

Conesus Lake Annual Report Card



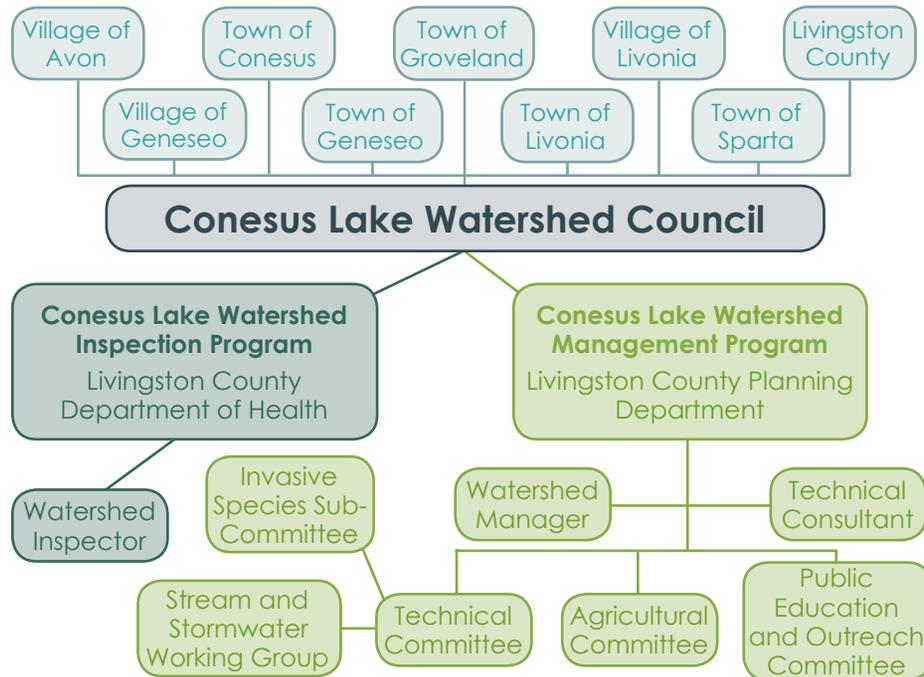
Conesus Lake Watershed Council

2020



About the Conesus Lake Watershed Council

The Conesus Lake Watershed Council (CLWC) was formed in 2003 to oversee implementation of the Conesus Lake Watershed Management Plan. The Council adopts priority action workplans and oversees two Livingston County programs: Watershed Management and Watershed Inspection. Council members include representatives of towns and villages within the lake watershed, Livingston County, and water purveyors relying on Conesus Lake as a public water source. Additional key partners include the Conesus Lake Association (CLA), agricultural support agencies (NRCS, SWCD), Livingston County Departments (Health and Planning), CCE, WSA, SUNY Geneseo & Brockport, Finger Lakes Institute, and NYSDEC.

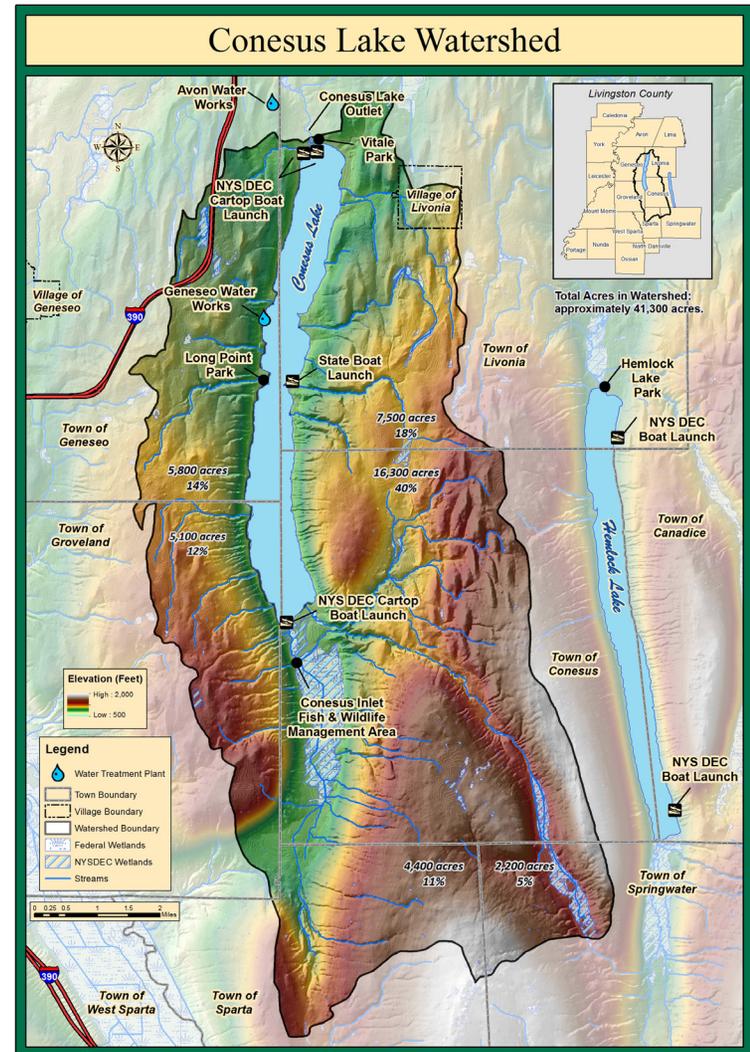


Conesus Lake Watershed Council governing structure

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).

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 forum for tracking water quality conditions in Conesus Lake and highlighting implementation projects and new developments.



Summary of Major Accomplishments

Funding, implementing, monitoring, and evaluating the success of water quality and education projects and programs in the Conesus Lake watershed requires a sustained effort across partnerships and a focus on many interconnected issues. Progress with implementing Conesus Lake Watershed Management Plan, phosphorus Total Maximum Daily Load (TMDL), and Harmful Algal Blooms (HABs) Action Plan recommendations continued in 2020. Highlights include:

Developing a Prioritization Tool

Conesus Lake has been the focus of many studies and plan's completed over decades. These documents include recommended actions for lake and watershed management.

In 2020, the Watershed Council recognized that a systematic approach to setting priority actions could facilitate a robust discussion on annual work plans. In consultation with EcoLogic, the project team compiled and reviewed recommendations in key documents, then worked with the CLWC Technical Committee to identify criteria for setting priorities, and finally applied the suggested criteria to rank potential 2021 projects. The approach and findings were presented to the CLWC, and the resulting document was adopted. This document will be used to inform future annual work plans for Conesus Lake Watershed projects and activities.

