

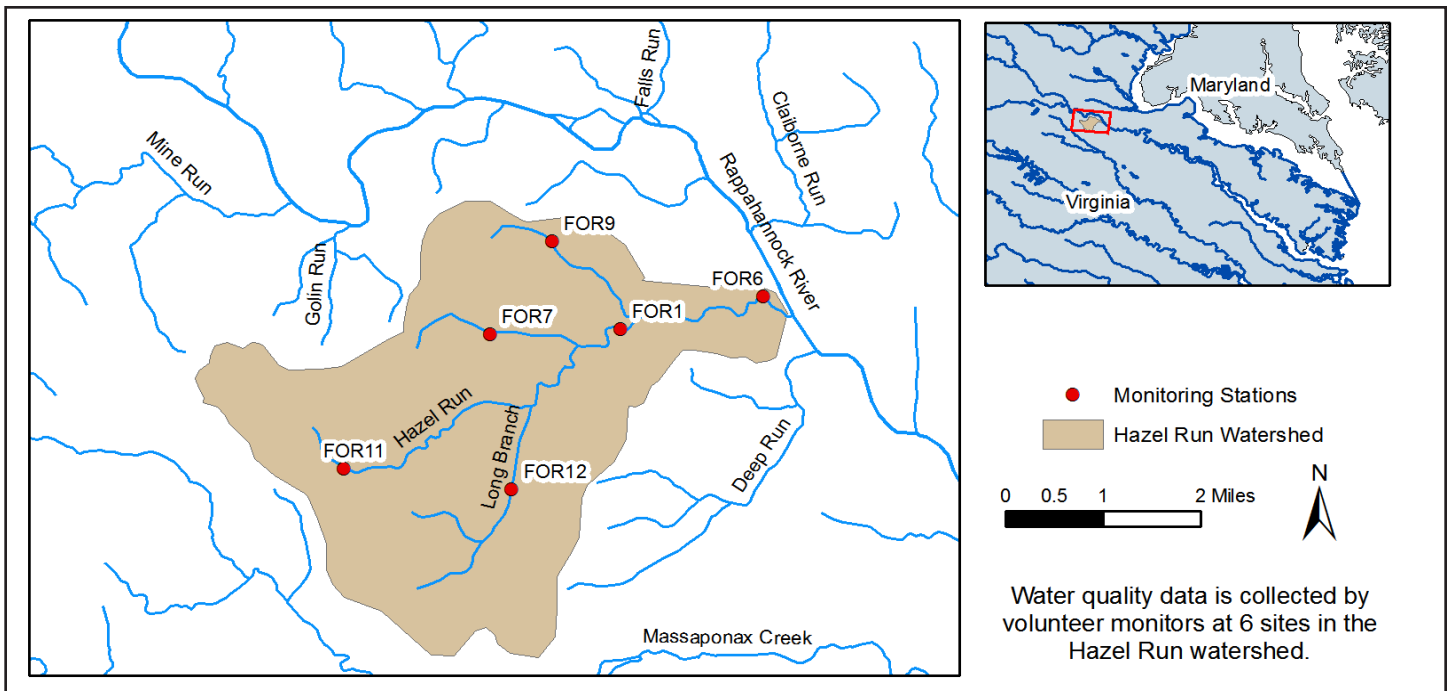
# Hazel Run: A Watershed at Risk



FOR 1: Water Monitoring Station on Hazel Run



FOR 7: Water Monitoring Station on a Hazel Run Tributary

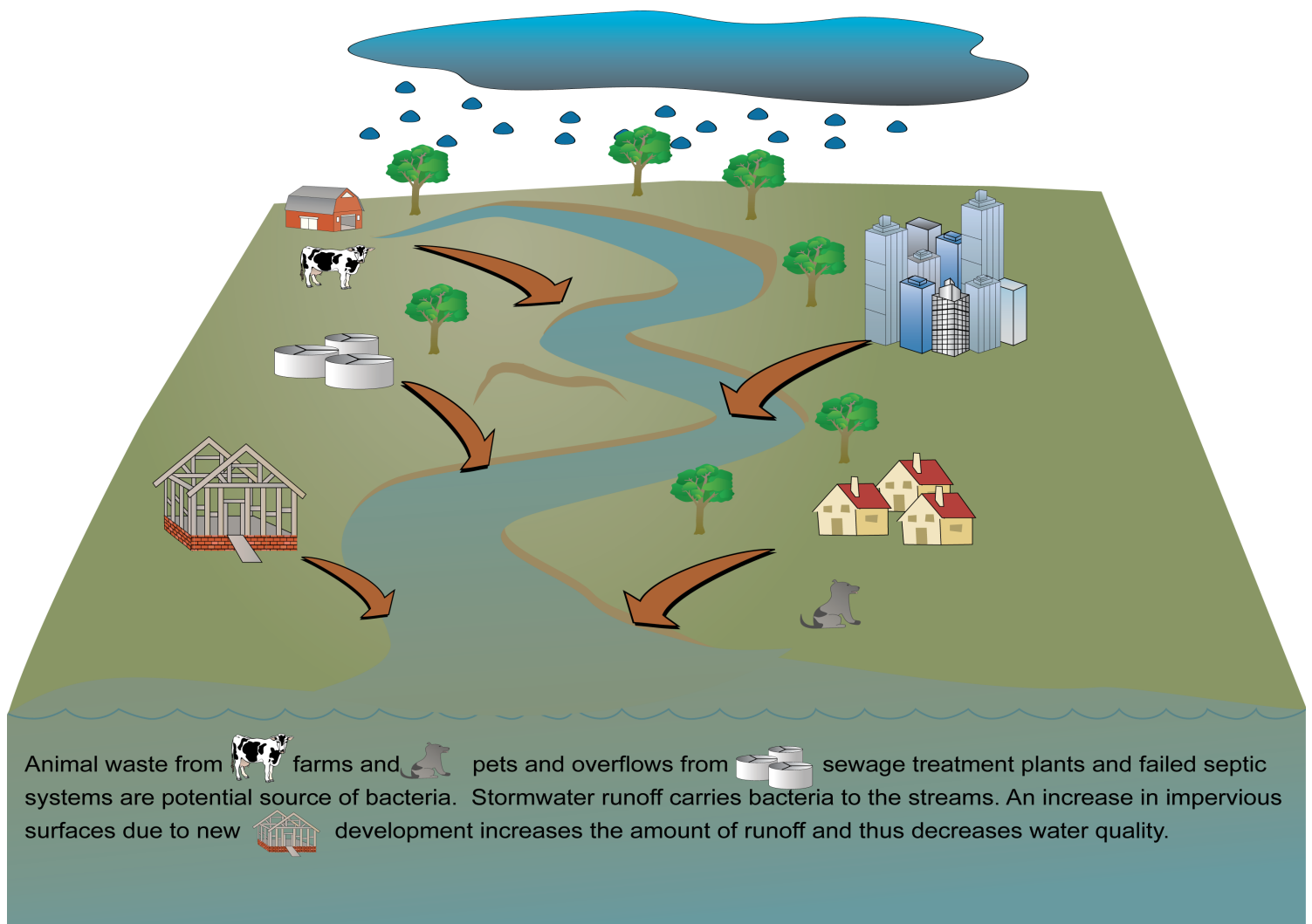


Example of streambank erosion.

Hazel Run is a tributary to the Rappahannock River that flows through Spotsylvania County and the City of Fredericksburg. It is listed as an impaired stream due to bacteria levels that exceed state standards. As a result of ongoing development over the past couple of decades, there has been an increase in runoff and decline in water quality and biological diversity in this 17 square mile watershed. The increase in stormwater runoff also contributes to major streambank erosion (as seen in picture on left).



