The Taste and Safety of Canandaigua Lake as a Drinking Water Source *By Stephen Lewandowski*

About the time that Canandaigua was becoming a City from a Village in the early 1900s, many upgrades were being made to its infrastructure. Sucker Brook running through the City was altered, straightened and connected with an underground storm drainage system. A sewage treatment plant was constructed and a series of sanitary sewers were installed to conduct sewage to the plant. A new channel known locally as the Feeder Canal was constructed to conduct the treatment plant's effluent downstream to the Outlet. Gates were installed on the lake to manage lake levels and to make sure the Feeder Canal received enough flow to dilute the effluent.

And in 1900 a drinking water plant to serve the City was constructed in the Town of Canandaigua on West Lake Road. That oldest part of the plant was dominated by pumps driven by coal-fired, steam-driven engines.

In 1979, a new facility behind the old plant was brought on line. In the old days, chlorine and fluoride were added to the lake water as it was pumped uphill to storage tanks west of the facility. The modern plant adds a more complete filtering process. Other additives balance the water's pH so that it will not attack and carry off metals (lead, copper) used in pipes and joints.

Water is withdrawn from the lake in two screened intake pipes. After treatment in the plant, the water is pumped up two hundred and seventy-five feet to two 4.5 million gallon covered reservoirs and a 2.0 million gallon storage tank more than 960 feet above sea level (and more than a hundred feet above the highest point in the City of

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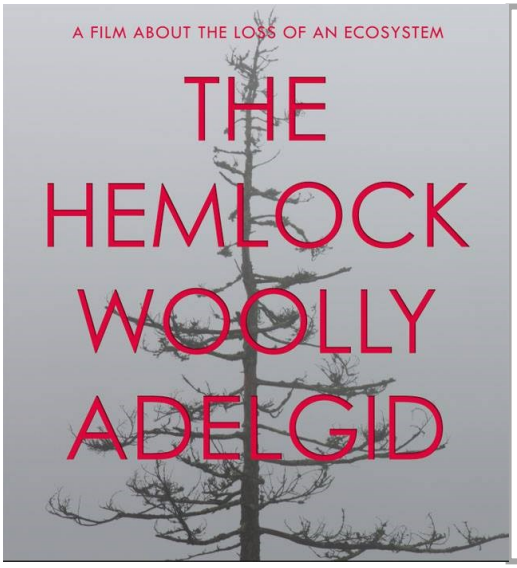

The Hemlock Woolly Adelgid : A film about the loss of an ecosystem

Thursday, February 23rd at 6:30 -7:30 PM

Ewing Family Community Room, Wood Library (3rd Floor)

Join CLWA and The Hemlock Initiative for a screening of Chris Foito's film "The Hemlock Woolly Adelgid", followed by a discussion with our region's top HWA researcher, Mark Whitmore (Forest Entomologist, Cornell University). Attendees can expect to get the most complete and current information on the movement of this invasive forest pest across NYS.

The documentary, "The Hemlock Woolly Adelgid" aims to engage and educate the viewer on this often overlooked invasive species by explaining its past, present, and what could easily be the future if significant action is not taken. The film illustrates the vital importance of the eastern hemlock tree as a foundation species in North American forests, and raises the questions of what should be done to prevent the spread of the hemlock woolly adelgid and the growing phenomena of invasive species as a whole.

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Cover Image by Lauren Natti

President's Message - Winter 2017

By Wade Sarkis

Living in the Finger Lakes region it is easy to take clean water for granted. It's only recently that threats to our lakes have become more prevalent and are beginning to affect our lives. Blue green algae can create health concerns for swimmers and pets, and may render our drinking water non-potable. Invasive species (aquatic and land based) can clog waterways, contribute to erosion, destroy wildlife habitats, and be a general nuisance. Maintaining our clean water will have positive impacts on health, recreation, tourism and property values.

While we're surrounded by fresh water, it is scarce in most of the world. Earth is 70% covered by water. Of that water, 97% is salty and 3% is fresh. Almost 70% of the fresh water is inaccessible as it is trapped in the polar ice caps and glaciers. (As the ice caps recede, the melt-off goes to the sea and becomes salty.) 30% of fresh water is in the ground and only a fraction of water (0.3%) is represented by our lakes and rivers.

70% of fresh water usage on Earth is for agriculture. With 7.3 billion people to feed, that make sense. Another 22% goes to industrial use (including power generation) and just 8% is for domestic needs. The two most populous countries on Earth, China and India –both with more than 4 times the population of the US - have similar water problems. Their demand for agricultural products has tapped the easily accessible sources, and rivers that once were filled with snow melt from the Himalayas are drying up. As their standards of living rise, so do their water demands. Their major population centers will soon face crisis-level water shortages.

