

How do States Define “Usable Quality” Groundwater?

GWPC’s 30th Anniversary Annual Forum
***Groundwater Protection: Reflecting Progress &
Responding to the Future***

Ground Water Protection Council
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STATE OIL AND NATURAL GAS REGULATIONS DESIGNED TO PROTECT WATER RESOURCES



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- **Add review of state water agencies' rules**
- **Determine which regulations are designed to protect water**
- **Describe how regulations are used to protect water**
- **Compare water quality standards across agencies**
- **Develop key messages on states' groundwater protection efforts**

Cooperative Project- Ground Water Protection Council and Environmental Defense Fund

How do States Define "Usable Quality" Groundwater?

- Overview of current regulatory programs of 27 states
- Regulations of Oil and Gas state agencies
- Definitions of usable and fresh groundwater by Oil & Gas and Water Quality state agencies
- Groundwater protection policies
- Groundwater classifications and water quality standards

Study Assumptions

- Each state has specific regulatory language designed to address its geographic, geologic, climatic and public policy issues
- Regulations do not comprise the full scope of regulatory programs
- States only enact regulations they intend to implement

Groundwater Regulatory Provisions

State Oil and Gas Agencies

- **Pollution Prevention** – An operator shall conduct all oil and gas operations in a manner so as to prevent the pollution of all freshwater resources
- **Permitting** – All of the states in the study have permitting authority and requirements for oil and gas drilling
- **UIC Class II Program Injection of Produced Water**
 - 21 states in the study have delegated EPA-approved UIC primacy programs and EPA conducts the program in 6 states
 - 2 of the 6 nonprimacy states have state rules coexisting with EPA 's Direct Implementation program
 - Protection standard: Underground Source of Drinking Water
 - Less than 10,000 milligrams per liter total dissolved solids and is not an exempted aquifer