# Bacteria Threatens Hazel Run



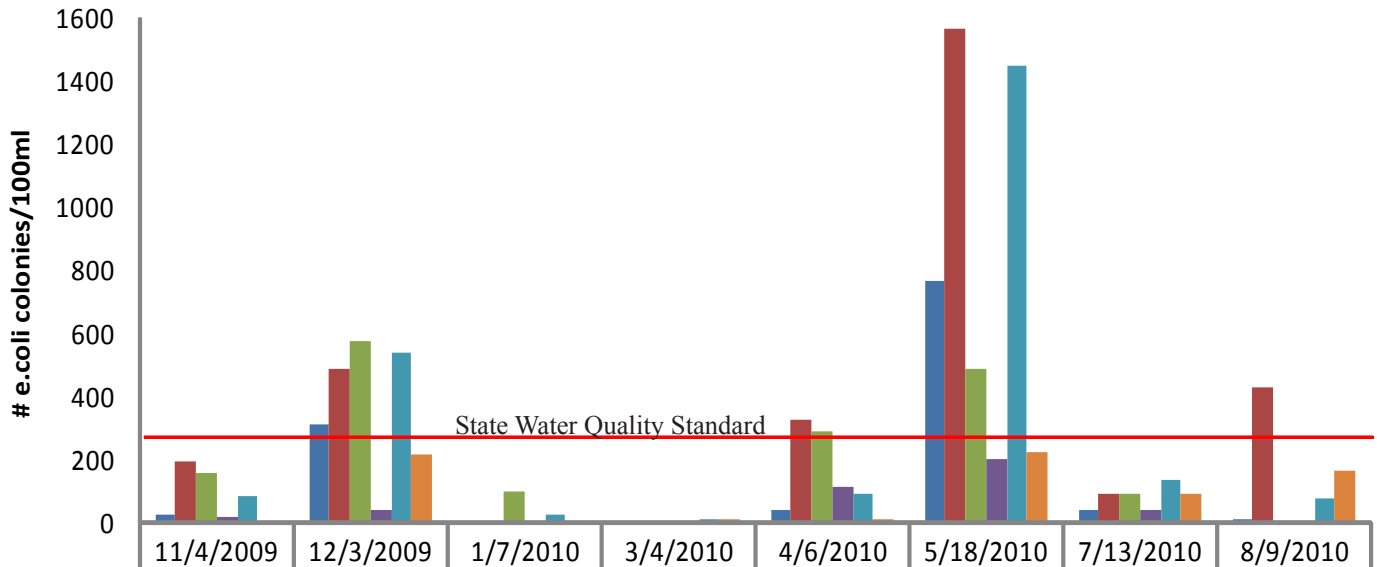
## ***E. Coli*: An Indicator Organism**

*E. coli* is a type of fecal coliform bacteria that is used to indicate fecal waste in water. It is much safer to test for *E. coli* than directly test for the presence of pathogens (disease causing organisms). Since fecal coliforms enter water using the same vector (in this case fecal waste) as pathogens, significant amounts of fecal coliform bacteria may indicate an increase risk of exposure to pathogens.

## **Virginia's Water Quality Standard for Bacteria**

The Virginia Standard for *E. coli* (for a one time monthly sample) is 235 *E. coli* colonies per 100 ml. Studies have show that when *E. coli* is at this level, it would equate to 8 out of 1,000 swimmers becoming sick (ear infections, stomach aches, etc).

