Hill Country Trinity Aquifer
Brackish Groundwater Study
Stakeholder Meeting

Mark C. Robinson, P.G.
Innovative Water Technologies
GMA 13 Planning Meeting
May 3, 2019

Unless specifically noted, this presentation does not necessarily reflect official Board positions or decisions.
Presentation Outline

Introduction to mapping brackish groundwater in the Hill Country Trinity Aquifer

- What is brackish groundwater?
- Aquifer geology
- Brackish groundwater zone designation
- Next steps
- Questions, comments, stakeholders input
### Brackish Groundwater

*Saltier than fresh water, less salty than seawater*

<table>
<thead>
<tr>
<th>Groundwater Salinity Classification</th>
<th>Salinity Zone Code</th>
<th>Total Dissolved Solids Concentration in milligrams per liter (mg/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fresh</td>
<td>FR</td>
<td>0 to 1,000</td>
</tr>
<tr>
<td>Slightly Saline</td>
<td>SS</td>
<td>1,000 to 3,000</td>
</tr>
<tr>
<td>Moderately Saline</td>
<td>MS</td>
<td>3,000 to 10,000</td>
</tr>
<tr>
<td>Very Saline</td>
<td>VS</td>
<td>10,000 to 35,000</td>
</tr>
<tr>
<td>Brine</td>
<td>BR</td>
<td>Greater than 35,000</td>
</tr>
</tbody>
</table>


- **Drinking Water Limit**
- **Major/Minor Texas Aquifers Mapped Limit**
- **Seawater**
Geology

- Follow stratigraphic nomenclature used in previous studies: (for example)

*Hydrogeologic Atlas of the Hill Country Trinity Aquifer*  
Blanco, Hays, and Travis Counties, Central Texas

Editors  
Douglas A. Wierman, P.G., Alex S. Broun, P.G., and Brian B. Hunt, P.G. July 2010

- Extend stratigraphy into downdip Trinity Group.
  - Upper Glen Rose
  - Lower Glen Rose
  - Hensel
  - Cow Creek
  - Hammett
  - Sligo
  - Hosston
Brackish Groundwater Production Zones (BGPZ)
84th Texas Legislature, House Bill 30, 2015

Directed TWDB to:

✓ Identify brackish groundwater production zones
✓ Estimate productivity over 30 & 50 year periods
✓ Recommend groundwater monitoring
✓ Work with stakeholders and groundwater conservation districts

✓ Complete four aquifers December 2016
✓ Complete all aquifers December 2022*

## Criteria for Zone Designation

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Must have brackish water</td>
<td>In areas of the state with moderate to high availability and productivity</td>
</tr>
<tr>
<td>Must have hydrogeologic barriers</td>
<td>Sufficient to prevent significant impacts to fresh water availability or quality</td>
</tr>
<tr>
<td>Cannot be within these boundaries</td>
<td>Edwards Aquifer within the Edwards Aquifer Authority, Barton Springs-Edwards Aquifer Conservation District, Harris-Galveston Subsidence District, or Fort Bend Subsidence District</td>
</tr>
<tr>
<td>Cannot be already in use</td>
<td>Brackish water already serving as a significant source of water supply for municipal, domestic, or agricultural</td>
</tr>
<tr>
<td>Cannot be used for wastewater injection</td>
<td>Permitted under Title 2 of Texas Water Code, Chapter 27</td>
</tr>
</tbody>
</table>
Next Steps for Study:

• Additional stakeholder meetings to introduce study.
• Map stratigraphy, lithology, measured water quality, calculated water quality, aquifer properties, and existing use.
• Calculate the volume of fresh, slightly saline, moderately saline, and very saline groundwater.
• Proposed production area (PPA) analysis and stakeholder meeting.
• PPA impact analysis (modeling).
• Final report(s) and stakeholder comment solicitation.
• Board possibly designates brackish groundwater production zones.
Seeking Stakeholder Input

• Additional Trinity Well Data
  – Aquifer Tests
  – Water chemistry
  – Geophysical well logs
• Injection well data
• Current use
Contact Information

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Study Webpage:
