Minutes of the Lake Colby Association 8/16/24

27th anniversary of the Lake Colby Association.
Meeting began at 10:03am in the Keet's shorehouse. Loons were calling.

Attending:
Lauren Epstein, Little Colby Pond
Mark Epstein, Little Colby Pond
Ann Greene, Board Member, tried to connect via Zoom, unsuccessfully
Lee Keet
Nancy Keet, President
Carrie Moore, Little Colby Pond
Debbie Neill, Board Member, Secretary & Treasurer
Tracey Schrader, Harrietstown Town Deputy Supervisor & Councilwoman
Matt Scollin, Adirondack Health & Village of SL Trustee
Connor Vara, with PSC Adirondack Watershed Institute
Brendan Wiltse, Senior Research Scientist, PSC Adirondack Watershed Institute

Nancy welcomed and thanked all for attending our meeting.

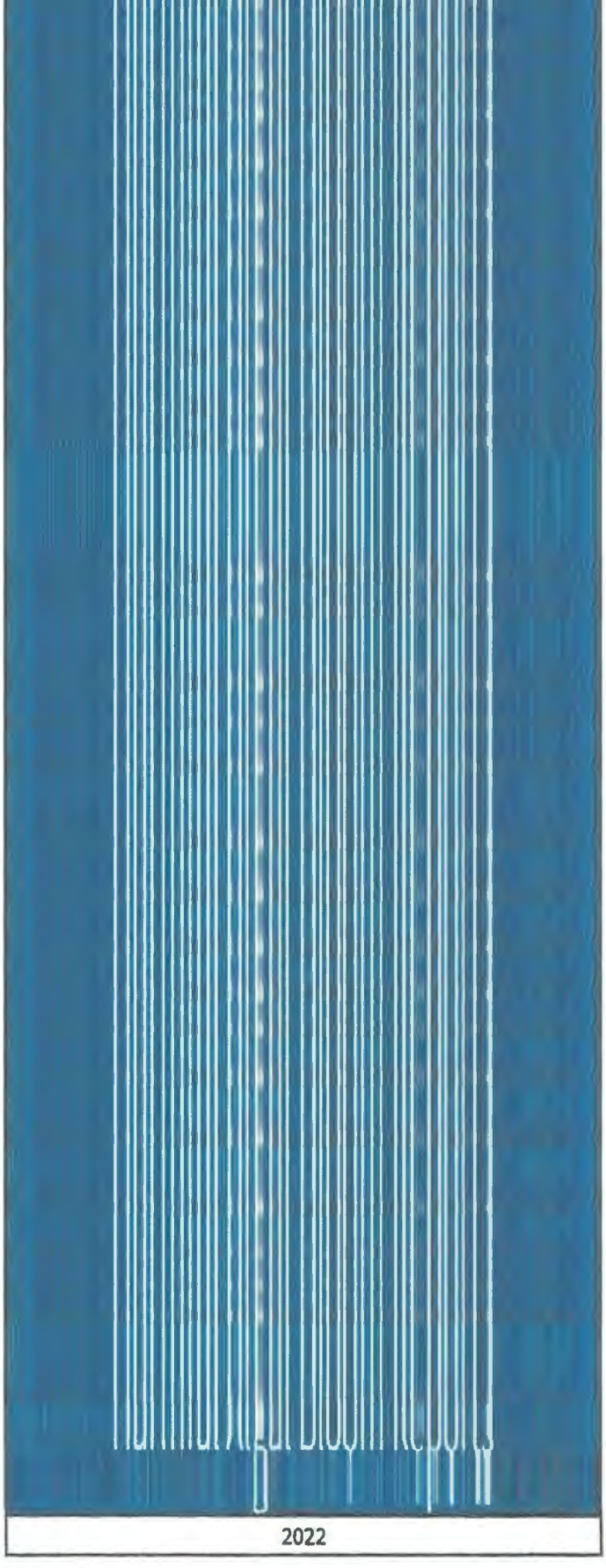
Minutes from 2023 were looked over. Input for changes and corrections were sought. Two corrections were noted: TY to Mark & "Lauren" Epstein for collecting ALAP water samples from Little Colby Pond. Matt Scollin noted that he was not present at last year's meeting. All were in favor of accepting the minutes.

Elections:
Necessary as a 501c3, we elect a Foundation board and 501c4, we elect officers.

