

INSIDE...

PAGE 2... Watershed Steward's Message

PAGE 3... Ancient Seas Still Mined

PAGE 4... Lake Friendly Farms

PAGE 5...The Network at Work

PAGE 6... A Lake at Risk

PAGE 7... Johnston Receives Morehouse Award

Announcements

PAGE 8... Something's Fishy in Cayuga Lake



What Members Think

By Charlotte Acharya, Membership/Public Relations Committee Chair and Sharon Anderson, Watershed Steward.

The nearly 200 surveys returned so far send a clear message about what our members think is important. Here's a summary.

Topics that were of greatest concern were weeds and invasive plants, drinking water protection, septic system maintenance, and storm water run off, though all the topics listed were of high priority to some respondents. We will continue to feature these topics in *Network News* articles, via workshops and the website. You can look for more articles of special interest to lake-front homeowners, the majority of respondents, though we will continue our commitment to serve and protect the entire watershed.

Our strengths were seen as raising public awareness on complex issues and publishing an informative newsletter. Satisfaction with our website was also high. Clearly members want more information on specific actions residents, businesses, and/or municipalities can take



Great Gully serves as a reminder of the importance of protecting streams and wetlands as well as the lake.

to protect water resources. Watch for *Smart Steps for Clean Water* in lieu of our winter newsletter. It is chockfull of ideas of actions to protect the environment you can take in *continued on page 2*

Something's Fishy in Cayuga Lake

Saturday, November 12, 2:00-4:30 pm, Sommer Center, Wells College, Aurora Presenters Jeff Robins of NYSDEC, Cliff Kraft of Cornell University and David MacNeil of NYS SeaGrant will cover fish ecology, trends in Cayuga Lake fisheries, invasive species and

recommendations for research and action. Details page 8.

WATERSHED STEWARD'S MESSAGE

By Sharon Anderson, Watershed Steward

ew York State Federation of Lake Associations selected *Network News* for second place in its statewide competition for newsletter excellence. Thanks go to the dedicated staff and volunteers who make each issue interesting and informative. Members echo the high praise for this publication. Read the detail results of our summer survey in *What Members Think*. The Watershed Network is already busy doing many things our membership want such as stream restoration projects and fighting invasive weeds — see *Network at Work* page 5. Meeting the request for more informa-



tion about practical things watershed residents and businesses can do to protect our vital resource, all members will receive *Smart Steps to Clean Water* in lieu of our winter newsletter. We'll have extra copies available for you to share with friends and colleagues.

What Members Think continued from cover

your home, in your yard and when driving.

Membership values our efforts at increasing coordination among local watershed groups and agencies. Many respondents were not aware of the work we do to fulfill the "network" part of our name. Cleary, we need to find an interesting way to keep you posted on how we share information, connect groups across municipal boundaries and engage in partnerships. Often this is done through attending meetings, which frankly isn't all that jazzy, though it is important.

Restoration projects for streams and wetlands are things you want more of. Note the need for volunteers to help plant trees November 12 and 13 along Six Mile Creek. In early May we will again have saplings of shrub willows available to Watershed Network members free of charge for planting to stabilize streams. In future issues of

Network News you'll learn of restoration efforts in beautiful Canoga Marsh involving our partnership with Seneca Falls schools, Natural Resources Conservation Service and a private land owner. We are seeking funding to move forward with a new partnership with the Finger Lakes Land Trust aimed at stream protection through immediate conservation efforts and long-term easements.

Most people learn about the Watershed Network through a friend or colleague, or from a direct mailing from the Watershed Network. You can help increase protection of our treasured lake and streams by helping grow our membership. Pass on your newsletter once you have read it. If you have been a member for four or more years, take advantage of the option to give a complimentary gift membership to someone who is not yet a member. Contact us for free copies of the membership brochure, *Protecting the*

continued on page 6

Cayuga Lake Watershed Network

8408 Main St. PO Box 303 Interlaken, NY 14847 www.cayugalake.org

PHONE NUMBERS: Office 607-532-4104 Fax 607-532-4108

OFFICE HOURS: Monday-Thursday, 9:00am to 2:00pm Other Hours by Appointment

BOARD MEMBERS

Brian Boerman TompkinsCounty bjb@acsoffice.com 585-314-5313

John Dentes Cayuga County 315-364-5735

Ted Hullar, At-Large tlh@hullar.com 607-257-1755

Janet Hawkes, Chair Tompkins County jeh34@cornell.edu 607-387-3726

John Mawdsley Tompkins County johnmawdsley@frontiernet.net 607-844-4718 Julie Patterson Cayuga County jjpatt@baldcom.net 315-255-2161

