



Upper Susquehanna Coalition

Activities and Opportunities



Dear Reader,

Thank you for your interest in the Upper Susquehanna Coalition. This publication presents an overview of the activities, interests and expertise that define our organization.

For a downloadable version of this overview, and to learn more about our efforts, please visit our web site at www.u-s-c.org.

In addition, please feel free to contact any of the members listed on the inside back cover. Not only do we all care about the Basin's resources because we are water quality professionals, but also we make our lives along these waterways, and believe that it is our responsibility to protect them and enhance the quality of life of all watershed residents.

Sincerely,

Mark Watts
Chemung County Soil and Water Conservation District
Upper Susquehanna Coalition Chair

Below Centerway Bridge

*A tree stump, tall as me,
roots clawing at the sky,
arrived overnight from upriver.
Grotesque, alluring:
it pulled me across the flat expanse.*

*Clutched in its roots --
leaves, grasses, rocks:
a giant molar yanked from the earth,
bits of pulpy flesh still clung to it.*

*And it smelled of the forest:
musty, immutable, alive,
even after rolling and lolling
untold miles from its leaf-lined grave.*

*Bare, barkless,
speckled like a leopard's pelt,
the wood invites touch.
I close my eyes, run my hands
over taut shoulders,
smooth flanks,
rills of fierce paws.*

*A hum begins at the base of my tongue,
comes out a whisper:
Where did the river get it?*

- Rhonda Morton

Note: Centerway Bridge crosses the Chemung River in Corning, NY.

The Upper Susquehanna Coalition

The Upper Susquehanna Coalition (USC), established in 1992, is a network of county natural resource professionals who develop strategies, partnerships, programs and projects to protect the headwaters of the Susquehanna River and Chesapeake Bay watersheds. Comprised of representatives from 11 counties in New York and three in Pennsylvania, the USC has partnered with local, regional, state, federal, academic and non-governmental organizations to conduct projects on varying watershed scales.

The New York representatives are members of each county's Water Quality Coordinating Committee. These committees are multi-disciplinary groups consisting of local health, planning, and highway departments; cooperative extensions; environmental management councils; engineers; water purveyors; soil and water conservation districts; and citizens groups. The Pennsylvania representatives are members of each county's Chesapeake Bay Committee. All USC members have signed a Memorandum of Understanding that reflects their endorsement of the development of non-point-source projects on a watershed basis. The USC has three standing committees: Executive, Education, and Planning/Implementation.

Upper Susquehanna Coalition County Representation

Pennsylvania

Bradford
Susquehanna
Tioga

New York

Broome
Chemung
Chenango
Cortland
Delaware
Madison
Otsego
Schuyler
Steuben
Tioga
Tompkins

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USC Activities

WATERSHED ASSESSMENT AND PLANNING

A watershed assessment delineates stream reaches, flood plains, streambank erosion, gravel deposition, nutrient loading, areas of high animal concentration, and other potential problems. It also creates a comprehensive understanding of how the watershed functions in relation to hydrological characteristics, drainage patterns, topography, land cover, land uses and misuses, precipitation events and other parameters.

All counties participate in this assessment, which is used to develop comprehensive restoration plans to help relieve some of the problems, and to prioritize sub-watersheds for future restoration and protection projects. The USC, in partnership with NYS Department of Environmental Conservation and USDA Natural Resources Conservation Service, recently has developed a watershed restoration and protection strategy (WRAPS) that will serve as a template for project implementation.

Multiple Barrier Approach

To leverage watershed-based work even further, the USC, in partnership with the Water Resources Institute at Cornell University, is testing a “multiple barrier approach” (MBA) for addressing watershed issues. The MBA addresses issues (such as flooding, streambank erosion or degraded fish habitat) at the **source** (e.g., headwaters), **across the landscape**, and in the **stream corridor**, as well as **outside of the watershed** (e.g., regulations, training). By developing multiple projects to address problems, we can achieve tangible results over a wide range of funding levels, and increase the probability of success.

