

Paradigms Lost and Found

A Case Study of Water in Texas

by

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Texas is approximately twice the size of Germany



RAINFALL IN TEXAS



0 37.5 75 150 225 300 Miles

Map By Kyle Sijansky
04/14/2015
Data from TNRIS Database

Paradigms Lost?

- Changing paradigms
 - “Our bays and estuaries can take care of themselves.”
 - “Need more water --- build a reservoir.”
 - “Our aquifers recharge themselves.”
 - “You can’t desalinate seawater, it is too expensive.”

Water Dynamics of Texas

- Population Growth Projections
- Water Supply/Demand Projections

Texas Population Projections

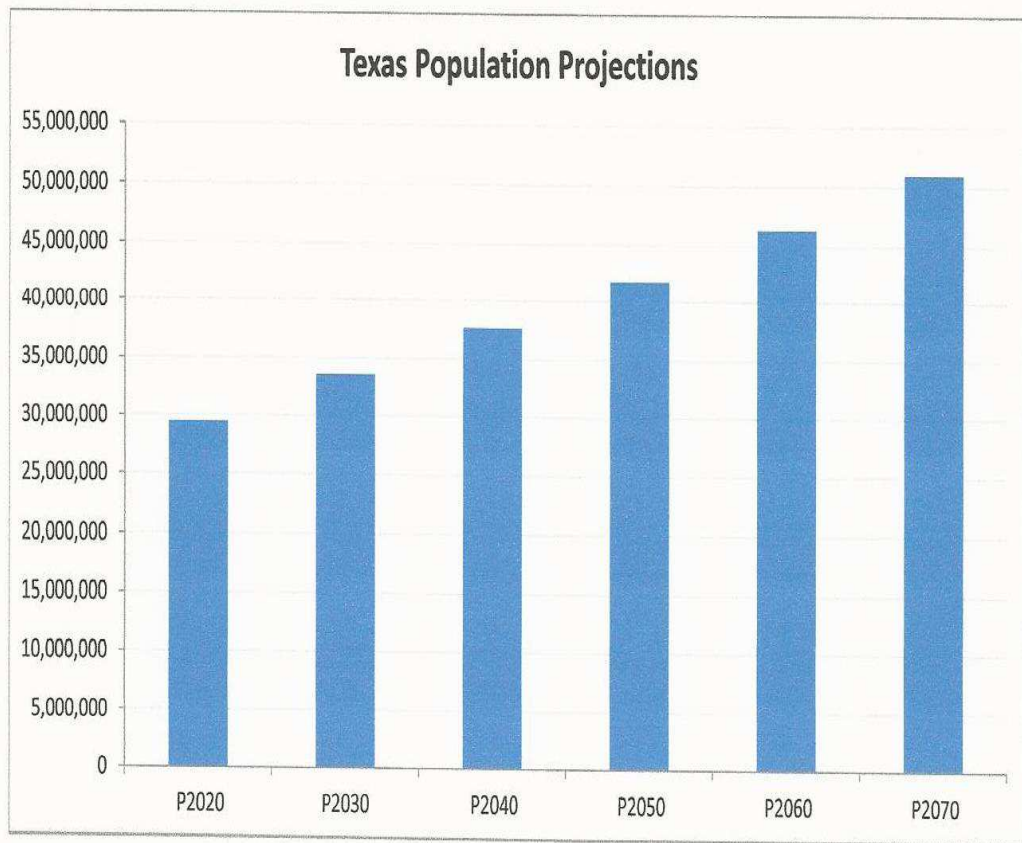
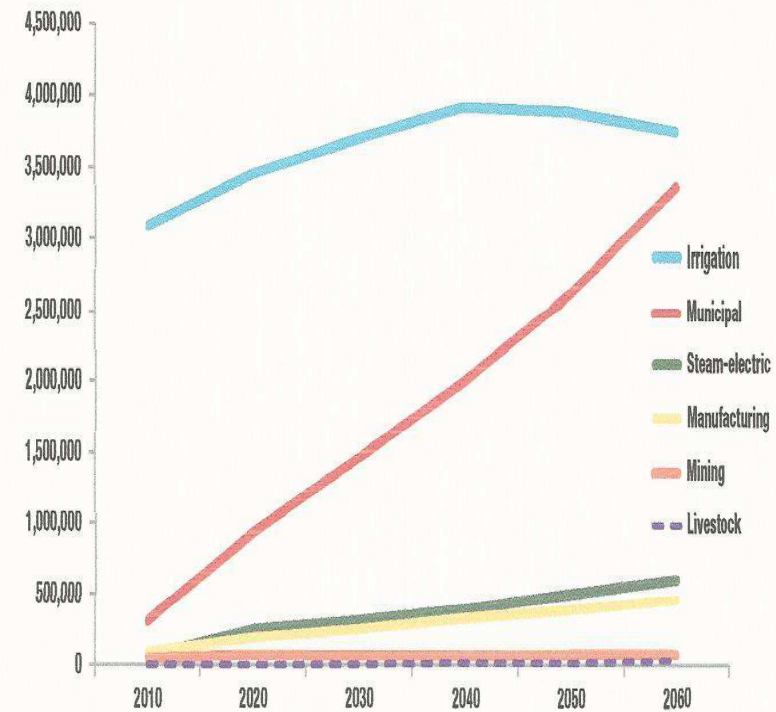


