



Spring 2021

LAKE REPORTER

ANOTHER THREAT TO CLEAN WATER: GYPSY MOTHS

By Lynn Klotz, CLWA Board Member

Our beautiful lake and watershed are frequently bombarded by multiple threats and an all too familiar cry is "but what CAN I do?" **CLWA has a new volunteer opportunity** for you to get some fresh air, learn about the relationship between healthy trees and clean water, and make a difference by removing egg masses of the invasive, European gypsy moth before they hatch later this spring. Each egg mass can contain up to 1,000 caterpillars, which will hatch in mid-May, so the time to act is now.



Photo: Sonya Carnevale, CLWA

Please join us for one of our Gypsy Moth Scout & Scrape-a-thons! Three family-friendly events have been scheduled on **Saturday April 17th (10 am - 12pm)**, **Friday April 23rd (10 am - 12 pm)**, and **Saturday May 1st (1:30 - 3:30 pm)** at different parks around the lake with noted infestations. Each Gypsy Moth Scout & Scrape-a-thon will begin with a short orientation and we'll wrap up in two hours.

CLWA will provide the materials needed; you provide the enthusiasm and personal face masks. We will maintain physically-safe distances from each other and enjoy making a dent in the gypsy moth population in an environmentally safe manner. Please dress for the conditions - protective gear for rain, long pants to protect against ticks and poison ivy, and sturdy shoes or boots.

If you'd like to be a part of this new initiative, please **head to our website to register (required)** for one of the three Gypsy Moth Scout & Scrape-a-thons at Bare Hill, Stid Hill, or Gannett Hill Parks. Until then, please scour your property, outdoor furniture, and fences for egg masses. The eggs must be scraped off and collected and disposed of properly; they are killed only by burning or soaking for 48-72 hours in soapy water - eggs cannot be left on the ground to hatch and continue their mission of devouring trees and shrubs.

The European Gypsy Moth was intentionally imported in 1869 and subsequently escaped, spreading from the epicenter in New England to 21 states and northeastern Canada. Reducing their populations will be vital to protecting our hardwood forests and our watershed.

A few interesting facts about gypsy moths and their caterpillars:

- **Gypsy moths are one of America's most destructive pests**, feeding on over 300 species of trees and shrubs. They are able to cause extensive tree mortality. Deciduous trees can often withstand up to three years of defoliation, but conifers often die after the first year, especially if already stressed. In the eastern United States, European gypsy moths defoliate an average of 700,000 acres each year!
- **Gypsy moths are a threat to our watershed** because healthy trees are vital in controlling erosion, reducing contaminated run-off, and providing shade and habitat for native terrestrial plants, birds, and mammals.



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Cover image by Leanna Landsmann

PRESIDENT'S MESSAGE By Neil Atkins



The Canandaigua Lake Watershed Association committees are actively planning our programs for this coming year. We will again partner with the Finger Lakes Institute to continue with our watercraft stewards program with the same level of boat inspections. We will continue our strong partnership with the Canandaigua Lake Watershed Council Watershed Program Manager, Kevin Olvany, and Watershed Technician, Kim McGarry, in support of their programs.

The CLWA Outreach Committee has lined up a great slate of spring programs and workshops. Please see the schedule of events listed on pages 8 & 9, and consider joining us to learn more about the many ways you can help protect the watershed by being "lake friendly". Our Outreach team is also part of a Regional Campaign Week for Lake Friendly Living in partnership with our neighboring Finger Lakes (Seneca, Keuka, Cayuga, Skaneateles, Owasco, Otisco) from May 2-7. More details to come on this week in the near future.

The Citizen Science Committee will continue our Secchi Disk and Citizen Statewide Lake Association Program (CSLAP) sampling programs. The HABs (Harmful Algal Blooms) shoreline monitoring program, in partnership with Seneca Lake Pure Waters, will be expanded to include greater coverage of the Canandaigua Lake shoreline, and an extended monitoring season that will start one month earlier. Two stream monitoring programs will also occur - one looking at E.coli in some streams in the southern half of the watershed, and one that will look at nutrients in select streams that traditionally are near HABs "hotspots" in the northeast quadrant of the lake.

We are also wrapping up our new strategic plan, which has been facilitated by Causewave Community Partners. We are excited to have a new framework to help guide the organization over the next three years so that we may make progress on the many existing and emerging threats to our watershed. More to come on our new strategic plan in our next issue.

As we look towards the future, it is clear that our partners, members, and volunteers can help us succeed as an organization.

Please consider becoming involved with our programs as a volunteer or as a board member. Click the "Volunteer" tab on our web site and **see how you can help us** in the areas where we need assistance: <https://www.canandaigualakeassoc.org/get-involved/volunteer/>.

You can also help us build a strong and active membership base and grow our stewardship program. Encourage your neighbors to become members and take our Lake Friendly Lawn Care pledge: <https://www.canandaigualakeassoc.org/education-outreach/lake-friendly-lawn-care/>.

As always, we thank our volunteers for their tireless effort and we thank you, our members, for your continued support.

Neil Atkins, President
Canandaigua Lake Watershed Association

GYPSY MOTHS, CONTINUED FROM PAGE 1

- The destruction from gypsy moths in hardwood stands **may lead to a decrease in both water quality and property values.**
- Contact with gypsy moth caterpillars **may cause allergic reactions** in sensitive individuals.
- **Gypsy moth egg masses may survive if they are scraped off onto the ground;** the casings must be collected and destroyed to prevent the larvae from hatching.

