

# Esopus Creek News

Spring 2012



Cornell University  
Cooperative Extension  
Ulster County

Ashokan Watershed Stream Management Program Newsletter

A quarterly publication of Cornell Cooperative Extension Ulster County

Esopus - Broadstreet Hollow - Woodland Valley - Stony Clove - Fox Hollow - Birch Creek - Beaverkill - Little Beaverkill - Peck Hollow - Bushnellville - Bush Kill

## Bennett's Watershed Detectives Investigate Streams

**B**ennett Elementary School has a lot to be proud of with its Watershed Detectives Program. The program educates students at the school about the basics of watershed science and the importance of good environmental stewardship. It also provides them with the opportunity to get some hands-on experience in the field and have a lot of fun learning about science.

The program was started by Matt Savatgy, Bennett's Scientist-in-Residence, who has a degree in environmental geology and hydrology and who previously taught college-level science courses. Matt's wife, a teacher at the school, encouraged him to get in contact with the principal to start a science-based education program. The program received financial support from the Ashokan Watershed Stream Management Program Implementation Fund after Matt discussed his idea with AWSMP staff. According to Elizabeth Higgins, AWSMP Program Coordinator, "we wanted to have a regular education program in the school and our partnership with Matt and Bennett Elementary exceeds our expectations."

The Watershed Detectives program centers around a core group of ten 4th grade students, with other students cycling in and out periodically. The stream just behind the school is a small, safe area that provides the perfect laboratory for burgeoning scientists. They have run



Above: A "Watershed Detective" takes a sample from a stream.

a number of experiments there including testing pH levels and determining the number of macro invertebrates in the stream.

Matt also teaches the students how to properly collect and analyze data. For this he partners with the school's technology teachers and uses the computer lab to show the students how to plot their data and present their findings. He has also had a unit on mapping, in particular teaching the students how to trace drainage basins. "I like to have the program as hands-on as possible," Savatgy adds. In addition to learning about ecological topics such

as acid rain and pollution from stormwater runoff, students have helped to improve the nature trail near the stream. Older students have helped to construct bridges made out of cedar trees, which should last approximately 30 years. This project involved over 50 student volunteers. This spring an even bigger stream restoration project will happen with students from multiple grades pitching in. The program is truly interdisciplinary in that the students use skills from all of their regular classroom studies. For example, temperature readings that are taken

(Watershed Detectives continued on page 5)



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**We're on the web!**  
[www.ashokanstreams.org](http://www.ashokanstreams.org)

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## Recent Public Events in the Ashokan Watershed

### December

On December 9, 2011, AWSMP hosted a **bus tour of the Ashokan Watershed** for public officials and members of the media. The group included representatives from Congressman Maurice Hinchey's office, Cornell Cooperative Extension of Ulster County, Ulster County Soil & Water Conservation District, NYS DEC officials (including Region 3 Director William Janeway) and officials from various branches of Ulster County government including the Department of Public Works and the Department of Emergency Management. Members of the media including reporters from *The Watershed Post*, the Associated Press, and WAMC Northeast Public Radio (a National Public Radio affiliate) covered the event.

The tour began at the Cornell Cooperative Extension main office in Kingston and then proceeded to Phoenicia. From there the group toured work that had been done on the Stony Clove Creek near the Main Street Bridge as well as sites in Oliveria and Fawn Hill in Woodland Valley. The purpose of the tour was to show the destruction caused by Hurricane Irene and Tropical Storm Lee, as well as the projects that were completed by the AWSMP office to help remediate flooding and erosion along some of the major streams of the watershed.

### January

The **Stream Access and Recreation Committee** met on January 4 to discuss the status of stream access sites in the watershed given the devastation of hurricanes and subsequent floods. The committee is planning on a number of volunteer activities for this coming spring/summer to help clean-up some of the access sites and improve others. Please check the AWSMP website calendar of events frequently to see when these events are scheduled as volunteers will be needed.

