

PROPOSED NATIONAL GROUND WATER MONITORING PROGRAM

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National Monitoring Conference

May 8, 2006

Acknowledgment



Dr. David Wunsch

New Hampshire State Geologist

Why & How We Designed a Plan

■ Why?

- Importance of ground water
- Previous surveys
- Request by OSTP

■ How

- Meeting at Summit 2005
- Input from Government Affairs and its subcommittee/task force

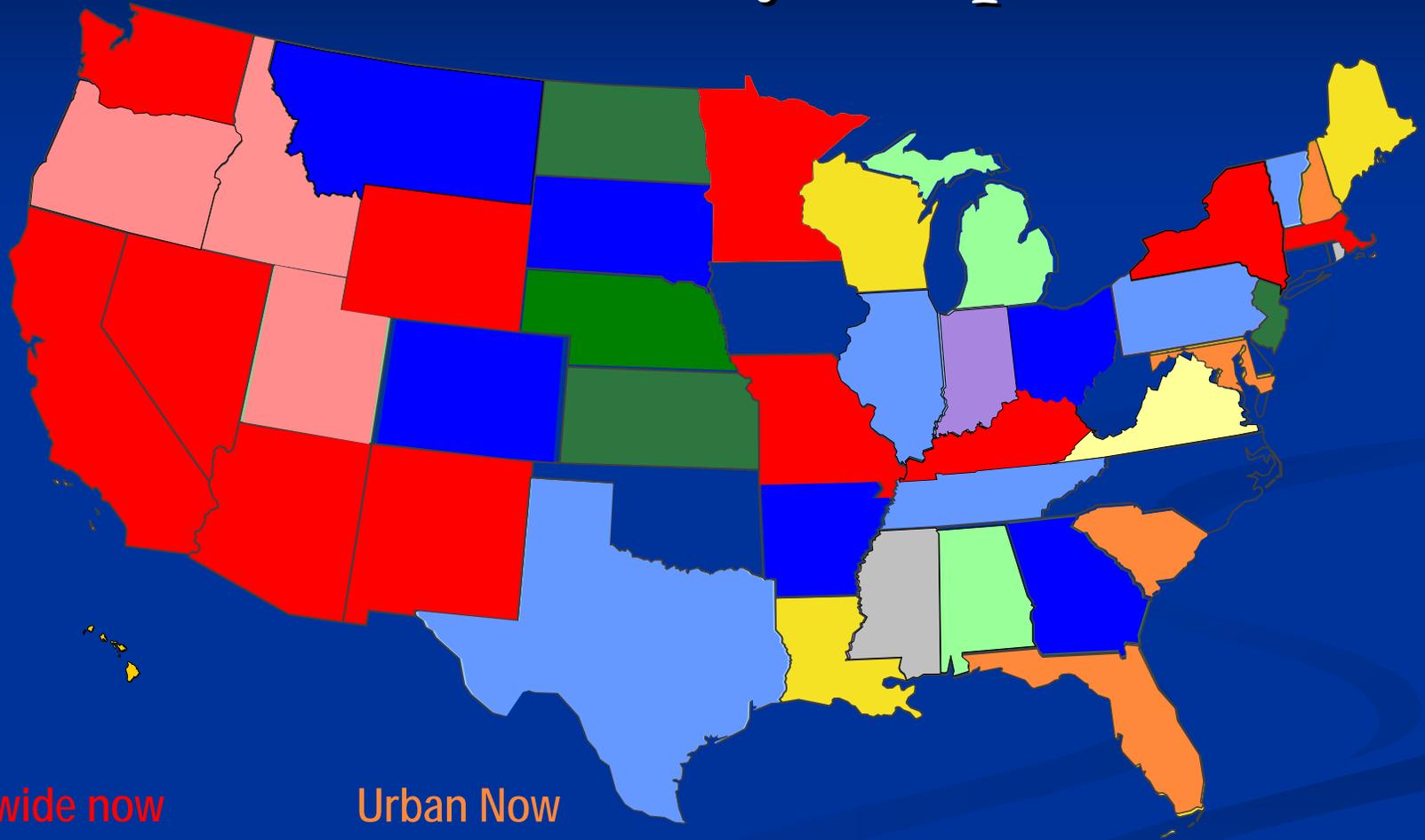
Importance of Ground Water

- 47.9% of America's population uses ground water as drinking water source
 - 75% of community water systems
 - Nearly all of rural America
- 42.4% of country's irrigation water is ground water
- 25% of total fresh water is ground water; 1% is surface water and rest is locked in polar ice and glaciers

The Survey: What We Asked

- Type of organization
- Expected groundwater supply shortage?
 - Why?
- How good is your information?
 - Supply estimates and various types of data
- What types of additional information are most important?
- What should the federal government do to help meet information gaps?