In the US, we can look at California to see a similar pattern. Aquifers have been tapped and rivers re-routed while declining rainfall and snowpack add stress to the problem. Like conditions are developing in the central and western plains – the "breadbasket of America." Wells are being re-drilled, deeper and deeper at greater cost. It is also problematic that many people are choosing to live/retire in arid climates (Arizona, Nevada) where water doesn't exist in the first place.

Adding to the problem is the highly inefficient use of fresh water around the world. Most farms lack the technology to use water efficiently. Crumbling infrastructure of existing water systems is a very serious issue. It is estimated that 25% of water supply for both Chicago and Boston is lost between their reservoirs and destinations. Transportation and storage of fresh water is expensive. Let's not forget the tragic example of Flint, Michigan, and the lead pipe system which has poisoned thousands.

Don't be surprised if we begin to see fresh water become the focus of domestic and global foreign policy in the not too distant future. If we don't address these problems, access to clean water may become a national security issue, and remediation of dirty water is many times more costly than prevention.

The global scarcity of clean water emphasizes the local importance of protecting of our watershed. While now abundant, our water faces threats (like blue green algae) which are on the rise. We are learning about the factors that contribute to their advance and we must do all we can to fight them. Let's not take for granted what most of the world does not have; it's not just a pretty Lake, it's a precious and scarce resource.

Partnerships Help Water Quality: Canandaigua Lake, the Long View

Water quality in Canandaigua Lake reflects the land uses in its watershed, since most of the lake's water arrives as rainfall, snow and runoff. To manage a watershed to protect or improve water quality in the lake is a very complex matter, involving many agencies, municipalities, organizations, businesses and land owners. Everyone's help is needed.

The Canandaigua Lake Watershed Association has been active since the early 1970s. CLWA's purpose is to preserve and protect the lake and surrounding watershed for future generations by supporting scientific research, sound public policy and community education. It is a private non-profit organization, but its role can only be accomplished by weaving a web of relations and partnerships with others. Establishing these partnerships not only increases CLWA's impact but allows the available dollars to be stretched further.

Early on, CLWA lobbied to make sure that Bristol Harbour's sewage treatment plant which discharges to the lake would be highly efficient. CLWA sponsored, with the Town of Italy and the NYS DEC, the clean-up of large illegal waste dump at Sunnyside. CLWA's advocacy for noise and speed limits (45 mph) on lake and larger no-wake zone (200 feet) was accomplished with help of NYS legislators. In the 90s, CLWA unsuccessfully lobbied the NYS Department of Health to update the Canandaigua Lake Watershed Rules and Regulations of 1953. In the mid-90s CLWA with the help of the Ontario County Soil and Water Conservation District coordinated the debris clean-out of a four mile stretch of the Outlet in order to alleviate flooding on the lake. CLWA worked with the Trust for Public Land, New York State and Town of Middlesex to facilitate the acquisition of the Bare Hill Unique Area.

CLWA has a long history of monitoring water quality in the lake and its tributary streams by consultant Scott Sherwood. Sporadic monitoring of hot spots in the 70s and 80s turned into a comprehensive water quality monitoring program in the 90s by SUNY Brockport's Dr. Joseph Makarewicz and CLWA Chair Robin Evans. Data gathered from this scientific program proved highly valuable in selecting remedial actions during the creation of a watershed management plan in 2000.

In more recent years, CLWA has worked with the Finger Lakes Institute, the Canandaigua Lake Watershed Council, NYS Office of Parks and Recreation and New York State Department of Environmental Conservation to monitor the two public boat launches on the lake with paid stewards to avoid the introduction of new invasive species to the lake. The Finger Lakes PRISM located at the Finger Lakes Institute in Geneva provided a grant in 2015-16 to counteract the invasion of the Hemlock Woolly Adelgid which, through its elimination of hemlocks, is a threat to water quality. The Finger Lakes Institute conducts water quality research across the Finger Lakes, gathering information of use to CLWA.

The Canandaigua Lake Watershed Inspection Program, under auspices of NYS Public Health Law, has been active since the 1950s, and CLWA has worked with several Watershed Inspectors through the years to make sure that the private sewage treatment systems of homes and businesses are working properly. Seneca Point gully, Sucker Brook and Fall Brook have been points of interest.