## Hazel Run Bacteria Data



	11/4/2009	12/3/2009	1/7/2010	3/4/2010	4/6/2010	5/18/2010	7/13/2010	8/9/2010
FOR 1	25	312.5	0	0	37.5	762.5	37.5	12.5
FOR 6	191.7	487.5	0	0	325	1562.5	87.5	425
FOR 7	158.3	575	100	0	287.5	487.5	87.5	N/A
FOR 9	16.7	38	0	0	112.5	200	37.5	N/A
FOR 11	83.3	537.5	25	12.5	87.5	1450	137.5	75
FOR 12	0	212.5	0	12.5	12.5	225	87.5	162.5

Approximately once a month, from December 2009 to August 2010, volunteer monitors gathered *E. coli* data at 6 locations throughout the Hazel Run watershed. Eleven out of 46 samples exceeded the state water quality standard (as indicated by the red line). Also, the higher counts of *E. coli* occurred during storm events. In December and May, the average regional rainfall was about 1.85 inches and 1 inch, respectively. The higher counts of bacteria during those months show that bacteria is carried to the streams via runoff.

Site FOR 1 is located in Alum Spring Park, a popular spot for hiking, picnicking, and families and dogs playing creekside. Since

unacceptable bacteria levels have been found here, visitors to this park should take care to wash their hands before eating if they have been playing in or near the creek.

Site FOR 6, which is on the main stem of Hazel Run, close to where it empties into the Rappahannock River, typically has higher *E. coli* counts than the other sample locations. Volunteers have also indicated that even though a broken sanitary sewer pipe has recently been replaced, there is still a sewer smell in the area. More research and sample collection will need to be conducted to determine the potential bacteria sources.



# What You Can Do

Hazel Run is a watershed at risk because impervious surfaces (parking lots, roofs, etc.) from development contribute to polluted runoff. These larger amounts of runoff are more than this watershed can handle, as evidenced in the streambank erosion and high bacteria levels. However, it is not too late to clean up Hazel Run. Here are a few ways you can reduce stormwater runoff and bacteria pollution in the stream:

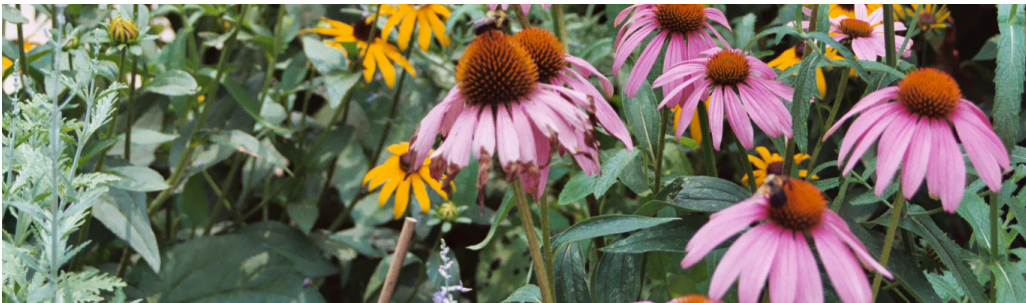
- Pick up after your pet.
- Install a rain barrel or rain garden and plant native species to keep stormwater on your property.
- Watch (and smell) for sewage overflows and contact your city or county.
- Support sewage treatment plant upgrades.
- If you have a septic system, have it inspected and pumped regularly.
- Volunteer to be a water quality monitor.



Volunteer monitor on Hazel Run.



Sewage overflow near Hazel Run.



Purple coneflower and black eyed susans are two types of native plants.  
Photo credit: Alliance for the Chesapeake Bay



Rain barrel captures runoff.

This report was funded by a Chesapeake Bay Restoration Fund grant to the Alliance for the Chesapeake Bay (Alliance). The Alliance coordinates *RiverTrends*, a regional volunteer water quality monitoring program. Friends of the Rappahannock participates in the *RiverTrends* program and coordinates monitoring on Hazel Run and at other sites in the Rappahannock watershed. For more water quality data collected through these efforts, please visit the Alliance's Database at <http://www.alliancechesbay.org/monitoring/data/site.cfm>. To find out how to become a water quality monitor, visit [www.allianceforthebay.org](http://www.allianceforthebay.org). For more information on the Hazel Run and the Rappahannock, please visit [www.riverfriends.org](http://www.riverfriends.org).



Publishing Date:  
August 2010

Photo credits:  
Friends of Rappahannock