



At A Glance: Science Team Continues to Promote Awareness of Fish Consumption Advisory

One of the most important tasks of the South River Science Team is to communicate the mercury-related fish consumption advisories that are in effect for the South River and South Fork Shenandoah River. In 2009, the Science Team continued its efforts by installing outdoor billboards to post the Department of Health advisory signs and other South River information. The billboards are located in areas where people gather before fishing, such as Constitution Park and Basic Park in Waynesboro, Grottoes Town Park, Grand Caverns, and Crimora Park. As seen in the photo, people can refer

to the English and Spanish advisory signs posted on the billboard or take a brochure home with them to read. In 2010, the Science Team plans to install additional billboards at other river access locations to promote the awareness of the fish consumption advisories.

If you would like an English or Spanish brochure describing the advisory and lists the answers to frequently asked questions, contact Calvin Jordan of the Virginia Department of Environmental Quality at (540) 574-7802. The brochures



Advisory signs are posted and brochures are available at the outdoor bulletin boards.

are also available at <http://www.southernriverstudies.com/advisories/brochures/index.html>.

In This Issue...

At A Glance:
Science Team Continues to Promote Awareness of Fish Consumption Advisory

Tech Corner:
Riverbank Stabilization Project Complete

From the Team...
Task Team Evaluates Human Exposure

Did You Know?
Volunteers Clean Up Two Tons of Debris from South River

About this Newsletter...

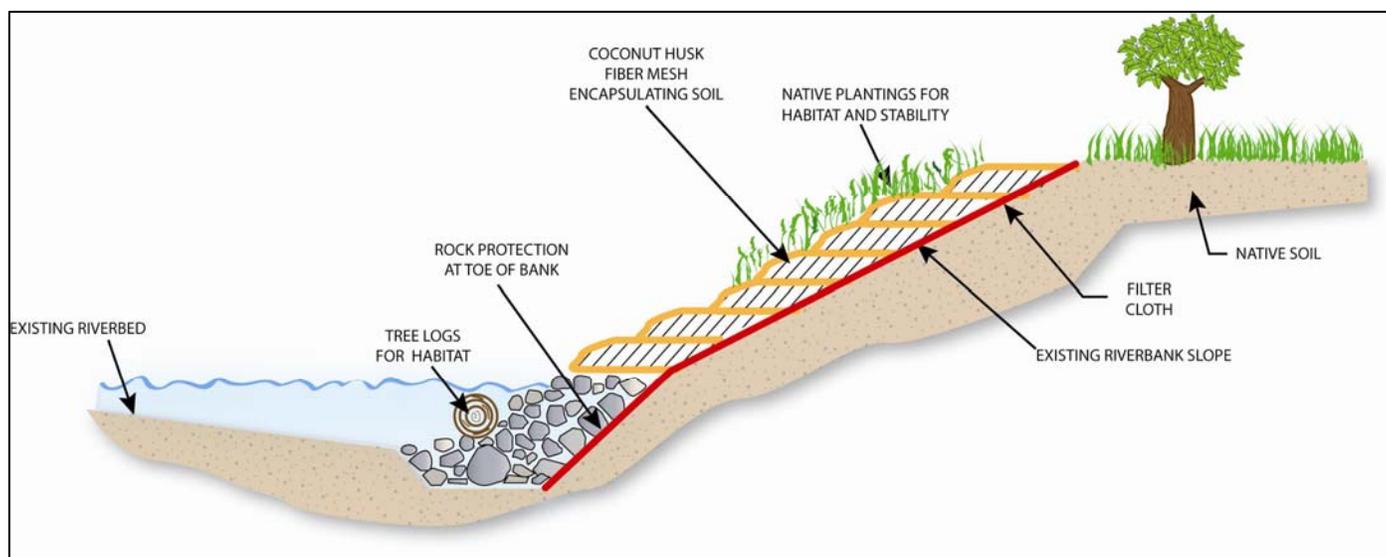
In the Fall 2000, the South River Science Team was formed to serve as a focal point for technical issues concerning mercury in the South River and downstream waterways. The Science Team is a cooperative effort between the Virginia Department of Environmental Quality, Department of Health and the Department 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 Stabilization Project Complete

Several partners on the South River Science Team have completed construction of a remediation pilot project on the banks of the South River in the City of Waynesboro. The erosion of mercury-contaminated soil from riverbanks is believed to be a significant source of mercury to the South River. As highlighted in the Spring 2008 newsletter, the bank stabilization pilot project was designed to stop soil erosion into the river and enhance the fish habitat and the riparian zone (i.e., the interface between the land and the river). The restored riverbank is located immediately downstream of the Invista plant site, on the east riverbank across from Constitution Park and upstream of Rockfish Run.

dam made of sand bags into the river to protect the work area and isolate the construction area from the main flow of the river.

Then the team began work on turning the design into reality. Rocks were placed at the base of the bank to buffer the shear stresses of the river and protect the riverbank from future erosion. Tree logs were placed in the rocks for fish habitat. A series of coconut mesh, fabric-encapsulated soil lifts were placed in tiers on the riverbank slope. The fabric-encapsulated soil was seeded with grasses and planted with native woody shrubs such as elderberry and willow. Finally, at the top of the bank, native trees such as



Schematic showing all of the components of the design of the riverbank stabilization pilot project.

The Department of Game and Inland Fisheries provided input on the design, which involves rocks and woody debris at the base of the riverbank, fabric-encapsulated soil lifts, and plantings of native species on the riverbank slope and the top of the bank. With this design, the riverbank should withstand river flows during large storms without adversely affecting flood levels elsewhere along the river.

