

Rappahannock Friends and Lovers of Our Watershed

Preserving, protecting, conserving, and restoring the watersheds of Rappahannock County

RappFLOW is a grassroots group of citizen volunteers representing the varied interests of people who live in and around Rappahannock County, Virginia.

To learn more about RappFLOW, go to our Web site:

www.RappFLOW.org

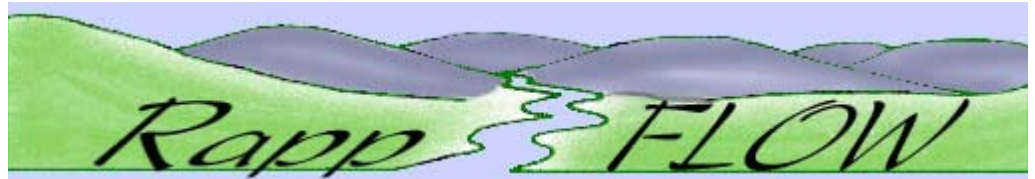
Or e-mail us:

mail@RappFLOW.org

Go with the Flow!

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Currents 2005

RappFLOW—The Journey So Far

By Janet Davis and Beverly Hunter

In summer 2002, interested citizens and representatives from local and regional groups founded RappFLOW. Our mission is to help preserve, protect, conserve and restore water resources and Rappahannock County’s watersheds.

Our first phase of work in 2003 and 2004 was funded in part by the National Fish and Wildlife Foundation and more than \$31,000 in matching, in-kind support from local organizations and volunteers. Phase I established a foundation for future watershed protection efforts through broad community involvement; education and outreach; an atmosphere of inclusiveness and openness; strong ties with experts in government, business, and nonprofit organizations; and identification of high-priority watershed protection issues.

Watershed: The specific land area that drains water into a river system or other body of water. For more on watersheds, go to page 7.

RappFLOW planned, promoted, conducted, and reported on five public education events on air and water quality in Shenandoah National Park; riparian buffers; erosion, sedimentation, and stream protection; sustainable forestry; the effect of agriculture on water quality; and pollution-mitigation strategies. Attendance increased at each public event, from 75 participants at the first to 300 at the last. Partners include citizen volunteers, state and federal agencies, local government, and local and regional conservation organizations (see page 12).

At a strategic planning workshop in September 2004, twenty-five representatives of different stakeholder groups identified the following issues as central to future watershed

management and water-quality protection in Rappahannock County:

- ◆ Need for detailed data on water quality and related land cover and land use, in a usable form to support decision making by landowners and local leaders on watershed assessment and water-related priorities



The Rappahannock River, near Amisville

Photo by Hal Hunter

RAPPFLOW JOURNEY, from previous page

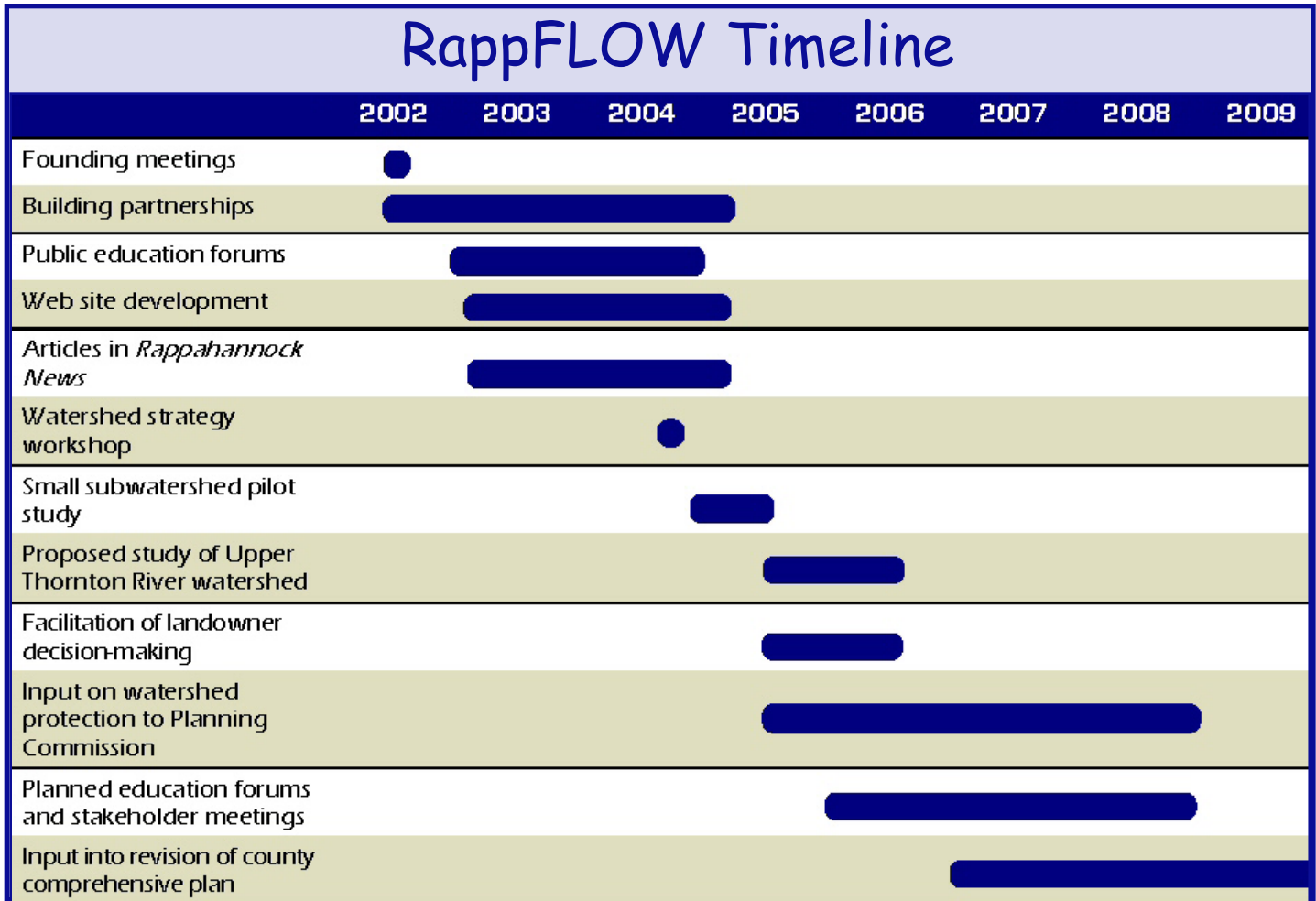
- ◆ Increasing fragmentation of land holdings, cover, and use due to development, gentrification, and shifts in agricultural economics and practices
- ◆ Need for greater landowner awareness and education regarding best management practices and associated cost-sharing programs, such as the Conservation Reserve Enhancement Program
- ◆ Need for deeper awareness and understanding among citizens and civic leaders of watershed and water-quality concepts, facts, and issues
- ◆ Need for stronger and more detailed implementation of the policies and principles of the Rappahannock County Comprehensive Plan and enforcement of existing ordinances.