Monitoring and Assessment

•SUNY Geneseo and SUNY Brockport research teams continued their long-standing collaboration with the Watershed Council. In 2020, the monitoring program documented species composition and abundance of the macrophyte community and compared current conditions with historical records. The lake team monitored phytoplankton blooms and their relation to water column dynamics, and phosphorus entrainment from the deep water. The watershed team monitored nutrient and sediment loads from major tributaries and assessed the long-term effectiveness of remedial measures. The impact of

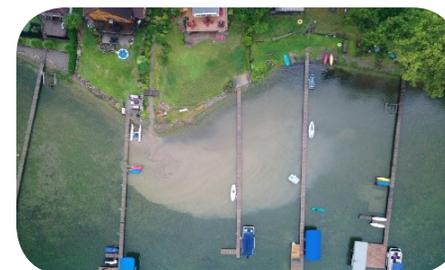
sediment plume dispersion on light penetration nearshore areas was investigated.

- Conesus Lake continued participating in CSLAP, the Citizens Statewide Lake Assessment Program, a joint effort of NYSDEC and the NYS Federation of Lake Associations.

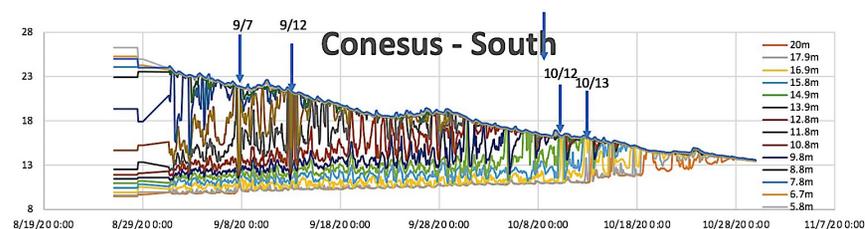
- Livingston County Department of Health (LCDOH) staff monitored beach areas for coliform bacteria; these organisms are used as indicators of the potential presence of pathogens in water. The LCDOH and trained CLA volunteers conducted shoreline surveillance for cyanobacteria (HABs) and reported their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

- The CLA maintained instrumentation to monitor lake temperature profiles and provide research-quality meteorological data for Conesus Lake. Two weather stations and three lake temperature arrays/profilers were fully functional.

- The Livingston County Comprehensive Water Supply Study Update was completed; a collaborative process involving 26 municipalities, Livingston County Water & Sewer Authority, and other public water suppliers.



Drone photo of sediment plume from small tributary to Conesus Lake following heavy rain.



Temperature data from in-lake temperature array shows major mixing events taking place in Conesus Lake.

Invasive Species

- Implementation of the Watershed Council's Invasive Species Prevention & Response Plan and Fish Kill Contingency Plan continued. Updates to both Plans were initiated in 2020, and finalization is anticipated in 2021. Through the Finger Lakes Partnership for Regional Invasive Species Management (PRISM) Macrophyte Survey Program, no new aquatic invasive species were detected in Conesus Lake.
- The Watercraft Steward Program inspected 3,989 boats in Conesus Lake and intercepted 32 boats arriving from other lakes with contaminants. The boat decontamination station was available for the full season. No new aquatic invasive species were reported.



PRISM Macrophyte Survey volunteer training.



Zebra mussels collected during CLA invasive dreissenid mussel survey.

- The use of a drone and underwater camera were introduced into the Conesus Lake Watershed Management Program for invasive species and HABs surveillance.
- SUNY Brockport, with support from Finger Lakes PRISM and NYSDEC, coordinated Mile-a-Minute eradication/pulling activities. Continued reduction in plant numbers reported.
- No quagga mussels were detected in Conesus Lake in 2020.



2017



2017



2020

Successful Mile-a-Minute eradication in Geneseo.

Watershed Inspection Program

- The Watershed Inspector responded to 29 complaints, monitored 15 construction sites, and issued 5 violations 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 due to the COVID-19 restrictions.

Harmful Algal Blooms

- HAB identification and notification efforts continued from June through October.
- The Town of Livonia was awarded a Water Quality Improvement Project (WQIP) grant for work in Vitale Park. This grant supports replacing the culvert with a bridge and reconfiguring the dam gates to improve water flow and reduce the risk of HABs. Permitting continued in 2020.

Education

- In response to COVID-19 restrictions, Watershed Education Center (WEC) programming transitioned smoothly to virtual education. Highlights included presentations on stormwater & erosion control, tree management and grants, advanced technologies for in-lake management, and student research projects.



Watershed Education Center webinar, "HABs Initiatives & Water Quality for Conesus Lake", presented by NYSDEC Finger Lakes Hub.



Cover crops planted in the Conesus Lake Watershed.



Detention basin completed prior to topsoil, Webb project in Town of Livonia.

Stream Restoration and Stormwater Management

- The Conesus Lake Watershed Stormwater Toolkit, which focuses on best practices for stormwater management, was publicized and placed on the County's website at: <https://www.livingstoncounty.us/780/Reports-Publications-Educational-Resource>.
- The Town of Livonia WQIP grant for Natural Shoreline Restoration in Vitale Park has progressed to final design stage. The grant will restore and stabilize the park's eastern Conesus Lake shoreline.

Agricultural Best Management Practices

- In 2020, the Natural Resources Conservation Service (NRCS) funded manure storage and cover crop projects in the Conesus Lake watershed, and supported three additional conservation plans in the watershed to be implemented in 2022 and 2023.
- The Livingston County Soil and Water Conservation District (SWCD) continued to conduct an Upland Watershed Protection Program for agricultural land uses, including construction of a 2.25-acre grass-lined stormwater detention basin, with a storage capacity of 2.6 million gallons, and erosion control. In addition, the SWCD supported the planting of 507 acres of cover crops in the Conesus Lake watershed.

Monitoring and Assessment

The CLWC and its many partners focus on gathering data and information to support management decisions. A key issue is identifying and addressing sources of phosphorus and sediment, both external sources from the watershed, and internal sources from deposited lake sediments (legacy sources). The complexity of the ecosystem motivates researchers and managers to characterize elements of the lake's food web as well. Sampling has focused on cyanobacteria and other plankton, aquatic plants, benthic invertebrates including mussels, and the fish community (Table 1). The ecosystem-based management approach and effective collaborations among SUNY Geneseo and SUNY Brockport researchers, USDA, NYSDEC, Conesus Lake Association, and the Finger Lakes-Lake Ontario Watershed Protection Alliance guide management strategies.

2020 Highlights: Continued Collaboration

Researchers, students, and community volunteers continued their long-standing collaboration on Conesus Lake and watershed in 2020, despite COVID-19 restrictions. The SUNY researchers focused on building knowledge on three issues related to ecosystem health and lake usability: (1) status and trends of the macrophyte community, (2) magnitude and impact of sediment transport, and (3) lake mixing and its effect on phosphorus and phytoplankton.

Trophic State and CSLAP

Limnologists and lake managers rely on key measurements to assess a lake's level of primary productivity, or trophic state. Conesus Lake continued in the Citizens Statewide Lake Assessment Program (CSLAP), thanks to three trained volunteers from the CLA. CSLAP lakes are monitored for a consistent suite of water quality indicator parameters using standardized protocols. Annual monitoring provides a basis to compare water quality and trophic state conditions over time and among participating lakes.

CSLAP monitoring incorporates three widely used indicators of trophic state: total phosphorus (Total P), chlorophyll-a

(photosynthetic pigment indicative of phytoplankton), and Secchi disk transparency (a measure of water clarity). Results of the 2020 monitoring program confirm that the lake's trophic state is stable. Total P, chlorophyll-a, and Secchi disk transparency results are within long-term average range (Table 2). Conesus Lake remains within the mesotrophic classification, consistent with moderate levels of primary productivity. The frequency and severity of algal blooms was lower in 2020 compared with recent years.



CLA Volunteer, Chris Willoughby, filtering collected water for CSLAP analysis.



Dr. Bosch scuba diving in macrophyte bed during summer monitoring.

Aquatic Macrophyte Community

SUNY Geneseo Professor Sid Bosch led a lake-wide survey of the macrophyte community (the assemblage of rooted aquatic plants and algae). Last completed in 2012, the 2020 survey examined whether the established invasive species Eurasian watermilfoil (*Myriophyllum spicatum*) continued to dominate the macrophyte community in large dense beds, notable at the mouths of tributary streams. Findings were interesting. Milfoil-dominated beds remained prominent in some areas of the lake, while in the southwestern region the beds were greatly diminished.

In September, Dr. Bosch and his team conducted a rake-toss survey in specific areas that had been examined in 1968 and 2012 to provide additional insight into species composition. The dominant species were coontail (*Ceratophyllum demersum*) and eelgrass (*Vallisneria spiralis*), while milfoil was dominant in the northernmost macrophyte bed, directly south of Vitale Park. There was very little growth in the Sutton Point and Cottonwood Gully beds in 2020. In contrast, milfoil representation was above average at the Sand Point and North Gully Cove sites. Feeding patterns of the invasive fish Eurasian rudd (*Scardinius erythrophthalmus*) fail to explain these contradictory trends.

in tributary loads and nearshore lake impacts, and compared conditions to control subwatersheds that did not implement BMPs. Results of the multi-year program demonstrated that, in general, the BMPs were effective in improving water quality conditions both within streams and in adjacent nearshore areas of Conesus Lake. The 2020 monitoring program was designed to provide comparable data to continue this evaluation.

Streams draining subwatersheds with extensive active agricultural lands exhibit higher nutrient concentrations compared with the reference stream, North McMillan Creek, and streams with less agricultural land use such as North Gully and Wilkins Creek. In 2020, the average export of nutrients and sediment from agricultural subwatersheds was among the highest levels measured since the start of the USDA project in several of the tributaries where BMPs were installed. A review of land use changes and BMP maintenance practices is recommended.

Dr. Bosch



Watermilfoil plants and associated filamentous algal growth (green stringy material) in Conesus Lake near several mouths of streams.

Comparisons of the 2020 findings with the 1968 and 2012 studies showed a general decrease in milfoil dominance in all but the northern bed. Overall, biomass of milfoil appears to be on the decline relative to historical values. The depth at which plants are present has shifted; from a maximum depth of 6m in the 1960s and 4m in 2009, to 3-3.5m in 2020.

Tributary Monitoring

Dr. Michael Chislock of SUNY Brockport led a program to assess the loading of nutrients and sediment from several small agricultural subwatersheds and compare these results to data collected in prior surveys. This tributary monitoring program focused on areas studied as part of a 2002-2009 USDA-funded program. The 2002-2009 program documented changes



SUNY Brockport Limnology Laboratory undergraduate student Matt Beers collecting water quality data in a variety of weather and water conditions on Conesus Lake tributaries during 2020-2021.



Dense filamentous algae and turbid water on a Conesus Lake tributary following a heavy rain event in Spring 2020.

Table 1. Sequence of Monitoring and Assessment, 2003-2020

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	✓	✓	✓			✓SolarBee		✓	✓
2007	✓	✓	✓			✓SolarBee		✓	
2008		✓	✓					✓	✓
2009	✓	✓	✓	✓	✓Plankton, Fish		✓Bathymetry	✓	
2010		✓	✓					✓	
2011	✓	✓						✓	
2012	✓	✓						✓	
2013		✓							
2014	✓	✓			✓Plankton, Fish				
2015		✓			✓Cyanobacteria			✓	
2016		✓							✓
2017	✓CSLAP	✓		✓					
2018	✓CSLAP	✓		✓	✓Cyanobacteria Invasive Mussels				
2019	✓CSLAP	✓		✓	✓Cyanobacteria				✓
2020	✓CSLAP	✓	✓		✓Plankton & mixing, plume dispersion			✓	✓

Table 2. Results of 2020 CSLAP Monitoring, Conesus Lake

Trophic State Indicator Parameters (June-Sept)	Oligotrophic	Mesotrophic	Eutrophic	Conesus - North Avg.	Conesus - North 2020	Conesus - South Avg.	Conesus - South 2020
Summer average total phosphorus, (ug/L)	<10	10 - 35	35 - 100	20	17	22.4	20
Summer average chlorophyll-a (ug/L)	<2.5	2.5 - 8	8 - 25	8	6.3	5.6	5.9
Peak chlorophyll-a (ug/L)	<8	8 - 25	25 - 75	NA	9.0	NA	8.9
Summer average Secchi disk (meters)	>6	6 - 3	3 - 1.5	2.7	3.0	2.9	3.2
Minimum Secchi disk (meters)	>3	3 - 1.5	1.5 - 0.7	NA	1.9	NA	1.5
Minimum Dissolved Oxygen in lower waters (% saturation)	80 - 100	10 - 80	Less than 10	Less than 10	Less than 10	Less than 10	Less than 10

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

In addition to agricultural BMPs, streambank stabilization projects have been completed along reaches of North McMillan Creek, Wilkins Creek, and North Gully. Baseline (pre-remediation) data from 2008 are available; in 2019 the SUNY Brockport team designed a sampling program to compare nutrient and sediment transport both before/after and upstream/downstream of the remedial sites. Monitoring continued in 2020 to capture high flow conditions. Ultimately, the findings can inform a cost-benefit analysis of streambank stabilization projects. Results indicate that erosion control measure are failing on North McMillan Creek. Continued inspection and maintenance are required.



