

6375 Rt. 28

Phoenicia, NY 12464

Phone: (845) 688-3047

Fax: (845) 688-3130

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Managing Editor

Michael Courtney

Design Layout

Michael Courtney

Contributing Writers:

Dan Davis, NYC DEP; Michael Courtney, CCE Ulster; Liz Higgins, CCE Ulster; Christiane Mulvihill, USGS

Creek Week! September 6th - 19th

Creek Week is a set of community events for people to get involved in and learn more about local streams and water resources. Events are planned locally for the Ashokan Watershed as well as throughout Ulster County.

Ashokan Watershed Creek Week Photo Contest

Take your stream-related photos anywhere in the Ashokan Watershed during Creek Week to enter your framed photo. **First Prize: a \$100 gift certificate to Artcraft Camera & Digital.** Deadline: Sept 30th. See www.ashokanstreams.org or call Dona Crawford at 845-340-3990 for details.

Monday, September 13, 6:30-7:15 Build Your Own Rain Barrel Workshop

Rain barrels collect stormwater runoff to save water, reduce runoff and provide chlorine-free rain water for your garden! Learn how to make them on the cheap! Call 845-688-3047 to register.

Location: Ashokan Watershed SMP Office: 6375 Route 28, Phoenicia.

Tuesday, September 14, 6:30-7:30 Crummy Culverts Talk

Learn the difference between a "Crummy Culvert" and a good one and get details on the Crummy Culverts Contest. Call 845-688-3047 to register. Location: AWSMP Office: 6375 Route 28, Phoenicia.

Thursday, September 16, Environmental Film Night - Dr. Seuss Film "The Lorax"

Young and old will enjoy this classic film. Free and open to the public. Film starts promptly at 6:45pm. Free popcorn. Location: Woodstock Community Center, .

Saturday, September 18, Learn to Fish for Kids

Fishing introduction for kids including loaner poles at an easy pond. Ages 8-13. Space limited. Call 845-688-3047 to register. Location: Kenneth Wilson State Park. \$6 day use fee per car.

Saturday, September 18, Streamside Restoration Planting Project

VOLUNTEERS NEEDED! Help plant trees and shrubs to restore stream side vegetation on local streams. Call 845-688-3047 to sign up! Time and meeting location to be announced.

Enter to win a poster sized aerial photo of your home!

Fill out our Newsletter Survey at www.ashokanstreams.org

Non-Profit Organization
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Cornell Cooperative Extension of Ulster County
10 Westbrook Lane
Kingston, NY 12401

Summer, 2010

Esopus Creek News

Ashokan Watershed Stream Management Program Newsletter

A quarterly publication of Cornell Cooperative Extension Ulster County

Broadstreet Hollow - Woodland Valley - Stony Clove - Fox Hollow - Birch - Beaverkill - Little Beaverkill - Peck - Bushnellsville - Bush Kill

Examining the Patient: Stony Clove Creek's Chichester Reach

The "Chichester Reach" of Stony Clove Creek is a beautiful, dramatic section of a mountain river actively eroding into ice age deposits that left an abundance of clay in our watersheds. The chronic turbidity caused by eroding clay banks in this reach is often the sole source of cloudy brown water flowing into the Esopus Creek at Phoenicia. For some residents of this stream section, this dramatic erosion is also a potential threat to their homes.



Turbid ground water seeps out of hill slope failures into the Stony Clove

landowners and water quality.

The NYCDEP's Stream Management Program has contracted with Milone and MacBroom, Inc. to investigate the erosion sites, evaluate the feasibility of remediation measures, and then develop designs for the most feasible management options.

Continued on page 4...

the downstream end. Each are massive, yet distinctly different, requiring separate but coordinated studies to find out what, if anything, can be done about this problem for

Three distinct stream bank and hill slope failures lie between the Silver Hollow Bridge at the upstream end and the Route 214 bridge at

Enter the Creekside Crummy Culvert Contest!