RappFLOW organizers worked in the fall and winter of 2004 to decide how to meet these needs. We chose the Rapid Watershed Assessment methodology for identifying and analyzing key information because we want to establish a scientifically defensible knowledge base. In

January 2005 we sent a proposal to the National Fish and Wildlife Foundation for a project to protect a local watershed (see page 7). From January to June 2005, we studied a subwatershed south of Sperryville to test a process of analysis.

Rapid Watershed Assessment: A method of determining watershed health using trained volunteers and requiring only about 18 months to complete. Created by the Center for Watershed Protection, a nonprofit organization in Maryland this “rapid” assessment includes methods that are relatively cheap and easy while producing timely, useable information.

As we go forward with new initiatives, we continue to provide input on watershed protection to the Board of Supervisors and to the Planning Commission, and to hold educational forums and stakeholder meetings on water-quality issues.



Why Watershed Protection Now?

By Beverly Hunter

Rappahannock County is not experiencing a water crisis—now. As Janet Davis, a RappFLOW founder, said in a recent workshop, “People see our streams as clean and plentiful.” So, why is now the time for the county’s citizens to learn, study, and make decisions about protecting our watersheds here in the headwaters of the Rappahannock River watershed?

Over the past two and a half years, hundreds of people of all sorts have participated in and contributed to public education forums organized by RappFLOW and its partners. We have been learning from each other, and from experts who generously donate their time to help us. We’ve been learning about such things as

- ◆ The use of vegetative cover to protect our streams and ponds
- ◆ The solution (and avoidance) of erosion problems on our driveways and private roads
- ◆ Management of our forests for multiple purposes, including watershed protection
- ◆ The impact of our individual and collective decisions about how we use our land on stream and habitat quality for ourselves, plant and animal life, and our downstream neighbors
- ◆ Cost-sharing programs, conservation easements, and expertise offered by state and federal agencies
- ◆ The Chesapeake Bay Agreement, tributary strategies, Total Minimum Daily Loads (TMDLs), and other federal and state initiatives designed to help clean up the Chesapeake Bay watershed.

We have learned that watershed protection is both very simple and very complicated. It is simple, because trees and other vegetative cover are the most powerful protectors of our streams. More than 7 percent of Rappahannock County’s land cover is forested.

Yet it is complicated, for natural, economic, educational, cultural, and political; for example reasons:

- ◆ The water in more than 2,000 tiny streams that criss-cross our county lands is more vulnerable to pollution, erosion, and sedimentation than is the equivalent amount of water in a larger river downstream.
- ◆ Our land uses are in transition. Under current zoning, the number of houses, private roads, and driveways could triple beyond the number of such buildings and roads that we currently have.
- ◆ Landowners make land-use decisions, so every landowner needs to be aware of, understand, and care about the ways in which his or her decisions and actions affect the watershed and water quality.

- ◆ External developments, such as global commerce, affect the economics of our local agricultural practices and industry.
- ◆ Staff time and political will are required for strict enforcement of ordinances, such as those designed to prevent erosion and sedimentation.

- ◆ Land-use taxation and other incentives we use locally to help keep our land in agriculture and forestry are subject to economic and political forces that can change at any time.

Then again, for us Rappahannockers, the matter actually is simple: we love our natural world.

