



THE LAKE REPORTER

HABS MONITORING PROGRAM:

A TALE OF TWO SUMMERS, AND WHY THIS PROGRAM IS IMPORTANT TO THE HEALTH OF CANANDAIGUA LAKE

BY DOUG MERRILL, CLWA BOARD MEMBER

CLWA and its partners recently completed their seventh year of monitoring the lake shoreline for HABs (Harmful Algal Blooms), and in so doing we continued to enjoy our invaluable collaborations with the Canandaigua Lake Watershed Council, Finger Lakes Institute (FLI) at Hobart and William Smith Colleges, the New York State DEC, and Seneca Lake Pure Waters Association. Before sharing our 2021 findings, it may be useful to review what we know about HABs and why it is important to monitor their occurrences in our lake.

When we talk about HABs in Canandaigua Lake, we are actually referring to high concentrations (blooms) of phytoplankton, which are primitive, microscopic, plant-like organisms that are ubiquitous in both marine and freshwater environments. For more info visit <https://go.nasa.gov/3FhFC64>.

Taken as a whole, phytoplankton are incredibly valuable to life on earth because they consume large amounts of atmospheric carbon dioxide (the major greenhouse gas most responsible for global warming) and release oxygen during the process of photosynthesis. They are also the foundation for the entire aquatic food web. While we have many different types of phytoplankton in our lake, we are most concerned with one group called cyanobacteria. Several members of this group produce toxins which have been known to kill wild animals and pets that consume water near a bloom. These toxins are also hazardous to human health. We are preparing a second publication on this topic, so stay tuned for more.

When individual cyanobacteria reproduce quickly, they can form colonies which first appear as "dots in the water" that are visible to the naked eye. Massive colonies during a bloom can turn water into a pea-green color (see Figure 1). During the warmest summer months, conditions often exist that promote the formation of HABs. They can appear very quickly and persist for hours or days, or they can dissipate almost as quickly as they formed.

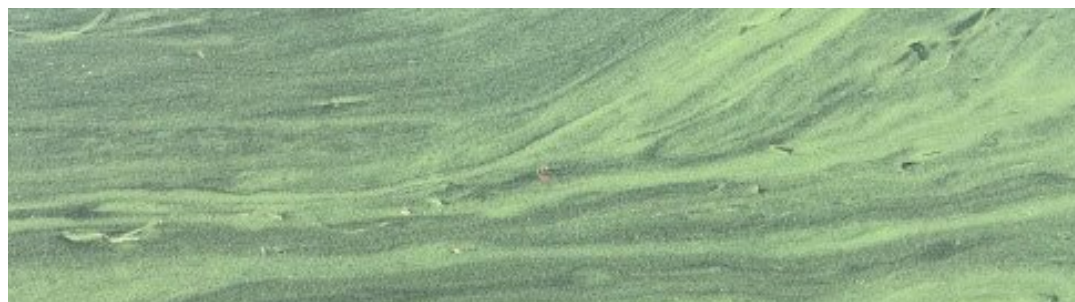


Figure 1. Photograph of a bloom taken on October 4th 2021 at the Canandaigua Yacht Club

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Cover Image:
"Ice Cold Golden Hour" by Alli Esposito

FROM THE PRESIDENT

BY LYNN KLOTZ

I am fortunate to have spent childhood summers on Chautauqua Lake and when introduced to Canandaigua Lake almost 30 years ago, I felt at "home." The beauty of this region is captivating yet I grew concerned when in 2014, the normally pristine waters in the small cove where our 19th century, seasonal cottage rests, turned bright green!

Joining the CLWA Board of Directors in 2018 was an easy decision not only because of the meaningful projects already underway but also due to the very smart and generous people I met at the association and through our higher education institutional partners and collaborating lake associations.

In 2020, CLWA started a 3 year strategic plan, which we are proud to have continued working on despite the global pandemic. We concluded the process earlier this year and are excited to roll out several new initiatives over the next few months; stay tuned, your support is integral and very much needed for CLWA moving forward successfully!

Three primary goals for my 2 year term include:

1

Raising our profile and influence by improving CLWA's ability to handle our growing list of programs, members, and volunteers by upgrading our office space and increasing public visibility; by continuing to foster and strengthen relationships with local and regional partners.

2

Educating the broader watershed community using science-driven data about the many factors contributing to water quality degradation and the best management practices to slow the negative trends throughout the watershed.

3

Focusing on what you, our CLWA Members, have said are important: water quality monitoring and timely updates, protection of streams/wetlands with high ecological value, new programs to work with the agricultural community, continue to research and technology on emerging water quality threats, host more aquatic and terrestrial invasive species programs for identification and "reducing the spread" techniques.



On a personal note, I am married to a great and very supportive guy; we have two adult sons and two large dogs. Gardening, sailing, and paddling are my warm-weather hobbies; colder months are spent reading and dreaming of travel.

My background in communications/public relations will help me to lead a very qualified team of engaged volunteers and board members continuing the great work CLWA has begun and concentrating on our new strategies. However, I know there are many passionate folks in the community with great energy, experience, and ideas. CLWA is eager to include you; please get in touch with Lindsay or me!

I love Canandaigua Lake in every season: hearing the waves, watching the birds and the weather, and learning more about her history and the watershed. There is much more to do; please know I will continue to advocate for this Chosen Spot through my work with the Canandaigua Lake Watershed Association.

A handwritten signature of Lynn Klotz in black ink.

CLWA President

Member of:
Citizen Science Committee
Membership Committee
Communications Committee
Executive Committee

FUNDING SECURED FOR FIRST PHASE OF HEMLOCK WOOLLY ADELGID MANAGEMENT PROGRAM

BY LINDSAY MCMILLAN, ASSOCIATION DIRECTOR

We are thrilled to announce that in 2022 and 2023, CLWA will be working with the Ontario County Soil and Water Conservation District, the New York State Hemlock initiative, and several other regional partners to implement a coordinated strategic Hemlock Woolly Adelgid (HWA) management initiative across Ontario County.

CLWA contributed \$5,000 (plus a commitment of in-kind staff time) towards building a local match for the program, which was helpful in leveraging \$50,000 in funding to Ontario County Soil and Water Conservation District (SWCD) through the Forest Service Great Lakes Restoration Initiative (GLRI). Ontario County will serve as the project lead, and CLWA will be an education and outreach partner.

CLWA, along with several local environmental groups, are interested in tracking the progression of this invasive forest pest, the Hemlock Woolly Adelgid (HWA), as it enters our watershed forests. This small, aphid-like invasive insect was introduced into North America in the 1950s, and it has been moving slowly northward as it becomes adapted to colder climates. It reached the Finger Lakes several years ago.

When HWA settles on a hemlock tree (blown by wind, carried by clothing, fur or feathers), it inserts a long feeding tube into the hemlock twig, creating a wound in the tree's woody tissue. When enough adelgids are present, this may impede the flow of nutrients and water to the twigs - eventually killing the buds, needles, and finally, the tree itself.