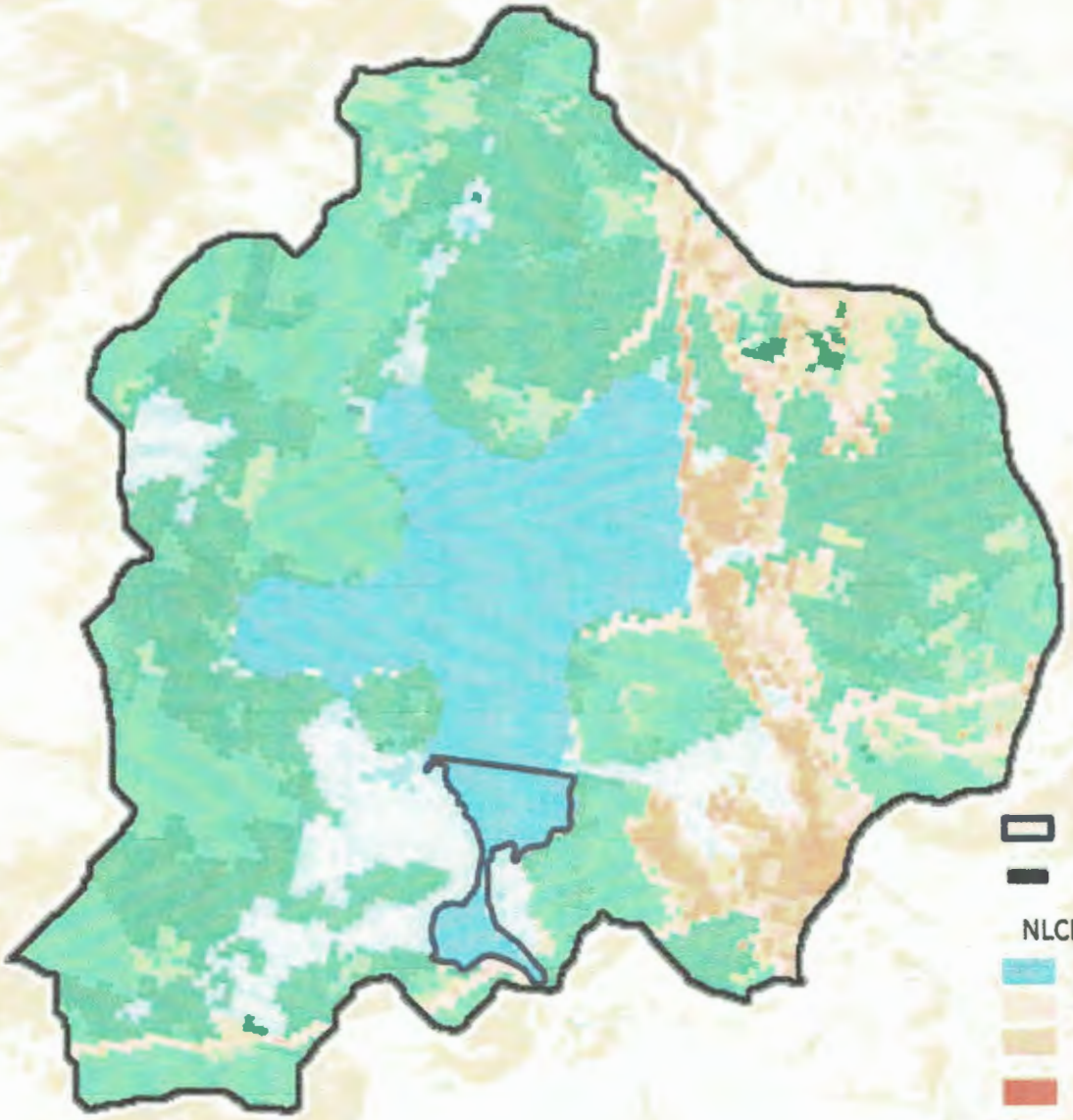
LCA Foundation Board Election:
The foundation allows us to accept tax deductible donations from contributors. Returning members; Ann Greene, Aaron Kramer, Carrie Moore and Debbie Neill. Motion to elect board made by Mark and seconded by Lee. Vote was passed. The Board members are Ann Greene, Aaron Kramer, Debbie Neill and Carrie Moore.

Officer Election:
Nancy Keet is willing to remain as President. Debbie Neill is Secretary and also Treasurer. Motion to elect officers was made by Lee and seconded by Jim. Vote was passed.

