

# Esopus Creek News

Esopus Creek Stream Management Plan Newsletter

Volume I, Issue I

Winter 2006

## What's Your New Year's Resolution for the Esopus Creek?

Welcome to 2006 and the first edition of, **Esopus Creek News**. We hope you find it an interesting source of stream information as well as a good way to hear about the developing Management Plan for the upper Esopus Creek.

As you may know, Cornell Cooperative Extension of Ulster County, through a contract with the New York City Department of Environmental Protection, is coordinating the development of a stream management plan for the upper Esopus Creek (above the Ashokan Reservoir) in the towns of Olive and Shandaken. The plan will summarize the benefits and problems of the upper Esopus Creek corridor. It will also prioritize needed actions and provide recommendations for



**Jeremy Magliario, Esopus Creek Stream Management Project**

long-term stream stewardship. One New Year's resolution for the plan is to better coordinate stream management activities in ways that benefit the health of the stream and adjacent communities.

Community involvement is critical to the plan's success; therefore, the planning process is being guided by a Project Advisory Council (PAC) consisting of town officials; streamside landowners; representatives of the angling and whitewater recrea-

tion community; regional non-profits; county and state agencies and universities. Community members also will have opportunities to provide their knowledge of the stream and get involved in stream activities.

The streams in our mountain valleys have been affected, and thus "managed" (intentionally or unintentionally) as long as people have been living, working and traveling alongside them. Any human development that affects the shape, flow or sediment in a stream causes the stream to adjust to accommodate that change. For example, straightening a stream's curves can increase the stream's velocity and power.

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## Meet The Esopus Creek Stream Management Plan Staff

Project Coordinator, Jeremy Magliario and Community Educator, Michael Courtney, who are responsible for coordinating the development of a stream management plan as well as providing public education and outreach are calling Extension's recently opened office, located at 5578 Route 28 (Phoenicia Plaza), home. Serving as the headquarters for the **Esopus Creek Management Plan Project** their

office hours are: Tuesday and Wednesday from 10 am to 4 pm, and Thursday from 12 to 6 pm.

While both men are new to the region, they are not new to environmental work. Magliario has a Master of Science in Ecological Economics, Values and Policy from Rensselaer Polytechnic Institute in Troy, New York. His experience developing and implementing environmental education and

outreach programs as well as his experience working with project advisory councils, citizen advisory bodies and municipal governments make him ideally suited for spearheading this project.

Michael Courtney is a native of Walton, NY who has spent the last several years in Colorado and New Mexico working on a variety

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### Upcoming events...

- Streamside Landowners Focus Group, 2/2/06 5:30-6:30 pm
- Open House 2/10/06 4-7 pm
- History of the NYC Watershed Agreement 2/22/06 6:30-8 pm
- Kayak/Whitewater Focus Group, 2/28/06 6-7:30 pm
- Voyages and Catskill Geology 3/29/06 7-8:30 pm



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## The Secret Life of Winter Streams

Emma Bachmann, Watershed Educator  
The Catskill Center for Conservation & Development



*“For larger insects, such as young dragonflies, the winter is a time to hunt.”*



With the trees bare it is easy to assume that all life has taken a break until spring, but in the Esopus Creek winter is a time of plenty. In fact, for autumn leaves falling near the stream the story has just begun.

As a leaf enters the water and becomes soaked, up to half of its nutrients are quickly leached out and carried downstream. Caught against rocks in a pack, bacteria and fungi begin their work, breaking down the tougher materials of the leaf.

The fungi are easy for animals to digest and are tempting food for insects in the stream. One of these insects, the stonefly, rests during summer when food is hard to find. In winter they join crayfish and young caddisflies feasting upon the decomposing leaves in a reverse form of hibernation called aestivation. Their waste carries energy downstream along with the little bits of leaves washed away during the shredding. With the nutrients initially leached from the leaves a "soup" of organic matter forms and farther downstream,

where the Esopus widens, other insects filter these materials out. Many of these filter-feeding insects are caddisflies, who hide within cases made of pebbles or twigs, or spin silk nets to strain the water for food.

For larger insects, such as young dragonflies, the winter is a time to hunt. Their prey is slowed by the cold, but so are the dragonflies. Fortunately for them they have a hidden weapon. Their lower mouthparts are effectively "spring loaded," and when released these labium shoot forward several times the length of their head grabbing their prey. An unsuspecting caddisfly has no time to react to this split second attack.

