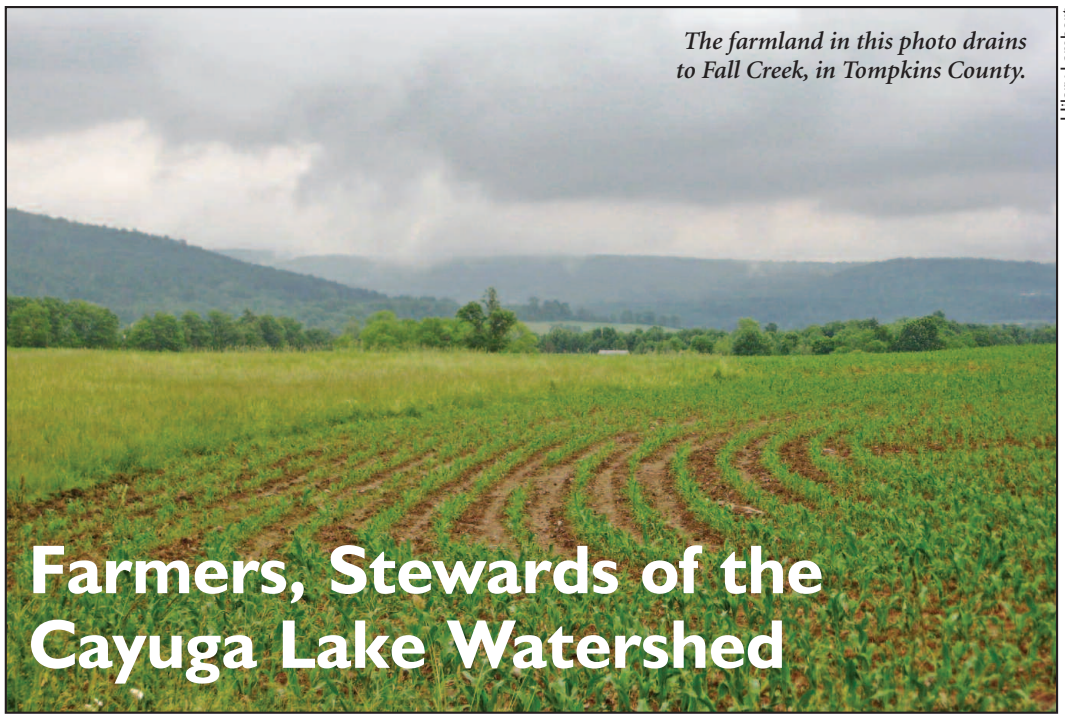
CAYUGA LAKE WATERSHED

Network News

2010 i2

INSIDE...



The farmland in this photo drains to Fall Creek, in Tompkins County.

Hilary Lambert

Farmers, Stewards of the Cayuga Lake Watershed

By Craig Schutt, District Manager, Tompkins County Soil and Water Conservation District

What preserves scenic open space, bolsters the local economy and protects drinking water and other natural resources enjoyed by all? Well-managed farms do. Farmers were the first stewards of the land, and they continue that role today. The health and livelihood of farm families depends on clean water, preserving productive soils and good animal care, and farmers in the Cayuga Lake Watershed are working to protect the water quality of Cayuga Lake for all area residents.

The Cayuga Lake Watershed is a mixture of land uses, from urban, suburban, forested and agriculture, which has traditionally been the dominant land use in the watershed. Approximately one-third of the land is farmed, with about 57 percent dedicated to raising livestock, and 42 percent in field crop production. There is a diverse mix of beef and small livestock operations, horses, vineyards, greenhouses, vegetables and fruit, along with traditional dairy farms and an increasing number of organic operations.

So how does this patchwork of land uses affect the Cayuga Lake Watershed? When rain falls, it flows across the land, into groundwater and streams, and eventually into rivers and lakes. In the process it can wash contaminants such as road salt, fertilizer and pesticide applications, from land activities such as timber harvesting, manure spreading and construction, into the water. While there are no perfect land uses, well-managed farms can

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Footprints by the Lake

Niamh O'Leary

A carbon footprint is a way to measure our contribution to the global environmental problem of climate change. Footprints can be calculated for an individual, a product, or an organization.

