

Evolution of Virginia Volunteer Water Monitoring Programs:

From Public Engagement to Influencing State Policy

National Water Monitoring Council
27 April, 2010




Virginia's Citizen Monitoring History

- Approximately 25 years of volunteer monitoring efforts in Virginia.
- Long Term Programs Include:
 - Alliance for the Chesapeake Bay (1985)
 - Smith Mt. Lake Vol Monitoring (1987)
 - Friends of the North Fork Shenandoah (1988)
 - Virginia Save Our Streams
- Today there are over 95 active water monitoring groups throughout the state.

What has happened in 25 years?

➤ Categories for success

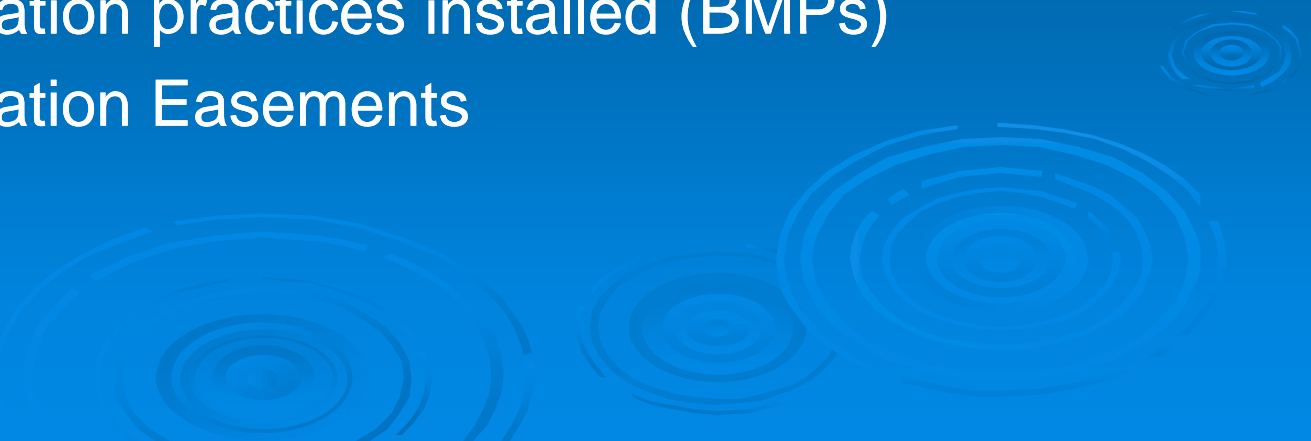
- Volunteer/Citizen Engagement
 - Acceptance of data by VA DEQ and several local governments
 - Influence with elected officials
 - VA General Assembly
 - Governor's office
 - Local officials
- 

Volunteer/Citizen Engagement

- Thousands of Virginians have been engaged in various monitoring programs.
- Volunteer monitoring efforts are a launching pad for civic engagement and environmental education.
 - Volunteers have become involved in:
 - Local planning efforts
 - Participated in TMDL development/implementation planning
 - Engaging schools, civic groups, etc.
 - Has even been a catalyst for developing some environmental professional careers

