

# Esopus Creek News

Esopus Creek Stream Management Plan Newsletter

Volume 1, Issue 3

Summer 2006

## Update on Esopus Creek Stream Management Project

Greetings!

This year, like last year, is already shaping up to be one to remember. Nature is hard at work acting and reacting to the extreme cycles we find ourselves in. As we write this, the surrounding hills are recovering from widespread defoliation from forest and eastern Tent Caterpillars. With few leaves left, we've experienced nearly two months worth of rain in six days, swelling our creeks and streams to levels more reminiscent of spring melts. Add the emergency dam repairs at Schoharie Reservoir and resulting high discharge from the Shandaken Tunnel, and you've got conditions that many of us have never before seen. Like nature, those of you that live and do



**Survey crew works in the Esopus**

business along the Esopus are forced to adapt to these ever-changing conditions.

Likewise, as the Esopus Creek transports water and sediment through the hundreds of property boundaries on its way to Ashokan Reservoir, it too adjusts. Sometimes these adjustments result in streambank erosion, channel migration, and in other areas—excessive sediment deposition.

When these processes occur on or near your properties, it can be harrowing to watch. More often than not, streamside property owners see their streambank protection projects fail and wash downstream.

The Management Plan we're working on can help. This summer, project scientists are completing the **Phase Two** assessments for each of the 23 designated "stream reaches." These assessments will detail the hydrologic, geologic, and ecologic conditions. With your personal observations and involvement, these reach descriptions will help to provide a strategy that you and your neighbors can choose to

*(Continued on page 8)*

## Gilboa Dam Repair & Shandaken Tunnel Update

The DEP has been operating under the emergency provisions of 6NYCRR Part 670 (Reservoir Release Regulations for the Shandaken Tunnel) and discharging water through the "portal" at a maximum capacity of roughly 590 million gallons per day (MGD). This maximum discharge rate decreases as the elevation in the Schoharie Reservoir is drawn down. The portal will remain at full diversion through

November, 2006 in order to keep the Schoharie Reservoir water elevation as low as possible to complete the reinforcement of the Gilboa Dam, which includes installing the post-tensioned dam anchors and filling-in the 220' x 5 1/2' emergency spillway notch.

On May 18<sup>th</sup>, sensors were installed on the Gilboa Dam to monitor any movement of the structure. By this August,

contractors are scheduled to complete installing reinforcement anchors on critical areas of the dam. All of the anchoring is scheduled for completion by November 2006. Remote mechanisms at the portal intake gates are also scheduled to be installed by early 2007.

Following the emergency repairs,

*(Continued on page 7)*

### Features...

Understanding 100-Year Floods	2
Stomping Out Knotweed	3
Examining Phoenicia Flooding	4
Esopus Creek Trout	5
Whitewater Racing	6

### Upcoming events...

- Wetlands Guided Exploration  
8/6/06 9-11 am
- Shandaken Day  
8/26/06 12-4 pm
- Community Meeting  
10/5/06 7-9 pm



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## Understanding The 100 Year Flood

Sarah Tarallo, Intern  
ECSSMP



Almost everyone has heard the term “100-year flood,” or “100-year flood plain”, but what do these terms actually mean? Many mistakenly believe it is a flood that

occurs every 100 years. However, the phrase really means a flood that has a 1% probability of occurring in any given year.

In reality, a 100 year flood can happen more than once in a given year depending on the local rainfall, snowmelt, or other occur-

rences. Extreme weather conditions have even caused one hundred year floods to happen in the same location only a few months apart. Surprisingly, none of the floods recorded over the last 73 years on the Upper Esopus Creek have been 100-year floods. In fact, last April’s flooding was a “25-year flood” at the USGS gage in Boiceville.

Floods are classified according to their frequency and depth. For instance, there are 10-year, 25-year, 50 year, 100-year and 500-year floods. A 100-year flood, although less frequent than a 10-year flood is deeper and far more destructive. These factors contribute to the reason for now calling a 100 year flood a “base flood.” Land areas that are at a higher risk of flooding are called **Special Flood Hazard Areas (SFHA)** or floodplains by the Federal

Emergency Management Agency (FEMA). These areas are indicated on flood insurance rate maps, and are used by FEMA’s National Flood Insurance Program, for floodplain

FEMA has also developed regulations severely restricting development within the 100 year floodplain. Development activities which are permitted must conform

with standards related to safety and the impact on the floodwaters. Generally, development within the floodplain is limited to adequately flood-proofed structures with a base floor elevation above the level of the 100-year flood. Development within the floodway, the area immediately adjacent to a stream, is further restricted. Most municipalities have

incorporated these standards into their building regulations. To find out if a particular parcel of land falls with the 100 year floodplain, contact the planning, zoning or building department for the town, city or village that the property is located in. For more detailed information on flood zones, go to FEMA’s website at [www.floodsmart.gov](http://www.floodsmart.gov).