HWA poses a serious threat to watershed health as hemlocks act as a keystone species in our ecological community. Hemlocks typically grow in gullies where their roots hold the soil in place on steep slopes. When hemlocks in these locations die, the slopes are more susceptible to soil erosion, which can lead to water quality issues. Soils hold nutrients such as phosphorus and nitrogen, and excessive nutrients in the lake can result in unwanted algal blooms, aquatic ecosystem damage, and poor water quality.

Unlike some other invasive species, however, the Hemlock Woolly Adelgid can be delayed and perhaps defeated. It can be delayed with the responsible use of chemical treatments, which can be effective for up to seven years.

This HWA Management Initiative in Ontario County will take a three-tiered programmatic approach, focusing on the following areas:

1. Assessment of hemlock communities through HWA scouting and reporting.
2. Prioritization of areas needing treatments.
3. Targeted control and management of HWA in infested hemlock stands.

Partners will collaborate on long term management of HWA, including focusing on biocontrol efforts across the County - in both Honeoye and Canandaigua watersheds.

Kickoff of the project will begin in March of 2022. Expect to hear more about HWA in the coming months, as CLWA and our partners announce outreach events and workshops. We will also be looking to train a group of volunteers to identify and survey for HWA, and report findings using iMapInvasives. Mapping the occurrence of this invasive forest pest will be a critical component of this project as we seek additional grant funding down the road to fund management efforts on both public and private lands.

If you are interested in getting involved in HWA survey efforts, please contact CLWA Association Director Lindsay McMillan at lindsaym@canandaigualakeassoc.org or by calling (585) 394-5030. We provide the training, and scouting efforts can be done on your own time while out hiking in our beautiful hemlock forests.



Telltale signs of a HWA infestation are the white woolly masses that may be found at the base of the needles on an Eastern Hemlock tree

HABS MONITORING PROGRAM CONTINUED FROM PAGE 1

This year the nine-week program “officially” ran from August 2nd through October 3rd. We increased our volunteer force from 42 last year to 71, allowing us to monitor 64 zones along the lake’s shoreline (see Figure 2).

Some volunteers were visual reporters while others collected samples for analysis by FLI for the presence of cyanobacterial chlorophyll. Table 1 shows the expansion of our monitoring efforts during just the past four years.

Shoreline HABS Program	2018	2019	2020	2021
Number of Volunteers	17	26	42	71
Weekly Shoreline Surveys Performed	218	295	375	561
Confirmed Blooms	54	65	81	75

Table 1. Yearly Growth in the CLWA HABS Shoreline Monitoring Program

Harmful Algal Blooms are confirmed in one of two ways. A photograph is taken of each suspected bloom event, and it is sent to the DEC which makes a visual determination whether it is a bloom or not. In addition, samples are collected and sent to the testing laboratory at FLI where the unique chlorophyll signature of blue green algae (cyanochlorophyll) is analyzed. According to NYS DEC standards, a concentration in excess of 25 mg/L in a sample qualifies as a bloom.

Monitoring for HABS on a seasonal basis, and at various locations around the lake, provides environmental scientists and public health officials with important information about the conditions of our lake that promote the formation of blooms. Combined with information gathered from our sister organizations on other Finger Lakes, a picture of the meteorological, geological, biological and chemical factors that promote algal blooms is gradually emerging.

The record for the past two summers is intriguing and worthy of a closer look. The 2020 and 2021 summers were different in several regards. As can be seen in Figure 3, blooms in 2020 occurred early and throughout much of the season, with a major peak in early September, and smaller blooms into early November. In total, there were 13 weeks when a total of 81 confirmed blooms were observed. The HABS data for 2021 look different. With the exception of a very early bloom in late June and early July, 75 confirmed blooms occurred during only 8 weeks of the season, with a very significant event in early October.

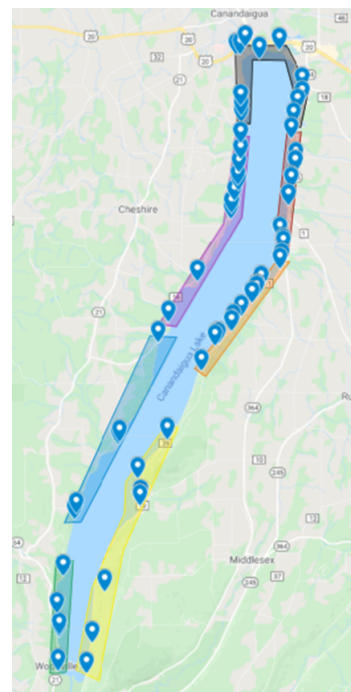


Figure 2. Zones where CLWA volunteers sampled the lake for the presence of HABS

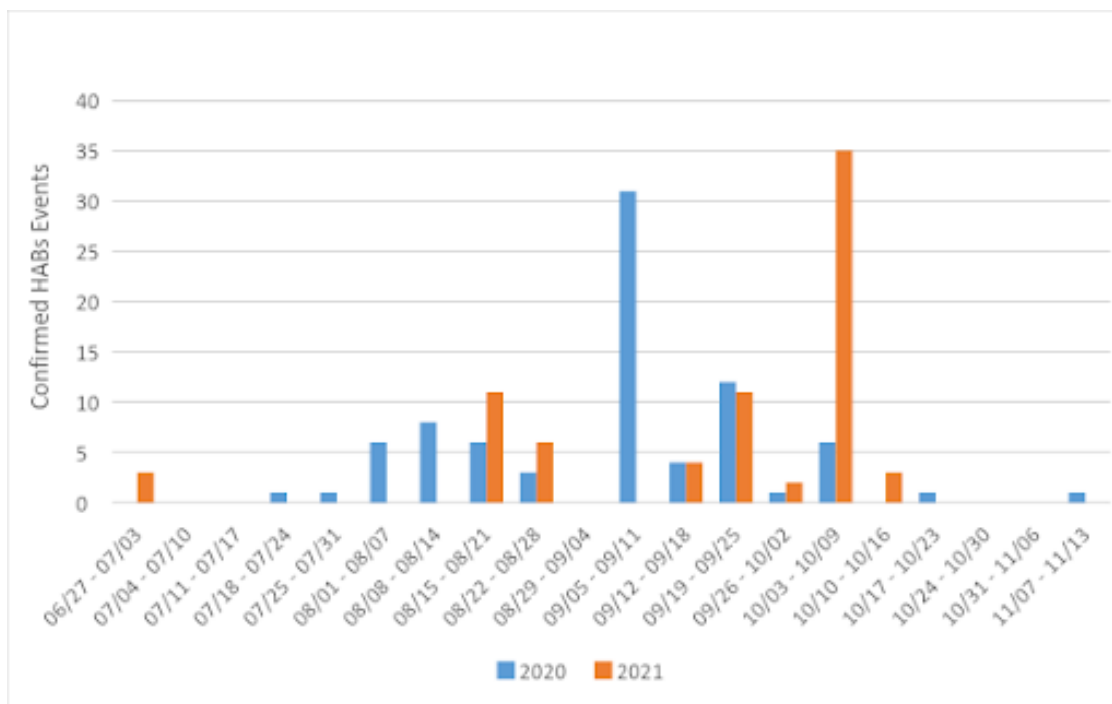


Figure 3. Comparison of confirmed HABS events- summers of 2020 and 2021

In addition to the fact that blooms occurred less frequently in 2021 when compared to 2020, the number of confirmed blooms, particularly the major blooms at the end of the season, differed as well. In 2020, a cluster of 31 blooms was reported during the week of September 5-12. In 2021, the major cluster occurred about one month later, from October 3-9. However, there is more to this interesting story. Although the numbers of confirmed blooms during those two outbreaks (31 and 35) are similar, their intensities were very different.