Volunteer/Citizen Engagement

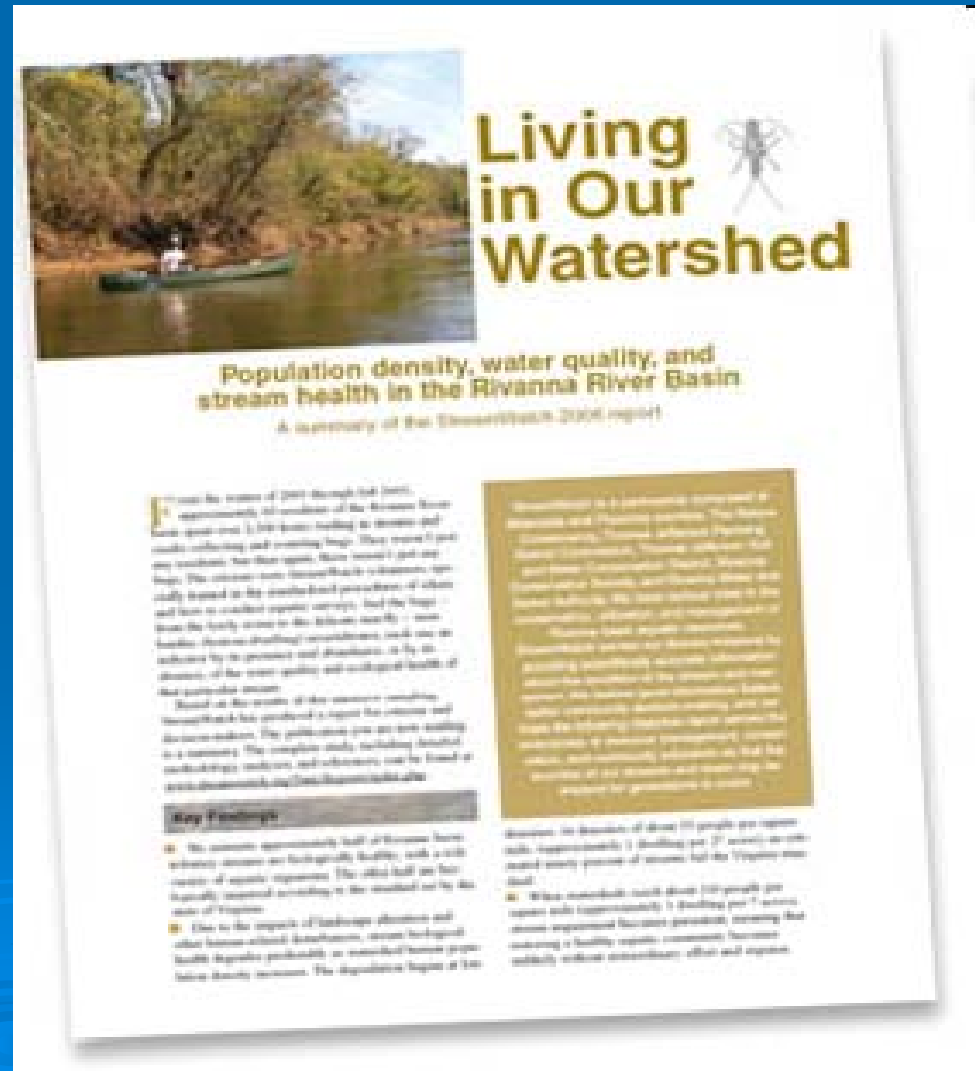
➤ Efforts have taught citizens:

- The land/water connection (What is a watershed?)
 - Lifestyle changes (How can I reduce my footprint?)
 - Conservation practices installed (BMPs)
 - Conservation Easements
 - Etc.
- 

Volunteer/Citizen Engagement

➤ Efforts have taught citizens:

- How to communicate effectively with others
- Watershed Report Cards



Volunteer/Citizen Engagement



Biological Health of Rivanna Basin Streams 2005-2007



A summary of the StreamWatch 2008 report

For most the year, with public and private support, with the involvement of governmental and non-governmental sponsors, with the guidance of expert scientists, and with the help of scores of dedicated volunteers, StreamWatch has been conducting biological surveys at dozens of monitoring sites throughout the Rivanna River watershed. The streams we collect insects, snails, worms, and fish; set environmental indicators. These processes, stream, and relative abundance tell us about water quality and habitat conditions, and through analysis of multiple samples, StreamWatch is able to gauge our watershed's ability to support life and provide services to our human community. In this, our third report, we assess biological health at 31 representative sites based on three years of data ending in Fall 2007. The summary you are now reading is distilled from a comprehensive report available at our website: www.streamwatch.org/reports

Findings

- Three quarters of representative stream sites failed the Virginia aquatic life water quality standard. Failure means the sustainability of organisms in the stream is at least moderately degraded due to human-related stresses.
- The condition of most failing sites lies near the poor-fair range. These streams have a reasonable chance of regaining good health in response to improved stewardship. Conversely, some passing streams also lie near the range and could fail in response to neglect. Four of 31 sites (13%) are badly impaired.
- The percentage of failing sites is slightly higher than in our previous reports. It indicates suggests that drought in 2006 and

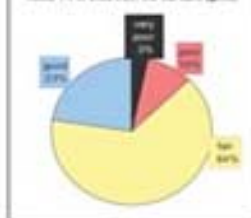
2007 may have added additional stress on streams already burdened by human disturbance. However, we do not have a long enough data record to test this theory.

As with previous StreamWatch reports, we see a strong relationship between stream health and land use intensity.

StreamWatch has been monitoring the Rivanna system for five years, during which time land use in parts of the watershed has changed. But the change has not been extensive enough to affect the overall biological health of the stream network, at least not in a way that our monitoring systems can detect.