Finances:
Debbie reviewed the finances.
As of the end of July:
Checking stands at 18,841.26
Savings (Road Escrow) stands at 11,466.68
Foundation stands at 18,649.88


2022

LITTLE COLBY WATERSHED



Little Colby

Little Colby Watershed

NLCD Land Cover Class

- Open Water
- Developed, Open Space
- Developed, Low Intensity
- Developed, Medium Intensity
- Developed, High Intensit
- Barren Land
- Deciduous Forest
- Evergreen Forest
- Mixed Forest
- Shrub/Scrub
- Herbaceous
- Hay/Pasture
- Woody Wetlands
- Emergent Herbaceous Wetlands

0 0.25 0.5 1 Kilomete

PAUL SMITH'S COLLEGE
ADIRONDACK WATERSHED INSTITUTE

Little Colby Pond

Trophic State	Acidity	Acid Neutralizing Capacity	Road Salt Influence
Eutrophic	Circumneutral	High	High

Water quality values for Little Colby Pond during the 2023 sampling season. BDL = below detection limit.

Water Quality Indicator	7/22/2023	8/12/2023	9/1/2023	Average
Laboratory pH	7.6	7.0	6.8	7.1
Sp. Conductance (µS/cm @ 25°C)	192.8	195.0	229.0	205.6
Apparent Color (mg/L Pt-Co)	85.8	114.7	69.7	90.0
CDOM (µg/L)	259.7	289.1	197.7	248.8
Chlorophyll-a (µg/L)	9.1	16.9	4.3	10.1
Transparency (m)	2.2	1.5	1.5	1.7
Alkalinity (mg/L as $CaCO_3$)	26.8	25.4	29.4	27.2
Chloride (mg/L)	39.8	40.7	48.4	43.0
Sulfate (mg/L as SO_4)	3.3	3.3	3.9	3.5
Total Phosphorus (µg/L as P)	22.7	22.9	9.6	18.4
Nitrate-Nitrite (µg/L as N)	BDL	BDL	BDL	BDL
Ammonia (µg/L as NH_3-N)	32.2	39.1	BDL	27.1
Total Nitrogen (µg/L)	525.5	495.7	443.1	488.1
Dissolved Organic Carbon (mg/L)	9.7	11.8	7.9	9.8
Calcium (mg/L)	11.7	11.5	13.2	12.2
Sodium (mg/L)	22.2	22.1	29.0	24.4

Minutes of the Lake Colby Association 8/16/24

27th anniversary of the Lake Colby Association.
Meeting began at 10:03am in the Keet's shorehouse. Loons were calling.

Attending:
Lauren Epstein, Little Colby Pond
Mark Epstein, Little Colby Pond
Ann Greene, Board Member, tried to connect via Zoom, unsuccessfully
Lee Keet
Nancy Keet, President
Carrie Moore, Little Colby Pond
Debbie Neill, Board Member, Secretary & Treasurer
Tracey Schrader, Harrietstown Town Deputy Supervisor & Councilwoman
Matt Scollin, Adirondack Health & Village of SL Trustee
Connor Vara, with PSC Adirondack Watershed Institute
Brendan Wiltse, Senior Research Scientist, PSC Adirondack Watershed Institute

Nancy welcomed and thanked all for attending our meeting.

Minutes from 2023 were looked over. Input for changes and corrections were sought. Two corrections were noted: TY to Mark & "Lauren" Epstein for collecting ALAP water samples from Little Colby Pond. Matt Scollin noted that he was not present at last year's meeting. All were in favor of accepting the minutes.

Elections:
Necessary as a 501c3, we elect a Foundation board and 501c4, we elect officers.

LCA Foundation Board Election:
The foundation allows us to accept tax deductible donations from contributors.
Returning members; Ann Greene, Aaron Kramer, Carrie Moore and Debbie Neill. Motion to elect board made by Mark and seconded by Lee. Vote was passed. The Board members are Ann Greene, Aaron Kramer, Debbie Neill and Carrie Moore.

Officer Election:
Nancy Keet is willing to remain as President. Debbie Neill is Secretary and also Treasurer. Motion to elect officers was made by Lee and seconded by Jim. Vote was passed.

