

The Stream Line



Greene County Soil & Water Conservation District Newsletter

Winter 2025

2024 Schoharie Reservoir Kayaking Program: A Successful Launch

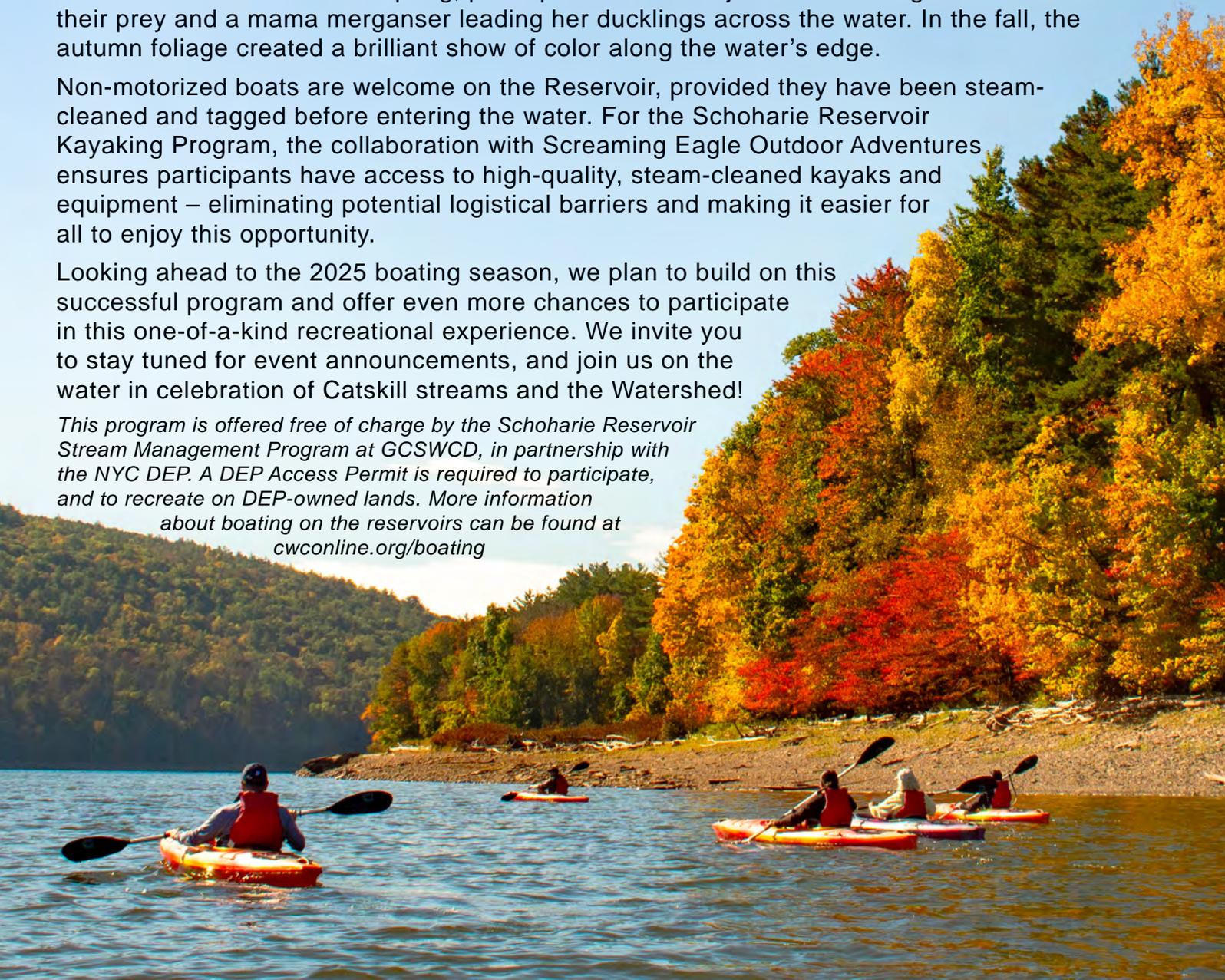
The 2024 boating season marked the launch of the Schoharie Reservoir Kayaking Program – an initiative designed to connect the Watershed community with outdoor recreation and watershed education. Funded by the Stream Management Implementation Program (SMIP), GCSWCD worked in partnership with Screaming Eagle Outdoor Adventures and Rip Van Winkle Adventure Guides to offer two paddling events on the scenic Schoharie Reservoir – one in the spring and one in the fall.

