

NATIONAL GROUNDWATER MONITORING NETWORK

Presentation to the Texas
Groundwater Protection
Committee, October 2013

The Advisory Committee on Water Information (ACWI) is a Federal advisory committee comprised of Federal and non-Federal interests with a wide range of water resource expertise and responsibilities.

ACWI oversees a subcommittee for water quality issues, the National Water Quality Monitoring Council (NWQMC), which designed a network that provides information on how near-shore inland activities affect the oceans and coastal ecosystems. Groundwater is a very minor part of this effort.

In 2007, the Subcommittee on Ground Water (SOGW) was commissioned by the ACWI to develop a “framework” to establish and encourage implementation of a long-term national groundwater quantity and quality monitoring network.

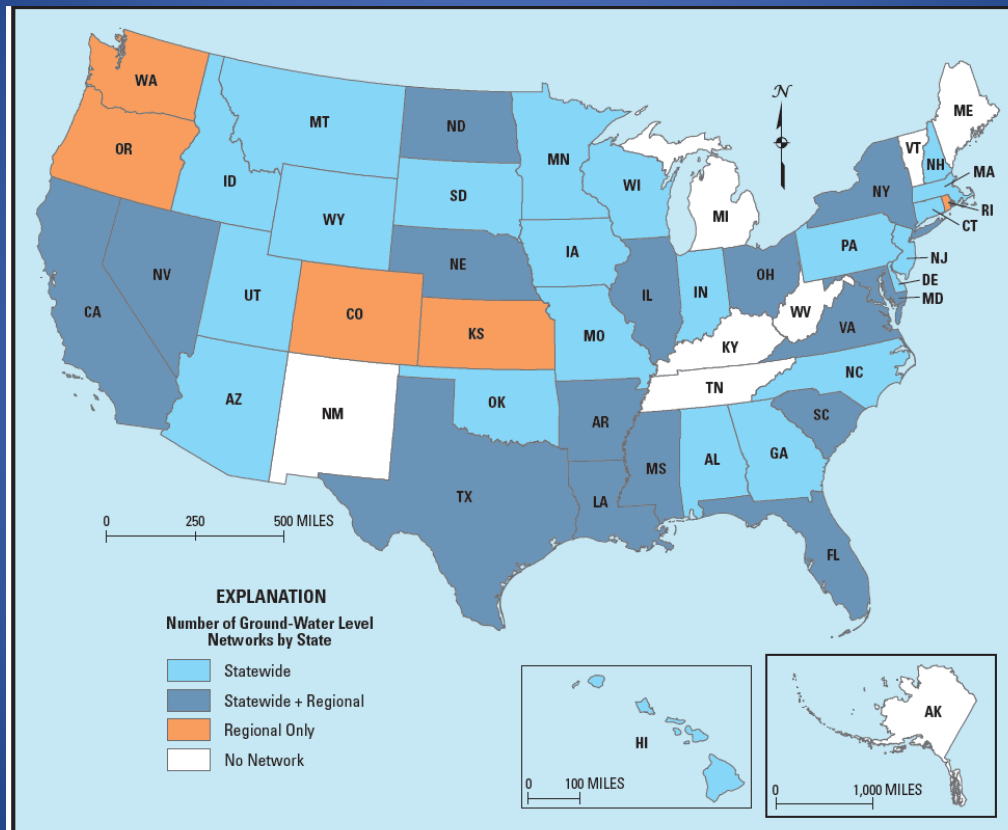


Figure 2.1.1 Ground-water level networks by State, from questionnaire of State monitoring programs led by the Association of American State Geologists, the Ground Water Protection Council, the Interstate Council on Water Policy, and the National Ground Water Association.

