

Carrizo-Wilcox Aquifer Response to Large-Scale Pumping

Kevin J. Spencer, P.G.

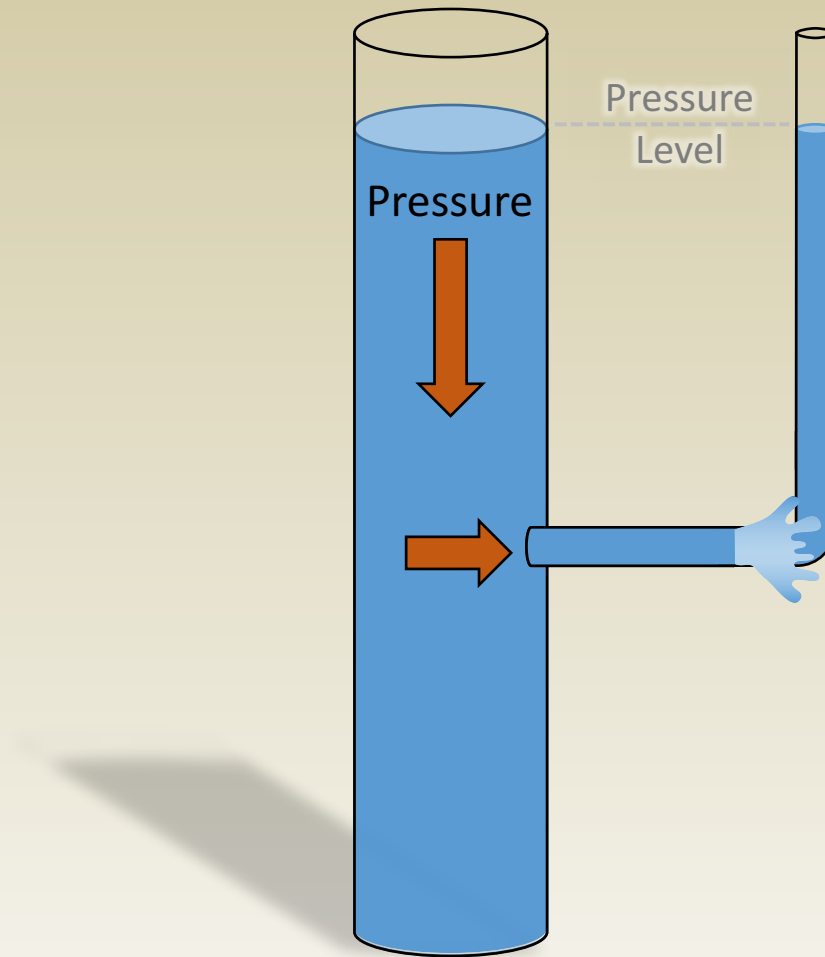
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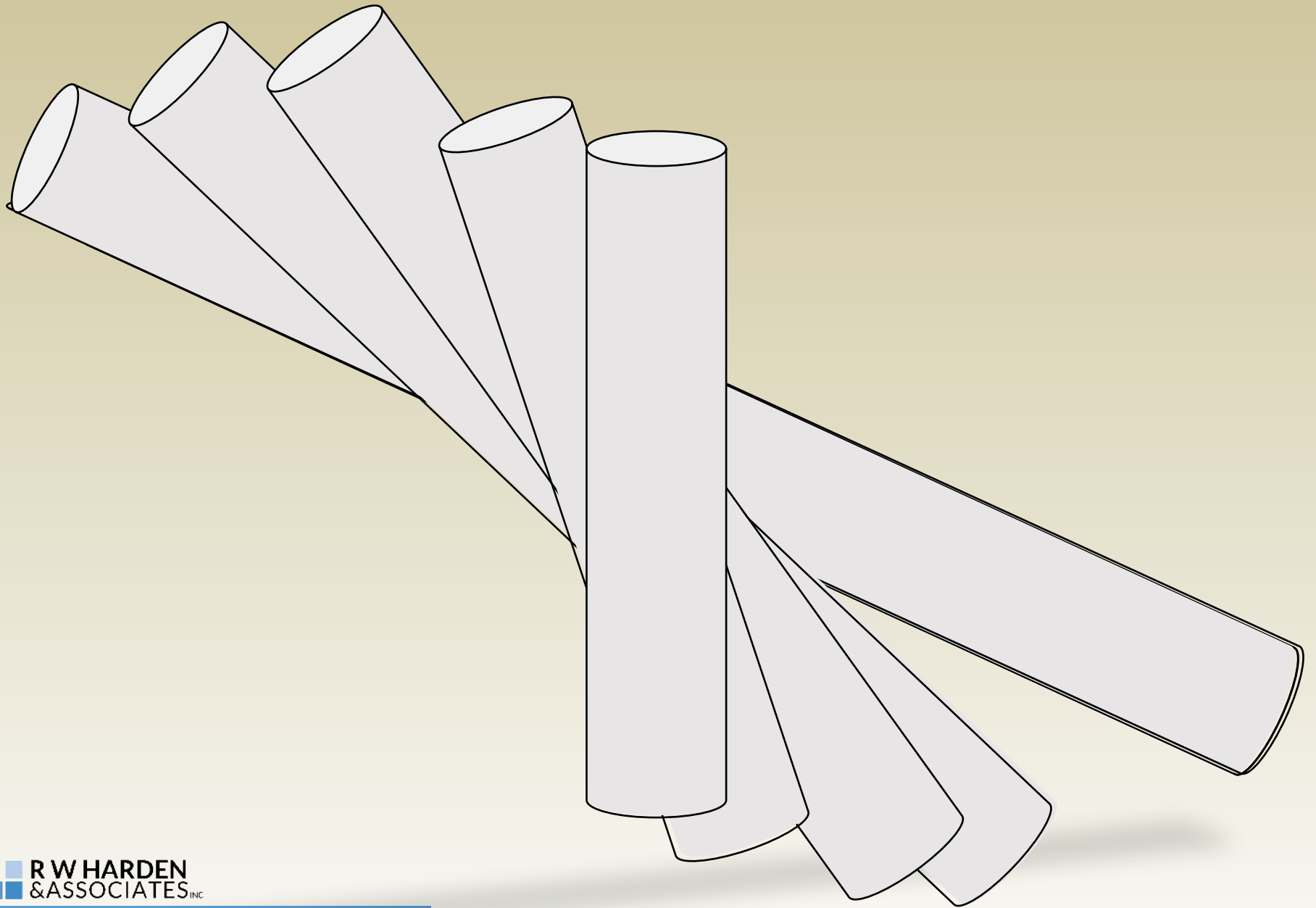
R.W. Harden and Associates, Inc.