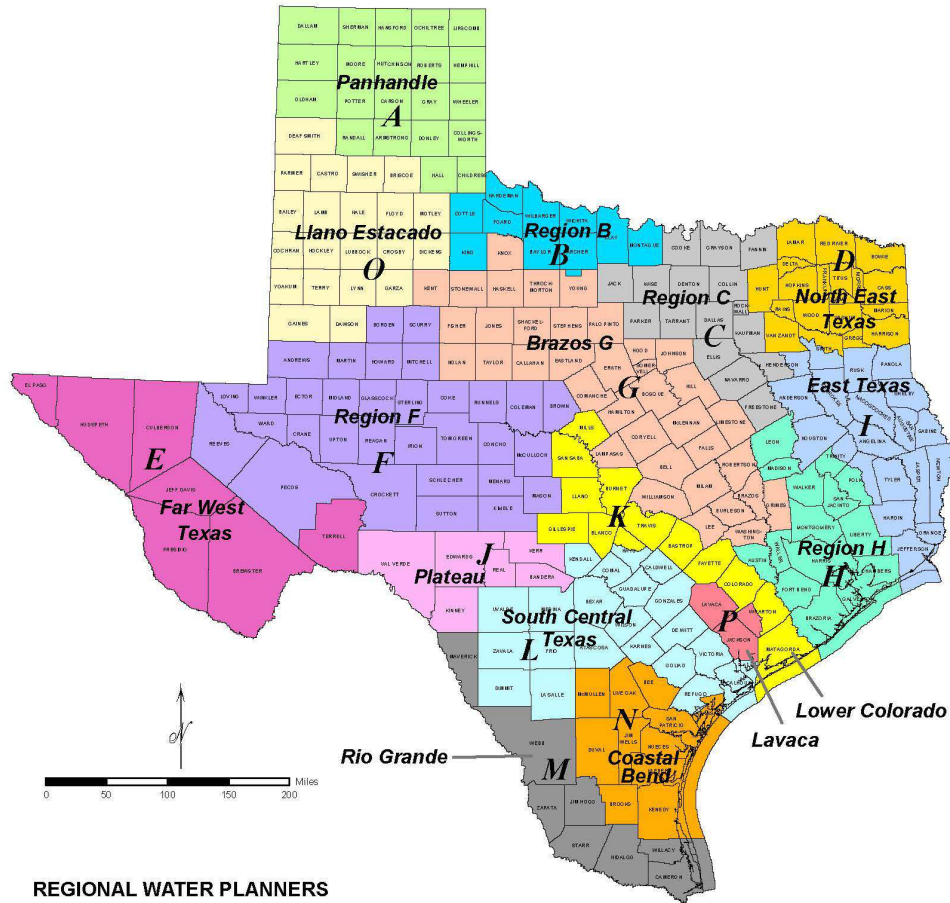
FIGURE 6.2. PROJECTED WATER NEEDS BY USE CATEGORY (ACRE-FEET PER YEAR).



