

The Blue Thread:

Emerging Issues for Texas Landowners and their Water Resources



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Water Resources

Surface Water vs. Groundwater

Surface Water

Governed by TCEQ

Owned by the State

Water Rights Priority

- Age and Purpose ("first in time, first in right")

Certain Uses Exempt

- Some Uses by Oil and Gas
- Domestic and Livestock

Groundwater

Governed by GCDs

Owned by Private Landowners

Water Well Permits

- Oil and Gas Operations Exempt
- Domestic and Livestock

MAJOR TEXAS WATER RESOURCES

(Including Existing Reservoirs, River Basins, Streams, Major Rivers, Major Aquifers and Cities)

Canadian

Red

Brazos

Colorado

Sulphur

Cypress

Sabine

Rio Grande

Nichol

Nichol-Trinity

Trinity

Trinity-San Jacinto

San Jacinto

San Jacinto-Brazos

Brazos-Colorado

Colorado-Lavaca

Lavaca

Lavaca-Guadalupe

Guadalupe

San Antonio

San Antonio-Nueces

Nueces-Rio Grande

Nueces

LEGEND

- Stream
- Major river
- River basin
- Existing reservoirs
- Bays and coastal waters
- Cities
- Major Aquifers**
 - Pecos Valley
 - Seymour
 - Gulf Coast
 - Carrizo - Wilcox (outcrop)
 - Carrizo - Wilcox (subcrop)
 - Huaco - Mesilla Basin
 - Ogallala
 - Edwards - Trinity Plateau (outcrop)
 - Edwards - Trinity Plateau (subcrop)
 - Edwards BFZ (outcrop)
 - Edwards BFZ (subcrop)
 - Trinity (outcrop)
 - Trinity (subcrop)

DISCLAIMER

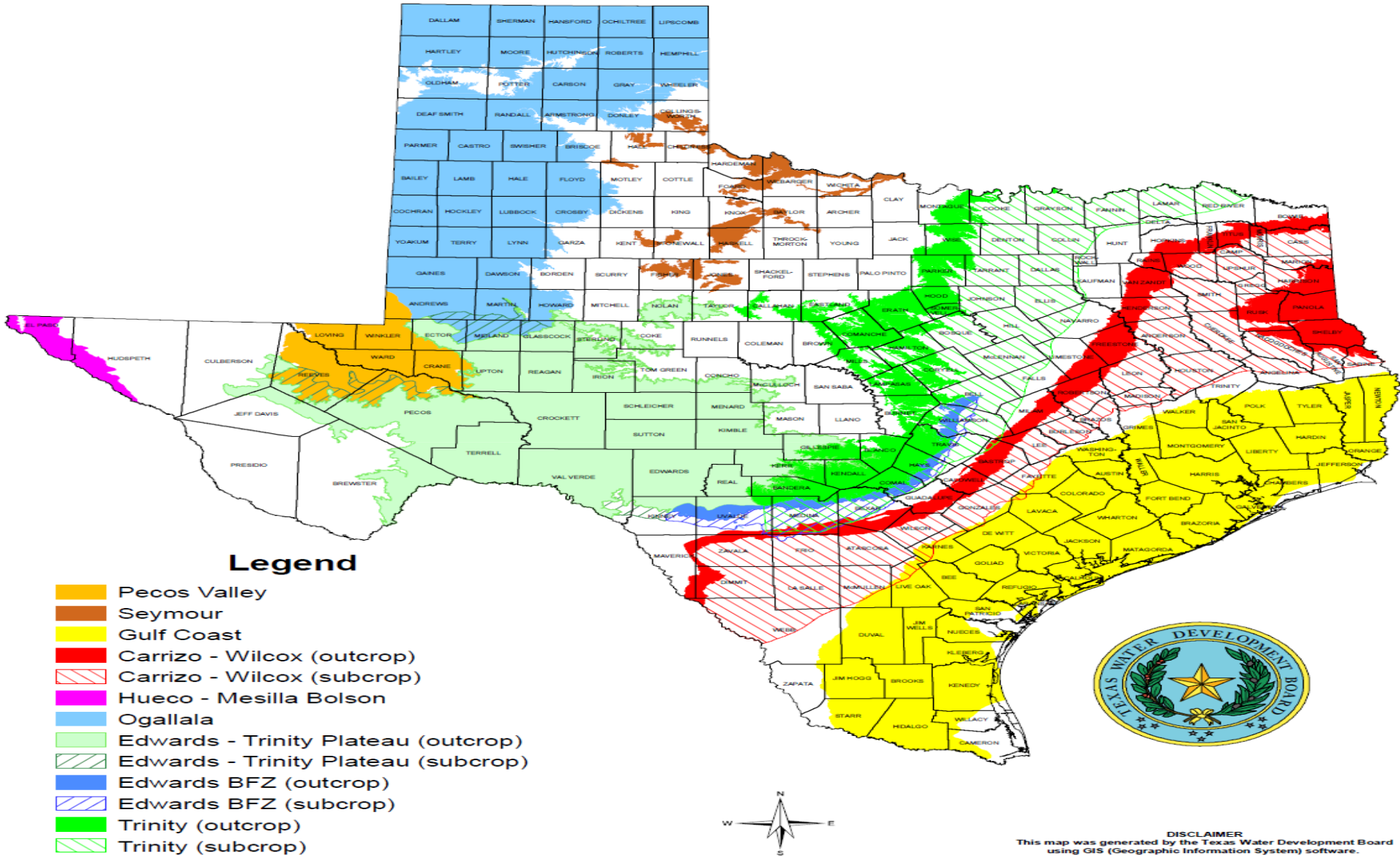
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Map updated by Mark Hayes, GISP
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 512-916-8818
 October 2009

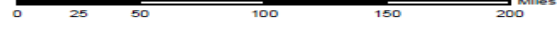
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Major Aquifers of Texas



NOTE: Chronology by Geologic age.