GEOGRAPHIC INFORMATION SYSTEM (GIS)

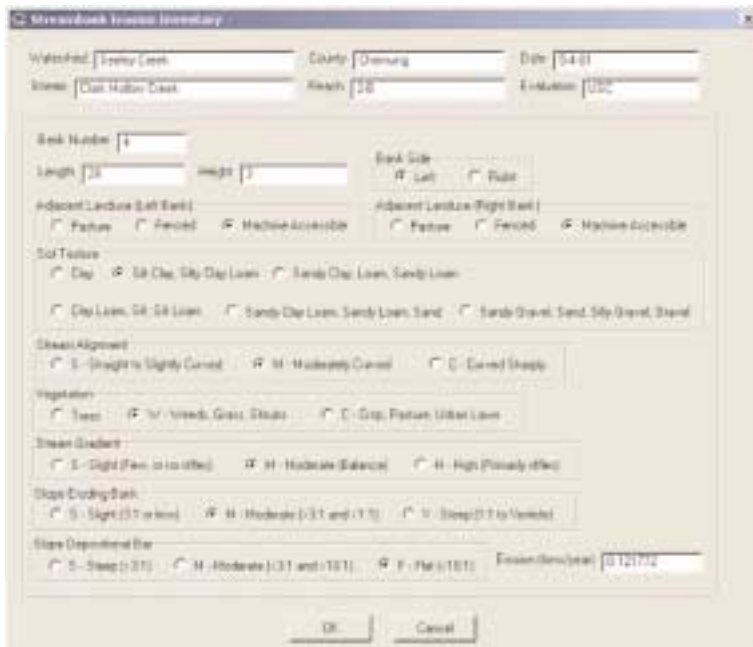
A Geographic Information System (GIS) is a computer program that takes data from various sources and layers it in a usable way. Baseline data layers such as topography, streams, roads, watershed boundaries and town and county lines are used to find the location of the assessment area and to map the stream reach, wetland or road stretch that will be assessed.

The GIS program allows a user to “query” it with a request such as: “give me a map that shows places that have extremely wet soils, slopes of less than one percent, and no buildings, and identify the landowners.” In this example, the answer would provide potential sites for wetland development.

Currently, our member counties use GIS to support projects and programs such as wellhead protection, source water assessment, water quality monitoring, riparian buffer management, and agricultural planning and implementation. The computerized platform also provides useful data to support requests for future funding.

GIS Stream Assessment Tools

There are certain challenges involved in creating and using GIS databases. For instance, it requires a fair amount of training to use, and the data layers are often non-existent, expensive to generate, or too general to be helpful. To alleviate some of these obstacles, Penn State and the USC are developing a GIS-based assessment tool that includes topography, streams, roads, watershed boundaries and town and county lines. The tool features a user-friendly data-entry mechanism to make it easy for those untrained in GIS use to load and access data. The USC is testing this tool with data forms that include Rosgen Stream Classification, streambank erosion quantification, riparian buffer evaluation, wetland evaluation and road ditch erosion potential. The USC plans to test the tool in high-priority sub-watersheds selected from the watershed restoration and protection strategy (WRAPS). This testing also could be done in other watersheds with additional funding.



A computer screen depicting the USDA NRCS streambank erosion survey the USC will use in its new GIS assessment tool.

WATER QUALITY MONITORING

Recognizing that data acquisition is the cornerstone of a water quality program, our members aggressively search for ways to finance and carry out monitoring endeavors. This information helps us determine the effectiveness of our efforts, and alerts us to new concerns early, when it is easiest to address them.

Surface and groundwater quality monitoring is essential to our efforts. For example, Cortland County monitors the Otter Creek/Dry Creek Aquifer to track movement of a TCE plume migrating from an industrial spill site. Some USC members also test well water for coliform, bacteria, nitrates, lead, and other potential pollutants.

The numerous lakes in the region have lakeshore and water quality issues usually related to excessive nutrient loading from the surrounding uplands. Excessive nutrient loading can cause algae blooms and excessive vegetation such as Eurasian water milfoil. It also can reduce or eliminate oxygen in the lowermost, non-circulating layer of cold water in a thermally stratified lake. Programs are in place in some counties to monitor dissolved oxygen, orthophosphate, total phosphorus, nitrate and Kjeldahl nitrogen and pH levels as well as temperature and secchi depth on a regular basis. The SUNY Oneonta Biological Field Station monitors Otsego Lake, the most extensive monitoring in the USC.

