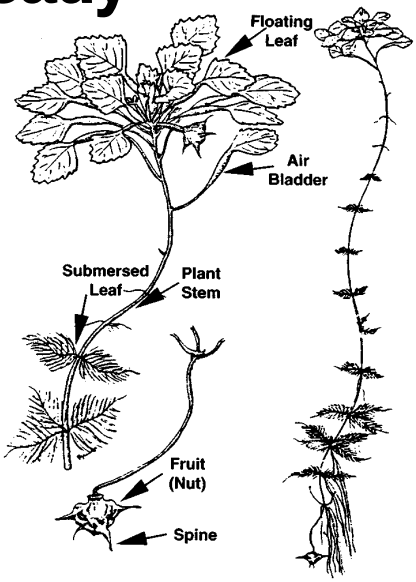
CAYUGA LAKE WATERSHED NETWORK spring 2002

Network News

INSIDE...

Water Chestnuts Ready for Invasion

by John DeHollander, Oswego County Soil and Water Conservation District



"Aquatic Plants of New England Series: Trapa natans L." Crow and Hellquist 1983. Illustration by Pam Burns.

Having for years battled Eurasian milfoil (*Myriophyllum spicatum*) that clogged the north end of the Lake, we are now on the lookout for a new foe. Concern about aquatic vegetation takeover is shifting to another non-native species, Water Chestnut (*Trapa natans*). Neighboring Seneca River is already plagued with this glossy, green, triangular-leaved plant that can easily choke water bodies, out competing the native flora. Because its foliage can create a dense, nearly impenetrable mat at the surface, fishing, swimming, boating, and other recreational activities are severely limited.

During the past two decades, Water Chestnut has spread throughout the Central New York river / canal system from Cross Lake to Oneida Lake, and into the Oswego River Corridor. It now consumes well over 100 acres of our beautiful, quiet interior waterways, and its range is ever expanding. The shallow depths and soft sediments at the both ends of Cayuga Lake, makes Cayuga Lake prime territory for the expansion of this exotic species. Therefore, our primary mission is to keep Water Chestnuts out of Cayuga Lake.

The Cayuga Lake Watershed Network has joined forces with other agencies to mount an education and monitoring campaign to stop the movement of Water Chestnut. Education is key because many people are unfamiliar with the plant and how it can be accidentally transported. Boat traffic is a common means of transport from one water body to another. Waterfowl can do the same, and both people and natural events can release bits of the plant that then float downstream where they establish a new colony.

We need to hit this targeted plant hard and quickly as soon as it is arrives. Physical removal by hand pulling is an effective control of Water Chestnut for small and newly established populations. Learn to identify Water Chestnut, report any findings to the Cayuga Lake Watershed Network, and remove it as soon as the

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Second Annual Essay Contest: "It Takes a Community to Protect Our Watershed"

by the Outreach Committee

How can we, as individuals or as part of a community-based organization, protect the Cayuga Lake Watershed? What do you think it takes? We'd like to hear what's important to you. What's more, you could win a cash prize and your ideas may inspire others!

Perhaps your primary interest lies in ensuring the quality of your drinking water. Perhaps you detest the erosion you see along a local creek. Perhaps the growth of algae or weeds affects your enjoyment of the lake. Or, maybe you have concerns about the forests within the watershed. Whatever your concern, protection of our natural resources requires a dedicated effort by both individuals and the community.

The essay contest has three categories:

1. Students grades 6-8, 500-word limit (1st prize $75).
2. Students grades 9-12, 1000-word limit (1st prize $150)
3. Adults, 2000-word limit (1st prize $275)

Write an essay describing the ways - small or large - in which the community can come together to make a difference. The Cayuga Lake Watershed is well worth protecting, and an essay contest is our way to share ideas and suggestions for watershed protection with hopes that some of them become actual practices.

Top essays will be published on the Network website and in our newsletter, the Network News. Help inspire the Cayuga Lake Watershed community to take action.

Share your experience and imagination by entering today! Last year, all winning essays came from Seneca County. We hope that this year's contest brings in entries from throughout the watershed, though the excellence of the essay is the judges' only criteria!

Send essays to CLWN, P.O. Box 303, Interlaken, NY 14847 postmarked by April 1 (no joke!), 2002. For more information, contact us at steward@fltg.net or write to the above address. Winners will be announced during Water Week, which begins May 5, 2002. Tell us why you think, "it takes a community to protect our watershed".