CLWA and the Canandaigua Lake Watershed Council have provided a watershed education program in the three school districts of the watershed (Canandaigua, Naples and Marcus Whitman) for ten years. Our partners are the school districts, teachers and their students. CLWA has also offered adult, technical education to municipal boards, planning boards and zoning boards of appeal to emphasize the impact of their deliberations on issues pertaining to the lake's water quality. In NYS almost all land use regulations are matters of local control through zoning and other local laws.

CLWA is a voting member of the Ontario County Water Resource Council, which brings together agencies and organizations of the county to share information. CLWA has received several small grants from the Committee especially to support its education programs.

From 1989, CLWA contributed to the effort largely begun by Canandaigua Mayor Ellen Polimeni and culminating in publication of *The State of the Canandaigua Lake Watershed (1994)* and the *Canandaigua Lake Watershed Management Plan (2000)* as well as its 2014 update. Municipalities of the watershed and water users came

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Farewell to a Friend of the Association

By Edith Davey (with contributions from Nadia Harvieux, Neil and Maggie Atkins and Lindsay McMillan)

At the end of 2016, long-time clean water advocate Stephen Lewandowski (mostly) retired from his work with CLWA. Many of our members have gotten to know Steve over the years as he shared his knowledge of Finger Lakes natural history through his educational programs, his writing, and his interactions with us out in the community. We send Steve off with a hearty "thanks!" for his many years of dedicated service, and wish him the all the best in his retirement.

Stephen Lewandowski grew up in Canandaigua, enjoying summers at a family property on Canandaigua Lake. His grandfather, who hunted in the watershed and fished in the lake, encouraged his outdoor interests and activities. His school years were also spent in Canandaigua, and featured baseball as well as academics and a role as a (typecast?) leprechaun in the Academy musical.

Academic excellence brought him to Hamilton College. He later did graduate work with Louis Jones in the Cooperstown Graduate Programs in American Folk Culture and at Washington University in St. Louis. Time spent in Washington State and Pendle Hill in Philadelphia strengthened his environmental and literary interests.

Steve began working seasonally at the Ontario County Soil and Water Conservation District on June 1, 1975, and became full-time District staff June 1, 1985. Sherwood G. "Bill" Pierce, his first District manager, became a valued friend. Steve learned soils, surveying, drainage, agricultural land values and the scores of other things District employees must know about farming, forestry, land and water.

The collaboration of Steve and Martin Culik (Cornell Cooperative Extension Agricultural Educator) led to the establishment of the Canandaigua Lake Watershed Task Force, a community based group that carried out the monumental task of gathering information about the state of the lake and developing a public policy organization to care for the health of Canandaigua Lake. The work won a national award and served as a template for many other watershed organizations in New York State and across the nation.

The first product of that work was a detailed State of Canandaigua Lake Watershed report that characterized the sub-watersheds in terms of drainages, infrastructure, land uses and trends, demographics, limnology, sources of pollution (an extensive list) and a finding of needs.

When the State of Canandaigua Lake Watershed was completed and published, elected officials of the watershed municipalities were brought together for presentations of report and urged to organize a representative body to address the various problems identified. That municipal group became the Watershed Council, which has continued this work until the current time.

The Watershed Task Force concurrently engaged in public education outreach with school programs (who could forget "Drip and Drop" presentations or the "Self-Guided Auto Tour of the Canandaigua Lake Watershed" or the contests to identify the best and worst views in the watershed?) and public forums.

Associated agency programs benefited from awareness and education brought to the public: when SWCD initiated the Agricultural Environmental Management program, it was notable that 92% of Canandaigua Watershed farmers signed on immediately.

After accomplishing its goal of establishing the Watershed Council, the Task Force merged with Canandaigua Lake Pure Waters and the East Shore Association to eventually become the present Canandaigua Lake Watershed Association.

Other lakes also claimed Steve's interest and efforts. He was founder of the Coalition for Hemlock and Canadice Lakes. Steve served as the Watershed Steward of Cayuga Lake and was program director of the Lake Ontario Coastal Initiative. He has received environmental achievement awards from Finger Lakes Community College, Canandaigua Lake Pure Waters, Livingston County Environmental Management Council, Western New York Chapter of The Nature Conservancy, and the Finger Lakes Land Trust and is proudly noted as a graduate of distinction at Canandaigua Academy.

Steve's literary accomplishments include more than a dozen volumes of published poetry as well as numerous essays, reviews and other works. Described as a Regionalist, his work offers insight and commentary on people and landscapes that anyone from upstate New York would recognize.

Steve has served on the Board of Directors for the State Historic Site at Gonandagan, was active in the effort to preserve the Quaker Meeting House in Farmington, and is a Board member of the Pegasus Early Music group.