The intensity of a bloom is measured by the amount of cyanochlorophyll in a 1 liter sample of lake water, and this relates directly to the number of organisms in the water. Recall that the NYS DEC defines a bloom event when the concentration of cyanochlorophyll exceeds 25 mg/liter. The higher the chlorophyll levels, the greater the number of cyanobacteria in the sample. As seen in Figure 4, the average cyanochlorophyll level in samples taken from the 31 blooms reported from September 5-11 in 2020 was slightly more than 400 mg/liter. In comparison, samples from the smaller number of blooms (12) reported from September 19-25 of 2020 contained about twice the average amount of cyanochlorophyll. So while the blooms were smaller in number, they tended to be more concentrated with higher numbers of organisms in the water. Cyanobacteria commonly dominate the phytoplankton community during the fall, so this is not a big surprise.

Our volunteers were very busy during the week of October 3-9, 2021. They reported 35 bloom events with multiple reports filed from each monitoring quadrant of the lake. The extent was captured in aerial images and videos captured by CLWA Member Marty Gordon (link to drone images can be found by visiting: <https://youtu.be/t-UcQRS1qd4>). Furthermore, samples analyzed for cyanochlorophyll showed that the bloom was not only widespread, but highly concentrated with an average of nearly 1,800 mg/liter, more than four times the concentration when compared to 2020. Furthermore, while there were only three confirmed blooms from October 10-16, 2021, the average cyanochlorophyll level was 1,500 mg/liter. These were really intense blooms that dwarfed anything that happened the previous summer.

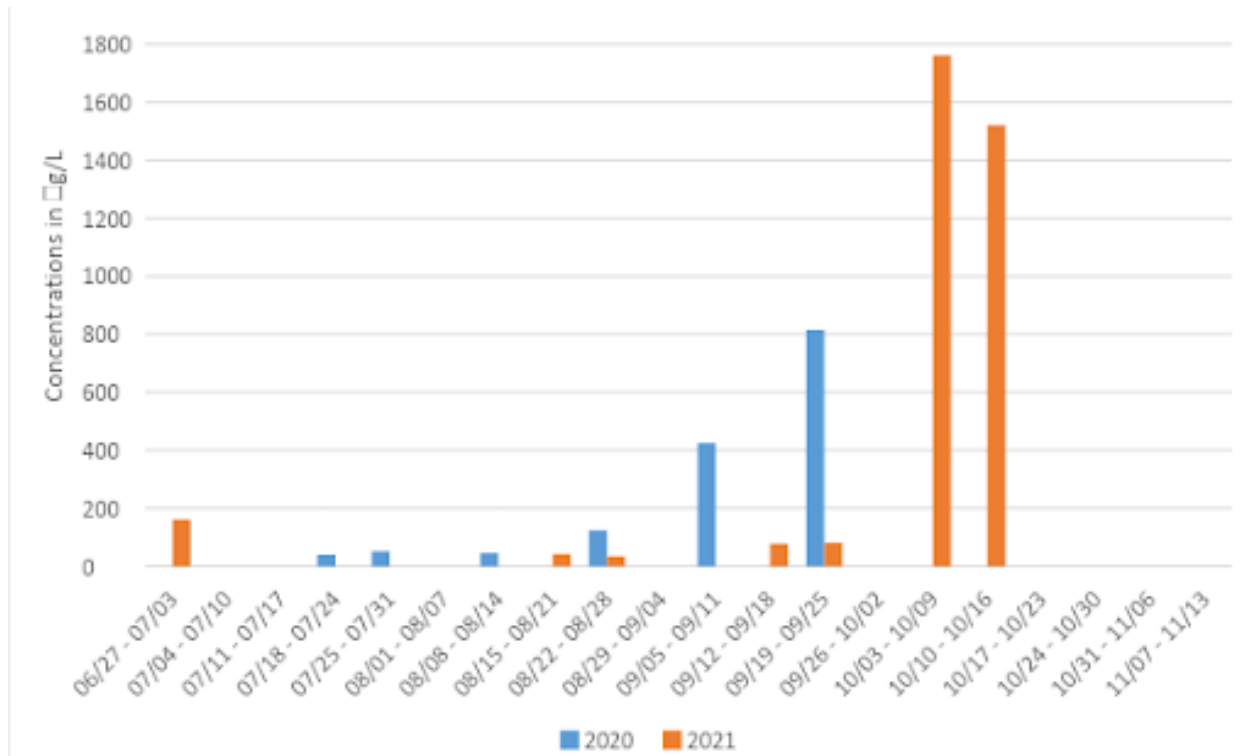


Figure 4. Comparison of average values for cyanochlorophyll concentrations in confirmed blooms in 2020 and 2021.

Why were there fewer bloom events in 2021 compared to 2020, and why were the October 2021 blooms so highly concentrated? This is a complex question without clear answers, but there are some possible clues. One interesting observation comes from lake temperature data collected by CLWA volunteers as part of the Secchi Disk Water Clarity Monitoring Program. These lake temperature data can be seen in Figure 5 on page 6.

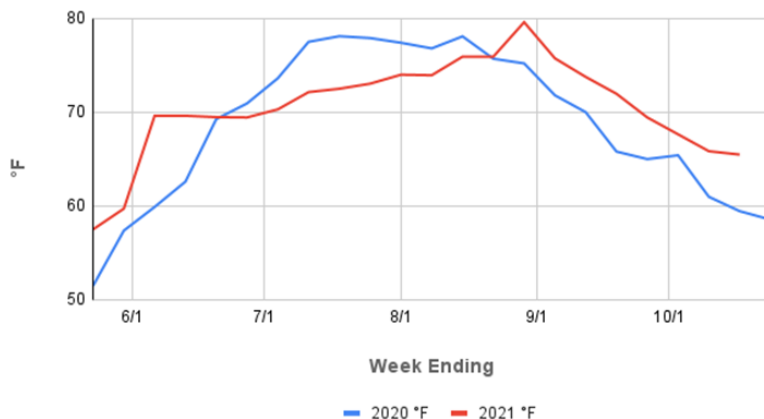
In 2021, lake temperatures increased quickly, which may have played a role in the early HAB event. In comparison, water temperatures in 2020 warmed more gradually and blooms were not reported until mid-July. From mid-June through mid-August of 2020, however, lake water was generally warmer as the region experienced a drought that reduced lake levels.

