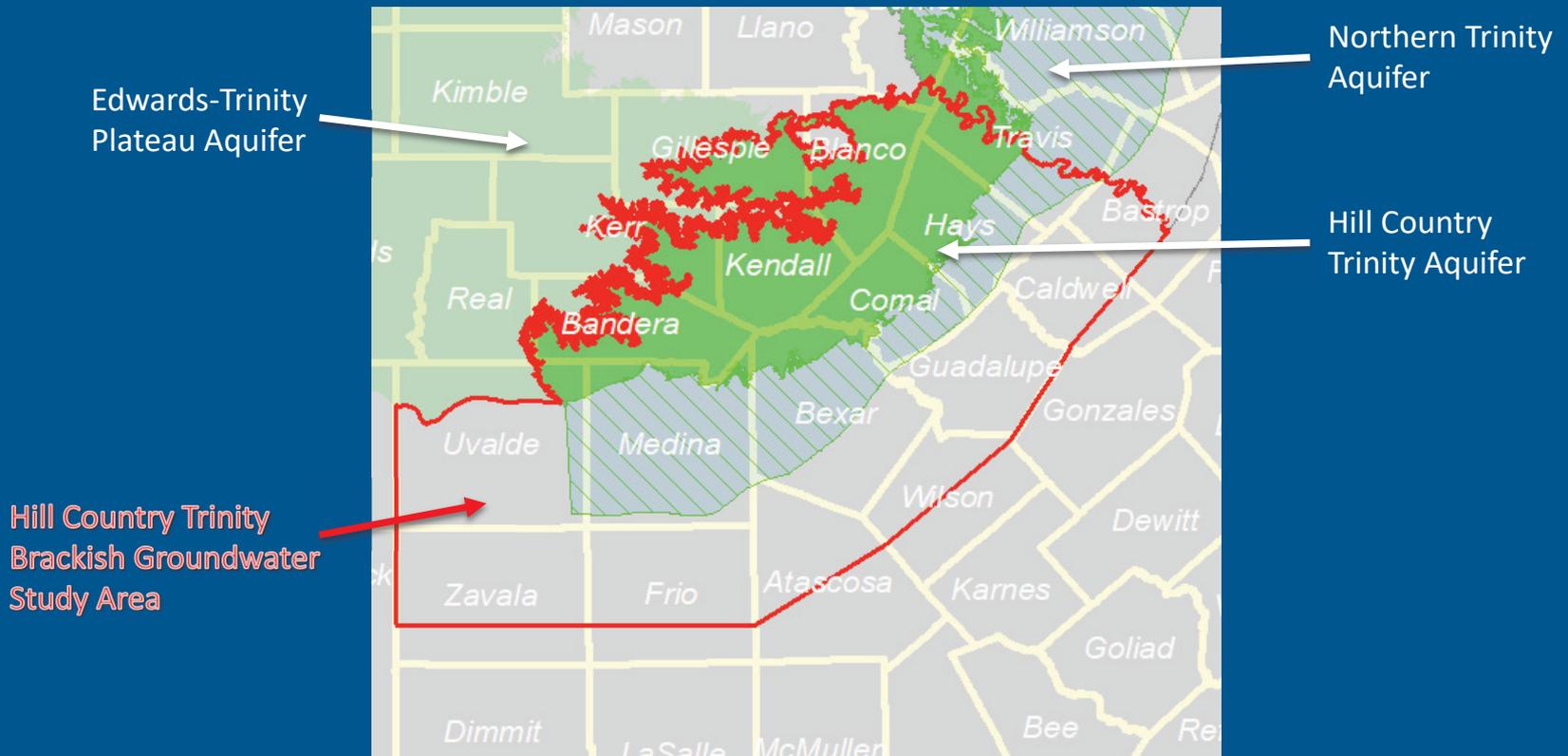


Hill Country Trinity Aquifer Brackish Groundwater Study Project Status

Mark C. Robinson, P.G.
Innovative Water Technologies
GMA 10 Meeting
December 2, 2019