CLWA thanks Steve for sharing his passion for our natural world with the community. You may run into him trekking through watershed forests, as he remains active with the Hemlock Woolly Adelgid monitoring program.

We have known Steve for over 25 years, since working with him in the early days of the Canandaigua Lake Task Force. We have admired and respected his passion for and his extensive knowledge of the Canandaigua Lake watershed. We wish him well in his retirement.

– Maggie and Neil Atkins

It is with gratitude and appreciation that we recognize Steve's dedication to protecting Canandaigua Lake and its surrounding watershed. Over the years, Steve's thorough and detailed technical analyses, on a wide range of environmental issues, have helped educate our region about negative impacts to our watershed and empowered communities to get involved in mitigating important issues. His work led to adoption of lake-friendly practices, implementation of special monitoring programs and completion of crucial research projects. Steve's work has been at the heart of all that we do at CLWA to protect Canandaigua Lake. Thank you, Steve, for your dedication and commitment to a worthy, lifelong project…protection of Canandaigua Lake and its Watershed.

- Nadia Harvieux

Drinking Water, Cont. from page 1

Canandaigua. From the reservoirs in the Town, water flows north and east to the storage tank in the City, from which it flows to the City's distribution systems and into homes and businesses. Treated water from Canandaigua Lake is sold to water districts in adjacent towns.

A crucial role in the delivery of clean, safe drinking water from this system is played by Chief Operator Peter Virkler. Thirty-one year old Virkler is a 1994 graduate of Canandaigua Academy and also holds a Bachelor of Science degree from SUNY Geneseo and a Master's Degree in Organic Chemistry from the University of Buffalo. These are excellent qualifications for a Water treatment Plan operator, and Virkler also possesses an Operator's License, Class 1-A and D.

The taste of Canandaigua Lake as drinking water depends on many physical, chemical and biological factors. The great depth of Canandaigua Lake ensures that a mass of dark, cold water resides beneath the surface. Ideally, withdrawals will be from this mass. Canandaigua Lake is buffered from the effects of acid rain by dissolved limestone and shale bedrock measured as calcium carbonate. Its normal pH is 8.0-8.2, on the basic side.

Some of the most important taste factors are the living organisms in the lake, especially the populations of microscopic algae. To better understand why the lake water tastes different through the seasons you need to understand the fluctuations in populations of algae. Some algae that regularly show up in Canandaigua Lake are Fragilaria, Asterionella, and Synedra. Zebra mussels and more recently Quagga mussels have invaded Canandaigua Lake, and their algal food preferences also play a role in determining just which algal populations predominate. Mussels are implicated in recent blooms of cyanobacteria (blue-green algae) in the lake, because they avoid the blue-greens as food. If mussels filter out and eat other algae, blue-green populations may expand to fill the gap. Another theory says that the waste from mussels consuming large quantities of algae sinks into the darkest (pelagic) zones of the lake and is processed by bacteria rather than used to grow algae.

Virkler cautions, however, that the exact relationship between mussels, green algae and cyanobacteria is largely unknown. In the past, lake water might have a musty, earthy flavor, caused by natural Geosmin and methyl-iso-borneal (MIB) chemicals in the water, but this flavor has not been detected recently. In fact, treated Canandaigua Lake water was chosen as having the Best Taste in 2013 by the American Water Works Association.

In 2015, a large bloom of cyanobacteria appeared in late August and early September on Canandaigua Lake. Toxins from cyanobacteria (not all of them are toxic) began to appear in the raw lake water. Water samples were taken to the NYS Department of Health office in Geneva and species of cyanobacteria were identified as the culprits. Within a day, Virkler added granulated, activated carbon to the lake water coming into the plan, which removed the toxins and was later filtered out. These procedures remained in place for several days until the raw water no longer contained the toxins.

Like the lake itself, the treatment of public drinking water is complex, dynamic and subject to many public health laws. The system is extensive and needs constant monitoring and maintenance. It delivers safe and tasty drinking water at the turn of a tap. Virkler, his wife and two small children drink his own product.

HWA Management: Questions from Land Owners

Q & A with Zeb Strickland of Cornell Plantations

Volunteer Cindy Smith inspects a branch at Grimes Glen

As part of an ongoing Hemlock Woolly Adelgid awareness campaign, CLWA has ramped up our educational outreach as of late, thanks to a grant provided by the Finger Lakes PRISM. The additional funding for this initiative has allowed CLWA to "branch out" in the community, engaging with property owners outside of our membership to deliver information on the detection and management of HWA in our watershed forests. A targeted mailing was developed and distributed to landowners that have confirmed presence of eastern hemlock on their property (using data provided by Ontario County Planning and FLCC) – allowing us to get the most detailed in information into the hands of property owners that may be up against HWA infested trees.

