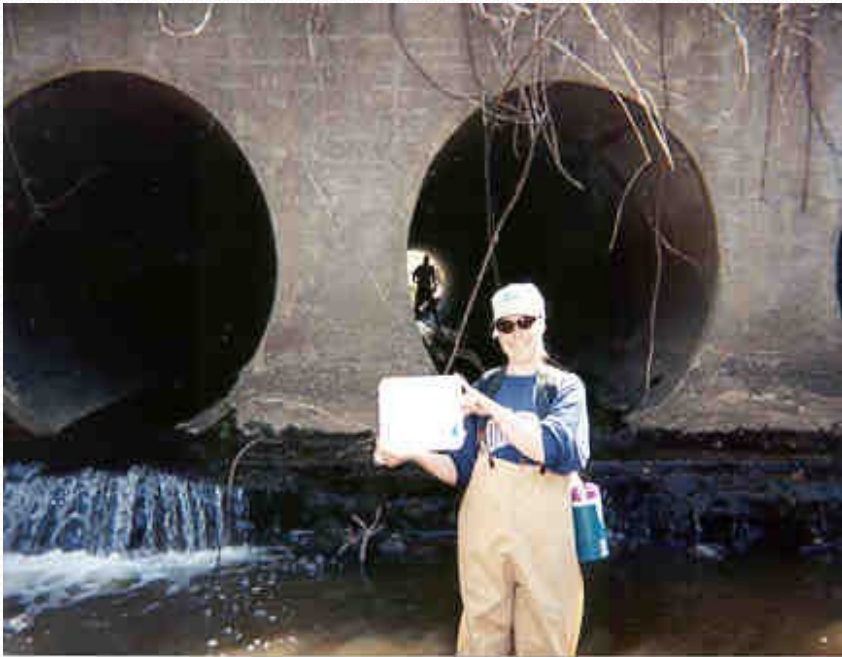# DEQ Use of Volunteer Data

James Beckley

- Since 1998 DEQ has actively partnered with citizen volunteer and other non-agency water monitors
- In 2003 DEQ developed a QA/QC program to allow the agency to incorporate non-agency data to assess water quality
- Continued support by DEQ is resulting in an unprecedented amount of quality data submitted to the agency

So Where Does This Data Come From?

% Stations Submitted

Citizen Volunteers 75.3%

Non- DEQ Govt. Agencies 22.5%

Private Industry 1.4%

Academia* 0.8%

*Not already affiliated with a citizen group or under an analysis contract by DEQ

How DEQ Uses Submitted Data

- Stream Assessment

- Tracking

- Rapid Response

- Outreach

- Education

- 305(b) assessment of stream health and 303(d) listing

- Water quality improvement such as during TMDL implementation

- Early detection of pollution events to help alert DEQ

- Work with local communities in a positive way

- Show the importance of water quality to the public

Ways DEQ Does Not Use Submitted Data

- Submitted data is not used by DEQ for enforcement or similar "regulatory" actions

- Data is not assessed if it was collected in permitted mixing zones or at discharge pipes

- Submitted data not used by itself to develop TMDL Implementation Plans

How DEQ Reviews Submitted Data

- QA all submitted data
- Groups encouraged to use DEQ approved protocols and Quality Assurance Project Plan (QAPP)
- Laboratories must pass inspection (DEQ or VELAP)
- Data falls into one of three categories

Alliance for the Chesapeake Bay Member Recertification Event

Level I

QA/QC Protocols

Uses

- Does not possess a DEQ approved QAPP or SOP
- Monitoring and/or laboratory analysis does not follow DEQ protocols
- Parameter not associated with a Virginia water quality standard

- Education
- Baseline Data
- Pollution Red Flags
- Local Land Use Decisions
- Special Studies

Level II

QA/QC Protocols

- DEQ approved QAPP and SOP
- Method may deviate from DEQ methods. (e.g. a method with a higher detection limit)
- Field and/or laboratory audit required

