Survey of Existing State Ground Water Monitoring Programs

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CO-Chairs – Inventory Workgroup

Presented at the
6th National Monitoring Conference
May 21, 2008

Advisory Committee on Water Information Subcommittee on Ground Water

- **HISTORY OF SOGW**

- January 2006: Suggestion made to ACWI to form a ground water subgroup
- May 2006: National Water Quality Monitoring Conference Session
- August 2006: Ad Hoc Steering Committee (SC) formed to develop a formal proposal to ACWI
- September 2006: SC began work on draft Terms of Reference (TOR)
- SOGW approved at January 2007 ACWI meeting

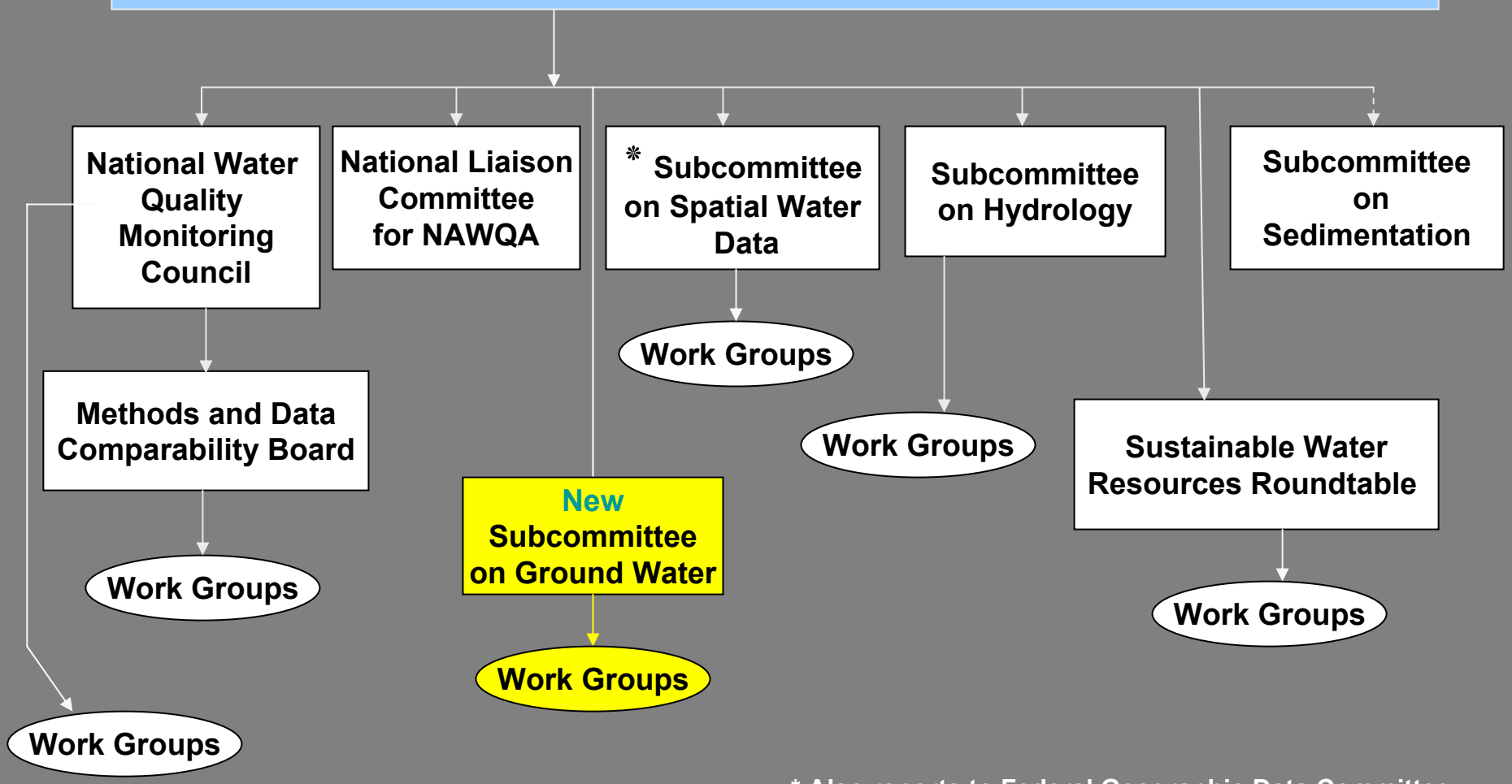
SOGW PURPOSE

The overall goal of the SOGW is to 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.