Chances of Being Flooded* Flood Level				
Period of Time	10-yr Flood	25-yr Flood	50-yr Flood	100-yr Flood
1 year	10%	4%	2%	1%
10 years	88%	34%	18%	10%
20 years	96%	56%	33%	18%
30 years	96%	71%	45%	26%
50 years	99%	87%	64%	39%

management and insurance purposes. Homes located within an SFHA have a 26% chance of experiencing a flood during the life of a typical 30 year loan. Consequently, NFIP requires flood insurance as a condition of receiving a federally backed mortgage or home equity loan for buildings in these regions.

*“In reality, a 100 year flood can happen more than once in a given year depending on local rainfall, snowmelt or other occurrences.”*



**\*Source:**

U.S Geological Survey, Frequently Asked Questions  
URL: [http://interactive2.usgs.gov/faq/list\\_by\\_category/get\\_answer.asp?id=62](http://interactive2.usgs.gov/faq/list_by_category/get_answer.asp?id=62)



## Streamside Clean-ups Become Neighborhood Projects!!!!

On Monday, June 6<sup>th</sup>, two dump trucks loaded with garbage had plenty of people wondering what was going on with Esopus Creek landowners from the Oliveria Valley. The removal was part of a collaborative clean-up effort by NYC DEP and Extension staff to have streamside landowners remove trash items from the riparian corridor, the area close to stream banks, beginning at Winnisook Lake through to the Lost Clove

Bridge. This informal effort spread by word of mouth with neighbors encouraging neighbors to relay the offer for help with scouting and cleaning up the creek. Despite the heavy rains, landowners stepped out and stepped up, collecting debris and placing it roadside for pick up by town dump trucks. The success of this neighborhood clean-up has Extension seeking to build on this effort by offering the same assistance in cleaning up the

stream environments to other sections of the stream all the way through to its confluence with the Ashokan Reservoir.

If you live along the Esopus Creek and this sounds like a project you and your streamside neighbors would be interested in, please contact our office at 845-340-3990 for specifics on becoming involved. We hope to help you clean up your neighborhood today.



## Stomping Out Knotweed

By Pat Rudge, Leader  
Foxfire 4-H Club

Hello again, everybody! The Foxfire 4-H Club is pleased to announce that we have successfully pulled off (and pulled out) phase one of our **Japanese Knotweed Eradication Plan**. Japanese Knotweed is the tenacious invasive species contributing to erosion along the Esopus Creek which we have pledged to eradicate from McKenley Hollow. The following are details of our work:

### Step 1: Identification.

With Jenn Greisser from the DEP as our intrepid instructor, we worked our way downstream from the headwaters at the top of the Hollow, sweeping both sides of the stream bank scanning for the tell-tale vegetation. A dozen or so well-trained pairs of eyes

eagerly sought to be the first to spy the gangly stalks and once sighted there was a mad dash of enthusiastic kids hoping to score on the confirmation ....truly, it never had a chance.



**Step 2: Data collection.** The youths carefully documented each site using a Global Positioning Satellite Unit (GPS Unit) with hand written notes and sketches providing back-up. Measurements of each site were taken with a surveyors tape and digital photos were taken to corroborate. As budding future scientists, the value of proper and thorough documentation became self evident. ...

**Step 3: Attack.** The strategy was simple-STOMP IT!! Breaking the stem of the Knotweed plant at or close to ground level is believed to be the most effective way to terminate the current growth, yet when doing this

it's important to be careful to keep the stalks and leaves confined to the immediate area. Indiscriminately thrashing the plant might inadvertently encourage its spread since Knotweed easily propagates from even the smallest of cuttings. That would be a bummer, so we c-a-r-e-f-u-l-l-y stomped it! The freedom (let alone the encouragement) to wreak havoc can become a bit heady, yet there is something very therapeutic in

literally and oh, so methodically, crushing the adversary....

