



Conesus Lake Watershed Council

2023

ANNUAL REPORT

INTRODUCTION

About the Conesus Lake Watershed Council



The Conesus Lake Watershed Council (CLWC) is an intermunicipal organization formed in 2003 to guide implementation of the recommendations of the Conesus Lake Watershed Management Plan. Members of the Council, shown in the chart below, include elected officials from municipalities with lands within the watershed, representatives of public water purveyors, and partners engaged in efforts to protect the lands and waters for generations to come. The CLWC provides an important forum for collaboration among the stakeholders and community education on progress and emerging issues. Livingston County has two standing programs focused on Conesus Lake and its watershed, the Watershed Management Program and Watershed Inspection Program. The CLWC oversees these two programs and approves annual workplans and priorities.



Photo: Fall aerial view of Conesus Lake.

©LCDOH



Family fishing for bluegill, pumpkin seed and bass at the Conesus Lake Outlet, Vitale Park.

©LCDOH

Purpose of this Document

Recommendation H-2 in the Conesus Lake Watershed Management Plan (2003) is to prepare an annual update summarizing the status of activities in the watershed, particularly the ongoing efforts to reduce nonpoint source pollution. The Annual Report Card provides a framework for tracking water quality conditions in Conesus Lake and highlighting implementation projects and new emerging issues.

On the Cover: Photos provided by Clark Patterson Lee; Livingston County Department of Health, Planning Department, Soil & Water Conservation District; NYS Department of Environmental Conservation; and SUNY College of Environmental Science & Forestry.

Acronyms:

Citizens Statewide Lake Assessment Program (CSLAP), Conesus Lake Association (CLA), Cornell Cooperative Extension-Livingston County (CCE), Finger Lakes Institute (FLI), Finger Lakes Partnership for Regional Invasive Species Management (FLPRISM), Harmful Algal Blooms (HABs), Livingston County Department of Health (LCDOH), Livingston County Planning Department (LCPD), Livingston County Soil & Water District (LCSWCD), Livingston County Water & Sewer Authority (LCWSA), Natural Resources Conservation Service (NRCS), NYS Department of Environmental Conservation (NYSDEC), SUNY Environmental Science & Forestry (SUNY-ESF), United States Department of Agriculture (USDA), Water Quality Improvement Grant (WQIP).

SUMMARY OF MAJOR ACCOMPLISHMENTS

Highlights from 2023



Monitoring and Assessment

- SUNY Geneseo & SUNY Brockport Lake and Tributary Monitoring Program continued
- 3 CLA CLSAP volunteers active on the lake
- Conesus Lake Inlet Streamgage project initiated by the CLA and SUNY Brockport

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Invasive Species

- 2 Watercraft Stewards provided 584 hours of coverage at the State boat launch
- Invasive Species Paddle trained 7 volunteers in detection
- 48% decrease in Mile-a-Minute at the Geneseo site from 2022
- 6 Spotted Lanternfly traps deployed in the watershed; 0 detections
- NYSDEC stocking of walleye & tiger muskellunge completed
- 3 Macrophyte survey team members on the lake

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Stormwater Management and Special Projects

- Conesus Lake Watershed Management Plan Update initiated
- Natural Shoreline Restoration Project (WQIP) completed

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Watershed Inspection Program

- LCDOH inspected 15 complaints in the lake/watershed
- Inspected 11 repaired septic systems
- Permitted 5 new septic systems

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Education

- 15 Watershed Education Center programs reached 392 attendees
- Additional technology added to enhance the virtual experience at the WEC

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Harmful Algal Blooms

- LCDOH HABs monitoring continued
- Over 100 CLA HABs spotters on the lake
- Old Outlet Reconfiguration project (WQIP) completed

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Agricultural Best Management Practices

- 2 LCSWCD Ag BMP projects installed 2,970 ft of underground outlet
- and 25,000 ft of sub-surface pattern drainage

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For more information or to become involved in the Conesus Lake Watershed Management Plan Update, please go to:





“To gaze upon Conesus and to watch the waves at play, Is there anything more wonderous than the glorious break of day? The sky now turns to azure, with a fleeting cloud or two who’s white stands out in contrast as it mounts into the blue.”

