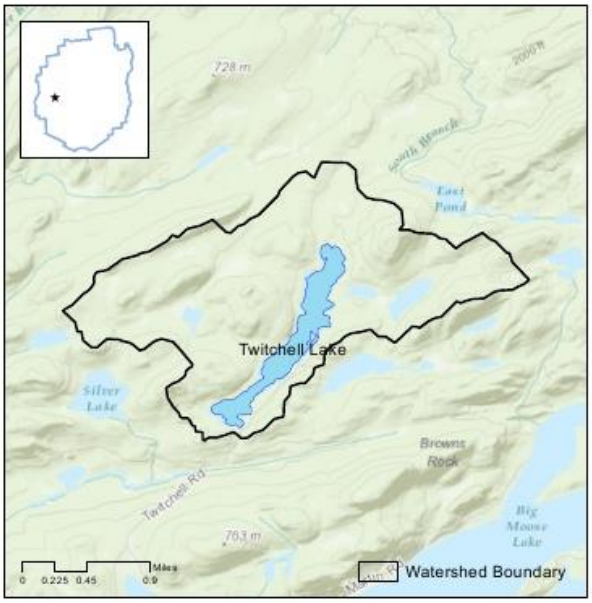
Annual average values of select water quality indicators for Tupper Lake, 2000-2015. Vertical bars represent ± 1 standard deviation of the mean; Solid trend lines across the data indicate a statistically significant trend ($p < 0.05$).

Summary of Findings

Tupper Lake is a 2,132 ha lake located in Franklin County in the Town of Tupper Lake. The lake is located within a 178,856 ha watershed dominated by forests. Tupper Lake has been monitored by ALAP volunteers and the Adirondack Watershed Institute since 2000.

- Tupper Lake is a mesotrophic lake. Trophic indicators have been highly variable over time, and did not exhibit any positive of negative trends in the 2015 analysis. Some of the historical variability may be related to shifting sampling locations, there are several locations listed that have been sampled in the past. .
- The water samples analyzed in 2015 were found to be circumneutral in terms of their acidity. The alkalinity averaged 5.5 mg/L, indicating moderate sensitivity to acid deposition.
- Sodium and chloride concentration averaged 1.8 and 2.5 mg/L respectively, indicating that the chemistry of the lake is influenced by the 140 km of roads in the watershed. However, this influence is relatively low.

Twitchell Lake



Location	County:	Herkimer
	Town:	Webb
Lake Characteristics	Surface Area (ha):	58
	Shoreline Length (km):	7
	Max. Depth (m):	10.4
	Volume (m^3):	1822596
	Flush rate (times/year):	3.1
Watershed Characteristics	Watershed Area (ha):	757
	Surface water (%):	12
	Deciduous Forest (%):	54
	Evergreen Forest (%):	16
	Mixed Forest (%):	8
	Wetlands (%):	7
	Agricultural (%):	0
	Commercial (%):	0
	Local Roads (km):	0.3
	State Roads (km):	0

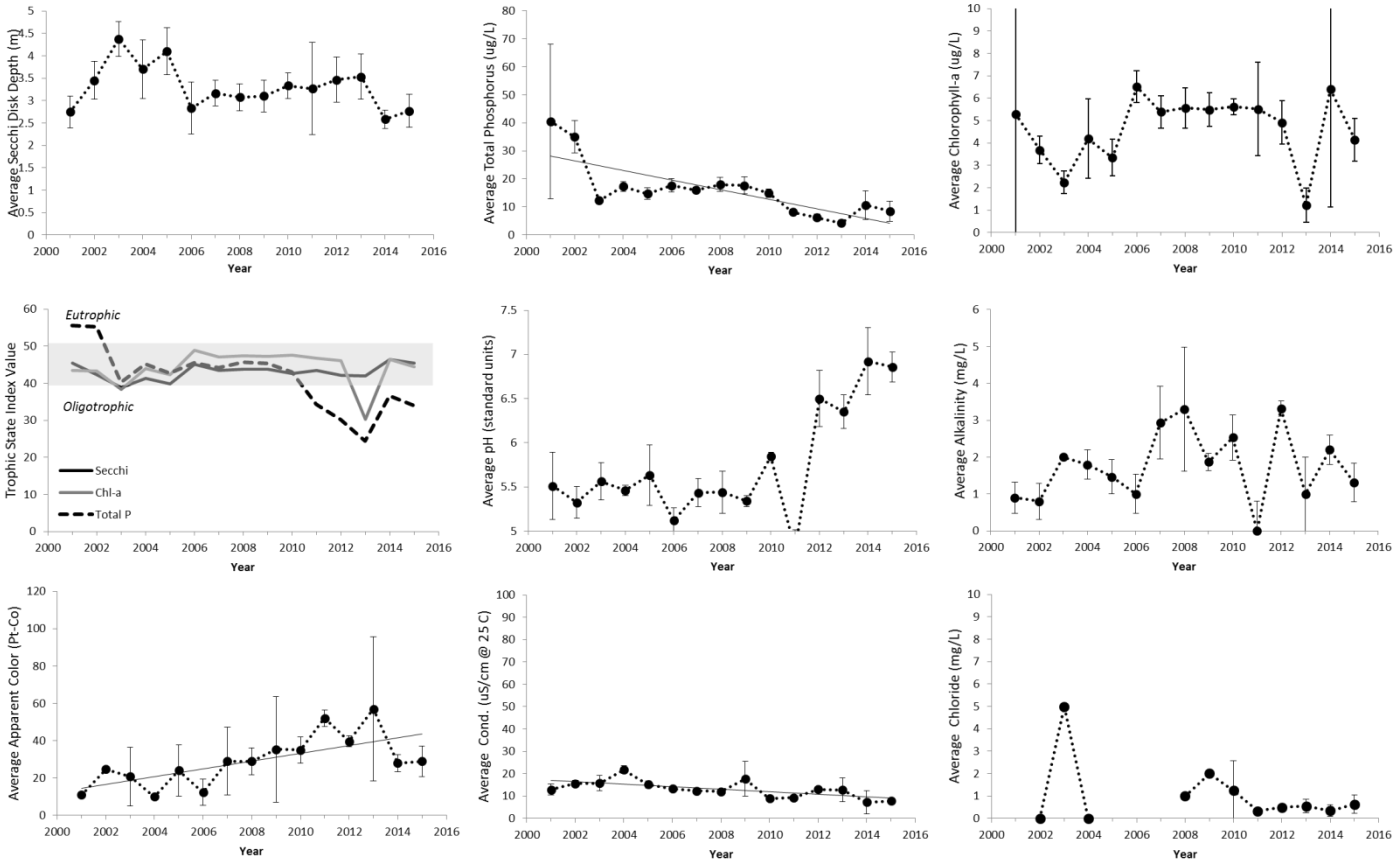
Trophic State	Acidity	Acid Neutralizing Capacity	Road Salt Influence
Mesotrophic	Alkaline	Low	Not Significant

Water quality values and historical trends for Twitchell Lake during the 2015 sampling season. Trend analysis was not performed on calcium or nitrogen data. BDL=below detection limit.