FOUR LIFE CYCLES OF GYPSY MOTHS

Gypsy moths have a four-stage life cycle. Learn to identify each stage:

1. Egg masses are fuzzy, buff-colored, roughly 1-3" long, found on tree bark, in wood piles, under picnic tables/outdoor furniture. Photo by Lynn Klotz, CLWA



2. Larva hatching. Larva hatch in this region in mid-May. Top photo by Lynn Klotz, CLWA and bottom photo by John H. Ghent, USDA Forest Service, Budwood.org



3. Pupae: form June-July, brown, ½" long. Photo by PA Department of Conservation and Natural Resources-Forestry Archive, Bugwood.org



4. Adults "hatch" later in summer, are about 2" long; females cannot fly.

Adult female



Adult male



GYPSY MOTH RESOURCES:

Check out this DEC website to learn more about how you can mitigate EGM infestation on your own property: <https://www.dec.ny.gov/animals/83118.html#Introduction>

To learn more about terrestrial invasives in our region, see this DEC resource: https://www.dec.ny.gov/docs/lands_forests_pdf/foresthealthpresforcoopforesters.pdf

WATERCRAFT STEWARDS ON CANANDAIGUA LAKE, 2020

By Megan Harris, Watercraft Steward, Finger Lakes Institute at Hobart and William Smith Colleges

Throughout the Finger Lakes, Aquatic Invasive Species (AIS) threaten the health of our waterbodies. They take advantage of a lack of predators and reproduce at alarming rates. For example, Hydrilla can grow up to an inch per day and just one water chestnut rosette has the potential to produce 100 the following year. Taking more than their fair share of the lake’s resources, AIS crowd out native species and impact water quality. The Finger Lakes Institute (FLI) at Hobart and William Smith Colleges, host to the Finger Lakes Partnership for Regional Invasive Species Management (Finger Lakes PRISM), stations watercraft stewards at launches throughout the region. The goal of the Watercraft Steward Program (WSP) is to inspect watercrafts entering and exiting a given waterbody for AIS while providing outreach and information about AIS to launch users.

The WSP has had a presence on both public launches at Canandaigua Lake since 2012. Canandaigua Lake is considered high-priority based on the high level of traffic seen at these launches and the presence of threatening AIS populations within the lake. Water chestnut and starry stonewort, both present in Canandaigua Lake, are among the top three highest priority species threatening the Finger Lakes. On the north end of the lake, at Canandaigua Lake State Marine Park (CLSMP), the FLI is supplemented by the SUNY ESF/NY Office of Parks, Recreation and Historic Preservation (OPRHP) from Thursday to Sunday each week. Unless otherwise indicated, any information presented here for CLSMP includes both FLI and OPRHP data. The FLI provides sole coverage at the Woodville DEC Boat Launch on the south end of Canandaigua Lake. Finger Lakes Institute steward coverage at either launch on Canandaigua Lake has been higher than that of any other launch in the region year after year, and 2020 was no exception (Table 1). Compared to 2019 (Table 2), 2020 on Canandaigua Lake saw a great increase in traffic. Canandaigua Lake State Marine Park had two stewards present on 32 days this season, and three stewards on 11 days this season.

Table 1. 2020 Watercraft Steward Program Coverage Data from Canandaigua Lake Launches

Launch	Organization	Hours Covered	Watercrafts Inspected	Boat Inspections/Day	People Reached
CLSMP	FLI	1,147	6,126	54	16,810
	OPRHP	450*	3,972	88	9,910
	Total	1,597	10,098	142	26,720
Woodville	FLI	1,256	7,419	57	15,512
Total		2,853	17,517	199	42,232
<i>*OPRHP hours are estimated at 10 hours per day</i>					

Table 2. 2019 Watercraft Steward Program Coverage Data from Canandaigua Lake Launches

Launch	Organization	Hours Covered	Watercrafts Inspected	Boat Inspections/Day	People Reached
CLSMP	FLI	1,283	6,518	58	15,958
	OPRHP	360*	1,712	47	4,271
	Total	1,643	8,230	105	20,229
Woodville	FLI	957	3,973	34	8,659
Total		2,600	12,203	139	28,888
<i>*OPRHP hours are estimated at 10 hours per day</i>					

2020 was an unprecedented year for the WSP due to the ongoing pandemic caused by the potential spread of the COVID-19 virus. In order to ensure the safety of our stewards and related staff, the FLI put a number of precautions in place. Meetings were held on zoom or outdoors and each steward was provided with personal protective equipment (PPE): face masks, hand sanitizer, and disinfectant spray. Stewards were required to make use of PPE and ensure social distancing between them and any launch users. Stewards were also encouraged to avoid making contact with watercrafts when possible. Instead, stewards encouraged boaters to perform the inspection while they pointed out areas most likely to be hiding AIS. These practices were consistent at FLI launches throughout the Finger Lakes region.

In addition to causing essential changes in operating procedures, the ongoing pandemic caused a spike in user traffic at boat launches across the region. In terms of average boats seen coming through the launch per day, CLSMP saw a 21% increase compared to 2019, while Woodville saw a 57% increase. The lack of user fees at the Woodville launch are suspected to be a potential cause for the larger increase in traffic compared to that at CLSMP. Surprisingly, however, this increase in traffic had almost no effect on the proportion of user groups seen at either launch (figures 1). While there was an increase in the proportion of commercial use at CLSMP and an increase of about 5% for recreationists at Woodville, proportions of other user types remained consistent.

In 2020, even with an increase in usership, over 90% of users at both launches had previously encountered a watercraft steward (Figure 2). While expected, this may indicate that the increase in the number of watercrafts passing through these launches is in part due to the same people going out boating more frequently, rather than a large number of new users.