Issues

- **Shrinking Aquifers in Drier Areas - Ogallala**
- **Interbasin Transfers of Water – '68 water plan**
- **Water Rights Differ**
- Subsidence
- Instream/Environmental Flows
- Myriad of Water Management Entities
- Continuing Drought in Some Areas

Regional Water Planning Areas

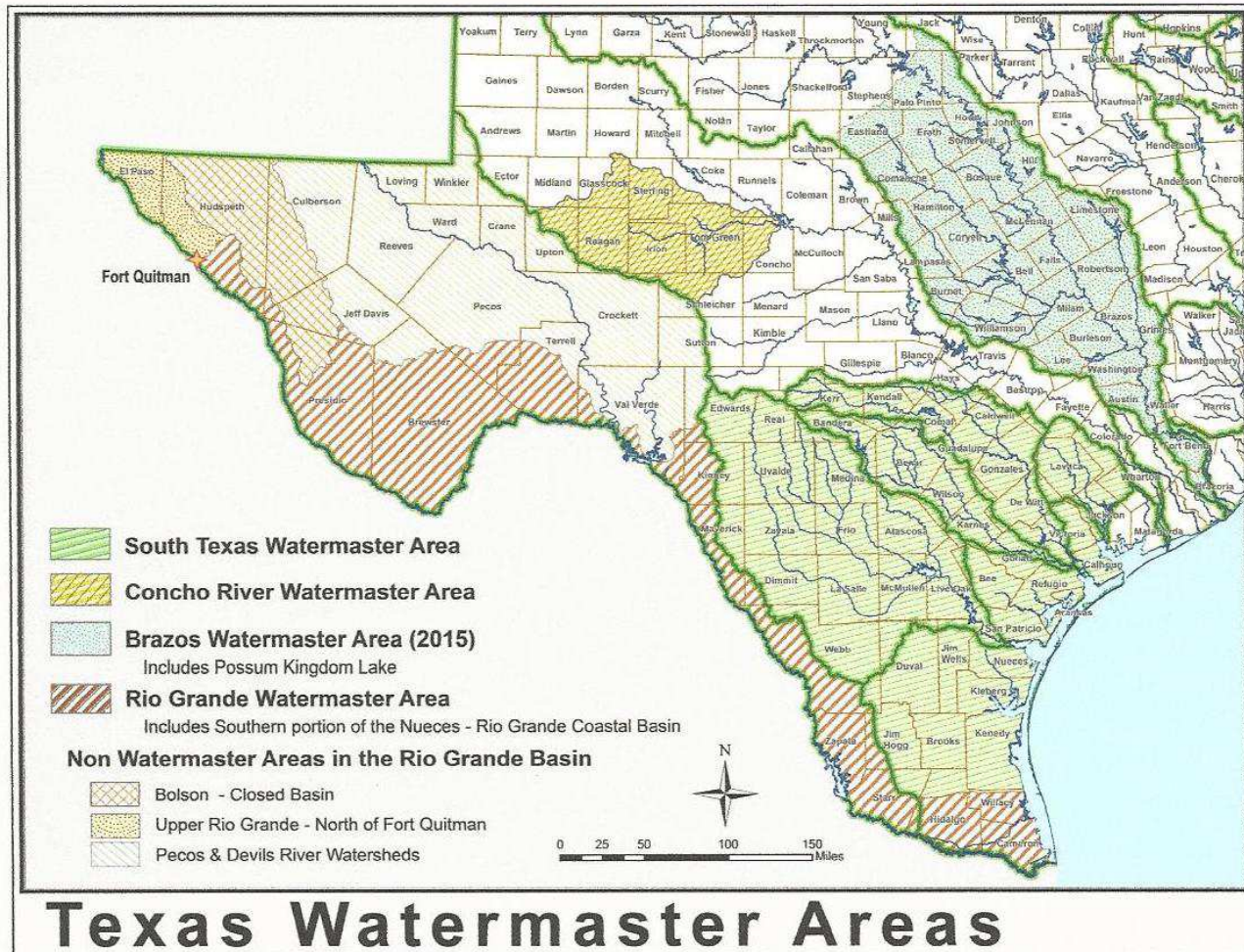


REGIONAL WATER PLANNERS

Lann Bookout (512) 936 - 9439: Regions G, I & P
 Angela Kennedy (512) 463 - 1437: Regions C, N, & O
 Temple McKinnon (512) 475 - 2057: Regions D & H
 David Meesey (512) 936 - 0852: Region K
 Matt Nelson (512) 936 - 3550: Region L
 Doug Shaw (512) 463 - 1711: Regions A, B, & F
 Connie Townsend (512) 463 - 8290: Regions E, J & M

Texas Water
 Development Board
 Updated by Erik O'Brian
 Mapping Coordinator
 11/07/2011