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HABS MONITORING PROGRAM CONTINUED FROM PAGE 5

This may have influenced, in part, the greater number of bloom events throughout the 2020 season. After its rapid spike in June 2021, water temperature increased more gradually throughout the summer. Overall, the summer was comparatively cooler and rainier, with water levels higher than the previous year due to several significant rain events, particularly in mid to late August, including an August 19th flood event that raised lake levels by more than 6". There was a temperature spike in late August 2021 and a generally warmer lake in the fall that coincided with the two significant bloom events described earlier. Coincidence does not imply causality, however, and it is difficult to draw long-range conclusions about HABS from a comparison of observations over only two seasons. Water temperature and rain events are only two factors to be considered. The difference in the numbers of volunteers with "eyes on the lake" between the two seasons should also be taken into consideration.

Figure 5. Canandaigua Lake average surface water temperatures in 2020 and 2021



We also know that nutrient influx, legacy nutrients released from the substrate, late season decomposition of lake vegetation, air and water temperatures, wind speeds and direction, invasive mussels, and meteorological events all play a role in this complex system. With the generous support of our members, contributions from our dedicated and conscientious volunteers, and collaborations with our valuable partners in the Canandaigua Lake Watershed Council and other governmental agencies, CLWA will continue to document HABS, investigate why they happen, and work on ways to best mitigate their occurrence.

Getting involved

If you would like to get involved next year as a HABS volunteer with this program, please email us at HABS@canandaigualakeassoc.org and type "2022 HABS" in the subject line. We anticipate the volunteer commitment will include:

- Attending a 2-hour training session, early summer (hopefully in-person)
- Monitoring the same segment of shoreline from August 1- October 2, 2022
- Documenting conditions using a digital camera or smart phone
- Submitting a weekly observation report online (or more frequently as blooms occur)

For further information about our 2021 Volunteer Shoreline HABS Monitoring reports by location, please see the interactive map at <https://bit.ly/3GXvIXw>.

THANK YOU TO OUR 2021 HABS PROGRAM VOLUNTEERS FOR ALL THEIR ASSISTANCE THIS SUMMER.

The success of the program relies on having many "eyes on the lake"! A special thank you goes out to:

North Region: Jarrett Apple, Neil Atkins, Ted Boglione, Barbara Braun, Patti Brazill, Kelly Davis, Kelly Davis, Martin Kaufman, Richard Krebs, Marty Lasher, Douglas Merrill, Terry Smith, Steve & Ellen Uebbing, Chuck Wochele, Steve Zumbo.

Northeast Region: Terese Genecco, Brittany Haskins, Greg Kern, Lynn Klotz, Richard Lefebvre, Margie O'Jea, Joe Pagano, Joel Pasternack, Amanda Slisz, David Smith.

East Region: Sandy Behan, Brad Braddon, Susan Carpenter, Beth Fladd, Donna Graham, Cathy Gardner Peggy Jamieson, Charlotte & Cole Mann, Marc Marshark, Sally A Napolitano, Kevin O'Brien, Kathy Postma, Janie Runion.

Southeast Region: Betty Brayer, Kevin Fager, Kevin Marcell, Pat & Ann McCormick, Cynthia Mellen Smith, Sharon Sanford, Case Smeenk, William Yust.

Southwest Region: Dave Bornholdt, Amy Bowen, Kathy Kirsch, Ryan Mor, Lynn Thurston, Judy VonBucher.

West Region: Dee Crofton, Nancy Kanninen, Marie McNabb, Elaine & Paul Messina, Maureen & Tom O'Rourke.

Northwest Region: Brendan Brady, Debbie Cole-Wenderlich, Linda Donahue, Nadia Harvieux, Scott Hill, Saralinda Hooker, Scott & Joanne Kreher, Richard McGavern, Kathy Page, Dorothy Roach.

FINGER LAKES LAND TRUST OPENS NEW CANANDAIGUA VISTA NATURE PRESERVE

BY THE FINGER LAKES LAND TRUST



Left photo by Bill Hecht. Right photo: Canandaigua Town Manager Doug Finch, FLLT board president Dave Birchenough, State Senator Pam Helming, volunteer Marty Dodge, landowners Duannah Barnum and Suzie Underhill, and FLLT Executive Director Andy Zepp at the ribbon cutting ceremony for the new Canandaigua Vista Nature Preserve.

The Finger Lakes Land Trust (FLLT) has formally opened its 90-acre Canandaigua Vista Nature Preserve in the town of Canandaigua. This past fall, New York State Senator Pamela Helming, Canandaigua Town Manager Doug Finch, and other local officials joined FLLT staff and volunteers for a ribbon cutting ceremony followed by a guided hike on the preserve.

Just a short drive from downtown Canandaigua, the preserve features a one-mile loop trail that traverses fields, oak-hickory forests, and past the head of Barnes Gully—a deep gorge that flows to nearby Onanda Park. Multiple vista points, each with a handmade bench carved from locally harvested timber, offer glimpses of Canandaigua Lake.

In 2019, the Land Trust launched an extensive fundraising campaign to purchase the 90 acres and create the preserve. These scenic hillsides were owned by two sisters, Duannah Barnum and Suzie Underhill, whose family once managed the land as a dairy farm. For many years, an existing trail network was maintained by neighbor Marty Dodge—a retired Finger Lakes Community College conservation instructor who has been a strong advocate for conserving the property. After securing the land in 2020, Land Trust staff worked with volunteers and contractors to improve the trail system and install an interpretive kiosk and parking area.

The preserve is open during daylight hours for quiet nature observation and low impact recreation such as walking, hiking, and snowshoeing. Hikers must stay on marked trails to minimize disturbance of native plants and wildlife and to avoid hazards. From October 1- December 21, bow hunters will be on the preserve in locations that are at least 150 feet from the marked hiking trail. The trail will remain open to the public. A map, directions, and additional information about the new preserve can be found at fllt.org/vista.

In late September, the FLLT also opened its 18-acre Canandaigua Highlands Overlook in Naples, Ontario County. From atop a hillside meadow, the overlook features breathtaking views of the south end of Canandaigua Lake and the West River Valley. The FLLT purchased the property in 2016 and completed several habitat restoration efforts and site improvements including the removal of non-native invasive shrubs and the remnants of an old vineyard. A small parking area and bench now welcome visitors to the overlook during daylight hours. More information can be found at fllt.org/overlook.