Slow moving waters can freeze over. If the winter turns cold enough even faster waters may become covered cutting off the only source of oxygen for the stream. To avoid this danger, many insects dwell in areas where groundwater seeps in from below. During the summer the groundwater is colder than the stream, but now this water from

underground warms the Esopus and helps keep ice from sealing it in. These refuges also attract other cold-blooded Esopus Creek dwellers, fish.

Having laid their eggs just months before, brook and brown trout may spend much of the winter near these slightly warmer and thus open spots. Their metabolisms are slowed in the winter, but they do feed occasionally on the insects they find. However, they must be careful because larger predators search the stream from above.

With lakes and ponds frozen over, bald eagles move to rivers to hunt. They stand watch upon the bare trees looking for the slow moving fish of winter, catching them as they are driven out from hiding by the encroaching ice. And though it may seem that all the eagle needs is a bare tree to perch upon, without the leaves that fell months before, the stream would not be so full of life in the winter.

Esopus Creek News is a **FREE** publication. Our first edition has been mailed to as many people in the Olive/Shandaken area as possible, however; funds may limit our ability to do extensive mailings in the future. If you would like to get this publication for free via email, simply return this form to: Esopus Creek News, Cornell Cooperative Extension of Ulster County, 10 Westbrook Lane, Kingston, NY 12401 or email Michael Courtney: [mcc55@cornell.edu](mailto:mcc55@cornell.edu).

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No thanks, I don't want to receive the FREE Esopus Creek News at all.

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## You Can do It—Volunteer Opportunities!!!!

Check out these volunteer opportunities—you'll learn more about streams while helping your community!

**Community Liaison** – Help coordinate education activities out of the Phoenicia office. You'll learn more about streams. Time Required: 5-6 hours/week or 10-12hours/month.

**Stream Cleanup Activities** – Help organize and participate in stream cleanup activities during the late spring/ early summer. Volunteers will cleanup garbage and driftwood in streamside areas. There are also opportunities for work on invasive plant species. Great opportunity for students looking to fulfill community service requirements for Honor Society or class. Time required: 3-5+ hours.

**Esopus Creek Neighborhoods Outreach** –Assist with organizing neighborhood activities related to the Esopus. Time required: 5-10+ hours/month as interested.

To volunteer or learn more about these positions, please contact Michael Courtney, via email at: [mcc55@cornell.edu](mailto:mcc55@cornell.edu), or call 845-688-5496. Michael can be reached on Monday and Friday at 845-340-3990.



## Checkout Our Website!

[www.esopuscreek.org](http://www.esopuscreek.org)

Be sure to logon to our new website, set up solely for the Esopus Creek Management Plan. Much of the website is still being developed, but you can keep up to date with our Calendar of Events, see a

description of the project, links, and the project goals online. Soon, you will see fun interactive maps, stream science pages and more!

If you have stream-related links, photos or other ideas for our website, contact Michael Courtney: [mcc55@cornell.edu](mailto:mcc55@cornell.edu), or just stop in our office at the Phoenicia Plaza.

## Following the Esopus Creek

Driving east along Route 28 on my way back home from Belleayre on a cold winter day I am easily distracted by the beauty of Esopus Creek: the flush of dark cold water slicing through snow and ice; a bald eagle flying downstream above snow-mantled hemlocks. Following the course of the Esopus Creek through the Catskills never fails to evoke an engaged wonder in the geologic history and future of these streams and mountains.

The streams that flow across this mountain landscape are descendants of streams that formed the mountains' rock hundreds of millions of years ago. In the Devonian Period of earth's history (360-390 million years ago), meandering

rivers flowed across a forested delta plain into an ancient inland



sea. The rivers laid down thick deposits of sand, gravel, and silt in the floodplains. Continental collision during the building of the Appalachian Mountains lifted the buried deposits of the Devonian rivers, now turned to layers of sandstone, conglomerate and siltstone. Eons of water flowing

Dan Davis, Project Manager  
NYC DEP Stream Management Program

across the lifted landscape carved valleys to form the Catskill Mountains.

Within the last 2 million years the repeated passages of glacial ice, and its vast volumes of melt-water, further sculpted the mountains. Glaciers quarried the valley walls and left behind the bouldery remains in thick deposits of glacial till – unsorted material ranging in size from clay to boulders. Melt-water streams deposited clay and silt in glacial lakes that once filled the Esopus and Schoharie Valleys.