As a follow up to the mailing, our partners at the New York State Hemlock Initiative (Cornell University) joined us in Naples back in December to host a Landowner Workshop on HWA focused on identification, management, and reporting. Certified Commercial Pesticide Applicator and ISA Certified Arborist Zeb Strickland of Cornell Botanic Gardens was also on hand to discuss his personal experience with HWA management.

A lot of great information was presented at the workshop. In case you missed it, we asked Zeb to help us recap some of the questions asked by attendees.

Q: WHAT TIPS CAN YOU GIVE A LAND OWNER LOOKING TO PRIORITIZE THEIR TREES FOR TREATMENT?

A: I think there are various strategies you can use to prioritize your trees for treatment. It all depends on what the landowner/ homeowner's goals and objectives are, what they can afford, or what areas they think are more aesthetic or offer more wind protection. I think the first step is to determine the severity of the infestation and where you stand as far as tree health. I would say if an infestation is discovered and 20% or less of canopy remains, it would probably not be a good idea to waste product on those trees. There has been success using dinotefuran to "bring the trees back to life". If you can get some transpiration going, the tree may have a chance of putting on some new growth to photosynthesis and improve the health of the tree. Once you know this, you can immediately cross trees off the list that will not survive then focus on the ones you want to save.

Location is important. If trees are South facing, open and exposed and are not looking healthy, you may not want to treat and consider other tree options for that area. If trees can be saved on slopes it can be important for stabilization or shade and this may be a priority for lakeshore, stream or gorge areas. If trees are providing wind protection specifically on the West or NW exposed side you may want to consider treating those.

I think we should focus on medium to larger sized trees. These trees will be able to reproduce in the future and provide seedlings for understory growth (as long as we have deer management!). For forest stands, prioritizing around watershed areas and in larger stands along stream corridors that can contain snow pack along with providing shade to the stream will be most beneficial. We can't treat every tree, but we can save a lot.

Q: WHAT SYMPTOMS WILL TREES EXHIBIT IF AN INFESTATION GOES UNNOTICED?

A: One of the biggest indicators of stress related to HWA would be yellowing and needle dropping in Spring-Summer seasons. Hemlocks will typically drop older needles in the fall, so if you are seeing needles on the ground earlier then you may want to consider having the trees assessed.

Another maybe less noticeable symptom is a gray looking appearance in the Spring-Summer when trees start to put on new, light green growth. If you look at the tips or terminal shoots and you are not seeing a new light green growth in the spring, then there many be a problem.

One thing to note - there are other environmental or cultural problems that could be lead to the same diagnosis. A couple things to consider is that during dry periods, especially drought, hemlocks tend to be very sensitive and the stress may cause them to drop their needles prematurely. You still shouldn't rule out HWA, but you should be aware of other stressors. Residentially, you can look for structural issues. For example, if roots are getting compacted from foot/vehicle traffic or the trees are open and exposed to wind on dry slopes. In cities if you are seeing yellowing it could be an indication of salt damage or pollution. For the most part I think the best way to really know is to actually notice HWA on the needles, ground or bark of the tree before you begin to plan your steps to improve the health of hemlocks.

Q: WHAT ARE THE TREATMENT OPTIONS AVAILABLE TO PROPERTY OWNERS THAT WOULD LIKE TO SAVE THEIR HEMLOCKS?

A: I first recommend following IPM (Integrated Pest Management) strategies for battling invasive species. However, after all IPM methods have been expunged, you can look at chemical management to save your trees. Fortunately for hemlocks, pesticide application is a great tool to reduce HWA populations, especially if you have a severe infestation. I have been involved with various treatment methods and researched extensively the most efficient and environmentally sound treatments to manage HWA populations. There are many methods to properly treat your trees. They range from soil treatment to tree injection, canopy spraying to "basal bark" trunk application.

Licensed professionals will be able to analyze your trees and discuss the best treatment option with you based on the health of the tree and how heavy the infestation. A method I use most commonly is environmentally sensitive, and I would say is almost 100% effective. The hemlocks are sprayed at the trunk of the tree called a "basal bark treatment" or a "trunk basal spray". I use 2 chemicals combined for an efficacy of about 5-7 years. One of the chemicals, Safari (dinotefuran) is highly mobile and can fully inoculate a tree in 2 weeks, meaning it will start to cause damage to the HWA populations. The only downfall to this treatment is that with a highly mobile fast moving chemical it degrades quickly and is only effective for a 1-1 ½ years. The second chemical, imidacloprid, takes longer to move throughout the tree. It can take a 1-1 ½ years to fully inoculate the tree, however, it is this longer time period of establishment that allows the chemical to extend its life giving the whole basal bark treatment 5-7 years for effectiveness. These chemicals must be applied by registered pesticide applicators.