To view last year's winners, visit *www.cayugalake.org.*

Water Chestnuts... *continued from page 1*

plant appears and definitely before it produces seeds. This annual weed dies back each year but the hard, spiny seeds sink to the bottom where they persist. A single seed, which sprouts in early spring, can produce 300 new seeds in a single year.

Chemical treatment using a selective herbicide can be permitted by DEC, if the necessary conditions are met. Area resource managers are currently investigating possible biological control agents for Water Chestnut. Since this invasive plant plagues water bodies in other parts of the northeastern United State including Lake Champlain, there is much to be gained by finding effective controls. Collectively, with these continued efforts, Water Chestnut can be stopped from spreading and over time even be eradicated from Central New York, as well as from the other infested parts of this country.

If left uncontrolled, Water Chestnut can cause:

- loss of waterfront property values
- loss of native aquatic plant species
- loss of fish habitat
- loss of recreational opportunities (boating, fishing, swimming)
- loss of natural aesthetics and
- restrict economic development along our beautiful canal system, to which Cayuga Lake is connected

How You Can Help

- Remove all plants and plant fragments from boat propellers and trailers before leaving launch sites. Dispose of the plants in a trash receptacle. Drain all bilge water, live well and bait buckets before leaving infested waterways.
- Learn to identify Water Chestnut and other aquatic weeds. Know which bodies of water are currently infested and use caution in these areas.
- Get involved! Report sitings, pull Water Chestnut and encourage your neighbors to do the same.
- Spread the work, not the plant. Please share this material with others.

Manure: Waste Turned to Benefit

By Peter Wright, Animal Waste Specialist, Cornell University

AS WE DRIVE AROUND THE FARMLANDS OF OUR STATE AND PARTICULARLY THAT OF THE CAYUGA LAKE WATERSHED, WE SEE AND CERTAINLY SMELL FRESHLY MANURED FIELDS.

The farmer needs the by-product of his dairy herd, manure, to restore the fertility of his fields. It is these fields that provide the dairy cows with the feed that produces milk, the farm's product. And because dairy farming is a low margin business, that is, the cost of producing the product comes close to the income the farmer receives for the product, it is essential that the farmer use this fertilizer wisely to grow the crops that the cows eat that gives the milk that the farmer sells.

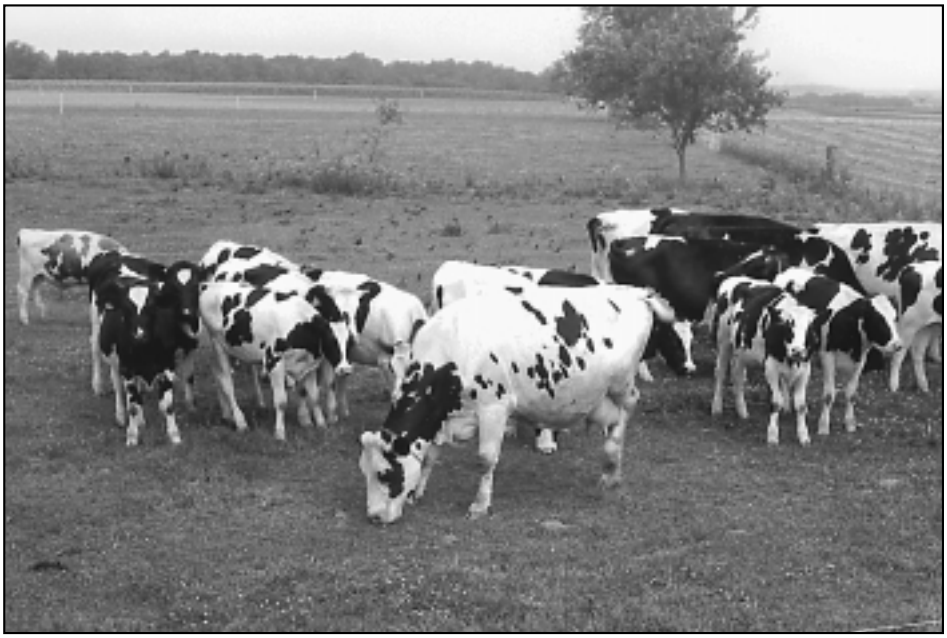
It is these crops of alfalfa, corn and grass that give us the open spaces, beautiful views, and wildlife that we all enjoy. Along with these crops there is an important need for lots of clean, fresh water. A dairy cow can easily consume 30 gallons of water a day during the summer. So farmers are vitally concerned about the soil and water that they use to grow their crops and produce their product of milk. Which translates to the fact that farmers are also vitally interested in the environment.