~ A. Krause

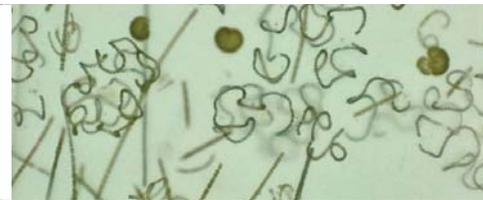
Livingston County // ©Conesus Lake Association

Photo: Starry Stonewort (SSW) Hunt conducted in July during the Invasive Species Paddle. Paddle was sponsored by the Watershed Education Center and led by Lexie Davis, Yates County Cornell Cooperative Extension.

Above quote by A Krause, Sept. 10, 1924. As seen in *Diamonds are Dancing, A History of Conesus Lake*, published by the Conesus Lake Association, 1976.

See page 5 to learn more about Invasive Species actions.

MONITORING AND ASSESSMENT



The Conesus Lake Watershed Council oversees actions designed to protect and restore Conesus Lake and the watershed. A primary goal of the CLWC and its partners is to inform science-based lake and watershed management decisions. The SUNY Geneseo Lake and SUNY Brockport Tributary Monitoring Programs are essential to that process. Below is a summary of monitoring and assessment that occurred in 2023. Detailed reports are available at the QR codes below.

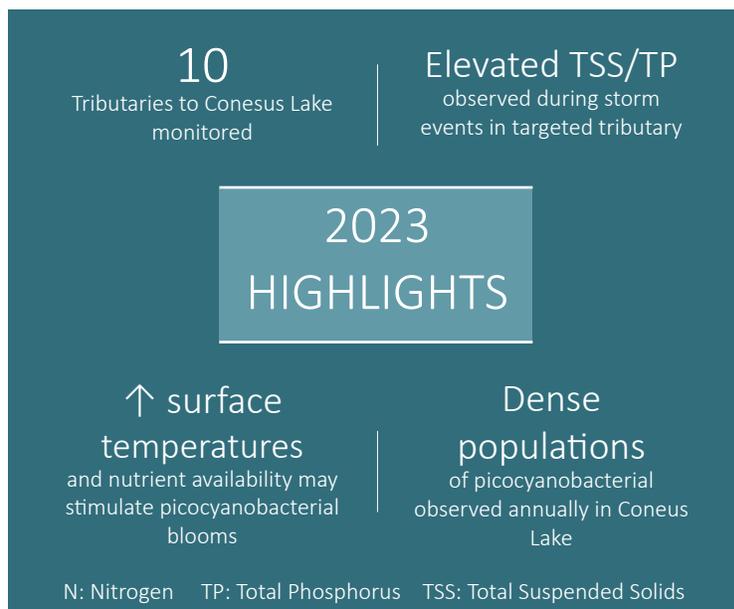
Photos: **Left**-SUNY Geneseo students returning from fall sampling trip. **Center**-Single cell picocyanobacteria images under special fluorescence microscope. **Right**-Filamentous cyanobacteria from October bloom.

©SUNY Geneseo

Lake Monitoring



Over the past four decades, monitoring activities in Conesus Lake have documented significant ecosystem-level changes. This includes the introduction and establishment of alewife and zebra mussels and the occurrence of harmful algal blooms (HABs). While prominent filamentous and colonial cyanobacterial taxa are most often associated with HABs in lake ecosystems, dense populations of smaller, non-filamentous picocyanobacteria (“pico”) have also been observed in the lake each year. A persistent pico bloom was again observed in summer 2023, which was associated with a calcium carbonate precipitation (whiting) event. Increasing pico abundance and the concomitant whiting event were also strongly associated with decreased availability of soluble reactive P and reduced abundance of filamentous and colonial taxa often associated with HABs. Research concludes that while increasing temperatures and nutrient availability may stimulate pico blooms in the Lake, drivers of these events, and particularly, causes for their decline, remain unknown.



Storm event runoff at Site 5574E showing highly sediment laden water

©SUNY Brockport

Trophic State and CSLAP



Conesus Lake continued to participate in the CSLAP program, which is designed to provide comparable water quality monitoring data for lakes across NYS. 2023 CSLAP data indicates that Conesus Lake continues to be classified as mesotrophic (moderate levels of productivity) with total phosphorus, water clarity, and chlorophyll-A within normal ranges for this lake.