WICP Water Information Coordination Program

ACWI Advisory Committee on Water Information

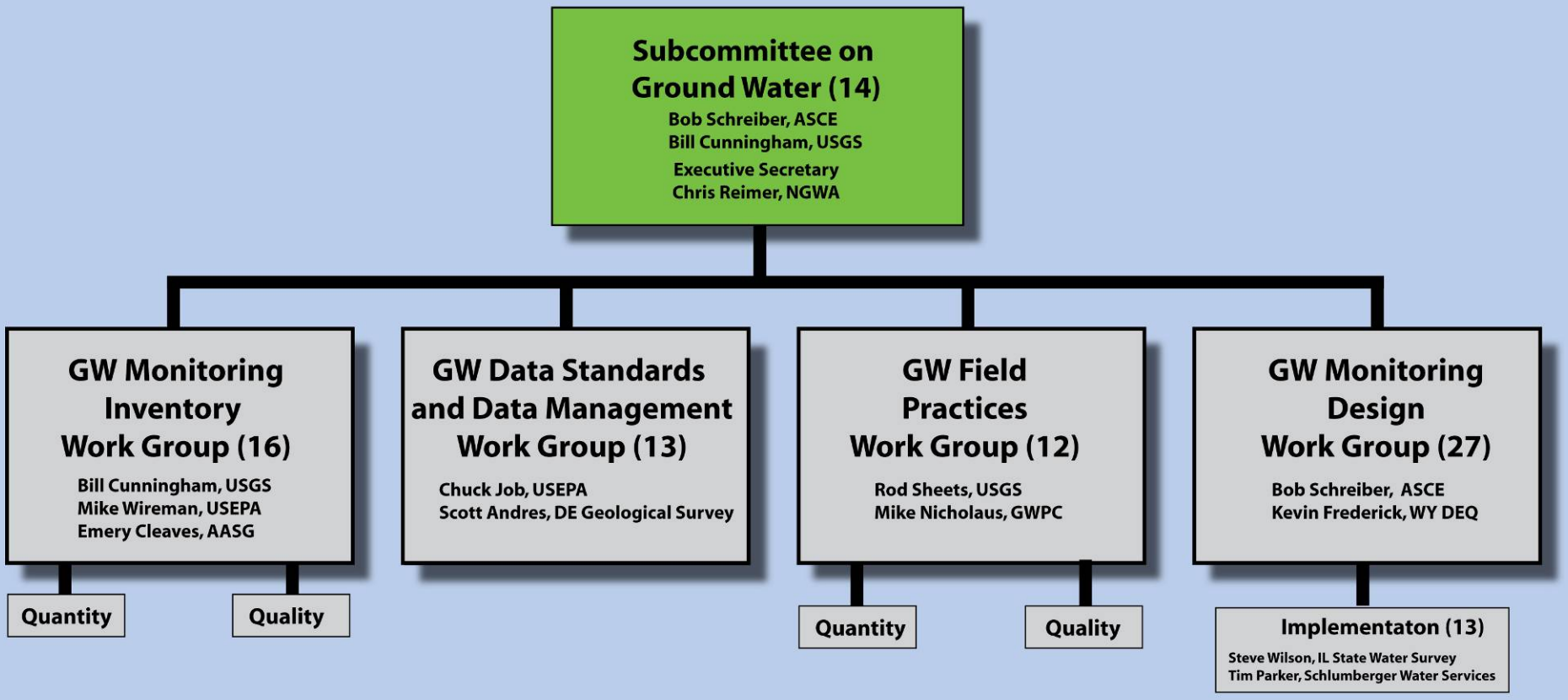
ACWI SUBGROUPS



* Also reports to Federal Geographic Data Committee

WICP Water Information Coordination Program

ACWI Advisory Committee on Water Information



Inventory Work Group

Mission

- **Compile and analyze data from survey of state gw monitoring programs**
- **Prepare Chapter 2 of Framework report**
- **Help determine if existing state programs (all or part) can be incorporated into a national /nationwide, aquifer based monitoring network**

- ***A National Framework for Ground-Water Monitoring In the United States***
  1. Introduction
  2. The State of Ground-Water Data Collection Across the USA in 2007
  3. Network Goals, Objectives and Management Issues
  4. Design Specifications
  5. Data Quality: Common Field Practices to Ensure Comparability of Ground-Water Data
  6. Ground Water Data Management, Access and Retrieval
  7. Network Implementation
  8. References
  9. Appendices

Survey Sponsors

- Association of American State Geologists
- Ground Water Protection Council
- Interstate Council on Water Policy
- National Ground Water Association

What Questions Asked?

- Number and types of GW monitoring programs?
- Purpose(s) of monitoring program?
- Design basis?
- Who manages and how funded?

What Questions Asked?

- Data collection
  - Field SOPs
  - #wells, frequency, record length
  - Meta data
  - Water quality analytes
- Data management
  - SOPs
  - Type of data base
  - Availability to public

SURVEY RESULTS

- **174 questionnaires sent**
  - **all 50 states**
  - **two separate questionnaires sent- quality and water level monitoring**

- **Ground water level questionnaire**
  - **46 responses from 43 states**

- **Ground water quality questionnaire**
  - **60 responses from 49 states**

- **Data also provided by USGS & other Federal agencies**

SURVEY RESULTS

WATER QUALITY (49 states)

- 33 states have at least one active gw monitoring program
  - 18 states – statewide program
  - 5 states -1 or more regional programs
  - 10 states have both
- 11 states – no active monitoring program
- 5 states reported that a gw quality monitoring program exists but is inactive

WATER LEVEL (43 states)

- 39 states have water level networks
  - 19 –statewide only
  - 15 states have both statewide and regional
  - 5 states have only regional networks