On January 5, the committee planning the **3rd Annual Watershed Conference** met to begin the planning process for this year's conference. The conference will be held on Saturday April 21, 2012 at the Bearsville Theater in Woodstock, NY. A number of speakers will present on a variety of topics related to post-flood management. Please regularly check our website ([www.ashokanstreams.org](http://www.ashokanstreams.org)) for registration forms and more details as they become available.

The **Shandaken Area Flood and Remediation Initiative (SAFARI)** held a meeting on Friday January 20. SAFARI is a locally sponsored initiative to help create solutions to flood related problems experienced in the



*Above: Representatives of various, local, state, and federal agencies as well as members of the media listen to Danny Davis (NYCDEP) speak about the flood mitigation project at the Main Street Bridge in Phoenicia on the December 9th bus tour.*

*Below: T.J Ross presenting his findings to a crowd at SUNY Ulster in February.*

Shandaken area. The Town of Shandaken recently hired the firm Tetra-Tech to prepare a flood mitigation plan for the town. SAFARI typically meets on the third Thursday every other month. Please check our calendar of events for future meeting times.

### February

TJ Ross, a graduate student at Cornell University presented his research on the **health of trout populations in the Esopus Creek** on February 4th at SUNY Ulster. TJ has spent the past three summers in the Ashokan Watershed conducting his research. He was partially funded by a grant from the AWSMP Implementation Fund. In attendance were representatives from both the Catskill Mountain and the Ashokan-Pepacton chapters of Trout Unlimited. For more details on



this event please see the article "Research on Brown Trout" on page 5.

## Featured Stream: The Beaverkill\*

The Beaverkill is a significant tributary of the Esopus Creek and, with a drainage area of 24.9 square miles, one of the major sub-watersheds of the Ashokan Watershed. Starting in the slopes of Plateau and Sugarloaf mountains in the Town of Hunter, the stream runs for 12.5 miles south, through the Town of Woodstock and ends at Esopus Creek in the Town of Shandaken. During its course, the Beaverkill has three distinct geomorphic sections. At the headwaters and down through Mink Hollow in Woodstock **section 1** of the Beaverkill is a very steep, narrow, mountainous stream. At Willow Flats **section 2** of the stream flattens out drastically. At this location the Beaverkill and its surroundings look completely different. It is an unusually broad valley for the Catskills and the stream is very sinuous with many adjacent wetlands. Much of the sediment brought down from the mountains in **section 1** is dropped in the upper portion of this section of stream. This is a unique area in our watershed and can be best viewed from Sickler Road. After Willow Flats, **section 3** of the Beaverkill is a steep mountain stream again, running through a narrow valley adjacent to RT 212 until it meets the Esopus Creek at Mount Tremper. At the confluence of the Beaverkill and the Esopus the gradient flattens out again and the Beaverkill makes its last "deposit" of the sediment that has taken the stream journey from this beautiful mountainous watershed.

The geologic history of the Beaverkill watershed is consistent with much of the Catskill high peak region: the sandstone and shale rocks are the "fossilized" remains of ancient Devonian rivers now uplifted as a mountain range. They were subsequently shaped by millions of years of stream erosion and repeated passing of continental ice sheets in the last 1-2 million years that scoured the rock and moved the eroded sediment around. Recent geologic investigations by the NYS Geologic Survey, adding to the work of earlier geologists, are revealing a fascinating glacial

history in the Beaverkill watershed. Stay tuned for a future article on this topic!

The history of the Beaverkill and its hamlets is also very interesting. In the 1700s, the Livingston family owned much of the land in the future Towns of Woodstock, Olive, and Shandaken. The Livingstons rented out parcels for tenants who either farmed or cut timber. In the early 1800's, Robert L. Livingston established the Esopus Creek Navigation Company. Livingston planned to use his tenant's labor to improve navigation along the Beaverkill and the Esopus to get at the stands of virgin timber. Navigating the Be-

