NWQMC
NATIONAL WATER QUALITY MONITORING COUNCIL
Working Together for Clean Water

Methods and Data Comparability Board

Methods and Data Comparability for Water Quality Sensors

National Water Quality Monitoring Council
6th National Conference
May 22, 2008
Atlantic City, NJ

Structure

- ACWI – Advisory Committee on Water Information
  - Council – National Water Quality Monitoring Council
    - Methods and Data Comparability Board
    - Water Information Strategies
    - Third work group
- FACA: Federal Advisory Committee Act

Background

Who is the Board?

- EPA and USGS Co-chairs
- USGS Exec Sec
- Water-quality experts from Federal, state, regional, and local agencies, and private industry

Historical Methods Board Work Groups

- National Environmental Methods Index (NEMI)
- Water Quality Data Elements (WQDE)
- Nutrients
- Performance-based systems
- Bioassessment comparability

Today's agenda

- Overview (20-30 minutes)
- Breakout groups (30 minutes)
  - Technology
  - QA/QC
  - Field guidance
  - Data management
- Report backs & discussion (30 minutes)

Why a Sensors Work Group?

- Sensors will make monitoring substantially more useful to management programs
- More monitoring programs are embracing sensors
  - Sensors make faster – often real-time - results possible
- Sensor technology is rapidly evolving

Why a Sensors Work Group?

- Several Sensors information centers exist
  - Alliance for Coastal Technology
  - Center for Embedded Network Sensing – UCLA
  - Interstate Technology Regulatory Council (ITRC)
- Still: A lack of SOPs –
  - hinders data comparability
  - Data quality degrades, slowing productivity in the field
- The Board sees a need to compare sensing technologies, performance specifications, deployment guidelines, etc.

Objectives

To convene a work group of experts on sensors to:

- Develop SOPs for QA/QC: calibration, maintenance, deployment
- Central source of sensors information: allow potential users to make informed decisions on selection and use of sensors for their projects.
- Recommend Sensors for the "Network" (NMN): Recommend sensors for freshwater, estuarine, and coastal environments.

Web resources

http://wi.water.usgs.gov/methodsboard/
(userid and password required)

Guidelines and Standard Procedures for Continuous Water-Quality Monitors: Station Operation, Record Computation, and Data Reporting

(Wagner,R.J., Boulger, R.W., Jr., Oblinger, C.J., and Smith, B.A., 2006)

Charge to the 4 Groups

- Each group needs a facilitator and a note taker
- What are the data comparability issues in your topic?
- What has already been done?
- Where are the information gaps?
- Make a list of potential products (i.e., web site items, reports, etc.)

Technology Group

- Identify appropriate water-quality sensor technologies
  - Multi-parameter sondes for monitoring or profiling
  - Hand-held probes for sampling
  - CTDs for monitoring and profiling
  - Custom systems using data loggers/controllers
  - Fluidic analyzers
  - Water samplers
- Enter data into database/modify an existing database
  - select sensor technologies to meet data quality objectives
- Group goal for this meeting:

Field Applications Group

- Sensor deployment location and installation: Where applicable, SOPs or recommendations will be established regarding proper installation of field sensors in order to obtain representative data of the environment or question being investigated
- Where are the optimal field locations for sensors
  - By waterbody type; i.e., Streams, Lakes, Estuaries, Ground water, Coastal areas, Atmosphere
- Goals for this meeting:

QA/QC Group

- Calibration
- Maintenance
- Diagnostic data collection
- Data quality
- Fouling prevention
- Pre and post deployment checks
- Group goal for this meeting: ID key aspects to insure consistent QA/QC

Data Management Group

Objectives—to provide information on appropriate:

- metadata standards
- methods of data storage and retrieval
- methods to present data in tables, graphs, and on maps

Data management issues

- **Metadata:** Data regarding specific sensors and deployments can be recorded within monitoring systems and used for QA/QC procedures as well as sensor troubleshooting and data management. Recommendations for industry should be determine for minimum meta-data requirements in field sensors.
- **Data Management:** Environmental monitoring systems produce vast quantities of data. Recommendations on standards for data management will be produced to allow for improved data exchange and comparisons.
- **Goals for this meeting:**

Next Steps

- List of potential products
- Workplan
  - Timeline
  - Personnel
  - Tasks
  - Budget(?)
- Items for web-based information clearinghouse
  - The goal of the web site is to be a central location to access SOPs, supporting documentation, related links, discussion groups, etc... relating to sensors.