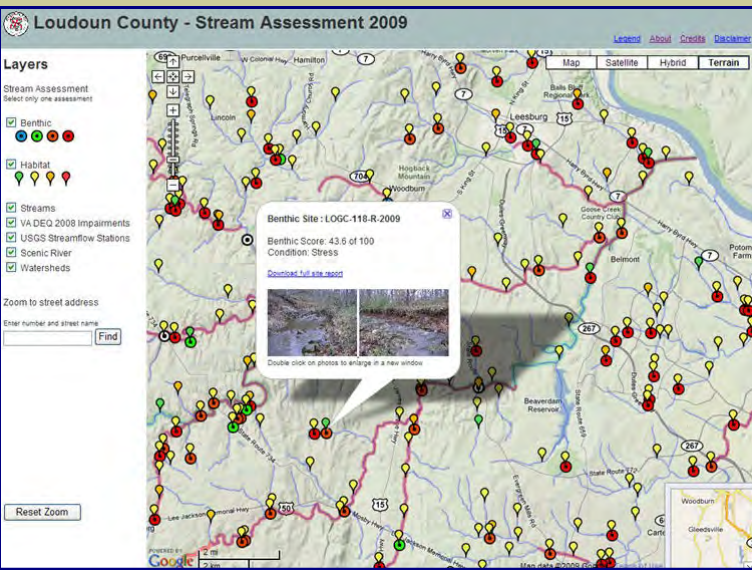


Benthic Assessment Findings

The benthic and habitat assessments provide an overall understanding of the stream health conditions throughout Loudoun County. Statistical analysis of the benthic assessment data indicates that 78% of the stream miles in Loudoun County are in a “Stressed” or “Severe Stressed” condition. This is, however, a statistical estimate because only 200 field measurements were obtained. The Virginia Department of Environmental Quality evaluates benthic assessments every two years. Those streams that are assessed as “Stressed” or “Severely Stressed” are classified as “Impaired” because they do not meet the requirements for “Aquatic Life Use”. Those stream segments identified as “Impaired” will undergo further evaluation via the Total Maximum Daily Load (TMDL) process (www.deq.virginia.gov/tmdl). Typically benthic impairments result from excessive sediment loads.



Results from the stream assessment field survey and site photographs provide a quick and convenient means to explore data, site-by-site.

“Protecting our water resources is critical to our health, economy, and environment.

Together, we can ensure a healthy environmental future for our children, the county, and the Chesapeake Bay.”



Loudoun County contracted the field services of Versar and Biohabitats, two firms that specialize in stream assessment. This study is funded in part through a grant from the U.S. Environmental Protection Agency. This project is neither a regulatory nor an enforcement activity.

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*Loudoun County, Virginia
2009 Stream Assessment Project*

***Stream Assessment
Field Survey***

A Countywide Study of Stream Health



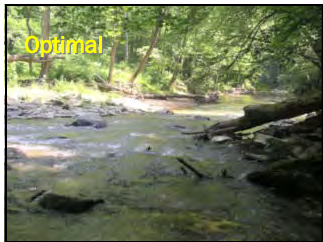
The 2009 countywide stream assessment study has provided a better understanding of stream conditions in Loudoun County. The results are used to help protect and preserve our water resources. This information and other stream monitoring results are essential to maintaining and protecting our water supply and providing a healthy environment.

Stream Assessment Field Survey

The 2009 Loudoun County stream survey examined 500 stream segments for habitat ecological health with 200 of these sites undergoing a more detailed assessment of the benthic (bottom dwelling) organisms. Trained professionals measure and sample the physical and biological characteristics of a 300-foot stream segment. Characteristics such as: vegetation, stream bank stability, stream bed composition, aquatic diversity and land use were all parameters used in the assessment.



Stream sites throughout the county were selected using a statistical approach and all the major watersheds were statistically represented.



Assessment Procedure

A habitat assessment evaluates stream ecology by examining several stream characteristics: tree canopy, bank vegetation, embeddedness of the rocks and pebbles, stability of the stream banks and channel characteristics. A numeric value is given to each characteristic resulting in an overall score and rank for each site.

A benthic assessment involves collecting and identifying the organisms that live on the stream bottom. Based on the various tolerance levels of the different benthic organisms, metrics are calculated to score and rank the health of the stream benthic community.

Survey Results

Field crews conducted habitat assessments on 500 stream segments in the county. The predominant habitat condition in Loudoun County is “Suboptimal” with fewer sites assessed as “Optimal” or “Marginal”. Only one site attained a “Poor” rating.

The 200 benthic assessments showed greater variability. Benthic conditions varied from “Excellent” to “Severe Stress” and in general, there are a greater number of stressed locations in eastern Loudoun.

The results are illustrated in the maps to the right.

Water Quality

Temperature, pH, dissolved oxygen and turbidity were measured at all 500 locations. The survey did not include detailed water chemistry, toxics or bacteria because the VA Dept Environmental Quality routinely collects these types of water samples.

Problem Sites

During the stream survey, several problem sites were observed. These sites included: areas of excessive erosion, exposed pipe, inadequate buffer and fish barriers. Results will help guide future watershed management planning and restoration activities.

