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:

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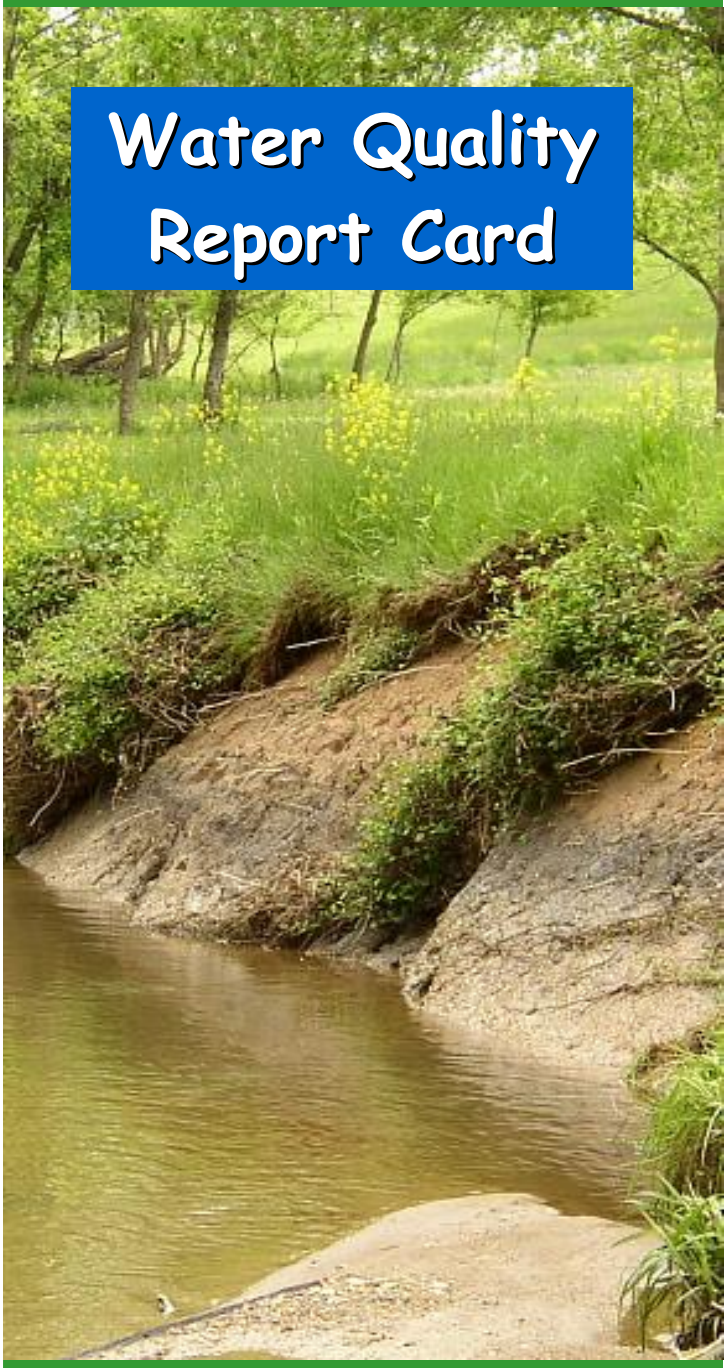
Catoctin Creek



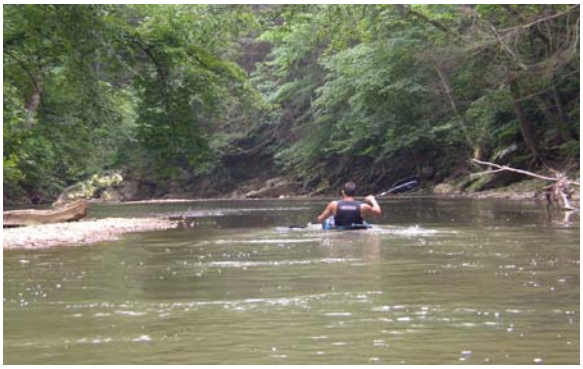
Water Quality Report Card

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.

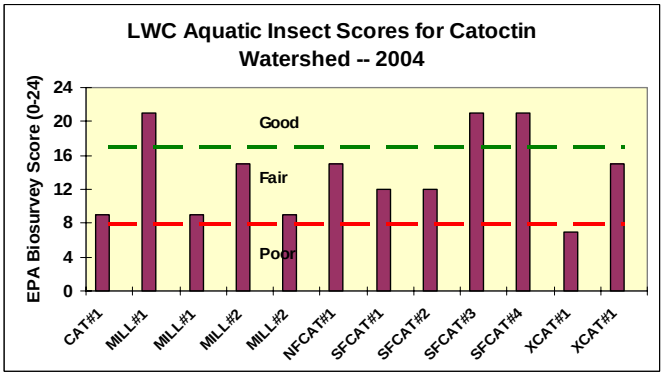
An afternoon canoeing down Catoctin Creek

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

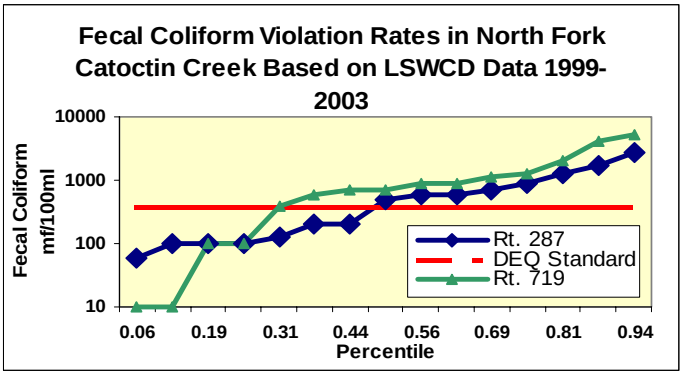
We know about water pollution problems in the Catoctin Creek watershed because DCR published a report called the **Total Maximum Daily Load or TMDL study**. DCR studied portions of Catoctin Creek that do not meet water quality standards and pose a risk to people who canoe, swim, wade, and fish.

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