



Conesus Lake Annual Report Card



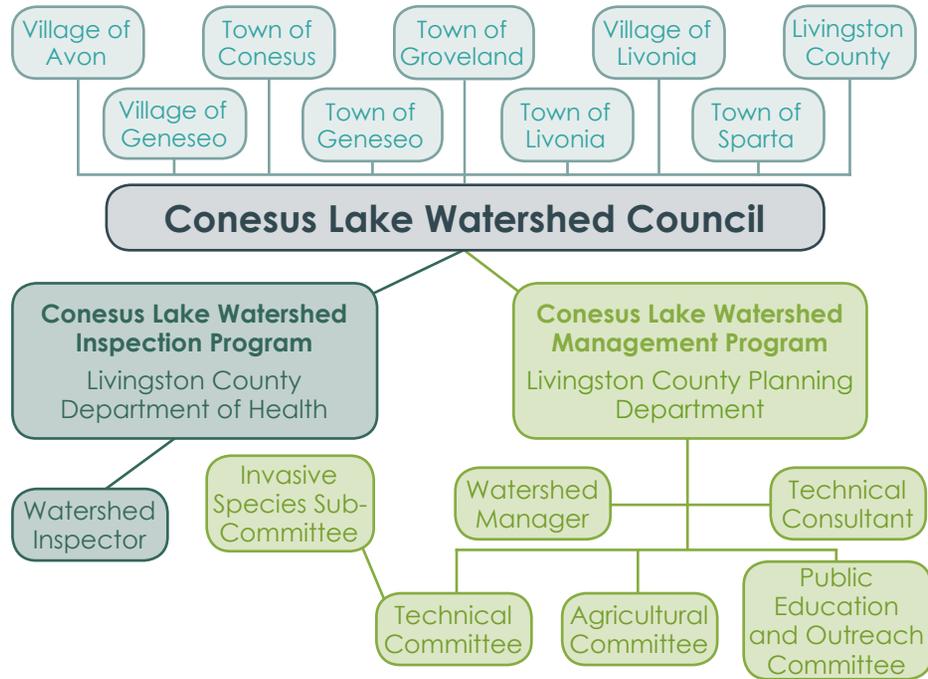
Conesus Lake Watershed Council

2021



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.

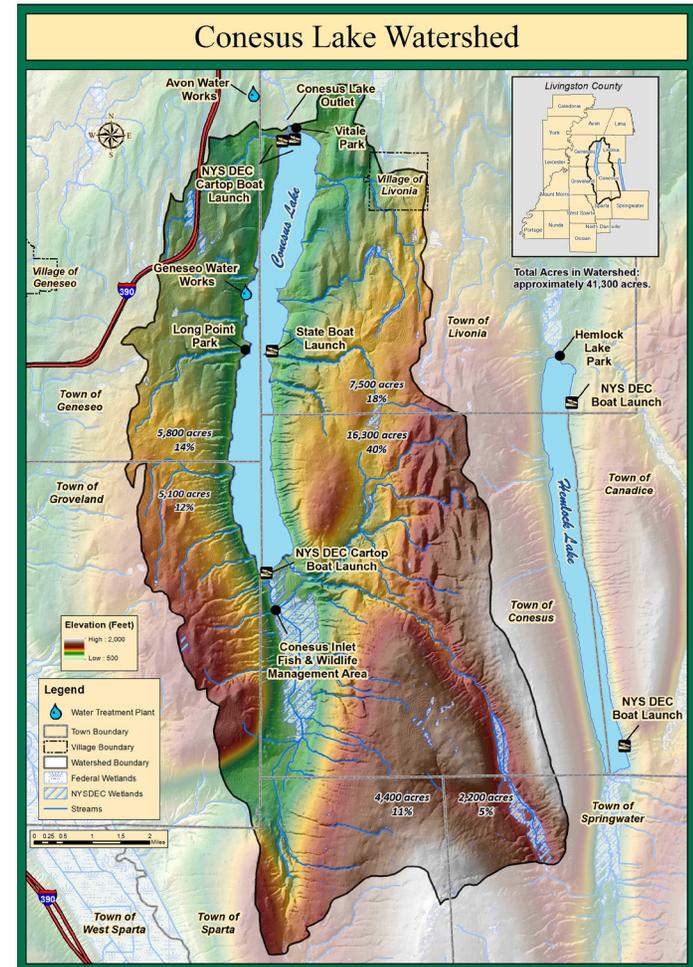


Conesus Lake Watershed Council governing structure

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.

Acronyms: Conesus Lake Association (CLA), Livingston County Soil & Water Conservation District (SWCD), Livingston County Water & Sewer Authority (WSA), Cornell Cooperative Extension-Livingston County (CCE), Finger Lakes Institute (FLI), Natural Resources Conservation Service (NRCS) and NYS Department of Environmental Conservation (DEC).



Summary of Major Accomplishments

The 2003 Conesus Lake Watershed Management Plan vested oversight of actions designed to protect and restore the lake and watershed with the intermunicipal CLWC. Funding, implementing, monitoring, and evaluating the success of these actions requires a sustained effort across multiple partnerships and a focus on deeply interconnected issues. Progress with implementing recommendations of the Conesus Lake Watershed Management Plan, the phosphorus TMDL, and the HABs Action Plan continued in 2021. The CLWC benefitted from the long-term collaboration with SUNY Geneseo and SUNY Brockport faculty and students on lake and watershed issues.

Completed a Safe Yield Analysis

A calculated Safe Yield for a water supply lake represents the volume of water that can be withdrawn during a drought while still meeting regulatory and operational constraints. A recommendation to assess the lake's potential as a sustainable public water supply was included in the 1991 Livingston County Comprehensive Water Supply Study and its 2020 Update, as well as the 2003 Conesus Lake Watershed Management Plan. The 2021 Safe Yield Analysis of Conesus Lake was prepared to inform future water supply management decisions affecting Livingston County communities. Livingston County Planning Department (LCPD) engaged Schnabel Engineering of NY to calculate the Safe Yield for Conesus Lake using long-term data sets and updated modeling tools.

Monitoring and Assessment

• Faculty and students from SUNY Geneseo and SUNY Brockport continued their ongoing collaboration with Conesus Lake and watershed issues. The 2021 in-lake program examined the zooplankton community structure and its potential impact on the lake's food web and water clarity conditions, in addition to tracking changes in abundance of Eurasian watermilfoil. The watershed team continued to monitor nonpoint source loading from the landscape and identify areas of potential concern.

• Conesus Lake Association (CLA) continued participating in CSLAP, the Citizens Statewide Lake Assessment Program. This statewide initiative is a joint program of NYSDEC and the NYS Federation of Lake Associations.

• Livingston County Department of Health (LCDOH) staff monitored beach areas for coliform bacteria; these organisms are used as indicators of the potential presence of pathogens in water. The LCDOH and trained CLA volunteers conducted shoreline surveillance for cyanobacteria (HABs) and reported their findings to the state's HABs reporting site.

• The CLA continued their efforts to deploy state-of-the-art instrumentation for water quality monitoring. This program provided data to our SUNY partners to support their lake monitoring and research program.



SUNY Brockport and Stonybrook University students collecting macroinvertebrates.



SUNY Brockport students collecting macroinvertebrate samples.

Invasive Species

- The invasive macrophyte starry stonewort was detected in Conesus Lake in 2021. The County Planning Department mobilized a rapid response using the framework of the Watershed Council's Invasive Species Prevention & Response Plan. Local and regional watershed partners and citizens collaborated on a coordinated program to identify the extent of the invasion. The Watershed Manager, with support from the iMapInvasives team and FLI, organized an extensive mapping effort to provide "live" survey locations and data collection, and assign volunteers to specific locations using an "Adopt-a-Grid" framework. Over 40 trained volunteers (primarily CLA members) identified 51 specific locations where starry stonewort was present, and 109 locations where it was not. The Watershed Council's Invasive Species Subcommittee will continue to assess the extent of the infestation and evaluate control methods in 2022.