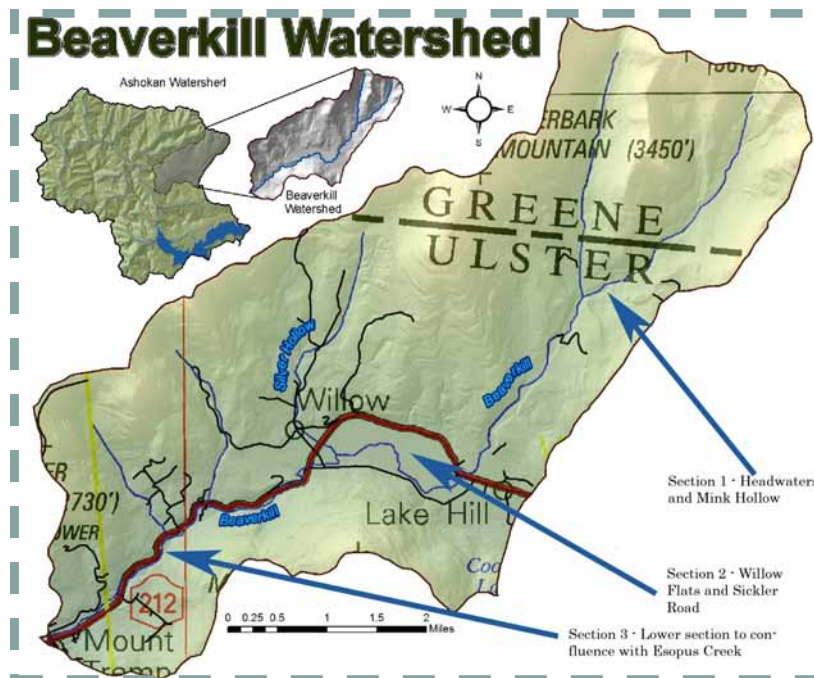
averkill was dangerous

work. Still, many tenants worked for Livingston fearing that if they refused they and their families would be evicted from his land and lose what little they had. Initially, the company's prospects looked good. With access to abundant natural resources and the availability of virtually free (some would say slave) labor, it appeared that this would be a successful business venture. However, it was not to be. An economic recession hit the area in the 1830's which shuttered many businesses and caused the eventual collapse of the short-lived company. This ill-fated business venture nearly cost the Livingston family its fortune and Robert L. Livingston his health. Near the end of his life in 1843 he was declared mentally incompetent by the courts with his own family members testifying against him.

In the 1800s the Beaverkill was one of the preeminent fishing streams in the Catskills. By the 1840's many fishermen from New York City would come up and stay for a few days in boarding houses along the Beaverkill to relax and enjoy the simple pleasures of rod and reel. Some ambitious anglers even hired horse and wagon teams to take them on fishing expeditions up the Beaverkill and into Mink Hollow. The completion of the Ulster and Delaware Railroad cut the journey from the city to Woodstock to a mere 2 hours. The New York Times ran an article in 1874 describing it as the best trout stream near New York City. In the mid-1870's the fantastic press caused overfishing of the Beaverkill and other area streams, which significantly decreased the quality of the fisheries. Pollution from the many tanneries did not help matters. To complicate things even more, the City of Kingston acquired water rights for portions of the Mink Hollow section of the Beaverkill which at times hurt the fisheries by drawing down the water levels.

Comparatively, public access to the Beaverkill is limited, except at the upper reaches in Mink Hollow, where there are some DEP public access areas as well as the DEC Mink Hollow Trail. Increasing public access opportunities on the lower sections of the Beaverkill was mentioned as a priority for many people in a stream recreation survey conducted by AWSMP staff in the summer of 2011.

The Beaverkill is not without its management challenges. Turbidity, for example, is a growing concern as preliminary USGS data from one of their monitoring projects indicates that it is becoming one of the more significant contributors to turbidity in Esopus Creek. UCSWCD staff and interns gathered an inventory of stream features during 2009 and 2010. A total of 1,610 data points were collected throughout this assessment including locations of significant erosion and sediment sources, large woody debris (LWD), invasive plant species like Japanese knotweed, and



verkill and Esopus during this time was dangerous work. Still, many tenants worked for Livingston fearing that if they refused they and their families would be evicted from his land and lose what little they had. Initially, the company's prospects looked good. With access to abundant natural resources and the availability of virtually free (some would say slave) labor, it appeared that this would be a successful business venture. However, it was not to be. An economic recession hit the area in the 1830's which shuttered many businesses and caused the eventual collapse of the short-lived company. This ill-fated business venture nearly cost the Livingston family its fortune and Robert L. Livingston his health. Near the end of his life in 1843 he was declared mentally incompetent by the courts with his own family members

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\*Material for this article was obtained from *Woodstock: History of an American Town* by Alf Evers.