Water Quality Indicator	Sampling Date			Average	Trend
	6/27/2015	7/25/2015	8/16/2015		
Transparency (m)	2.4	2.9	3.1	2.8	No change
Total Phosphorus (µg/L)	5.3	12.4	7.7	8.5	Decreasing
Chlorophyll-*a* (µg/L)	3.9	5.2	3.4	4.2	No change
Laboratory pH	7.0	6.9	6.7	6.9	No change
Sp. Conductance (µS/cm)	8.8	7.3	7.2	7.8	Decreasing
Color (Pt-Co)	35.1	32.0	19.6	28.9	Increasing
Alkalinity (mg/L)	1.1	1.0	1.9	1.3	No change
Nitrate-Nitrogen (µg/L)	60.8	0.1	-2.7	19.4	Not analyzed
Chloride (mg/L)	0.4	0.4	1.1	0.6	No change
Calcium (mg/L)	1.0	0.9	1.1	1.0	Not analyzed
Sodium (mg/L)	0.5	0.4	0.4	0.5	No change

*See table of content for description of water quality indicators

Twitchell Lake – Time Series



Annual average values of select water quality indicators for Twitchell Lake, 2001-2015. Vertical bars represent ± 1 standard deviation of the mean; Solid trend lines across the data indicate a statistically significant trend ($p < 0.05$).

Summary of Findings

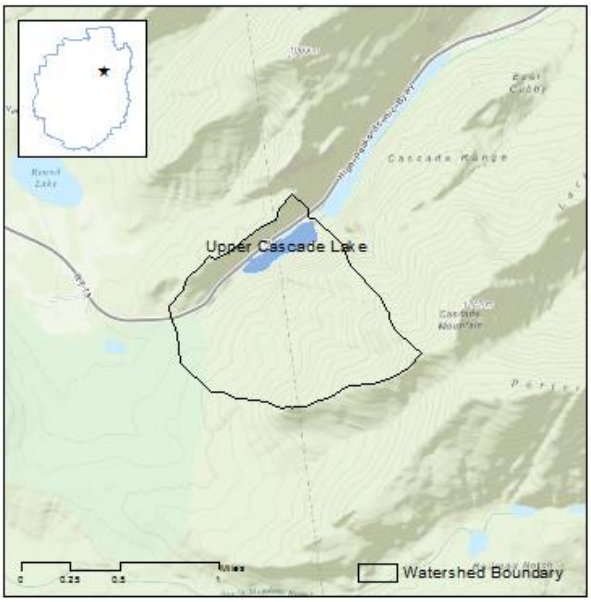
Twitchell Lake is a 58 ha lake located in Herkimer County in the Town of Webb. The lake is located within a 757 ha watershed dominated by forests. Twitchell Lake has been monitored by ALAP volunteers and the Adirondack Watershed Institute since 2001.

- Twitchell Lake is a mesotrophic lake. The transparency depth has been relatively stable with no significant trend detected. Total phosphorus concentration has exhibited a significant downward trend s at a rate of approximately 1.7 µg/L/year. This downward trend is largely driven by unusually high phosphorus concentrations 2001-2002.

- The water samples analyzed in 2015 were found to be circumneutral in terms of their acidity. The pH values have been substantially higher in recent years. The alkalinity averaged 1.3 mg/L, indicating that the lake is still highly sensitive to acid deposition.

- Sodium and chloride concentration averaged 0.5 and 0.6 mg/L respectively. These values are within the range we would expect for a watershed lacking salted state roads.

Upper Cascade Lake



Location		
	County:	Essex
	Town:	Keene

Lake Characteristics		
	Surface Area (ha):	9
	Shoreline Length (km):	2
	Max. Depth (m):	19.2
	Volume (m^3):	1144425
	Flush rate (times/year):	1.6

Watershed Characteristics		
	Watershed Area (ha):	213
	Surface water (%):	5
	Deciduous Forest (%):	43
	Evergreen Forest (%):	19
	Mixed Forest (%):	27
	Wetlands (%):	0
	Agricultural (%):	0
	Residential (%):	6
	Local Roads (km):	0
	State Roads (km):	1.4

