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"Profitable Mineral Management"

BREAKFAST SERIES *for*

Surface and Mineral Owners

Admission by Invitation Only

DATE: April 18, 2017

TOPIC: Trends in the Water Market

LOCATION: San Antonio Petroleum Club
8620 N New Braunfels, Suite 700
San Antonio, TX 78217-6363
P 210.824.9014
F 210.829.5443

TIME: 7:30 AM Breakfast - 8:00 AM Presenters - 8:50 AM Questions & Answers

INTRODUCTIONS: E.O. (Trey) Scott, III, Trinity Mineral Management, Ltd.

PRESENTERS: Bruce Gillooly, Texas Water Exchange
Anastasia Valdes, Texas Water Exchange

Trends in the Water Market

- Accurately Placing Value on Water
- Trends in Ground Water Use
- Water Appraisal Requirements
- Future of Water in Texas

UPCOMING: AUG 15 Trey Scott, Trinity Mineral Management, Ltd.

SEP 19 To Be Announced

OCT 17 To Be Announced

Bruce Gillooly
Texas Water Exchange
Chief Operations Officer

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Bruce Gillooly is Chief Operations Officer of the Texas Water Exchange (TWE), Texas' premier water business for turning water rights into financial instruments. Water rights are a \$60 Billion emerging market in Texas of which TWE is the only player serving all of its needs. TWE's proprietary data can place accurate value on water throughout the state of Texas. In addition to managing all personnel, Mr. Gillooly is responsible for the operational scale-up of the company and for internal operations.

Past employment includes a career in the US Army, retiring at the rank of Lieutenant Colonel. His career included overt combat tours and clandestine tours in support of counter-narcotics and counter-terrorism missions in both South America and the Middle East. Upon retirement from the military, Mr. Gillooly served as a Vice President with Security Service Federal Credit Union, a financial institution with over \$8 billion in assets. He retired from banking to fight cancer, which is now in remission.

Mr. Gillooly holds a B.A. in Political Science from Gettysburg College in Pennsylvania. He also earned an M.A. in International Affairs from the University of Connecticut and a Certificate in Grand Strategy from Yale University. He is a graduate of the Command and General Staff College and the Naval Postgraduate School's Counterterrorism Program.

Bruce and his wife, Monica, have been married for 28 years and have two children. His daughter, Mairaed, is a student at Notre Dame and his son, Liam, is a junior at Sogang Catholic University in Seoul, South Korea.

Mr. Gillooly is a member of Legatus in San Antonio, a Catholic business leader's group. He is a founding member of the San Antonio chapter of Young Catholic Professionals. The Gilloolys serve on the Advisory Board of Seeds of Hope Catholic Charitable Trust in Denver, Colorado. They also serve as spiritual advisors for the Alliance for Catholic Education at the University of Notre Dame.

Anastasia Valdes
Texas Water Exchange
Chief Executive Officer

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(210) 284-4158

Anastasia Valdes, CEO of Texas Water Exchange is an executive with broad-based experience in the water industry, geographic analysis, and community planning and development. She has a Master's degree in Urban Planning, Design, and Development with a concentration in Geographic Analysis and has delivered integral leadership and support to numerous projects bolstering efficient and compliant operations relating to water conservation and resource allocation.

More than ever, good companies need proven performers who can lead teams to results in competitive industries and a tough economy. Ms. Valdes leverages a solid background in leading complex and large-scale projects in the water industry to head up the groundbreaking start-up, Texas Water Exchange.

Texas Water Exchange provides the core critical information needed to best analyze your position in the water market. Ms. Valdes has developed the largest database ever relating to water pricing, rights and markets. Ms. Valdes and her team provide you access to financial and risk mitigation products tailored to meet your needs, to identify flash points of competition and future road blocks in a strictly confidential manner.

Water is the soft underbelly of our economy and every industry is affected. Ever keeping an eye on the future Ms. Valdes and her team lead an innovative, one-of-a-kind, business ensuring strategic management and long-term cash flow risk management to water availability. Business entities, individuals, and financial institutions alike utilize Texas Water Exchange to expand their resources with no overhead.

Anastasia Valdes has successfully completed multi-million dollar projects for high level clientele. People experience and express a sense of trust and confidence in her and the information she provides, because her level of knowledge and efforts invested on their behalf are evident and consistent. Ms. Valdes and the experts at Texas Water Exchange demonstrate decades of knowledge and experience and 100% dedication to increasing the wealth of Texas through strategic utilization of the water industry.



TEXAS WATER EXCHANGE

Trinity Mineral Management

April 18, 2017 – *Anastasia Valdes, CEO*

Texas Water Exchange
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GROUNDWATER RIGHTS

- A groundwater right is a valuable piece of real estate
- In some locations the water rights are worth more than the land
- And yet the value of water rights is not priced into real estate
 - Water is the most essential element and the most ignored property right
- Our solution is to provide you an independent source of data



TEXAS WATER EXCHANGE

- **Mission: Provide price transparency**
- **Vision: Be the premiere source of transaction information for the water industry**
- **Objectives:**
 - Monitor and track water market transactions**
 - Communicate water price information**
 - Analyze market behavior**
 - \$ 250 billion water purchases**
 - \$ 3.8 billion annual utility and industry buying**



A VERY SHORT HISTORY OF WATER

Contractual water purchases in Texas

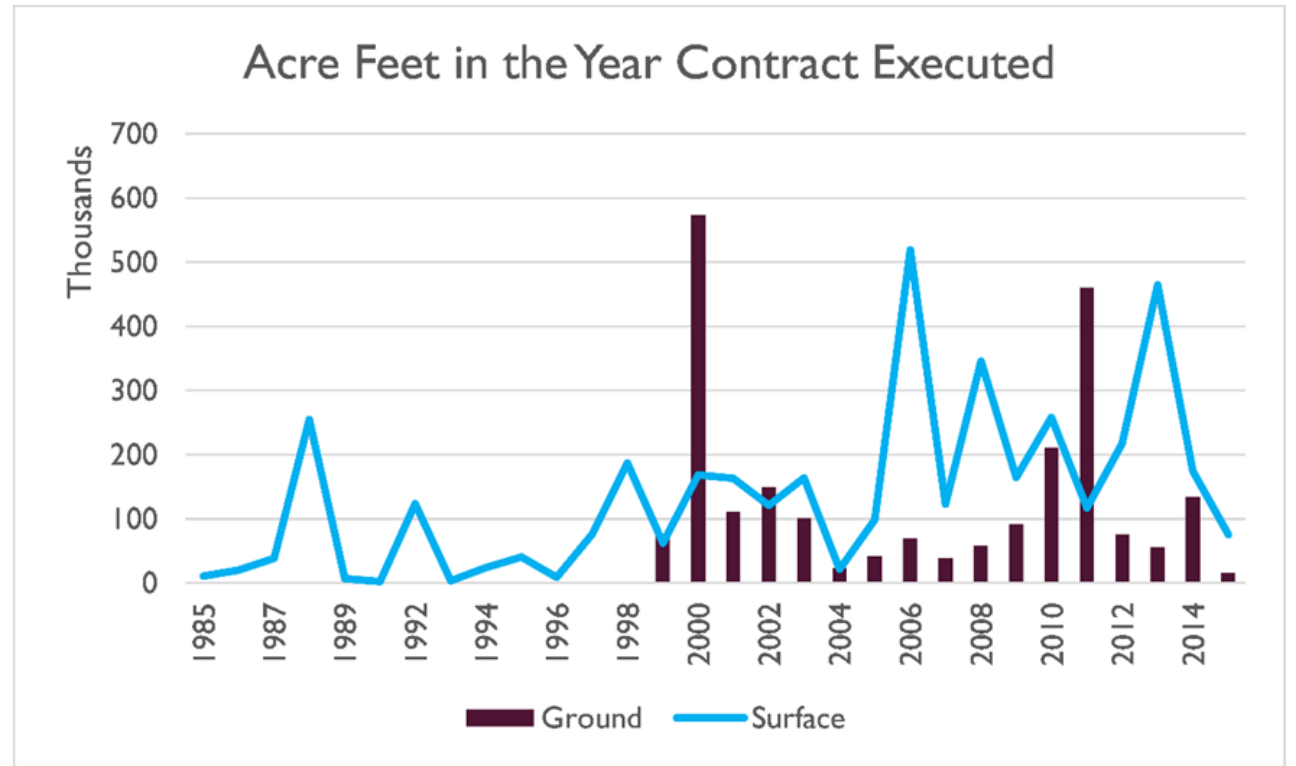
Surface water has been transacted since the 1940s

Surface water rights are personal property

Groundwater transactions uptick starting in 1999

Groundwater rights are real property

NOT historically transacted outside of a land purchase





TEXAS WATER TRANSACTIONS

- **What is purchased or leased:**
 - **Supply**
Buyer secures supply to a point of delivery
 - **Right to pump groundwater**
Unified, Severed and Fractional Estates of Real Property
 - **Right to divert surface water**
Control of water secured via a lease – Personal Property
 - **Storage – Lake/Reservoir and Aquifer Storage and Recovery (ASR)**



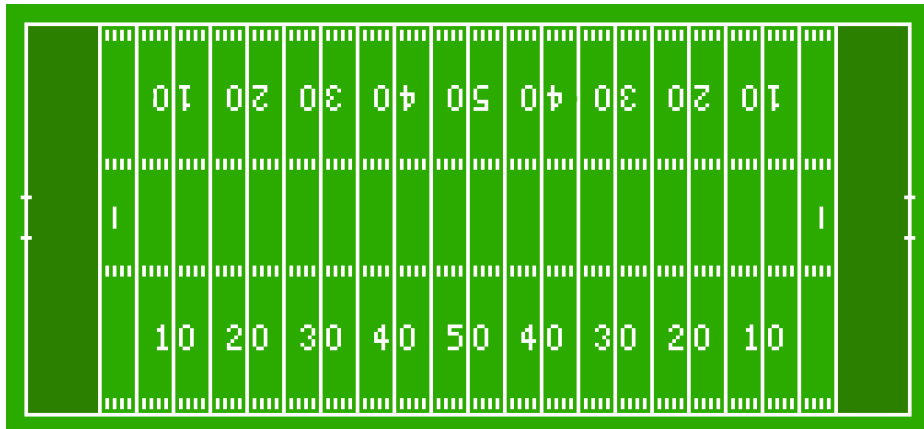
QUANTITIES TRANSACTED

Wholesalers purchase water in large quantities and then split the bulk quantity into smaller lots for resale

General consuming public buys at retail

Retail measures water in gallons

Wholesale measures water in acre feet






Acre foot is 1 acre of land 1 foot deep in water
Acre = 43,560 sqft




Football field dimensions:
53 1/3 yards, or 160 feet, wide
100 yards, or 300 feet, long
= 48,000 sqft

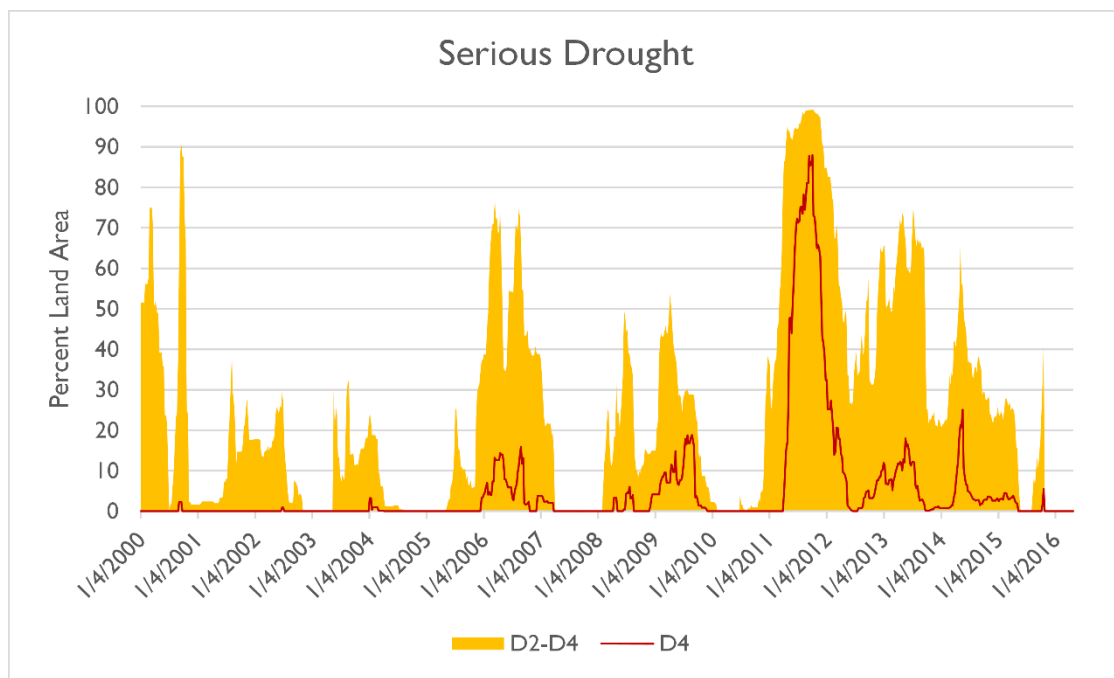
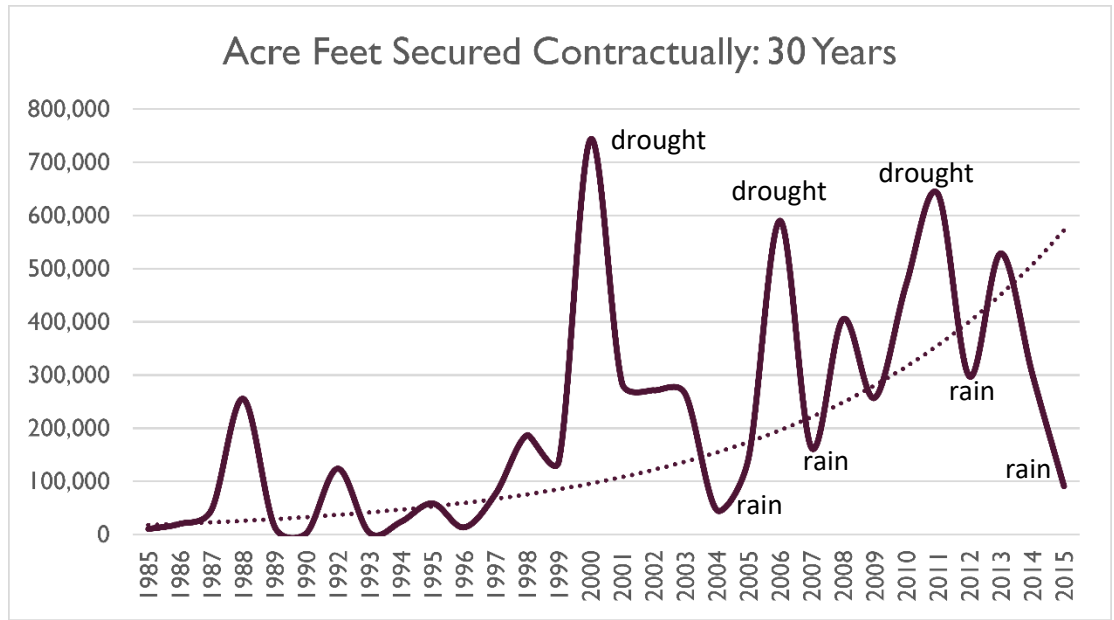


MACRO TRENDS

-  Upward trend toward contractually secured water volumes
-  5.5 million acre feet annual buying secured since 2000
-  2.3 maf/y secured 1950 to 1999

Driving Factors:

1. Population growth
 -  Total numbers and the rate of growth
 -  6 million people
 -  29% increase 2000-2014
2. Frequency and severity of droughts
3. Oil and gas



Drought data source: <http://droughtmonitor.unl.edu>

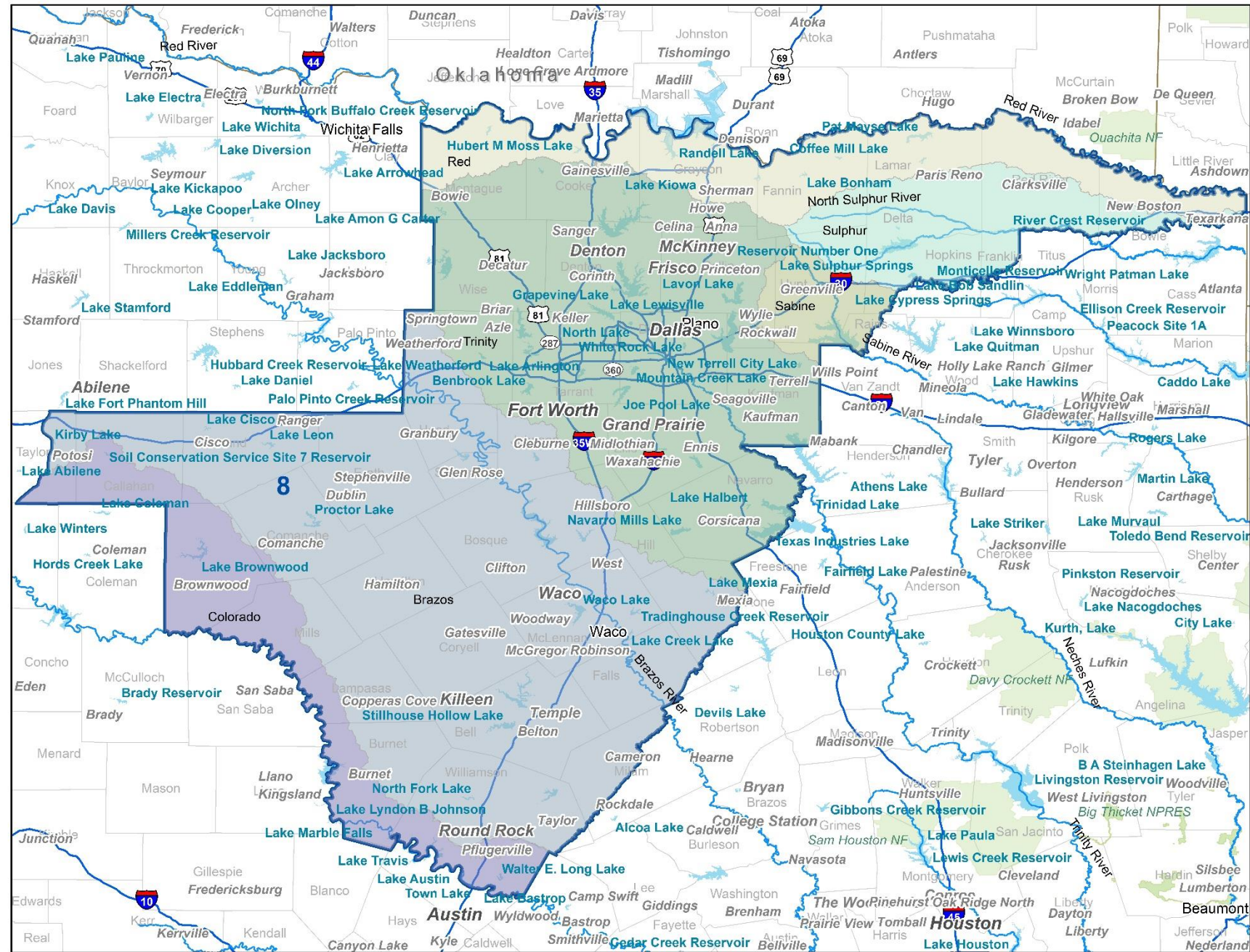


EXAMPLE

Zone 8

365 active transactions

\$/AF	Lease	Purchase	Average
8	\$302.81	\$835.30	\$531.85
Brazos	\$98.80	\$808.65	\$270.89
Colorado	\$213.79	\$1,222.51	\$255.39
Red	\$1,488.27	\$1,842.16	\$1,724.20
Sabine	\$66.23	\$1,216.36	\$449.61
Sulphur	\$61.05		\$61.05
Trinity	\$436.39	\$670.45	\$590.74
Texas	\$130.93	\$1,656.36	\$461.68





PRICE TRENDS

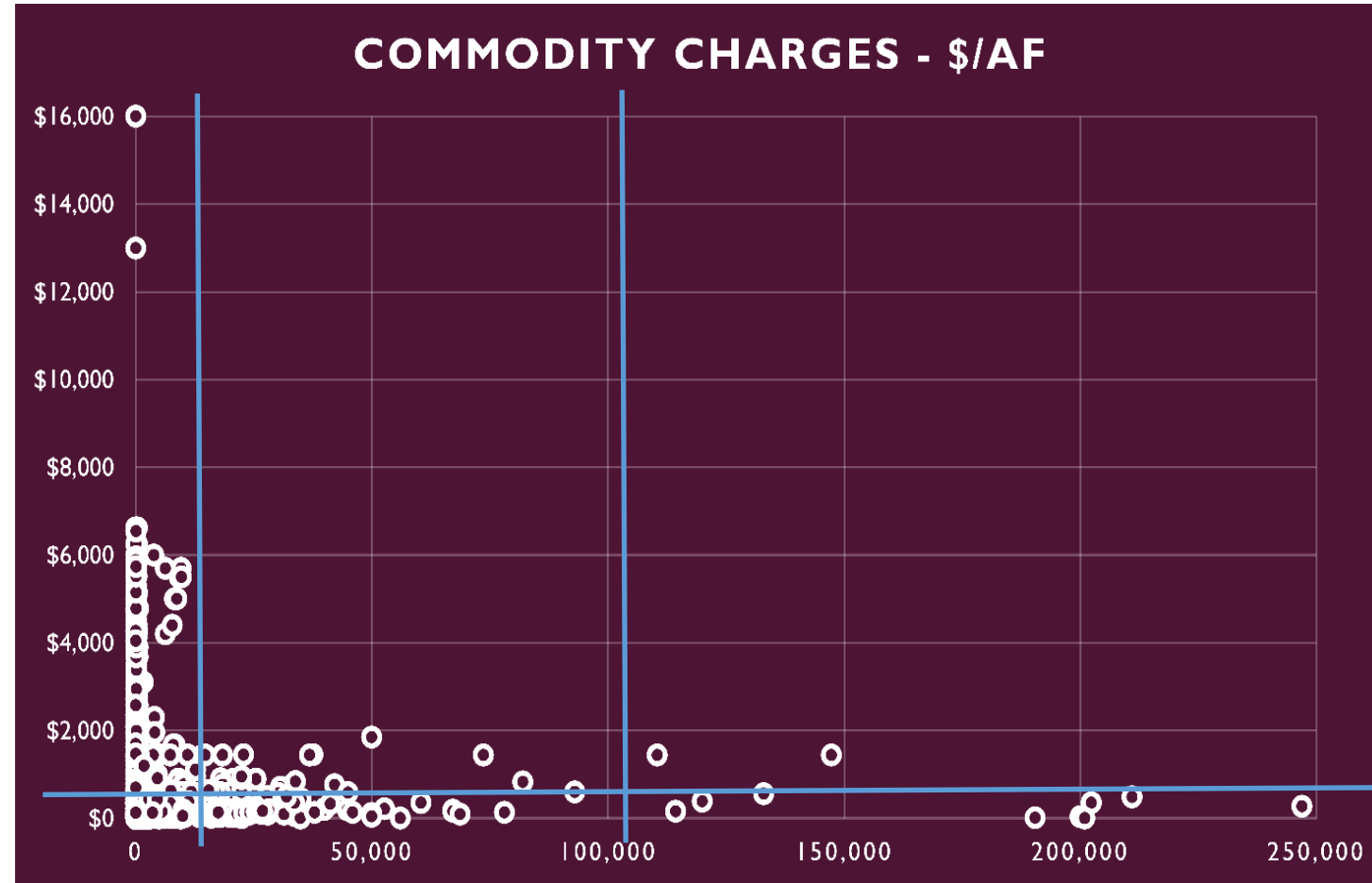
Statewide 65-year average is \$501.93 per acre foot

5-year moving average is \$523.79 per acre foot

Wide price spreads in contracts less than 10,000 acre feet

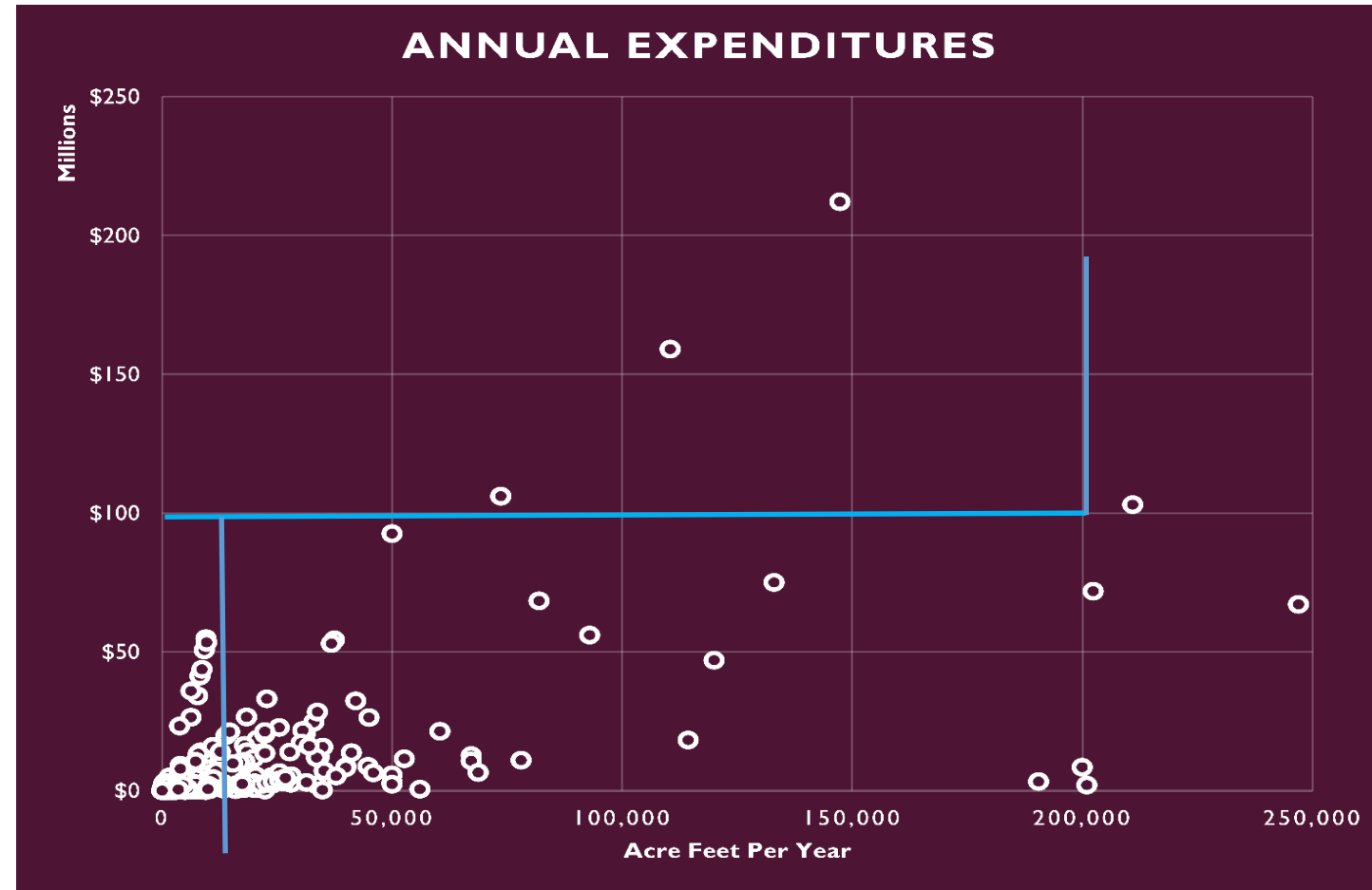
- \$0 to \$16,000/af

Over 100,000 afy mostly raw and recycle water contracts for utilities with storage rights



ANNUAL EXPENDITURES PER YEAR

- Average contract
 - 2,253 afy, \$1.3m
- Utility & Industrial contract
 - 7,986 afy, \$4.5m
 - Long period leases, LPMR
- Highest prices paid for industrial and energy use
 - i.e. chemical industry, tanker shipping and tank storage

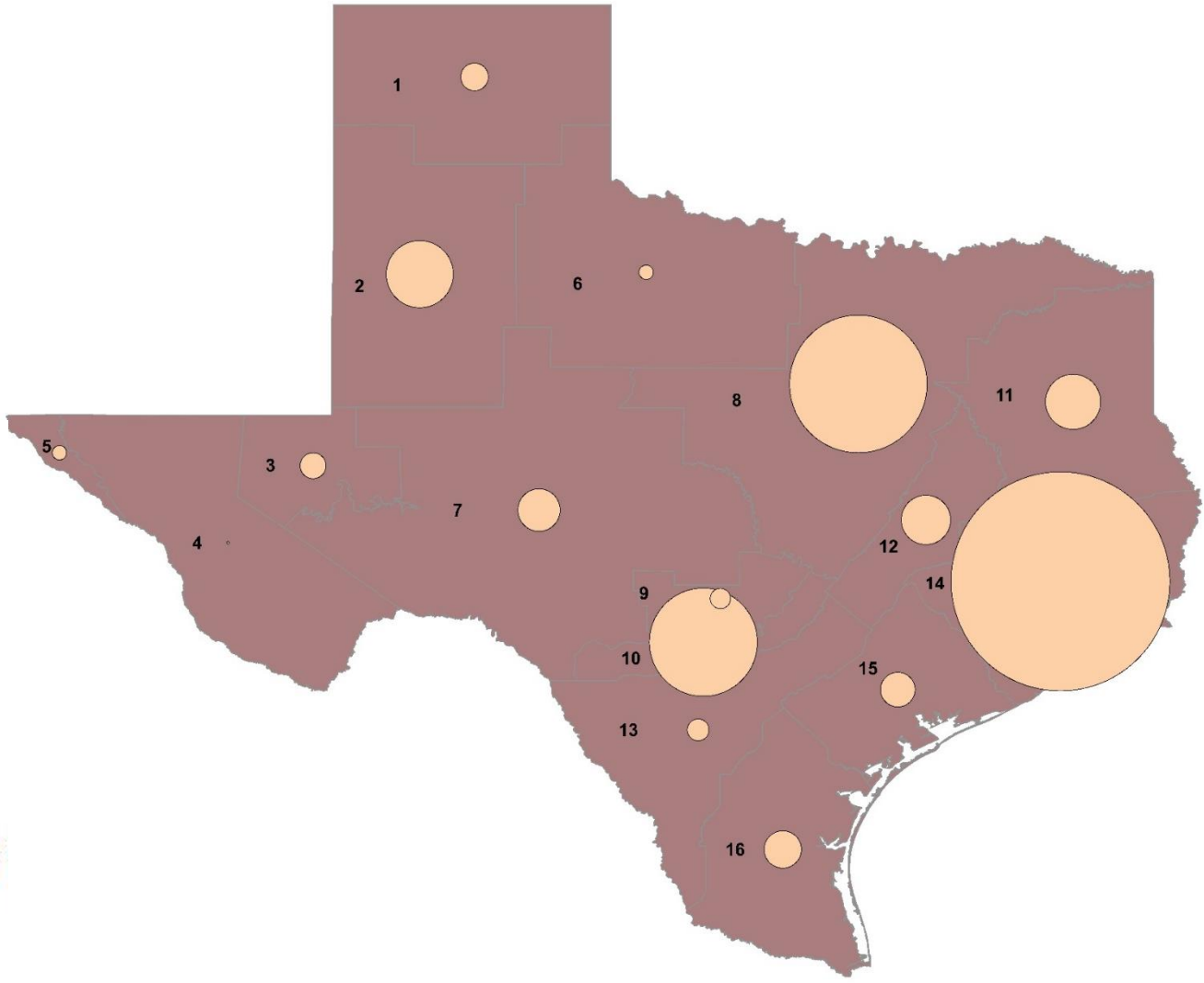
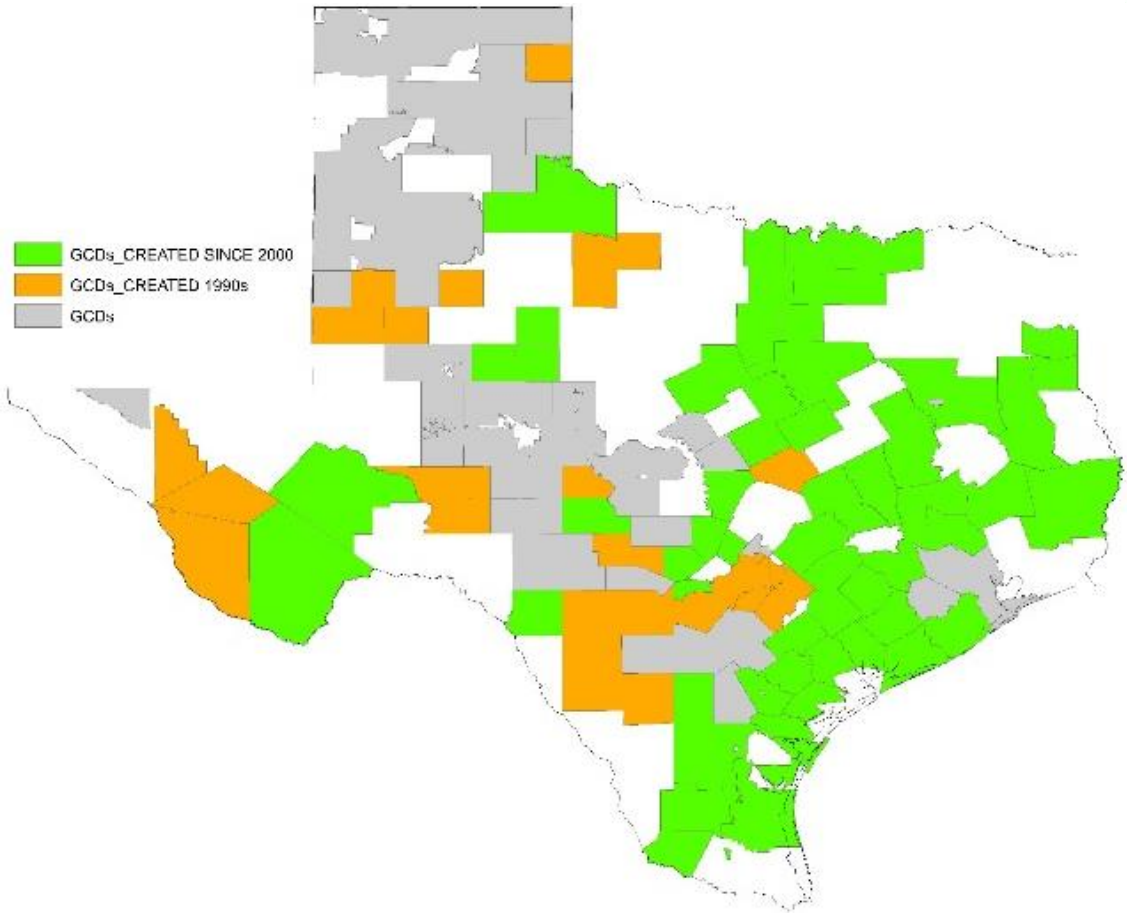




HOT SPOTS (2016)

Locations with the most buying and selling activity

New Regulators





TRAPPED CAPITAL IN RURAL LAND MARKETS?

- Groundwater was not historically transacted independently of the land
- The inability of real estate valuation methods to appraise water
 - Lack of data and expertise
- Appraisals do not include water rights
- Even when mineral estate is retained by prior owner it is typical that the water remained with the surface estate
 - Owner and banks assume that water is tied to lien
 - This is changing
- Distinct value of the water rights not priced in



WATER MARKET DATA IN ACTION



The ability of real estate valuation methods to appraise water

-  Lack of data and expertise

Database of water market transactions

-  Comprehensive coverage
-  Isolate the commodity charge (excludes infrastructure and finance)

We offer the ability to look at different types of water transactions enabling real estate valuation and appraisal to include the value of water in the transaction

-  “Apples to Apples” comparisons
-  Income method
-  Replacement cost



ADVANTAGES

-  **Seller: Make property stand out in crowded market**
-  **Buyer: Certainty that the real estate comes with water rights**
-  **Lender: Certainty of lien position, better LTV**
-  **Appraiser: Protects license**
-  **Broker: Show additional value to close deals**
-  **Preservation and Land Trusts: Accurate valuation**



DEFINING CHARACTERISTICS OF TEXAS WATER MARKET

21st Century Texas:

Increased willingness to secure water contractually

Importance of variable rate contracts

Supply-chain arbitrage

Large number groundwater regulators, decentralized