



At A Glance: Six-Year Ecological Study Completed

DuPont, in coordination with the South River Science Team, has been conducting an ecological study of the South River and South Fork Shenandoah River since early 2005. The six-year study, which was part of a legal agreement between DuPont and the Natural Resources Defense Council (NRDC) and Virginia Chapter of the Sierra Club, is now complete and the final report is being written.

Specific activities were required as part of the study and were aimed at answering questions related to mercury contamination. Activities focused on how mercury is entering the South

River and its food web, why mercury continues to be elevated in fish in the South River, and how to potentially prevent or reduce the entry of mercury into this ecosystem.

In August 2012, the final report will be submitted to the NRDC, Virginia Department of Environmental Quality, U.S. Environmental Protection Agency, and U.S. Fish and Wildlife Service. It will include physical, chemical, and biological results and a discussion of the safe and feasible remedial actions that may be helpful in reducing mercury entry into the rivers.



In This Issue...

At A Glance:
Six-Year Ecological Study Completed

Tech Corner:
Riverbank Work at Parks to Improve Water Quality

From the Team...
Focus of Science Team Shifts to Testing Remedial Actions

Did You Know?
Community Mural Brightens Up North Commerce Avenue

About this Newsletter...

In the Fall 2000, the South River Science Team was formed to serve as a focal point for technical issues concerning mercury in the South River and downstream waterways. The Science Team is a cooperative effort between the Virginia Department of Environmental Quality, Department of Health and the Department of Game and Inland Fisheries and representatives from academia, citizens groups, the Environmental Protection Agency and DuPont. The Science Team provides technical direction for the mercury monitoring program and ensures that there is effective communication provided to the users of the river. The Science Team's goal is to understand why mercury in South River fish has not decreased over time and to identify potential solutions to improve the situation.

TechCorner: Riverbank Work at Parks to Improve Water Quality

In April 2012, the City of Waynesboro received a grant to make riverbank improvements at Ridgeview Park and Wayne Avenue Pocket Park with the ultimate goal of improving South River water quality in these areas. Ridgeview Park is located upstream, and Wayne Avenue Pocket Park is located just downstream of the former Rife-Loth Dam (also known as the Ram Works Dam). The grant comes from the Environmental Protection Agency (EPA) Potomac Highlands Program, with American Rivers administering the funding. Through partnerships with the Virginia Department of Conservation and Recreation, Virginia Department of Game and Inland Fisheries, South River Science Team, DuPont, and Trout Unlimited, the City will stabilize riverbanks, restore habitats near the river, and better manage water runoff into the South River during storms. The project is in the planning stages, with work expected to begin next summer.



This photo shows a bioretention filter at Kate Collins Middle School in Waynesboro. A bioretention filter is an engineered system consisting of a shallow, constructed depression that is planted with deep-rooted native plants and grasses. It is designed to slow down the rush of water from hard surfaces (like parking lots) during a storm. Plants and the depression hold the water for a short period of time so that it can naturally be absorbed by the ground. The plant roots and infiltration chambers filter out the pollutants so that the water that ultimately flows underground into the river is clean.



These photographs show current conditions at Ridgeview Park (above) and Wayne Avenue Pocket Park (below).



At Ridgeview Park, similar to many other riverbanks throughout Waynesboro, rocks are prevalent in the riparian zone (i.e., the interface between the land and the river). Using the grant money, most of the rocks in the riverbank will be replaced with natural vegetation. The riverbank will be graded to an appropriate slope, and native trees, shrubs, and grasses will be planted to provide shade for the river and reduce water temperatures. These plantings will also provide a habitat for animals. In addition, root wads and woody material will be placed in the river to enhance the fish habitat in this area. Several parking spaces from a nearby parking lot will be removed and replaced with a bioretention filter to capture and treat rainwater from $\frac{3}{4}$ acre of pavement before it reaches the South River. (For more information about bioretention filters, see the shaded box.)

