Texas Desalination Association Legislative Update

Justin Sutherland, Ph.D., P.E.



TexasDesal's Mission Statement

...to encourage better use of Texas' water resources through the development of brackish, marine and other saline waters.



Texas Administrative Code 36.0015.(b)...

Groundwater conservation **districts created** as provided by this chapter are the State's preferred method of groundwater management <u>in order to protect property rights</u>, balance the conservation and **development** of groundwater <u>to meet the needs of this state</u>, and use best available science in the conservation and development of groundwater through rules developed, adopted, and promulgated by a district in accordance with the provisions of this chapter. (Emphasis added)



3 Texas Universities Have Evaluated Our Groundwater System



Bureau of Economic Geology, UT-Austin (2011)

RICE UNIVERSITY'S BAKER INSTITUTE ISSUE BRIEF 04.11.16

Brackish Groundwater: Current Status and Potential **Benefits for Water Management**

Regina M. Buono, J.D., M.Sc., Baker Botts Fellow in Energy and Environmental Regulatory Affairs, Center for Energy Studies Katherine R. Zodrow, Ph.D., Postcoctoral Research Associate, Center for Energy Studies. Pedro J.J. Álvarez, Ph.D., Baker Institute Rice Faculty Schola Qilin Li, Ph.D., Associate Professor of Civil and Environmental Engineering, Rice University

regions of the United States have brackish

groundwater within 1.000 feet of the land

surface.² In general, brackish groundwater

is (1) fresh groundwater that acquired salts

as it migrated through acuter matrices.

saline groundwater that was diluted in

pumping fresh coastal aquifers or open

strata): (3) shallow, often unconfined

well poreholes that allow mixing betwee

aduifers that have increased so inity as a

result of agricultural/industry practices

is normally accomplished with reverse

osmosis, whereby water is forced under

Baker Institute, Rice Univ.

freshwater proifers inften a result of over

(e.g., halite or gypsum); (2) intruded

Many press of the world face the task of providing water for rap dly growing populations in environments where new water supplies are not readily available. Some stakeholders have proposed using unconventional water resources including brackish groundwater, in order to meet these emerging demands (Hightower et al 2005). This issue or ef describes the curren state of prackish groundwater use and development in the United States. Because water is regulated primarily at the state level. we consider four examples of states with specific regulations for brackish ground water esources-Texas, Florida, Arizona, and New Mexico-and discuss management objectives and policy recommendations that will encourage the responsible utilization. of this resource. Development of brackish groundwater, it carried our responsibly, can gment supplies and relieve growing stress on freshwater resources. Brackish groundwater has a high concentration of total dissolved solids (TOS)'-including the common salt, socium

chloride. It is often defined as water containing between 1.000 and 10.000 parts per million (pom) TDS, (For reference, seawater contains -35,000 com 105. and the secondary standard for drinking water in the United States is 500 ppm IDS.) The cost of extracting groundwater is proportional to its depth, and many

(2016)

or road salt use; or (4) water in isolated often deep connate or "fossil aquifers" that are no longer recharged by surface water U.S. Geological Survey 2014a). Due to differences in brackish groundwater source recharge rates, and connectivity with fresh aquifers, policy development requires a detailed understanding of hydrogeology, and regulation of brackish aquifers may vary depending on the acuifer type. In act, different states have chosen different definitions for brackish or impaired aquifers resulting in a variety of approaches to regulating the resource, as discussed below Because brack shigroundwater contains a high level of salts, it requires advanced treatment prior to most common uses. Treatment of brackish groundwater

Development of if carried out responsibly, can augment supplies resources

and relieve growing





A Bush School Capstone Report to Hon, Glenn Hegar, Texas State Comptroller of Public Accounts

Bush School, Texas A&M (2016)



"Development of brackish groundwater, if carried out responsibly, can augment supplies and relieve growing stress on freshwater resources."

-Baker Institute Issue Brief





"It takes no great level of scientific understanding of hydrology to see that using organizations with political boundaries to ensure the longevity of a regional natural resource will result in inefficiencies."

-Bush School Final Report



"It is important that stakeholders and others are aware of uncertainties in GAM data and calibration and do not try to use the GAMs beyond the level at which the data can support them."

-BEG Final Report

"Acquiring better knowledge and understanding of hydrogeological resources will allow policymakers to make better decisions about how to manage brackish groundwater resources and protect aquifers, both brackish and fresh."

-Bush School Final Report

Current Practices Discourage Brackish Groundwater Development

- Use-based "management" that controls projects
- Encourages litigation to resolve conflicts among users and management
- Inefficient patchwork management of aquifer discourages brackish groundwater development
- Uncertain permitting timeline
- Often infringes on owners' right to access fair share of brackish groundwater



TexasDesal Offer the Following Principles Be Incorporated into Consensus Legislation

- Restore private property rights to sustainably access brackish groundwater resources
- Provide landowners their fair share of brackish groundwater
- Implement aquifer-based management



Regulatory Modifications are Needed to Encourage Use of Brackish Groundwater

- Legislative definition of "fair share" based on Texas Supreme Court Rulings
- Each aquifer would be a Groundwater Management Area (GMA)
- Brackish groundwater solely managed by aquifer condition
 - Eliminates need for Modeled Available Groundwater
- GMAs to define aquifer-wide and subdivision conditions
 - GCDs to implement levels
- Prohibit permits for brackish groundwater export



Benefits of Aquifer-Based Management on Brackish Groundwater

- Lower risk of impacting surface water, livestock wells, and other shallow wells than equivalent freshwater projects
- Enable prudent development of brackish groundwater
- Increase certainty of implementing a brackish groundwater project
- Recognize property owners' fair share of brackish groundwater



Change is Scary!



ilename.ppt/12