

Chesapeake Bay: Citizen Science and Executive Order 13508

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Overview

- Introduction
- History
- EO 13508 Requirements
- Role for Citizen Science
- Data and Methods
- Results
- Recommendations
- Conclusion/Next steps

Introduction

- Chesapeake Bay
 - Major watershed
 - Degraded
- May, 2009 Executive Order
 - Coordinate federal agencies
 - Opportunity to increase public involvement in restoration
- Volunteer water quality monitoring groups

Questions

- Role of citizen science water quality monitoring organizations in aiding the federal government achieve the Executive Order 13508 goals
 - What are select groups of Chesapeake Bay citizen science water quality monitoring groups doing to align with E.O. 13508?
 - Are there areas for coordination?

History of federal government involvement

- 1930s
 - Multi-state commission with U.S. Bureau of Fisheries
- 1960s
 - U.S. Army Corps of Engineers
 - Bay-wide assessments
- 1970s
 - EPA
 - Bay-wide assessment



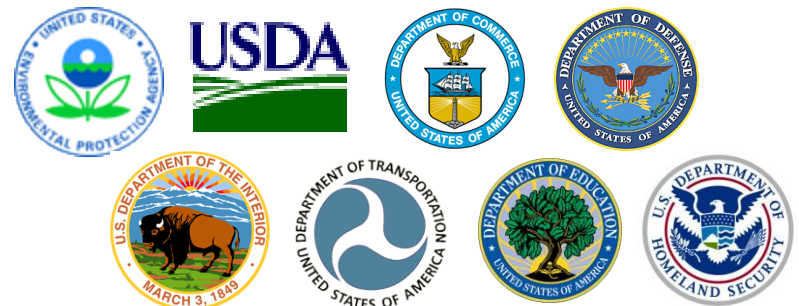
<http://www.epa.gov/region03/chesapeake/>

History

- 1980-2000
 - Chesapeake Bay Commission (1980)
 - Executive Council
 - Non-regulatory
 - Chesapeake Bay Agreements (1983, 1987, 2000)
 - 1983
 - Regional cooperation
 - 1987
 - Voluntary targets to reduce N, P by 40%
 - 2000
 - Water quality commitments, restore natural resources

Executive Order 13508

- Signed May, 2009
- Coordinate federal activities
- Goals
 - Restore Clean Water
 - Recover Habitat
 - Sustain Fish and Wildlife
 - Conserve Land and Increase Public Access
- Supporting strategies
 - Expand Citizen Stewardship
 - Respond to Climate Change
 - Develop Environmental Markets
 - Strengthen Science



Citizen science

- Public participation in scientific projects
- Long history of public participation in a wide variety of projects
 - Weather observers (1890)
 - Christmas Bird Count (1900)
- Term “citizen science” coined in the 1990s
 - Participatory field work by volunteers
 - No prior scientific training required



Citizen Science

- Large quantities of data at low cost
- Community-based involvement
- Training and quality assurance
 - EPA guides
 - Commonwealth of Virginia guides



Data and Methods

- Interviews

- Alliance for the Chesapeake Bay, Richmond, VA
- Clean Virginia Waterways, Farmville, VA
- Friends of the North Fork of the Shenandoah River, Woodstock, VA
- Magothy River Association, Arnold, MD
- Dividing Creek Association, Northumberland County, VA
- StreamWatch, Ivy, VA
- Nanticoke Watershed Alliance, Vienna, MD
- Alliance of Aquatic Resource Monitoring, Carlisle, PA

Interview Questions

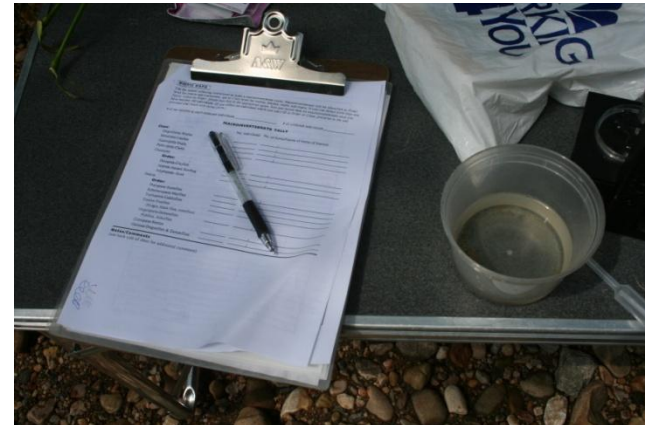
– Level 1

- Name, location, role
- Mission, goals, objectives
- Volunteers
- Citizen science project types/how reported



– Level 2

- Training
- Collaboration with federal government
- How aligned with EO
- Wrap up



Results

- Level 1
 - Uniformity of data measurement types
 - Ability to raise watershed awareness and advocacy
 - Consistent approach to water quality monitoring
 - Water quality monitoring mostly limited to in-field processed data



Results

- Level 2
 - Little direct citizen science organization contact with the federal government
 - Interest in increasing citizen science activities limited by lack of funding
 - Future citizen science activities dependent on advances in cost-effective technologies



Recommendations

- Improvements to data monitoring
 - Complement E.O. 13508 water quality monitoring goals
 - Specific federal programs
 - NPS master watershed program, national trail network
 - FS green school initiatives
 - NOAA's B-WET program
- Clearinghouse for data use
 - Federal level
 - Currently collected at the state level in VA
- Prioritization of federal grants to citizen science organizations
 - Aimed at equipment and supplies purchases

Conclusion

- Chesapeake Bay issues remain
- Limited success to date
- E.O. 13508 coordination amongst federal agencies
- Role of citizen science and water quality monitoring groups
- Inclusion of citizen science in achieving E.O. 13508 goals
 - Low cost
- Centralized data clearinghouse
- Prioritization of federal grants to water quality monitoring organizations

Next Steps

- Possible research areas
 - Citizen science and the TMDL requirements
 - Expansion into other types of citizen science activities within the Chesapeake Bay
 - Native oyster restoration
 - Submerged aquatic vegetation
 - Invasive plant removal