## Recreation Corner: Fishing in the Ashokan Watershed

Fishing is a very important part of the culture of the Ashokan Watershed and the Catskills region. The Catskills is known as the "Birthplace of American Fly Fishing". Fly-fishing is a fishing technique that uses an artificial 'fly' and specialized weighted line to catch fish. Casting a nearly weightless fly or 'lure' requires casting techniques significantly different from other forms of casting. Fly fishermen use hand tied flies that resemble natural invertebrates or other food organisms. To celebrate this heritage, the Phoenicia library has a special collection of fishing related books and materials, including an extensive collection of flies tied by noted area fly-fishermen and fly-tiers.

Fishing of all types continues to be a popular pastime in rivers in the Catskills and an important part of the local tourism economy. Because of successful stocking efforts in the early 20<sup>th</sup> century, the Esopus Creek, in particular, has a reputation as a wild rainbow trout stream. In the cooler headwaters of most of the streams in the Ashokan Watershed, anglers can also find brook trout. In larger streams, such as the Esopus Creek, both rainbow and brown trout are found. Over 20,000 brown trout are annually stocked by the New York State DEC in the Esopus Creek. Rainbow trout have a healthy reproducing population and do not require stocking. The Ashokan Reservoir boasts an even wider selection of fish species. Anglers in the Ashokan Watershed are extremely fortunate in the amount of public fishing access locations. Public Fishing Rights (PFR's) are permanent easements purchased by the NYSDEC from willing landowners, giving anglers the right to fish and walk along the bank. NYC DEP also offers access to some areas for fishing. To use NYC DEP property you sometimes must possess a valid water supply lands access permit, which is available on-line. Go to DEP's recreation land website for more information.

There are several small lakes and ponds in the Watershed and adjacent area that offer public fishing opportunities for sunfish, perch and bass and are especially suitable for families with younger children. These include Belleayre Beach

State Park, the lake at Kenneth Wilson State Park, and Onteora Lake DEC property in the Town of Kingston and the pond on DEC land at the end of Lower Birch Creek Road in Shandaken.

If you are new to the sport of fishing or the region there are many good resources to help you get started. Ulster County has developed an excellent online recreation map where you can specifically select to view public fishing access sites. Many organizations in the watershed offer fishing programs. The region also has many professional fishing guides who can help you get started. Organizations like Trout Unlimited, Federated Sportsmen of Ulster County, and other organizations offer youth and family fishing days. Each year, the last full weekend in June is designated as Free Fishing Days in New York State. During those two days, anyone can fish New York State waters, and no fishing license is required. The DEC also maintains a list of Free Fishing Day Clinics that are offered around the state. Finally there are two Trout Unlimited Chapters serving the area where trout and fly fishing enthusiasts can meet others who share their passion. Please remember that to fish anywhere in New York State you must have a valid NYS fishing license and some waters have additional restrictions.

Finally, the spread of invasive species is a concern for anglers. Didymo, in particular, is an invasive organism that has been found in some area streams, including the Esopus Creek. We encourage everyone who is moving between different bodies of water to be mindful of the possibility of the spread of invasives and to clean all of their equipment thoroughly before entering a new waterbody.



**The Ashokan Watershed Stream Management Program and NYS DEC will be offering a "learn to fish day" this summer on Saturday, July 28th, Kenneth Wilson State Park.**

**Please check our website or call our office to learn more information about this and other AWSMP programs and events.**

## RESOURCES

Ulster County Recreation Map (<http://co.ulster.ny.us/recreation/>).