The calculations that go into estimation of a carbon footprint are based on our understanding of how humans affect climate change. Humans cause climate change primarily through the production of greenhouse gases, so named due to their warming effect on the atmosphere. Carbon dioxide, methane, and nitrous oxide are examples of greenhouse gases. In the United States, burning of fossil fuels is the most significant contributor to our greenhouse gas emissions, and so to our footprints. Both our direct greenhouse gas emissions (e.g. those produced by our transportation, electricity consumption, heating, etc.), and our indirect greenhouse gas emissions (produced in the manufacture and disposal of the products we use) contribute to our footprints.

In order to reduce environmental impact, many individuals, organizations and institutions are examining their impact on climate change and aiming to reduce their carbon footprints. Institutes of higher education are no different, and many are charting a course of leadership and action. The American College & University Presidents' Climate Commitment (ACUPCC or "the Commitment") is a high-visibility effort to decrease the environmental impact of the nation's campuses. Led by college and university Presidents, the goal is to address climate change by securing institutional commitments to reduction of greenhouse gas emissions. Ultimately, fulfillment of the Commitment results in a campus achieving and maintaining climate neutrality.

Climate neutrality, as defined by the ACUPCC program, is reached when greenhouse gas emissions are minimized as much as possible, and when carbon offsets or other measures are used to mitigate the remaining emissions. Wells College, Cornell University, Ithaca College and Tompkins Cortland Community College are all signatories to the Commitment, meaning that all of the institutes of higher education in our Cayuga watershed have publicly committed to actively reducing their carbon footprints.

At Wells College, President Lisa Marsh Ryerson signed the Climate Commitment on October 5, 2008. A President's Climate Committee was formed, with representatives from the faculty, staff, and student body. The formation of the Committee is the first step in addressing one of the key elements of the Commitment, which is to establish an institutional structure that will coordinate and oversee the work of its fulfillment.

Together with cooperation from others on and off campus, the Wells Committee has begun to focus on and address other components of the Commitment. These include, but are not limited to, the conducting of a greenhouse gas inventory, purchasing of renewable energy, promotion of waste minimization, and the development of a climate action plan. The climate action plan is the cornerstone of the Commitment; it will document specifically when and how Wells College will achieve climate neutrality. To remain in compliance with the Commitment, signatories must put measures in place that will accomplish climate neutrality no later than 2050, though many aim to achieve it sooner. Wells College's climate action plan is currently in development and will be completed by January 2011. As required by the Commitment, Wells will periodically report to the ACUPCC program, and all reports will be available publicly on the program's web site (www.presidentsclimatecommitment.org).

Niamh O'Leary teaches Environmental Studies at Wells College, located on the east shore of Cayuga Lake in Aurora NY.

Wells College on Cayuga Lake

Hilary Lambert

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Farmers, Stewards of the Cayuga Lake Watershed *continued from cover*

actually protect water quality as they contribute far less polluted runoff to water bodies than most other land uses. The conservation efforts of farmers in the watershed have demonstrated that where agricultural runoff concerns do occur they can be remedied by implementing Agricultural Environmental Management (AEM) practices.

As economic pressure continues to drive the growth of dairy farms, the land base needed to support that growth also increases. In order to protect land and water resources, New York was one of the first states in the nation to take regulatory action. Larger-sized livestock and poultry farms are regulated, under permits with the State Department of Environmental Conservation (DEC). This regulatory program is considered a national model, as many states are just beginning to implement a regulated process. New York is one of only a few states that require Certified Planners, and the only state with a quality assurance and quality control process in place to assure regulators and the public of quality planning.

Just south of Aurora in Cayuga County, farmlands descend toward the lake below.

Nearly all of New York's regulated dairy farms are family run businesses that have had their roots in farming for generations. Regulated farms are categorized by the number of animals on the farm by the DEC. A medium-sized regulated dairy farm houses over 200 mature cows, and a large regulated farm houses over 700. New York's regulated farms are required to have a Comprehensive Nutrient Management Plan developed by a Certified AEM Planner.

