



# The Lake Reporter

## 2015 Watercraft Steward Season Wrap Up

By Stephen Lewandowski

CLWA, with partners the Watershed Council and Finger Lakes Institute, staged inspections of boats entering and leaving Canandaigua Lake through the two launches in Canandaigua and Woodville. This year paid stewards inspected boats from 8am until 6pm every day of the summer, with more stewards on duty during the weekends. The Woodville launch staffing started Memorial Day and covered 103 days until Labor Day. The Canandaigua launch was staffed for 117 days. The total cost of the program was about \$50,000. CLWA paid for about half from Annual Appeal donations and special fund-raising for the program.

In addition to stewards, as part of the Aquatic Invasive Species Program we built 14 explanatory signs distributed around the lake at launch sites. Disposal stations were also built and located at eleven launch sites. We also held several meetings and information sessions to educate the boating public on the potential harm from invasive species and need to clean their boats (now a State Law).

Stewards checked 9822 boats at the north end (Canandaigua launch) and 4015 boats at the south end (Woodville). About one-third of the boats checked had last been used in a water body other than Canandaigua Lake, underscoring the need for continuing this program to prevent the transfer of invasive species from other lakes to Canandaigua Lake.

In 2014, organisms were removed from about 10% of the boats checked. This year, the percentage was much reduced (about 5%) which we believe resulted from boat owners being made more aware of the need to clean their boats themselves.

CLWA has had further discussion, especially with NYS Parks and Recreation, about the need for a boat washing facility at the north end. State Parks has indicated they are working toward building a boat-washing station by 2017. CLWA will also investigate the possibility of a boat washing program with area car washes, as a stop gap measure. Recently, Ontario County Sheriffs suggested that they may be able to help with enforcement of the "Clean, Drain and Dry" provisions of the new NYS Law.

The Stewards working on Canandaigua Lake in 2015 include Jennifer Harrell, Kyle Mehlenbacher, Emilee Millet, Ethan Hall, Kim Falbo, Jacob Maslyn, Rob MacLean, Bridgette Dean, Cindy Smith, Colin Clark, Daria Sparks and Jennifer Geck.

CLWA acknowledges the stewards, donors, Finger Lakes Institute, Canandaigua Lake Watershed Council, political leaders and public cooperation for all the support provided in 2015. Your support made our efforts to prevent the further spread of invasive species to Canandaigua lake a big success. Thank you for all your efforts and support!

**13,837**  
Boats Inspected

**5%** Carrying  
Organisms

## 2015 Blue Green Algae Bloom

No One Smoking Gun...  
No One Silver Bullet

By Kevin Olvany

*While blue green algae has been a natural component of the lake's ecosystem for a long time and tends to dominate the algal community in late summer, the concentration of blue green algae throughout the lake was much greater than normal and had substantial negative impacts on our lake experiences. The two very important questions we keep hearing are: "What caused the blue green algae event to happen in 2015 and how do we stop it from happening again?"*

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## President's Message: Winter 2016

### *Big Fish in a Little Pond*

I was raised in a small house at the end of a dead-end street in the town of Gates, close to the Rochester Airport. Little Black Creek flowed by our property and at the end of our street there was an old stone quarry which had long since been abandoned and filled with water. We used to fish in that quarry – pan fish, bull head and northern pike. Biggest fish I ever caught there was over two feet long –honest! But that's not the point of this story.

Back in the day the little pond was 25 feet or so deep. Right along the shore we could drop a line to 10 – 15 feet before the sinker hit bottom. Today that pond, about three acres of surface area is completely silted up. Maximum depth except in spring time is less than three feet. No one fishes there anymore 'cause there are no more fish, except when the suckers (carp) are running in the creek in the early spring.

What's all that got to do with Canandaigua Lake you ask?

I think of that little pond every time the waters of Canandaigua Lake go muddy brown turbid from storm runoff and the spring thaw in the watershed. Where does all that muddy water go? Next time you get a chance, fill drinking glass with it and let it sit for an hour or so – it'll mostly clear up, but on the bottom will be a layer of brown sludge.

Its reported that Canandaigua Lake is 276 feet deep. My brief research for this article would indicate that that number is based on recent (10-20 year old) information. I wonder how deep the lake was back in 1950, when the little pond of my boyhood was 25 feet deep?

Ask an old-timer who lives along Fallbrook Park or Otetiana Point how deep the water was out front of their place, years ago, compared to now? How many times would it take to fill

up that glass with muddy water, if you left the sludge and drained the water out of it each time, then refilled it with more turbid lake water?

No, the point of this story is not how long it will take for Canandaigua Lake to fill up – sure won't be in my lifetime or yours. The point is, that all that cloudy brown runoff water carries with it all kinds of stuff, some of it microscopic, which settles to the bottom of the lake – not all of it, some flows right out the north end and heads for Lake Ontario. Dead trees, lawn chairs and other junk washes ashore, but most of it sinks to the bottom of the lake. It's done that for centuries since the last glacier disappeared. We can't do much about it!