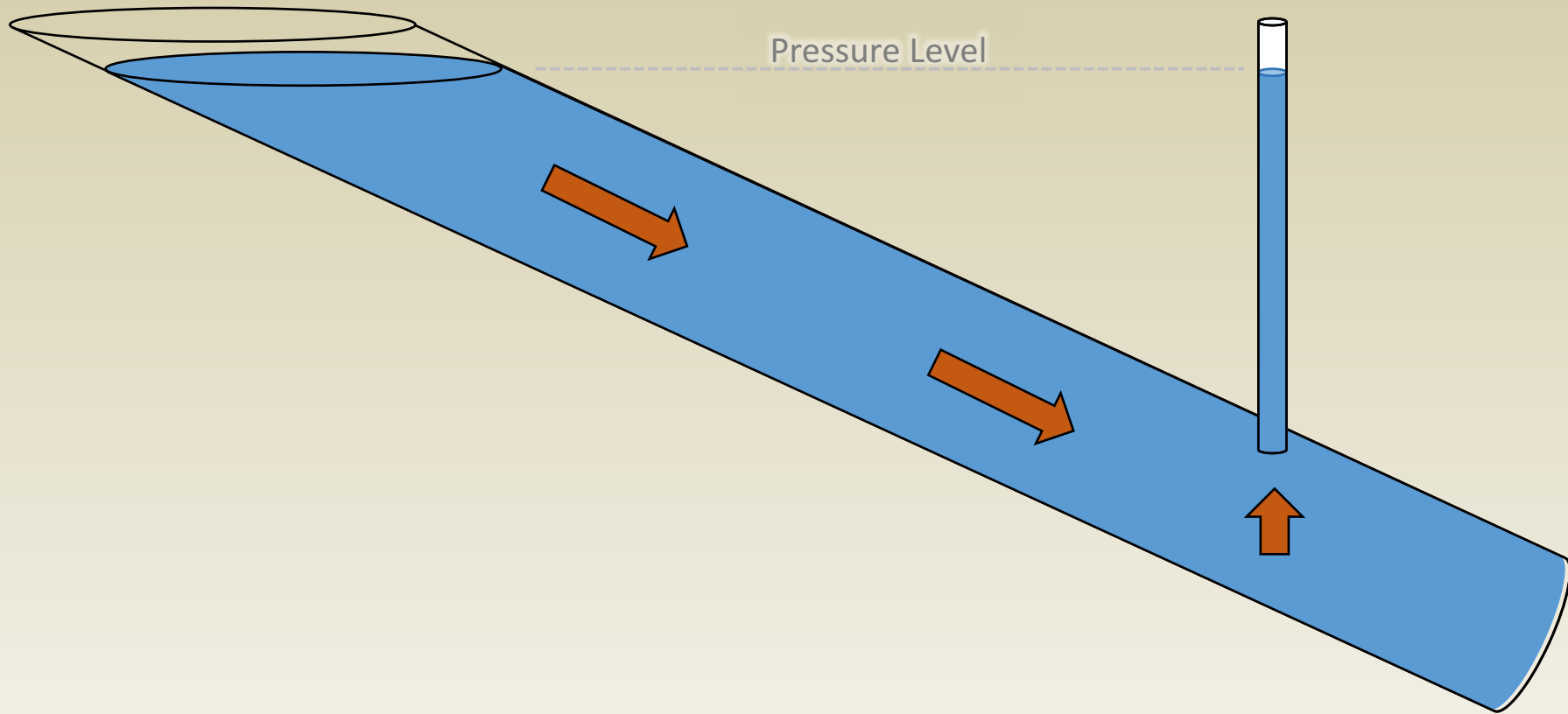
Presentation Outline

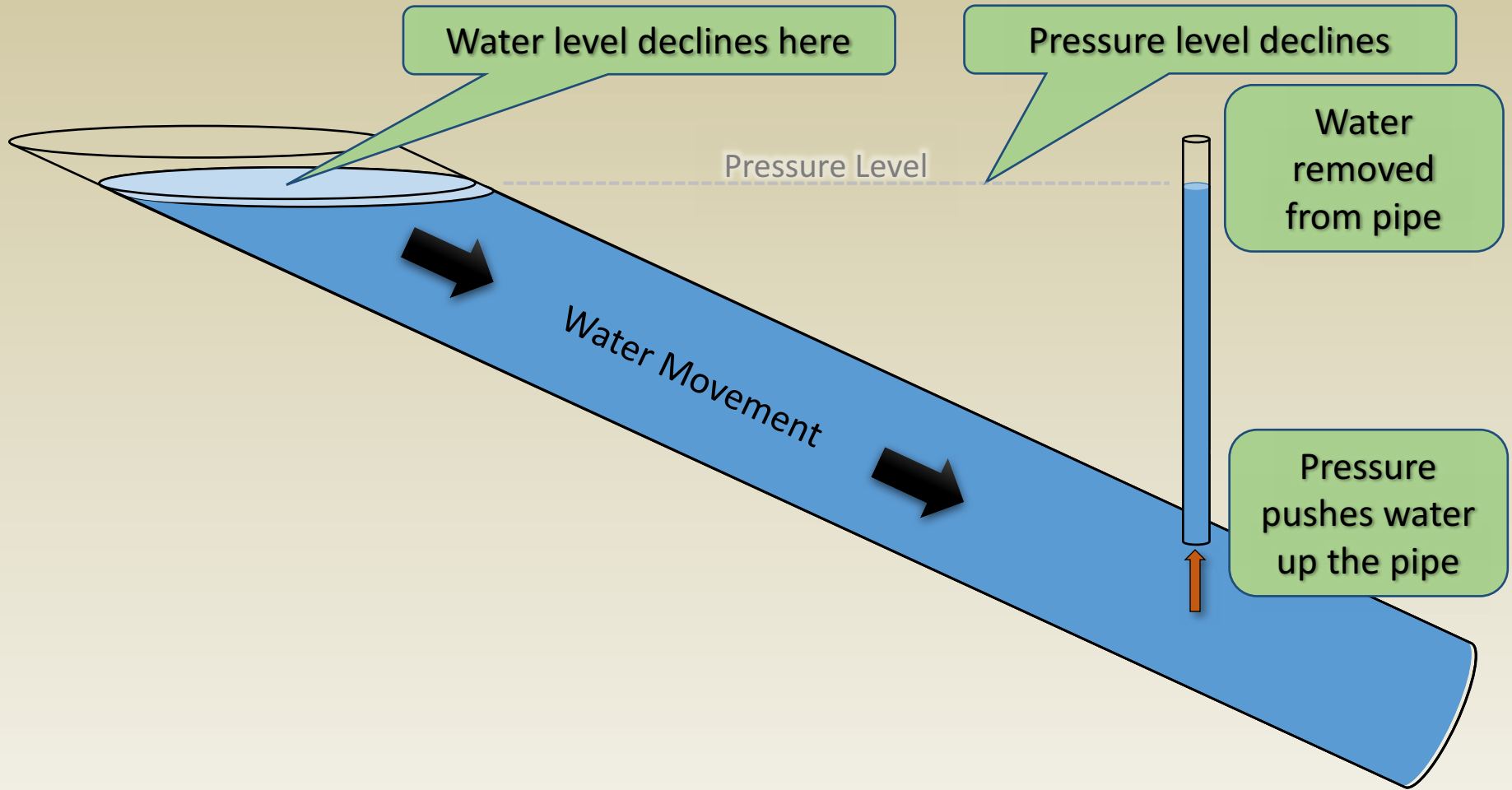
1. Understanding Aquifers
2. Overview of Carrizo-Wilcox Aquifer
3. Carrizo-Wilcox Groundwater Availability and Reliability
 - Aquifer response to historical pumpage
 - Drought resistance
 - Groundwater in storage