Livingston County interactive online map for starry stonewort.



Starry stonewort volunteers training and adopting survey grids at the Watershed Education Center.

- The Watercraft Steward Program inspected 3,392 boats in Conesus Lake and intercepted 4 boats arriving from other lakes with contaminants. Stewards completed 868 fishing boat inspections (increase of 147% from 2020) and 51 boat decontaminations (increase of 638% from 2020).
- The Watershed Management Program successfully deployed a drone and an underwater camera as part of their surveillance efforts for invasive species and HABs.

- SUNY Brockport, with support from Finger Lakes PRISM and NYSDEC, coordinated mile-a-minute eradication/pulling activities. Continued reduction in plant numbers reported.

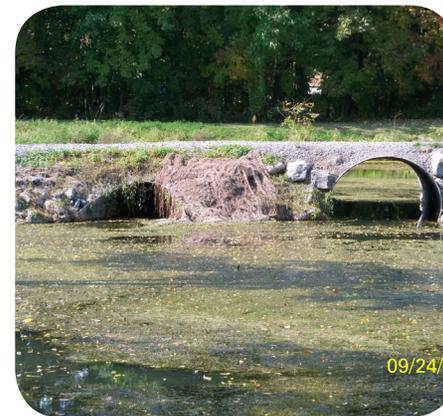
Watershed Inspection Program

- The Watershed Inspector responded to 24 complaints and issued 1 violation to help improve environmental protection.
- The Department of Health continued its public bathing beach program at Camp Stella Maris and Southern Shores Beach. Long Point Park Beach was closed in 2021.

Harmful Algal Blooms

- HAB identification and notification efforts continued from June through October.
- The Town of Livonia moved forward on their Water Quality Improvement (WQIP) Old Outlet Reconfiguration Grant in Vitale Park. The Livingston County Highway Department replaced the existing culverts with an open span bridge to enhance circulation and reduce potential HABs. Official opening of the bridge is scheduled for Spring 2022.

Bridge replacement and shoreline stabilization, 12/2021.



Biomass and failing culverts in Old Outlet, prior to culvert replacement.



"Youth Planting Workshop", another free and well attended WEC Program!

Education

- In response to COVID-19 restrictions, Watershed Education Center (WEC) programming transitioned smoothly to hybrid education, offering both virtual and in-person options.
- In 2021, the WEC was recognized with an Achievement Award from the National Association of Counties (NACo), an award that honors innovative, effective government programs that strengthen services for residents. Recognized partners include the Town of Livonia, the Conesus Lake Association, and Livingston County.



Stream Restoration and Stormwater Management

- The Town of Livonia moved forward on their WQIP Natural Shoreline Restoration Grant in Vitale Park. The grant will restore and stabilize the park's eastern Conesus Lake shoreline. City Hill Excavating, Inc. was awarded the contract for project construction. Project permitting requirements are in process. Construction is anticipated in Spring 2022.
- The Towns of Conesus, Geneseo, and Sparta were awarded a WQIP grant for road ditch remediation. The grant will fund erosion control measures for more than 14,000 feet of roadside ditches with severe erosion issues, located in the Conesus Lake watershed. This program will improve water quality in the watershed.

Agricultural Best Management Practices

- In 2021, the Livingston County SWCD and the NRCS continued to conduct an Upland Watershed Protection Program for agricultural land uses in the Conesus Lake Watershed. SWCD projects included construction and installation of water and sediment control basins (WASCoB), subsurface drainage, underground outlets, rock armoring on a pond spillway and side slopes with significant earth movement to compensate for onsite seepage.
- NRCS funded projects in the Conesus Lake watershed including the installation of a waste storage system to alleviate winter manure spreading, assistance with 70 acres of forest management, and pollinator plantings to support farm ecosystems.



WASCoB #2 Mid field, addresses gully erosion and drainage limitations.



Rock armoring of outlet, gully area.

Monitoring and Assessment

The CLWC and its partners are committed to using the best available science to inform lake and watershed management decisions. A key issue is identifying and addressing sources of phosphorus and sediment, both external sources from the watershed and internal sources from the lake sediments (legacy phosphorus). The 2003 Conesus Lake Watershed Management Plan outlined a long-term strategy to gather comparable data at regular intervals to characterize the lake ecosystem and track changes over time. Over the decades, annual monitoring has encompassed cyanobacteria and other phytoplankton, aquatic plants, zooplankton, benthic invertebrates including mussels, and the fish community (Table 1). The ecosystem-based management approach and effective collaborations among SUNY Geneseo and SUNY Brockport, USDA, NYSDEC, Conesus Lake Association, and the Finger Lakes-Lake Ontario Watershed Protection Alliance help guide the Council in defining management strategies and priorities.

Food Web Analysis: Zooplankton Community

The SUNY Geneseo team focused their 2021 in-lake monitoring program on the zooplankton community. These tiny animals are important drivers of lake ecology and water quality conditions; their abundance, species composition, and size structure are affected by the type of fish present in the lake. In turn, zooplankton affect the nature and abundance of microscopic algae and cyanobacteria (collectively referred to as phytoplankton).

The most recent zooplankton survey of Conesus Lake (2014) documented the lack of larger *Daphnia* species (daphnids) in the lake. This once-thriving population of large herbivorous zooplankton was highly effective at grazing phytoplankton and contributed to the historically clear waters of Conesus Lake. The alewife and zebra mussel invasions decimated the population of large daphnids. The 2021 survey results indicate that the zooplankton community remains dominated by tiny organisms; the daphnids have not recovered. The result is more turbid waters. Understanding these food web interactions helps the lake management team direct their efforts to priority issues.

The zooplankton community structure analysis highlights the importance of prevention, early detection, and rapid response to invasive species. Professor Sid Bosch, leader of the SUNY Geneseo research and monitoring team, noted the importance of preventing invasion of the lake by other zooplanktivores, such as the spiny water flea (*Bythotrephes longimanus*), as they would further reduce the already impoverished zooplankton community and adversely affect the balance of the lake ecosystem.

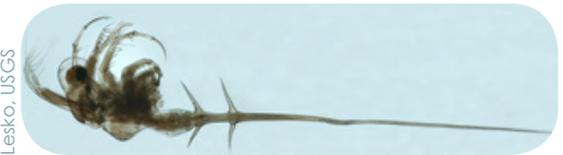


Florida Sea Grant

Waterflea (*Bosmina longirostris*)

Spiny water flea
(*Bythotrephes longimanus*)

K. Keeler & L. Lesko, USGS



Macrophyte Community

In 2020, the SUNY Geneseo team documented that the Eurasian watermilfoil beds in the lake's southern region appear to be on the decline relative to historical values. The measurements at reference sites indicated that growth and development of milfoil beds at Sutton Point and Cottonwood Gully were extremely limited in 2020. As reported in our 2020 Report Card, this change was evident only at the southern reference sites; milfoil beds elsewhere in the lake were thriving.

Professor Bosch and students returned to these sites in 2021 to evaluate whether the 2020 decline was part of a general trajectory. The 2021 survey indicated that the milfoil beds

had rebounded to within normal range. However, the depth at which plants are present has shifted from a maximum overlying water depth of 6m in the 1960s, 4m in 2009, to 3-3.5m in 2021. This shift to shallower water is attributed to declining water clarity. Increased turbidity reduces the depth to which light can penetrate through the water column and support photosynthesis of plants growing on the lake bottom. Decreasing water clarity is a result of multiple interrelated factors: decimation of the population of large daphnids by invasive fish species, zebra mussel impact on phosphorus exchange with the lake sediments, zebra mussel impacts on smaller zooplankton, warming waters and increased growth rate of phytoplankton, more extreme rainfall and runoff events that deliver phosphorus and sediment to the lake, and others. The complex interplay of the lake food web, risk of cyanobacterial blooms, invasive species, and watershed inflows illustrate the importance of continued monitoring and analysis.



