Virginia Department of Environmental Quality
FY 2005 Citizen Water Quality Monitoring Grant Program
Final Report

Loudoun Wildlife Conservancy
Loudoun Watershed Watch

Expected Outcomes/Deliverables

The purpose of the Catoctin Watershed Project is to support the TMDL IP and DEQ TMDL monitoring activities in the Catoctin watershed. Seventy-five percent of the watershed has not been assessed by DEQ, and DEQ is not monitoring many stream segments where aquatic life is known to be impacted. Additional monitoring stations are needed in portions of the watershed not sampled by DEQ. These data can be used to further educate residents on the impact that our actions and behaviors have on the Bay, and provide options for changing behaviors and land use activities. A significant component of the proposed project is to recruit, train, and educate citizen volunteers, and to organize them into local citizen watershed groups that can provide the continuity needed to support the TMDL process throughout the 10-year implementation period.

Project Activity Accomplishments

1. **Catoctin Watershed Project Logo** – A logo was created to use for the project. It was included on the educational materials and on the T-shirts provided for the event.

Catoctin Watershed Project
Stewardship for Catoctin Creek Watershed

2. **Educational Brochures** – Several educational brochures were prepared to distribute within the local communities in the watershed.
    a. **Catoctin Creek Brochure** about Catoctin Creek as a community Treasure – See ATTACHMENT 1.
    b. **Catoctin Water Quality Report Card –** See ATTACHMENT 2.
    c. **Benefits of Clean Water** – See ATTACHMENT 3.
    d. **Fecal Bacteria in Stream Water: Pubic Health Considerations –** See ATTACHMENT 4.
3. **Other Educational Materials** – Additional educational items were purchased to advertise community events.
    a. **Catoctin Watershed Project T-Shirts** – 100 T-shirts with the project logo were provided to Girl Scout, Boy Scout, and other participants to the Catoctin Stream Day events.
    b. **Roadside Banners** – Two commercial banners were purchased to display along the roadside to advertise the Catoctin Stream Day events.
4. **Riparian Tree Planting Event – April 17, 2005 –** A successful riparian tree planting event was held on a property along the NF Catoctin Creek. Approximately 50 participants planted about 500 hundred trees and shrubs. As a result, several Girl Scout troops, other youth, and adults had the opportunity to participate in a community service project and to learn about good stewardship to protect our streams and wildlife. An event report is provided in ATTACHMENT 5.

5. **Catoctin Creek Cleanup Event – April 24, 2005** – A successful Catoctin Creek Stream Cleanup Event was held at the Taylorstown Bridge near the mouth of Catoctin Creek. Over 60 adults and youth participated in the cleanup and the activities at Taylorstown. The Boy Scouts had a large participation and much trash was collected from the creek. Girl Scout Troop 514, Lovettsville, had several members pick up trash at McKimmey Landing on the Potomac River. The lunch, exhibits, and stream-side activities at Taylorstown Bridge attracted a large number of scout leaders and parents, and other people in the community, and this helped advertise the event and give an added importance for what the scouts were doing. Both the youth and adults also had an opportunity to learn about aquatic life in the Creek. An event report is provided in ATTACHMENT 6.
6. **Taylorstown Fall Stream Day -- October 2, 2005** –The "Friends of Catoctin" held a community event in Taylorstown that included about 45 local residents. Activities included stream exploration, benthic stream monitoring, and bug ID'ing.

Exploring Catoctin Creek at Taylorstown

7. **Bacteriological Monitoring --** In 2005 Loudoun Watershed Watch in partnership with Loudoun Wildlife Conservancy began testing for bacteria in the Catoctin Creek watershed. LWC/LWW established 12 stations throughout the watershed that are sampled by volunteers every two weeks per DEQ's recommendations. Samples are analyzed by volunteers in the laboratory at the Leesburg STP using the Coliscan Easygel protocol for *E. coli*. Training was provided by DEQ, and sampling began in June. The sampling protocol and sample results are available on the LWW website at www.loudounwatershedwatch.org under Catoctin Watershed Project.
8. **Benthic Macroinvertebrate Monitoring** -- LWC monitored 17 sites on 23 occasions for benthic macroinvertebrate. Thirty-seven volunteer monitors were involved including 9 new monitors. Sites monitored included the new sites in the Catoctin Creek watershed that will help LWW assess progress on restoring water quality in this watershed.
9. **Quality Assurance Program Plan** – LWC submitted a quality assurance plan (QAPP) as a condition of the DEQ grant. Under the plan, seven field audits were conducted of stream monitoring operations by the two QA Officers, Darrell Schwalm and Cliff Fairweather. These audits were conducted with team leaders who had not attended the 2005 benthic macroinvertebrate training as provided under the QAPP. Another team preserved their sample of benthics, and this was counted and ID'ed by a QA Officer. The field reviews showed that the teams were using the proper equipment, were applying the protocols well, and that the data sheets were being completed in a proper manner. There is a need to get team leaders to attend family level ID training classes and reviews on a yearly basis.

Equipment and Supplies Purchased—

1. **Barnstead/Thermolyne Benchtop Incubator – Model 152**
2. **Critter Picking Pans**
3. **Wash bucket w/sieve**
4. **Turbidity Tube**
5. **Insect collection vials**
6. **Water sample bottles**
7. **Entomological forceps**
8. **Coliscan Easygel *E. coli* collection and test kits**
9. **Illuminated Colony Counter**

ATTACHMENT 1. Catoctin Creek Brochure

Trees and more Trees You Can Help Trees

- What shades the waters and cools the stream!
- What provides food for little aquatic creatures!
- What soaks up the rainwater and filters out pollutants!
- What holds the bank soil to prevent erosion, and slows the flood waters!