Each event provided unique opportunities to experience the beauty and biodiversity of the Schoharie Reservoir. In the spring, participants observed juvenile bald eagles on the hunt for their prey and a mama merganser leading her ducklings across the water. In the fall, the autumn foliage created a brilliant show of color along the water's edge.

Non-motorized boats are welcome on the Reservoir, provided they have been steam-cleaned and tagged before entering the water. For the Schoharie Reservoir Kayaking Program, the collaboration with Screaming Eagle Outdoor Adventures ensures participants have access to high-quality, steam-cleaned kayaks and equipment – eliminating potential logistical barriers and making it easier for all to enjoy this opportunity.

Looking ahead to the 2025 boating season, we plan to build on this successful program and offer even more chances to participate in this one-of-a-kind recreational experience. We invite you to stay tuned for event announcements, and join us on the water in celebration of Catskill streams and the Watershed!

This program is offered free of charge by the Schoharie Reservoir Stream Management Program at GCSWCD, in partnership with the NYC DEP. A DEP Access Permit is required to participate, and to recreate on DEP-owned lands. More information about boating on the reservoirs can be found at cwconline.org/boating



Progress Made and What's Next at Red Falls

Significant progress continues to be made in stabilizing the Batavia Kill and improving water quality at the Red Falls project site. The multi-phase project is the largest project in the history of NYC DEP's Stream Management Program and aims to reduce turbidity by mitigating excessive erosion that has historically impacted this portion of the Watershed. Due to its size and complexity, the Red Falls site has been divided into four manageable projects.

In 2024, Red Falls Project 3 reached a major milestone with Evergreen Mountain Contracting successfully completing construction within the designated permit window (June 15th to Sept 30th) and installing 2,601 native plants. The planting included 1,243 trees, 1,200 shrubs, and 79 balled and burlapped trees (more mature trees that are grown at a nursery and delivered with their root balls wrapped in burlap material).

Following construction, GCSWCD worked to seed and mulch the site, and install protective tubes on 1,470 of the plants. These protective tree and shrub tubes will provide protection from browsing and grazing animals, create a favorable climate by holding heat and moisture, and support vertical growth. Many of these tubes were recovered from previous sites where trees had outgrown their need for protection. To close out the season, an as-built survey (a survey that serves as a record of the final location of a construction project, including any changes made to the original design) covering approximately 14 acres was completed.

The second phase of the Red Falls Project 3 planting will include planting 342 trees, 330 shrubs, and 51 balled and



GCSWCD staff on site at Red Falls Project 3.

burlapped trees in Spring 2025. A constructed roadway has been left open to allow truck access for the planting, after which it will be backfilled with additional trees and shrubs.

Looking ahead, Red Falls Project 4 is in the design and permitting phase, with several key developments slated for the upcoming construction season. This section of the Batavia Kill suffers from nearly continuous turbidity issues, and the reach presents the most complex challenges yet. Careful coordination, data verification, and adaptive management will be essential to ensuring the project's success and achieving long-term stream stability.

To learn more about the Red Falls Project, check out the articles featured in the Winter 2022 and Spring 2024 editions of our newsletter. You can find all archived newsletters on our website: gcswcd.com/media-archive/newsletter



Red Falls Project 3 on August 29, 2024. Seeding and construction are in progress, and the channel has been dewatered.



Red Falls Project 3 on November 15, 2024. Construction complete, the area has been planted, and water has returned to the channel.