Simple Pressure Example

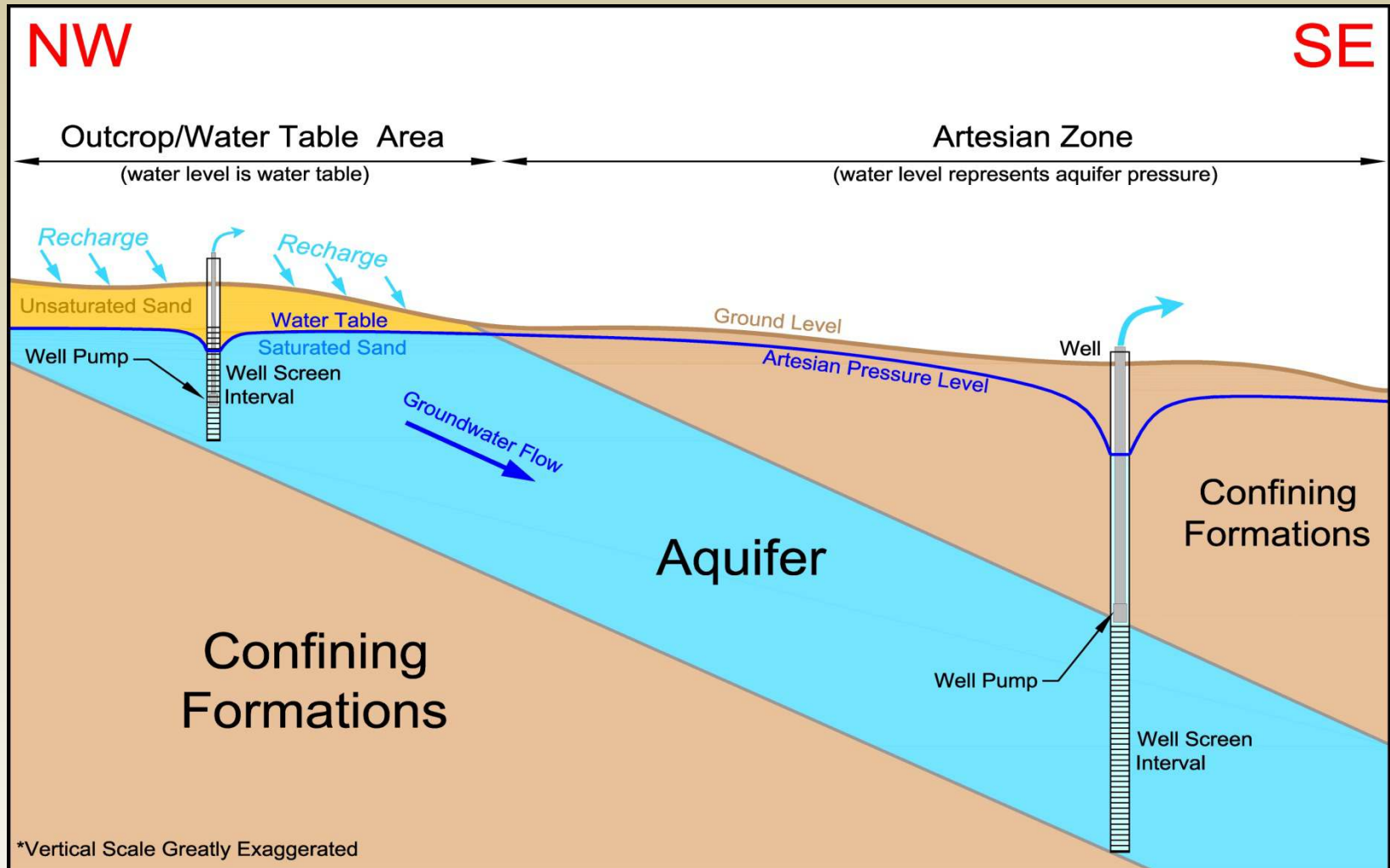




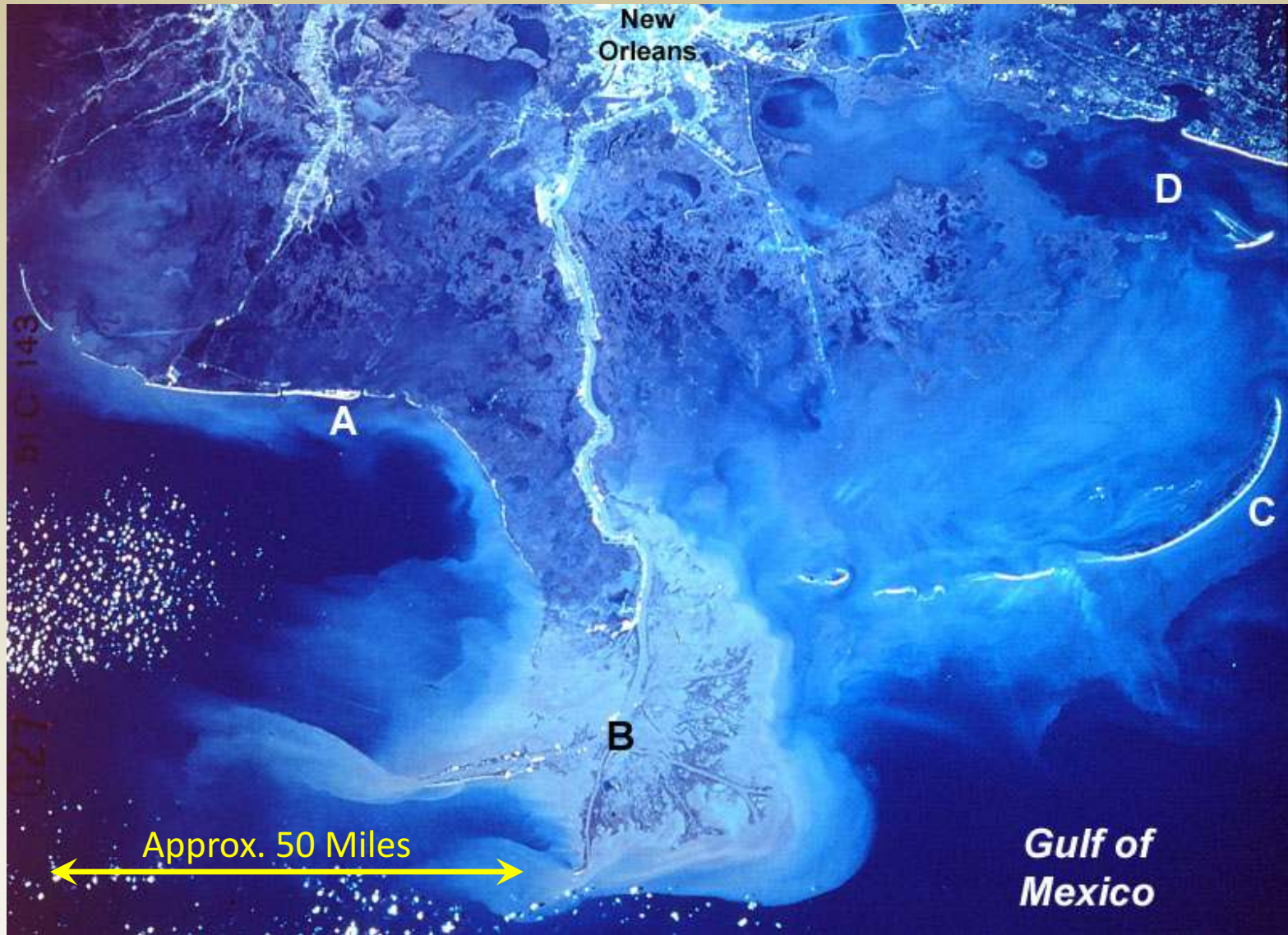




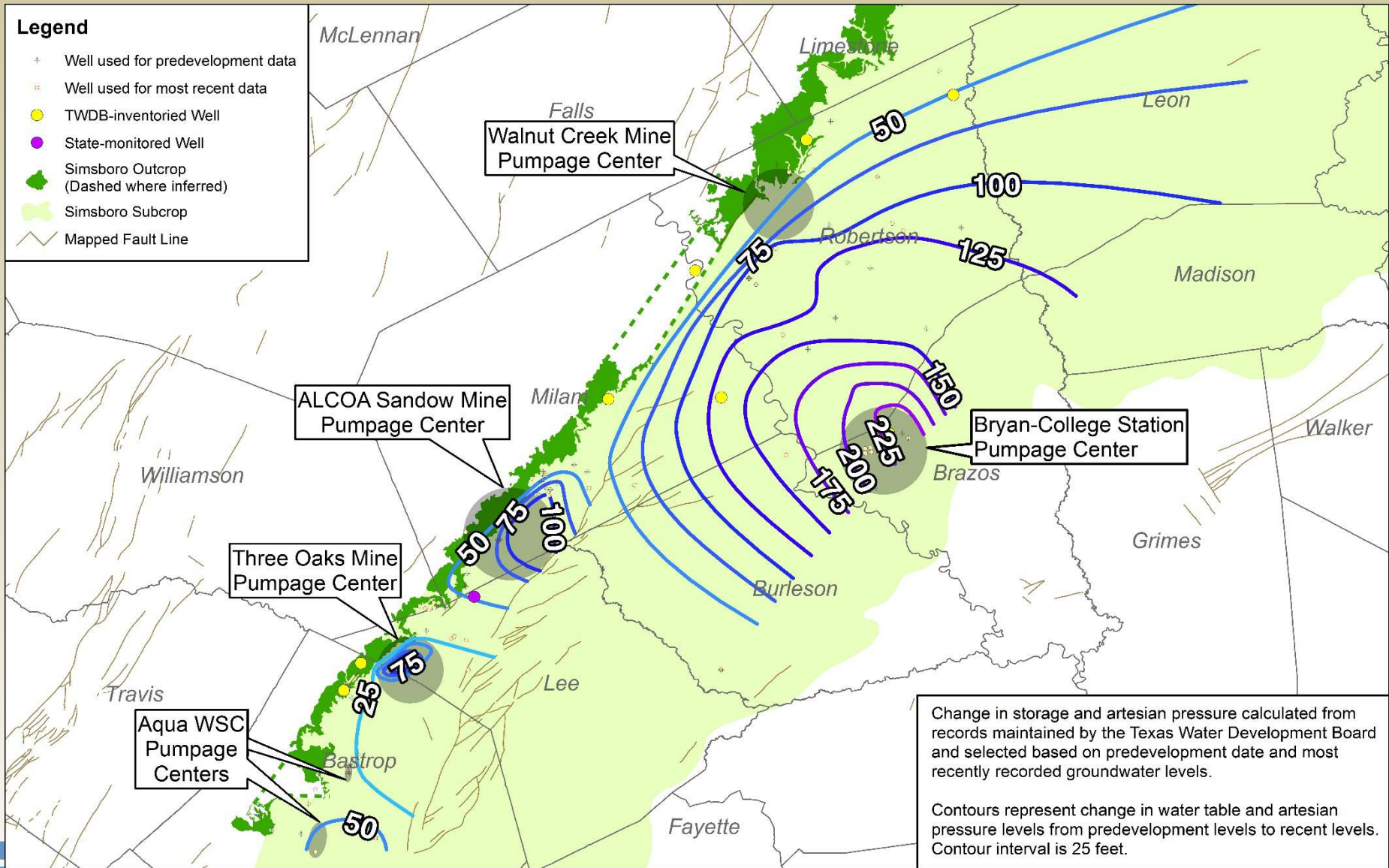
