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COOPERATIVE EXTENSION

Groundwater Management and Governance: A Policy Perspective

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Context

- International efforts related to groundwater governance and management and transboundary groundwater assessment
- Groundwater Governance Project (GEF, FAO, UNESCO, IAH, World Bank, others)
 - www.groundwatergovernance.org
 - Inception meeting at UNESCO in September 2011, followed by a series of five regional consultations around the globe, with the US part of the March 2013 (last) regional consultation held in The Hague
 - Series of Thematic Papers



Thematic Papers

www.groundwatergovernance.org/resources/thematic-papers/en/

1. Trends in groundwater pollution
2. Conjunctive use & management
3. Urban-rural co-management
4. Management of recharge/discharge
- 5. Groundwater policy and governance (Varady, et al.)**
6. Legal frameworks for groundwater governance
7. Trends in local groundwater management
8. Social adoption of technology
9. Macro-economic trends
10. Governance of subsurface space
11. Political economy of groundwater governance
12. Water and climate change

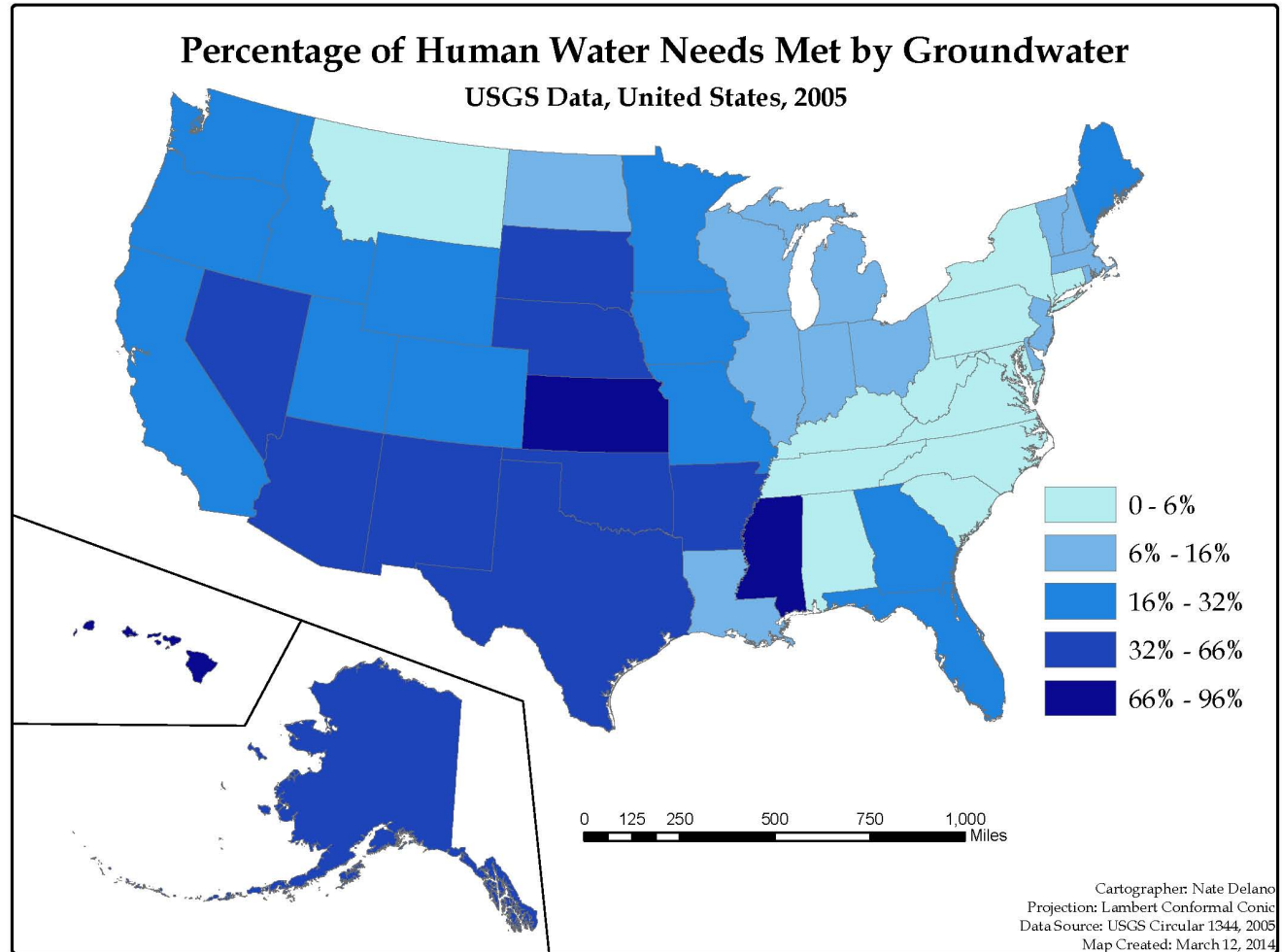
Governance and Management

- Working definition:
- Groundwater governance is the overarching framework of groundwater use laws, regulations and customs, as well as the processes of engaging the public sector, the private sector, and civil society.
- It may involve coordinating administrative actions and decision-making between and among different jurisdictional levels.
- The governance framework, which can be complex, determines the *management* of groundwater resources and the use of aquifers.

Management vs. Policy

- Water management is *what we do*.
 - E.g., the actors operate wells, treat water for use/reuse, store water through managed aquifer recharge, conserve water, etcetera
- The *decisions* the actors make regarding what to do, all in the context of the governance framework, can be considered the water policies of a region.
 - For example, laws can authorize water banking, but actual decisions on the water banking done in a region can vary, depending on circumstances.

