Challenges for Long-Term Implementation of a National Ground Water Monitoring Network

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Co-Chair of Subcommittee on Ground Water (SOGW)
Federal Advisory Committee on Water Information (ACWI)

National Water Quality Monitoring Conference 2010
“Data and Information for Decision Making: More Important Than Ever”
Session D3:
“Elements of a Long-Term National Ground-Water Monitoring Network and a State-Scale Example”
April 27, 2009 – 10:00-11:30 AM – Room 16
Objectives

- Explain National Network Efforts
- Link to Other Presentations
- Encourage You to Participate

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• Chris Reimer, NGWA
• Tom Patton, Montana
• Rick Copeland, Florida
• Many, many others:
  • USA
  • Abroad
Outline

• SOGW Overview
• Work Group Reports
  • Inventory
  • Framework Design
  • Field Practices
  • Data Standards/Management
• ACWI Approval
• Pilot-Testing
• Funding Issues
• How You Can Help
Linkages to Coastal Network

• Initial Inspiration
• Companion Efforts
• Lessons Learned
  • Real-Time Data
  • Data Mgt Hurdles
• Leveraging Partners & Funding
• “Success Stories” & “Data Gap ID”
You Know You’re Getting Old When You See Signs Like…..

ACWI Subcommittee on Ground Water
(established 2007)
Benefits of National Groundwater Network

Natural and Man-Made Drivers:

- Drought
- Climate change
- Population increases
- Eco-habitat loss
- Energy development
- Agricultural demand
Prior Efforts and “Drivers”

- Multi-Agency Committee – 1990s
- White House → NGWA GW Summit / White Paper
- 2003 GAO Report → 36 states expecting shortages
- SWAQ Report → “Need ‘Water Census’”
- Heinz Center: “State of the Nation’s Ecosystems” → Ground-water data “inadequate for national reporting”
- Coastal Monitoring Network (ACWI & NWQMC)
ACWI Charge to SOGW

**Purpose:** “...develop and encourage implementation of a nationwide, long-term ground-water quantity and quality monitoring framework that would provide information necessary for the planning, management, and development of ground-water supplies to meet current and future water needs, and ecosystem requirements.”

**Scope:** “...will be developed to assist in assessments of the quantity of U.S. ground-water reserves, as constrained by ground-water quality.”
SOGW Members & Helping Hands

Subcommittee and Work Groups: 70 people from 54 organizations

Subcommittee Members

- ASCE
- GWPC
- ICWP
- AASG
- NGWA
- TCEQ
- USGS
- USEPA
- ASDWA
- WEF
- USDA NFS
- ASIWPCA
- ASTM
SOGW Approach

• “Current picture” of GW monitoring
• Consensus on:
  • Network design principles
  • Field methods and data standards
  • Data mgt and serving
  • Implementation plan
Framework Report to ACWI

- Submitted Jan 2009
- ACWI approval Feb 2009
- http://acwi.gov/sogw/pubs

Draft Report

A National Framework for Ground-Water Monitoring in the United States

Prepared by
The Subcommittee on Ground Water of the
The Advisory Committee on Water Information

December 2008
Inventory of Monitoring Programs:
Federal Networks

Active Ground-Water Level Network
Monday, February 23, 2009

Explanation - Percentile classes (symbol color transferred from event measurement):
- New Low
- <10
- 10-24
- 25-75
- 76-90
- >90
- New High
- Not Read

Real-Time: 1,129
Daily: 1,327
Periodic: 19,876

Ground-Water Watch Help Page
Download Google Earth Version

National Water Information System: Web Interface
USGS Water Resources

News: Recent changes
Water Quality Samples for the Nation
Summary of Existing Monitoring

- Many networks
- Multiple agencies
- More for levels
- National gaps in both
- Gap analysis work needed
Network Goals and Design: Principal and Major Aquifers
Unstressed (Ambient) and Targeted Networks

and Types-Frequencies of GW Monitoring

EXPLANATION

- At least 5 years of data are collected to establish background conditions
- Periodic census of ground-water levels and/or quality (i.e., “mass measurements” for potentiometric surface mapping)
- Fewer wells monitored regularly (i.e., seasonal variability of water levels and/or quality)
- Special Studies (Rare in this network)
- Smaller areas to evaluate ground-water resources at risk of depletion or impairment
Field Practices

- Few strict requirements
- Flexible and adaptable.
- Documentation for:
  - Comparability
  - Technical quality
- New technologies encouraged
Data Standards and Management

- Comparable Data
- Minimum Data Elements**
- Data Portal:
  - Critical component
  - Needed early

** ACWI’s Methods Development Board
ACWI Resolution, Feb 2009

- Accepts Framework Document
- Approves Implementation plan
- Tells SOGW: Conduct pilot testing
Network Implementation: 
A Stepwise Approach

- Pilot Programs
- Portal System
- Management Structure
- Federal funding:
  - Data providers
  - Web portal
Management of the National Ground-Water Monitoring Network (NGWMN)

Data Providers
[Networks and Individual Sites That Meet NGWMN Criteria]

- Federal
- State
- Tribal
- Regional
- Local
- Other

Advisory Committee on Water Information
Subcommittee on Ground Water
[Federal Interface]

U.S. Geological Survey
Management and Operations Group
[Day-to-day operations]

NGWMN Program Board
[Representatives from Data Providers]
[Guidance and Direction]
Anticipated Schedule

- Pilot-Testing RFP → Summer 2009
- Evaluation and Selection → FY10
- Pilot-Testing → FY10 or early FY11
- Reporting → FY11
  - Recommended Updates
  - Suggested “Next Steps”
- Full-Scale Implementation → FY12?
Funding Opportunities

• Federal Government:
  • SECURE Water Act
  • Water Census
  • Other Possibilities

• Non-Federal Sources
  • “What If No Funding?”
How You Can Help

• Funding:
  • Advice, Ideas, Connections
  • Direct Participation
  • Facilitating Involvement of Other Professional Organizations

• SOGW Feedback
• SOGW Participation
• Other Ideas?
Opportunities Today

- NWQMC-SOGW Lunch Session
- SOGW 5:00 Ad Hoc Meeting
- Discussion in this Session D3
- Talk with SOGW members anytime
Wrap-Up

• Discussion & Questions
• Following Talks:
  • SOGW Key Participants
  • FL Experience – Instrumental
  • Piloting Progress