Aquifer Cross-Section Diagram



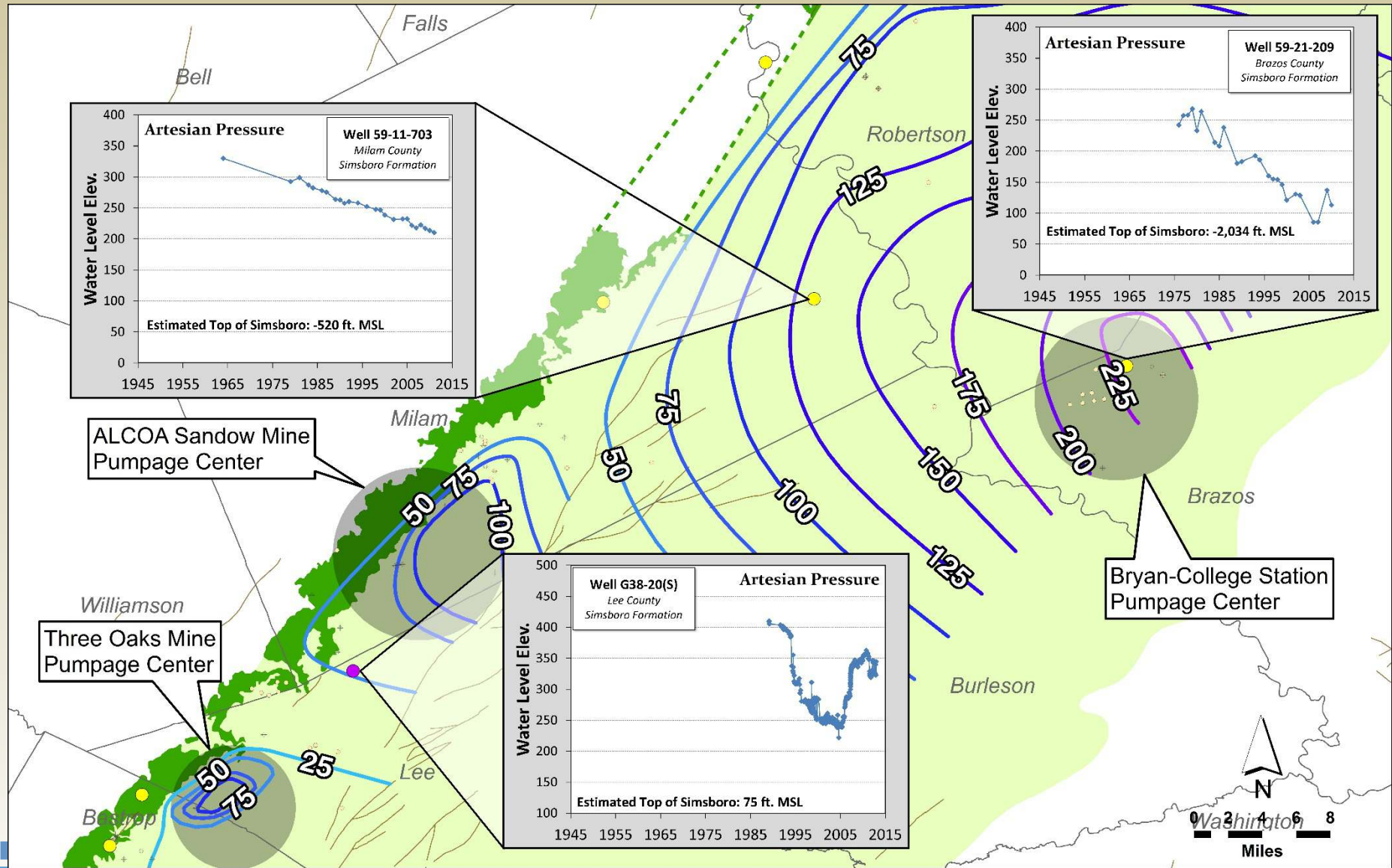
Aquifer Deposition



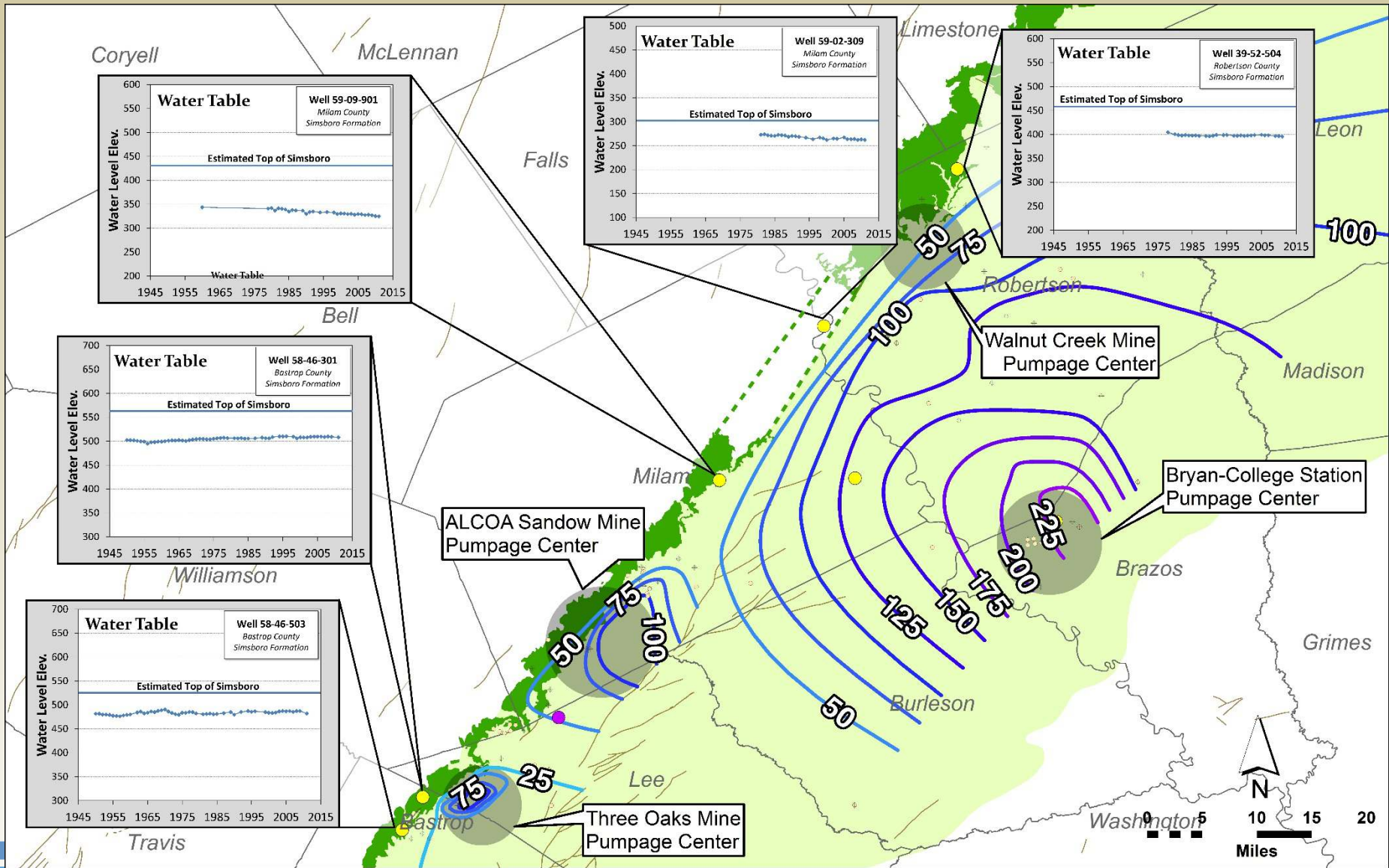
Simsboro Historical Drawdown



