

Hill Country Trinity & Edwards- Trinity Plateau Aquifers Brackish Groundwater Studies Stakeholder Meeting

Mark C. Robinson & Andrea Croskrey
Innovative Water Technologies

RWPG J Meeting

May 15, 2019

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



Presentation Outline

Introduction to mapping brackish groundwater

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

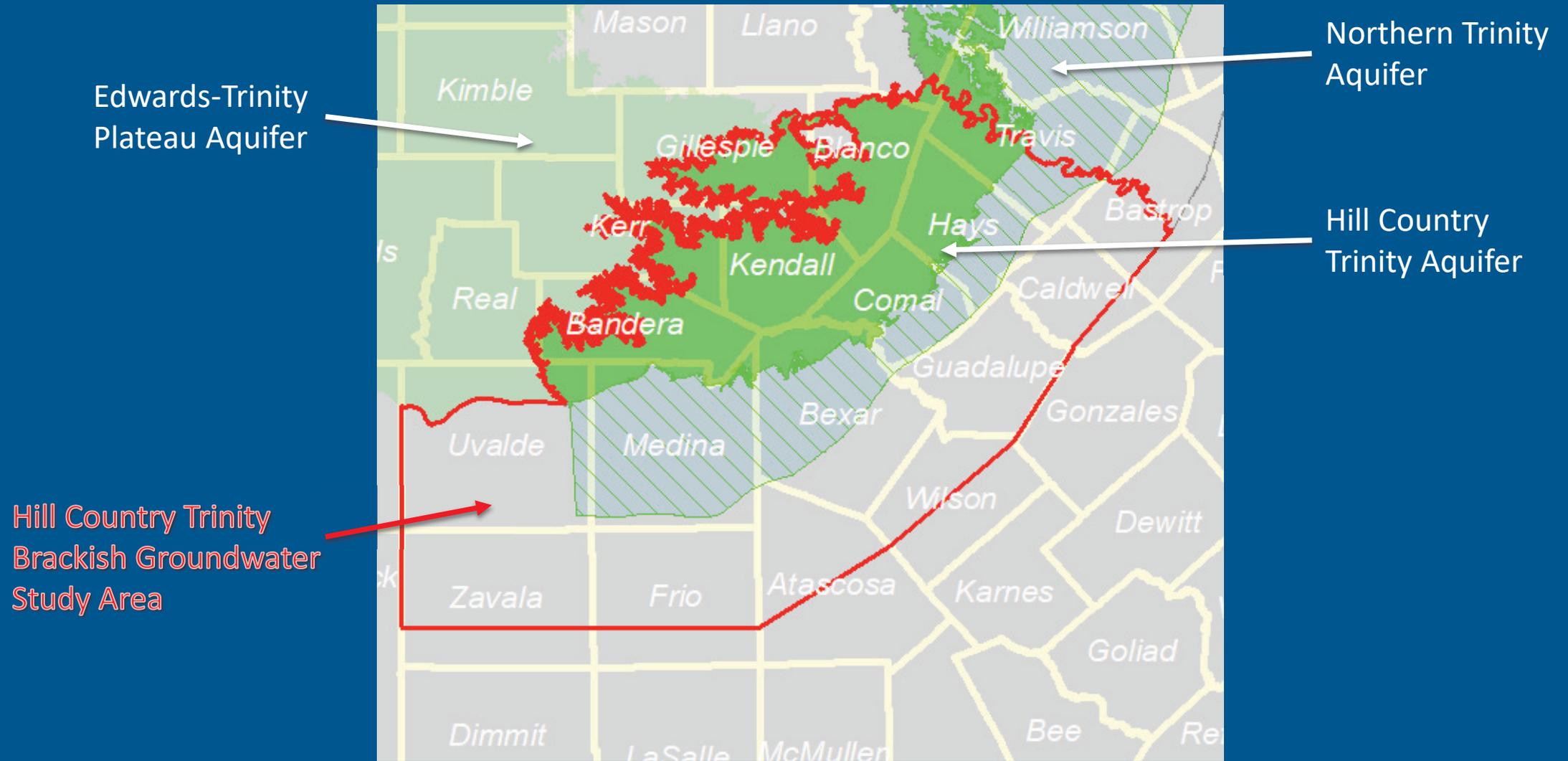
Brackish Groundwater

Saltier than fresh water, less salty than seawater

Groundwater Salinity Classification	Salinity Zone Code	Total Dissolved Solids Concentration in milligrams per liter (mg/L)	
Fresh	FR	0 to 1,000	← Drinking Water Limit
Slightly Saline	SS	1,000 to 3,000	← Major/Minor Texas Aquifers Mapped Limit*
Moderately Saline	MS	3,000 to 10,000	
Very Saline	VS	10,000 to 35,000	
Brine	BR	Greater than 35,000	← 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