Participating Counties

Chemung
Chenango
Cortland
Madison
Otsego
Schuyler
Tioga, NY



Targeted water quality monitoring is key to selecting high priority watersheds for project implementation.

AGRICULTURAL SUSTAINABILITY INITIATIVES

Supporting agricultural sustainability through development of best management practices (BMPs) is a key component of the USC strategy. All counties participate in these best management practices, which include: nutrient management, intensive rotational grazing, critical area protection, milkyhouse waste treatment, barnyard runoff management, heavy use area protection, riparian buffer establishment, silage leachate management, streambank protection, manure management and the use of no-till drills for habitat enhancement.

Correct management of nutrients on the farm is the most important BMP to maintain high water quality in our streams. Environmental Protection Agency regulations now require farms with more than 1000 “animal units” or Confined Animal Feeding Operations (CAFOs) to have Certified Nutrient Management Plans. There has been an intense effort to provide plans to the CAFOs and to extend this planning effort to smaller farms. The USC considers nutrient management to be the basis for long-term farm sustainability and has been partnering with federal and private planners to meet this need. Currently, the USC is involved in more than 200 plans; there is a long-term need for plans to be developed in the future.

Intensive rotational grazing – also known as prescribed grazing management or short duration grazing – is another important BMP promoted from environmental, economic, and family health/lifestyle perspectives. Although this production and conservation practice has been encouraged for more than 15 years here, there remains significant interest by farmers in successfully adopting this practice. While appropriate management is crucial to this practice, it also relies upon other supporting BMPs, typically of a structural nature.

Other programs and projects throughout the USC include providing technical assistance to farmers and securing funding to plan and implement best management practices for water quality protection and enhancement and rewarding environmentally responsible farmers.

To provide an inventory of farm practices and farmer interests, the USC is using the NYS Agricultural Environmental Management Program's tiered questionnaires to create a digital database for developing projects, targeting important agricultural areas and determining important agricultural issues. The use of a single inventory provides consistency throughout the region.

Precision Feeding

Delaware County is using a NYS Environmental Protection Fund grant to fund a project to manage phosphorus from the “front end” of the cow. Through precision feeding and management of off-farm imports, phosphorus reductions can be expected.

Using GIS for Farmer-friendly Planning Tool

Schuyler County received a grant from the Chesapeake Bay Program to evaluate nutrient management planning on 30 farms in the Chemung/Susquehanna watersheds. One of the objectives of this project is to develop farmer-friendly planning tools to improve implementation of nutrient management on farms. Specifically, we have been working to improve the capability of the new Cornell Nutrient Management software to interface with ARCVIEW, a GIS software program. We are also trying to use GIS to simplify the use of Revised Universal Soil Loss Equation (RUSLE) evaluations for farm fields. Confined Animal Feeding Operation plans are requiring that RUSLE evaluations be used and they are very time-consuming, involving field and office work. We will be doing comparisons between the accuracy and need of fieldwork versus in-office determinations. Results will be discussed with the USDA Natural Resources Conservation Service.



A manure storage pit, an important agricultural best management practice, being hydroseeded by Tioga SWCD.

FLOODPLAIN ENHANCEMENT

In Chemung County, floodplain restoration activity includes the removal of an old bridge that accumulates floating debris and the purchase and subsequent removal of several houses to restore portions of the floodplain.

WETLANDS

The USC is developing a Watershed Wetland Program in the Chemung Basin to restore and construct wetlands for flood attenuation, drought prevention, water quality improvement and habitat enhancement. To maximize the impact of several funding sources and many interested entities, we are partnering with NYS Department of Environmental Conservation, PA Department of Environmental Protection, Natural Resources Conservation Service, US Fish and Wildlife Service, Ducks Unlimited, Water Resources Institute, Cornell University, Susquehanna River Basin Commission and local towns to integrate them into one long-term program.

The program has already expanded into the eastern portion of the USC with additional projects being developed in Tioga and Otsego counties.