But as each cow will produce about 2.5 gallons of manure for every gallon of milk it produces, the farmer must control how this manure is stored and used to reduce the potential for pollution.

To reduce surface and ground water pollution, and to eliminate soil compaction that drastically cuts crop yields, more and more farms are avoiding spreading manure on rain-saturated ground. Manure nutrients are soluble and may move off the fields if saturated water leaves the field as surface water runoff, which flows into the lake, or by leaching into the ground water where most of us eventually get the water we drink.

By storing manure, farms can avoid spreading during wet conditions and spread more manure closer to when crops will take up the nutrients. Stored manure reacts biologically as it ages and decomposes. When this stored manure is emptied and applied to the fields as organic fertilizer, it creates the smell most of us find objectionable. The nutrient value of the manure doesn't cover the cost of transporting it very far. Trucking or pumping costs of a few miles can exceed the nutrient value of the manure. Farms then may apply the manure to nearby fields at higher rates than can safely be incorporated or than the plants can use. In those cases, farmers need to allow the nitrogen in the manure to escape into the air to avoid contaminating the ground water.

At lower spreading rates, farms can quickly mix the manure into the soil to reduce the time the manure gives off its odor. Doing this doesn't allow very much of the nitrogen to escape into the air, a good thing if you need the extra nitrogen for plant growth; but a bad thing if you are concerned that the extra nitrogen will convert biologically to nitrate and leach down into the ground water before the plants can use it.



Storing manure and leaving it on the surface after spreading can create odor problems but ultimately, this practice reduces the risk of water pollution and helps farmland remain in our watershed. The best solution environmentally is to use the manure over a larger area at rates that can safely be incorporated, with the added advantage of reducing dependence on purchased fertilizers.

Members Keep Network Strong

by the Membership Committee

Members are the heart the Cayuga Lake Watershed Network. Your support allows us to continue our work of teaching school youth, cleaning up streams, forging collaborations among diverse groups, and promoting the Cayuga Lake Watershed Restoration and Protection Plan. All this is in the interest of preserving the environmental health and quality of life in the area that we love. The watershed is more than the Lake itself, jewel that it is. It is also the tiny streams, changeable creeks and the ground water that quenches the thirst of so many.

Last summer's membership renewal campaign was a tremendous success and we are counting on you to help make this year's campaign even more successful. During Water Week (May 5-11) we will kick off our renewal effort for the upcoming membership year that runs from July 2002 to June 2003. You can help by renewing promptly – or by renewing early using the form below – and by participating in our Member Get a Member drive. Any new members you bring to us will receive a membership lasting until June 2003, an extra four months of membership if you act now. Plus we'll see that they get two extra issues of the newsletter (we hope you like our new look!).

New and renewing members can use the form below, or visit our Web site at *www.cayugalake.org*, where you'll find a printable membership form plus lots of information about Network activities and projects. Our recent newsletter has now been added to our website, too. Or you can simply send us the name and address of a potential new member and we will contact them. In addition to sharing Network materials with personal contacts, you could leave Network membership information at your town hall, doctor's office or favorite coffee shop. To receive multiple copies of brochures describing the Network and *Issues in the Cayuga Lake Watershed*, contact the Network office at 607-532-4104 or steward@fltg.net.

☐ YES, I want to do my part to protect the future of Cayuga Lake and its watershed!

☐ I'm renewing my annual membership renewal in the Cayuga Lake Watershed Network with my enclosed contribution as indicated below.

☐ I'm joining the Cayuga Lake Watershed Network with my enclosed contribution.

☐ $20 ☐ $25 ☐ $35 ☐ $50 ☐ $100 ☐ Other $_____

Please be as generous as you possibly can. Your contributions are tax deductible. Thank you!

Name _____

Address _____

County_____ Phone (_____) _____ E-mail _____

☐ YES, I want to help the Network membership grow!

Here are name(s) of potential members for you to contact.
Thank you for checking here ☐ if we can use your name. And please use another sheet for additional names.