The answers are trees, trees, and more trees. Wide, natural riparian buffers along Catoctin Creek preserve its scenic beauty, protect its water quality for aquatic life, and provide wildlife corridors.

"If eyes were made for seeing, then beauty is its own excuse for being". Emerson

Natural tree buffer along South Fork Catoctin Creek

A Community Treasure

Citizens need to join together and work with state and local governments to preserve and protect our streams. You can help:

- Learn about water pollution problems in your community;
- Encourage your neighbors to value Catoctin Creek as you do;
- Set an example as a good steward of our stream resources and help with projects such as stream cleanups, riparian tree plantings, and stream monitoring; and
- Join a local citizen watershed group.

For information on local citizen groups, go to:
www.LoudounWildlife.org AND
www.LoudounWatershedWatch.org

The brochure was developed by Loudoun Wildlife Conservancy and Loudoun Watershed Watch. Funding for its printing has been provided by the Virginia Department of Environmental Quality. Graphic design provided by Mary Chandler of Chatham Design and photos provided by David Schrader. © 2005.

"Waste is not grandeur". William Mason

Boy Scout 2004 stream cleanup

A scenic river – Finding and preserving the beauty

One quality everyone can appreciate about Catoctin Creek is its scenic beauty. There are many places to look. The North and South Forks of Catoctin Creek begin on the slopes of the Blue Ridge Mountains and join north of the historic town of Waterford. Catoctin Creek then flows to the Potomac River and onto the Chesapeake Bay. Most land in the Catoctin Creek watershed is used for agriculture, forested lots, or homes. Drive through the watershed in northwestern Loudoun County and you will not only see horse and cattle farms, but also the picturesque towns of Hillsboro and Purcellville.

When you see Catoctin Creek on a summer's day with its lazy waters flowing down to the Potomac River, you may think that exploring the watershed would be fun. It is, but you may not find its most beautiful spots easily. There are few roads that give access to the streams. Catoctin Creek's most scenic stretches are found when you float down the stream in a canoe or kayak. Wear your life preserver! Catoctin Creek has twists and turns, fast runs through riffles, and the occasional glacier log that add to its scenic beauty. Depending upon water flow, you may need to wade a shallow stretch or maneuver over a fallen tree.

The one quality that makes Catoctin Creek most scenic are the forested buffers along the stream. However, the beauty begins to fade when these buffers are clear for pasture and when livestock are given access to the water. Treeless buffers lead to increased stream flow that cause flooding, erode the streambanks, and fill the stream with sediments. What was once scenic, ceases to be enjoyable. The canoer finds another stream, and the bird watcher looks elsewhere. The poets have said: "A thing of beauty is a joy for ever" (John Keats); unless it is "deprived of its proper...adjuncts" (John Ruskin).

Left: Kayaking on the upstream of Catoctin Creek

Above:
Catoctin Creek Watershed

Right: South Fork Catoctin Creek in Purcellville

ATTACHMENT 2. Catoctin Water Quality Report Card

How You Can Help

Non-point sources of pollution are widespread in the Catoctin Creek watershed, and fecal contamination and sediments are causing poor water quality and stressed habitat and aquatic life conditions.

There is a Plan – Loudoun Soil and Water Conservation District and the Loudoun Environmental Health have a plan to restore water quality by 2015. The plan encourages community involvement and provides economic incentives for voluntary actions. It targets cattle with access to streams and failing septic tank systems as the major sources of problems to correct to reduce fecal contamination.

- Farmers in the watershed are offered cost share funds and tax benefits to install fences and alternative water supplies to exclude livestock from the streams.
- Homeowners are being asked to repair malfunctioning septic systems and properly maintain working systems.

The Plan Needs Citizen Support – Catoctin Creek is a valuable natural resources, and an aesthetic and economic asset. Water pollution affecting our stream resources is a community-wide problem, and support from concern citizens is vital for the pollution control plan to work.

Sources of Information on Water Quality

Virginia Department of Environmental Quality –
www.deq.virginia.gov
Loudoun Soil and Water Conservation District –
www.loudoun.vaswcd.org
Loudoun Dept. of Environmental Health –
www.Loudoun.gov/depts/envhlth.htm
Loudoun Watershed Watch –
www.loudounwatershedwatch.org
Loudoun Wildlife Conservancy –
www.Loudounwildlife.org

Acknowledgements:
This brochure is developed by Loudoun Wildlife Conservancy and Loudoun Watershed Watch. Funding for printing is provided by the Virginia Department of Environmental Quality. Pictures are provided by Darrell Schwalm.

Catoctin Creek

A Creek With Many Faces

The Scenic Face – Explore the Catoctin Creek watershed and you will see many faces. A quiet waterway with scenic views. Farmlands with cows and horses. Historic towns and quaint shops. Canoe enthusiast enjoying a trip downstream. Fisherman looking for a deep hole. Catoctin Creek is a Virginia Scenic River and has these faces and more to offer the community.

The Ugly Face – The one face of Catoctin Creek that is little seen is the fecal contamination that hides in its waters. This contamination impairs its recreational uses and poses a potential health risk. This is a face that both local organizations and state authorities are trying to change. This is also the face that citizens need to understand if change is to occur. It affects the scenic and economic value of the resource to the community, and creates an unnecessary risk to recreational users.