Ruth Richardson Tompkins County rer26@cornell.edu 607-277-4388

Mary Seitz Cayuga County mseitz@usdatanet.net 315-253-2543

William Shaw, Treasurer Seneca County wmrshaw@aol.com 607-273-2900

Connie Tallcot Cayuga County ctallcot@rochester.rr.com 315-889-7169 Keith Tidball Seneca County kgt2@cornell.edu 315-568-1742

STAFF

Sharon Anderson Watershed Steward steward@cayugalake.org 607-532-4104

Diane Emmons Office Manager manager@cayugalake.org

Ruthanna Hawkins Watershed Educator w educator@cayugalake.org

Ancient Seas Still Mined:

The Salt Fields of the Cayuga Lake Watershed and How They Have Been Developed

Louise Bement, Lansing, NY

bout 550 million years ago this region of New York State sank below sea level and a shallow, salty sea spread across it. During this time there was a period when the water collected in vast lagoons and evaporated, leaving layers of salt hundreds of feet thick. Sudden rain storms carried landslides from the surrounding uplands to cover these layers of brine with mud. As the years passed new salt lagoons formed to be covered by new mud slides, and as this happened "salt lenses" were left of many different sizes at varying depths in the earth. The mud slides became shale deposits.

Salt has always been a very important part of man's survival on this earth. Before refrigeration, the salting and drying of food was one of the few ways to preserve it. When the early settlers came to this area in the 1790's they made friends with the Indians who knew where the valuable salt

springs were located. Because salt was a valuable item of trade, the location of these springs was kept a secret.

As early as 1817 a Mr. Tory sunk two wells just south of the village of Ithaca in an effort to tap the veins of salt water he believed to underlie that locality, but he found nothing but fresh

water. Today citizens of Lansing often are dismayed when they drill a well for domestic water, only to find undrinkable salt water.

In 1891 men armed with geological maps of the New York salt deposit came to Myers Point, leased a tract of land, and drilled the first salt well. Finding a good supply of salt, they formed the Cayuga Lake Salt Company and began evaporating the brine from the well. Another well was drilled and, in 1893, a nine foot vacuum pan and a rotary dryer made the production of high grade salt possible. At this time the plant had a capacity of 140 tons daily and employed 100 persons. The Refinery continued to grow and many people from Syria came to work in the plant and live on the hill above the point. The refinery became the International Salt Company and produced table salt and industrial salt until 1962, when it was consolidated with the Watkins Glen plant and the vacuum pans were loaded on flat cars and taken by railroad to the new location. As the plant was being demolished, it caught on

fire and burned to the ground in the summer of 1962.

The brine that is brought up from the salt wells is purified and then evaporated to make table salt. Industrial salt, as well as salt which is used to melt the ice on winter's snow-covered roads, comes from deep mines that bring up chunks of dirty looking salt called rock salt...

At Portland Point, just south of Myers Point, Mr. John Clute opened the first salt mine in 1915 and organized the Rock Salt Corporation. In 1916 the mine shaft was put down to the 1500 foot level, but the salt was of poor quality. By 1918, the mine was struggling to produce good salt and John Clute became despondent and committed suicide.

Enter Frank L. Bolton and John W. Shannon who in 1921 founded the Cayuga Rock Salt Company. One of the first persons employed was William B. Wilkinson. William's

sister, Lucie, also became a member of the staff. Lucie married Frank Bolton and when Mr. Bolton died, Lucie became president of the company and her brother first vice president. The operation was first intended by Mr. Bolton to be a salt brine plant

like the one on Myers Point, but in this case,

Mr. Bolton planned to pipe the brine to Buffalo, New York and not have the expense of the large evaporating systems. But instead he decided to make the project into a hard rock salt mine. In order to do this he had to sink the shaft beyond the 1600 foot level to a 2000 foot level to find a better vein of salt. This second salt bed was 10 to 40 feet thick and the salt averaged 99.1% pure.