NYSDEC conducting winter lake monitoring in Conesus Lake.

Trophic State and CSLAP

Conesus Lake continued to participate in CSLAP, the Citizens' Statewide Lake Assessment Program, designed to provide comparable water quality monitoring data for lakes across the state. Limnologists and lake managers rely on key measurements to assess a lake's level of primary productivity or trophic state. Total phosphorus (Total P), chlorophyll-a (photosynthetic pigment indicative of phytoplankton), and Secchi disk transparency (a measure of water clarity) are widely used to demonstrate a lake's trophic state.

Biweekly sampling was conducted from June through September. The 2021 results (Table 2) indicate that Conesus Lake continues to be classified as mesotrophic (moderate levels of productivity) with total phosphorus, water clarity, and chlorophyll-a (an indicator of phytoplankton abundance) within normal ranges for this lake.



SUNY Geneseo student surveying lake plant community (note invasive stary stonewort).



SUNY Geneseo students participating in lake monitoring.

Table 1. Sequence of Monitoring and Assessment, 2003-2021

Year	Lake Monitoring					Lake Remedial Alternatives		Tributary BMPs and Load Estimates	
	Trophic State	Beach Bacteria	Macrophytes	Internal Phosphorus	Food Web	Enhanced Mixing	Alum Treatment	USDA Project	Streambank Stabilization
2003	✓	✓	✓	✓				✓	
2004		✓	✓		✓Plankton, Fish		✓DEIS	✓	
2005		✓	✓		✓Macrobenthos		✓Jar Tests	✓	
2006, 2007	✓	✓	✓			✓SolarBee		✓	✓(2007)
2008		✓	✓					✓	✓
2009	✓	✓	✓	✓	✓Plankton, Fish			✓	
2010		✓	✓					✓	
2011, 2012	✓	✓						✓	
2013		✓							
2014	✓	✓			✓Plankton, Fish				
2015, 2016		✓						✓	✓(2016)
2017	✓CSLAP	✓		✓					
2018, 2019	✓CSLAP	✓		✓	✓Cyanobacteria				✓(2019)
2020	✓CSLAP	✓	✓	✓	✓Plankton			✓	
2021	✓CSLAP	✓	✓		✓Zooplankton			✓	

Table 2. Results of 2021 CSLAP Monitoring, Conesus Lake

Trophic State Indicator Parameters (June-Sept)	Trophic State Classification Ranges			Conesus Lake South		Conesus Lake North	
	Oligotrophic	Mesotrophic	Eutrophic	2021 Median	Long-term Median	2021 Median	Long-term Median
Summer average total phosphorus, (ug/L)	<10	10 - 35	35 - 100	19	18	19	18
Summer average chlorophyll-a (ug/L)	<2.5	2.5 - 8	8 - 25	7	5.3	9.3	6.9
Summer average Secchi disk (meters)	>6	6 - 3	3 - 1.5	3	2.9	2.9	2.9

South Basin data, intermittent from 1972 to present. North Basin data, 2017-present.

Tributary Monitoring

In 2021, Dr. Michael Chislock of SUNY Brockport continued to lead a tributary monitoring program designed to assess nutrient and sediment influx to Conesus Lake and the relative effectiveness of agricultural Best Management Practices (BMPs).

The 2021 program focused on eleven streams in three categories: (1) six agricultural subwatersheds with extensive adoption of BMPs, (2) four agricultural subwatersheds without extensive adoption of BMPs, and (3) a reference subwatershed (North McMillan Creek) with minimal agricultural land cover. Samples were collected during base flow and storm event conditions.

This effort was designed to follow up on results of the SUNY Brockport 2020 monitoring program, which documented elevated export of nutrients and sediment from agricultural subwatersheds compared with prior years. This increase was noted even where BMPs had been installed. Another important finding was that concentration and load of dissolved phosphorus were significantly higher compared with prior years. As reported in the 2018 Conesus Lake HABs Action Plan, the dissolved phosphorus fraction is associated with higher biological availability, meaning that it is more potent for supporting growth of cyanobacteria and other phytoplankton.

For agricultural land cover, the ratio of total and dissolved phosphorus in runoff is a complex function of processes related to erosion desorption and dissolution reactions, plant residue decomposition, and the field's baseline phosphorus index and infiltration capacity (wetness index). These baseline conditions are influenced by soil and fertilizer phosphorus management practices such as tillage and the nutrient and solids content of applied fertilizers. The timing of rainfall events with respect to land application is also a significant determinant. The 2021 results confirm the need to continue collaborating with the agricultural community to provide technical support and

funding assistance to implement and maintain site-specific BMPs.

Another major conclusion of the 2021 tributary monitoring program was the degradation of McMillan Creek water quality. This large stream is a major tributary to Conesus Lake and has served as the reference watershed for baseline loading estimates. In the summer and fall of 2021, a series of intense storm events carried substantial amounts of sediment and phosphorus into the lake. Continued inspection and maintenance are required. North McMillan Creek is the primary focus of the 2022 tributary monitoring program.



SUNY Brockport student monitoring tributary.



Photos showing highly sediment laden storm runoff in (from top left, to bottom right) North Gully, North McMillan, Sutton Point Gully, and Cottonwood Gully.

Invasive Species

Invasive species are non-native, introduced species that cause harm to the environment, human health, and/or economy. Humans have dramatically increased the rate of spread of new species through international trade and travel. Invasives out-compete and displace native species in their new environment. In the absence of natural predators, invasive species can grow relatively unchecked and disrupt the native ecosystem. In response to the discovery of highly invasive *Hydrilla verticillata* in nearby Cayuga Lake, the Conesus Lake Watershed Council (CLWC) established an Invasive Species Sub-Committee tasked with drafting and implementing the Invasive Species Prevention and Response Plan (2013). Implementation efforts continued in 2021.

Invasive species information: <http://fingerlakesinvasives.org/>

To report NEW invasive species: collect plant sample/insect, send email with photo and location/gps to FLXPlantID@gmail.com and the Conesus Lake Watershed Manager at munderhill@co.livingston.ny.us or call 585-243-7550.

Education and Monitoring

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. DO NOT use Rudd, and learn how to identify & report invasives.

Starry Stonewort (*Nitellopsis obtusa*)

Starry stonewort (SSW), an aquatic invasive species, was recently confirmed in Conesus Lake. This species invades lakes, ponds, and slow-moving water bodies. It can dominate a water body forming dense mats, outcompeting native plants, and reducing biodiversity. Dense growth can reduce fish habitat and spawning grounds, and make lake recreation difficult. SSW is a macroalgae that resembles a vascular plant with a



Carol Cole

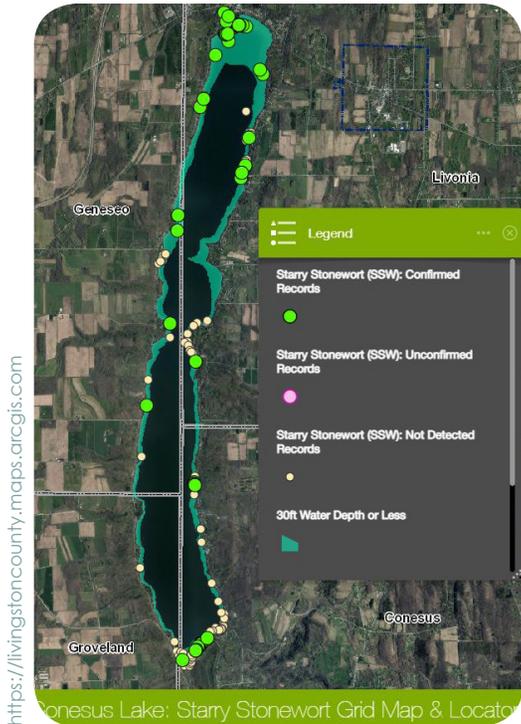
SSW with characteristic star-shaped bulbils.

long stocky stem-like structure and whorls of branchlets. It has several native “look alikes”, but SSW may appear larger and more robust. It produces star-shaped bulbils along clear rhizoids (resembling fishing line) that anchor it to the sediment. SSW fragments easily and fragments can readily reproduce into new plants.