Groundwater Shortage Forecasts: Combined Survey Responses



Statewide now

Statewide future

Urban & rural now

Urban now, both future

Urban Now

Urban future

Rural Now

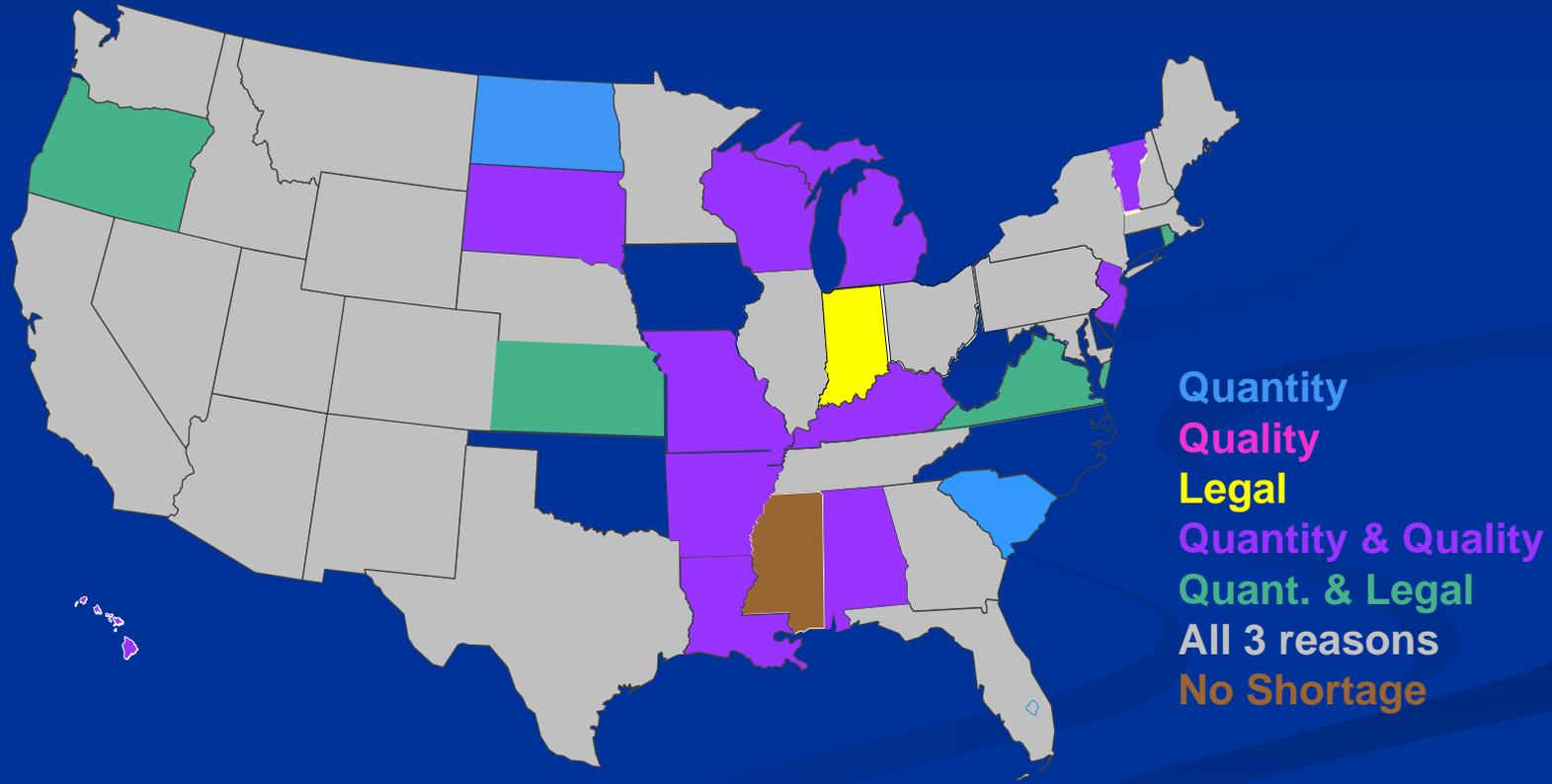
Rural now, both future

Rural future

Urban and rural future

No problems/other

Reasons for Shortages



State Survey Knowledge Summary

■ Most information

- Water level monitoring network (3.36)
- Statewide aquifer maps
- Hydraulic properties
- Water quality
- Water use data
- Consumptive use data (2.96)