Uses

- All uses as stated in Level I
- Assessed in the 305(b) report to determine waters of concern (Category 3C, 3D) to prioritize waters for DEQ follow-up monitoring
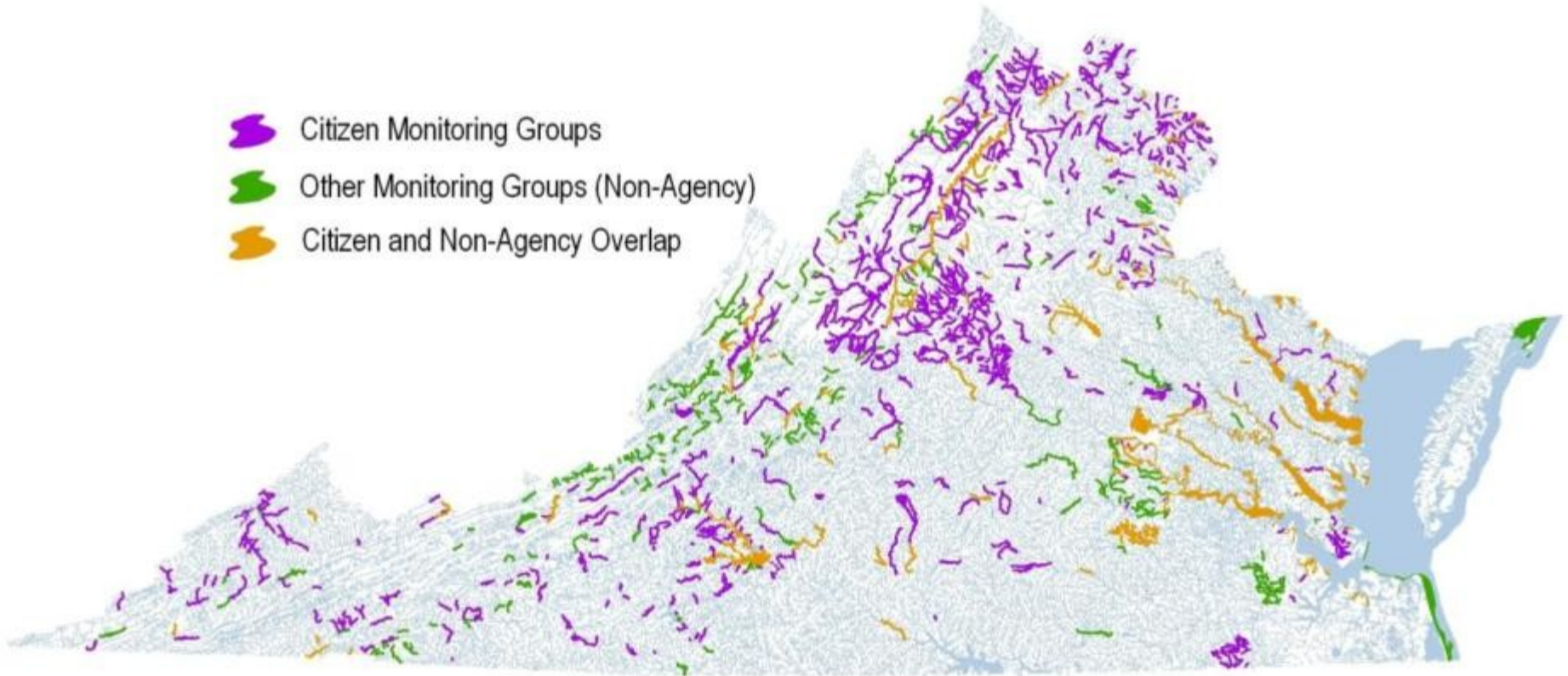
Level III

QA/QC Protocols

- DEQ approved QAPP and SOP
- Follow approved methods (EPA, Standard Methods, USGS, etc.)
- Field and/or laboratory audit required

Uses

- All uses as stated in Level II
- Assess water quality in 305(b) report
- Impairment listing/delisting in the 303(d) report

Waters Monitored By Citizen or other Non-DEQ Data*

Citizen Monitoring Groups

Other Monitoring Groups (Non-Agency)

Citizen and Non-Agency Overlap

* As of 2012 305(b)/303(d) Integrated Report covering 2005-2010 datasets

DEQ Oversight

- 1.5 FTE split between two staff members to coordinate and audit data submitting groups
  - Coordinate sampling locations to reduce duplication
  - Where possible, standardize methods used by groups
  - Conduct field and lab audits
  - QA data and metadata submitted by groups
  - Administer online database storing the data

Coordination

- Aided by online GIS map showing locations of active DEQ stations
  - Staff provide workshops and help files to train groups to use the GIS map effectively
  - Citizen Grant has questions requiring applicants to use the GIS map
- Regional staff provide local assistance to coordinate/respond to volunteer sampling requests

Standardization

- *Virginia Citizen Volunteer Water Quality Monitoring Methods Manual* outlines preferred methods/protocols

- Training videos currently in development

- QAPP and SOP templates available

Virginia Citizen Water Quality Monitoring Program
Methods Manual
October 2007

Field and Lab Audits

- Groups undergo annual or biennial audits depending on amount of data generated and quality of data/complexity of method

- Thermometers, weights checked annually with NSIT validated equipment

- Deficient audits result in flagged data to last point of known compliance

- VELAP audited labs considered sufficient for DEQ purposes

QA of Submitted Data

- Groups submitting data usually go through their own form of QA review

- DEQ staff categorize (Level I, II, III) and review data, calibration logs, and site metadata before using to assess conditions

- Inconsistencies are clarified with the group
  - If inconstancies are not addressed, data is either not used or downgraded on a case by case basis

Online Database

- Most submitted data is entered into the DEQ Citizen/NONA database at www.deq.virginia.gov/easi/
- Agency staff maintain and administer the database
- Database has tools to flag questionable data and identify incorrect sample sites
- Considering moving to EPA STORET database
    - Database is complex requiring advance training

Questions