Groundwater Regulatory Provisions

State Oil and Gas Agencies - Continued

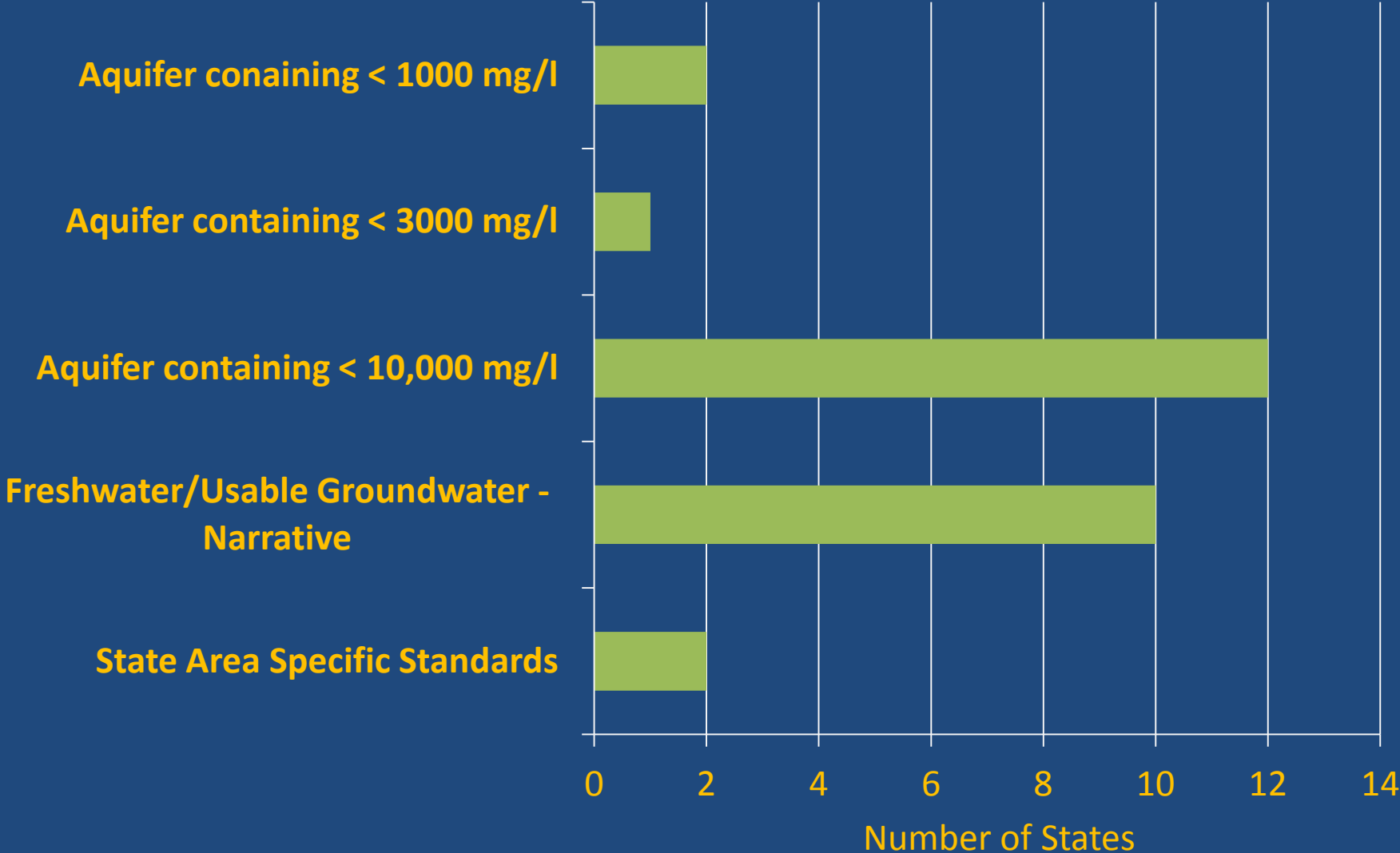
Groundwater Protection Standard

- Base of Usable Quality groundwater (1,000 -3,000 mg/L TDS)
- May include zones of higher TDS if it is currently being used
- May include brackish zones hydrologically connected to zones that contain usable-quality water

Casing and Cementing Depth Requirement

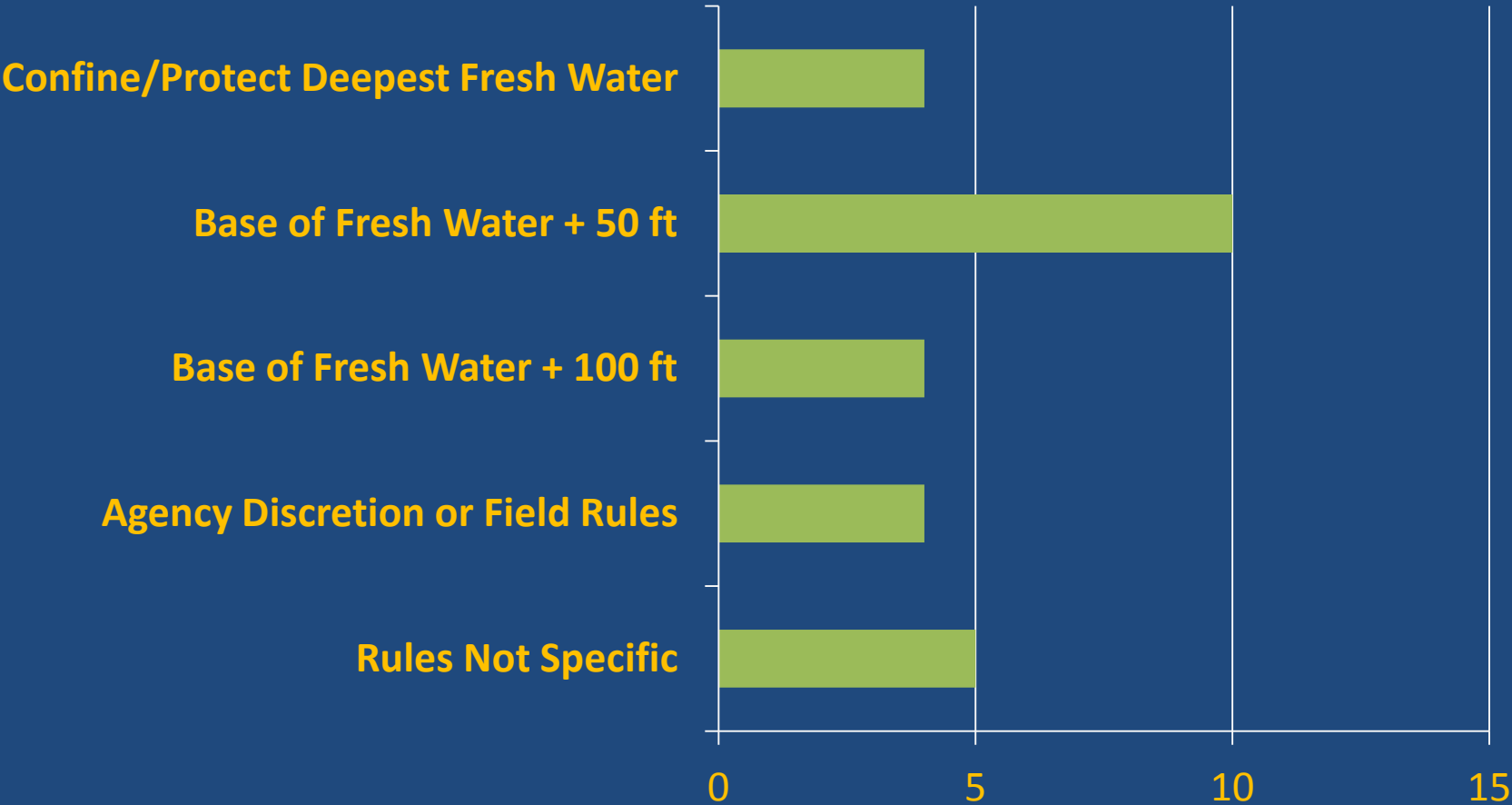
- Agencies often have Field-Specific Rules

