

Improving Water Quality in the Mohawk River Basin through Expanding Community Based Stream Monitoring Teams and Riparian Recovery Activities on the Schoharie and Mohawk Watershed

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The Schoharie River Center, Inc. (SRC), a not-for-profit organization formed in 1999 and located in Burtonsville (Montgomery County NY), empowers people to become actively engaged in the scientific study, monitoring, protection and improvement of their local environment. Since 2000, the SRC has been engaged in developing, implementing and operating Environmental Study Teams (EST) - environmental education and youth development programs. The goal of these programs is to increase the awareness, understanding and knowledge of the public as to the emergent environmental issues confronting them, and to provide them with the skills and critical knowledge to make informed decisions and take responsible actions to protect and improve the quality of their local environment and the health and the sustainability of their communities. Specifically, we target for engagement youth (ages 12 – 18), (including at-risk youth) and their families, and underserved communities both urban and rural, to expand current and create new community based Environmental Study Team (ESTs) environmental education programs. Over the last 15 years we have developed valuable experience, knowledge and expertise in how to successfully establish and sustain local EST programs in a range of settings including: non-profit community based organizations (CBO's), school based programs, afterschool programs, summer ecology field schools, and youth employment skills training programs in both urban and rural settings. In addition to being a vehicle for community based environmental education, promoting the values of stewardship and increased environmental literacy at the grass roots level, EST programs have also played vital roles at the local level in pollution monitoring, and in providing trained and motivated volunteer man-power for stream bank and flood clean-up, and riparian area protection, restoration and replanting efforts. After hurricane Irene devastated the Schoharie Valley, the SRC's Environmental Study Team program (youth and adults) worked (and continues to work) to remove flood debris and replant damaged riparian areas along the Schoharie Creek (in Burtonsville) with native trees and vegetation and monitor water quality. Since 2012 the EST program has planted over 3000 trees and is working to restore and replant a 20 acre riparian forest site.

This year (2014) the SRC is partnering with a broad range of CBO's, local schools, County Youth Bureaus, NYS DEC, and area youth and families in four counties to expand current and create new locally run community based Environmental Study Team program in the Mohawk watershed. The purpose of this project is to improve water quality in the Mohawk River Watershed through: (a) expanding water quality monitoring by trained local community based volunteer Environmental Study Teams (EST) conducting regular targeted monitoring of tributaries to the Mohawk River; and (b) restoring the riparian buffers to slow bank erosion and the liberation of suspended sediment into the Mohawk river basin.

The project will be implemented by the Schoharie River Center (SRC) and engage a wide range of community based organizations, school districts and local and state agencies in the development of a network of locally based and operated Environmental Study Team (EST) programs. This program will expand monitoring in the Mohawk watershed, focusing on urban streams, and un-assessed bodies of water that can offer urban and rural youth and their families' access to nature in the city and the surrounding areas. A key component of the program is to train local high school age youth (ages 13 – 18) in the science and skills of water quality monitoring and provide them with a sense of place and connection to their local watershed. Modeled after the Schoharie River Center's highly successful Environmental Study Team Program youth development program, stream sites for bio-assessment will be identified and water chemistry, macro-invertebrate (WAVE) and bacterial (coli-form) data will be collected by trained volunteer stream monitors (EST Youth and adults) utilizing WAVE methodology and data collection procedures. All data will be shared with DEC. The SRC EST program staff (as well as local College faculty and student volunteers, Union and SUNY Cobleskill) will provide EST members (including at risk youth) with training and guide them through the learning process of watershed analysis and remediation. Special priority for monitoring will

be given to un-assessed waters and those identified and targeted by DEC, local SWCD offices, the community and Union College.

Riparian restoration activities will target those sites where channel and banks were obliterated by flooding and post-flood channel modification by earthmoving equipment, such as has occurred on parts of the Schoharie Creek near Burtonsville (Montgomery County) and in Fort Plain, where flash floods and the resultant clean-up efforts have heavily impacted the Otsquago Creek.

Focusing on exposed clay banks for replanting efforts, we will study how best to plant these and similar areas with native riparian plantings such as willow stakes, sedge, and other native vegetation. Utilizing programs such as NYS Trees for Tribs and local SWCD's for obtaining native plantings, the EST programs will work with local communities and property owners to identify and restore riparian buffers local to the different EST chapters developed and operated by the SRC and other local community stake holders.(Burtonsville, Fort Plain, Amsterdam, Schenectady and in Schoharie County).

The benefits of EST programs to the communities they operate in are multi-faceted. Environmental, social, and civic benefits include improving the quality of life of urban residents through introducing them to nature and green spaces within their own communities (within the Mohawk River watershed). These efforts highlight the importance of having and protecting fresh water resources in urban areas such as parks, so that they and future generations can experience them. The direct interaction by the students with their environment will instill a sense of pride and ownership in local community green spaces and show students how these spaces are woven into the fabric of the watershed.