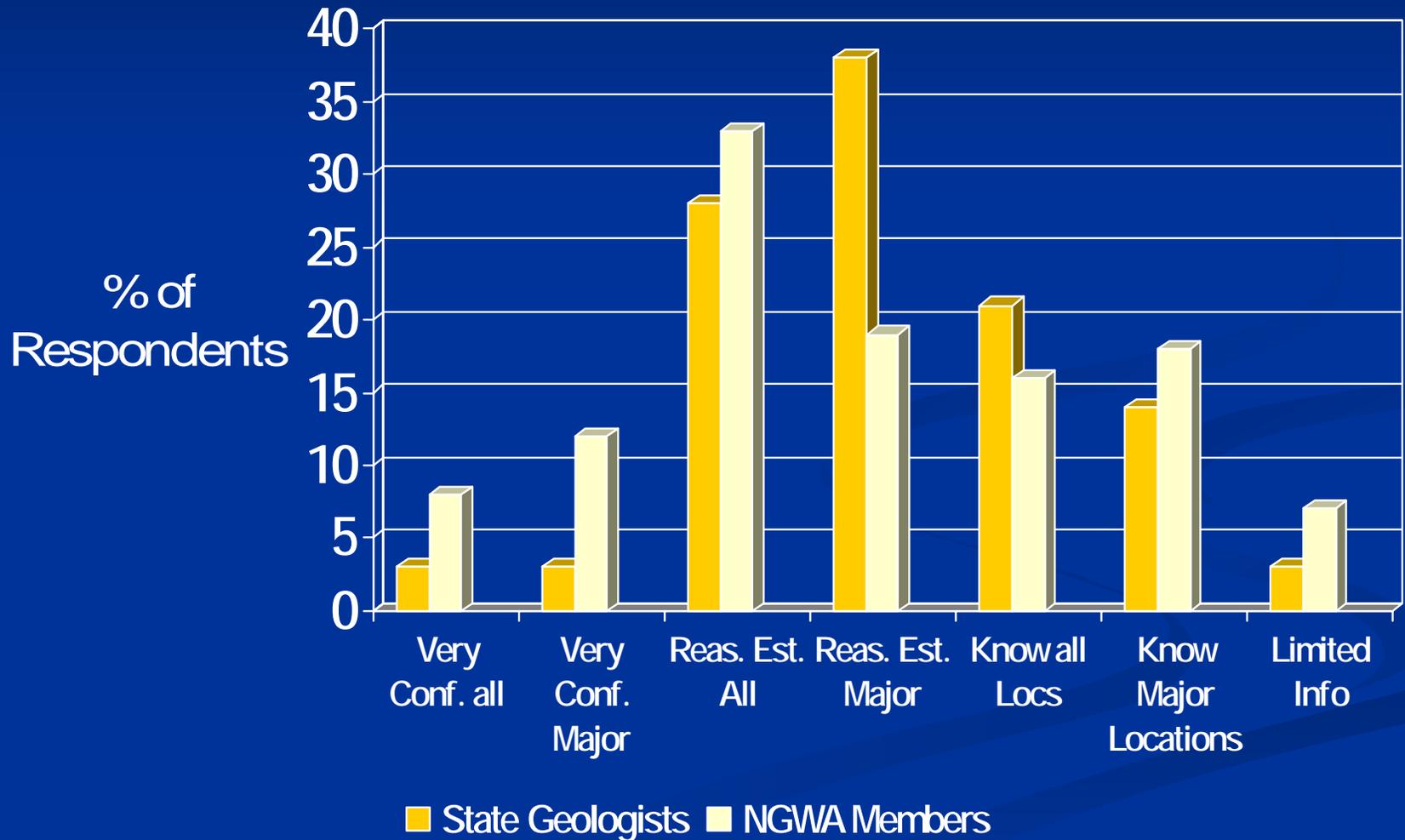
■ Least information

- Quality monitoring network (2.78)
- Groundwater Flow models
- On-line data
- Recharge rates
- 3-D aquifer maps/models
- Artificial recharge opportunities (1.96)

5=met goal

1=no information

Knowledge of Groundwater Availability



Most Important Types of Data to Expand

■ State Surveys

- Hydraulic properties of major aquifers
- Groundwater level monitoring network
- Statewide aquifer maps
- Accurate water use data
- Water quality for all aquifers
- Groundwater recharge rates