What we can do is mind what we let into the flowing and intermittent streams of our watershed. We have 350 miles of tributaries (with 700 miles of shoreline) feeding into a lake with about 36 miles of shoreline. Do the math - that's a whole lot of stuff!

Our Aquatic Invasive Species program inspected nearly 14,000 boats this past summer - we're proud of that!

If not the worst, we had one of the worst, outbreaks of aquatic blue-green algae ever - we're not proud of that!

*Share the Memories, Live the Legacy, Do No Harm*



Tom Zimmerman  
President, CLWA

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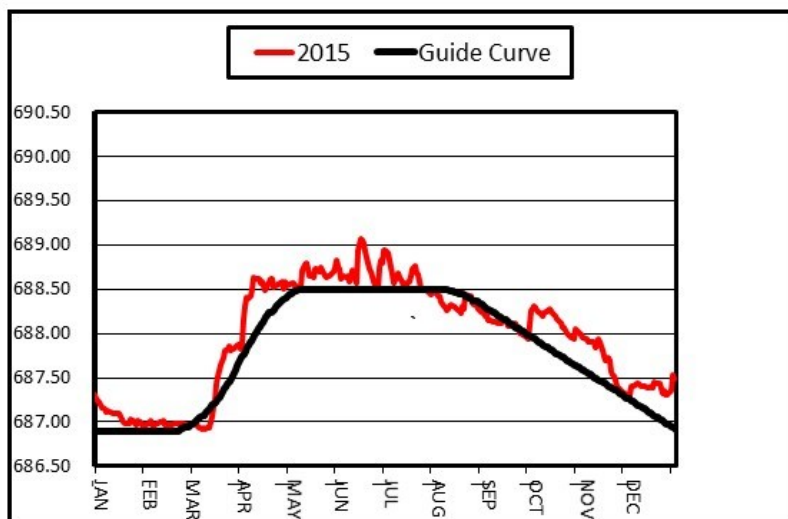
## Lake Levels in a New Year

By Steve Lewandowski, with thanks to Will Clark

Canandaigua Lake is reaching its winter level (686.9') according to the Guide Curve that the City of Canandaigua uses. Runoff from late December rains (no snow) has been keeping the lake 4-5 inches above the Guide Curve. The gates on the main Outlet (by the Post Office) are closed but the gates on the Feeder Canal (by Walgreens) remain open to provide dilution for the effluent from the City's sewage treatment plant.

The Canandaigua Lake Guide Curve used by the City was developed by Bruce Gelser, PE in the early 1970s. He used more than sixty years of records (including historic high levels reached by the lake during Hurricane Agnes in June 1972) to create a Guide Curve that serves several purposes: 1) to give the City precise measurements to guide its regulation of lake levels, a

power granted by NYS Law adopted in 1886, 2) to best serve the multiple uses made of Canandaigua Lake, including sewage dilution, water supply, recreational boating, private water supplies, and environmental management, especially of the Hi Tor wetlands, and 3) to mimic the natural rise and fall of lake levels through the seasons.



## Congress Approves Enhanced Tax Incentive for Conservation Easements

From the Finger Lakes Land Trust

Congress recently passed a \$1.1 trillion tax and spending bill that will make permanent an enhanced tax incentive for donations of conservation easements. Under this legislation, landowners who donate a conservation easement can claim a federal income tax deduction — an incentive that has been highly successful at encouraging private, voluntary land conservation.

The conservation easement tax deduction allows a landowner to claim a federal income tax deduction for the appraised value of a donated easement — similar to other charitable donations. The value of the easement is calculated by determining the difference in property value before and after the easement. That's the amount of value the landowner gave up by agreeing to protect the land.

Until Congress took action, a landowner could deduct the value of a conservation easement, up to 30% of his or her adjusted gross income, for up to six years. The enhanced incentive can make a big difference for landowners who are thinking about donating an easement. In particular, it allows working farmers, as well as landowners

with modest incomes, to realize more of the value of the deduction. Here's what the enhanced incentive does:

- Raises the maximum deduction a donor can take for donating a conservation easement from 30% of their adjusted gross income (AGI) in any year to 50%
- Allows qualified farmers to deduct up to 100% of their AGI
- Increases the number of years over which a donor can take deductions from 6 to 16 years

Here in New York, easement donors may also benefit from the State's Conservation Easement Property Tax Credit, which provides reimbursement of 25% of school, town, and county taxes paid on land upon which a conservation easement was donated.

For additional information about the tax incentives associated with a conservation easement donation, please contact the Land Trust's Ithaca office at (607) 275-9487 or visit their web site at [www.flit.org](http://www.flit.org).