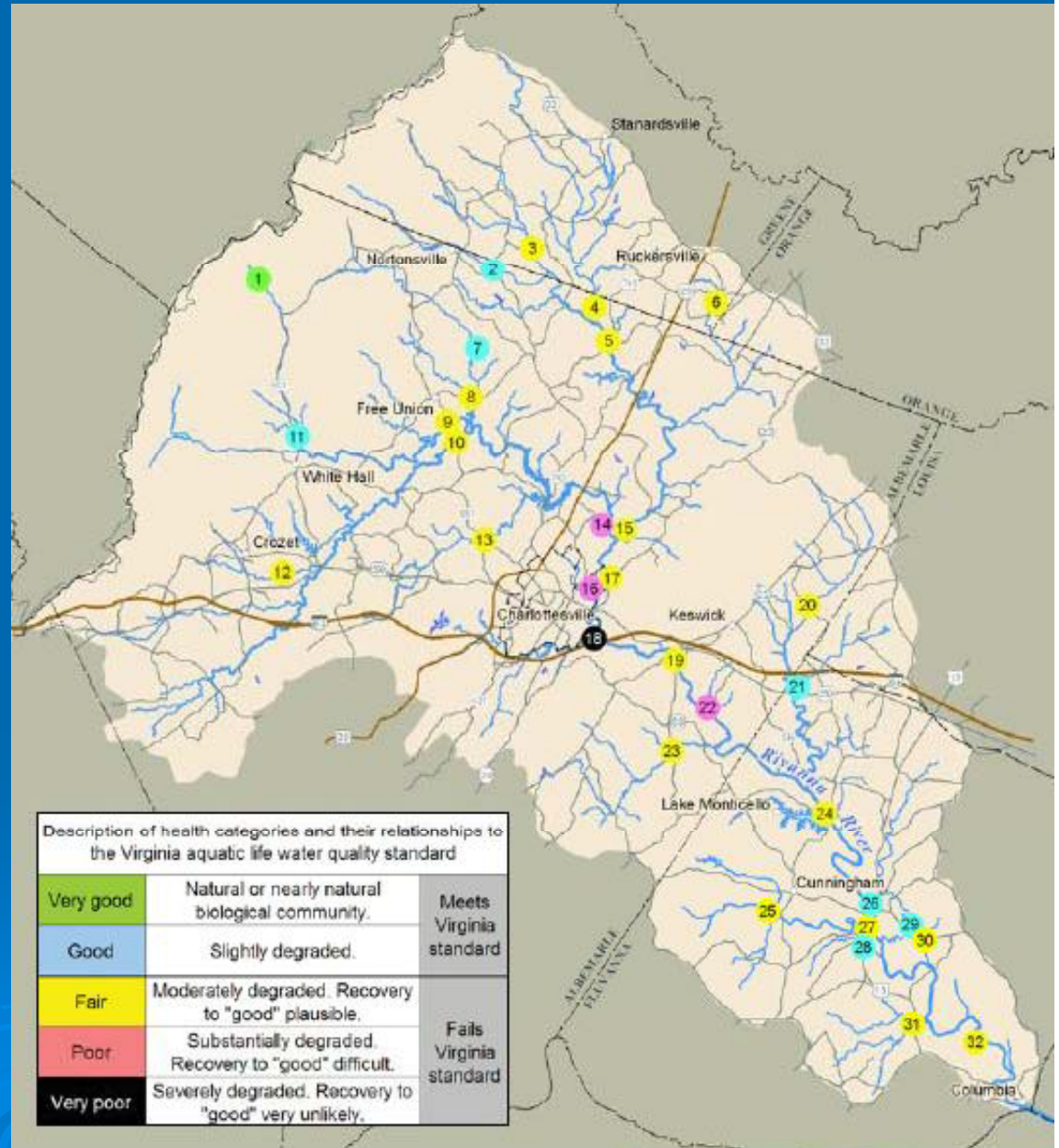
Biological health at one monitoring station on Middle Fork, Cunningham Creek has declined quite noticeably.

About 3/4 of representative Rivanna basin stream sites fail the Virginia aquatic life water quality standard (fair, poor, very poor). About 1/4 of sites meet the standard (good).



about 1/4 of sites (the "marginally" level) are considered to be impaired, and in the worst case, 1/4 are very badly impaired or "severely degraded".