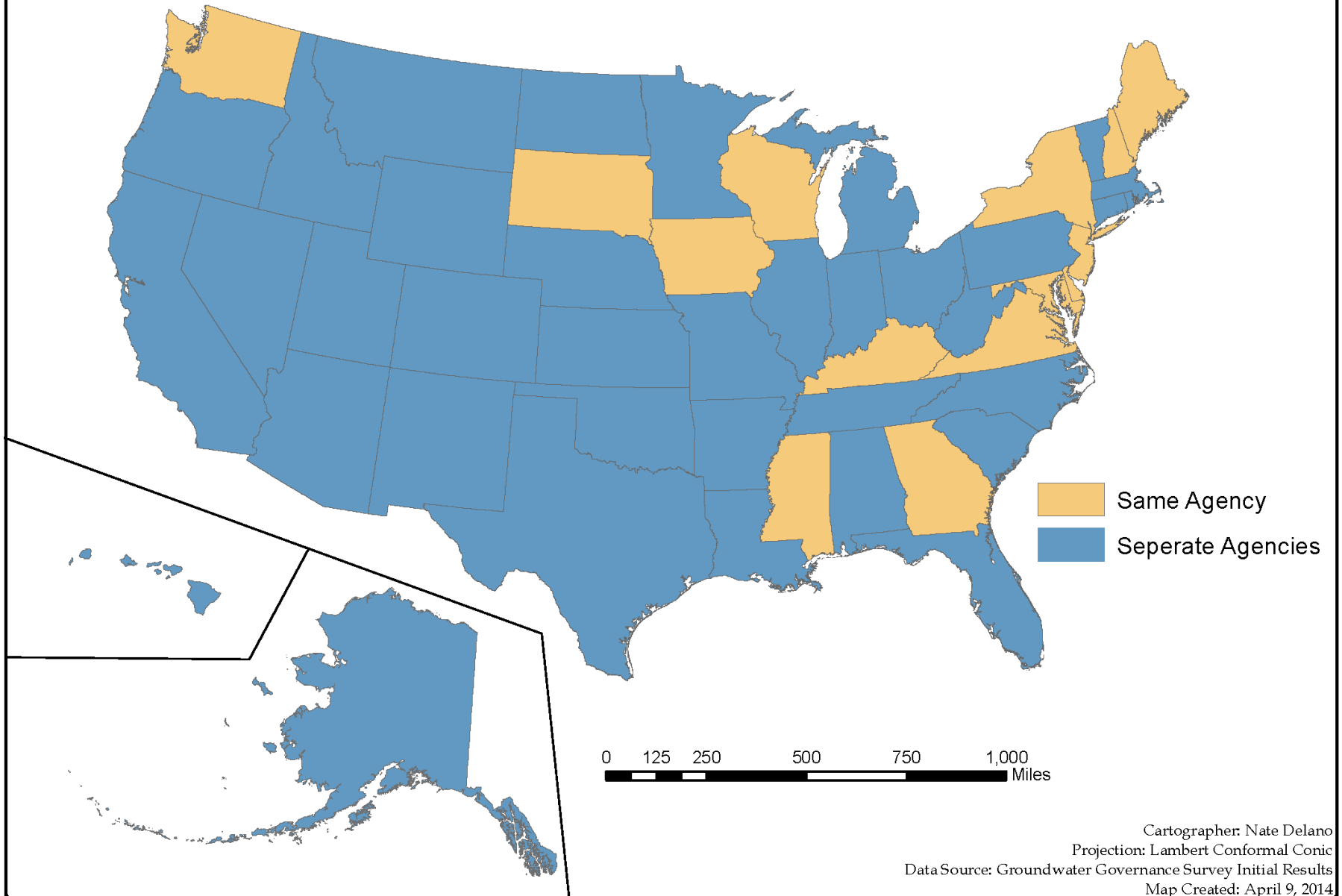
Motivation for the initial survey: Groundwater governance in the U.S. is highly decentralized; we can't paint the picture with a single brushstroke