Figure 1. User Groups on Canandaigua Lake in 2019 and 2020

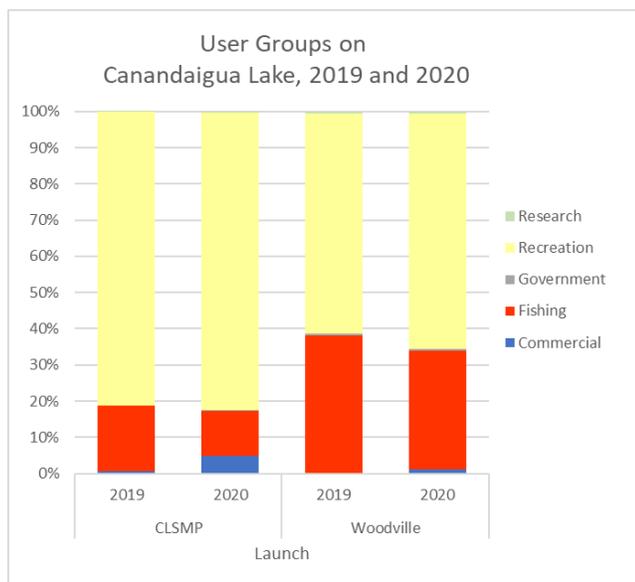
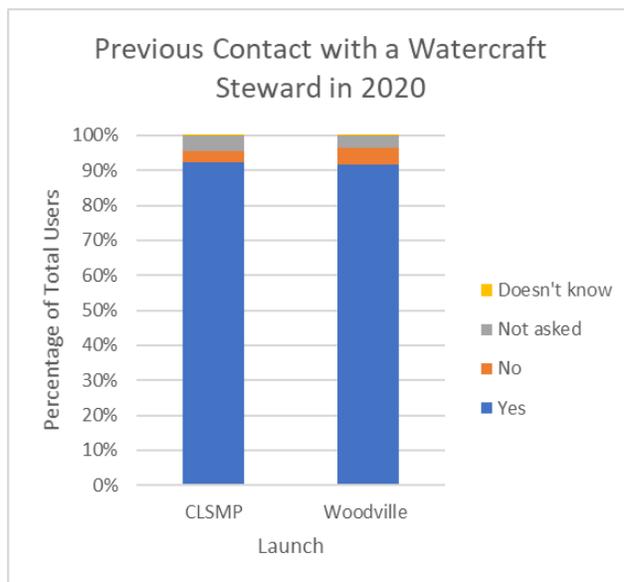


Figure 2. Previous Contact with a Watercraft Steward in 2020

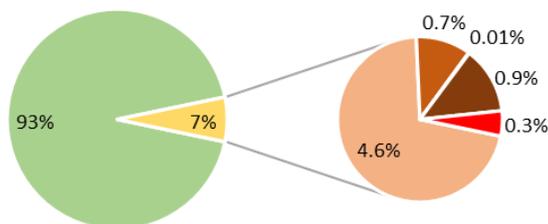


Although our stewards are a familiar presence on Canandaigua Lake, some boats inevitably miss their inspection. However, stewards are instructed to record data on every boat that passes through. Since uninspected boats could pose serious threat to the region, we looked at reasons some inspections may not have been performed. Flat out denial from a boater is the case for less than 1% of all inspections (Figure 3). Far more often, the cause for a missed inspection is a different reason, some hypotheses include:

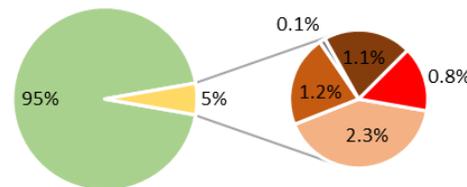
- Avoided – The boater did not stop in the launching area before launching, or after retrieving their watercraft, avoiding the steward. This tends to happen when a launch is busy and the boater is trying to get out of the way of other launch users.
- Busy – The launch was too busy for the watercraft steward to reach a watercraft. The steward could not make it over for inspection, but recorded data on group size, registration state, etc.
- COVID – The boater did not agree to an inspection due to concerns over COVID-19.
- Other – Any other suite of reasons such as the steward being on break or in the bathroom, hazardous weather conditions, or familiar boaters who always use the same water body and don't want to stop for an inspection, but have in the past.

Figure 3. Boater inspection compliance on Canandaigua Lake in 2020

Boater Inspection Compliance at CLSMP



Boater Inspection Compliance at Woodville



Agree to Inspection Avoided Busy COVID Other Refused Agree to Inspection Avoided Busy COVID Other Refused

WATERCRAFT STEWARDS, CONTINUED FROM PAGE 5

For both launches on Canandaigua Lake, the most common reason for a missed inspection is avoidance. These numbers may be reduced if more focus is put on making sure stewards are visible and people know why they're there. For this reason, the WSP will acquire sandwich-board signs which can be placed at the entrance of all launches with stewards, indicating that users should stop for an inspection before launching and after retrieving their watercraft.

Overall, the 2020 WSP season was successful. We had daily steward coverage present to intercept 6,426 organisms including both native and invasive species. Table 3 below shows the top ten species found on Canandaigua Lake. While the top three species found were native, there were invasives encountered. Starry Stonewort, one of the most heavily targeted AIS in the region and throughout the Great Lakes Basin, was found 55 times. This emphasizes the importance of having diligent coverage on Canandaigua Lake.

Table 3. Top ten species found on Canandaigua Lake in 2020

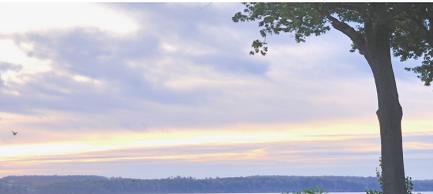
	CLSMP	Woodville	Total
Eel Grass	977	811	1788
Elodea	259	987	1246
Native Pondweed	363	683	1046
Curly Leaf Pondweed	163	467	630
Coontail	480	94	574
Eurasian Watermilfoil	300	270	570
Zebra Mussels	62	177	239
Attached Debris	145	37	182
Starry Stonewort	3	52	55
Quagga Mussels	7	25	32

Highlight indicates an invasive species

Next season, the WSP is planning to continue steward coverage at Canandaigua Lake launches. As we continue to use data to learn more about activity at these launches and those across the region, the FLI will tweak our procedures to do the best work possible. Preventing the further spread of AIS in the Finger Lakes is essential to the proper functioning of these ecosystems, and continues to be a primary goal of the Finger Lakes PRISM.

FINGER LAKES
LAKE FRIENDLY
LIVING WEEK

MAY 2-8, 2021






JOIN THE LAKE FRIENDLY LIVING COALITION FOR A WEEK OF VIRTUAL EVENTS AIMED AT PROTECTING THE LAKES WE ALL LOVE.

EVENT ANNOUNCEMENTS COMING SOON... STAY TUNED!

VISIT WWW.FLRWA.ORG/LAKE-FRIENDLY-LIVING FOR MORE INFORMATION

BEHIND THE SCENES

Over the last several months, CLWA has been following several areas of interest on behalf of our members, and has submitted public comment when appropriate. Below you will find an update on this activity.

BRISTOL SEWAGE DISPOSAL CORPORATION PUBLIC COMMENT

Thanks to engaged CLWA members, we were notified of a standard permit renewal application (SPDS) by Bristol Sewage Disposal Corporation (town of South Bristol, Ontario County) last fall. After communicating with the NYS DEC and conducting our own research, CLWA participated in the public comment process by submitting a brief statement with our concerns and reiterating our mission “to inspire the entire watershed community to become stewards of Canandaigua Lake through education, scientific research, and advocating sound public policy. By engaging all stakeholders, we strive to preserve, protect and restore the lake and its watershed for current and future generations.” Our comments also align with the 2014 Watershed Management Plan and the current challenges Canandaigua Lake faces.

The NYS DEC provided information we sought, addressed our concerns, and communicated their recommendations promptly.

We are pleased to hear from our members, to learn about opportunities for engaging watershed stakeholders, and to work within the systems in place to safeguard clean water.

TOWN OF CANANDAIGUA’S EXPLORATION OF LAKEFRONT PROPERTY PURCHASE FOR PUBLIC ACCESS

In early February, CLWA submitted a letter to the Town of Canandaigua during the open public comment period for the two parcels of land that the town is considering acquiring to add more public access to the lake. An excerpt from the letter can be found below:

CLWA supports the Town’s vision for increasing public access to the Lake, in addition to the Canandaigua Lake Watershed Management Plan which calls for protection of open spaces and preservation of natural shorelines. We look forward to working with our partners (Municipalities, the Watershed Council, the Finger Lakes Land Trust, and individual citizens) to create a coordinated strategic plan for additional protections to water quality and public access, and we encourage all municipalities to consider making similar efforts to that of the Town of Canandaigua. We recognize that the Town is striving for a balance between competing goals: establishing more public lake access, and addressing the concerns of lakefront property owners. We are confident that the Town, with input from residents, will make the appropriate decision on the current parcels under consideration, and any future opportunities that may present themselves. We applaud the Town for being transparent and thorough, and for welcoming public comments on multiple occasions.

GYPSY MOTH AERIAL SPRAYING

The Canandaigua Lake Watershed Association is aware of tree defoliation due to an infestation of Gypsy Moth caterpillars, during the summers of 2019-2020 in the Canandaigua Lake Watershed.

While CLWA cannot endorse a particular treatment process, we do want to provide information to help you make your personal decision based on the needs of your land. Here are a couple links of interest:

NYS DEC ReLeaf Webinar: <https://meetny.webex.com/recordingservice/sites/meetny/recording/31c7752a2edd4f26ac107af168e05cb0/playback>

Field Protocol for Egg Mass Sampling: https://www.dec.ny.gov/docs/lands_forests_pdf/gmprot2005.pdf

“Btk: One Management option for gypsy moth” from Michigan State University: <https://www.canr.msu.edu/news/btk-one-management-option-for-gypsy-moth>

“Long Term Evaluation of the Effects of Bacillus thuringiensis..” from West Virginia University: https://www.fs.fed.us/foresthealth/technology/pdfs/BtkNontargetStudy_v7.pdf

Gypsy Moth Cooperative Eradication Program in Hennepin County, Minnesota: https://www.aphis.usda.gov/plant_health/ea/downloads/gypsymoth-mn.pdf

We encourage those who are considering treatment to perform due diligence, and work with a reputable, licensed applicator.

UPCOMING

VIRTUAL EVENTS



We hope you will join us for these great upcoming virtual events, covering topics that will teach us how to build healthy ecosystems, increase backyard biodiversity, and keep an eye out for new Finger Lakes invasives.

Please note, registration is required for many of these events.

Growing Together: Polyculture systems and their impact on the environment



**STUDENT
PRESENTATION**

When: Wednesday, April 7th at 7:00 PM

Growing Together will explore the current systems in conventional and regenerative agriculture. Reviewing the scientific literature, we will discuss ways that new, sustainable farming and gardening practices strengthen ecosystems while minimizing inputs and maximizing returns to the grower. These practices can be modified to be applied on farms, at home gardens, and even to your grocery shopping routines! When it comes to creating a more sustainable food system, there is something we all can do.

Colden Proe is a resident of Canandaigua, NY, and a senior at Cornell University. Studying Viticulture and Plant Science, Colden is passionate about sustainable agriculture and science outreach, and enjoys finding ways to share what he has learned with others. He hopes that through education, sustainable practices and habits will become as widespread as possible.

Register: <https://us02web.zoom.us/join/register/tZlqceCrrTMTetaOcjJLNAKCbU4a-PXrohBN>

Healthy Lawns, Healthy Lake: A Workshop for Lawn Care Professionals, with Dr. Frank Rossi

When: Tuesday, April 20th at 10:00 AM

The heightened concern regarding harmful algae blooms and increased aquatic plant growth is encouraging watershed residents to seek out healthier lawn care alternatives to reduce their impact on the lake. This virtual webinar, offered to lawn care professionals, will provide practical strategies you can offer your customers that will reduce the amount of pesticides and fertilizers needed while maintaining a high quality lawn.

While this talk will be geared towards lawn care professionals, homeowners are also welcomed to participate. If you employ a lawn care service, please encourage your provider to attend!

This event is co-sponsored by the Chautauqua Watershed Conservancy and the Canandaigua Lake Watershed Association.

Dr. Frank Rossi ("the grass guy") is an associate professor at Cornell University in the School of Integrative Plant Science and is an Extension Turfgrass specialist. Frank will speak about practical solutions lawn care companies can use for their customers that balance Lawn and Lake Health.

Join: <https://us02web.zoom.us/j/85822873598>



Round Goby Rampage: The Pros and Cons of a New Finger Lakes Invader, with Dr. Susan Cushman

Date: Tuesday, April 27th at 7:00 PM

The Round Goby, *Neogobius melanostomus*, an invasive fish species now in some of the Finger Lakes has been known to forage primarily on dreissenid mussels and Lake Trout eggs, but their impact on other lake invertebrates is not well known. This presentation will provide background on their identification, invasion, ecology, and current distribution of the Round Goby in the Finger Lakes. Data will be shared from lake monitoring and citizen surveys, and feeding studies conducted to assess diet preferences and likely impact on native and invasive prey as well as native fishes.

Susan Cushman received her B.S. with a major in 1998 from William Smith College and her M.S. in 2001 from The Johns Hopkins University. She earned her Ph.D. in Fisheries Science from the University of Maryland Center for Environmental Science. Dr. Cushman has taught at Hobart and William Smith Colleges since 2007 where she teaches in the Biology Department and is a Research Scientist at the Finger Lakes Institute. Her areas of research spans many areas of ecology including stream ecosystems, fish ecology, invasive species, habitat restoration, and water quality in the Finger Lakes. She is the past president of the New York Chapter of the American Fisheries Society and the vice president of the Northeastern Division of the American Fisheries Society.



Register: https://us02web.zoom.us/meeting/register/tZ0pce2hrjvHtVeovuX_BWQcfcX9eBbtNJw

"Nature's Best Hope" with Author Doug Tallamy

Date: Monday, May 3rd 2021 at 10:00 AM

Recent headlines about global insect declines and three billion fewer birds in North America are a bleak reality check about how ineffective our current landscape designs have been at sustaining the plants and animals that sustain us. Such losses are not an option if we wish to continue our current standard of living on Planet Earth. The good news is that none of this is inevitable. Tallamy will discuss simple steps that each of us can- and must- take to reverse declining biodiversity and will explain why we, ourselves, are nature's best hope. This event is co-sponsored by the Chautauqua Watershed Conservancy and the Canandaigua Lake Watershed Association.

Douglas W. Tallamy is Professor and Chair of the Department of Entomology and Wildlife Ecology at the University of Delaware in Newark, Delaware. Chief among his research goals is to better understand the many ways insects interact with plants and how such interactions determine the diversity of animal communities.

Join: <https://us02web.zoom.us/j/87177245120>



**LAKE FRIENDLY
LIVING WEEK
PRESENTATION**

Filling the Gap: Conservation Easements for the Finger Lakes Region and an Update on Land Conservation in the Canandaigua Watershed

Date: Wednesday, June 2nd at 7:00 PM

This workshop will introduce various options available to landowners interested in conserving their land and water, with special focus on conservation easements. Max Heitner, Director of Conservation for the Finger Lakes Land Trust, will provide a brief overview of the organization's work within the Canandaigua Lake watershed, and describe available conservation tools for landowners, with plenty of time for questions.

Max Heitner, Director of Conservation with the Finger Lakes Land Trust, works to acquire new properties and easements throughout the region while also partnering on conservation projects that incorporate both long-term protection and present-day restoration. He holds degrees in Natural Resources from the University of Illinois and the University of Michigan.



Register: <https://us02web.zoom.us/meeting/register/tZUpceGgqjMuGNxzyBFTZcNP9oNFHg9nKXIH>

RESEARCH UPDATES ON HARMFUL ALGAL BLOOMS (HABS)

Information from Dr. Lisa Cleckner, Finger Lakes Institute and Douglas Merrill, CLWA Board Member

The pandemic presented some challenges to our continuing efforts to monitor and understand algal bloom formation on Canandaigua Lake; nevertheless, CLWA was actively involved in the summer of 2020 in a collaborative research project with several key partners. This project, funded by the New York State Water Resources Institute, was led by our colleagues at Cornell University (Dr. Ruth Richardson, Principal Investigator) and at the Finger Lakes Institute at Hobart and William Smith Colleges (Dr. Lisa Cleckner, Co-Principal Investigator). Other partners on this project included the Canandaigua Lake Watershed Council (CLWC), the Cayuga Lake Watershed Network, the Community Science Institute, and the Seneca Lake Pure Waters Association. The objective of the study was to pilot the use of various laboratory and field instruments to rapidly screen lake water samples for the existence of cyanobacteria and related toxins.

Cyanobacteria, sometimes referred to as blue green algae because of their color, are among the oldest organisms on earth, and they are ubiquitous in all water environments. Although we tend to think of them as being harmful, and they can be, they are also incredibly valuable to life on earth because they efficiently consume large amounts of atmospheric carbon dioxide and release oxygen during photosynthesis. Unfortunately, in highly dense concentrations as seen in blooms, they can produce several toxic compounds that are hazardous to people and other animals. Although several algal species (called phytoplankton) contribute to the blooms we see in our lake, the most abundant and dangerous is a group (a genus) called *Microcystis*. The toxin they produce, mostly when the algal cells die as a bloom collapses, is a liver toxin (hepatotoxin) called microcystin. This study was aimed at identifying the various groups of phytoplankton that make up algal blooms, and at screening for the presence and concentrations of microcystin.

Phytoplankton groups are identified by their specific chlorophyll signatures; these are the compounds that allow the algal cells to absorb energy from the sun to power photosynthesis reactions. In the summer of 2020, lake water samples were collected during traditional blooms as well as weekly whether blooms were observed or not. Results of the chlorophyll analysis of the four groups of phytoplankton can be seen in Figure 1. The horizontal axis consists of ID numbers that represent the date each sample was collected and its location on the lake. Clearly, cyanobacteria were the most abundant phytoplankton group in each sample. The first sampled HAB in Canandaigua Lake was collected in late July 2020 and the last observed HAB was in early October. As in past years, the days around Labor Day had the highest number of HAB events from across the lake.

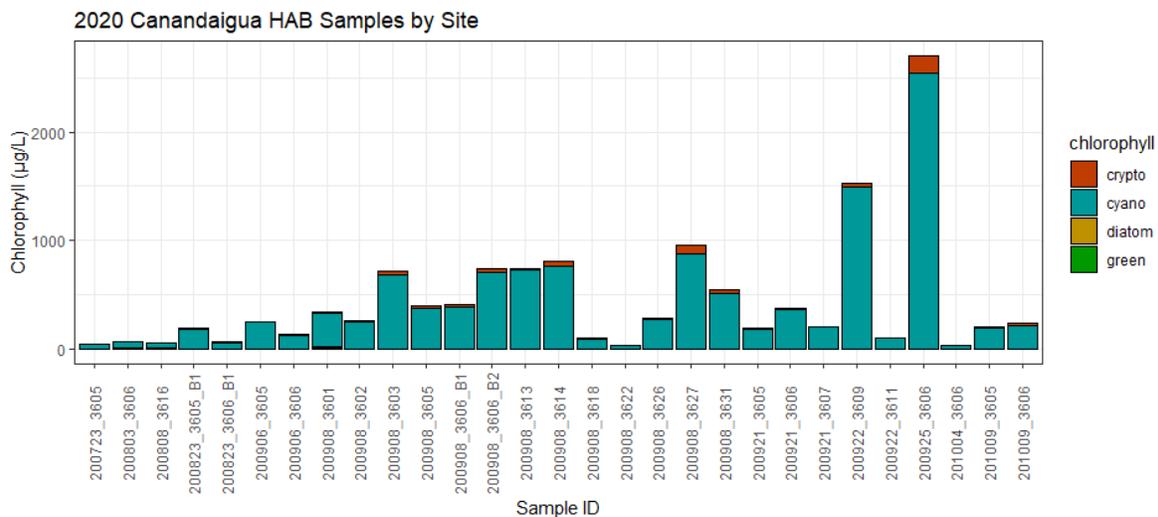


Figure 1. Chlorophyll concentrations by major phytoplankton group. Green = green algae, brown = diatoms, bluish-green = cyanobacteria, red = cryptophytes.

In New York State, a bloom is defined as having a cyanobacterial chlorophyll concentration of greater than 25 µg/L (micrograms per liter). Notice that on the 25th of September, the concentration of cyanobacterial chlorophyll was 2,500 µg/L, or 100x the concentration required to classify that event as a harmful algal bloom. It was a warm day with calm winds. An aerial view of this bloom can be seen in Figure 2. Microcystin analysis of the water sample showed a strong relationship with the chlorophyll concentrations, which means that when cyanobacteria are present in high concentrations, they are also producing and releasing toxins in high concentrations. The relationship between the concentrations of chlorophyll and toxins is a particular focal point for this project since Canandaigua Lake HABs appear to have higher toxin concentrations per unit of chlorophyll than Cayuga Lake.

RESEARCH UPDATES, CONTINUED FROM PAGE 10



Figure 2. Nearshore HABs observed on 9/25/2020 on the eastern shore of Canandaigua Lake (single arrows). Note that offshore blooms are also visible as well (double arrows). Photo by Tim de Smet, Binghamton University, Department of Geological Sciences & Environmental Studies.

It is clear that there are conditions that exist in Canandaigua Lake during the warmest summer months that promote the formation of HABs. They can appear very quickly and persist for hours or days, or they can disappear almost as quickly as they formed. This study also shows that high levels of toxins accompany the blooms, which means that humans and our pets should avoid coming into contact with water during a bloom event. Learn to identify a harmful algal bloom. For assistance, see the DEC harmful algae bloom (HABs) photo gallery at: <https://www.dec.ny.gov/chemical/81962.html>.

In addition to collecting water samples for the presence of cyanobacteria and microcystins, our team deployed a shoreline meteorological station to monitor environmental factors that could influence HAB formation. The station recorded air temperature, wind speed, wind direction, and solar radiation throughout the study period. The data are being analyzed currently, and we will publish a final report by July 2021.