By working cooperatively with landowners and local communities, the Finger Lakes Land Trust has protected over 27,000 acres of the region's undeveloped lakeshore, rugged gorges, rolling forest, and scenic farmland. The FLLT owns and manages a network of over 45 nature preserves that are open to the public and holds perpetual conservation easements on 164 properties that remain in private ownership.

The FLLT focuses on protecting critical habitat for fish and wildlife, conserving lands that are important for water quality, connecting existing conservation lands, and keeping prime farmland in agriculture. The organization also provides programs to educate local governments, landowners, and residents about conservation and the region's unique natural resources.

Information on the region's premier destinations for outdoor recreation may be found at gofingerlakes.org, a resource created by the FLLT to encourage people to get outdoors. For more information about the Finger Lakes Land Trust, visit fllt.org.



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HELP SPOT THE SPOTTED LANTERNFLY

BY MATT GALLO, TERRESTRIAL PROGRAM OUTREACH COORDINATOR, FINGER LAKES PRISM (PARTNERSHIP FOR REGIONAL INVASIVE SPECIES MANAGEMENT)

Spotted Lanternfly is a new invasive insect species that is of growing concern to the Finger Lakes. This insect feeds on many of the key agricultural crops that define the Finger Lakes, namely grape vines and apple trees (and to a lesser extent, sugar maples, black walnuts, and other plants). The voracious feeding of Spotted Lanternfly threatens an estimated \$6 billion in economic activity in our region, as well as the loss of our extraordinary vineyards and apple orchards.

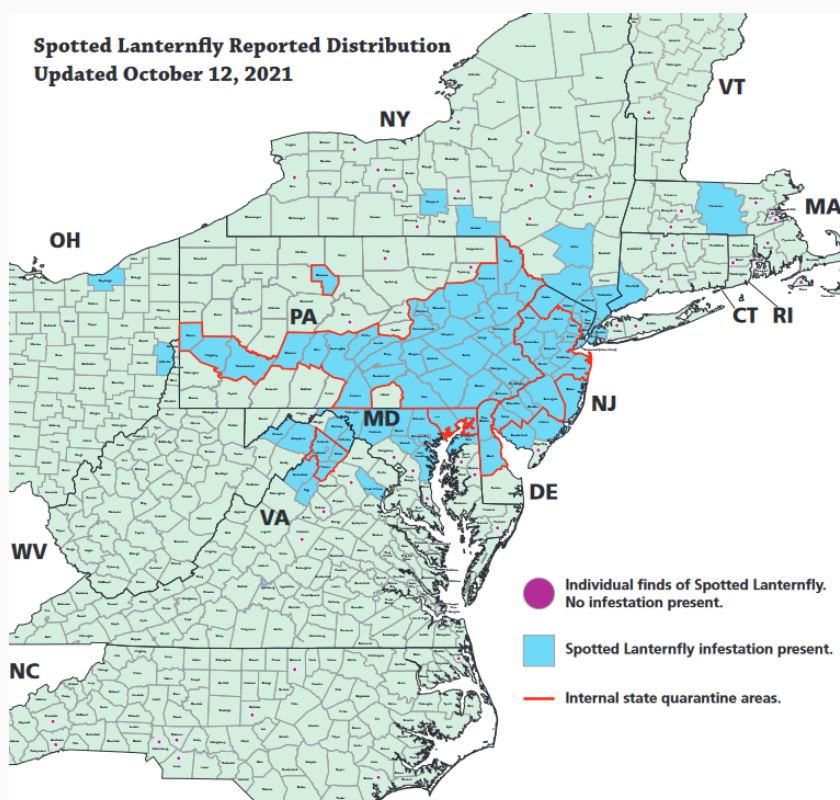
What makes Spotted Lanternfly so concerning is its ability to spread quickly. Spotted Lanternflies lay eggs in the fall, and frequently eggs are found laid on cars making the task of stopping Spotted Lanternfly particularly challenging as a new population can emerge virtually anywhere that people can drive. As of October 2021, populations of Spotted Lanternfly have spread northwards from Pennsylvania and have been detected in New York City, Long Island, the Hudson Valley, and most notably for our region – Broome and Tompkins counties.

What can you do to help stop the spread of Spotted Lanternfly?

For one, if you are travelling to an area with a known infestation, check your vehicle before you leave. Further, if you believe you've seen this insect, take a picture and send the picture and location to SpottedLanternfly@agriculture.ny.gov, or you can report it using the reporting form here: <https://bit.ly/3eh3FGI>.

Many of the Spotted Lanternfly populations found in NY so far were reported by everyday citizens who were on the lookout.

You can make an impact!



Spotted Lanternfly reported distribution



Spotted Lanternfly



Spotted Lanternfly on a grapevine

2021-2022 WATERSHED EDUCATION PROGRAM KICK-OFF

BY LINDSEY AYERS, WATERSHED EDUCATOR & CLWA ADMINISTRATIVE COORDINATOR

The 2021-2022 Canandaigua Lake Watershed Education Program is off to a great start with regular programming occurring after a unique year of zoom lessons and minimal in-person classes because of the ongoing pandemic. We were excited to participate in Conservation Field Days this fall, hosted by CCE and OCSWCD, at the Bristol Hills 4-H Camp, where we demonstrated the watershed model to 6th grade classes.

Another fun field outing was with the Marcus Whitman 5th graders at the Middlesex Rail Trail in Naples. Here we discussed the importance of wetlands, collected and observed aquatic macroinvertebrates, and took a walk to explore the different land uses we could see from the trail. While observing these land uses we talked about the possible pollutants that could come from them and how they can negatively impact water quality.

We have also visited the Marcus Whitman and Naples 6th grade classes this year where we taught a two-day lesson/lab on aquatic macroinvertebrates and talked about why they are used as bio-indicators for water quality. We have most of our 3-6 grade classes scheduled for the upcoming school year and are super excited to see all the students! We are so grateful to all the schools in the watershed for their ongoing support of the Watershed Education Program.

On a final note, the education program is also very pleased to introduce Lynn Ocorr to the team! Please read about Lynn's wealth of experience in education in her bio below.



Wetland walk with Marcus Whitman 5th graders at Middlesex Rail Trail in Naples October 2021.



Sixth grade macroinvertebrate lesson at Marcus Whitman.

WELCOMING LYNN OCORR TO THE PROGRAM!

Lynn Ocorr is a retired science teacher after 32 years of coaching and teaching in catholic, city and suburban school settings. She is a contributing author of the New York State Middle School Core Curriculum Guide, wrote multiple environmental grants including one that sent her to the island of Antigua where she taught students and teachers about the impact of tourism on their island environment. She was a lead teacher as part of the Biochem Mentor Network and hosted multiple workshops through Wayne finger Lakes BOCES. We are thrilled to welcome Lynn's experience, ideas, and enthusiasm to the Watershed Education Program!