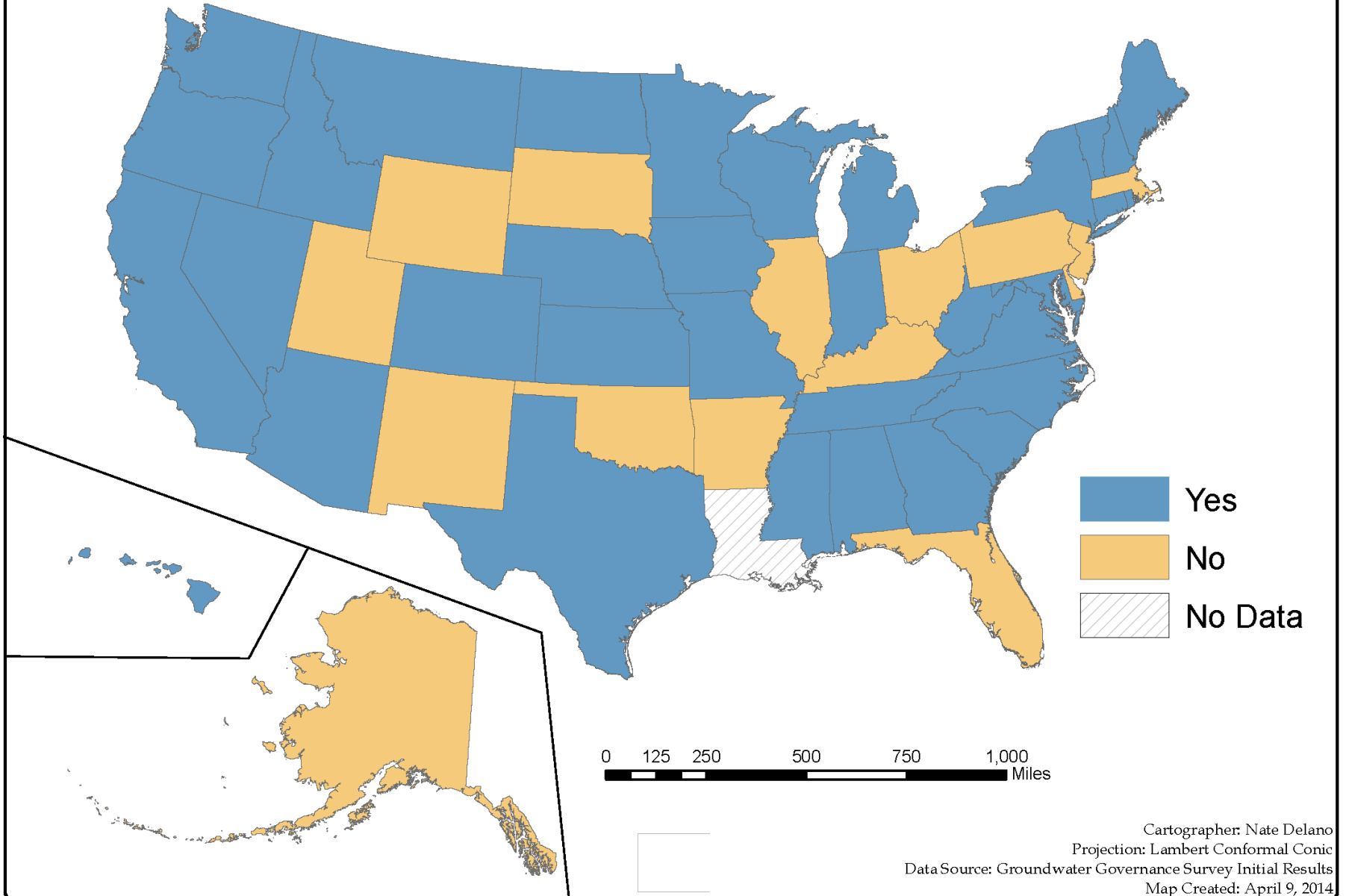
The U.S. Groundwater Governance Survey Project

- Overall objectives
 - To inventory current trends in U.S. groundwater governance – *define the state of practice*
 - Provide information in support of policy strategies and technical use in understanding and improving groundwater governance and water governance generally.
- Phase I (mostly descriptive): Initial Survey
 - “Groundwater Governance in the U.S. - Summary of Initial Survey Results,” Gerlak et al. 2013 (wrrc.arizona.edu/groundwater)
 - Survey a single, knowledgeable point of contact in each state and the District of Columbia to obtain information on the state of the groundwater governance. Survey conducted November 2012 to February 2013.
 - Funded internally by the Technology Research Initiative Fund, The University of Arizona Water Resources Research Center

Do Seperate Agencies Deal with Water Quantity and Quality?

