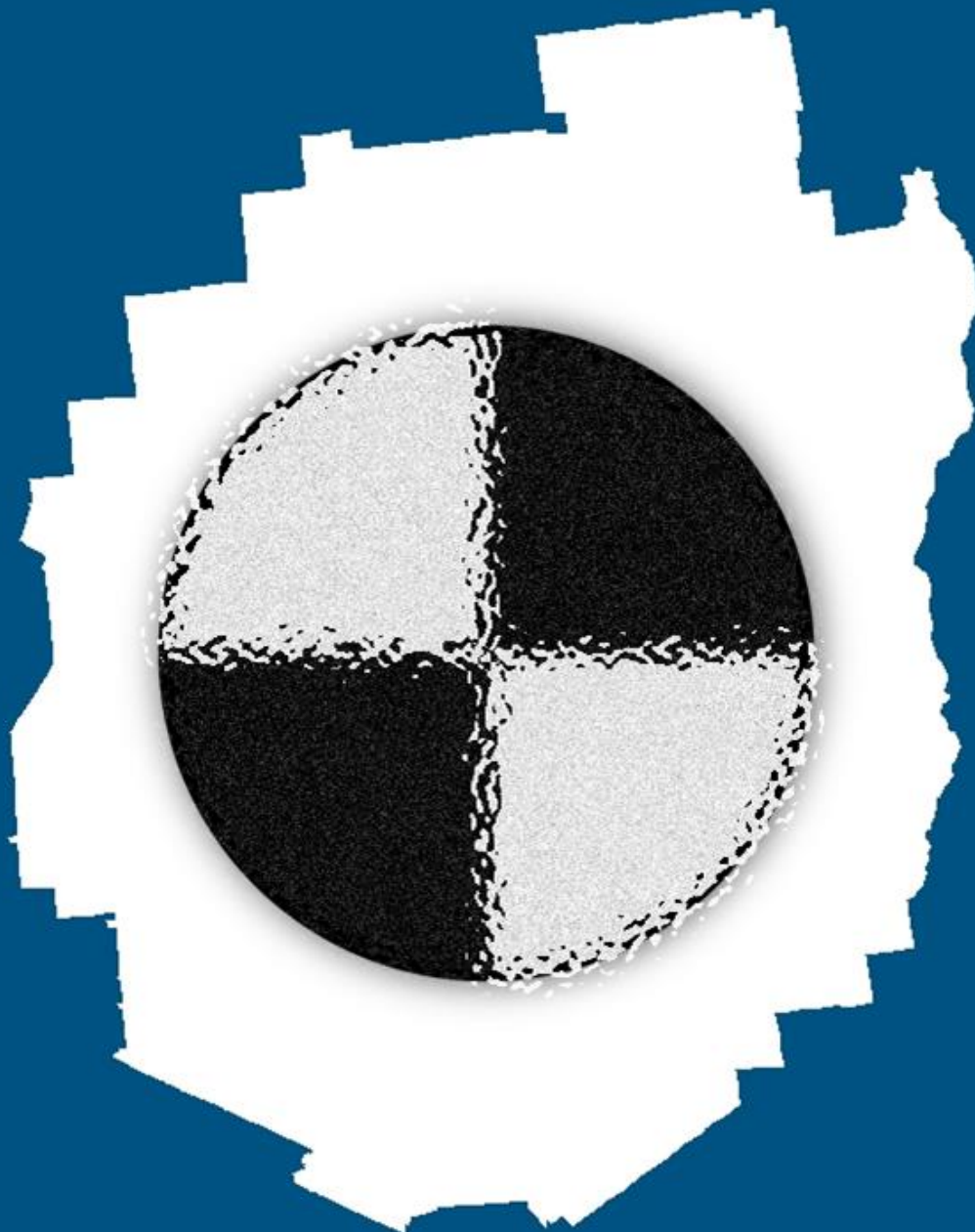


Adirondack Lake Assessment Program

2015 Report

ALAP



PAUL SMITH'S COLLEGE ADIRONDACK WATERSHED INSTITUTE

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Acknowledgments

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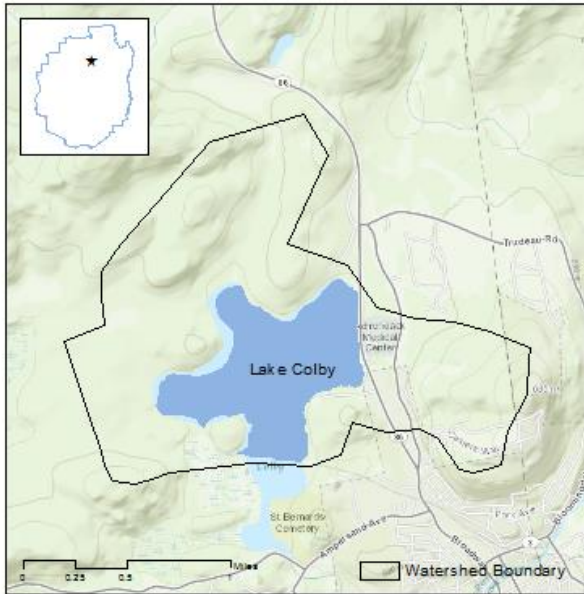
Laxson*, C.L., Yerger, E.C., Regalado, S.A., and D.L. Kelting. 2016. Adirondack Lake Assessment Program: 2015 Report. Paul Smith's College Adirondack Watershed Institute. Report No. PSCAWI 2016-04. 181p.

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Special thanks to our ALAP 2015 Volunteers

John and Dorothy Adami	Peter Halsch	Anne Moses
Denise Baer	Bob Hammond	Susan Murante
James Belott	Joe Hancock	Susan Nettleton
Anya Bickford and Doug Chamberalin	Marsha and Jerry Hickey	Rose and Tom Neuhard
Nancy Gucker Birdsall	David and James Hoffman	Judith Peabody
Jim Bowen	Jocelyn Jerry	Bruce Peck
Harriet and George Burrell	John Johanson	Andrew Pickett
Jacob Burstein	Scott and Lynn Johnson	Barb Quigley
Karl Butz	Eileen and John Jungbluth	John Sayles
Robert Colegrove	Lee and Nancy Keet	Bob Schwajlyk
John and Ellen Collins	H. Kemp	Harold Shippey
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Mark Denicore	Bruce Kitney	Ken and Joanne Strike
John Donoghue	Irene Krotz	Randall Swanson
Jack Drury	Tim and Alice Ladue	Peter Taylor
John Duryea	Joseph Laundry	Norine Thibault
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Ethan Gingell	Bill and Ann Marie McKeon	Stacy and Joe Webb
John Goddard	David Meade	Scott Weller
Laura Gouthreau	John Merriman	Brendan Wiltse
Mark Greene	Nancy Morrill	Alan Woodruff
Evelyn Greene	Patty Morrison	

Lake Colby



Location	County:	Franklin
	Town:	Harrietstown
Lake Characteristics	Surface Area (ha):	119
	Shoreline Length (km):	8
	Max. Depth (m):	14.3
	Volume (m ³):	7873831
	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

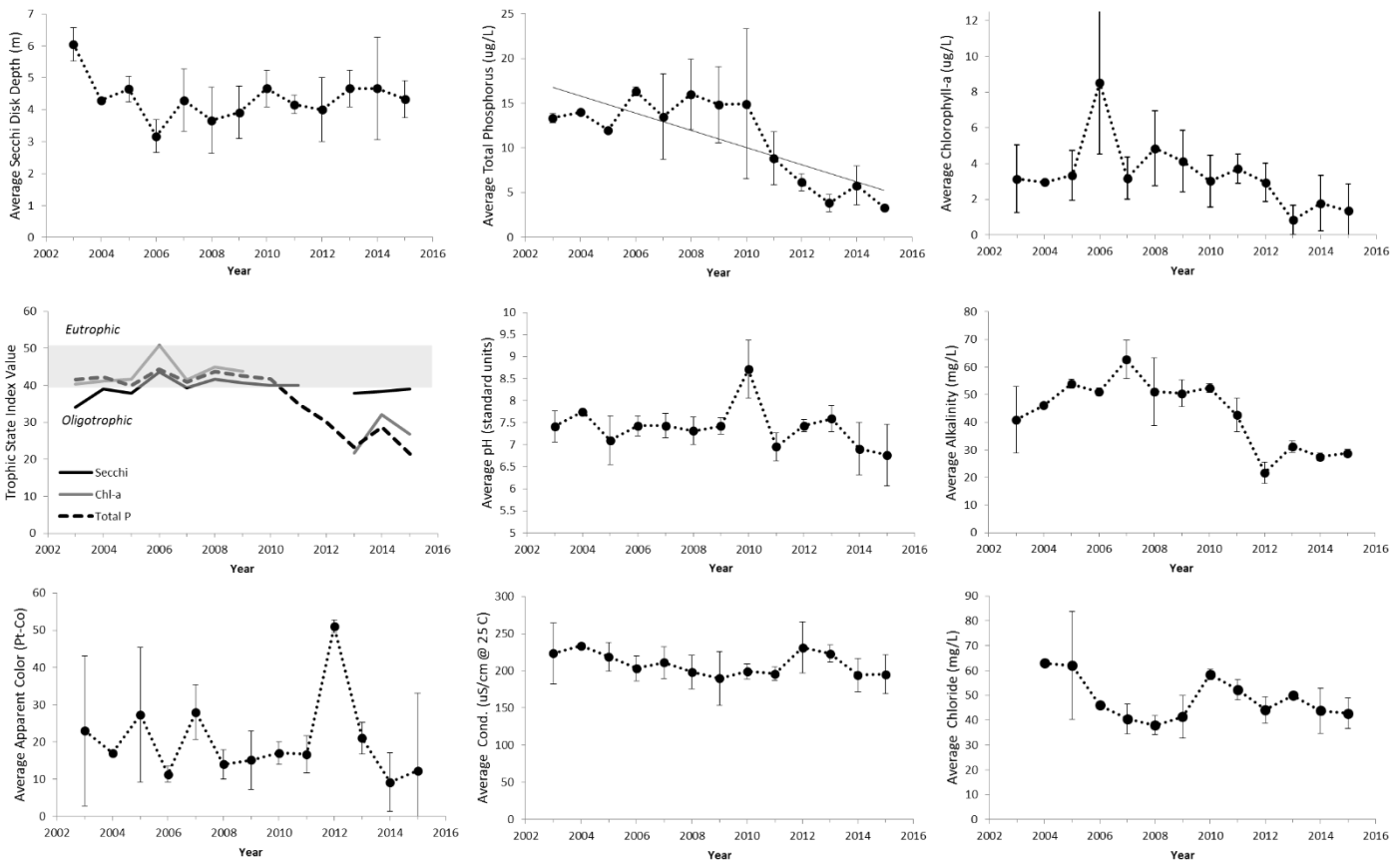
Trophic State Oligotrophic	Acidity Circumneutral	Acid Neutralizing Capacity Well buffered – not sensitive	Road Salt Influence High
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Water quality values and historical trends for Lake Colby during the 2015 sampling season. Trend analysis was not performed 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- <i>a</i> (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 $0.9\mu\text{g/L/year}$. 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.