Tributary Monitoring



The SUNY Brockport team assessed nutrient and sediment concentrations in samples from 10 Conesus Lake tributaries. These tributaries include some that have been monitored long term by USDA to assess the effects of agricultural BMPs, some that drain previously unassessed watersheds, and some reference streams. Summer and fall 2023 were particularly dry, resulting in many tributaries drying up, especially during October/November baseflow sampling. A previously unassessed tributary had the greatest TSS and TP concentrations during storm events as a result of high levels of erosion of exposed soils (photo). Another unassessed tributary had the second highest N concentrations during baseflow. While N. McMillan Creek has served as a relatively pristine reference watershed, the team continued to observe elevated TSS and TP during storm events as a result of streambank erosion and possibly due to changes in land use. S. McMillan Creek may now be a better reference stream as it had the lowest orthophosphate and nitrate + nitrite concentrations during baseflow.

INVASIVE SPECIES



Invasive species management is an important part of watershed management. Our partners work together to detect, eradicate and/or manage invasive species in Conesus Lake and the watershed. Efforts are guided in part by the CLWC Invasive Species Prevention and Response Plan (2013); an update to the Plan was initiated in 2023.

Education and Monitoring

Mile-a-Minute (MAM) 8 site visits 216 MAM individuals pulled 9 staff & volunteers	2023 HIGHLIGHTS	Spotted Lanternfly (SLF) 6 SLF traps deployed in the Watershed 0 detections
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INVASIVES SPOTLIGHT

CONFIRMED IN CONESUS LAKE/WATERSHED



MILE-A-MINUTE VINE
(Persicaria perfoliata)



RUDD
(Scardinius erythrophthalmus)



STARRY STONEWORT
(Nitellopsis obtusa)



SPOTTED LANTERNFLY
(Lycorma delicatula)



WATCH LIST FOR CONESUS LAKE



HYDRILLA
(Hydrilla verticillata)



SPINY WATERFLEA
(Bythotrephes cederstroemi)



Visit www.fingerlakesinvasives.org to read more.

Photo: **Left**-Conesus Lake Invasive Species Paddle with Lexis Davis. **Center**-Starry Stonewort found in Conesus Lake. **Right**-Watercraft Steward, Sara Close at the Conesus Lake State Boat Launch.

©SUNY ESF

How can you help reduce the spread of terrestrial invaders?

Practice Play-Clean-Go, clean hiking gear, use boot brush stations, don't move firewood, plant native species.



©SUNY Brockport

SUNY Brockport, NYSDEC & FL-PRISM pulling MAM at the Geneseo site.

How can you help reduce the spread of aquatic invaders?

Practice Clean-Drain-Dry. Dispose of bait buckets and debris in trash cans or disposal stations. Do not dump aquarium contents in water bodies or ditches. Only use bait from dealers selling certified disease-free bait, and DO NOT use Rudd.



STOP AQUATIC HITCHHIKERS!
Be A Good Steward. Clean. Drain. Dry.
StopAquaticHitchhikers.org



Learn More About Aquatic Hitchhikers and Clean Drain & Dry: Scan the code with your phone's camera.



Watercraft Steward Program

The primary pathway by which many aquatic invasive species reach inland waterways is by “hitchhiking” on recreational boats, trailers, fishing gear, or in the live wells of fishing boats. Our watercraft stewards educate on the risks of spreading invasive species by boating and assist boaters in performing inspections and boat decontaminations.

To read more visit www.esf.edu/biology or scan the QR code.



2023 HIGHLIGHTS

675
Invasive species
specimens intercepted*

10,734
People engaged

3,895
Boats Inspected

1,338
Boats with
organisms
attached

4
Decontaminations
completed

All specimens intercepted were invasive species already present in Conesus Lake.

To view the Conesus Lake Watercraft Steward Program Data, please go to www.esf.edu/biology or scan the QR code.



Photo: Conesus Lake Watercraft Steward, Emily Rando, using the decontamination equipment at the Conesus Lake State Boat Launch.

©SUNY ESF

Partnerships Protect Water Quality

Fish Stocking & Sampling Programs

NYSDEC has stocked young walleye in the lake to increase the walleye population that was decimated by the introduction of the invasive alewife. In turn, the walleye prey upon the alewives.

View DEC Fish Stocking Here.



©NYSDEC

NYSDEC preparing to release tiger muskellunge fingerlings into Conesus Lake.

2023 DEC FISH STOCKING

65,000 Walleye
3,500 Tiger Muskellunge



©NYSDEC

NYSDEC conducting fish sampling on Conesus Lake.

WATERSHED INSPECTION PROGRAM



The Watershed Inspection Program is responsible for monitoring water quality and environmental conditions across the lake and watershed. In addition to responding to complaints and emergencies such as flooding and sewage overflows, the Watershed Inspector conducts routine surveillance of construction activities and monitors bathing beaches for compliance with public health standards, including harmful algal blooms.