One Year of Monitoring Bank Erosion with SfM

In 2023, Structure from Motion (SfM) photogrammetry became the newest addition to the stream surveying toolbox here at GCSWCD. SfM allows for the construction of a highly-detailed 3D model of a landscape using a series of photographs and GPS data points. This relatively low-cost and effective approach to conducting a topographic survey was first introduced to the Schoharie Reservoir watershed by SUNY Oneonta's Dr. Les Hasbargen, and the Catskill Science Collaborative's Research Fellow, Adrian Maleszewski. Their project, Pole-Mounted SfM Surveys of Erosion Sites in the Catskills Watershed, was supported by DEP's Stream Studies Coordinator/Geologist, Dany Davis, and led them to a monitoring site on the East Kill.

During the 2024 field season, GCSWCD and the DEP Stream Program's Watershed Conservation Corps (WCC) used SfM to study five sites throughout the Watershed, including the East Kill site. With this being the second year of data collection at the East Kill site, we were able to analyze the data to estimate how much material, if any, had eroded from the land surface.

This analysis, conducted by WCC Coordinator, Telemak Olsen, used the "Compute 2.5D Volume" tool of the free, open-source 3D point cloud processing software, CloudCompare. The tool creates a detailed grid of the land surface, breaking it into small sections based on a chosen cell size. For each section, CloudCompare calculates the average height from survey data, then compares it to previous surveys to measure any changes. By summing these differences across the entire area, the program estimates the total volume of material lost or gained over time. The East Kill analysis resulted in a conservative estimate of approximately 100 cubic meters of material lost between November 2023 and July 2024.



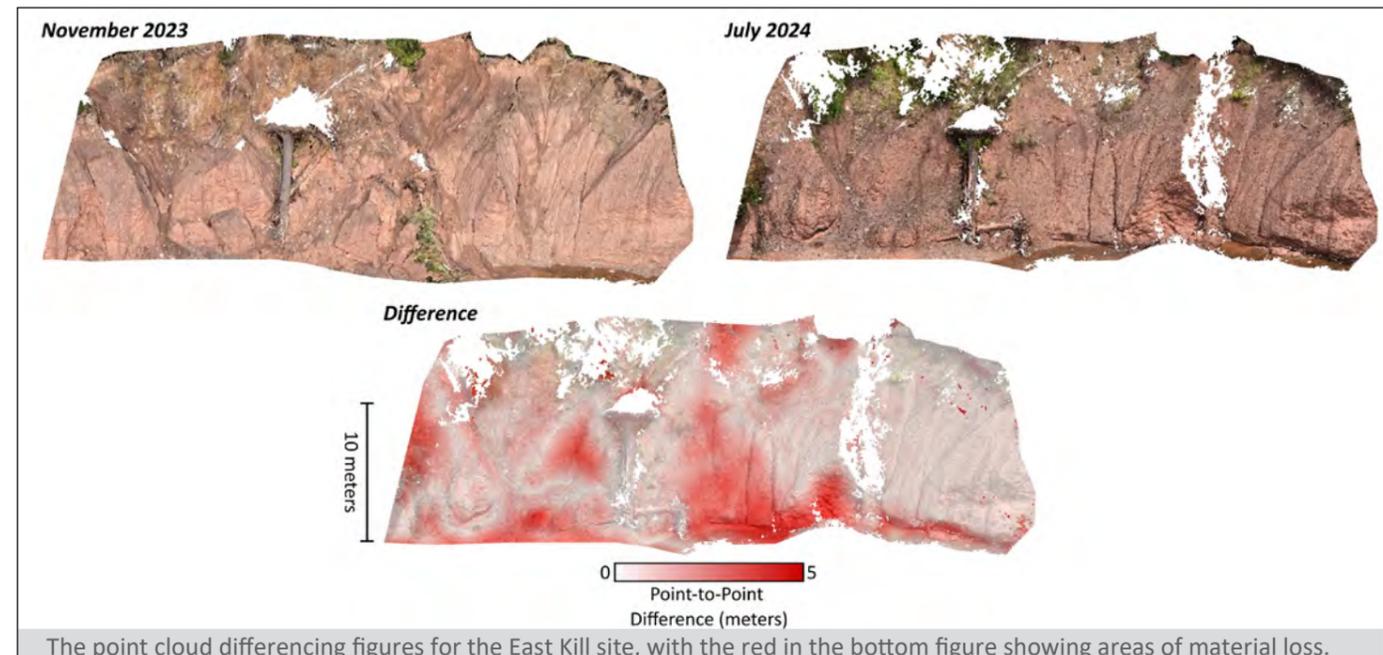
The East Kill monitoring site. An example of a "knob" can be seen on the left side of the image. An example of undercutting can be seen in the bottom right.