LEAD EDUCATOR, LINDSEY AYERS

CLWA is happy to announce that CLWA Administrative Coordinator and Watershed Educator Lindsey Ayers has taken on the role as lead educator at the beginning of the 2021-22 school year. We are so proud of Lindsey's accomplishments over the last year and a half, and look forward to seeing her grow in her new role!



VOLUNTEER SPOTLIGHT: GREG TALOMIE

BY LYNN KLOTZ, CLWA PRESIDENT



If you recall the name, it's because Greg has been in the news often over the last several months. His dogged determination to convert the Canandaigua Lake shoreline to LED flares for the Ring of Fire celebration has earned him the honor as CLWA's first ever "Volunteer Spotlight."

Greg is a retired electrical engineer with a knack for entrepreneurial problem-solving but by no means has he retired from staying active, especially about the things he is most passionate: kayaking, golf, snow skiing, and Canandaigua Lake! Greg has enjoyed the lake for 35 years and has been involved with CLWA (and its earlier versions) for almost as long. He and his wife, Kathy, joined our volunteer shoreline HABs monitoring program after watching the water conditions change dramatically over the last decade. "The Lake IS my backyard - I care about the quality of the water."

Following a HABs volunteer discussion concerning traditional flare residue leaching into the lake, Greg's wheels began to turn. He couldn't sit back and worry about his family's safety without taking action. His nearly year-long effort resulted in about 22,000 LED flares being purchased throughout the region instead of chemical flares and ultimately culminated in Wegmans donating \$6,384 to CLWA through our cooperative LED promotion. Greg's success with LED conversion program is unique to his talents and we are grateful for his vision and to have worked together.

CLWA values each of you and we believe your support is worthwhile, whether you are helping us in the office with mailings, or convincing thousands of lake lovers to do better. We are confident that every step you take in protecting the watershed WILL positively contribute to the overall health of the watershed!

For more information about the conversion to LED Flares and Greg's involvement, see the Spring 2021 Lake Reporter, p14 here: <https://bit.ly/3pj8xRI>.

LED flares make a great gift for winter drivers or summer boaters!

Ring of Fire may be over, but you can still stock up on LED flares.

Greg Talomie has launched a new website, <https://cele-brite.com/>, carrying LED flares in different colors and styles to suit every celebration.

Two packs (in a carrying case) are also available at Amazon by visiting <https://amzn.to/3pfDF4f>. Consider designating CLWA as your Amazon Smile beneficiary!



2022 Photo Calendars For Sale

Enjoy a different gorgeous view of the watershed every month with the purchase of a 2022 calendar for yourself, or a friend!

Visit the CLWA website to purchase. Calendars can be picked up in the CLWA office or mailed to you directly.

VOLUNTEER WATER CLARITY MONITORING PROGRAM: SUMMER 2021

BY LINDSAY MCMILLAN, ASSOCIATION DIRECTOR

This summer marked the 12th year of CLWA's Take-A-Dip Water Clarity Monitoring Program. The program continues to be an integral part of the overall water quality monitoring efforts on Canandaigua Lake, along with the Shoreline HABs Monitoring program, the Citizens Statewide Lake Assessment Program (CSLAP) and professional monitoring programs like the monthly water quality program hosted by FLCC and the Canandaigua Lake Watershed Council. Volunteers perform a weekly clarity reading using a secchi disk from their own boats to help track changes in water clarity throughout the summer months, providing us with an ongoing picture of the changing internal lake dynamics.

We were thrilled to have the involvement of 18 volunteers this year, monitoring 18 sites distributed around the lake.

Why is monitoring water clarity with a secchi disk important?

With all the advanced technologies and expensive scientific monitoring equipment available today, you may ask – why are we still using these simple black and white disks to monitor water clarity? The simplest answer is that Secchi disks are an easy, low cost, accessible way to measure water transparency and monitor the health of the lake. Developed in 1865 by Pietro Angelo Secchi, an astrophysicist and scientific advisor to the Pope, the secchi disk was said to first be used in the Mediterranean Sea, dropped from the side of the Papal Yacht. Since then, the secchi disk became the standard procedure for measuring lake transparency - still used by limnologists today as part of their overall lake assessment toolkit. Secchi disk readings are able to track changes in lake clarity over periods of time, serving as a consistent dataset that is incredibly useful in tracking seasonal variability as well as year to year variability.

We track Secchi disk readings closely in the summer months to monitor algal productivity and suspended sediments in the lake. A sudden decrease in clarity (as indicated by a lower secchi disk reading) can indicate an increase in algae, keeping us informed of a potential harmful algae bloom event in the near future.

A variety of factors may impact each reading and all need to be taken into account when viewing the results. A significant storm event within the watershed resulting in stormwater runoff may cause a lower secchi disk reading. Tracking this is important because runoff brings sediment and nutrients into the lake, which impact clarity and may potentially fuel an algae bloom. A heavy weekend of boat traffic may also impact readings, as sediments and sand may be churned up from the lake bottom, especially in the shallower northern basin of the lake. Because of the factors that may affect an individual reading, volunteers provide us with supplemental lake observations to help build this story. The online reporting tool used by volunteers not only collects secchi and surface water temperature readings, but also track observations like recent weather patterns, occurrence of aquatic plants and boat activity.

Paired with the shoreline surveys from the Volunteers Harmful Algae Bloom Program, we have over 82 sites on Canandaigua Lake where water quality is monitored each week throughout the summer season. Kudos to all our citizen scientists for keeping a well-trained eye on the lake!

2021 Secchi Disk Program Results

During the summer of 2021, 18 volunteers participated in the Take-A-Dip Secchi Disk program, providing a total of 219 water clarity readings!

The monitoring week runs Monday through Sunday, with averages recorded for each week ending on Sunday. The data reported below reflects this reporting cycle. During the monitoring season, real time information is also available on the secchi disk page on the CLWA website.

Returning volunteers kicked off the monitoring season early this year, with a handful of readings coming in the first few weeks in April. A stretch of sunny, calm, clear weather resulted in a recorded Secchi Disk depth of 14.7 meters on April 11th by volunteer Joel Pasternack, one of the deepest readings to date! Low algal productivity and cool water temperatures in early spring after ice melt allows for greater transparency of the lake waters.



Volunteer Gary Helming shows granddaughter Bristol how to use a secchi disk

VOLUNTEER WATER CLARITY MONITORING CONTINUED

By mid-May (once more boats are in the water) we begin receiving more consistent readings from volunteers. Of interest, in late May and early June are the deep secchi disk depths, as well as rapidly increasing water temperatures. During the time period of May 24th through June 6th, we experienced a nearly 10-degree Fahrenheit spike in the average surface water temperature {see figure 1}. It was also in this timeframe where we received our first calls of fish die-offs from lake residents, with the first fish kill observation reported to the CLWA office on May 31st. Some fish die off is natural in spring when lake temperatures rapidly rise and fish are in post-spawning stress, however, a Cornell report also detected a bacterial infection (*Aeromonas sp.*) in fish specimens collected by the DEC and sent to the Cornell pathology lab. What precipitated this bacterial induced outbreak is unknown, but includes the usual list of factors including spawning, environmental changes, and other stressors.