SSW was first discovered in the US in the Saint Lawrence River. It has spread throughout the Great Lakes basin, and into the Finger Lakes, including Owasco, Cayuga, Keuka, and Canandaigua Lakes. One of the most likely means of transportation of this invasive is via people spreading fragments and bulbils between and within waterbodies.

SSW is known for its rapid and aggressive growth, and is often the first to recolonize disturbed areas. A 2021 study was conducted by SUNY Geneseo and SUNY Brockport evaluating the ecological niche of SSW in Conesus Lake (using sampling and SSW volunteer survey records). Results showed SSW records throughout the lake at depths of 1 to 15 feet. The study confirmed that SSW is firmly established in Conesus Lake, and possibly has been for a number of years.

SSW is difficult to control, and once well-established, eradication



https://livingstoncounty.maps.arcgis.com

Conesus Lake: Starry Stonewort Grid Map & Location
Livingston County SSW Grid Map Viewer.

may be impossible. Control methods in other lakes have included hand pulling, mechanical harvesting, chemical application or diver-assisted suctioned harvesting. The proper use of benthic mats may be useful in small areas. Research on this species in the US has not been extensive. The full environmental and economic impacts, including impacts to water quality, and best management practices of this species are not well understood and are still being researched.



Hilary Mosher, Finger Lakes Institute

CLA volunteers identifying SSW.

effective control and management strategies. The Subcommittee and regional experts will reconvene to assess the extent of the population, and evaluate control methods for Conesus Lake. Grant funds will be investigated to support management efforts. Recommendations from the Subcommittee will be forwarded to the Watershed Council for their consideration.

Hydrilla (*Hydrilla verticillata*)

Hydrilla is a submerged aquatic macrophyte that creates dense mats of vegetation. NYSDEC has classified hydrilla as one of the most difficult aquatic invasive plants to control, and eradication efforts are intense and costly. The plant can grow rapidly, blocking sunlight and displacing native plants and fish habitat. Decaying biomass can decrease dissolved oxygen content in the water column, leading to fish kills. Dense hydrilla growth would significantly impair fishing, boating, and recreation in Conesus Lake.

Hydrilla is on the Watch List of Conesus Lake (NOT present) so PREVENTION is the most effective control. Hydrilla can be easily spread by its seeds, buds, and plant fragments, and carried by currents, boats, trailers, and fishing gear to new locations. Dumping of unwanted aquarium contents is another common vector.



R. videki, Bugwood.org

Hydrilla

In 2022, SSW volunteers will resume surveillance in Conesus Lake. Due to the widespread distribution of SSW around the lake perimeter, additional surveying is advised to help determine the most



A. Howe

Livingston County Sheriff's Department ensuring safety of volunteers.

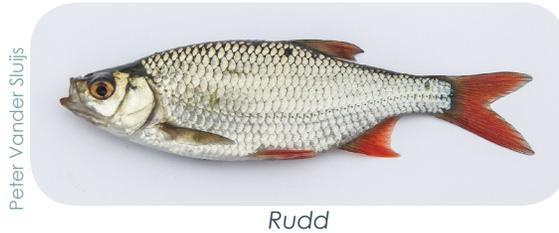


H. Mosher, FLI

SSW field survey team.

Rudd (*Scardinius erythrophthalmus*)

Rudd has been confirmed in Conesus Lake. Rudd are adaptable and are often found in still or slow-moving water and in areas of dense vegetation. They consume large amounts of aquatic plants along shorelines, which can degrade breeding grounds for native fishes. Juvenile rudd eat zooplankton and aquatic insects, posing a threat to native food webs and juveniles of native species. Rudd can breed with native fish, aiding to a loss of genetic diversity. Long term effects of rudd are still being studied. Potential impacts of rudd on the Conesus Lake food web will continue to be monitored, in partnership with our SUNY researchers.



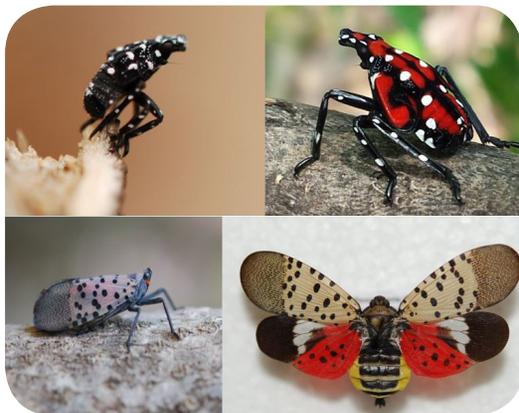
Peter Vander Sluijs

Rudd

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, and learn how to identify & report invasives.

Spotted Lanternfly (*Lycorma delicatula*)



L. Barringer, PA Dept. of Agriculture, Bugwood.org

Spotted Lanternfly

Spotted lanternfly (SLF) feeds on more than 70 plant species, including grapes, hops, fruit trees, and hardwoods (apple, cherry, maple, walnut and oaks), with a primary host of Tree of Heaven (*Ailanthus altissima*). This destructive pest feeds on plant sap, stressing

plants, making them vulnerable to disease and other insect attacks, and excreting large amounts of sticky honeydew which attracts sooty mold and swarms of insects. This insect poses a significant threat to NYS agricultural and forest health.

SLF was discovered in 2014 in Pennsylvania, and it is now as close as Ithaca, NY. Insects lay eggs on a variety of surfaces including vehicles, stone, and firewood and are easily spread by people to new areas.

How can you help?

Check vehicles, trailers, and materials to be transported for insects and egg masses before traveling. Scrape off and dispose of egg masses. Consider removal of Tree of Heaven. Report it to Department of Agriculture & Markets at spottedlanternfly@agriculture.ny.us.

Mile-a-Minute Vine (*Persicaria perfoliata*)

Mile-a-minute vine (MAM) was confirmed in the Conesus Lake watershed in the Town of Geneseo in 2017. The invasive vine grows along hedgerows, roadsides, and other disturbed areas. MAM vine smothers and often kills other vegetation. It can grow up to 6 inches a day forming dense mats.

SUNY Brockport, Finger Lakes PRISM, and NYSDEC lead the coordinated response in Geneseo, with support from Livingston County and the CLWC. 2021 SUNY Brockport eradication efforts show the seed bank is not completely exhausted, although plant numbers continue to decrease. As seeds from past years can survive in the soil for up to seven years, SUNY Brockport will continue eradication efforts at this site.



L.J. Mehrtorf, U. of Connecticut, Bugwood.org

Mile-a-minute close-up

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. Hydrilla and water chestnut are highly aggressive aquatic invasive plants that form dense mats that block sunlight to native plants below, crowd out native fish habitat, and impede boating, fishing and swimming. Some invasives on the Watch List for Conesus Lake include: hydrilla, water chestnut, Asian clam, quagga mussels, spiny waterflea, European frogbit and round goby. These Watch List invasives are not known to be present in Conesus Lake; they do pose a significant threat to the lake. Watercraft Steward Programs educate the community on the risk of spreading invasive species via recreational boating and assist boaters in performing inspections and invasive species decontamination. In 2021, the Watercraft Steward Program was fully funded under the NYS Office of Parks, Recreation and Historic Preservation (OPRHP) and

was supported by SUNY College of Environmental Science & Forestry (ESF) and the CLA.