Catoctin Watershed Project – The Virginia Department of Conservation and Recreation (DCR) is leading the effort to make a change. It is providing financial support to Loudoun Soil and Water Conservation District (LSWCD) and Loudoun Health Department over 5 years to reduce the fecal pollution to meet state water quality standards. The Loudoun Wildlife Conservancy (LWC) and Loudoun Watershed Watch (LWW) also have received grant funds to provide educational programs and monitor progress. These citizen organizations have initiated the Catoctin Watershed Project.


Kayaking down Catoctin Creek

Facts About Clean Water

Attention needs to be given these problems because the streams of Loudoun County are valuable public resources, and clean water benefits the entire community. These benefits include:

- Improved public health;
- Conservation of natural resources (e.g., soil and soil nutrients);
- Improved aquatic life;
- Improved riparian buffers and habitat;
- Reductions in flood damage;
- Improved recreational opportunities;
- Greater economic opportunities (e.g., agriculture production); and
- Enhanced real estate values for farms, homes and businesses near streams with good water quality.

Public Health Benefits – The public will benefit from a considerably reduced risk of infection from contact with surface waters when sources of nonpoint pollution are removed from the streams.

Agricultural Benefits – Farmers will realize an economic benefits when cattle are excluded from streams due to the use of alternative, cleaner water sources, an opportunity for intensive pasture management, and improved nutrient management.

Habitat Benefits – Aquatic life and wildlife will benefit from natural vegetated buffers along streams due to the reduced sediment and nutrient transport to the stream from upslope locations and the wildlife corridors that natural vegetation create.

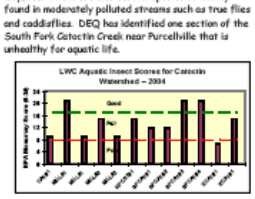

An afternoon canoeing down Catoctin Creek

Facts About Stream Habitat

Stream Habitat Conditions – Sediment problems are also connected to habitat and aquatic life problems. Stream monitoring data collected by Loudoun Wildlife Conservancy (LWC) show that streamside habitat at 60% of the monitoring stations is rated in the "Fair to Poor" range. The stream habitat conditions that cause the poor ratings are:

- Narrow riparian buffers along the stream bank with unstable banks, eroded areas, bank scars, and bank sloughing;
- Poor natural vegetation along stream banks that leave bare soils or banks with low cut vegetation that are susceptible to erosion;
- Fine sediments in the streams that fill-in living spaces around and between gravel and cobble creating poor living conditions for aquatic life; and
- Sand, mud, and gravel deposits that fill in pools, and create point bars at bends and mud banks.

Aquatic Life Conditions -- LWC has also collected aquatic insect data at sites in the Catoctin Creek watershed since 1998. Aquatic insects are a good indicator of stream quality because pollution will affect the type and quantity of insects found. The 2004 data show that the aquatic insect scores in the watershed are generally in the "fair" range. There is only a moderate level of species diversity and few species commonly found in clean waters such as stoneflies and mayflies. There are also several species commonly found in moderately polluted streams such as true flies and caddisflies. DEQ has identified one section of the South Fork Catoctin Creek near Purcellville that is unhealthy for aquatic life.



Facts About Pollution and Risks

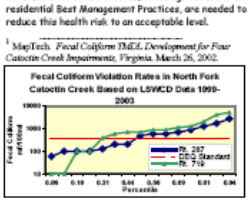
We know about water pollution problems in the Catoctin Creek watershed because DCR published a report called the **Total Maximum Daily Load or TMDL study**. DCR studied portions of Catoctin Creek that do not meet water quality standards and pose a risk to people who canoe, swim, wade, and fish.

Stream monitoring data collected by the Virginia Department of Environmental Quality (DEQ) show high levels of fecal bacteria contamination. The water quality standard of 400 FC/100 ml. is exceeded more than 50% of the time, and on some occasions reach very high levels.

Public Health Risks[1] – This contamination is of concern because there is public health risk associated with fecal wastes in stream water. The Center for Disease Control estimates at least 73,000 cases of illnesses and 61 deaths per year are caused by a fecal coliform pathogen identified as *E. coli* 0157:H7 bacteria. It is reported that cattle are the number one reservoir for this type of *E. coli*, and 5-40% shed these pathogenic bacteria at any given time.

The threat of these pathogens appears more prevalent as human and cattle populations increase. EPA has assessed the risk the public is willing to accept and this level of risk is exceeded in the Catoctin Creek watershed. Control measures, called agriculture and residential Best Management Practices, are needed to reduce this health risk to an acceptable level.

[1] MapTech. *Fecal Coliform TMDL Development for Four Catoctin Creek Impairments, Virginia*. March 26, 2002.



Facts About Sources of Pollution

The principal sources of pollution causing the fecal contamination are livestock, failed septic systems, and wildlife. The DCR study shows there are high levels of fecal pollution in the streams under all conditions, but periods of low flow and less dilution water resulted in the worst pollution conditions. The proportion of fecal pollution from human wastes in Catoctin Creek ranges from as low as 4% to over 90% depending on stream flow conditions and the location in the watershed.

Private Septic Tank Systems – Wastes from a typical private residential septic tank are suppose to be distributed to the drainage field, where fecal coliform bacteria will die off in soils within 50 days and not move laterally more than 50 feet. A septic system fails when a drain field has inadequate drainage or a "break" occurs that allows wastewater (effluent) to flow directly to the soil surface. The Loudoun County Department of Environmental Health estimates that as many as 25 households in the Catoctin watershed are directly depositing human wastes to streams. These wastes carry disease-causing microorganisms.