As the last "ice age" ended about 12,000 years ago, streams returned to continue the work of carving mountains. However, when we

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*“Following the course of the Esopus Creek through the Catskills never fails to evoke an engaged wonder...”*

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## Important Information about Shandaken Tunnel

“Presently, the portal is operating at its maximum capacity at 540 million gallons per day (MGD)...”

In order to perform emergency repair work at the Gilboa Dam on the Schoharie Reservoir, the NYC DEP is increasing the discharge rate to the Esopus Creek through the Shandaken Tunnel (portal). This information was presented by the DEP at a public meeting held in the Town of Olive Meeting Hall on December 15, 2005.

Presently, the portal is operating at its maximum capacity at 540 million gallons per day (MGD), or roughly 830 cubic feet per second (cfs). By about mid-January, the

intake gates at the portal will be repaired to allow them to open further increasing maximum discharge to 650 MGD, (roughly 1100 cfs). Concurrently, a 200' long x 5 1/2' deep "notch" will be constructed in the Gilboa Dam, permitting in-



**Shandaken Tunnel (1/10/06), flowing at approx. 830 cfs**

creased spill into Schoharie Creek thereby relieving stress on the dam in the event of a major flood. Construction is expected to take a month and should be complete by February. The notch will have the

capacity to spill approximately 7,500 cfs (~4850 MGD).

By mid-February two large siphons will also be constructed to funnel roughly an additional 600 MGD of water over the spillway and into Schoharie Creek. The portal will remain at maximum discharge until construction on the notch is complete and the siphons are operating. At that time DEP will reevaluate portal operations.

For more information, see the New York City Department of Environmental Protection website: <http://www.nyc.gov/html/dep/html/news/gilboa.html>

## Following the Esopus Creek (Con.)

*(Continued from page 3)*



look at a stream today we still see the legacy of the ice ages. The bouldery step-pools in the headwaters of Warner Creek formed from infrequent floods that transported table-sized boulders that were dropped in the valley by melting glacial ice. The brown, cloudy water that flows down the Stony Clove after a big rain storm carries glacial lake silts and clays scoured from the stream bed and banks.

The forests, once pushed back by the ice, now returned. Streams tumbling down bouldery slopes became hemlock-lined creeks. The forests and meadow flats formed the riparian corridor that rejuvenated streams flowed through. Beavers dammed the streams, forming chains of small sloughs and

ponds that geese flocked in and otter fished. The resumed work of mountain carving slowed down until the demands of colonialization and industrialization deforested the mountain slopes in the 18<sup>th</sup> and 19<sup>th</sup> centuries. The flush of released sediment from the cleared land clogged the streams and they responded by rapidly filling and shifting back and forth across the valley bottoms. The roads and railroad tracks we use to travel these mountains confined the stream valley - isolating the stream in many places from the floodplain and concentrating the water's erosive power. The stream's incision into the landscape resumed, deepening the channel and unraveling banks.

In the last one-hundred years, the reforested mountains have locked much of the sediment away, and in

many reaches, the streams in this great valley have found some stability in adjusting to their confinement. Streams, given steady conditions will tend to find a stable form and size to pass most of the water and sediment delivered to them. However, streams are also by their nature in a constant state of adjustment, as we are reminded by the changes and adjustments that are inevitable from the large floods that arrive every few years. Since the ice left, the streams of the Catskill Mountains have been subject to human stewardship. How we live along the streams affects how they flood, erode their banks, and provide stable habitat for life. Fortunately we can be aware of this and consciously choose to help the stream seek its stable form by knowing its history, predicting its future and living wisely along its banks.

## 4-H Team Tackles Knotweed

Hi! My name is Megan Frano and I am a member of the Foxfire 4-H Club, led by Mrs. Rudge, in Oliveira. Our club has a dual focus: traditional Catskill mountain crafts and skills in honor of our forebearers and environmental stewardship in honor of the next generation. The club meets every two weeks to work on projects. Some of our projects teach us skills such as how to garden, make pickles, tan rawhide, milk goats, make cheese, tap maples, raise chickens, and the like while others give us a chance to perform community service.

Recently, we have been responsible for beautifying the McKenley Hollow and Lost Clove trailhead signs out on the county road and adopting the Rochester Hollow trail in Big Indian.

This year, as a community service project we decided to educate our neighbors about **Japanese Knotweed**. As you might imagine, Japanese Knotweed (*Fallopia japonica*) was imported to England from Japan in 1825 as an attractive landscaping ornamental. In the late 1800's it was brought to the United States. Who would have guessed then that such a pretty plant would contribute to such erosion in our community today? But, like a lot of non-native species with no natural enemies, this one has run wild throughout the Esopus watershed contributing to our flooding problems. Having seen the disastrous effects of flooding right here in our own

hollows we thought maybe our public service education campaign can help a little.