## Invasive Species Report

### Starry Stonewort (*Nitellopsis obtusa* L.) Invades Canandaigua Lake

By Dr. Bruce Gilman, Department of Environmental Conservation and Horticulture, Finger Lakes Community College and Emily Staychock, Invasive Species / Watershed Educator, Yates County Cooperative Extension

Canandaigua Lake can now add a new name to its growing list of invasive aquatic species – starry stonewort. Observed during an aquatic vegetation training event along a northern shoreline two years ago and this year at the south end of the lake, starry stonewort is now estimated to be covering at least 15 hectares of the lake bottom. Native to Europe and western Asia, this invasive species was first observed in the St. Lawrence River in 1978, presumably released in ballast water. It was discovered in the Great Lakes in 1983 and spread to inland lakes shortly thereafter.



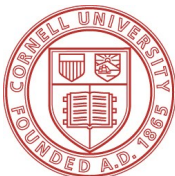
Starry stonewort is a macro-algae, a simple multi-celled organism descended from some of the earliest lifeforms on the planet. It resembles a vascular plant but the main body consists of large stem-like cells, up to 30 cm long, together with branch whorls resembling leaves that radiate upward from nodes of smaller cells. It is anchored by colorless rhizoids that contain several star-shaped bulbils, vegetative propagules with a long dormancy. Rhizoids as well as the entire surface of the organism can absorb nutrients. Starry stonewort can grow to 2 meters in height but is often smaller creating dense, mounded colonies in the littoral zone of lakes and slow flowing rivers. Dispersal to adjacent waters is likely by fragments moved on boats as well as oocytes attached to bird feathers and fur of aquatic mammals. Local spread after establishment is likely by bulbils.



Scientific studies report that starry stonewort releases allelopathic substances that reduce the occurrence of native submerged vegetation. Dense colonies impede fish movement, alter their spawning beds and fry habitat. Water flow may be restricted, and passage by recreational vessels negatively impacted.

Control by manual pulling is difficult due to fragile nature of the plant. Dormant bulbils left in sediment after hand pulling will rapidly recolonize the site. Chemical herbicides will only kill the upper portions of dense stands, allowing regrowth from beneath. No effective biological controls are known at this time.

Starry stonewort has been observed by the authors in Sodus Bay, Oneida Lake, Keuka Lake, Cayuga Lake, and Owasco Lake. It should be searched for elsewhere and documented on iMapInvasives. Accurate distributional records are critical for future management.



Cornell University  
Cooperative Extension

FingerLakes  
COMMUNITY COLLEGE

## A New Invasive

By Stephen Lewandowski

Starry stonewort (*Nitellopsis obtusa*) comes from Asia and Europe where it has been around for thousands of years in freshwater lakes. However, it only appeared in the New World when it was identified in the St. Lawrence River in 1978, undoubtedly transported in trans-Atlantic ship ballast.

Starry stonewort is a member of the family Characeae, a macro-algae, but not a single-celled free-floating one. It looks like a macrophyte, is minimally anchored, brittle, can grow up to six feet tall in dense beds and in water of up to ten feet in depth. Like other Characeae, it favors "hard" water and develops a coating of calcium carbonate on the surface of the plant which feels gritty.

Cyanobacteria have been found inhabiting the gritty coating of Characeae.

It was discovered at the north and south ends of Canandaigua Lake by Dr. Bruce Gilman in 2014 but, judging by the extent of the beds, must have been present earlier. It is estimated that the population at the mouth of the West River has grown to 30-40 acres in two years time.

In Canandaigua Lake, it appears to be competing successfully with other Characeae species such as muskgrass (*Chara vulgaris*). Concern is that Starry stonewort not only outcompetes native species of aquatic vegetation but that it grows to the extent that fouls boat motors, impedes fishing and swimming, and may inhibit fish spawning.

An oddity of Starry stonewort is that it appears in New York State only as a male, even though it reproduces sexually elsewhere. It appears that in NYS its distribution is solely through the distribution of fragments and cloning, and the distribution of fragments is largely due to human activities such as boating.

It is always difficult to predict the precise impacts of a new specie on a complex ecosystem such as a lake, but we can say that the impacts are always more complex than predicted. In addition, the impacts seem to be always larger at the outset, as the "new" specie establishes itself through rapid population growth.

As the new specie settles into its complex relationship with other organisms, experiencing the limitations on growth imposed by competition with other populations, water chemistry, disease, water depth and clarity, and many other factors, its impact lessens. Early, massive populations of Zebra mussels in the mid-90s, for example, promoted water clarity, but later their mortality gave us reduced water clarity and a standing foam on the lake.