Win a new pocket video camera!
See details inside



Inside this Issue

Watershed Projects Underway 2

Studying the Muddy Waters of the Esopus 5

College Student Invasion 6

Watershed Conference 7

Creek Week! 8

We're on the web!
www.ashokanstreams.org

Stream Steward Volunteers Busy in Ashokan Watershed



Volunteers at the Esopus Creek Cleanup

The Stream Stewards need you! The Stream Stewards are volunteers who help promote stewardship practices for streams in the community. The Stream Steward Volunteers have been busy this summer with a variety of projects, workshops and outreach activities.

In May, volunteers helped to continue a knotweed demonstration project at the corner of Bridge and High St. in Phoenicia. For two years, volunteers have dug, pulled and cut a small knotweed patch along the railroad grade. They have also recorded stem diameters and photo-monitored the site. So far, the colony has clearly weakened, evidenced by reduced stem

Continued on page 7 ...

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Eight “Round I” Implementation Fund Projects Underway in the Ashokan Watershed

Eight projects, funded by the Ashokan Watershed Stream Management Program Implementation Fund totaling \$99,901, are underway this summer in the Ashokan Watershed. The projects range from support for a local arts project intended to build awareness for protection of trout habitat to research by undergraduate students led by SUNY New Paltz on Didymo. The awardees are providing an estimated \$648,807 in match or in-kind support to the projects. The projects funded are:

Trout Unlimited Ashokan-Pepacton Chapter (\$925) for the “Leaping Trout Art Project.”



**Leaping Trout Panel
by Astrid Nordess**

Trout Unlimited supplied 29 Catskill artists with a blank aluminum cut-out of a four foot leaping trout. The artists created amazing, unique works now on display throughout our local community. The trout are being auctioned off on-line to raise funds to support the efforts of Trout Unlimited. The fundraiser will conclude with a live auction this fall. The project intends to stimulate community awareness of the conservation issues facing the Esopus Creek and the Ashokan Watershed. See the project website for more information and images of the artwork: www.theleapingtrout.com.

SUNY New Paltz (\$5,000) for “Rock Snot in Sick Rivers.” Dr. David Richardson, an assistant professor in the biology department at SUNY New Paltz is leading a group of undergraduate students from around the country on a summer research project on Didymo, an invasive algae species in the Esopus Creek. The students are part of a larger National Science Foundation Undergraduate Research Grant awarded to SUNY New Paltz that will be conducting a variety of research projects in the Ashokan Watershed over the next three years.

United States Geological Survey (USGS) (\$8,273) for “Use of telemetry to assess potential effects of Schoharie Reservoir waters on trout populations in the Upper Esopus Creek.”

The Shandaken Tunnel brings water from the Schoharie Reservoir to Esopus Creek which then flows to the Ashokan Reservoir. By studying the survival, growth, and behavior of individual trout in relationship to the portal, more data will be available to inform management decisions concerning portal releases, drinking water supplies, and fish resources in the watershed.

USGS (\$27,080) for “Quantitative Assessment of Water Quality in the Upper Esopus Creek.” In addition to the Shandaken Portal, several other issues may also disturb naturally occurring biotic communities and negatively affect water quality in the Upper Esopus ecosystem. This project will assess water quality impairment and quantify conditions and impacts on stream biota in the Upper Esopus watershed by sampling fish and habitat conditions at 20 study sites over several years.

New York State Geological Survey (\$38,037) for “An Investigation of Glacial Geology and Applied Three Dimensional Geologic Mapping in Ulster County, NY.” If you saw what looked like drilling rigs in the Ashokan Watershed this summer they were probably part of a study to develop three-dimensional glacial geologic maps within the Ashokan Watershed. This grant supports continuation of existing geologic mapping and will help improve our knowledge of geologic factors leading to turbidity in the watershed.