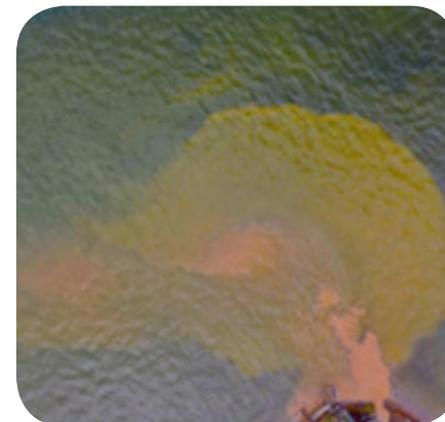
Streambank erosion on two Conesus Lake tributaries.

Ecological Impacts of Stream Inflows

In 2020, the project scientists began exploring the interactions between nearshore macrophyte beds and inflows from tributary streams. Karl Hanafin, CLA, teamed with Dr. Bosch and Dr. Chislock to explore the application of in-lake conductivity sensors and aerial surveillance to evaluate near-field (localized) effects of macrophyte beds on dispersal of dissolved and particulate materials flowing into Conesus Lake during storms.

Sensors were placed at various distances offshore of Graywood Gully to monitor and record differences in water temperature and conductivity, an indicator of dissolved materials. Only the sensors placed closest to the tributary mouth were able to detect a change in conductivity during an intensive rain event on July 11, 2020 (2 inches of rain in 5 hours). This finding suggests that conductivity is not an appropriate measure to track dispersal of dissolved materials.

In contrast, the use of aerial drones to photograph fate and transport of particulate material documented the extent of visible plumes entering the lake after intense rainfall events. These images highlight the need to continue to focus on the lake watershed to identify major sources of sediment inflows and mitigate them to the extent possible. The use of aerial drones in lake management is an emerging technology. Drones can collect multispectral and hyperspectral images for use in tracking sediment plumes. In addition, the aerial images can survey lake surfaces for the occurrence and intensity of cyanobacterial blooms (HABs). The project team will continue to explore technology and remote sensing applications with potential to enhance our collective understanding and management of Conesus Lake.



Tributary plumes entering the lake immediately after major events in Spring 2020. Drone photo source: Karl Hanafin

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 Inlet in 2011, 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, update in process). Implementation efforts continued in 2020.

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.

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



R. Videki, Bugwood.org

Hydrilla

dissolved oxygen content in the water column, leading to fish kills. Dense hydrilla growth would significantly impair fishing, boating, and general 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.

Starry Stonewort (*Nitellopsis obtusa*)

Starry stonewort (SSW) is a Eurasian native that was found in the St. Lawrence River in 1978, and over the past decade has spread rapidly inland. SSW is a macroalgae that looks “plant like”. It has several native “look alikes”, but may appear larger and more robust. SSW can grow tall and dense and form surface mats that make fishing, boating, and lake recreation nearly impossible. Dense growth may displace native plants and fish habitat. The full ecological impacts and management of SSW are not well understood.



SSW Collaborative website

Unique SSW characteristic- small white star-shaped bulbils.



SSW Collaborative website

SSW bed in Keuka Lake Outlet.

SSW is on the Watch List for Conesus Lake (NOT present) so PREVENTION is the most effective control. SSW is easily spread by human movement of bulbils and plant fragments between water bodies.

Rudd (*Scardinius erythrophthalmus*)

Rudd has been confirmed in Conesus Lake. Rudd are freshwater fish that can adapt to many different habitats and are often

found in still or slow-moving water and in areas of dense vegetation. Rudd can consume large amounts of aquatic plants along shorelines, which can degrade crucial breeding grounds for native fishes. Juvenile Rudd eat zooplankton and aquatic insects and thus pose 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.



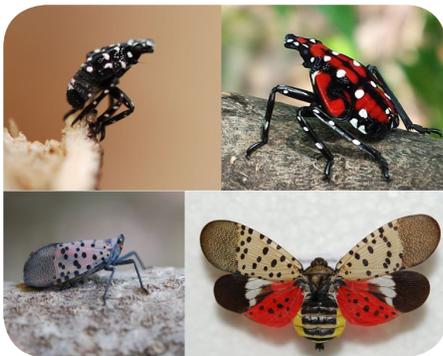
Finger Lakes PRISM

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*)

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.



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

Spotted Lanternfly

Originally from China and Asia, 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 or management of the primary host, Tree of Heaven. Report it to Department of Agriculture & Markets at spottedlanternfly@agriculture.ny.us and the Conesus Lake Watershed Manager at 585-243-7550.

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 are leading the coordinated response in Geneseo, with support from Livingston County, and the CLWC. Work continued in 2020, including landowner notifications and surveying of additional acres. Due to a continual decrease in plants from previous years, only one "pulling event" was required in 2020, with SUNY Brockport resurveying the site for "stragglers" into the fall. 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. Mehrhoff, 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 and trailers 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, starry stonewort, Asian clam, quagga mussels, and spiny waterflea. None of the invasives on the Watch List are known to be present, but they 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 2020, 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.

Two Watercraft Stewards staffed the Conesus Lake boat launch from Memorial Day to post Labor Day. Total boats inspected has significantly decreased annually at the boat launch since 2017, with a total of 8,439 boats inspected in 2017 to 3,989 boats inspected in 2020. Compared to last year, the 2020 program had an increase in residential boats inspected and a significant decrease in fishing boat and retrieval inspections.

Where COVID impacts may have led to an increase in residential boat inspections, it also led to the reduction in fishing boat inspections due to tournament cancellations. The reduction in total boats inspected from 2018-2020 may be related to changes in scheduling. 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.