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

Hill Country Trinity Study Outline



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

3

Brackish Groundwater

Saltier than fresh water, less salty than seawater

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

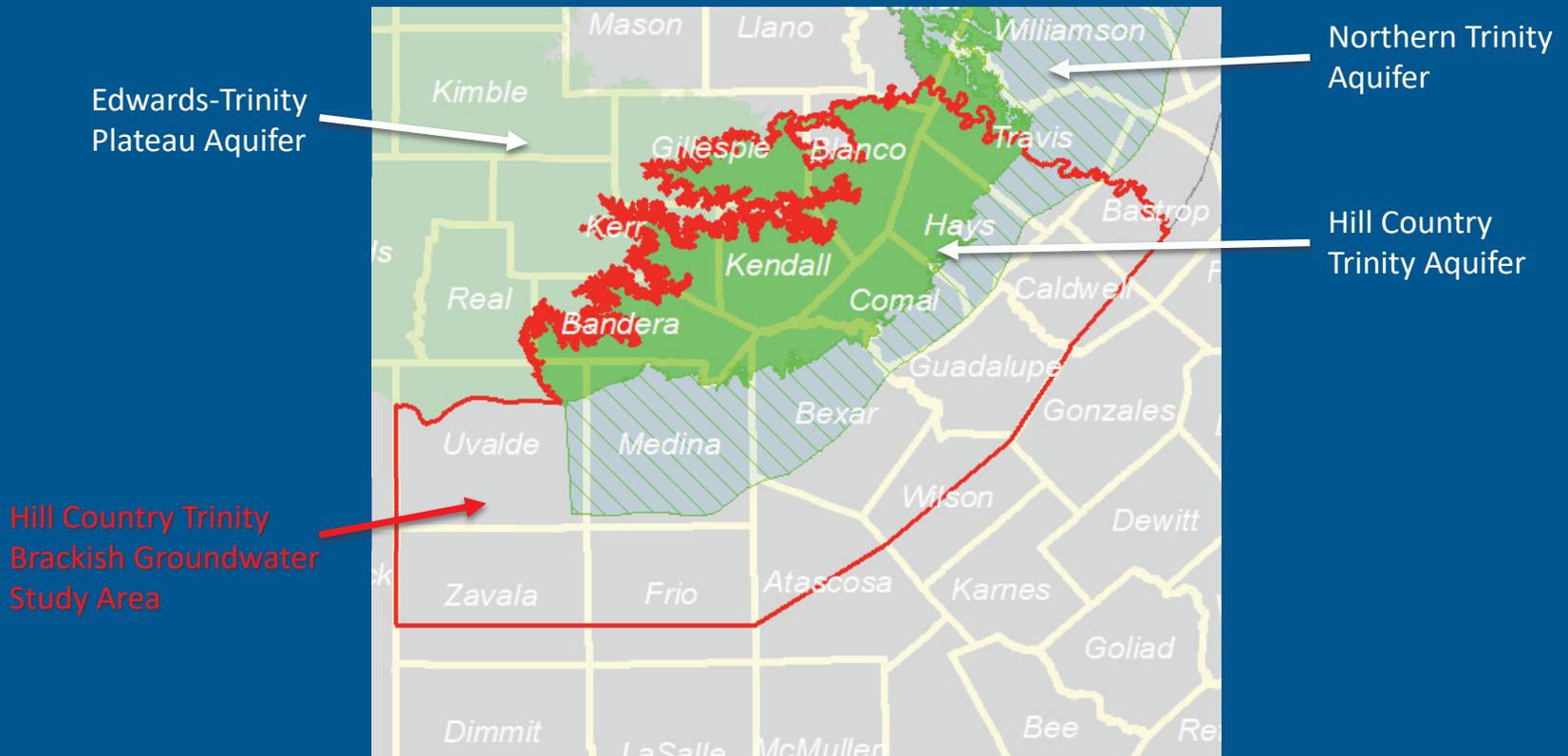
Drinking Water Limit

Major/Minor Texas Aquifers Mapped Limit*

Seawater

Classification modified from Winslow, A.G., and Kister, L.R., 1956, Saline-water resources of Texas: U.S. Geological Survey, Water-Supply Paper 1365, 105 p.