Ulster County Soil and Water Conservation District (UCSWCD) (\$6,586) “Rosgen Level 2 and 3 Training” to send, Jake Wedemeyer, a staff-person with UCSWCD, to two courses taught by Dr. David Rosgen on natural channel stream design.



USGS capturing live fish for study

This training will increase the level of expertise on stream management and restoration practices in Ulster County.

Catskill Center for Conservation and Development (\$5,000) “Kiosk Panel Project” to provide support to a new kiosk developed by the Catskill Center in collaboration with architecture students from SUNY Delhi and the Route 28 Corridor Project. The kiosk is located in Boiceville on Route 28 at the proposed location of the Catskills Interpretive Center. The kiosk will provide visitors information about resources for recreation as well as the history and environment of the Catskills. One of the panels will feature the New York City Watershed Programs and the impor-

Continued on Page 6 ...



Drilling rig for geologic mapping project

First Annual Ashokan Watershed Conference a Success!

How we manage our floodplains and stormwater runoff has a heavy influence on the health of our streams. On Saturday, May 1st at Belleayre Mountain, 60 participants learned how to be good stewards of stormwater and floodplains at the first annual Ashokan Watershed Conference. Attendees included representatives from town boards and planning boards from each of the five towns in the Ashokan watershed as well as



Art Snyder, Director of Ulster County Emergency Management, presents on flooding in Ulster County

many streamside landowners and other interested residents.

Morning plenary sessions provided an overview of the importance of floodplain and stormwater management. Barbara Kendall, of Kendall Stormwater Services pointed out how development in floodplains and channeling our stormwater to streams leads to increased flood flows. Kendall elaborated on stormwater reducing strategies such as rain gardens,

grassy swales, retention ponds, and reducing impervious surfaces.

Art Snyder, Director of Ulster County Emergency Management gave an excellent presentation on the impacts of flooding in Ulster County including examples of both inappropriate and appropriate floodplain development. One striking example was a photo of recent flooding over a site previously proposed for building a new Kingston High School (It was never built). Snyder also shared examples of more suitable uses of floodplains such as sports fields and floodplain appropriate agriculture.

Joe Damrath from the NYC DEP and Natalie Brown from NYSDEC helped landowners and municipal officials understand stormwater regulations which are particularly important when developing a property in the Catskill Park and the New York City Watershed. Buyers and developers are sometimes unaware of the full set of requirements they must meet, such as developing a stormwater pollution prevention plan for construction sites that involve disturbing more than five acres, or two acres on steep slopes or within 100 feet of a watercourse.

Separate afternoon breakout workshops were offered on topics for landowners and municipal officials. David Orr, Senior Engineer for the Cornell Local Roads Program led a heavily attended workshop on best practices for drive-ways and culverts. Considerations Orr



Attendees of the Ashokan Watershed Conference at Belleayre Mountain

covered were how to properly crown, slope and drain driveways to prevent erosion as well as proper location, sizing and use of culvert pipes. Orr will return to give a one day workshop for local highway department crews on October 8th.

Other workshops during the conference covered topics such as how to improve municipal floodplain policies, home stormwater protection strategies, a panel of funding agencies, and a presentation on Floodplain Management and the National Flood Insurance Program by Bill Nechamen, Chief of the Floodplain Management Section at NYSDEC.

Plan now to attend in spring, 2011 and tell us about workshops you'd like to see at next year's conference! For more information contact Michael Courtney at (845) 688-3047.

Stream Stewards ... Continued from Page 1

diameters and a height reduced by half that of the original stand.

Eighteen volunteers also completed a very successful and fun stream cleanup on June 12 by clearing out trash at several stream access points on the Esopus Creek. Volunteers pulled out a full pickup truck full of trash and recyclables, including a shot-out barrel, a fire pit, lots of cans and bottles, and odd hunks of metal and wire. After the

event, a potluck barbeque was held with live music by Peggy Atwood. “We had a great time working with everyone to clean up the garbage that so many thoughtless people simply toss away, as if our beautiful streams were nothing more than a dump,” said Volunteer Nathan Weber. A thank you also goes to New York City DEP which provided trash and recyclables hauling to the Olive Transfer Station.