Type of ground water monitoring networks

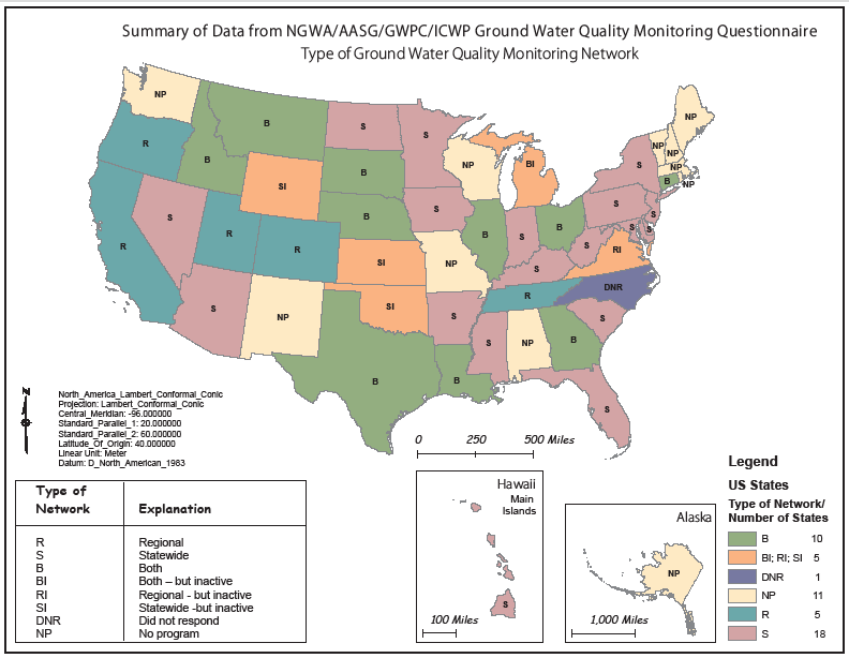
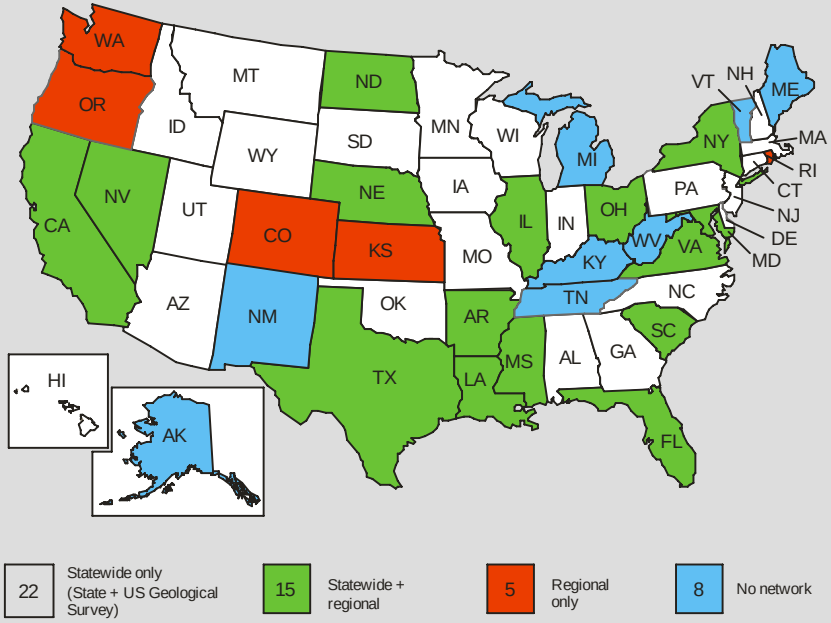