Finances:
Debbie reviewed the finances.
As of the end of July:
Checking stands at 18,841.26
Savings (Road Escrow) stands at 11,466.68
Foundation stands at 18,649.88

Water Quality:
Nancy congratulated Brendan Wiltsie on his new role as the Executive Director of the Paul Smith's College Adirondack Watershed Institute. He stated that there are 80 lakes in the Adirondack Lake Assessment Program, ALAP this year. This is Lake Colby's 22nd year and Little Colby Pond's 3rd year. He handed out a colorful map of the Lake Colby and Little Colby Pond Watersheds, which nicely maps out the land cover. He also shared water quality assessment results and values of both lakes, in very well laid out charts.
Copies are available if you are interested. Brendan shared that Lake Colby continues to have a very high concentration of salt. A major problem of high salt concentration is increasing Calcium concentration, CA is now higher and is high enough to support Zebra Mussels; ongoing salinization would allow habitat to support ZM. He is concerned that this could happen, and we need to keep this in check.

Brendan continued that it is very important to keep the natural reeds and growth on both sides of the highway for natural filtration. The hospital has a filtering system in their parking lot that is working well. We need to know the total amount of salt being used. The beds are being saturated since the chloride & sodium binds to the soil, which allows for the extra to move out into the lake. Chloride is not good for actuator health and very corrosive on pipes & plumbing. There are an estimated 55,000 people on wells of which 12,000 get leaching. EPA recommends that tap water have no more than 60mg/L of sodium. Ed Franz is the DOT spokesperson and Phil Stetson is working to monitor town trucks as to how much salt is being used. Lee has been monitoring the lake level which has been very high this year.

Brendan also noted that Lake Colby has experienced elevated chloride levels well above the recommended baseline, raising the need for investigation and mitigation. There is a Lake Champlain Basin Program, LCBP Action Plan in the works of which our Lake Colby watershed with its high concentration, he hopes, would be a viable qualifier for this action plan. After a more intensive round of sampling in many different areas within the Watershed last year, there were some interesting findings. The natural background level for chloride in northeastern lakes is typically around 40mg/L which typically supports a balanced aquatic ecosystem. Recent measurements show that Lake Colby's chloride concentration is 100mg/L, more than double the normal level. This elevation places stress on aquatic organisms and signals contamination likely due to human activity.

<u>Possible sources could be:</u>
**The inlet from Mt Pisgah culvert: This inlet, which drains runoff from the Mt Pisgah area, has measured chloride concentrations ranging from 80mg/L to 175mg/, suggesting significant salt-laden runoff likely from winter road and walkway salting.
**The stream from the town garage: A secondary stream flowing from the vicinity of the town garage shows a chloride level of 120mg/L, indicating that municipal operations such as salt storage or vehicle washing may be contributing to runoff contamination.

Possible solutions: Green infrastructure for stormwater runoff to reduce chloride inputs into Lake Colby, this implementation is promising. Strategies would include:
-construction of wetlands and vegetative swales to naturally filter stormwater before it enters the lake,
-permeable pavements and rain gardens to reduce direct runoff,
-continued salt management best practices for nearby road and municipal facilities, including covered salt storage and calibration of spreading equipment.
Climate change is compounding chloride contamination in several ways:
-warmer winters with more freeze-thaw cycles increase the frequency of road salting,
-increased intensity of rainfall leads to more surface runoff carrying chlorides into lake,
-earlier snowmelt and altered hydrology can reduce the lake's ability to naturally dilute and flush out contaminates.
A strategic response involving green infrastructure and climate-aware policies is essential to protect the lake's ecological integrity and ensure safe recreational use for future generations. Many thanks to Brendan.

Eurasian Water Milfoil:
Brendan also shared that with some luck we might have a lake steward positioned at the state boat launch for a couple of days this year. Debbie continues to stock our information pamphlets at the boat launch and emptying the fishing line container.

In July 2022, Solitude Water Management, did a mapping of Lake Colby's EWM growth. We hired them again to do a comparison report showing the changes in EWM infestation. We received that report but without the site-by-site comparison report. Nancy is trying to contact them to get that data.

Anecdotal observations and corroboration from Adirondack Research who independently monitor EWM on our lake, suggest modest growth in the past year, if any. This is reportedly consistent with other Adirondack lakes, with reasons for the die-back or slower growth unkown. The lack of apparent recent growth deferred the discussion of the use of ProcellaCOR, despite its now frequent permitting in other lakes and positive results with no negative impacts.

Thank you to Nancy and Lee for kindly hosting our meeting.
Nancy thanked everyone for attending,
Meeting adjourned at 11:35am.

Submitted by Debbie Neill

2024 ALAP Report

Lake Colby

Trophic State	Acidity	Acid Neutralizing Capacity	Road Salt Influence
Oligotrophic	Alkaline	High	High

Water quality values for Lake Colby during the 2024 sampling season. BDL = below detection limit.