On Saturday, July 17, the Stream Stewards participated in a one-day training on stream basics. By learning about stream processes, the stewards

have a better grounding in research-based information to share with their community. The training incorporates classroom lecture, a scale flowing stream model and field time to demonstrate local stream issues and the best ways to address those problems. The stewards will take their knowledge to the streets so to speak by staffing booths and Shandaken Day, Olive Day and the Eco-Fest at Ashokan Center. To learn more about becoming a Stream Steward Volunteer, contact Dona Crawford at (845) 340-3990 or Michael Courtney at (845) 688-3047.



College Student Invasion of Esopus Creek Watershed

This summer, the residents of Warner Creek may have noticed a swarm of bright curious college students garbed in wading gear carrying packs and field books as they walk the stream corridor and surrounding mountain sides. SUNY New Paltz geology professors John Rayburn and Fred Vollmer along with Dan Davis of NYCDEP have been seen trying to keep up with their team of eight of the twelve students that have arrived from around the country to participate in the first year of the three year Research Experience for Undergraduates (REU) Program funded by the National Science Foundation. The SUNY REU program has characterized many aspects of the Esopus Creek watershed, and specifically focuses on the Stony Clove Creek watershed. The students mapped the geology, assessed the condition of Warner Creek from the headwaters at the base of Plateau Mountain to Stony Clove Creek, and evaluated the sources of turbidity that have impaired the lower reaches of Warner Creek.

Another team of two students participated in a didymo identification study led by Dr. David Richardson, SUNY New Paltz professor. They sampled for the presence of didymo in seven locations along Esopus Creek including upstream and downstream of the portal. They found didymo at six of



Research Experience for Undergraduates (REU) Program Students

the seven sampling locations including two sites upstream of the portal; the didymo mats reach full stream coverage and mats 1/4 to 1/2 inch thick were found downstream of the portal. In their efforts this summer, the students tried to find if there are specific chemical or physical conditions that precede didymo blooms and to identify effective ways to decontaminate equipment and avoid transporting didymo between streams.

The other team of two students worked with Dr. Megan Ferguson, a SUNY New Paltz professor of chemistry. They assessed the potential of water samples collected throughout the Esopus Creek watershed to form disinfection byproducts, that is, harmful compounds that can result from chlorinating drinking water. Water that isn't filtered prior to chlorination (like New York City's drinking water) could potentially have higher concentrations of disinfection byproducts.

The students' independent research projects are coordinated into an over-arching project that improves our understanding of geomorphic and ecological functions across the Ashokan Watershed on down to the smaller Silver Hollow Watershed. The students completed their REU participation in late July by giving a presentation to the public. For further information contact Dan Davis at 845-340-7839 or Dr. John Rayburn at 845-257-3767.



REU Students collecting field data

Implementation Fund ... Continued from Page 2

tance of stream management.

Cornell Cooperative Extension of Ulster County (\$9,000) "Trimble for Watershed Communities." CCE Ulster purchased a Trimble GPS Unit that can be lent out to municipalities and organizations wishing to gather data for a project that is relevant to stream or watershed management. An application will soon be available on www.ashokanstreams.org or you can call Elizabeth Higgins at (845) 688-3047 to find out more.

Round 2 Application Deadline

The deadline for Round 2 of AWSMP Mini and Matching Grants was June 30th. Seven proposals totaling \$298,390 were approved at the July Advisory Council Meeting. **Proposals are accepted quarterly with the next deadlines of August 30th and November 1.** More information about this program is available on our website www.ashokanstreams.org or you can contact Elizabeth Higgins at (845) 688-3047.



Enter the Crummy Creekside Culvert Contest!