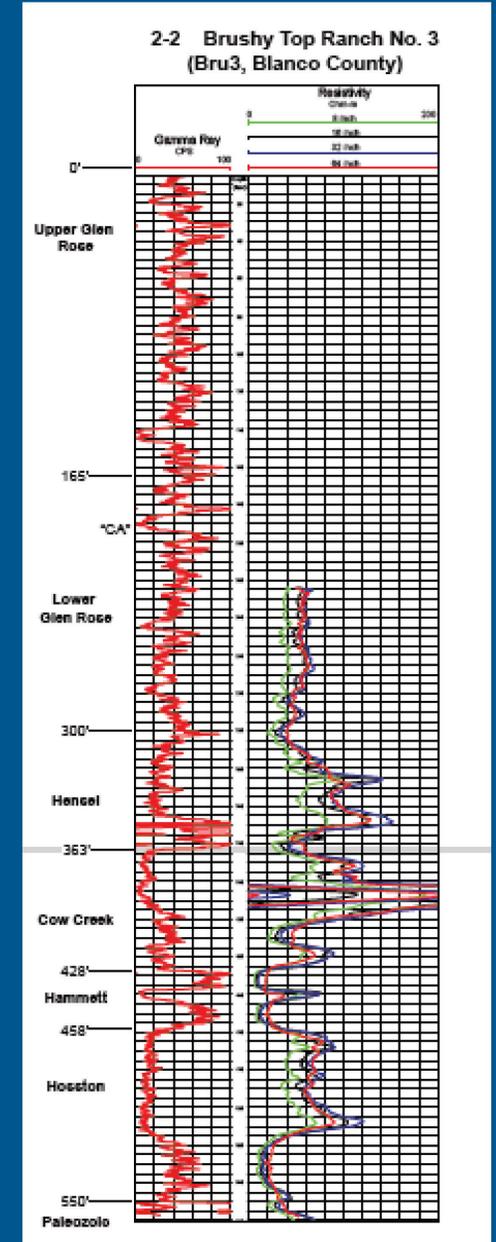
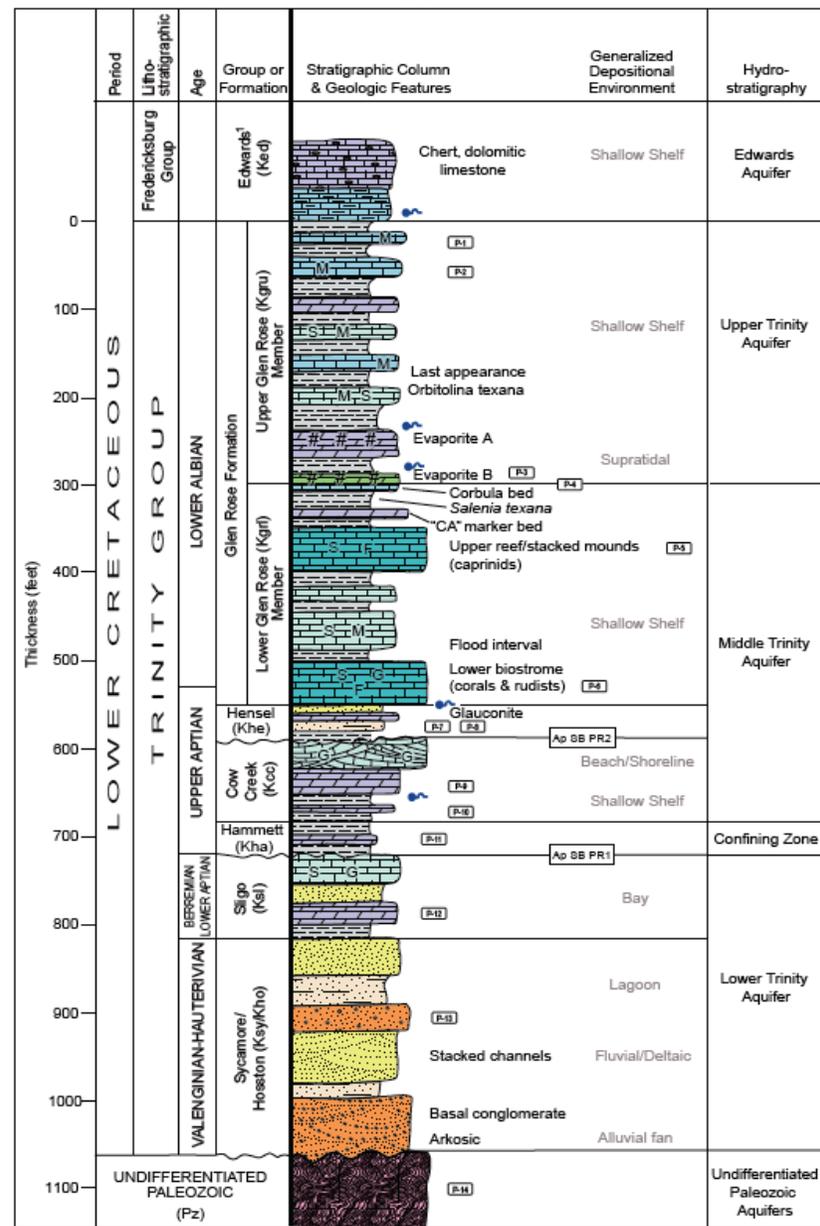
Geology