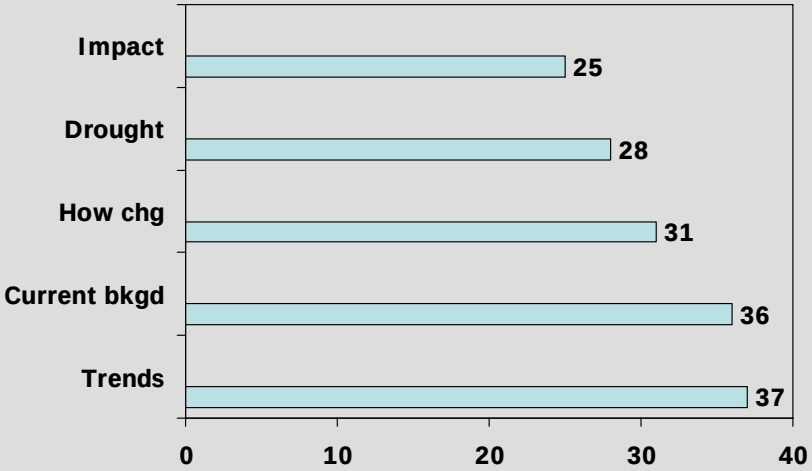
Figure Q2 Ground water level networks



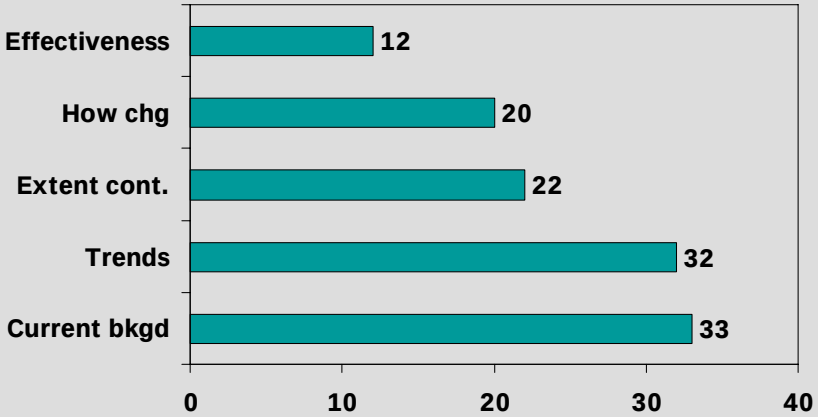
GW Quality monitoring

GW level monitoring

Purpose of GW Monitoring Programs

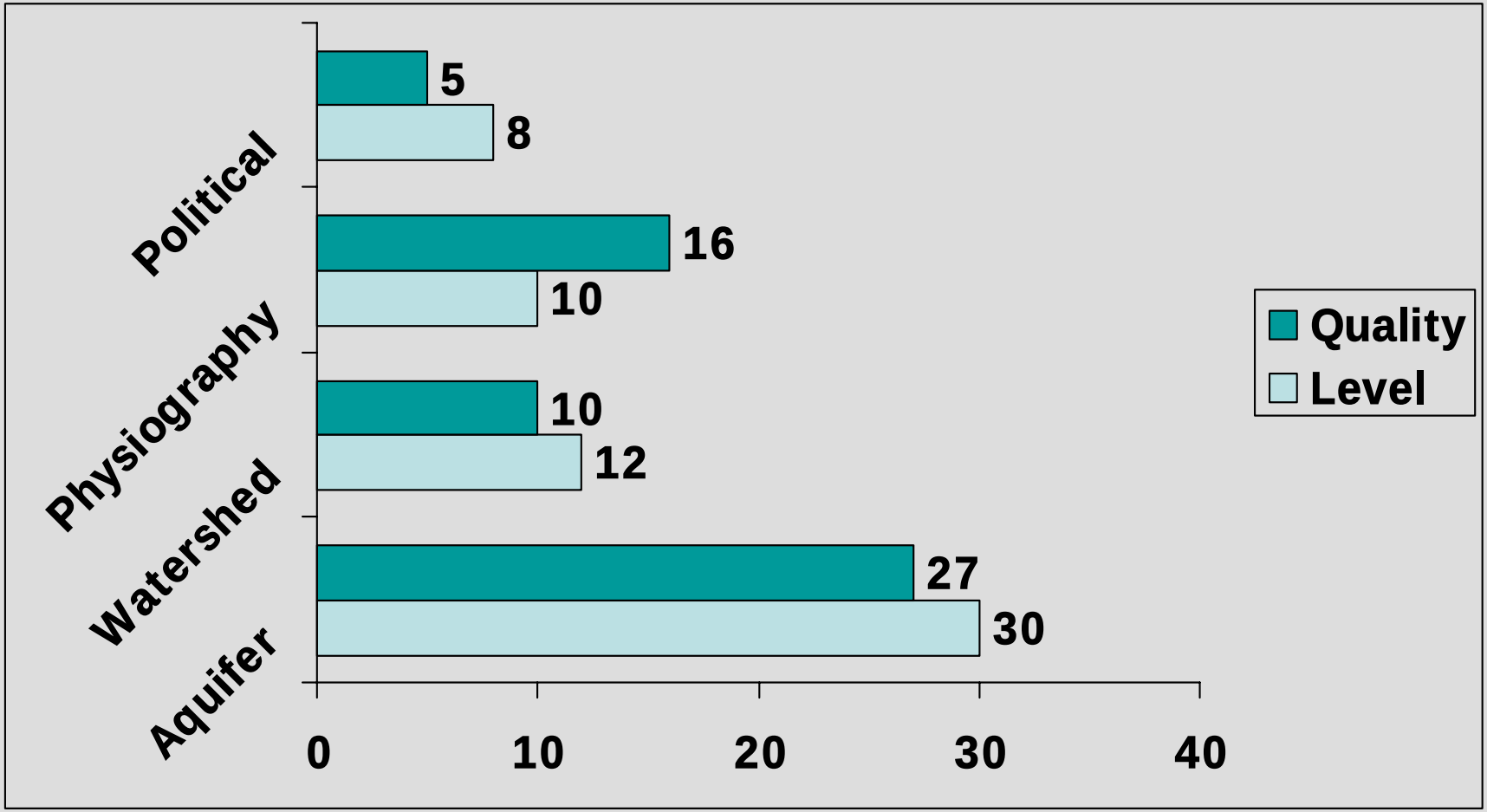


Level networks



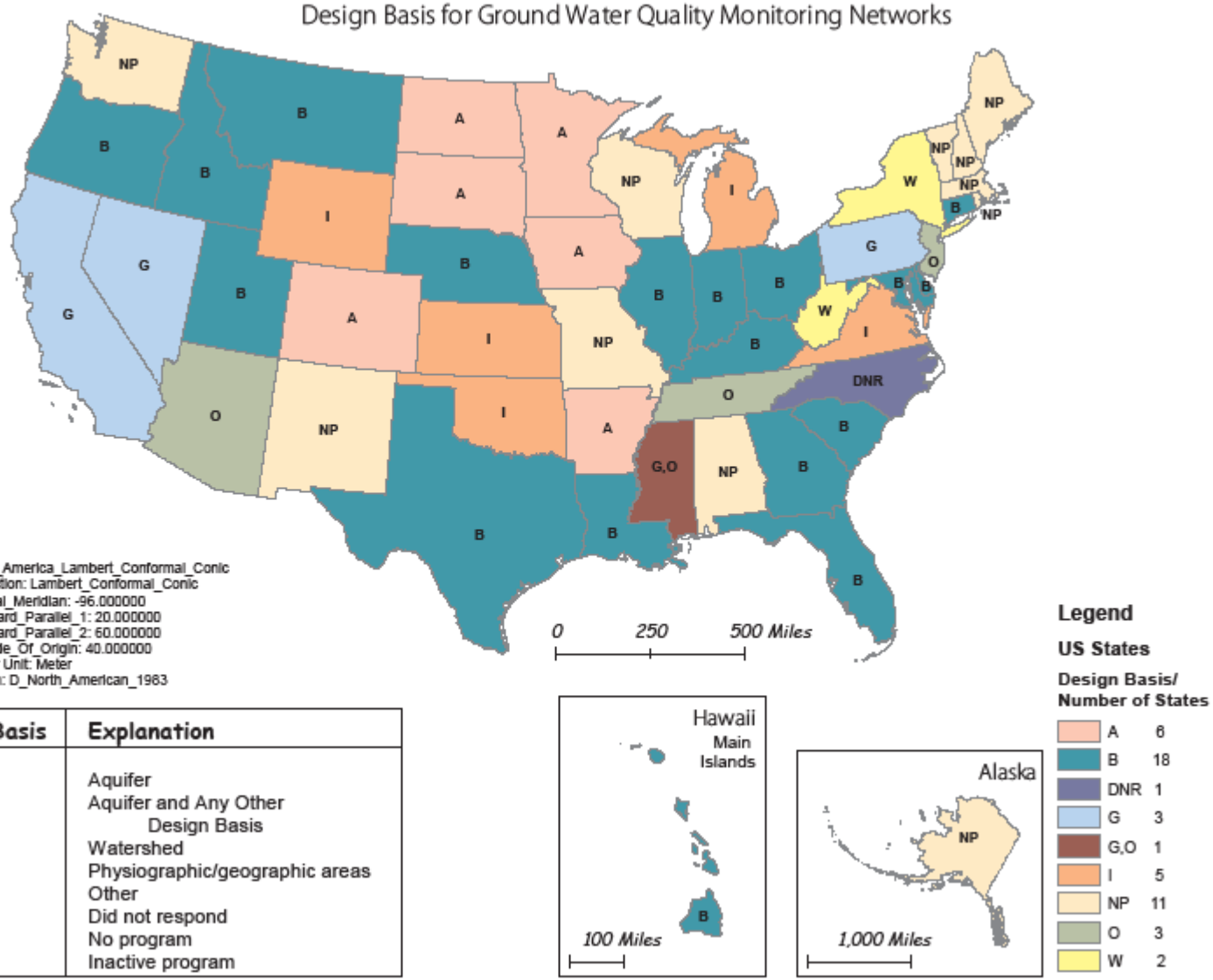
Quality networks

What Is Design Based On?