Water Quality Indicator	6/20/2024	8/14/2024	9/12/2024	Average
Laboratory pH	7.0	6.7	6.8	6.8
Sp. Conductance (µS/cm @ 25°C)	264.0	252.0	258.0	258.0
Apparent Color (mg/L Pt-Co)	35.8	43.0	28.7	35.8
CDOM (µg/L)	108.5	121.9	217.9	149.4
Chlorophyll-a (µg/L)	1.6	2.4	2.8	2.3
Transparency (m)	2.9	3.4	3.8	3.4
Alkalinity (mg/L as $CaCO_3$)	33.3	38.8	35.7	35.9
Chloride (mg/L)	55.4	51.1	49.0	51.8
Sulfate (mg/L as SO_4)	4.9	4.5	4.5	4.6
Total Phosphorus (µg/L as P)	7.8	8.3	9.4	8.5
Nitrate-Nitrite (µg/L as N)	BDL	BDL	BDL	BDL
Ammonia (µg/L as NH_3-N)	BDL	BDL	BDL	BDL
Total Nitrogen (µg/L)	310.9	312.0	301.7	308.2
Dissolved Organic Carbon (mg/L)	5.1	5.6	5.6	5.4
Calcium (mg/L)	14.6	14.8	14.8	14.7
Sodium (mg/L)	31.3	28.8	30.3	30.1

Search

Lake Colby

- Open Water
- Developed, Open Space
- Developed, Low Intensity
- Developed, Medium Intensity
- Developed, High Intensity
- Barren Land
- Deciduous Forest
- Evergreen Forest
- Mixed Forest
- Dwarf Scrub
- Grassland/Herbaceous
- Pasture/Hay
- Woody Wetlands
- Emergent Herbaceous Wetlands

Summary

Trophic Status (Chl-a):	Mesotrophic
Trophic Status (TP):	Mesotrophic
Trophic Status (Secchi):	Mesotrophic
Acidity:	Alkaline: non-impacted
Acid Neutralizing Capacity:	High
Road Salt Influence:	High

Notes: None.

Location

Latitude:	44.3418
Longitude:	-74.1538
County:	Franklin
Town:	Harrietstown
Watershed:	Saranac Lakes-Saranac River

Lake Characteristics

Surface Area (ha):	125.6
Shoreline Length (km):	6.8
Max Depth (m):	14.3
Mean Depth (m):	7.2
Volume (m^3):	7,873,631
Flushing Rate (times/year):	0.7

Watershed Characteristics

Watershed Area (ha):	921.3
Open Water (%):	16.84
Developed, Open Space (%):	5.27
Developed, Low Intensity (%):	4.55
Developed, Medium Intensity (%):	3.88
Developed, High Intensity (%):	0.95
Barren Land (%):	0.12
Deciduous Forest (%):	23.50
Evergreen Forest (%):	34.24
Mixed Forest (%):	4.53
Dwarf Shrub (%):	0.48
Grassland/Herbaceous (%):	0.71
Pasture/Hay (%):	0.02
Cultivated Crops (%):	0.00
Woody Wetlands (%):	4.82
Emergent Herbaceous Wetlands (%):	0.07