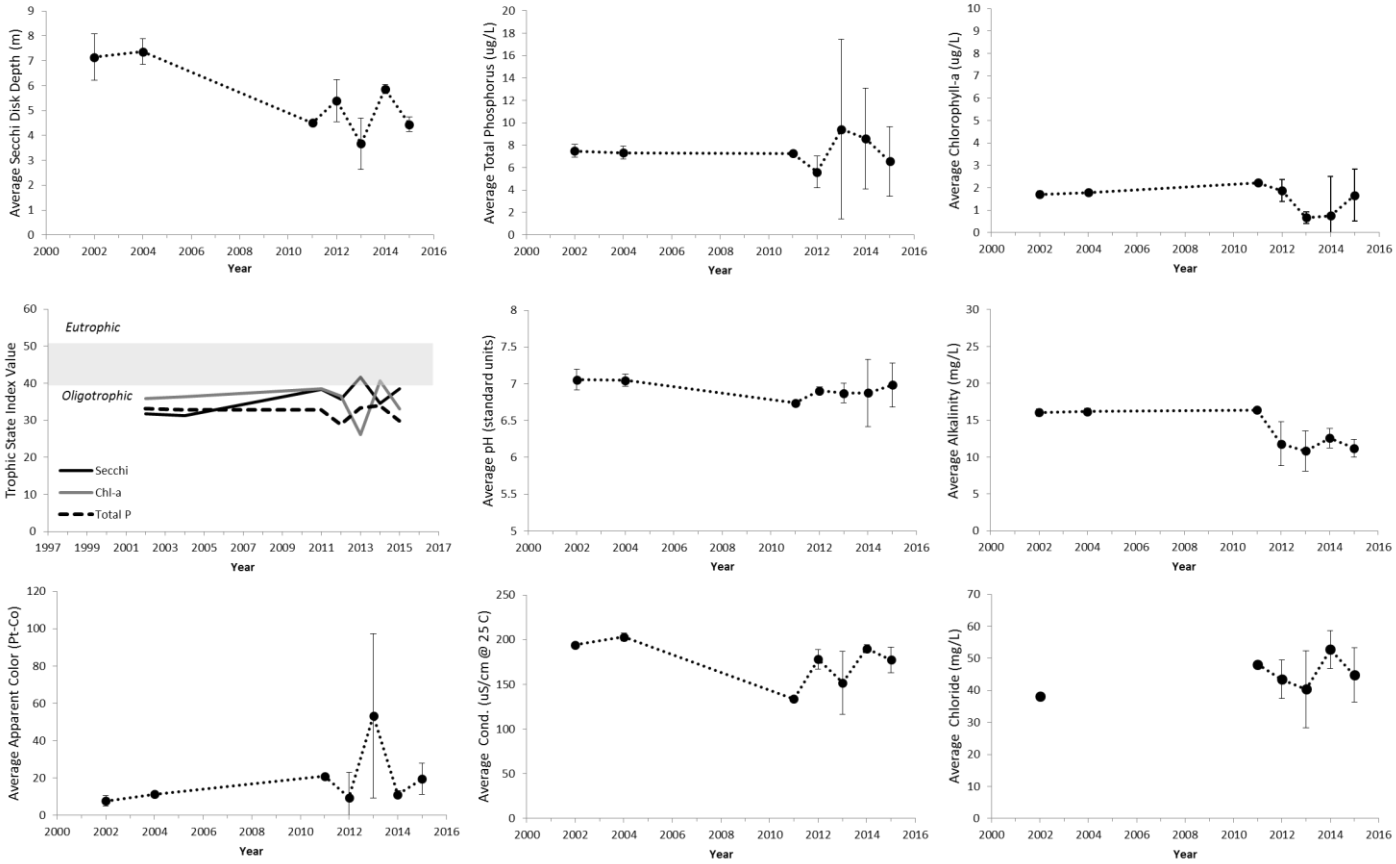
Trophic State	Acidity	Acid Neutralizing Capacity	Road Salt Influence
Oligotrophic	Circumneutral	Adequate – low sensitivity	High

Water quality values and historical trends for Upper Cascade Lake during the 2015 sampling season. Trend analysis was not performed on calcium or nitrogen data. BDL=below detection limit.

Water Quality Indicator	Sampling Date			Average	Trend
	6/26/2015	7/25/2015	10/6/2015		
Transparency (m)		4.3	4.7	4.5	No change
Total Phosphorus (µg/L)	9.0	3.1	7.7	6.6	No change
Chlorophyll-*a* (µg/L)	0.4	2.7	1.9	1.7	No change
Laboratory pH	7.3	6.7	6.9	7.0	No change
Sp. Conductance (µS/cm)	163.1	177.4	191.3	177.3	No change
Color (Pt-Co)	22.7	10.2	25.8	19.6	No change
Alkalinity (mg/L)	10.3	10.7	12.6	11.2	No change
Nitrate-Nitrogen (µg/L)	97.6	43.4	76.7	72.6	Not analyzed
Chloride (mg/L)	35.6	46.5	52.3	44.8	No change
Calcium (mg/L)	5.5	5.6	6.5	5.8	Not analyzed
Sodium (mg/L)	24.8	27.4	26.7	26.3	No change

*See table of content for description of water quality indicators

Upper Cascade Lake – Time Series



Annual average values of select water quality indicators for Upper Cascade Lake, 2002-2015. Vertical bars represent ± 1 standard deviation of the mean; Solid trend lines across the data indicate a statistically significant trend ($p < 0.05$).

Summary of Findings

Upper Cascade Lake is a 9 ha lake located in Essex County in the Town of Keene. The lake is located within a 213 ha watershed dominated by forests. Upper Cascade Lake has been monitored by ALAP volunteers and the Adirondack Watershed Institute during the years of 2002, 2003 and 2011-2015.

- Upper Cascade Lake is an oligotrophic lake. Trophic indicators have not exhibited any significant positive or negative trends.
- The water samples analyzed in 2015 were found to be circumneutral in terms of their acidity. The alkalinity averaged 11.2 mg/L, indicating low sensitivity to acid deposition.
- Sodium and chloride concentration averaged 26.3 and 44.8 mg/L respectively, indicating that the chemistry of the lake is highly influenced by the 1.4 km of NYS Rt. 73. Upper Cascade Lake has the highest concentration of sodium and chloride in the program.

Upper Chateaugay Lake

Location		
	County:	Clinton
	Town:	Dannemora

Lake Characteristics		
	Surface Area (ha):	1038
	Shoreline Length (km):	29
	Max. Depth (m):	21.9
	Volume (m^3):	105632868
	Flush rate (times/year):	1

Watershed Characteristics		
	Watershed Area (ha):	20856
	Surface water (%):	6
	Deciduous Forest (%):	52
	Evergreen Forest (%):	18
	Mixed Forest (%):	9
	Wetlands (%):	10
	Agricultural (%):	1
	Residential (%):	2
	Local Roads (km):	50.2
	State Roads (km):	10.3