There are seven salt beds that extend from Lansing to Michigan, varying in height and quality. In this area there are only two beds that are of good quality and mineable – the number four level at 2000 feet, and the number six level which is 2300 feet underground. The number four level was mined from 1925 to 1968. By 1968 the horizontal shaft, with the face that was being worked, was two to three miles from the main shaft and, because of haulage distance, became unprofitable.

The Cayuga Rock Salt company had not invested in improving the mine and it was very antiquated and quite unsafe when, in 1970, Cargill bought the mine rights.



The portion of Cargill visible along the Lansing shore is a very small part of the entire operation.

Lake Friendly Farms

griculture is the largest single land use in the Cayuga Lake Watershed, making it important ecologically economically, aesthetically and culturally. Most farmers are dedicated stewards of land and water resources, something the Cayuga Lake Watershed Network wants to recognize with a new "Lake-Friendly Farm" program. Farms that have incorporated New York State's Agricultural Environmental Management (AEM) practices into their operation will be recognized annually.

AEM was developed by farmers, state, federal and local governments and farm conservation professionals to protect environmental resources while maintaining a healthy agricultural economy. In support of AEM, the Watershed Network will be providing signs that state "Lake-Friendly Farm" to agricultural operations within the Cayuga Lake Watershed that are implementing AEM Best

Management Practices.

The AEM process is divided into tiers I through V. Tier I begins with an in-depth farm assessment by Soil and Waters Conservation District staff who work with farmers to identify environmental risks and the Best Management Practices (BMPs) that can help reduce and prevent environmental degradation. The BMPs are tailored to each enterprise and might include creating an alternative water source that keeps livestock out of a creek, improved manure storage, and plantings to reduce erosion.

Soil and Water Conservation Districts can recommend a farm receive an award sign once they have reached Tier IV, the point at which a farm has started implementing the recommended practices. The Districts will have the prime responsibility for recommending which farms are eligible to receive a Lake Friendly Farm sign and the Watershed Network will be responsible for the overall program. Nominations will be accepted until Feb 1, 2006 with the announcement of recipients at Lakefest in August.

This program is being adapted from Ontario County's Lake-Friendly Farmer program. In order to customize it to the counties within the Cayuga Lake Watershed we have been meeting with Soil and Water Conservation District (SWCD) staff and the Joint Agricultural Committee that provides on-going support to the Watershed Network and our sister organization the Cayuga Lake Watershed Intermunicipal Organization (IO). The Joint Agricultural Committee consists of farmers; staff of SWCD, Cooperative Extension, Natural Resources Conservation Service; agricultural consultants; and volunteers with the Watershed Network and IO.

Ancient Seas Still Mined continued from page 3

Cargill modernized the facility by replacing the old rail haulage system with a belt line, and screened the material underground so that only saleable salt was hoisted. (The Cayuga Rock Salt had been bringing all the salt to the surface and dumping the unsaleable salt on the land above Cayuga Lake.) A new ventilation system made the use of diesel powered units feasible and the old battery operated equipment was discarded. Another shaft was bored from the bottom of 2300 foot level to the surface. (This was the first time that a shaft of that size had ever been drilled bottom to top. It was the largest single bore hole in the world at the time it was bored.) The shaft was 12 feet in diameter and used for hoisting men and materials to and from the mine. It is also used to exhaust the mine air to the surface.

The salt is mined in a "room and pillar" method, with pillars of salt left standing to support the ceilings of the large mine areas. Visualize a blank wall; in order to go forward you must take the wall down. The mining term for this wall is a "face". To begin, a large undercutter (a big chain saw with a 15 foot bar; overall length 36 feet) is used to cut the floor out 15 feet deep and 6 inches high. This is done to allow expansion when the face is shot. The cut is called a kerf. After cutting, a large electric drill is brought in with two hydraulic drills. 24 holes, 15 feet in depth, are

drilled in the face. The holes are filled with explosives and the face is blown. Then front-end loaders come in and scoop out the pile of fallen salt. If the roof of this section of the mine does not have enough depth of salt to support it, the roof is secured with 5-foot metal bolts.

Today the mine is comprised of over 18,000 subterranean acres on the east side of, and beneath, the lake, with a production potential of 10,000 tons of salt mined daily. The main horizontal shaft runs for five miles from Portland Point north to the Taughannock Falls area. From this shaft, several tunnels run to the east where the blasting is being done...

Whether the production of salt in the Cayuga Watershed is an environmentally proper occurrence for the region is up for question, but this production is undeniably part of the watershed's history and future.