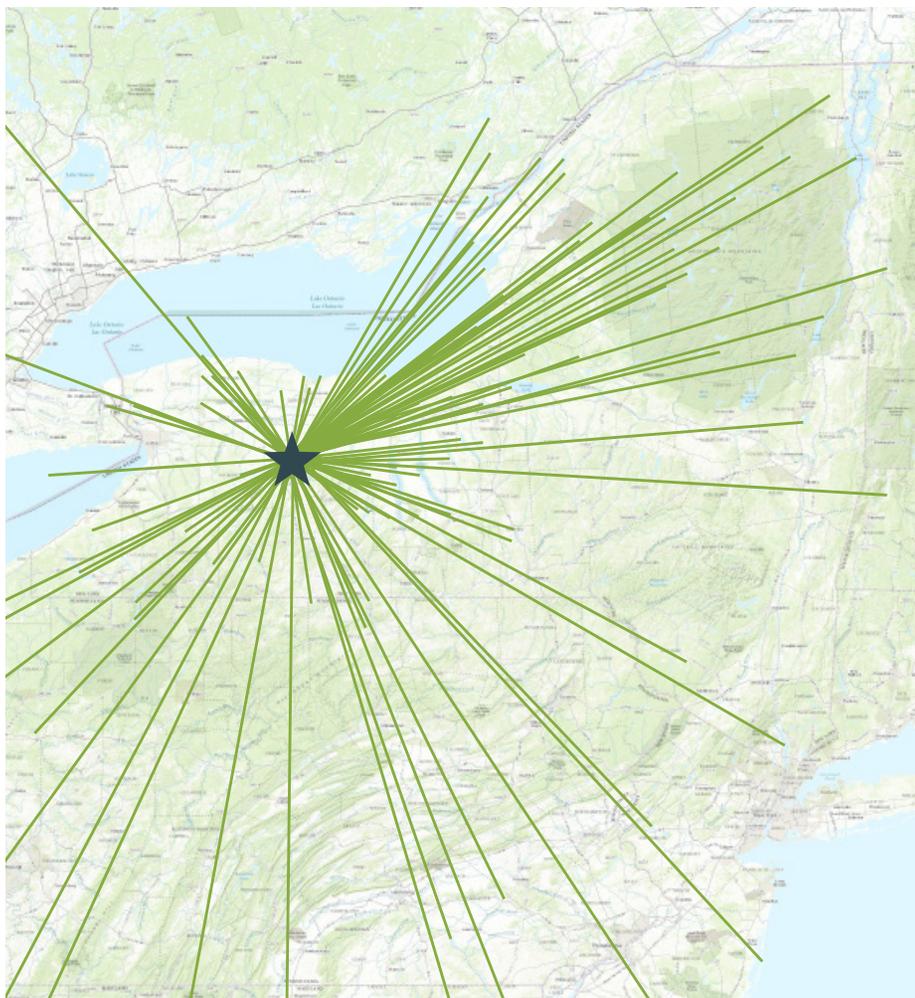
Watercraft Steward Program Data, Conesus Lake

	2020	2019	2018	2017
Boats recorded	3,989	4869	6423	8439
Non risk boats (last launch Conesus)	*	2446	5651	6715
Risk boats (last launch other)	600	*	772	1724
% of boats non risk	*	50%	88%	80%
% of boats risk	*	*	12%	21%
Boats found with organisms attached	32	24	4	12
Percent of total boats	0.80%	0.5%	.06%	0.14%
Percent of risk launches	5.3%	4.2%	.52%	0.70%
Prior contact with a Steward	86%	96%	98%	96%
Prevention steps taken prior to launch	66%	67%	97%	90%
Total Steward hours	*	*	1280	1255

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

The number of boats from other lakes being found with contaminants increased to 32, and organisms reported did not include any new invasives. By the end of 2020, 86% of boaters entering Conesus Lake boat launch had previously spoken with a watercraft steward. Boaters taking prevention steps prior to launch remained about the same at 66%.

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) from the DEC Chautauqua hatchery and 32,500 walleye 50-day fingerlings (1.5" length) from the DEC Oneida hatchery. 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 Conesus Lake.



CLA stocking of fingerlings in Conesus Lake.



Walleye fingerlings ready for stocking in Conesus Lake.

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.

2020 Inspection Activities	
Complaints	29
Construction Projects	15
Violations	5
New Septic Systems	7
Repaired Septic Systems	10
Sewage Overflows	0
Bacteriological Bathing Beach Water Samples	32
Beach Closures	1
Educational Events, outside of WEC programs	0
Damaging Flooding Events	0

2020 Complaint Breakdown	
Sediment and Erosion	17
Drainage	1
Sewage Discharge	0
Agricultural Related	1
Nuisance	1
Weeds/Algae/Odor/HABs Reports	8
Petroleum & Chemical	1

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.

In December 2020, Livingston County completed an update - the County's Comprehensive Water Supply Study, which includes an examination of Conesus Lake as a drinking water source. Implementation of recommendation will begin in 2021.

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)

Bathing Beach Monitoring

The LCDOH collects 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 by fecal material. While the coliform bacteria may not be pathogenic (disease-causing), their presence means that other harmful microbes may be in the water. Two bathing beaches: Southern Shores Beach and Camp Stella Maris were routinely monitored throughout the recreational season. Long Point Park Beach was closed in 2020 due to COVID restrictions.

Results are compared to the State ambient water quality standards for bacteria, which are used by the NYSDEC to evaluate whether a waterbody supports its designated best uses and by the NYSDOH to evaluate suitability for swimming at designated beaches.

The NYSDEC ambient water quality standard for fecal coliform bacteria is 200 colony forming units per 100 mL of lake water (cfu/100 mL), calculated as the geometric mean of at least five samples per month. A single sample maximum count (1000 cfu/100 mL) is also enforced by the NYSDOH for public beaches. The current bathing beach monitoring program collects weekly samples during the summer recreational season.



Water Sampling

The summer-averaged results for all beach locations ranged between non-detect (<2 cfu/100mL) and 63 cfu/100mL. There were 32 samples in total. No result exceeded the single sample limit of 1000 cfu/100 mL. The DOH is able to report full compliance with fecal coliform bacteria standards at the two monitored bathing beaches.