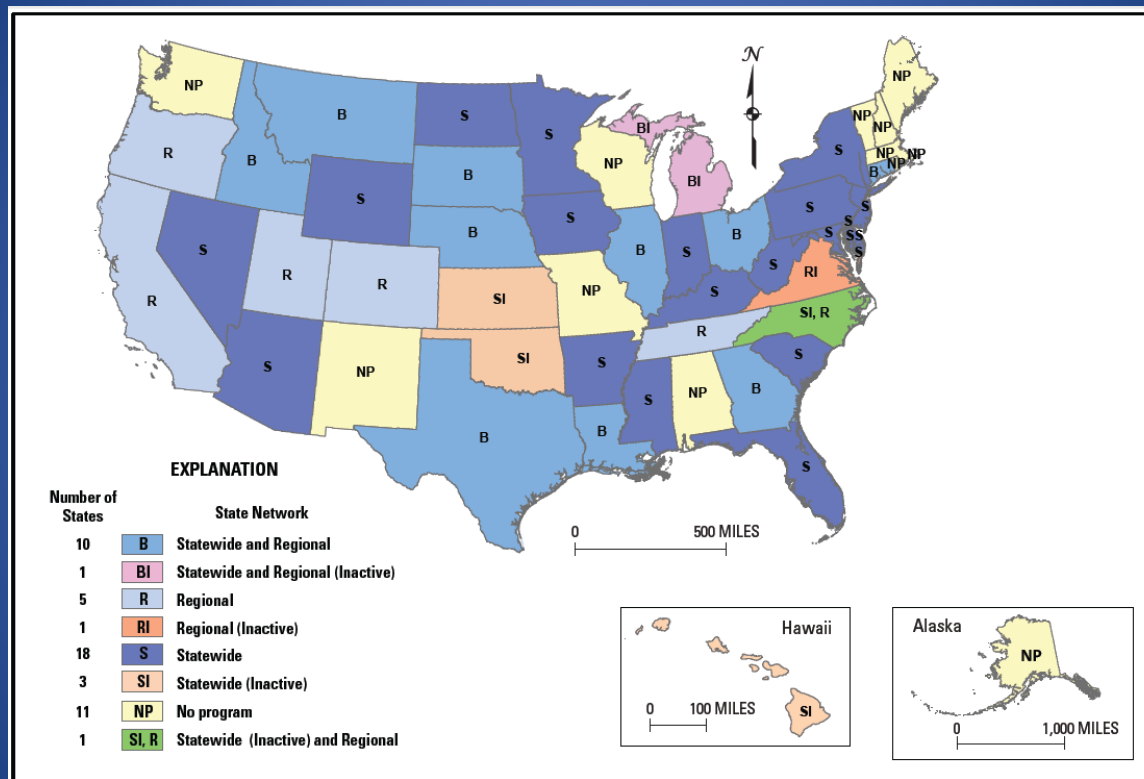


Figure 2.2.1 Ground-water quality networks by State, from questionnaire of State monitoring programs led by the Association of American State Geologists, the Ground Water Protection Council, the Interstate Council on Water Policy, and the National Ground Water Association.



The first “framework” document was released in June 2009.

Pilot projects were conducted in select areas of the country to incorporate parts of existing State groundwater monitoring programs into a national network.

Lessons learned resulted in this revised Framework Document.

“The National Ground Water Monitoring Network (NGWMN) is envisioned as a voluntary, cooperative, integrated system of data collection, management, and reporting with a limited set of standards that provides the data needed to help address present and future groundwater management questions raised by Congress, Federal, State, and Tribal government agencies, the public, or others.”

The network may be able to provide answers to questions such as:

- Where is groundwater use greater than what can be sustained on a long-term basis?
- What areas are most promising for future groundwater supply development?
- Where is groundwater use creating unacceptable impacts on surface water or on ecosystems?
- What are the effects of climate variability on groundwater levels across the country?
- What are the trends in groundwater levels and quality for major aquifer systems?



Principal design features of the network include:

- Identification of the aquifers to be monitored.
- Definition of the core set of data elements, including geographic data, well construction requirements, and measured parameters.
- Definition of comparable field methods.
- Defined protocols for selection of monitored locations in three dimensions within aquifers.
- Specific monitoring timeframes and frequencies based on site characteristics and purpose.
- Definition of water quality analytes.
- Definition of agreements with data providers through which data are made available to the national network.
- A data management system that allows national access to the data.