Adult Essay Contest Winner

This year two adults tied for first prize in the Annual Essay Contest. The excerpt above is from one winner. The other winning essay, by Nancy Reddy, is set to appear in the spring issue of Network News. Read the unabridged versions at www.cayugalake.org.

The Network at Work

ayuga Lake Watershed Network has been hard at work improving water quality and inspiring its protection across the 864 square mile watershed. At the northern end of the watershed, we have been addressing the serious threat of water chestnut and other invasive, harmful waterweeds. The Watershed Network ran a training session on identifying, monitoring, and reporting new invasive aquatic plants. Participants received our user-friendly invasive weed identification guide along with the list of species that pose the greatest threats. The program is part of Weeds Watch Out! a regional program helping control the spread of invasive aquatic plants The weed guides are being distributed around the entire lake as accompaniment to snazzy new waterweed signs, posted by the boat launch ramps at dozens of marinas. These signs instruct boaters to clean their boats before transporting them to other waterways - to prevent harmful waterweed hitchhikers from starting new invasions.

On another beat, we hosted a tour of a cutting-edge manure digester at Patterson Farms in Cayuga County. The digester eliminates odors and prevents harmful excess nutrients (like phosphorous and nitrogen) from entering



A thousand trees have been planted along Six Mile Creek and volunteers are sought to plant another thousand.

drinking water supplies. (Excess phosphorous is the #2 water quality concern for Cayuga Lake). Thirty people toured the digester, including representatives of agricultural industry and organizations, the farming community, and neighbors.

On the festive side, the Watershed Network held its 8th annual Lakefest to celebrate the entire watershed. Approximately 200 visitors frolicked to the beat of Classic Folk and pranced with puppeteer Tom Knight. A delicious free picnic was made possible thanks to our members, the T-Burg Shur-Save, Wells College and Wegmans, with ice cream treats provide by the Seneca County Dairy Princess. Our newest additions to this annual celebration were the nature walks, led by expert naturalists Tony Ingraham and Corinne Eisenman, who guided hikers along a trail that reached the sculpted waterfalls. The nature walk got rave reviews from all those who joined.

With the strength and energy of around 50 volunteers, we orchestrated two tree plantings along the banks of Six Mile Creek. As a result nearly a thousand new trees are extending their roots down into the soil along a vital section of this creek. Tree roots – one of nature's oldest mechanisms – are the most effective way of retaining soil and preventing erosion.

Invasive Weed Identification Guide

Useof

Weeds Walch Cutt

Skep Invasive Aquatic Plants

Water chestnut are featured on the cover of this free guide that is available by request.

(Sedimentation resulting from erosion is the # 1 water quality concern for Cayuga Lake). Trees provide shade and keep the water perfectly cool for fish.

Also with the vital help of volunteers, we organized several trash cleanups: two creek bank cleanups along Fall Creek and a lake shoreline cleanup at Salt Point in Lansing. More than a thousand pounds of trash were removed and sent to the recycling centers so it will no longer plague the waterways.

Homeowners play a vital role in drinking water protection through taking care of their private well and maintaining their septic system. Thanks to the Tompkins County Health Department residents learned the importance of well maintenance and annual testing for bacteria and nitrogen levels. Participants received a 75% saving on these well tests. Septic systems are the second most common source of drinking water contamination. Educational programs in the care of these on-site sewage system stressed regular pumping, a concept reinforced by very graphic images of system failure and a \$20 coupon towards pumping of the septic tank. We are pleased to have received funding from Seneca Meadows to offer septic system workshops on Seneca County this fall.

We are indebted to our volunteers for the great energy, excellent work, and for the fun they provide across the watershed. Join in on the fun as volunteers, as new members, as participants in upcoming watershed events!

A Lake at Risk

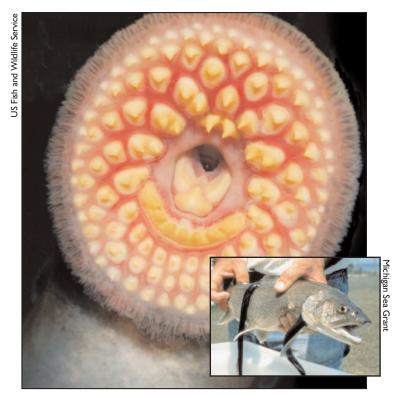
Lissa Ray, Southern Cayuga Central School

ayuga Lake has a watershed that most of the communities surrounding it hold dear to their hearts. They depend on the lake for a refreshing swim on a hot day, or even just to keep the scenery beautiful. Some of the communities take for granted Cayuga Lake being so close and do not realize ...there are many factors that are making our watershed unwell, they are: invasive species, pollution, and erosion...