If a standard bathtub can hold 0.3 cubic meters of soil, that would be 333 bathtubs full of earth material!

The two notable sources of this material loss were large knobs that had formed in the cliff face breaking off at the bank. The areas where these knobs had been located were undercut (worn away at the base) by hydraulic forces between surveys. These findings contribute to our understanding of short-term bank failure mechanics, provide valuable insight into how this stretch of stream is changing over time, and highlight the importance of continued monitoring.

It is important to note that these results are estimates, and the method used is just one of many tools that inform site selection for monitoring and restoration. As we prepare for the 2025 field season, we continue to aim to refine our methods and expand our understanding of how natural processes shape the streams around the Watershed.

The Summer 2024 edition of *The Stream Line* provides more information on SfM photogrammetry. You can find all archived newsletters on our website: gcswcd.com/media-archive/newsletter



The point cloud differencing figures for the East Kill site, with the red in the bottom figure showing areas of material loss.

Four Community Projects Funded in 2024

With funding available across multiple categories, the Stream Management Implementation Program (SMIP) continues to support projects aimed at enhancing water quality and fostering community engagement within the Schoharie Reservoir watershed. In 2024, the program awarded a total of \$163,939 to a diverse array of projects, reflecting its commitment to addressing both community and environmental needs. Below is a list of proposals moving forward following last year's funding rounds!

- County Route 2 over Little West Kill Culvert Replacement – Engineering Services:** \$86,500 awarded to the Greene County Highway Department
 Through this project, SMIP funding will support the Greene County Highway Department working with a consultant to assess site conditions at the County Route 2 culvert over Little West Kill. Following the field assessments, the consultant will provide the preliminary design plans, advance detail plans, and final plan specifications along with a cost estimate for implementation of the replacement project.
- Schoharie Basin Road-Stream Crossing Assessment: Towns of Hunter and Jewett:** \$52,799 awarded to Cornell Cooperative Extension of Columbia and Greene Counties
 Through this project, SMIP funding will support detailed road-stream crossing evaluations using the Multi-Objective Stream Crossing Assessment Protocol (MOSCAP). Data gathered from these assessments will inform municipal officials and local highway departments about the overall condition and flood resiliency of structures – supporting informed planning and implementation of structure replacement and repair.
- 2025 Schoharie Reservoir Kayaking Program:** \$14,640 awarded to the Education & Outreach Subcommittee of the Schoharie Watershed Advisory Committee
 Through this project, SMIP funding will support continuation and expansion of the Schoharie Reservoir Kayaking Program. Introduced in 2024, this program provides Watershed education while engaging the community in outdoor recreation.
- Batavia Kill Splash and Learn:** \$10,000 awarded to Cornell Cooperative Extension of Columbia and Greene Counties
 Through this project, SMIP funding will support six educational outdoor workshops on the Batavia Kill. The project is designed to provide landowners, recreational users, watershed stewards and environmental enthusiasts with interactive in-stream and streamside learning experiences.

Established in 2008, the SMIP is administered through the Schoharie Watershed Stream Management Program (SWSMP) at GCSWCD, in partnership with the New York City Department of Environmental Protection (DEP). The SMIP operates on a 5-year cycle and offers funding twice a year to implement projects, programs, or management efforts that serve to protect water quality within the Schoharie Reservoir watershed. Applications are due by March 15th and September 15th every year.