Potential Member

Name _____

Address _____

County_____ Phone (_____) _____ E-mail _____

Please return this form to the Network in the envelope included with this newsletter. Thank you!

Upcoming Events

April 6, Saturday, 9 a.m.–1 p.m., *Coping with Creeks: Reducing Flooding and Erosion,* Caroline School, Route 79, Town of Caroline. Program opens with an overview of a Six Mile Creek restoration project, introduction to restoration techniques, and planting buffers for erosion prevention. Participants then choose 2 additional workshops:

- Improvement Options for Stream Bank Erosion
- Agricultural Programs for Conservation.
- Site Plan Review
- Reducing Flooding.
- Landscaping for Beauty and Erosion Control
- Forested Buffers Along Creeks
- Protecting Land Through Easements

To Register:

- Attn: Molly Adams, P.O Box 86, Brooktondale, NY 14817. Check payable to Town of Caroline, the $5.00 registration fee supports environmental programs at the school. 607-539-7815, FAX: 607-273-8433, JOSEL@cityofithaca.org

April 20, Saturday, 9 a.m.-12 noon, *Neighbors Around Cayuga Lake,* Cayuga Nature Center, Route 89, 6 miles north of Ithaca. Program opens with information on drainage ditch maintenance, construction management and the draft Tompkins County Water Quality Strategy. Participants then choose one session:

- Streamside and Shoreline Landscaping for Beauty and Erosion Control
- Care of Ponds
- Planting on Slopes: Plant and Construction Choices

To Register:

- CCETC, 615 Willow Ave, Ithaca, NY 14850. Checks for the $5.00 registration fee are payable to CCETC. 272-2292, FAX: 607-272-7088, mjh51@cornell.edu

April 21, Sunday, noon to 5:00, Earth Day celebrations will take place in DeWitt Park, Ithaca. Come visit the Network's activity booth along with the other fun, family activities such as music, drama, food and talks.

April 27, 2002, Sunday, 9 am to 1 pm. *Recycle Obsolete Computers & Propane Cylinders* at the Natural Resource Center, County House Rd, Auburn. Open to Cayuga County Residents (no businesses, please). For more information contact the co-sponsors, Cornell Cooperative Extension of Cayuga County and Cayuga County Solid Waste Management Program. On April 1, 2002 all propane grill cylinders with round or star shaped hand wheels can no longer be filled.

May 5-11, *National Drinking Water Week.* Celebrations begin locally May 4, Saturday, 9 a.m.- 11 a.m. with the annual *Fall Creek Clean-up.* Last year 70 volunteers from Cayuga, Cortland and Tompkins Counties pulled 3000 pounds of trash from the creek and its banks! Contact Sharon Anderson, Watershed Steward, 607-532-4104 to learn how to get involved this year. Trout Unlimited and the Fall Creek Watershed Committee co-sponsor this event with the Network.

During the annual clean-up each May, volunteers remove trash all along Fall Creek from Lake Como to Stewart Park.

Festivities are scheduled to continue May 10 *at the Ithaca Commons and* May 11 *at Ithaca Farmers Market.* The Tompkins County Health Department will sponsor a drinking water taste test between local community water suppliers. Agencies and organizations, including the Network, will showcase watershed programs. Utilities will highlight water conserving equipment and offer demonstrations and tours of facilities. The City of Ithaca will have its sampling equipment available if you want to take water quality samples in the Lake. The Fall Creek Committee will share the results of Saturday's clean-up.

August 25, Sunday, *Lakefest, Taughannock Falls State Park.* Mark your calendar for the Network's fifth annual Lakefest celebration! As always, there will be family fun, entertainment and education followed by the business of our annual meeting that includes voting in new board members and considering any by-laws changes. This is an opportunity for you to meet the folks who handle the day-to-day business of the Network, to give input, and to consider joining a committee! It's also a lot of fun! We'll be on the lakeshore again this year - so bring a swimsuit, fishing gear, and sunscreen. Hope to see you there!

Keep checking the website www.cayugalake.org and watch the listserv for more information!