You can help! We expect the summer of 2021 to be a busy season of research as we continue our fruitful collaborations with our university and lake association partners. If you would like to become a volunteer and participate in this effort, please see the write up on page 12 for more information, or visit the volunteer page of the CLWA website at: <https://www.canandaigualakeassoc.org/get-involved/volunteer/>.

CDGA COFFEE COMPANY GIVES BACK TO SUPPORT WATERSHED EDUCATION EFFORTS



This past fall, CLWA received a call from Don Cotter, owner of CDGA Coffee Company, notifying us that they were going to donate 10% of their whole bean coffee sales from the month of October to CLWA. At the end of November, Don visited the office and hand-delivered a \$600 check to help support the CLWA mission!

With this generous \$600 donation, CLWA was able to purchase video equipment for our Watershed Education Program, including a handheld gimbal device for filming, a tripod, and lights. During the pandemic, in-classroom visits from watershed educators have been put on hold, so our educators, Beth and Lindsey, have reformatted their lessons to go virtual via Zoom. This new video gear will allow us to make a series of short videos that they can share with students during their zoom lessons to make the sessions more interactive in nature.

CDGA is a family run, local business providing ethically sourced, organic beans that are roasted in-house at their Canandaigua location. You can find their beans by the bag at the Canandaigua Farmer's Market, Wegmans, The Company Store, and St. George's, among many other local retailers. You can also grab a cup at Rio Tomatlan, the Green Front, and Nolan's on the Lake. Check out their website <https://www.cdga.coffee/> for a full list of locations.

CLWA thanks the CDGA Coffee Company for giving back to the nonprofits in the Canandaigua community, and for being such a great supporter of clean water initiatives!

CLWA loves to connect with local businesses and organizations to collaborate and promote a healthy watershed community. We welcome the opportunity to chat!

Please email Lindsay McMillan at lindsaym@canandaigualakeassoc.org, or give our office a call at (585) 394-5030.

DO YOU LOVE CANANDAIGUA LAKE? WELL, IT NEEDS YOUR HELP!

Check out these opportunities to get involved in Citizen Science



As CLWA's involvement in research and monitoring grows, so does our need for volunteers. It takes the hands of many working "behind the scenes" to help run programs and participate in scientific data collection, so that we can share the results with the greater watershed community.

That's where you come in. Are you looking to make a difference in the health of Canandaigua Lake? If the answer is yes, we hope you will consider joining our efforts during the summer of 2021 by participating in a community science program to help monitor the lake.

CLWA and our partners have taken every precaution to ensure a safe, socially distant experience for volunteers. Trainings are held virtually and plenty of support (and camaraderie) is offered to ensure you are set up to succeed!

Here are two ways you can get more involved.

SHORELINE HARMFUL ALGAL BLOOM (HAB) MONITORING

CLWA is looking to expand coverage around the lake this year by adding more volunteers to assist with shoreline monitoring for HABs. We are in need of more monitors throughout the shoreline, and especially at the southern end of the lake.

What's required:

- Attend a 90-minute virtual training session, hosted by CLWA.
- A smartphone and willingness to enable GPS location services when taking a photo.
- An ability to access and monitor a mutually agreed upon shoreline "zone" on a weekly basis from early August to early October. (If you are a shoreline property owner, your zone can be your waterfront area, but opportunities are also available to monitor public access areas!)
- A commitment to submit at least one weekly report through a simple online form during the monitoring period.

Volunteer reports are used to assess overall lake conditions and contribute towards the long-term research efforts on the lake. We appreciate the efforts of our citizen scientists to help monitor water quality!

If you are interested in becoming a shoreline HABs monitor for the 2021 season, please fill out the google form at <https://forms.gle/uxnJ8Quqkfi7cAh8> or email HABs@canandaigualakeassoc.org.

FINGER LAKES INSTITUTE AQUATIC PLANT SURVEY PROGRAM

Aquatic invasive species (AIS) like Starry Stonewort and Water Chestnut threaten the overall health of Canandaigua Lake. They clog boat motors in seconds, and crowd out native species that provide food and shelter to native fish and invertebrates. Left to their own devices, invasive species will ravage an ecosystem in no time.

The good news? The [Finger Lakes PRISM](#) (Partnership for Regional Invasive Species Management) isn't going to let that happen! There are programs in place throughout the region to target these invasive species, but we need your help. With 17 counties to cover, it can be difficult to detect a new population of invasive species—that's where you come in. The Macrophyte Survey Program allows any concerned citizen to take samples and report them back to us. That way, when an AIS is found, we can look into the sighting immediately.

So what does this involve? The Finger Lakes PRISM will train you and provide the equipment! Surveys include a rake toss from a dock or shoreline on Canandaigua Lake (or any waterbody, really) and let us know what you find. Not so confident about your plant ID skills? Don't worry! After training we only ask for samples once every two weeks, and you can report your findings easily from your phone.

If this sounds like something you can do (it is!), fill out the google form at <https://forms.gle/uUpBZ3bLpzyorTmB8> or email mharris@hws.edu indicating your interest.



LAND TRUST ACQUIRES LAND TO CREATE NATURE PRESERVE IN CANANDAIGUA

From the Finger Lakes Land Trust



Photo by Bill Hecht

The [Finger Lakes Land Trust](#) acquired an additional 40 acres in the town of Canandaigua, on the west side of the lake, with plans to establish a publicly accessible conservation area. Located off of New York State Route 21 and Jones Road, an additional contiguous 50-acre parcel was purchased in December 2019.