Not only does stomping the stalks effectively put a dent in their growth, but it also helps level the ground to accommodate the construction of a weed barrier using landscape fabric. The plastic prevents sunlight and precipitation from penetrating the environs beneath and hopefully snuffs out any hope of further regeneration. With the help of the adults, the weed barrier was cut and applied

(Continued on page 4)

*“Knotweed easily propagates from the smallest of cuttings...”*

## Stream Management Teams Examine Phoenicia Flooding

Recently, the Esopus Creek and Stony Clove Stream management planning teams met with representatives from the NYSDOT and Town of Shandaken to discuss strategies to manage the aggrading stream bed below the Rt. 214 bridge in Phoenicia.

Historically, this reach was maintained

every five years or so by dredging. In fact, the last time it was cleaned out, approximately, 13 years ago, there was enough room for an

excavator to pass beneath the bridge. Currently, the clearance is 4 to 5 feet, causing some to speculate that the flooding problem in Phoenicia is a function of this aggradation problem.



Reach beneath Rt. 214 bridge in Phoenicia

This summer, Shandaken intends to remove sediment from a reach that extends

somewhat above and below the bridge; however, it's recognized that this action does not address the source of the problem, and it is

likely that the next flood or two will largely fill the channel back to its current condition.

The Esopus Creek and Stony Clove Stream Management teams have agreed, therefore, to work together with the Town of Shandaken officials to understand the sediment supply situation upstream, and to create a model of existing conditions along with several management alternatives. Dr. Craig Fischenich, principal investigator, is studying the site under Phase 3 of the Esopus Creek assessment.

For more information this joint effort please call Jeremy Magliaro.



Sample refrigerator magnet, featuring a design inspired by the efforts of Foxfire 4-H Club, which will be distributed to the public this summer

## Stomping Out Knotweed (Con.)

(Continued from page 3)

to the site much like rolled roofing paper with just enough of the shingle effect to insure full coverage. Rocks were positioned as weights to keep everything in place. Now it's up to nature to do the rest of the work.



If you travel up to McKenley Hollow, look for the homemade sign about Foxfire 4-H Club Knotweed Eradication Project gracing the site directly roadside next to the State Trail head. And be on the look out for a bunch of kids doing this odd looking, high stepping dance....they're hard at work stomping out knotweed!

## What You Can Do To Help Stop Japanese Knotweed



1. **DO NOT THROW CUTTINGS INTO THE STREAM OR STORE THEM IN FLOOD PRONE AREAS!** This is the most important rule to follow because doing so can cause it to spread downstream.
2. Once it is cut or pulled out either bag it or burn it.
3. Cover site with black plastic or landscaper's cloth to prevent re-growth.
4. Do not move soil with Knotweed roots to other sites for fill.
5. When leaving work areas, check all tools and clothing for plant fragments.
6. Remember, knotweed can grow from even the tiniest piece of root, so be vigilant!

## Summer for Trout In The Esopus

The Esopus is one of the most interesting streams in all of the Catskills. The stream is very different depending on whether you are fishing upstream of the Shandaken Tunnel (Portal) discharge from the Schoharie Reservoir, or fishing below it. Conditions in the Esopus Creek above the Portal result from natural factors like precipitation and outside air temperature, whereas conditions below the Portal are heavily influenced by the temperature and turbidity of the water release. In many respects, they are like two different streams.

Understanding this complex aquatic ecosystem, and how humans impact it through our stream and property management techniques, is one of the goals for the Esopus Creek Management Plan. Toward that end, Walt Keller, is reviewing and analyzing all existing literature and data gathered on the Esopus Creek to date. Hopefully we'll be able to synthesize what we "think we know" about the condition of this beautiful stream. In the meantime, we wanted to share some of the interesting things we've learned so far about how trout behave in the summer in the wild (and not so wild) Esopus.

The Esopus Creek watershed is inhabited by three trout species: native brook trout, rainbow trout introduced from the west coast, and brown trout introduced from Europe. Each species behaves differently and can be found in different locations throughout the

year. Brook trout are the only native trout species to the watershed, and studies indicate that they reside primarily in tributaries to the Esopus Creek or in the headwaters above the Portal. Both the brookies and the brown trout spawn each year in the Fall, while rainbow trout migrate upstream from Ashokan Reservoir to spawn in the spring. Studies indicate that all three species



**Walt Keller holding a brown trout**

make their way to the tributaries or upper reaches of the Esopus to spawn, and that most juvenile trout remain in these areas after they hatch.