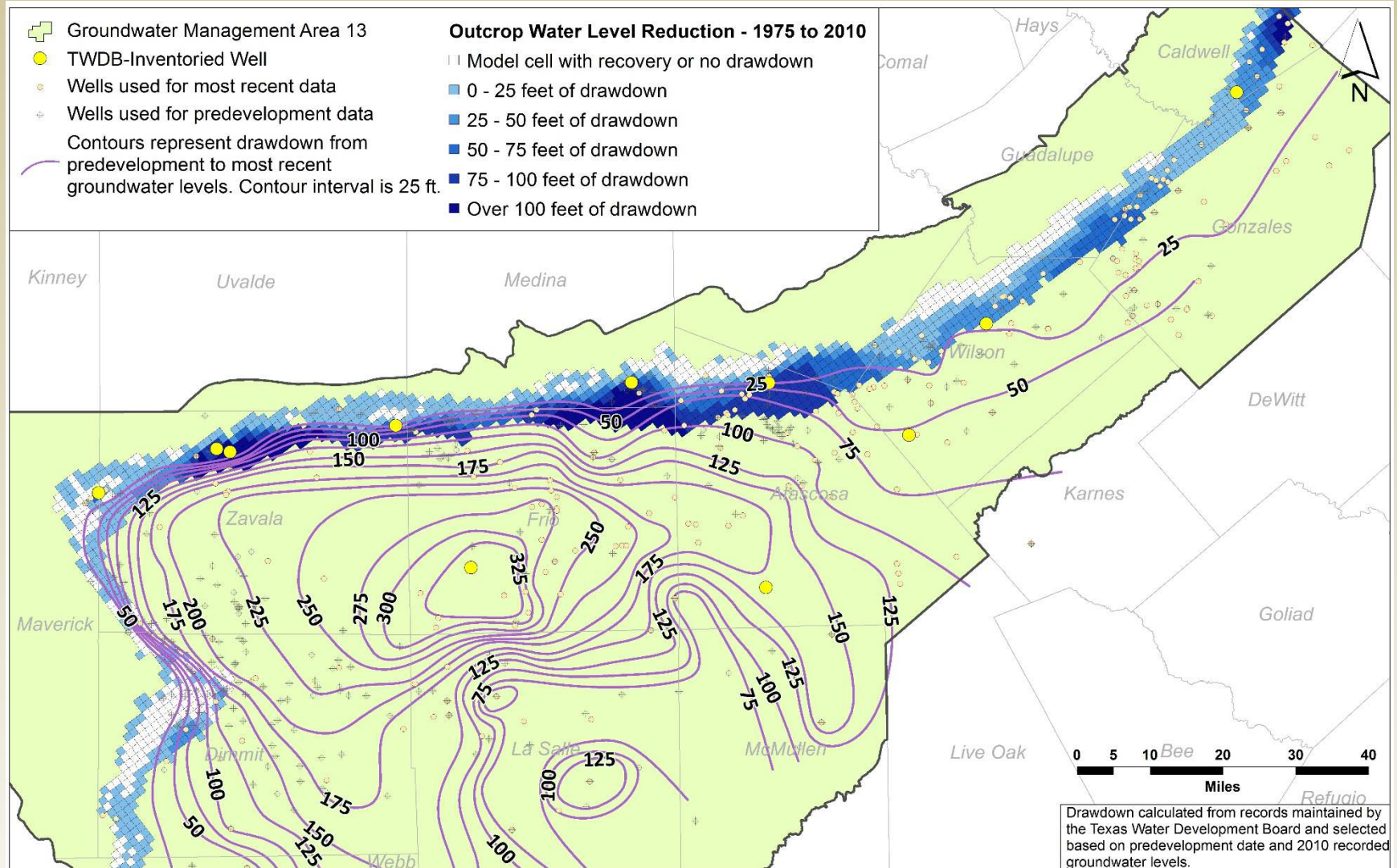
Artesian Pressure Drawdown



Water Table Drawdown



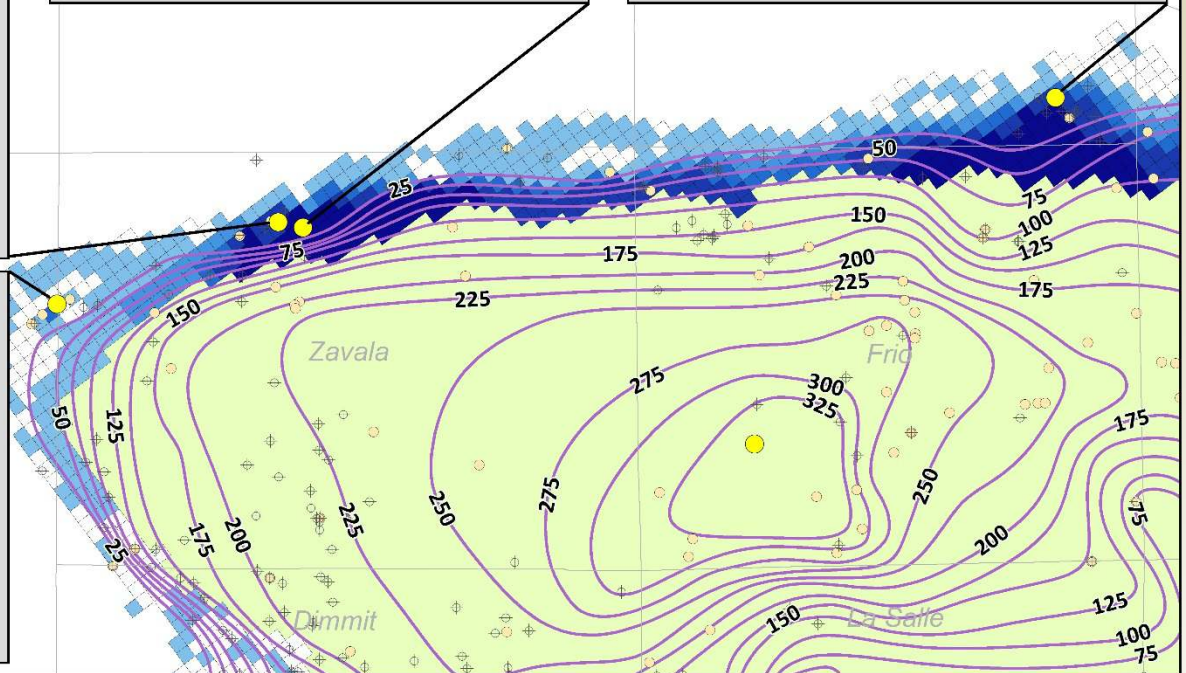
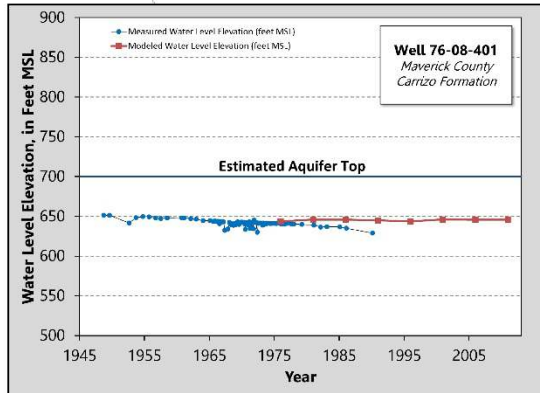
