Citizen Monitoring Data

"Non-traditional Partners"

Draft Presentation for AMQAW Review

March 13, 2014

Supplementary Data for CBP Data Analyses

- Some Current WQ Data Products
  - Tidal WQ Criteria Assessments
  - Nutrient Status & Trends – Tidal
  - Nutrient Loadings – Nontidal
  - River Keeper Report Cards
- Advantages of More Data
  - Increase in spatial density
  - Increase in frequency of measurements
- Data must be meet CBP quality standards

Acquisition Costs

- Search and Discovery
- Relevancy of Data to Bay Program Analyses
  - Parameters
  - Sampling locations, Frequency, etc.
- Similar Quality as CBP Data?
  - Method Comparability
  - Quality Controls
  - Documentation
- Database Structure and Availability
- CBP Error Checks; Import Data Into CIMS

Step 1: Screen Data for Utility

Identify Candidate Data Sets

- Universities, Research Institutes
- State & Local Agencies
- River Keepers, Citizen Scientists

Review Study Design

- Parameters
- Location & Representativeness
  - Tidal: mid-channel profiles
  - Nontidal: across stream gage
- Sampling Frequency (1/mo.)

Potential Applications

- Tidal WQ Long-Term Trends
- Tidal WQ Standards (DO, etc.)
- Nontidal WQ (N, P, Sediment)
- Nontidal Loadings (N, P, Sed.)
- Model Calibration

Examples

- South River Federation
  - Tidal & Nontidal
  - DO, temp, salinity, pH, nutrients
- VIMS ChesMMAP Survey – Tidal DO, temp, salinity, pH
- Nanticoke Watershed Alliance Creekwatchers
  - Tidal & Nontidal
  - DO, temp, salinity, pH, nutrients, chlorophyll *a*
- CBIBS buoy data – Tidal DO, temp, salinity, pH
- Montgomery County Biological Stream Survey

Step 2: Assess Similarity to CBP Protocol

Method Comparability

- Field Measurements
- Sample Collection
- Lab Analyses
- SOPs

Quality Control

- Calibration
- Blanks, Duplicates
- Reference Materials
- Performance Eval. Samples

On-site visit

- Field and/or Lab Audit Reports
- Documentation/Records
- Findings / Recommendations

Results

- Severn R. Federation *in-situ* methods comparable to CBP
  - Same nutrient methods but unable to do lab on-site visit
- VIMS ChesMMAP *in-situ* locations & methods are comparable
  - Data didn't pass Step 3
- *Some* Nanticoke Creekwatcher stations & methods OK
  - In 2014, DO & temp will be measured *in-situ.* Most sites are mid-channel.
  - Nutrients samples collected from surface using bucket
- CBIBS Buoy Data – Calibration profile data OK
  - Continuous measurements taken at surface only
  - Resolved equipment and calibration differences
- Montgomery Co. biological data used in nontidal benthic IBI

Step 3: Data Checks & Acceptance

- Develop Submittal Requirements
  - Reprogram DUET to accept new partners' data
  - Create submittal templates
  - Explain submittal requirements to new providers based on dataset
- Data Quality Review
  - Data range checks
    - Decimal point errors
  - Data transposition errors
  - Field data type mismatches
    - Sample date & time formats
  - Fields missing or named incorrectly

Existing Resources

- VDEQ Non-Agency /Citizen Monitoring Program
  - “Tier III” Data used for 305(b) Reporting
  - Water quality, bacteria and invertebrates
- Mid-Atlantic Tributary Coalition Protocols
  - Tidal WQ
  - Nontidal WQ
- Chesapeake Bay Monitoring Alliance (NOAA)
- Alliance for the Chesapeake Bay
- MDNR Stream Waders (invertebrates)

Options for Implementation

- Use existing resources to accept 1 or 2 new partners/year
- Provide grants to State agencies and/or universities to coordinate citizen monitoring
- Provide funds directly to partners to upgrade equipment, manage data, etc.
- Hire CBP Citizen Monitoring Coordinator