Summer can be a real problem for trout, especially those in a tributary or in the Esopus upstream of the portal. In the summer, a trout's primary need is cool water and its secondary need is food. Trout can't sweat to keep cool. They are cold blooded and they must have cold water to survive. They also need oxygen to respire, just as we do except that they get their oxygen from the water through their gills. Cold water holds oxygen better than warm water. During dry summers, natural stream flow decreases and heats up, especially

By Walt Keller, Consultant  
Jeremy Magliaro, Project Manager

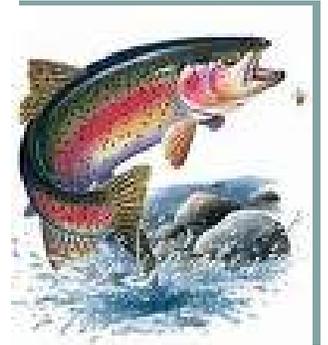
when surface water is heated as it flows near cobbles, rocks and boulders exposed to the sun and there is not much cool ground water feeding spring seeps.

When the tributaries and the Esopus upstream of the portal heat up, the trout concentrate in areas of cool water, which is usually near spring seeps. When restricted to small areas and concentrated, they become more

vulnerable to predation from fish eating insects, crayfish, birds, other fishes, frogs and snakes. Trout food becomes scarce and the trout's metabolism increases as the water heats up, even as their food, insects generally, becomes more difficult to secure. During low flows trout also compete for cool water space and for the limited food that they might find close by. Crowding also helps spread diseases, particularly bacteria, virus and fungus diseases, and parasites. If there is no cold water the trout die.

Downstream of the Portal is a different story. The release from the Schoharie Reservoir is usually oxygen-rich cold water which provides the predominately rainbow and brown trout below the portal with an advantage during the hot summer months. Trout are visual feeders and despite the sometimes turbid water released from Schoharie Reservoir, electro-fishing performed on the Esopus showed that the downstream trout are able to get enough food that they

*(Continued on page 6)*




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*"In the summer a trout's primary need is cool water and its secondary need is food."*

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*Editor's Note: Walt Keller, former DEC Regional Fisheries Manager, is an aquatic scientist hired by Extension to characterize the state of the aquatic system.*

## 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.

**Sat., Aug. 5, 9:00-11:00 am Wetlands Guided Exploration (Rescheduled) with Spider Barbour, Zen Environmental Studies Institute— South Plank Rd., Mt. Tremper**

Why is this wetland important in our watershed? Who lives here? An ardent naturalist and ecologist, Spider Barbour will answer these

and other questions on this guided tour of the Zen Environmental Studies Institute wetland on the Esopus.

**Sat., Aug. 26, 12:00-4:00 pm Shandaken Day – Parish Field, Phoenicia**

This community celebration starts at 10:30 am with a parade down Main Street in Phoenicia. Then visit our booth where young and old can play with an interactive stream table, learn about Japanese knotweed, see computerized maps of your property and assessment work to date on the Esopus Creek, and talk with staff about the project.

### September Streamside Landowners Survey

Keep an eye out for our mail survey seeking input on the best way to involve streamside landowners in our projects and educational resources.

**Thurs., Oct. 5, 7:00-9:00pm Community Meeting for the Esopus Creek Stream Management Plan – Phoenicia Fish & Game Club, Rt. 28**

Initial watershed assessment results will be presented by scientists studying the Esopus Creek. The public is encouraged to provide input on the findings and to discuss recommendations for more effective management along the stream.

## Fishing for Trout In the Esopus

*(Continued from page 5)*

outgrow fish of the same age found upstream. One reason may be that the Portal delivers zooplankton, small aquatic animals from the Schoharie Reservoir. That food is provided either directly or indirectly, as a link in the food chain, for stream resident insects fattened by eating them. One example of stream dwelling plankton eaters are the net building caddis flies that are abundant in that portion of the Esopus.

Some fisherman have told us that the fishing is great soon after the recreational inner “tubers” float by. This anecdotal evidence suggests that maybe the trout have learned and responded positively to tubers who dislodge numerous insects from the rocks and cobbles

on the stream bottom as they float downstream. Stream trout normally feed in riffles because those are generally the most productive areas of most north-eastern streams. All the trout would need to do to feed is to position themselves downstream of the areas disturbed by the tubers and catch the dislodged insects out of the water column, their normal feeding method.