In 2021, two Watercraft Stewards staffed the Conesus Lake boat launch from Memorial Day to late August. Of special note, the Stewards detected a Watch List species, SSW, during a rake toss. This detection triggered a coordinated rapid response to SSW in Conesus Lake.

Total boats inspected has decreased annually at the boat launch since 2017, with a total of 8,439 boats inspected in 2017 to 3,392 boats inspected in 2021. ESF, State Parks, and the CLA continue to work together on more flexible schedules to increase steward coverage during peak use times and coverage of fishing tournaments. Compared to last year, the 2021 program had an increase in fishing tournament coverage, fishing boats inspected, and boat decontaminations completed.

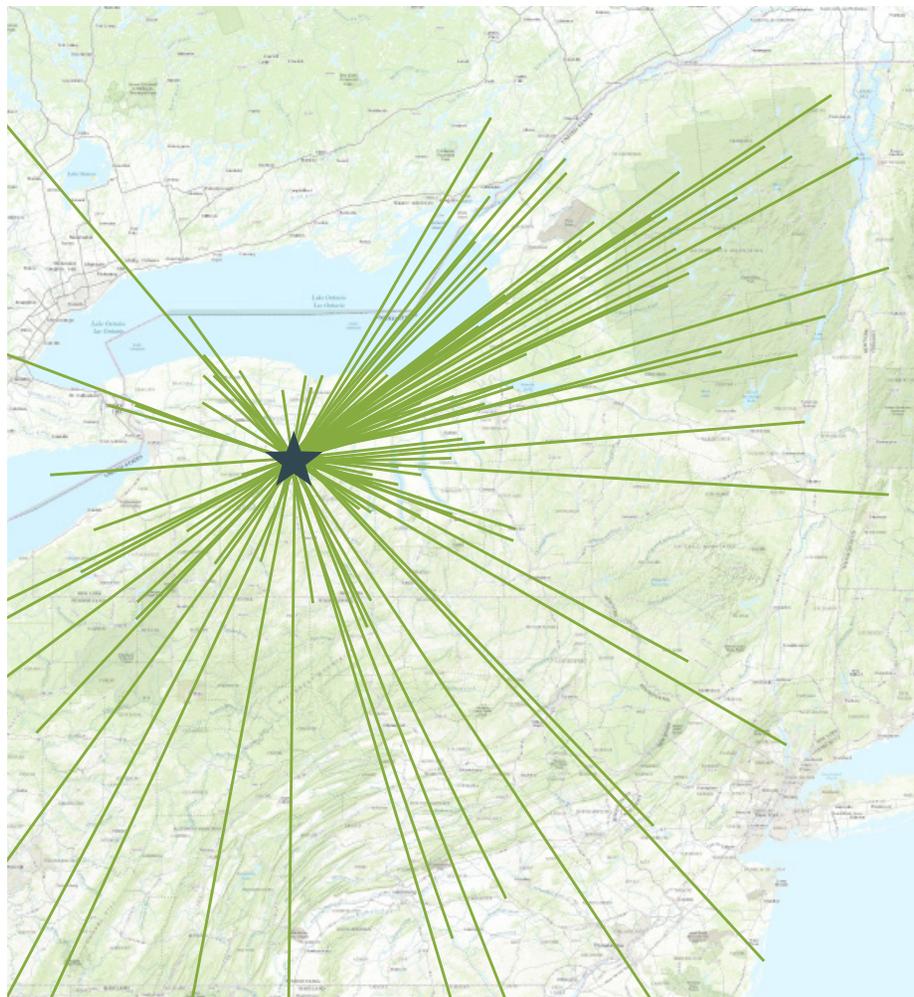
Watercraft Steward Program Data, Conesus Lake

	2021	2020	2019	2018
Boats inspected	3,392	3,989	4869	6423
Non risk boats (last launch-Conesus)	1,938	*	2446	5651
Risk boats (last launch other)	375	600	*	772
% of total boats	11%	*	*	12%
Boats found with organisms attached	4	32	24	4
% of total boats	0.12%	0.80%	0.5%	.06%
% of risk launches	1.07%	5.3%	4.2%	.52%
Fishing boats inspected	868	594	1244	2241
Prior contact with a Steward	89%	86%	96%	98%
Prevention steps taken prior to launch	74%	66%	67%	97%
Total days of coverage	47	58	*	*
Decontaminations completed	51	8	1	4

*Due to new state tracking/data capture methods, comparable data was not collected.

Conesus Lake attracted boaters from 42 different waterbodies across NYS in 2021. The number of boats coming from other lakes found with contaminants decreased to four, down from 32 from the year before. 89% of boaters entering the launch had previously spoken with a Watercraft Steward. Boaters taking prevention steps prior to launch increased to 74%.

Last Waterbody Visited



Boats travel to Conesus Lake from across the continent, emphasizing the need for the Watercraft Steward Program. In 2018, boats came as far as Canada and Alaska.

Fish Stocking Program

The CLA and NYSDEC stock young walleye in the lake to increase the walleye population that was decimated by the introduction of the invasive alewife. In turn, adult walleye prey on alewives, which helps lower the alewife population.

In June, the NYSDEC stocked 32,500 walleye pond fingerlings (1" length) and 33,140 walleye 50-day fingerlings (1.5" length) in Conesus Lake. In September, stocking of the usual annual allotment of 9,500 tiger muskellunge fingerlings was completed. In November, the CLA stocked 1,200 fingerlings in the lake.



CLA stocking of fingerlings in Conesus Lake.

NYS Waterbodies That Boats Visited From, in Order of Highest Frequency.			
1	Canandaigua Lake	9	Erie Canal
2	Honeoye Lake	10	Sodus Bay
3	Lake Ontario	11	Cayuga Lake
4	Silver Lake	12	Seneca Lake
5	Lake Erie	13	Niagara River
6	Irondequoit Bay	14	Canadice Lake
7	Keuka Lake	15	Hemlock Lake
8	St. Lawrence River		

Watershed Inspection Program

The objective of the Conesus Lake Watershed Inspection Program is to help protect and enhance Conesus Lake as a potable water source. Conesus Lake is a valuable resource for Livingston County; protection of the water supply is important for health of the community. With the cooperation and contributions of the two purveyors of public water (Villages of Avon and Geneseo), the Village of Livonia, Livingston County, and five surrounding towns, the inspection program became a reality on August 31, 1998. The Livingston County Department of Health (LCDOH) provides the Conesus Lake Watershed Inspector who responds to concerns regarding water quality and non-point sources of pollution in the watershed.

Watershed Inspections

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 Inspector conducts routine surveillance of construction activities and monitors bathing beaches for compliance with public health standards, including harmful algal blooms.

2021 Inspection Activities	
Complaints	24
Violations	1
New Septic Systems	5
Repaired Septic Systems	7
Sewage Overflows	0
Bacteriological Bathing Beach Water Samples	33
Beach Closure Days	5
Educational Events, outside of WEC programs	1
Damaging Flooding Events	1

2021 Complaint Breakdown

Sediment and Erosion	13
Drainage	10
Sewage Discharge	0
Agricultural Related	0
Nuisance	1
Weeds/Algae/Odor/HABs Reports	10
Petroleum & Chemical	0

Conesus Lake Drinking Water Facts and Figures

	Village of Avon	Village of Geneseo
NYSDEC Allocation	3.5 MGD	3 MGD
Plant Rating	1 MGD	2 MGD
2018 Annual Usage (gallons)	273,000,000	359,000,000

MGD: (million gallons per day)

Drinking Water

The NYSDEC classifies Conesus Lake as a Class AA waterbody, designating its best use as a public drinking water supply. One of the goals of both the Watershed Inspection and Management Programs is to ensure this best use. The Villages of Avon and Geneseo both use Conesus Lake as the source for their public water supply. Through these two purveyors, Conesus Lake water supplies more than 20,000 users and 10 water districts, including the Villages of Avon and Geneseo, and portions of the Towns of Avon, Geneseo, Leicester, and York.