Hill Country Trinity Study Outline



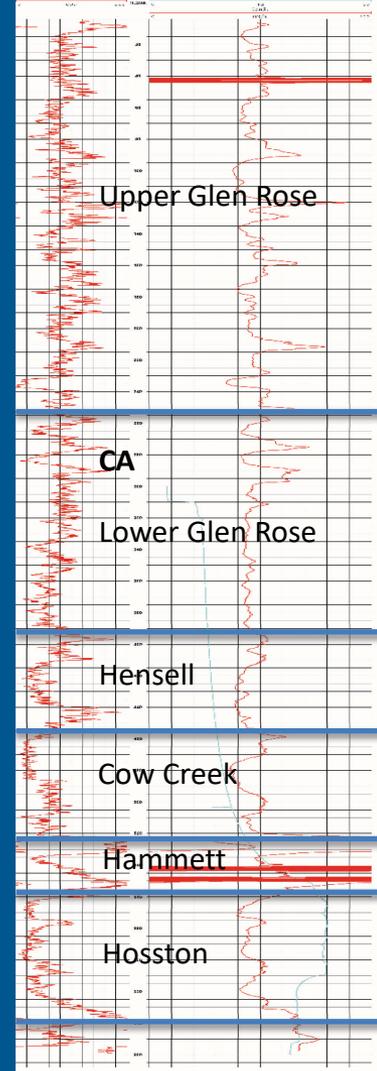
Geology

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

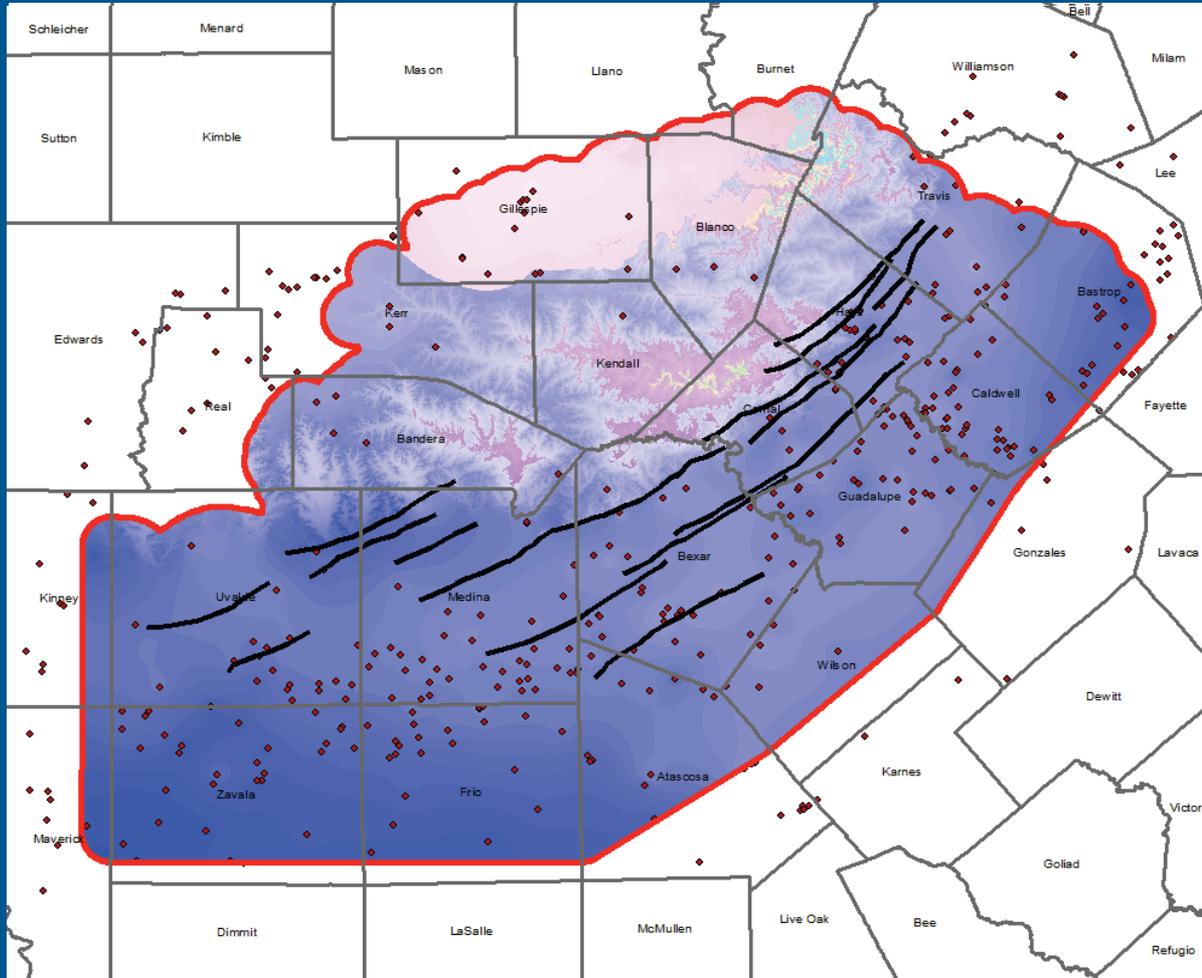
Hydrogeologic Atlas of the Hill Country Trinity Aquifer Blanco, Hays, and Travis Counties, Central Texas