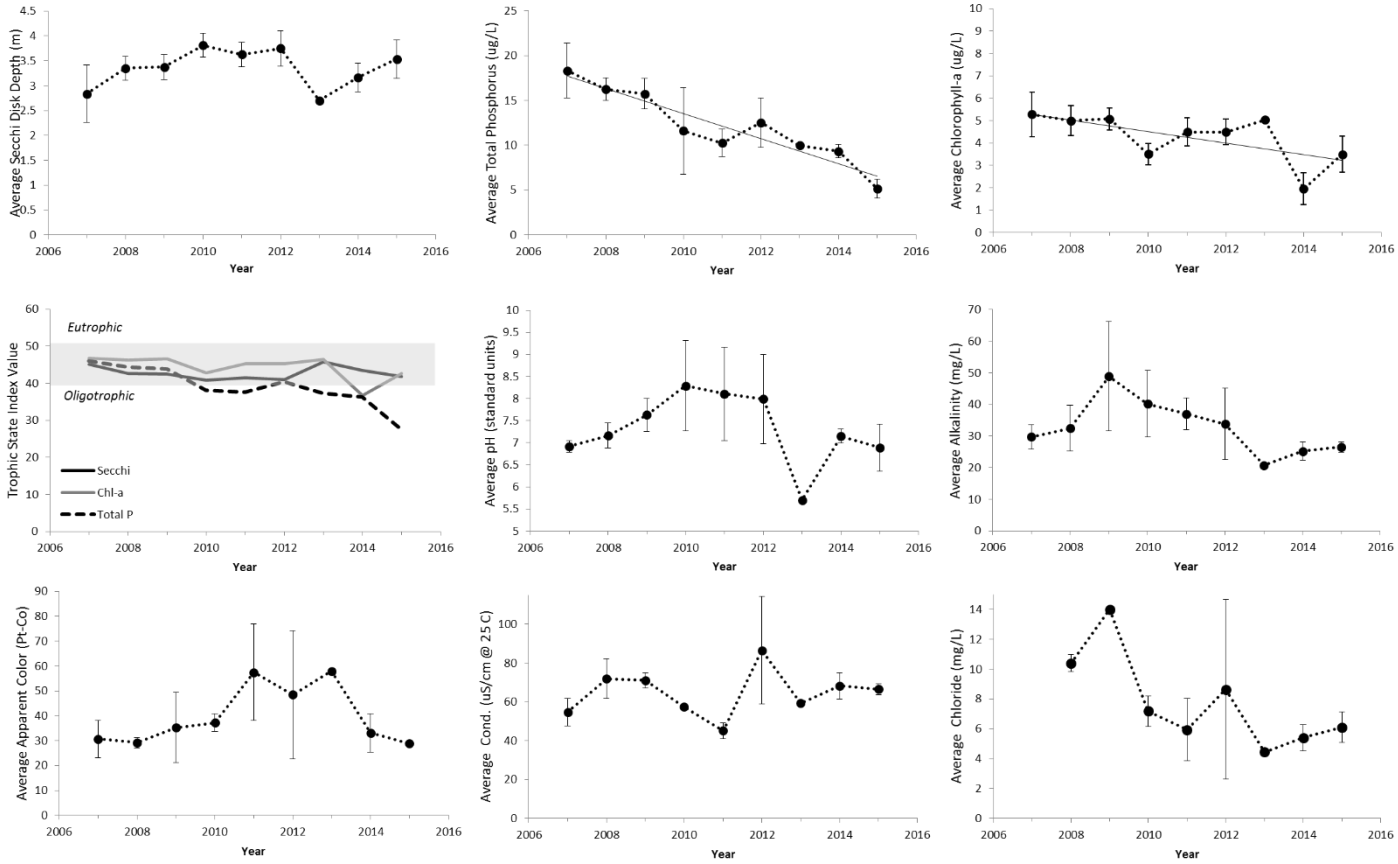
Trophic State	Acidity	Acid Neutralizing Capacity	Road Salt Influence
Mesotrophic	Circumneutral	Well buffered – not sensitive	moderate

Water quality values and historical trends for Upper Chateaugay Lake during the 2015 sampling season. Trend analysis was not performed on calcium or nitrogen data. BDL=below detection limit.

Water Quality Indicator	Sampling Date			Average	Trend
	6/25/2015	7/19/2015	8/21/2015		
Transparency (m)	3.1	3.7	3.9	3.5	No change
Total Phosphorus (µg/L)	4.0	5.5	6.0	5.2	Decreasing
Chlorophyll-*a* (µg/L)	4.3	3.5	2.7	3.5	Decreasing
Laboratory pH	7.5	6.7	6.5	6.9	No change
Sp. Conductance (µS/cm)	66.3	63.7	69.5	66.5	No change
Color (Pt-Co)	28.9	28.9	28.9	28.9	No change
Alkalinity (mg/L)	25.3	25.9	28.4	26.5	No change
Nitrate-Nitrogen (µg/L)	38.3	15.9	64.0	39.4	Not analyzed
Chloride (mg/L)	5.1	6.2	7.1	6.1	No change
Calcium (mg/L)	7.7	7.4	7.7	7.6	Not analyzed
Sodium (mg/L)	4.1	4.1	4.0	4.1	No change

*See table of content for description of water quality indicators

Upper Chateaugay Lake – Time Series



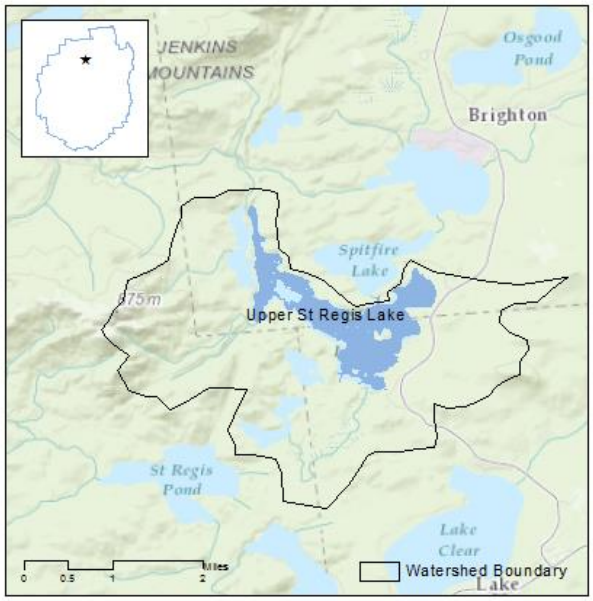
Annual average values of select water quality indicators for Upper Chateaugay Lake, 2007-2015. Vertical bars represent ± 1 standard deviation of the mean; Solid trend lines across the data indicate a statistically significant trend ($p < 0.05$).

Summary of Findings

Upper Chateaugay Lake is a 1,038 ha lake located in Clinton County in the Town of Dannemora. The lake is located within a 20,856 ha watershed dominated by forests. Upper Chateaugay Lake has been monitored by ALAP volunteers and the Adirondack Watershed Institute since 2007.