CAYUGA LAKE WATERSHED NETWORK

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Office 607-532-4104
Fax 607-432-4108
OFFICE HOURS:
M-W & F – 9AM to 1PM
Thursday – 1PM to 5PM

Medical Waste Management at Cornell's College of Veterinary Medicine

J. Paul Jennette, P.E. Biosafety Engineer Cornell University College of Veterinary Medicine

In support of its mission to advance animal and human health, the College of Veterinary Medicine incinerates approximately 500,000 pounds of animal remains each year. In addition, the college ships over 100,000 pounds / year of regulated medical waste (RMW) to a commercial RMW management facility in Syracuse for treatment and disposal. Since the mid-1990s, the college has been working with members of the local community (and more recently with the State University Construction Fund) to evaluate waste disposal alternatives in response to concerns about the health impacts of incineration.

For the past two years, we have been working to develop a draft environmental impact statement (DEIS) for a proposal to replace our current medical waste disposal practices with innovative technologies that are safer and more environmentally sound.

What are we proposing?

For animal remains, we are proposing to use a new technology called alkaline hydrolysis, a process by which animal remains are dissolved under conditions of very high temperature, pressure, and pH. The process generates a liquid effluent, or hydrolysate, and solid, calcium-based bone fragments.

For RMW (as well as infectious animal bedding that is currently incinerated), we are proposing to use an advanced application of steam sterilization, the technology commonly used in autoclaves to sterilize medical equipment, surgical supplies, and laboratory wastes. Following treatment, the RMW would be shredded and shipped from the college to a permitted landfill.

What are the differences between the current and proposed methods for treating animal remains?

Fundamentally, incineration converts animal remains into "smoke" and other air emissions, while the alkaline hydrolysis converts remains into hydrolysate liquid. (A relatively small volume of bone fragments also is produced by both technologies). In contrast to the air emissions from incineration, hydrolysate is not discharged directly into the environment without additional treatment. At the existing installations of this technology, which include SUNY Binghamton, Albany Medical Center, Colorado State and University of Florida veterinary colleges, and two USDA facilities, among others, the hydrolysate is discharged to the local sanitary sewer system and treated at sewage treatment plants. We are proposing the same basic approach, except that we would prefer to haul the hydrolysate (about 2,000 gallons, the volume of two residential septic tanks, each day) to the Ithaca Area Wastewater Treatment Facility (IAWWTF) for pre-treatment in their anaerobic digestion system. This system, which the IAWWTF uses to treat septage, industrial wastewater, and other high-strength wastes, generates methane from the controlled decomposition of the waste. Methane from the process is, in turn, used to generate heat and electricity for the facility. Effluent from the anaerobic system is then combined with the other wastewater that flows to the plant for treatment and treated a second time (Figure 1).

The Ithaca Area Waste Water Treatment Facility (IAWWTF) would process the hydrolizate byproduct from the Veterinary College using both anaerobic digestion and aerobic treatment processes. The treatment co-generates electricity and heat, used at the IAWWTF (lower right corner, look for two circles close together).

How do we know this is safe?

First, we have the excellent operating history of the other alkaline hydrolysis installations and their corresponding sewage treatment facilities. A good example is at the University of Florida, where the effluent from alkaline hydrolysis units at their Veterinary and Medical Colleges is treated in a small sewage-treatment plant. While the amount of hydrolysate they generate is comparable to what we would generate, the sewage-treatment plant is less than a third the size of the IAWWTF. The effluent from that sewage plant is used for irrigation and groundwater recharge, and treating hydrolysate has not interfered with the plant's operations.

Second, we (and other institutions and agencies) have performed detailed characterization studies on the hydrolysate generated during a pilot test at the college to assess its chemical composition and have found it to be highly treatable by typical sewage treatment facilities. As part of the development of the environmental impact statement for this project, the project's consultants have performed an engineering evaluation of the IAWWTF and found it has ample capacity to treat the hydrolysate. In addition, the IAWWTF is currently performing a long-term pilot study to assess the treatability of the hydrolysate in the facility's anaerobic digestion system. The preliminary results of that study are very encouraging.

Finally, the technology has passed the NYS Department of Health's rigorous procedures for accepting alternative medical-waste technologies. These procedures include testing the destruction of a variety of microorganisms designed to represent potential pathogens. The process completely destroyed all the microorganisms tested, including *giardia cysts* and *bacillus spores*.

What about phosphorous (and other pollutants) getting into Cayuga Lake?