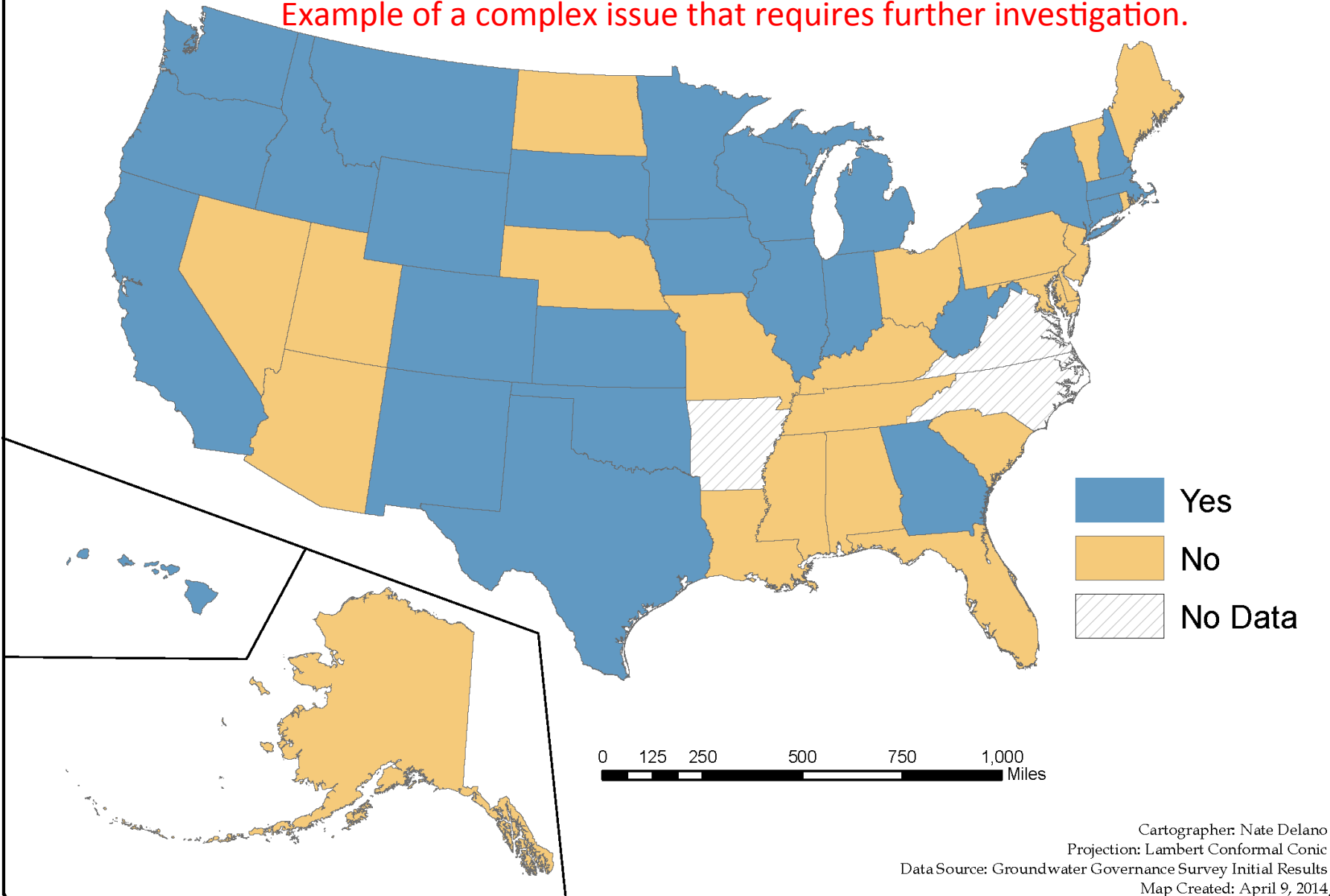


Substantial Changes in Groundwater Management Over the Last Few Decades?

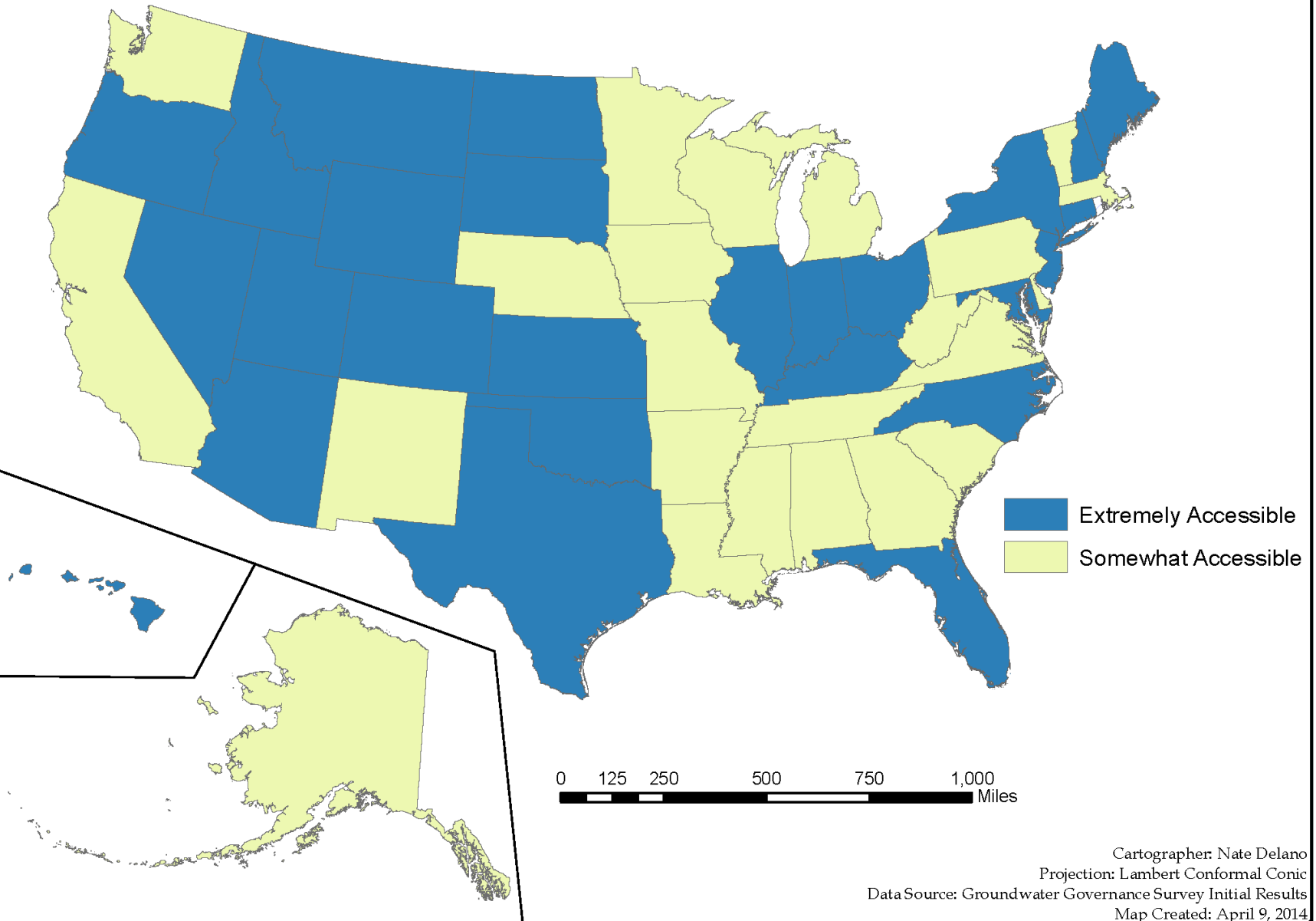


Does State Law Recognize the Connection Between Surface and Groundwater?