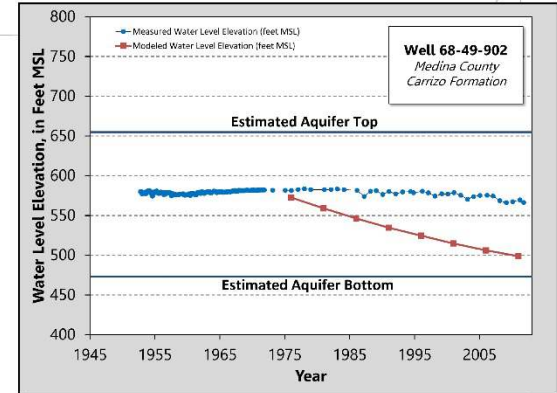
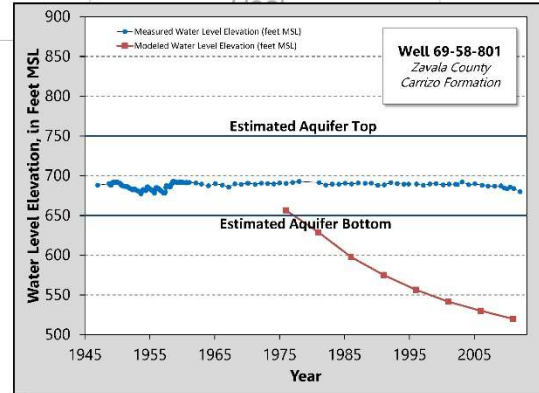
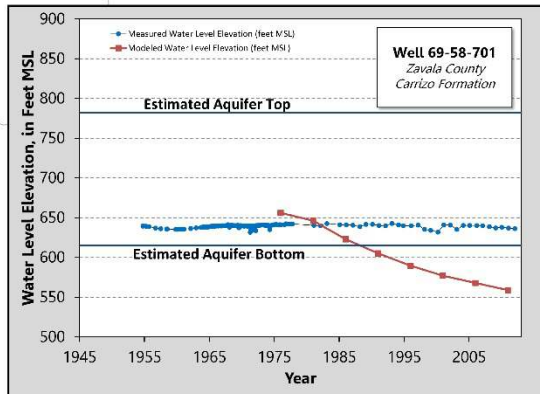
Carrizo Historical Drawdown