Q: WHAT ABOUT BIOCONTROL OPTIONS?

A: Biocontrol uses predators to prey on the HWA as a natural remedy to pest control. Currently there are predator insects being introduced into hemlock stands in hopes of at some point significantly reducing HWA populations. Although an expensive and long-term strategy, it is a preferred method for invasive species management, as you are not releasing any pesticides into the environment. Biological controls being developed, but are currently only available for research purposes. Some great info can be found on the New York State Hemlock Initiative website (https://blogs.cornell.edu/nyshemlockinitiative/).

Q: IF A HEMLOCK TREE CANNOT BE SAVED DUE TO AN HWA INFESTATION, WHAT CAN THEY BE REPLACED WITH?

A: One thing to consider for future generations is what to replace these hemlocks with. In the Finger Lakes, there are not many other conifer species that provide the habitat, screening, stabilization, shade etc. that hemlocks do. What if we have all deciduous species or invasive plants filling these niches? There will be no wind protection or shading of streams or lakeshores. As long as we are persistent in controlling HWA I think we can prevail in keeping this spectacular tree alive.

Zeb Strickland is owner of Forest and Water Solutions, an ecological services company that focuses on invasive species management and ecological land management. He is a certified Commercial Pesticide Applicator, ISA Certified Arborist, and obtained a B.S in Forest Biology from SUNY-ESF. He has worked for Cornell Botanic Gardens as a Natural Areas Steward for 6 years, volunteers for the Nature Conservancy and started the service business in spring of 2016. His website can be found at: www.forestandwatersolutions.com.

Falling for Macroinvertebrates

From the Watershed Education Program - Beth Altemus and Becca Jensen

CLWA's education program got a little creepy--and crawly--this fall as educators Beth Altemus and Becca Jensen collected local stream samples of macroinvertebrates for hands-on classroom labs. Activities for Conservation Field Days, Canandaigua 6th graders, St. Mary's middle schoolers, and Naples Little Bunch preschoolers all explored the nature of aquatic communities- in this case, worms, mollusks, arthropods, crustaceans, and aquatic insects- as living indicators of water quality.

Students really dove into their aquatic work. From leaping in burlap coffee sacks (thereby mimicking the house-bound caddisfly) in field games to solving a water-source mystery by keying out macroinvertebrate collections in the classroom, sixth-grade students threw themselves-sometimes literally-into exploring the nature of aquatic 'critters.' Middle schoolers donned their rain boots to collect and analyze pond samples and preschoolers explored the amazing diversity in color, shape and movement of water bugs. All students became aware that water quality deeply affects our creepy, aquatic cohort; the most sensitive species have a place only in our cleanest bodies of water. Finally, high school students from Marcus Whitman's Envirothon Team, led by science educator Andrea Robertson, explored CLWA's newly acquired EnviroScape Wetland model and observed how the larger watershed community affects wetland functions and, therefore, water quality for the whole--including its diverse group of macroinvertebrates.

While the aquatic 'macro' community slows to the cold, dark waters of winter (they put the poor creatures back after their foray into the hands of eager students), Beth and Becca are warming up to a new slate of winter activities for both young and life-long learners. Visits to Naples and Canandaigua school districts (grades 3-6) are on the docket, and a new CLWA initiative hopes to involve local planning boards in watershed education and awareness. The aim, as always, is to help citizens develop a more holistic view of their place in watershed geography and their influence as watershed stewards. Check back! Just before the Mayflies hatch, they'll be anxious to share the details and photos with you.

About our Watershed Educators:

Beth completed her undergraduate studies at both Wellesley and Smith Colleges, receiving a BA in Geology from Smith in 2002. Since 2003 she has worked as an educator in various capacities, including leading wilderness trips for school students, managing a field based watershed education program, park interpretation and substitute teaching. Whenever possible, she loves to get outside and hike, ski, paddle, stomp in puddles and splash in gullies with her two young daughters!

Becca has spent the last 15 years serving her community by providing educational programs and activities-many of them environmental-through both private and public organizations. Becca possesses an environmental science degree from SUNY ESF and will support Beth as the two visit Canandaigua watershed students to promote lake stewardship through CLWA's watershed science lessons, activities, and field study.