Bathing Beach Monitoring

The LCDOH collects weekly nearshore water samples at designated bathing beaches each summer and tests for the presence of fecal coliform bacteria. Fecal coliform bacteria are used as an indicator of recent contamination of water. While coliform bacteria may not be pathogenic (disease-causing), their presence means that other harmful microbes may be in the water. Results of the tests are compared with public health standards to determine the safety of water contact recreation. In 2021, both monitored bathing beaches (Southern Shores Beach and Camp Stella Maris) were in full compliance with the fecal coliform bacteria standards.

Beach Closures Due to HABs						
	2021	2020	2019	2018	2017	2016
Long Point	*	*	0	1	0	0
Stella Maris	2	1	1	1	0	3
S. Shores	3	0	1	1	0	8

HAB: Harmful Algal Blooms *Long Point Park Beach closed in 2020-2021

Safe Yield Analysis

In 2021, Livingston County Planning engaged Schnabel Engineering of NY to develop a quantitative calculation of Conesus Lake's Safe Yield as a foundation for public water supply planning across the county. A lake's Safe Yield is defined as the volume of water that can be continually withdrawn for public water supply during an extreme drought while still meeting all regulatory and operational constraints.

Key findings of the Safe Yield Analysis include:

- Strict adherence to the USACE Rule Curve winter target level for the lake (elev. 816.5 ft.) is not achievable during an extreme drought. Conesus Lake level would fall below this threshold with only evaporative loss and required downstream release. There would be no Safe Yield for sustained public water supply under this scenario without tolerance for a lower lake

elevation.

- Safe Yield for water supply is available (estimated up to 7.7 million gallons per day, mgd) during an extreme drought if lake level is allowed to fall to 814.5 ft. For comparison, current water supply withdrawals total less than 2 mgd by both Village water purveyors, well below their summed permitted allocation of 6.5 mgd.
- The Safe Yield Analysis assumes that both Village water purveyors continually draw their maximum permitted allocation during the extreme drought. Operational interventions such as water use restrictions are not considered. This conservative assumption provides an additional margin of safety for water supply.

The report offers recommendations to improve management of the lake for public water supply and enhanced sustainability during extreme conditions. Improvements to the existing outlet structure would enable operators to control water release more precisely. A hydraulic model of Conesus Creek would help refine the impact of outflows on lake elevation. Installing a stream gauge would improve inflow estimates. Finally, discussions with the USACE may clarify conditions under which strict adherence to the Rule Curve could be modified with minimal risk to the lake's multiple uses. The report can be found at: <https://tinyurl.com/ConesusLakeSafeYield>.

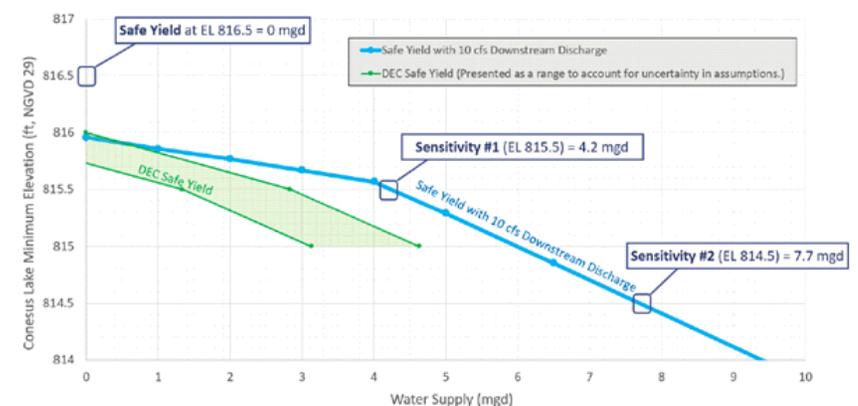


Figure 4.2: Safe Yield Sensitivity #1 and Sensitivity #2 Results.

Harmful Algal Blooms

Harmful algal blooms, or HABs, generally consist of visible patches of a bacteria called cyanobacteria. Cyanobacteria, also known as blue-green algae (BGA), are naturally present in low concentrations in most lakes and streams. Under certain conditions, cyanobacteria can multiply rapidly, forming blooms that are visible on the waterbody's surface. Some cyanobacteria can produce toxins that are harmful to people and animals, in cases of ingestion, skin contact, or inhalation. During the summer and fall, the Watershed Inspector conducts routine surveillance for HABs and responds to reports of blooms from the Sheriff's Marine Patrol and citizens on the Lake.

2021 Bloom Season

In Conesus Lake, the first HAB was identified on July 7th and the last HAB was recorded on September 16th. There were a total of five beach closures in 2021. Nine HAB complaints were received from the public and investigated by the LCDOH. Through complaint investigation and regular LCDOH surveillance, five HABs were confirmed.



LCDOH

HABs at Vital Park, 7/19/2021.



Drone image. LCDOH

Lakewide HABs at Vitale Park

Harmful Algal Blooms Action Plan

The NYSDEC released the Conesus Lake HABs Action Plan in 2018. Conesus Lake was among the 12 priority lakes selected for development of a HABs Action Plan, due to its importance as a water supply and recreational asset. The Plan describes current conditions and trends and recommends solutions to reduce the risk of cyanobacterial blooms and associated adverse effects on recreational use, potable water supply, and aquatic life protection. Significant sources of phosphorus affecting lake water quality conditions were identified.

The percent contribution of phosphorus sources to Conesus Lake were consistent with previous estimates from the SUNY research and monitoring efforts that began in the early 2000s. Internal loading from legacy phosphorus is the major source, contributing some 80% of the annual load. Watershed runoff supplies the remaining 20%.

Partnerships Protect Water Quality

Key Actions Taken to Address the Plan:

- Conesus Lake volunteer HABs monitoring program continued with numerous spotters, working in conjunction with the Livingston County Marine Patrol and trained by LCDOH and the CLA.
- HABs surveillance, beach monitoring and health advisory notifications from the LCDOH continued.
- Two Town of Livonia Water Quality Improvement grants moved forward. These grants will address shoreline stabilization and enhance water circulation and reduce residence time in critical areas, which will aid in the reduction of HABs.
- The SWCD and NRCS supported multiple Ag BMPs in the watershed to reduce runoff, soil erosion and nutrient loss.
- NYSDEC continues to improve and standardize reporting of cyanobacterial blooms through their web site New York Harmful Algal Bloom System (NYHABS). Most reports are from volunteers; the state is fortunate to have a trained network of citizen scientists providing “eyes on the water” and building awareness. Observers are encouraged to upload digital photos of a suspected bloom to DEC HABs

and submit a Suspicious Algal Bloom Report Form. These reports are reviewed by trained agency staff using visual surveillance and may be followed by sample collection for microscopic screening and toxin analysis. In 2021, volunteers continued HABs surveillance and reporting on Conesus Lake.

Total Maximum Daily Load

The 2019 Conesus Lake Phosphorus Total Maximum Daily Load (TMDL) outlines target reductions in phosphorus loading needed to restore and protect the lake for its designated uses as a water supply, recreational resource, and habitat for native plants and animals. Reductions are needed in both external (watershed) sources and internal (legacy phosphorus from lake sediments) sources as shown in Table 3. Efforts to reduce watershed nonpoint source runoff continue and are challenged by the increased frequency of high intensity precipitation events. Management practices such as winter cover crops, infiltration basins, whole farm planning, and green infrastructure are effective and will continue to be deployed across the watershed. In 2021, NYSDEC began pilot testing techniques for mitigating internal phosphorus loading and plans to continue this effort in 2022. This development holds promise for expanding the tools available to meeting the lake’s phosphorus TMDL targets.