- Upper Chateaugay is a mesotrophic Lake. Transparency depth has been relatively stable since monitoring began, typically ranging between 2.5 and 3.5 meters. Both total phosphorus and chlorophyll-a concentrations have exhibited a significant downward trend at a rate of 1.4 and 2.5 µg/L/year respectively.
- The water samples analyzed in 2015 were found to be circumneutral in terms of their acidity. The alkalinity averaged 26.5 mg/L, indicating that the lake is not sensitive to acid deposition. The alkalinity of Upper Chateaugay is greater than 94% of participating lakes.
- Sodium and chloride concentration averaged 4.1 and 6.1 mg/L respectively, indicating that the chemistry of the lake is moderately influenced by the 61km of roads in the watershed.
- Calcium concentration of Upper Chateaugay is greater than 89% of participating lakes, but below the concentrations researchers believe is needed for a variable zebra mussel population (12-20 mg/L).

Upper St. Regis Lake



Location		
	County:	Franklin
	Town:	Harrietstown

Lake Characteristics		
	Surface Area (ha):	287
	Shoreline Length (km):	22
	Max. Depth (m):	-
	Volume (m^3):	20400000
	Flush rate (times/year):	0.6

Watershed Characteristics		
	Watershed Area (ha):	2313
	Surface water (%):	21
	Deciduous Forest (%):	52
	Evergreen Forest (%):	14
	Mixed Forest (%):	4
	Wetlands (%):	10
	Agricultural (%):	0
	Residential (%):	0
	Local Roads (km):	1
	State Roads (km):	3.5

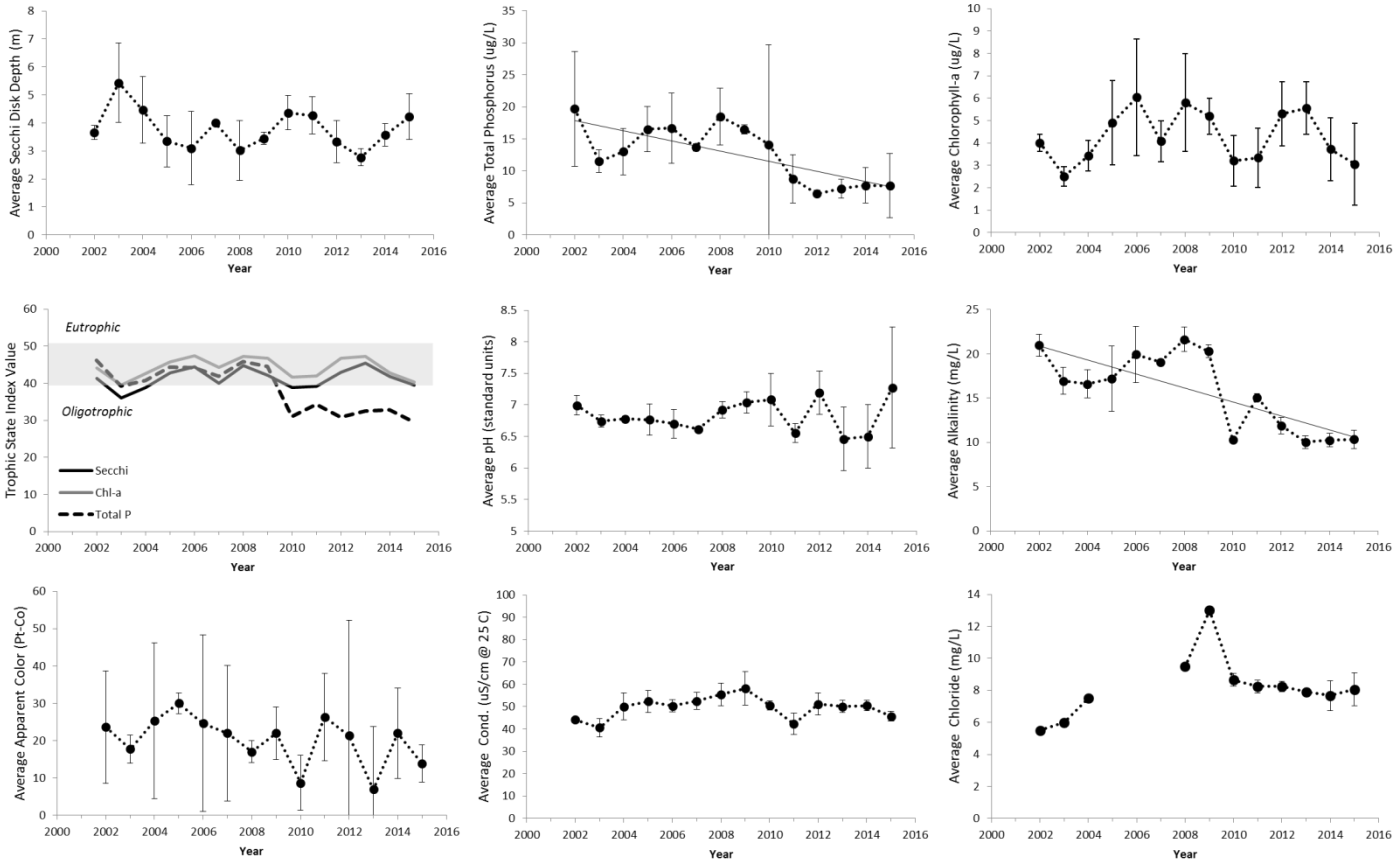
Trophic State	Acidity	Acid Neutralizing Capacity	Road Salt Influence
Mesotrophic	Circumneutral	Adequate – low sensitivity	Moderate

Water quality values and historical trends for Upper St. Regis Lake during the 2015 sampling season. Trend analysis was not performed on calcium or nitrogen data. BDL=below detection limit.

Water Quality Indicator	Sampling Date						Average	Trend
	5/8	6/10	7/10	7/28	8/24	9/25		
Transparency (m)	3.4	4.2	4.7	3.2	4.5	5.4	4.2	No change
Total Phosphorus (µg/L)	15.7	10.6	7.2	6.6	5.0	1.0	7.7	No change
Chlorophyll-*a* (µg/L)	6.2		3.1	2.5	2.0	1.5	3.1	No change
Laboratory pH	8.0	6.9	8.9	6.7	6.4	6.7	7.3	No change
Sp. Cond. (µS/cm)	43.0	42.9	46.4	46.5	47.2	48.0	45.7	No change
Color (Pt-Co)	16.4	4.0	16.4	16.4	16.4	13.3	13.8	Decreasing
Alkalinity (mg/L)	8.7	9.9	10.3	10.4	11.8	11.0	10.3	Decreasing
Nitrate-Nitrogen (µg/L)	37.1	BDL	1.1	2.4	2.7	8.6	±5.9	Not analyzed
Chloride (mg/L)	6.4	7.4	8.1	8.1	9.3	9.0	8.1	No change
Calcium (mg/L)	4.4	2.9	3.0	3.1	3.2	3.1	3.3	Not analyzed
Sodium (mg/L)	6.6	5.5	5.3	5.4	5.0	4.3	5.4	No change

