Improving Water Quality Assessment and Monitoring

Joan Warren
Monitoring Branch
USEPA Office of Wetlands, Oceans & Watersheds
May 2004
Recent Critiques

- **Reports find monitoring inadequate**
  - *GAO, National Academy of Science, National Academy of Public Administration, and others*
  - States do not have data needed to make decisions
    - Set water quality standards
    - Determine protection and clean up goals
    - Evaluate effectiveness of permits and management measures
  - EPA and States cannot make statistically valid statements about water quality condition in U.S.
Monitoring Challenges

- **Current focus on targeted monitoring**
  - Assess limited percentage state waters and water body types (19% rivers and streams, 43% lakes, 36% estuaries, 4% wetlands)

- **Data generally not comparable across states and over time**

- **Limited ability to demonstrate effectiveness**
  - Of program actions and resource allocations

- **Complex technical issues**
Monitoring Challenges (cont)

- **Many State priorities unmet**
  - Water quality standards
  - TMDLs
  - NPDES permits

- **Resource needs are large**
  - Annual gap of $100-150 million for state monitoring efforts
    - EPA/State GAP analysis, 2002
      - Peer-reviewed by National Academy of Public Administration
    - ASIWPCA Monitoring Programs Survey, 2003
Vision for the Future

- We have adequate monitoring data to assess water quality and make sound management decisions.
- Actions we take to protect and restore water quality maximize benefits and minimize costs.
Strategy for Achieving the Vision

- Strengthen State, Tribal and Interstate monitoring and assessments
- Support collaboration to produce statistically-valid assessment of nation’s waters
- Expand accessibility and use of data
- Promote partnerships
Strengthen State Programs

- **Invest in State monitoring programs**
  - President’s FY05 budget requests $17 million for grants to states

- **Develop State monitoring strategies**
  - Long term comprehensive plans & short term milestones to address priorities

- **Share examples of streamlining and efficiency**
  - Partnerships to leverage resources
  - Integration of monitoring & assessment tools to cost-effectively address priorities
Streamlined Monitoring – Using the Tools Together
Support Collaboration to Assess Waters

- Examples include:
  - National Coastal Condition Report
  - Lake Fish Tissue Study
  - Wadeable Streams Assessment
All coastal states and Puerto Rico participated in monitoring.

Data support assessments at national, regional, state and local scales.

Strong support among states to continue partnership.
National Lake Fish Tissue Study

500 Sampling Locations

Objectives
- Define first national baseline for largest set of persistent, bioaccumulative, and toxic (PBT) chemicals ever studied in fish
- Assess condition of U.S. lakes and reservoirs based on probability sampling

Scope
- 500 randomly selected lakes sampled in contiguous U.S. from 2000 to 2003
- Analytical results for 268 PBT chemicals
- Participation by 47 States, 3 Tribes, 10 EPA Regions, and 2 other Federal Agencies

Preliminary Predator Data (Yrs 1-3)

- Number of Sampling Sites Exceeded Human Health Screening Value Detected Not-Detected
- Dioxins/Furans/ dioxin-like PCBs*
- Dioxins/Furans*
- 12 dioxin-like PCBs*
- Total PCBs*
- Mercury

*Zero for non-detected analytes; sum of congeners for PCBs
Wadeable Streams Assessment

The States Assess the Nation’s Streams

- Generate status report on the condition of streams of the U.S.
- Build State capacity for monitoring and assessment.
- Enhance data comparability and integration of State programs.
Expand Accessibility and Use of Data

- **EPA’s STORET water quality database**
  - Free database and user support for States and others to save, share and archive data
    - New warehouse provides quick access to quality data
  - New simultaneous display of sampling data from both STORET and USGS’ NWIS

- **EPA’s WATERS**
  - Integrates water data and information from multiple sources
  - Uses GIS to support data analysis and interpretation
WATERS - Watershed Assessment, Tracking & Environmental Results

NHD Reach Address Database (RAD)
- impaired waters
- assessed waters
- designated uses
- monitoring stations
- outfall locations
- fish consumption advisories
- sewage NDZs
- beach closures
- nutrient stations
- 319 grant Projects

NHD Reach Indexing Tools
- TMDL tracking
- NAD
- WQS
- STORET
- PCS
- NLFWA

EnviroMapper for Water
- DISPLAY
  - LABEL ALL
  - ACTIVE
- MAP FEATURES
  - Impaired Waters
  - Water Quality Standards
  - Assessed Waters
  - Beaches

Internet
- Web RIT
- Ask WATERS

Total WATERS
Promote Partnerships

- EPA, Federal and State collaborations
  - Surveys of national water condition
  - Use of multiple monitoring tools
- National Water Quality Monitoring Council
  - Sharing innovations and improving consistency
    - Federal, State, private sector & academia
- State/Regional monitoring consortia
  - Citizens, municipal managers, industry, agriculture demonstrate opportunity for improving the efficiency of monitoring for local solutions
- Volunteer Monitoring organizations