<p>15 Complaints</p> <p>1 Violations</p> <p>5 New Septic Systems</p> <p>11 Repaired Septic Systems</p>	<div style="border: 1px solid white; padding: 10px; background-color: #2c7e8c; color: white;"> <h2 style="margin: 0;">2023 Inspection Activities</h2> </div>	<p>1 Sewage Overflow</p> <p>40 Beach Closure Days</p> <p>1 Educational Event, Outside of WEC Programs</p>
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Drinking Water and Bathing Beach Monitoring

In 2023, both LCDOH monitored beaches (Conesus RV Park Beach and Camp Stella Maris) were in full compliance with bacterial standards.

SPECIAL PROJECTS



Conesus Lake Streamgage Project

SUNY Brockport and CLA are collaborating on a 2-year research and monitoring project to install a streamgage in the inlet, with CLAWS funding.



North McMillan Creek Streambank Remediation Project

Town of Conesus investigated funding for streambank engineering services, with support from LCPD.



Livingston County Road Ditch Remediation Grant

Contract with the DEC is in process for road ditch projects in the Towns of Conesus, Geneseo and Sparta.



Natural Shoreline Restoration Project

Town of Livonia completed this project that restored approx. 320 ft of the eastern shoreline of Vitale Park, which now functions as a demonstration site.



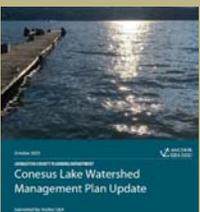
Old Outlet Reconfiguration Project

Town of Livonia completed this project that improves water circulation and lowers the risk of HABs in the Old Outlet.



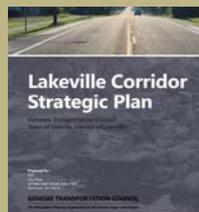
Long Point Stormwater Management Pond Grant

Town of Geneseo submitted a NYSDEC WQIP grant application, with support from the LCPD.



Conesus Lake Watershed Management Plan Update

Update was initiated, consultant was selected.



Lakeville Corridor Strategic Plan

Route 20A in Lakeville was examined for connectivity, safety, resiliency, and function. Final plan anticipated in Spring 2024.

HARMFUL ALGAL BLOOMS



During the summer and fall, the Conesus Lake Watershed Inspector conducts routine surveillance for HABs and responds to reports of blooms from the Livingston County Sheriff's Patrol and citizens on the lake. For more information, or to report a HAB, contact the Department of Health at 585-243-7280 or email the Watershed Inspector at dmaryanski@health.ny.gov.

Photo: Center-LCDOH Watershed Inspector testing water sample for HABs. **Left & right**-Two HAB events in Conesus Lake public areas.

©LCDOH & LCPD

Harmful Algal Blooms Action Plan

The HABs response for Conesus Lake is guided by the NYSDEC Conesus Lake HABs Action Plan (2018) and the Conesus Lake Watershed Council Blue Green Algae Response Plan. The CLWC Response Plan is currently being updated.

KEY ACTIONS TO REDUCE P

To read the NYSDEC TMDL Report: Scan the QR code below.

- 2 Ag BMP projects installed in the watershed
- 2 Town WQIP grants completed
- 1 Town WQIP grant applied for



2023 BLOOM SEASON

Learn more about the Plan: Scan the QR code below.

- LCDOH HABs Surveillance 2-3/week
- 100+ CLA HABs spotters on the lake
- 30 Bathing beach water samples taken
- 5 Confirmed HABs Reported
- 4 Beach Closures



Total Maximum Daily Load

The 2019 Conesus Lake Phosphorus Total Maximum Daily Load (TMDL) outlines target reductions in phosphorus (P) loading needed to restore and protect the lake for its designated uses.

EDUCATION



The Watershed Education Center at Vitale Park, in the Town of Livonia, serves as an educational hub providing information about watershed protection and best management practices. A collaborative group of watershed partners, Town of Livonia, CLA, CCE, Chip Holt Nature Center, and Livingston County Planning Department and DOH, worked to deliver a year-round educational program, featuring scientists and professionals with local, regional, and state perspectives.