What is more satisfying than having a good crop or healthy animals, because they grow on healthy land and clean water? What is more joyful to do on a sunny day in June than to go tubing down the Rappahannock or the Thornton River or watch trout jump from a clear stream kept cool by the over-

hanging trees? What is more satisfying than watching rain from a storm miraculously and securely disappear into the ground, protected by native vegetation and not causing erosion to roads or streams?

The fact that we are not in a crisis makes this exactly the right time for us to learn, study, plan, choose, and act so we can avoid a crisis. The fact that we do care about and understand our natural world here makes it possible for us to invest in this effort. The decisions and actions that individual landowners, communities, and governments make over the next few years may enable us to focus on watershed protection now and avoid far more costly restoration later. By taking steps now to protect our watershed, we ensure it as a viable resource for the future.



RappFLOW Moves into 2005 with Watershed-Study Proposal

By Janet Davis and Beverly Hunter

RappFLOW, with support of fifteen other local organizations, submitted a proposal in January to the National Fish and Wildlife Foundation for a local watershed-protection project, "People, Land, and Streams of the Upper Thornton River Watershed: A Model for Countywide Watershed Management Planning."

Our goals for this proposed project are to

- ◆ Preserve, protect, and restore the water quality in the Upper Thornton River watershed (as designated by the state), which is part of the Rappahannock River watershed, as shown on the maps on the opposite page.
- ◆ Create, test, and evaluate an approach to community-based watershed assessment and planning for Rappahannock County that is applicable elsewhere in the Upper Rappahannock River watershed.
- ◆ Use the project findings to develop a management plan in one subwatershed of the Upper Thornton River watershed.
- ◆ Design the next phase of work to complete assessments and management plans in other areas of Rappahannock County.
- ◆ Support local landowner decision-making regarding watershed protection for riparian lands.
- ◆ Help citizens prepare to meet the standard for the



Photo by Bev Hunter

The Thornton River, in Sperryville, Virginia.

Total Maximum Daily Load in areas surrounding category-5 impaired stream segments identified by the Virginia Department of Environmental Quality. The TMDL is the amount of particular pollutant that a water body can receive from both point and nonpoint sources and still meet water quality standards. The TMDL levels for the specified stream segments was set to meet goals in the Rappahannock Tributary Strategy (see page 11) and the Chesapeake Bay Preservation Act.

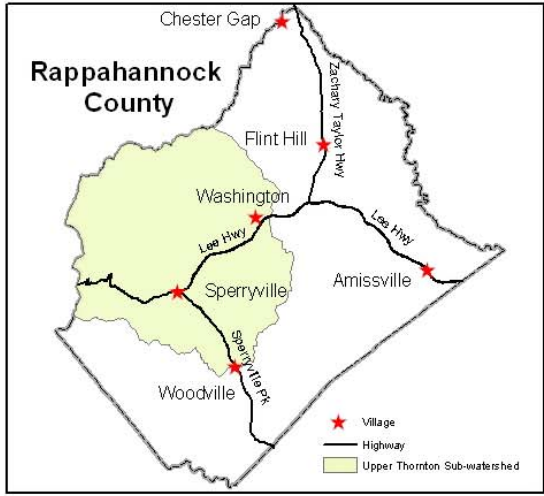
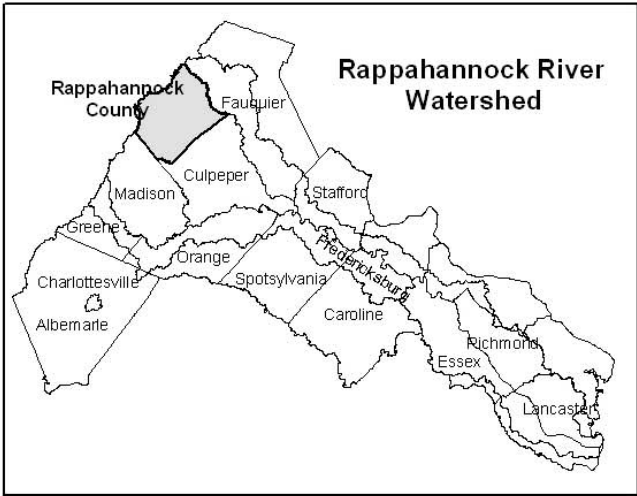
The Chesapeake Bay Preservation Act and Regulations established a cooperative program between state and local governments aimed at improving water quality in the bay and its tributaries by promoting the application of sound land-use planning and management practices on environmentally sensitive lands. The act requires local governments to incorporate water-quality protection measures into their comprehensive plans, zoning ordinances, and subdivision ordinances. In July 2004, the Virginia Department of Conservation and Recreation took responsibility for implementing the Preservation Act. Go to www.dcr.virginia.gov for more information.