Canandaigua Lake has a large and growing population of Starry stonewort; only Owasco, Keuka and Cayuga Lakes of the Finger Lakes are known to have Starry stonewort at this time. An active and vigilant Canandaigua Lake Watercraft Steward program on outgoing boats is needed to prevent the export of this invasive plant to other lakes and bodies of water.

Could the new growth of Starry stonewort in Canandaigua Lake have contributed, along with the warm temperatures and presence of dreissenid mussels, to explosion of cyanobacteria in Canandaigua Lake in September, 2015? Though some Characeae host growths of cyanobacteria in their crusty coatings, others, esp. *Nitellopsis obtusa*, seem to chemically inhibit the growth of cyanobacteria. So the answer is probably no, but we continue to look for connections between what's new in the lake and blooms like last summer's.

(partially from Sleith, et. al, *Distribution of Nitellopsis obtusa in New York, USA, the New York Botanical Gardens, March 2015*)

## Starry Stonewort

Kingdom — Protista

Phylum — Chlorophyta

Class — Charophyceae

Order — Charales

Family — Characeae

Genus — *Nitellopsis*

Species — *obtusa*



### Identification:

- Large, uneven-length branches that look angular at each joint.
- May have one cream colored bulb at the base of each cluster of branches.

### Other characteristics:

- Often found in a mass of plants including coontail, duckweed and others.
- Branches feel smooth and look like green gelatin.
- Found in deep, slow moving water where other plants are scarce.

## 2015 Blue Green Algae Bloom: No One Smoking Gun... No One Silver Bullet

*By Kevin Olvany, Watershed Manager, Canandaigua Lake Watershed Council*

As most, if not all of you know, we experienced an unprecedented blue green algae bloom in Canandaigua Lake throughout September of 2015. Many of you experienced the bloom first hand along your shoreline areas, at public beaches, and while boating on the lake. While blue green algae has been a natural component of the lake's ecosystem for a long time and tends to dominate the algal community in late summer, the concentration of blue green algae throughout the lake was much greater than normal and had substantial negative impacts on our lake experiences. The two very important questions we keep hearing are: "What caused the blue green algae event to happen in 2015 and how do we stop it from happening again?"

### What caused the 2015 Algae Event?

At the first sign of increased algae levels, we reached out to Dr. Bruce Gilman of FLCC along with our statewide research partners from the New York State DEC (Scott Kishbaugh), DOH (Nicholas Rich) and SUNY College of Environmental Science and Forestry (Dr. Greg Boyer) to help us better understand algae levels throughout the lake and complete research to study the various factors that were potentially causing algal blooms. On October 20th, 2015 we presented the initial findings to the public. These presentations can be found at: [www.canandaigualake.org](http://www.canandaigualake.org).

Both Dr. Boyer and Scott Kishbaugh reviewed the following factors that affect algae growth in substantial detail.

1.	Sunlight
2.	Calm winds that allow for rapid growth of algae
3.	Warm water temperatures
4.	Quagga and Zebra Mussel densities in the lake. These invasive mussels selectively filter feed other types of algae thus reducing the competition that blue green algae have in obtaining available nutrients.
5.	Nutrients (phosphorus and nitrogen) available in the water for algae growth

Examining the first three factors: both August and September provided plenty of sunlight, the water temperature was well above 60 degrees F which is necessary for algae growth, and most days the lake looked like glass when we were sampling with some data to suggest that we had calmer than average wind conditions during this timeframe. Each of these three factors are critical to blue green algae growth, but are completely uncontrollable.

For the fourth factor, we do not have enough data yet to determine if Quagga and zebra mussel densities are increasing in the lake, but have incorporated that into our 2016 sampling program budget. This factor is also uncontrollable, but is important to understand the food web and nutrient cycling impacts.

The final factor, nutrients available in the water column, is the only factor that we can impact. We can utilize high quality watershed management to reduce the amount of nutrients entering the lake, so as to not fuel blue green algae growth. The 2015 nutrient data does not provide the absolute evidence that this was the main reason for the unprecedented increase in algae. Summer nutrient data was somewhat higher than previous years, but when compared to other lakes, our nutrient data is substantially lower than lakes that typically see algae blooms. However, one of the main points that Scott Kishbaugh provided in his presentation was that the data indicates Canandaigua Lake may be highly susceptible to small changes in phosphorus and nitrogen due to a variety of factors. Nutrient dynamics and cycling within the lake ecosystem can get very complex and we are continuing to fine tune our research approach for the 2016 season.

### How do we stop the blue green algae bloom from happening again?

Given the complexity of blue green algae blooms, there is no one silver bullet to prevent future blooms. Although multiple factors formed the perfect storm to create the conditions for blue green algae levels to skyrocket in 2015, both Scott Kishbaugh and Dr. Boyer highlighted that watershed management of nutrients (as per watershed plan) entering the lake will be needed to decrease the likelihood of future blooms.