Japanese Knotweed contributes astronomically to stream bank erosion due to its "knotty" root system and its ability to shade out our native grasses and sedges, whose root systems are more fibrous. Fibrous rooted plants are able to hang on to the soil so much better when the creeks rise due to heavy rains or snow melt. When the stream banks "fail" and the creeks jump their banks an awful lot of damage occurs around here.



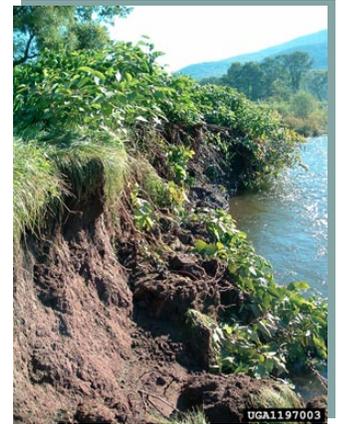
As the presence of the Knotweed causes the stream banks to erode, the streams

become turbid which in turn attracts the heat of the sun and contributes to higher water temperatures and then, of course, lower dissolved oxygen levels... not to mention that as the stream banks slough off, the stream becomes wider and more shallow and then warmer yet! If you like to fish then you know this is not good for fish, particularly trout. And even if you *don't* like to fish, you should still *care* about them.

Japanese Knotweed looks very much like bamboo. It grows in tall clusters alongside wet areas from ditches to ponds and streams. It has large, heart-shaped, alternate leaves on a hollow, angulated stem. Maybe you have seen it.

As a club, we would like to help prevent the spread of Japanese Knotweed. So, with names and addresses provided to us by the town clerk's office, we mailed our neighbors in the McKenley Hollow drainage area a brochure, *Spread the Word not the Weed*. We also asked permission to walk the stream banks on their property to map any existing locations of Japanese Knotweed. Over time, we hope to map and monitor individual efforts and progress in eliminating Japanese Knotweed from the McKenley Hollow drainage. Our club has received wonderful letters of support and we're excited to start the mapping this spring.

And then there's Jordan, our very own rescue plant. We thought it might be a good idea to have a sample plant, so to speak, for display purposes at the Ulster County Fair in August. We tried digging in the hardpan for a few dead looking shoots back in November, which was pretty futile. Figuring that this was an experiment, we plucked a few shoots and potted them in some river run sand. Well, despite the odds and some very quizzical looks as to the wisdom of actually propagating the problem, Jordan (as the plant has been dubbed) is **thriving** and a testament to its tenacious spirit! S/he has grown approximately 8 inches and sprouted additional shoots in only five weeks! If you would like to learn more about Japanese Knotweed, please contact Foxfire 4-H Club: 845-254-4126.



Japanese Knotweed weakens stream bank causing erosion

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*"Who would have guessed that such a pretty plant would contribute to such erosion in our community today?"*

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Editor's Note: *Megan Frano attends Onteora High School*

## Project Advisory Committee (PAC) Members

**Broadstreet Hollow Landowners Association**

**Catskill Center for Conservation & Development**

**Catskill Mountain Rail Road**

**Natural Resources Conservation Service**

**New York City DEP**

**New York State DEC, Region 3**

**New York State DOT Region 8**

**SUNY Ulster**

**Town of Olive**

**Town of Shandaken**

**Town Tinker Tub Rentals**

**Trout Unlimited**

**Ulster County Highway Department**

**Ulster County Dept. of Planning**

**Ulster County Soil & Water Conservation District**

**Woodland Valley Landowners**

**Zen Environmental Studies Institute**

**Cornell Cooperative Extension of Ulster County—Facilitator**

## Calendar of Events



Join us for these upcoming events!

Contact Michael Courtney via email(mcc55@cornell.edu) or by calling 688-5496 or 340-3990 to let us know you will be attending.

**Thurs., Feb.2 6:30-8:00pm**  
**Streamside Landowners Focus Group – Phoenicia Plaza Office**

Do you own property adjacent to the Esopus Creek or a tributary in the watershed? Here's an opportunity to tell Cornell Cooperative Extension of Ulster County how we can provide the most useful educational resources for stream-side landowners!

What's your priority? Come let us know.