Barn Door Facelift

In addition to the exciting infrastructure improvements at the District's Plant Material Center in Maplecrest, some time was dedicated to giving the barn's door a welcome facelift. The barn, which serves as storage for tools and various supplies, sits near Big Hollow Road with its door facing outward toward the road.

The new doors were handcrafted by District Technician Brandon Terrill, who thoughtfully carved the unique design seen by all who pass by. The design features a sun – symbolizing the way sunlight strikes the barn early in the morning – and the letter "C," a tribute to the Charbonneau family, a local name with deep historical significance.

Revitalizing Farm Operations Through AEM

The District's most recent Agricultural Environmental Management (AEM) funded project focuses on a beef farm that has previously collaborated with the GCSWCD and the Natural Resources Conservation Service (NRCS). In the past, the farm successfully implemented an expansive rotational grazing plan, which included the installation of permanent fencing. During a recent reassessment, District Technician Alex Johnk identified several areas needing improvement. These included deteriorated laneways with water ponding issues and a barnyard that frequently remained saturated, posing a significant risk of nutrient runoff from manure into nearby water sources.



Working closely with the farmer, a practical plan was developed to address these concerns while improving environmental impacts. The project consists of two phases:

Phase 1 (Completed):

- Laneway Improvements: Installing culverts and adding stone to improve drainage and durability.
- Stream Access Upgrade: Establishing a stabilized drinking area using fabric, cobbles, and gravel. This ensures cattle can access water without stirring up sediment or contaminating the stream with manure.

Phase 2 (Spring 2025):

- Walkway Enhancements: Adding fabric and stone to cattle walkways to minimize erosion.
- Concrete Feeding Area: Constructing a concrete pad for feeding, enabling manure collection and controlled nutrient spreading on fields.
- Fencing Installation: Adding new fencing to guide cattle to the concrete pad, reducing access to unstabilized areas.
- Paddock Creation: Reseeding the former wintering area to convert it into an additional grazing paddock.

This project not only addresses environmental concerns but also provides long-term benefits for the farm's operations. The District looks forward to completing this initiative in the spring and to begin assisting other farms in similar ways. If you are interested in exploring improvements for your farm, please reach out to GCSWCD for assistance!

GCSWCD's agricultural program is available to assist Greene County farmers who are interested in enrolling in the AEM program. Through AEM, farmers work with their local Soil and Water Conservation District to inventory current farming practices, identify and prioritize potential environmental concerns, develop conservation plans, and implement those plans using available technical and financial assistance. This confidential, voluntary, incentive-based program is administered by the New York State Department of Agriculture and Markets and is designed to support farm goals, while protecting and conserving natural resources.



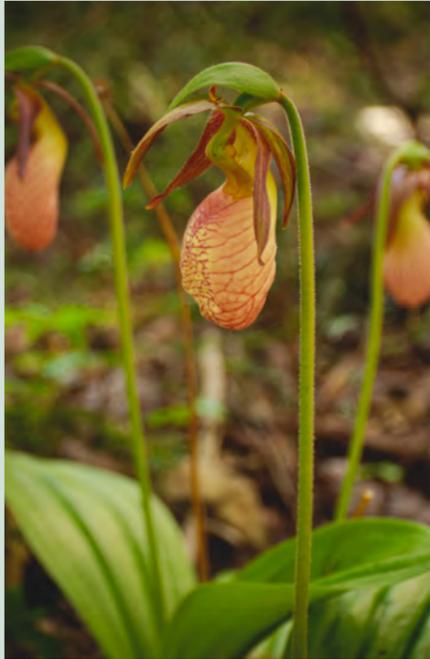
A portion of the farm's field showing with visible water ponding .



The same area after laneway improvements and the installation of a drainage culvert.

Natural History Moments

~ a selection of 2024's field observations ~



Pink Lady's Slipper

The pink lady's slipper orchid (*Cypripedium acaule*) is one of nearly 60 species of orchids that are native to New York. The orchid family is the second largest family of plants, with over 21,000 species. While often associated with tropical environments, orchids occur in a wide variety of habitats around the world.