Numerous agencies and organizations have worked collaboratively for decades to protect Canandaigua Lake from nutrient pollution. The work has successfully kept phosphorus and nitrogen levels low and is one reason blue green algae blooms have not been observed on Canandaigua Lake. Last year's bloom showed how potentially sensitive the lake is to nutrients and how imperative



it is to implement more water quality work throughout the entire Canandaigua Lake Watershed. Although we have a watershed protection program that is used as a model across the state, the algae event of 2015 has highlighted the need to substantially increase our efforts to comprehensively protect the lake.

Nutrients originate from a variety of sources throughout the watershed, so nutrient reductions require a broad and multi-faceted approach. The fourteen

watershed and water purveying municipalities that are the Canandaigua Lake Watershed Council approved the 2014 Comprehensive Update to the Canandaigua Lake Watershed Management Plan ([www.canandaigualake.org](http://www.canandaigualake.org)), which provides the specific strategies that need to be implemented to provide long term protection of the lake. The Association played an important role in crafting this Plan. The Watershed Plan details a wide array of activities that need to be implemented. Highlighted below is a limited snapshot of some of the highest priority actions to reduce nutrients entering the lake.

- Restore and protect new wetlands, floodplains and streams:** These areas are part of our Natural Capital that provide tremendous water quality benefits by filtering out a wide array of pollutants including nutrients from upstream sources. Wetland restoration and creation projects can provide huge “bang for the buck” returns. We just received notice that we were successful in obtaining over \$350,000 of state grant funds that will be matched locally to build wetlands throughout the Sucker Brook subwatershed. Multiple partners will be providing this match. The City of Canandaigua and Town of Canandaigua have agreed to provide \$325,000 in matching funds to implement these critical projects. When completed, the wetland projects will improve water quality and decrease flooding in the stream that has some of the highest phosphorus levels entering the lake. We need to do more of these projects throughout the watershed and we are actively working on numerous possibilities. Unique partner-
- ships and multiple sources of funding will be needed to make these projects happen.
- Enhance our local land use codes to improve water quality:** An inter-municipal group of code enforcement officers, planning board chairs, Watershed Association board members, county planning and watershed staff are working together to improve our regulations to better protect water quality: the six main areas we are working on include: steep slope requirements, limiting impervious surfaces on parcels, requiring water quality treatment of individual lot development along the shoreline that discharges to the lake, improved site plan review regulations, enhanced onsite (septic system) wastewater treatment system regulations, and ridgeline development requirements. The Canandaigua Lake Watershed Council recently secured grant funding to support this project.
- Agricultural Best Management Practices:** Farmers are stewards of the land and have implemented many water quality protection practices on their land, which may not be identifiable from the road. Despite significant work on local farms, additional water quality practices are absolutely needed. The high intensity rain events of the last few years have prioritized the need to enhance our work with the agricultural community to reduce runoff and erosion from farm fields. Partnerships with the US Dept. of Agriculture, and Soil and Water Conservation Districts help identify, design and fund water quality improvement projects on farms. We need to enhance this work and find new and innovative ways to work with the diverse farming community.
- Enhanced Stream and Lake Monitoring:** We have partnered with FLCC, Ontario County Water Resources Council and the Watershed Association to purchase a new water quality probe that will provide information on blue green algae levels in the lake. We will also be increasing our sampling of specific streams in the watershed to better understand sources of nutrients.
- Road bank and culvert improvements:** Part of our recent grant award is to partner with municipalities to implement road bank stabilization and culvert replacement projects to reduce major sources of sediment and the nutrients that move with sediments into the lake.
- Protect our open space areas:** Groups such as the Finger Lakes Land Trust and Nature Conservancy play a critical role in protecting our green space areas. These efforts need to continue and we need to work with them more closely to identify critical natural resource protection areas.

## 2015 Take a Dip Water Quality Monitoring Program

*Average clarity for 2015 was 14.76 feet, down from 2014's 17.42 feet, a 15% decrease in one year and a 30% reduction since 2012.*