An invasive species in Cayuga Lake is a species that did not originally belong there, and now is slowly taking it over because of the lack of a natural predator to destroy it. One of these predators is the sea lamprey, believed to have swum its way through the St. Lawrence, into the Great Lakes, then through the Barge Canal that leads it straight to Cayuga Lake. The sea lamprey (Petromyzon marinus) is a small parasite with a round mouth full of teeth. It uses this to grasp onto fish making a hole and sucking out blood and other bodily fluids. Older fish will most likely survive this attack with just a small circular scar, but younger fish die almost immediately. It is estimated that in its lifetime a sea lamprey will eat up to 40 pounds of fish: if we multiply that by the thousands of sea lamprey that could potentially be living in the lake, that adds up to a lot of damage. Luckily, there have been two successful lampricide treatments in Cayuga Lake to get rid of these parasites, reviving the trout and salmon populations in the area.

...[O]ne form of pollution that not a lot of people know about is phosphorus. Phosphorus is found in human and animal waste, lawn fertilizers, soaps and detergents. The phosphorus in fertilizers, when put on plants, help them grow, so when poorly maintained septic systems leak human waste containing phosphorus into a lake it helps algae and weeds grow faster. This creates a green tint to the lake and a bad smell. Also, this takes a lot of the oxygen out of the lake.... Phosphorus is a major problem not only to the animals in the lake, but it will also diminish the appeal to people.

Erosion control is a major factor along the edge of any source of water. In Cayuga Lake it is a problem that we can easily see affecting the lives of the inhabitants of the lake. Although it is a natural process that has been happening



Sea Lamprey uses these rasp-like teeth to bore a hole in its victim and feed on its flesh. Inset: Sea lamprey dangle from a lake trout.

for millions of years, human existence has sped up this process causing damage to plants and lakes. Erosion is created by wind and rain. People have sped this process up by removing plants to build buildings. Erosion mainly happens when it rains and there is runoff into the lake making it "dirty" looking... This is very harmful to the fish and other aquatic life. This process also brings nutrients that help with the excessive growth of algae. This slowly will fill the entire lake up...

Whether we see the lake everyday on our drive to work, or barely see it at all, Cayuga Lake is in need of some help.... We need to help make known to more people what is hurting the lake, because knowledge

about the subject will slowly help citizens become involved to make the lake cleaner and healthier.

Lissa Ray is the high school winner of the Annual Essay Contest. Read the unabridged version at www.cayugalake.org



What Members Think continued from page 2

Cayuga Lake Watershed CD-ROM or Issues in the Cayuga Lake Watershed to give to friends and colleagues.

We sent one survey per membership, yet we know that most memberships represent an entire family or business. So additional people may voice their opinions, the survey form is available upon request from the Watershed Network office and on-line at www.cayugalake.org/survey.

Thanks to all who took the time to complete the survey. Your thoughts and concerns are valuable to us all the time. Let us know any time what you like or don't like. It helps us improve and serve you — and precious water resources — better.

Johnston Receives Morehouse Award

er efforts are so quietly executed that they could easily be overlooked. Each year someone who has shown dedication to protecting the Cayuga Lake Watershed is recognized with the David Morehouse Award. Roxanna Johnston, the 2005 recipient, has played an active and vital role in the restoration and protection of the Cayuga Watershed since she came to this area more than six years ago to work as an Environmental Analyst for the City of Ithaca Water Treatment Plant. Johnston has gone far beyond the requirements of the job. She assisted the Cayuga Lake Watershed Intermunicipal Organization during the watershed management process that produced the watershed-wide Restoration and Protection Plan, served as committee chair with the Cayuga Lake Watershed Network, organized programs for the Tompkins County Water Resources Council and shared her expertise with the volunteer watershed committees for Fall Creek and the Town of Caroline.