Beach Closure Days															
	2020			2019			2018			2017			2016		
	HAB	Bact.	Turb.												
Long Point	*	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Stella Maris	1	0	0	1	0	0	1	0	0	0	0	0	3	0	0
Southern Shores	0	0	0	1	0	0	1	0	0	0	0	0	8	0	0

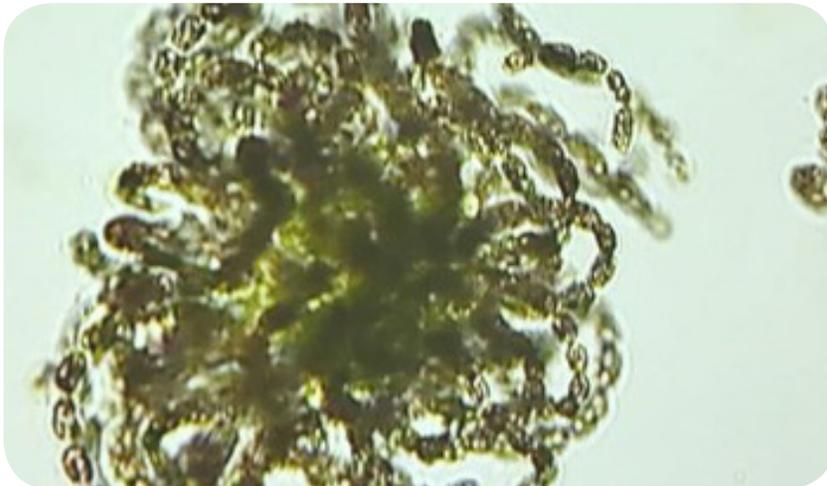
HAB: Harmful Algal Blooms Bact: Bacteria Turb: Turbidity
 *Long Point Park Beach closed in 2020 due to COVID restrictions.

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.

2020 Bloom Season

In Conesus Lake, the only HAB was identified on June 29th. Stella Maris Beach was closed and reopened July 2nd. 10 HAB public health advisories were issued in 2020, which included only one advisory for "blooms reported".



Dr. Bosch

Microscopic anabaena (type of Dolichospermum) from the 2020 HABs event, eastern shore of Conesus Lake.

Partnerships Protect Water Quality

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%.

Key Actions Taken to Address the Plan:

- Conesus Lake volunteer HABs monitoring program continued with over 100 volunteers working in conjunction with the Livingston County Marine Patrol. The monitoring team, trained by LCDOH and the CLA, resulted in eight citizen reports of suspected blooms. There were six suspected bloom reports for the 1 confirmed bloom, and two reports were determined not to be a HAB.
- 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.

- Conesus Lake water quality monitoring with SUNY Geneseo & SUNY Brockport research and CSLAP programs continued. As part of the Monitoring Program, researchers noted that the summer 2020 HABs pattern was different from previous years, with only one recorded HAB event in June. Typically, Conesus Lake can experience HAB events beginning in July lasting into August, then may wane in early August and re-emerge into a fall bloom. The study found that the decreased presence of cyanobacteria continued into the fall, and stated that the differences may be accountable to lower temperatures and wind driven water column mixing events that occurred in September and October (Characterization of Late Season Phytoplankton Bloom, 2020, I. Bosch *et al.*)

required reductions to meet target in-lake phosphorus levels. For Conesus Lake, all required reductions are allocated to nonpoint sources, including internal sediment loading.

The TMDL calls for substantial reductions in both external and internal loads, as summarized in the following table. The TMDL includes an implementation plan to guide the actions needed to meet target reductions. For Conesus Lake, these reductions are aligned with the HABs Action Plan. The TMDL also recognized the work of the Conesus Watershed Management Plan (CLWMP), the identification and implementation of BMPs and other nutrient control techniques, and the collaboration of involved stakeholders, as factors of successful implementation of the Conesus Lake TMDL.



Summer HABs, Stella Maris Beach.

Total Maximum Daily Load

In 2019, the NYSDEC TMDL for Conesus Lake was released, determining the maximum amount of a pollutant (phosphorus) that the lake can assimilate from all sources and still meet water quality standards for its designated best uses. Designated uses for Conesus Lake include a water supply source, primary and secondary contact recreation, and fishing. The TMDL identifies phosphorus sources contributing to the water quality impairment, the amounts coming from each source, and

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 Departments (Health and Planning), worked to deliver a year-round educational program, at no cost to participants, featuring scientists and professionals with local, regional, and state perspectives. In spite of COVID 19 restrictions, programming transitioned successfully to a virtual format, and nine programs reaching 396 participants were held. The average number of participants per session increased by 44% and the geographic range expanded from the previous year, 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.

Pilot Components

Four main strategies to achieve to achieve the project's goals:

- In-lake automated monitoring platforms with discrete sampling, USGS
- Tributary discrete sampling and shoreline mapping, USGS
- Intensive water quality sampling of tributaries, upstream, NYSDEC
- Intensive Lake Characterization, NYSDEC

USGS
NYSDEC Department of Conservation

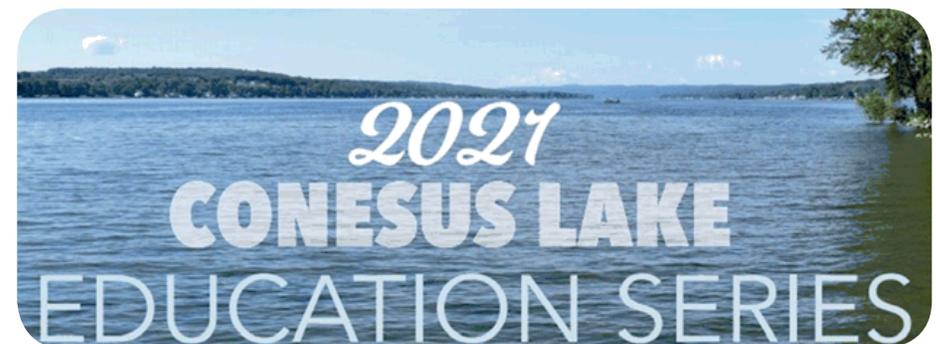
Watershed Education Center webinar, "HABs Initiatives & Water Quality for Conesus Lake", presented by NYSDEC Finger Lakes Hub.

Strategic Planning

The Conesus Lake Watershed Council (CLWC) has approved yearly work plans for implementing Conesus Lake Watershed Management Plan recommendations. Over the years, additional recommendations from watershed studies and Statewide plans and initiatives have added to the mix of potential activities in the watershed.

