

Water Monitoring Volunteers Keep Tabs on Stream Health

Additional volunteers sought for upcoming training sessions

by Sue Smith-Heavenrich

Broader View Weekly, April 5, 2012

For the past year or so, regardless of the weather, local volunteers have been collecting water samples from the streams in the Cayuta-Catatonk watershed. Their purpose: to develop a baseline study of water quality for local streams before large scale unconventional drilling moves into the region. While no one can say with certainty whether or how hydrofracking might impact our streams, lakes and rivers, everyone from industry to Cornell Cooperative Extension recommends obtaining a baseline study.

Every month, members of the Cayuta-Catatonk Water Watch (CCWW) calibrate their instruments, don rubber boots, and head out to their testing sites. Each team collects water samples from up to a half-dozen sampling sites distributed along the watershed from the Town of Cayuta in Schuyler County to Glen Mary Drive, south of Candor.

At each site the team notes physical characteristics: water level, flow rate, temperature and other observations. They also test for pH (acidity), conductivity, hardness and dissolved oxygen. These serve as the best “red flag” indicators of potential problems resulting from drilling accidents.

Conductivity is one of the best indicators of a change in water chemistry, says Dr. Steve Penningroth, director of the Community Science Institute (CSI) in Ithaca. He developed and supports the monitoring program. Testing conductivity is fairly easy; just hold the conductivity meter in the river. The hardest part is calibrating the instrument, a task that requires a steady hand and a very tiny screwdriver.

A chemical test for dissolved oxygen indicates the demand for oxygen by microorganisms in the water. It's a good way to monitor long-term and cumulative impacts on a stream, says Penningroth, but it means filling and capping the sample bottle below the surface of the water. Once the sample is prepared in the lab it can be tested back home.

In addition to the physical and chemical tests, some CCWW volunteers are keeping tabs on the Benthic Macroinvertebrates (BMI) – the caddis flies, stoneflies, beetles and other small organisms that live at the bottom of our streams. Last August a team collected BMI samples from Cayuta creek, spending hours in the lab learning to identify the immature forms for numerous stream critters.

Some insects, such as stoneflies, are more sensitive to pollutants. So their presence – or absence in a BMI survey is a useful indicator of stream health. As with the chemical testing, BMI sampling doesn't take long and is something that people of all ages can do. Volunteers record physical characteristics of the stream section they're sampling, and measure the flow rate using an orange and a stopwatch.

Then it's time to “kick and pick”; one person kicks at the stones and gravel, stirring up the river bottom while his partner stands just downstream with a large net to collect benthic insects, snails, pebbles and debris. The “picking” comes when they empty the net's contents into a bin, and pick small insects off the net to make sure they get included in the sample.

Chris Riley, a CCWW volunteer, shared his thoughts at CSI's annual symposium held in Ithaca last month. “Our watershed will likely be developed first when gas drilling begins.” He feels that having a baseline study will allow volunteer monitors and the scientists at CSI to catch any changes in stream health more quickly.

That's why Martha Goodsell, of Candor, volunteers. “Water testing is one positive action I can take in a town that leans ‘pro-fracking’ to help ensure that surface water contamination is detected early should an

accident or spill of any type occur.” For Goodsell, water is this region’s most valuable resource, and monitoring is one way she can help ensure the well-being of the people, livestock and wildlife in her community.

Another Candor volunteer, Carrie Kerr, got involved to learn more about the local waterways. Knowing chemistry helps, she says, “but each group also needs an organizer, paper compiler, and volunteer to run samples to the lab in Ithaca.” She’s interested in what changes she’ll see over the next three to four years.

Van Etten volunteer Candace Mingins always finds herself awestruck at the beauty of Cayuta Creek, “If there is no other reason to do water testing, that is reason enough.”

Andrew Byers joined the team because he doesn’t have any faith that the state legislature can protect the interests of small town economies in the face of pressure from multinational energy corporations. “The DEC cannot monitor on the scale that is needed, so CCWW is my hands-on activism,” he says. As an afterthought he adds, “It’s amazing science in action; I found three beaver dams walking the creeks.”

Lory Peck volunteers with a team on the upper Cayuta in Schuyler County. “It is quite interesting to see all the changes in the creeks across different times of year,” she says. Their team has waded through snow and ice, side-stepped flooding and enjoyed splashing in the creek on hot summer days.

To Get Involved

CSI, with the support of local county Cooperative Extensions, is holding two introductory meetings in our area: on Tuesday, April 10 at 6pm in the Tioga County Office Building Hubbard Auditorium, 56 Main Street, Owego; and on Tuesday, May 8 at 6pm in the Schuyler County Human Services Complex, Room 120, 323 Owego Street, Montour Falls. Additional sessions will be scheduled in Steuben and Chemung Counties.

If you would like to get involved but cannot come to the info session, please email Becky Bowen, CSI’s Outreach Coordinator, at becky@communityscience.org; or call 607-257-6606.