To meet stringent runoff controls for nutrients and other pollutants as prescribed in their plan, farmers install and maintain conservation practices according to USDA Natural Resources Conservation Service standards. Many of these practices can cost the farmer in the tens, to sometimes hundreds of thousands of dollars. Fertility testing of all crop fields every three years is required. From that, nutrient management including fertilizer and manure applications, are calculated to crop needs. DEC routinely inspects these farms to ensure permit compliance, including required record keeping. As in any industry operating under a natural system, sometimes Mother Nature throws a curve into even the best intended plans. When this occurs, the farm's required emergency actions plan lays out the state's established protocol.

Farm planning and natural resource protection in New York begins at the local level with County Soil and Water Conservation District AEM programs. AEM is a statewide approach that evaluates potential environmental risks on individual farms, and identifies the good stewardship practices currently being followed. Once concerns are identified, alternatives are recommended and a farm plan is developed to meet environmental needs and the farm's business goals. In order to be eligible for state or federal cost-share funding to install conservation practices, farms must participate in AEM. This approach is applicable to all sizes and types of farms. AEM is an important step for smaller, unregulated farms to voluntarily assess and address potential risks, and helps regulated farms meet and exceed their plan requirements.

When you see those scenic vistas of cows grazing on green meadows, corn stalks swaying in the wind, and clear water flowing in the stream near you, remember, it is local farmers who provide this to the benefit of everyone. So if you see a farmer, say thank you to them for all they provide.

To learn more about AEM and how farmers are protecting the Cayuga Lake Watershed, and other programs provided by the Tompkins County Soil and Water Conservation District, stop by our office or visit our website at www.tcswcd.org.

This article was first published in the Ithaca Journal on March 27, 2010, in the Viewpoints column. It is part of Cayuga 2.0, a series of monthly guest viewpoints about the health of the Cayuga Lake watershed and related challenges and opportunities. The viewpoints are provided by the Tompkins County Water Resources Council.

Trained Volunteers Monitor Impacts of New Gas-Drilling Technologies

Faith Zerbe and Candie Wilderman

The following is excerpted from an article in The Volunteer Monitor, national newsletter of volunteer watershed monitoring, 21(1) Spring 2010. While not Cayuga Lake-focused, this article provides a summary of the situation and explains how citizens are already using data to testify against water withdrawals. For information on volunteer monitoring and training in the Cayuga Lake watershed, contact the Community Science Institute. Phone: (607)257-6606, email lab@communityscience.org, online at www.communityscience.org.

Marcellus Shale drilling and extraction activities use a tremendous volume of water and a number of dangerous chemicals. Chemicals used in fracking may include friction reducers, biocides (to control microorganism growth), and surfactants, among others.

Drilling requires about 300,000 gallons of water per day per well, and fracking a well uses 2 to 9 million gallons of water. This water is typically pumped from nearby surface waters, potentially causing water depletion, especially in small, remote, forested streams that are often home to wild trout and other sensitive species. If gas well casings are inadequate or become cracked, fracking water can leak out and contaminate drinking water wells. Groundwater and surface water can also be contaminated by leakage and spillage from the drilling site and operations.

The wastewater that is drawn to the surface (called flowback water) consists of the fracking water along with heavy brines that are found in the rock itself. This wastewater is initially stored in open, lined storage pits, then eventually trucked to a water treatment facility. The quantity of flowback water varies greatly from location to location, containing from 10 to 90 percent of the fracking fluid initially injected.

Disposal of flowback water poses big treatment challenges. The projected volume is well beyond the capacity of existing treatment plants. Moreover, wastewater treatment plants are not equipped to remove many of the contaminants.

What exactly is in the wastewater? It is difficult to obtain complete information because companies guard the formulas of their proprietary mixtures. A 2009 draft Environmental Impact Statement from the New York Department of Environmental Conservation lists more than 100 different chemicals found in flowback water. Many are known hazardous materials—for example, benzene, acetone, arsenic, heavy metals, bromide, sulfate, toluene, xylenes, and naturally occurring radioactive materials (NORMs), including radium 226.

Typically, flowback water is characterized by very high concentrations (often greater than 30 percent) of total dissolved solids. In 2008 and 2009 the Pennsylvania Department of Environmental Protection (DEP) investigated unusually high levels of total dissolved solids in the Monongahela River and traced much of the contamination back to improperly treated flowback water. At least 11 public water supplies were affected and 325,000 people were advised to use bottled water.

