Successful example of how volunteer citizen scientists are a significant source of bacteria to Lodge Creek was eliminated when StreamWatch volunteers found a sewage leak on private property. With our partner Rivanna Conservation Society and the Rivanna River Basin Commission. During 2014, StreamWatch staff and volunteers routinely monitored 14 sites, once a month, using Coliscan® Easygel to process the more than 130 stream samples that were collected during the year. Bacteria levels help determine if water is safe for swimming or other recreation. We monitor coliform bacteria levels, specifically *Escherichia coli* (*E. coli*), which are bacteria found in the intestines and fecal matter of warm blooded animals. StreamWatch uses protocols and standards set by the Virginia Department of Environmental Quality. High counts of *E. coli* in a stream indicate there is an elevated risk of illness from pathogenic organisms.

Bacteria scores are posted each month at: http://streamwatch.org/stream-conditions/bacteria-monitoring

**Overview**

**StreamWatch** launched a bacteria monitoring program in July 2012, in collaboration with Rivanna Conservation Society and the Rivanna River Basin Commission. During 2014, StreamWatch staff and volunteers routinely monitored 14 sites, once a month, using Coliscan® Easygel to process the more than 130 stream samples that were collected during the year. Bacteria levels help determine if water is safe for swimming or other recreation. We monitor coliform bacteria levels, specifically *Escherichia coli* (*E. coli*), which are bacteria found in the intestines and fecal matter of warm blooded animals. StreamWatch uses protocols and standards set by the Virginia Department of Environmental Quality. High counts of *E. coli* in a stream indicate there is an elevated risk of illness from pathogenic organisms.

**Success!**

**StreamWatch monitoring discovers a sewage leak in Charlottesville**

Bacteria levels in streams and rivers sometimes increase during the summer months due to warmer water conditions and more frequent storms. Water becomes unsafe for human and pet recreation when bacteria levels exceed the Virginia water quality standard for bacteria of 235 colony forming units per 100 milliliters of water (CFU/100mL).

However, when StreamWatch volunteers found bacteria levels in Lodge Creek (a tributary of Moores Creek) around 15,000 CFU/100mL in August we knew something was awry. The bacteria level recorded in Lodge Creek strongly suggested a sewer line break and was subsequently reported to the City of Charlottesville by StreamWatch staff. With our partner Rivanna Conservation Society ready to assist, City officials investigated their infrastructure and found that the culprit was a break in a sewer line on private property.

StreamWatch added two sampling locations upstream and downstream of the line break and continued to monitor Lodge Creek, before and after the line repair was done. Results from the sampling indicate that a significant source of bacteria to Lodge Creek was eliminated with the repair. While Lodge Creek still has some failing bacteria scores (in the low range), we see this as a successful example of how volunteer citizen scientists are able to partner with the City of Charlottesville to improve our local water quality. This success story was shared with the larger public in newspiece by Charlottesville Newsplex. StreamWatch plans to continue monitoring Lodge Creek in the 2015 sampling season.
**Clean Recreation Sites on the Rivanna River**

Seven of our bacteria monitoring sites are located at boat launches and popular swimming spots along the Rivanna and Moormans Rivers. StreamWatch is happy to report that we did not find any high bacteria levels at these common recreation sites on our sampling dates in 2014. In the past, the Virginia Department of Environmental Quality has found that some portions of the Rivanna River fail the state water quality standards for recreation due to high levels of bacteria. The sampling frequency of once a month performed by StreamWatch volunteers is not frequent enough to capture sporadic peaks in bacteria due to runoff caused by storms. However, StreamWatch has been able to show that there are no significant persistent bacteria levels at common recreation sites. In partnership with Rivanna Conservation Society, the monthly results from StreamWatch bacteria monitoring were posted at each of the five kiosks at recreation sites on the Rivanna River.

**Moores Creek Watershed**

Seven of our bacteria monitoring sites are in the Moores Creek watershed, which is located in and around the City of Charlottesville. Moores Creek is listed as “impaired” by Virginia Department of Environmental (DEQ) for both recreation (based on levels of coliform bacteria) and aquatic life. Moores Creek has been the focus of attention for many organizations during recent years due to its poor aquatic health and urban setting. Since beginning bacteria monitoring in 2012, StreamWatch has worked with DEQ to periodically re-position our sampling efforts to identify potential problem areas within the Rivanna Watershed. Lodge Creek (described earlier) is an example of successfully directing our attention to an area that needed more bacteria monitoring. Of the 71 total samples collected in 2014, 16 exceeded the state standard for water quality (above 235 CFU/100mL). While ten of the high scores were from Lodge Creek, Biscuit Run and Black Branch also had failing bacteria levels during three samples in the summer months (shown on map and graph to the right). Moores Creek at Azelea Park also had one elevated bacteria score in June.

**Thank You**

Community Partners


Bacteria Volunteers


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