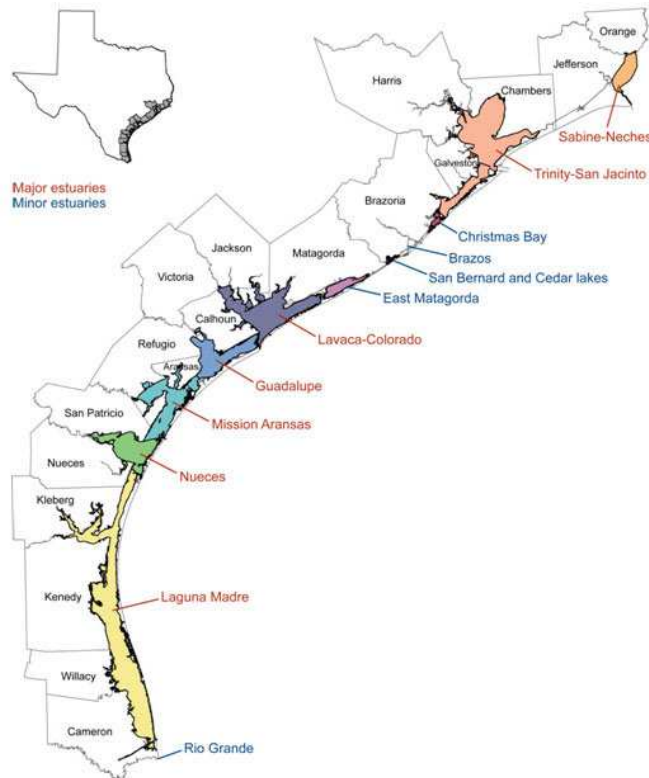
Texas Watermaster Program



Texas Watermaster Areas

http://www.tceq.texas.gov/permitting/water_rights/wmaster

Instream and Environmental Flows

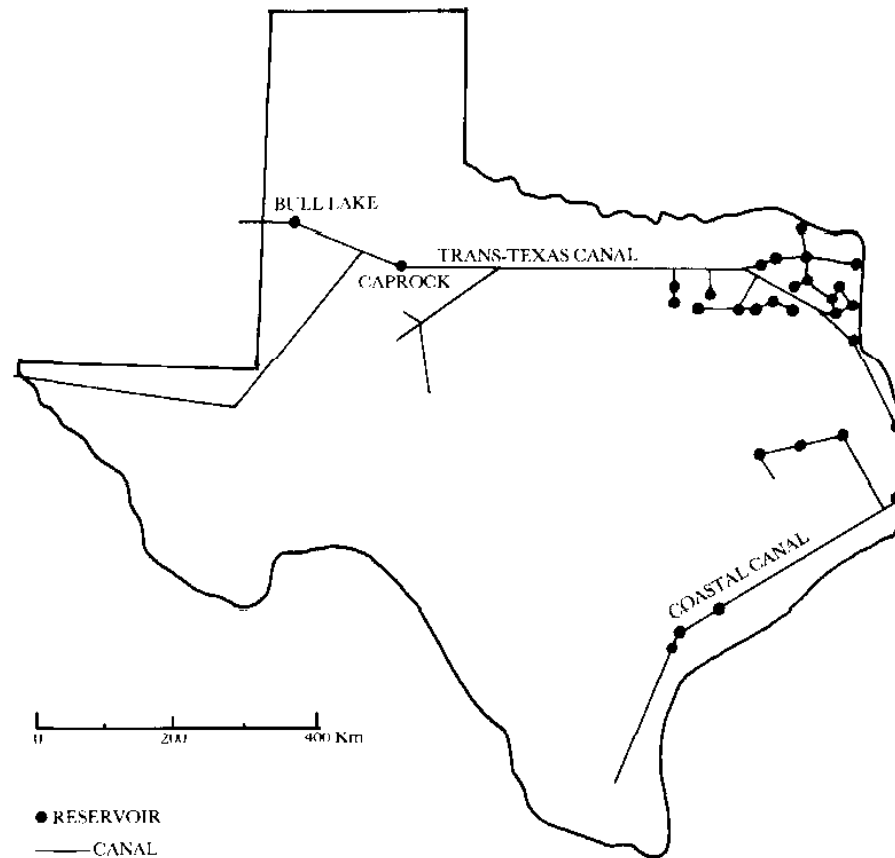


Legislation in 2001 authorized studies :
To determine water required to maintain the
environment in bays & estuaries