Printed on 100% post-consumer recycled paper



Description of health categories and their relationships to the Virginia aquatic life water quality standard		
Very good	Natural or nearly natural biological community.	Meets Virginia standard
Good	Slightly degraded.	Meets Virginia standard
Fair	Moderately degraded. Recovery to "good" plausible.	Fails Virginia standard
Poor	Substantially degraded. Recovery to "good" difficult.	
Very poor	Severely degraded. Recovery to "good" very unlikely.	

Map courtesy of Chris Bruce, The Nature Conservancy

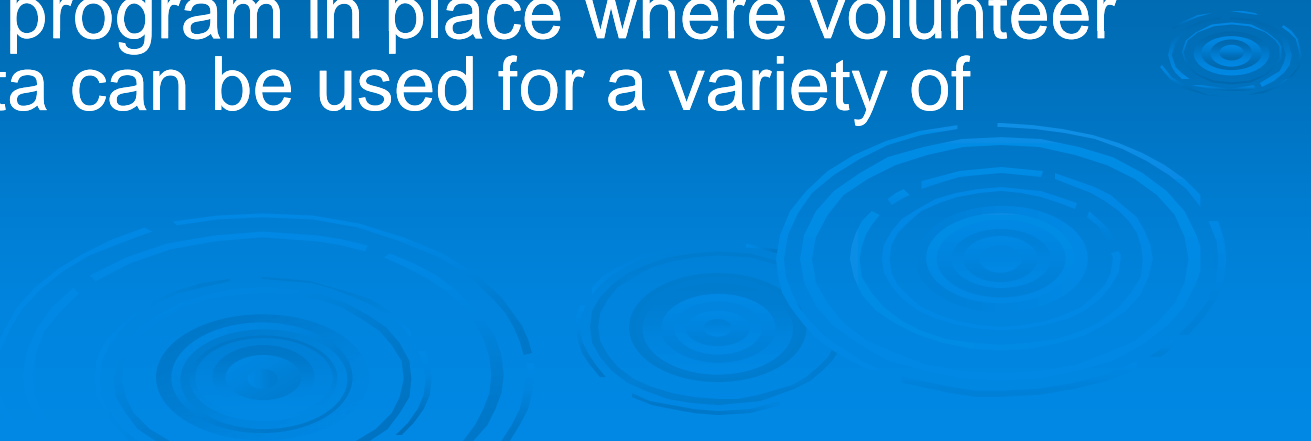
VA Department of Environmental Quality Data Acceptance

- “What a long, strange trip it has been...”

Grateful Dead



DEQ Data Acceptance

- After years of discussions, arguments, and interactions...
 - Data quality
 - QA/QC
 - Quality Assurance Program Plans (QAPPs)
 - Validation Studies
 - ... DEQ has program in place where volunteer collected data can be used for a variety of purposes
- 

DEQ Data Acceptance


➤ Categories For Non-Agency Data

- Level III - approved by DEQ- (approved QAPP, and use DEQ approved methodologies)
 - Could be used for 303(d) List
- Level II- partially approved-(approved QAPP, use similar but not DEQ approved methods)
 - Could be used in establishing new DEQ sampling stations, for TMDL Implementation tracking, etc.
- Level I- not approved- (no DEQ approved QAPP or methodologies)
 - Used for education or to identify water quality problems for Pollution Response (PReP)

DEQ Data Acceptance

- Each volunteer monitoring group can determine how that data should be used by DEQ or not
 - e.g. Listing/delisting streams as impaired on 303(d) list or note
- Data is not used for enforcement purposes, but DEQ will follow up on identified issues
- Water Quality Assessment Supplemental Info
- TMDL implementation monitoring
- Supplement to state monitoring efforts
 - think state budget cuts to DEQ water monitoring program...