NYS DEC Fishing Information (<http://www.dec.ny.gov/outdoor/fishing.html>)

NYC DEP Recreation Lands Website (<http://www.nyc.gov/html/dep/html/recreation/index.shtml>)

Trout Unlimited Ashokan Pepacton Chapter (<http://apwctu.org/>)

Trout Unlimited Catskill Mountains Chapter (<http://cmtu.org/>)



## Science Corner: Research on Brown Trout

On February 4, 2012, T.J. Ross, a Cornell University graduate student, gave a presentation at SUNY Ulster on a three year study into the effects of the Shandaken Tunnel on upper Esopus Creek brown trout populations. With assistance from USGS, NYSDEC, and NYCDEP biologists, Ross tagged a number of brown trout and implanted some with radio transmitters and released them into the Esopus Creek



Above: Tagged Brown Trout (photo by Mark Loete)

at varying locations above, below and adjacent to the Shandaken Tunnel. Over the course of three summers, Ross and his assistants tracked the fish, captured them and measured their growth rates and overall health as well as their location within the creek.

According to the research literature on trout, there are a number of factors that contribute to the overall health of trout populations including: availability of food, abundance of predators, water clarity and water temperature. Concern about the effects of turbidity from the Shandaken Tunnel on trout health was one of the reasons why this study was initiated. However, Ross found that the brown trout populations located immediately below the Shandaken Tunnel were less stressed and had less-negative growth rates during the summer months than trout located upstream and further downstream from the Tunnel. It is important to note that growth rates of trout during the summer in all reaches of the Esopus were negative (i.e. trout were losing weight).

During the summer, the Shandaken Tunnel discharges a large amount of cold water from the Schoharie Reservoir into the Esopus Creek. Cold water temperatures are important to trout. Ross concluded that the cold water in the area immediately below the Tunnel likely resulted in fish being less stressed during the summer months when other parts of the Esopus had higher water temperatures and contained fish that were more stressed as evidenced by different growth rates. Although the Tunnel does add to the turbidity of the Esopus, the turbidity levels observed downstream from the Tunnel during this study period were too low to likely have impacted the overall health of adult trout.

Ross concluded his presentation by expressing the hope that future researchers would pick up where he left off and continue looking into how the Shandaken Tunnel might be affecting trout populations in the upper Esopus Creek in other ways.

(Watershed Detectives—Continued from page 1)

in the field are recorded as Fahrenheit. Later in the classroom, the readings are converted to Celsius reinforcing skills learned in math class. At the end of this school year Matt plans on having the students create a big mural in the main hallway of the school showcasing what the detectives accomplished. This will help hone their artistic and presentation skills.

Savatgy explains that a side benefit of the program is that it acts as a behavior management tool. Students who may have been discipline problems in the past have improved their behavior because of the program. Students who misbehave in other classes are not allowed to participate in the program as much as well-behaved students. "Parents and teachers are very supportive of the program for this and other reasons," Savatgy explains. The Watershed Detectives also gives the students in the program a jump start for more advanced science curriculum. In New York State, all 4th Graders are required to take a state science exam. "This program goes above and beyond what is required of that test," Matt says.

Beyond providing children with a basic watershed education, Savatgy sees his role as educating future citizens and good environmental stewards. "All of these kids are going to grow up and become homeowners and taxpayers," Savatgy says, "I like to think that my work here gives them a better understanding of how their actions can affect not only themselves and their friends and neighbors but also the natural environment." He also hopes that his work will help educate adults on environmental matters as well. "I'm a firm believer that educating kids also educates parents," Savatgy says, "When these kids learn something in this program, in particular about how man-made pollution affects the environment, they then go home and tell their parents, who in turn may begin to alter their behavior to be more environmentally conscious."

In the coming years he and the Ashokan Watershed Program staff would like to see the program grow and enter the higher grade levels. He would also like to expand parent and teacher involvement in the program and promote science education for these and other groups. For more information about this project contact: Elizabeth Higgins, CCE Ulster County 845-688-3047.



## Upcoming Programs

### April

The **3rd Annual Ashokan Watershed Conference** will be held on **April 21 at the Bearsville Theater** in Woodstock, NY. The conference will have a number of different speakers presenting on a variety of topics related to post-flood response and recovery. Registration is \$10 and includes lunch catered by the Bear Cafe. Please visit our website or call our office to get a copy of the registration packet.