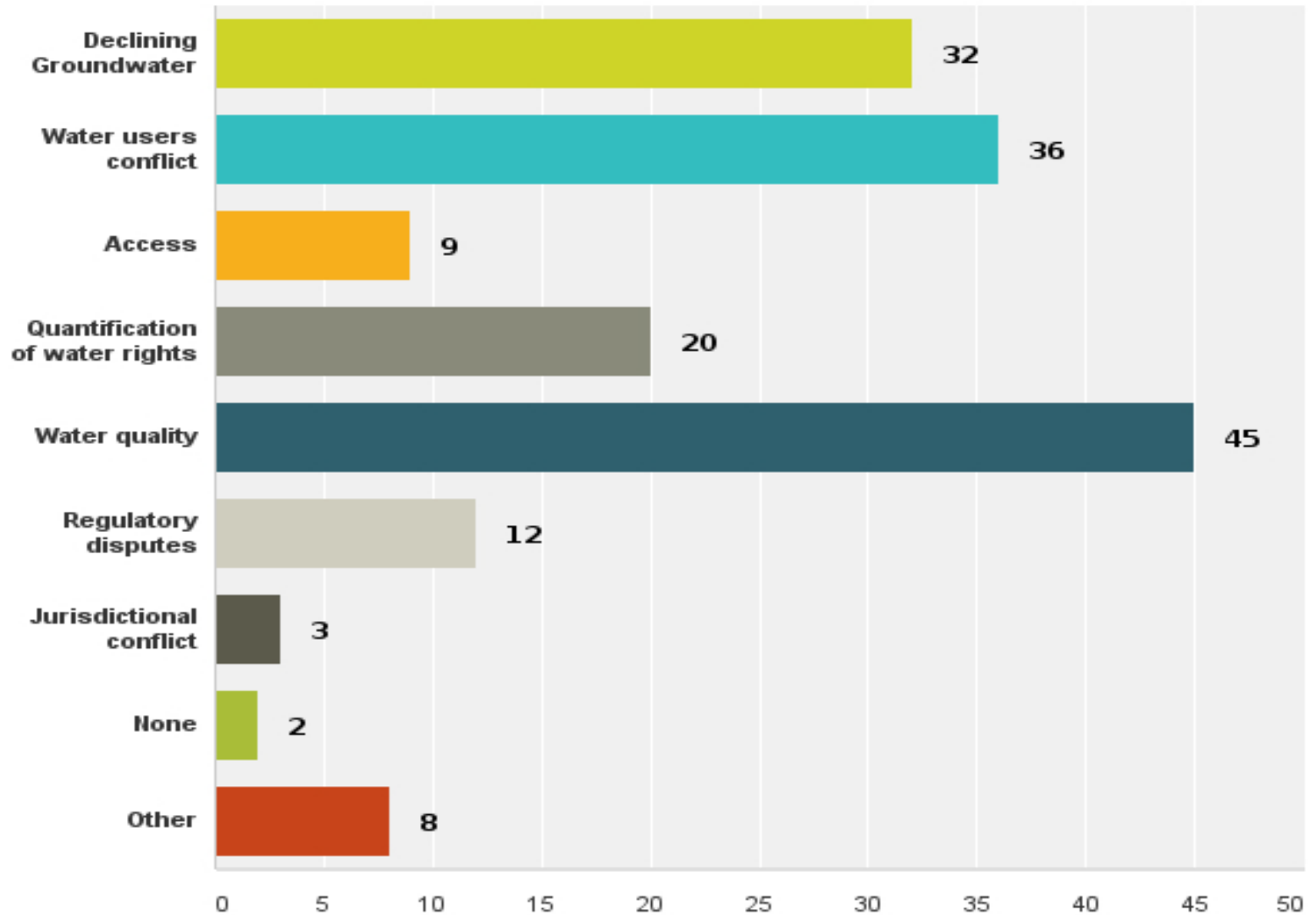
Example of a complex issue that requires further investigation.



How Accessible is Groundwater Information to the Public?