Pink lady's slipper orchid habitats include mixed hardwood coniferous forests of pine and hemlock, rocky/mossy slopes, and places with acidic but well-drained soil under deciduous trees of the east. The flower is often magenta to whitish-pink, and you can find this forest dweller in bloom between May and July.

Orchid seeds are small and dust-like, and they do not have their own food supplies inside them like most other seeds. Therefore, pink lady's slipper seeds require threads of fungus to break them open and attach to them to pass on food and nutrients. When the plant is older and capable of producing most of its own nutrients, the fungus will extract nutrients from its roots. This symbiotic relationship is typical of most orchid species.

Pink lady's slippers can live to be more than 20 years old! Most of New York's orchids are rare and 20 species of orchids are considered endangered or threatened. All of our orchid species are on the state's protected list - if you spot one, please stick to visual observations only!



Six-Spotted Tiger Beetle

With around 3,000 species of brilliantly colored tiger beetles worldwide, approximately 100 call North America home—including the striking six-spotted tiger beetle (*Cicindela sexguttata*). Typically, these beetles display a metallic green sheen, but the one in this photo is a rare sapphire-blue variant!

These predatory insects hunt smaller arthropods such as ants, spiders, and caterpillars. They are incredibly fast runners, with the quickest species, found in Australia, reaching speeds of up to 5 miles per hour. However, as Cornell University researcher Cole Gilbert discovered in 1998, tiger beetles temporarily lose their vision when sprinting too fast—their photoreceptors can't gather enough light during high-speed chases! Fortunately, their antennae function as obstacle detectors, allowing them to navigate and capture prey effectively.

Six-spotted tiger beetles are commonly found in deciduous forests, often basking in patches of sunlight on the forest floor. Despite their fearsome mandibles, they pose no threat to humans unless handled. So, on your next hike, keep an eye out for these dazzling predators—but admire them from a distance!



Pollen

Ever wonder why your car, lawn furniture, or anything left outside in spring ends up covered in a fine yellow dust? Meet pollen! The hazy cloud drifting above the trees in this photo consists of millions of conifer pollen grains (from species like pine) released into the air. These grains rely on the wind for transport, but their journey is far from smooth - along the way, they encounter turbulence, swirling eddies, sudden gusts, and rapid shifts in direction.

Designed for wind dispersal, each pollen grain contains two internal air sacs that increase its surface area, acting like tiny balloons to slow its descent. This allows the grains to float up to 300 meters above the Earth's surface and travel hundreds of kilometers from their origin. But reaching a fertile female cone is a game of chance—statistically, only a small fraction will ever succeed.



Wild Thyme

The vibrant purple ground cover in this photo is wild thyme (*Thymus serpyllum*), a charming, low-growing perennial that carpets yards, meadows, and hillsides throughout the region.

With its tiny, aromatic purple flowers, wild thyme forms dense mats and thrives in rocky soils—which makes perfect sense if you've ever tried digging a hole in the Catskills! Beyond its beauty, it serves as a vital nectar source for bees, butterflies, and other pollinators.

Fun fact: Research published in the *Journal of Economic Entomology* found that honey produced by bees foraging on thyme flowers contains thymol, one of thyme's key phytochemicals. Thymol has been shown to boost immune responses in honeybees and even reduce fungal spores in fungus-infected colonies—an amazing natural defense!

Next time you spot some thyme, take a moment to appreciate the visual display and strong fragrance, while considering the ecological benefits.



Goldenrod Gall

Have you ever noticed round swellings on goldenrod stems and wondered what they are? These unusual growths, called galls, are the result of an intricate relationship between the goldenrod gall fly (*Eurosta solidaginis*) and its host plant.

Each spring, female gall flies lay their eggs on developing goldenrod buds. When the larvae hatch, they burrow into the plant, and their saliva triggers an increase in cell production, causing the plant to form a protective gall around them. This gall serves as both shelter and a food source for the larvae as they grow.