Regardless of how they get their food, the cold water from the Portal lowers a trout’s metabolism, so they would need relatively less food to get by. Turbidity might also eliminate some predation of those downstream trout since it is harder for predators to see them and it discourages some anglers from fishing.

The largest browns and rainbows spend the summer in the Ashokan Reservoir, mostly in the coldwater layer where both species feed mostly on other fishes. They normally don’t have problems with a lack of food or cool water in the reservoir where anglers are the principal predator.

Check out the [esopuscreek.org](http://esopuscreek.org) website for a link to the draft literature review recently completed for the Esopus Creek. We’re really interested in hearing your stories about the Esopus Creek aquatic ecosystem, how you’ve seen it behave or change over time, and we welcome your feedback on the study. Look for a public presentation to be scheduled this Fall on the draft findings.

## Paddlers' Club Brings Race to The Esopus

The Kayak & Canoe Club of New York (K.C.C.N.Y.) has everything from experienced boaters to beginners and everything in between. A major highlight for every member of K.C.C.N.Y. (along with anyone lucky enough to see it) is their annual Esopus Whitewater Slalom race, which takes place just downstream of the Woodland Valley Bridge on the stream reach (formerly) known as Railroad Rapids. The object of the slalom race is to negotiate a course 400 meters long that is defined by 18-25 gates, at least 6 of which must be negotiated by paddling upstream.

This year marked the 40<sup>th</sup> Annual K.C.C.N.Y. Esopus Whitewater Slalom. Taking place over the rainy June 3<sup>rd</sup> – 4<sup>th</sup> weekend, it was

evident that these whitewater boaters are not put off by a “little” rain.

With the Esopus Creek waters at peak flow, and with low water clarity, the boaters seemed to enjoy themselves regardless!

Racers from outside the club attended this event as well. Two paddlers currently on the junior Olympic squad, as well as members of the Olympic development squad

traveled from various parts of the country for the race.



K.C.C.N.Y. is known to be one of the largest whitewater clubs in the Eastern United States. Established in 1959 in New York, over the years they have expanded and now, despite their name, serve New Jersey, Pennsylvania, and Connecticut as well as New York State. If you

would like to find out more about the K.C.C.N.Y. or their annual Esopus Slalom race please visit their website at: [www.kccny.com](http://www.kccny.com)

## Gilboa Dam Repair & Shandaken Tunnel Update

(Continued from page 1)

the Gilboa Dam will go through a major reconstruction over the years 2008-2011. This reconstruction effort will take place on a non-emergency basis and require a permit from the NYS Department of Environmental Conservation (DEC). The DEP and its consultants are currently examining release mechanisms at Gilboa to divert water through the dam to Schoharie Creek as part of the reconstruction project (rather than only being able to release water to Esopus Creek through the portal).

On June 15, the U.S. (2<sup>nd</sup>) Circuit Board of Appeals upheld a lower court judgment against NYC for

violating the Clean Water Act by discharging turbid water into the Esopus Creek. The suit was



brought by Trout Unlimited and other groups in the year 2000.

As a result of the judgment, NYC may have to operate the portal under the terms of a State Pollution Discharge Elimination System permit or “SPDES” permit, which is currently being drafted by the DEC.

More information about the Gilboa Dam repair can be found on the NYC DEP website: <http://www.nyc.gov/html/dep/html/news/gilboa.html>



**Installing post-tension anchors at Gilboa Dam**



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## Project Update (con.)

*(Continued from page 1)*

utilize in order to live in harmony with the stream rather than fighting against it.

Our Education & Outreach Working Group is building contacts for each of the Esopus Creek's 23 assessment reaches (think of it as a network of "stream keepers"). Some volunteers are hosting informal pot-lucks with neighbors to make connections and share information about the Creek, some neighborhoods will be volunteering for stream cleanups or learning stream monitoring techniques. Let us know if you can be a contact for your stream reach. We encourage you to attend our upcoming events,

community meetings or stop by our office. Bring in photos or share other evidence of the Creek's changing behavior on your "reach" for inclusion in the plan.

Together, we can chart a course for the Esopus Creek's future.



**Aerial view of Esopus Creek at Mount Tremper**  
*(picture courtesy of NYC DEP)*

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