**Fri., Feb. 10, 4-7:00pm**  
**Open House: Cooperative Extension of Ulster County Phoenicia Plaza Office**

Play with interactive displays on stream science, learn about Japanese knotweed, view local artwork, see computerized maps of your property and assessment work to date on the Esopus Creek, talk with staff about the project and connect with your neighbors along the Creek. Light food & drinks will be provided.

**Wed., Feb. 22, 6:30-8:00pm**  
**“Liquid Assets: The Story of New York City’s Water System”**  
**Presented by Diane Galusha, Catskill Watershed Corporation– Phoenicia Plaza Office**

Learn the fascinating history of the NYC water system and the amazing people who built it from the author of, *Liquid Assets*.

**Tues., Feb.28 6:00pm-7:30pm**  
**Kayak/Whitewater Focus Group – Phoenicia Plaza Office**

Are you a whitewater sports enthusiast? Share your knowledge of the stream, and your specific concerns and interests for stewardship of the Esopus Creek.

**Wed., March 29 7-8:30 pm**  
**“Voyages and Catskill Geology”**  
**Presented by Dr. Robert Titus-Phoenicia Plaza Office**

Dynamic speaker and author, Robert Titus, will talk about local glacial history and the Panther Mountain asteroid impact.

## Field Guide To Alphabet Soup Of Agencies And Terms

An acronym is a word (such as NATO) formed from the initial letters of each word of a compound term. Governmental agencies, not-for-profit organizations and scientific terms frequently use this type of shorthand; however, if you are not familiar with the names they represent acronyms become nothing more than a jumbled up alphabet soup. Below is a list of abbreviations we hope you find useful when reading this and other publications.

### Federal Agencies:

FEMA: Federal Emergency Management Agency  
EPA: United States Environmental Protection Agency  
USFWS: United States Fish and Wildlife Service  
NRCS: Natural Resources Conservation Service

USGS: United States Geological Survey

### New York State Agencies & Departments

NYSDEC: New York State Department of Environmental Conservation  
NYNHP: New York Natural Heritage Program  
NYRWA: New York Rural Water Association  
SEMO: State Emergency Management Office  
DOT: Department of Transportation  
SHPO: State Historic Preservation Office  
SUNY: State University of New York