Participating Counties

Chemung
Otsego
Schuylar
Steuben
Tioga, NY



Wetlands, an important ecosystem component, benefit from "pothole digging" which increases habitat diversity and wildlife values.



In a unique floodplain enhancement project, Chemung County will remove this bridge which collects debris and dams the creek during high water periods.

NATURAL STREAM DESIGN AND STREAMBANK STABILIZATION

Recognizing the value of Dave Rosgen’s holistic approach to streambank stabilization and design that considers the fluvial geomorphology of the watercourse and the dynamic interactions occurring within the system, many counties within the USC incorporate this methodology into technical assistance provided to the public. The USC has supported these efforts by facilitating training sessions for members and partners. Some USC members are implementing projects to test the techniques. The USC also is hosting a bi-state pilot at Bentley Creek where the entire main stem of the creek, in five separate reaches, will be restored. It should prove to be an excellent site for both outreach for natural stream design and evaluation of its value.

Other stream bank stabilization programs include a cost-share program using county funds to assist landowners and municipalities to collaborate on erosion problems along streams and road ditches, with 75 percent of the funding provided by the county and the remaining 25 percent provided by the landowner.

Participating Counties

Bradford
Chemung
Chenango
Cortland
Delaware
Otsego
Steuben
Tompkins

Riparian Buffer Initiative

Soil and Water Conservation Districts in Broome, Chenango, Cortland and Madison counties are partnering with the NYS Department of Environmental Conservation and the USDA Farm Service Agency to develop a riparian buffer initiative in the Otselic River Watershed. Through voluntary landowner participation, the project seeks to reduce streambank erosion and nutrient and sediment loads, while shading the streams to increase aquatic life and water quality throughout the watershed. The Conservation Reserve Program (CRP) will be the primary funding tool where land is eligible. Trout Unlimited, Ducks Unlimited, Pheasants Forever, Chesapeake Bay Foundation, and the U.S. Fish and Wildlife Service are being approached as funding sources for property owners with land that is not eligible under CRP.



A rock weir, root wad and rip-rap in Cold Brook in Steuben County depict some of the old and new technologies available for stream restoration.

ROAD BANK STABILIZATION AND OTHER ROAD ISSUES

There is a lack of understanding on road and ditch maintenance and how they affect streams and waterways. As a result, sand and salt from roads contaminate our water, and road banks are left exposed from road widening and ditch cleaning. This soil becomes excess sediment loading when it ends up in streams. Several counties have undertaken programs to educate highway superintendents, and to provide hydroseeding support to them. (Hydroseeding involves spraying a water-based mixture of seed, mulch, fertilizer and other seeding materials on an eroding area.)

Participating Counties

Bradford
Broome
Chemung
Cortland
Schuyler
Steuben
Susquehanna
Tioga, NY
Tioga, PA
Tompkins

Living Snow Fences

A living snow fence can be a low-cost solution to drifting snow problems, reducing the need for plowing, sanding, and salting. The Cortland County Soil and Water Conservation District is partnering with several governmental and non-governmental entities to plant trees and/or shrubs along roads and ditches, and around communities and farmsteads to create a vegetative barrier that controls drifting snow.



Road ditches are a sediment-producing threat in this hilly region. The USC is installing various practices to reduce this problem.

GROUNDWATER PROTECTION AND STORMWATER MANAGEMENT

All counties are working with various organizations to protect groundwater supplies through groundwater modeling projects and wellhead protection plans. In addition, member counties provide technical reviews for required stormwater plans to address both flooding and water quality impacts, and technical assistance in response to specific stormwater problems or concerns. They also work with town highway superintendents to educate them on important issues and provide them with stormwater design and guidance documents.

Site Designs

To protect water quality during and after new home construction, the landscape must be taken into account. Chemung, Schuyler and Steuben counties through the Southern Tier Regional Planning and Development Board have conducted design clinics for rural landowners to educate them in these matters. In addition, Cornell University landscape architecture students developed innovative housing/commercial layouts for rural properties in Chemung, Schuyler and Steuben counties.