### May

AWSMP staff will be leading a **hike on Rochester Hollow trail** in Big Indian, NY on **May 12**. Please check our website for details as they become available.

### June

AWSMP will be partnering with Trout Unlimited to hold a **stream clean-up on June 23**. Volunteers are needed to help remove trash and debris from area streams. This is a great opportunity for students who need volunteer service credit and for those looking to make a difference in their community. Check our website or call our office for more details as they become available.

### July

AWSMP in conjunction with the Shandaken Theatrical Society and the Catskill Watershed Corporation will host an **Arm of the Sea production of “The City That Drinks the Mountain Sky” on July 14**. This theatrical production is performed entirely by puppets and tells the story

of the building of the New York City Water Supply. The performance will be held at the Phoenicia playhouse. Check our website for updates.

We are partnering with NYS DEC to offer a **family learn to fish day** at Kenneth Wilson State Park on Saturday, **July 28**.

### August

AWSMP staff will have a booth along with a stream table demonstration at the **annual Ulster County Fair**. This year’s fair will be open from **July 31 to August 5**. AWSMP Displays will also be present at the Woodstock Library Fair, Shandaken Day and Olive Day.

**Wadeable Assessments by Volunteer Evaluators (WAVE) 4-hour training (Date TBD)** (see sidebar for information)



### CORRECTION

In our last newsletter our featured stream was Woodland Valley Creek. Michael Kudish, Professor Emeritus, Paul Smith’s College and author of *The Catskill Forest: A History*—the definitive chronicling of the Catskill Mountain forest—noted that there were a few inaccuracies in our article. For example, there is no White Oak in Woodland Valley. Red Oak is the dominant oak species. AWSMP is currently developing a series of “Stream Guides” for the various sub basins of the Ashokan Watershed, of which Woodland Valley will be one. The corrected and updated information will be included in that publication. Additional comments can be directed to our office at (845) 688-3047.

## Volunteer Stream Monitors Wanted!

### Wadeable Assessments by Volunteer Evaluators (WAVE)

We will be partnering with NYS DEC on a new volunteer program, WAVE, this summer and fall. WAVE uses a simple yet valuable analysis to identify stream segments which satisfy the “unimpaired” assessment category in the Waterbody Inventory. All data accepted by this project will be added to the NYS DEC Stream Biomonitoring Database.

A 4-hour training will be offered in August for interested volunteers. If you are interested in volunteering, contact Gretchen Rae at (845) 688-3047 to be included on our list of participants.

### September

Volunteers participating in the **WAVE** program will be collecting data this month!

Go to our website [www.ashokanstreams.org](http://www.ashokanstreams.org) for more information about events and programs or follow us on Facebook!

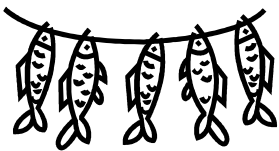
## AWSMP Program Updates

(Featured Stream—Continued from page 3)

places where past erosion had been treated with rock armoring. Along with an analysis of past conditions through review of available aerial photographs and documents, AWSMP is completing a detailed documentation of the findings to be presented in a management plan for the stream corridor. One of the key findings is the significant extent of erosion throughout the stream corridor, indicating the stream system is trending toward an unstable condition. The floods of the last two years have accelerated this unraveling that is so evident along **section 3** as the stream runs along route 212. AWSMP will be providing outreach to residents and the town about the finding and recommendations starting this summer. The report will include areas where planting projects would be beneficial, recommended restoration areas and other management recommendations with the goal of restoring stream system stability.

AWSMP staff are already working with the Town of Woodstock to help address some of the management challenges on the Beaverkill. For example, the program provided a grant to the Town of Woodstock to increase the size of a bridge on Van Hoagland Road (in Mink Hollow) to help reduce the impact that the structure was having on erosion and to improve local stream stability. We will be working with the Town and DEP to address a large LWD accumulation that is affecting Mink Hollow road.