- 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

- Extend stratigraphy into downdip Trinity Group.
 - Upper Glen Rose
 - Lower Glen Rose
 - Hensel
 - Cow Creek
 - Hammett
 - Sligo
 - Hosston



Regional Stratigraphic Nomenclature

Anaya, R., and Jones, I.C., 2009, Groundwater Availability Model for the Edwards-Trinity (Plateau) and Pecos Valley Aquifers of Texas, Texas Water Development Board Report 373

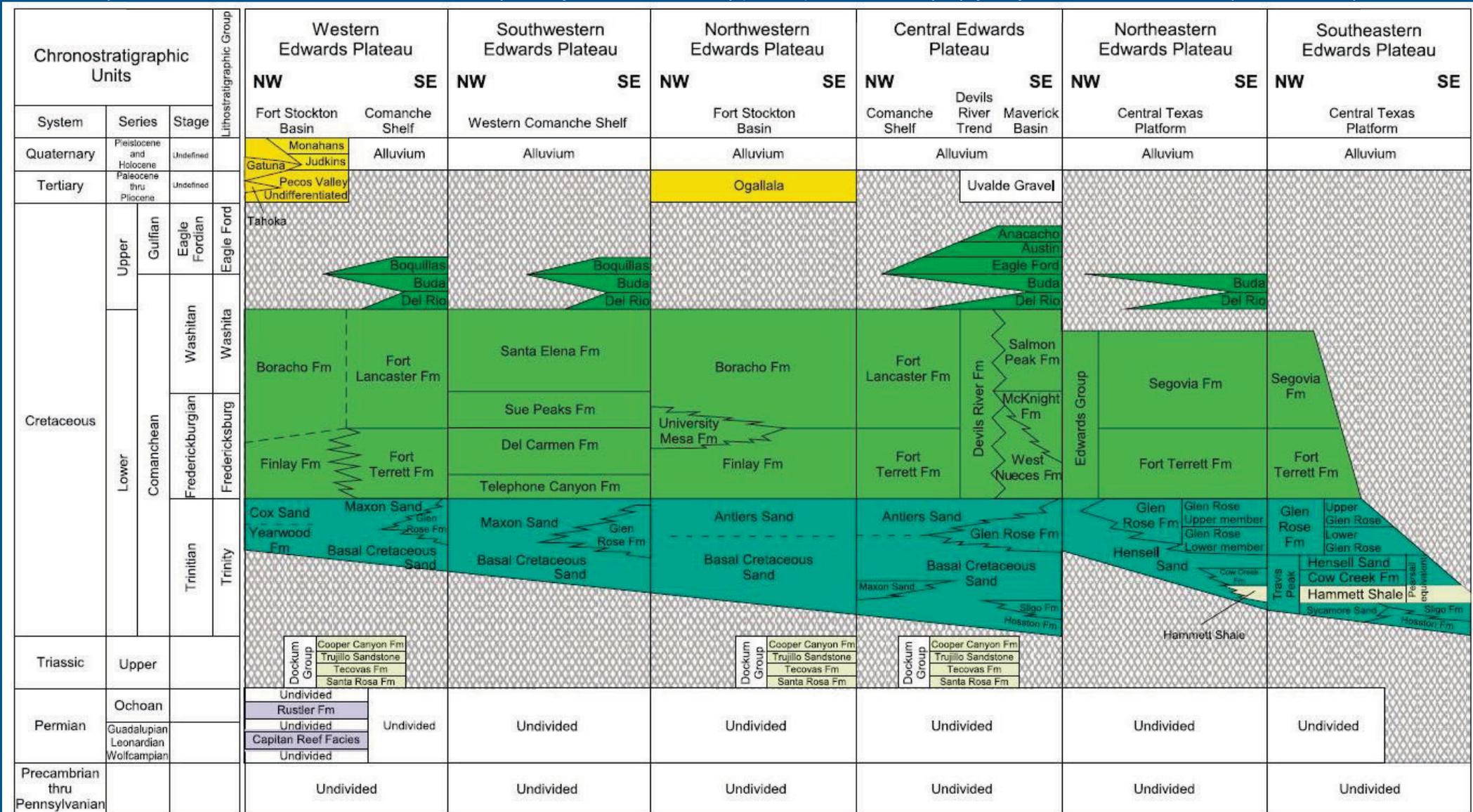


Figure 5-2. Stratigraphic chart of the Edwards-Trinity (Plateau) and Pecos Valley aquifers and the Hill Country part of the Trinity Aquifer (modified from Barker and Ardis, 1996).

Fm= formation



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



Next Steps for Study:

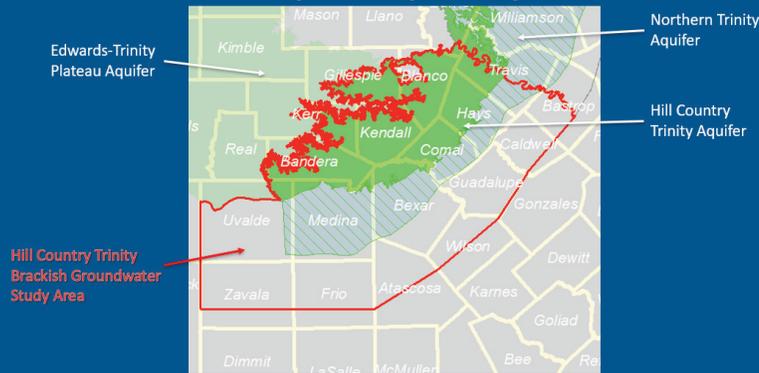
- Additional stakeholder meetings to introduce study.