PUBLIC OUTREACH PROGRAMS

Several counties organize River Clean-ups, Watershed Snapshot programs and tours that allow residents and municipal leaders to personally experience rivers up close and to draw attention to the need for caring for our watercourses. In some cases, volunteers maintain records of items collected during the clean-ups, which help determine what is being deposited in our water and on our shores, so that we may eliminate those sources.

Each spring, the Cortland County Soil and Water Conservation District assists the Cortland County Water Quality Coordinating Committee at its annual Water Festival at the Cortland Water Works. The event features fun educational activities for people of every age including: tours of the Cortland aquifer and pump-house, municipal drinking water taste test, Water Jeopardy, coloring and poetry contests, educational displays and presentations.

In addition, new launch sites are being built on several area rivers, with kiosks to dispense river trail guides, carry in/carry out bags, community watershed maps, and launch site rules.

Chesapeake Bay Signage

The entire Susquehanna Basin will benefit from a Chesapeake Bay Sign Project that will place huge “Entering the Chesapeake Bay Watershed” signs on US Routes 81 and 88 and possibly Route 86. The objective is to create awareness of the regional significance of the Susquehanna Basin in New York.



Float trips on the Chemung River have been instrumental in helping to develop an understanding of the watershed, as well as providing interest in new boat launch sites being developed with the aid of Senator Randy Kuhl.

WORKING WITH SCHOOLS AND YOUTH

All of our member counties work with youth and educational programming in some way. Tompkins County operates a youth program through the Summer Youth Employment Program (SYEP). Past projects include stream bank stabilization, trail construction and maintenance, stream structure maintenance, bridge construction and maintenance, surveying, firewood harvesting, beaver dam removal, road bank stabilization, and boat launch construction.

Schuyler County has initiated a stream water quality monitoring program in each of the county's three high schools to promote environmental education and encourage conservation. In addition to receiving classroom instruction, students monitor a stream within walking distance of their school.

In Cortland County, Ronny® Raindrop and a conservation educator make several public appearances throughout the year. They can be seen at local schools, annual festivals, parades, and the county fair educating children on water resource issues. Ideas for at-home activities reinforce water conservation and good water stewardship.

In Tioga (NY) County, schools are notified of trout stocking dates. Upon request, a fish specialist from the Department of Environmental Conservation will give a 15-minute talk discussing fish from spawning to stocking.

The Envirothon

Broome, Chemung, Chenango, Cortland, Delaware, Schuyler, Madison, Otsego, Tioga (NY), and Tompkins counties participate in a national program called "The Envirothon." It is an educational competitive event for high school students designed to raise their environmental awareness in the fields of forestry, soils, wildlife, aquatics, and current natural resource issues. Regional teams compete to go on to state and national levels.



Ronnie Raindrop teaches a classroom of youngsters about water conservation.



Field trips excite the next generation about environmental matters.

SEPTIC SYSTEM EDUCATION

To prevent problems for homeowners and to minimize water quality impacts, it is crucial that homeowners maintain their septic systems. The wastewater coming out of the septic tanks may contain many potentially disease-causing microorganisms and pollutants (i.e. nitrates, phosphates, chlorides). Excessive amounts in drinking water supplies can be harmful to human health and can degrade lakes and streams.

Several member counties are combating these problems through education and evaluation. In Cortland County, they will hold several educational seminars for the public throughout the county regarding septic system function and maintenance. In Delaware County, they will perform a GIS-based assessment of on-site septic systems to determine phosphorus contributions from improperly sited septic systems. In Otsego County, a technician will conduct percolation tests for septic installations.

Participating Counties

Chemung
Cortland
Delaware
Otsego
Schuyler
Steuben

FISH STOCKING AND TREE PLANTING

All members offer fish species such as bass, minnows, trout and grass carp for sale. They also offer advice on stocking recommendations, stocking rates, farm pond permit forms, pond management, pond construction, algae problems, weed problems, outlet and retention information. They also schedule annual trout stocking with the NYS Department of Environmental Conservation.

All counties, through their Soil and Water Conservation Districts, provide a wide variety of tree species for reforestation and habitat enhancement. Hundreds of thousands of trees are sold to local residents for planting.

USC

Contacts

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