From there, clarity held in the 5.4-6.8 range from the end of June through the last week in July, where there was some variability for a few weeks until it took a 2.4 meter drop over a two-week timeframe in mid-August. This also coincided with the submission of 11 harmful algae bloom reports during the week of August 15th through August 21st, after a 6-week period of no blooms.

Average weekly clarity held in the 5-6.5 meter range for the remainder of the monitoring season. Interestingly, we did not see a huge drop in clarity in early October, when we experienced a significant HAB event that covered much of the shoreline. During this timeframe, volunteers reported heavy concentrations of algae along the shoreline as well as open water areas.

Looking at the overall season compared to 2020, the average weekly clarity was up slightly from 2020 with 52% of the reporting weeks in 2021 having deeper average weekly clarity readings than in 2021 {Figure 2}.

Average surface water temperatures as reported by Secchi disk volunteers showed an interesting trajectory as compared to recent years {Figure 3}. In 2021 we had a rapid increase in water temperature from May to early June, but by early July the water temperature was cooler than recent years, until spiking again toward the end of August. This is likely due in part to the cooler evenings we experienced this summer, alongside the fairly consistent rain events. By the end of August, average weekly water temps rebounded, and were in fact warmer than the previous two years.

Thank you to our 2021 Secchi Disk Volunteers for all the time and effort they put into this program:

Amy Bowen, Dee Crofton, Rob Gray, Nadia Harvieux, Scott Hill, Gary and Pam Helming, Bruce Kennedy, Alan Krautwurst, Scott Kreher, Marty Lasher, Bill Mehls, Joel Pasternack, Brian and Dolores Perkins, Kathy Postma, Lynn Thurston, Wade Sarkis, and Bill Yust.

CLWA has the BEST volunteers!

Figure 1

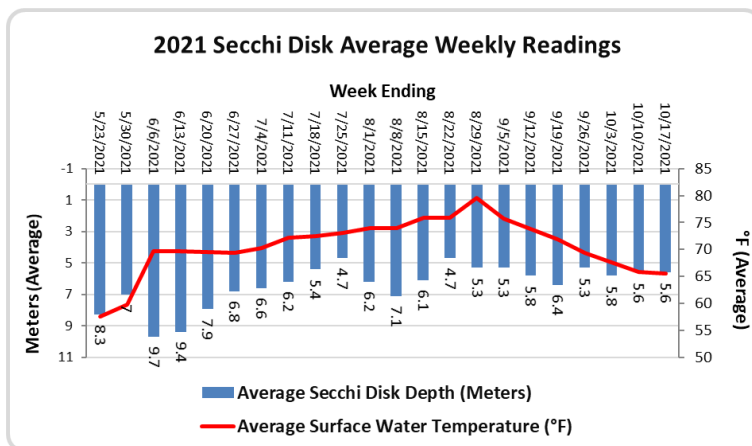


Figure 2

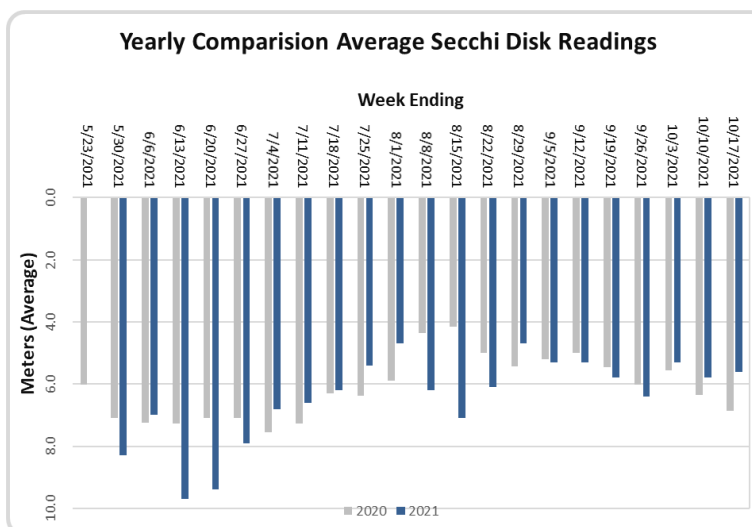
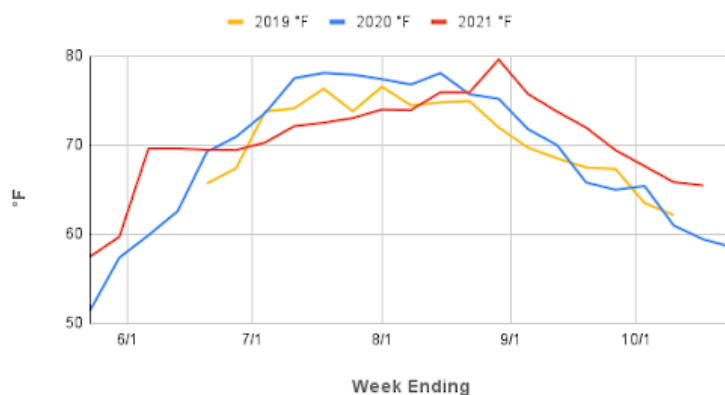
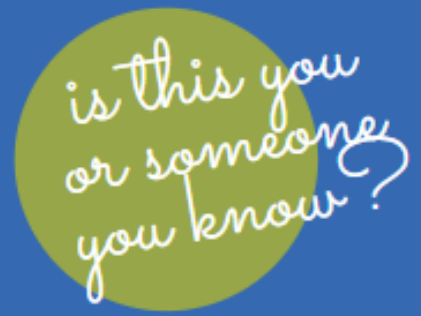


Figure 3

Canandaigua Lake Average Surface Water Temperatures



VOLUNTEER OPPORTUNITIES



We are looking to fill a few key volunteer roles to help preserve, protect and restore Canandaigua Lake.

Key Skills/Interests:

- CPA
- HR specialist
- Data analyst
- Outreach support
- Agricultural professional
- Land-based invasive species
- Attorney with land use and/or environmental experience

Let us know what you are interested in by filling out the form here:
canandaigualakeassoc.org/volunteer-opportunities

VOLUNTEER NEED HIGHLIGHT: OUTREACH COMMITTEE VOLUNTEER NEEDED

If you care about the health of Canandaigua Lake and its Watershed, and recognize the critical role they play in the quality of our own lives, consider joining the CLWA Outreach Committee!

CLWA Outreach Committee volunteers focus on educating the public about watershed and lake topics for the purpose of building a sense of responsibility and community toward lake stewardship. To accomplish this, we host a variety of programming. We offer Viewpoints lectures several times a year, workshops for hands-on learning, lead our Lake Friendly Living Campaign, and represent CLWA at community events.