■ NGWA Members

- Accurate water use data
- Water quality for all aquifers
- Hydraulic properties of major aquifers
- Groundwater level monitoring network
- On-line aquifer data
- Groundwater recharge rates

Top 5 Desired Federal Actions

1. Increase funding for cooperative ground water quantity data collection
2. Increase funding for cooperative ground water quality data collection
3. Increase funding for aquifer mapping
4. Increase ground water availability research

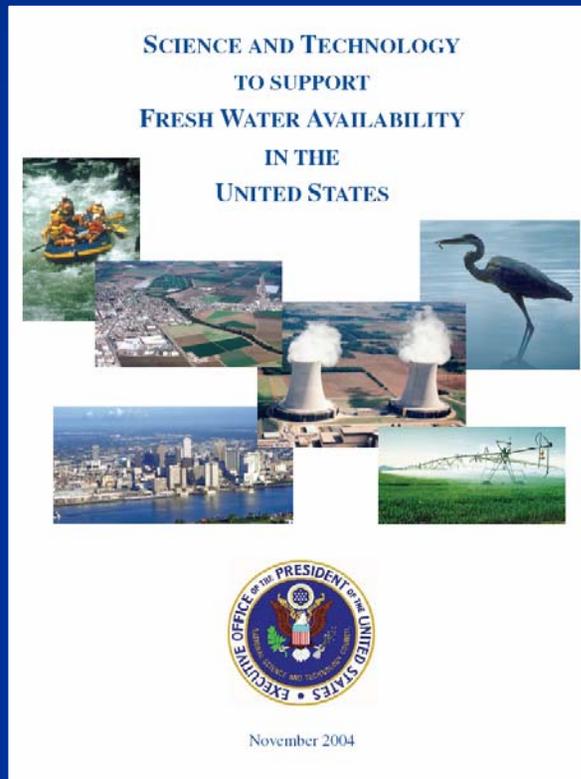
Top 5 Desired Federal Actions (cont.)