Overall network elements include:

- Conceptual modeling
- Monitoring design
- Field data collection
- Laboratory analysis
- Data transfer, storage and dissemination
- Interpretation and reporting

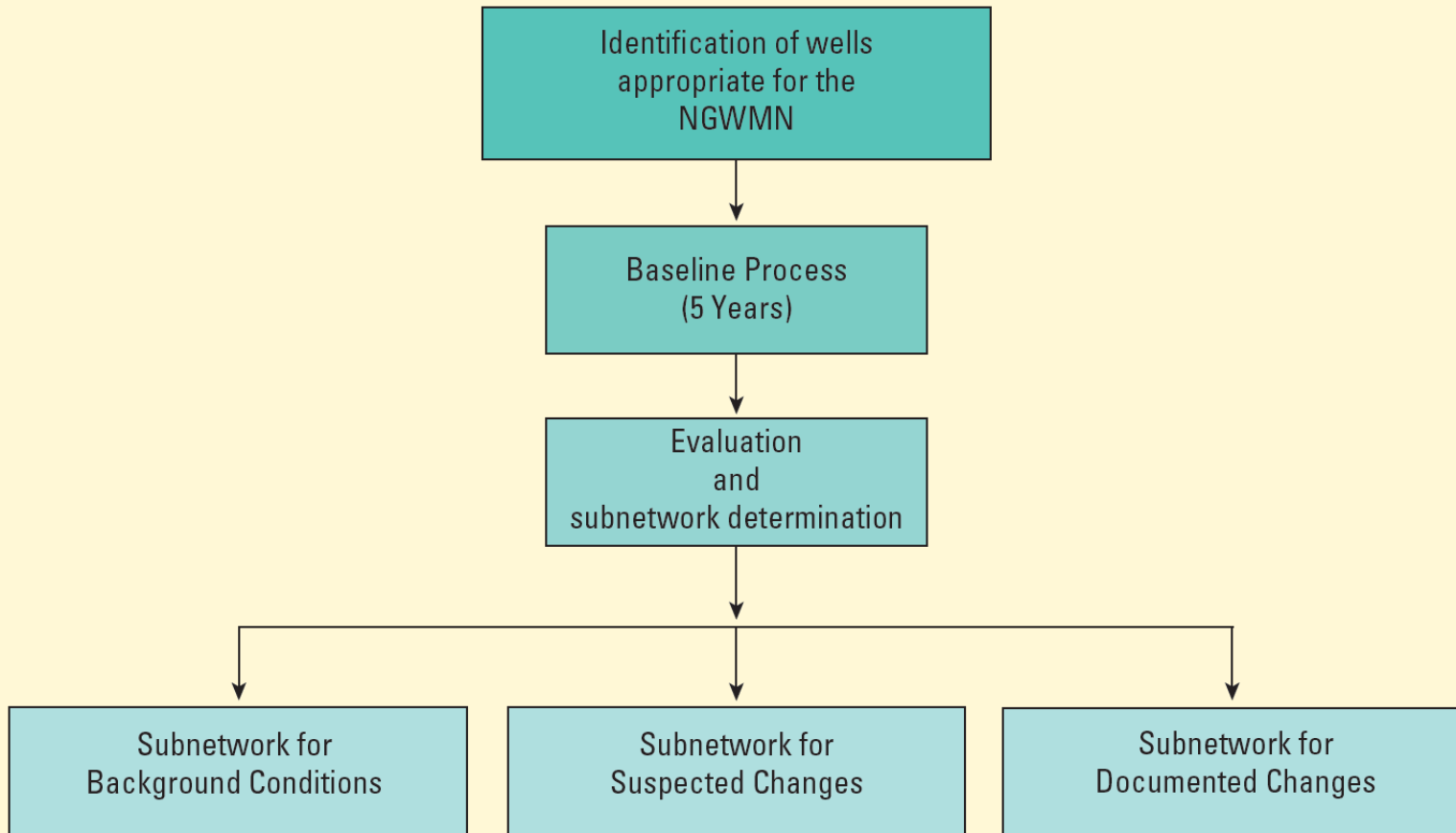
The NGWMN may be considered an aggregation of select wells and springs across the nation, that takes advantage of, and seeks to enhance, existing Federal, multi-state, State, Tribal and local monitoring efforts, and is not intended to replace these systems, nor address local issues.