Table 3. Summary of Conesus Lake Phosphorus TMDL

Phosphorus (P) Source	Current P Load (kg/year)	Target P Load to achieve water quality (kg/year)	Required Reduction
Forest and natural areas	321	321	0%
Agricultural runoff	3,202	2,700	16%
Runoff from developed areas	756	700	7%
Internal-aerobic sediment release	6,288	2,680	57%
Internal-anaerobic sediment release	10,641	4,538	57%
Total	21,208	10,939	48%

Education

The Watershed Education Center (WEC) 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, at no cost to participants, featuring scientists and professionals with local, regional, and state perspectives. In response to COVID 19 restrictions, programming transitioned successfully to a hybrid format. A total of 14 programs reaching 609 participants were held, with an average number of 44 participants attending per session. The geographic range of attendees continues to expand, likely due to digital access.

The WEC programs were widely promoted. In addition to the web and social media, an ad was placed in the Genesee Valley Pennysaver, and funded with FLOWPA funds. A rack card with WEC info was distributed. Both the Pennysaver ad and the WEC rack card contained the CLA website link where full program information was available.

The hybrid presentation format, offering both virtual or in person attendance, was positively received by participants. The Conesus Lake Association initiated investigation of state-of-the-art equipment to enable hybrid presentations, and will continue this work in 2022.



"A Bird Walk of Our Conesus Lake Inlet" with photographer, Hans Kunz.

A FREE ZOOM ONLINE PRESENTATION OF THE WATERSHED EDUCATION CENTER

On the hunt, from above and below.

Drones are the high-tech ways we're getting to the top—and bottom—of some of our lake's nagging environmental issues. You're invited to learn about how the CLA and two Livingston County departments are using aerial and underwater surveillance tools to monitor invasive species, steep slope erosion, water-column parameters, algae blooms, and much more. To register for this informative program, click on this hyperlink: <https://zoom.us/join/register?jMfU-p7IMVHNOJKATIBAy0EFt6R4aOI>

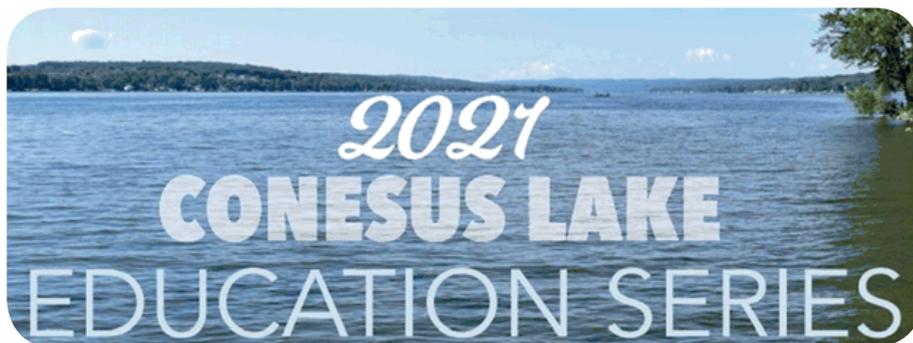
Join this free online presentation on Wednesday, Feb. 24th at 6:30 PM

After you've registered, you'll receive sign-in details for the presentation by email.

WEC Program flyer for "Aquatic & Underwater Surveillance of Conesus Lake" - best attended program with 86 participants.



"Youth Planting Workshop" with Helen Folts.



WEC Program Advertisement.

Agricultural Best Management Practices

Agricultural Best Management Practices (BMPs) help protect water quality by reducing nonpoint sources of pollution on farms. Nonpoint source pollution occurs when rainfall moves over and through the ground picking up loose soil, nutrients, and other pollutants. BMPs function to keep soil and nutrients on the farm and out of ditches, gullies, and streams that flow into lakes and other waterbodies. The same nutrients that help plants grow in the field can contribute to plant growth in a lake in the form of weeds and algae.

The Livingston County SWCD and the USDA NRCS conduct an Upland Watershed Protection Program for agricultural land uses to reduce nonpoint sources of pollution from entering waterbodies throughout the watershed.

In 2021, the NRCS assisted with the installation of a waste storage system to alleviate winter manure spreading on a farm in the Conesus Lake watershed (funded by SWCD), and with 70 acres of forest management and one acre of trees and shrub establishment for pollinators.

FLOWPA funding was used by the SWCD on two farms in the watershed in the Town of Livonia: Van Zandt Farm and Cadyville Farm. Details of these projects are included below.



NRCS funded pollinator plantings. NRCS requires that species planted cover all blooming periods.

Van Zandt Farm

- Designed to address a failed pond/spring box system and erosion impacts
- Installation of 1,000 feet of underground outlet
- Earth movement and placement to compensate for continual seepage onsite
- Rock armoring on the pond spillway and side slopes



Installation of underground outlet.



Newly reconstructed pond, spring box, and rock lined spillway.

Cadyville Farm

- Designed to address ongoing erosion and drainage limitations
- Installation of 900 feet of underground outlet
- Construction of 3 WASCoBs (water and sediment control basins)
- Installation of 1,000 feet of subsurface drainage



Rock armoring of outlet & gully area.



WASCoBs #2 Mid field.

Trends and Recommendations

Identifying emerging trends and issues and establishing recommendations helps guide the Conesus Lake Watershed Council's yearly Work Plan.

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.
- Reported HABs have fluctuated over the past few years in Conesus Lake with five blooms in 2021, 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 mussels, and spiny waterflea.
- Changes in weather patterns (National Climate Assessment): Increase in the frequency and duration of droughts leading to low water levels and intermittent streams.
- 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.
- Less reliable snowpack and spring groundwater recharge.
- 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.
- Continue to advocate for funding and technical support for implementing agricultural BMPs in priority areas.
- Remediate road ditches identified in the NYSDEC WQIP grant.
- Encourage participation in the DEC septic system replacement program, through the LCDOH.
- Assist municipalities with water resources planning and zoning updates, including green infrastructure regulations.
- Continue active participation in CSLAP, PRISM, Watercraft Steward Program, and others.
- Continue to support Public Education & Outreach initiatives, including WEC programming.
- Conduct SUNY annual monitoring program and LCDOH water quality parameter monitoring program.
- Revisit Invasive Species, Harmful Algal Blooms, and Fish Kill Response Plans.
- Pursue additional funding for watershed restoration projects.
- Continue implementation of Governor's HABs Initiative and pursue funding to support the recommendations in the Conesus Lake HABs Action Plan.
- Conduct further investigation into potential causes and solutions to help mitigate increases in sodium levels.
- Continue to support the LCDOH Watershed Inspection Program.

Document (Rec #)	Recommendation	Actions
Annual Report Card		
CLWMP (H-2)	Prepare and distribute an annual Conesus Lake and Watershed Report Card.	2021 Annual Report Card was approved by the Watershed Council and provided to NYSDEC/Finger Lakes Hub.
Monitoring Program		
CLWMP (H-1)	Conduct an annual monitoring program of Conesus Lake and its watershed to evaluate water quality and ecological conditions, assess the effectiveness of controls, and identify the need for additional actions. An annual monitoring meeting should be held to coordinate the monitoring program.	<p>LCDOH continued public bathing beach and HABs monitoring programs.</p> <p>LCDOH & CLA conducted the volunteer HABs monitoring program.</p> <p>SUNY Geneseo & SUNY Brockport 2021 Summer Monitoring Study was posted on the County website. The 2021 program examined the zooplankton community structure and its potential impact on the lake's food web and water clarity conditions, in addition to tracking changes in abundance of Eurasian watermilfoil. The watershed team continued to monitor nonpoint source loading from the landscape and identify areas of potential concern.</p> <p>CLA updated lake monitoring instrumentation to improve real time reporting, and resulting research quality data was provided to SUNY partners for use in their lake monitoring and research efforts.</p>
HABs	Implement recommendations from the NYSDEC HABs Action Plan to minimize the frequency, duration and intensity of HABs in Conesus Lake.	<p>Town of Livonia moved forward on their WQIP Old Outlet Reconfiguration Grant: Livingston County Highway replaced existing culverts with an open span bridge to enhance circulation and reduce potential HABs. Official opening of the bridge - Spring 2022.</p> <p>Conesus Lake volunteer HABs monitoring program continued working in conjunction with the LC Marine Patrol. The team was trained by LCDOH and CLA. Nine HAB complaints were received from the public and investigated by the LCDOH.</p> <p>LCDOH completed weekly surveillance of HABs. Through complaint investigation and regular surveillance, five HABs were confirmed.</p>
TMDL	Implement recommendations from the EPA/NYSDEC TMDL Implementation Plan to assist in watershed nutrient reduction.	<p>DEC Finger Lakes CSLAP program and FLOWPA funds were secured for two monitoring sites for Conesus Lake. CSLAP program continued in 2021 with three CLA volunteers.</p> <p>Livingston County was awarded an REDCI grant for the update to the Conesus Lake Watershed Management Plan, under the NYSDOS Waterfront Revitalization Program.</p>