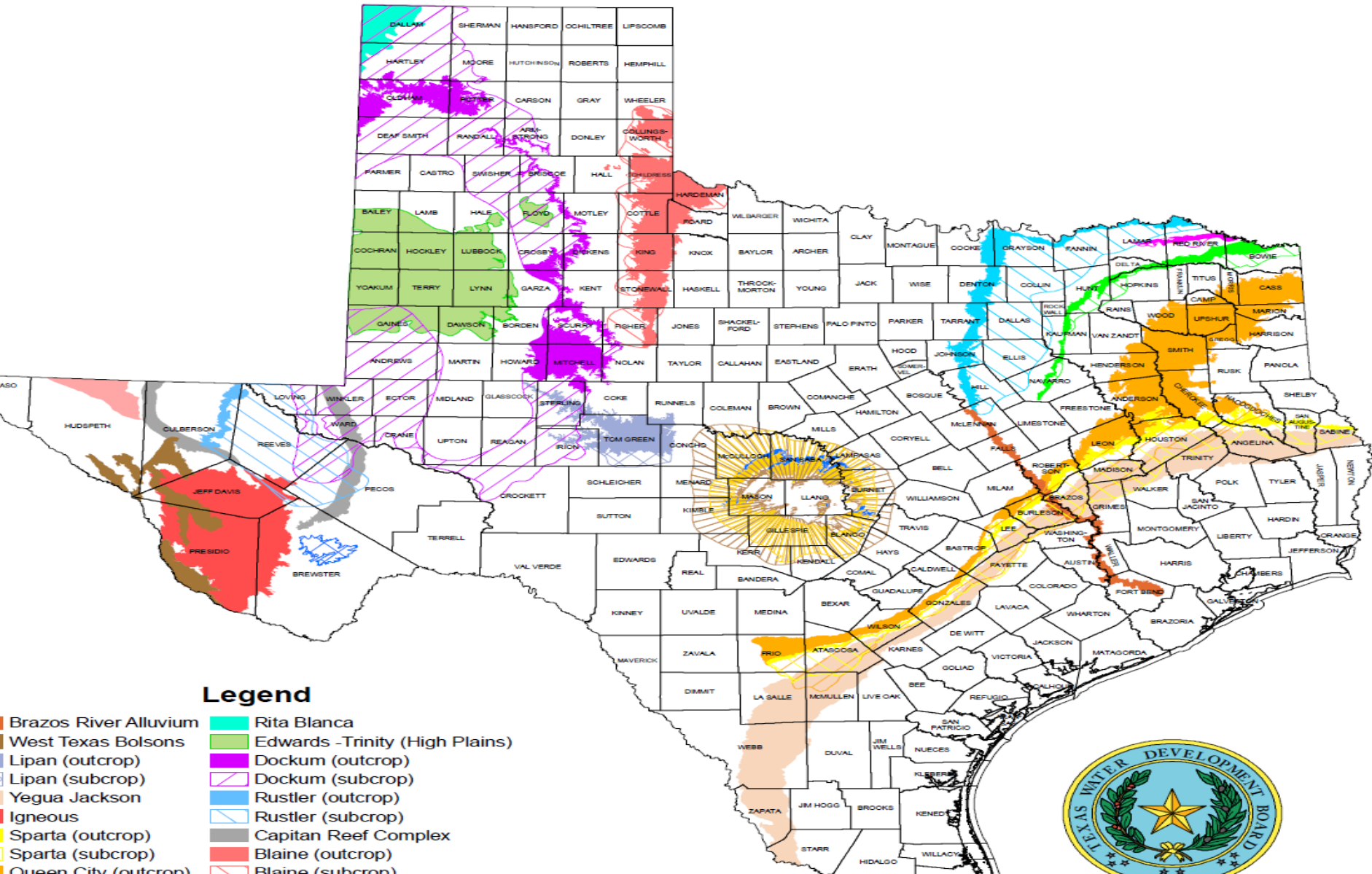
OUTCROP (portion of a water-bearing rock unit exposed at the land surface)
 SUBCROP (portion of a water-bearing rock unit existing below other rock units)



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Map updated December 2006 by Mark Hayes, GISP