Monitoring points designated for the NGWMN will be selected after there has been an evaluation of conceptual groundwater flow models within aquifer systems. A monitoring point may be a well or a spring.



Monitoring points will be included in one of three sub-networks:

- Background Sub-network
- Suspected/Anticipated Changes Sub-network
- Documented Changes Sub-network





Monitoring points within each sub-network will be assigned to at least one of the following monitoring categories:

- Surveillance
- Trend
- Special Studies

Subnetwork for
Background Conditions

Surveillance
Monitoring
Wells

Trend
Monitoring
Wells

Backbone
Wells

Subnetwork for
Suspected Changes

Surveillance
Monitoring
Wells

Trend
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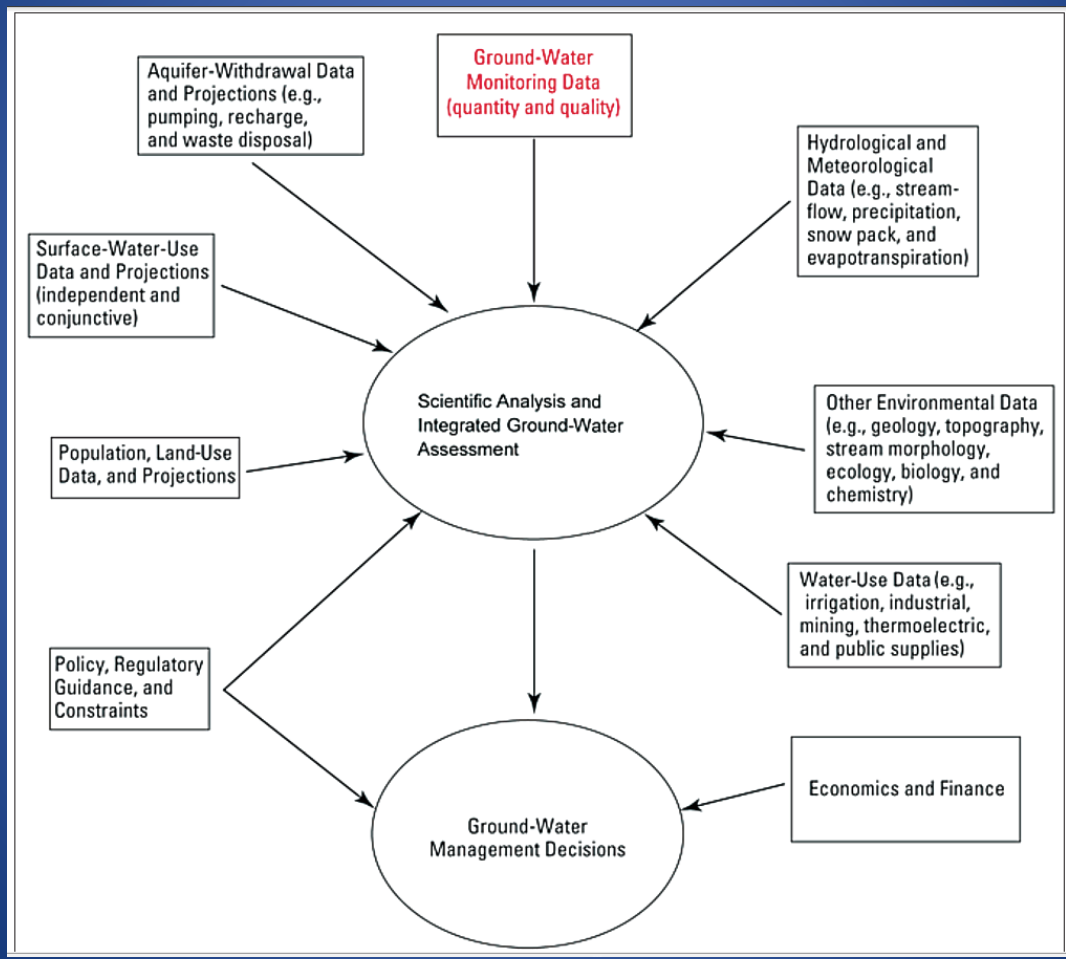
Surveillance
Monitoring
Wells