Professor O'Leary of Wells College who submitted one of the nominations noted the professionalism, enthusiasm, reliability, and affability Johnston brings to educational programs. These have included participating in the Well's College Symposium on Service and Activism, expanding National Water Week celebrations, hosting "Water In Water Out" to educate municipal leaders and citizens about water and wastewater treatment, reviewing Essay Contest submissions, staffing educational displays and giving presentations to people ranging in age from seniors to toddlers. Johnston's enthusiasm for watershed protection is infectious. She has inspired many a watershed citizen and facilitated their emergence as watershed protectors in their own right.

Judy Pipher of Seneca Falls who also nominated Johnston noted the recipient's quiet yet effective manner and skill leading special activities for youth at St. Mary's in Waterloo and the middle school in Romulus. Johnston also served as a panelist at Environmental Film Festivals, made science relevant to students at Dryden's Elementary Science Fairs



Roxana Johnson (right) and Craig Schutt smile at a successful Water Week

and is a conscientious and dependable member of the Watershed Network's Outreach Committee.

Johnston embodies what it means to be a leader. She demonstrates a commitment to watershed preservation and restoration through both personal action and outreach to others. Her commitment to the Cayuga Lake Watershed has profound and far-reaching effects through the many people with whom she interacts.

ANNOUNCEMENTS

Contact the Watershed Network to register or for more information, 607-532-4104 or manager@cayugalake.org.

SOMETHING'S FISHY IN CAYUGA LAKE

Sat. Nov. 12 from 2:00-4:30 pm Sommer Center, Wells College, Aurora Fish ecology, trends in the fishery, invasive species and recommendations of research and action. See back page for details.

PLANT TREES ALONG SIX MILE CREEK

Nov 12 and Nov 13, 9:30 am-2pm Join us for as short or long a time as you would like. The roots of the trees you plant will help anchor the soil, reducing harmful erosion of Six Mile Creek. Meet at the entrance to the Silt Dam on Burns Rd, Ithaca. This dam removes silt from the drinking water supply for the City of Ithaca and other communities at the south end of the lake. Reducing silt in the creek also benefits fish and means less gets into Cayuga Lake. Tools and work glove will be available, but if you have your own, please bring them.

AFTER THE FLUSH

All programs are from 7:00 – 9:00 pm Advance Registration Required Caring for your septic system protects your wallet as well as the environment. Attend a free program, open to everyone, and learn how conventional and alternative systems work, preventive maintenance and routine care that can save costly repairs while protecting water quality. And you'll receive a discount coupon for a septic tank pump out. Made possible by funds from Seneca Meadows, We Care Septic and other local contractors.

- Fayette, new Fire Hall, Nov I
- Seneca County Office Building, Nov 2
- McGee Fire Hall, Nov. 15
- Ovid, new Fire Hall, Nov. 17

Something's Fishy in Cayuga Lake

Saturday, November 12 from 2:00-4:30 pm Sommer Center, Wells College, Aurora

protects the fisheries, and what alien fish are poised to invade. A FREE program for anglers, nature lovers, boaters, creek and lake shore owners ...and the just plain curious! Advance registration is appreciated. Contact the Watershed Network at 607-532-4104 or email manager@cayugalake.org.

FISH ECOLOGY: what fish need to survive and thrive, and their place in the food chain. Reproductive failure in trout and salmon. Cliff Kraft, Cornell University.

FISH IN CAYUGA LAKE: trends in the Cayuga Lake fisheries, fish stocking and other ways NYS Dept. of Environmental Conservation protects the resource. Jeff Robins, Cortland Regional Office of NYSDEC

INVASIVE SPECIES: what are the affects of alien species that are already in the lake and what threats loom in nearby waterways. David MacNeil,

NYS Sea Grant

PANEL DISCUSSION: What to do with what we know? Recommendations for research, action and citizen involvement.

DIRECTIONS: On the east side of Cayuga Lake, take NYS Rt. 90 into Aurora. From the north pass through the Village then look for the College on the left. From the south pass the softball



field and sewage treatment plant, then look for the College on the right. There is a driveway that climbs up onto the Wells College campus. Signs will lead to parking and to the Sommer Center. A map of the Wells Campus showing the Sommer Center is posted at www.cayugalake.org.

The Mission... The Cayuga Lake Watershed Network seeks to protect and improve the ecological health, economic vitality and overall beauty of the watershed through education, communication and leadership.



NON-PROFIT U.S. POSTAGE PAID INTERLAKEN, NY PERMIT NO. 16