Deadline: November 30, 2010

Cornell Cooperative Extension of Ulster County, in collaboration with NYC DEP and Ulster County Soil and Water Conservation District announce the 2010 Crummy Creekside Culvert Contest. The goal of this contest is to identify the culverts in the Ashokan Watershed that are too small for their location, are causing erosion, are damaged frequently in floods, or are a barrier to travel in the stream for fish or other animals.



To Enter: Send us pictures of the worst culverts in the watershed you can find along with our application form that provides information about the culvert (why you think it is "crummy") and its location, and you can win:

First 50 entrants get a free "Crummy Culvert Contest" T-shirt!

**Grand Prize for The Crummiest Culvert of All
Wins a Waterproof Pocket Video Camera
Kodak PlaySport ZX3 HD Waterproof and 8GB Memory Card**



First Prizes:

**Awarded for the worst culverts in each town in the Ashokan Watershed
Hurley, Hunter, Lexington, Olive, Shandaken and Woodstock**

Three Other Prizes: "The Hoover Dam"

For a picture of a culvert that is obviously a fish passage barrier

**"The Future Stream Steward"
For the youngest person entering the contest**

**"The Eager Beaver"
For the person who submits the most entries**

The Ashokan Watershed Stream Management Program plans to select one culvert in each town for a **Total Extreme Culvert Makeover**. Entries to the Crummy Culvert Contest will be used to help staff identify suitable candidates!

**For more information, contest rules, entry forms go to
www.ashokanstreams.org/culvertcontest.html or call 688-3047**



Underlying clay, seeping ground water, and stream erosion have contributed to this large hill slope failure on the Stony Clove

Examining the Patient ... Continued from Page 1

Malone and Macbroom, Inc. completed topographic survey work in June and began a more detailed investigation in late July. The study includes a field evaluation by Jim MacBroom, a civil engineer specializing in stream restoration who has worked in similar settings throughout the Northeast.

Further study methods may include geologic drilling and groundwater monitoring to understand the role of stormwater runoff and groundwater as major contributors to some of the mass failures. For instance, the middle erosion site involves a very large set of deep, sliding masses of buried glacial lake silts and clays, and a hardened slurry of glacial debris called glacial till. The slide is kept active by runoff from the mountain terrace above it and percolating