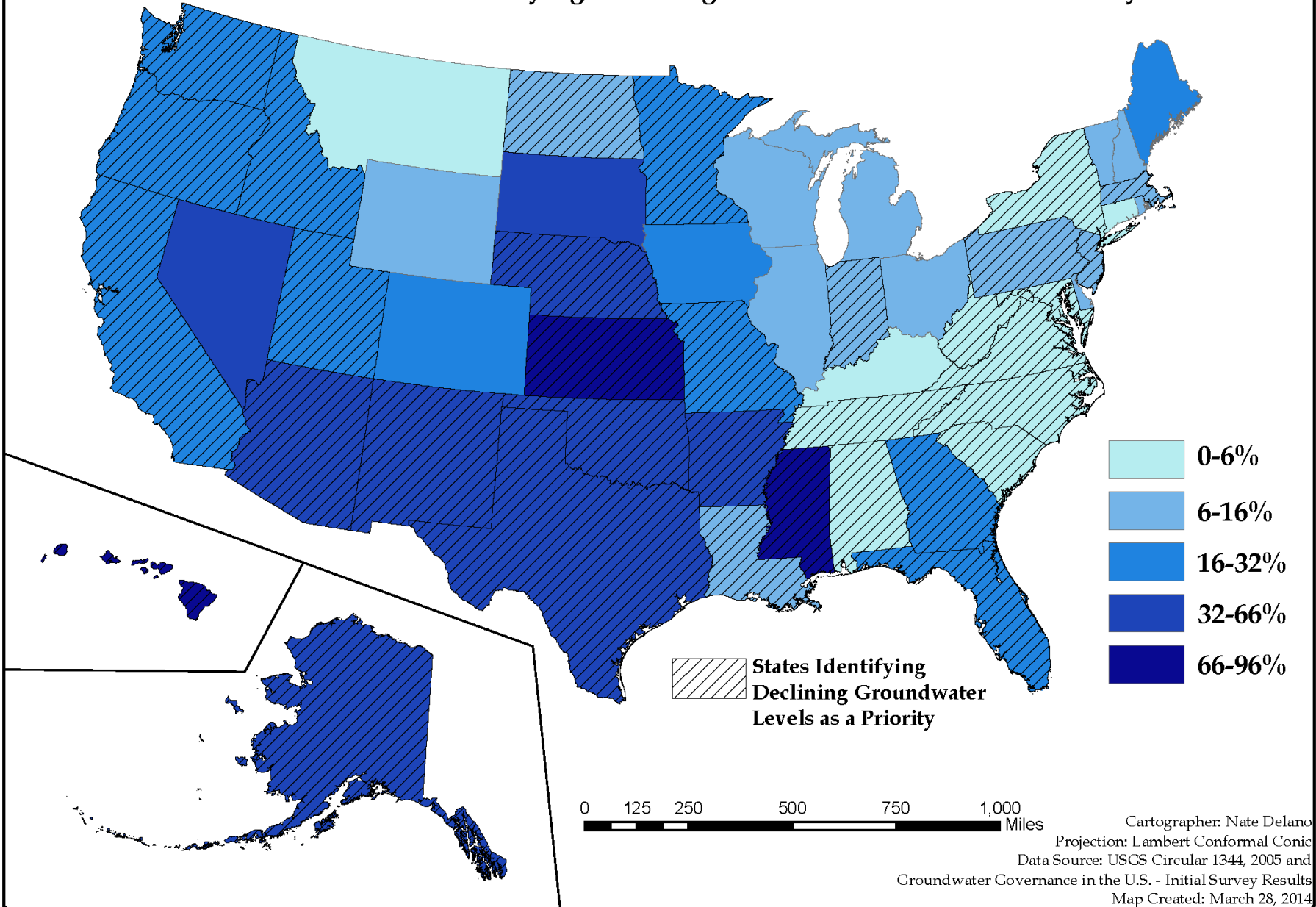


Q9 What are the state's groundwater governance priorities?