We will use this analysis from the study to support individual and community participation in decision-making in a multi-year watershed planning effort. RappFLOW has a five-year goal of facilitating the county leaders and citizens through a process of developing and implementing additional local plans and incentives (perhaps ordinances) and volunteer efforts to support watershed protection. The next project will support this goal by

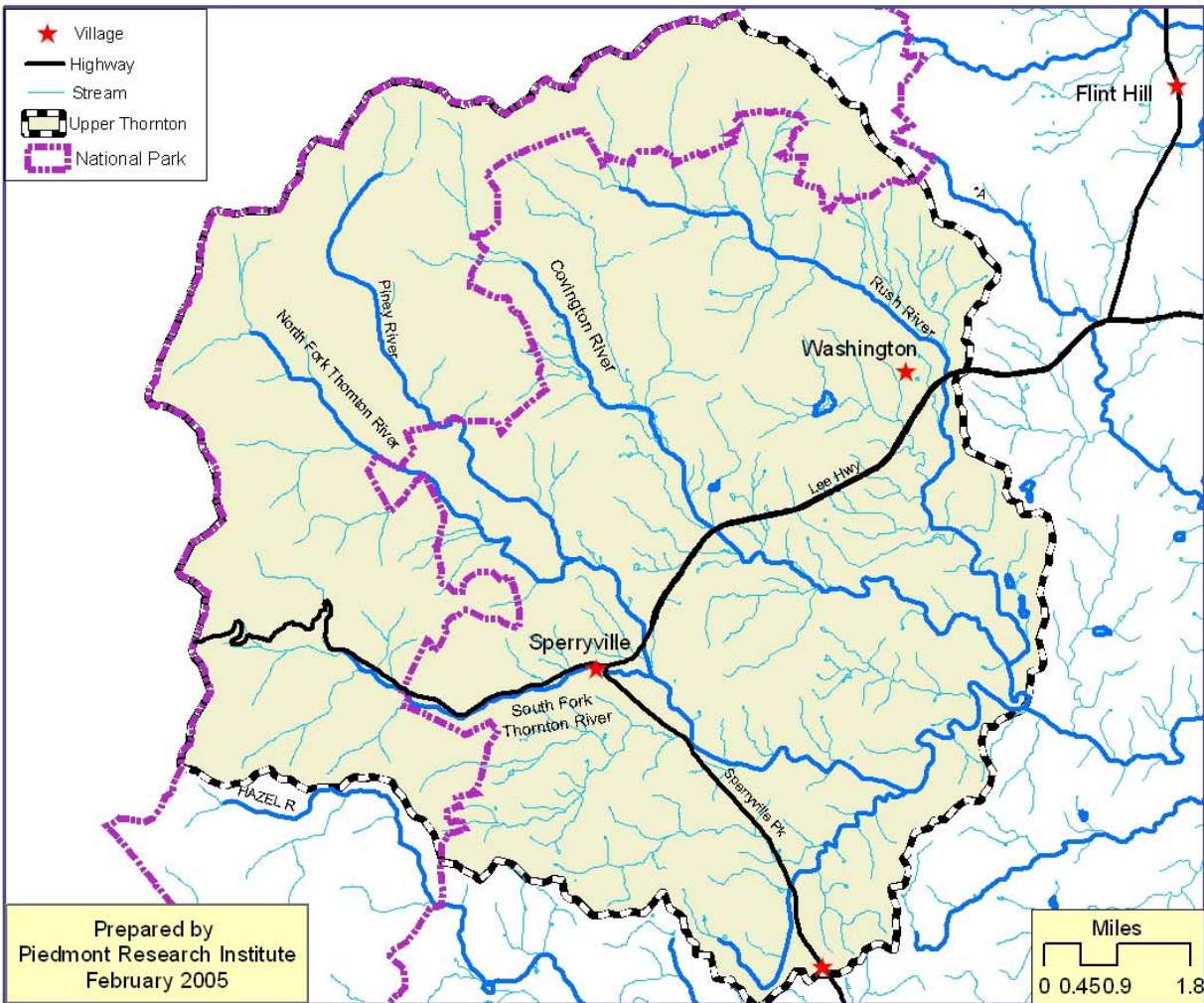
- ◆ Creating a systematic database and analytic framework.
- ◆ Establishing the methodology for county and regional watershed planning.
- ◆ Implementing immediate on-the-ground projects that protect water quality and serve as demonstration projects.
- ◆ Building community support for future efforts and adoption of watershed managements plans.

What our community learns from this project will greatly enhance our ability to develop an effective countywide watershed management plan over the next five years. At the same time, we intend for our model to be useful to other similar localities in rural Virginia.

To develop our data-collection processes, RappFLOW has received a small grant from the Virginia DCR (see page 10). For more information on the Upper Thornton River project, go on the Web to www.RappFLOW.org/upperthorntonwatershed/index.html.



Upper Thornton River Watershed



Some Faces of RappFLOW



Beverly Hunter is a co-founder of RappFLOW and has served as a coordinator since its beginning. She lives on the Rappahannock River. Bev developed RappFLOW's natural-resource map series and is currently providing Geographic Information System services for RappFLOW's study of the Upper Thornton River watershed.



Jill Keihn, a RappFLOW coordinator, is an environmental scientist and certified wetland ecologist with more than ten years of experience in writing environmental assessments. Currently, she is a teacher at Hearthstone School. Jill enjoys hiking with her family and performing in small theaters.



Janet Davis is a co-founder of RappFLOW and has participated in various water-protection activities for many years, from macroinvertebrate stream monitoring to stream restoration projects. She owns and operates an ecological landscape business. Although she is maintaining an active advisory role for RappFLOW, she is currently taking a maternity break to have her first child.