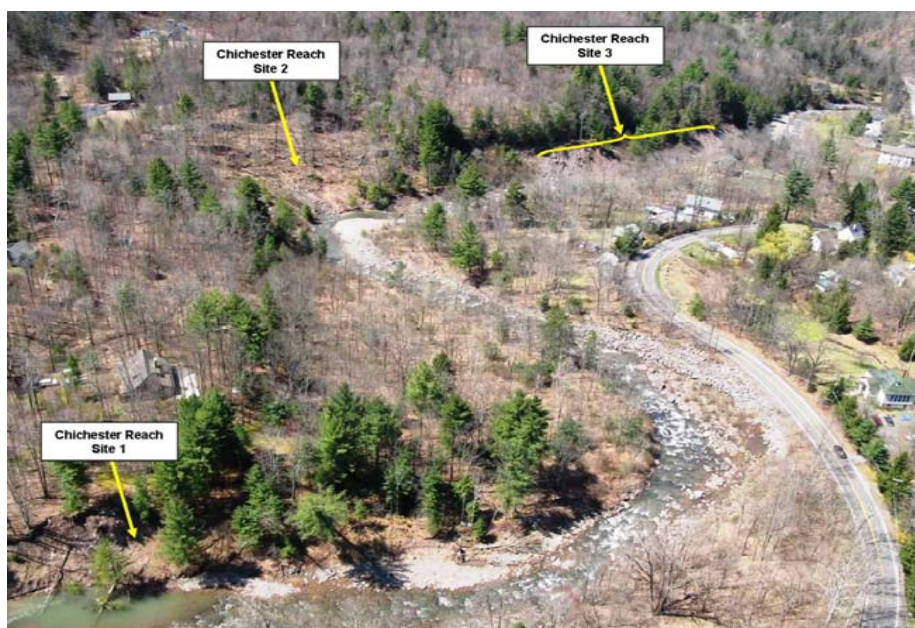


Location of the Chichester Reach on State Route 214

groundwater. Groundwater in this area comes bubbling back up loaded with suspended silt and clay like little fountains of Yoo-hoo chocolate drink. This means there are artesian conditions that force the water to be under a lot of pressure. Complicated conditions are clearly influencing this stream corridor's health.

The coordinated study of the Stony Clove's Chichester Reach should provide a diagnosis that the Ashokan Watershed Stream Management Program will use to help fund and implement final remediation designs. If remediation is feasible, initial construction would begin in the summer of 2011.

If you have any questions about this project please contact Dan Davis at (845) 340-7839 or by e-mail at ddavis@dep.nyc.gov.



Large stream bank failures on the Chichester Reach contributing significant sediment to the Stony Clove

Studying the Muddy Waters of Esopus Creek

Everyone knows that when it rains, streams get muddy. But how muddy are they? Are some muddier than others? Where does the mud come from? In scientific terms muddiness or cloudiness in water is referred to as turbidity. No one likes to drink muddy or turbid water because it looks dirty and often tastes bad, but turbidity also has been shown to adversely affect the growth and survival of fish, stream dwelling insects, and the health of streamside ecosystems. Although turbidity has been measured in the Upper Esopus Creek at the outlet of the Shandaken portal and at the inflow of the Ashokan Reservoir for several years, there has never been a watershed-wide assessment of the sources and effects of high sediment and turbidity in the creek.

To determine the amount, source, and timing of turbidity in the Upper Esopus Creek, the U.S. Geological Survey, in cooperation with the New York State Department of Environmental Conservation, began monitoring water quality and streamflow in the fall of 2009 at four locations on Esopus Creek and at nine tributaries on Esopus Creek. Automated water samplers and data loggers were installed, and scientists began collecting data on streamflow, suspended sediment concentration, turbidity, water temperature, and water quality. Samples are collected at each site through the range of flow conditions over the course of a year to identify which tributaries contribute the most suspended sediment and turbidity, the timing of those contributions, and how storm runoff and streamside vegetation



Esopus Creek at Allaben during high-flow conditions

affect suspended sediment concentrations and turbidity at each site.

Although the study is still underway, preliminary results show: (1) most of the suspended sediment and turbidity in Esopus Creek comes from a few tributaries and the Shandaken portal, (2) high suspended sediment concentrations and turbidity are associated with storm runoff, and (3) some tributaries remain slightly turbid during base flow between storms. When the period of data collection has concluded, scientists will use streamflow records and suspended sediment concentration data to calculate the total amount of suspended sediment that flowed past each study location during the study period. This analysis will enable future bank stabilization projects to target areas where they can be most effective. The effect of turbidity and suspended sediment on biological communities will be assessed using fish and invertebrate data that were collected at the 13 study sites during the summer of 2009 (see Esopus Creek News, Fall



Esopus Creek at Allaben during base-flow conditions

2009). The goal of this study is to provide a combination of water quality and stream biology data to supplement other assessment of geologic sources and stream erosion mapping. The data will help determine best management strategies and policies needed to protect natural resources in the Upper Esopus Creek watershed.

Article contributed by Christiane Mulvihill, Physical Scientist, USGS



Automated water sampler and data logger



**Catskill Streams
Buffer Initiative**

At the Root of Streamside Protection

CSBI aims to inform and assist landowners in better stewardship of their streamside area through protection, enhancement, management or restoration.

**Deadline for next round of funding:
October 1, 2010**

**To learn more about the program, visit
www.catskillstreams.org**

Click on Catskill Streams Buffer Initiative