- State geologists' #5: Fund public education and outreach on water conservation
- NGWA members' #5: Develop a national ground water clearinghouse

Survey Conclusions

1. Most states are experiencing at least local shortages now.
2. Most states have at least a reasonable estimate of the potential yield of major aquifers.
3. Few states have met any goals in collecting any type of ground water data.
4. Priorities for collecting more data parallel types of data already being collected, perhaps because goals are not met.
5. Cooperative federal and state programs for ground water data collection favored

OSTP Subcommittee on Water Availability and Quality



- Report released early 2005
- Questions posed to NGWA by OSTP

Questions Posed to NGWA

1. What information needs does long-term ground water quality and quantity monitoring address?
2. What are the long-term ground water monitoring needs?
3. What should the federal role be as regards long-term quality and quantity ground water monitoring?
4. How does the federal government integrate its role with private sector, local and state government monitoring efforts?
5. What are the priority actions that the federal government should take relative to long-term quality and quantity ground water monitoring?

Summit 2005 Committee

William M. Alley, USGS, San Diego, CA

Raymond Brady, Panhandle Ground Water Conservation District, White Deer, TX

John Bredehoeft, PhD, The HydroDynamics Group

Michael E. Campana, PhD, University of NM

Lee Clapp, PhD, Texas A & M University

Elizabeth Corr, U.S. EPA, Washington DC

John A. Daniel, PhD, U.S. Department of Agriculture, El Reno, OK

Amy Hardberger, Lubbock, TX

Beverly Herzog, Illinois State Geological Survey

Larry A. Lyons, Lyons Well Drilling Co. Inc.

Robert E. Mace, PhD, TX Water Development Bd

Dave Mercer, Westbay Instruments Inc.

Michael Paque, Ground Water Protection Council, Oklahoma City, OK

Timothy K. Parker, CA Department of Water Resources

Glenn G. Patterson, USGS, Reston, VA

Craig Pederson, URS Corp

Kenneth M. Tyrrell, URS Corp.

Venki Uddameri, PhD, Texas A & M University

David Wunsch, PhD, NH Geological Survey

Why Undertake Long Term Ground Water Monitoring?

1. Assess the resource's ability to support population growth and development
2. Help design and assess effectiveness of mgmt and protection programs
3. Identify short and long-term changes to ground water
4. Identify artificial ground water recharge opportunities
5. Assess ground water and surface water interactions
6. Provide data for modeling
7. Provide a more accurate estimate of actual ground water withdrawals

What Are the Long-Term Monitoring Needs?

National ground water
quality monitoring
network

National ground water
level monitoring
network



What Are the Long-Term Monitoring Needs?

- **Ambient ground water monitoring**
 - long-term response of aquifers in “natural conditions”
- **Impacted areas monitoring**
 - impacted by withdrawals
 - various land uses
- **Targeted monitoring**
 - answer specific management questions



What Should the Federal Role be?

1. Support a collaborative framework
2. Develop guidelines for data collection, quality control, storage and retrieval
3. Provide federal funding for cooperative monitoring network development and operation
4. Establish a national clearinghouse

How to Integrate Various Roles?

- Federal government is “glue” to hold collective efforts together
- States should develop state ground water availability and quality picture
- Private sector firms should perform exploratory drilling and install monitoring wells

What Should Federal Priorities Be?

- Federal funding of cooperative ground water quantity monitoring
- Federal funding of cooperative ground water quality monitoring
- Additional priorities
 - Demonstrating a commitment to collaborative ground water quality and quantity data collection
 - Ensuring the availability of quality data at appropriate scale
 - Supporting research and development
 - Promoting public education and outreach

What's Next?

- OSTP Subcomm. on Water Avail. and Quantity is considering this paper in their water strategy papers
 - Their Priorities:
 - Knowing water supply and use
 - Increasing water supply
 - Draft long-term strategy for water R&D due out this summer
- National Ground Water Monitoring Ad Hoc Task Force Tuesday at 5:15

Thank You!
Questions?