Range of Groundwater Protection Standards



Casing/Cementing Depth

Number of States

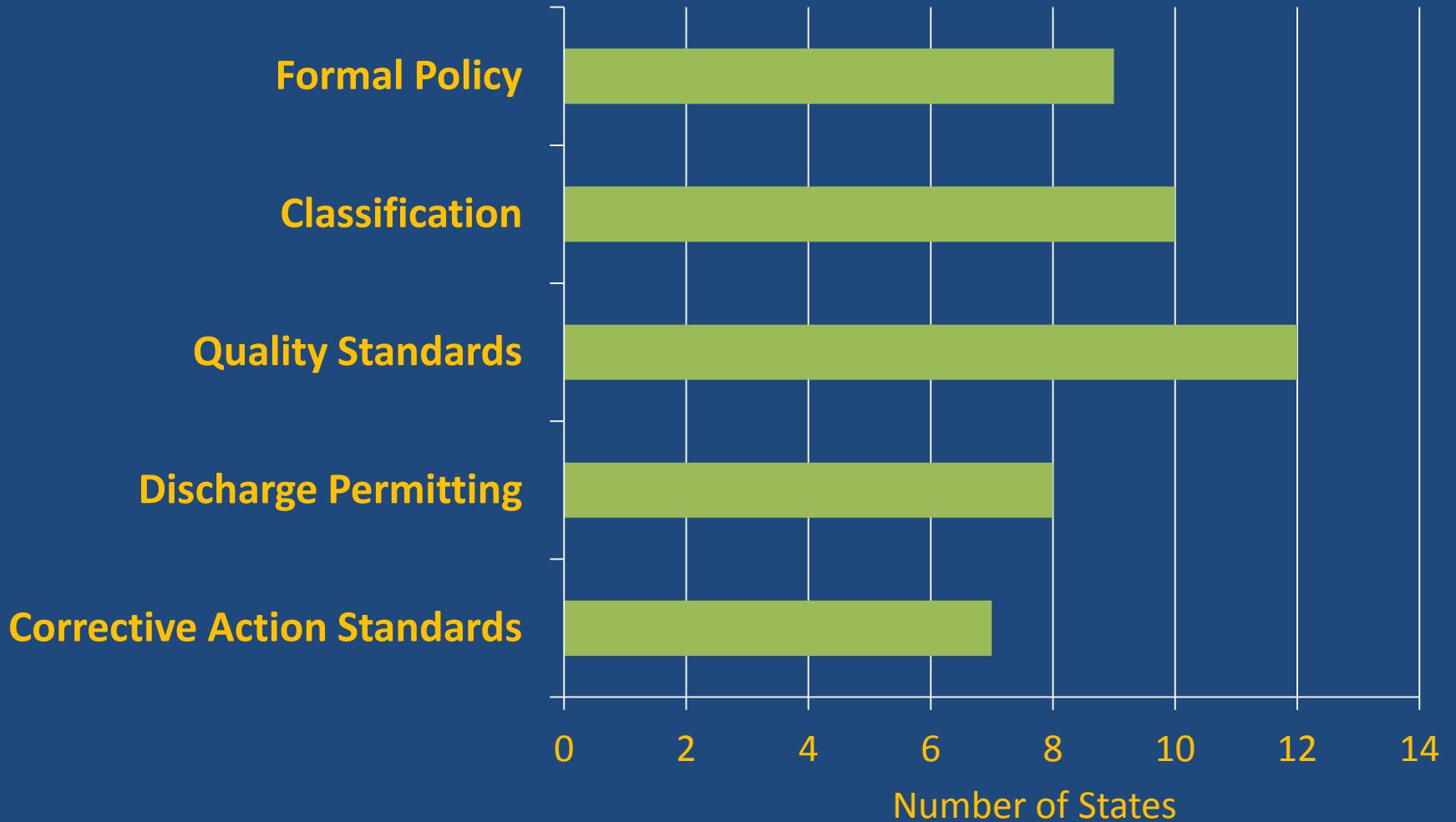


Groundwater Regulatory Provisions

State Water Quality Protection Agencies

- **Groundwater Protection Policy**
- **Identified Groundwater Classifications**
- **Specified (Numeric) Groundwater Quality Standards**
- **Groundwater Discharge Permitting with Pollution Prevention**
- **Programmatic permitting**
- **Corrective Action Standards**
- **Underground Injection Control Program**

Groundwater Protection Regulatory Provisions





Take Away:

Oil and gas producing states have rules and regulatory programs that address groundwater quality protection

States rules vary significantly on water quality standards but are more consistent on casing/cement protection depth requirements

State water quality agencies utilize a variety of regulatory approaches to protect groundwater quality

Less than half of the states in the study employ water quality classification and standards

Next Steps

- More detailed review of states' water quality standards
- Additional review of corrective action standards
- Review quality concerns of state water planning agencies
- Examine brackish water use issues
 - Status of state resource assessments and mapping
 - Brackish water protection
- Produce report summarizing project results and states' concepts of usable groundwater
- Future effort to expand the review to more states



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