Water Table Drawdown

Outcrop Water Level Reduction - 1975 to 2010

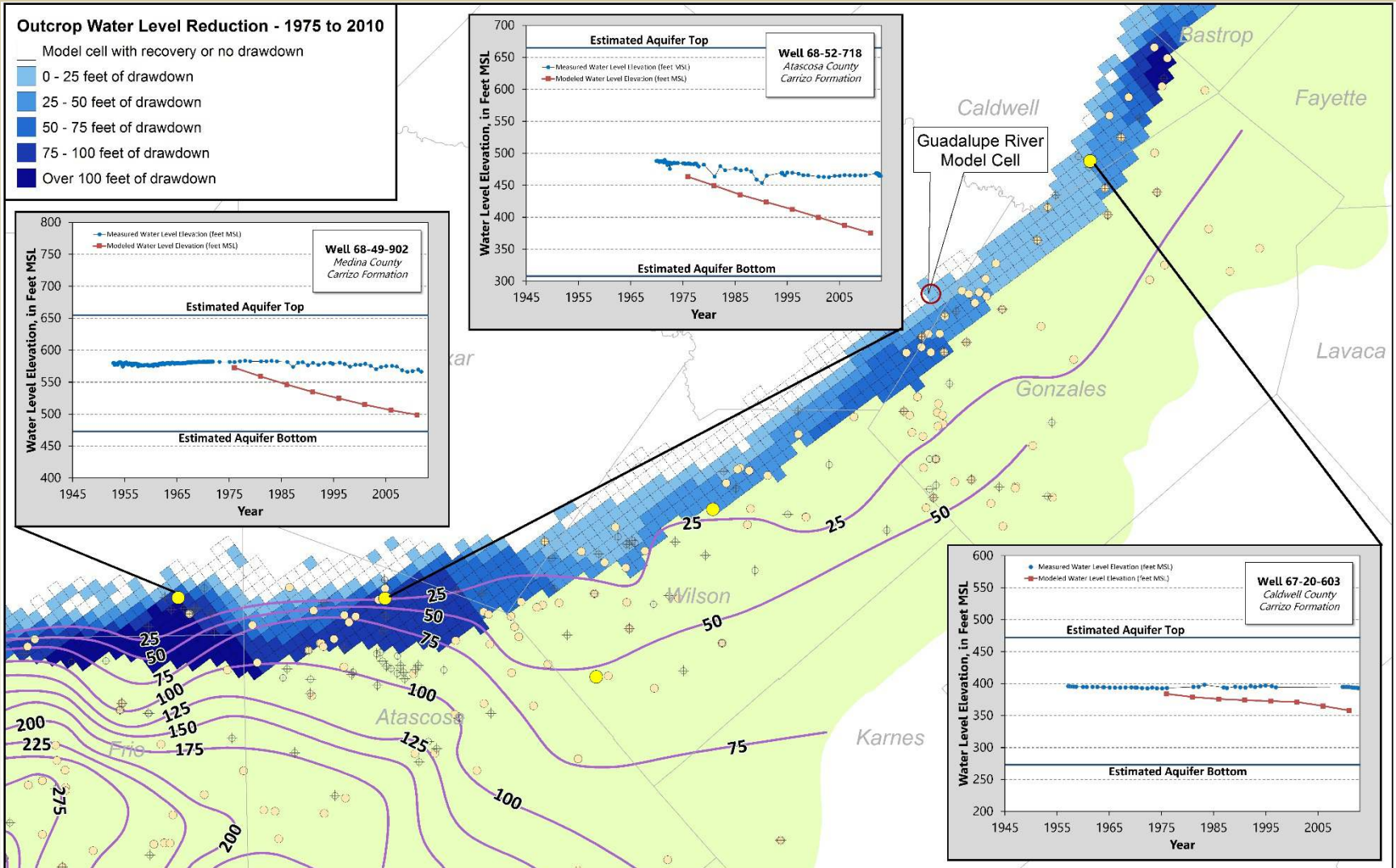
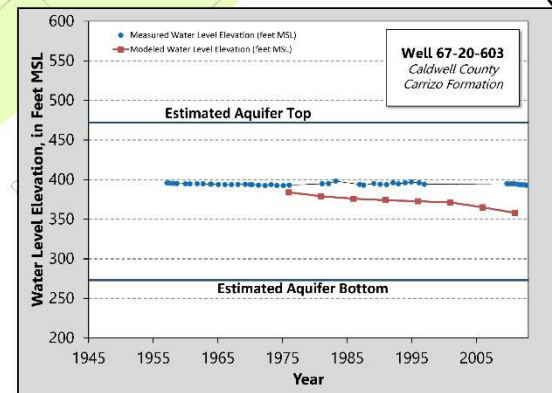
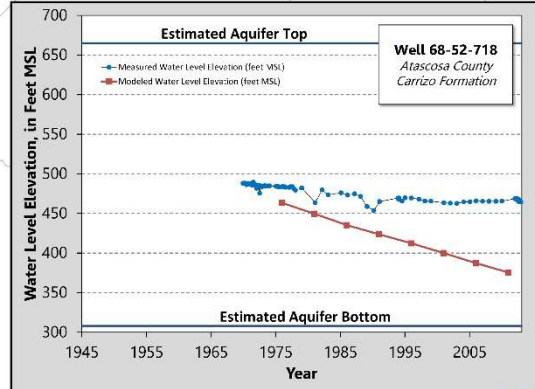
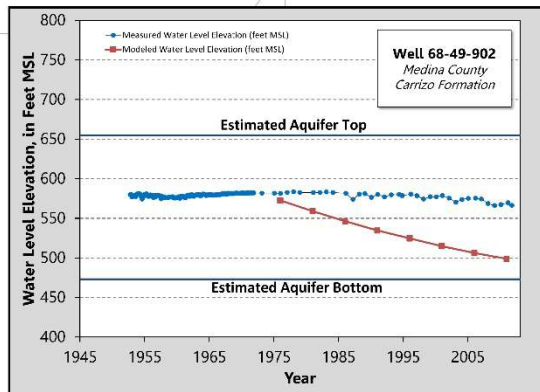
- Model cell with recovery or no drawdown
- 0 - 25 feet of drawdown
- 25 - 50 feet of drawdown
- 50 - 75 feet of drawdown
- 75 - 100 feet of drawdown
- Over 100 feet of drawdown