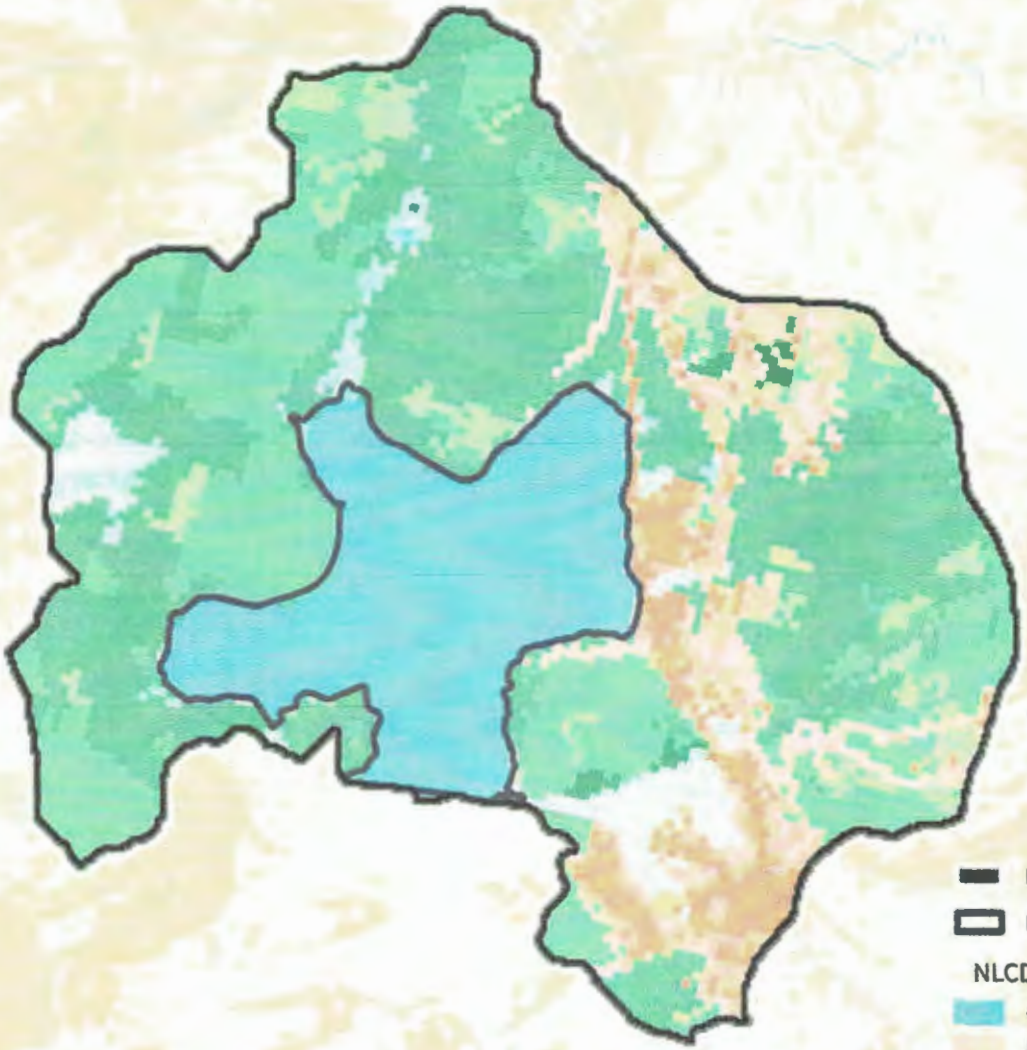
Aquatic Invasive Species Detections

Eurasian watermilfoil:	1999

Harmful Algal Bloom Reports

2022

Lake Colby Watershed



Lake Colby Watershed

Lake Colby

NLCD Land Cover Class

- Open Water
- Developed, Open Space
- Developed, Low Intensity
- Developed, Medium Intensity
- Developed, High Intensity
- Barren Land
- Deciduous Forest
- Evergreen Forest
- Mixed Forest
- Shrub/Scrub
- Herbaceous
- Hay/Pasture
- Woody Wetlands
- Emergent Herbaceous Wetlands

0 0.25 0.5 1 Kilomete

Paul Smith's College
Adirondack Watershed Institute

Results & Analysis

Macrophyte Abundance

A total of 138 sites were surveyed on July 27, 2021 (Appendix B), where 25 aquatic macrophytes (including filamentous algae) were identified during the survey (Table 1). Raw data and distribution maps can be found in Appendices A and B, respectively.

Aquatic Macrophyte	Total		Trace		Sparse		Medium		Dense	
	Sites	%	Sites	%	Sites	%	Sites	%	Sites	%
Total Sites	138									
Percent Cover SAV	113	82%	24	21%	36	32%	24	21%	31	27%
Percent Cover FLT	40	29%	36	90%	4	10%	0	0%	0	0%
Eurasian Watermilfoil	86	62%	45	52%	26	30%	12	14%	3	3%
Common Waterweed	76	55%	40	53%	34	45%	2	3%	0	0%
Water Stargrass	72	52%	27	38%	37	51%	8	11%	0	0%
Tape-grass	69	50%	30	43%	32	46%	7	10%	0	0%
Clasping-Leaf Pondweed	51	37%	36	71%	13	25%	2	4%	0	0%
White-stemmed Pondweed	42	30%	13	31%	15	36%	13	31%	1	2%
Slender Naiad	37	27%	23	62%	14	38%	0	0%	0	0%
Water Marigold	36	26%	29	81%	7	19%	0	0%	0	0%
White Waterlily	33	24%	23	70%	9	27%	1	3%	0	0%
Thin-leaf Pondweed	29	21%	18	62%	8	28%	3	10%	0	0%
Southern Naiad	29	21%	9	31%	16	55%	1	3%	3	10%
Macro-algae	28	20%	12	43%	12	43%	4	14%	0	0%
Spiral-seed Pondweed	27	20%	16	59%	11	41%	0	0%	0	0%
Robbin's Pondweed	26	19%	15	58%	10	38%	1	4%	0	0%
Variable-leaf Pondweed	23	17%	8	35%	10	43%	5	22%	0	0%
Watershield	22	16%	13	59%	8	36%	1	5%	0	0%
Pickerelweed	11	8%	9	82%	1	9%	1	9%	0	0%
Big-leaf Pondweed	10	7%	6	60%	3	30%	1	10%	0	0%
Leafy Pondweed	8	6%	7	88%	1	13%	0	0%	0	0%
Yellow Waterlily	8	6%	8	100%	0	0%	0	0%	0	0%
Spikerush	8	6%	3	38%	5	63%	0	0%	0	0%
Burreed	3	2%	0	0%	2	67%	1	33%	0	0%
Common Bladderwort	2	1%	2	100%	0	0%	0	0%	0	0%
Water Lobelia	1	1%	1	100%	0	0%	0	0%	0	0%
Arrowhead	1	1%	1	100%	0	0%	0	0%	0	0%