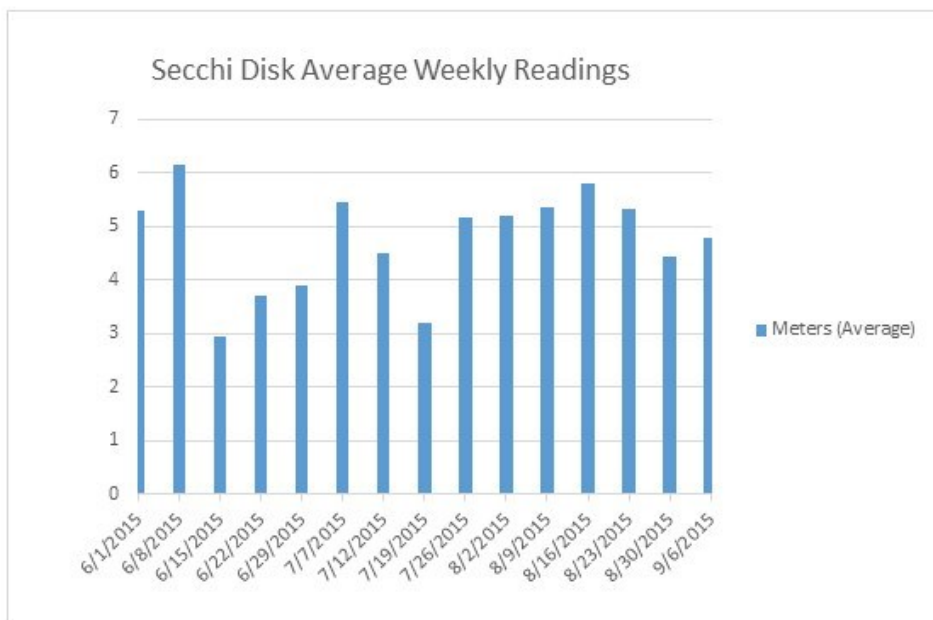
In 2015, ten “dippers” tested the lake’s clarity from May 6 until September 11. 118 readings were taken over those 129 days, nearly one per day. Data gathered from these ten sites supplements Dr. Bruce Gilman’s water clarity data taken monthly at two mid-lake locations.

The volunteers reported electronically to Dee Crofton who recorded their findings. Data added by these volunteers supplies more detail to the ongoing “picture” of Canandaigua Lake’s health. CLWA now posts weekly water clarity data updates on its website, making it immediately available to concerned citizens. Visit [canandaigualakeassoc.org](http://canandaigualakeassoc.org) and go to the “Science and Education” toolbar — data is listed under the Secchi Disk Program.

### RESULTS

Canandaigua Lake reacts to runoff events in at least two ways. First, clarity is lost due to silts and sediments borne to the lake by storm-water runoff. Later, the nutrients dissolved in water or attached to soil particles fuel algal growth. At different times, both silts and algae obstruct the penetration of sunlight into lake water and reduce clarity.

Overall clarity of the lake through the 2015 summer season was 14.76 feet, down from 17.42 in 2014, 18.6 feet in 2013 and 20.2 feet in 2012. The general pattern of Canandaigua Lake’s clarity remains the same through the year- clear in the spring, declining through the summer, and improving in the fall, though in 2015 the fall clearing was later (October) than usual.



This year’s volunteers include Gary Helming, Dee Crofton, Marty Lasher, Alan Krautwurst, Scott Hill, Bruce Kennedy, Barry Fry, Lynn Thurston, Bill Yust, and Steve Zumbo. We extend our sincere thanks and appreciation to each and all of them.

### NEEDS

For the first time since the program’s beginning in 2010, the number of “dippers” and the sites they tested was reduced from the previous year. On a lake of the size and diversity of conditions as Canandaigua, more samples and data are needed. We hope that 2016 will bring more volunteers.

Because of the late summer/early fall conditions in 2015, there is a need to extend the clarity monitoring program beyond early September.

As always, more monitors on the south end of the lake would be beneficial.

**CLWA remains dedicated to the “Take a Dip” program will provide equipment and training to volunteers next spring. To volunteer, call the CLWA office at (585) 394-5030.**

## Habitat Restoration at Old Brookside Almost Complete

By Stephen Lewandowski

In 2013, the Town of Canandaigua accepted donation of about 56 acres surrounding the Old Brookside development off Buffalo Street and in the Suck Brook watershed. The land was donated by the Leenhouts' Old Brookside LLC as part of a Planned Unit Development begun in 1998.

In 2014, the Canandaigua Lake Watershed Association began discussions with the Town that culminated in an April 2015 Memorandum of Understanding that CLWA would undertake a "habitat restoration project" on 4.45 acres of the open space at no cost to the Town. Nearly half a mile of Sucker Brook and its tributaries pass through the project area.

CLWA's purpose was to demonstrate that habitat restoration and water quality improvements could go hand-in-hand. The land itself was old pasture that had grown up over 40 years to be dominated by invasive species such as Asian honeysuckle and European buckthorn.

CLWA hired contractor White Oak Nurseries, which specializes in raising native plant species, to do the work. In the spring of 2015 White Oak proprietor James Engel cut hundreds of buckthorn and other invasive species from the site.

In October 2015, Engel and volunteers planted more than 120 native trees and shrubs on the site, plus seeding in white oak acorns and hickory nuts. All plantings were protected from deer, which are plentiful in the area, with either tubing or wire cages. In the late spring of 2016, Engel will review the 4.45 acres as a "clean up" of re-sprouting invasives, and the demonstration project will be complete.

As with all natural projects, it will take time for the new plants to become established and for the restored project area to begin to take on a different look from its neighbors.