Study results & recommendation due to the
Legislature by 31 December 2016

Texas has 367 miles of coastline and 21 river basins

Interbasin Transfers of Water



***The Coastal Canal & other components
"The 1968 Texas Water Plan"***

The Mary Rhodes Project for the Corpus Christi Texas Water Supply System

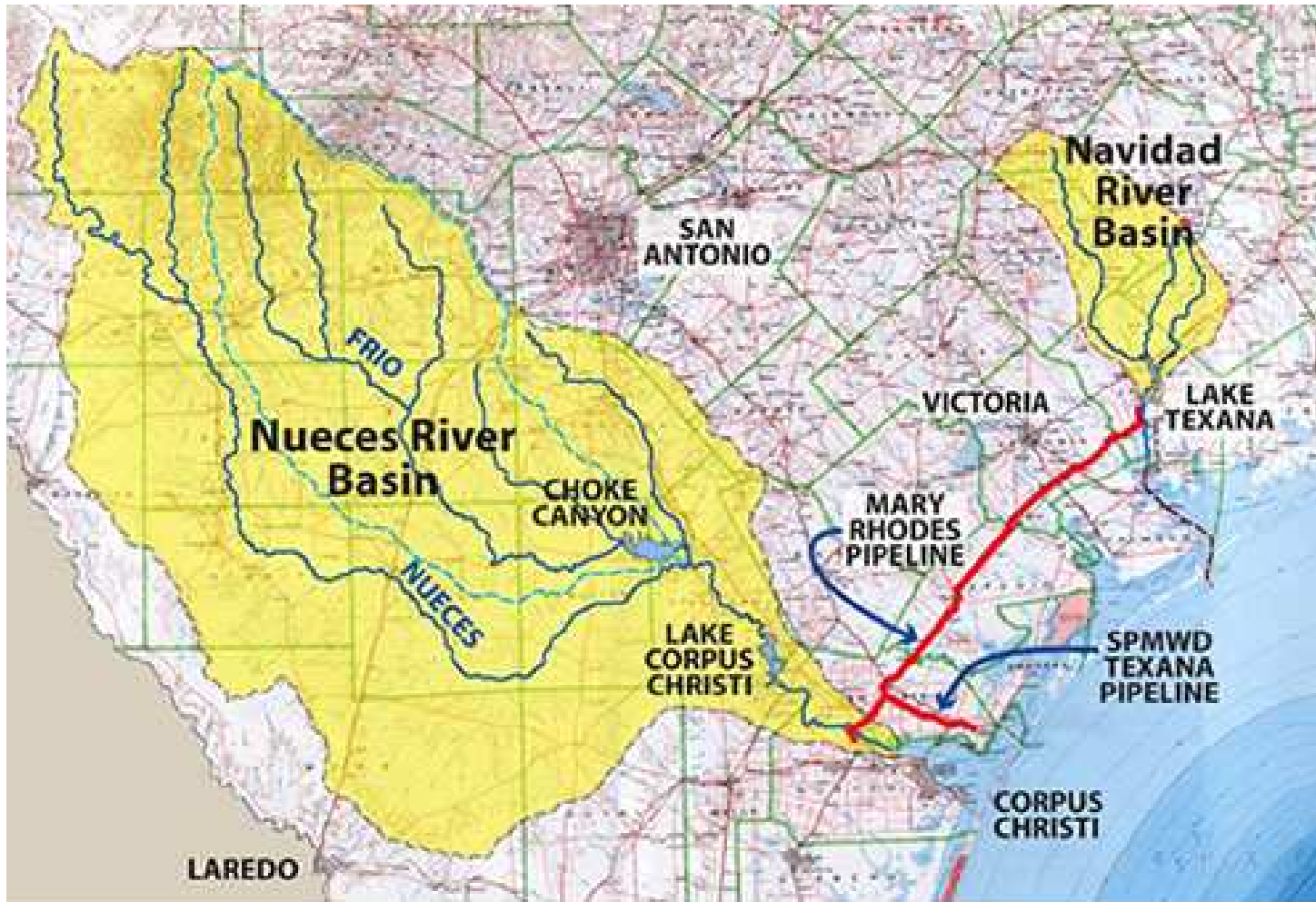


Corpus Christi Mayor Mary Rhodes standing inside 64-inch pipe at project groundbreaking

**64" Mary Rhodes Pipeline Design
Capacity 112,000 Acre-Feet/Year**



Current Lake Texana Water Take:
31,440 Permanent Firm Yield
10,400 Recallable Firm Yield
12,000 Interruptible



All water provided by SPMWD comes from the Nueces and Navidad River Basins

The Mary Rhodes Pipeline 101 miles (Phase I)
Colorado River 41-mile Mary Rhodes (Phase 2)
TOTAL 142 mile pipeline

Technologies and Solutions

- **SWIFT**
- **Aquifer Storage and Recovery**
- **Reservoir Management Using Polymer Film**
- **Using Landsat technology to monitor water usage**