Cliff Miller is owner of Mount Vernon Farm in Sperryville, Virginia. A model for sustainable agriculture and forestry, the farm has more than 600 acres in conservation easement and, through the the Conservation Reserve Enhancement program, 175 acres in riparian buffers. Mt. Vernon produces and sells grass-fed beef and lamb, and free-range pork and eggs. Cliff is an active member of the RappFLOW core team, and his farm hosted RappFLOW's April 2004 public forum on sustainable-forestry.



Lorinda Bosch joined the RappFLOW team during the summer of 2004 to help organize and keep track of details. She does similar administrative work with local businesses and another local environmental organizations. She has lived in Rappahannock County since 1991.

For more faces of RappFLOW, go to www.RappFLOW.org.

Would you like to help RappFLOW?

"Go With the FLOW" and volunteer your time and talents to our cause!



RappFLOW is an all-volunteer group that relies on citizen involvement to further its mission to preserve, protect, conserve, and restore the water resources of Rappahannock County.

We always need volunteers to help:

- ◆ Writing articles for the local newspaper and *RappFLOW Currents*
- ◆ Planning events and future activities
- ◆ Conducting watershed assessments
- ◆ Taking photographs
- ◆ Searching for data and resources on the Web
- ◆ Coordinating with other volunteers
- ◆ Giving administrative support.

AND MORE!

To volunteer or to find out more, please contact one of the following:

Jill Keihn: jkeihn@shentel.net

Bev Hunter: bev@peidmontresearch.org

Lorinda Bosch: lorindabosch@earthlink.net

Or visit our Web site for more information:
www.RappFLOW.org

What Is a Watershed?

By Students of the Hearthstone High School English Class

All of us who live in Rappahannock County live in the Rappahannock River watershed.

What is a watershed? A watershed is a section of land where the surface water drains into a specific river, stream, or lake. Watersheds can be composed of subwatersheds, as the Rappahannock River is a subwatershed of the Chesapeake Bay watershed, which ultimately empties into the Atlantic Ocean.

Watersheds are divided by the land's topography. If a drop of rainwater falls on the nearby peak at Thornton Pass on Skyline Drive, the drop either flows west into the Shenandoah River watershed, or flows east into the Rappahannock River watershed. Which direction the drop flows depends upon the tilt or topography of the land at that point. Both the Shenandoah and Rappahannock Rivers are within the Chesapeake Bay watershed, which encompasses more than 64,000 square miles and is one of the nations largest sources of seafood.

The name "Rappahannock" is Algonquin, from the original inhabitants of the area, and is most commonly translated as "ebb and flow stream." This definition refers to the tidal waters, where the river runs into the bay. The total population of the Rappahannock River watershed is more than 240,000 people. It stretches over an area of almost 3,000 square miles from the Blue Ridge Mountains to the Chesapeake Bay and makes up 6 percent of the Commonwealth of Virginia. The river itself is 184 miles long.

As defined by the Commonwealth of Virginia in 1995, the Rappahannock River watershed is further divided by the Upper Rappahannock River and the Lower Rappahannock River watersheds. They are separated by the fall line near Fredericksburg that divides the Piedmont mountains and the Coastal Plain regions.

The Upper Rappahannock River watershed, in which Rappahannock County lies, is home to more than 100,000 people and contains more than half of the land area in the total Rappahannock River watershed. The headwaters the Rappahannock and its tributaries—the Thornton, Hazel, and Hughes rivers—are in the Upper Rappahannock

River watershed. The subwatersheds that lie wholly or partly within Rappahannock County boundaries are Upper Rappahannock River, Rappahannock River, Upper Thornton River, Lower Thornton River, Upper Hazel River, and Hughes River.

Historically, the Rappahannock River has been one of the cleanest tributaries of the bay. However, recently pollution and erosion levels have been higher and have significantly affected the ecology and the fisheries and seafood industry.

Our school, Hearthstone, is situated on the banks of the Thornton River. As part of the Save Our Streams Program, we have been monitoring the water quality of the Thornton by counting the numbers of different insects that live in it. Different species of insects require different qualities of water in which to live, so they serve as indicators of stream health.

Our seventh-grade last year also studied erosion in Rappahannock County and listed sources of erosion and remedies to prevent it. After several field trips and map interpretations of local aerial photographs, they identified certain areas of high erosion potential. The class presented the results at RappFLOW's public meeting on erosion control.

As we write this, the Thornton River is flowing less than 30 feet from us. After

studying watersheds, we see how what we do up here in Rappahannock County can affect the lives of so many people and other species downstream. We can more easily imagine that the water we hear trickling behind us will mingle with other streams on its way to the Rappahannock River and then into the Chesapeake Bay, eventually finding its way into the Atlantic Ocean.

—*Edited by Jesse Reynolds and Jill Keihn*



Photo by Jill Keihn

Hearthstone School students count insects taken from the Thornton River to check for water quality. From left to right: Liz Disbrow, Kerry Keihn, Andrew Fletcher, and Corey Vaughan.

Sustainable Agriculture Protects Water Quality and Preserves Farmland

By Janet Davis

Rural, scenic Rappahannock County has a rich agricultural heritage. Even today, agriculture is the county's greatest economic contributor, with approximately 300 operating farms and 30 percent of its land cover in pasture, hay, and crops. Clearly, farming is a major contributor to our open-space preservation, economy, and cultural history. One of the main goals of the county's comprehensive plan is to "encourage and maintain a viable rural agricultural and tourism-based economy."