The Town's own plan for the larger property includes nature trails along Sucker Brook, connecting Town parkland and open space and wetland restoration.



Town of Canandaigua Supervisor Pam Helming helping out at a volunteer work day at Old Brookside

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## 2015 Blue Green Algae Event *Continued from page 7*

- **Resident actions – enhancing educational efforts:** Reducing nutrient and pesticide use on your lawn and encouraging your landscaper to do the same will stop your lawn from being a source of pollution to the lake. High intensity rain events carry these pollutants from the lawn to the lake. This needs to be a major priority for all residents.

This is just a limited snapshot of the projects and programs that we need to implement. We will never provide comprehensive protection of the lake through one organization or by working on one issue. We have to work together. I often ask the community during presentations- What will be our Legacy? Will algae blooms become the new normal or will we implement the strategies necessary to make our watershed more resilient to the changing weather patterns that generate high intensity rain events?

The Watershed Association and its membership can play a critical role in promoting these actions and providing funding assistance for many of these activities to make sure algae blooms do not become the new normal. If you would like to discuss any of these projects further please do not hesitate to call me: (585) 396-3630.

## From the Watershed Education Program

*By Beth Altemus and Sharon Radak*

When fall rains begin filling the streams again after the dry days of late summer, and the chill of the air brings water temperatures down, it is a perfect time to get out and look for the squirmy, crawly denizens of our streams, the aquatic macroinvertebrates. All of our lessons with students in September and October explore the importance of these water dwelling creatures as indicators of water quality and stream health. Some students are able to take field trips to local streams to collect macroinvertebrates, while others investigate live samples in the classroom.

Conservation Field Days, organized by one of our own board members, Edith Davey, of the Ontario County Soil and Water Conservation District, kicks off our season each school year. Students from across Ontario County come to the Camp Bristol Hills 4H camp to rotate through multiple stations presenting various environmental topics. We get the kids running and laughing with a game called Macroinvertebrate Madness, in which players pretending to be macroinvertebrates must make it across a "stream" without being tagged by "pollution". Students get to see the effects of environmental stressors on population while in turn visualizing how macroinvertebrate assemblages reflect changing water quality.

The majority of October is taken up with visits to all of the Canandaigua 6th grade classrooms to present a two day lab investigating macroinvertebrates as bio-indicators, or organisms that can tell us something about their environment. Students first learn about particular macroinvertebrate sensitivities and habitats in an activity called, "Find Me a Home". They then investigate samples of real macroinvertebrates collected from two streams within the watershed (one flowing through predominantly undeveloped forest and the other through the city of Canandaigua) and try to determine which stream their sample came from based on the sensitivities of the bugs present. For the students who saw us at Conservation Field Days this is an excellent elaboration on the theme of the Macroinvertebrate Madness game.

We fleshed out the busy month with our usual visit to the Little Bunch preschool in Naples. The little ones always enjoy the wonderful story of a raindrop's journey to the sea in, "Rain Drop Splash", by Alvin Tresselt. Of course using magnifiers to look at real macroinvertebrates collected from Naples Creek is the highlight for the kids (though perhaps not for the bugs!)

A new addition to our normal fall activities was working with a tenth grade science class from Avon at the Cumming Nature Center for a full day of stream study. We, along with CNC staff, led the students in testing and measuring the chemical, physical and biological characteristics of a small stream that flows through the property. We were excited to find the most diverse and abundant assemblage of macroinvertebrates we have seen in this area, with many sensitive types indicating excellent water quality.

Finally, we are thrilled to report that the CLWA was awarded a \$2000 grant from the Ontario County Water Resources Council to help purchase two Enviroscape educational models.

These three-dimensional models illustrate how land use affects water quality through point and non-point sources, one involving a surface water body, like Canandaigua Lake, and the other modeling wetland dynamics. We have been borrowing the former type from the Ontario County Soil and Water District for several years now so having our own will increase our flexibility and outreach potential. The addition of the wetland model will allow us to expand the scope of our lessons and perhaps even become a springboard for new lessons. We send a HUGE thank-you to Al Kraus for discovering this grant and putting together the proposal.

Looking ahead, our winter schedule begins at the end of January when we visit the fifth graders at Canandaigua. The coming months will bring visits to Naples, Canandaigua and Marcus Whitman schools, and others, with lessons focusing on land use impacts and watershed modeling. We also will begin preparations for our biggest event of the year, Onanda Field Days, when the entire Canandaigua third grade will join us, along with a host of fantastic instructors, in early June at Onanda Park for a day of environmental and watershed learning. Onward to a new year of empowering our youth to become future watershed stewards!



*In Memory of*  
**Helen Lewis**

From  
Bernie & Linda Donegan  
of Fairport, NY

# Woolly Days Ahead for the Hemlock Tree

By Angela Cannon-Crothers

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I like bugs, ask anyone. I am awed by the mechanics of their life cycles, the biodiversity of the entire Order of Insecta, the magical beauty of so many of their kind. But there are some that strike more than a few heebe-geebes -- some are downright frightening. Take the tiny hemlock wooly adelgid (ah-del-jid) for instance: a needle sucking scale insect of miniscule proportions that reproduces asexually (no male required) at a rate of thousands per year. This aphid-like insect, originally from Japan, has no predators in this part of North America and its only table fare is the Eastern hemlock tree. In the Shenandoah National Park the prolific HWA has already killed more than half of the hemlock trees. When the fog lifts from mountains there, acres of the standing dead appear like ghosts.

The towering and lacey needled Eastern hemlock tree (*Tsuga canadensis*) is a climax species. Hemlock can live hundreds of years and have a wonderful way of co-creating habitats that merge into exquisite old growth forests and gully ecosystems. Here in the Finger Lakes, the hemlock trees gather their roots into the soft and erodible flesh of our steep-sided gullies, with fan-like limbs they shade the creeks where brook trout eggs hatch and keep the waters cool and clear. Together with white pine and a few yellow birch, they provide just the right carpet cover for certain spring ephemerals to emerge, they cooperate with a variety of fungi, and welcome home long traveling neo-tropical songbirds like the hermit thrush and ovenbird, who prefer deep dark forest over field edge and deciduous woods. The voracious appetite of the hemlock wooly adelgid will rapidly change this habitat if left unchecked. The result will be more than dead hemlock trees, but bare gullies unprotected from storm water erosion and direct sun. Some of the results may be extensive run-off in the form of sediments, excess nutrients will enter the lakes, and trout would be replaced by warm water stream fish like crappie. The sudden loss of this beautiful evergreen, richly connected to our natural and cultural history, may alter our environment greatly.

The alarm has sounded. The hemlock wooly adelgid has been found in our area – in Conklin's Gully in Hi Tor Wildlife Management Area, Clarks Gully, Walton Point on Canandaigua Lake, Honeoye Lake hillsides, and Keuka Lake State Park. It's here. But there are some things we can do if we want to keep the species in check, if we want to save hemlock trees and subsequently, our gullies and lakes.

I do not promote the use of insecticides and other chemical poisons, ask anyone who knows me. But the HWA scares me enough that I am willing to rethink a few of my beliefs, at least until the little wooly devil's biological controls can be introduced – which is coming – it's just that by the time we get them here it might be too late if we don't act quickly.

In a meeting sponsored by the Canandaigua Lake Watershed Association (CLWA) held at the Naples Village Hall on December 5th, analyst, Steve Lewandowski, from the Canandaigua Lake Watershed Association, Cornell University entomologist, Mark Whitmore, Edith Davey from the Ontario County Soil & Water Conservation District, Jim Engel from White Oak Nursery and a local resident, Lynn Thurston, turned HWA activist with the newly formed Walton Point Neighborhood Association, gave an informative talk on what we can do to save our hemlock trees from devastation.

Natural predators of the HWA are a preferred method of keeping life in balance, and a couple helpful beetles have been located in the Pacific Northwest (one, *Laricobius n.* is affectionately named, Larry). We will soon be able to invite more of these biological controls here after a plethora of red tape and testing, but the beetles will need time to get established as well as small hedges of hemlock in which they can be raised so as to disperse in the region. These hemlock hedges we can start planting now. Possible fungal controls may be developed as well. But the matter is urgent and until viable predator controls can be established, two carefully applied systemic insecticides, Imidacloprid and Dinotefuron, can be used by licensed application professionals to save individual, and small stands, of hemlock trees. Hemlock trees are not pollinated by insects and the insecticides are very species specific.

Sometimes I think about how nature is about change and adaptation, how we cannot stop the progression of evolutionary processes. Other times I remind myself that just maybe, this is paradise and we are the keepers of the garden, the stewards of the Earth. In this way, I feel it is our duty to protect the diversity and land. I believe we can tend to this. We can learn to recognize the HWA and report it. We can use insecticides, applied by professionals, on our own trees. We can encourage the DEC to treat hemlocks on public lands. We can plant hemlock hedges for biological control species. We can keep informed.

Have you seen little fuzzy white dots of eggs on the underside of any hemlock tree boughs? If so, where?

Ask everyone.

### For more information on Hemlock Woolly Adelgid :

- Visit [canandaigualakeassoc.org](http://canandaigualakeassoc.org) and look under "Past Events" to view the presentations from the December Workshop
- Visit the New York State Hemlock Initiative website at: <http://blogs.cornell.edu/foresthealth/nys-hemlock-initiative/>
- Call the CLWA office to learn more about volunteer opportunities and upcoming training sessions!



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

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