### Ulster County Agencies

UCSWCD: Ulster County Soil and Water Conservation District

CCEUC: Cornell Cooperative Extension of Ulster County

### Not-for-profit Organizations

CCC&D: Catskill Center for Conservation & Development

TU: Trout Unlimited

CWC: Catskill Watershed Corporation

WAC: Watershed Agricultural Council

### Scientific Terms:

CFS: Cubic Feet per Second

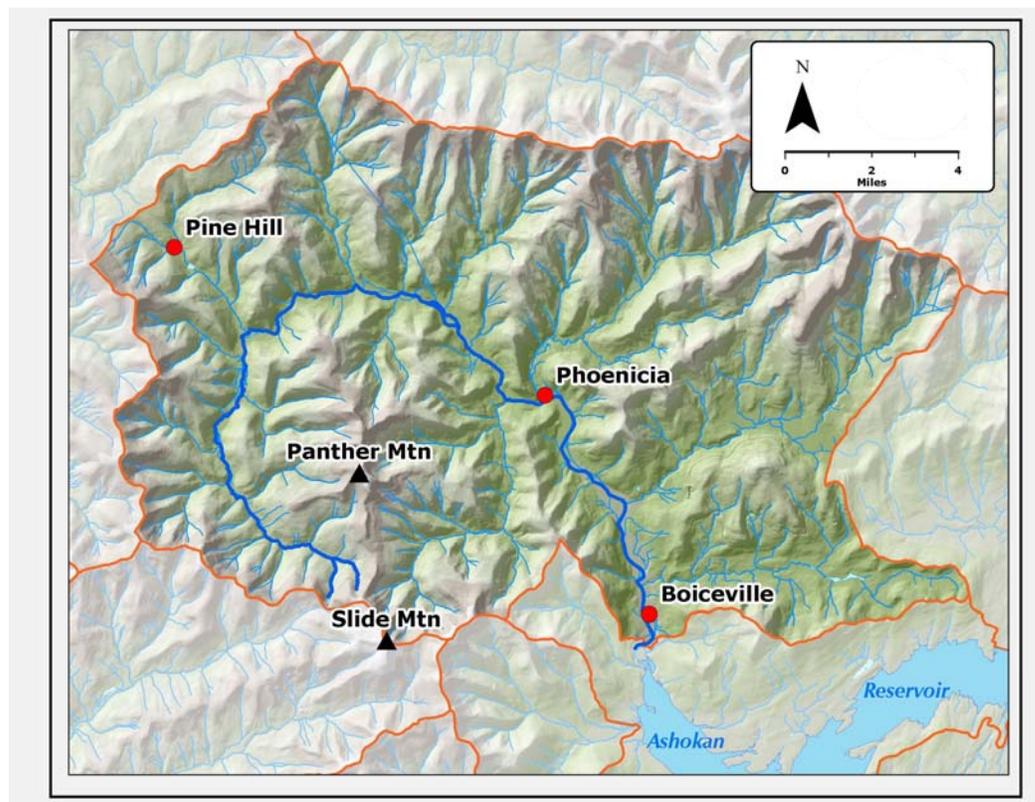
MGD: Millions of Gallons per Day

## Map of Ashokan Reservoir Watershed

This map shows the upper Esopus Creek Reservoir Watershed marked within the red-orange lines. While the term watershed is frequently used in the upper Esopus Creek, many may not know its definition.

A watershed is a region of land that is crisscrossed by smaller waterways that drain into a larger body of water. In other words, if a drop of rain falls anywhere within a watershed, it will eventually flow via springs, streams, creeks and lakes to the lowest point in that region. Your kitchen sink is a mini-watershed—any water that falls in your sink will go down the drain. In most watersheds, the “drain” is a stream.

The Esopus Creek Management plan is studying an area that includes the mainstem of the Esopus Creek, its floodplains, and the mouths of its tributaries. The dark blue line shown on the map wrapping around Panther Mountain to the Ashokan Reservoir marks the mainstem.



As you can see, the Esopus drains a fairly large watershed with steep mountains, so the mainstem can have very dynamic flows. Understanding how the mainstem is handling this flow and how it is changing, helps us understand how

people both affect and are affected by the Creek’s power to flood and erode as well as to provide life.

## Meet the Esopus Creek Stream Management Staff (con.)

(Continued from page 1)

of experiential education, community organizing, and instruction positions. He has a Masters of Social Work from New Mexico Highlands University. Michael is responsible for guiding education and outreach programs for stakeholders in the upper Esopus Creek region.

Magliaro and Courtney are employees of Cornell Cooperative Extension of Ulster County.

They are joined in their efforts by Dan Davis, a project manager with the NYCDEP Stream Management Program in Kingston, NY. Davis is responsible for managing projects in the Esopus Creek basin as well as providing geological services for the program throughout the West of Hudson NYC water supply watershed. Dan joined NYCDEP after working several years as a hydrogeologist around the country. He will be in the Phoenicia office

on Thursdays providing technical assistance on stream related questions. If you have a question on why a stream is eroding or depositing in a certain area, he'll help you understand the stream dynamics.

Dan, Jeremy and Michael invite you to stop by for a visit, or they can be reached by calling: 845-688-5496. On Monday and Friday please call Extension’s main office in Kingston: 845-340-3990.



**Michael Courtney**



**Dan Davis**



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



## New Year's Resolution for the Esopus Creek

*(Continued from page 1)*

This can lead to stream bank erosion and/or stream bottom scouring. The planning process studies how the creek has adjusted to development over time and recommends actions accordingly. In some cases, stream sections may be restored to help bring the stream back into balance.

While repairing damaged stream-banks may be a part of future implementation of the plan, stream management planning is a long-term process that seeks to maintain water quality, wildlife habitat, and prevent future flood damage through erosion. The first step of the process is to assess what is happening in the

stream, not to immediately fix eroded stream banks.

For the past six months, Dr. Craig Fischenich, of the U.S. Army Engineer Research Development Center, his team and DEP Staff have physically walked or floated down almost the entire length of the upper Esopus Creek conducting a watershed assessment. The information they are collecting on stream features includes excessively eroding stream banks, sources of fine sediment (silts and clays) in the stream bed and banks, large woody debris and large cobble bars deposited during the April flood, problems with the riparian corridor (e.g. lack of vegetation or presence of

invasive species like Japanese knotweed), dumps, and past management practices like bank armoring.

Even if you're not a stream scientist, we'd like to know your concerns about the Esopus and how you'd like to be involved in this planning process. To that end, we invite you to spend time in 2006 learning about the Creek, attending our public events and volunteering time to support the project. Don't miss the article about our recently opened office and volunteer opportunities.

This year, get involved in the Esopus Creek – a gem and lifeblood of the towns of Shandaken and Olive.

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