As autumn approaches, the larvae prepare for winter by chewing exit tunnels—visible as small dark spots on the gall's surface—before entering diapause, a state of dormancy that allows them to survive extreme cold. When spring arrives, the larvae pupate and eventually emerge as adult flies, ready to repeat the cycle.

Goldenrod galls play a key role in the ecosystem, providing a vital winter food source for wildlife. Downy woodpeckers and black-capped chickadees peck into the galls to extract the larvae, while certain parasitic wasps lay their own eggs inside, using the gall's protection for their developing young.

Next time you spot one of these curious plant formations, take a closer look—you might just find a tiny ecosystem at work!



Manor Kill

A late-November visit to the mouth of the Manor Kill offered a rare glimpse into history, as unusually dry conditions revealed fine sediment deposits typically submerged tens of feet below the water's surface. Here we can see bedrock that provides a record of ancient river deposits and the remains of an old mill. The scene also showcased how the stream naturally sorts sediment as it transitions from the rushing Manor Kill Falls into the stillness of the Schoharie Reservoir.

This unusual sight was the result of abnormally dry conditions across the Northeast at the end of 2024—another record-warm year. Below-average precipitation and above-normal temperatures led to drought conditions, wildfire risks, and a reservoir drop of nearly 50 feet.

As climate patterns shift, these impacts are becoming more pronounced. The 2025 Schoharie Watershed Summit will explore the drought's effects and broader implications for the region.

The Stream Line



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scan below:



Upcoming Events

February 3 - March 28th: Annual Bare Root Plant Sale

February 27: Four-Hour Erosion & Sediment Control Training

April 12: Schoharie Watershed Summit

May is Schoharie Watershed Month!

This year's activities include the Watershed Wednesdays Webinar Series, Schoharie Reservoir Kayaking, the third annual BioBlitz, and more!

Visit our website and sign up for emails to stay informed on District events and offerings!

District Reminders

Agricultural Assistance

GCSWCD's Agriculture program is available to support farmers who are interested in enrolling in the Agricultural Environmental Management Program (AEM)! GCSWCD staff are available to assess farms, link farmers to potential funding sources to make improvements, and assist in navigating the enrollment process. More information about the program can be found here: agriculture.ny.gov/soil-and-water/agricultural-environmental-management

To schedule a visit or if you have any questions, please call (518) 589-6871 or email alex@gcswcd.com

Classroom Visits

GCSWCD is committed to providing educational programs that raise awareness about our local watersheds. To that end, GCSWCD staff are available to provide free classroom or after-school visits to schools within Greene County and the Schoharie Reservoir watershed.

We have three scientific models available for demonstration: the Augmented Reality Sandbox, EnviroScape Watershed, and Ward's Science Stormwater Floodplain models. Programs can be designed to suit class needs and can be adapted for all students, grades K-12.

To schedule a visit, please call (518) 622-3620 or email amanda@gcswcd.com

Funding Opportunity

GCSWCD and the Schoharie Watershed Advisory Committee (SWAC), in conjunction with the NYC DEP, are seeking qualified applications for the Stream Management Implementation Program (SMIP). The SMIP is a reimbursement-based grant opportunity that offers funding to implement projects and programs that serve to protect water quality within the Schoharie Reservoir watershed.

All applicants are encouraged to contact SWSMP staff to discuss project ideas prior to submission. For more information visit: gcswcd.com/schoharie-reservoir-watershed/swsmp/smip or email smip@gcswcd.com

Restored Buffers

Landowners with streamside property located within the Schoharie Reservoir watershed can request a site visit to have a streamside assessment and learn more about restoration opportunities through the Catskill Streams Buffer Initiative (CSBI). Participants of this program work with GCSWCD to develop a planting plan to enhance or restore their riparian buffer with native trees and flowering shrubs along the stream to improve wildlife habitat and help protect streambanks from erosion during future storm events. For more information visit: gcswcd.com/schoharie-reservoir-watershed/swsmp/csbi