Livestock – There are approximately 5300 beef heifer and 3100 horses in the Catoctin watershed. Fecal pollution from livestock wastes enter stream waters from cows standing in a stream as well as wash-off from the pasture during rainstorms. Direct deposits of fecal wastes are the most serious, but wash-off is also important if there are poor natural riparian buffers. These wastes also carry disease-causing microorganisms.


Excluding livestock from streams reduces fecal pollution and helps restore riparian buffers

Facts About Sediment

Fecal pollution is not the only problem in the Catoctin Creek watershed. Sediment that smothers stream bottom living spaces has degraded aquatic life conditions in several stream segments. This sediment load also flows into the Potomac River and affects the delicate balance of the Chesapeake Bay ecosystem. It prohibits light from reaching underwater grasses critical to the health of the Bay's fish and shellfish.

Source of Sediment – Catoctin Creek contributes approximately 8,900 tons of sediment a year to the Potomac River. The primary sources of sediments are streambank erosion, pasture lands with livestock that have stream access, and agricultural lands with inadequate natural buffers along tributary streams. Restoring natural stream buffers will help stabilize streambanks and filter nonpoint pollution from land runoff.

Chesapeake Bay Sediment Reduction Goals – Virigina agreed in 2003 to reduce sediment loads into the Potomac River watershed by 617,000 tons/year to provide water clarity in the Chesapeake Bay necessary for underwater grasses to thrive. Suspended solids and particles in the water are a major factor that blocks light from reaching the grasses.

No Progress in 10 Years – DEQ's data for Catoctin Creek show that sediment levels have remained about the same over the last 10 years. Therefore, increased efforts are needed by the state, county, and local communities if meaningful reductions in sediments are to be achieved in our local streams and the Bay.


Eroding stream banks along unbuffered pastures

ATTACHMENT 3. Benefits of Clean Water

Catoctin Watershed Project
Stewardship for Catoctin Creek Watershed

Clean Stream Water: What are the Public Benefits?

Are Clean Streams Waters Important? -- The primary benefit of reducing pollution loads in Virginia's streams to meet water quality standards is cleaner waters. The state believes this is so important that they are conducting pollution studies and developing plans to reduce pollution levels throughout the state. The studies are called Total Maximum Daily Load (TMDL) and the plans are called TMDL Implementation Plans (IPs).

How Will Citizens and the Community Benefit? –Benefits of clean water to citizens include:

- Improved public health,
- Conservation of natural resources *(e.g.,* soil and soil nutrients),
- Improved aquatic life,
- Improved riparian habitat,
- Reductions in the amount of flood damage,
- Improved recreational opportunities, and
- Greater direct economic opportunities *(e.g.,* improved agricultural production, tourism, etc.), and
- Ancillary economic benefit including enhanced real estate values for farms, homes, and businesses located near water bodies with good water quality.

How Will Costs Be Controlled? – In many instances water quality is impacted by several sources of pollution. TMDL IPs are designed to provide best management practices (BMPs) that allow multiple pollutant problems to be handled at the same time. For example, excluding livestock from streams is an important management practice to reduce fecal bacteria in a stream. Livestock are excluded by fencing off the stream. Fencing also helps restore a riparian buffer of 25 to 35 feet by allowing grasses and trees to grow. A healthy riparian buffer also benefits the aquatic habitat and the aquatic life in the same stream. The vegetated buffers that are established reduce sediment and nutrient transport to the stream from upslope locations. If fences were only placed at the top of the stream bank without the riparian buffer, the additional benefit of reducing sediment and nutrient loadings from the upland would be lost.

What is the Public Health Benefit? -- The majority of TMDLs being developed in Virginia are to reduce fecal bacteria in streams. It is hard to gage the impact that reducing fecal bacteria contamination will have on public health, as most cases of waterborne infection are not reported or are falsely attributed to other sources. However, **the incidence of infection from pollutant sources, through contact with surface waters, should be reduced considerably, and this should be noted.**

Is There a Benefit for the Chesapeake Bay? -- On a larger scale, for watersheds located within the Chesapeake Bay watershed, reducing sediment and nutrients loads as a result of BMPs that are installed to improve benthic and bacteria water quality impairments will help obtain implementation goals in the Tributary Strategies.

What is the Economic Benefit to the Community? -- The main objective of TMDL implementation is restoring water quality in our streams. Additional benefits will likely include continued economic vitality and strength. Healthy waters can improve economic opportunities for Virginians, and a healthy economic base can provide the resources and funding necessary to pursue restoration and enhancement activities. The agricultural, residential, or urban implementation actions recommended in the Implementation Plan (IP) will often provide economic benefits to the landowner, along with the expected environmental benefits. For example, exclusion of cattle from streams leads to the development of alternative (clean) water sources. This provides an opportunity for intensive pasture management and improved nutrient management. Additionally, money spent by landowners, government agencies, and non-profit organizations in the process of implementing the IP will stimulate the local economy.

What is the Economic Benefit to the Home Owner? -- Human waste can carry with it human viruses in addition to the bacterial and protozoan pathogens that all fecal matter can potentially carry. In terms of economic benefits to homeowners, an improved understanding of private sewage systems, including knowledge of what steps can be taken to keep them functioning properly and the need for regular maintenance, will give homeowners the tools needed for extending the life of their systems and reducing the overall cost of ownership. The average septic system will last 20-25 years if properly maintained. Proper maintenance includes; knowing the location of the system components and protecting them by not driving or parking on top of them, not planting trees where roots could damage the system, keeping hazardous chemicals out of the system, and pumping out the septic tank every three to five years. The cost of proper maintenance, as outlined here, is relatively inexpensive in comparison to repairing or replacing an entire system.