For more information on projects and monitoring efforts along the Beaverkill please contact Cory Ritz, UCSWCD ([cory.ritz@ashokanstreams.org](mailto:cory.ritz@ashokanstreams.org)).



### **AWSMP STAFF ANNOUNCEMENTS**

Ulster County Soil and Water Conservation District is also pleased to announce that former intern **Graham Markowitz** has accepted a temporary position with the program as a watershed technician. Graham interned with the program for the past two summers and will stay on until August 2012. He will be assisting with

### The Third Annual Ashokan Watershed Conference is Coming!

**Where:** The Bearsville Theater, 291 Tinker Street, Woodstock, NY  
**When:** Saturday, April 21, 2012  
**Time:** 9:00 AM—3:00 PM (Registration starts at 8:30)

**Save the date!** The Third Annual Ashokan Watershed Conference will be here soon. This year's conference will focus on post-flood stream issues and what can be done to help decrease the damage caused by future floods. The keynote speaker this year is Kerry Robinson of the USDA-Natural Resource Conservation Service Southeast District office in North Carolina.

**Code enforcement officers will receive 2 hours of training credit if they sign up for the "Floodplain Management Responsibilities" course taught by Bill Nechamen of the NYSDEC.** Planning board and zoning board officials will receive credit with permission from their local municipalities. Registration is \$10 and includes lunch catered by the Bear Cafe. For more information or to request a registration packet please call our office (845-688-3047 ext. 0#). Please visit our website ([www.ashokanstreams.org](http://www.ashokanstreams.org)) for details on specific workshops.

stream feature inventories and surveying this summer as well as helping with landowner site visits. Graham plans to enter graduate school in the fall.

### **CATSKILL STREAMS BUFFER INITIATIVE (CSBI)**

CSBI is no longer accepting applications for the spring planting season. However, applications for the fall planting season are still being accepted until **June 15**. Please contact Adam Doan, the CSBI Coordinator in the AWSMP office, for more details.

### **STREAM PROJECT UPDATE—EWP**

AWSMP is working with local, state and federal agencies to identify and develop plans for projects that reduce potential turbidity that can be mitigated with USDA Emergency Watershed Protection (EWP) funds. Our office has identified

a number of sites throughout the watershed that could benefit from these funds. This summer we hope to construct a number of projects to address hillslope failures along the Stony Clove Creek in Chichester. This stream was impacted by Hurricane Irene and is also our watershed's largest source of turbidity. For more information contact: Cory Ritz, UC SWCD.



**April 1st is opening day for trout fishing on the Esopus Creek!**

# Esopus Creek News

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## Editors

Brent Gotsch, Elizabeth Higgins,  
CCE Ulster County

## Announcements: Syracuse University to study bank erosion sites along the Stony Clove

If you live along the Stony Clove you may be seeing orange this summer. No, the CSBI program isn't planting orange trees. Instead, students and faculty from Syracuse University will be working in the stream. The purpose of their work is to measure the changes that have occurred in the streambanks that line the creek.

In 2001 extensive fieldwork was carried out along the Stony Clove as part of the assessment of the stream and the development of the Stony Clove Stream Management Plan. During the 2001 survey, 27 Bank Erosion Monitoring Sites (BEMS) were established. These carefully located sites are in places where the streambank was facing significant erosion and were monumented for

future study. The Syracuse University researchers plan on locating these BEMS sites and resurveying them. After measuring the amount of change that has occurred over the past 11 years they hope to determine the volume and mass of suspended sediment in the Stony Clove that is attributable to streambank erosion. Streambank erosion is the principal cause of turbidity in the streams of the Ashokan Watershed.

Residents who own streamside property along the Stony Clove at the 27 BEMS sites will receive letters this spring seeking permission for the researchers to access their property to conduct this research. Their research will be partially funded by AWSMP Implementation funds.



**Above: A technician from the Ulster County Soil & Water Conservation District surveys a section of the Stony Clove prior to the stream restoration project there in the fall of 2011. Syracuse University researchers will be doing similar surveys this summer at 27 BEMS sites along the Stony Clove to assess the change in erosion rates since 2001.**