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

- Coordination meeting was held at HTGCD office with key stakeholders and with the USGS.
- Extend stratigraphy into downdip Trinity Group.
 - Upper Glen Rose
 - Lower Glen Rose
 - Hensell
 - Cow Creek
 - Hammett
 - Hosston

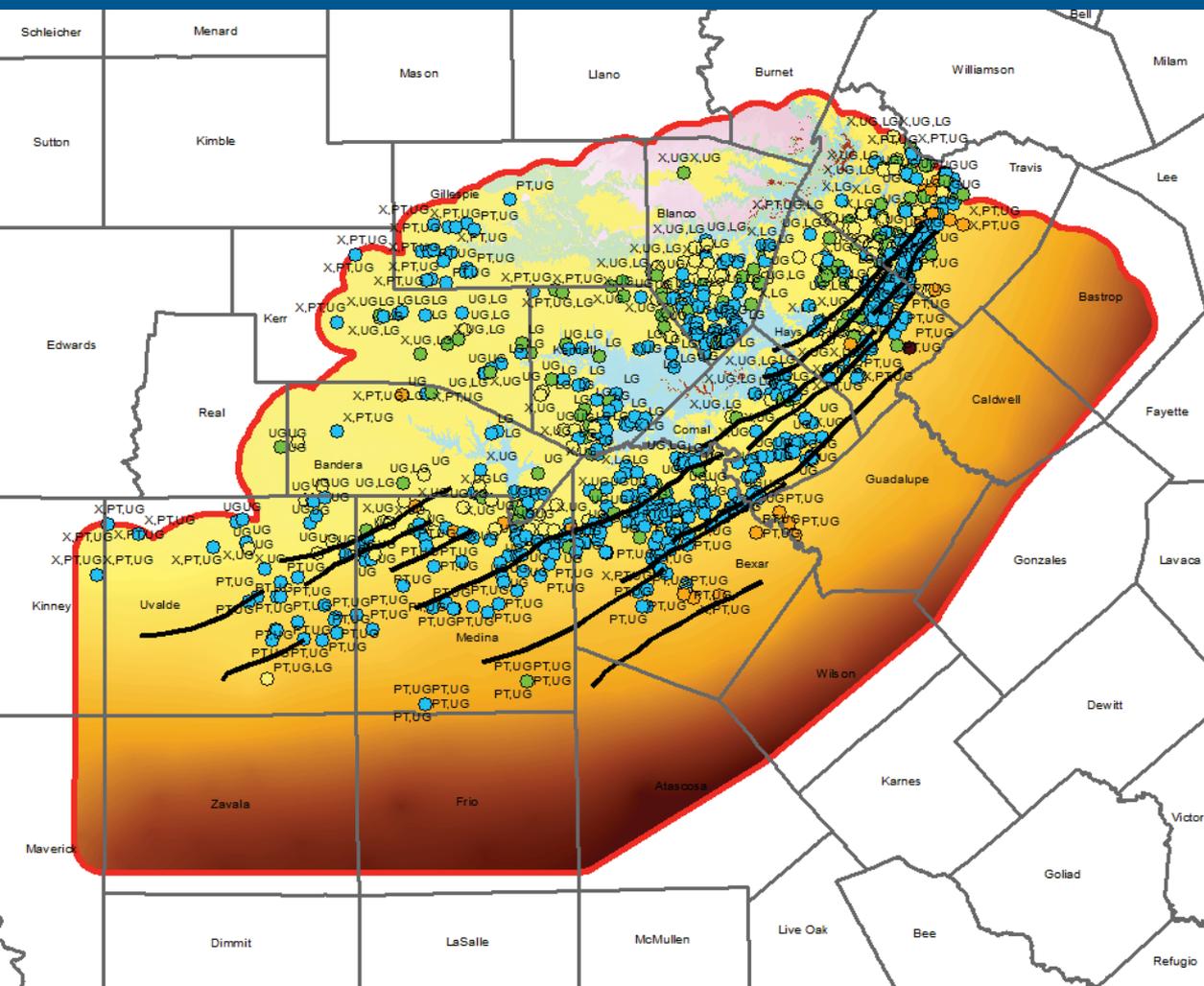


Stratigraphic Surfaces (current version)



- Upper Glen Rose
- Lower Glen Rose
- Hensell
- Cow Creek
- Hammett
- Sligo
- Hosston
- Paleozoic – Pre Trinity

Measured Water Quality



Glen Rose:

- Many of the wells shown are Edwards
- Many are multiple zones

How to Subdivide Trinity

- 1) Upper/Middle/Lower
- 2) UGR/LGR/HEN/CCK/SLG/HSN
- 3) Something else?

Next Steps for Study:

- Lithology, calculated water quality, aquifer properties, and existing use.