What volunteer monitors can do

Concerned citizens in the Marcellus Shale region are asking how they can best act as watchdogs of drilling activities. For many, the goals are early detection and prevention of serious environmental pollution impacts. The Alliance for Aquatic Resource Monitoring (ALLARM), a project of the Environmental Studies Department at Dickinson College in Carlisle, Pennsylvania, has developed a protocol designed to detect flowback water contamination in small streams. The protocol uses total dissolved solids (TDS) and/or conductivity as "red flag" parameters that indicate possible contamination. An increase in the red flag parameters triggers the collection of samples for testing "signature chemicals" whose presence can identify flowback water as the source of contamination. ALLARM has chosen barium, strontium, and total alpha (an indicator of the presence of radioactive materials) as robust signature chemicals.

First, volunteers will be trained to identify potential drilling sites by accessing permit applications, which are public information and available online. Ideally, they will then collect baseline data at their sites for three months to a year before drilling begins. In addition to weekly measurements of the red flag parameters and occasional (two to four times a year) water sample collection for testing of signature chemicals, volunteers will record stream stage as an indication of flow. (Establishing a relationship between flow and conductivity is necessary for interpreting changes in conductivity.) Once drilling begins, volunteers will continue weekly monitoring of TDS and conductivity. If an increase is seen, volunteers will send water samples to ALLARM for immediate analysis of signature chemicals. If these are above baseline levels, volunteers will report their findings to the Pennsylvania DEP. We are currently working with DEP to ensure that they will consider the data presented as sufficient to warrant site inspections.

In addition to chemical monitoring, observational monitoring is a

Hilary Lambert

Trained volunteer monitors the water quality of a creek.

powerful and cost-effective way for volunteers to help provide needed oversight of drilling activities. Volunteers are currently recording observations on erosion rills or washouts due to land disturbance on drilling pads, access roadways, and connecting pipelines. They are also being trained to monitor such problems as leaks from storage tanks, gas bubbling from pools or puddles, oily film on water surfaces, water hoses in or adjacent to streams, pipeline breaks, and illegal dumping. Volunteers are being taught the proper protocol for recording observations, taking samples if appropriate, locating sources of problems, documenting observations through photos, and reporting to the appropriate agencies.

In the Upper Delaware (the Pocono region of Pennsylvania and Catskill region of New York), 25 trained volunteers with the Delaware Riverkeeper Network (DRN) are already collecting twice-monthly baseline information on small tributary streams where gas drilling is projected to begin in summer 2010. The volunteers are sampling at 30 stations, using a handheld meter to measure TDS, salinity, temperature, and conductivity, and a field kit to measure chloride. Two automatic data loggers will be installed with help from the U.S. Geological Survey (USGS), and periodic lab testing of signature chemicals will occur at priority stations.

With this first tier of citizen monitoring under way, DRN and its local agency partners are now planning macroinvertebrate monitoring. Macroinvertebrates, especially mayflies, are particularly vulnerable to shifts in TDS because dissolved solids affect their ability to osmoregulate (regulate and balance the fluids in their body). If wastewater from fracking finds its way to high-quality streams, the results would be devastating. Volunteers will use Pennsylvania DEP Modified Rapid Bioassessment methodologies for macroinvertebrate monitoring. At sites where the industry is planning the most drilling, samples will be preserved and analyzed by an agency-approved laboratory, while at the remaining stations volunteers will conduct streamside identification.

DRN volunteer monitors have begun using the data they have collected in public testimony regarding pending natural gas permits. In one case where a company proposed withdrawing large amounts of water from the West Branch Lackawaxen River to use in fracking operations, volunteers testified and presented photo-documentation, USGS flow data, and macroinvertebrate data in support of measures to protect adequate flow.

Volunteer monitoring groups throughout the Marcellus Shale region are working to develop a set of standard protocols, a shared database, and common training materials. We believe that if drilling companies are aware that there are many eyes watching them and evaluating their activities, they will be more likely to implement best management practices and avoid contamination of environmental resources. Our presence in the field and the companies' knowledge of our activities are the best deterrents to poor management and illegal practices that can go unnoticed if no one is watching.

Faith Zerbe is Director of Delaware Riverkeeper Network's Water Watch Program, and Candie Wilderman is Founder and Science Director of the Alliance for Aquatic Resource Monitoring (ALLARM) at Dickinson College.