Influence/Engagement with elected officials

- Over the years, volunteer monitors have gained a significant amount of political capital.
 - Interactions with elected officials have educated state and local policy makers on:
 - the value and contributions of citizen scientists
 - the data they collect
 - the results of our efforts
- 

Two Examples of Influence

- House Bill 1859 (2007)
- Restoration of DEQ Citizen Monitoring Grant Program during 2008 General Assembly

House Bill 1859 (2007)

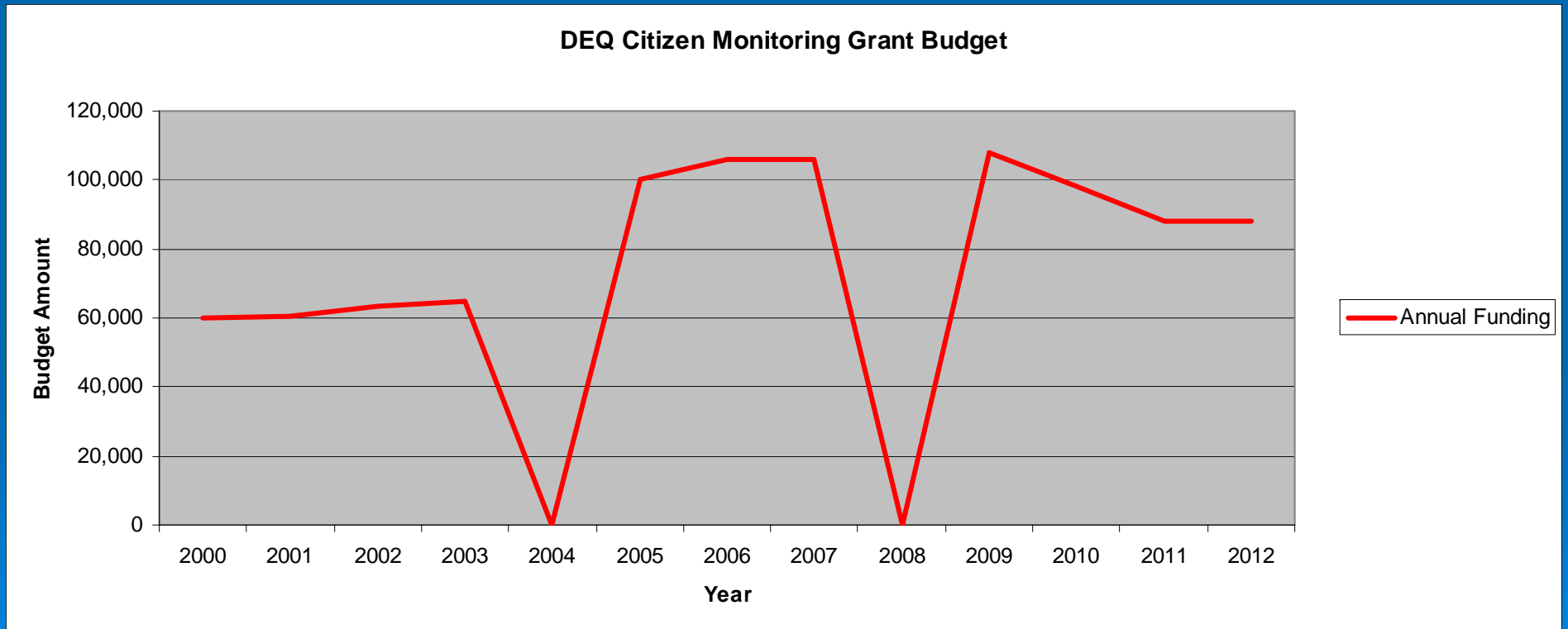
- Introduced by Delegate Rob Whitman (R)
 - Now Congressman Whitman (VA 1st District)
- Established DEQ goal of having 3000 stream miles monitored and assessed by volunteer water monitors
- Passed, codified, and currently being implemented
- No other state in the mid-Atlantic region has anything like this written into state law!
- Resulted from efforts of the Dividing Creek Association
- 3000 mile goals recently met!

DEQ Citizen Monitoring Grant Program

- Victim of the 2007 Budget Cuts
- VCWQ members pulled together and led effort to restore fund at General Assembly
 - Developed white paper on why program was necessary
 - Many phone calls and emails requesting funds be restored.
 - Several meetings with elected officials

DEQ Citizen Monitoring Grant Program

➤ The Result – Restored Funds in 2008



DEQ Citizen Monitoring Grant Program

➤ Interesting fact:

- Support for Natural Resources is less than 1% of the total state budget.
 - VA is 50th in nation per capita for providing general fund support to natural resource agencies.
-
- Water monitoring program at VA DEQ has undergone over \$1.5 million in cuts over the last 3 years.