*See table of content for description of water quality indicators

Upper St. Regis Lake– Time Series



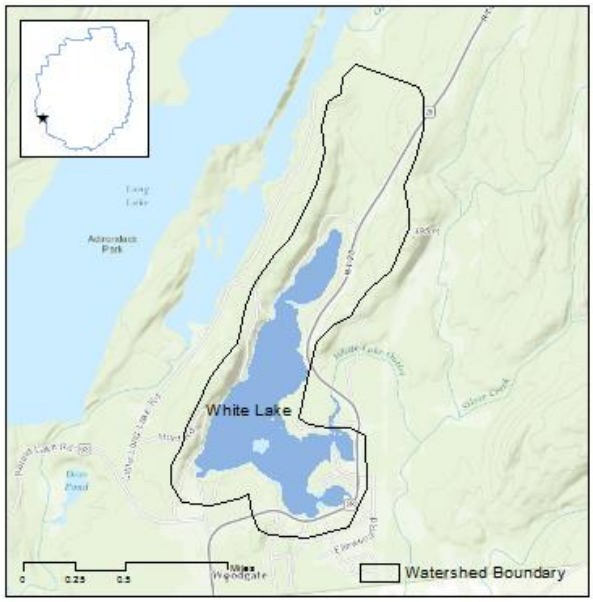
Annual average values of select water quality indicators for Upper St. Regis Lake, 2002-2015. Vertical bars represent ± 1 standard deviation of the mean; Solid trend lines across the data indicate a statistically significant trend ($p < 0.05$).

Summary of Findings

Upper St. Regis Lake is a 287 ha lake located in Franklin County in the Town of Brighton. The lake is located within a 2313 ha watershed dominated by forests. Upper St. Regis Lake has been monitored by ALAP volunteers and the Adirondack Watershed Institute since 2002.

- Upper St. Regis Lake is a mesotrophic lake. The transparency depth and chlorophyll-a concentrations have not exhibited any significant trend since 2002. The total phosphorus concentration has exhibited a significant downward trend at a rate of approximately 0.8 µg/L/year.
- Water samples analyzed from 2015 were circumneutral in terms of their acidity. The alkalinity averaged 10.3 mg/L indicating low sensitivity to acid deposition. The alkalinity has exhibited a significant downward trend at a rate of approximately 0.8 mg/L/year.
- Sodium and chloride concentration averaged 5.4 and 8.1 mg/L respectively, indicating that the chemistry of the lake is influenced by the 4.5 km of roads in the watershed.

White Lake



Location		
	County:	Oneida
	Town:	Forestport

Lake Characteristics		
	Surface Area (ha):	97
	Shoreline Length (km):	10
	Max. Depth (m):	22.9
	Volume (m^3):	6912525
	Flush rate (times/year):	0.4

Watershed Characteristics		
	Watershed Area (ha):	329
	Surface water (%):	30
	Deciduous Forest (%):	38
	Evergreen Forest (%):	7
	Mixed Forest (%):	2
	Wetlands (%):	11
	Agricultural (%):	1
	Residential (%):	2
	Local Roads (km):	1.7
	State Roads (km):	3.6

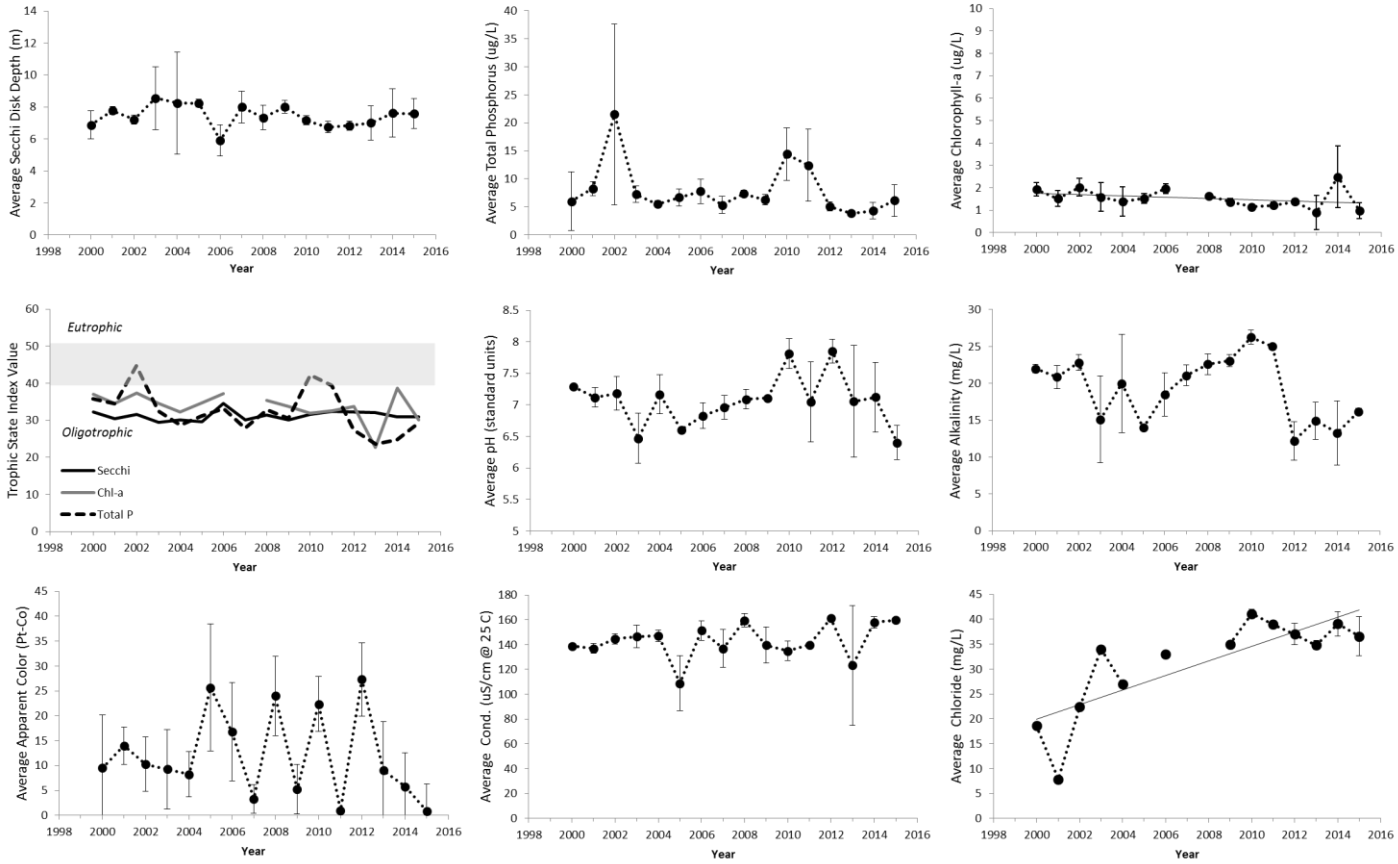
Trophic State	Acidity	Acid Neutralizing Capacity	Road Salt Influence
Oligotrophic	Circumneutral	Adequate – low sensitivity	High