Volunteers meet once a month and help to:

- Seek guest speakers
- Plan programming
- Assist with reviewing educational outreach materials
- Collaborate with other organizations to build relationships and form partnerships
- Play a large role in engaging community members in Lake Friendly Living

We welcome any help and especially are looking for:

- Lake Champions to promote Lake Friendly Living in your own neighborhoods
- Help organizing events on terrestrial invasive species

INTERESTED IN GETTING INVOLVED?

Please send us an email to info@canandaigualakeassoc.org with the subject line OUTREACH VOLUNTEER, or visit our volunteer page noted above to let us know.



Outreach Committee member, Rob Gray

OUR DEEPEST GRATITUDE FOR GIFTS MADE IN LOVING MEMORY OF:

BERT CROFTON

FROM SCOTT & CAROLYN MOREHOUSE

MARGE DEMALLIE

FROM BETTY LYON, FOR THE VINE VALLEY GARDEN CLUB

"In memory of our dear friend Marge. She was a member of our garden club for many years and loved our lake. We miss her."

ELIZABETH DONNER

FROM BRAD & MICHELLE DONNER

FRED FITZE

FROM LINDA FITZE

DAVID M. FLAUM

FROM ASHER & MONICA FLAUM

LEO GENECCO

FROM TERESA GENECCO

DOROTHY HANSEN

FROM GREG & JANET FELOSKY

MAC HARGRAVE

FROM CHRISTOPHER & EMILY BROADHEAD

EDWIN G. MCCALL

FROM LINDA MCCALL-MOTOLA & SOL MOTOLA

ERIC MEDOFF

FROM PAMELA HOOKER HART

RITA VECCHI PALUMBO

FROM BOB & KIT PALUMBO

EDWIN SAEGER

FROM JAMES & WENDY BARR

FROM LAUREN BURNS

FROM VALENTINE & LINDA FENTI

"In memory of this remarkable man who loved the lake, we make this donation to honor him and his life of loving service to his family, his friends, and his community."

FROM ROSEMARY & LARRY GLEASON

FROM SHARON KOVALSKY

"A donation in memory of a fine gentleman."

FROM JON & SUSAN MCNALLY

FROM KIM & SCOTT PUGLIESE

FROM CAROL & RAY STARK

FROM MABEL & C. FREDERICK STEHLER

FROM BEVERLY SWAIN

CHARLES STANDISH JR. & WILLIAM STANDISH

FROM MARY STANDISH

THOMAS ZIMMERMAN

FROM WADE & JOSCELYN SARKIS

FROM ROBERT & NICHOLETTE ZIMMERMAN

THE FOLLOWING GIFTS HAVE BEEN MADE IN HONOR OF:

NEIL ATKINS & TED CARMAN

FROM JOEL PASTERNAK

"This represents special thanks to Neil and Ted who share their experience and know-how for caring for sailboats on Canandaigua Lake."

PETER LOBERG

FROM FROM JEANNE LOBERG

SUSAN MARTENSON

FROM ANNE LOMBARD

"This contribution to CLWA is in honor and appreciation of Susan Martenson, and the beautiful time I had on Canandaigua Lake."

JOHN & NANCY SWETT

FROM BEN SWETT



"Pastel Lake" by Laura Barrows

THANKING OUR CLWA BUSINESS SUPPORTERS

They know a healthy lake benefits us all! Check out our new business directory on the CLWA website.

WATERSHED STEWARDS

WATERSHED GUARDIANS

LAKE SUPPORTERS

- | | | |
|--|---|---|
| <p>Aberle Eye Care
Arbor Hill Grapery & Winery
Bristol Cliffs Yacht Club, Inc.
Canandaigua Business Improvement District
Canandaigua Yacht Club
Casa de Pasta
Computerized Inventory Concepts, Inc.
Dennis Marine Dock and Hoist Service
Edelweiss Properties Realtors, Inc.
Elmwood Dental
Fisher-Yates Communications, Inc.
German Brothers Marina</p> | <p>Henderson Associates
J.D. Chapman Agency, Inc.
Johnson-Kennedy Funeral Home
Keenan Group Realtors, Inc.
Kepner Equipment
Ludlow's Embroidery
Mitchell Pierson Jr, Inc.
Monica's Pies
MRB Group
Municipal Solutions, Inc.
Must Stash It Self Storage
Naples Brewing Company</p> | <p>Randall Farnsworth Auto Group
Rick's Marine Services
Rifkin & Company, LLP
Saralinda Hooker Planning & Development Consultant
Sheg Properties, LLC
Shepard Bros., Inc.
Tamberlane Farm
Unitarian Universalist Church of Canandaigua
Urban Forest Diagnostics
Watersound Management
White Haven Memorial Park</p> |
|--|---|---|

2022 CLWA MEMBERSHIP FORM

CHOOSE YOUR LEVEL OF SUPPORT

You have the option of adding up to 3 additional family household members to receive CLWA member benefits.

- | | | |
|---|--|---|
| <input type="checkbox"/> \$ 10 Student | <input type="checkbox"/> \$ 250 Lake Leader | <input type="checkbox"/> Other Amount _____ |
| <input type="checkbox"/> \$ 50 Guardian | <input type="checkbox"/> \$ 500 Champion | <input type="checkbox"/> I would like this gift to be anonymous. |
| <input type="checkbox"/> \$ 100 Partner | <input type="checkbox"/> \$ 1,000 Watershed Benefactor | <input type="checkbox"/> This gift is in honor/in memory of _____ |

MEMBER NAME (S) _____

MAILING ADDRESS _____

EMAILS _____

PHONE: _____

BUSINESS NAME _____

BUSINESS ADDRESS: _____

GIFT MEMBERSHIPS

NAME: _____

EMAIL: _____

ADDRESS: _____

WEBSITE: _____

RECEIPT PREFERENCE

☐ MAIL ☐ EMAIL

VOLUNTEER INTEREST: ☐ YES ☐ NO

We respect your privacy and preferences; visit canandaigualakeassoc.org/about/privacy-policy. If you have questions about your membership or would like to modify your mailing preferences, please call 585.394.5030 or email info@canandaigualakeassoc.org.

Make checks payable to:

Canandaigua Lake Watershed Association

PO Box 323, Canandaigua, NY 14424

Or renew online via PayPal at www.canandaigualakeassoc.org

Tax ID # is: 16-1071349



Shop smile.amazon.com and select **Canandaigua Lake Watershed Association** as your charity of choice and Amazon donates 0.5% of the purchase price back to us. It's easy, and supports watershed protection efforts every time you shop!

CLWA MISSION

Our mission is 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.



CLWA

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Phone: (585) 394-5030

Email: info@canandaigualakeassoc.org

Website: canandaigualakeassoc.org

STAY CONNECTED!



Follow us for upcoming events in 2022!

Winter is a great time to catch up on our previous recorded talks too - visit our Videos page on the CLWA website.



Photo by Benjamin Slomovic