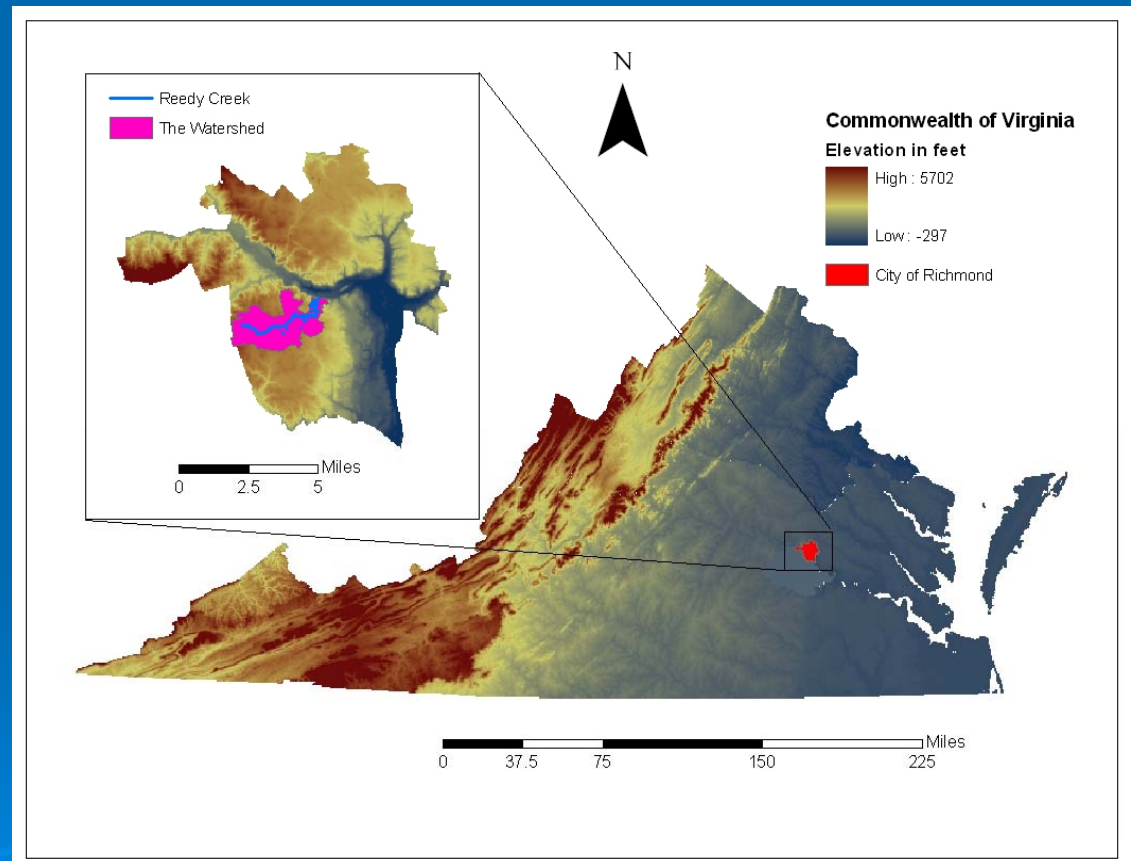
Current & Future Directions

- Working with localities to implement MS4 related monitoring programs
 - City of Richmond
 - “lending” volunteers data probes
 - Analyzing grab samples at WWTP laboratory
 - James City County
 - VASOS benthic macroinvertebrate monitoring protocols
 - E. coli monitoring with Coliscan Easygel
 - Should be incorporating ACB chem/physical protocols soon
- TMDL implementation
 - Coliscan Easygel for identifying hotspots with bacterial TMDLs
 - Tracking BMP implementation successes/failures

Current & Future Directions

➤ ACB Flow Monitoring

- Reedy Creek (Richmond, VA)
- Targeted watershed for Urban BMP Implementation
- Focused on pre and post BMP installation
- Measurement of Success is believed to be flow reduction during storm events



Conclusion

- Volunteer monitors provide a much needed service to the Commonwealth, local governments, and citizens
- Accomplishments include:
 - Over 3000 linear stream miles, lakes, and tidal waters assessed to date
 - Environmental education facilitation
 - Community engagement
 - Provide high quality water quality data
 - Positively influenced elected officials to develop sound, reasonable environmental policies

Acknowledgements

- VA DEQ Citizen Water Monitoring Grant Program
- VA Chesapeake Bay Restoration Fund



- YSI

Questions?

Chris French, VA Director
530 E. Main Street, Suite 200
Richmond, VA 23219
cfrench@acb-online.org
(804) 775-0951