- Harris/Galveston Subsidence District
- The Texas State Water Plan and 2 billion dollars
- Desalination
- Interbasin Transfer of Water
- Water Recycling and Reuse
- Infrastructure Upgrades
- Water Conservation Techniques
- Management Changes (Watermaster, Sale of Water Rights)

2015

Texas Legislative Session

- Desalination
 - HB 3298

HB 3298 – *"Relating to a study to be conducted by the Texas Water Development Board regarding the development of a market and conveyance network for water in this state."*

Paradigms Lost

Reservoir Construction

Ground Water Withdrawal

River Flow

Paradigms Found

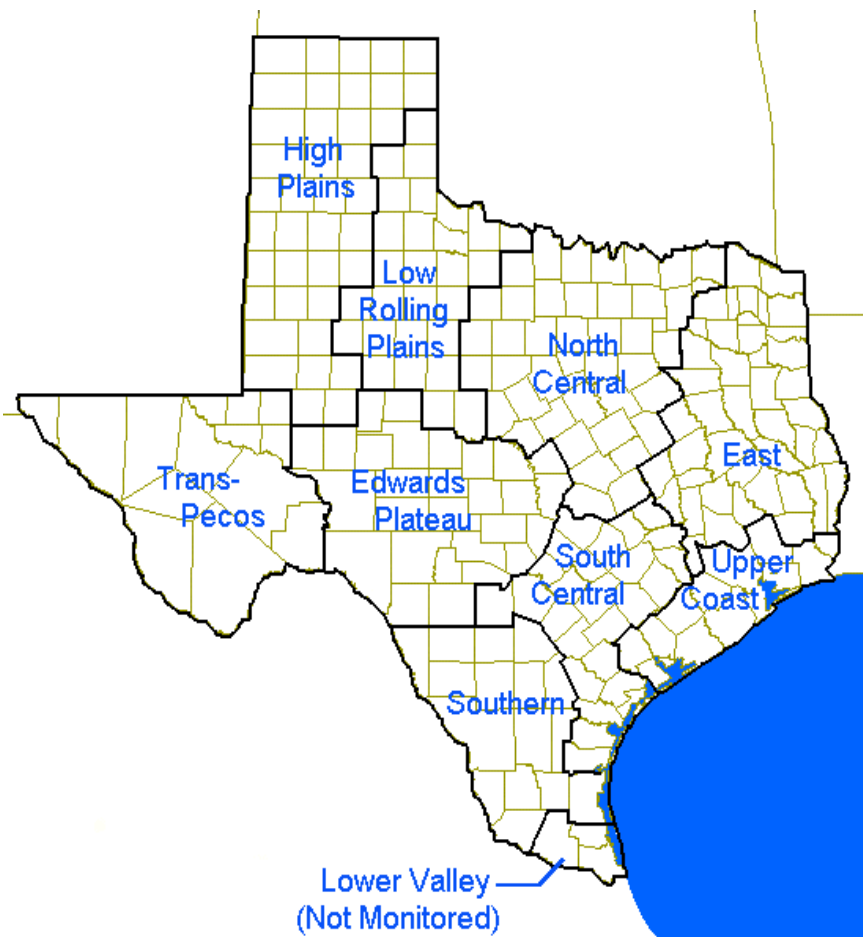
- **SWIFT Vote**
- **Desalination**
- **Aquifer Storage and Recovery**
- **Additional inter-basin transfers**

Paradigms Found (cont'd)

- Policing Catchment Water Use
("*Water Master*")
- "In Law"
 - Conservation
 - Re-use

TEXAS IS A DROUGHT PRONE STATE!

First record of a drought in Texas ----
Álvar Núñez Cabeza de Vaca (early 1500)



The number of drought years in each of ten geographical areas of Texas **Between 1892 & 1992**

Area	# of Years of drought
Trans-Pecos	16
Lower Rio Grande valley	17
Edwards Plateau	17
South Central	15
Southern	15
North Central	12
Upper Coast	13
East Texas	10
High Plains	10
Low Rolling Plains	8

Texas is a drought prone state

Texans have had to be

resilient & proactive

Drought of the "Fifties" :
Reservoir construction

Present statewide drought :

- SWIFT program
- Inter-basin transfer
- Desalination programs
(Required)
- Conservation & Reuse

We know:

- Droughts are cyclical
- Never permanent

AT LEAST
WE HOPE THAT
CONTINUES
TO BE THE CASE!

QUESTIONS?