Water quality values and historical trends for White Lake during the 2015 sampling season. Trend analysis was not performed on calcium or nitrogen data. BDL=below detection limit.

Water Quality Indicator	Sampling Date			Average	Trend
	6/26/2015	7/22/2015	8/18/2015		
Transparency (m)	8.5	7.6	6.6	7.6	No change
Total Phosphorus (µg/L)	3.7	9.3	5.4	6.1	No change
Chlorophyll-*a* (µg/L)	1.4	0.9	0.7	1.0	Decreasing
Laboratory pH	6.1	6.5	6.6	6.4	No change
Sp. Conductance (µS/cm)	159.7	160.0	159.8	159.8	No change
Color (Pt-Co)	4.0	BDL	4.0	±0.8	No change
Alkalinity (mg/L)	15.6	16.4	16.5	16.2	No change
Nitrate-Nitrogen (µg/L)	78.9	52.2	20.9	50.7	Not analyzed
Chloride (mg/L)	33.3	35.6	40.9	36.6	Increasing
Calcium (mg/L)	7.2	7.2	8.0	7.5	Not analyzed
Sodium (mg/L)	23.4	22.2	23.2	23.0	No change

*See table of content for description of water quality indicators

White Lake – Time Series



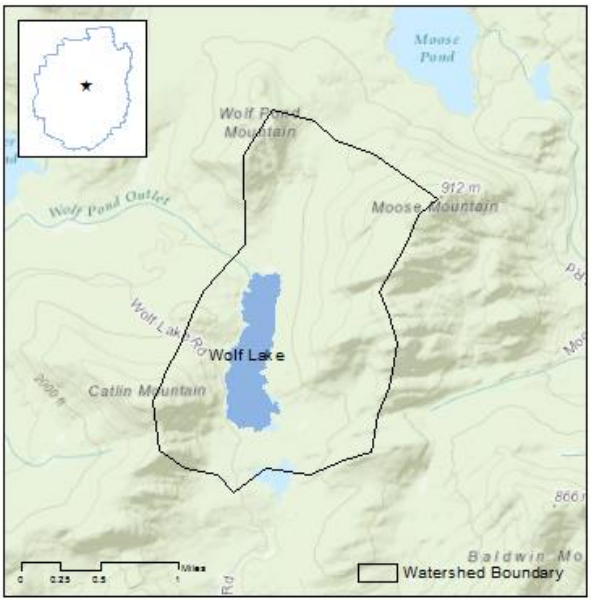
Annual average values of select water quality indicators for White Lake, 2000-2015. Vertical bars represent ± 1 standard deviation of the mean; Solid trend lines across the data indicate a statistically significant trend ($p < 0.05$).

Summary of Findings

White Lake is a 97 ha lake located in Oneida County in the Town of Forestport. The lake is located within a 329 ha watershed dominated by forests. White Lake has been monitored by ALAP volunteers and the Adirondack Watershed Institute since 2000.

- White Lake is an oligotrophic lake. The transparency depth and total phosphorus concentration has been relatively stable with no significant trend detected. Chlorophyll-a concentration has exhibited a slight, yet significant downward trend s at a rate of approximately 0.03 µg/L/year.
- The water samples analyzed in 2015 were found to be circumneutral in terms of their acidity. The alkalinity averaged 16.2 mg/L, indicating that the lake has low sensitivity to acid deposition.
- Sodium and chloride concentration averaged 23 and 36.6 mg/L respectively. These values indicate that the lake is highly influenced by the 5.3 km of roads in the watershed. Chloride concentration of White lake is greater than 96% of participating lakes, and has been trending up at a rate of approximately 1.5 mg/L/year. The trend is primarily driven by relatively low concentrations observed in the early 2000's. Our chloride methodology was significantly improved in 2010, and the concentrations in White Lake have been relatively stable since then.

Wolf Lake



Location		
	County:	Essex
	Town:	Newcomb

Lake Characteristics		
	Surface Area (ha):	59
	Shoreline Length (km):	5
	Max. Depth (m):	-
	Volume (m^3):	3389892
	Flush rate (times/year):	1.6

Watershed Characteristics		
	Watershed Area (ha):	673
	Surface water (%):	10
	Deciduous Forest (%):	67
	Evergreen Forest (%):	10
	Mixed Forest (%):	10
	Wetlands (%):	3
	Agricultural (%):	0
	Residential (%):	0
	Local Roads (km):	0
	State Roads (km):	0