Resources

Geology.com website. http://geology.com/oil-and-gas/

ProPublica: Journalism in the Public Interest website. Gas drilling link: www.propublica.org/series/buried-secrets-gas-drillings-environmental-threat.

Soeder, D.J., and Kappel, W.M. 2009. Water resources and natural gas production from the Marcellus Shale: U.S. Geological Survey Fact Sheet 2009–3032, 6 pages. http://pubs.usgs.gov/fs/2009/3032/.

Pennsylvania Department of Environmental Protection website, Marcellus Shale pages. www.dep.state.pa.us/dep/deputate/minres/oilgas/new_forms/marcellus/marcellus.htm

The Volunteer Monitor's web site: www.epa.gov/owow/volunteer/vm_index.html

UPCOMING EVENTS

Please send information about upcoming watershed events to steward@cayugalake.org . We'll share them in these pages, at our Website www.cayugalake.org , and via email to the CLWN listserv.

AUGUST 10: Cayuga Lake Watershed Network Annual Meeting.
Members are encouraged to attend, meet the Board, and get involved. The Annual Meeting will be held at 6 pm, followed by our monthly meeting from 7 – 9 pm. Refreshments served. Location: Second floor of Zabriskie Hall, Wells College, Aurora NY. Directions at www.cayugalake.org, or contact: steward@cayugalake.org .

OCTOBER 22: Save the Date for Sunset on Cayuga 2010!
The Network's annual fund-raising dinner-dance, Sunset on Cayuga, is on October 22. Save that date! We'll be back at the Lakewatch Inn in Lansing with good food, music and dancing, silent auction, and raffle fun and games. Help raise funds for the Network and awareness about Cayuga Lake by inviting your friends and co-workers! Tickets for couples, individuals, and tables will be available soon. Watch for information in these pages, online and via a flyer mailing later this summer. Want to volunteer? Contact ronda@fessendendairy.com, steward@cayugalake.org.

Please Join or Donate to the Network

The Cayuga Lake Watershed Network has lively, lake-advocacy events and projects planned for 2010. These are made possible by grants and support from people, organizations and businesses concerned about Cayuga Lake and its watershed. Times are tough, and big changes are facing the watershed with the potential start-up of unconventional gas drilling in 2010. Help us protect our lake!

Joining or donating is easy to do!

MAIL: Fill out the information below, select a donation level, and mail the form with your check to **Cayuga Lake Watershed Network, P.O. Box 348, Aurora, NY 13026**

PAYPAL: Join via your PayPal account or credit card online at **www.cayugalake.org**

As a member, *you receive a one-year subscription to* Network News, *our quarterly newsletter, invitations to free events such as our upcoming spring conference on Wetlands, and volunteer opportunities such as our upcoming creek cleanups. Your membership shows that you appreciate the beauty and vitality of Cayuga Lake and its watershed and the need to protect these natural resources.*

- ❑ I am joining the Cayuga Lake Watershed Network with the enclosed contribution.
- ❑ I am renewing my membership with the enclosed contribution.
- ❑ Send a gift membership to the person listed below, and send me a gift card to give them.
- ❑ Please use my donation for intern support.

Name_____

Address _____

Email_____ May we add you to our listserv? ❑ Yes ❑ No

Please Select the Support Level You Prefer:

- ❑ $500 Watershed Benefactor
- ❑ $100 Headwater Donor
- ❑ $50 Organization or Agency
- ❑ $25 Individual
- ❑ Other_____
- ❑ $250 Lake Sponsor
- ❑ $50 Farm/Small Business
- ❑ $35 Family
- ❑ $10 Student/Senior

Thank you for your support
Your Contributions to the Cayuga Lake Watershed Network are tax deductible.

Creek and Waterfront Cleanups
Embracing the Lake!

Cayuga Lake and its creeks are at the heart and center of our lives, and need our celebration and protection. The Network urges people to embrace Cayuga Lake with creek and lakefront cleanups. Beginning in mid-April 2010, community groups "Embraced the Lake" with numerous creek and waterfront cleanups. Please go to www.cayugalake.org for additional photos!