Both properties are noteworthy for their scenic views, diverse wildlife habitats, and location near the head of Barnes Gully. Existing hiking trails traverse the site, providing access to open meadows, oak-hickory woods, and a portion of the creek.

The two purchases were made possible by a \$100,000 grant from the Town of Canandaigua, individual contributions, and an internal loan from the Land Trust's "Opportunity Fund," a dedicated account created by the organization to make time-sensitive acquisitions possible. The Land Trust has launched a fundraising campaign to raise the additional funds needed to cover the purchase of these lands, create public access, and contribute to the Land Trust's Stewardship Fund to provide for long-term management.

The organization is now in the process of developing a management plan that will guide public access improvements, building on the existing trail system and scenic overlooks. Opening of the property to the public is planned for 2021. The Land Trust also intends to work with other landowners and the Town of Canandaigua to explore the possibility of linking this conservation area to nearby McJannett Park, and creating a greenbelt to link both sites to Canandaigua Lake and Onanda Park.

"This project is a one of a kind opportunity to secure a unique natural area that will be enjoyed by generations to come," says Land Trust Executive Director Andrew Zepp. "We are grateful to the two previous owners of the land, who chose to work with us to conserve this special place."

In addition to the 90 acres, the Land Trust negotiated contracts to conserve just over eight adjacent acres with perpetual conservation easements that will buffer the preserve. Conservation easements are legal agreements that limit future development while allowing land to remain in private ownership and on the tax rolls. Landowners who donate conservation easements may be eligible for both state and federal tax benefits.

The organization has created a beautiful aerial video highlighting the property, which can be viewed at fltl.org/vista. To make a gift in support of this project, please contact Senior Director Kelly Makosch at (607) 275-9487 or kellymakosch@fltl.org or give online at fltl.org/vista.

RING OF FIRE CELEBRATIONS WITH LED FLARES

By Lynn Klotz, CLWA Board Member

Following last September's Ring of Fire, a conversation began among the 41 HABs shoreline volunteers about their growing concern of the chemicals released during and after the annual celebration's traditional flare use. One volunteer purchased and evaluated 3 types of LED flares (see article in the [Fall 2020 Lake Reporter](#)), and another volunteer and longtime CLWA member, Greg Talomie, took the initiative and contacted the preferred model's overseas manufacturer. He later successfully partnered with the Canandaigua Wegmans, which has agreed to discontinue selling traditional flares and will instead carry only LED flares this summer.

CLWA is 100% behind the conversion from chemical/combustible flare use to LEDs due to the multiple benefits:

1. CLWA recommends an environmentally-sound alternative to longstanding use of combustible road flares *without disrupting meaningful community celebrations*
2. LED flares emit neither fumes nor leave chemical residue onshore or in the lake
3. Are visible longer than traditional flares (each flare runs on three AAA batteries; please remember to dispose of dead batteries properly)

Stay tuned! CLWA will continue to promote LED flare use including when and where they will be sold.

FREE SEEDLINGS AVAILABLE FOR STREAMSIDE PLANTINGS

Watershed Residents are encouraged to participate in the DEC's "Buffer in a Bag" program

The New York State Department of Environmental Conservation (DEC) recently announced that the application period for the Trees for Tribes' Buffer in a Bag Program is now open. Private and public landowners who qualify may apply for a free bag of 25 tree and shrub seedlings for planting near streams, rivers, or lakes to help stabilize banks, protect water quality, and improve wildlife habitat.

The goal of the Buffer in a Bag program is to increase forested riparian buffers across the state by encouraging landowners to undertake small-scale plantings. Streamside plantings help decrease erosion, slow floodwaters, and protect fish and wildlife habitat.

To qualify, landowners must have property in New York State with at least 50 feet that borders a stream, river, or lake, and provide photos or a map of the planting location. Previous recipients are encouraged to reapply to continue to build their riparian buffer. Applicants are eligible for one bag of 25 seedlings and recipients are chosen on a first-come, first-served basis. A total of 500 bags will be available statewide for this round of applications.

Seedlings are provided by DEC's Colonel William F. Fox Memorial Saratoga Tree Nursery and the Trees for Tribes program is supported by the State's Environmental Protection Fund (EPF). Governor Cuomo's proposed 2021-2022 Executive Budget includes sustained record funding for the EPF at \$300 million.

Visit DEC's website for more information about the Buffer in a Bag application process and requirements. **Applications are due by 3:00 p.m. on April 12.** Contact treesfortribs@dec.ny.gov with questions and visit Trees for Tribes Program on DEC's website to learn more.

<https://www.dec.ny.gov/press/press.html>



Photos by DEC: <https://www.dec.ny.gov/animals/115903.html>

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2021 Membership

Become a friend of Canandaigua Lake.

The Canandaigua Lake Watershed Association has a strong base of supporters and a long history of protecting Canandaigua Lake and its watershed. Because of many complex and escalating challenges to the health of the watershed, we need YOUR support.

Please choose your tax-deductible level of support.

_____ \$ 50 Guardian

_____ \$ 75 Partner

_____ \$ 100 Lake Leader

_____ \$ 250 Watershed Steward

_____ \$ 1000 Benefactor (your gift supports our environmental education efforts)

_____ \$ BUSINESS MEMBER (Business Memberships start at \$100 and include a special listing in upcoming issue of The Lake Reporter)

Membership year will begin with receipt of your application and extend to the end of the calendar year. All information you provide will be used for the sole purpose of communicating with you. We will not share it with others.

Name / Business Name: _____

Principal Address: _____

E-mail _____ Phone _____

Checks can be made payable to: CLWA PO Box 323 Canandaigua, NY 14424

Or, renew online! www.canandaigualakeassoc.org