Why is Citizen Support for Clean Water Needed? -- Cleaner waters in Virginia will result in improved public health, conservation of natural resources, improved aquatic habitat, and greater economic opportunities for Virginians. These benefits add up to a better quality of life in the Commonwealth of Virginia; the recognition of these effects and their applicability in watersheds will help to ensure a successful implementation.

However, success of the TMDL implementation Plans depends on community support and voluntary actions by streamside property owners. Citizens need to take advantage of cost-sharing and tax incentive programs to restore stream buffers and exclude livestock from streams. Homeowners with improperly operating septic tank systems need to repair these systems.

How Do I get More Information? – Information is available from several sources about how Loudoun streams can benefit from improved pollution source management practices. Web sites of local organizations include:

- **Loudoun Watershed Watch –** www.loudounwatershedwatch.org
- **Loudoun Wildlife Conservancy –** www.loudounwildlife.org
- **Loudoun Soil and Water Conservation District –** www.vaswcd.org

Information in this fact sheet was taken from the DCR and DEQ, 2003, "Guidance Manual for Total Maximum Daily Load Implementation Plans." This document is available on the DEQ website at www.deq.virginia.gov.

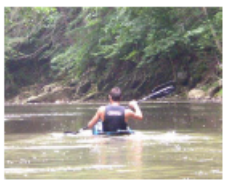
Funding to print this fact sheet is provided by a DEQ citizen stream monitoring grant

ATTACHMENT 4. Fecal Bacteria in Stream Water: Pubic Health Considerations

Catoctin Watershed Project
Stewardship for Catoctin Creek Watershed

Fecal Bacteria in Stream Water: Public Health Considerations

Are streams in Loudoun County safe for recreational use? The Virginia Department of Environmental Quality (DEQ), Department of Conservation and Recreation (DCR), Department of Health (VDH), and Federal EPA provide information on their websites regarding the health risks associated with fecal bacteria in drinking and recreational waters.



The Catoctin Watershed Project is sponsored by:
Loudoun Wildlife Conservancy
Loudoun Watershed Watch
Friends of Catoctin Creek

What is Fecal Coliform? – When DEQ monitors stream water, they test for the presence of fecal coliform bacteria. These bacteria live in the intestinal tracts of humans and other warm-blooded animals. The presence of fecal coliform bacteria in stream waters is an indicator of pollution from fecal wastes, and the potential for human pathogens, or disease causing organisms, being present.

Do People Get Sick From Bacteria in Fecal Wastes? -- The answer is YES. One particular kind of fecal coliform bacteria, *Escherichia coli (E. coli)* O157:H7, is an emerging cause of foodborne and waterborne illness. These bacteria produce a powerful toxin and can cause severe illness. This is of special concern because it is reported that **cattle are a reservoir for this type of *E. coli*, and five to forty percent of cattle shed the bacteria at any given time.**

The disease causing affects of bacteria in fecal wastes have been documented time and again in food, water supplies, and recreation waters used for swimming. An example of an outbreak associated with drinking water occurred in May 2000, in Walkerton, Ontario, a town of approximately 5000 people. There were seven confirmed deaths with four other deaths under investigation, and over 2000 poisonings all attributed to drinking water polluted by *E. coli* Type O157:H7. The source of the pollution was probably runoff from a feedlot located more than 5 miles from the wells used for the town's water supply.

An example of an outbreaks associated with swimming water occurred on August 8, 1994 in Virginia. VDH was notified of campers and counselors at a Shenandoah Valley summer camp developing bloody diarrhea. *E. coli* 0157:H7 was confirmed as the causative agent. Another outbreak occurred in Franklin County Virginia, in 1997. Illnesses involving 3 children were attributed to E. coli 0157:H7 in Smith Mountain Lake. The children were exposed to the bacteria while swimming in the lake and a two year old hospitalized almost died as a result of the exposure.

Are These Isolated cases? – The answer is NO. The Center for Disease Control estimates at least 73,000 cases of illnesses and 61 deaths per year throughout the U.S. caused by *E. coli* 0157:H7 bacteria. In addition, other bacterial and viral pathogens are indicated by the presence of fecal coliform. Further, the threat of these pathogens appears more prevalent in more populated areas and areas with more cattle.

Are Water Quality Standards Important? --EPA is responsible for assessing the risk the public is willing to accept and then establishing water quality standards that reflect these acceptable risks. DEQ and DCR are responsible for implementing measures to safeguard the public from these risks. Water quality standards are society's method of protecting citizens from unacceptable risks.

What Does the Virginia Department of Health Say? – VDH urges citizens who use river, stream and lake water for recreational purposes to be cautious and to use common sense about contact with recreational water. Although the cleanliness and quality of Virginia's surface waters continually improves, ***it is impossible to guarantee that any natural body of water is free of risk from disease causing-organisms or injury.***

Can't We Test Stream Waters for Pathogens? -- Testing water for viruses, parasites, and bacteria that cause illnesses are difficult, time consuming, and costly. For these reasons, tests for fecal coliform bacteria and *E. coli* are the national standards used as an indicator of possible contamination from human waste. The higher the fecal coliform level, the more likely it is that sewage is present, and the greater the risk of disease causing organisms being present. On the other hand, water that tests negative for fecal coliform bacteria is not necessarily risk free.

