


GROUNDWATER
PROTECTION COUNCIL



**PRODUCED
WATER REPORT**

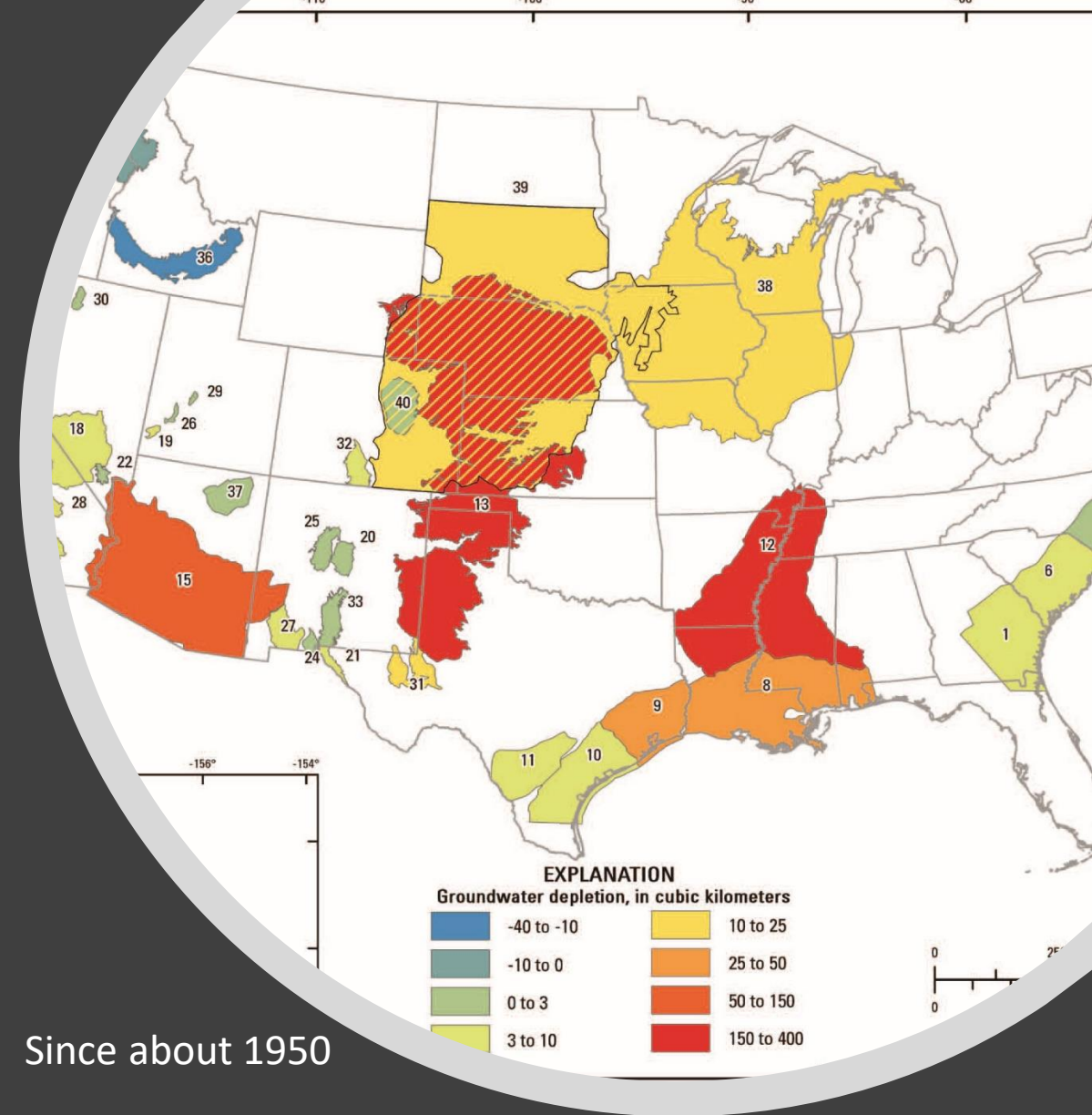


Our Study Partners



What is Driving the Discussion?

- Drought variability over time
- Groundwater depletion (mining)
- Population growth in water stressed areas
- Increasing agricultural and industrial water needs including hydraulic fracturing
- Need to conserve fresh water



Produced Water Working Group: A unique collaboration

- Multi-stakeholder: State oil & gas and water quality regulators, Environmental NGO's, Industry, Academics
- Goals:
 - To identify opportunities and challenges associated with utilizing produced water as a resource
 - To provide information that policy makers, researchers, regulators and others can use to address these opportunities and challenges
- Timeline:
 - Project began mid 2017 (Board resolution)
 - Draft report to GWPC Board of Directors by April 2019



A Modular Approach

MODULE 01

Regulatory & Legal Frameworks

This module describes the current legal and regulatory frameworks that address produced water. It also addresses changes that may need to occur to facilitate the use of produced water.

Leadership:

John Baza, Utah Division of Oil, Gas & Mining
Shellie Chard: Oklahoma DEQ, Water Quality

MODULE 02

Produced Water Use in the Oilfield

This module describes the current uses and potential future uses of produced water inside the oilfield. It defines the existing constraints of use and identifies the opportunities and challenges of expanded use.

Leadership:

Tom Kropatsch: Wyoming Oil & Gas Commission
Scott Kell: Ohio Department of Natural Resources

MODULE 03

Produced Water Use & Research Needs Outside the Oilfield

This module describes current and potential use of produced water outside the oilfield and identifies the research needs that will need to be addressed to facilitate expanded use.

Leadership:

Ken Harris: California Department of Conservation
Nichole Saunders, Environmental Defense Fund

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Leadership:

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Shellie Chard: Oklahoma DEQ, Water Quality

- **State regulations relating to produced water management vary from state to state as does data availability**
- **Module considerations:**
 - Surface discharges under NPDES
 - Subsurface injection under UIC
 - Ownership when going from waste to resource
 - Water rights laws (riparian vs. prior appropriation) application to produced water?

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Module considerations:

- Challenges and opportunities related to water management
 - Storage (pits and tanks), transport (truck and pipeline), water ownership and liability, regulatory hurdles, residuals management
- Current and evolving business models and trends
 - Water management choices / decision trees, trend toward multi-company sharing, emergence of mid-stream water management companies, access to local and mobile treatment options and/or centralized

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Module considerations:

- Research needs to facilitate faster growth of reuse
 - Current, emerging and next gen pre-treatment and treatment technologies for recycling; potential products: lithium, iodine, others that can be pulled out of produced water
- Policy initiatives that have or can facilitate faster growth of reuse
 - Regulatory updates, public data gaps, research needs

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- **The most complicated and forward-looking piece**
- **Some small-scale efforts exist**
- **Moving with caution**
- **Research needs on all fronts – environmental impact**
- **Module considerations:**
 - Drivers for reuse
 - Produced water research
 - How might produced water be reused?
 - Regulatory considerations
 - Fit for purpose research
 - Advanced treatment technologies
 - Literature review
 - Case studies
 - Decision making framework for evaluating options



Questions

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