In the longer term, the field research and documentation that is completed through the EST program adds to the body of scientific information available to the public regarding local water quality of fresh water streams, lakes and rivers within the Mohawk watershed. Volunteer stream monitoring programs provide a wide variety of youth and their local community with a positively focused role for youth who are interested in the study of Environmental Science. All youth who participate will be able to grow and profit from the programs experiential hands-on approach to learning, development of life skills and learn how to integrate and apply academic learning into real environmental research and water quality assessment studies they conduct them in their home communities and local watersheds.

Local Partnerships for Improved Water Quality and Stronger Communities

EST youth become adept at working with the public in a variety of settings. The community also benefits by learning about the watershed they live in, increasing public interest (and input) into local community environmental decisions. By raising public awareness through involving youth in positive, constructive goal-oriented research and community education all parties benefit in the long term. The SRC will assist and support other community based organizations and schools wanting to develop their own educational/volunteer stream monitoring programs and assist them with the recruitment, training, startup and on-going technical support of new EST programs within the Mohawk River watershed.

The SRC has formed new EST program initiative partnerships with local organizations in Fort Plain, Schenectady, and Southern Schoharie County.

The Schoharie River Center:

In operation since 1999, the SRC has demonstrated an unprecedented commitment to develop environmentally literate, self-directed individuals who are able to identify and work toward positive life goals and achieve constructive change in their lives. Since 2001, our EST programs have engaged more than 800 students, ages 12 – 20 yrs, from four counties (Schenectady, Schoharie, Albany and Montgomery counties) and nine school districts,

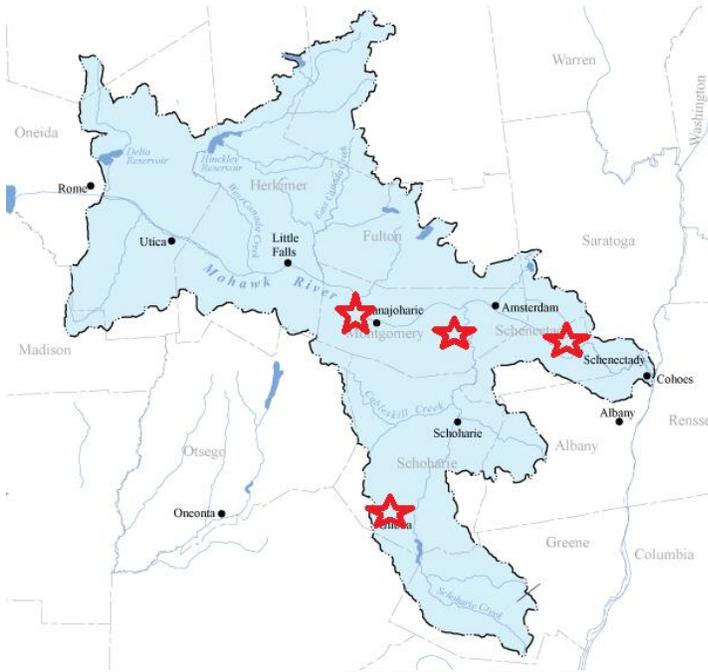
training them in the use of federal and state stream monitoring protocols to assess and document the water quality of their local streams, lakes and rivers. While the EST program is open to all interested youth, the program specifically engages at-risk and underserved youth from the urban and rural areas of New York State's flood-impacted Mohawk River Basin, Schoharie Valley Watershed area, and the upper Hudson River area. Engaging youth (and their parents) in a year-round, multi-year environmental science based experiential learning Environmental Study Team program which emphasizes the integration of Science, Technology, Engineering, Arts and Mathematics skills (STEAM) into the ongoing activities of the program.

The SRC's experientially based environmental education model provides hands-on, professionally-supervised outdoor learning activities, professional development training for teachers and community volunteers interested incorporating environmental education focused experiential learning into their professional skill set. In addition to our experience in operating environmental education programs, the SRC also has worked for 9 years with Hartgen Archeological associates of Albany to provide a summer community-based archeology field school for interested youth (including at risk youth), and traditional arts workshops that showcase traditional artists, local crafts, music and literature. The SRC is committed to educating people about environmental issues and the relationship between the natural environment and human activity, through engaging them in citizen based environmental science monitoring and research, and the study of natural history, traditional culture, and local history.

The Schoharie River Center is located on the Schoharie Creek in Burtonsville, NY (in the Town of Charleston in Montgomery county). The Center is situated in the hamlet of Burtonsville on a 20 acre wooded riparian area nature preserve and owns four buildings including a 2500 square foot Environmental Education Center with an attached dedicated research space - 1000 sq foot David Remling Science Laboratory. In addition the SRC owns a 3000 sq. foot meeting and exhibit hall and a two story conference center building that can accommodate lodging for visiting artists, or researchers. For over 15 years the SRC has been providing innovative community based programming to a wide variety of audiences. Consistent throughout our history of community based services has been the commitment to work with at-risk youth populations and underserved communities. Since 2000 the organizations EST and summer youth programs have targeted for services youth involved with social services and juvenile justice programs in Schenectady and Schoharie counties. The SRC has worked closely with the Schenectady County Departments of Social Services Office of Children and Family Services and Schenectady County Probation Department's Juvenile Justice Center to develop innovative, experientially based programs for at-risk and troubled youth. In addition the Center has worked with the Schenectady Job Training Agency (SJTA) to provide an experientially based environmental summer youth employment program for over 80 high school age youth attending Schenectady High School and selected for participation due to concerns about level of academic readiness for the fall.

Fort Plain EST:

In Fort Plain the SRC and the Friends of Fort Plain (FoFP), a non-profit organization located in the center of the village of Fort Plain, and interested in developing a local volunteer Stream/River monitoring program have begun working with the Fort Plain Schools and the Canajoharie Schools to engage community members, (including middle and high school youth) and teachers in learning about, enjoying, studying and protecting the Otsquago Creek watershed (a tributary of the Mohawk River). An initial kick off for the program's activities is planned for July 2014, with an initial one week Watershed Ecology Field School program to occur at FoFP's offices at Diefendorf Hall.



Red Stars indicate location of EST environmental stream monitoring programs

Schenectady:

The Schenectady City School District’s **Mont Pleasant Middle School** is working with the SRC to develop a MPMS EST club for students at the school. The **MPMS EST Club** is open to any MPMS student in 7th – 8th grade and participates in both school based environmental projects and at the Schoharie River Center’s EST program in Duanesburg. Busing to the SRC is provided, and youth, faculty and parents regularly participate, year round.

The Capital Region Maritime Center, located in Alplaus NY is the capital regions only facility dedicated to maritime sciences and education. The Maritime Center will be working with the SRC to develop an Environmental Study Team Program for Capital Region youth with a focus on understanding the ecology of the Mohawk River. Targeting to attract interested youth from all areas of the region, the Maritime Center is easily accessible from southern Saratoga County, and the towns of Niskayuna, Scotia, Glennville and Burnt Hills, as well as the City of Schenectady.

Schoharie County EST :

The SRC has work closely with community stakeholders, youth and parent living in Schoharie County for many years. Youth and families from Schoharie, Cobleskill-Richmondville, and Esperance participate regularly in EST program activities. The Southern Schoharie County communities of Gilboa, Conesville, Jefferson, Blenheim and Middleburgh, are located in the Catskills and Schoharie Valley watershed just below the Gilboa reservoir. Rural, isolated and historically underserved, these communities all lie within the Schoharie watershed, and are prime locations that would both benefit from and contribute important information to a coordinated network of volunteer stream motoring programs that engaged local youth and families. The New York Power Authority and the **Mine kill and Max V. Schaul State Parks** are three local state organizations located in Southern Schoharie County that have agreed to partner together with the Friends of Mine kill State Park and the SRC to develop a South Schoharie County EST program specifically targeting for service local youth from these rural communities. Utilizing the Mine kill State Park as the home base for a Schoharie EST program, the SRC and the education staff of Mine kill and volunteers from the **Friends of Mine kill** seek to establish an EST chapter at the Park that will focus on the study

and assessment and monitoring of water quality of the of the Schoharie and its tributaries in southern Schoharie county.

Program Coordination and Sustainability:

Training, program coordination, data collection and ongoing program support and technical assistance to the EST programs will provided through the ongoing involvement of the SRC (working in coordination with DEC and other resources) with the various EST chapters at the various sites. It is our intent that while each EST site over time will develop independently, the SRC will continue to provide a center axis of support for all the Mohawk Watershed EST programs, working to coordinate the activities of the network, providing opportunities for the various EST programs and sites to work together, share information, research, data and learning opportunities. Ongoing funding for this network of community based environmental education, youth development and stream monitoring programs will need to be leveraged from a variety of community stakeholders who benefit from the programs activities. New York State DEC, County and New York State social welfare agencies, Youth Bureaus, Schools, and local citizens and community groups all need to be willing to remain involved in and committed to the effort to support this program.

For more information about the Environmental Study Team Program or find out how you can become involved in EST please contact John McKeeby at the Schoharie River Center, 2025 Burtonsville Road, Esperance NY 12066, email: schoharierivercenter@juno.com.