What Precautions Should Citizens Take When Using Streams for Recreation? -- Most of the organisms in Virginia's rivers and lakes probably do not cause human illness or are in such low levels they will not make anyone sick, but there is no way to be sure. Most of the waterborne organisms that cause disease affect the digestive tract and therefore are acquired by ingesting contaminated water. Less commonly, skin, ear and eye infections can result from contact with surface water. Although recreational water users may inadvertently swallow water, deliberately drinking from rivers, streams or lakes is never recommended. Persons whose immune systems are compromised should be very careful to avoid swallowing water from any river, stream or lake.

Where Do I Get Further Information? – More information from VDH regarding Risks of Recreational Water Use is available on their website at: www.vdh.state.va.us.

ATTACHMENT 5.

Catoctin Watershed Project

Stewardship for the Catoctin Creek Watershed

Catoctin Creek Stewardship Days
Riparian Tree Planting – April 17, 2005
Event Report

Supporters:

Loudoun Wildlife Conservancy
Loudoun Watershed Watch
Friends of Catoctin Creek
Girl Scouts of the Nation's Capital
Potomac Conservancy
Virginia Cooperative Extension
Virginia Department of Forestry
Loudoun Soil and Water Conservation District

Event Coordinator: Mark Moszak

Participants: See attachment

Purpose: The riparian, tree planting event was the first of two events targeting the Waterford and Taylorstown communities. The purpose was to provide a stewardship event in the Waterford area to help celebrate the importance of Catoctin Creek to the community and raise awareness regarding water quality problems impacting the watershed. Tree seedlings and shrubs were to be planted along the banks of the South Fork Catoctin Creek as an example of how to create a new streamside forest that will help protect water quality and provide natural habitat for wildlife for years to come.

Background: Originally, the tree planting was to be a small activity conducted in concert with the stream clean-up event in Taylorstown. However, after a public planning meeting and discussions with Girl Scout advisors, it was decided to make this a separate event in the Waterford area. Contacts were made with the Waterford Community Association and the Waterford Foundation, but they were not able to conduct a riparian buffer project at this time. They are working on a conservation plan for their streamside property, and it is hoped that a riparian tree planting can be planned in 2006. As an alternative, the LSWCD suggested David and Carol Ward property downstream from Waterford. The Wards have already installed fencing and an alternative water supply to keep horses back from the stream. The tree planting would help make this a model farm for good agriculture BMPs.

Location:

David and Carol Ward Property
15042 Milltown Rd., Waterford, VA

Schedule of Events – Sunday, April 17, 2005:

- 1-3 PM – Tree planting
- 2 PM – Youth environmental stewardship activity – Virginia Cooperative Extension
- 2:30 PM – Stream monitoring and water quality activity – Senior Girl Scout Troop

Highlights:

- The Catoctin Stewardship Days Riparian Tree Planting Event was a great success. Approximately 50 participants planted about 500 hundred trees and shrubs. As a result, several Girl Scout troops, other youth, and adults had the opportunity to

participate in a community service project and to learn about good stewardship to protect our streams and wildlife. Several adult leaders and other participants also brought their spouses and children to make it a family affair.

- The Ward property was well suited for the event. It was large enough to provide ample room for parking, the tree planting, and other activities. It also provided a safe location for youth activities.
- Planning the event based on participation by the Girl Scouts worked well. They provided a core group of participants. A cub scout troop also participated. It also worked well having the youth work in teams with adults. There were two other hands-on activities for girl scouts after they planted trees. The 4-H provided an educational activity about trees. A Senior Girl Scouts troop provided an activity about stream water quality activity that included an opportunity for some of the youth to explore the stream. This provide a variety of activities for the scouts.
- Displays by Loudoun Wildlife Conservancy, Virginia Department of Forestry, Potomac Conservancy, and Loudoun Soil and Water Conservation District provided good handout information on stewardship practices. Having the water and snacks available near exhibits helped draw attention to these exhibits.
- Trees and shrubs planted were:

  Sycamore -- 50 (tree)
  Willow Oak -- 50 (tree)
  Hazelnut -- 100 (shrub)
  Winterberry -- 50 (shrub)
  Silky Dogwood -- 50 (shrub)
  Buttonbush -- 50 (shrub)
  American Beautyberry -- 50 (shrub)
  Slender Lespedeza -- 100 (legume)
  TOTAL -- 500 (or 400 trees and shrubs plus 100 legumes)

PICTURES OF EVENT


Plowing furrows in which to plant the trees


Spaying a herbicide to reduce grass around trees

Banner advertising the event


Teams of Girl Scouts planting trees


Adult volunteers planting trees


Youth planting trees for community service hours

ATTACHMENT 1
List of Participants – Riparian Tree Planting
Waterford, VA – April 17, 2005

Name	Organization	Town
Michelle Guanieri	GS	Purcellville
Carol Backman	GS	Purcellville
Hannah Backman	GS	Purcellville
Cara Broshlewilctz & Family	GS	Purcellville
Drew Newgaard	Flint Hill School	Sterling
Deb Newgaard	Mother	Sterling
Ciara Bucci	GS	Purcellville
Steffanie Lee	GS	Purcellville
Sydney Bauman	GS	Purcellville
Bucci Family (3)	GS	Purcellville
Mary Kate Crawford	GS	Purcellville
Kim Monroe	4H Loudoun	Leesburg
Kendra Redmon	4H Loudoun	Leesburg
Graham & Brennon Wright	Cub Scouts	Leesburg
Anne Larson	Friends of Catoctin Creek	Taylorstown
Jeanna Moszak	Mother/Wife	Leesburg