- Map stratigraphy, lithology, measured water quality, calculated water quality, aquifer properties, and existing use.
- Calculate the volume of fresh, slightly saline, moderately saline, and very saline groundwater.
- Proposed production area (PPA) 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

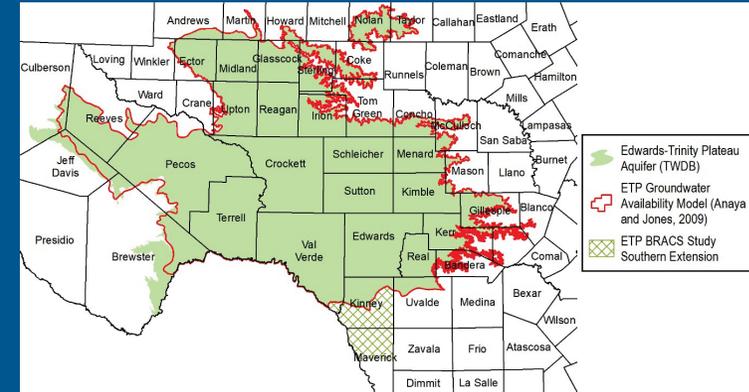
- Additional Trinity Well Data
 - Aquifer Tests
 - Water chemistry
 - Geophysical well logs
- Injection well data
- Current use

Contact Information

Hill Country Trinity Study Outline



Edwards-Trinity Plateau Study



- Mark C. Robinson
- 512-463-7657
- Mark.Robinson@twdb.texas.gov
- Study Webpage:
 - www.twdb.texas.gov/innovativewater/bracs/studies/HillCountry_Trinity/index.asp

- Andrea Croskrey
- 512-462-2865
- andrea.croskrey@twdb.texas.gov
- Study Webpage:
 - http://www.twdb.texas.gov/innovativewater/bracs/studies/Edwards_Trinity/index.asp