We at RappFLOW believe that agriculture is a key component in protecting our water quality and support the idea that preserving farmland and water resources is beneficial to our county and our region. However, agricultural practices can put sediment, pesticides, and excess nutrients as nonpoint-source pollution into streams. The Virginia Department of Conservation and Recreation (DCR) estimates that statewide, farmland loses several tons of topsoil per year, often carrying fertilizers and pesticides along with it into streams. The lost soil contributes to lost agricultural productivity and greatly diminishes light in water that is necessary for aquatic plants. It also obstructs waterways and deposits sediment on aquatic habitat. Pesticides in runoff yield toxic substances. Nutrients—nitrogen and phosphorus—pose one of the most serious threats to our waterways by causing algal blooms that deplete oxygen in the water, threatening fish and aquatic life.

Our county is fortunate to have several agricultural operations that practice production methods that are sustainable—that work with natural systems rather than against them (see box at right). Such practices protect the environment, preserve soil and biotic life, save energy, promote biodiversity, reduce or eliminate toxic chemical usage, support local economies, and protect water quality. By using these methods, farmers can provide nutritious food and keep farms viable.

RappFLOW encourages all Rappahannock County residents and neighbors to patronize and support these sustainable agricultural producers. By doing so, you can help protect our water resources and our rural character.

Sustainable Farms in Rappahannock

Belle Meade Farm & Montessori Mt. Laurel Farm School—a 137-acre farm, B&B, and event location that hosts one of only two Montessori Farm Schools nationwide. The school focuses on sustainable agricultural production. Call 540-987-9748 or visit www.bellemeadeinn.com on the Web.

Manor Farm—offers naturally raised beef. Call 540-987-8613 or send e-mail to mkrifaa@aol.com.

Mt. Vernon Farm—features beef, lamb, and other products from livestock raised on rotational pasture. The farm has installed several Conservation Reserve Enhancement Program plantings along its streams (see photo at right). Call 540-987-9559.

Muskrat Haven Farm—features meat from rabbits and other small livestock and the opportunity to pick your own berries in season. The Culpeper Soil & Water Conservation District (CSWCD) awarded the farm the 2003 Chesapeake Bay Friendly Farm Award. Call 540-957-5892 or 540-937-5191 (farm stand).

Rappahannock County High School "Farm 2 Table" Program—modeled after Alice Waters Edible Schoolyard. The Farm 2 Table gardens are a working classroom for many of the school's classes, and students visit and work with many of the county's farming operations. Visit www.rappahannock.k12.va.us and click on "Farm 2 Table."

Sunnyside Organic Farm—a certified organic farm that offers beef, poultry, fruits, and vegetables at its two retail outlets in the county. The farm was awarded CSWCD's Business and Industry Award for Conservation. Call 540-987-3600 or visit www.sunnysidefarms.com.

Touchstone Farm—offers lamb from a crossbreed of Clun Forest and Icelandic sheep. Call 540-937-6124 or visit www.touchstonefarm.com.

Waterpenny Farm—a Community Supported Agriculture (CSA) farm that sells subscriptions (shares) for a season's worth of produce and maintains a produce stand on the farm. Call 540-987-8567 or send e-mail to waterpenny@earthlink.net.

See www.rappahannock.com for maps of local farms and vineyards.

Supervisors Establish Water Quality Advisory Committee

The Rappahannock County Board of Supervisors agreed in January to establish the Water Quality Advisory Committee to advise County Administrator John McCarthy and county officials on issues related to water.

WQAC serves as a clearinghouse for information among various groups whose areas of concern include water-quality issues and who will bring water-quality concerns to the board. The committee reviewed three current issues:

- ◆ Pending Tier III designation for Piney and North Fork Thornton Rivers in the Shenandoah National Park

Tier III: The Clean Water Act designates Tier III as antidegradation: "...Where high quality waters constitute an outstanding National resource, such as waters of National and State parks and wildlife refuges and waters of exceptional recreational or ecological significance, that water quality shall be maintained and protected..."

- ◆ A low-impact development project for stormwater management at the Rappahannock County Elementary School.

- ◆ The pending Town of Washington application for sewage discharge into the Rush River.

The following organizations and interest groups are represented on this committee:

- RappFLOW (Beverly Hunter)
- Board of Supervisors (S. Bryant Lee)
- Planning Commission (Tom Tepper)
- Health Department (Medge Carter)
- Culpeper Soil and Water Conservation District (Greg Wichelns)
- Water and Sewer Authority
- Extension Agent (Kenner Love)
- Farmland Preservation Program (Monira Rifaat)
- Town of Washington
- Rappahannock League for Environmental Protection (Reid Folsom)
- Rappahannock County High School student (Josh Makela)

All information from the WQAC is available on the RappFLOW Web site (www.RappFLOW.org).

CREP Plantings at Mt. Vernon Farm



Fencing and tree plantings in one section of the area managed for stream protection under the Conservation Reserve Enhancement Program at Mt. Vernon Farm in Sperryville, Virginia, are clearly visible in this 2003 aerial photo, one year after the planting. The fences keep the livestock away from the streams, and the trees provide a vegetative buffer for the Thornton River. The two parallel blue lines at left indicate the boundaries of the Thornton River. (Source: Prepared by Piedmont Research Institute from a U.S. Department of Agriculture aerial photo.)