Minor Aquifers of Texas

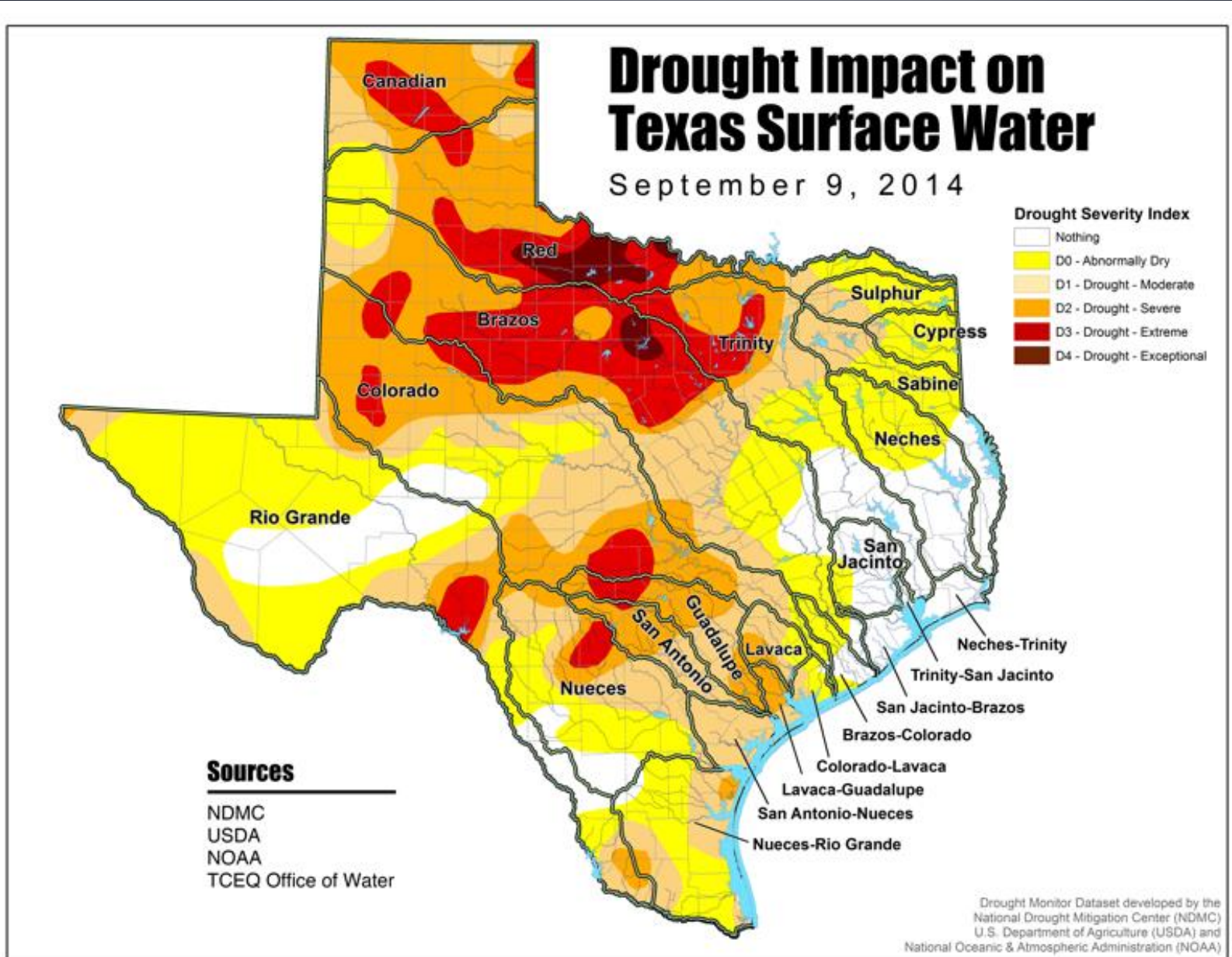


The Big Risk: Declining Water Resources



Photography by Mitch Dobrowner

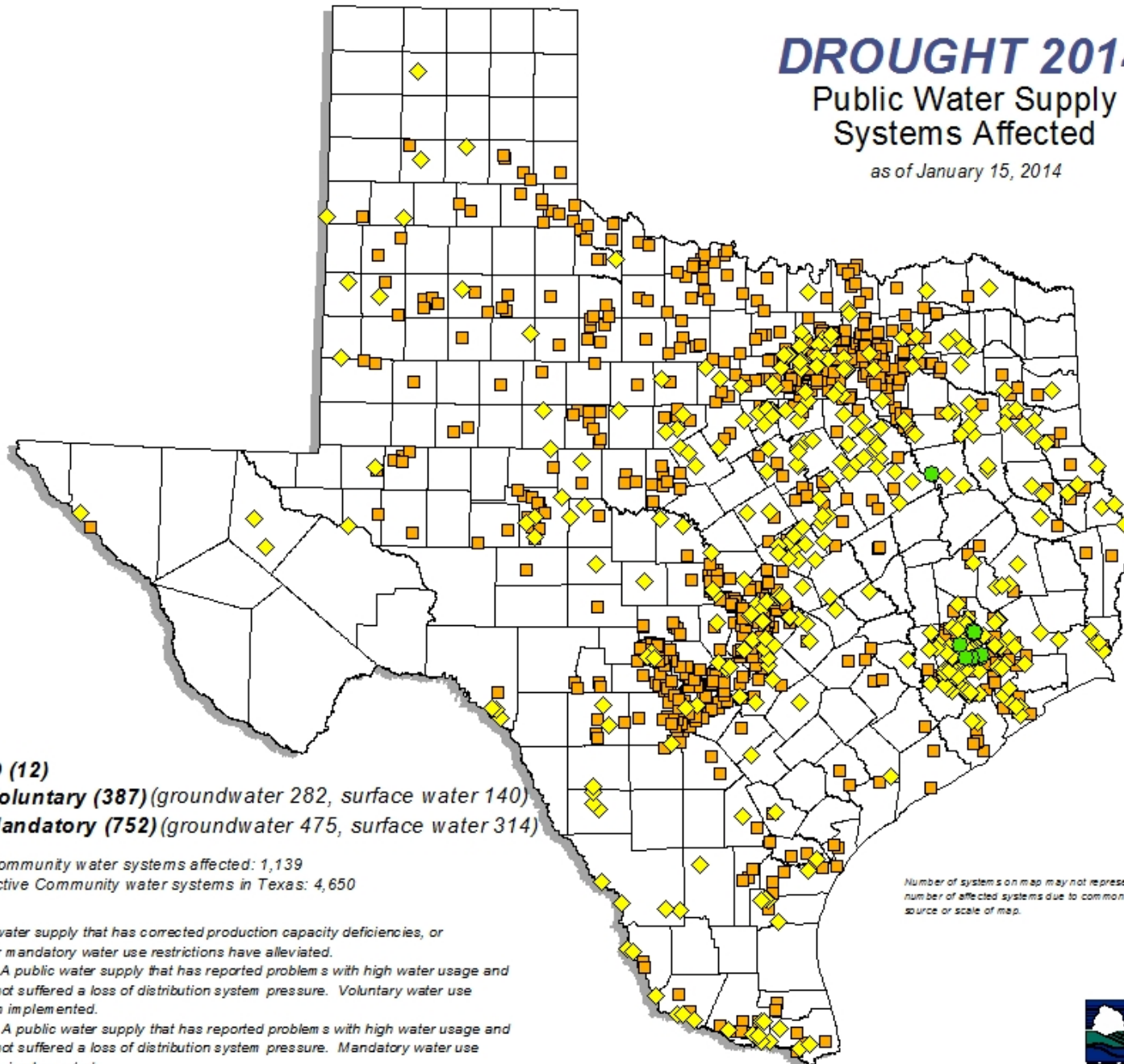
Texas Surface Water Drought Impacts



DROUGHT 2014

Public Water Supply Systems Affected

as of January 15, 2014



● **RESOLVED (12)**

◆ **WATCH - Voluntary (387)** (groundwater 282, surface water 140)

■ **WATCH - Mandatory (752)** (groundwater 475, surface water 314)

Total number of Community water systems affected: 1,139

Total number of active Community water systems in Texas: 4,650

Resolved A public water supply that has corrected production capacity deficiencies, or drought conditions for mandatory water use restrictions have alleviated.

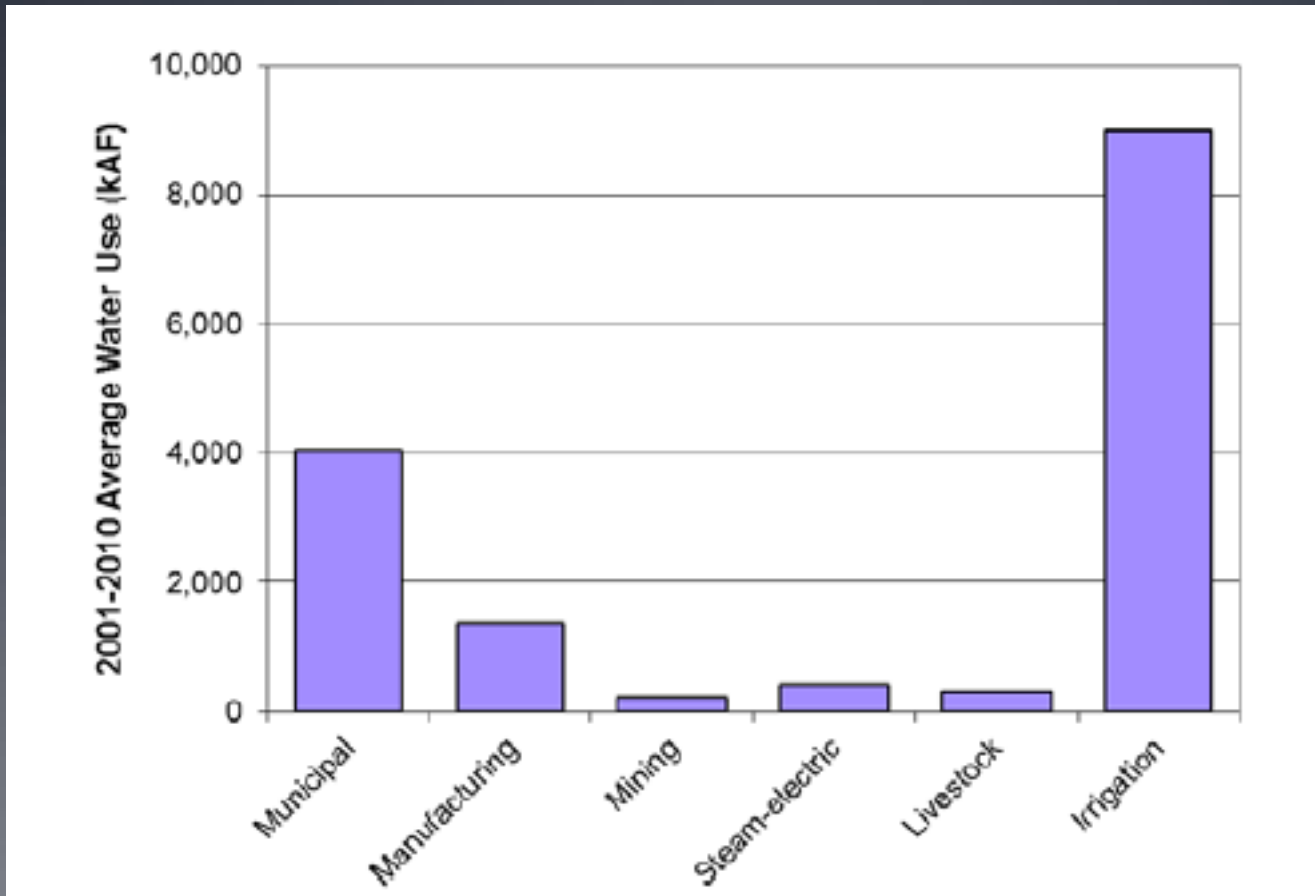
Watch - Voluntary A public water supply that has reported problems with high water usage and production, but has not suffered a loss of distribution system pressure. Voluntary water use restrictions have been implemented.

Watch - Mandatory A public water supply that has reported problems with high water usage and production, but has not suffered a loss of distribution system pressure. Mandatory water use restrictions have been implemented.

Number of systems on map may not represent total number of affected systems due to common water source or scale of map.