Introducing Kim McGarry, Watershed Program Technician for the Canandaigua Lake Watershed Council

In 2016, the Watershed Council (consisting of the fourteen watershed and water purveying municipalities) hired Kim McGarry full-time as the Watershed Program Technician. She has been working part-time for the Watershed Council since February 2013 (you may know her by her maiden name Falbo). Through increased municipal funding, successful grants and the financial support of the Association, we were able to hire Kim full-time.

Kim has a Master's degree from Cornell University in Natural Resource Management, where she studied the role roadside ditches in the Cayuga Lake watershed play in transporting bacteria and sediment from upstream sources to streams and lakes during storms. She also worked for Wyoming County Soil and Water Conservation District as a Technician, implementing important programs to protect streamside zones and agricultural best management practices. She has taught as an adjunct instructor at both FLCC and RIT, and has worked in home environmental health education.

Over the past 4 years, Kim has played an integral role in developing the watershed management plan, advancing the Natural Capital project, assisting in the research and development of model local laws, helping to coordinate the canoe/kayak Water Trail project, assisting in stream and lake monitoring and helping to develop successful grant applications for a wide array of projects. We are excited to have Kim working full-time to continue advancing our watershed goals and would like to extend our thanks to the Association membership for providing some of the critical financial assistance to make this possible!

Secondary to us hiring Kim in 2016, she also got married! She lives in Brighton with her husband Jon and their dog, Gertie. You can reach Kim by calling 585 396-3630 or email: KMcGarry@canandaiguanewyork.gov.

- Kevin Olvany, Watershed Program Manager, Canandaigua Lake Watershed Council

Partnerships, *Continued from Page 3*

together in 2000 to form a legal inter-municipal entity, the Canandaigua Lake Watershed Council. As an association of municipalities, the Council shares information and pools funds to protect the lake's water quality. The Council hired employees Kevin Olvany and Kim McGarry and has, often with CLWA assistance, completed many projects on the ground conducive to water quality.

An Agricultural Advisory Committee worked with the Canandaigua Lake Watershed Council and CLWA to develop a Lake Friendly Farmer program and with the Ontario County Soil and Water Conservation District to develop an Agricultural Environmental Management Program that brought large amounts of state funds to cost-share conservation projects on farms.

CLWA worked with many marina owners around the lake to develop a Lake Friendly Marina program that emphasized the marinas' roles in preserving water quality through best management practices while using the lake for recreation.

CLWA worked closely with Ontario County Planning Department, then-State Senator Randy Kuhl and later with the Watershed Council to develop the Uniform Docks and Mooring Regulation of 1993, and its revisions in 2006 and 2014. The Regulation assures that access to the lake will be shared fairly by riparian property owners.

Important Initiatives to Protect the Lake and Watershed

By Al Kraus, AIS Project Manager

During 2016, the Association was very busy working with many partners and supporters to help prevent the further spread of Aquatic Invasive Species (AIS) in Canandaigua Lake. Our primary partners include the Canandaigua Lake Watershed Council, Finger Lakes Institute, NYS Parks, and Department of Environmental Conservation; primary business contributors have included Wegmans, Lowes, Finger Lakes Extrusion, Auto Wash, and Environmental One Corp.; and we have also had many large, very generous donations made by private individuals specifically to help sustain this very important program.

AIS Program

To help educate others about our AIS Program we published and distributed a new brochure in 2016. We also built and installed two 4' x 5' signs about the AIS Program at the State Parks and DEC launch sites. A third Disposal Station was designed and installed at the State Parks launch site, and CLWA worked to maintain all signs and Disposal Stations previously set out in 2015. Thanks to the generosity of Auto Wash on the north end of the City of Canandaigua, in 2016 we were also able to offer boat owners a 7.5 minute boat wash for just $2.

Perhaps most importantly, we were able to use Watercraft Stewards to inspect over 18,000 boats in 2016. For the first time, in 2016 State Parks provided a Watercraft Steward to help inspect boats. Data shows that 25% of the boats launching at Canandaigua Lake were just previously used in other bodies of water that contain various aquatic invasive species, confirming the need to continue boat inspections and education at the launch ramps. We need the support of all that enjoy the lake to sustain this critical program into the future…this is our most costly and time intensive program, but all the costs and efforts are well worthwhile if we can protect the lake for future generations.