First, contractors prepared the area for construction by clearing the vegetation on the riverbank. This section of riverbank, located downstream of the Invista plant, is a few hundred feet long and is approximately 8 feet high. A lot of the vegetation that the team removed consisted of plants that were not native to the area or that were too large for the riverbank to support. The team also placed a coffer

sycamore, red maple, hackberry, and sumac were planted. As these trees mature, they will provide shade for the river and a buffer between the river and the floodplain. On the slope of the bank, the coconut mesh fabric will degrade just as the woody shrubs and grasses take root and provide strength and stability to the slope.

Members of the Science Team have developed a comprehensive monitoring program to assess the effectiveness of the riverbank stabilization. The team will monitor the riverbank, looking for visual and physical evidence of erosion and evidence of freshly deposited mercury-impacted sediment on the slope of the remediated bank. Because the pilot project may provide information about mercury behavior in the river system, scientists from the Science Team (continued on page 3)

*TechCorner: Riverbank Stabilization Project
(continued from page 2)*

will measure mercury levels in water and river sediment and aquatic organisms before and after construction of the stabilized bank. In the future, the Science Team may identify and test other options to reduce the transport of mercury-impacted soil into the river.

For more information about the project, contact Nancy Grosso at nancy.r.grosso@usa.dupont.com or (302) 999-3114.



Photograph showing riverbank during placement of the fabric-encapsulated soil lifts.

From the Team...

Task Team Evaluates Human Exposure

Mercury in fish in the South River and South Fork Shenandoah River has been investigated since its discovery in the 1970s. Soon after, fish consumption advisories for the rivers were instituted. Although human exposure has always been a focus of the mercury investigations, the Science Team formed a dedicated work group to systematically identify, study, and communicate potential risks and uncertainties associated with human exposure to mercury. The Exposure Task Team consists of representatives from the Virginia Department of Environmental Quality, the U.S. Environmental Protection Agency, the Virginia Department of Health (VDH), the Virginia Department of Game and Inland Fisheries, the Virginia Department of Agriculture and Consumer Services, and DuPont.



The Science Team collected over 1,200 samples from the South River floodplain.

Since its inception in August 2008, the team has focused on identifying potential human exposures to mercury in both rivers and evaluating where additional studies are needed. These potential mercury exposures to people include eating fish; using the river for recreational purposes; drinking water; contacting floodplain soil and air; and eating crops, wildlife, or livestock from the floodplain. The Science Team has been engaged in various efforts over the last 10 years to gather information on these potential

exposures, including sampling soil, growing crops on the floodplain, and evaluating the protectiveness of the fish consumption advisories. This information is summarized in a fact sheet entitled *People, Mercury, and the River*. Soil sampling results were communicated to property owners and also summarized in a fact sheet that will be available at the Science Team's web site.

For all of the exposure pathways studied, current measures appear to be protective. Local health clinics and private physicians have been informed about mercury contamination in fish and asked to report any signs and symptoms that could be associated with eating fish contaminated with mercury. To date, the VDH has received no such reports. Specific information on potential exposures via wildlife and livestock consumption is somewhat dated and the Task Team plans to further evaluate these exposures in the next year.

The main goal of the Task Team's efforts is to ensure the protectiveness of the local community. Because fish consumption is the primary potential exposure, additional efforts are underway to promote the awareness of the fish consumption advisories. The VDH recently conducted a survey in South River health clinics to assess individuals' knowledge of the fish advisory. In addition, outdoor billboards have been installed at several locations along the South River to improve the visibility of the advisory signs (see page 1 for more information).

The Science Team plans to continue its efforts over the next year with the intent of evaluating and communicating any new findings.

For more information, contact Annette Guiseppi-Elie at Annette.Guiseppi-Elie@usa.dupont.com or (864) 224-5058.

Did You Know?

Volunteers Clean Up Two Tons of Debris from South River

Government and business volunteers as well as local citizens participated in the First Annual South River Cleanup on September 11, 2009 as part of our nation's National Day of Service and Remembrance. Individuals from the Virginia Department of Game and Inland Fisheries, the Virginia Department of Environmental Quality, James Madison University, and URS Corporation organized the event where volunteers removed over two tons of debris from 16 miles of river. Fifty-one people volunteered in the cleanup, including individuals from Trout Unlimited, Augusta-Rockingham Monitors, and REO Enterprises. Volunteers split up into five float crews and removed (among other items) 15 shopping carts, 117 car tires, four car batteries, a computer monitor and stereo system, and a toilet. All items collected were sent to the landfill, except for the tires, which were recycled. A true grass roots effort with no budget, the event was supported by local organizations. The City of Waynesboro donated trash bags and gloves, the Augusta County Landfill waived the tipping fees to dispose of the debris, and Riverfest fed the volunteers a delicious breakfast at the start of the day.



A volunteer loads up a canoe with debris from the river.

Despite the amount of debris removed from the river, volunteers commented on the amount that remained. The event will be held again next year on September 11th, and organizers will begin planning the details in late spring or early summer in 2010. If you are interested in volunteering or would like to sponsor the event, contact Paul Bugas (paul.bugas@dgif.virginia.gov) or Calvin Jordan (william.jordan@deq.virginia.gov).

 Printed on recycled paper

To be added or deleted from our distribution list, 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) 999-2891
michael.r.liberati@usa.dupont.com