Red indicates an invasive species

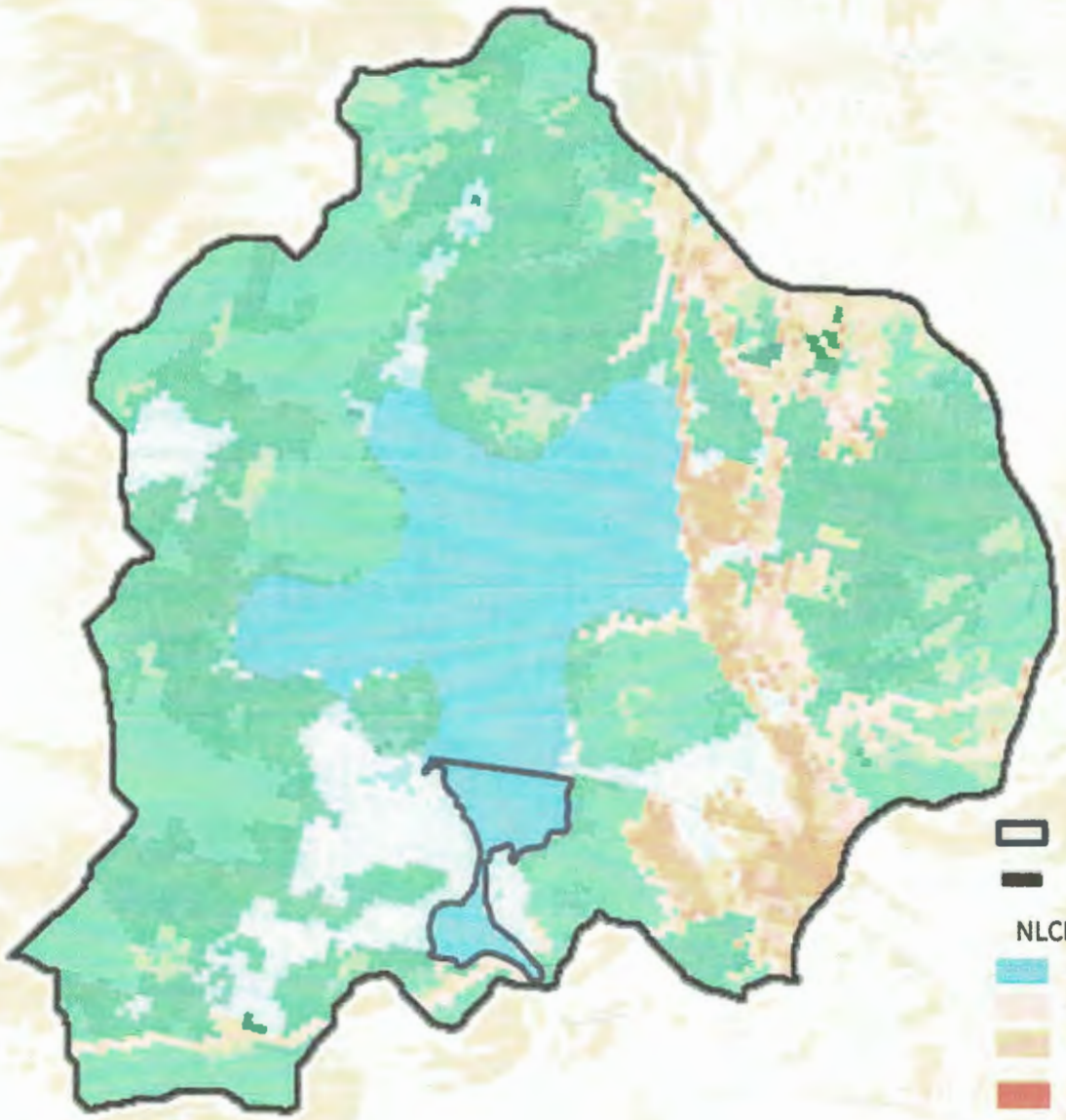
Lake Colby

Trophic State	Acidity	Acid Neutralizing Capacity	Road Salt Influence
Oligotrophic	Alkaline	High	High

Water quality values for Lake Colby during the 2023 sampling season. BDL = below detection limit.

Water Quality Indicator	6/21/2023	7/20/2023	8/14/2023	Average
Laboratory pH	7.4	8.1	7.5	7.6
Sp. Conductance (µS/cm @ 25°C)	273.0	277.0	264.0	271.3
Apparent Color (mg/L Pt-Co)	27.9	27.9	31.1	28.9
CDOM (µg/L)	91.9	102.8	120.1	104.9
Chlorophyll-a (µg/L)	2.3	1.3	2.6	2.1
Transparency (m)	4.9	3.9	3.2	4.0
Alkalinity (mg/L as $CaCO_3$)	34.9	34.0	33.2	34.0
Chloride (mg/L)	61.9	59.5	56.9	59.4
Sulfate (mg/L as SO_4)	5.6	5.3	4.7	5.2
Total Phosphorus (µg/L as P)	9.3	6.9	10.3	8.8
Nitrate-Nitrite (µg/L as N)	BDL	BDL	BDL	BDL
Ammonia (µg/L as NH_3-N)	BDL	24.5	BDL	14.8
Total Nitrogen (µg/L)	238.2	376.9	355.9	323.7
Dissolved Organic Carbon (mg/L)	5.2	5.2	5.3	5.2
Calcium (mg/L)	15.8	15.4	14.8	15.3
Sodium (mg/L)	33.4	32.2	32.4	32.7

LITTLE COLBY WATERSHED



Little Colby

Little Colby Watershed

NLCD Land Cover Class

- Open Water
- Developed, Open Space
- Developed, Low Intensity
- Developed, Medium Intensity