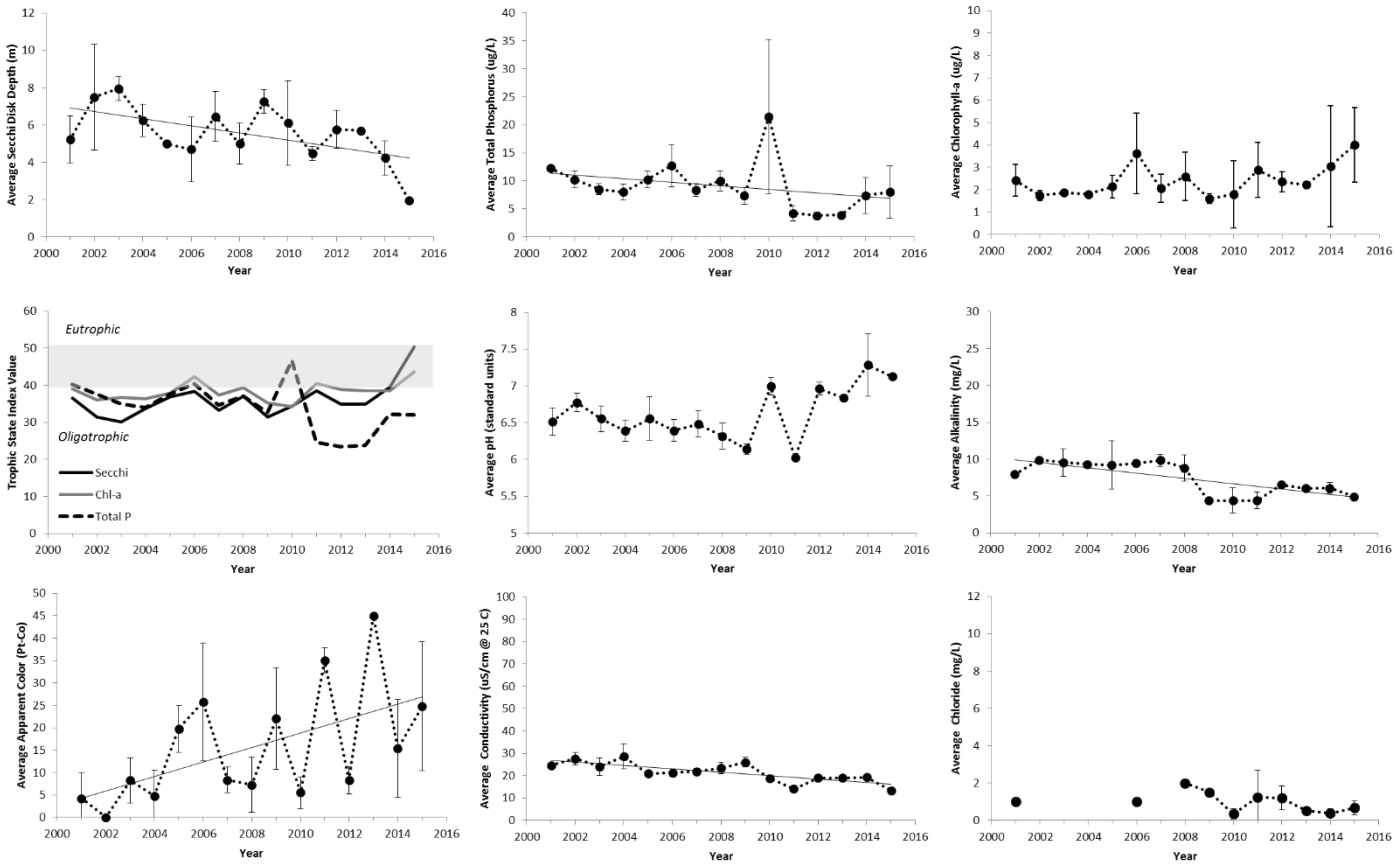
Trophic State	Acidity	Acid Neutralizing Capacity	Road Salt Influence
Mesotrophic	Circumneutral	Moderate	Not Significant

Water quality values and historical trends for Wolf Lake during the 2015 sampling season. Trend analysis was not performed on calcium or nitrogen data. BDL=below detection limit.

Water Quality Indicator	Sampling Date			Average	Trend
	6/25/2015	7/24/2015	8/17/2015		
Transparency (m)	1.9	2.0	2.0	1.9	Decreasing
Total Phosphorus (µg/L)	3.1	12.4	8.5	8.0	Decreasing
Chlorophyll-*a* (µg/L)	3.3	2.8	5.9	4.0	No change
Laboratory pH	7.1	7.1	7.2	7.1	No change
Sp. Conductance (µS/cm)	14.1	13.1	13.1	13.4	Decreasing
Color (Pt-Co)	16.4	16.4	41.4	24.7	Increasing
Alkalinity (mg/L)	4.9	5.1	4.8	4.9	Decreasing
Nitrate-Nitrogen (µg/L)	13.4	BDL	BDL	±3.3	Not analyzed
Chloride (mg/L)	0.4	0.5	1.1	0.7	No change
Calcium (mg/L)	2.1	2.3	2.4	2.3	Not analyzed
Sodium (mg/L)	0.7	0.6	0.6	0.6	No change

*See table of content for description of water quality indicators

Wolf Lake – Time Series



Annual average values of select water quality indicators for Wolf Lake, 2001-2015. Vertical bars represent ± 1 standard deviation of the mean; Solid trend lines across the data indicate a statistically significant trend ($p < 0.05$).

Summary of Findings

Wolf Lake is a 59ha lake located in Essex County in the Town of Newcomb. The lake is located within a 673 ha watershed dominated by forests. Wolf Lake has been monitored by ALAP volunteers and the Adirondack Watershed Institute since 2001.

- Wolf Lake is best classified as a mesotrophic lake. Transparency depth has exhibited a significant downward trend at a rate of approximately 20 cm/year. It's possible that some of this trend could be explained by an increasing trend in color, a surrogate measure of dissolved organic material. Dissolved organic material rapidly attenuates light, resulting in decreased transparency.
- The water samples analyzed in 2015 were found to be circumneutral in terms of their acidity. The alkalinity averaged 4.9 mg/L, indicating that the lake is moderately sensitive to acid deposition. Alkalinity has exhibited a slight, yet significant downward trend at a rate of approximately 0.4 mg/L/year.
- Sodium and chloride concentration averaged 0.6 and 0.7 mg/L respectively. These values are within the range we would expect for a lake that lacks salted roads in the watersh

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Appendix 1. Analytical methods performed on ALAP samples at the AWI Environmental Research Lab.

Analyte	Method Description	Reference
Lab pH	Mettler Toledo standard pH electrode	APHA
Conductivity	Conductivity at 25° C via Mettler Toledo conductivity cell	APHA 2510 B
Apparent Color	Single wavelength method with PtCO standards	APHA 2120 C
Chlorophyll-a	Trichromatic method uncorrected for phaeophyton	APHA 10200 H
Total Phosphorus	Acid-persulfate digestion, automated ascorbic acid reduction	APHA 4500-P H
Nitrate + Nitrite	Automated cadmium reduction	APHA 4500-NO_3 I
Alkalinity	Automated methyl orange method	EPA 301.2
Chloride	Automated ion chromatography	EPA 300.0
Calcium and Sodium	Inductively coupled plasma optical emission spectroscopy	EPA 200.7