Watershed Study Looks for Answers to Water-Quality Problem in Thornton River

By Beverly Hunter

Why are sometimes excessively high levels of fecal coliform (bacteria) found in a segment of the Thornton River south of Sperryville? The Thornton River from the confluence of the north and south forks of the Thornton, just below the village, is a beautiful stream where native brook trout are caught and returned by fishermen from near and far. And, the “critters” that live in this stream, as measured twice a year by the Save Our Streams group, indicate a healthy stream.

A team of about 20 volunteers is studying an area of about four square miles south and west of Sperryville that includes a segment of the Thornton River and a tributary, Beaverdam Creek, that joins the Thornton at Fletcher’s Mill, about a mile south of Sperryville. The team gathered data from the field, such as water samples that were tested for fecal coliform (bacteria) levels, and made observations of stream banks and vegetative buffers along the streams. The team also gathered and analyzed existing electronic databases from federal and state agencies to learn about the quality of water in the streams, forest cover, erosion, topography, land uses, and many other factors that can affect water quality.

The major challenge is to use these many sources of information to understand the watershed in this small pilot area. The information must also be produced in a form that will help local landowners decide on best man-

agement practices to help improve the quality of the water in the streams as well as to improve habitat for wildlife.

In January 2005, RappFLOW, with assistance of the Rappahannock-Rapidan Regional Commission, received a small grant from the Virginia Department of Conservation and Recreation (DCR) to support a pilot assessment of a small subwatershed within the Upper Thornton River watershed. (see maps on page 5). The main purpose of this project is to create and test a model process by which volunteers can work together to conduct watershed assessments that are useful to land owners and the general public. Project volunteers work with local landowners to interpret the data and identify needs for further data, as they attempt to solve a puzzle that is interesting and important to local residents and the general public.

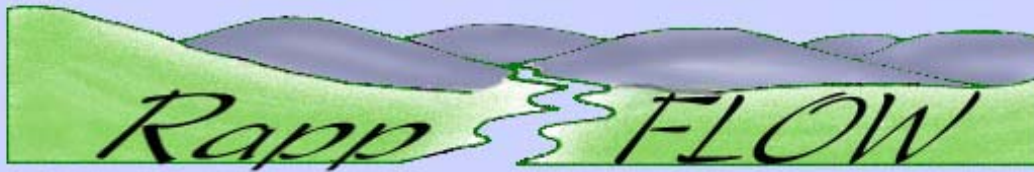
The results of this study will be exhibited on June 25 at the Rivers n Roots Festival in Sperryville. The study team will also report results in June to the Virginia DCR, the Rappahannock County Planning Commission, the Culpeper Soil and Water Conservation District, local landowners, and the general public.

Learn more about the members of the study team, the maps and other products we are creating for this study, and lessons we’ve learned on RappFLOW’s Web site, www.rappflow.org.

Rappahannock High Students Adopts RappFLOW for Spring Project

A team of five students from Rappahannock County High School’s geospatial technologies class has adopted RappFLOW as its spring GIS project. Jenkins Dove, Christina Narramore, Steven Rodden, Malcolm Sonnett, and Dustin Torrance are assisting in field studies. They take Global Positioning System waypoints for the data collection and map the data for the Thornton River in the study area. Ron Vickers is the RCHS teacher for the geospatial technologies class, and Beverly Hunter is the GIS advisor. In the photo at left are (left to right) Jenkins, Dustin, Malcolm, Christina, and Steven.





Rappahannock Friends and Lovers of Our Watershed

USING RAPPFLOW'S WEB SITE: www.RappFLOW.org

Take advantage of RappFLOW's new Web site. Local watershed protection resources and information are here at your fingertips. "Ways to Protect Our Watershed" is our main feature, with focus topics on streamside vegetation, erosion control, sustainable forestry and agriculture, and more.

For each topic, you get contracts with experts, how-to-do-it resources, news articles, photos, maps, and more. Go to www.RappFLOW.org to learn what Rappahannock County's new Water Quality Advisory Committee is working on (see page 9 of this newsletter), what RappFLOW is learning in the Upper Thornton River Watershed Project, and what activities you might want to participate in.

Virginia Approves New Strategy for Reducing Pollution in the Rappahannock River

By Beverly Hunter

The Rappahannock River Tributary Strategy provides new goals and strategies for reducing pollution in the Rappahannock River. The strategy—formally titled "Chesapeake Bay Nutrient and Sediment Reduction Tributary Strategy for Rappahannock River and Northern Neck:Coastal Basins"—was made available by the Virginia State Secretary of Natural Resources in March 2005.

Of particular interest in Rappahannock County are the strategies for reducing pollution from nonpoint sources—that is, sources other than specifically permitted discharges, such as sewage plants. The nonpoint approach, under the coordination of the Virginia Department of Conservation and Recreation, is designed to refocus available tools, steer new resources to Virginia's strongest nonpoint-source control programs, and push them to maximize reductions across the landscape. These efforts will focus on seven programmatic areas, including Agricultural Best Management Practices; enhanced implementation of the Virginia Erosion and Sediment Control Program; and enhanced outreach, media, and education efforts to reduce pollution-producing behaviors.

Though long considered one of the cleanest rivers on the East Coast, recent studies indicate that the Rappahannock River suffers from significant degradations in water quality. From a biological standpoint, the river is, in fact, now considered the most degraded of Virginia's three lower tributaries to the Chesapeake Bay. These problems were identified through water-quality monitoring conducted by state agencies, universities, and citizen groups.

Steep slopes in the upper basin make soil and nutrients susceptible to erosion and transport from storm events. Monitoring data from the United States Geological Survey show that the Rappahannock basin above the fall line has the highest yield (load per unit area) of total nitrogen, phosphorus, and suspended solids of all the Chesapeake Bay tributary basins in the state.

Developed through a partnership between natural resources agencies and local stakeholders, the Rappahannock River Tributary Strategy provides options for meeting ambitious reductions in nitrogen, phosphorus, and sediment and outlines future actions and processes needed to maintain these levels in the face of a growing population. The estimated cost of Virginia's combined tributary strategies is just under \$10 billion.

The complete document is available on the web at <http://www.naturalresources.virginia.gov/Initiatives/TributaryStrategies/FinalizedTribStrats/rappahanock.pdf>.

RappFLOW Partners & Contributors

RappFLOW thanks all the people and organizations that contributed to our watershed protection and workshop efforts:

BLUE RIDGE FOOTHILLS CONSERVANCY (MADISON COUNTY)

E-mail: blueridgeconserve@hexet.net

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Susan Cable, Vice President Phone: 540-923-9980

CULPEPER SOIL AND WATER CONSERVATION DISTRICT

E-mail: martin.johnson@va.nacdnet.org

Phone: 540-825-8591

Main contact: Greg Wichelns, District Manager

FRIENDS OF THE RAPPAHANNOCK (FOR)

Contact: John Tippett

Phone: (540) 373-3448 E-mail: john_tippett@riverfriends.org

Web site: www.riverfriends.org

HEARTHSTONE SCHOOL

Contacts: Jill Keihn Phone: 540-987-9212

MADISON COUNTY TASK FORCE FOR SUSTAINABLE GROWTH

Contact: Khalil Hassan E-mail: khmet@earthlink.net

MT. VERNON FARM

Contact: Cliff Miller Phone 540-987-9559

NATIONAL FISH AND WILDLIFE FOUNDATION (NFWF)

Web site: www.nfwf.org

PIEDMONT ENVIRONMENTAL COUNCIL (PEC)

Contact: Sarah Gannon, Rappahannock County Conservation Officer

E-mail: sgannon@pecva.org Phone: 540-347-2334

PIEDMONT RESEARCH INSTITUTE (PRI)

Contact: Beverly Hunter

E-mail: bev@piedmontresearch.org Phone: 540-937-4038

Web site: www.piedmontresearch.org

RAPPAHANNOCK COUNTY CONSERVATION ALLIANCE (RCCA)

Contact: Hal Hunter E-mail: hal@targetlearn.com

Other contact: Sharon Pierce, President

Phone: 540-987-8397 E-mail: pierce_sc@hotmail.com

RAPPAHANNOCK COUNTY GOVERNMENT

Contact: John McCarthy, Administrator

Phone: 540-675-5330 E-mail: jwm@shentel.net

RAPPAHANNOCK COUNTY HIGH SCHOOL

Contact: Ron Vickers Phone: 540-987-8575

RAPPAHANNOCK LEAGUE FOR ENVIRONMENTAL PROTECTION (RLEP)

Contact: Paul Farmer, President Phone: 540-987-8759

E-mail: mail@rlep.org Web site: www.rlep.org

SHENANDOAH NATIONAL PARK

Contact: Shane Spitzer, Physical Scientist

Phone: 540-999-3433

TARGETED LEARNING CORPORATION

Contact: Hal Hunter

Phone: 540-937-4600

E-mail: hal@targetlearn.com

U.S. DEPT. OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE

Contact: Joe Thompson, District Conservationist for

Rappahannock & Culpeper Co.

E-mail: Joe.Thompson@va.usda.gov

Phone: 540-825-4200

VIRGINIA COOPERATIVE EXTENSION

Contact: Kenner Love, Agricultural and Natural Resources

Extension Agent

E-mail: kllove@vt.edu

Phone: 540-675-3619

VIRGINIA DEPARTMENT OF CONSERVATION AND RECREATION,

DIVISION OF SOIL AND WATER CONSERVATION

Matt Criblez, Director, Tappahannock Regional Office

E-mail: mcriblez@dcr.state.va.us Phone: 804-443-8219

VIRGINIA DEPARTMENT OF FORESTRY, MADISON OFFICE

Exhibitor: Martin Agee, Forester for Madison, Rappahannock, and Greene Counties

E-mail: ageem@dof.state.va.us Phone: 540-948-5341

VIRGINIA FOREST WATCH

Contact: Christina Wulf and Danny Dolinger

E-mail: vafw@nexet.net

Phone: 434-971-7678

RappFLOW Events

Meetings: Once a month on Thursday evening, from 6:30 to 8 p.m. at the Rappahannock County Library. The next meetings are May 26 and June 23.

Special Event: RappFLOW exhibit at the Rivers N Roots Festival in Sperryville, Saturday June 26, noon until sundown.

Check RappFLOW's Web site
(www.RappFLOW.org)
for more information on upcoming events!