- Developed, High Intensit
- Barren Land
- Deciduous Forest
- Evergreen Forest
- Mixed Forest
- Shrub/Scrub
- Herbaceous
- Hay/Pasture
- Woody Wetlands
- Emergent Herbaceous Wetlands

0 0.25 0.5 1 Kilometer

PAUL SMITH'S COLLEGE
ADIRONDACK WATERSHED INSTITUTE

Little Colby Pond

Trophic State	Acidity	Acid Neutralizing Capacity	Road Salt Influence
Eutrophic	Circumneutral	High	High

Water quality values for Little Colby Pond during the 2023 sampling season. BDL = below detection limit.

Water Quality Indicator	7/22/2023	8/12/2023	9/1/2023	Average
Laboratory pH	7.6	7.0	6.8	7.1
Sp. Conductance (µS/cm @ 25°C)	192.8	195.0	229.0	205.6
Apparent Color (mg/L Pt-Co)	85.8	114.7	69.7	90.0
CDOM (µg/L)	259.7	289.1	197.7	248.8
Chlorophyll-a (µg/L)	9.1	16.9	4.3	10.1
Transparency (m)	2.2	1.5	1.5	1.7
Alkalinity (mg/L as $CaCO_3$)	26.8	25.4	29.4	27.2
Chloride (mg/L)	39.8	40.7	48.4	43.0
Sulfate (mg/L as SO_4)	3.3	3.3	3.9	3.5
Total Phosphorus (µg/L as P)	22.7	22.9	9.6	18.4
Nitrate-Nitrite (µg/L as N)	BDL	BDL	BDL	BDL
Ammonia (µg/L as NH_3-N)	32.2	39.1	BDL	27.1
Total Nitrogen (µg/L)	525.5	495.7	443.1	488.1
Dissolved Organic Carbon (mg/L)	9.7	11.8	7.9	9.8
Calcium (mg/L)	11.7	11.5	13.2	12.2
Sodium (mg/L)	22.2	22.1	29.0	24.4