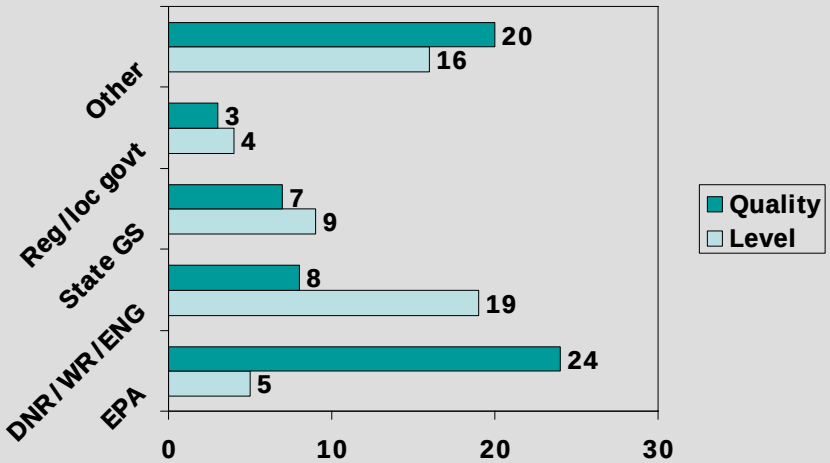
Summary of Data from NGWA/AASG/GWPC/ICWP Ground Water Quality Monitoring Questionnaire

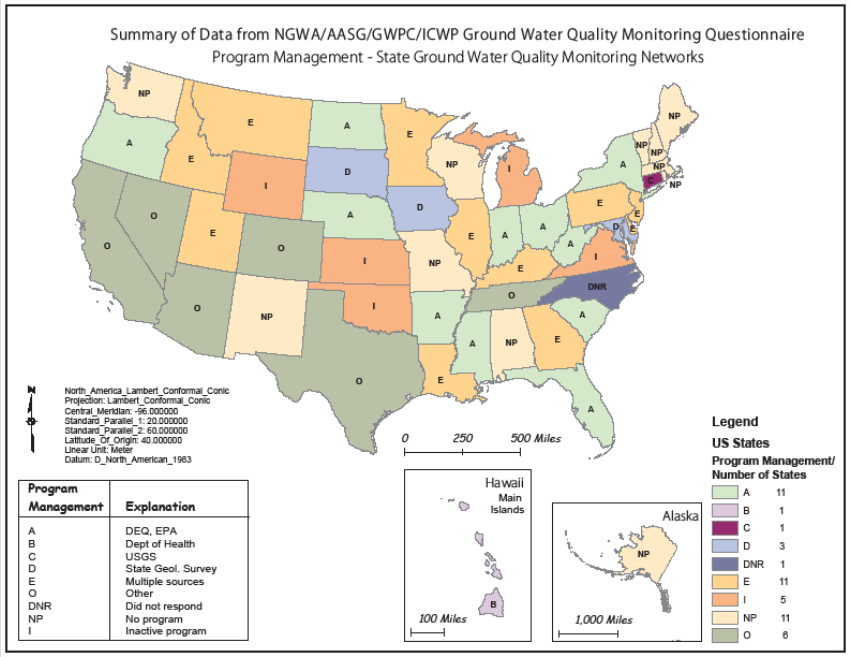
Design Basis for Ground Water Quality Monitoring Networks



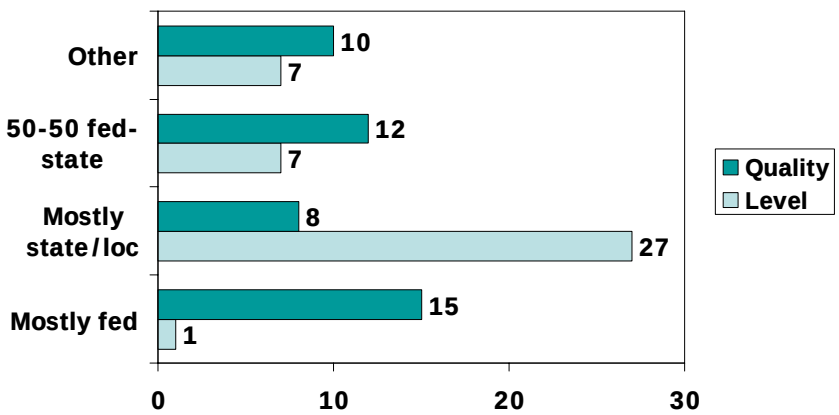
Design Basis	Explanation
A	Aquifer
B	Aquifer and Any Other Design Basis
W	Watershed
G	Physiographic/geographic areas
O	Other
DNR	Did not respond
NP	No program
I	Inactive program