- Injection and disposal well analysis. (Class 1&2)
- 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.

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*

<http://www.twdb.texas.gov/innovativewater/bracs/HB30.asp>

Criteria for Zone Designation

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

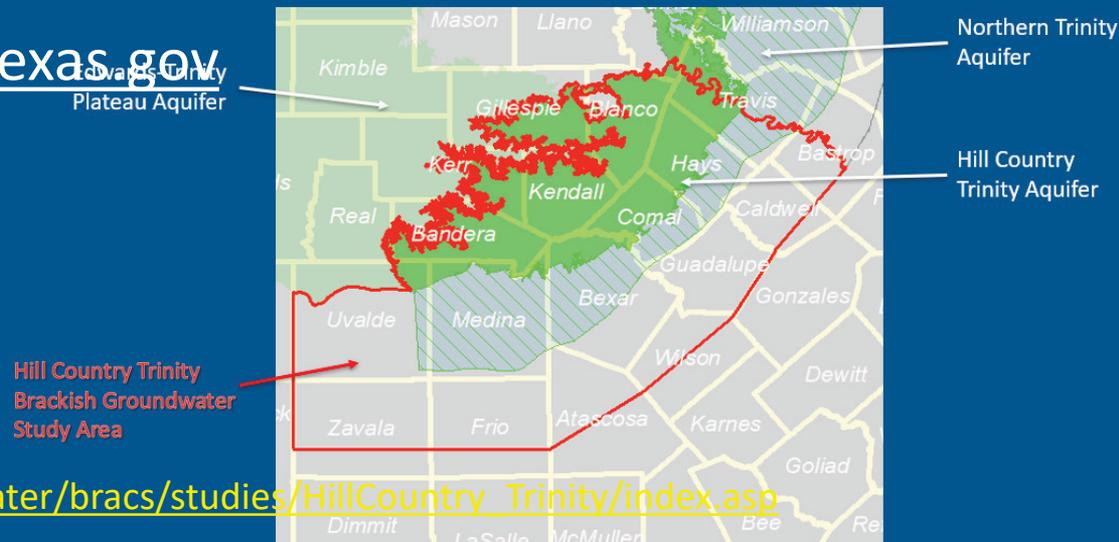
Seeking Stakeholder Input

- Additional Trinity Well Data
 - Aquifer Tests
 - Water chemistry
 - Geophysical well logs
- Injection well data
- Current use

Contact Information

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Hill Country Trinity Study Outline



- Study Webpage:
 - www.twdb.texas.gov/innovativewater/bracs/studies/HillCountry_Trinity/index.asp