Linda Schlosser	GS Leader	Ashburn
Charles Schlosser, Jr.	BS Troop 970	Ashburn
Charles Schlosser	GS Parent	Ashburn
Kellie Schlosser	GS	Ashburn
Jane Yocom	GS Troop 1050	Purcellville
Emily Barr	GS Troop 1050	Purcellville
Melanie Jordan	GS Troop 1050	Waterford
Paul & Sam Busa	Cub Scout Troop 998	Leesburg
Billy, Katie, & Justin Hardin	Cub Scout Troop 998	Leesburg
Garrett & Donna Beaubein	Cub Scout Troop 998	Leesburg
Kelly & Maddy Wright	Cub Scout Troop 998	Leesburg
Lilly Potter	GS Troop 2963	Middleburg
Donna Potter	GS mom	Middleburg
Joe Coleman	Loudoun Wildlife Conserv	Bluemont
Keira Crawford	GS	Purcellville
Karla Plascencia	GS	Purcellville
Jessica McCann	GS	Lovettsville
Jilliamra & Celia McCann	Sisters	Lovettsville
Sharon Lloyd-O'Conner	Resident	Lovettsville
Kathleen Lofduke	GS	Purcellville
Anna Lofduke	GS	Purcellville
Kathleen Hallum	GS	Taylorstown
Matthew Callaham	Boy Scouts	Taylorstown
Blaine Larson	Friends of Catoctin Creek	Taylorstown
David & Carol Ward	Loudoun Watershed Watch	Waterford
Darrell, Jane, and Jeff Schwalm	Loudoun Wildlife Conserv.	Sterling
Mark Moszak & 2 kids	Potomac Conservancy	Hamilton
Jeff Wolinski	Stream Restoration Consult	Leesburg
Carol Evans	Dept of Forestry	Leesburg

ATTACHMENT 6.

Catoctin Watershed Project

Stewardship for the Catoctin Creek Watershed

Catoctin Creek Stewardship Days
Catoctin Creek Cleanup – April 24, 2005
Event Report

Supporters:

Loudoun Wildlife Conservancy
Loudoun Watershed Watch
Friends of Catoctin Creek
Taylorstown Store
Taylorstown Community Association
Boy Scout Troop 962 - Lovettsville
Loudoun Environmental Health
Loudoun Soil and Water Conservation District

Event Coordinator: Ann Larson and Darrell Schwalm

Participants: See attachment

Purpose: The Catoctin Creek Cleanup was the second of two events organized in the Waterford and Taylorstown communities to provide stewardship activities to help celebrate the importance of Catoctin Creek to the community. The activities also sought to raise awareness regarding water quality problems impacting the watershed.

Background: Boy Scout Troop 962, Lovettsville, VA., have conducted stream cleanups in April along the Taylorstown section of Catoctin Creek using canoes for several years. The event attracts family members who drop off and pick up the scouts and canoes. Loudoun Wildlife Conservancy, Loudoun Watershed Watch, and the Friends of Catoctin Creek believed this event could be used as a catalyst for an expanded, community-wide event focused on the scenic and recreational values of Catoctin Creek to the Taylorstown community.

Location:

Ruth and Ray Cheronis Property at Taylorstown Bridge
Taylorstown, VA

Schedule of Events – Sunday, April 17, 2005:

- Noon -1 PM – Hamburger and hot dog lunch for scouts and other participants
- 1-3 PM – Stream stewardship exhibits
- 1 – 2 PM – Benthic macroinvertebrate and fish monitoring activity
- 2 – 2:30 PM – Stream-side Nature Walk

Highlights:

- The Catoctin Creek Stream Cleanup Event was a great success. Over 60 adults and youth participated in the cleanup and the activities at Taylorstown. The Boy Scouts had a large participation and much trash was collected from the creek. Girl Scout Troop 514, Lovettsville, had several members pick up trash at McKimmey Landing on the Potomac River. The lunch, exhibits, and stream-side activities at Taylorstown Bridge attracted a large number of scout leaders and parents, and other people in the

community, and this helped advertise the event and give an added importance for what the scouts were doing. Both the youth and adults also had an opportunity to learn about aquatic life in the Creek.

- The Cheronis property was well suited for the event. It was large enough to provide ample room and a safe location for the various activities. The Taylorstown Store was available and used for community related displays. Judy Ross volunteered the use of her property for a nature walk along the stream. VDOT cooperated by grading the parking area across from the Cheronis' and along Hoysville Road which facilitated parking. The Loudoun County Sheriffs Department assisted with slowing down traffic in the area of the event.
- Planning the event based on the stream cleanup activity of the Boy Scouts worked well. They provided a large core group of participants. The lunch provided to the scouts and participants help congregate people at the event site. The streamside stream monitoring demonstration provided by Kristi and Peter Larson was well attended. The fish monitoring demonstration provided by Jeff Wolinski also attracted a lot of interest, especially from the Boy Scouts and leaders. The nature walk conducted by Phil Daley was also successful. These activities engaged participants in stream stewardship themes.
- Displays by Loudoun Wildlife Conservancy, Virginia Department of Health, and Loudoun Soil and Water Conservation District provided good handout information on stewardship practices. The passive exhibits were not as effective, however, in attracting attention and engaging people. Next year it would be good to have some hands-on activity associated with all of the exhibits.
- T-Shirts provided to the Boy Scouts and Girl Scout participants were well received by the scout leaders. They provided another reason for the large turnout for the event.