In 2020, the Watershed Council recognized that a more systematic approach to setting priority actions in the CLWC annual workplan would be beneficial. In consultation with EcoLogic, LLC, the project team created a recommendation scoring tool, designed to be transparent in its assumptions and easy to update as new information and priorities emerge. The team compiled and reviewed recommendations in key documents, worked with the CLWC Technical Committee to identify criteria for setting priorities, and applied the suggested criteria to rank potential 2021 projects or actions. These suggested actions were selected for their potential to enable the watershed community to continue to make progress, sustain valuable partnerships, and remain optimistic that their actions will benefit Conesus Lake.

The final document with approach and findings were presented to the CLWC in November 2020 and adopted. This document will be used to inform future yearly work plans for Conesus Lake Watershed projects and activities.



Aquatic and Aerial Surveillance

Use of drone and underwater technology for invasive species monitoring continues to grow on Conesus Lake. Since 2018, the CLA (operator Eric Randall) has deployed a modified Aquabotix Endura 100 to observe, collect, report, and archive plant species in Conesus Lake.



Aquabotix Endura 100

In 2020, use of the drone and underwater camera was introduced to the Watershed Management program. The DJI Mavic Pro2 drone and the Aqua-Vu HD 10i Pro Underwater Camera are operated by the Livingston County Department of Health (DOH), and the equipment was funded through the Finger Lakes-Lake Ontario Watershed Protection Alliance (FLLWPA). The first portion of the year was focused on familiarization of the equipment and credentialing. Mark Grove, DOH Environmental Health Director, was tasked with being the designated drone pilot and obtained his Unmanned Aircraft System (UAS) license through the FAA.



DOH and CLA drone training

Underwater camera operator, Don Maryanski, completed training on the equipment in the field during watershed surveillance.

Partners, including Livingston County Departments (Health and Planning), CLA and Finger Lakes PRISM, began discussion to identify a work plan for establishing an invasive

species investigation protocol. On-site training/testing with drone operators was held in late September. The first invasive species test flight was performed in the Fall of 2020 at the south end of Conesus Lake.



DOH Watershed Inspector operating underwater camera.

Although invasive species will be the primary focus, this new technology will allow us to investigate and document other lake issues such as potential HABs and erosion control issues. It is anticipated that the use of aquatic and aerial surveillance equipment will be integrated into the Conesus Lake Invasive Species Prevention & Response Plan and the Conesus Lake HABs Response Plan. No new invasive species in Conesus Lake have been identified using this technology to date.



Drone training at Vitale Park.



Drone image of Conesus Lake Inlet.

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 2020, the NRCS funded manure storage and cover crop projects in the Conesus Lake watershed, and supported three additional conservation plans in the watershed to be implemented in 2022 and 2023. Future projects include manure storage, forest management, and pollinator plantings.

FLOWPA funding was used by the SWCD on the Webb property in the Town of Livonia and for cover crops as part of the Upland Watershed Protection Program. Details of these projects are included below.

- Construction of a 2.25-acre grass-lined detention basin with a storage capacity of 2.6 million gallons.
- Designed to contain a 100-year storm event.
- Project occurred 1,000 feet above East Lake Road.
- Construction began in October and was completed in November 2020.
- Areas of disturbance were over seeded and mulched with eight tons of straw.

As part of Livingston County's FLOWPA Upland Watershed Protection Program, the Livingston County SWCD lead a cover crop initiative that provided cost share and technical assistance to five diverse animal and cash crop farm operations. FLOWPA funding supported the planting of 507 acres of cover crops, which leveraged an additional 300 acres planted voluntarily by the farm participants.



Detention basin under construction, Webb project in Town of Livonia.



Location map Webb project, Town of Livonia.



Topsoil reapplied to entire area.



Cover crops planted in the Conesus Lake Watershed.



Completed basin, seeded & mulched.

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 gypsy moth affecting forest cover and riparian habitat.
- Ten HAB Public Health Advisories were issued in 2020, which included only one advisory for “blooms reported”. A reduction in HABs were reported in 2020 with one event, compared to six blooms reported in 2019, and nine blooms reported in 2018.
- Impact of aquatic invaders in Conesus Lake: Rudd. Risk of aquatic invaders coming to Conesus Lake: hydrilla, water chestnut, starry stonewort, 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 increases in natural and stormwater related high flow events contributing to property and infrastructure damage and increasing water pollutant loads.
- Less reliable snowpack and spring groundwater recharge.
- Increases 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

- Continued advocacy for agricultural BMPs.
- Seek funding to assist Towns with roadside ditch remediation, map problem areas.
- Encourage participation in EFC septic system replacement program.
- Assist municipalities with water resources planning (safe yield analysis update) and zoning.
- Continue active participation in CSLAP, PRISM, Watercraft Steward Program, and others.
- Public Education & Outreach initiatives; including WEC programming.
 - Stream and shoreline restoration and green infrastructure practices.
 - Land use practices effect on stormwater, soil erosion, and water quality.
 - Invasive species education and prevention.
- Conduct SUNY annual monitoring program and DOH 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 HAB 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.
- Use of the Priority Recommendations for Conesus Lake and watershed management as part of a strategic approach to develop the CLWC Annual Workplan.

Document (Rec #)	Recommendation	Actions
Annual Report Card		
CLWMP (H-2)	Prepare and distribute an annual Conesus Lake and Watershed Report Card.	2020 Annual Report Card was approved by the Watershed Council and provided to NYSDEC/Finger Lakes Hub. Recommendation Scoring Tool was created and Priority Recommendations were approved by the CLWC for use as part of a strategic approach to develop the CLWC Annual Work plan.
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.	LCDOH continued public bathing beach and HABs monitoring programs. LCDOH & CLA conducted the volunteer HABs monitoring program. SUNY Geneseo & SUNY Brockport 2020 Summer Monitoring Study data was analyzed and posted on the Livingston County website. SUNY Geneseo 2020 monitoring focused on watershed monitoring of streams included in original USDA project and monitoring streams at streambank project sites. Conductivity arrays were installed for monitoring trib plumes. Lake monitoring included mapping of macrophyte beds and a plume study at Sand Point and North Gully. CLA Zebra Mussel Monitoring Program completed. No quagga mussels detected in Conesus Lake in 2020. CLA maintained instrumentation to monitor lake temperature profiles and provide research-quality meteorological data for Conesus Lake. Two weather stations and three lake temperature arrays/profilers operated by CLA were maintained and fully functional.
HABs	Implement recommendations from the NYSDEC HABs Action Plan to minimize the frequency, duration and intensity of HABs in Conesus Lake.	The Town of Livonia was awarded two WQIP grants for Vitale Park: Natural Shoreline Restoration and Old Outlet Reconfiguration. Livonia has secured Livingston County Highway Department for culvert replacement. Livonia and Planning staff worked with NYSDEC on final design and permitting. Project installation to take place in 2021-2022.
TMDL	Implement recommendations from the EPA/NYSDEC TMDL Implementation Plan to assist in watershed nutrient reduction.	DEC Finger Lakes CSLAP program and FLOWPA funds were secured for two monitoring sites for Conesus Lake. CSLAP program continued in 2020 with three CLA volunteers and annual CSLAP data has been released.