Document (Rec #)	Recommendation	Actions
Invasive Species		
CLWMP (G-1), CLWC IS Prevention & Response Plan.	Investigate and implement effective methods to control the spread of non-native (exotic) organisms.	<p>Watercraft Steward Program was fully funded by NYS OPRHP through 2022, and OPRHP contracted with SUNY ESF for two watercraft stewards for Conesus Lake. Stewards started on Memorial Day weekend and finished the season early, pre-Labor Day. 3,392 boats were inspected, 4 boats were found with organisms attached. Increased coverage of fishing tournaments and boat washing reported this year.</p> <p>CLWC Invasive Species Prevention & Response Plan was utilized for detection of starry stonewort. CLWC Invasive Species Subcommittee was activated; support from local and regional watershed partners and citizens was mobilized. LCPD, with support from the iMapInvasives team and FLI, created coordinated mapping services to organize survey efforts. Volunteer surveyors identified 51 detected and 109 not detected locations.</p> <p>Watershed Manager participated in PRISM Full Partner, Working Group, and Strategic Plan Steering Committee meetings.</p> <p>CLA volunteers participated in the PRISM Macrophyte Survey program.</p> <p>LCDOH, LCPD, & CLA coordinated drone and underwater camera use for AIS/HABs detection and response.</p> <p>SUNY Brockport - led MAM eradication efforts that continued at the Geneseo site.</p> <p>Exploration of legislative support for Invasive Species emergency and control funding continued.</p>
CLWMP (E-2)	Develop a public education campaign promoting invasive species awareness.	Invasive species awareness education was promoted at the Watershed Education Center, with 3 targeted programs offered in 2021, and through the Watercraft Steward Program.
CLWMP (G-4)	Initiate effort to determine if increased stocking of walleye fingerlings, or other species, would be an effective biological control in Conesus Lake.	DEC stocked 32,500 walleye pond fingerlings, 33,140 walleye 50-day fingerlings, and 9,500 tiger muskellunge fingerlings. CLA stocked 1,200 fingerlings.

Document (Rec #)	Recommendation	Actions
Stream and Stormwater Management		
CLWMP (A-3)	Develop public education campaigns on BMPs for lake and watershed residents.	<p>Town of Livonia worked with the LCPD, LCDOH, CLA, and CCE of Livingston County on educational programming at the WEC. Promotion of WEC programs continued via distribution of informational rack cards, a Pennysaver ad, and social media posts.</p> <p>2021 programming transitioned to a hybrid platform offering both virtual and in-person options. 14 educational programs were held at the WEC, reaching 609 participants.</p> <p>Conesus Lake Stormwater Toolkit for homeowners and municipal officials, were distributed.</p> <p>NYSDEC 4-hr Erosion Control Workshop was offered. Funding through LCSWCD secured for eligible participants.</p> <p>Water quality monitoring and Conesus Lake Annual reports were posted on the LCPD's Conesus Lake webpage.</p>
CLWMP (A-1)	Review and amend zoning regulations to improve consistency in near-lake areas.	LCPD provided support to the Towns of Conesus & Geneseo on Docks & Moorings Law updates and to the Town of Geneseo, Groveland, Livonia, and Springwater on Solar and/or BESS Laws.
CLWMP (C-1), Wilkins Creek	Develop and implement program to restore and stabilize streambanks in the watershed.	<p>Interest in additional grant funded projects in the Wilkins Creek subwatershed was explored.</p> <p>Town of Livonia moved forward on their WQIP Natural Shoreline Restoration Grant to restore and stabilize the Vitale Park's eastern Conesus Lake shoreline. City Hill Excavating, Inc. was awarded the contract for project construction. Project permitting requirements are in process. Construction is anticipated in Spring 2022.</p>
CLWMP (B-1)	Secure funding to help mitigate the financial impacts of changes in agricultural practices on the producers.	LCPD continued to work with the LCSWCD to implement Ag BMPs in the Conesus Lake watershed using CLAWS funding.
CLWMP (B-2)	Implement practices that will reduce nonpoint source pollution from farms.	<p>LCSWCD & NRCS continued to conduct an Upland Watershed Protection Program in the Conesus Lake watershed. LCSWCD supported two soil & erosion control projects in the Town of Livonia, Van Zandt Farm, and Cadyville Farm, utilizing FLOWPA funds.</p> <p>NRCS assisted with the installation of a farm waste storage system to alleviate winter manure spreading, funded by LCSWCD, and with 70 acres of forest management and one acre of pollinator establishment.</p>

Document (Rec #)	Recommendation	Actions
TMDL (7.1.3), CLWMP (D-3)	Identify and implement roadside ditch stabilization efforts.	With support from the LCPD & Highway Department, the Towns of Conesus, Geneseo, and Sparta were awarded a WQIP grant for road ditch remediation in the watershed.
Water Supply & Wastewater Improvements		
CLWMP (F-4)	Develop Protocol and timeline to inventory septic/sanitary systems within the watershed.	LCDOH participated in the DEC Septic System Replacement Program, which provides funding to property owners for replacement of eligible septic systems located in direct proximity to tributaries of Conesus Lake.
CLWMP (F-1)	Investigate feasibility of completing a Safe Yield Study.	LCPD engaged Schnabel Engineering to calculate the Safe Yield for Conesus Lake using long-term data sets and updated modeling tools. The 2021 Safe Yield Analysis was prepared to inform future water supply management decisions affecting Livingston County communities.
Weeds and Algae		
HABs, CL Fish Kill Contingency Plan	Implement response and contingency plans to address Harmful Algal Blooms and Fish Kills in Conesus Lake.	CLWC Invasive Species Prevention & Response Plan was activated to address the detection of starry stonewort. Use of underwater camera was determined to be useful for underwater SSW detection in conjunction with rake tossing.
Public Education		
CLWMP (A-3)	Develop public education campaigns on BMPs for lake and watershed residents.	WEC programs addressed BMP's for lake and watershed residents. WS Inspector presented to York Central School Environmental Science class on BMPs. WS Manager and WS Inspector submitted articles for the Winter Lake News.
CLWMP (C-3)	Develop public education campaigns on the impact of human activities on the health of the Lake.	Worked in partnership with the CLA on public education efforts, and supported the Conesus Stewardship Initiative. WEC received the National Association of Counties (NACo) 2021 Achievement Award.

CLWMP - Conesus Lake Watershed Management Plan

HABs - Conesus Lake Harmful Algal Blooms (Blue Green Algae) Early Detection & Rapid Response Plan

Wilkins Creek - Wilkins Creek Subwatershed Stormwater Study

TMDL - Total Maximum Daily Load for Phosphorus in Conesus Lake

Conesus Lake Watershed Council

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