Hydrolysate contains phosphorous and other wastewater constituents commonly found in domestic sewage, but the total contribution of these constituents is relatively low compared to the total amount of wastewater treated at the IAWWTF each day. The increase in the total load on the IAWWTF is very low and well within the plant's reserve capacity. The total phosphorous (TP) load, for example, from hydrolysate will amount to approximately three pounds per day, less than two percent of the plant's average TP load of approximately 200 pounds per day. The IAWWTF currently removes 80 to 90 percent of the TP in the wastewater it treats, and planned upgrades to the plant will cut its TP discharges to Cayuga Lake in half. These impacts were studied in detail in the draft environmental impact statement and are being evaluated as part of the ongoing pilot treatability study at the IAWWTF.

What about "Mad Cow Disease?"

Bovine spongiform encephalopathy (BSE), commonly referred to as "mad cow disease," is one of a class of fatal degenerative disorders that includes Creutzfeld-Jacolb disease (CJD) in humans, scrapie in sheep, and chronic wasting disease in deer and elk. These *transmissible spongiform encephalopathies* are caused by microscopic agents known as prions, which are highly resistant to many conventional treatment technologies. Because of the threat posed by these agents, the ability of treatment technologies to inactivate prions has been a key factor in the efforts to evaluate alternatives for the college. Only two available technologies are believed to inactivate prions — incineration and alkaline hydrolysis. Alkaline hydrolysis meets or exceeds the conditions established by the World Health Organization for prion inactivation. In addition, the (thus-far positive) results of a direct test using commercial alkaline hydrolysis equipment to inactivate prions at the UK Neuropathogenesis Laboratory will be published this spring.

Consequently, we are confident that if animal remains infected with "mad cow disease" or any other prion-based disease are treated at the college, any prions (along with any other infectious agent) will be inactivated before the resulting hydrolysate leaves our facility.

Are there any alternatives for animal remains?

Alternative methods for treating animal remains have been studied at length by Cornell, community members, and other agencies. For treating large quantities of animal remains, especially those from farm animals, there are only two other options appropriate to an institution like Cornell. Pressure rendering, an application of steam sterilization for bulk treatment of animal remains, is used at three institutions worldwide. This technology is limited, primarily, by its inability to destroy the agents that cause "mad cow disease" and its inability to treat intact remains of farm animals. The other alternative is incineration.

What's next?

The college hosted two public information sessions on the project this February. Members of the community were invited to learn about and share views on the project. The formal public review of the draft environmental impact statement began immediately thereafter and will conclude with a public hearing in mid-April. Pending final approval of the draft environmental impact statement, design of the new facility will take place this year, and, after an approximately two-year construction period, validation and startup of the new facility is expected in early 2005.

Lake Monitoring Program Begins This Summer: Volunteers Needed

Adapted from CSLAP brochure by DEC

New York State contains over 7000 lakes, ponds and reservoirs, many of which are natural and recreational treasures. At present, each year the NYS Department of Environmental Conservation (DEC) gathers information from less than 5% of the state's significant lakes. Citizens help DEC extend its reach through the Citizens Statewide Lake Assessment Program (commonly referred to as "C Slap").

A CSLAP volunteer measures the water clarity by lowering a Secchi Disk into the water until it is no longer visible.

DEC provides training, equipment, and the processing of water samples at a laboratory. In turn, bi-monthly through the summer CSLAP volunteers collect water chemistry samples, watershed data and historical information that is used to build long-term databases, to educate lake users and concerned citizens, and to develop management strategies.

The Cayuga Lake Watershed Network is making the five-year minimum commitment to CSLAP. The Network is seeking volunteers with access to a boat that is "sea worthy" in most weather, who can attend a training May 3-5, and who can begin monitoring this summer. The training covers lake ecology and detailed instructions on monitoring.

Every other week from May through September the volunteers spend about one hour sampling. They collect water from the middle of the lake and record information about water clarity, recreational uses, and weed growth. Returning to shore, the volunteers process the water sample, complete paperwork, and prepare the samples for shipment to the lab. The water samples are analyzed at the lab for chemistry parameters of total phosphorus, nitrate nitrogen, true color, pH, chlorophyll *a*, and specific conductance. DEC shares the sampling results and its analysis of the data in an Annual Report.

Citizens interested in learning more about CSLAP can find more details on the electronic version of our newsletter at *www.cayugalake.org*, or contact Sharon Anderson, Watershed Steward at 607-532-4104 or steward@fltg.net.

Cayuga Lake Watershed Network
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