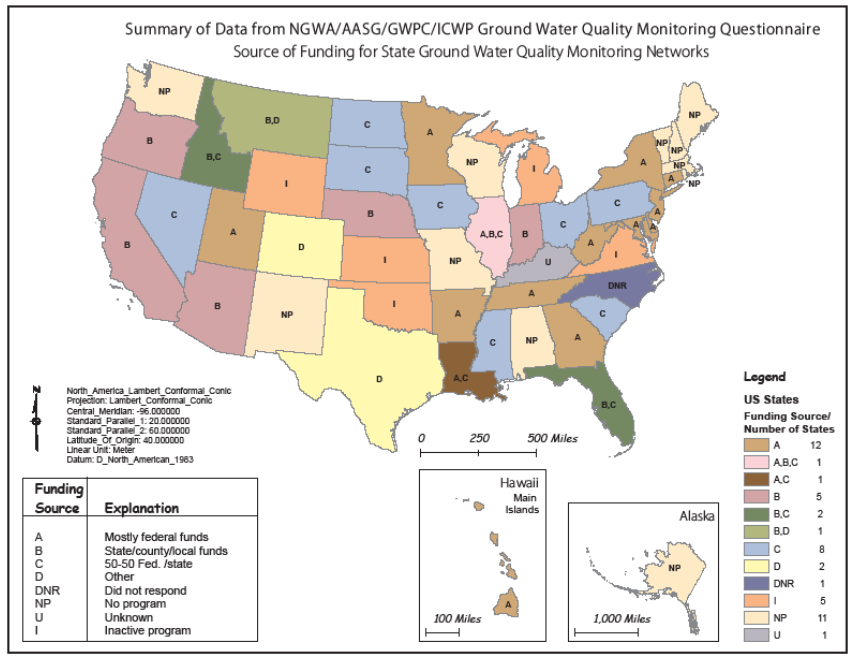
WHO MANAGES THE MONITORING NETWORKS





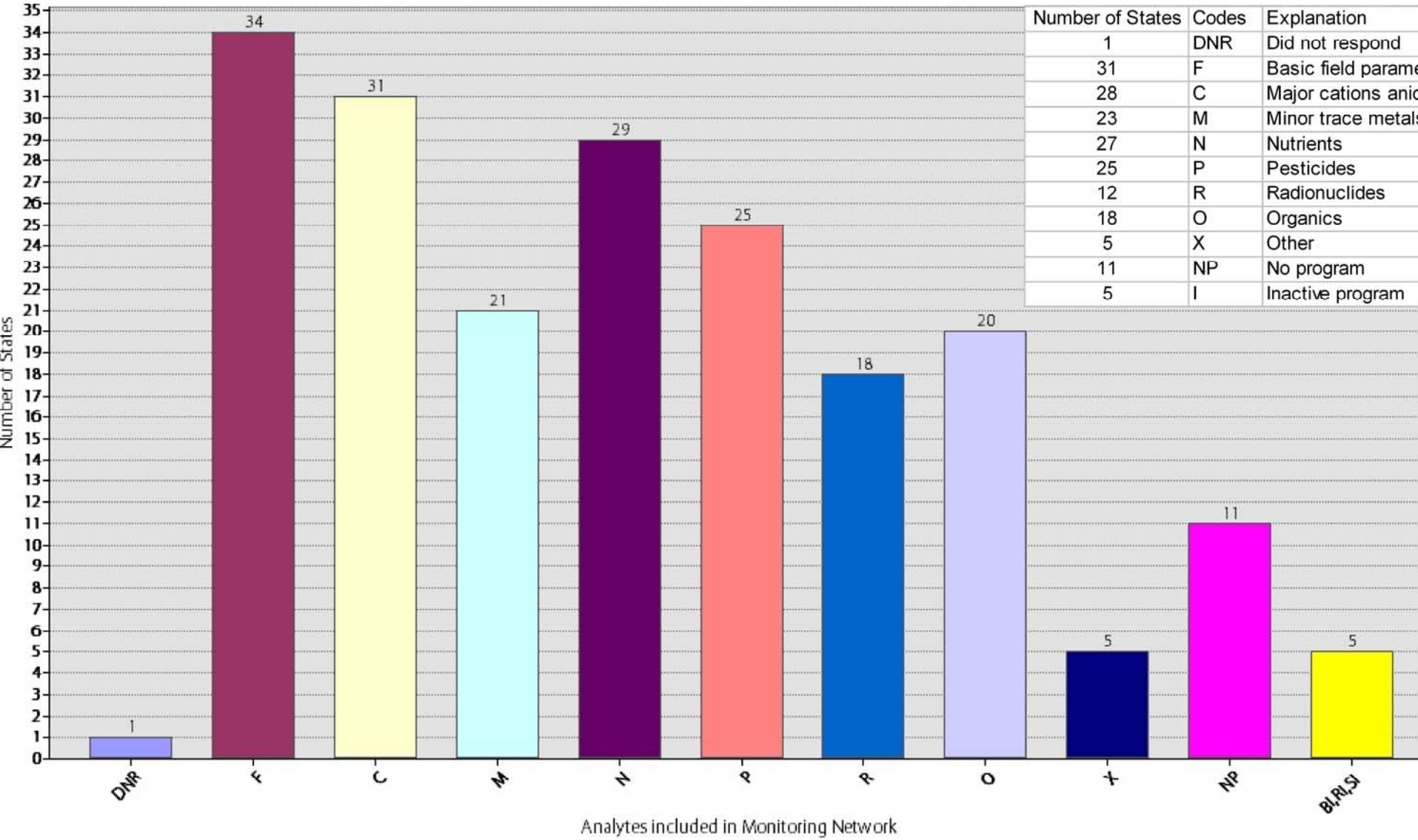
Who funds monitoring programs?





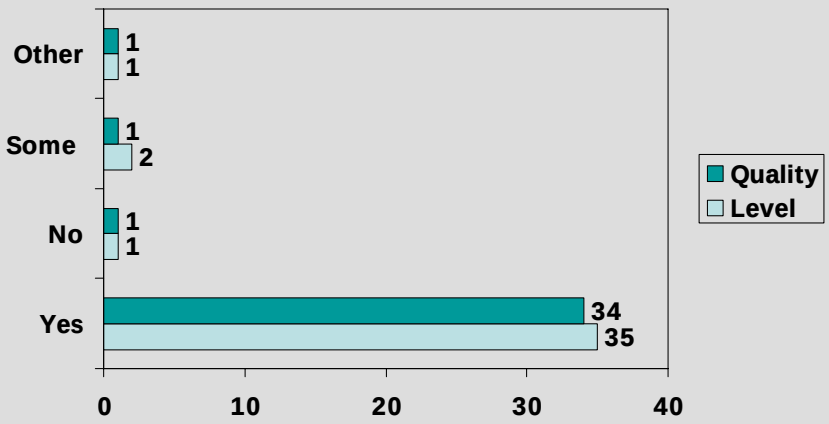
Summary of Data from NGWA/AASG/GWPC Ground Water Quality Monitoring Questionnaire