Agricultural "Best Practices" Workshops

In 2017, we are launching a few initiatives designed to get us out into the watershed and taking actions that will help to reduce the amount of nutrients, pollutants and sediments getting into the lake. The first initiative is one we are working on in partnership with the Ontario and Yates County Soil and Water Conservation Districts. The basic concept is to offer 3 or 4 "Best Practices" Workshops around the lake to farmers and landowners. The goal is to provide information about the best ideas available for farming and land management; thereby, helping the farmers and land managers to reduce costs and maximize profit, while at the same time helping to protect the watershed.

At the workshop we will address topics such as: proper use of chemical nutrients and pesticides; proper storage and use of manure; and use of various environmentally friendly farming practices such as strip farming, no-till farming, and use of buffer strips. We are going to conduct the first workshop on 16 February in the northeast portion of the watershed; at King's Catering on Route 20. The cost for attending is $10 for preregistration or $15 at the door. Through these workshops we hope to help reduce the nutrients, pollutants, and sediments going into the lake. You can find out more about this workshop on page 11.

Watershed Information Exchange

The second initiative is what we are calling the City/ Town/Village Watershed Management Information Exchange. The basic concept is to offer a presentation to all of the communities around the lake, using our Watershed and Wetlands Models, to demonstrate the importance of establishing and enforcing sound zoning, steep slope, construction, and land management practices. Although many individuals have already heard about many of the principles that will be discussed, the models provide a visual demonstration and help to emphasize the impact that actions, lack of actions, and variances can have on the Canandaigua Lake Watershed.

The target audiences for these presentations are the City/ Town/Village Boards, Planning Boards, Zoning Boards, Environmental Committees, and anyone else the Mayor or Supervisor wants to invite to the presentation. Similar to the Best Practices Workshops, we are hoping that the Communities around the lake will use this information to help reduce the amount of nutrients, pollutants and sediments getting into the lake. We hope to start offering and providing these presentations starting in March 2017.

Soil Health & Nutrient Management Workshop

Thursday February 16th, 2017; 9AM to 3PM

King's Party House, 4031 Routes 5 & 20, Canandaigua, NY 14424

Lunch included, catered by King's Party House

8:30—9:15	**Registration and refreshments**
	Welcome and opening remarks: Fred Lightfoote
	Town of Gorham Supervisor and Local Farmer
9:15—10:15	**Keynote Speaker: Steve Groff - Cover Crop Coaching**
	Growing Healthy Soils
10:15—11:00	**Karl Czymmek: Cornell PRODAIRY**
	Winter Spreading Guidelines
11:00—11:30	**Tom Eskildsen: Yates County SWCD**
	Crop Nutrient Needs and How Manure Fits In
11:30—12:00	**Beth Meyers: American Dairy Association North East**
	Manure: Managing the Message
12:00—1:00	**Lunch and Exhibitions**
1:00—2:00	**Keynote Speaker: Steve Groff - Cover Crop Coaching**
	10 Strategies to Take Cover Crops to the Next Level
2:00—2:30	**Paul Salon: USDA– NRCS Soil Health Division**
	Tabletop Rainfall Simulator with Varied Soil Health Management
2:30—3:00	**Farmer Panel:**
	Open Forum for Q&A
	Closing remarks: Al Kraus
	Canandaigua Lake Watershed Association

Steve Groff
Cover Crop Coaching
Holtwood, PA (Lancaster County, PA)
www.covercropcoaching.com

Steve Groff and his family, farm 225 acres of cash grain crops, pumpkins and 2 acres of high tunnel heirloom tomatoes in Lancaster County, Pennsylvania. For the past 21 years his Cedar Meadow Farm has conducted thousands of cover crop research trials- out of which he developed the well-known Tillage Radish.

Steve recently launched Cover Crop Coaching- "Trains the trainers", how to talk to farmers about how to effectively use cover crops.

To register, please return this form to: **Canandaigua Lake Watershed Association, PO Box 323, Canandaigua, NY 14424** with check made payable to **CLWA**. You may also pre-register by calling 585-394-5030 or info@canandaigualakeassoc.org and paying the pre-registration fee in **cash** at the door.

$10 per participant with pre-registration (includes lunch). $15 per participant for walk-ins (payable by cash only).

Name_____

Address: _____E-mail:_____

Number of Attendees: _____ Total Amount: _____

DEC Pesticide Credits and CCA Credits Offered

This event is sponsored by: Canandaigua Lake Watershed Association, Ontario and Yates County Soil & Water Conservation Districts and Environmental One Corp.

CANANDAIGUA LAKE WATERSHED ASSOCIATION
PRESERVE. PROTECT. PROMOTE.

PO Box 323
Canandaigua, NY 14424

Phone:
585.394.5030

Email:
info@canandaigualakeassoc.org

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Love the lake.

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 an 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 _____

Lake area township: _____