Mid-April: Cayuga Lake waterfront in Aurora – Peachtown Elementary School students and teachers picked up lakefront trash from the Wells College Boat House to Payne's Creek. Barb Post reports: "I had fun hoisting the largest carp skull I've seen on a stick for the little boys who were working! I also found some beautiful goose wing bones."

Mid-April: Mill Creek and other King Ferry-area creeks draining to the lake – the Direct Streams water monitoring group and neighbors, a Girl Scout troop, and Poplar Ridge Friends worked over several weeks to collect trash from these steep, beautiful creeks. Ronda Fessenden helped with trash disposal.

April 16-18: Fall Creek in Dryden – Members of the Dryden Resource Awareness Coalition (DRAC) cleaned up trash at several creekside Dryden nature preserves – the Genung, Etna, and Campbell preserves – and at the parking area next to Fall Creek below the Route 13 bridge.

May 1: Cascadilla Creek tributary in Ellis Hollow – Girl Scout Troop 1107 trekked down the creek bed to gather trash and a wild assortment of mystery items, and made a pile of recyclable metals, including car body parts and bedsprings.

Peggy Renwick

Girl Scout Troop 1107 pose with the trash they collected from a Cascadilla Creek tributary, Ellis Hollow. More photos at www.cayugalake.org.

May 8: Fall Creek below Ithaca Falls – Trout Unlimited reeled in a strange assortment of banged-up items, and caught a bunch more down at the Cayuga Street bridge.

May 8: Wells Campus creeks that run to the lake, Aurora – The Campus Greens report: "We collected over 10 bags of trash and recyclables as well as 4 tires, what we suspect to be some sort of muffler, some scrap metal, shoes, and other strange stuff. We faced the storm, cleaned up the creeks on and surrounding campus, and everyone received prizes."

Coming this fall: Seneca-Cayuga Canal in downtown Seneca Falls – The Mynderse Academy (Seneca Falls high school)'s Envirothon Team will do a fall cleanup as the tourism season winds down.

Thank You to:

- Ray Benjamin, Ithaca Streets and Facilities; and Jack Bush, Dryden Highway Department, for picking up the trash!
- Ludgate Farms Gourmet Country Market for providing snacks to the Fall Creek and Cascadilla cleanups!

Embrace the Lake: Is your group interested in doing a creek cleanup on one of the 34 major creeks that drain to Cayuga Lake, a lakeshore cleanup, or along one of the many hundreds of smaller creeklets and streams that give their waters to Cayuga Lake? The Network supplies "Embrace the Lake" posters and flyers, gloves, trash bags from American Rivers, and snacks. We help with publicity, and make the contact for trash pick-up afterwards.

Spring and mid-late fall are best, when creekside vegetation is not too high. Plan ahead for fall 2010 or spring 2011! Contact Hilary Lambert at steward@cayugalake.org .

Informative Fun:
Canoga Marsh Wetlands Tour, Conference

On April 10, the Network and the Cayuga Lake Watershed Intermunicipal Organization (IO) co-sponsored a free conference for the public in Fayette, "Wetlands Protect Us – Help Protect Them." The day included a morning tour of the restoration area of Canoga Marsh by Keith Tidball and researcher Peter Kleinman, lunch at the delightful Kuneytown Sportsmens Club, and an afternoon of presentations and discussion by wetlands restoration experts. While organizers were disappointed at the low public turnout, the shared information, expertise and good conversation pointed to good work being done to restore wetlands, essential to healthy Finger Lakes ecosystems. Copies or versions of the speaker presentations are or soon will be available at www.cayugalake.org .

Led by landowner Keith Tidball, Wetlands field trip participants enjoy a Canoga Marsh view of Cayuga Lake.

Thanks to participants Darby Kiley (IO), Tom Jasikoff (Montezuma Wildlife Refuge), Keith Tidball (Canoga Creek Conservancy), Andy Buss (Applied Ecological Services, Inc.), John Negley (Tompkins County Soil and Water Conservation district), Kris West (Finger Lakes Land Trust), and Peter Kleinman, Agricultural Research Service. Special thanks to hardworking event organizers Judy Pipher and Ruth Richardson!

The Mission... *The Cayuga Lake Watershed Network identifies key threats to Cayuga Lake and its watershed, and it advocates for solutions that support a healthy environment and vibrant communities.*

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