PICTURES OF EVENT

Spring cleaning the creek

Boy Scouts from Troop 962 in Lovettsville worked long and hard April 24, clearing debris and trash from the Catoctin Creek as part of Catoctin Creek Stewardship Days.

Community stewardship projects are part of a multi-year watershed-wide effort to correct water pollution problems in Catoctin Creek, but for Troop 962, the creek cleanup has been an annual commitment for several years.

Putting in at Featherbed Lane, over 20 scouts set off in the first group of canoes, removing tires, rubble, trash and anything else that might be hazardous to the natural environment. They landed at the Taylorstown Bridge to unload. First year scout Tyler Mosley and veteran scout Clay Cope came ashore with a refrigerator balanced on their canoe!

A second group headed off in the afternoon and paddled from the Taylorstown Bridge to the Potomac, fishing out several tires, industrial tubing and an abundance of trash.

"The water is always cold and the weather is very unpredictable, but this is a commitment the troop makes every year," said leader Charlie Albert. Each scout received a Catoctin Watershed Project t-shirt and a free lunch.

Troop 962 also sponsors a portion of Featherbed Lane, and works to keep the road free of trash throughout the year.

ABOVE: Scout Leader Charlie Albert and first year scout Matt Johnson filled their canoe with tires and trash from Catoctin Creek.

BELOW: Scouts Kyle McLaughlin, Jacob Dunklee, Perce Cooper, Morgan Overman, Danny Kirk, Matt Johnson, JP Payne and leaders Peter Cooper, Graham Overman and Charlie Albert stand with their debris from the Catoctin Creek Cleanup. — *Citizen / Sandy Ryan*

Newspaper article on clean-up event

Boy Scout canoes and trash bags

Serving hamburgers to participants

Loudoun Wildlife Conservancy display

Stream monitoring display and activity

Fish monitoring activity

Checking out the fish

ATTACHMENT 1
List of Participants – Catoctin Stream Cleanup
Taylorstown, VA – April 25, 2005

Name	Organization	Town
Danny Kirk	BS Troop 962	Lovettsville
Steven Metz	BS Troop 962	Leesburg
Morgan Overman	BS Troop 962	Hamilton
Dude Moxley	BS Troop 962	Lovettsville
Trent Moxley	BS Troop 962	Lovettsville
Glenn Deckman	BS Troop 962	Lovettsville
Carol Deckman	BS Troop 962	Lovettsville
Clay Cope	BS Troop 962	Lovettsville
Resse Gelinas	BS Troop 962	Lovettsville
Tony Gelinas	BS Troop 962	Lovettsville
Charley Albert	BS Troop 962	Lovettsville
Travis Cope	BS Troop 962	Lovettsville
Justin Thompson	BS Troop 962	Lovettsville
Ben Hayba	BS Troop 962	Lovettsville
Chris Corrado	BS Troop 962	Lovettsville
Kyle McLaughlin	BS Troop 962	Lovettsville
Frank Carrado	BS Troop 962	Lovettsville

Kenny Miller	BS Troop 962	Lovettsville
Tyler Moxley	BS Troop 962	Lovettsville
Thomas Moxley	BS Troop 962	Lovettsville
Pearce Cooper	BS Troop 962	Lovettsville
Jacob Dunklee	BS Troop 962	Lovettsville
Matt Johnson	BS Troop 962	Lovettsville
JP Payne	BS Troop 962	Lovettsville
Rich Dunalee	BS Troop 962	Lovettsville
Keegan Mongovan	BS Troop 962	Lovettsville
David Kirk	BS Troop 962	Lovettsville
Boyd Owens	BS Troop 962	Lovettsville
Dan Hayba	BS Troop 962	Lovettsville
Steve Giannino	BS Troop 962	Lovettsville
David & Pat Staton		Brunswick, MD
Mark Goumas		College Park, MD
Ruth and Ray Cheronis	Neighbor	Taylorstown/Lovettsville
Laurie Denson		Lovettsville
Gem Bingol	LWC	Leesburg
Mariann Babujyan		Moscow
Steve Cawthron	LSWCD	Philmont
John & Carol Eichner	Neighbor	Lovettsville
Phil Daley	LWC	Lincoln
Susan Mackenzie	Neighbor	Taylorstown
Sebastian Nunez Del Prado, Jr.		Leesburg
Sebastian Nunez Del Prado		Leesburg
Laurie Denson		Lovettsville
Astri Scott		Lovettsville
Nicole Hamilton	LWC	Waterford
Suzanne DeSair	GS Troop 514	Lovettsville
Tara Linhardt	Neighbor	Taylorstown
Danny Knicely	Neighbor	Taylorstown
Sandra & Phil Ehrenkranz	Neighbor	Taylorstown
Marty, Avery, & Silas Fair		Neersville
Erika Weshinskey		Neersville
Ann & Blaine Larson	Friends of Catoctin Creek	Taylorstown
Bob Lee	Loudoun Health Department	Loudoun County
Darrell & Jeff Schwalm	Loudoun Wildlife Conserv.	Sterling
Tena & Grady O'Rear	EcoVillage	
Jeff Wolinski	Stream Restoration Consult	Leesburg
Kristi & Peter Larson	Friends of Catoctin Creek	Taylorstown
Otto & Drew Gutenson	LWC	Lovettsville