Analytes included in State Ground Water Quality Monitoring Network

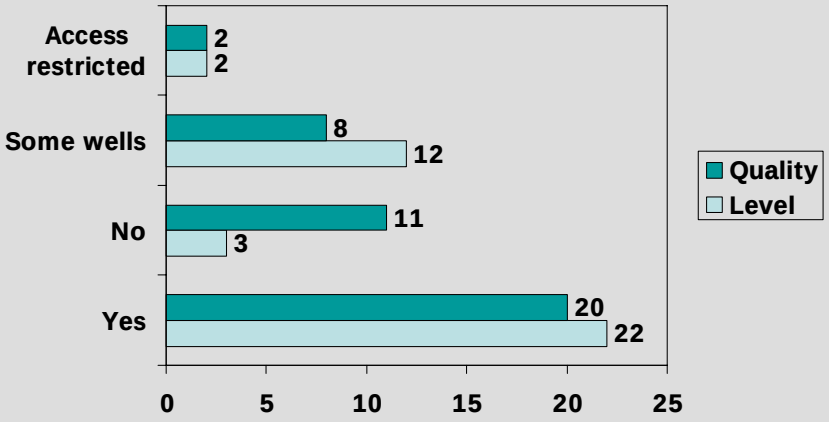


Number of States	Codes	Explanation
1	DNR	Did not respond
31	F	Basic field parame
28	C	Major cations anio
23	M	Minor trace metals
27	N	Nutrients
25	P	Pesticides
12	R	Radionuclides
18	O	Organics
5	X	Other
11	NP	No program
5	I	Inactive program

Data availability



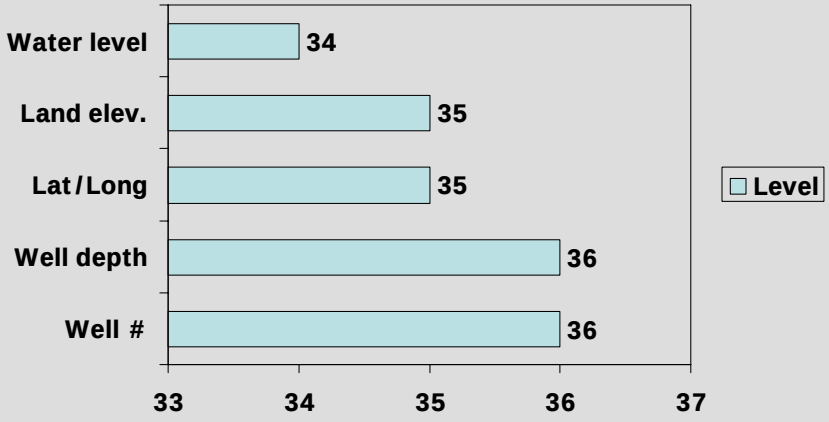
Data entered in computer data base?



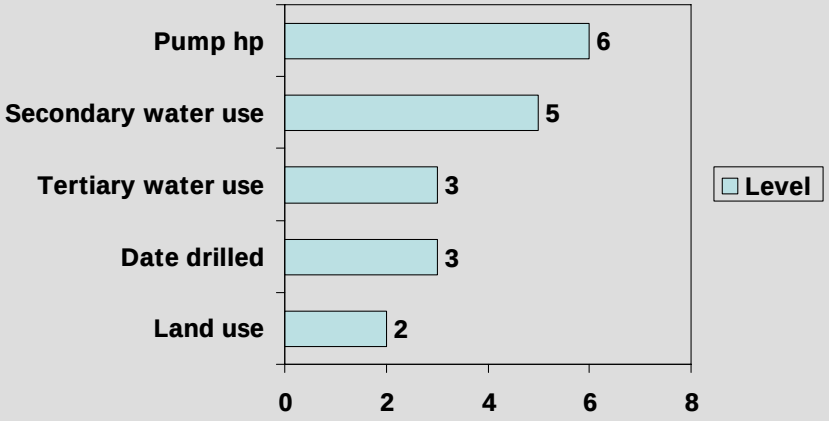
Data available on website?