Document (Rec #)	Recommendation	Actions
Invasive Species		
CLWMP (G-1)	Investigate and implement effective methods to control the spread of non-native (exotic) organisms.	<p>Watercraft Steward Program is fully funded by NYS OPRHP through 2022, and OPRHP contracts with SUNY ESF for two watercraft stewards for Conesus Lake. Stewards started on Memorial Day weekend and finished post Labor Day. 3,989 boats were inspected, 32 boats were found with organisms attached.</p> <p>Watershed Manager participated in PRISM Steering Committee, Working Group and Strategic Plan Update Steering Committee meetings.</p> <p>CLA volunteers participated in the PRISM Macrophyte Survey program, with 8 volunteers surveying by rake toss. The CLA operated ROV to view aquatic plants was deployed.</p> <p>Use of the drone and underwater camera was introduced to the Watershed Management programming for invasive species and HABs surveillance.</p> <p>SUNY Brockport - led MAM eradication efforts that continued at the Geneseo site; continued reduction in plant numbers.</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 2020, 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, 32,500 walleye 50-day fingerlings, and 9,500 tiger muskellunge fingerlings. CLA stocked 1,200 fingerlings.
Stream and Stormwater Management		
CLWMP (A-3)	Develop public education campaigns on BMPs for lake and watershed residents.	<p>Nine educational programs were held at the WEC, reaching 396 participants. 2020 programming transitioned to a digital platform, and planning for the 2021 programming is in process.</p> <p>Distribution of Conesus Lake Stormwater Toolkit for homeowners and municipal officials, funded by FLOWPA, continued. Posted on the County website.</p> <p>Water quality monitoring and Conesus Lake Annual reports were made available on the Planning Department's Conesus Lake webpage.</p>

Document (Rec #)	Recommendation	Actions
Stream and Stormwater Management		
CLWMP (A-1)	Review and amend zoning regulations to improve consistency in near-lake areas.	Planning Department provided support to the Towns of Sparta & Geneseo on their Ag & Farmland Protection Plan close-outs processes; Plans received final approval from the Dept. of Ag & Markets.
CLWMP (C-1), Wilkins Creek	Develop and implement program to restore and stabilize streambanks in the watershed.	<p>Interest in additional grants funding projects in the Wilkins Creek subwatershed was explored for the Village of Livonia and Livonia High School. CLA applied for NYSP2I grant funds to purchase instrumentation to be used in the Livonia HS Wetland Hydrology Study but was not able to satisfy grant requirements.</p> <p>Town of Livonia was awarded two WQIP grants for Vitale Park. Natural Shoreline Restoration and Old Outlet Reconfiguration. Town has secured Livingston County Highway Department for culvert replacement. Town and Planning staff worked with NYSDEC on final design and permitting. Project installation to take place in 2021-2022.</p>
HABs	Implementation of the Conesus Lake HABs Action Plan.	<p>DOH completed weekly surveillance of HABs, one HAB event recorded on June 29.</p> <p>Conesus Lake volunteer HABs monitoring program continued, working in conjunction with the Livingston County Marine Patrol. The team, trained by LCDOH and CLA, resulted in 8 citizen reports of suspected blooms (6 suspected bloom reports for the 1 confirmed bloom, and 2 reports were determined not to be a HAB).</p>
CLWMP (B-1)	Secure funding to help mitigate the financial impacts of changes in agricultural practices on the producers.	County continues to work with the Livingston County SWCD 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>NRCS funded manure storage and cover crop projects in the watershed; supported 3 additional conservation plans in the watershed to be implemented in 2022 and 2023.</p> <p>LCSWCD continued to conduct an Upland Watershed Protection Program for agricultural land uses, including construction of a 2.25-acre grass lined stormwater detention basin, with a storage capacity of 2.6 million gallons, and erosion control. LCSWCD supported the planting of 507 acres of cover crops in the watershed.</p>

Document (Rec #)	Recommendation	Actions
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 a source of funding to property owners for replacement of eligible septic systems located in direct proximity to tributaries of Conesus Lake. To date, one potential septic system grant application processed, and 2 repair permits and 5 new septic permits issued.
Weeds and Algae		
CLWMP (G-2)	Develop and implement a program for cleaning accumulated aquatic plants and algae along the shoreline of Conesus Lake.	Opportunities to work the Workforce Development programs on shoreline clean up will be pursued when available. Conesus Lake Fish Kill Contingency, Invasive Species Response Plan, and HABs Response Plan updates are underway. All Plans did not require activation in 2020.
Public Education		
CLWMP (A-3)	Develop public education campaigns on BMPs for lake and watershed residents.	WEC education calendar link added to County Reports, Publications & Educational Resources webpage. Two weather stations installed on Conesus Lake shoreline are supplying comprehensive weather data, publicly available on the CLA website.
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.
Grant Development		
All	Secure funding outside of the EPF funding source to implement CLWMP activities.	NYSDEC Urban and Community Forestry Grants: Watershed Manager and WEC Outreach Committee provided support to the Town of Geneseo on grant public education requirements. Planning Department provided support to County Comprehensive Water Supply Study Update.
<p>CLWMP - Conesus Lake Watershed Management Plan Wilkins Creek - Wilkins Creek Subwatershed Stormwater Study</p> <p>HABs - Conesus Lake Harmful Algal Blooms (Blue Green Algae) Early Detection & Rapid Response Plan TMDL - Total Maximum Daily Load for Phosphorus in Conesus Lake</p>		

Conesus Lake Watershed Council

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Cover photos provided by Livingston County Department of Health, Livingston County Soil & Water Conservation District, and Livingston County Sheriff Marine Patrol, SUNY Brockport, and K. Hanafin, Conesus Lake Association.