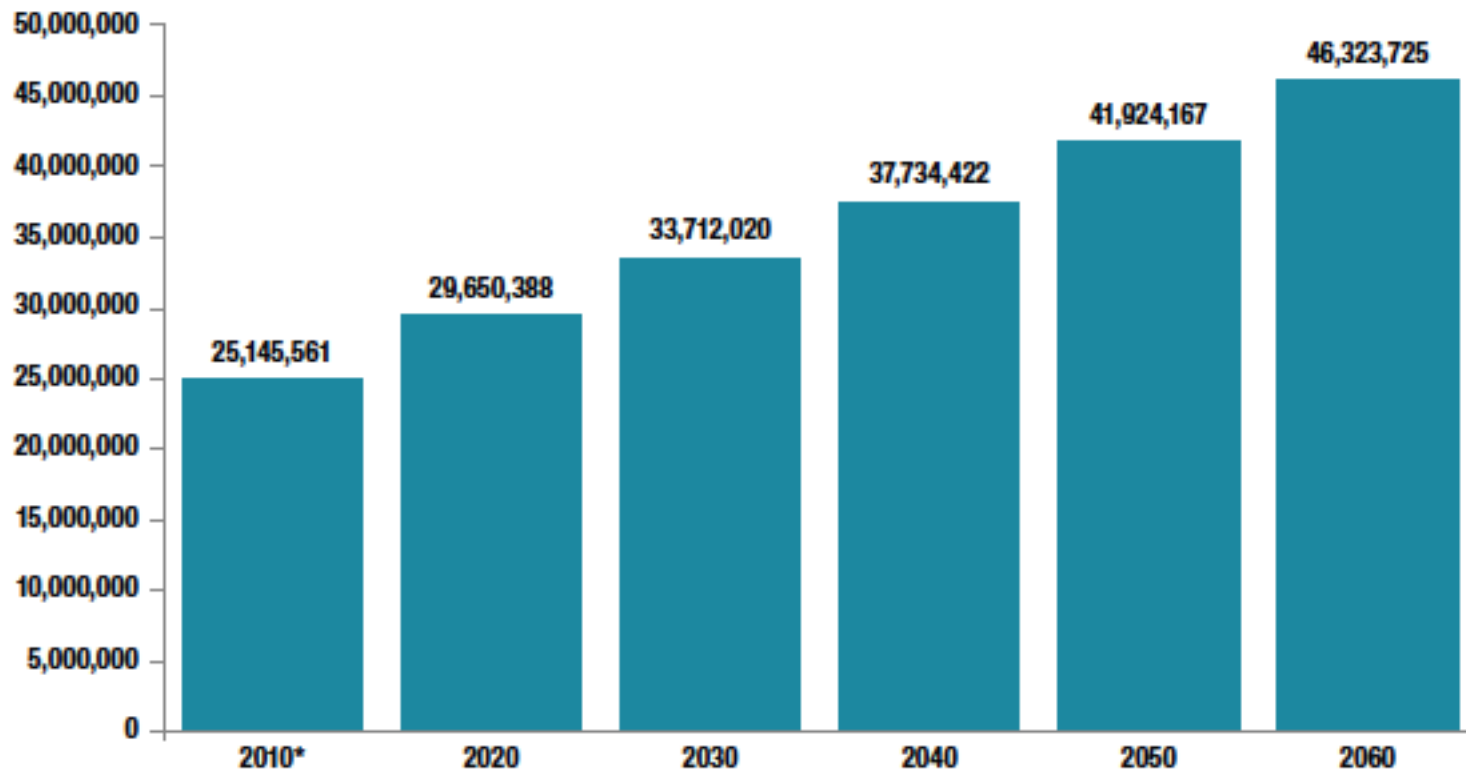
Average State Level Water Use

All Categories 2001-2010



Texas Population Projected to Increase Dramatically

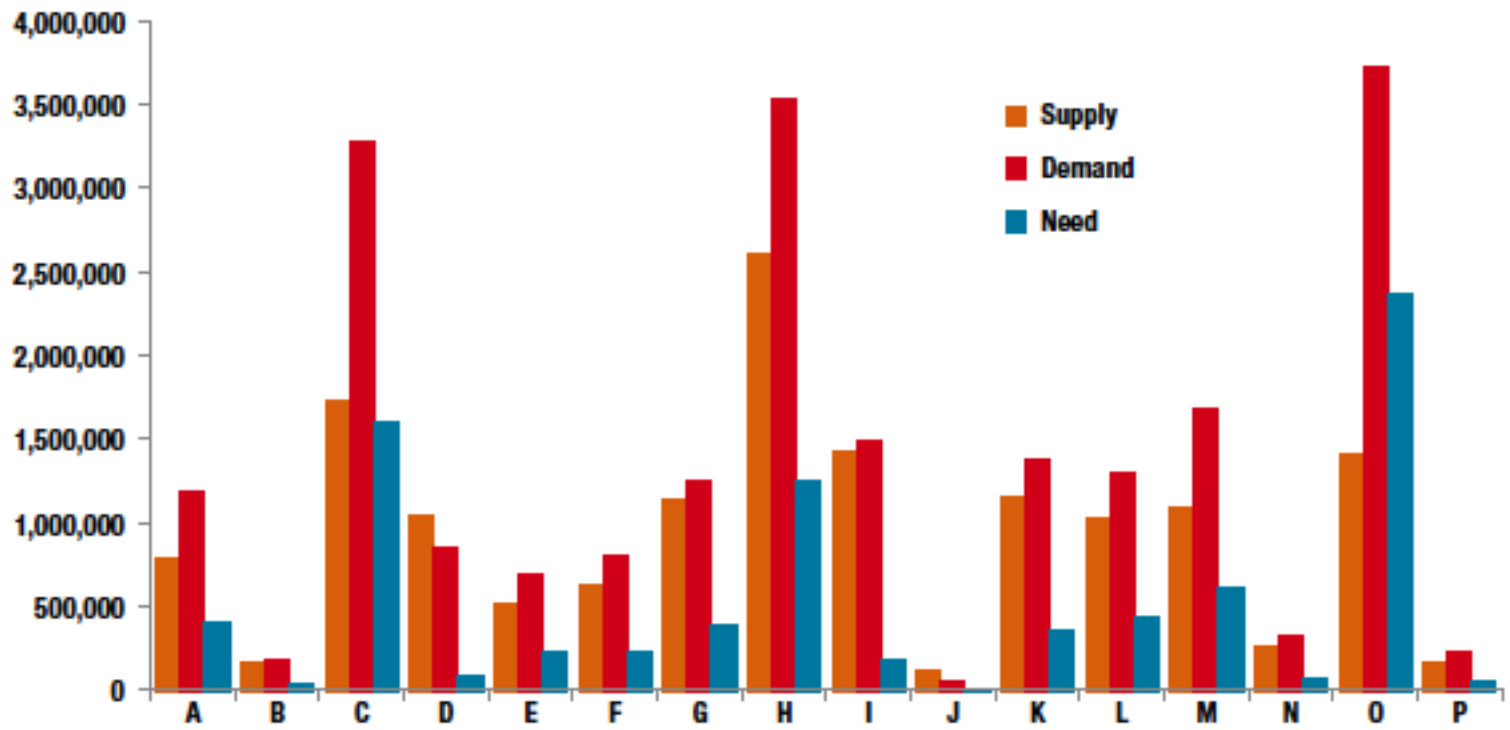
FIGURE 3.1. TEXAS STATE POPULATION PROJECTED TO 2060.



*2010 population is the official population count from the U.S. Census Bureau; 2020–2060 represent projected population used in the 2012 State Water Plan.

Water Demands Grow

FIGURE 6.1. EXISTING WATER SUPPLIES, PROJECTED DEMANDS, AND NEEDS BY REGION IN 2060 (ACRE-FEET PER YEAR).



Surface Water

The Call:

Suspension of Surface Water Rights

- Rules issued in 2012 in 30 Tex. Admin. Code Ch. 36
 - Codified “priority calls”
 - Allows TCEQ to suspend certain water rights during time of drought to ensure adequate supply for senior or “priority” water right
 - In 2011, there were fifteen senior water rights calls that resulted in over 1,200 junior water rights permit suspensions
 - TCEQ exempted municipal and power generation uses from the priority calls.
-

Brazos River

- Dow Chemical holds senior rights to this river for its coastal plant at Freeport, Texas
 - In Nov 2012 and July 2013 as flows diminished Dow placed a Senior Call with TCEQ that prohibited withdrawals by junior rights holders
 - D&L users excluded
 - TCEQ excluded cities and power generation on public health and safety grounds
 - This largely left agriculture to bear the brunt of the Call
 - Ironically outdoor watering in cities represented the bulk of the water at issue
 - Texas Farm Bureau filed suit against TCEQ over the priority Doctrine and prevailed
 - There will be a Watermaster
-

Colorado River

- Inflows to the Highland Lakes have reached historic lows
 - Lake Travis and Buchanan are at record lows, approximately 34%
 - At the same time, development and population is near record in the central Texas corridor
 - LCRA has voted to suspend downstream flows to coastal rice production areas
 - LCRA has also sought to cut off downstream freshwater flows to Matagorda Bay
 - Fight is ongoing
-

Exemptions from Permitting

- “Stock Tank” Exemption: A person may construct on the person’s own property a dam or reservoir with normal storage of not more than 200 acre-feet of water for:
 - Domestic and livestock purposes (noncommercial);
 - Fish and wildlife purposes (if property is qualified open-space land and applies only to noncommercial); and
 - Commercial or noncommercial wildlife management, including fishing, but not including fish farming (if property in an unincorporated area).
-

Kimble County

- TCEQ ordered ranchers to remove dams from streams on private property
 - According to the rancher, TCEQ issued a fine and ordered the dam removed after reclassifying the stream as “navigable”
 - TCEQ’s position is that the rancher was impounding state water without a required permit
 - Navigable makes a difference
-

What is the law on ownership of surface water and streambeds?

- Surface water in a watercourse is owned by the State, not by the landowner on whose land it flows
 - In order to use, store, or divert state water, one must generally obtain a permit from TCEQ
 - Exceptions—allows a landowner to construct a dam or reservoir on his property with storage less than 200 acre-feet for non-commercial purposes
 - Ownership of streambeds depends on whether the stream is “navigable”
 - If non-navigable, streambed owned by private landowner but the water in the stream remains property of the State
 - Navigable streambeds are owned by State and landowner is not allowed to fence, dam, or prevent other persons from traveling unimpeded along the waterway
-

When is a stream “navigable”?

Navigable in Fact

- Whether the river or stream can serve as a “common highway for trade and travel” in its natural and ordinary condition
- If yes, the streambed is navigable in fact and owned by the State.

Navigable in Law

- Considers the size of the waterway
 - If the streambed maintains an average width of 30 feet from mouth up, it is navigable in law
 - Distance refers to the entire bed, not the portion where water may be flowing
-

Rainwater

- Landowner may own rain falling on his land.
- Rain flowing in un-patterned ways across your land from higher to lower elevations is landowner's water provided it hasn't entered a watercourse.
- Diffused surface water—private property of landowner.
- Control in artificial ditches, tanks, ponds, or rainwater harvesting systems—water may be used for any beneficial purpose.

Groundwater

Regulation of Groundwater

- Groundwater Conservation Districts (GCDs)
 - GCDs regulate groundwater by:
 - Groundwater Management Plan
 - Rules
 - Well Registration, Permitting, and Production Limits
 - Export
 - Well Drilling, Completion and Plugging Standards
 - Well Spacing Regulation
 - Enforcement
 - Decisions on Ch. 36 Powers
-

1. Anderson County UWCD - 10/17/1987
2. Bandera County River Authority & Ground Water District - 11/7/1999
3. Barton Springs/Edwards Aquifer GCD - 8/13/1987
4. Bee GCD - 1/20/2001
5. Blanco-Pedernales GCD - 1/23/2001
6. Bluebonnet GCD - 11/5/2002
7. Brazoria County GCD - 1/16/2005
8. Brazos Valley GCD - 1/15/2002
9. Brewster County GCD - 1/19/2001
10. Brush Country GCD - 1/15/2009
11. Central Texas GCD - 9/24/2005
12. Clear Fork GCD - 11/5/2002
13. Clearwater UWCD - 8/21/1999
14. Coastal Bend GCD - 1/6/2001
15. Coastal Plains GCD - 1/6/2001
16. Coke County UWCD - 11/4/1986
17. Colorado County GCD - 1/16/2007
18. Corpus Christi ASRCD - 8/17/2005
19. Cow Creek GCD - 1/15/2002
20. Crockett County GCD - 1/28/1991
21. Culberson County GCD - 5/2/1990
22. Dowl County GCD - 7/25/2009
23. Edwards Aquifer Authority - 7/28/1996
24. Evergreen UWCD - 9/30/1985
25. Fayette County GCD - 1/16/2001
26. Fox Crossing Water District - 4/4/1986
27. Garza County UWCD - 11/5/1996
28. Gateway GCD - 5/5/2003
29. Glasscock GCD - 9/23/1991
30. Goliad County GCD - 1/16/2001
31. Gonzales County UWCD - 11/3/1994
32. Guadalupe County GCD - 11/4/1999
33. Hays Trinity GCD - 5/5/2003
34. Headwaters GCD - 11/5/1991
35. Hemphill County UWCD - 1/14/1997
36. Hickory UWCD No. 1 - 8/14/1982
37. High Plains UWCD No. 1 - 3/23/1951
38. Hill Country UWCD - 5/8/1987
39. Hudspeth County UWCD No. 1 - 10/5/1967
40. Iron County WCD - 9/2/1995
41. Jeff Davis County UWCD - 11/2/1990
42. Kermit County GCD - 11/2/2004
43. Kimble County GCD - 5/28/1991
44. Kinney County GCD - 1/12/2002
45. Lipan-Kickapoo WCD - 1/13/1987
46. Live Oak UWCD - 11/7/1989
47. Llano Estacado UWCD - 11/5/1998
48. Lone Star GCD - 11/6/2001
49. Lone Wolf GCD - 2/2/2002
50. Lost Pines GCD - 11/9/2002
51. Lower Trinity GCD - 11/7/2006
52. McMullen GCD - 1/16/2001
53. Medina County GCD - 8/28/1991
54. Menard County UWCD - 8/14/1999
55. Mesa UWCD - 1/20/1990
56. Mesquite GCD - 11/4/1986
57. Mid-East Texas GCD - 11/5/2002
58. Middle Pecos GCD - 1/15/2002
59. Middle Trinity GCD - 5/4/2002
60. Neches & Trinity Valleys GCD - 11/6/2001
61. North Plains GCD - 1/2/1955
62. North Texas GCD - 12/1/2009
63. Northern Trinity GCD - 5/15/2007
64. Panhandle GCD - 1/21/1995
65. Panoia County GCD - 11/6/2007
66. Pecan Valley GCD - 11/6/2001
67. Permian Basin UWCD - 9/21/1985
68. Pineywoods GCD - 11/6/2001
69. Plateau UWC and Supply District - 3/4/1974
70. Plum Creek CD - 5/1/1993
71. Post Oak Savannah GCD - 11/5/2002
72. Prairielands GCD - 9/1/2009
73. Presidio County UWCD - 8/5/1999
74. Real-Edwards C and R District - 5/28/1999
75. Red River GCD - 9/15/2009
76. Red Sands GCD - 11/5/2002
77. Refugio GCD - 11/6/2001
78. Rolling Plains GCD - 1/26/1999
79. Risk County GCD - 6/5/2004
80. San Patricio County GCD - 5/12/2007
81. Sandy Land UWCD - 11/7/1989
82. Santa Rita UWCD - 8/19/1989
83. Saratoga UWCD - 11/7/1989
84. South Plains UWCD - 2/6/1992
85. Southeast Texas GCD - 1/12/2004
86. Southern Trin by GCD - 1/16/2009
87. Starr County GCD - 1/8/2007
88. Sterling County UWCD - 11/3/1987
89. Sutton County UWCD - 4/5/1986
90. Terrell County GCD - 11/6/2012
91. Texas GCD - 11/6/2001
92. Trinity Glen Rose GCD - 11/5/2002
93. Upper Trinity GCD - 11/6/2007
94. Uvalde County UWCD - 9/1/1993
95. Uvalde County GCD - 8/5/2005
96. Was-Tex GCD - 11/5/2002
97. Wintergardn GCD - 11/7/1999

Unconfirmed Groundwater Conservation Districts

- 89. Calloway County GCD + 4
- 89. Deep East Texas GCD + 5
- 100. Keener County GCD + 5

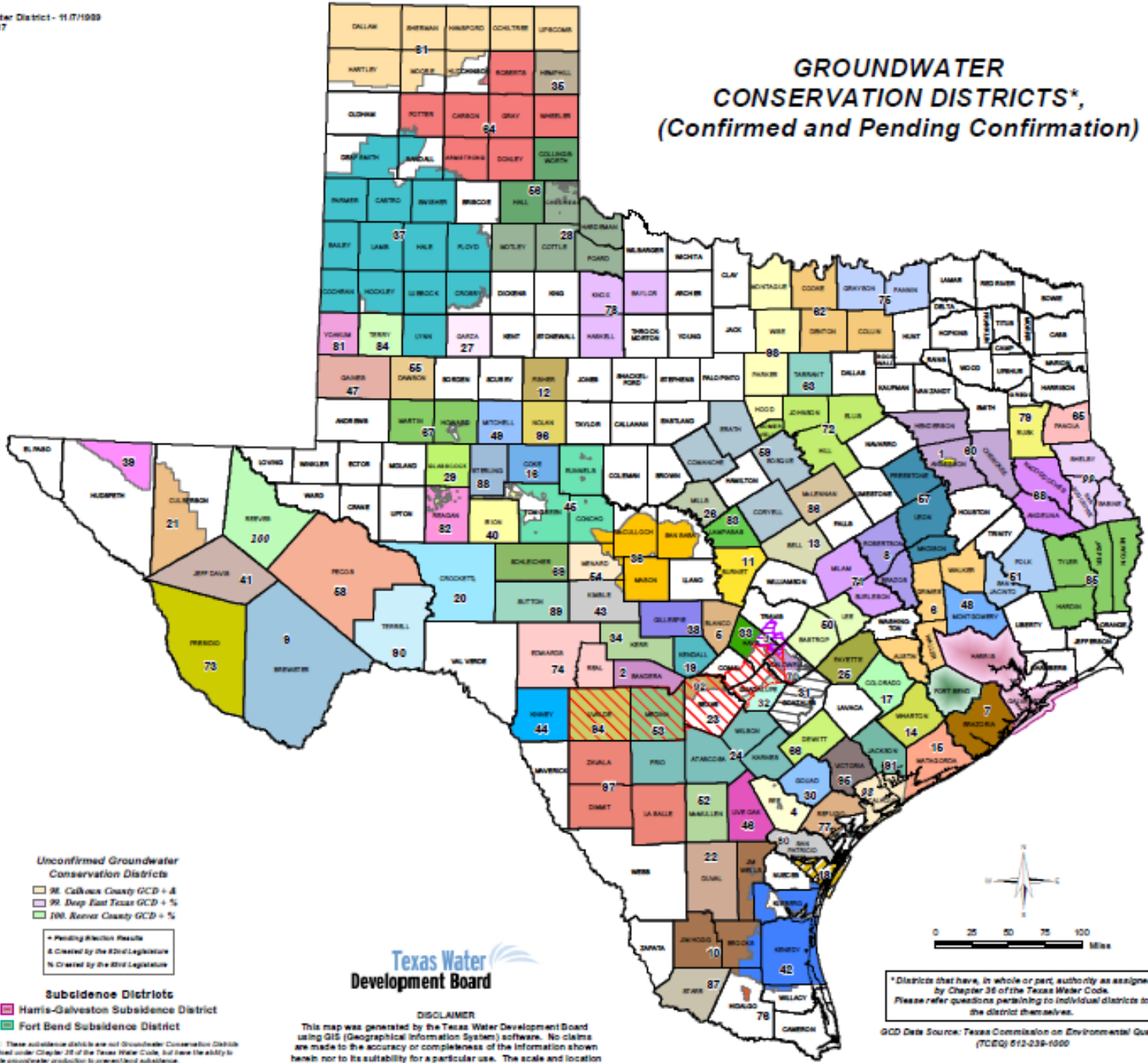
- Pending Election Results
- ▲ Created by the 82nd Legislature
- ▲ Created by the 83rd Legislature

Subsidence Districts

- Harris-Galveston Subsidence District
- Fort Bend Subsidence District

NOTE: These subsidence districts are not Groundwater Conservation Districts as defined under Chapter 36 of the Texas Water Code, but have the ability to regulate groundwater production to prevent subsidence. (Refer to Article 617.0237 from the 75th Legislative Session)

GROUNDWATER CONSERVATION DISTRICTS*, (Confirmed and Pending Confirmation)



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* Districts that have, in whole or part, authority as assigned by Chapter 36 of the Texas Water Code. Please refer questions pertaining to individual districts to the district themselves.

GCD Data Source: Texas Commission on Environmental Quality (TCEQ) 512-239-1000

Map updated: September 2013

GCD Permitting Authority

- All wells must be registered or have a permit before they are drilled, equipped, operated, or completed
 - Different requirements for existing and new wells
 - **Registration**
 - Must register water producing wells
 - May register other wells
 - Serves as inventory
 - Provides evidence of prior use
 - Screens for wells requiring permits
 - **Permitting**
 - Non-exempt wells
 - Joint planning and managed available groundwater
 - Production limits
 - Transfer/Export
 - Drilling
 - **Sets Production Limits**
-

Exemptions to Permitting

- Mandatory exemptions—Texas Water Code § 36.117(b)
 - Domestic/livestock
 - Coal mining water wells
 - Oil and gas production
-

Cases Impacting Groundwater

- **Edwards Aquifer Authority v. Day**
 - Texas Supreme Court made clear that land ownership includes groundwater in place and that it cannot be taken for public use without compensation under the Constitution.
 - Recognized the State's reasonable right to regulate.
 - **Edwards Aquifer Authority v. Bragg**
 - Concerned pecan orchards seeking permits from GCD
 - GCD granted reduced permit and denied other permit
 - San Antonio Court of Appeals applied Penn Central test and determined decision was a taking
 - On appeal to the Texas Supreme Court
-

Water Takings: Penn Central Test

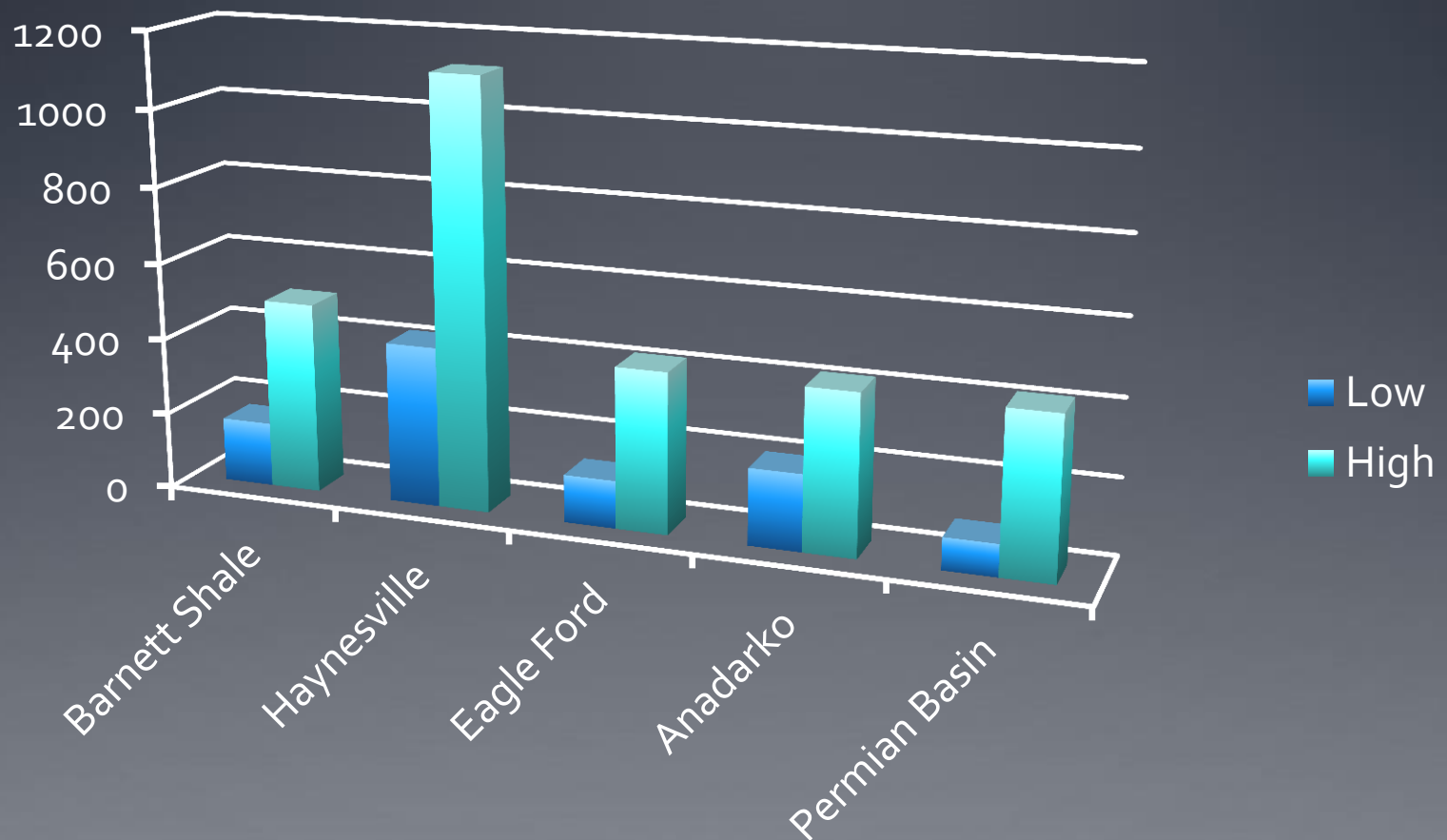
- Economic Impact
 - District will almost always lose this. What about economic impact of groundwater availability in the future?
 - Investment Backed Expectation
 - Districts will lose this factor also. Landowners always will have purchased expecting unlimited use.
 - Character of Governmental Action
 - This has to belong to the District, last best hope if demonstrated adequately.
 - Surrounding and Relevant Circumstances
 - Judges choice?
-

Does the Penn Central test work?

- Bigger question is does this test cover the key issues in GW regulation?
 - A fluid resource that can be replenished
 - Migrates over property boundaries
 - Drought
 - Free right of adjoining landowners to “Come and take it”
 - To preserve must limit and deny
-

Competing Use for Groundwater: Hydraulic Fracturing

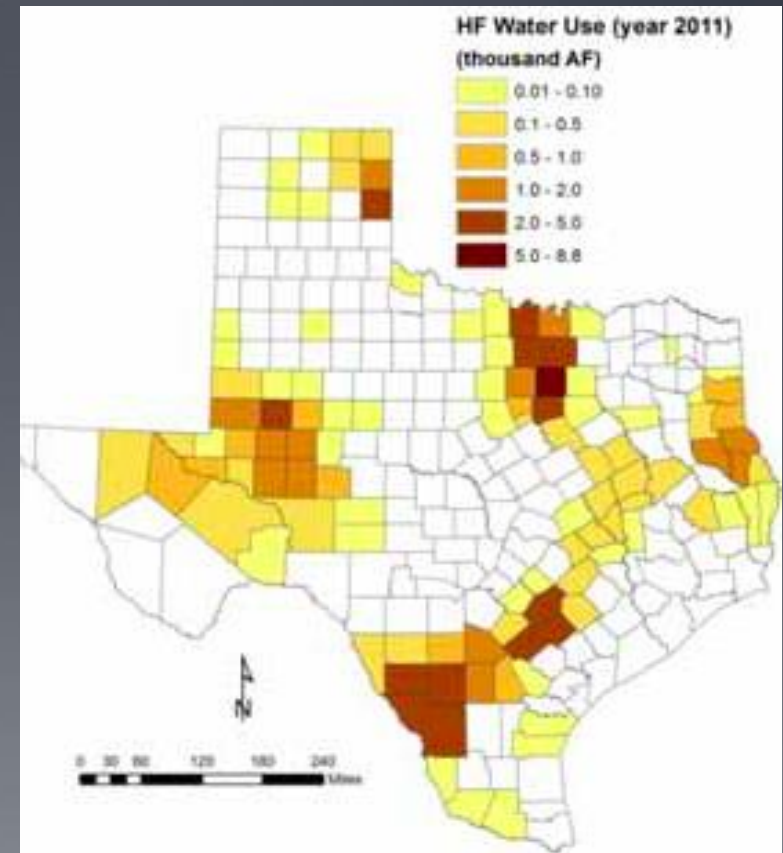
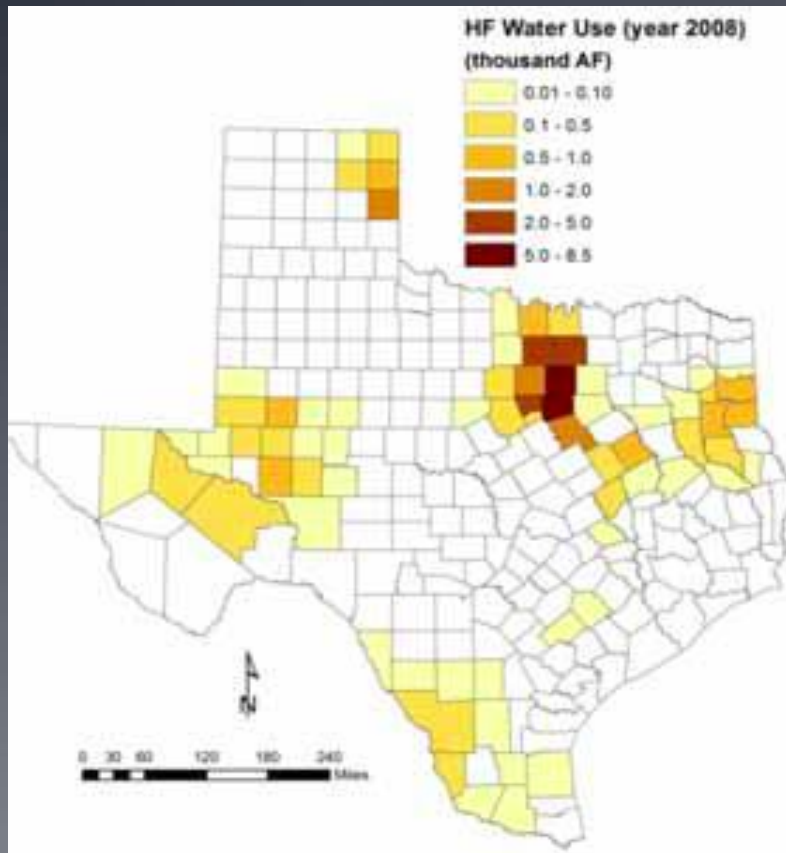
Drilling Water Use by Shale (in 1,000's gal/well)



Hydraulic Fracturing Water Use 2008 and 2011

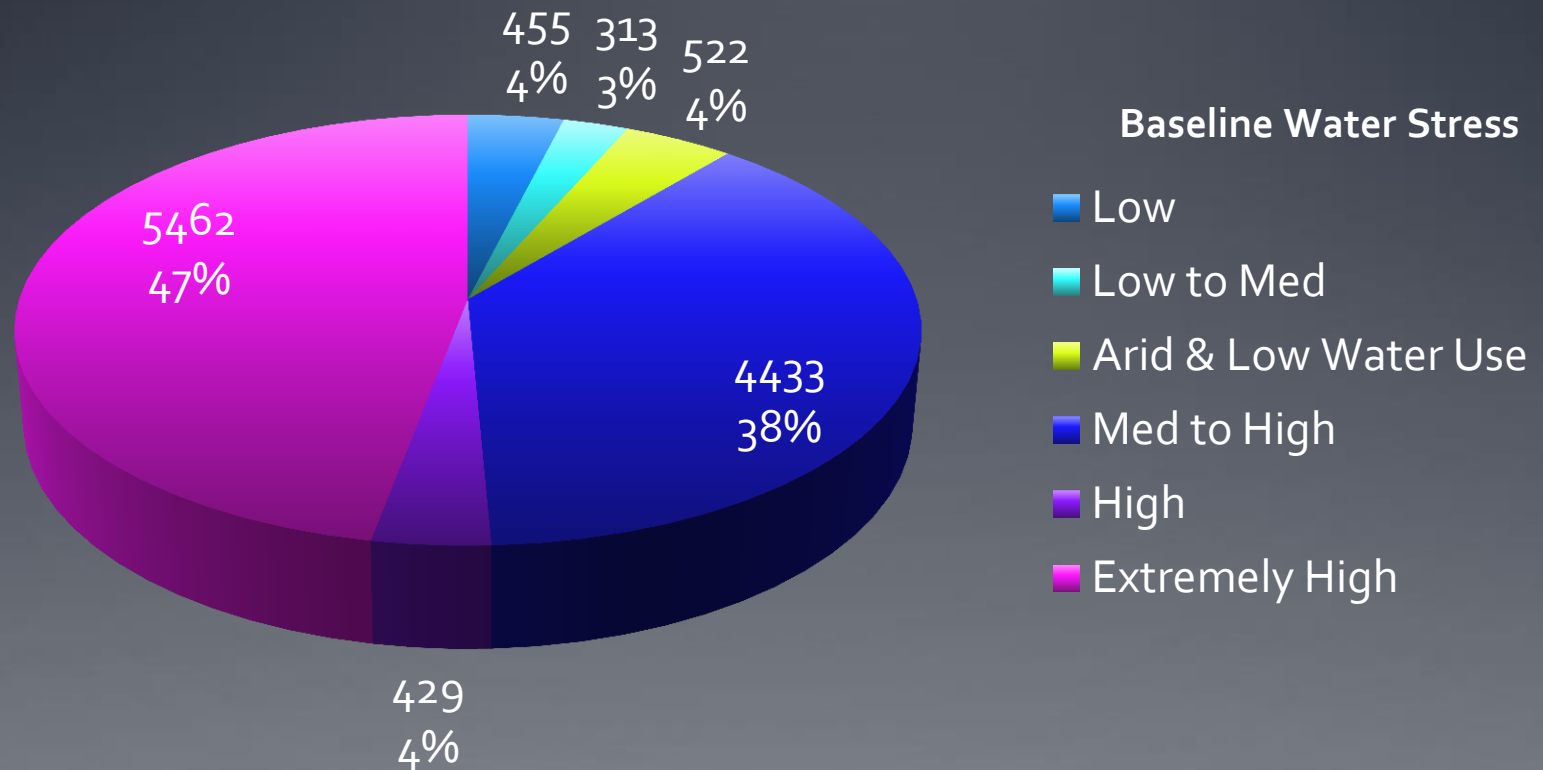
2008

2011

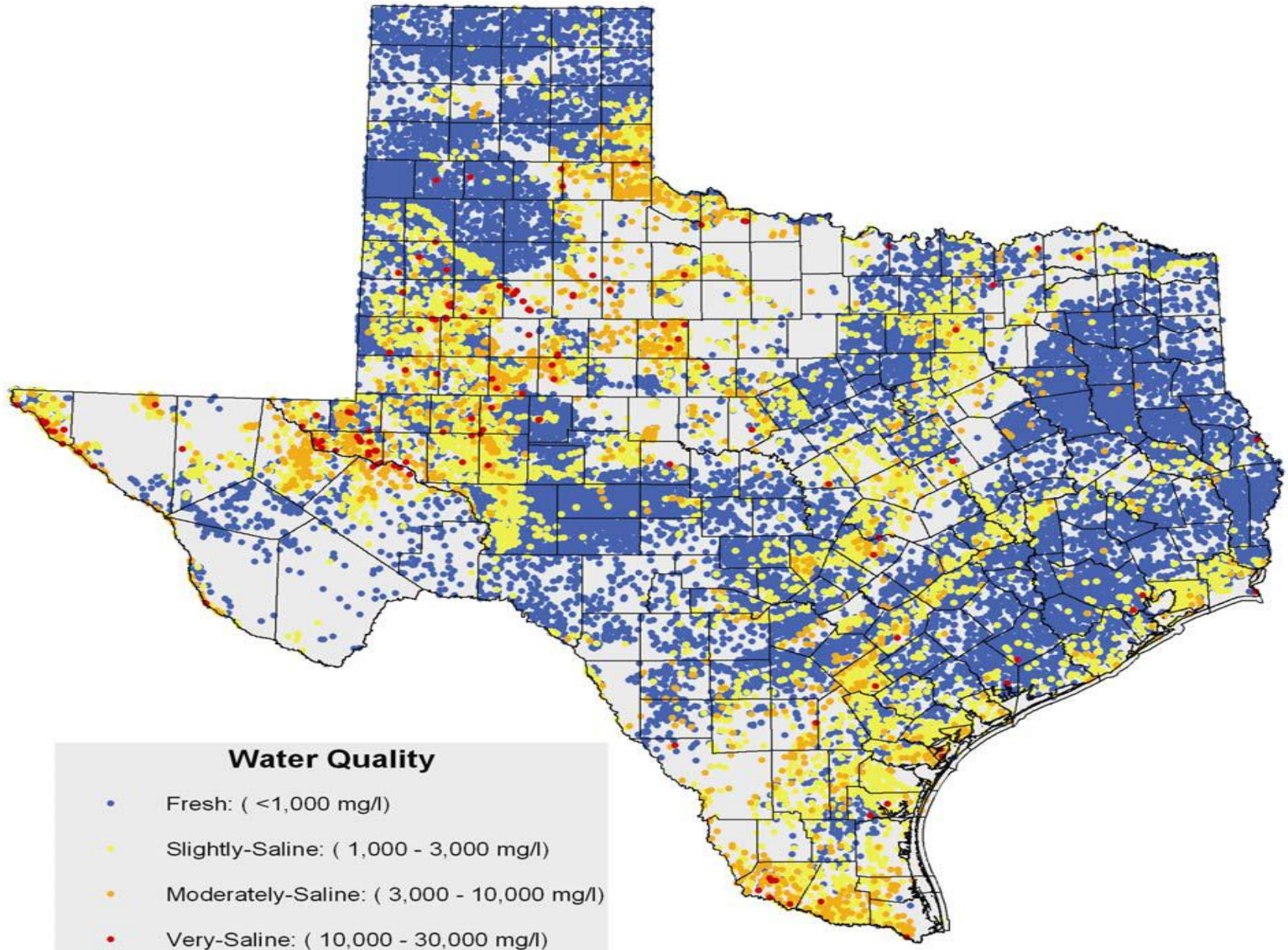


Texas Oil and Gas Wells and Water Stress

Number and Percentage of Wells



Brackish Groundwater



Salvation? Brackish Groundwater

- Is it groundwater?
 - How to regulate?
 - Whether to regulate?
 - How do you define brackish?
 - Compensation for landowners
 - Development of Zones
 - Availability
 - TWDB estimated more than 2.7 billion acre-feet of brackish groundwater may be available for use
-

Tips for Brokers

- Are there existing water rights?
 - Priority of water rights?
 - Tanks on Property?
 - Navigable streams?
 - Is property in a GCD?
 - Is water well registered, exempt or permitted?
 - Rules?
 - Have rights been severed?
-

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