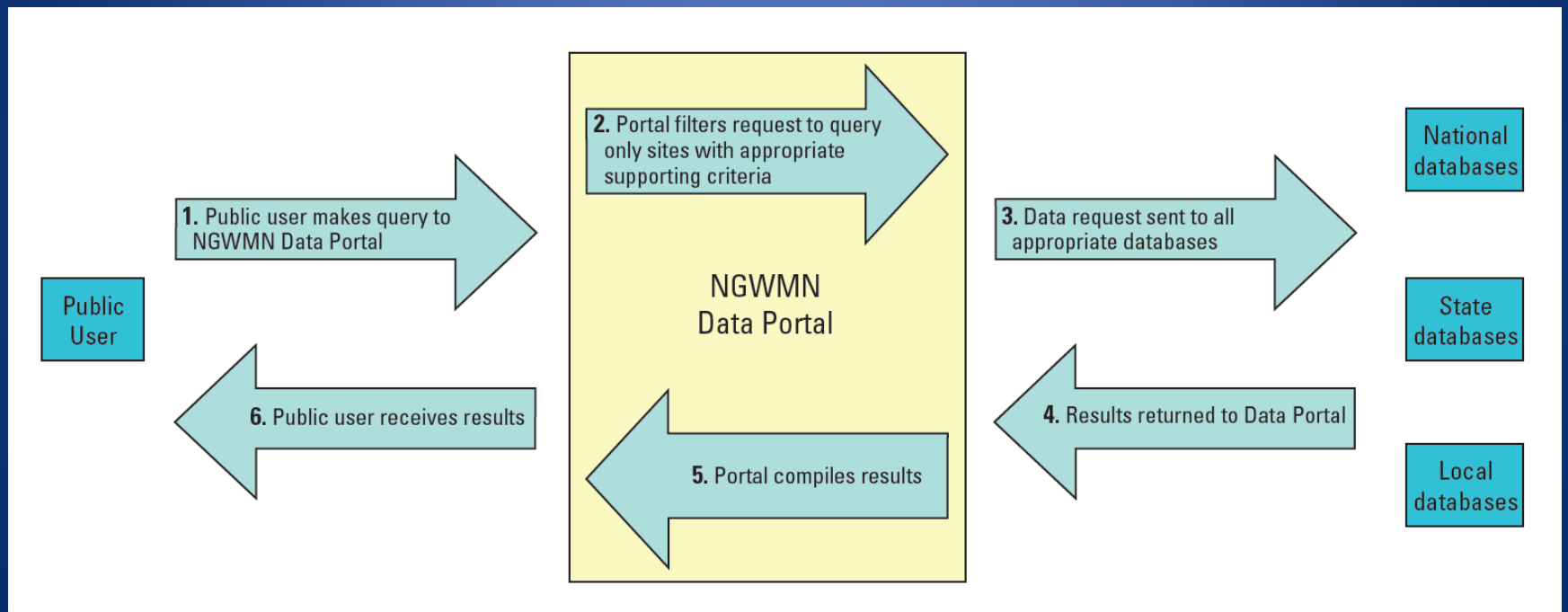
Trend
Monitoring
Wells

Backbone
Wells

Backbone
Wells

Backbone
Wells





Who makes the decisions?

- Subcommittee on Ground Water
- A Program Board (or Boards)
- An Agency providing day-to-day management of the NGWMN

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]

http://acwi.gov/sogw/ngwmn_framework_report_july2013.pdf