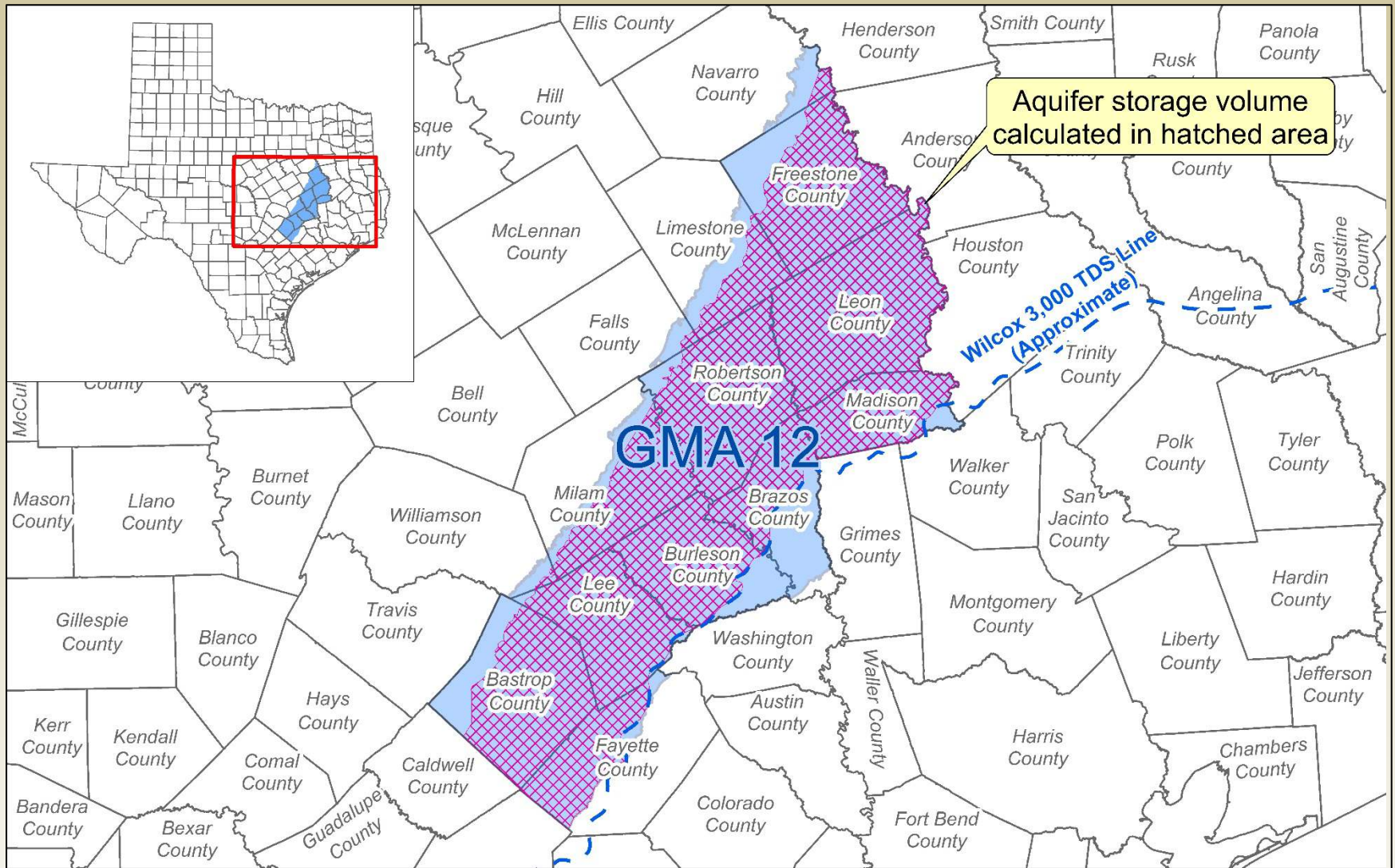
Water Table Drawdown

Outcrop Water Level Reduction - 1975 to 2010

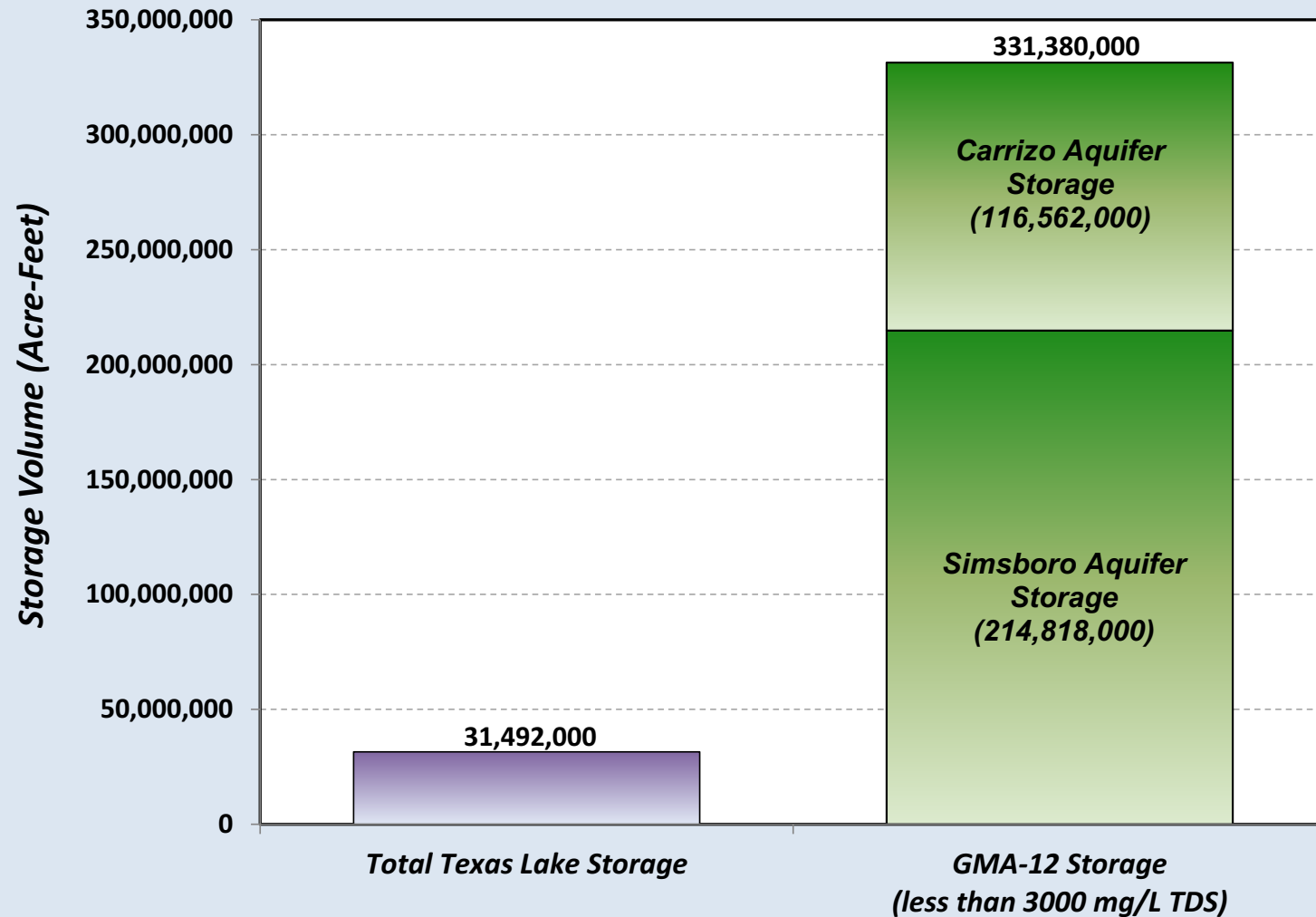
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Groundwater Storage



Lakes & Groundwater

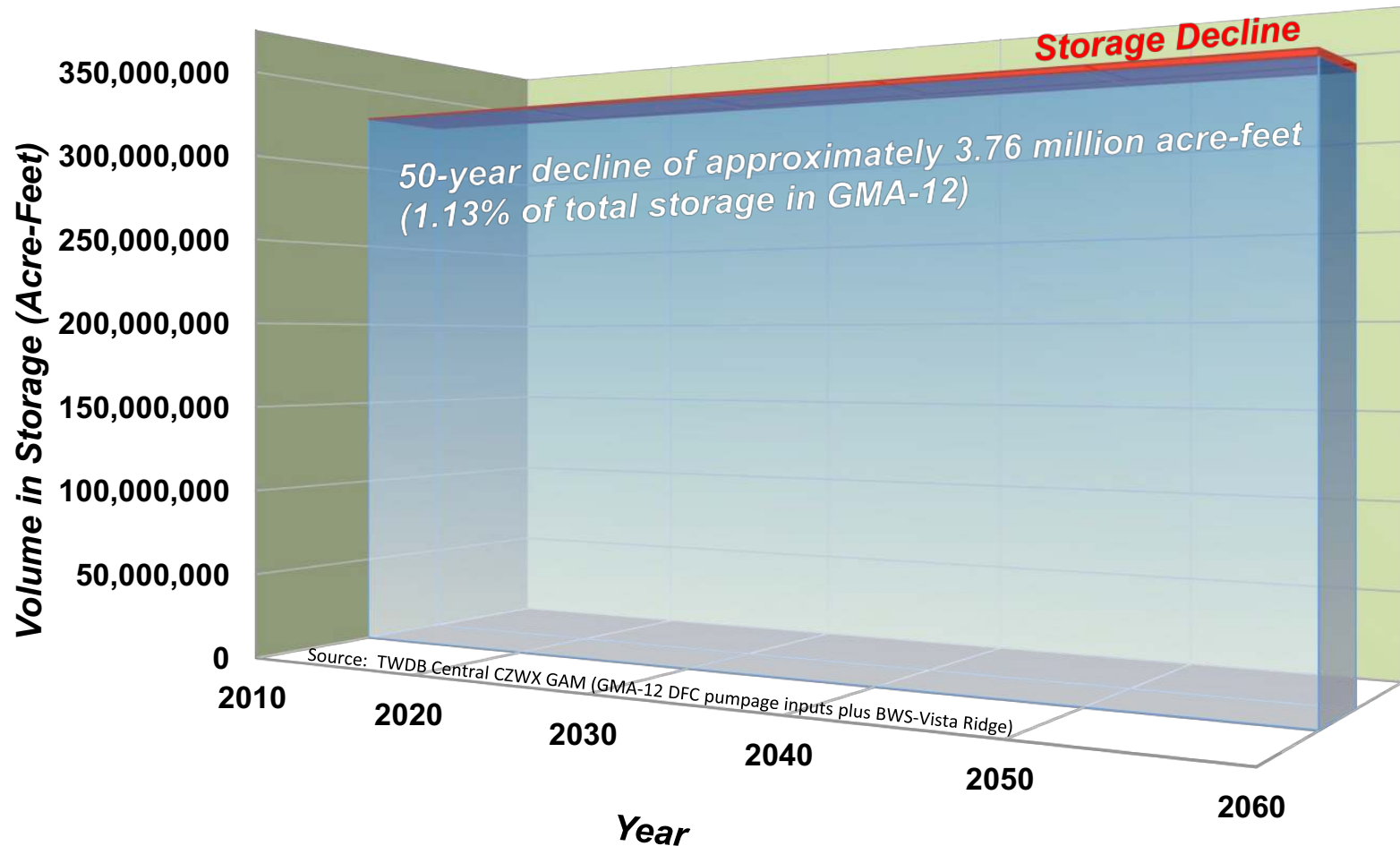


1) Reservoir storage obtained from the Texas Water Development Board: (<http://waterdatafortexas.org/reservoirs/statewide>)

2) Aquifer storage derived from the Central Carrizo-Wilcox-Queen City-Sparta GAI

Aquifer Storage

***Simulated Storage in the Simsboro and Carrizo Aquifers
(Less than 3,000 mg/L TDS within GMA-12)***



Summary

- Carrizo-Wilcox Aquifer System
 - Productive major aquifer
 - Drought resistant (ideal for conjunctive use with surface water)
 - Large volumes of groundwater in storage
 - Long-term, reliable supply