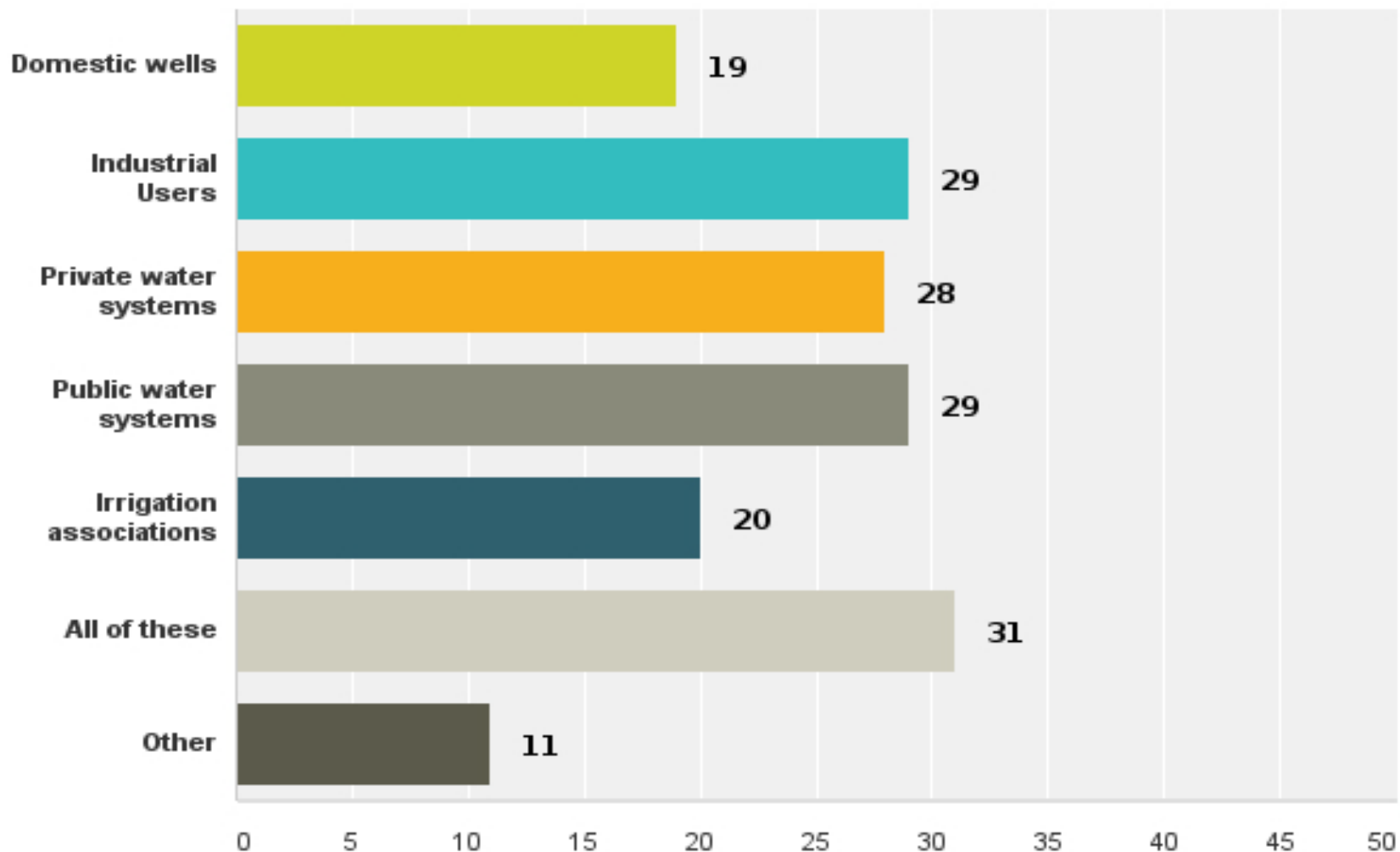


Percentage Groundwater of Total Water Withdrawals

Overlaid with States Identifying Declining Groundwater Levels as a Priority

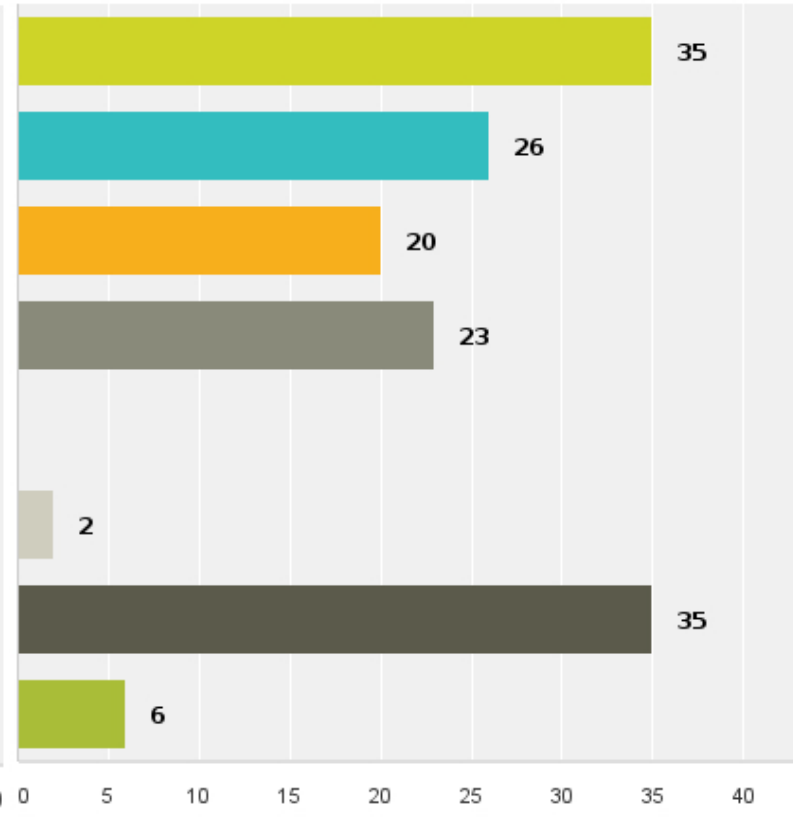
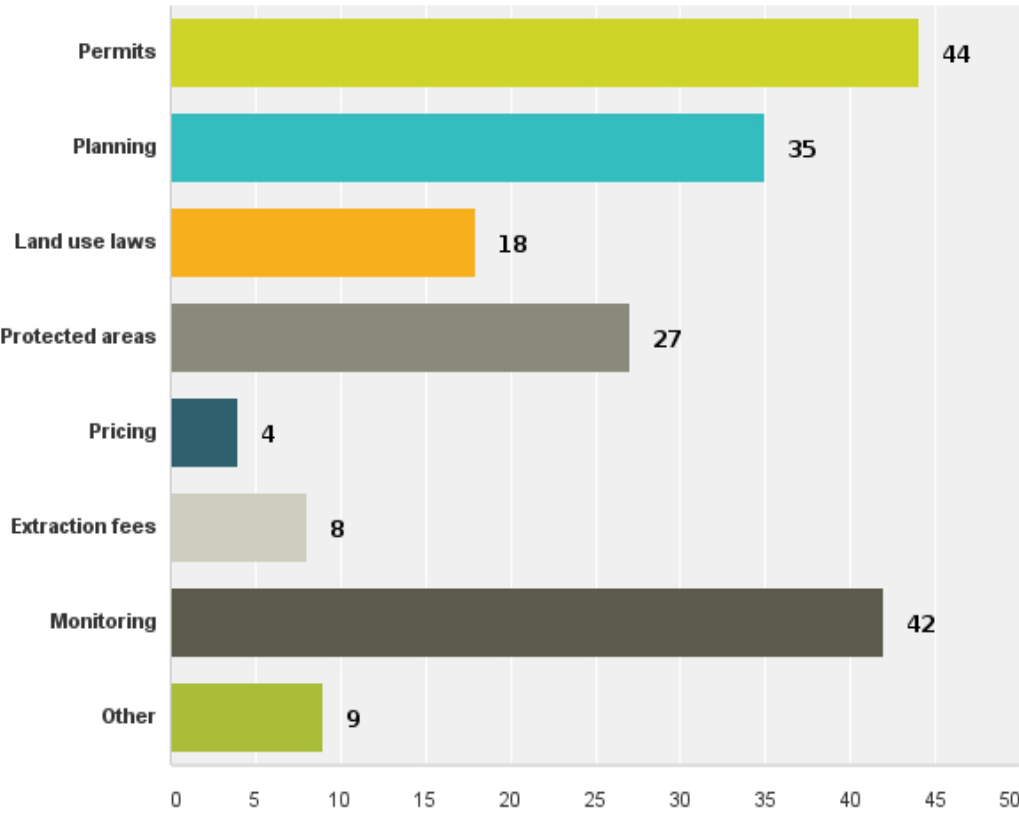


Q18 To which of the following user groups do groundwater regulations apply?