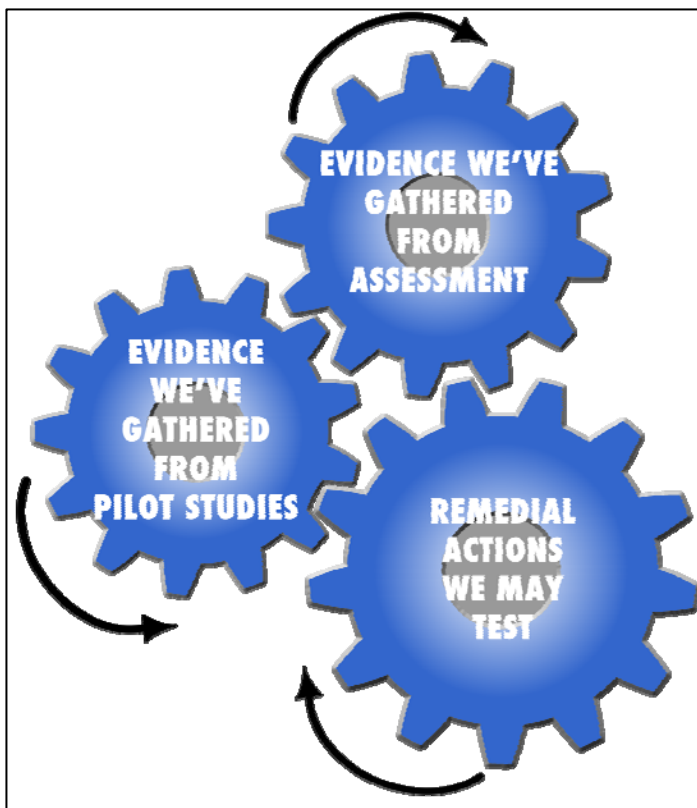
At Wayne Avenue Pocket Park, the eroded riverbank has been contributing to sediment pollution in the South River. The plan at this park involves grading the riverbank to reduce the steepness of the bank and stabilizing it by planting native vegetation. The vegetation will not only help reduce erosion, but also help buffer the South River from nutrients and bacteria contained in storm water runoff.

For more information about this work, contact Trafford McRae at (540) 942-6627 or McRaeTR@ci.waynesboro.va.us.

From the Team...

Focus of Science Team Shifts to Testing Remedial Actions

Since its inception in 2000, the South River Science Team has conducted studies to understand how mercury enters the South River and its food web and why mercury in South River fish continues to remain elevated some 60 years after it was used at the former DuPont facility in Waynesboro. Much has been learned by the team over the past 12 years, and a better understanding has been reached regarding the mechanisms by which mercury enters the South River. Now that this assessment phase is complete, the Science Team will increase its focus on testing ways to interrupt the mechanism of mercury entry. The team will continue to design and implement pilot-scale remedial actions and test whether these actions are capable of eliminating or reducing mercury entering the South River.



The Science Team is shifting gears, moving from assessing the river to testing remedial actions.

Evidence collected over the years indicates that the erosion of river bank soil, especially soil containing legacy mercury, is one of the primary mechanisms for mercury entering the South River and becoming incorporated into the food web. Based on this information, the Science Team conducted a bank stabilization pilot study and a carbon amendment pilot study in a floodplain pond. Both of these



These three pilot study photos (from top to bottom) show an eroded riverbank before, during, and after stabilization.



efforts have been highlighted in past newsletter issues. Future issues of this newsletter will discuss additional remediation pilot studies that the Science Team will test to determine which actions are effective in eliminating or reducing mercury entry into the South River.

For more information, contact Mike Liberati at (302) 598-9936 or Michael.R.Liberati@dupont.com.

Did You Know?

Community Mural Brightens Up North Commerce Avenue


For over two weeks in May, Wenonah Elementary School students and children from Basic United Methodist Church's Casa de Amistad painted a brightly colored mural near the Park Station Villas on North Commerce Avenue.



The two-sided, 50-foot long mural depicts children holding hands and playing soccer.

Mary Baldwin College students and

instructors from the School of Art in Perquin, El Salvador helped the children paint the mural, which has become a source of pride for nearby residents. Located next to the community garden, the mural is the first outreach art program for the Mary Baldwin College Spencer Center for Civic and Global Engagement. Claudia Bernardi, a Mary Baldwin Artist-in-Residence, led the project and has a history of using art to rebuild communities through murals that celebrate growth, unity, and diversity. More information about the Spencer Center is available at http://www.mbc.edu/spencer_center/; information about the School of Art in Perquin is available at <http://wallsofhope.org>.

 Printed on recycled paper

To be added or deleted from our distribution list or to receive the newsletter electronically, contact Kathy Adams at (302) 999-3856.

South River Science Team
Attn: Kathy Adams, Technical Writer
508 West Main Street
Waynesboro, VA 22980

CONTACTS:

Virginia Dept. of Environmental Quality
Don Kain, (540) 574-7815
donald.kain@deq.virginia.gov

Virginia Dept. of Game and Inland Fisheries
Paul Bugas, (540) 248-9360
paul.bugas@dgif.virginia.gov

Virginia Dept. of Health
Doug Larsen, (540) 332-7712
douglas.larsen@vdh.virginia.gov

DuPont
Mike Liberati, (302) 598-9936
michael.r.liberati@dupont.com