2023 HIGHLIGHTS

- 15 Watershed Education Center programs held
- 392 attendees reached
- Special 3-part stormwater mgmt. series for landowners
- Audio visual equipment installed, funded by the CLA

Sampling of the many WEC programs offered on topics ranging from Ag BMPs to wildlife, invasive species and microplastics, free of charge to participants. A total of 81 WEC programs have been offered to date.

To view the upcoming 2024 WEC Program schedule go to www.conesuslake.org/lake-community/wec/



AGRICULTURAL BEST MANAGEMENT PRACTICES



The Livingston County SWCD conducted an Upland Watershed Protection Program for agricultural land uses to reduce nonpoint sources of pollution from entering waterbodies throughout the Conesus Lake watershed.

Finger Lakes-Lake Ontario Watershed Alliance CLAWS funding was used by LCSWCD on two farms in the Town of Livonia to support priority stormwater management improvements.

Photo: Left-Cole Farm installation. **Right**-LCSWCD Ag BMP project on Coe Farm.

©All Photos: LCWSCD

Cole Farm BMP's

- Installed 24,000 ft of sub-surface pattern drainage, with a cost share of 50% with the landowner.
- Installed three large WASCoB's, which include 3,200 ft of terrace outlet diversion to promote longevity and function of structures.
- Cole Farm improvements located in the North End Subwatershed.



Installation of sub-surface drainage infrastructure for Cole Farm.



Coe Farm: Before



Coe Farm: After

Coe Farm BMPs

- 1,500 ft of underground outlet established to release runoff from a 400 ft long terrace outlet diversion (WASCoB) installed in the upper portion of cropland.
- 750 ft of underground outlet established to release runoff from a 600 ft long WASoB.
- 720 ft of underground outlet to release runoff via surface inlet from woodland wetland upslope to prevent spilling onto active cropland and causing gully erosion.
- Establishment of 3.5 acres of grass buffer area, edge of field and stream border to stabilize cover over three underground outlets.
- Installation of 1,000 ft of sub-surface drainage on upper side of WASCoB's.

EMERGING TRENDS AND ISSUES

Invasive forest pests including, but not limited to spotted lanternfly, hemlock wooly adelgid, emerald ash borer, and spongy moth affecting forest cover and riparian habitat.

Number of Confirmed HABs reports have fluctuated over the past few years in Conesus Lake with five blooms in 2021- 2023, one bloom in 2020, six blooms in 2019, and nine blooms in 2018.

Impact of aquatic invaders in Conesus Lake: rudd and starry stonewort. Risk of aquatic invaders coming to Conesus Lake: hydrilla, water chestnut, Asian clam, quagga mussel, spiny waterflea, and round goby.

Changes in weather patterns (National Climate Assessment): Increase in the frequency and duration of droughts leading to low water levels and intermittent streams. Less reliable snowpack and spring groundwater recharge.

More intense rain events and overall precipitation leading to increased high flow events and associated risk of damage to property and infrastructure as well as increased pollutant loads to the waterways.

Increase in sodium and chloride levels in treated water at both the Village of Avon and Village of Geneseo water treatment plants. Sodium levels exceed the recommended levels for consumption by individuals on severely restricted sodium diets.

RECOMMENDATIONS

- Update the Conesus Lake Watershed Management Plan.
- Assist municipalities with water resources planning and zoning updates, including green infrastructure regulations.
- For more information or to become involved, please go to: www.conesuslakewatershedplan.com



Continue to advocate for funding and technical support for implementing agricultural BMPs in priority areas. Pursue additional funding and support for water restoration and special projects within the watershed.

Conduct SUNY annual monitoring program and LCDOH water quality parameter monitoring program. Continue active participation in CSLAP, PRISM, Watercraft Steward Program, and others.

Continue to support the Watershed Inspection and Watershed Management programs. Encourage participation in the NYSDEC septic system replacement program, through the LCDOH.

Continue implementation of Governor's HABs Initiative and pursue funding to support the recommendations in the Conesus Lake HABs Action Plan. Revisit Invasive Species, Harmful Algal Blooms, and Fish Kill Response Plans.

Continue to support Public Education & Outreach initiatives, including WEC programming. Conduct further investigation into potential causes and solutions to help mitigate increases in sodium levels.

This annual report card was funded by the Finger Lakes - Lake Ontario Watershed Protection Alliance through an appropriation from the New York State Environmental Protection Fund.



Learn More:
Scan the code with your phone's camera to read Conesus Lake Annual Report Cards.

Conesus Lake Watershed Council

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livingstoncounty.us/conesus.htm



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