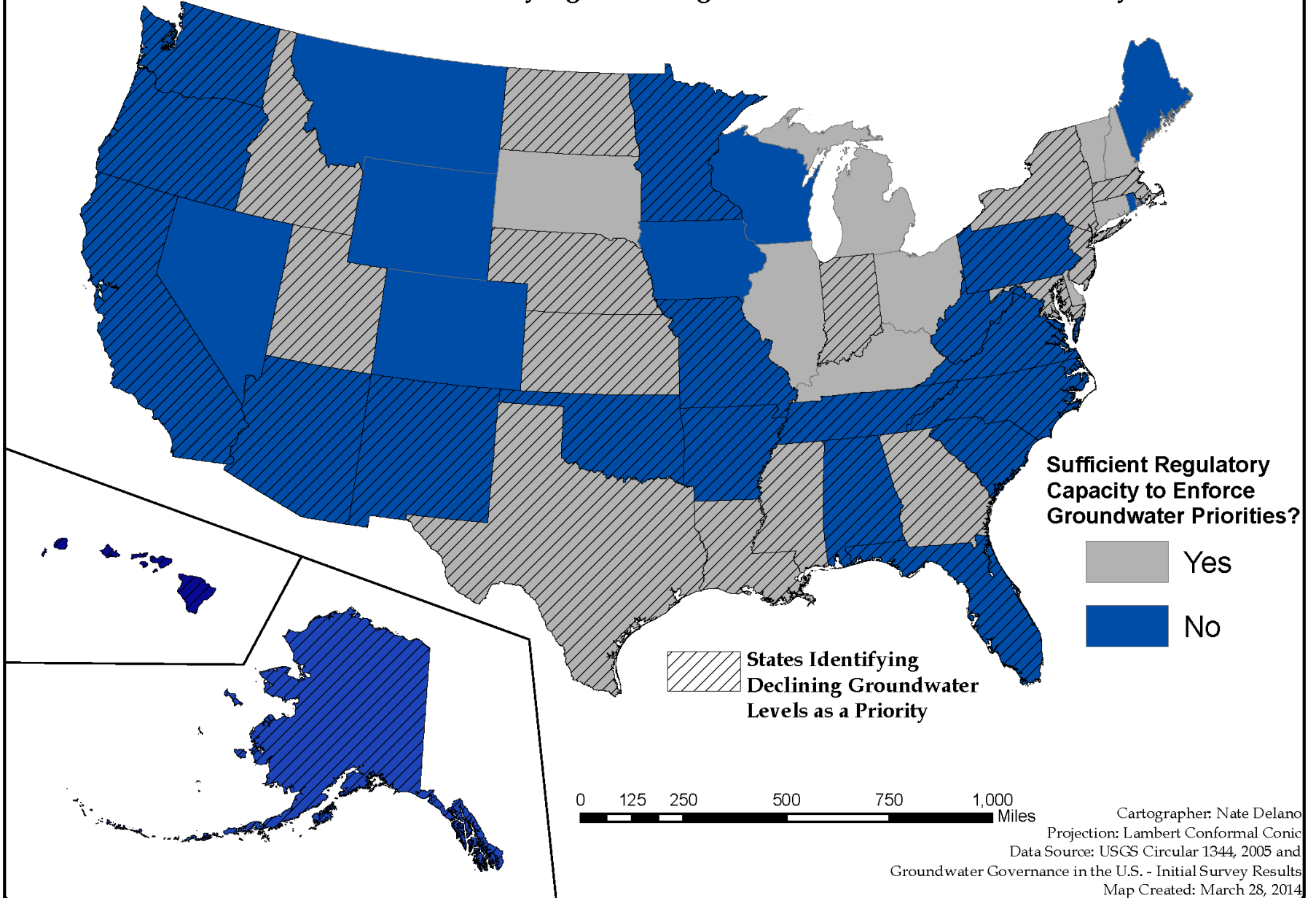
Q21 Which tools does the state use to manage groundwater use/quantity?

Q24 Which tools does the state use to manage groundwater quality?





States Lacking Sufficient Capacity to Enforce Groundwater Priorities

Overlaid with States Identifying Declining Groundwater Levels as a Priority



Research Plans and Conclusions


- Journal article based on Initial Survey and analysis
- Additional Research Underway
 - Small project looking at three case studies
- Proposal pending to undertake a larger survey and more in-depth analysis
 - Involving interaction and consultation with numerous expert groundwater groups, including NGWA



Importance of Groundwater to the US Economy

Venkatesh Uddameri, Ph.D., P.E.
Professor of Civil & Environmental Engineering
Water Resources Center, Texas Tech University, Lubbock

Kevin McCray, Executive Director
National Ground Water Association



The USGS Water Science School

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Water Questions & Answers
How important is groundwater?

Questions?

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wrrc.arizona.edu/groundwater