META DATA –water level

- Most often available

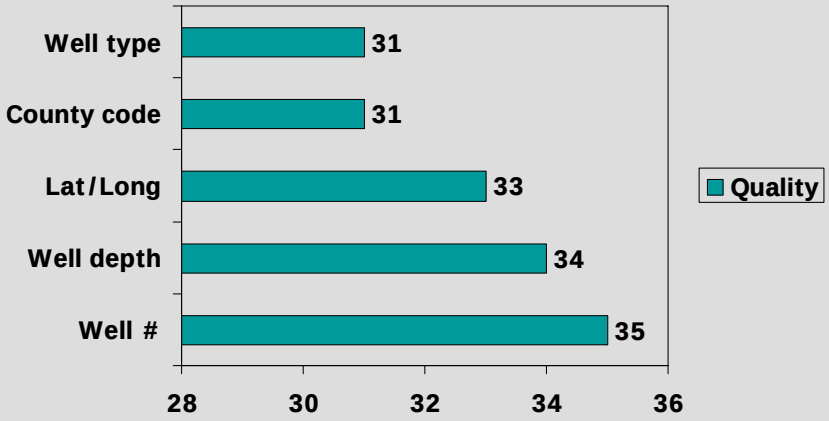


Least often available

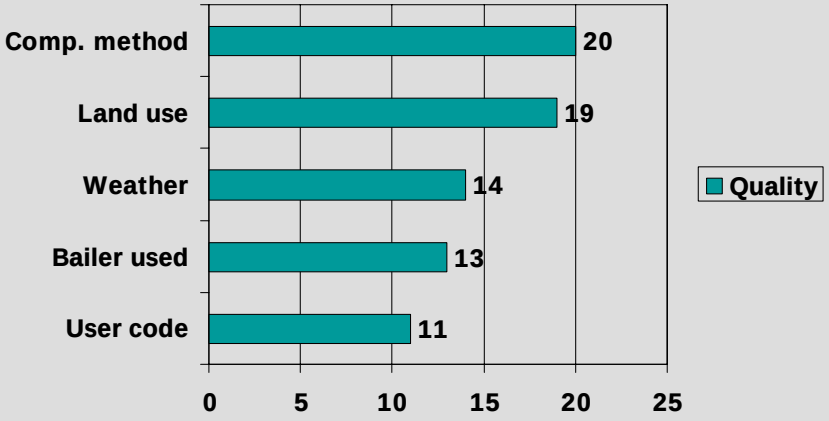


Meta data –gw quality monitoring

Most often available



Least often available



SOGW - INVENTORY WORKGROUP

SOME KEY POINTS

- **USGS partners with many states**
- **There is an enormous amount of ground-water quality data – collected for many reasons by numerous organizations**
- **GW qual. monit. - USEPA funding, sampling & analytical protocols, methods**
- **Water level monitoring programs not well coordinated with water quality monitoring programs**
- **Data is difficult to acquire on a national basis**
- **Data must be available to public via accessible database**
- **Data must be well documented**

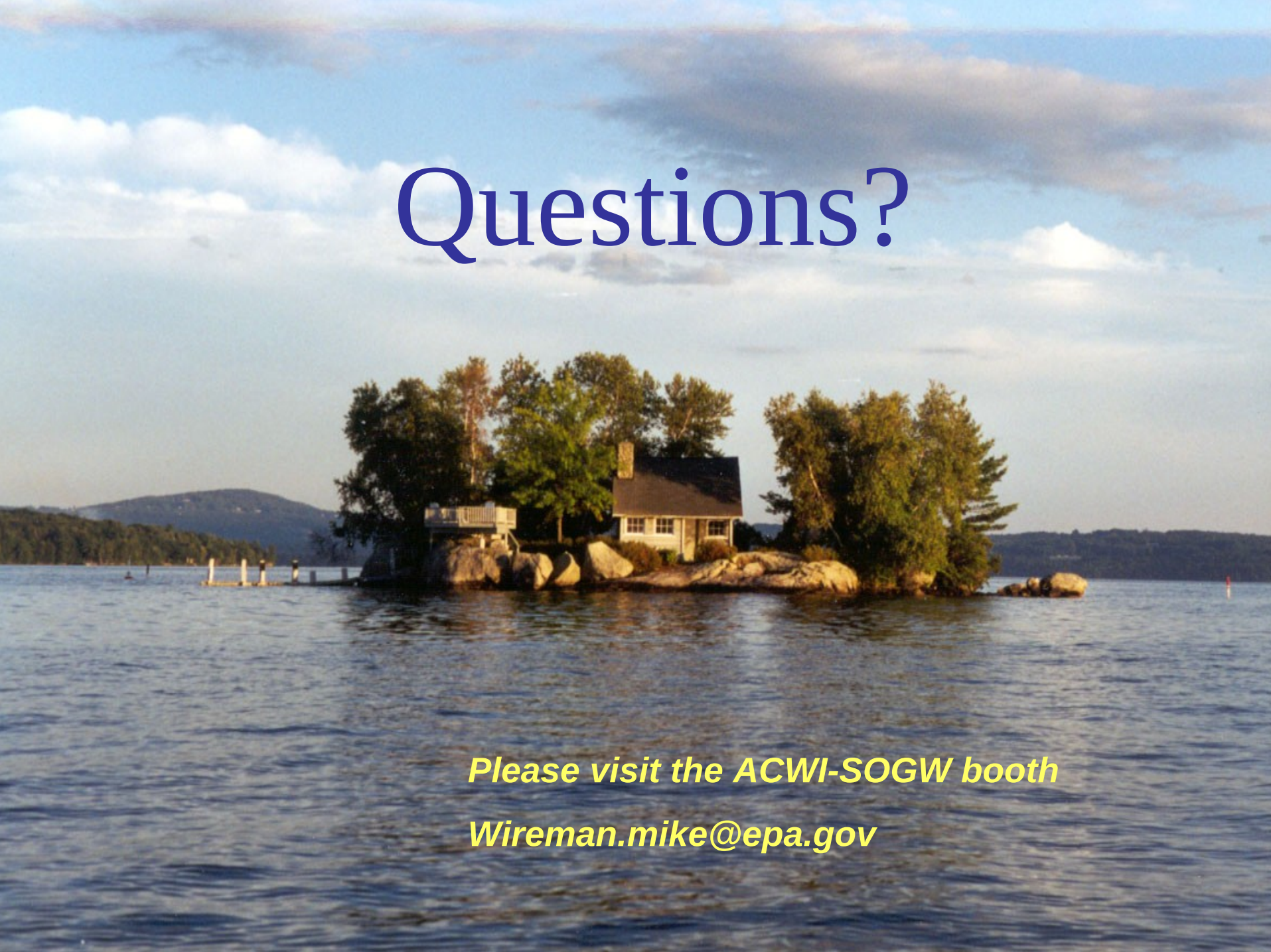
SOGW - Inventory Workgroup

SOME KEY POINTS

- **Development / implementation of a long term GW monitoring framework requires more than just inventorying /accessing data**
  - **Need consistency in types of data, data collection methods**
  - **need to use common techniques, target analytes**
  - **Need to look at trends and target analytes**
  - **Need to focus on major aquifers**

- **Need to acquire more (second level) of information data from selected state gw monitoring programs**
  - **Well location, aquifer, frequency of measurement, hydraulic properties, aquifer sub-division**

Questions?



Please visit the ACWI-SOGW booth

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